

Think Models for Collaborative Knowledge Building

Issues

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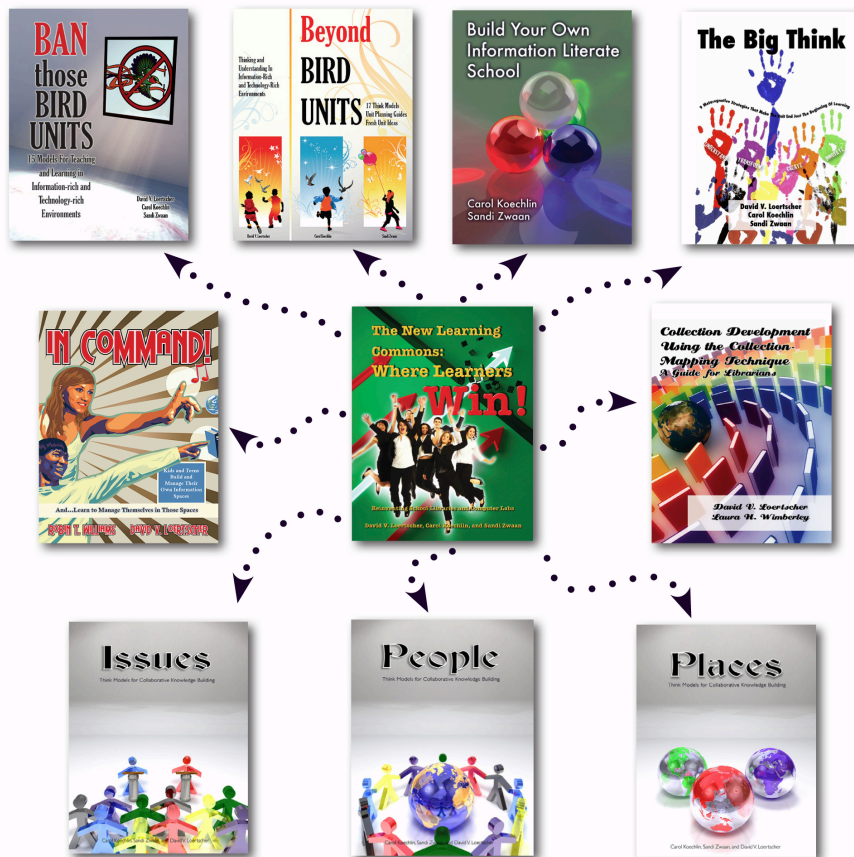
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Introduction

For a number of years now, this trio of authors has waged war on bird units being conducted in classrooms and libraries across the world. Accused of being enemies of nature, we have begged forgiveness of our feathered friends for creating the metaphor for substandard learning experiences teachers recognize and all learners seem to have been subjected to in the past.

Our definition for a bird unit is a learning experience where kids or teens choose some sort of topic to research; copy out a bunch of facts from books or from the Internet; paste those facts onto worksheets or into PowerPoint slides; and finally subject their peers to boring oral reports. If those types of assignments were bad in the era of the printed book, they are now dreadful in the era of the Internet. We find evidence that these zero learning experiences have infected the world of Web 2.0 tools where they are as disastrous in the world of high tech as they are in the world of pencil and paper, including those ubiquitous posers or brochures of copied text or illustrations. No wonder critics of technology decry the use of a 747 to deliver a bon bon across town!

The following illustration demonstrates the set of publications that have been designed to transform the library/learning commons into a major force in teaching and learning:





For our arsenal, we first published *Ban Those Bird Units* where 15 think models of instructional design made their debut.



Then came *Beyond Bird Units* that expanded the think models to 18 and provided all new examples of high-level units of instruction.



Along the way we dropped the bomb *Build Your Own Information Literate School* that enriched the concept of teaching information literacy embedded in real learning experiences.



Next came the actual centerpiece of the redesign of school libraries into learning commons as both physical and virtual spaces in the school where clients claim ownership and propel the learning commons into the heart of teaching and learning.



Along the way, we noticed that practitioners were having difficulty understanding and creating the Big Think as a culminating activity to the end of a major learning experience. Thus, we created *The Big Think* book where nine metacognitive strategies were presented as the capstone of a learning experience.

Finally, we have created a trio of books that bring together learning experiences on the three most common topics that teachers bring to the learning commons for help. For convenience, we brought together the previously published units into topical packages and revised them to meet the specifications of our later thinking.



People



Places



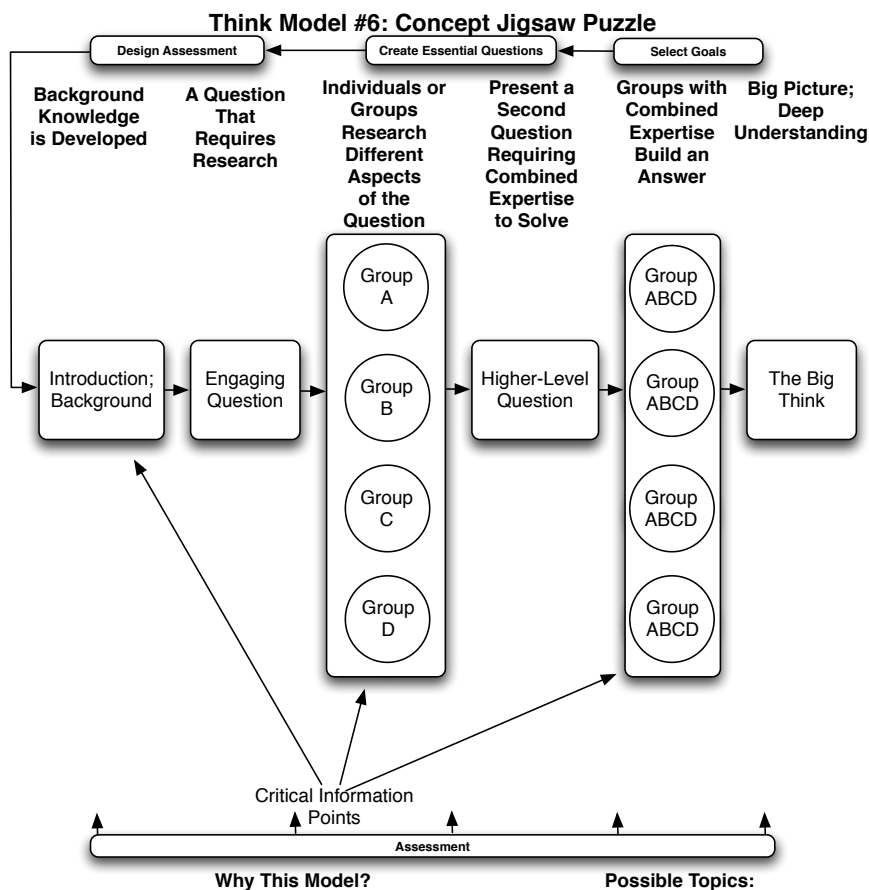
Issues

Thus, as we look across our writing, the 18 Think Models are the foundation of our war strategy, models we have taught, explained, led, and introduced to anyone who would listen. These models are reprinted in this book, complete with their planning sheets, in an attempt to make deep understanding within the world of information and high tech. Their function is to form the basis of instructional planning.

Instead of telling the classroom teacher to “go it alone” in the classroom, we advocate that the teacher reach out to the specialists in the school: the teacher librarian, the teacher technologist, reading coaches, counselors, teachers of the gifted, and even art, music, and any other adult charged with the mission of enhancing teaching and learning through their specialty.

We say that two heads are better than one in the planning, teaching, and assessment of learning experiences. Adding a specialist as a co-teacher, a collaborator, makes the whole greater than the sum of its parts so that two plus two can equal five.

If you examine the following model, you will see that in the first half, learners respond to an engaging question to build background knowledge. In the second part of the activity the stakes rise. Learners jigsaw to combine what they know with what others know to answer a higher order question. Instead of ending here, the learning continues on as they build collective intelligence through a Big Think.



- Why This Model?**
- Develop deep understanding rather than surface knowledge
 - Develop group skills including interdependence and accountability
 - Two heads are better than one
 - Replicate a prototype of the real world of business and industry
 - Stimulate each learner into making a contribution
 - Use to introduce lots of material quickly
 - Encourage divergent thinking

- Possible Topics:**
- Persons
 - Places
 - Things
 - Events
 - Ideas
 - Movements

★ Life Skill: Questions are the key to understanding.★

So we now present for your use, modification, and creativity ideas for units that will make the learning commons a major positive force in teaching and learning. It is the place we all hoped that the library media center concept would take us, but never actually achieved the dream for a variety of reasons.

Our observation over time of those who adopt our models and unit ideas leads us to a pattern of adoption. When the teacher librarian first introduces the Think Models to a particular teacher, we note that they follow both the model and the suggested teaching strategy closely in their first experimentation. However, after a bit of experience with the models and our ideas, we notice that teacher/teacher librarian teams get their own “wings” and build new models and adaptations of our work to meet various local needs and priorities. We could not be happier when the replacement of bird units becomes an everyday expectation of the kind of learning that goes on in the learning commons. When a parade of the very best units of instruction graces the calendar of the learning commons, we celebrate along with you, the users.

Our advice is to document and publicize the results of transformations of bird units. Ask these and other questions about your efforts:

- Why is the transformation better?
- What impact did it have on the learners?
- What percentage of the learners met or exceeded expectations?
- How does that percentage compare to students who encounter traditional bird units?
- What progress is the teacher librarian making in the spread of transformed units throughout the school?
- What impact is this having on school improvement?
- How do these models fit with the school improvement agenda already in place?

We urge the users of this series of publications to communicate with us at:

- David V. Loertscher, 312 South 1000 East, Salt Lake City, UT 84102, email: reader.david@gmail.com
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We would love to share successes and challenges with you.

A note on the arrangement of this book: We have divided the book into sections of sample units based on topics connecting to the main theme of the book. These examples of units across the grade levels are then followed by a reprint of the 18 Think Models with their planning sheets.

Chapter 1

When do we study PLACE in Geography?



Example # 1

An Extraterrestrial's Guide

Gr. 3–6

(Prelude to a State Study)

Where are we in the universe?

Goal

To create a wall-sized map to guide extraterrestrials from our solar system to our planet, to our continent, to our country, to our state, to the many things they will find in our state/province, our city, and finally our school.

Explore, Skim and Scan

Students gather all the information, pictures, places, drawings, and technology they will need to construct their massive map. Learners extract all the information they will need and prepare the various maps to begin their map making.

Map Making

Various groups are assigned portions of the map: one group creates a picture of the solar system with an arrow to earth; another group draws or prints out a picture of the earth with our continent visible (arrow pointing out our country); another group prepares a map of our country with state/provincial outlines visible and our area in solid color (arrow points to where we are in the state/province); another group prepares a large map of the state/province with mountains, rivers, major cities and an arrow pointing to our city; another group has a map of our city with an arrow to our school; and, finally, another group has a map of our school building showing where to find our room.

Everyone prints out as many pictures of places, natural resources, food, industries or other features to post on or near the maps. Then everyone prepares to become a docent to lead the extraterrestrial visitor from outer space to find us in our classroom.

Build Questions

Along the way we build questions based on our interests in our state, town/city, or school that will develop into essential questions as we begin our state history unit.

*** The Big Think ***

Content

Thoughtful Writing—Tour the map and glean information from the docents. **So What?** Based on this, what will the extraterrestrial's impression of our state/province be? **What Next?** What else will they want to know? Create inquiry questions to guide new investigations.

Process

Interact with an Expert—Reflect on the information gathering and mapping process. **So What?** Consult a cartographer and discover how real maps are created. **What Next?** What new skills did we acquire?

Example #2

Playground Cleanup

Gr. 2–3

Problem: *Is our playground clean and safe?*

Investigate

Provide students with amateur sleuth equipment (e.g. clipboards and a camera). Take them on a playground walk and instruct them to sketch and take notes of things they really like as well as evidence of any litter and unsafe conditions in their playground.

Analyze

On a large bulletin board map of the playground, have students place their sketches, photographs, and notes on the map appropriately. Ask students to think about what they like and don't like about their playground. Create a T-Chart on which to sort and record student thoughts.

Prepare

Provide each student with a set of happy and sad face stickers. Pose the engaging question again, "Is our playground clean and safe?" Ask students to place a happy face sticker on their hand if they are happy with their playground the way it is, and a sad face sticker on their hand if they think their playground should be cleaner and safer. Have students meet in like groups and prepare materials to present their positions (e.g. stories, poems, pictures, lists, and letters).

Present

Students share their position pieces with other classes, the principal, chief caretaker, parent council etc.

*** The Big Think ***

Content

Active Discussion—Group learners by pro and con positions. **So What?** Cons: What improvements could we make? Pros: How can we make better use of our play ground? **What Next?** As a group, brainstorm and then list problems and solutions for the playground. Use a Flow Chart to organize an action plan.

Process

Thoughtful Writing—**So What?** How did collecting clues help you take a position? Did you change your opinion? **What Next?** How do we keep track of clues we find in print information?

Example #3

Playground Fun

Gr. 2–4

What is the best equipment to put in the new school playground?

Build Background

The school playground is being replaced and the principal has asked for ideas from the students. Source playground equipment vendors and bookmark selected online sites for students to investigate. Collect catalogues, flyers and photos of school playground equipment. Allow students time to study the photos and discuss different types of equipment. Brainstorm and record a list of equipment pieces. Create a dream list. If we could have anything, what would we ask for? Allow students to cut up catalogues, flyers and printouts from the website to create draft plans for their dream playground.

Gather Data

Discuss realism. Think about space, money, safety, ages and number of students that can use the equipment at one time, etc. Think about: What do children like best? Girls? Boys? Which pieces will accommodate the most children? are affordable? durable? Consider handicapped children. Prepare for a visit from some experts. Invite the principal, an expert from the parks department, a policeman, a daycare provider, a doctor or nurse from a hospital emergency room, and a parent to discuss the possibilities for the new playground. Prepare a list of questions to ask the experts. Display the dream plans and brainstorming lists for the experts to review. Make a list of the experts' cautions, suggestions, rationale, and recommendations.

Organize Data on Matrix

Review the students' dream list, consider the pros and cons and eliminate any selections now deemed unrealistic. Decide on the criteria that are important for making your recommendation (e.g. cost, safety, number of users, etc.). Create a large matrix. In the vertical column record the students' new dream list of playground equipment. Across the top identify the criteria for consideration. In each cell, record data from vendors and advice from experts.

Choices Criteria	\$	Safety	Users	Rating 1–5
Slide				
Splash pad				
Tire Swing				
Etc.				

Analyze Matrix and Examine Results

Rate choices to determine which are the most realistic. Discuss and decide.

*** The Big Think ***

Content

Thoughtful Writing—Restate the essential question and make an itemized list of equipment to recommend to the principal. **So What?** What else does the principal need to know to make an informed decision? **What Next?** Prepare a report complete with the decision matrix. Create a class mural or model of what the new play area might look like.

Process

Active Discussion—Review the process. **So What?** How did the experts and the matrix help narrow the list? **What Next?** Plan to share the decision making process with the principal.

Example #4

Safe Water

Gr. 5–6

How safe is the drinking water in our community?

Problem/Issue

Students are concerned about the quality of drinking water in their community.

Prediction

Small groups of students meet to discuss and record what they know about the water in their local community and then generate questions they will need to guide their investigation. What do they need to find out? Who can they ask? Where can they locate information about the quality of their drinking water? What can they expect to discover from their research?

Background

Students explore a variety of local and regional documents and periodical articles related to quality drinking water.

Expert Advice

Refine investigation questions and consult real experts in the field (e.g. Public Utilities, Health Organizations, Politicians, and Environmental experts. Analyze data in groups using a *That's Good That's Bad* organizer.

Conference

Groups share their analysis. Listen, question, discuss.

Note: A video that would be a useful model for this task is *Making a difference with information: You Know It Series* produced by General Division Learning in association with American Association of School Librarians.

*** The Big Think ***

Content

Thoughtful Writing—So What? What is your opinion and how can you support it? Each learner completes a *Forming an Opinion* organizer. Share with a partner and test ideas. **What Next?** Write letters to local authorities stating their opinion, supported by facts, and raising their concerns with the quality of water in their community now and in the future.

Process

Active Discussion—Reflect on the consultation process. **So What?** What worked well, what didn't? Why? **What Next?** How can we improve our interview techniques to ensure we gain the information we need from experts?

Advice to Action Model

That's Good ↔ **That's Bad**



That's Good	Why?	That's Bad	Why?
My analysis			

Adapted from Koechlin and Zwaan, *Info Tasks for Learning*, Pembroke Publishers 2001

Forming an Opinion

Use this organizer to help you draw **conclusions**.

Inquiry Question/Problem

Have I examined all relevant points of view? Can I identify patterns and trends? Based on this evidence, what conclusions can I draw?

What do I believe is important? Why? How can I share my opinion with others?

Example #5**Weather****Gr. 5–8***Where can we get the best information about the weather?***Build Background**

Determine the best source of weather forecasts.

Gather Data

Have students do a *Three Point Brainstorm* for: 1. sources of information about weather, 2. reasons for needing to know the predicted weather, 3. types of weather conditions. Group students by media type and instruct them to gather data over a week from different sources within that media type. They can keep track of their data on a printed matrix organizer or a spreadsheet. Remind students that it is very important for them to keep accurate data and cite their sources.

Organize Data on Matrix

Each group summarizes findings and enters their summaries into the master matrix for analysis.

Investigating Weather Sources					
Media Types	Traits/Questions to focus data gathering				
	How long did it take to locate weather information?	How effective was the presentation format? (visuals, quick facts, long range information, links to more detail)	Was it easy to find out about weather in other regions?	How accurate was the forecast?	What time was it when I did my investigation?
Newspaper (name)					
Internet (site)					
Television (channel)					
Radio (station, AM, FM, satellite)					

Analyze Matrix and Examine Results

Survey and tally information using a series of analysis questions. They can include: Which sources were the fastest? Which had the most effective presentation? Which made it easiest to find information for a variety of regions? Which were the most accurate? Did the time of accessing the information affect the accuracy? If so, how? Are there differences within certain of type of information source? (Is one radio station better than another?) Why? Where do the information sources used obtain their information? Which factors are most important in determining the best source? Overall, which information sources are the best?

*** The Big Think *****Content**

New Problem or Challenge—So What? Have students discover how media sources receive weather data for their reports and what careers are connected to forecasting and reporting the weather. **What Next?** What could be done to help the handicapped have access to up-to-date accurate forecasts?

Process

Active Discussion—Discuss how the matrix comparisons helped the class discover the real facts of weather forecasting. **So What?** What are the key steps to successful work in a matrix? **What Next?** Create a slide show for the Virtual Learning Commons on building and using a matrix.

Web 2.0 Application SuggestionEMO Weather Watchers: <http://ed.fnal.gov/ntep/f98/projects/bnl/weather/index.html>Wonderful World of Weather: <http://k12science.org/curriculum/weatherproj/>Science Buddies—Weather and Atmosphere: http://www.sciencebuddies.org/mentoring/project_ideas/home_Weather.shtml?gclid=CLzz11-Hqo0CFQILPwodhTX5zw

Example #6

Media Influence

Gr. 7–10

How do media influence our purchases?

Investigate Problem/Issue and Possible Positions

Have students keep a record of their personal budgets and purchases for a month before starting this unit. Analyze budgets for types of expenditures and percentages spent on each type. Ask students to think about who controls what they spend their money on. Use the 4 corners strategy to help students start to think about who is in control of their personal buying power. Post the words “Myself,” “parents/guardians,” “friends,” and “media,” one in each corner of the classroom. Have students consider their own situation and go to the corner that best answers the focus question. Have students, in their groups, discuss why they chose that corner and share discussion points with the class.

Analyze Perspectives, Positions and Impacts

Review the basic concepts of all media. Use the following websites:

www.media-awareness.ca; <http://www.medialit.org/>

Introduce the critical thinking guide *Deconstructing Media Meanings* and model analysis of several product ads. Form groups according to media product type (e.g. clothing, hair products, snacks, entertainment, technology, etc.). Have students collect print ads for these product types over a period of time and analyze them using *Deconstructing Media Meanings*. To encourage personal responses, ask students to keep track of their analysis individually on the organizer *Making Meaning of Media*.

Take a Position—Prepare Argument

Jigsaw the groups so they can share their analysis and discuss the focus question, *How do media influence our purchases?* Discussion prompts: To what degree or in what way does advertising influence purchasing? Is this good or bad and for whom? Ask students to consider how they can gain more control over their personal spending patterns. Instruct groups to prepare an information pamphlet for other students their age on how to become wise consumers. Instruct students to apply the knowledge they now have of media production and produce an effective pamphlet.

Present the Position

Arrange for groups to take turns, at a school information kiosk, distributing their pamphlets, sharing their analysis of advertisements, and their consumer awareness position.

* The Big Think *

Content

New Problem or Challenge—Have students keep track of their spending over the next month and compare their spending patterns to the first month’s record. **So What?** Are there any changes? Why? **What Next?** Investigate how media contributes to the economy. Have students investigate Buy Nothing Day at: http://www.mediaawareness.ca/english/resources/educational/teachable_moments/buy_nothing_day_TM.cfm

Process

Active Discussion—Review the strategies used to analyze media. **So What?** Why is it important to examine media from all three perspectives: message, audience and production? **What Next?** Develop learning advice, tips and tools for media awareness and post on the Virtual Learning Commons.



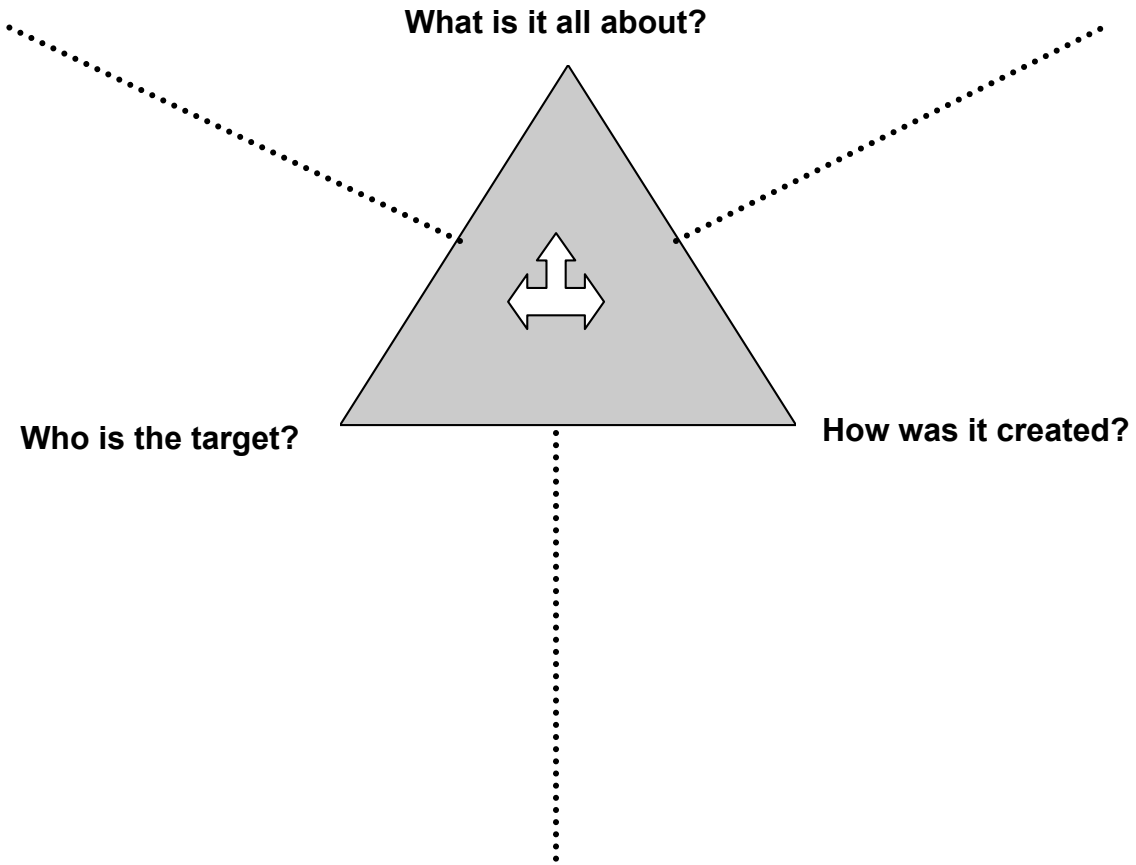
Deconstructing Media Meanings

Questions to guide media analysis		
What is it all about? Think about media type, genre, meaning, ideologies, values narrative, and commodity	Who is the target? Think about culture, gender, race, age, skills, use, pleasure, choices, needs	How was it created? Think about technology, economics, ownership/control, production, institutions, distributions, ethics, and legality
<ul style="list-style-type: none"> • What kind of media text is this? (e.g. book, video, poster, advertisement, T-shirt, etc.) • What is the message or story? How is it revealed and developed (implicitly and explicitly)? • Who speaks and who is silent? • What is stated overtly? What is inferred? • Are there any stereotypes? • What values are being promoted? How do you know this? • 	<ul style="list-style-type: none"> • Who is the target audience for this text? How can you tell? • Whose point of view do the values represent? • Are your values represented? Why or why not? • Who is not represented? • How do situations portrayed compare to what you know as reality? • Who benefits from this portrayal? • What is the bias in this text? • Do you feel manipulated? How? • Would you buy this item/service? Why? Why not? • 	<ul style="list-style-type: none"> • Who produced this media text and for what purpose? • What production techniques are used? • What special effects are being used and for what purposes? (lighting, camera angle, color, etc.) • How effective are the effects and techniques used? • Who paid for and who profits from this media? • How can you influence the production of this kind of media? • What rules and laws affect the media text (e.g. copyright, running time, trademarks)? •

Inspired by Sheppard, Rick. *A Critical Framework for Media Education* www.media-awareness.ca

Making Meaning of Media

Media Text:.....



So What?

Example #7

Convenience or Necessity

Gr. 7–12

Should we give up bottled water?

Identify Data/Ideas Not Understood

There is lots of discussion and controversy about the issue of the wide availability and use of bottled water. What is the answer?

Gather Data

Have students respond to an anticipation guide with true and false statements about bottled waste. See *Think Read Decide* for a template for this pre-reading activity. Share responses and discuss how students can validate their ideas.

Form research teams to investigate the focus question from the perspectives of health, environment, retail, sports, natural disasters, convenience etc. Remind students that their research success will depend on accurate and current data.

Analyze Relationships

Who uses it? Why? Identify stakeholders and share perspectives on the issue. Have each student complete the organizer, *Understanding Perspectives*, in preparation for developing their own opinion based on solid, well balanced data.

Experiment with a Tool

Teach students how graphic organizers can be utilized as pre-writing frames. See *Planning for Writing Information Text*. Introduce students to graphic software such as *Smart Ideas* or *Inspiration*. Model the software features using a familiar topic. Instruct students to create a visual plan to organize their opinion papers. Form new groups for sharing and peer to peer conferencing. Make any necessary adjustments to plans.

*** The Big Think ***

Content

Active Discussion—Chart the range of opinions and rationales. **So What?** Discuss: Why is it important to develop an *informed* opinion? **What Next?** Have students use their visual plan to write a personal opinion paper in response to the focus question.

Process

Active Discussion—In groups share visual planning tools and explain how they were created. **So What?** How does the planning tool help with forming an opinion?

What Next? Start building a bank of pre-writing frames for different kinds of writing tasks. Post these tools on the Virtual Learning Commons with exemplars for learners.

Understanding Perspectives

Issue

Just the facts
-
-
-
-

Stakeholders

-----' perspective	-----' perspective
Rationale	Rationale
-----' perspective	-----' perspective
Rationale	Rationale

<p>Having considered all the perspectives and the reasons for them, My opinion of this issue is ...</p> <p>...because</p>

Sensemaking Model



Reading Selection.....Name.....

Statement	Pre-Reading What do you think?	During Reading What does the author say?	Post Reading What do you think now?
1)			
2)			
3)			
4)			
5)			

Reprinted from Koechlin and Zwaan *Build Your Own Information Literate School*

Planning for Writing Information Text

These are some common structures used for writing information text. Think about your research quest and the data you have gathered. What structure or combination of structures would work well for sharing your findings? Use a graphic organizer to help you plan for



Organizational Structure	Visual aid for planning	Focus words and tips
Question and Answer - ask a question and answer it	T Chart	Who, what, when, where, why, how Plan your order carefully.
Sequence - putting facts, events in an order	Timeline to arrange events chronologically Storyboard to plan change over time	On..., not long after, now, before, after, when, first, second, then, finally, during, next, Check for accuracy
Comparison - pointing out similarities and differences	Venn diagram Triple T Chart	Similarly, however, but, on the other hand, compared to, despite, as opposed to, nevertheless Establish criteria for comparison
Cause and Effect - show a causal relationship. - demonstrate what led to a certain effect	Flow Chart to illustrate links Fishbone diagram to cluster causes	Because, since, therefore, consequently, since, so, accordingly, as a result, on account of, due to. Then Investigate all relevant perspectives
Problem Solution - state a problem and offer several solutions	Flow chart Web Diagram	A solution, consider, possibly, perhaps, since, this led to, Test your solution ideas with a friend
Procedure - list step by step	Storyboard to show change over time Flow chart to show process	First, next, following that, finally Add visual aids
Report or description - provide structure to a reworking of collected data	Web to brainstorm and organize Table to sort topic into subtopics Tree diagram to sort a topic into groups and sub-groups Sketch, map or diagram to organize detail	Use your own language and writing style. Use quotation marks for direct quotes from the work of others. Use citations to indicate the ideas of others you have used in your report. Be accurate
Argument - project a personal point of view	Web to brainstorm ideas Table to compare opposing points of view Chart to analyze pros and cons Flow chart to organize and link reasoning	Begin with a strong statement or question. Support your opinion with facts and evidence End firmly
Planning Notes		

Example #8

Candidate Candor

Gr. 7–12

Problem

Where do the candidates stand on global warming, stem cell research, interest free student loans...?

Investigate

Present and discuss the issue/engaging question. Provide students with ample activities to explore the topic so that they are able to identify the key interest groups.

Divide the class so that an equal number is assigned to investigate each of the key candidates or interest groups to discover their position and their rationale for that position. Provide each student with a copy of *Prevailing Positions* worksheet to record their findings.

Create a long position line across the width of the classroom, on the chalkboard if possible, identifying only the ends: one as positive, fully supports; the other as negative, totally opposes. See *Take a Position Teacher Reference*.

Analyze

Group students according to the candidate/interest group they represent. Have groups meet to discuss their findings, using their completed organizers, and to determine where they believe their candidate/group should be positioned on the line.

Prepare

Provide each group with an index card to label and affix to the position line in the appropriate location.

Present

Have a representative from each group place their card on the position line and explain the opinion of their candidate/group and the rationale for their stance.

Gathering Evidence of Understanding

- efficacy of student exploration of the topic indicates accurate identification of the issues and positions.
- groups are able to agree about their stakeholders' position on the line.
- individual students are able to answer response journal questions and justify their answers.

*** The Big Think ***

Content

Active Discussion—Study the position lines and consider the rationales for any given issue. **So What?** Who took which position? Why? **What Next?** Ask, how do you feel about what you see? What new questions do you have? Where would you place yourself on the line?

Process

Thoughtful Writing—What was it about this activity that affected your opinion and helped you take a position? **So What?** How did your group reach consensus? Document the process. List situations in life where/when people should use this process. **What Next?** How can we value and recognize individual opinions that differ from the group?

Prevailing Positions

Topic

Important facts
-
-
-
-

		Stakeholder		
Issue			Issue	
Impact on stakeholder			Impact on stakeholder	
Issue			Issue	
Impact on stakeholder			Impact on stakeholder	

<p>Having considered all the issues and their impact, the perspective of this group is...</p> <p>Because...</p>

Take a Position Model

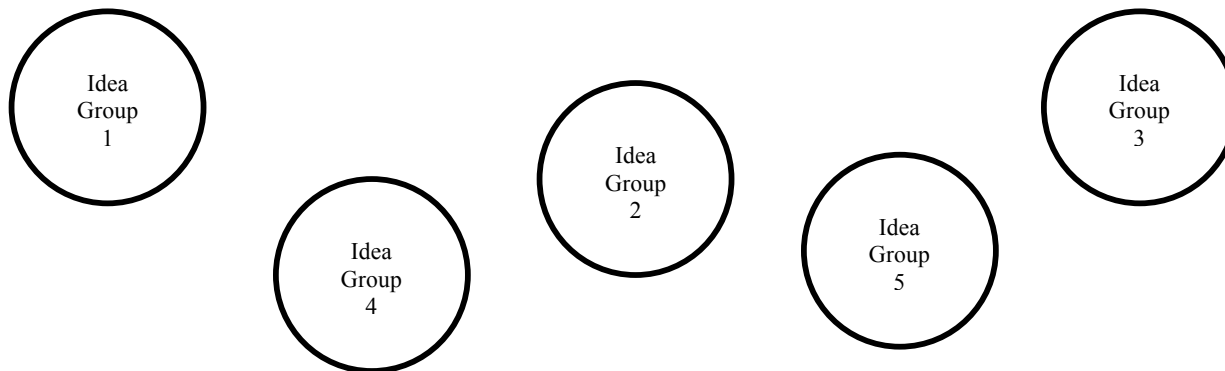
Take a Position Worksheet Position Line

Create a Position Line using string, yarn or tape along the length or width of the classroom. Identify the polarity at either end of the line.

As students research an issue, instruct them to think about where candidates, stakeholders, journalists, & lobbyists, would sit on the Position Line.



After discussing who is positioned where and why, cluster authors, candidates, stakeholders, journalists, lobbyists, editors and so on, in groups according to their ideas and their position on the line. Review the line positions to see if they feel they are still valid or if there should be some adjustments.



Example #9**Hurricane Watch****Gr. 7–12***Have major tropical storms become more severe in the last few years?***Problem**

View pictures of tropical storm damage from recent hurricanes. Show a video clip such as *Storms* by Discovery. Provide students with small sticky notes and ask them to record a storm word or phrase on each sticky note. Continue brainstorming storm words until time has expired. In groups of 4–5 have students share their storm ideas and sort ideas into categories on chart paper (e.g. hurricane names, types of storms, descriptive words and phrases etc.). Then instruct learners to label the categories, creating a web of storm words. Share the storm words and introduce the guiding question.

Data Gathering

Inform groups that they will be assigned to a decade from the period 1900 to the present. Their task is to gather data about the storms during their time period and enter it in a class database. They need to use accurate, validated, data from authoritative sources and keep a well-documented reference list. Discuss how they will measure the severity of a storm and decide on criteria for data collection (e.g. name of storm, date, duration, intensity, category, deaths, property damage, and environmental damage).

Group Dates	Storm Name	Date	Category	Duration	Rainfall	Death Toll	\$\$\$\$ Damage
1900–1919							
1920–1939							
1940–1959							
1960–1989							
1990–20??							

Analysis

Instruct groups to manipulate the data in the database and create visual representations of each criterion across the decades on graphs, charts, and plot lines. Review guiding question and make further comparisons.

*** The Big Think *****Content**

Thoughtful Writing—Each group prepares a report based on, and backed up by, data analysis. Reports could take the form of a magazine article, oral presentation with a slide show, short video, newscast etc. **Active Discussion**—**So What?** Students could meet in groups to discuss what needs to be done so that people and structures are better prepared to withstand future hurricanes. **What Next?** Compare our findings with what several scientists have said about trends in tropical storms.

Process

Active Discussion—**So What?** What do we mean by authoritative/official data sources? How well did we do finding them? **What Next?** Chart common sources used and tips for finding them.

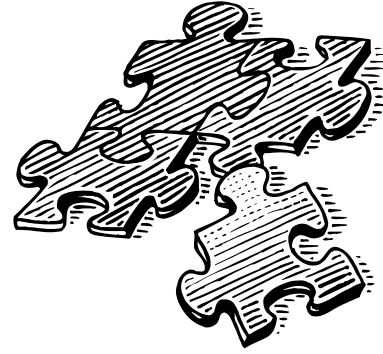
Decision Matrix Model

Collaboration Rubric

Achievement Level	Personal Responsibility	Support/ Appreciation	Focus	Problem Solving	Engagement
Level Four	<ul style="list-style-type: none"> - takes on leadership role - fulfills all aspects of the role - works as part of the team 	<ul style="list-style-type: none"> - facilitates sharing of ideas and information - honors and praises strengths of others - assists others while respecting their roles and responsibilities 	<ul style="list-style-type: none"> - adjusts plan as necessary to facilitate the needs of team - stays on task and reviews topic as necessary - offers positive support to help others to refocus 	<ul style="list-style-type: none"> - is proactive in solving problems - asks probing questions and listens attentively - tests and evaluates solutions - facilitates consensus 	<ul style="list-style-type: none"> - highly motivated - exhibits excitement - plans and works with others
Level Three	<ul style="list-style-type: none"> - understands personal role - fulfills assigned role duties - contributes fair share to task 	<ul style="list-style-type: none"> - shares ideas and information - open to ideas/ point of view of others - shows awareness/ concern for feelings of others 	<ul style="list-style-type: none"> - focuses on plan and carries it out - focuses on topic throughout task - completes all tasks on time 	<ul style="list-style-type: none"> - uses a variety of strategies to solve problems - considers all solutions - assists others in problem solving 	<ul style="list-style-type: none"> - very interested - positively and actively engaged - organizes task activities
Level Two	<ul style="list-style-type: none"> - not fully aware of role assigned - carries out some, but not all, role responsibilities - makes a minor contribution 	<ul style="list-style-type: none"> - shares with reluctance - listens to ideas of others on occasion - offers some support to others 	<ul style="list-style-type: none"> - follows plan some of the time - loses focus of topic and/or plan - completes some tasks on time 	<ul style="list-style-type: none"> - unsure how to deal with most problems - usually goes along with suggested solutions - looks to others for help 	<ul style="list-style-type: none"> - exhibits some interest - usually cooperates with others - lacks organizational skills
Level One	<ul style="list-style-type: none"> - little awareness of team roles - takes no responsibility for role - contribution of little value 	<ul style="list-style-type: none"> - little effort to share information and ideas - works in isolation - offers little support for others 	<ul style="list-style-type: none"> - pays little attention to plan - not focused on topic or task - does not meet timelines 	<ul style="list-style-type: none"> - gives up readily when problems arise - sometimes frustrated by problems - relies on others to solve problems 	<ul style="list-style-type: none"> - shows no interest in activities - has difficulty working with others - is very disorganized

Team Work Debriefing

Everyone on the team had an important job to do.
How well did we do our jobs?



Team spirit

Team effort

Meeting task expectations

Meeting timelines

Quality of our work

Goals for next time

Working as a group helped us to...

A large rectangular area filled with a fine grid of small dots, intended for handwritten notes.

Example #10 Find the Best Location WebQuest

Gr. 8–12

Location, Location Where is the best location?

Introduction

They say that in business location is everything. For an amusement park that is certainly the case if it is to be successful. Other factors do figure in, of course, but the first consideration would be location.

Task

A successful amusement park company wishes to expand its operations and set up sights in some new countries. Your team has been commissioned to do the first analysis and pin down three counties anywhere in the world, outside of North America, that would be suitable locations for building a new amusement park.

Process (Decision Matrix Model)

- 1) Explore several amusement parks. Determine their locations and decide on the elements that are most important for success (e.g. population breakdowns, temperature, rainfall, relief, tourist destinations, economics, etc.).
- 2) Form investigative teams—Europe, South America, Africa, Asia, Pacific Rim. Each group will collect needed data on 10–12 countries in their region. Accuracy is key so devise a method of double-checking each others' data.
- 3) Use a spreadsheet as a matrix for collecting data. Analysis of this matrix will help you decide on the three most favorable locations.
- 4) Make graphs of each element in the matrix. Experiment with different types of graphs to make sure you can visually compare countries effectively. Examine the graphs and decide on three most favorable counties in your region to locate a new amusement park.
- 5) Create a new matrix with the data from the top 3 countries of each team. Analyze the matrix data again. Decide on the top 3 countries to recommend and prepare to present and defend your decision to the amusement park executives.

Information Sources

World Atlas: <http://worldatlas.com/aatlas/world.htm>

InfoPlease: <http://www.infoplease.com/atlas/>

About.com:Geography: <http://geography.about.com/library/maps/blindex.htm>

Evaluation

- data is adequate; advice was relevant and accurate
- analysis is logical and insightful
- final decision based on data, not predisposition or popularity
- sources cited accurately

* The Big Think *

Content

Interact with an Expert—Invite an expert to the class and present the findings. **So What?** Are there flaws in our analysis? How can we make our proposal stronger? **What Next?** Become “junior partners” in real proposals in our town, state, or country or shadow real projects as they come through community planning commissions.

Process

Interact with an Expert—Review the decision making process with the expert. **So What?** What advice does the expert have? **What Next?** Apply the expert advice and rework the process and presentation.

Example #11

Pesky Propositions

Gr. 9–12

Problem: *What is your position on the proposed ban on the use of pesticides and herbicides?*

Investigate

Provide a variety of exploration activities to give the students an overview of the topic and to help them identify the stakeholders. As a group make a master list of the key stakeholders in this issue. Divide the class into groups and assign each a stakeholder role. Have groups consider how use or non-use of these substances would affect them. Investigate and record both positive and negative aspects of the use of herbicides and pesticides domestically and commercially from the stakeholder's perspective. As with any issue, it will be very important to sort out the facts from opinions and propaganda.

Analyze

Provide students with individual copies of *Linking to Fact and Opinion* so they can record, sort, and analyze as they go along. Complete the *My Questions and My Reactions* columns after data gathering of the stakeholder role. Ask students to share and discuss individual findings in their groups and then identify key facts. As a group, create a common list of the positive and negative facts that pertain to their perspective.

Prepare

Students use these lists as the basis for discussion while they share their thoughts and reactions. Have them use the *Prevailing Positions* worksheet to create a Position Paper press release for their group. Select representatives to speak for the groups at a mock press conference.

Present

Schedule a press conference and distribute copies of the stakeholders' Position Papers in advance so others can read them and be prepared to question them at the conference.

Gathering Evidence of Understanding

- All important stakeholders and positive and negative factors were explored.
- Facts were identified and analyzed.
- Stakeholder positions were clearly articulated and defended.
- Individual positions were identified and explained.

* The Big Think *

Content

H.O.T.—What do you now know that you were previously unaware of? **So What?**

Restate the essential question and using *Understand Perspectives* organizer collect, sort and then consider stakeholders' positions and their rationales. **What Next?** Take a personal position and share your rationale.

Process

Thoughtful Writing—**So What?** How did analyzing the positions and rationales of the various stakeholders help your decision making? What problems did you experience?

What Next? What did you learn about facts, opinions and propaganda? How does this process affect empathy?

Take a Position Model

Linking to Facts and Opinions

Name:.....Topic.....

Facts	My Questions	Opinions	My Reactions
Perhaps...			

Reprinted with permission from *InfoTasks for Successful Learning*, Pembroke Publishers 2001

Understand Perspectives

Issue

Just the facts
-
-
-
-

Stakeholders	
-----' perspective Rationale	-----' perspective Rationale
-----' perspective Rationale	-----' perspective Rationale

<p>Having considered all the perspectives and the reasons for them, my perspective of this issue is...</p> <p>Because...</p>

Example #12 **Messing with Mother Nature WebQuest** **Gr. 9–12**

What's the harm in genetic modification of plants?

Introduction

The agricultural use of genetically modified plants is rising rapidly. United States leads the world with the most GM crops followed by Argentina, Brazil, and Canada. The general public is still wary of potential health problems.

Task

You have been hired as an outside consultant to study the process involved in genetic engineering and the impact of genetically modified plants on other crops and our communities. Your research must examine all relevant perspectives. After examining the benefits and the risks involved in this form of bio-agriculture, you will form an opinion based on data gathered. Form a consultation team to prepare and present your position to the Department of Agriculture.

Process

- Explore background information about genetic modification of plants. Consult an online encyclopedia for an overview.
- Select one plant for in-depth study. Conduct research and keep track of your findings on the organizer *Assessing Genetically Modified Plants*
- Search for current articles in journals, magazines and newspapers.
- Analyze the advantages, concerns and possible problems of genetic modification in your plant study. Then develop a supported opinion.
- Meet with two other consultants who have been studying the same plant modification. Share findings and opinions.
- Assess the data gathered; develop a group position and recommendations. Was there any consensus? Did positions vary within the stakeholder groups? What is the reason for disagreement? Whose positions are justifiable? Why?
- Prepare a presentation for the Department of Agriculture. Ensure that the material you present is accurate, current, and supported with sound analysis.

Information Sources

- United States Department of Agriculture: <http://www.usda.gov/>
- Agriculture Canada: http://www.agr.gc.ca/index_e.php
- Vegetable Research and Information Centre: <http://vric.ucdavis.edu/>
- GMO Compass: <http://www.gmo-compass.org/eng/home/>

Evaluation

- collected relevant, factual data
- investigation was complete, careful, and detailed
- identified bias, misconceptions and inaccuracies
- insightful; effective comparison
- presented a strong plausible position

*** The Big Think ***

Content

Active Discussion—Create a class graph/chart/presentation to illustrate the class position on the issue. Discuss why there are varying positions. **So What?** How do the media sometimes confuse our thinking? **What Next?** As a world citizen, a consumer, a producer, or a marketer, what action should we be taking now? What is the difference between genetically modified plants and hybrids? What is a seed bank and why is it important?

Process

H.O.T.—**So What?** What are the strengths of a good position paper/presentation? **What Next?** Develop an assessment rubric or checklist for a good position paper/presentation.

Assessing Genetically Modified Plants



Topic:.....

Team members:.....

Plant Description

Modification

Advantages	Concerns
------------	----------

In view of this information.....

Example #13

Fad Diets

Gr. 9–12

How healthy is 'healthy'?

Introduction

Collect several articles about different kinds of diets. Introduce the topic with words and phrases related to fad diets. Instruct students to predict what the diets will entail based on these clues from the words and phrases.

Read

Group students and distribute articles. Give everyone in the group the same article or give each person a different article depending on student reading needs. Provide students with the organizer *Your Reading Tracks*. Model active reading using a different article so students can make connections while reading.

Compare/Contrast

After reading and tracking on the worksheet, regroup students and instruct them to share their thoughts and questions about the text they read. Instruct new groups to prepare a *That's Good That's Bad* chart for the diets they read about.

* The Big Think *

Content

Thoughtful Writing—Ask students to make an entry in their response journals: How has this experience affected your opinions about dieting and diets? **Active Discussion**—**So What?** In groups debate the pros and cons of different diets and determine what lifestyle, health concerns, or preference group each diet would best match. Is any diet plan a good idea? Why? Why not? **What Next?** Have each student compose and send a response letter to the author of the article. Investigate new information about the science of dieting (e.g. how different people react to certain foods while dieting).

Process

Active Discussion—Discuss why wide reading about diets is preferable to reading just one person's diet plan. **So What?** What ideas are they more likely to believe? Why? **What Next?** Find more authoritative sources about dieting and create a pathfinder for future study.

Web 2.0 Suggestion:





Try a wiki adaptation of this task to provide a collaborative online space for students to work: <http://faddiets.pbworks.com/FrontPage>

Password: think3

Hint: You can cut and paste this template into a PBwiki of your own.

Your Reading Tracks

Keep a record of your thoughts and questions

<p>Text to Text</p>	
	<p>Text to Author</p>
<p>Text to Self</p>	
	<p>Text to World</p>

Read, View, and Listen Model

That's Good ↔ **That's Bad**



That's Good	Why?	That's Bad	Why?
My analysis			

Adapted from Koechlin and Zwaan, *Info Tasks for Learning*, Pembroke Publishers 2001

Example #14**Select a Candidate****Gr. 10–12***Which candidate do I want to support?***Problem**

Three candidates are running for President of the United States: a Republican, a Democrat, and an independent. (In Canada, for Prime Minister, a Conservative, a Liberal, and a New Democrat). The teacher and librarian agree to have students base their choice on a deep understanding of issues rather than a focus on surface qualities.

Data Gathering

Choose a Candidate Based on the Issues						
Subject Groups	Traits to Question					
	Economy	Debt	Foreign Policy	Social Security	Education	Etc.
Republican						
Democrat						
Independent						

Analysis

Student groups do issue papers, interview political leaders, analyze speeches, debates, ideas and trends, study campaign advertising, and make decisions based on sound information.

*** The Big Think *****Content**

Active Discussion—Review the matrix content. **So What?** What are the leading issues in this campaign? Are there some issues that we discovered in our research that should be getting more coverage and attention? Who needs to know? **What Next?** How can we encourage candidates to discuss issues that are important to us?

Process

H.O.T.—Consider the Matrix process. **So What?** What are the benefits and weaknesses of using a matrix in decision making? **What Next?** How can we use our matrix to analyze the campaign as it progresses?

Example #15

Mining Investments

Gr. 10–12

Which element represents the most environmentally friendly and economically feasible investment potential?

Problem

Economics students have been asked to team up with geography students to investigate a mineral/element to invest in. They are to seek a “green” element whose mining process has limited negative impact on the environment. After the investigation, the students will create a short power point presentation to promote investment in their selected product.

Study and Select Data

Each pair will select an element to investigate (e.g. metal: gold, nickel, uranium, cadmium, magnesium, zinc, aluminum, cobalt, platinum, rhodium, molybdenum, iron, tin, titanium, etc. Non-metal: potash (source of potassium), sulphur, carbon, selenium, etc.). They are to use and cite a variety of sources such as government and commercial websites, professional journals, stock market, and news articles. Decide on traits for investigation and evaluation such as mining and processing; market, and distribution; environmental concerns and solutions related to mining, processing, by-products, and disposal; market stability; and investment potential.

Organize Data on Matrix

Create a master matrix on a spreadsheet so data can be extrapolated and analyzed in various ways.

Investing in a Winning Element				
Elements	Traits/Questions to Answer			
	Where mined?	How processed?	Bi -Products	Etc.
Gold				
Nickel				
Etc.				

Analyze Matrix and Examine Results

When the matrix is completed, use the potential of the spreadsheet to create graphs to help with analysis. Decide on ranking criteria and guidelines. Have pairs select the best options to recommend to investors and prepare a presentation backed up with analysis to present to the class (investors). Presentations are video-taped.

*** The Big Think ***

Content

H.O.T.—Small groups review the presentations and supporting documents **So What?** Decide on the best investment. **What Next?** Learners make mock investments, and follow the stock of a real company for the balance of the school year keeping track of losses and gains. At year end check to see which stocks fared the best.

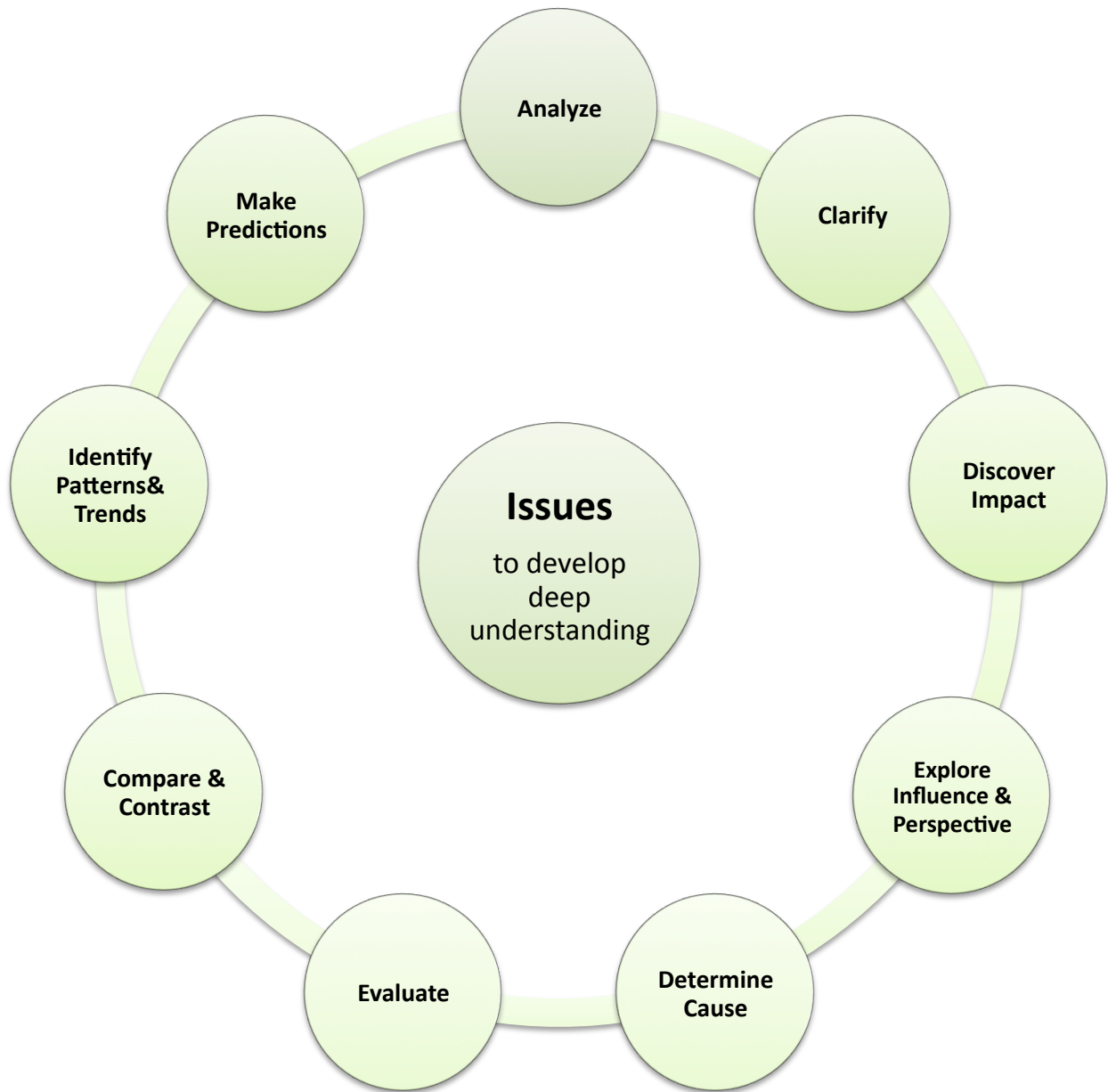
Process

Interact with an Expert—Brainstorm questions students have now that they have been through this process. **So What?** Invite experts to address major questions. **What Next?** How can we improve the decision process?

Web 2.0 Applications
 Build the matrix using a file-sharing program such as *Google Docs*.
 Video conference with some expert consultants.

Chapter 2

How do we use ISSUES to develop deep understanding?



Example #1

Just Like Me

Gr. 1–3

Background

Over a number of days, read aloud carefully selected stories about children of other countries. Show and discuss pictures and videos of children living in other countries. Discuss with your students how these children are the same as they are.

<i>How are we all the same?</i>			
Specialist Team		Sharing Team	
First Question: <i>What is life like for children in another country?</i>	Research: Organize small groups of four. Each of these Specialist Teams will research the life of children in another country. Provide students with <i>My Research Organizer</i> on which to record their discoveries. Modify for students with low language acquisition by pairing them up with an adult volunteer or learning buddy and/or having them illustrate their information.	Concept Forming Question: <i>What do the children from these countries have in common?</i>	JigSaw: One student from each Specialist Team joins the new Sharing Team. Students share their expert information about the country they studied in their Specialist Team. Students discuss the life of children from each of the four countries and identify any common elements. They record each common element on a card.
Group A - Country A		Group ABCD	
Group B - Country B		Group ABCD	
Group C - Country C		Group ABCD	
Group D - Country D		Group ABCD	

*** The Big Think ***

Content

H.O.T.—Post the cards developed by the sharing teams, discuss findings and cluster common elements. **So What?** How are we all the same? Develop a list of things common to all children around the world. **What Next?** What happens when children do not have basic needs like enough food and water, education, clothing, and shelter? Is there anything other children can do to help?

Process

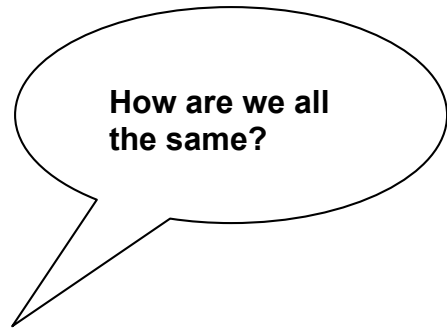
Thoughtful Writing—Learners self reflect on working in groups and discuss the best and worst things about group work. **So What?** How did working in groups help us to learn? **What Next?** How can we get better at group work?

My Research Organizer

We want to find out about children in.....

We used

- books
- pictures
- videos
- computers



Family Life	School
Playing	Clothing
Homes	Special Days
Pictures	

Example #2

Big and Bigger

Gr. 2–4

How are Dinosaurs similar to and different from large animals that live on earth today?

Reason

Students are studying dinosaurs. To help them gain some perspective, have students compare dinosaurs to large animals still found today.

Form Criteria for Comparison

Model how to make comparisons using criteria. Provide lots of pictures of dinosaurs as well as large land, sea, and air animals of today. Ask students to sort the pictures and then explain which criteria they used for sorting. List criteria useful for comparison as students provide it (e.g. short tails, no fur, four legs, live in the water etc.). Together decide on the criteria that will be used for comparing a dinosaur of their choice with a large animal living on earth today (e.g. habitat, food, size, appearance, special survival skills, natural enemies etc.).

Gather Data

Each student decides on the dinosaur and living animal they want to compare. Provide students with the organizer *Digging for Facts*. Ensure that students have access to material at their reading level and/or arrange for learning buddies to assist them. Students gather the needed facts based on the criteria for comparison.

Sort Based on Criteria

Have students circle and join similarities with a colored marker or highlighter. All the other facts are differences.

Make the Comparison

Have students make a pattern booklet

.....is similar to abecause
.....is different than abecause

*** The Big Think ***

Content

H.O.T.—After sharing pattern booklets, discuss with class how all animals, prehistoric and today have many similarities. Chart common characteristics. **So What?** Why do all animals have similarities? How are we the same as other animals? How are we different? **What Next?** Learners design a new pattern book comparing different animals, fish, reptiles etc.

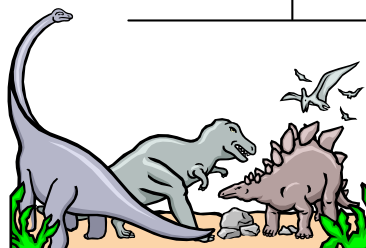
Process

Construct Visuals—Create a visual map of the learning journey on chart paper. Discuss successes and problems encountered during the journey. **So What?** How did you feel when you were successful? How did you feel when you had a problem? How did we solve our problems during the journey? **What Next?** What will we remember for next time?



Digging for Facts

Dinosaur name:		Animal name:
	appearance ← →	
	size ← →	
	food ← →	
	habitat ← →	
	natural enemies ← →	
	special survival skills ← →	



Example #3

Not Just a Pretty Face

Gr. 2–5

Why are Monarch Butterflies important?

Introduction

Ask students what they think they know about Monarch Butterflies. Take a picture walk through a visual non-fiction book about the Monarch Butterfly. Ask students to tell you what they know now and what they would like to find out about this butterfly. Chart and then cluster responses and questions using the headings: Needs, Problems, Life, and Roles.

Read, View, Listen, Experience

Set up 5 RVL Stations - Video, non-fiction books, websites, photos, and (print or online) encyclopedia. Form groups and assign students to stations (consider the learning styles and abilities of students when grouping and assigning resources). Provide students with the organizer, *Questions and Discoveries* to record their research questions and the facts they gleaned from their resource station.

Compare/Contrast

Regroup students so each resource type is represented in the new group. Ask students to share their information and confirm findings, add new information and deal with conflicting data. Return to the original chart and confirm or adjust original thinking. Check to ensure that all questions have been answered. Assign each member of the group one category to prepare a brief “Tell Around” statement for sharing orally within the group.

*** The Big Think ***

Content

H.O.T.—Create a whole-class chart that focuses on the question, Why are Monarch Butterflies important? **So What?** Instruct students to fold a piece of paper in three sections and write three reasons why butterflies are important, two ways to protect them and one thing that surprised them about this unit. **What Next?** Pursue investigations of other butterflies. Launch a campaign to protect butterflies. Plant a butterfly garden in the school yard.

Process

Active Discussion—Review the resources used by learners. **So What?** Why is it important to use a variety of resources when conducting research? **What Next?** What resources outside of school could we make use of to learn more about the importance and protection of butterflies?

Read, View, and Listen Model

Questions and Discoveries

Research Focus: _____

My Questions	My Discoveries
Needs (habit, food)	
Problems (predators, environmental)	
Life (stages, migration)	
Role (contributions, ecosystem)	
Summary ideas and questions	

Example #4

Wetlands

Gr. 4–8

Should we save the wetlands?

Build Background and Make Predictions

Introduce with a powerful picture book such as *Here is the Wetland* by Madeleine Dunphy or a good video clip. Review terms such as habitat, ecosystem, food chain, and build a collaborative bank of wetland words with definitions or descriptions as the unit progresses. Ask students to predict what they think are indicators of a healthy wetland habitat.

Develop Questions

Provide students with the organizer *Question Stretchers* and organize them into small teams. Assign and review roles and have them develop questions they have about wetlands.

Develop Skills and Action Plan

Have students research to find answers to their questions and to discover what the experts say about healthy wetlands. Based on this information, have students work in their teams to develop a checklist or observation chart for their excursion to a wetland. Create a list of students' responsibilities, equipment needed, and safety expectations.

Doing

Visit a local wetland. (If a trip to a natural wetland isn't possible, visit a re-creation at the local zoo or select another ecosystem appropriate for this task.) Remind students to stay as quiet as possible and to take care to limit their impact on the surroundings. Instruct students to keep accurate records of their observations and encourage sketching and labeling as recording strategies. Capture more primary data with digital cameras and camcorders. Upon their return, have students work in groups to share their findings. Compare findings with their original predictions as well as with their research findings.

Reflection

Ask students to evaluate the state of the wetland they visited based on their observations and their research.

* The Big Think *

Content

Thoughtful Writing—Set up a wiki to consolidate learning and continue exploring the focus question, *Should we save the wetlands?* **So What?** Have students research and debate the pros and cons of saving, versus developing, wetland environments. **What Next?** What else can we do to protect wetland environments? Research another ecosystem and take action to support it. Plan and create a wetland garden on the school grounds.

Process

H.O.T.—Have learners respond to process questions on the wiki. **So What?** How did developing questions help the gathering of information? How did working in the actual wetland environment assist with understanding how this ecosystem works? What new question(s) do you have now about the wetlands or other fragile environments? **What Next?** Compare learning from the textbook with a 'learn by doing' experience.

Question Stretchers

Surface Questions

	is	did
Who		
What		
Where		
When		

Digging Questions

	can	would
Who		
What		
Where		
When		

Digging Deeper Questions

	will	might
Who		
What		
Where		
When		

Developing understanding questions

	is	did	can	would	will	might
How						
Why						

Koehler and Zwaan. *Q Tasks: How to empower students to ask questions and care about answers*. Pembroke Publishers.

Example #5

Severe Storms

Gr. 5–8

How do severe storms impact people, structures and the environment?

Build Background

Group students and provide each group with a set of pictures clipped from newspapers and magazines illustrating the results of severe storms. Ask students to examine those pictures and discuss what they see. Brainstorm and make a list of types of severe storms.

Connect to Old and New Learning

Ask students to record, on sticky notes, facts, thoughts, feelings, and questions they have about the pictures. Instruct students in each group to share their reflections and then sort and organize them into categories by posting their sticky notes in clusters on a large sheet of chart paper. Post the chart papers around the room and invite students to do a gallery walk to each group to see the connections they have made.

Build Questions

Provide groups with a copy of *Question Builder Chart* and ask students to brainstorm as many questions as they can about severe storms using the matrix to prompt their ideas.

*** The Big Think ***

Content

H.O.T.—Build a class chart of the questions selected for guiding research. **So What?** Sort the questions into categories to discover the major concepts that will be explored? Have we missed any major concerns or issues? **What Next?** Adjust questions and begin inquiries.

Process

Active Discussion—Discuss how the pictures helped build background knowledge and how the *Question Builder Chart* helped everyone to focus in on an interesting question(s) to guide their research. **So What?** What other strategies do we have for building background information about a topic? **What Next?** Develop a list of good background building strategies to be posted in the Virtual Library Commons.



Question Builder Chart

	is	did	can	would	will	might
Who						
What						
When						
Where						
How						
Why						
Which...						
	Your best questions for this project					

Koechlin and Zwaan. *Q Tasks*. Pembroke Publishers, 2006. Inspired by the *Q Matrix*, Weiderhold 1995.

Example #6 Interventions in Ecosystems Gr. 5–8
What impact do interventions in ecosystems have on humans and the environment?

Problem/Issue

Students are examining the impact that the introduction of a foreign organism has on an ecosystem. Model collaboratively using the zebra mussel invasion.

Gather Data

Show a video clip that highlights the zebra mussel invasion of the Great Lakes system in North America. Invite students to share their personal knowledge about the rapid spread of zebra mussels. Ask students to identify key stakeholders affected by zebra mussels. What was affected? How? What are the implications?

Analyze Relationships

Provide students with the blank organizer *Discovering Impact*. Explain the terms on the chart with examples from the video. Collaboratively start filling in the chart with data gleaned from the video and student personal knowledge. Have students work on selected Internet sites to discover more information on the zebra mussel invasion. Share findings to complete the chart. (See completed Teacher Resource sheet *Discovering Impact*.)

Select and Use Effective Tool

Introduce other examples of human intervention that impact an ecosystem (e.g. mustard seed on the prairies, reintroduction of wolves in the West, forest clear cutting, genetically modified crops). Ask students to conduct a similar investigation to discover who or what was affected, how and what the implications are. Stress the importance of identifying all of key stakeholders. Review a variety of typical organizers. See *Go Graphic*. Instruct students to use the organizer provided or design one of their own that will help them make connections and demonstrate impact.

Create and Critique

Provide students with *Graphic Organizer Check* so they can self and/or peer assess completed organizers.

Gathering Evidence of Understanding

- data gathered is accurate, adequate and relevant
- students sorted data and recorded it in appropriate sections of organizer
- students discovered implications and came to a personal conclusion
- checklists were used to assess and improve completed organizers

*** The Big Think ***

Content

H.O.T.—Work in groups to uncover similarities in causes and effects of interventions.

So What? Why is this information important to know? Who needs to know? **What Next?** How can we use this information to become better stewards of ecosystems?

Process

Active Discussion—Share visualizations. **So What?** Which organizers seem to work best for showing impact of an event? **What Next?** Learners build a file of graphic organizers to select from or adapt for each new task.

Sensemaking Model

Determining Impact

Topic: Zebra Mussels in the Great Lakes

Who/what was affected?	How?	What are the implications?
Boats - navigational and recreational	- mussels attach to hull and engine parts	- increased drag from weight - overheating of engine - damage to cooling system
Fishing gear	- fouled if left in the water too long	- damaged beyond repair - expensive to replace
Navigation buoys and docks	- mussels attach and weight them down	- encrusted and sink - corrosion of steel - weakening of concrete
Beaches	- broken shells and foul smell	- ruins appearance - danger to bare feet
Native mussels	- attacked by zebra mussels - latch on to them	- interferes with feeding, growth, movement and respiration, as well as reproduction - clams cannot open shells
Water supply pipes of hydroelectric and nuclear power plants Public water supplies Industrial facilities	- mussels attach and constrict flow	- reduced water intake and flow - damages fire fighting equipment - damages air conditioning and cooling systems - damages irrigation systems
Cottagers	- constant battle to keep lakes clean	- clogged water systems expensive to repair - damage to docks, boats and fishing gear - sharp shells are dangerous - need to rinse boats all the time
Whitefish, sculpin, smelt, and chubb	- starving because they cannot find Diporeia, tiny shrimp-like crustaceans. - Diporeia loss is due to competition for algae with the zebra mussels	-loss to commercial fishing of whitefish and also trout and salmon which because the smaller fish are prey for them
Clarity of water	- mussels filter algae from the water turning it clear	- increased scuba diving on the great lakes now - increase in aquatic plants provides cover and nurseries for some new species of fish

In view of this information...

This invasion is a disaster for the great Lakes water system. The damage to the environment and industry is growing daily. The methods that have been tried to rid the lake of these pests have not been successful. Are boaters doing all they can to stop the spread of zebra mussels? Are people taking this problem seriously? Surely scientists can do something before it is too late? What if the problem is never solved? We can't let zebra mussels spread to all the fresh water in North America. Why can't a natural predator be introduced? Could a control area be set up to experiment with some natural solutions?

Sample completion of *Determining Impact*, *InfoTasks for Successful Learning*, Pembroke Publishers

Sensemaking Model

Discovering Impact

Topic:.....

Who/what was affected?	How?	What are the implications?
In view of this information...		

Printed with permission from *InfoTasks for Successful Learning*, Pembroke Publishers

Sensemaking Model

GO Graphic

Graphic organizers are useful visual tools to help you process the data you have gathered.

Use them to build personal meaning:

- sort** facts into categories or sub-topics
- display a **sequence** of events or procedures
- compare** and contrast information
- identify **connecting** ideas
- distinguish** between fact and opinion
- analyze** conflicting information
- identify** bias and perspective
- identify** cause and effect
- determine** relationships

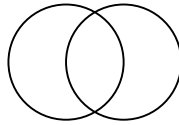
T-Chart



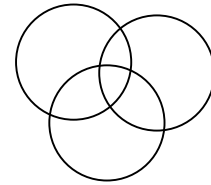
Sequence/Time Line



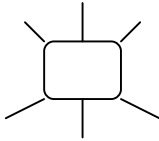
Venn Diagram



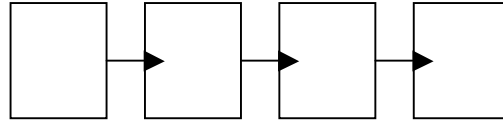
Triple Venn Diagram



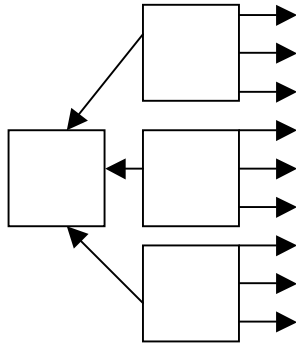
Web



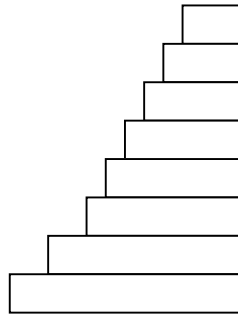
Change



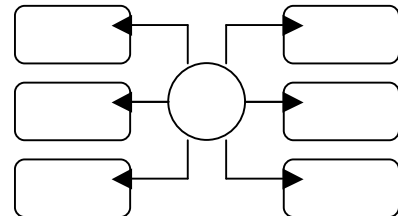
Cause and Effect



Process Steps



Branch Diagram



Why do you need an organizer? You can ask your teachers for ready-made templates or you can create your own on the computer using draw software. Make use of shapes, arrows, shading and color. Try out some ideas and make sketches of your own design. **Which organizer is best for your need? Why?**

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Adapted from *Student Research Guide*, Toronto District School Board

Graphic Organizer Check



Use this checklist to help you think about the kind of organizer you need and later to check if you have applied all the design elements of this visual tool.

See *Go Graphic* for some basic organizers to get you started.

Use graphic organizers to:

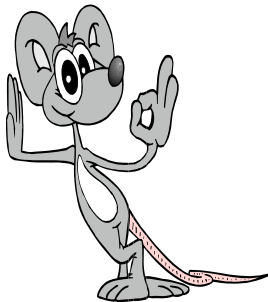
- sort facts into categories
- compare and contrast information
- classify information
- distinguish between fact and fiction
- determine relationships
- display a sequence of events
- display connecting ideas
- identify cause and effect
- draw conclusions
- make a web or mind map
- organize ideas
- plan for writing
- make a decision
- solve a problem
- other

You can:

- use a teacher-made organizer
- find one on the Internet
- adapt a ready made organizer
- create your own organizer by hand
- create your own organizer using word processing draw tools
- use specialized software to create your own organizer

Some design and content elements to check:

- correct spelling and grammar
- factual data backed up with an accurate reference list
- visual design aids understanding
- neat and attractive
- use of arrows, shading and color to add to clarity
- appropriate font and style to aid readability
- a title and your name or group names



OK How did it go? What would you change?

Example #7

The Unsinkable Ship

Gr. 6–8

Problem

The Titanic was billed as the most luxurious and safest ship on the sea. Was the claim that it was “unsinkable” justified?

Study Primary and Secondary Evidence

Using an organizer, students take careful notes of claims, structure of the ship, evidence to support claims made regarding safety (noting the author), special safety features, flaws discovered, and investigation reports.

- Authority 1 copies of archival documents
- Authority 2 print books
- Authority 3 video (Secrets of the Titanic - National Geographic)
- Authority 4 specific websites

Compare/Contrast Activity

Groups of four students meet to compare notes. Highlight similarities with one color, differences or discrepancies with another. Students make a case for or against the claim.

Evidence Check

Students revisit their authorities to re-check discrepancies. They consult more authorities, to validate the source. They research new perspectives and come to consensus about the claim.

*** The Big Think ***

Content

Active Discussion—What new perspectives did we uncover? **So What?** What influences how different people view this incident? **What Next?** Use historical information gathered in this process to create a fictional essay, short story, newspaper article etc.

Process

H.O.T.—Consider the total amount of material used to garner enough evidence to make your decision. **So What?** How effective was the History Mystery process in evidence gathering? Why? **What Next?** List the responsibilities of groups in this interdependent activity.

Example #8

Music Concert WebQuest

Gr. 6–8

How much influence does music play in cultural history?

Information

The post war decades of the '50s and '60s were times of great social change in North America. The baby boom created a new youth culture that was fueled by the impact of television, music and movies.

Task

You have just won an audition with the Time Travel Production Company. Select a song from the '50s or '60s that you feel really represents the culture during this time period. You will be expected to simulate the era with props and fashions to enhance and authenticate your performance. Prepare a one page broadsheet that provides a history of your selected composition and create an introduction for the Emcee to use when announcing your performance.

Process (ReCreate Model)

Identify the song you selected and the era it is from. Research the fads, slang, clothes, hairstyles, makeup, etc. for the era. Gain a feel for the time period by investigating important people and events as well as the culture. Collect information for an appropriate introduction for your song, including composer, musicians, type of music, and interesting notes about the song (e.g. what inspired it, who it was dedicated to, how long it was on the charts, dances associated with it, etc.). Use the organizer *Wind Back the Clock* to keep notes, lists, and sketches to help you. Using your research data, design your costume and gather any props that you might use. Collect materials to create replicas of items not available. Experiment with hair styles, makeup and presentation approaches. Rehearse your piece in costume and prepare for your audition.

Information Sources

- Kingwood College Library: American Cultural History:
<http://kclibrary.nhmccd.edu/decades.html>
- Rewind the '50s: <http://www.lotl.com/>
- History of the 20th Century:
http://teachers.westport.k12.ct.us/resource/twentieth_century.htm

Evaluation

- collected relevant, factual data
- research was complete, careful, and detailed
- recreation was accurate and imaginative
- recreation demonstrated understanding of ideas and concepts

*** The Big Think ***

Content

Active Discussion—So What? Review decades research notes and debate the focus question, *How much influence does music play in cultural history?* **What Next?** Perform a 50's and 60's music concert for your school, perhaps during lunchtime. Share with another school live, using a video conference, or record it and share digitally. Explore the music and culture of another country at the same time in history. Compare your findings to North America and rationalize similarities and differences.

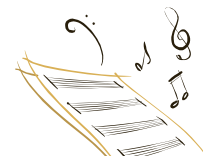
Process

H.O.T.—So What? How did performing in costume and role affect your understanding, attitude and or interest in the era? **What Next?** How could authenticity have been improved?

Wind Back the Clock—Decades Research



Era Culture	Sketches and Connections
Fads and Language	
Fashion (clothing, make-up, hairstyles)	
Music (vocal, instrumental, dance)	
Entertainment (television, movies, etc.)	
Items (cars, toys, games, etc.)	
Historic People and Events	



Example #9

Voices in History

Gr. 6–8

How can perspective help us to understand historical issues?

Explore Issue or Event/Build Background

Read *Voices in the Park* by Anthony Brown. Have students work in groups to rehearse and perform using Reader's Theatre. Ask groups to create a visual map that illustrates the connectivity and tensions among the four characters so they can better understand the story in its entirety. Discuss the author's use of perspective to present a story. Introduce famous human rights activists such as Ruby Bridges, Harriet Tubman, Cesar Estrada Chavez, Helen Keller, Tommy Douglas...

Research to Validate Authenticity

After students have had an opportunity to discover basic information about each activist, ask them to decide on one that they want to research further for a re-creation. Form research teams of four and have students record what they now know about this person as well as questions they would like to find answers to. During the research stage, conference with student groups to help them uncover 4 perspectives they should be exploring in this historical story. Ask students to continue their research and try to build an understanding of the issues and events surrounding the activist and three other people who played major roles in this historical story.

Select Format and Construct Re-Creation

Ask students to consider how they could re-create this historical story in four voices so that each perspective is represented (e.g. a play, diary entries, photo essay, graphic novel, panel discussion, etc.). Once they have decided on a format, have them work on a script and authentication details. Depending on their format they will need things such as costumes, exact dates, locations, quotations, etc.

Perform

Organize an event to share the newly created Voices of History. Invite another class to interview the Re-Creation teams and prepare news coverage with fresh perspective.

* The Big Think *

Content

Create New Questions—In groups create a web to illustrate their new learning about Human Rights Issues. **So What?** Create new questions sparked by the web. **What Next?** Pursue new inquiries. Investigate today's human rights issues from relevant perspectives.

Office of the High Commissioner for Human Rights:
<http://www.unhchr.ch/html/menu2/hrissues.htm>

Process

Active Discussion—**So What?** Discuss how working in groups enriches perspective. **What Next?** Review chapters in history textbooks, encyclopedia articles, and websites. Analyze them to see if they are written from multiple perspectives. Explain why it is important to hear more than one voice when studying history

Example #10

Themes and Schemes

Gr. 8–10

How do artists make paintings about the same theme look so different?

Reason for Comparison

Compare collections of paintings by different artists on the same theme to discover similarities and differences. Ask why they are so different. (E.g. Winter scenes by Lauren Harris and Cornelius Krieghoff; Ballet Dancers by Edgar Degas and Antonio Canova)

Establish Criteria for Comparison

Review art terms related to style, technique, media, etc. from previous studies. Create a list and from it establish the criteria that will be used to make your comparison.

Gather Data

Examine several examples of paintings by the two different artists on the theme you have selected. Use virtual galleries on the web, look at art books, or visit a gallery.

Thinking points for each artist: What is your first impression? What message was the artist conveying about the theme? Think about how these differ: colors, medium, techniques, mood, etc. What influence did the time period have on the painter's style?

Sort Based on Criteria

Create a T chart. Using your criteria list as a guide, identify and note what it is about the artists' treatment of the theme that makes their paintings so different.

Make Comparison

Study your findings from the T-Chart. Identify similarities and differences in all criteria categories. Summarize your ideas to discover how the artists created such different paintings.

* The Big Think *

Content











Construct Visuals—Make a group or class chart or graphic organizer of the major points. **So What?** Is most artistic work serendipitous or planned? How much is art influenced by culture of the time? What other influences are at play? **What Next?** Compose a comparative essay for the school art journal to share your findings. Use the *Comparative Essay Rubric* and *So you have to write a comparative essay...* to assist you with your composition.

Process

H.O.T.—Review the comparison process. **So What?** Why do visual tools (venn diagrams, T-Charts) help us when we are making comparisons? **What Next?** How can we use visual tools for planning for writing?

Compare and Contrast Model

T-Charting Comparisons

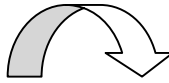
Subject #1:	Criteria	Subject # 2:
	 	
	 	
	 	
	 	
	 	

Compare and Contrast Model

Comparative Essay Rubric

Criteria Level	Introduction	Organization	Content	Comparison
	<i>Is this essay a comparison only, a contrast only, or both compare and contrast?</i>	<i>How well did I follow the outline for organizing my essay?</i>	<i>Did I gather and use both sets of information to their potential?</i>	<i>Is the comparison well defined, balanced, and understandable?</i>
Level 4	<ul style="list-style-type: none"> - well defined rationale - clearly defines items and type of comparison, and foreshadows approach 	<ul style="list-style-type: none"> - interest catching introduction, insightful conclusion - clear and orderly use of details and supporting examples 	<ul style="list-style-type: none"> - effective elaboration of all relevant details for both sides of the comparison - importance and relevance of supporting information explained 	<ul style="list-style-type: none"> - criteria for comparison is very clear to reader - use of cue words and transitions is effective and varied - details and examples for all criteria - balanced amount of data for both sides - comparison fully explored
Level 3	<ul style="list-style-type: none"> - states a reason for comparison, - introduces items and defines type of comparison 	<ul style="list-style-type: none"> - strong introduction, logical conclusion - clear and orderly comparison with examples 	<ul style="list-style-type: none"> - adequate, accurate details with supporting data for both sides of the comparison 	<ul style="list-style-type: none"> - well-defined comparison - used and varied cue words and transitions - included adequate details and examples for both sides - good exploration of comparison
Level 2	<ul style="list-style-type: none"> - rationale unclear - introduces items to be compared 	<ul style="list-style-type: none"> - weak introduction and/or conclusion - inconsistent organization 	<ul style="list-style-type: none"> - some missing or erroneous details - some examples 	<ul style="list-style-type: none"> - unbalanced amount data for either side - some data identified but not compared
Level 1	<ul style="list-style-type: none"> - no rationale - topic and items unclear 	<ul style="list-style-type: none"> - opening and/or closing statements absent - order confusing 	<ul style="list-style-type: none"> - ineffective use of details and examples 	<ul style="list-style-type: none"> - little actual comparison of identified data

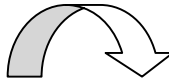
So you have to write a comparative essay...



Prepare Information

Where do you begin?

- identify the topics/subjects to be compared
- clarify your rationale/reasons for the comparison
- explore to get an overview of the topic
- establish criteria for comparison
- gather data relevant to your rationale
- use an organizer such as *Compare Facts* to sort data for both subjects
- decide on essay model – *compare by criteria or **organize based on similarities and differences



Make an Essay Plan

What Next?

Introduction

- Intriguing: captures readers' interest
- Names topics/subjects being compared
- Thesis: topic and main idea
- Rationale: reason for comparison
- Opens comparison discussion

Supporting Paragraphs

Criteria Based

- begin with a transition to criterion being compared
- use cue words or phrases for similarities or differences to begin each comparison
- support comparison with examples

Comparison Based

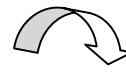
- one paragraph for all similarities, another for differences
- use cue words or phrases to transition from similarities to differences or vice versa
- discuss all features of the relationship

Closing

- summarize comparison, show that it was meaningful
- state your conclusions/point of view
- include interesting discoveries and your inferences or predictions



Transition Cues



Compare

akin to
also
as is with
as well with
at the same time
both
like
likewise
in the same way
in the same manner
is similar to
similarly
-

Contrast

although
and yet
but
conversely
differs from
in contrast to
however
nevertheless
on the contrary
on the other hand
unlike
when in fact
where as
while
yet

Example #11

Is it Twisted, Bent or Spun?

Gr. 9–12

How does the presentation of the data affect the message?

Problems, Issues, Ideas Not Understood

Introduce the topic of Global Warming with two articles or video clips with opposing or at least conflicting viewpoints. Critique them. List similarities and differences. Brainstorm a list of ideas of perceived evidence of global warming. Present a variety of quotes from skeptics of global warming. Students consider: Why is there so much confusion? Who is right? Are some sources issuing misinformation? What is fact and what is propaganda or spin?

Gather Data

Select one aspect (e.g. effect of global warming on severe weather), and set up several work stations, each with resources (magazine and newspaper articles, charts, graphs, websites, or video clips). Group students. Assign each group to one station to identify and record undisputed, factual information, as well as comments or illustrations that seem to contradict the actual facts. Use the organizer *Facts or Factoids* to record data and sources. Validate the credibility of all sources. (If students have not had experiences analyzing visual data, use the organizer *Interpreting Graphs and Charts* to teach the skill.)

Analyze Relationships

Reconvene as a class group. Share and list “facts” collected. Identify confirmed facts. How can people use the same facts but give very different impressions? Sort and compare “facts” for selected aspects of global warming. Have students identify situations where the same numbers were presented in a different way, resulting in a different perception of effect or impact. Look for discrepancies and apparent contradictions and possible causes (e.g. very small or very large increments in graphs and charts, pop outs, etc).

Experiment with a Tool

Select one set of numbers and experiment with different graphs and charts, changing increments and styles to demonstrate how it is possible to give different impressions with the same statistics.

Create and Critique

Ask students to create what they feel is the most accurate visual representation of the connections between weather and global warming, based on their current research. Have students meet in group conferences to critique each others’ work.

*** The Big Think ***

Content

Thoughtful Writing—Have learners reflect on their views about global warming before this lesson and now. **So What?** Have your views changed? Why or why not? What do you know now that you didn’t before? **What Next?** Allow students to select and investigate another topic related to global warming (e.g. flooding, animal migration). Use the organizer *Facts or Factoids* to record findings.

Process

Active Discussion—Discuss the essential question, *How does the presentation of the data affect the message?* **So What?** Create a group chart answering a new question “How do we match a message with a data picture?” **What Next?** Quick write: How has this process helped you to think critically?



Sensemaking Model

Fact or Factoid?

Information	My Interpretation	Source	Source Credentials

What do these implications imply?

I have discovered that it is important to

Interpreting and Evaluating Graphs and Charts

Scan the graph/chart to get a quick overview. If it is effectively designed you should be able to gain all the necessary information quickly. Now read a little closer to interpret the graph/chart and evaluate its effectiveness.

What is the title?

What categories are represented?

What is the date of the study?

Can you tell how the data was collected?

Who produced the graph/chart?

Is there a key or legend? What does it tell you?

What visual techniques have been applied (color, texture, size)?

What does the graph/ chart tell you?

Does it help you to understand the topic better? How?

Is there a better way of representing this information? If so, how and why?

Is there anything that you can detect that could possibly be misleading? Explain.

How might a different breakdown (e.g. larger or smaller increments) change the initial impression?

On the whole this graph/ chart is (not) effective because.....

Adapted from Koechlin and Zwaan *InfoTasks for Successful Learning*, Pembroke Publishers 2001.

Example #12 The Eye of the Storm Gr. 9–12

How have events related to Iraq kept the world in a state of turmoil over the last quarter century?

Problem

Modern History classes are grappling with the causes and effects of war in Iraq. First they will gather facts about the history of the turmoil. Next they will analyze the facts by creating a timeline that will give them a concrete picture of events and the interrelationship of these events as they have unfolded.

Data Gathering

Group students and assign a focus country or organization for fact gathering (e.g. Group A: Iraq, Group B: USA, Group C: Britain, Group D: United Nations, Group E: France, Group F: Russia).

Remind students to use several sources and to validate and document them. Keep accurate, organized notes and sources.

The nature and volume of all the data from the main stakeholders in this world crisis will require students to experiment to find the best way to organize. They will need to back up each event with the pertinent background information. **Creating Timeline**

The best way to handle such a vast project is probably electronically, by creating an interactive webpage. For specific help with designing a timeline, see *Tips for Terrific Timelines* and the *Timeline Rubric*.

Analysis

Once all the data from all groups is organized in an effective timeline, reassemble the students into groups, ABCDEF. Review the focus question and charge groups with the task of looking for relationships, patterns, discrepancies, surprises, etc. from the collective timeline data.

*** The Big Think ***

Content

H.O.T.—Study the collective timeline. Identify and list pivotal events. **So What?** Revisit the essential question. Look for factors contributing to Iraq’s turmoil. What do we now understand about Iraq? **What Next?** Learners use this exploratory experience to build more questions and create a thesis statement for a term paper.

Process

Active Discussion—Reflect on the process. What worked and didn’t work? **So What?** How useful were the timeline tips and the rubric? **What Next?** What additional strategies, tools and tips can you suggest for creating effective timelines?

Tips for Terrific Timelines



1. How can a timeline help me?

- ▶ Timelines show small snapshots of events and help us see change over time.
- ▶ Timelines make it easier to see causes and effects.
- ▶ Timelines make it easier to see relationships and make connections.

2. What do I want people to learn from my timeline?

3. How can I make a timeline that will convey my message?

- ▶ List all the items/events you think you want to include on your timeline.
- ▶ Sort your items/events by putting them in chronological order.
- ▶ Check to be sure you have included all the important, significant items/events.
- ▶ Check to see if all the items/events you have chosen to be *entries* are related to your purpose.
- ▶ Sort your *entries* again if necessary.
- ▶ Look carefully at the number of *entries* you have and think about the length of time they span.
- ▶ Think about how time should be broken down. Experiment with time *increments* (e.g. centuries, decades, years, months, days, hours, minutes).
- ▶ Decide on the most effective *increment* for your purpose, and use that as your *scale*.
- ▶ Decide on the time for beginning and ending your line.
- ▶ Select a way of marking the increments on your line.
- ▶ Decide on where to place the entries: above the line, below the line, alternating...
- ▶ Think about the use of graphics and color to make your line more effective and attractive.
- ▶ Be sure to keep it clear and uncluttered.

4. Is this a logical application for commercial timeline software?

The Timeline Model

Timeline Rubric

Level	Content	Scale	Citations	Presentation
Level Four	<ul style="list-style-type: none"> - entries show careful selection for relevance and impact (connections, relationships and patterns are evident) - all data is accurate 	<ul style="list-style-type: none"> - scale selected is very effective for topic - increments marked are clear and effective and are accurately placed - placement of entries on the line is consistent and accurate - intent of timeline is clear to viewer (connections, relationships and patterns are very obvious) 	<ul style="list-style-type: none"> - all sources accurately referenced 	<ul style="list-style-type: none"> - visually appealing - appropriate and effective graphics and use of color - easily legible and well-balanced
Level Three	<ul style="list-style-type: none"> - entries are adequate, on topic - data is accurate 	<ul style="list-style-type: none"> - scale selected is appropriate for topic - increments are well marked and accurately placed - placement of entries on the line is consistent and accurate - intent of timeline is clear to viewer (connections, relationships and patterns can be identified) 	<ul style="list-style-type: none"> - all sources accurately referenced 	<ul style="list-style-type: none"> - attractive - graphics related to subject. and use of color is effective - clear and uncluttered
Level Two	<ul style="list-style-type: none"> - some important data is missing - some inaccuracies in data 	<ul style="list-style-type: none"> - scale selected is poor - increments are poorly marked and sometimes inaccurate - some entries are out of sequence - intent is difficult to discern 	<ul style="list-style-type: none"> - most sources accurately referenced 	<ul style="list-style-type: none"> - little attempt to embellish - ineffective use of color and graphics - unclear and/or cluttered
Level One	<ul style="list-style-type: none"> - data poorly selected in terms of importance, relevance and impact - many inaccuracies in data 	<ul style="list-style-type: none"> - scale is inappropriate or not apparent - increments inaccurate and or ineffectively marked - many entries not in sequence - no indication of intent 	<ul style="list-style-type: none"> - few sources accurately referenced 	<ul style="list-style-type: none"> - no visible attempt to make line attractive - little or no use of graphics and/or color - messy and difficult to read

Example #13 Marketing to Teens WebQuest

Gr. 10–12

What makes the teen market tick?

Introduction

Producers and marketing companies spend a lot of time and money developing profiles of consumers. The teen market is particularly volatile because trends change so quickly.

Task

You will be working for a very successful marketing firm, Dog Whistle Ink. Your task has three steps. Develop a census for gathering needed data about teen lifestyles in your community. Conduct the census. (Accuracy of data is key.) Place your data in a matrix and analyze it for patterns and trends. Develop a series of effective graphs and prepare a report on teen trends.

Process

- **Part 1:** Design the census questions. Decide what is important to know about teens. Limit your survey to 10 points only (e.g. Listening to or playing music—In hours per week). Sample census questions: http://www19.statcan.ca/01/doc/01_questions_4-8_e.doc
- **Part 2** Conduct the survey with 20 students in each of the target groups: Group 1: Grade 9, Group 2: Grade 10, Group 3: Grade 11, Group 4: Grade 12.
- **Part 3** Use spreadsheet software to create a matrix of data. Create graphs to best analyze your findings. Combine group data to create a Histogram. Examine your group graphs and your collaborative Histogram to see if a correlation might exist between two variables. Can you find patterns and predict some trends in teen activities? Prepare your report and present it to the marketing firm.

Information Sources

Marketing to Teens: www.media-awareness.ca/english/resources/educational/lessons/secondary/advertising_marketing/mtt_introduction.cfm

The Bribe Soul: Ads, TV and American Culture:

http://www.medialit.org/reading_room/article575.html

What are you worth? Audience for sale: http://www.medialit.org/reading_room/article348.html

Evaluation

- census targeted key activities
- data was adequate; advice was relevant and accurate
- graphing was accurate and effective
- analysis was logical and insightful
- understood the patterns or trends

* The Big Think *

Content

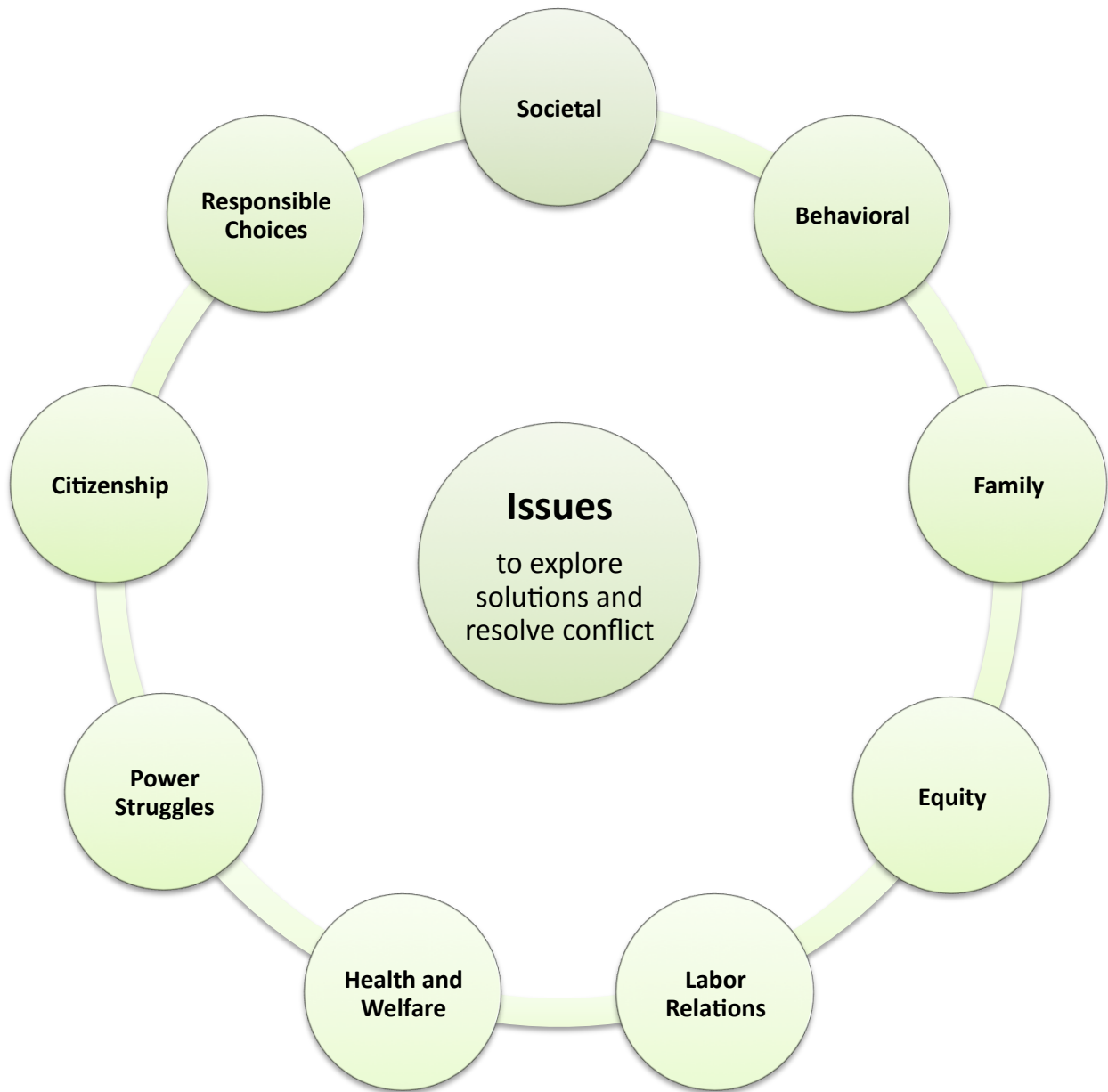
Create New Questions—Small group think: You have developed a powerful data profile and analysis of teen activities in your community. Summarize as a class. **So What?** Should there be ethical considerations when creating marketing for teens? What new questions do you have? **What Next?** Think about these questions and then create 5–6 questions you would ask in an interview with an executive at Dog Whistle Ink.

Process

Active Discussion—Review data collection process. **So What?** Are there ways we could have collected better data to answer our question? **What Next?** What is the significance of the results?

Chapter 3

What kind of ISSUES do we use to explore solutions and resolve conflict?



Example #1

Good Snacks

Gr. 1–4

What snacks are good for me?

Build Background

As a class create a simple Snack Survey for students to conduct with other classes. Ask questions like: Which snacks do you like best? Why? Which snacks do you have most often? Why? What do your parents want you to have? Why? Depending on skill levels, you may need to provide a sample of one or two word responses (handy, healthy, prepackaged) for students to circle. Create and duplicate the survey. Arrange to conduct the survey with other classes using learning buddies to record short responses. Share, sort, and tally responses. Use bar graphs or pictographs to illustrate your findings.

Predict

Discuss the survey findings and make predictions about healthy snacks based on the survey results.

Gather and Analyze Expert Advice

Invite the cafeteria manger, the school nurse, a public health nurse or a dietitian to come to the class and give a presentation about the official food guide. View a video on healthy food choices. Share and discuss non-fiction picture books.

Summarize the information. List the criteria for a healthy snack. Identify the considerations for taking a snack to school or to the park (nutrition value, allergy awareness, cost, requires packaging, produces non-compostable garbage, needs to be kept cool...).

Conference

Think

Have each student create a list of 6 snacks they like and think are healthy.

Pair

Meet with a partner, share ideas, and critique lists. Look for duplicates and select the best choices.

Share

Create a class list of healthy, convenient snacks. Send the list to the expert, who presented to the class, for confirmation. Make a fridge magnet list to send home. Ask students to discuss the list with caregivers.

* The Big Think *

Content

H.O.T.—Compare survey results. **So What?** Where did we get the best advice? Why? **What Next?** How has this activity affected your snack choices? How can we share our new expertise with others?

Process

Create New Questions—Review survey questions. **So What?** Are there questions we should have asked but didn't? **What Next?** Revise survey as needed and retake it in a few months time to see if snack habits have changed.

Example #2**Responsibility****Gr. 1–4***What is a good school citizen like?***Develop Background Knowledge**

Take students on a tour around the school building and grounds and take pictures of different places and signage. Talk with students about the people, processes and things around the school that keep them safe and happy. Use the photos to build collaborative stories about life at your school. Set up groups. First work in expert groups to answer: What are the rules? Then jigsaw to answer: *What are our school responsibilities?*

Research Aspects of Problem	Jigsaw to Investigate Possibilities
<p><i>What are the rules?</i></p> <p>Each group creates an illustrated list of rules for their assigned space. They should interview school personnel to make sure they have identified the rules correctly.</p>	<p><i>What are our school responsibilities?</i></p> <p>In the new groups ask students to think of ways they can make sure the rules are always followed everywhere.</p>
<p>Group A – classroom Group B – library Group C – gymnasium Group D – playground and halls Group E – lunchroom</p>	<p>Group ABCDE Group ABCDE Group ABCDE Group ABCDE Group ABCDE</p>

Collaborate to Find a Solution

Collaboratively build a large chart of school rules and responsibilities. Ask student to think about ways they could always remember to be good school citizens. Have them draw a picture, write a story, or perform a short skit that demonstrates that they are good school citizens.

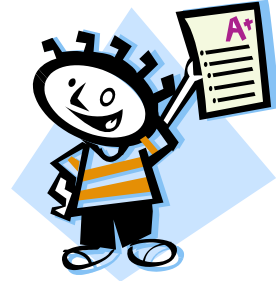
* **The Big Think** ***Content**

Active Discussion—So What? Why do we have rules and responsibilities? Are there any rules that should be changed? Why? Are there any other new rules we should have? Why? **What Next?** Have students share their school rules and responsibilities at home and discuss with caregivers their home and community rules and responsibilities. Who else has rules and responsibilities? Why?

Process

H.O.T.—Complete a group reflection *Hurrah for Our Team*. **So What?** Have students work in groups to develop the rules and responsibilities of working in groups. **What Next?** Set goals for improving group work skills and responsibilities.

Hurrah for Our Team



Three ways our team worked well together:



Two things our team could do to improve:



One important thing I learned from my team:

Example #3

Conflict and Peace (ESL)

Gr. 2–12

What does peace look like?

Identify Ideas Not Understood

Teachers want learners to discover the characteristics of a peaceful environment.

Gather Data

1) Have students bring to class newspapers and news magazines in English and their first language if possible. Read a story about conflict such as *Tusk Tusk* by David McKee. Discuss and chart terms and words that are related to conflict. Ask students to scan through the news media and clip any headlines or visuals that illustrate 'conflict'. Spread out the clippings on a large surface. Sort to build categories such as war, family violence, bullying, etc. Mount the clippings on a bulletin board to create a large conflict web. Brainstorm questions they now have about conflict and display these on the bulletin board.

2) Introduce the concept of peace and list how to say peace in various languages. Discuss individual concepts of peace. Read *What Does Peace Feel Like?*, a remarkable book created from the thoughts and feelings of children around the world. Group students and provide them with the organizer *My Senses*. Have groups brainstorm for what peace would look like, sound like, feel like, taste like, and smell like.

Analyze Relationships

Ask groups to revisit the conflict bulletin board. Think about peace as an alternative to conflict. Review their senses brainstorming worksheet and look for connections in response to the focus question, *What does peace look like?*

Experiment with a Tool

Instruct groups to create a visual representation of peace on a poster. Discuss and show examples of visual tools such as graphic organizers, graphs, charts, maps, cartoons, sketches, or collages. Provide sufficient time and resources for students to experiment with their visualization.

Create and Critique

When assigning the poster, share and explain the *Visualizing Information Checklist* so they can critique their work as they are creating their visualization.

*** The Big Think**

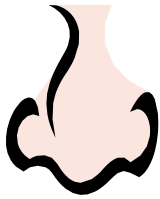
Content

Construct Visuals—Display posters and organize a gallery walk. **So What?** In groups of 3 or 4 make a new visual incorporating the most important aspects from the gallery walk. **What Next?** Discuss with students who else should see their posters and develop a plan of action to share them with the broader community. Ask, How does personal experience with conflict affect our definition of peace?

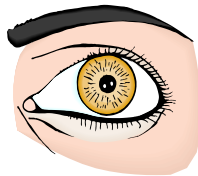
Process

Thoughtful Writing—Chart the learning process. **So What?** Ask learners to write a reflection in their journals stating how the process helped them to build understanding of the concept of peace. **What Next?** List other times when visualizing can help build understanding.

My Senses



Use each of your senses to help you explore. Record your discoveries.



I wonder.....

Visualizing Information Checklist

Appearance

- Have I made effective use of color and texture?
- Have I made effective use of size?
- Is the product attractive, neat, and interesting?
- Did I achieve visual impact?

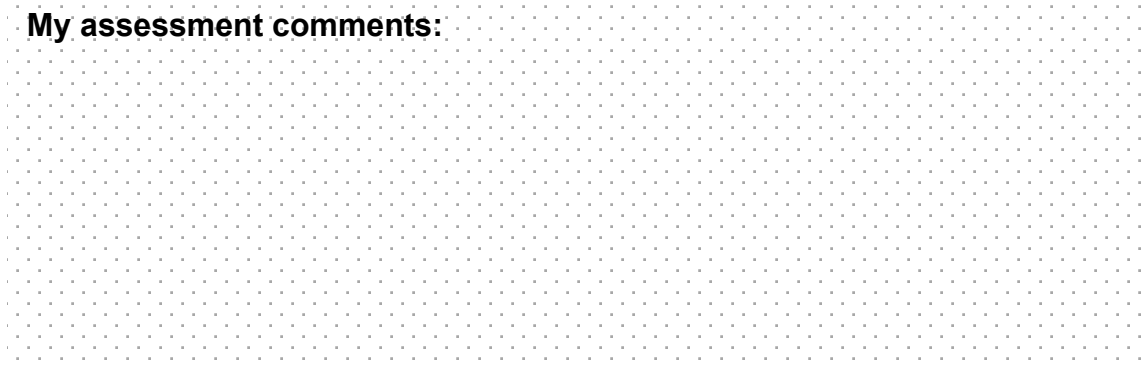
Content

- Have I shown the aspects of the topic that I intended to focus on?
- Does it include enough real information?
- Is the information I used reliable and relevant?
- Do I have enough variety of material/data/information?
- Have I made effective use of sensory information (smell, taste, touch, sound, as well as visual)?

Message

- Will the viewer feel the message?
- Is my message obvious to the reader/viewer?
- Is my message easy for the reader/viewer to understand?
- Is the type of visual I chose the best one to illustrate my message?

My assessment comments:



Example #4

Endangered Animals

Gr. 4–8

Is it too late to save our endangered animals?

Develop Background Knowledge

Show photos or video clips of endangered animals. Ask students what all these animals have in common. In groups, discuss what the world would be like without them. Have groups create questions they have about the growing problem of endangered animals. Invite a wildlife expert into the classroom to help students begin to find answers to their questions. Provide students with statistics and teach terms—vulnerable, threatened, endangered, and extinct. Introduce the problem question(s) and set up groups to research endangered vertebrates or expand to other species. Prepare a pathfinder for each group so they find what they need quickly and have lots of time to process it through the model.

Note: Introduce the responsibilities and goals of working collaboratively with the *Collaboration Rubric*.

Research Aspects of Problem	Jigsaw to Investigate Possibilities
Who is endangered? Why? Where? When?	How can we save them?
A – Mammals B – Birds C – Fish D – Reptiles E – Amphibians	ABCDE ABCDE ABCDE ABCDE ABCDE

Collaborate to Find a Solution

As a class decide on criteria for assessing the potential success of the solution ideas (e.g. economics, manpower, environmental impact). Have students return to expert groups and share and evaluate solution ideas. Decide on the best approach for their animal type and prepare a feature article for their community newspaper. In the report students will also explain the problem solving process they used

*** The Big Think ***

Content

Active Discussion—Set up a Blog (called *Is it too late to save our endangered animals?*) so students can continue to discuss critical questions and pose their own questions about saving animal species. **So What?** Is the path to extinction a natural process? How concerned should we be about vulnerable and threatened species? **What Next?** Who is responsible for looking out for the interests of animals—locally, nationally, globally? Are there any success stories? Research threatened and endangered plant life. Are there any actions our school can take to protect the world’s wildlife? Develop a plan to be part of the solution and carry it out.

Process

Thoughtful Writing—Have students write a reflection in their research journal about how working in a group helped them to become better researchers. **So What?** List benefits and place on a ranking ladder. **What Next?** Set goals for improving collaborative skills.

Problems/Possibilities Jigsaw Model

Collaboration Rubric

Criteria Level	Personal Responsibility	Support/ Appreciation	Focus	Problem Solving	Engagement
	<i>Did you fulfill your role effectively and fairly?</i>	<i>Did you provide appropriate support and help to others?</i>	<i>Were you able to implement your plan in an effective and timely manner?</i>	<i>How well were you able to cope with complications that arose?</i>	<i>Did group work keep you interested and organized?</i>
Level Four	<ul style="list-style-type: none"> - takes on leadership role - fulfills all aspects of the role - works as part of the team 	<ul style="list-style-type: none"> - facilitates sharing of ideas and information - honors and praises strengths of others - assists others while respecting their roles and responsibilities 	<ul style="list-style-type: none"> - adjusts plan as necessary to facilitate the needs of team - stays on task and reviews topic as necessary - offers positive support to help others to refocus 	<ul style="list-style-type: none"> - is proactive in solving problems - asks probing questions and listens attentively - tests and evaluates solutions - facilitates consensus 	<ul style="list-style-type: none"> - highly motivated - exhibits excitement - plans and works with others
Level Three	<ul style="list-style-type: none"> - understands personal role - fulfills assigned role duties - contributes fair share to task 	<ul style="list-style-type: none"> - shares ideas and information - open to ideas/point of view of others - shows awareness/ concern for feelings of others 	<ul style="list-style-type: none"> - focuses on plan and carries it out - focuses on topic throughout task - completes all tasks on time 	<ul style="list-style-type: none"> - uses a variety of strategies to solve problems - considers all solutions - assists others in problem solving 	<ul style="list-style-type: none"> - very interested - positively and actively engaged - organizes task activities
Level Two	<ul style="list-style-type: none"> - not fully aware of role assigned - carries out only some role responsibilities - contribution is minor 	<ul style="list-style-type: none"> - shares with reluctance - listens to ideas of others on occasion - offers some support to others 	<ul style="list-style-type: none"> - follows plan some of the time - loses focus of topic and/or plan - completes some tasks on time 	<ul style="list-style-type: none"> - unsure how to deal with most problems - usually goes along with suggested solutions - looks to others for help 	<ul style="list-style-type: none"> - exhibits some interest - usually cooperates with others - lacks organizational skills
Level One	<ul style="list-style-type: none"> - little awareness of team roles - takes no responsibility for role - contribution of little value 	<ul style="list-style-type: none"> - little effort to share information and ideas - works in isolation - offers little support for others 	<ul style="list-style-type: none"> - pays little attention to plan - not focused on topic or task - does not meet timelines 	<ul style="list-style-type: none"> - gives up readily when problems arise - sometimes frustrated by problems - relies on others to solve problems 	<ul style="list-style-type: none"> - shows no interest in activities - has difficulty working with others - is very disorganized

Adapted from Build Your Own Information Literate School Koechlin and Zwaan 2004

Example #5**Bully WebQuest****Gr. 4–8***How can students take a stand on bullying?***Introduction**

Everyone has a right to be respected and the responsibility to respect others.

<http://www.bullying.org/public/frameset.cfm>

Task

Your principal has appointed your class to investigate bullying and prepare a campaign to combat it.

Process - Problem Possibilities Jigsaw Model

Problem - How can our school community be more proactive to prevent bullying?	
Specialist Teams	Problem Solving Teams
You will be working in expert teams to explore a perspective of this problem. Keep accurate notes and references.	Form new teams consisting of one expert from each perspective. Share your findings and keep track of your responses on the <i>RVL Connect</i> organizer. Brainstorm solution ideas.
Team 1 – Bully Team 2 – Victim Team 3 – Bystander Team 4 – Mediator Team 5 – Parent/Guardian/ Teacher	Team 12345 Team 12345 Team 12345 Team 12345 Team 12345
Collaborate to Find Best Solutions Look for patterns and categories in the solution ideas. Develop criteria for assessing the best solution ideas and rank the potential solutions using the organizer <i>Decision Matrix</i> . Prepare a presentation/report for your principal.	

Information Sources

No Bully for Kids: <http://www.nobully.org.nz/kids.htm>

First steps to Stop Bullying and Harassment:

http://www.psepc-sppcc.gc.ca/res/cp/bully_12217-en.asp

Bullying.org: <http://www.bullying.org/public/frameset.cfm>

Bully Beware: <http://www.bullybeware.com/>

Evaluation

- adequate, accurate and relevant data
- shared and collaborated effectively
- sorted and analyzed data
- generate creative and feasible solutions

*** The Big Think *****Content**

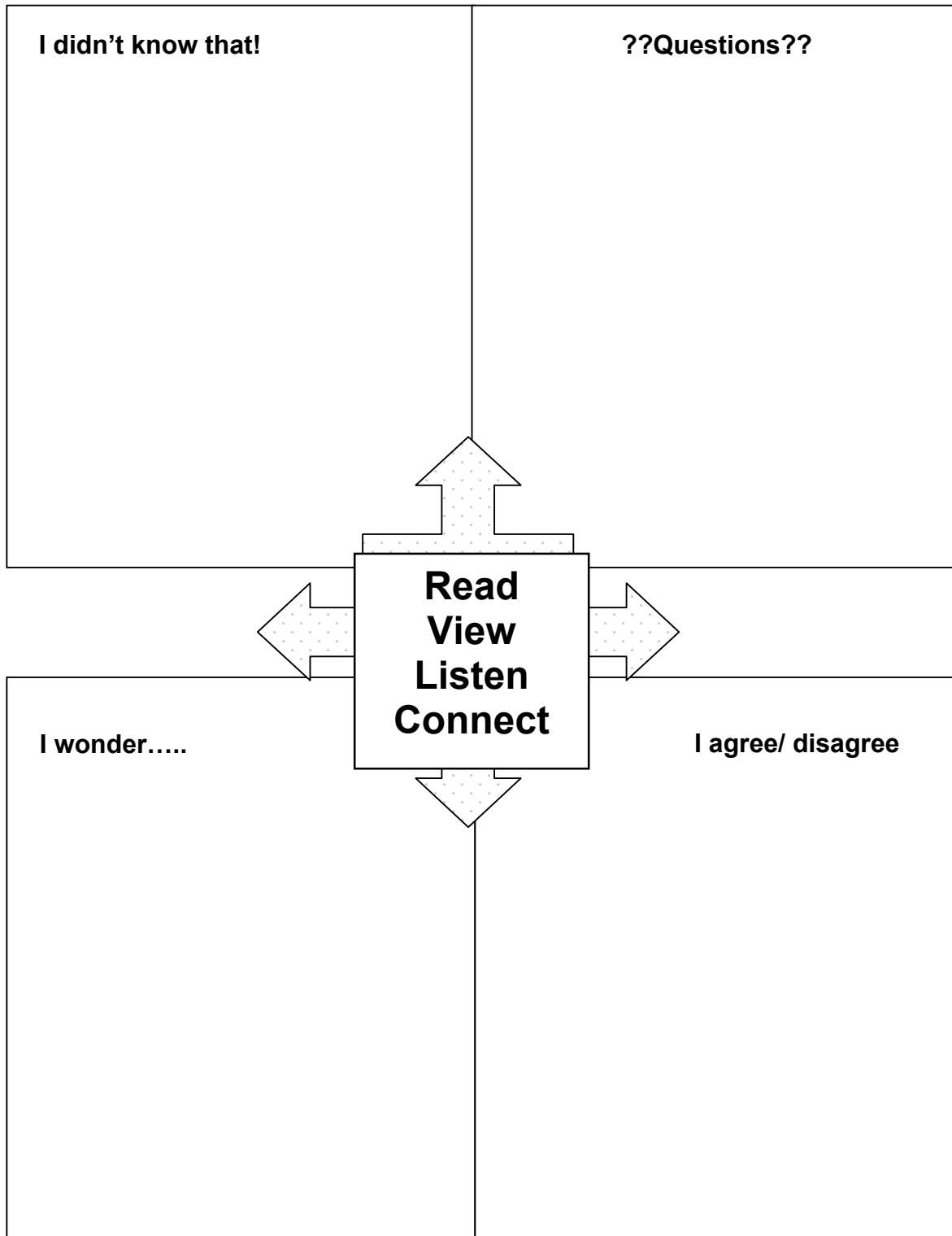
New Problem or Challenge—So What? Now that you have all those great ideas, swing into action. Create the action steps for your anti bullying campaign. **What Next?** Set up a literature circle and read novels that have overt themes of bullying. Ask students to work on the focus questions, What causes kids to act like bullies? How can we work together to act responsibly and build healthy relationships?

Process

Thoughtful Writing—Problem solving using the jig-saw process takes teamwork. **So What?** How did you do? **What Next?** Brainstorm for other places this problem solving model would be effective.

RVL Connect

Problem _____ Perspective _____



Title of resource.....
Kind of resource.....

Problems/Possibilities Jigsaw Model

Decision Matrix

<p>Solutions</p> <p>Criteria for Evaluation</p>								
<p>(Rate out of 5)</p>								
<p>Totals</p>								
<p>The best solution ideas are.....</p> <p>Because.....</p>								
<p>Next Steps</p>								

Example #6

Investigate the Swamp

Gr. 6–8

What can be done about the smelly swamp?

Background

The swamp behind the school is emitting a foul odor and the neighbors are complaining.

Problem

The city is about to pave over the swamp. Is that the best solution? The sixth grade classes volunteer to study the problem under the direction of their teachers and the librarian. The problem is first attacked by teams of specialists, then they jigsaw to form new teams of experts to develop and propose a solution.

6th Graders Attack the Swamp Problem			
Specialist Teams	New Groups Formed	Team Solutions	Presentations to Community and Government for Resolution
Team A: History of swamp		Team 1: (ABCD)	
Team B: Government/community relations		Team 2: (ABCD)	
Team C: Ecology of swamp		Team 3: (ABCD)	
Team D: Alternatives across the country		Team 4: (ABCD)	
Etc.		Etc.	

Each specialist team must do thorough research to build expertise before new teams are formed. Presentations will be to real community groups and councils.¹ Final presentations must be realistic, contain budget projections, and propose timelines.

*** The Big Think ***

Content

Active Discussion—Post presentations for analysis and review the feedback from the officials. **So What?** Have we made a difference? **What Next?** What further action or research do we need to take?

Process

Active Discussion—Review the information gathering process. **So What?** Were all perspectives represented in our research? Were any major information gaps revealed when we received feedback from the officials? **What Next?** How can we fix the gaps in our information?

¹ One such real problem done in a middle school in Aurora, Colorado discovered that the swamp was part of an original bird flyway over the city. The solution was to restore the swamp to attract birds. It happened.

Example #7

Science Fair Sampler

Gr. 5–8

What can I do for science fair?

Goal

To give students an overview and some background knowledge of potential topics for their Science Fair projects. The exploration activity will spark interest in topics as well as provide orientation to the many resources available to students through the school library.

Explore, Skim and Scan

The Science Department and the teacher librarian will work together to develop centers for an exploration activity. Centers focus on curriculum topics and are arranged by resource types (e.g. science magazines—print and electronic, encyclopedias—print and electronic, books, video and selected web sites). Students rotate through centers and complete reflective prompts on their organizer *Science Fair Exploration*.

Make Connections

Now students need to consider possible topics and questions for their personal science fair projects. Use the organizer *Science Fare: Whetting Your Appetite*. Students complete the columns and think about all these comments as they assign a ranking to their possible topics. Now they review the rankings, select, and circle their top three choices, consult with their teacher and decide on the project they want to proceed with.

Build a Question

Review Science Fair criteria with students then have them create a triple T-Chart. Students record their purpose or question and continue to complete the T-chart using the following headings: What do I Know? What do I Need to Find Out? Where can I find Information?

*** The Big Think ***

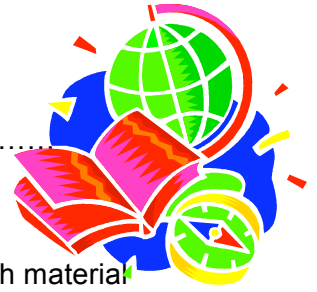
Content

Active Discussion—List all the topics that learners have selected for their science fair projects. **So What?** What surprises you? **What Next?** Sort the topics into categories and compare with major science themes. Does our class have a good representation of science topics and disciplines? What important themes have we left out? How could we still include some information about these science topics at our Science Fair?

Process

Thoughtful Writing—Students complete a self-reflection journal entry. **So What?** Discuss how the library exploration activities and topic ranking process helped learners find the best topic for them. **What Next?** Students develop an action plan that includes a timeline and materials lists.

Science Fair Exploration



Name:..... Class.....

Welcome to the library. Today you will be exploring four types of resources to discover topics and ideas that might make interesting science fair projects. At each station, use your skim and scan skills to help you read and view as much material as possible today. Use the organizer to record your thoughts and possible ideas for science fair projects. **Happy hunting!**

<p>Periodical Station (magazines & newspapers)</p> <p>That's interesting...</p> <p>I didn't know that...</p> <p>I want to know more about....</p>	<p>Computer Station</p> <p>That's interesting...</p> <p>I didn't know that...</p> <p>I want to know more about....</p>
<p>Science Books Station</p> <p>That's interesting...</p> <p>I didn't know that...</p> <p>I want to know more about....</p>	<p>Video Station</p> <p>That's interesting...</p> <p>I didn't know that...</p> <p>I want to know more about....</p>

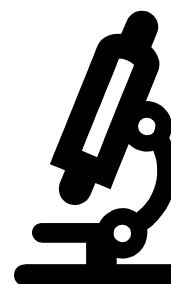
Good Job. When you decide on the focus for your project, come back and visit us again. We can help you find out lots more.

Science Fair: Whetting Your Appetite

Record the all topics you are interested in. Make a note of the things that intrigue you about each topic. Think about the potential pluses and minuses of developing this topic for your science fair project. Think about your timelines, materials, and experience.

Topics of Interest to Me	Intriguing Factors	Positives	Negatives	Rank 1–5
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

- Rank your topics on a scale of 1–5 (1 of little interest, 5 very interesting).
- Circle your three most interesting topics.
- Consider science fair criteria and conference with your teacher to discuss your ideas.
- Pick the topic you will work on and start planning.



Example #8

Greener School

Gr. 8–12

How can we make our school greener?

Develop Background Knowledge

Introduce with a political cartoon and/or video clip, newspaper, magazine article featuring the theme of Going Green. Discuss terms —sustainability, ecological footprint, environmental impact, stewardship, consumption, etc. Have students create a personal ecological footprint from any of the websites available such as the Earth Day site (<http://www.earthday.net/footprint/index.asp>) or a more detailed personal survey on this Canadian site (http://www.heb.pac.dfompo.gc.ca/community/education/lessonplans/Ecofootprint/downloads/ecofootprint_handout_e.pdf)

Research Aspects of Problem	Jigsaw to Investigate Possibilities
<p><i>What is our school’s current environmental footprint?</i> Expert groups will need to collect and store accurate data samples and analyze average consumptions and ecological impact for their aspect.</p>	<p><i>How can we reduce our footprint?</i> New groups will study all expert group reports and look for connections and possible solution ideas.</p>
<p>A – Heating and Air Conditioning B – Lighting C – Garbage D – Water E – Food F – Transportation</p>	<p>ABCDEF ABCDEF ABCDEF ABCDEF ABCDEF</p>

Collaborate to Find a Solution

Teams take their solution ideas to other school stakeholders (teachers, administration, caretakers, parent council, student council, day care), present them, and ask for feedback.

Return to expert groups and work on specific solutions for each area of concern.

Students will use the organizer *Problems Problems* to help them evaluate their solution ideas.

*** The Big Think ***

Content

New Problem or Challenge—Return to the focus question, *How can we make our school greener?* **So What?** Prepare an action plan for a greener school. Which solution ideas need to be implemented by authorities outside of the school community? Decide who to take these ideas to, schedule, and present the solutions. For solution ideas that can be carried out by members of the school community, draft plans and put the ideas into action. **What Next?** Test other topics for greenness (e.g. clothing, fast food, automobiles, etc.).

Process

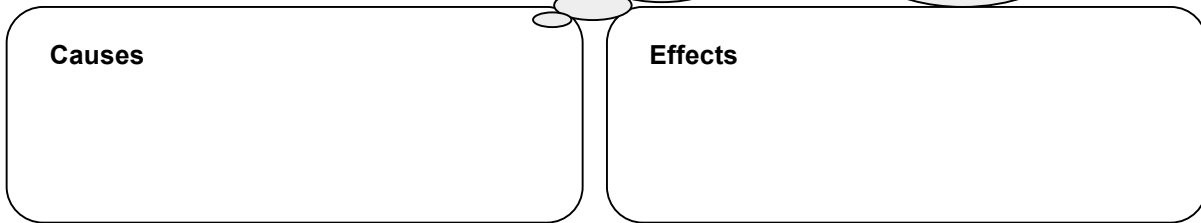
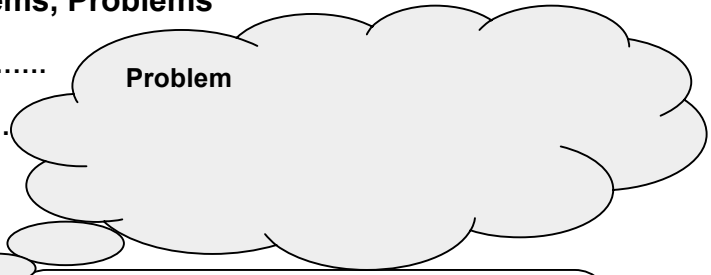
Active Discussion—Review the strategies used to store and analyze data. **So What?** What worked and what didn’t? Why? **What Next?** Explore more data management tools.

Problems/Possibilities Jigsaw Model

Problems, Problems

Book/Story:.....

Author:.....



Solution Ideas	Strengths	Weaknesses
1)		
2)		
3)		
4)		
5)		
6)		
The best solution idea....		

Koehler and Zwaan. *Ban those Bird Units*. Hi Willow, 2005

Example #9 Support for Children at Risk WebQuest Pt. 1 Gr. 9–12

How can aid money be best utilized to support needy children?

Information

Pick up a newspaper or turn on the TV and you will be connected with people dealing with war and disaster and all need help—a tsunami ravishes the countries of South East Asia; AIDS kills parents in Africa, leaving children alone; war takes its toll in the Middle East. People are left homeless and struggling to find the necessities of life. Children are particularly vulnerable and we have pledged to provide for all children everywhere.

Convention on the Rights of the Child

http://www.unicef.org/crc/files/Rights_overview.pdf

Task

Your class has decided to act on their concern for other children and plans to raise money for a worthwhile charity but needs to decide on which one to support. Your group has been charged with the task of researching a possible recipient of the money and recommending or rejecting it. The class as a whole will vote on which non-governmental organization (NGO) is to receive your funds, so your careful analysis and informed opinion matter.

Process

Step 1) applies the process as described in the Read View Listen Model

1) Explore some of the many NGOs on the United Nations website and select three to four charitable organizations your group is interested in. Investigate the NGOs and collect specified data.

Steps 2) and 3) apply the process and described in the Matrix Model

2) Prepare a profile for each NGO using the *Profile of an NGO* organizer. Organize data on a large matrix using traits such as mission, vision, target group, sponsors, money matters, roadblocks, achievements, innovative approaches, etc. Analyze the data by examining each criterion across the matrix and extracting the benefits for children.

Investigating the Efficiency of NGOs				
Non-Governmental Organizations	Traits /Questions to Answer			
	Target Group	Sponsors	Money Matters	Achievements
NGO #1				
NGO #2				
NGO #3				

2) Decide on the most favorable organization to support and prepare a brief for the class based on your rationale and the analysis of the matrix data.

3) Present the briefs and compare and contrast findings using Talking Points to guide your discussion. Respond to questions from other groups.

Talking Points for Discussion:

- How cost effective is the effort? Does a substantial amount of donations go to actually solving the problem?
- Is the NGO recognized and rewarded by big names? How? Is this a good thing?

Mix it Up Model

- How well do they deal with the roadblocks?
- How much effort goes into the business of collecting money, realizing the vision?
- What is the actual impact of the NGO?

4) We are now ready for closed ballot voting.

Information Sources

- Alphabetical listing of NGOs affiliated with United Nations <http://www.ngo.org/links/list.htm>
- Human Rights Watch <http://www.hrw.org/>
- Global Issues <http://www.globalissues.org/HumanRights/>

Evaluation

- data is adequate, relevant and accurate
- analysis is logical and insightful
- final decision based on data not predisposition or popularity
- presentation brief is well organized, clear, concise, information rich, and persuasive

* The Big Think *

Content

New Problem or Challenge—Now that your class has decided on which charity best supports children in need you will have to get busy and create an action plan. **So What?** Consider these questions when drawing up your plan: What is your target/goal? How will you achieve it? How will you advertise your events? Who can help you with this project? **What Next?** How can you follow up on your donation?

Process

Active Discussion—Review and chart the stages/steps of the learning journey. **So What?** How did the matrix help in decision-making? **What Next?** Explain how NGOs could make use of the matrix. List other problems that could be solved using the matrix model.

Profile of an NGO

Name of NGO

Mission/Vision (What):

Target Group (Where, Who):

Structure of NGO (paid positions, volunteers....):

Support Base (Who? company sponsors, campaigns, private donors..., How much?):

Visibility (Where? Advertising TV, press, How much?):

Funds Collected Annually:

Allocation of Funds (infrastructure, salaries, advertising, travel expenses...):

Percentage of Collected Money/Goods and/or Services Reaching Children:

Actual Achievements (previous years):

Road Blocks (problems encountered):

Example #9 Support for Children at Risk Pt. 2 Gr. 9–12

How can youth contribute in a meaningful way to solutions for global issues related to youth?
 Students often feel numbed and powerless by the bombardment of media and entertainment themes focused on tough global problems.

Develop background knowledge using the Background to Question Model.

Ask students to collect evidence of global youth issues (newspapers, magazines, Internet) in order to build a bulletin board collage of issues. Have students review these problems, reflect, and respond using the *Exploring Topics/Issues* organizer.

Using the Problems Possibilities Jigsaw Model investigate the possibilities.

Research Aspects of Problem	Jigsaw to Investigate Possibilities
<p><i>What are the causes and effects of these global problems?</i></p> <p>Group students by interest in a global youth issue. Groups will investigate their issue looking for causes and effects of the problem using <i>Investigating Cause and Effect</i> for recording their data.</p>	<p><i>Why aren't government agencies and NGOs making more progress in solving serious societal issues?</i></p> <p>Ask new groups to share information from the Cause and Effect chart for their youth issue and work collaboratively to explore the challenge question.</p>
<p>Group A – spread of aids Group B – child labor Group C – gun violence Group D – poverty Group E – war orphans</p> <p>Expert groups will now find government and non-profit organizations that are working to address the issue. Ask groups to assess the successes of the organizations and summarize the current status. Make copies for each group member.</p>	<p>Group ABCDE Group ABCDE Group ABCDE Group ABCDE Group ABCDE</p> <p>Talking Points to guide discussion: Examine attempted solutions, successes, and challenges. What isn't working? Why? What worked? Why? How were challenges overcome? Look for patterns and trends, commonalities in successes and challenges. What can we learn from them? How can the successes and innovations of one group be applied to others?</p>

*** The Big Think ***

Content

New Problem or Challenge—So What? Return to Expert Groups. So now that we have all this information where do we fit in? What can we do that might make a difference? Have each group devise an initiative/solution/action to pursue. Test ideas with the class; discuss potential and revise as necessary. **What Next?** Groups develop action plans and launch their ideas with the wider community.

Process

Active Discussion—Review the note making strategies used in the process. **So What?** How do graphic organizers help with analysis of data? **What Next?** Start a bank of note making organizers for the Virtual Learning Commons.

Adapted from <http://www.accessola.com/osla/bethechange/webquest/littlebit/index.html>



Exploring Topics/Issues

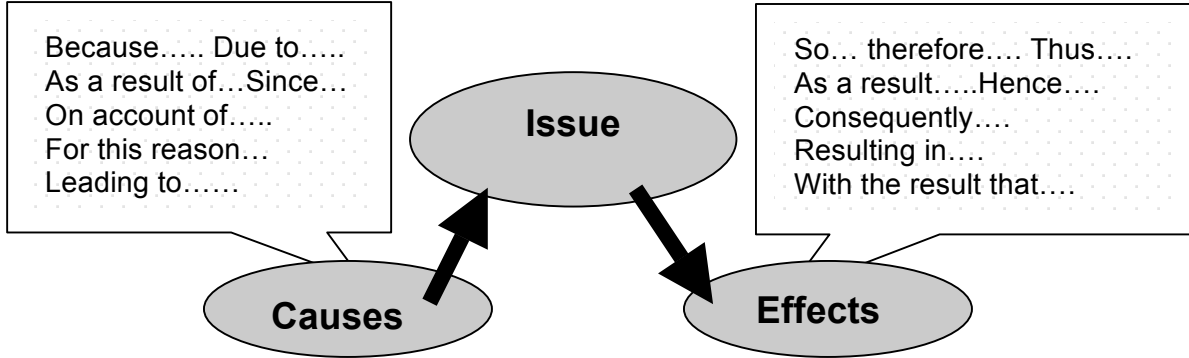


Interesting Facts, Quotes, Observations	Thinking Connections, Inferences, Patterns	Questioning Who? What? When? Where? How? Why? Should? Would? Could?

I have decide to investigate.....because.....
.....
.....

Investigating Cause and Effect

This organizer will help you to sort out the reasons some things happen as well as the consequences of an event. Use the connector words as clues to uncovering the causes and effects of an event.



Current Status

Adapted from Build Your Own Information Literate School Koechlin and Zwaan 2004.

Example #10

Investigating Health Problems

Gr. 9–12

What can be done to deepen understanding of serious health problems?

Background

Students have learned about the major health problems of some of their peers. They wonder what can be done to raise awareness and help combat these illnesses.

Research

Specialist teams under the direction of the teacher and librarian each research one health issue of interest. Quality and expert information during the research is stressed. Each specialist team must do thorough research to build expertise. With expertise in a single disease, new teams combine their knowledge looking for patterns, possibilities for informing fellow students, and some way to help.¹

Freshmen Attack Health Problems of Their Peers			
Specialist Teams	New Groups Formed	Team Solutions	School Campaign for Understanding and Career Fair for Medicine and Health
Team A: Meningitis		Team 1: (ABCDE)	
Team B: West Nile Virus		Team 2: (ABCDE)	
Team C: HIV/AIDS		Team 3: (ABCDE)	
Team D: Manic Depression/Suicide		Team 4: (ABCDE)	
Team E: Diabetes		Team 5: (ABCDE)	

*** The Big Think ***

Content

H.O.T.—Gather all possibilities suggested. Evaluate each suggestion for the campaign. **So What?** Which suggestions are viable and have the greatest potential? **What Next?** Act on the winning possibilities.

Process

Active Discussion—Review the currency of data gathered. **So What?** Why was it critical to find very current information for our investigations? **What Next?** How can we keep our data updated for our campaign?

¹ At Newsome Park Elementary School in Newport News, Virginia, second graders curious about the number of medicines a classmate takes and her frequent trips to the doctor investigated (with the classmate's permission) the causes of cystic fibrosis. They invited experts to tell them about the disease, wrote up their research, used graphs and PowerPoint® to tell the story, sold pledges to and participated in a cystic fibrosis walkathon.

Example #11**Drug Safety****Gr. 10–12***Why should we worry about prescribed drugs?***Develop Background Knowledge**

Collect news items about concerns and problems with prescribed drugs. Have students read the news articles and keep track of their thoughts and questions on the *Critical Eye on the News* organizer. Have students meet in groups and discuss their reactions, questions, and inferences. Group students by interest to form the expert groups and work on question#1. JigSaw and pose the 2nd question.

Research Aspects of Problem	Jigsaw to Investigate Possibilities
<p style="text-align: center;">1st Question</p> <p>Which drugs are in question and why?</p>	<p style="text-align: center;">2nd Question</p> <p>What are the common problems and concerns?</p>
<p>Expert Groups</p> <p>Group A – doctors Group B – medical journals Group C – health organizations Group D – pharmacists Group E – consumers Remind students to keep accurate notes and to validate all their sources.</p>	<p>Problem Solving Groups</p> <p>Group ABCDE Group ABCDE Group ABCDE Group ABCDE Group ABCDE Begin thinking about solution ideas.</p>

Collaborate to Find a Solution

Return to expert groups and discuss possible solutions to the problems from the perspective of each stakeholder. Have groups use the *Problem Synthesis* organizer to keep track of their ideas. Have each group prepare an executive summary of their research and their findings. Invite another class to be reporters and hold a mock press conference to discuss the findings of the expert groups.

* **The Big Think** ***Content**

Thoughtful Writing—So What? Return to the question. *Why should we worry about prescribed drugs?* Have each student write a response paper. **What Next?** Write letters of concern to appropriate health officials sharing student findings. What other aspects of Health Care require the consumer/patient to be aware?

Process

Active Discussion—Discuss problems students had finding good sources and how they solved those problems. **So What?** Collate problem solving techniques used by students. **What Next?** Create a HELP slideshow of tips for effective searches for The Virtual Learning Commons.



Critical Eye on the News

Title:.....Author:.....

Journal/Newspaper:.....Date:.....

From the Text	My reactions, questions and inferences
Facts	
Opinions	
Arguments	
Quotes	

Problems/Possibilities Jigsaw Model

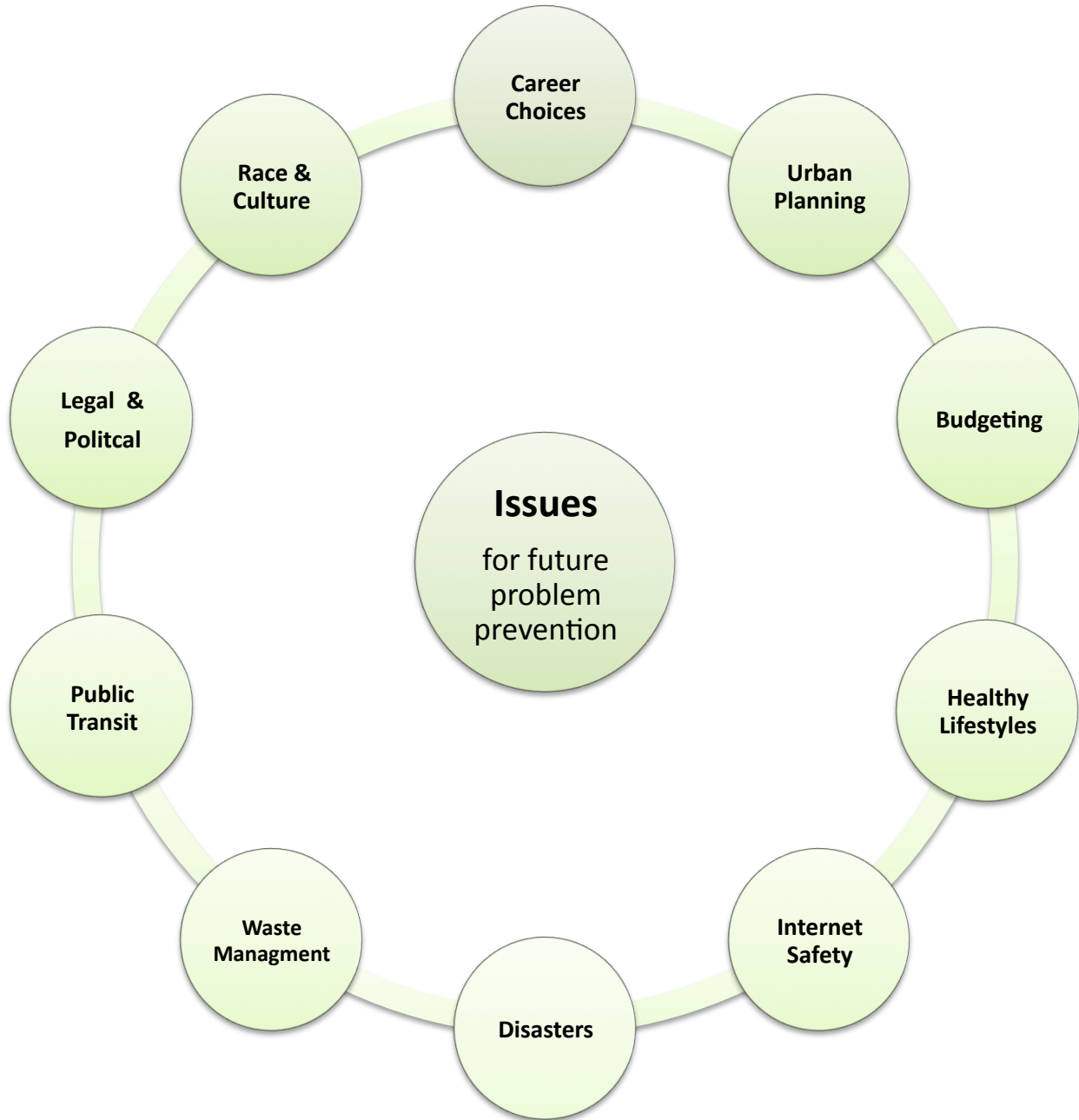
Problem Synthesis

Use this organizer to explore solutions and solve a **problem** or construct a new **hypothesis**.

Problem	Issues	Reactions	
Solution Idea Strengths Weaknesses	Solution Idea Strengths Weaknesses	Solution Idea Strengths Weaknesses	Solution Idea Strengths Weaknesses
Considerations		My solution/hypothesis	

Chapter 4

Which ISSUES do we study to prevent future problems?



Example #1

Scary Sharks?

Gr. 3–6

Are sharks really dangerous?

Building Background

Ask students what they know about sharks. Chart the information. Cut up the information chart and sort the data with students into categories to create a shark web.

Research and Action Plan

Working in partners, have students research a specific shark species. Students will reflect on the information they discover and record new questions they have as they gather their data. Share and collate all the questions to develop a list of common and unique questions students still have about sharks.

Doing

Have students ask their big questions and take notes during a shark experience, real or vicarious, to learn more about sharks from experts.

- Take students on an excursion to an aquarium.
- Arrange for a video conference with a shark expert at an aquarium.
- View films about sharks.
- Make a virtual visit to the sharks at <https://www.coralrealm.com/features/dive/virtualdives.html>

Have students meet with their partner to review questions and recorded notes. If they still have questions needing answers, continue research and seek more experts to consult.

* The Big Think *

Content

Active Discussion—Add new knowledge to the class web. **So What?** Debate the engaging question: *Are sharks really dangerous?* **What Next?** Discuss what tourists need to know about sharks. Prepare an ‘Everything You Need to Know About Sharks’ flyer for tourists. Students can share new learning by collaboratively creating a slide show or writing and illustrating a magazine article.

Process

Construct Visuals—Review the learning process and develop a flow chart of the steps followed. **So What?** How did seeing the sharks help you to learn about them? What are the advantages of learning by interacting with experts? **What Next?** Have learners self assess their individual learning journey following the flow chart and set goals for next time. Research another animal labeled dangerous following the same process.

Example #2 Putting the Wheels in Motion Gr. 4–6

Many children are seriously injured every year in bicycle accidents. *What can we do to reduce these injuries?*

Background to Question Model

Provide students with printed statistics of local and national bicycle accidents. Learners work with a partner to interpret the statistics using *Analyzing Patterns and Trends organizer*. Have partners meet with a larger group of six and share their analysis of the statistics and suggest 3–5 areas that need to be investigated to build background information for the class (e.g. construction of bicycles, types and causes of injuries, safety measures and equipment established or available, education of cyclists, training of motorists, municipal laws and bylaws regarding bicycle riding, and school safety programs).

Concept Jigsaw Model

Specialist Team		Sharing Team	
First Question: <i>What are the current facts and issues regarding bicycle safety?</i>	Form teams of researchers according to their interests. Most of the needed information will be acquired through direct requests to local establishments and authorities, it will be necessary to teach /review skills for conducting interviews and gathering and interpreting primary data. Each investigative team will keep an e-portfolio of the collective data on their focus topic and draft a summary report.	Concept forming question: <i>What are the causes and effects of bicycle injuries?</i>	Instruct the study teams to share their findings, make connections, and ask questions until they have built a comprehensive picture of the issues surrounding bicycle safety. Have each team develop a web illustrating the complexities of the problem.
Team A School		Team ABCDE	
Team B Municipal		Team ABCDE	
Team C Medical		Team ABCDE	
Team D Police		Team ABCDE	
Team E Industry		Team ABCDE	

Reinvent

Review the guiding question. *What can we do to reduce bicycle injuries to children?* Based on the work accomplished to date, ask the teams to suggest solutions. Use the organizer *Problems, Problems* to help them analyze their solution ideas. Share all the group solutions and cluster and clarify as necessary. As a class, decide on the top ten recommendations. Develop a flow chart to illustrate possible implementations of these recommendations. Invite experts to serve as consultants for the class. Arrange for each study group to consult with one of the experts (e.g. Doctor/surgeon, Police Officer, city planner, parent, competitive cyclist, or physical education teacher) and then make any necessary refinements or changes.

*** The Big Think ***

Content

H.O.T.—So What? Prioritize the recommendations. **What Next?** Have students formally present their recommendations to the appropriate decision makers and initiate any recommendations that they can develop independently. E.g. school safety campaigns.

Process

Active Discussion—Review the benefits of collaborative work. **So What?** Why do we make up new teams in the jig-saw process? **What Next?** How can we be even better at group work?

Analyzing Patterns and Trends

Look over the data you have gathered. Can you find any patterns or repeated information?

Record any patterns or trends you discover.

What are the possible reasons for the patterns and trends you have discovered?

- ◆
- ◆
- ◆

Why are these patterns/trends important?

How can you use this information?

Problems, Problems

Many children are injured every year in bicycle accidents.

What can we do to reduce these injuries?

Causes

Effects

Solution Ideas	Strengths	Weaknesses
1)		
2)		
3)		
4)		
5)		
6)		
The best solution idea...		

Example #3

Packaged Problems

Gr. 4–8

How can changes be made to the way goods are packaged to reduce the amount of garbage?

Compare Contrast Model

Packaging currently used for many household goods contributes greatly to recycling and garbage being collected resulting in storage problems, expensive collection and processing, not to mention the effect on landfill sites.

Groups to brainstorm for different materials used in packaging; share and create a list. Provide students with data (from information pamphlets and /or an invited expert) about materials that are recyclable in your district and procedures for collection of garbage and recyclable materials. Sort materials into recyclables and garbage. Examine a few items that have multiple packaging materials and establish criteria (e.g. garbage, recyclable, partially recyclable or reusable).

Students record items purchased for their homes and collect packages and note packaging materials for a two-week period. Use the *Packages, Packages* chart to keep an ongoing list of items, a description of the packaging, and to identify whether it is garbage, recyclable, partially recyclable or reusable.

At the end of the collection period, identify packages that are not totally recyclable. Select three they feel are most in need of improvement. Students bring to class their completed charts as well as the packages they identified as the worst offenders. Make a class list of problem packages. Sort and cluster like products. Brainstorm questions about how things are packaged and why.

Reinvent

Select a manageable number of problem packages from the class list for further study; group students with like interests. Students use information from their charts to investigate similar packages and packaging materials from different manufacturers. Examine problem packages and identify materials used. Determine whether they are cosmetic or have a specific purpose (e.g. necessary for hygiene, breakage/damage protection, convenience for stacking or shipping, theft and deterrents). Think about what is necessary for shipping, storage, customer safety, and display. Consider the materials that are available. Consult manufacturers and store managers. Ask lots of questions: “What other more environmentally friendly materials could do the same job? How could the package be redesigned? Is there another way to display it without the package or with less packaging...?”

Jigsaw students to meet with other groups and examine different packaging problems. Share findings and discuss similarities and differences. Return to home groups and design a more environmentally-friendly package. Create an illustration with a description of materials used or make a prototype of your package.

* The Big Think *

Content

H.O.T.—Display original packages along with the new and improved packages in a classroom marketplace. Have students describe their packaging and explain its benefits to other students and/or classes. **So What?** Are the packaging changes worth the effort? **What Next?** How can we use this knowledge to bring about changes in the packaging industry?

Process

Construct Visual—Create a flow chart of the learning process. **So What?** Identify and discuss points in the process that were challenging. **What Next?** How could we have done a better job? What are we proud of?



Packages, Packages

Product	Packaging Material	Garbage, Recycling, Partial Recycling, Reusable

Example #4

Controversial Contests

Gr. 5–9

What constitutes an entertaining contest?

Investigate Problem/Issue and Possible Positions

Contests that challenge skills and endurance have grown in popularity, and while many are entertaining, some are very dangerous to people and property.

Brainstorm a list of popular contests. Identify any that are controversial (e.g. extreme sports, eating contests, endurance marathons, etc.). Form groups based on interest in a contest type. Ask individual students in each group to identify their personal opinion about whether or not they support the contest and to what degree. Create a long position line across the width of the classroom identifying only the ends: one as positive (fully supports), the other as negative (totally opposes). Have members of each group position themselves along the line according to their current opinion. Take a digital photo to record first positions. Instruct students to conduct their research using the *Who Says What?* organizer to guide their investigation of the contest type. Have students also collect news articles and photos of the contest type. Use a variety of resources such as Guinness Book of Records, periodicals and websites from multiple perspectives.

Analyze Perspectives, Positions and Impacts

Think about who says what. Study the perspectives of all stakeholders. Look for commonalities, sponsors, opposing ideas, unusual opinions. Rethink first reaction opinion, this time considering the information gleaned from all the stakeholders. Use a *That's Good That's Bad* organizer (pg 51) to help form a supported opinion about the contest type.

Take a Position—Prepare Argument

Ask individual students in each group to decide on their personal position about whether or not they support the contest, and to what degree and prepare to defend their position. Pose the questions: Why do we have this kind of contest? What effect does this practice have on the human body? How safe is it? What kind of supervision in there? What are the rewards? What is the message to the audience, to the contestants, to the world?

Present the Position

Using the position line, have members of each group (one group at a time) position themselves along the line according to their personal decision. Take a second photo and compare the pre and post investigation lines. Are there people whose position has changed? How many? Why? Invite the class to question students about the rationale for their present position.

*** The Big Think ***

Content

Thoughtful Writing—Discuss the focus question: *What constitutes an entertaining contest?* **So What?** Develop guidelines for safe, entertaining contests. **What Next?** Plan to take action on your position and/or promote the guidelines (e.g. letters, campaigns, presentations, public service commercials, further research).

Process

Construct Visuals—How did determining your place on the position line affect your decision making process? **So What?** Make a group chart synthesizing the responses. **What Next?** How can we make a position line a digital collaborative experience?

Who Says What?



Goal/Object: _____ Contest Rules: Reward/Prize:					
Source	Competitors	Sponsors	Fans	Critics	Health Officials
#1					
#2					
#3					



Take a Position Model



That's Good ↔ **That's Bad**

That's Good	Why?	That's Bad	Why?
My analysis			

Adapted from Koechlin and Zwaan *Info Tasks for Successful Learning*, Pembroke Publishers 2001

Example #5 **So You Want to Study Birds, Eh?** **Gr. 6–10**

How can structures be made 'bird friendly'?

Problem: It is estimated that every year in North America hundreds of millions of birds are killed as a result of collision with structures. In 2006 over 90 species of birds collided with structures in the Toronto area alone. Gather local facts and brainstorm questions students have about this data.

Build Background—Investigate Current Methods

Introduce by reading and discussing some current articles about the death of birds caused by structures. Form investigative groups and research current studies to discover the impact on birds and efforts undertaken to address the danger of these structures to birds. Ensure that students examine all relevant perspectives—engineering, community, political, ornithology, etc.

- Group A—Tall buildings
- Group B—Bridges
- Group C—Wind Turbines
- Group D—Towers

Compare/Contrast

Create new student groups of expert consultants to compare the results of their investigations and determine the threat of structures to bird populations. Establish criteria for comparison (e.g. number of birds affected, kinds of birds, purpose of the structure, efforts to minimize bird injury, etc.).

Reinvent and Evaluate

Pose the focus question *How can structures be made 'bird friendly'?* Invite expert consultant groups to prepare and share their proposed solutions for this problem. Test ideas with other groups, revise, and develop presentation materials

*** The Big Think ***

Content

H.O.T.—As learners listen to presentations have them keep track of their thoughts using a PMI reflection organizer. **So What?** Share and collate the reflections and discuss the focus question, *How can structures be made 'bird friendly'?* **What Next?** Prepare to advance the 'bird friendly' initiatives. Investigate bird species that are threatened or endangered and determine causes for their decline as well as successful recovery efforts.

Process

Active Discussion—List the sources used by students for this investigation. Examine the credentials and currency for each source. **So What?** Why it is important to validate sources for this investigation. **What Next?** Research careers associated with environmental issues and concerns. Why is reinvention a critical skill for these careers?

Example #6

Safety on the Net WebQuest

Gr. 6–12

How can we keep safe when using Internet communications?

Introduction

Communicating, playing, and learning with others has been made easy with the Internet. Think about all the ways you connect with others on the net: email, interactive games, mobile phones, video, podcasting, etc. The high use and accessibility of free communication on the net raises the question, “How safe are we on the net?”

Task

Your production company has been hired to produce a series of safety videos for schools. Research teams will each be working on a risk factor (Cyber Bullying, Online Predators, Privacy Invasion, Addiction, or Harmful Content). After each group has researched and analyzed their safety concern, they will conference with other groups to compare their findings and decide on the best approach for production and content for the school safety videos.

Process

Predict and record the likely information and advice about the safety concern.

Investigate the information sources to seek the advice of experts.

Contact and interview other stakeholders and any local experts (police, teachers, parents, students) using the organizer *Advice to Action*.

Review your predictions then collate and analyze the group findings on a chart. Conference with the other groups and compare causes, effects, and tips suggested by experts. Decide on an approach and develop a plan for producing the videos.

Information Sources

- Be Web Aware: <http://www.bewebaware.ca/english/default.aspx>
- Safety Highway: http://www.media-awareness.ca/english/resources/special_initiatives/wa_resources/wa_teachers/tipsheets/safety_highway.cfm
- Media Awareness Network On-Line Predators: http://www.media-awareness.ca/english/teachers/wa_teachers/safe_passage_teachers/risks_predators.cfm
- CyberSmart: <http://www.cybersmartkids.com.au/>
- Chat Danger: <http://www.chatdanger.com/resources/>

Evaluation

- selected reliable, relevant and unbiased advice
- identified and understood all relevant perspectives
- understood and interpreted consequences of advice
- collaborated to test advice

* The Big Think *

Content

Thoughtful Writing—So What? Are you now confident that you can be safe on the net? Class question: Should the Internet be filtered or open? **What Next?** Produce the video and explore ways to market it to the school community and beyond. Good luck with your video production.

Process

Active Discussion—Chart all the perspectives explored. **So What?** Why did we need to look at this issue from multiple perspectives? **What Next?** Create a web of perspectives, experts, risks, solutions and tips.

Advice to Action

Topic of Concern: _____

Predictions:		
Expert 1 -----	Expert 2 -----	Expert 3 -----
↓ Advice	↓ Advice	↓ Advice
Action Ideas:		

Example #7

Faster, Higher, Stronger

Gr. 9–12

How can we improve the Olympics so the games truly reflect all athletes' accomplishments?

Problem

Introduce the Olympic motto "Citius, Altius, Fortius": Faster, Higher, Stronger and discuss the meaning. In pairs, students consider all the positives, the negatives, and the questionable aspects of the Olympic Games. Share with the class, cluster ideas, and develop a list of major problems to overcome (e.g. cost, doping, judging, cheating, advertising, politics, financial support to athletes, security, media coverage, stress and bias etc.). Collectively decide which of the issues the class wants to deal with and develop focus groups to study them.

Investigation

Remind groups to explore all the relevant perspectives, validate, and accurately document their sources. Brainstorm possible sources and/or provide URLs of the IOCE, official athletic associations, national support programs, etc. Encourage groups to share data they find, that could help another group. Groups keep accurate notes of their findings, and provide group members with a copy for sharing in the next stage.

Compare/Contrast

Jigsaw students to form study groups. Share findings. Keep track of similarities or differences in the information shared. Look for patterns and trends in the collective data. Students use *Inductive Reasoning* organizer to help them develop substantiated generalizations about their collective findings.

Reinvent

Reconvene in home groups; share relationships and generalizations discovered. Review the guiding question. Home groups should now be able to make a few suggestions about ways the Olympics could be re-invented to address the problem their group focused on. Students use *Reinvent the Olympics* organizer to test out their solution ideas, citing the strengths, weakness and considerations of each. Share and chart the best solution ideas from each group. Work with the class to develop the top 10 things the Olympic Commission should do to improve the Olympic Games.

*** The Big Think ***

Content

Active Discussion—Reconvene in expert groups and review research findings. **So What?** How effectively does the class Top 10 list address the concerns uncovered by our team research? What adjustments should we suggest? **What Next?** Who needs to know about our class work? Finalize lists and present reinvention suggestions to appropriate groups such as an athletic association.

Process

Active Discussion—Review methods used to analyze and synthesize data during the process. **So What?** How did our strategies help us reach fair and supported conclusions? **What Next?** What more could we have done to maintain objectivity?

Inductive Reasoning

Guiding Question:

Area for writing the guiding question, featuring a dotted background.

Examine your data.

Look for patterns, connections and relationships.

What do these links tell you?

How can you explain the relationships you see?

Given the links you have discovered, what is probable?

Make some thoughtful generalizations.

Make some inferences based on your observations.

Organize the data and test out your ideas.

Do you have enough quality data to back up your reasoning?

Be careful. Don't jump to faulty conclusions!

If....

Four horizontal lines for writing the 'If' condition.

Then...

Large rounded rectangle for writing the 'Then' result.



Four horizontal lines for writing the 'If' condition.

Large rounded rectangle for writing the 'Then' result.



Four horizontal lines for writing the 'If' condition.

Large rounded rectangle for writing the 'Then' result.



Reinvent the Olympics

Focus Problem



Solution Ideas	Strengths	Weaknesses	Considerations	Analysis

Based on this analysis, the best possible solutions are:

Example #8

Mayday

Gr. 9–12

Problem

Although flying today on a major commercial airliner is a very safe mode of transportation, things can go wrong, and when they do, many lives are lost. It is crucial to discover exactly what went wrong so pilots and engineers can make sure it never happens again. This often requires a great deal of detective work and analysis. *Who is involved in the investigation? How do they go about tracing the cause of the accident when everything is destroyed?*

Study Primary and Secondary Evidence

Decide on four or five major air crashes, depending on how many groups you want. Assign each group an air disaster, or near disaster, (e.g. Hudson River event) to investigate. Instruct each group to examine all the data they can recover about the disaster, especially the efforts made to piece together the most probable scenario of what happened. Source some of the many texts available on air crash detective work. Specific web resources will be invaluable, as will periodical databases, news footage and documentaries (such as The Investigation of Swiss Air 111, The Nature of Things, CBC).

Authority # 1	03/09/1998	Nova Scotia, Ca	MD -11	Swiss Air
Authority # 2	25/07/2000	Paris, France	Concorde	Air France
Authority # 3	11/12/2001	Belle Harbor, USA	Airbus A300	American Airlines
Authority # 4	31/10/1999	Nantucket, USA	767	Egypt Air
Authority #5	01/06/2009	Rio de Janeiro SA	Airbus A330	Air France

Compare/Contrast Activity

Jigsaw groups of students meet to compare notes. (See Concept Jigsaw Model) Students highlight similarities with one color, differences or discrepancies with another. Review the guiding questions and develop a flow chart to represent the usual steps taken and the resulting implications of the investigations.

Evidence Check

Students revisit their authorities to re-check discrepancies. They consult more authorities making sure to validate the source. They research any new angles and methods they have discovered and come to a consensus regarding their flow chart.

*** The Big Think ***

Content

Thoughtful Writing—What do we now know about the different specialists involved in accident investigation? **So What?** List related careers. What skills do investigators require? **What Next?** Discover career paths that could lead to jobs in accident investigation. Investigate any that interest you.

Process

Active Discussion—Review the sources used for data gathering. **So What?** Why is it important to seek out many sources and validate them when studying historical and current events? **What Next?** Decide on best sites to add to virtual learning commons.

Example #9

Financial Planning

Gr. 10–12

What is the best way to make money work?

Build Background

Group students and give each group a financial scenario to work on. In each case a client has suddenly received \$30,000 and is looking for advice on how to best invest the windfall.

Group A — single receives an inheritance

Group B — bonus for an employee with a young family

Group C — small business owner makes a big sale

Group D — sick leave gratuity for recent retiree

Group E — insurance settlement for a handicapped teen

Predict

Groups will brainstorm possible investment opportunities (savings bonds, real estate, RRSP, stocks, etc.) and decide on experts who could provide advice on investment potential (e.g. banker, real estate agent, investment broker, life insurance salesperson, financial planner, mortgage broker, etc.).

Ask students to make predictions about the kinds of advice they might receive from the experts, and from this information develop a few specific questions they need to ask their expert during the interview. Students need to be knowledgeable about current and projected economic trends and stability in their region.

Gather and Analyze Expert Advice

Students each contact three experts. Record the advice given as well as the expert's rationale, and the possible investment implications on the organizer *Dilemma - Advice - Action*. Students examine the information gathered from all experts and determine an investment solution.

Conference

Team members meet in conference and discuss the advice they received and present their individual investment solutions. The team decides on an investment plan for their client. Each group will prepare an investment plan report complete with projected investment earnings.

* The Big Think *

Content

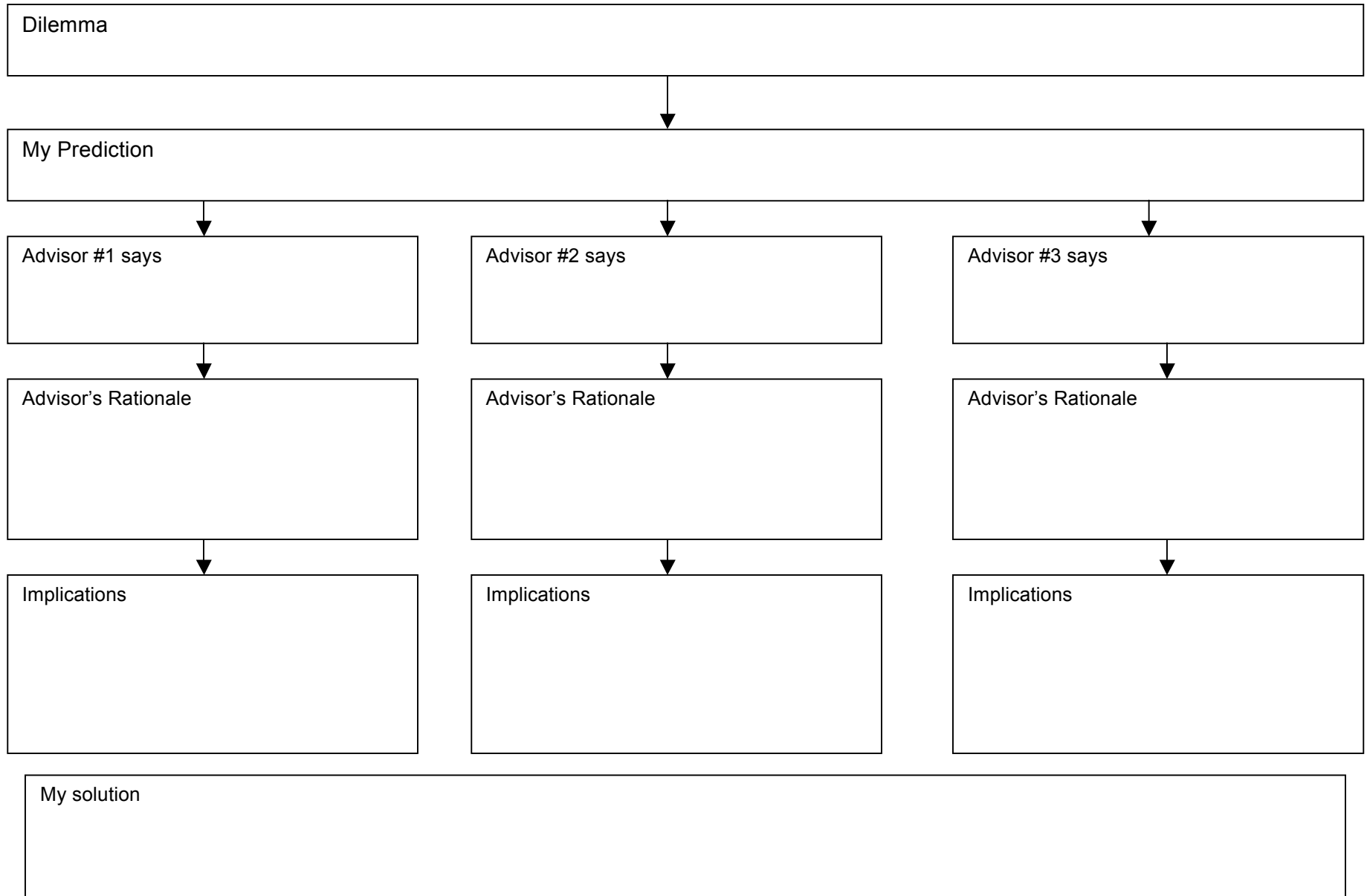
New Problem or Challenge—So What? Jigsaw and present a problem to solve: How did the investment solution differ from group to group? Why? **What Next?** What important tips did you learn about investing money? List key questions you would ask now if you had a sum of money to invest.

Process

Construct Visual—Chart the Advice to Action model. **So What?** What are the strengths of this model? **What Next?** Use this model to investigate other financial topics—budgeting, credit management, cash services, loans, etc.

Advice to Action Model

Dilemma - Advice - Action



Example #10

Mosquito Alert

Gr. 9–12

How well are we coping with the threat of West Nile Virus?

Introduction

Ask students to share what they already know about West Nile Virus. Chart this information. Read aloud a short current article about West Nile Virus. Discuss and chart new information. Highlight new terms and vocabulary. Introduce the guiding question. Inform students that they will work in InfoTeams: Data Digger, Wordsmith, Illustrator, Reflector, Questioner. They will explore a variety of sources to help them focus on this question. They will each have a specific role in their team and that role will rotate daily for five sessions. Introduce and model the roles (see *InfoTeamwork* organizers) by returning to the short article and sharing responses for each of the five role tasks.

Read, View, Listen

In groups students use selected current articles, books, videos, news clips, websites and data from science and health organizations selected to represent all relevant players and cross-country perspectives. Assign role schedules and provide copies of *InfoTeamwork* organizers (each team consisting of all five roles). Remind students to focus on the guiding question as they are researching and completing their role tasks. Allow two-thirds of class time for reading and completing role tasks and one-third for the sharing circle. Every day students take on a new role using a new resource. Give students time to review their role worksheets and to complete their *Learning Log for InfoTeamwork*.

Compare

Every day students share the information they discovered through their assigned role. The group then focuses on the guiding question looking for common understandings about the threat of West Nile Virus and the problems and successes of coping with it. As a class, discuss common findings and record on chart paper.

Gathering Evidence of Understanding

- teams collected and recorded relevant information accurately
- information from different roles complimented and supported the findings of others
- students completed their tasks in role
- students compared findings and discovered commonalities

* The Big Think *

Content

H.O.T.—In groups have learners complete a *That's Good That's Bad* chart based on collective findings. **So What?** How well are we managing this crisis? **What Next?** What more can be done? Who else can we consult? What action can we take?

Process

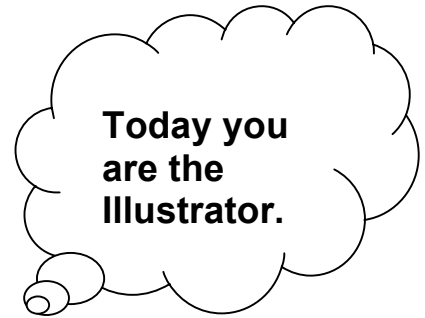
Thoughtful Writing—Review learning logs. **So What?** Which information processing roles worked best for you? Why? **What Next?** How can you expand your repertoire of approaches to processing information?

InfoTeamwork

Name:..... Team:.....

Book:.....

Reading for today is page.....to page.....



Illustrator: Your job is to read a section of your book and decide how you can share the information you have discovered using a visual interpretation. It can be a picture, cartoon, labeled sketch, graph, etc. Prepare to share with your team.

Adapted from *InfoTasks for Successful Learning*, Pembroke, 2001

InfoTeamwork

Name:.....Team:.....

Book:.....

Reading for today is page.....to page.....



Data Digger: Your job is to read a section of your book and find fascinating and significant bits of information. Jot down these gems on your organizer and record why this data is important. Prepare to share with your team.

Interesting Data	Why it is important

Adapted from *InfoTasks for Successful Learning*, Pembroke, 2001

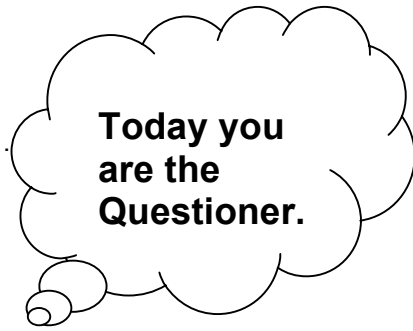
Put a star beside the most exciting data. You want to make sure you share this with your group.

InfoTeamwork

Name:..... Team:.....

Book:.....

Reading for today is page.....to page.....



Questioner: Your job is to skim through your book, read pictures and graphics, headlines, sidebars and subtitles. As you are skimming, jot down questions you have about things you are discovering. Put a sticky note on the pages you have questions about so you can find them quickly when you are sharing with your team.

Who
What
When
Where
Why
How

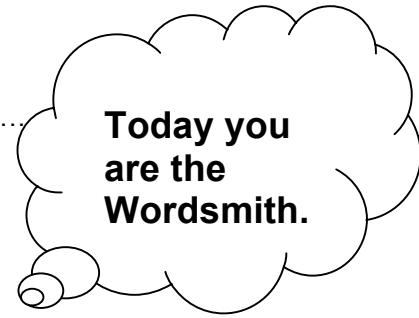
Adapted from *InfoTasks for Successful Learning*, Pembroke, 2001

InfoTeamwork

Name:..... Team:.....

Book:.....

Reading for today is page.....to page.....



Wordsmith: Your job is to read a section of your book. As you read be watching for new and interesting vocabulary. Record these words and phrases as well as what you think they mean. Use a dictionary to make sure you have the correct meaning. Plan to share your words with the team.

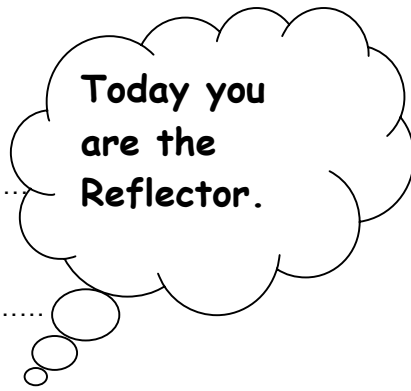
Interesting word/phrase	What it means

The word/phrase of the day is:

Why?

Adapted from *InfoTasks for Successful Learning*, Pembroke, 2001

InfoTeamwork



Name:..... Team:.....

Book:.....

Reading for today is page.....to page.....

Reflector: Read a section in your book. Use the reflection prompts on your organizer to help you make connections to your new discoveries. Prepare to share with your team.

A main point I discovered:

.....

I can use this information.....

.....

I was surprised to find out that.....

.....because.....

I didn't know that.....

.....

I think that.....

because.....

The most important thing to remember is.....

.....

I wonder if.....

.....

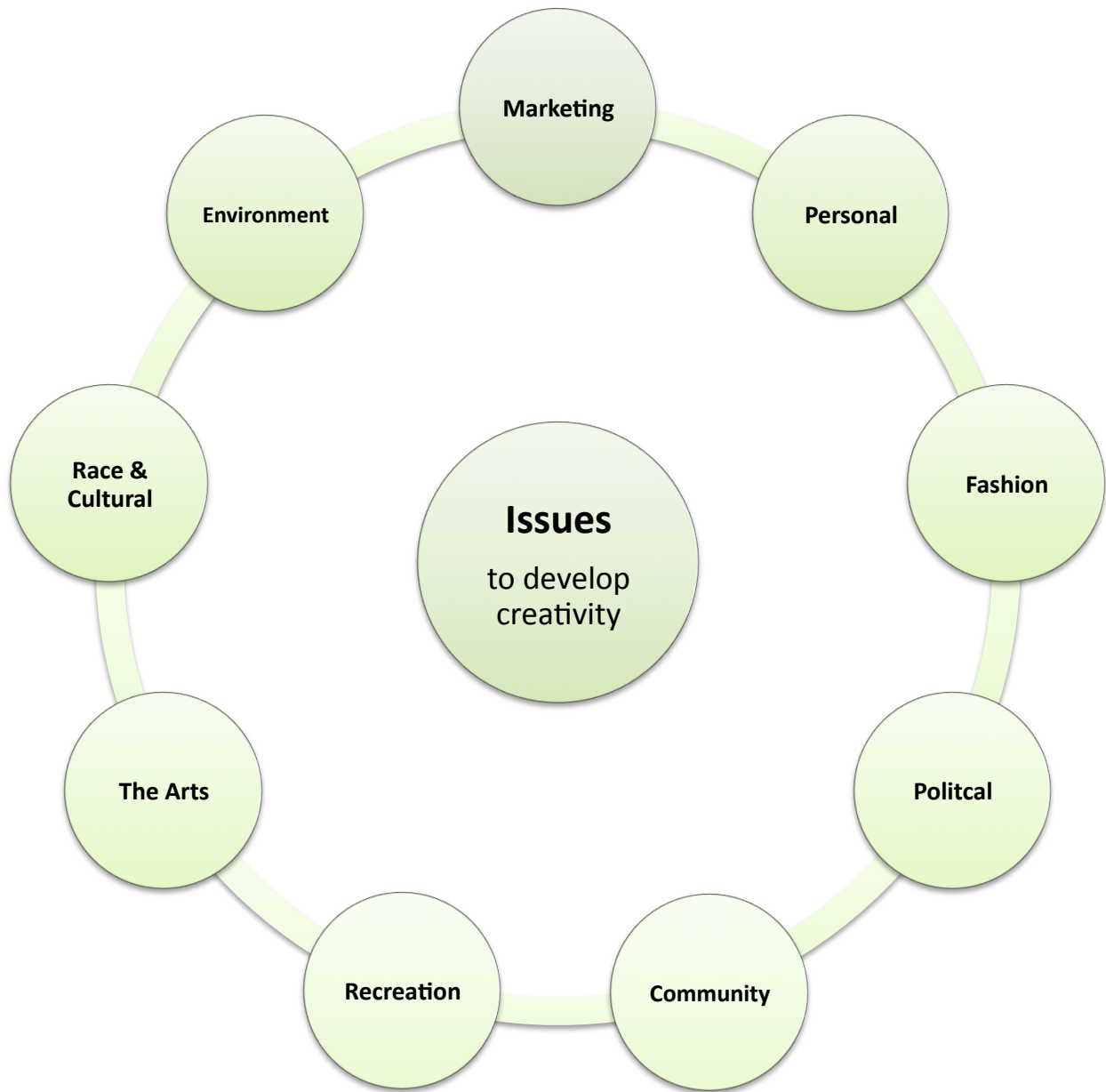
Adapted from *InfoTasks for Successful Learning*, Pembroke, 2001

Learning Log for InfoTeamwork

Date.....Role..... Today's Source:..... Reflections:.....
Date.....Role..... Today's Source:..... Reflections:.....
Date.....Role..... Today's Source:..... Reflections:.....
Date.....Role..... Today's Source:..... Reflections:.....
Date.....Role..... Today's Source:..... Reflections:.....
Date:..... Summary thoughts and new questions:

Chapter 5

Which ISSUES invite us to develop creativity?



Example #1

Play Day Games

Gr. 1–4

How do you invent a new game?

Build Background—Investigate Current Methods

Inform students that the school is going to have a ‘play day’ very soon. The problem is none of the teachers know any new games. List a few games that the teachers have suggested. Ask students to work in groups and think of games they really like to play at parties, family reunions, club events, etc. Set some ‘must have’ parameters for the games: large groups or teams can play; need rules; staying safe; prize is having fun; etc. Have students record the name of the game, objective, equipment needed, and rules on a large index card. Model how to write up game instructions by creating game cards for the teacher games listed. Set a minimum number of games for the groups to complete.

Compare and Contrast

Have groups share their favorite games. Lay out all the cards on a large surface and ask students to sort the game cards into similar groups (e.g. relay games, clapping games, tag games, ball games, water games, etc.). Let the students invent the category names and decide where to place each game.

Reinvent

Return to groups and ask students to talk about their favorite games and what it is about them that makes them so much fun. Make a list of ‘fun factors’ (e.g. stumbling while trying to run with your leg tied to someone else’s, getting wet, bursting water balloons). Ask students to consider how they could adapt these ideas, use them in different ways, or incorporate them in different types of games, to create some new attractions for this year. List favorite movies and decide on one that everyone really likes. The students will think about and discuss the events, setting, themes and characters in the movie and consider how they could use these ideas into a new game for the school Play Day. Remind students to keep reviewing the fun factor list as well as the ‘must have’ criteria as they invent. Encourage groups to try out lots of ideas until they have the best game reinvention. Groups record their new game on an index card and gather any materials or props they need for the game.

Test and Evaluate

Now take time to go outside and try out each new game reinvention. Make any necessary adjustments and refinements needed when the game is actually tested. Review the established criteria after playing each game and take the cheer test to see if the game meets class standards.

*** The Big Think ***

Content

Active Discussion—So What? Discuss and chart student responses to these questions: Why is it good for children to play games? Why should they invent their own games? **What Next?** Hold the play day and play the games. Continue the investigation of children’s games—string games, marbles, jump rope, games long ago, and games in other countries—then try the reinvention again. Create a class book about games based on *The Important Book* by Margaret Wise Brown.

Process

Construct Visuals—Have students create a flow chart of the steps in a good reinvention. **So What?** How did we do? What went well? **What Next?** How else can we use the reinvention process?

Example #2

Dump Those Batteries

Gr. 4–8

How can we make our battery powered gizmos and gadgets more environmentally friendly?

Performance Task

Mountains of disposed, dead batteries are piling up around the world. Almost every portable gizmo used by children, teens and adults—everything from watches, phones and i-pods to toy cars—is power-hungry and requires batteries. These batteries create a huge disposal problem and require a constant supply of money for regular replacement or recharging.

You are working for Evergreen Environmental Designs and you are charged with finding an alternate method of powering one of these portable gadgets. For inspiration look at kid powered merry-go-round water pumps in Africa at:

http://www.makezine.com/blog/archive/2006/07/playpumps_kid_powered_merrygor.html

Build Background—Investigate Current Methods

First brainstorm and list the types of devices that require batteries. Select a power hungry gadget that you wish to reinvent by powering it with a more environmentally friendly energy source. Research the function and uses of this gadget today. Investigate new technologies that could be used to replace the existing batteries.

Compare/Contrast

Consider the advantages and disadvantages of replacement power sources. Consider all the implications of this change (e.g. practicality, expense, esthetics, availability of materials, etc.). Conference with several peers and a teacher. If necessary, adjust your thinking and investigate further.

Reinvent

Use the data and the results of your comparison to decide on your reinvention method. Plan, refine, fine-tune, streamline.

Test

Test and pilot your reinvention, if possible, or create a prototype model.

Set up a kiosk to showcase your reinvention. Include evidence of each stage of the process.

Juror Assessment Checklist

- alternate sources well researched
- adequate relevant data; data selected effectively
- comparison was exhaustive
- selection was based on logical reasoning
- solution was practical and practicable

* The Big Think *

Content

Thoughtful Writing—So What? Have students respond to these questions in their research journal: How might your new power source affect: the marketability of the product? the environment? your disposable allowance? **What Next?** Predict what would happen to the battery manufacturers if your reinvention is successful. Who should you share your ideas with next?

Process

Active Discussion—Share testing strategies. **So What?** How did you make use of the assessment checklist during the process? **What Next?** Are there other criteria that should be on the checklist for a successful reinvention?

Example #3

Too Long

Gr. 5–8

For many of the students who ride the bus to and from school, the ride seems way too long. *How can we still pick up all students and drop them off but do it in less time?*

Investigation

Select a manageable number of routes that impact students in the class. Create bus route groups and give them maps of the school area. Each group must discover how the current system works and why. Instruct groups to survey student riders to discover where and at what time they are picked up and dropped off. Groups need to document addresses of pickup and drop off points and numbers of students picked up and or dropped off at each stop then develop maps of current bus routes. Groups should interview experts (bus drivers, school administrators, police officers and parents) to obtain all the data regarding traffic, safety, and special needs.

Compare/Contrast

Have each group mark the route, number of pickups and drop-offs per stop on a large bulletin board map. Use different colored string or yarn for each route so they can see the overall picture. Compare maps looking for things such as streets covered, times, and overlap.

Reinvent

Groups use their own data and consider the overall picture as they try to identify ways to reorganize or combine the routes or pickup points to make the rides take up less time. Reconvene as a class. Share ideas for improvement and select the ideas most likely to work.

* The Big Think *

Content

Construct Visuals—Compare existing bus routes with student suggested routes. **So What?** Create a matrix charting potential effects of changes. How will the changes impact students, parents, bus drivers, traffic flow, time, potential costs to the district? **What Next?** Create a report of reinvented bus routes, supported by student research, to be presented to the appropriate authorities at the school district.

Process

Active Discussion—Review all the perspectives consulted for this project. **So What?** Why is it important to examine all relevant perspectives when reinventing? **What Next?** Brainstorm other situations students could apply reinvent for improvement.

Example #4

Throw Away World WebQuest

Gr. 6–10

How can we rethink packaging to reduce garbage?

Introduction

About a third of the garbage generated in the average home is packaging materials. The most common types of material used for packaging are paper, board, plastic, glass, steel, aluminum, and styrofoam. Some of them take hundreds of years to break down once they are in a dump or landfill site. Glass has been found in perfect condition after thousands of years. We are running out of space. Something must be done.

Task

Your waste management company has been commissioned by Dumpy City to reduce household garbage by 25%. Your first target is packaging materials. Your presentation to the city will consist of fact sheets on each major packaging material and a slideshow of your recommendations to reduce packaging waste.

Process

Establish expert teams assigned to investigate current data on each of the major packaging types: paper, board, plastic, glass, steel, aluminum and styrofoam. Create an organizer to record the required data: raw materials, package purpose, needs, recycling potential/procedures, historical information, and improvements. Each expert team collects samples, prepares a fact sheet about their packaging material, and sets up a kiosk to display their information. Regroup students to form investigative teams with one member from each of the expert groups. Investigative teams visit each kiosk and gather data. In the large group discuss findings and analyze fact sheets for similarities and differences. Complete a *That's Good That's Bad* organizer (p. 51) to explore issues. Investigate methods to Reduce, Reuse and Recycle packaging. Prepare a slideshow of recommendations to present to the city.

Information Sources

The Container Recycling Institute:

<http://www.container-recycling.org/?gclid=CPWk-N7n74kCFSj0IgodmwTWGA>

Waste online: <http://www.wasteonline.org.uk/resources/InformationSheets/Packaging.htm#1>

The 3Rs of the Environment: <http://www.factmonster.com/ipka/A0775891.html>

New Zealand Packaging Accord:

<http://www.mfe.govt.nz/issues/sustainable-industry/initiatives/packaging/>

Evaluation

- Fact sheets are complete and accurate
- Analysis of issues is insightful
- Recommendations are practical and practicable
- Presentation was effective

* The Big Think *

Content

H.O.T.—Your teams have worked very hard and made good recommendations. Perhaps other communities could benefit from your investigation. **So What?** Brainstorm for ways you can get this valuable information to a wider audience. **What Next?** Select a product that is over-packaged and reinvent a new way of packaging it.

Process

Active Discussion—Review the reinvention process. **So What?** How did this process help us to think outside the box? **What Next?** Apply the process to some real world situations e.g. examine a fast food restaurant and make suggestions to reduce wasteful packaging.

Example #5

Recycling E-Tour

Gr. 6–12

Is recycling the answer to reducing our mountains of garbage and saving the environment?

Build Background

Municipalities around the globe are urging citizens to recycle everything from pop cans to toner cartridges. Plastic grocery bags and even the trusty light bulb are under fire. What is all the fuss about? Select and show a current video or share news articles about recycling to set the stage for the *Guided E-tour*. Share and discuss the *E-Tour Rubric* so students understand how they will be evaluated on their tour. Provide copies of the *Guided E-tour* and direct students' attention to the Tour Checkbox to ensure that they have a successful tour. Distribute copies of *Recycling Tour Map* worksheet for students to record answers to the guiding questions.

Connect Old and New Learning

After the tour, give each student four sticky notes and ask them to record, on each sticky, one outstanding impression they gained from the tour. Meet as a group to share and discuss impressions. Cluster similar stickies and identify several categories (e.g. successes, problems, missed opportunities, financial aspects, stakeholder impact, environmental impact...). Discuss how these ideas relate to the students' real and vicarious life experiences. Ask students to consider the focus question, 'Is recycling the answer?' and select a recycling topic, issue, problem they are really interested in.

Build a Question

Provide students with the organizer *Building Thinking Questions* and model how to experiment with developing lots of inquiry questions with the starters. Give students enough time to experiment with their own questions and decide on the best question for their research focus.

* The Big Think *

Content

Thoughtful Writing—So What? Return to the essential question: Is recycling the answer to reducing our mountains of garbage and saving the environment? **What Next?** Have students develop an E-Tour for another audience on a specific aspect of recycling.

Process

H.O.T.—Post the research questions and organize them by question type to create a matrix for analysis (e.g. Bloom's Taxonomy, McKenzie's Essential Questions, De Bono's Six Thinking Hats). **So What?** Have we missed any question 'high think' types that we should consider? **What Next?** Adjust questions as necessary and begin inquires.

Background to Question Model

E-Tour Rubric

Level \ Criteria	Background Building	Navigating	Note Taking
	<i>Did you discover lots of new information about the topic?</i>	<i>Were you able to navigate the tour without getting lost?</i>	<i>Were you able to select and record accurate and useful information quickly?</i>
Level 4	<ul style="list-style-type: none"> - accurate and abundant information collected from the tour - effective and efficient use of both itinerary and guiding questions 	<ul style="list-style-type: none"> - navigates to and from relevant web sites with ease - able to return to home page and navigate back and forth in several sites at the same time to make comparisons 	<ul style="list-style-type: none"> - skims and scans to identify relevant information - efficiently selects relevant data and makes effective use of allotted time
Level 3	<ul style="list-style-type: none"> - accurate and adequate information collected from the tour - information collected indicates guiding questions and itinerary were used effectively 	<ul style="list-style-type: none"> - uses hot links selectively to locate required information - able to return to home page and navigate back and forth 	<ul style="list-style-type: none"> - skims and scans to gain an overview - identifies useful information and makes effective use of time
Level 2	<ul style="list-style-type: none"> - incomplete or inaccurate information collected from the tour - information collected indicates some of the guiding questions were used and the itinerary was followed loosely 	<ul style="list-style-type: none"> - uses hot links randomly and with limited success - able to use navigation tools with some success 	<ul style="list-style-type: none"> - skims and scans with some success - has difficulty evaluating usefulness of data and runs out of time
Level 1	<ul style="list-style-type: none"> - little information collected from the tour - paid little attention to either guiding questions and or itinerary 	<ul style="list-style-type: none"> - shows little understanding of significance of hot links - indicates little or no understanding of navigation tools such as "back" arrow or "home" link 	<ul style="list-style-type: none"> - demonstrates limited ability to skim and scan - fails to evaluate usefulness of data and consequently spends time inefficiently

Adapted from Build Your Own Information Literate School Koechlin and Zwaan 2004

Recycling E-Tour Map

<p>What is commonly recycled?</p>	<p>What is the impact of recycling on municipal budgets?</p>	
<p>What are municipalities doing to help or hinder the cause?</p>	<p>What do the skeptics say about recycling?</p>	
<p>What else should be happening?</p>	<p>Why recycle?</p>	<p>What are the connections between recycling and:</p> <ul style="list-style-type: none">- packaging? - beverages? - fast food? -automobiles? -consumers? - -
<p>What Next? Questions for further research or action.</p> <p>Ideas for action.</p>		

Guided E-Tour

Recycling

Is recycling the answer?



Selected Websites:

Municipal Solid Waste
<http://www.epa.gov/epaoswer/non-hw/muncpl/recycle.htm>

National Recycling Coalition
<http://www.nrc-recycle.org>

Earth 911: Making every day Earth Day
<http://www.earth911.org/master.asp>

Natural Resources Canada: Recycling
http://www.recycle.nrcan.gc.ca/default_e.htm

Canadian Recycling Exchange
<http://cari.recycling.org/exchange/index.html>

Plastic recycling
<http://www.plasticrecycling.com>

Recycle Minnesota
<http://www.recycleminnesota.org/hm/ReCurm.htm>

Perc
<http://www.perc.ca/PEN/1991-10/fleischer.html>

Tour Check

- Review guiding questions.
- Stick to the tour itinerary.
- Check off sites visited.
- Skim and scan for needed data.
- Keep notes as you go.
- Record direct quotes you find useful with proper citations.
- Make use of “hypertext links” within the website for further detail.
- Use the “back” arrow to return to original site or look for a link to the “Home Page” if you get lost.
- Revisit the guiding questions and continue touring until you have fulfilled your exploration.

Guiding Questions

What is commonly recycled?
Why are governments promoting recycling?
What are municipalities doing to help or hinder the cause?
What is the impact of recycling on municipal budgets?
What do the skeptics say about recycling?
What else should be happening in terms of recycling?
What are the connections between recycling and the packaging industry? the beverage industry? the fast food industry? the automobile industry? consumers?

Building Thinking Questions

Topic:.....

Experiment with lots of questions about your topic. These starters lead to deep thinking.

I need to know...	
I wonder if.....	
Perhaps.....	
How..?	
Why..?	
Which..?	
Should...?	

Example #6 **Time for Technology** **Gr. 7–10**

How have developments in technology changed our world in the last century?

Background to Question Model

Assign students to work in five groups. Each group will become experts in an area of technological development. Provide each group with an artifact representative of a technological development in their assigned category.

- Health - hearing aid
- Communication - cell phone
- Transportation - electronic plane ticket
- Recreation - ghetto blaster
- Work - computer mouse

Have students generate questions about their artifact. Share and discuss questions looking for patterns (e.g. When was it invented, who invented it, how does it help, what materials is it made from, is it environmentally friendly, what other inventions or developments are similar? etc.).

Timeline Model

Present the engaging question. Have students conduct searches to discover the major technological developments that have occurred in their assigned category: health, communication, transportation recreation and work. Explain that they are looking for the year it was invented and the effect and impact the technology has had on both humans and the natural environment. Note that they may discover both positive and negative effects. Encourage students to examine the effects of each development from all relevant perspectives. Provide students with the organizer *Tracking Technology Over Time*. (Print organizers on colored paper so that each category has a different color.). Review effective search strategies and best sources for the needed data.

When data gathering time is up, have each group cut up their organizer into strips and place the technological developments they have discovered on a large classroom timeline. See *Tips for Terrific Timelines*.

Give students time to examine the completed timeline and look for patterns, ripple effects, and links. Give students colored string so they can physically make links between developments on the timeline. Follow strings; compare developments to those on other strings. Share findings. Provide each group with a *That's Good That's Bad* organizer. Instruct students to use their original data and the visual timeline to help them analyze the effects of their category in both positive and negative terms.

*** The Big Think ***

Content

Active Discussion—Review the engaging question. **So What?** Discuss the effects of technological development on both humans and the natural environment. **What Next?** Examine areas of need. Set goals reflecting hopes for future technological developments.

Process

Sandbox—Review the process of creating and analyzing the physical timeline. **So What?** How can technology help us to create timelines? Investigate software for creating timelines. **What Next?** Experiment to discover the potential.



Tracking Technology Over Time

New Development	Date	Positive impact on humans and the natural environment	Negative impact on humans and the natural environment

Tips for Terrific Timelines



1. How can a timeline help me?

- ▶ Timelines show small snapshots of events and help us see change over time.
- ▶ Timelines make it easier to see causes and effects.
- ▶ Timelines make it easier to see relationships and make connections.

2. What do I want people to learn from my timeline?

3. How can I make a timeline that will convey my message?

- ▶ List all the items/events you think you want to include on your timeline.
- ▶ Sort your items/events by putting them in chronological order.
- ▶ Check to be sure you have included all the important, significant items/events.
- ▶ Check to see if all the items/events you have chosen to be *entries* are related to your purpose.
- ▶ Sort your *entries* again if necessary.
- ▶ Look carefully at the number of *entries* you have and think about the length of time they span.
- ▶ Think about how time should be broken down. Experiment with time *increments* (e.g. centuries, decades, years, months, days, hours, minutes).
- ▶ Decide on the most effective *increment* for your purpose, and use that as your *scale*.
- ▶ Decide on the time for beginning and ending your line.
- ▶ Select a way of marking the increments on your line.
- ▶ Decide on where to place the entries: above the line, below the line, alternating...
- ▶ Think about the use of graphics and color to make your line more effective and attractive.
- ▶ Be sure to keep it clear and uncluttered.

4. Is this a logical application for commercial timeline software?

Example #7

My Personal Space

Gr. 7–12

How can I better organize my school and personal space and resources?

Develop Background

Introduce by sharing photos, advertisements and/or cartoons depicting chaos and disorganization. Discuss how to put some order back into each scenario. Brainstorm for tools and strategies that help people get organized.

Develop Questions for Research

Ask students to consider their academic and personal organizational needs (home, family, school, sports, work, hobbies, etc.). Have them develop a checklist of questions they need to answer as they conduct their research. Arrange for students to visit an office supply store, speak to professionals, as well as search books and websites for answers.

Develop a Plan

Students develop a plan complete with timelines and a cost analysis of what it will take to get organized.

Doing

Have students carry out their plans and take before, during and after photos of their home work space, their lockers, and other evidence of their newly organized lives to use in building a photo journal.

* The Big Think *

Content

Active Discussion—Hold a discussion/tip session for several weeks. **So What?** Have students demonstrate short and projected long-term benefits of organizing space and resources. **What Next?**

Web 2.0

Invite students to take ownership and organize activities, resources, and support in one convenient location by creating an iGoogle page. Ask students to make a list of possible items for inclusion on their iGoogle page. Some examples include: RSS feeds, calendar, public library connection, weather reports, school website, online homework support, email addresses, homework, assignment due dates, test dates, hobby connections, extra curricular events, etc. Have students also develop a list of responsibilities they now have with use of this space and post it. For help, consult the book: *In Command! Kids and Teens Build and Manage Their Own Information Spaces...And, Learn To Manage Themselves in Those Spaces*. By Robin T. Williams and David V. Loertscher. Hi Willow Research & Publishing, 2007. Available from <http://lmcsource.com>

Process

Thoughtful Writing—**So What?** What did you learn about yourself and your resources as you got organized? **What Next?** Set new goals for yourself in other aspects of your life and follow this task process for setting an action plan.

Example #8**The Invention****Gr. 7–12***How important are visual effects in a live production?***Explore Issue or Event/Build Background**

This task provides an instructional pattern for re-creating a visual novel into a live performance (stage play or film). This task example is based on *The Invention of Hugo Cabret* by Brian Selznick. This title lends itself well to a class read aloud or shared reading in a small group. Over half of the novel is a visual story in 284 original pencil drawings. The story is set in Paris in the 1930s in and around a train station. It is a fictional story based on the life of filmmaker George Melies.

Research to Validate Authenticity

Links to sources of information about George Melies and his films are provided in the book credits. Melies collected automata (mechanical machines) and one such machine is central to the mystery solved in the novel. As well as researching the filmmaker and life in Paris in the '30s, it would certainly enrich this task if any of the many famous films mentioned in the novel could be viewed and discussed by the students. Many film stills and some original illustrations are part of the visual text and they are credited so students can research them further. A study of Selznick's excellent use of close-up visuals and other special effects will assist students as they plan their live re-creation. Topics to research for authentication: George Melies, films and film stills in the novel, automata, Paris in 1930, train stations in Paris, costumes, furnishings, music, etc.

Select Format and Construct Re-Creation

To recreate this novel into a performance, students will need to consider length of the play/film, characters, major events and settings, camera, sound and lighting effects. Decisions will need to be made regarding selection of essential scenes and material that can be left unsaid, as the author does in the visual novel. When the script is drafted, it must be storyboarded and then enhanced with sets, props, and music and lighting that compliment the retelling of this unique story. Hold auditions for casting and ensure that all students in the class have role to play in the production. Rehearsals will spawn rewrites and revisions.

Perform

Ensure that the performance or screening is as authentic as possible with tickets, program, credits, media coverage, and reviews written for the school newsletter. Ensure that all permissions are given and credits documented of borrowed and original works.

*** The Big Think *****Content**

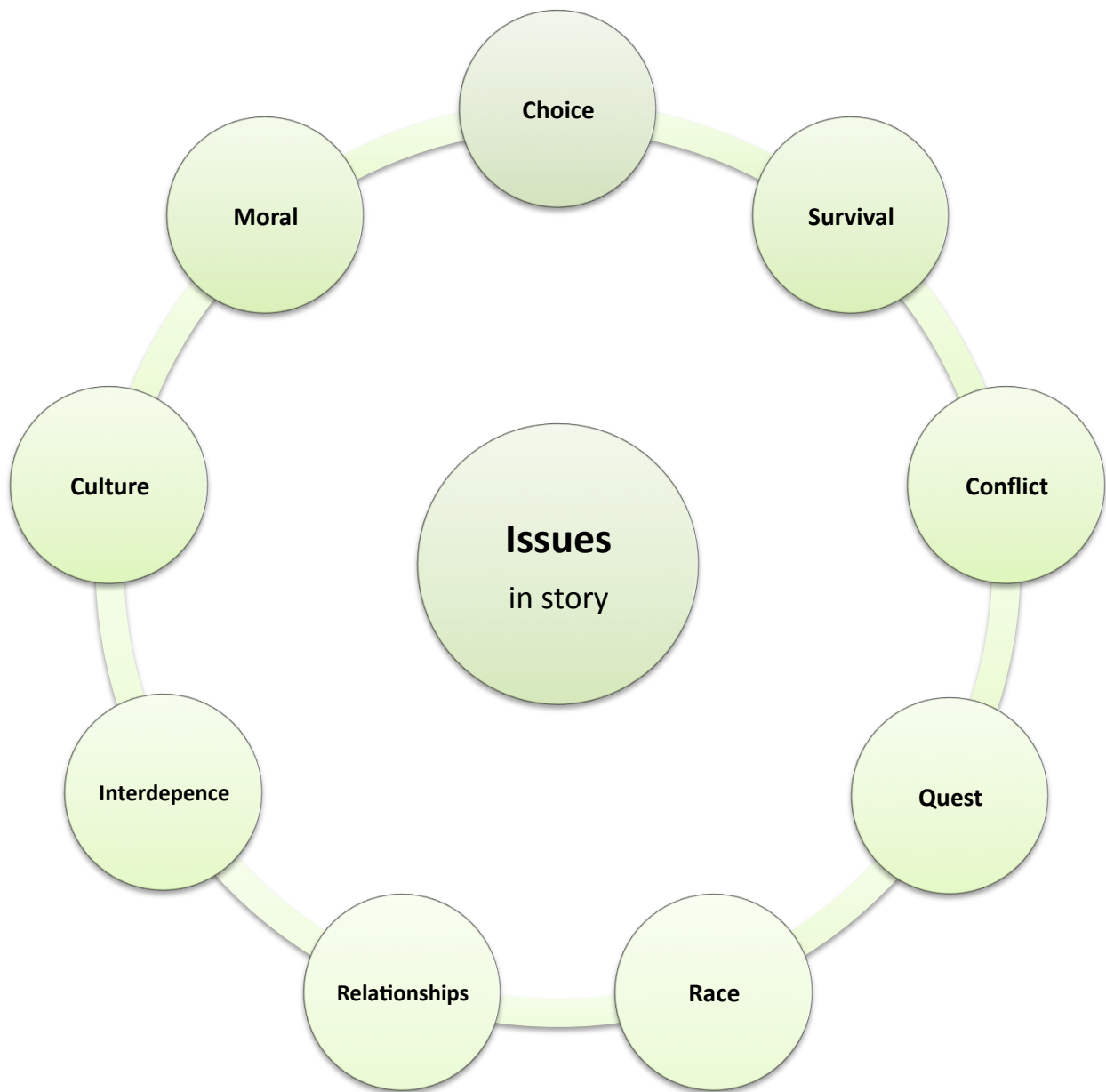
Interact with an Expert—Review the focus question: *How important are visual effects in a live production?* Ask an expert to view the event and join learners in a discussion. **So What?** How do the author's drawings contribute to the live performance? Was filmmaking was more of an art form in the '30s than it is now. **What Next?** Re-create a film into a visual novel.

Process

New Problem or Challenge—List the new skills needed to complete this task. **So What?** Identify where you can use these skills again. **What Next?** How can we improve these skills?

Chapter 6

What sort of ISSUES do we study in story?



Example #1

Story Endings

Gr. 1–4

Can we end a story a better way?

Investigate Problem/Issue and Possible Positions

Gather lots of storybooks that have a very overt pattern of problems and solution ideas with the best solution presented by the author at the end (e.g. *King Bidgood's in the Bathtub* by Audrey and Don Brown). Read the books and map the elements of the story, setting, and characters. Identify the problem. Then map out the solution ideas, including the final solution as presented by the author. Discuss what makes a good story ending.

Analyze Perspectives, Positions and Impacts

Examine the perspectives of each character and discuss the possible feelings each character might have about the ideas that didn't work and the final solution. Role-play the solution idea scenes so students can develop a better understanding of character perspective. Chart the perspectives of the various characters. Have students work in groups to brainstorm other possible solutions to the problem. Conference with groups and encourage them to think of the best solution for each individual character. Share and chart new solution ideas. Add the author's solution in the list.

Take a Position—Prepare Argument

Reread the story up to the point just before the final solution is presented. Re-examine all the charts, perspectives and new solution ideas. Ask students to think about all the solution ideas, to decide on the best one for this story, and to be prepared to explain why they feel this one is best. Instruct students to write the ending they think is best for this story and draw a picture to illustrate it.

Present the Position

Have students work in groups to re-read the story and take turns practicing a presentation of their selected ending and their arguments to defend it. Meet in a full class circle and present endings.

* The Big Think *

Content

Active Discussion—Teach students about position lines and have them physically take a position now along a line (chalk, string) on the floor for each new ending idea. Make signage to help them (e.g. the author's ending is best; not sure; our endings are best).

So What? Can we end a story a better way? Why do some students prefer their own ending? **What Next?** Examine many more problem/solution storybooks and videos.

Process

Thoughtful Writing—Review the strategies used to explore new solutions. **So What?** How did role-play help you to take a position? **What Next?** Use the organizer *Mapping a Story Problem* so students can plan and write their own problem/solution stories. Use the problem/solution framework for investigative inquiry of content topics (e.g. Why do some animals have long tails? How can we stay healthy? Which flowers would grow best in our school garden?).

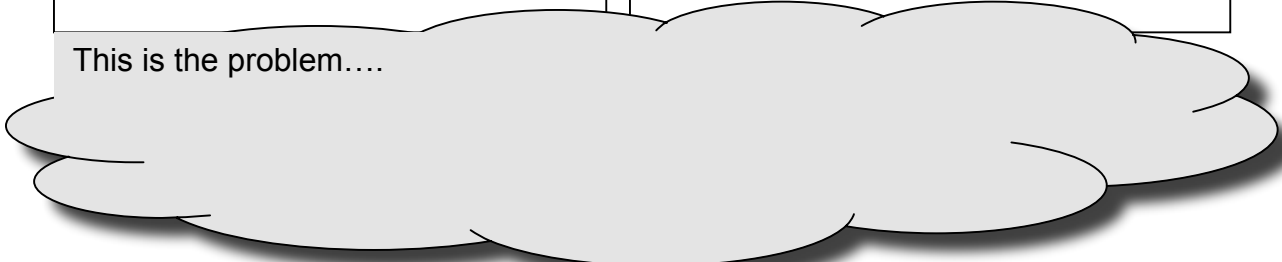
Mapping a Story Problem

Title:.....

Author.....Illustrator.....

Setting

Characters



Solution idea 1



Solution idea 2

It didn't work because.....

It didn't work because.....



Solution idea 3



Solution idea 4

It didn't work because.....

Finally it worked because.....

I think the ending is ☹️ 😊 because.....

Example #2

Story/Novel Mapping

Gr. 1–6

How can we show others what happened in a story?

Identify Ideas Not Understood

Model the sensemaking process by reading an age appropriate picture book and mapping out the events, on chart paper, as they unfolded. Use symbols, key words, colored lines, arrows, and simple sketches to develop the story map.

Gather Data

Have students read another picture book in a group or read novels in a literature circle format keeping notes and sketches in their journals of important events and ideas.

Analyze Relationships

For younger students, retelling and sequencing are appropriate skills. Older readers will be able to examine their journal data and look for relationships, themes and patterns.

Experiment with a Tool

Have students record their events and main ideas on large sticky notes so they can manipulate them and decide how to best create their visualization of the story.

Create and Critique

Collaboratively develop a checklist for students to use to critique their story map.

*** The Big Think ***

Content

Re-Create—In groups retell stories using the story maps. **So What?** How did the story map help with ‘telling the story’? **What Next?** Arrange for groups to visit other classes and share their story maps as book talks. Display the story maps with the books as a promotion in the library.

Process

New Problem or Challenge—Review tools and strategies used by learners. **So What?** How can we use a story map as a planning tool for creative writing? **What Next?** Plan a story or graphic novel using a story map.

Example #3

Questions, Questions

Gr. 2–3

How do my questions help me when I read?

Introduce

With riddles, review the question starters who, what, when, where, why and how. Select an engaging picture book related to your topic of study. Look at the cover and have students ask questions about the cover. Chart the questions highlighting the question starters. Read a few pages and have students make up more questions. Continue charting and questioning until the book is completed. Ask students: Are there any questions that we now have the answers to? How could we find answers to some of your other questions? How have questions helped us to enjoy the story more?

Read, View, Listen

In small groups of three or four, provide students with either a text for read aloud sharing, or multiple texts on the same topic for independent reading. This strategy works well with both fiction and non-fiction texts. Have students practice the strategy using the *Question, Question* organizer. They write down their questions before reading, during reading, and after reading the text. Have students circle or highlight the question starters they have used. Remind them to make use of all the question starters if they can.

Compare/Contrast

Ask students to review their questions and cross off all the ones they now have answers to. Share in their group and see if anyone else has the same or similar questions about the topic. They could use a coding system to mark questions already answered, similar questions, and different or unique questions.

* The Big Think *

Content

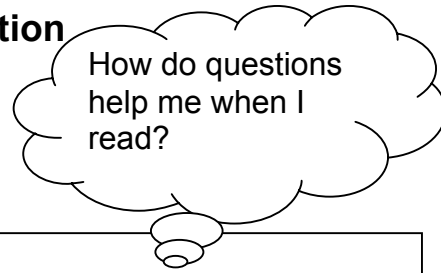
Create New Questions—So *What?* What new perspectives did you gain about the topic? Why? What new questions do you have now? ***What Next?*** Learners identify questions they are really curious about and begin quests to uncover the answers.

Process

Thoughtful Writing—Review the process of recording and coding questions. **So *What?*** When did you ask your best questions? Why? How did coding help you learn? Are there any codes you didn't need or would like to add? ***What Next?*** Where else in our work can we apply this questioning process?

Question, Question

I am reading.....
by.....



Before Reading

During Reading

After Reading

<input checked="" type="checkbox"/> I know the answer now. <input type="checkbox"/> Someone has the same question.	<input type="checkbox"/> No one else has this question. <input type="checkbox"/> I am really curious about this.
-----------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------

Example #4

Magical Rainforests

Gr. 4–6

Why should we be concerned about rainforest ecosystems?

Introduction

Read aloud *The Great Kapok Tree* by Lynne Cherry. Help students begin to make connections to the issues by using the following prompts exercise. When in the story did you feel content, happy, worried, sad, or anxious? Introduce the guiding question.

Read, View Listen

Provide students with the organizer *RVL Connect*. Explain the organizer and model by asking for responses based on the reading of *The Great Kapok Tree*. Introduce an educational video that you have previewed about the sustainability of rainforests. Select the best video no more than 30 minutes in length. Chunk the viewing in 5-10 minute segments if possible. Show the video, stop and ask students to record responses, and continue to view and respond until the video is completed.

Compare

Assemble students in groups of four to share their findings and responses. Ask them to identify common understandings, concerns, and questions. Debrief with the entire class and focus on the guiding question. Chart collective responses using the three categories identified.

*** The Big Think ***

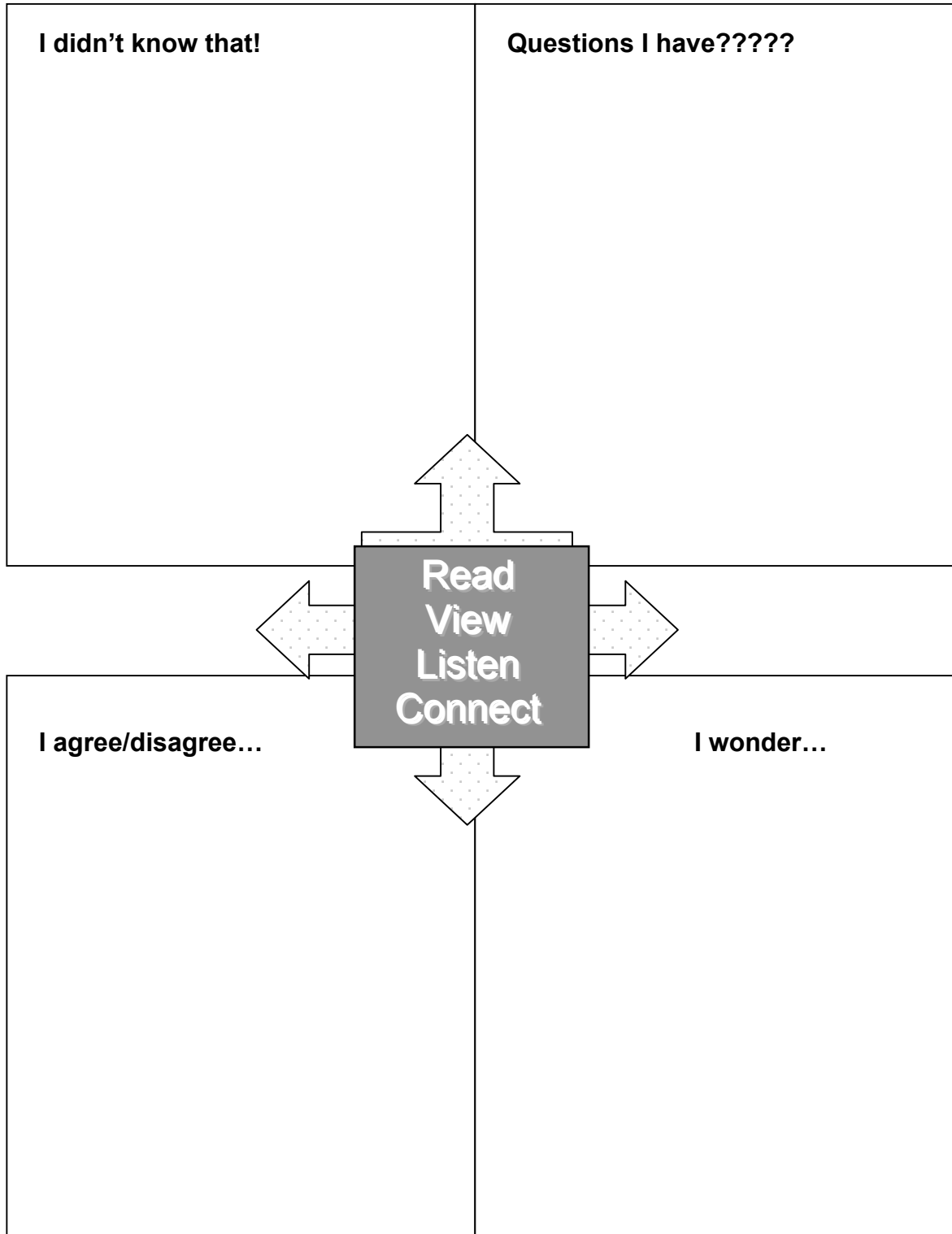
Content

Thoughtful Writing—Review collective response charts. **So What?** What do you know now about rainforests that you didn't know before? Learners consolidate understandings in a quick-write response to the essential question, why should we be concerned about rainforest ecosystems? **What Next?** Learners select or refine a question or concern of interest for further study, or investigate taking action to protect a particular rainforest.

Process

Active Discussion—Review the learning process for this unit. **So What?** How did comparing our RVL Connect responses boost our learning? **What Next?** How else could we use comparing information as a strategy for improving our learning and our skills?

RVL Connect



Title of resource.....

Kind of resource.....

Example #5

Make Your Own Ending

Gr. 2–4

What is the best ending for this story?

Background

Select a picture book that has an overt problem in the story. E.g. *Humphrey the Lost Whale* by Wendy Tokuda and Richard Hall. Examine the cover of book and ask students to predict what the storybook is about.

Problem

Explain to students that this book is based on a real story. Read the story to the point where the big problem is revealed. Humphrey is upstream caught behind the Golden Gate Bridge in San Francisco Bay and he can't get back under the bridge. What can be done to save Humphrey?

Research

Organize the students in groups. They will work at centers organized by resource type. Students use *Mission Notes* to guide their research on humpbacks whales, their survival needs, other incidents of stranded humpbacks, and rescue missions. When the research group data has been gathered, create the problem solving groups with one expert from each research group. This new group will brainstorm for possible solutions and use *Problems, Problems* worksheet to guide them as they decide what they think is the best way to rescue Humphrey.

Research Group	Problem Solving Group
Group A Non-fiction books	Group ABCD
Group B Encyclopedias	Group ABCD
Group C Selected Internet sites	Group ABCD
Group D Children's magazines or video	Group ABCD

*** The Big Think ***

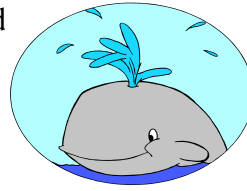
Content

H.O.T.—Ask each group to present and defend their best solution ideas based on the facts they were able to gather. **So What?** How do our solutions compare to the one used in the book? **What Next?** Rewrite the story using the new endings.

Process

H.O.T.—Evaluate collaboration using the organizer *Hurrah for Our Team*. **So What?** Compare the team evaluations. Chart successes and problems. **What Next?** Share solution ideas for collaboration problems.

The team titles are different here but I like problem solving better.

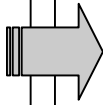


Mission Notes "Saving Humphrey"

Humpback Facts

(size, food, habitat, senses,
abilities, habits)

Survival Needs



Other stranded humpbacks

Where?

When?

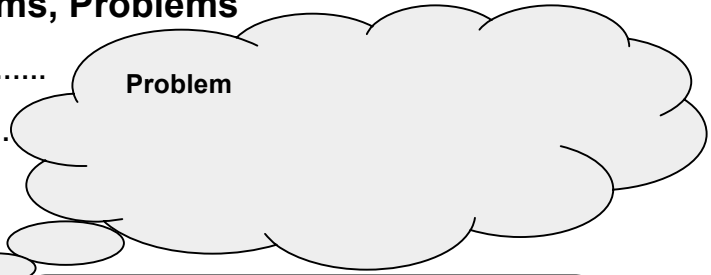
Rescue Attempts

The Problems/Possibilities Jigsaw Model

Problems, Problems

Book/Story:.....

Author:.....



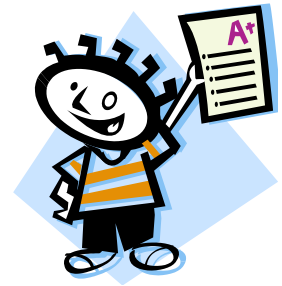
Causes

Effects

Solution Ideas	Strengths	Weaknesses
1)		
2)		
3)		
4)		
5)		
6)		

The best solution idea....

Hurrah for Our Team



Three ways our team worked well together:



Two things our team could do to improve:



One important thing I learned from my team:

Example #6

Fairy Tales

Gr. 2–6

How do we know when a story is a fairy tale?

Build Background

Immerse students in a rich variety of fairy tales from many cultures. Invite students to bring their favorite fairy tales from home to reread or retell. Create a display—Fairy Tales We Love. Watch film versions of fairy tales and compare them to print versions. Create stick puppets of characters and dramatize scenes from fairy tales. Pose the focus question: How do we know when a story is a fairy tale?

Gather Data

Create a large matrix on mural paper on a wall surface so there is lots of room for the matrix to grow. Discuss student responses to the focus question and develop traits for the matrix headings (e.g. good and bad characters, magic numbers, etc.). Explain to students that together they will be reading lots of fairy tales and looking for evidence that they are fairy tales. Together you will put the evidence in the appropriate cells. (Use the language of the matrix even with very young students.)

Organize Data in the Matrix

As each fairy tale is read or viewed, complete a row on the matrix.

Looking for Patterns in Fairy Tales				
Title and Author	Traits and Questions to Answer			
	Good Characters	Bad Characters	Are there special numbers?	Is there any magic?

Analyze Matrix

Analyze each row on the matrix looking for similarities and differences. Chart the findings. Some may include: all fairy tales had a character that did or said bad things; in some fairy tales there was more than one bad character: sometimes it was a woman, sometimes a man; etc. What are the patterns that seem to be common to all fairy tales?

*** The Big Think ***

Content

New Problem or Challenge—Discuss the essential question, *How do we know when a story is a fairy tale?* **So What?** What would happen to the story if we changed the pattern? Have students retell a fairy tale, changing a trait from the matrix. **What Next?** Use the pattern to write a new fairy tale.

Process

Active Discussion—Review the learning process for analyzing traits of fairy tales. **So What?** How did the matrix help us to discover a pattern for fairy tales? **What Next?** Use a matrix to discover and map other types of story patterns (e.g. tall tales, legends, fables, mysteries, etc.).

Example #7

Book Club Choices

Gr. 4–6

Problem: *Which book titles are suitable for club discussion this year?*

Investigate

Each student in your book club reads several current titles of their choice.

Analyze

With the group, develop criteria for analyzing and evaluating titles for this year's club reading list (e.g. good character development, universal theme, interesting style, and special technique).

Prepare

Each student selects the book they think they and others in their club would enjoy discussing, and prepares a short summary and rationale for their book club choice.

Present

The selected title summaries are compiled and posted to members of the club. Each member selects the 5-6 titles they would like to discuss this year. From this survey, the titles are selected for the book list.

Students who have already read the book can meet to develop a few discussion questions. Students who have read none of the titles on the list can develop some pre-reading questions based on the summary information they have.

Note: This strategy could work well for either face-to-face or virtual book clubs.

Check out these sites for virtual formats or start your own.

- Book Rap: http://rite.ed.qut.edu.au/old_oz-teachernet/projects/book-rap/
- Book BackChat: <http://english.unitecnology.ac.nz/bookchat/about.html>
- Teenreads: <http://www.teenreads.com/>

* The Big Think *

Content

Active Discussion—Revisit the essential question. **So What?** How popular were the books chosen? Which were most and least popular? Why? **What Next?** Create a promotional ad or book trailer for the book you enjoyed most.

Process

Active Discussion—**So What?** How did developing criteria affect our opinions of the books we selected? Read? **What Next?** Do our criteria still work? Alter the criterion list to better reflect the group's interest.

Example #8

The Message is...

Gr. 4–12

What are the main themes of this novel?

Introduce and Build Background

Select a novel with a fast tempo or lots of action. Read aloud the first chapter of the book and establish basic information about characters, time period, setting and possible plot or problems. Take the novel apart, literally, by chapter, reserving the last chapter for a final read aloud. (You may need to copy one page in order to complete each chapter.) Group students and give each group a chapter of the novel.

Build Expertise	Combine Expertise to Build New Understanding
<p>What are the main events in this chapter?</p> <p>Each group reads the chapter, taking turns reading aloud. Discuss and decide on the main events.</p> <p>Group A – Chapter 2 Group B – Chapter 3 Group C – Chapter 4 Group D – Chapter 5 Group E – Chapter 6 Etc.</p> <p>Create a 30 second dramatization that captures the essences of the chapter.</p>	<p>What are the main themes of this novel?</p> <p>Group ABCDE Group ABCDE Group ABCDE Group ABCDE Group ABCDE</p> <p>Have group members do a do a chapter by chapter “Tell Around”. Read aloud the last chapter and discuss major themes of the novel.</p>

*** The Big Think ***

Content

Construct Visuals—Ask groups to select a character from the novel and develop a *Character X Ray* by sketching an outline of the character on chart paper and filling it in with words and phrases that describe the emotions, ideas, actions, physical characteristics, and attributes of the character. **So What?** Share *Character X Rays* and discuss how these character traits contribute to major themes. **What Next?** Ask students to identify evidence, from the novel, that shows how their character contributes to the major themes. Record evidence on the space surrounding the character.

Process

Thoughtful Writing—**So What?** Create thought bubbles of the students’ reactions to the novel, the characters, and this process for reading a novel together. **What Next?** Add the thought bubbles to the *Character X Rays*. Take the X Ray Characters on tour and present it to other classes.

Note:

This activity is designed to engage reluctant readers. Explore another version at this site. http://www.turningpts.org/pdf/Novel_in_an_Hour.doc
Books that work well for this activity have short chapters and lots of action such as *Demonkeeper* by Royce Buckingham, *Nightjohn*, and *The Tent* by Gary Paulsen, *The Misfits* by James Howe, *Boot Camp* by Todd Strasser, or *Inside Out* by Terry Trueman
Character X Rays is adapted from Role on the Wall. For many more drama extensions to literacy see *Leap into Literacy* by Kathleen Gould Lundy

Example #9

The Power Struggle

Gr. 9–12

How do power struggles in texts engage the reader?

The Read, View, Listen Model

Students will be reading short stories to explore issues of power, how they are developed through narrative, and what impact they have on the reader. Brainstorm with students the kinds of questions they need to ask themselves as they are reading, if they are to uncover the power scenarios in their text.

Who is in control? How do you know?

How do the powerful characters act? How do the powerless characters act?

Whose voice is clearest? Whose voice is not heard?

Is there a hierarchy of power?

Who is mistreated?

Form small groups and provide each reader with a different short story that demonstrates the theme of power struggles. Students read the text and, using sticky notes, identify evidence of power, powerlessness, and the language that describes power.

Compare and Contrast Model

Instruct students to meet in groups to share the power struggles they have discovered in their short stories. Share also the power language they discovered and the characteristics of positions of power and powerlessness.

Sensemaking Model

Once students have analyzed the relationships in their short stories and compared them to those of their peers, they are ready to demonstrate their understanding. Have students create a concept map of their short story that shows visually the power struggles they discovered. Instruct students to experiment with space, medium, colors, shapes, fonts, and graphics to create the most effective re-conceptualization of their story. Share ideas with their peers; critique each other's work; and prepare a final concept map.

* The Big Think *

Content

Active Discussion—Share maps and return to the guiding question. **So What?** Discuss the impact power struggles in narrative have on the reader and the larger community. **What Next?** Write a story that applies the knowledge gleaned from this activity.

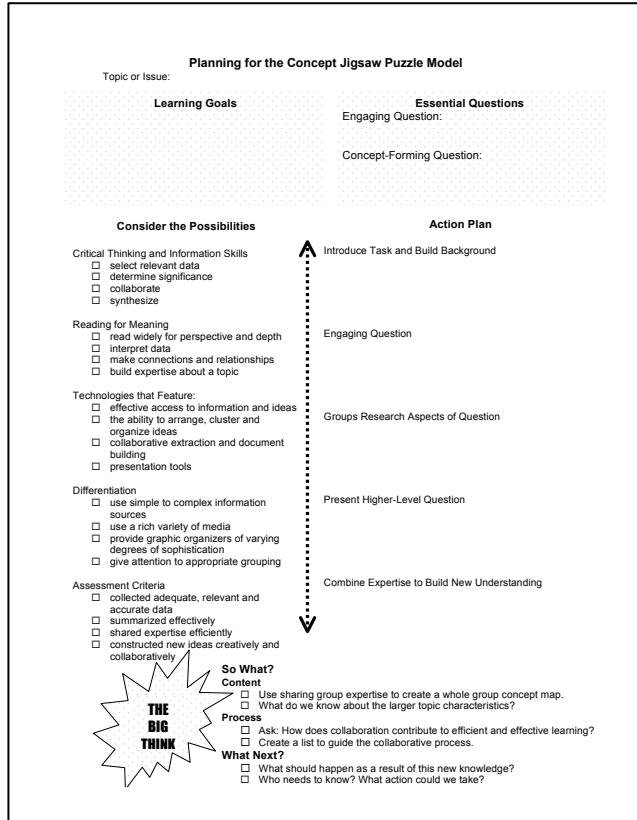
Process

H.O.T.—Review and critique the concept maps developed by students. **So What?** Develop criteria for an effective concept map. **What Next?** Add the criteria and a few exemplars to the school library website as well as links to software for creation of concept maps.

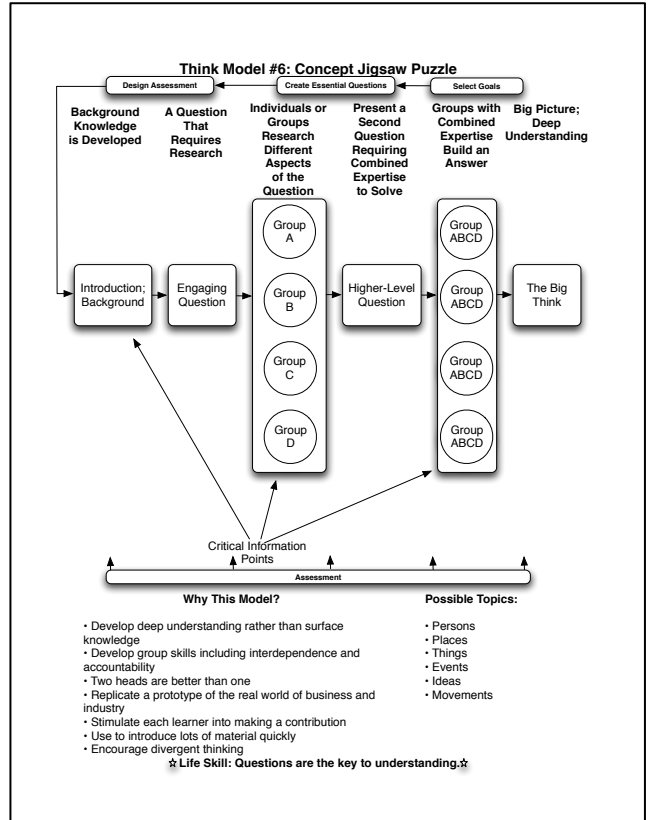
Appendix

18 Think Models Reprinted Here for Your Convenience

Model Layout



Handy Planning Page



Think Model

THINK Models in Brief

- **Background to Question Model**—where learners build enough background knowledge on a topic to formulate intelligent and engaging questions for themselves
- **Sensemaking Model**—where the learner takes a group of facts, ideas, or opinions and makes sense through visualization, classification, or synthesis
- **Read, View, and Listen Model**—where learners read, view, and listen widely on a topic and combine what they learn with what others know
- **Advice to Action Model**—where learners consult a wide variety of advice and discern what are the wisest courses of action
- **Compare and Contrast Model**—where people, places, ideas, time periods, issues or solutions to problems are analyzed and compared to gain understanding of varying perspectives
- **Concept Jigsaw Puzzle Model**—where groups build expertise on subtopics and then combine their expertise to build a big picture across what everyone has discovered
- **Problems/Possibilities Jigsaw Puzzle Model**—where learners build expertise in various parts of a problem and then combine their expertise to solve the larger problem.
- **Decision Matrix Model**—where learners assemble facts, ideas, or opinions in a spreadsheet-type of matrix that enables them to do a comparative analysis in order to make an informed rather than a subjective decision
- **Patterns & Trends Matrix Model**—where learners assemble facts, ideas, or opinions in a spreadsheet-type of matrix that enables them to look for patterns or trends across the data collected
- **The Timeline Model**—where learners arrange ideas, events, or data in chronological order to enable comparisons, sequences, contrasts, or developments in order to see a larger picture of what is or was happening.
- **History & Mystery Model**—where learners try to determine what happened, really happened, or find explanations to mysterious happenings
- **Take a Position Model**—where learners take positions based upon careful study rather than upon whim
- **Re-Create Model**—where learners create authentic reproductions whether literary, real, artistically, or creatively
- **Reinvent Model**—where learners try to invent new ways of doing things, processes, environmental systems as close to the real world as possible
- **Learn By Doing**—where learners create apprenticeships, experiments, mockups, or performing tasks in the real or simulated world
- **Teacher-Directed Quest Model**—where learners do research projects under the teacher and learning specialist's direction such as:
 - Online Quest Projects
 - The Report
 - The Research Paper
 - The WebQuest as a Research Model
- **Learner-Directed Quest Model**—where learners take the initiative with adult shadowing of research projects:
 - Hero's Journey
 - Become an Expert
 - I Search
- **Mix It Up! Model**—where learners mix and match any of the models above



Planning for the Background to Question Model

Topic or Issue:

Learning Goals

Essential Questions

Consider the Possibilities

Critical Thinking and Information Skills

- use search strategies
- skim, scan and consider
- develop questions
- define a research topic

Reading for Meaning

- read, view and listen widely
- read for an overview
- build vocabulary
- discover concepts and ideas

Technologies that Feature:

- efficient search features
- surf, scan, fast forward capabilities
- overview of resources
- manipulatives for brainstorming

Differentiation

- use abundant materials at different levels
- provide a rich variety of media
- provide adequate time
- use buddies; small groups

Assessment Criteria

- navigated sites efficiently and effectively
- engaged in relevant exploration
- made connections and discovered relationships
- sparked interest in personal research questions

Action Plan



Build Background

Connect to Old and New Learning

Build Questions



So What?

Content

- Students share and analyze individual questions to develop an umbrella question(s) for study.

Process

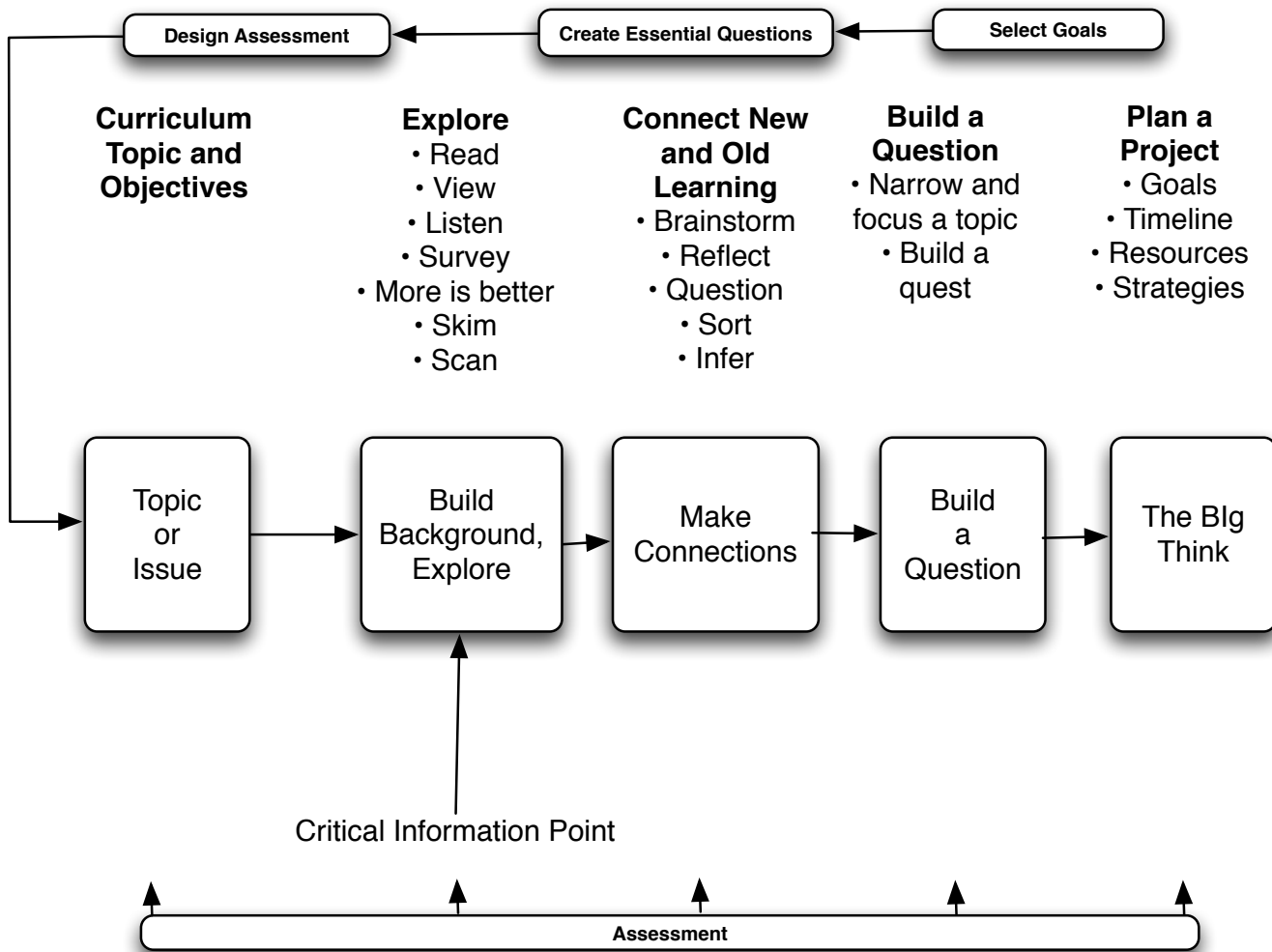
- Ask: What is a good question?

What Next?

- Pursue the question(s).

**THE
BIG
THINK**

Think Model #1: Background to Question



Curriculum Topic and Objectives

Explore

- Read
- View
- Listen
- Survey
- More is better
- Skim
- Scan

Connect New and Old Learning

- Brainstorm
- Reflect
- Question
- Sort
- Infer

Build a Question

- Narrow and focus a topic
- Build a quest

Plan a Project

- Goals
- Timeline
- Resources
- Strategies

Topic or Issue

Build Background, Explore

Make Connections

Build a Question

The Big Think

Critical Information Point

Assessment

Why This Model?

- Capture the learner's interest
- Build a basic vocabulary of the topic
- Compensate for uneven prior knowledge
- Use when prior knowledge is skimpy
- Help learners build engaging questions when they seem to lack interest
- Provide an opportunity for a "topic to select a learner"
- Use when the textbook is insufficient
- Help learners narrow a topic when struggling with generalities
- Turn a library orientation into an exploration

Possible Topics:

- Environmental issues
- Genetics
- Health and safety issues
- Political ideologies
- Types of music
- Science fair projects
- Pet care and needs
- Media influence on behavior
- Marine biology
- Rain forests
- Middle Ages
- Middle East
- Early settlers
- Ecosystems

☆ **Life Skill: The more you know, the better questions you ask.** ☆

Planning for the Sensemaking Model

Topic or Issue:

Learning Goals

Essential Questions

Consider the Possibilities

Critical Thinking and Information Skills

- evaluate sources
- sort and classify
- create and use organizers
- transform data to visual representations

Reading for Meaning

- read and select key data
- recognize patterns
- make connections
- sequence, interpret and visualize data

Technologies that Feature

- a wide variety of graphs, charts, spreadsheets and databases
- integration of audio and video, still images, animation
- transformation assists
- collaboration and podcasts

Differentiation

- use manipulative and kinesthetic assists
- use a variety of simple to complex information sources and media
- provide graphic organizers at a variety of levels
- provide simple to complex software and technologies for representation
- accept representations at a variety of levels

Assessment Criteria

- used adequate, relevant and accurate data
- demonstrated logical sorting and classifying
- produced instant clarity of message
- made connections and developed conclusions

Action Plan

Identify Data/Ideas Not Understood

Collect and Validate Data

Find Connections

Analyze Relationships

Experiment with Tools

Create and Critique Visualizations of Data



**THE
BIG
THINK**

So What?

Content

- Gallery Walk: What do the data pictures mean? Do different pictures of the same data mean different things? Why?
- Group comparison of visuals of same data with class developed criteria. (e.g. clarity, effectiveness, creativity)

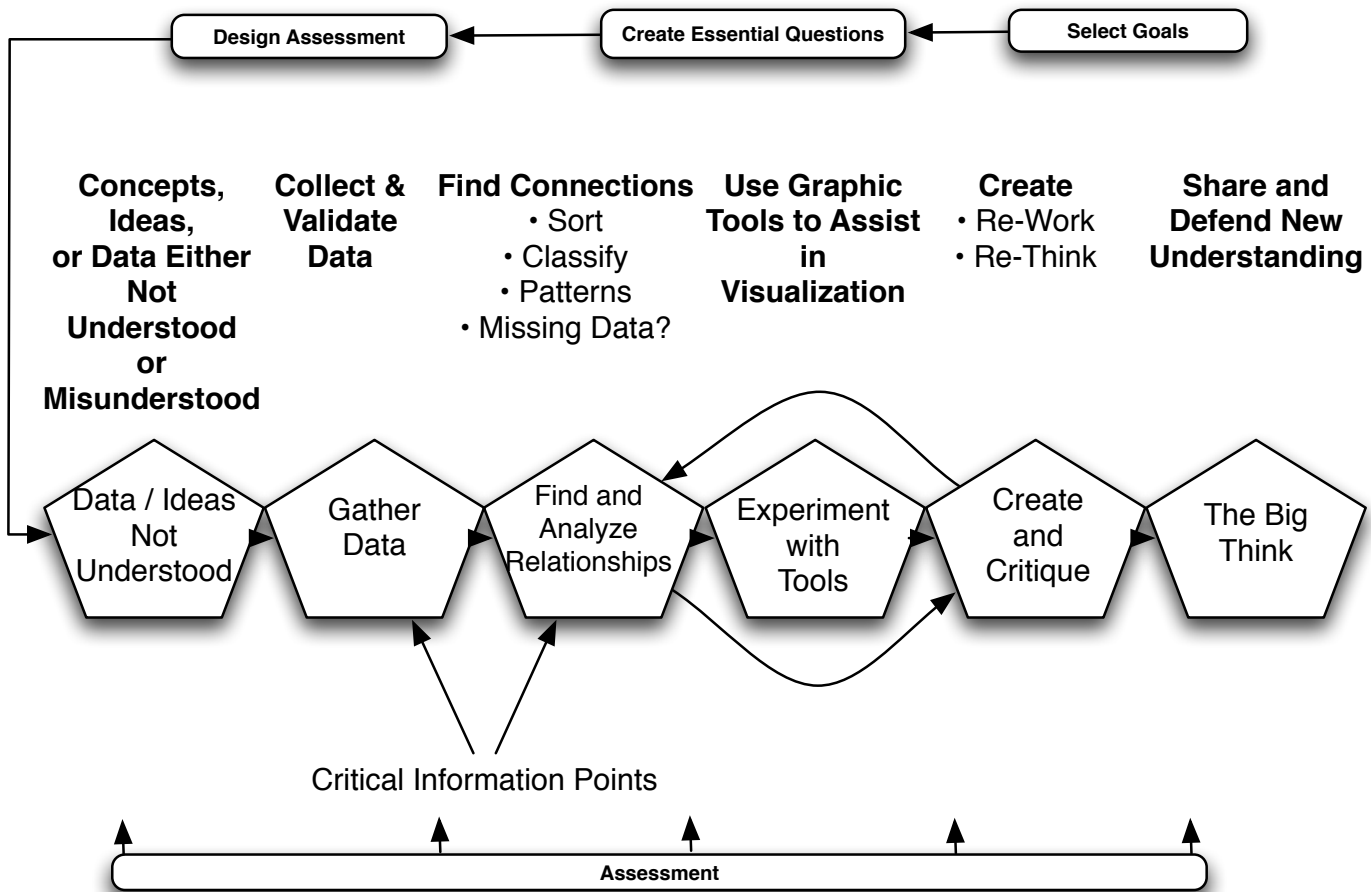
Process

- Ask: Where else in school and life can I use visualization to improve my understanding?

What Next?

- What are the implications of these findings?
- What should happen as a result of this knowledge?
- Who could benefit from these visuals?

Think Model #2: Sensemaking Visualizing / Re-Conceptualizing



Why This Model?

- Helps ESL and language limited Learners demonstrate understanding
- Take advantage of the adage that a picture is worth a thousand words
- Take advantage of learners who have high visualization abilities
- Add one more dimension to text and explanations
- Use when data cannot be understood in their raw form
- Try several visualizations of the same ideas
- Clarify concepts where misconceptions abound

Possible Topics:

- Popular misconceptions
- Data in any discipline
- Large amounts of data
- Population patterns
- All types of maps
- Ideas and their connections
- Cause / Effect
- Environmental / Social issues
- Difficult concepts

☆ **Life Skill: Visualizing information and data builds new perspectives.** ☆

Planning for the Read, View, Listen Model

Topic or Issue:

Learning Goals

Essential Questions

Consider the Possibilities

Critical Thinking and Information Skills

- use pre-reading techniques
- read, view, listen, manipulate
- read visuals
- compare; contrast
- note-making strategies

Reading for Meaning

- skim, scan and consider
- identify main ideas
- make text to text comparisons
- develop vocabulary and key concepts

Technologies that Feature:

- visual and auditory information
- pause and playback
- note-making and classifying assists
- collaborative extraction and document building
- citation tracking

Differentiation

- use materials and media at different levels
- provide adequate time
- use buddies; small groups
- pay attention to appropriate grouping

Assessment Criteria

- identified main ideas
- discovered commonalities and discrepancies
- contributed to building group knowledge
- spoke the language of the topic

Action Plan



Introduce the Topic

Read, View, Listen, Work

Compare and Contrast



So What?

Content

- Individual followed by group synthesis.
- Main ideas; big ideas discussion/reflection/conclusion

Process

Ask

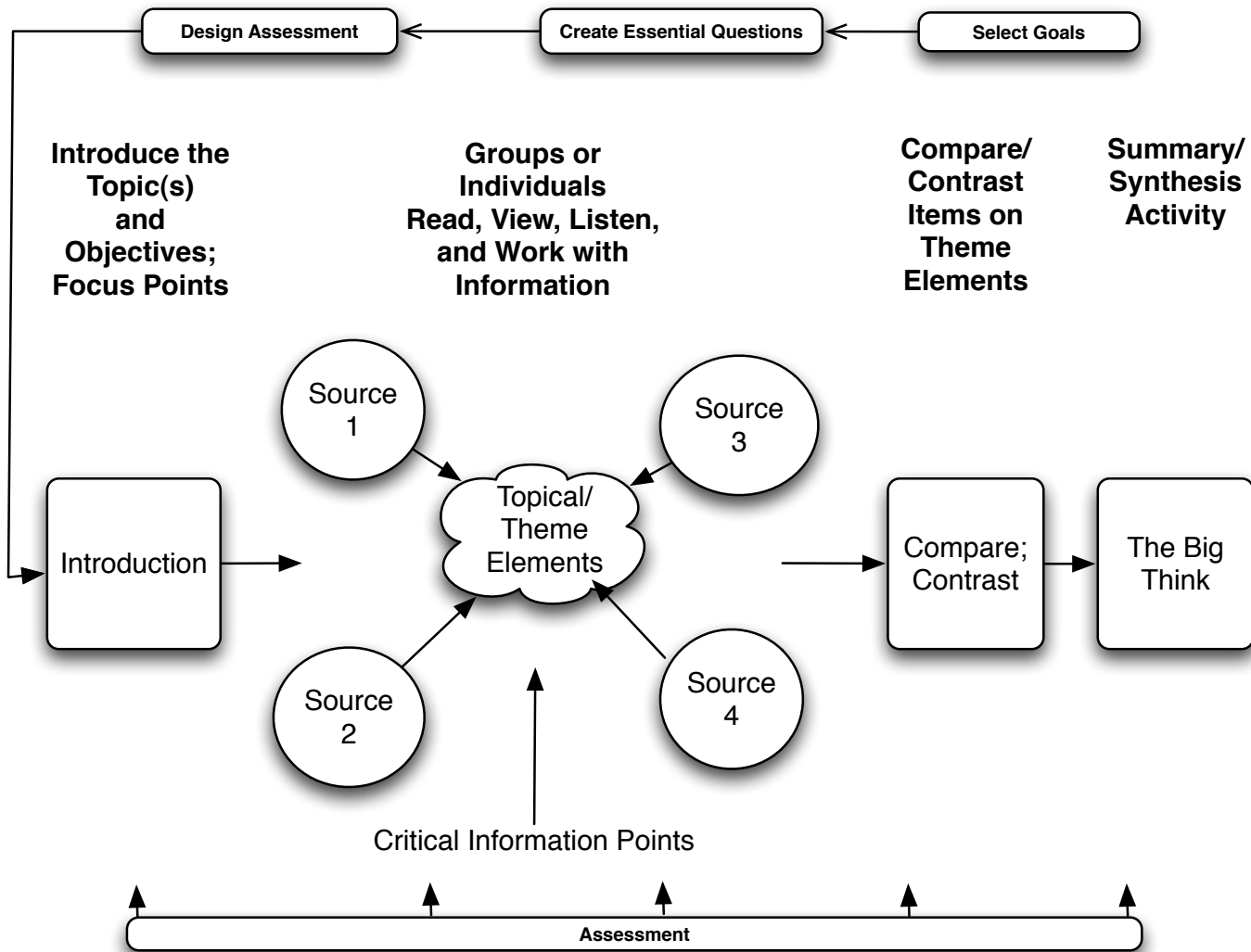
- How do I become an expert?
- How can groups help each member master large amounts of information?

What Next?

- Use this knowledge as background for a main event learning project.
- Follow new curiosities and questions sparked during the process.

**THE
BIG
THINK**

Think Model #3: Read, View, Listen



Why This Model?

- Experience many literary/written works rather than a single text
- Allow all skill levels or backgrounds to concentrate on the theme rather than the difficulty of the text
- Concept map the big ideas across texts
- See big picture across cultures, authors, governments, time periods, ideas
- To compensate when you can't afford a textbook but have a library

Possible Topics:

- Literary themes across books
- Similar literary themes across cultures
- Causes of wars across combatants
- News reporting across international newspapers & TV
- Teen angst across teen novels
- Comparison of cultures around the world at the same time period
- Lives of rich and poor—same time, same locale

☆ **Life Skill: The more you "read" and think, the more you know.** ☆

Planning for the Advice to Action Model

Topic or Issue:

Learning Goals

Essential Questions

Consider the Possibilities

Action Plan

Critical Thinking and Information Skills

- use primary sources
- evaluate sources
- identify fact and opinion
- interpret, infer, predict
- determine cause and effect

Reading for Meaning

- make text to self connections
- identify perspective
- sort and analyze data
- create effective questions

Technologies that Feature

- location and delivery of a wide range of ideas and authorities
- dependable and current resources
- rearranging and classifying assists
- real time interactive communication

Differentiation

- provide needed contacts for advice
- access advice givers at different levels
- provide appropriate organizing tools
- use buddies, small groups, counselors

Assessment Criteria

- selected reliable, relevant and unbiased advice; recognized poor advice
- identified and understood all relevant perspectives
- understood and interpreted consequences of advice
- collaborated to test advice

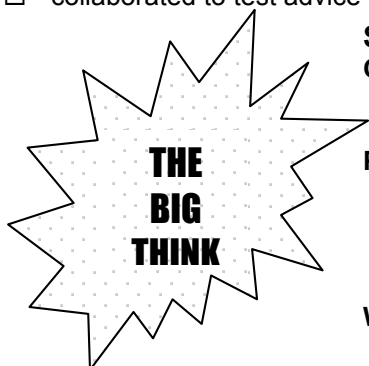
▲ Clarify Problem or Issue Needing Expert Advice

Predict Advice

Build Background

Gather, Sort and Analyze Expert Advice

Conference



So What?

Content

- Consider evidence and make a plan
- Analyze likely consequences of following different advice. What's best?

Process

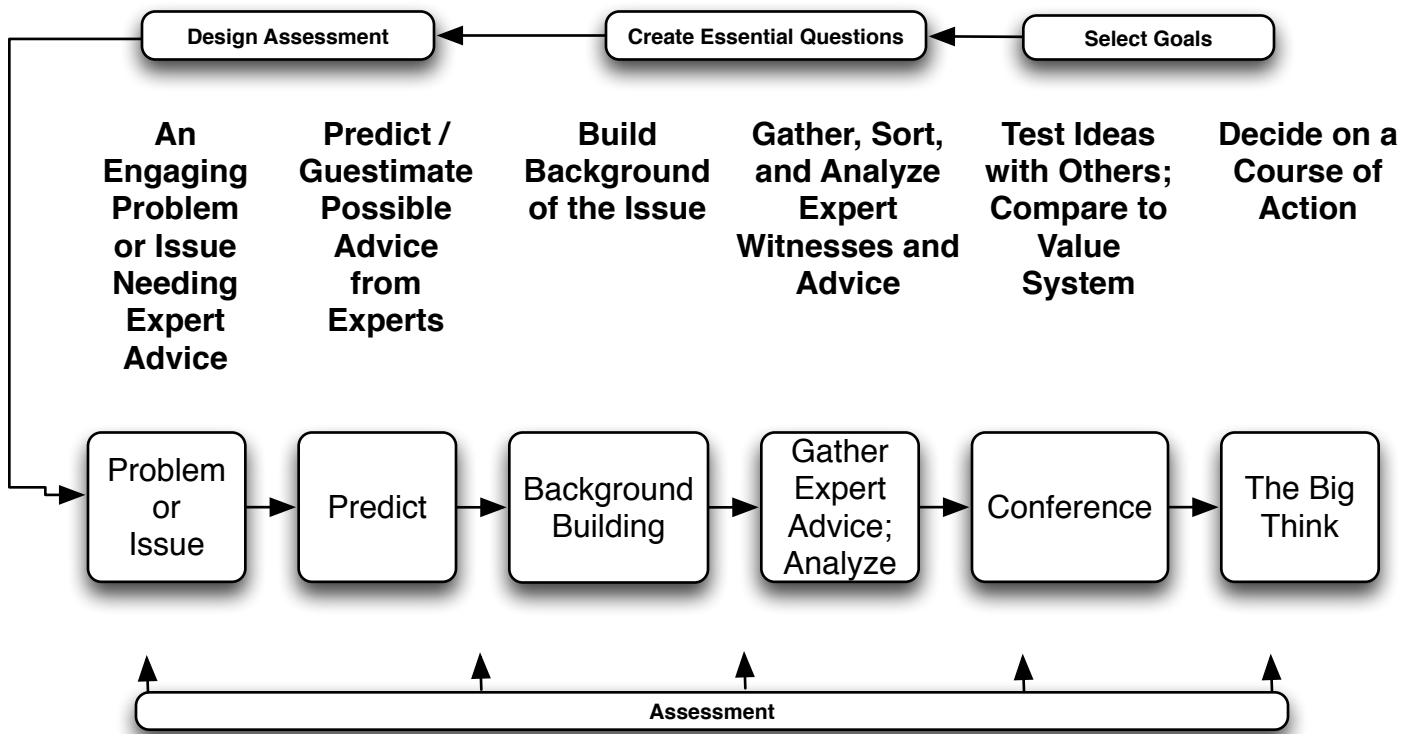
Ask:

- What is good advice? Who is saying what to me for what reasons?
- When in real life might I use the advice to action process?

What Next?

- Carry out a plan of action.

Think Model #4: Advice to Action



Why This Model?

- To solve real problems
- Judge between good and poor advice
- Affect behavior—judging the difference between personal wishes and prudence
- Understand the consequences of taking advice
- To understand how historical events were shaped by advice both good and poor
- Make important life decisions

Possible Topics:

- Healthy lifestyles
- Selecting a college or career
- Succeeding in school
- Preventing, controlling forest fires
- Urban sprawl
- Safe drinking water
- Vending machines in schools
- School fundraising initiatives
- School safety issues
- Helping the homeless

☆ **Life Skill: Advice is plentiful. Good advice is rare.**
 ☆ **Knowing how to identify the best advice is priceless.** ☆

Planning for the Compare and Contrast Model

Topic or Issue:

Learning Goals

Essential Questions

Consider the Possibilities

Critical Thinking and Information Skills

- explore to establish criteria
- make accurate notes
- compare and contrast
- analyze

Reading for Meaning

- make connections to prior knowledge
- read for detail
- understand concepts
- read visual information

Technologies that Feature:

- the ability to arrange cluster and organize facts and ideas
- graphic organizer creation and templates
- organization and storage of data
- data analysis and presentation assists

Differentiation

- provide criteria and concentrate on the comparison
- use a variety of resources and media at different levels
- encourage simple to complex comparisons
- use buddies; small groups

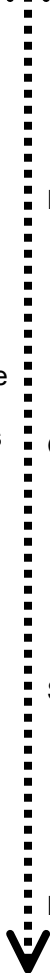
Assessment Criteria

- provided appropriate criteria set
- used adequate, accurate and relevant data
- sorted similarities accurately
- noted differences
- produced instant clarity of message

Action Plan



Identify Reason for Comparison



Establish Background and Comparison Criteria

Gather Data

Sort Data Based on Criteria

Make Comparison



**THE
BIG
THINK**

So What? Content

- Group comparison based on individual and small group comparisons.
- Use results to draw conclusions.

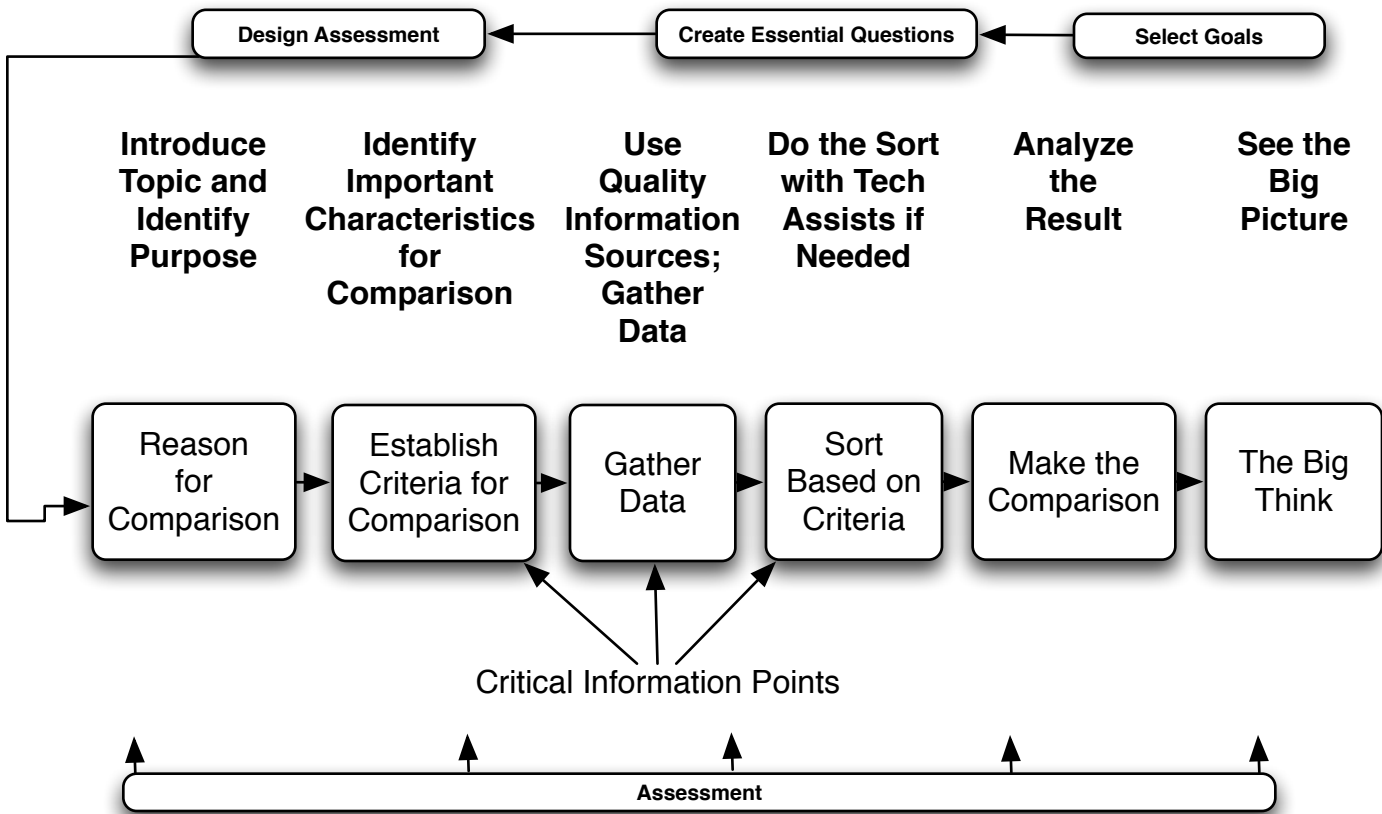
Process

- When does comparing and contrasting get us in trouble?
- When is it helpful to apply the Compare and Contrast Model?

What Next?

- Continue exploration by applying another model.

Think Model #5: Compare and Contrast



Why This Model?

- Teach a much-researched and powerful teaching technique
- Stress quality information to achieve an accurate comparison
- Teach reason over subjectivity
- Ensures tough critical thinking
- Is the basis for sound decision making
- Provides the foundation for many other teaching techniques with large or small data sets, facts, or ideas

Possible Topics:

- Ideas
- Events
- Persons
- Cultures
- Governments
- Life skills
- Seasons
- Animals
- Plants
- Music
- Literature

☆ **Life Skill: Comparing and contrasting is the basis for sound judgement.** ☆

Planning for the Concept Jigsaw Puzzle Model

Topic or Issue:

Learning Goals

Essential Questions

Engaging Question:

Concept-Forming Question:

Consider the Possibilities

Action Plan

Critical Thinking and Information Skills

- select relevant data
- determine significance
- collaborate
- synthesize

Reading for Meaning

- read widely for perspective and depth
- interpret data
- make connections and relationships
- build expertise about a topic

Technologies that Feature:

- effective access to information and ideas
- the ability to arrange, cluster and organize ideas
- collaborative extraction and document building
- presentation tools

Differentiation

- use simple to complex information sources
- use a rich variety of media
- provide graphic organizers of varying degrees of sophistication
- give attention to appropriate grouping

Assessment Criteria

- collected adequate, relevant and accurate data
- summarized effectively
- shared expertise efficiently
- constructed new ideas creatively and collaboratively



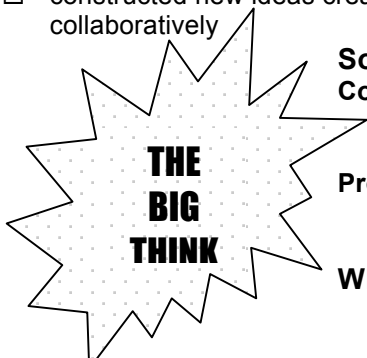
Introduce Task and Build Background

Engaging Question

Groups Research Aspects of Question

Present Higher-Level Question

Combine Expertise to Build New Understanding



So What? Content

- Use sharing group expertise to create a whole group concept map.
- What do we know about the larger topic characteristics?

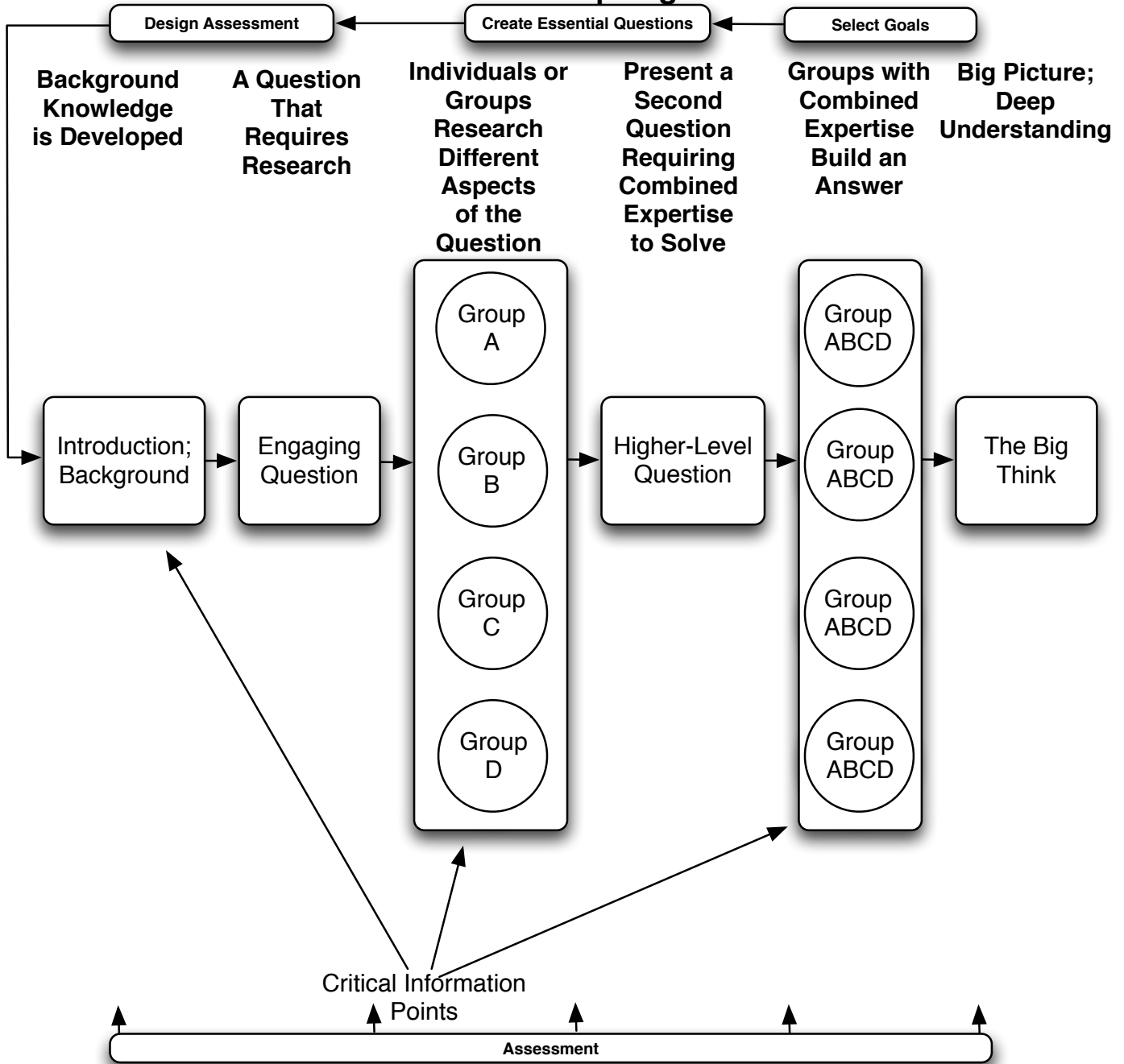
Process

- Ask: How does collaboration contribute to efficient and effective learning?
- Create a list to guide the collaborative process.

What Next?

- What should happen as a result of this new knowledge?
- Who needs to know? What action could we take?

Think Model #6: Concept Jigsaw Puzzle



Why This Model?

- Develop deep understanding rather than surface knowledge
- Develop group skills including interdependence and accountability
- Two heads are better than one
- Replicate a prototype of the real world of business and industry
- Stimulate each learner into making a contribution
- Use to introduce lots of material quickly
- Encourage divergent thinking

☆ Life Skill: Questions are the key to understanding ☆

Possible Topics:

- Persons
- Places
- Things
- Events
- Ideas
- Movements

Planning for the Problems/Possibilities Jigsaw Puzzle Model

Topic or Issue:

Learning Goals

Essential Questions

Engaging problem:

Challenge:

Consider the Possibilities

Action Plan

Critical Thinking and Information Skills

- sort and organize data
- collaborate
- synthesize (deductive and inductive thinking)
- stimulate creative problem solving

Reading for Meaning

- read for detail
- make connections
- identify main ideas and supporting information
- make inferences

Technologies that Feature:

- word processing
- spreadsheets
- presentation tools
- organizing and data management assists
- collaboration, telecommunication
- online sources and blogs
- manipulatives for tests and retests
- simulation of change and its effect

Differentiation

- experience vicarious background building
- provide appropriate graphic organizers to sort, analyze and test solutions
- give attention to grouping
- distinguish group roles

Assessment Criteria

- provided adequate, accurate and relevant data
- shared and collaborated effectively
- sorted and analyzed data
- generated creative and feasible solutions



Develop Background Knowledge

Introduce Problem

First Groups Research Aspects of Problem

Second Challenge Problem

Jigsaw to Investigate Possibilities



So What?

Content

- Expert groups share solution possibilities and as a class decide on solutions to pursue/develop.

Process

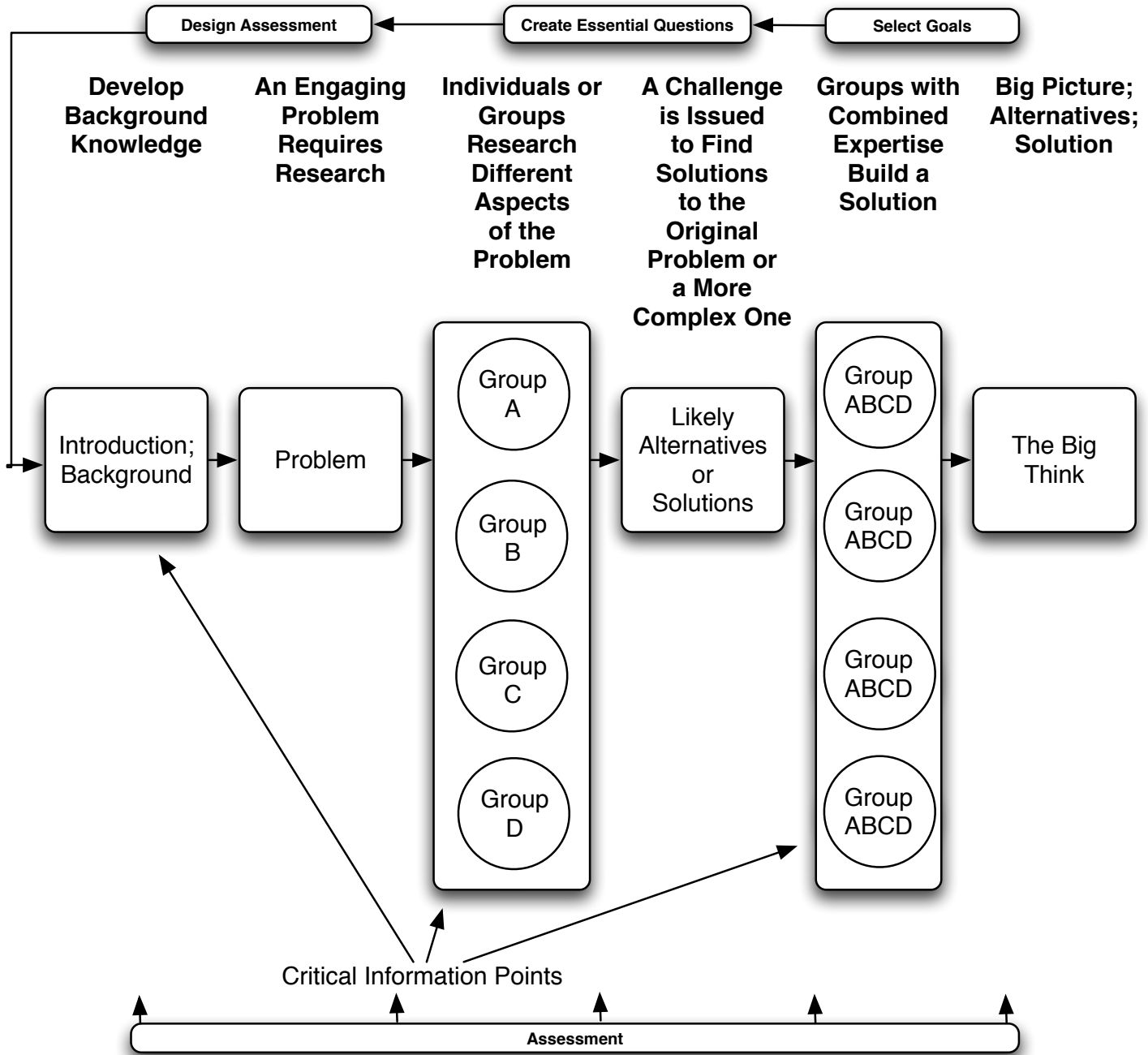
- Ask: What are the indicators of an effective team?
- Where can the problems/possibilities model be applied?
- What are the characteristics of a good solution or possibility?

What Next?

- Develop selected solutions.



Think Model #7: Problems/Possibilities Jigsaw Puzzle



Why This Model?

- Learn real world problem-solving skills
- Build group problem-solving skills
- Replicate a prototype of the real world of business and industry
- Stimulate each learner into making a contribution
- Encourage investigation, determination, and perseverance

Possible Topics:

- Problems encountered at home, school, community, nation
- Society problems such as poverty or health care
- Real problems created from learning experiences or projects

☆ **Life Skill: The more great ideas you have, the better the problem solving.** ☆

Planning for the Decision Matrix Model

Topic or Issue:

Learning Goals

Essential Questions

Consider the Possibilities

Action Plan

Critical Thinking and Information Skills

- evaluate resources
- select relevant data
- use information legally and ethically
- identify and investigate patterns

Reading for Meaning

- use features of text to target information
- read for facts and ideas
- read critically
- ask questions to make connections and relationships

Technologies that Feature:

- storage and manipulation of facts
- organization of facts
- data analysis and presentation assists
- collaborative matrix building

Differentiation

- use teacher provided or class developed categories
- vary the size of matrix
- provide data; concentrate on analysis
- provide simple to complex data sources

Assessment Criteria

- data was adequate, relevant and accurate advice
- analysis was logical and insightful
- final decision based on data not predisposition or popularity
- sources cited accurately



Introduce Decision to be Made



Gather Data

Organize Data on Matrix

Analyze Matrix and Examine Results



So What?

Content

- Make a decision and create a plan of action.

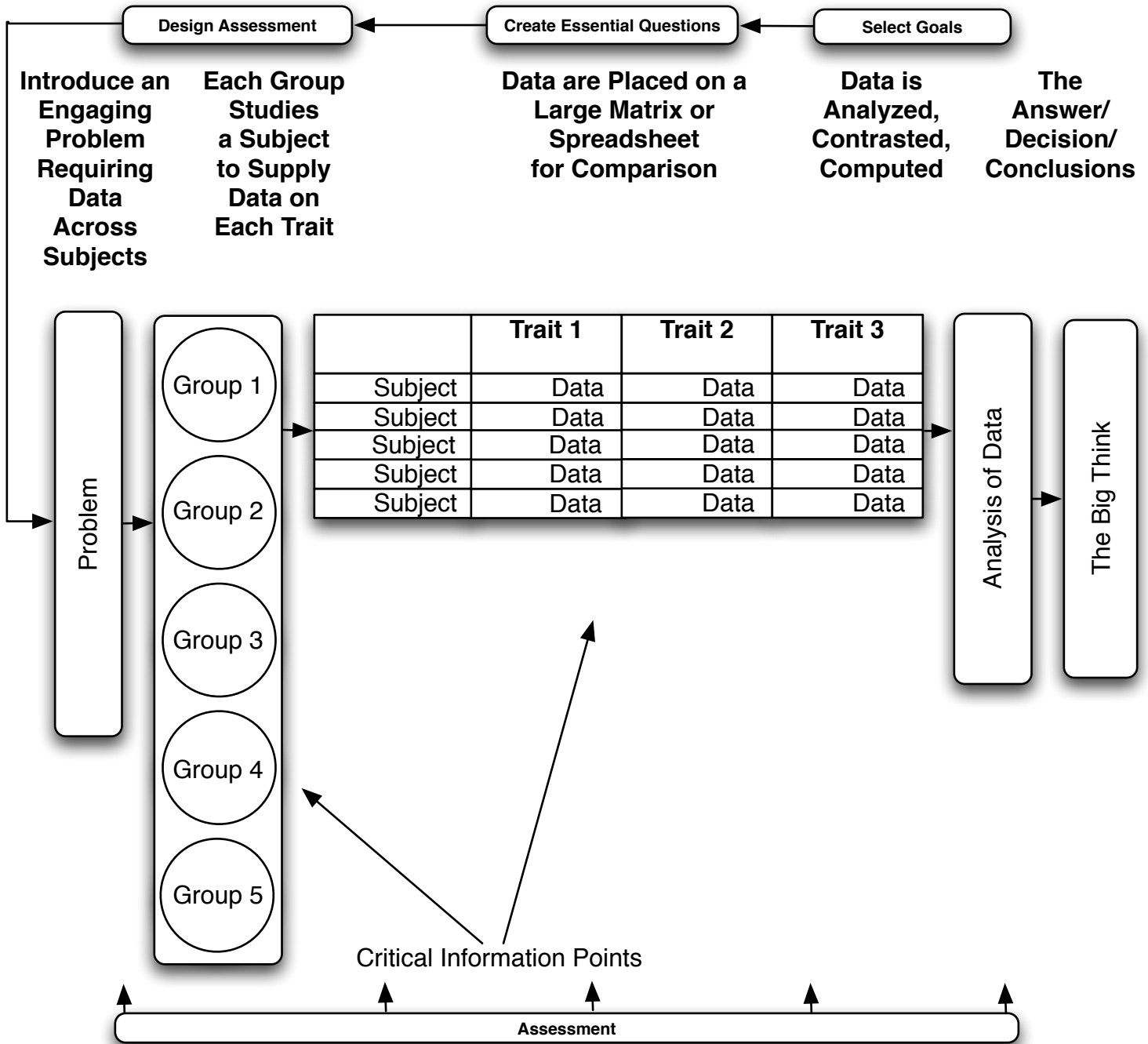
Process

- Change the problem and apply the same process.
- As a class create a model of the decision-making process.

What Next?

- Carry out plan of action.

Think Model #8: Decision Matrix



Why This Model?

- Promote accurate data gathering
- Organize data for better decision making or understanding
- See the dangers of bad data in any cell
- Teach complex issues; solve complex problems

Possible Topics:

- Pick a pet for the classroom
- Are there weapons of mass destruction?
- Comparison of possible new highways
- Comparison of candidates for office

☆ **Life Skill: Informed decision making is a key to success.** ☆

Planning for the Patterns & Trends Matrix Model

Topic or Issue:

Learning Goals

Essential Questions

Consider the Possibilities

Action Plan

Critical Thinking and Information Skills

- evaluate resources
- select relevant and accurate data
- identify repeated patterns
- discover tendencies and trends
- identify and investigate patterns and trends
- notice change over time; rates of change

Reading for Meaning

- use features of text to target information
- read for facts and ideas
- read critically
- ask questions to make connections and relationships

Technologies that Feature:

- storage and manipulation of facts
- organization of facts
- data analysis and presentation assists
- collaborative matrix building

Differentiation

- use teacher-provided or class-developed categories
- vary the size and complexity of matrix
- provide data; concentrate on analysis
- provide simple to complex data sources

Assessment Criteria

- data was adequate, relevant and accurate advice
- analysis was logical, thorough, insightful
- conclusions based on patterns or trends
- sources cited accurately



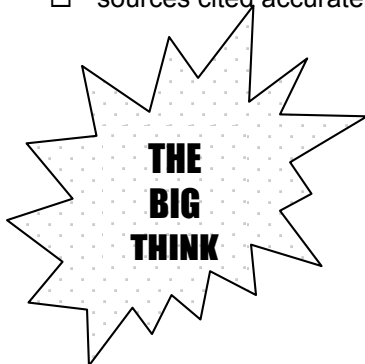
Introduce the Problem

Establish Data Set for Study

Gather Data

Organize Data on Matrix

Analyze Matrix and Examine Results



So What?

Content

- Interpret the significance of the patterns and trends in the matrix.
- Build generalizations based on the analysis.

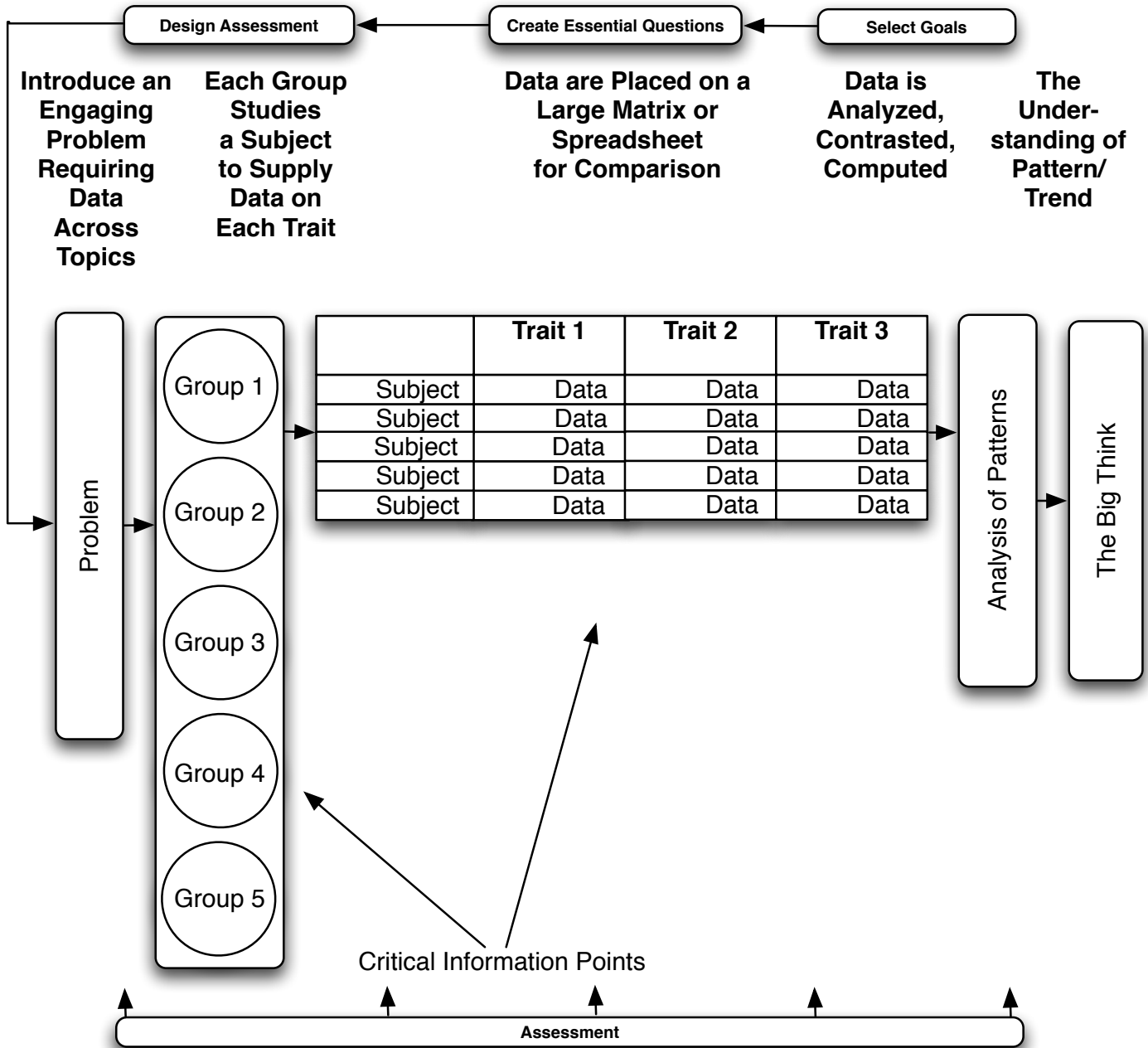
Process

- Change the problem and apply the same process.
- As a class create a model for analyzing patterns and trends.

What Next?

- What is the significance of the analysis? Who should know about it?
- What action should be taken?

Think Model #9: Patterns & Trends Matrix



Why This Model?

- Promote accurate data gathering
- Organize data for better understanding
- See the dangers of bad data in any cell
- Teach complex issues; solve complex problems
- Facilitate a look at patterns and trends
- Enable predictions

Possible Topics:

- Preparing for any major disaster
- Impact of eating habits
- Comparison of candidates for office
- What's happening in fashion
- Cultural trends
- Weather pattern changes
- Population patterns
- Organizational or governmental patterns

☆ **Life Skill: Discerning patterns helps you see both the forest and the trees and determining how to manage them.** ☆

Planning for the Timeline Model

Topic or Issue:

Learning Goals

Essential Questions

Consider the Possibilities

Action Plan

Critical Thinking and Information Skills

- read, view, listen
- select and sort relevant data
- identify discrepancies and inaccuracies
- analyze to identify and interpret patterns and trends
- develop perspective

Reading for Meaning

- read for detail
- interpret information
- make text to text connections
- sequence events

Technologies that Feature:

- organization and storage assists
- efficient search mechanisms
- dependable current and/or historic sources
- timeline creation

Differentiation

- provide exemplars
- provide data collection organizers
- establish categories/increments for sorting
- provide resources in a variety of media and levels

Assessment Criteria

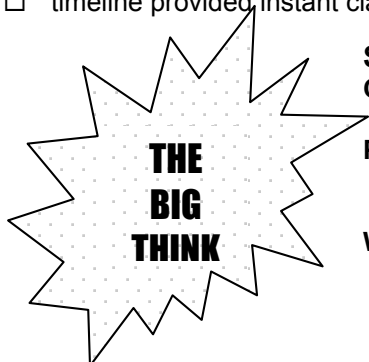
- collected relevant, factual data
- identified and solved discrepancies and inaccuracies
- made relationships and connections
- investigated and interpreted patterns and trends insightfully
- timeline provided instant clarity

▲ Identify and Clarify Task

Gather and Sort Data Sets

Place Data on Timeline

Analyze Timeline



So What? Content

- Compare and layer group or class timelines to uncover critical concepts.

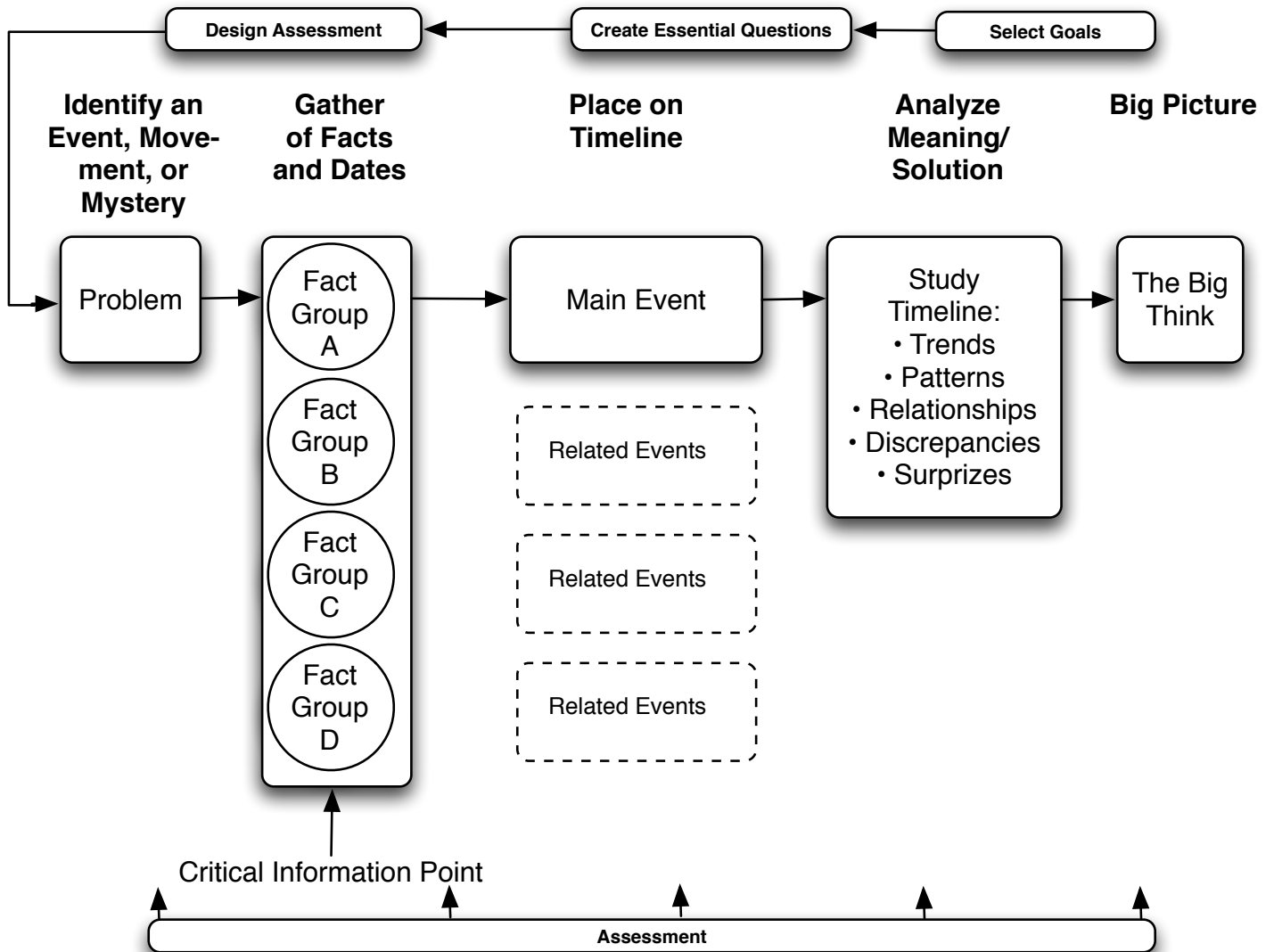
Process

- Ask: What kinds of problems and issues are best analyzed with a timeline?

What Next?

- Challenge students to portray their findings creatively through story, skit, music, poetry, etc.
- Use the timeline model to prepare for an investigation of impact.

Think Model #10: Timeline



Why This Model?

- Show changes over time
- Determine why something developed the way it did
- Understand how inaccurate information will distort the analysis of sequencing
- Make comparisons of the past and the present
- Put some events in a larger perspective
- Trace the background to explore cause and effect
- Understand sequence
- Visualize sequential patterns
- Identify trends
- Make connections between events and developments

Possible Topics:

- Chart a political election
- Study a catastrophic event
- Compare various disciplines during a time period
- Reconstruct the events of a crime or event
- Chart the Middle East conflict
- Study the rise of terrorism as warfare
- Chart the plot of a novel or story
- Study the structure of a symphony
- Put a a period of art into its environment
- Study what made landing on the moon possible
- Chart the immigration of a family to the U.S.

☆ **Life Skill: Sequencing is often the key to understanding.** ☆

Planning for the History & Mystery Model

Topic or Issue:

Learning Goals

Essential Questions

Consider the Possibilities

Action Plan

Critical Thinking and Information Skills

- interpret primary and secondary sources
- take accurate notes
- validate and cite information and sources
- determine fact, opinion, perception
- compare data

Reading for Meaning

- read for detail
- make text to text connections
- develop questions
- make inferences

Technologies that Feature:

- organization and storage assists
- efficient search mechanisms
- surf, scan, and fast forward
- location and deliver of a wide range of dependable current and/or historic sources
- presentation and editing features

Differentiation

- allow adequate time
- provide data collection organizers
- establish categories for sorting
- provide resources at a variety of levels

Assessment Criteria

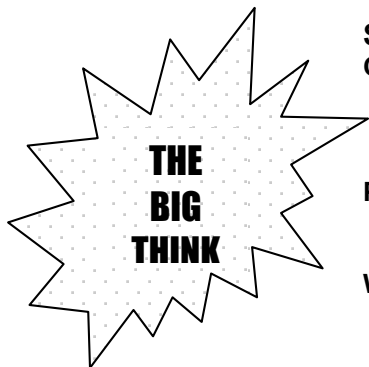
- collected relevant, factual data
- identified bias, misconceptions and inaccuracies
- made insightful effective comparisons
- stimulated productive collaboration
- rationalized and confirmed a plausible solution

▲ Introduce the Problem

Gather and Sort Primary and Secondary Evidence

Compare and Contrast

Evidence Check



So What?

Content

- Challenge students to portray their findings creatively through story, skit, music, poetry, etc.
- After investigating, what happened? What really happened?

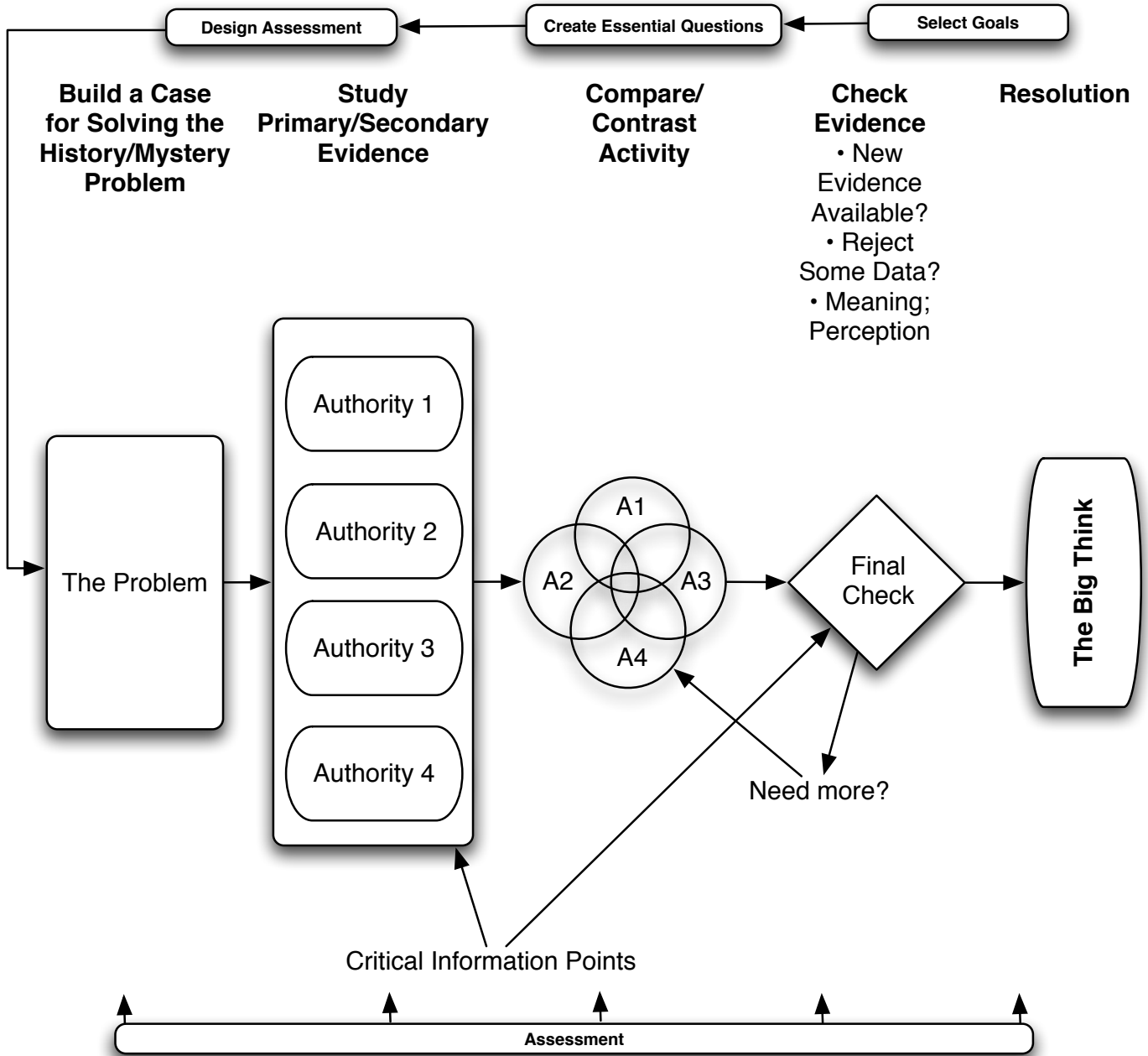
Process

- Establish rules for a historical investigation.
- What was the "tipping point" that affected the outcome?

What Next?

- Talk to an expert about why there are differing explanations of history.
- Explore more unsolved mysteries.

Think Model #11: History & Mystery



Why This Model?

To Determine:

- When, where, and what appears to have happened?
- What really happened?
- Why did it happen?
- What could have prevented it from happening?
- What can we learn based on what happened and why?

Possible Topics

- Causes of war
- Change in government
- Natural catastrophes
- Advances in technology
- Influence of artists/authors
- Development of art forms and genres

☆ **Life Skill: Mistakes of the past need not be repeated.** ☆

Planning for the Take a Position Model

Topic or Issue:

Learning Goals

Essential Questions

Consider the Possibilities

Critical Thinking and Information Skills

- interpret primary and secondary sources
- take accurate notes
- identify discrepancies and inaccuracies
- identify and differentiate fact, opinion, perception and propaganda
- identify and understand perspectives
- develop an opinion

Reading for Meaning

- read for detail
- interpret and compare information
- make text-to-text connections and comparisons
- make text-to-self connections

Technologies that Feature:

- organization and storage assists
- access to a wide variety of sources and authorities both primary and secondary
- dependable and current sources
- real time conferencing capabilities

Differentiation

- provide data collection organizers
- use resources in a variety of media and levels
- create visual representations of stakeholder groups and perspectives (position line)
- role play

Assessment Criteria

- collected relevant, factual data
- investigation was complete, careful, and detailed
- identified bias, misconceptions and inaccuracies
- made insightful effective comparisons
- presented a strong plausible position

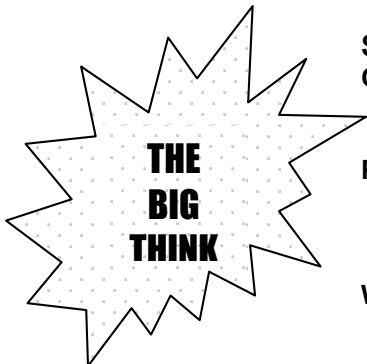
Action Plan

Identify Issue and Investigate Possible Positions

Analyze Perspectives, Positions and Impacts

Form an Opinion; Take a Position; Prepare Argument

Present the Position



So What? Content

- Create a physical position line with students. Hold a debate or a mock press conference.

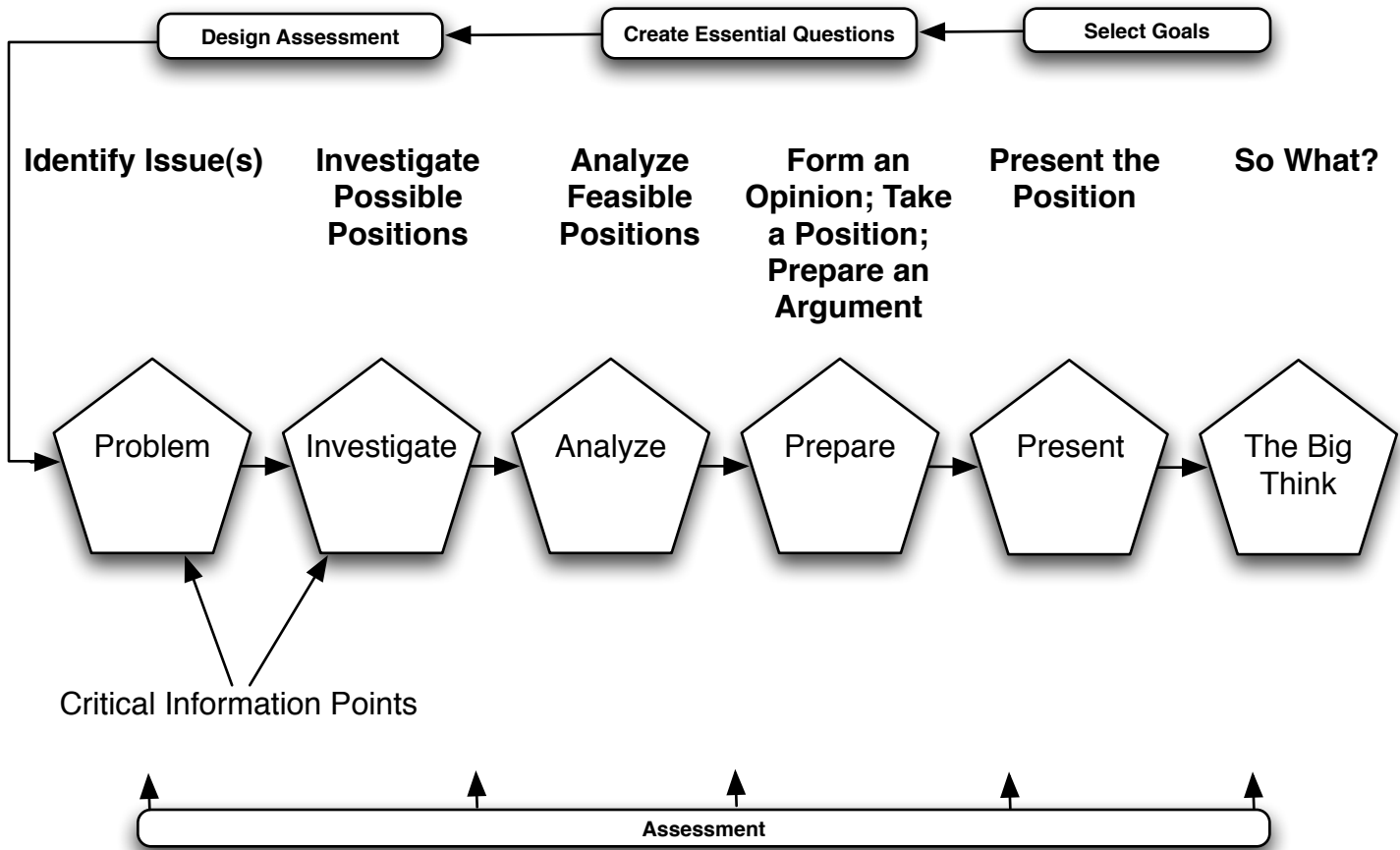
Process

- What is the difference between an opinion and a supported position?
- How does passion affect our ability to form and reason a solid position?
- Where in real world negotiations could this process be applied?

What Next?

- Plan to take action on the position (e.g. letters, campaigns, presentations, further research).

Think Model #12: Take a Position



Why This Model?

- Learn to take positions on sound ideas rather than on snap judgments
- Learn how to understand ideas much different than your own
- Develop critical analysis skills in the face of propaganda
- Build empathy for all positions, even as you take a stand
- Learn to articulate and defend a position taken
- Build skills for living and participating in a democratic society
- Build strategies for successful relationships with family and friends

Sample Products:

- Position paper
- Persuasive speech
- Video presentation
- PowerPoint presentation
 - Debate
 - Panel discussion
- Switch positions, then present
- Action plan

Sample Topics

- Political issues
- Controversial science problems
- Historical issues
- Moral issues
- Community problems
- School problems
- Literary critical issues

☆ **Life Skill: We build a stronger position with integrity when we know all the facts.** ☆

Planning for the Re-Create Model

Topic or Issue:

Learning Goals

Essential Questions

Consider the Possibilities

Critical Thinking and Information Skills

- interpret primary and secondary sources
- take notes
- identify discrepancies and inaccuracies
- compare data
- make text-to-self connections

Reading for Meaning

- read for detail
- read pictures
- make inferences
- make text-to-text connections and comparisons
- respond to text

Technologies that Feature:

- access to a wide variety of sources and authorities, both primary and secondary
- dependable, historic and current sources
- organization, storage and manipulation of data
- video and still photography with editing

Differentiation

- allow adequate time
- use resources in a variety of media and levels
- form supportive groupings

Assessment Criteria

- collected relevant, factual data
- research was complete, careful, and detailed
- detected and corrected inaccuracies and discrepancies
- re-creation was accurate and imaginative
- re-creation demonstrated understanding of ideas and concepts

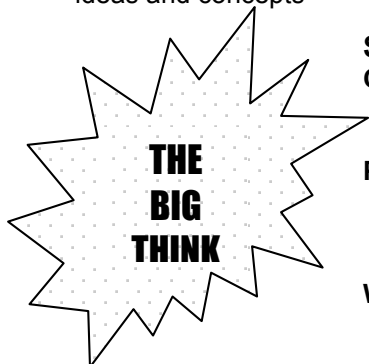
Action Plan

Identify, Clarify and Explore Issue or Event

Research to Validate Authenticity

Select Format and Construct Re-Creation

Perform



So What?

Content

- Compare re-creations and extract main concepts.
- Was the presentation accurate?

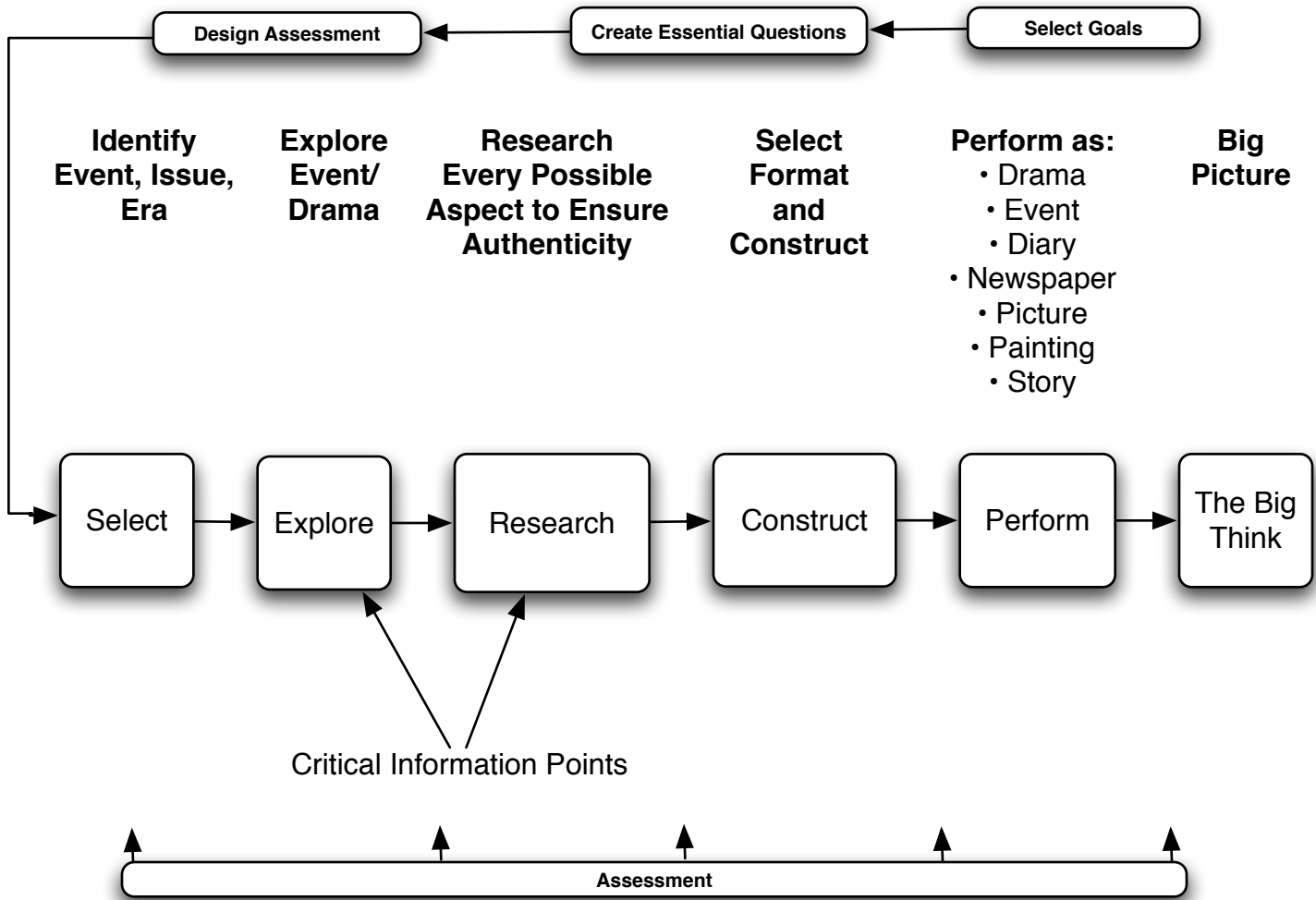
Process

- Ask: How did this process affect your understanding of the issue/event?
- How does re-creation help us in the real world? For example, in criminal investigations?

What Next?

- Share with a wider audience.
- "Test" their understanding of your main message.

Think Model #13: Re-Create



Why This Model?

- Why things, seemingly strange, make sense in context
- Discover what kinds of persons contribute or distract while a major event is unfolding
- Learn from the unfolding of major events
- Demonstrate how excellence in the reconstruction of an event helps to understand that event
- Develop empathy for people in their time and place
- Walk in someone else's shoes
- Judge the difference between fiction and realistic fiction
- Enable self to text connections

Possible Topics:

- Life in a place/time
- Historical event
- Perform a play that requires authenticity
- Pioneer life
- Slavery
- Interview historical personality

☆ **Life Skill: It helps to walk a mile in someone else's moccasins.** ☆

Planning for the Reinventing a Better Way Model

Topic or Issue:

Learning Goals

Essential Questions

Consider the Possibilities

Action Plan

Critical Thinking and Information Skills

- use primary sources
- compare data
- brainstorm
- define problems and test ideas
- reflect, transfer and apply

Reading for Meaning

- read view and listen to stories of invention
- sort, order ideas
- make connections
- comprehend and analyze data

Technologies that Feature:

- ability to organize, rearrange and classify
- 3D modeling and animation
- manipulatives for tests and retests
- simulation of change and its affect
- real-time conferencing capabilities

Differentiation

- include prior experience with inventing
- consult with experts
- provide techniques, strategies and experiences to nurture creativity
- present problems at varying levels of complexity
- allow adequate time

Assessment Criteria

- complete, careful, detailed investigation
- insightful comparison
- logical analysis
- creative solutions

A Select a System; Clarify; Investigate Current Methods

Compare and Contrast

Reinvent

Test and Evaluate



So What?

Content

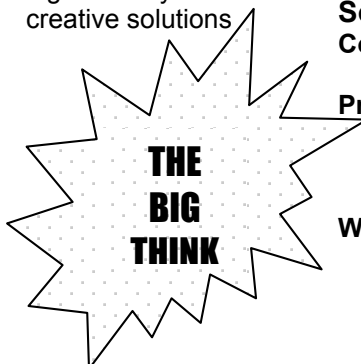
- Create action plans to launch ideas into action.

Process

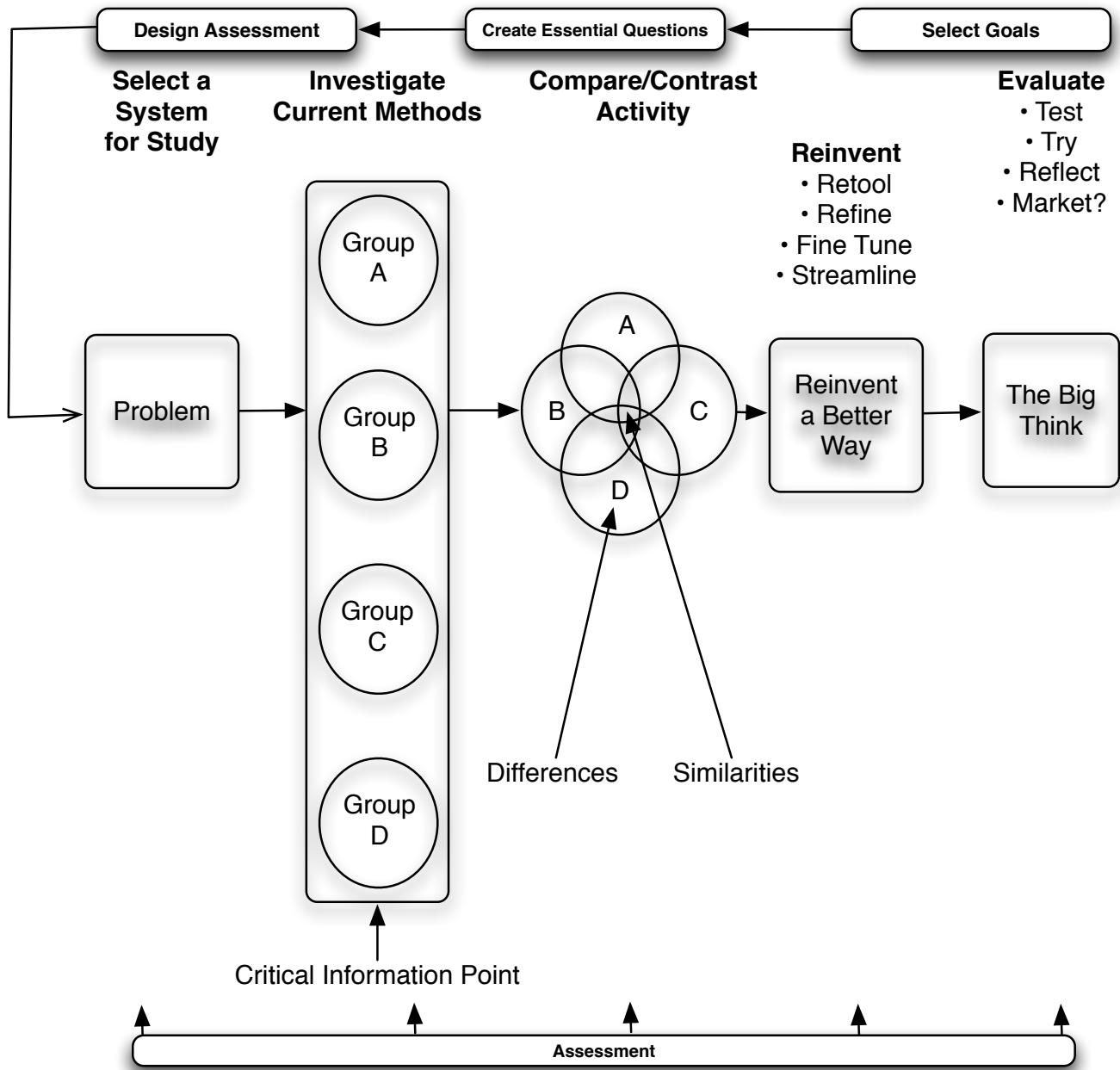
- Ask: What is invention, out-of-the-box thinking, trial and error versus serendipity?
- Is invention and creativity a skill or a gift you were born with?

What Next?

- Apply the reinvention.
- Ask: Who is this important to? How might this affect me, my friends, my family, my community, the world?
- Is there a commercial application of our ideas?



Think Model #14: Reinventing a Better Way (Systems Analysis)



Why This Model?

- Improve the efficiency of our economy
- Prepare for competitions (best ideas)
- Re-create products, marketing plans and patents
- Stimulate creativity
- Simulate authentic problems
- Build group work skills
- Save time, money, natural resources, energy

Possible Topics:

- New ways to handle school problems
- Living within a family's means
- Ways to save money, time, effort
- Create a labor-saving device
- Solving a pesky real-life problem

☆ **Life Skill: Creativity and invention stimulate progress.** ☆

Planning for the Learn By Doing Model

Topic or Issue:

Learning Goals

Essential Questions

Consider the Possibilities

Action Plan

Critical Thinking and Information Skills

- develop questions to direct data gathering
- interpret primary sources
- take notes & make sketches
- make text to self connections



Investigate and Predict

Reading for Meaning

- use features of text to target information
- read for facts and instructions
- interpret information & make predictions
- read manuals and pictures

Develop Questions

Technologies that Feature:

- simulation—software and online tours
- communication—cell phones, email
- collaboration—video conferencing, podcasts, online projects
- planning—flow charts
- recording—audio, video and photography

Develop Skill and Action Plan

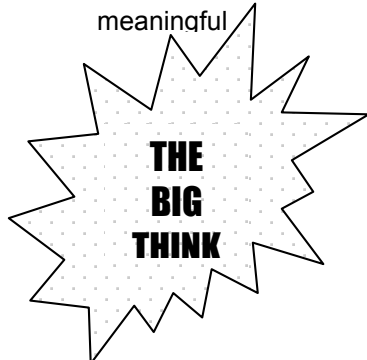
Differentiation

- provided planning flow charts
- concentrate on doing and big think
- design tactile experiences
- learning buddies

Real Experience, Simulation or Vicarious Experience

Assessment Criteria

- questions guided effective and efficient searching
- data was adequate, relevant and accurate
- plan was detailed, logical and doable
- action was successful
- connections and conclusions were meaningful



So What?

Content

How did a real experience with this topic help you to build understanding?

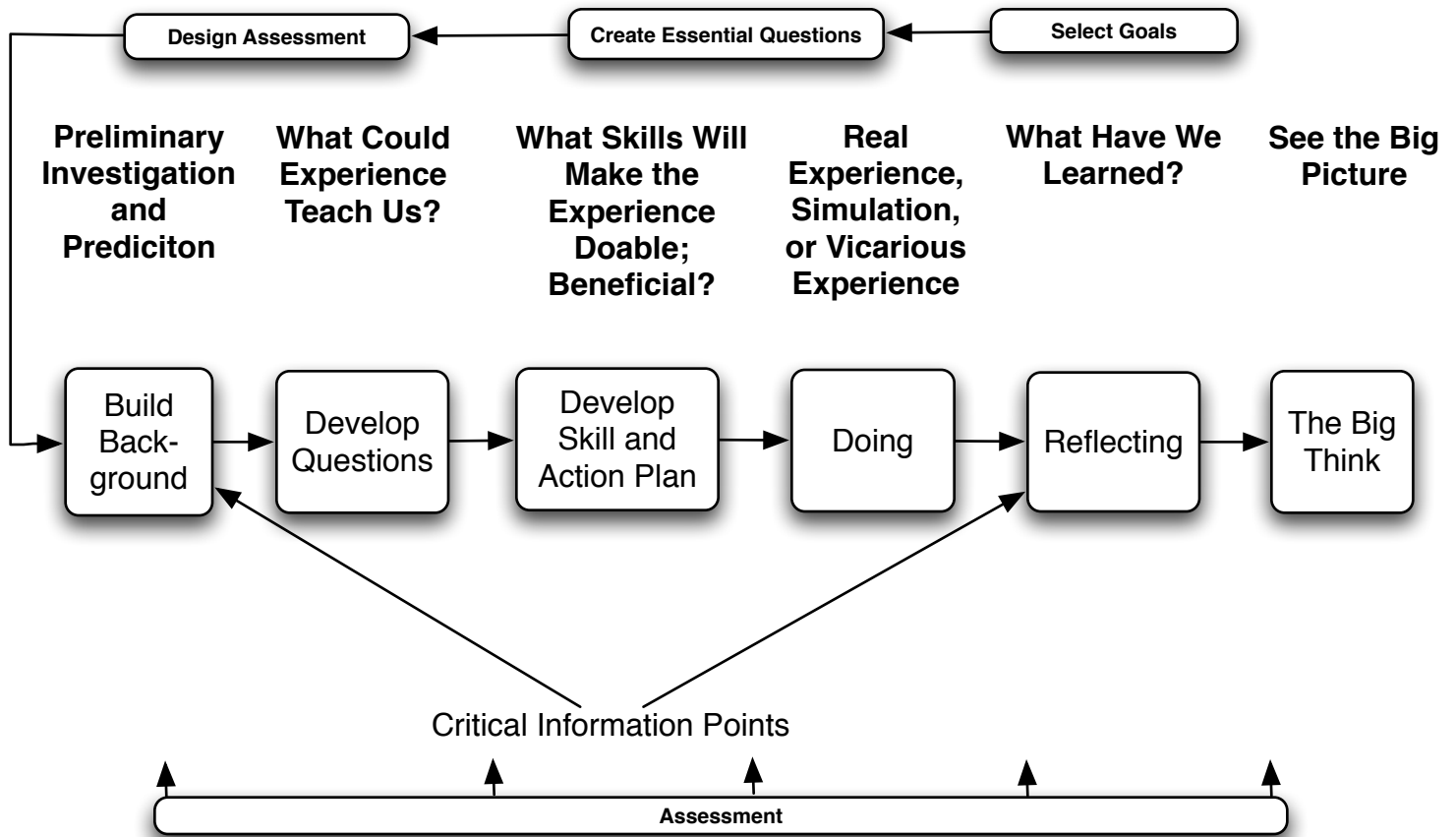
Process

What skills did you learn during this process? How will those skills be useful to you in the future?

What Next?

Teach someone else how to do what you did.

Think Model #15: Learn By Doing



Why This Model?

- Experience is often the best teacher
- Simulation and vicarious experience can substitute when real experiences are dangerous or unethical
- Expertise, local resources are available
- When learners need a dose of reality to spur understanding

Possible Topics:

- Scientific Experiments
- Field trips to local museums, industries, art galleries, or any other local organization where hands-on experiences are possible
- Service projects for school, community, state, nation, or world

☆ Life Skill: Experience is often the best teacher. ☆

Planning for the Teacher-Directed Quest Model

Topic or Issue:

Learning Goals

Essential Questions

Consider the Possibilities

Action Plan

Critical Thinking and Information Skills

- understand the research process model
- formulate questions
- evaluate sources
- analyze and synthesize
- communicate new knowledge

Reading for Meaning

- identify main ideas
- make connections with text
- interpret, infer and predict
- identify perspective

Technologies that Feature

- location and delivery of a wide range of ideas and authorities
- dependable and current resources
- online collaborative workspace
- productivity and presentation software

Differentiation

- select resources appropriate to skill level
- vary product and presentation format
- provide collaborative support
- design flexible timelines

Assessment Criteria

- formulated a clear focus for inquiry
- used and documented quality sources
- kept accurate, organized notes
- processed data critically and creatively
- demonstrated deep understanding



Build a Question(s).

Plan, Explore, and Mobilize the Research Process

Work, Work, Work

Conclude, Share, Think



So What?

Content

- Ask: How do my discoveries mesh with the findings of others?
- Compare findings and extract key concepts.

Process

- Self Evaluate: process, effort, learning—skills, knowledge, attitude
- Set goals for improvement.
- Ask: How did this process help me to become a better researcher?

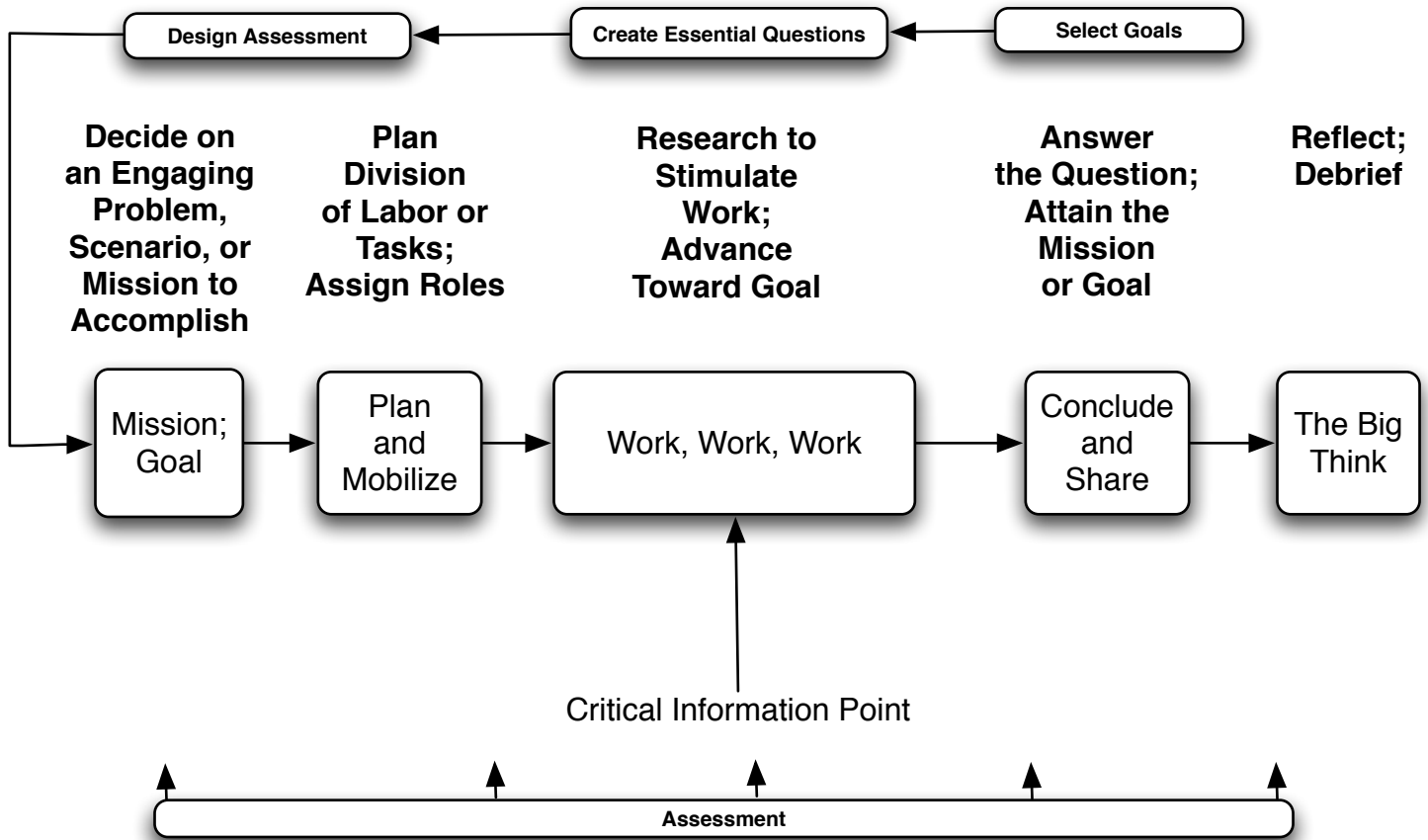
What Next?

- Teach someone else the research process.
- Extend learning to make new inquiries
- Create your own research model



**THE
BIG
THINK**

Think Model #16: Teacher-Directed Quest (The Well-Designed Research, Experiment, or Project)



Why This Model?

- Capture realism; Build expertise
- Build responsibility and independence
- Prepare for college or a profession
- Build a sense of achievement
- Capitalize on natural curiosities
- Make the curriculum relevant
- Develop deep understanding

Possible Projects:

- Formal research paper
- Web Quest
- I-Search paper
- Simulation game
- Scientific challenge/competition
- Senior paper
- Independent study
- Recital

☆ Life Skill: Research is the foundation of knowing and progress. ☆

Planning for the Learner-Directed Quest Model

Topic or Issue:

Learning Goals

Essential Questions

Consider the Possibilities

Action Plan

Critical Thinking and Information Skills

- understand the research process model
- formulate questions
- evaluate sources
- analyze and synthesize
- communicate new knowledge



Build a Question(s).

Reading for Meaning

- identify main ideas
- make connections with text
- interpret, infer and predict
- identify perspective

Plan, Explore, and Mobilize the Research Process

Technologies that Feature

- location and delivery of a wide range of ideas and authorities
- authoritative and current resources
- online collaborative workspace
- productivity and presentation software

Work, Work, Work

Differentiation

- select resources appropriate to skill level
- vary product and presentation format
- provide collaborative support
- design flexible timelines

Conclude, Share, Think

Assessment Criteria

- formulated a clear focus for inquiry
- used and documented quality sources
- kept accurate, organized notes
- processed data critically and creatively
- demonstrated deep understanding



So What?

Content

- Ask: How do my discoveries mesh with the findings of others?
- Compare findings and extract key concepts.

Process

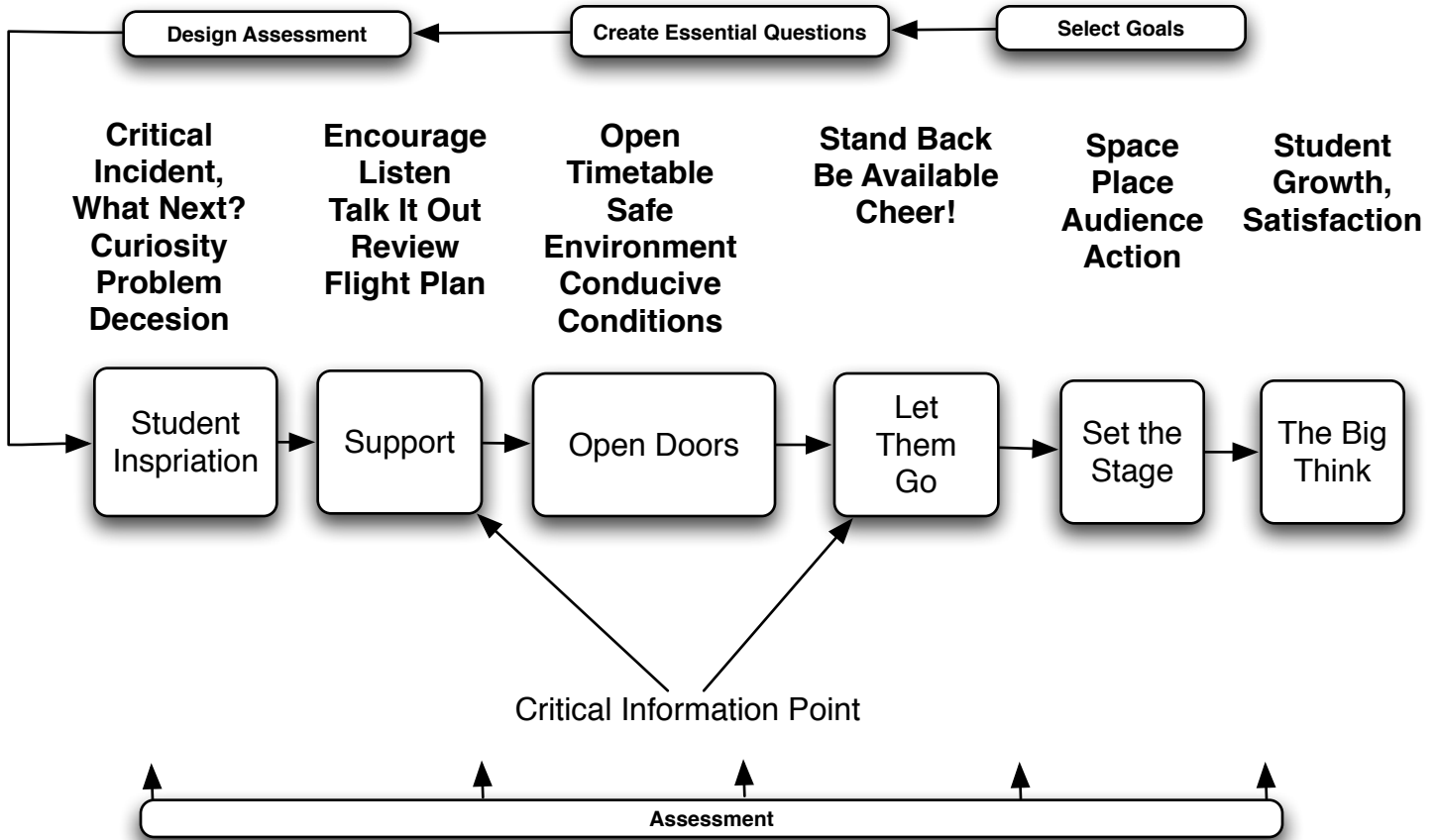
- Self Evaluate: process, effort, learning—skills, knowledge, attitude
- Set goals for improvement.
- Ask: How did this process help me to become a better researcher?

What Next?

- Teach someone else the research process..
- Extend learning to make new inquiries
- Create your own research model

**THE
BIG
THINK**

Think Model #17: Learner-Directed Quest



Why This Model?

- Extends content learning
- Student ownership
- Build learning to learn skills
- Take action on a cause
- Solve a problem
- Make a decision
- Answer student-generated questions
- Pursue burning issues
- Follow inspiration
- Application of learned skills and models
- Utilize student strengths
- Plagiarism not an issue

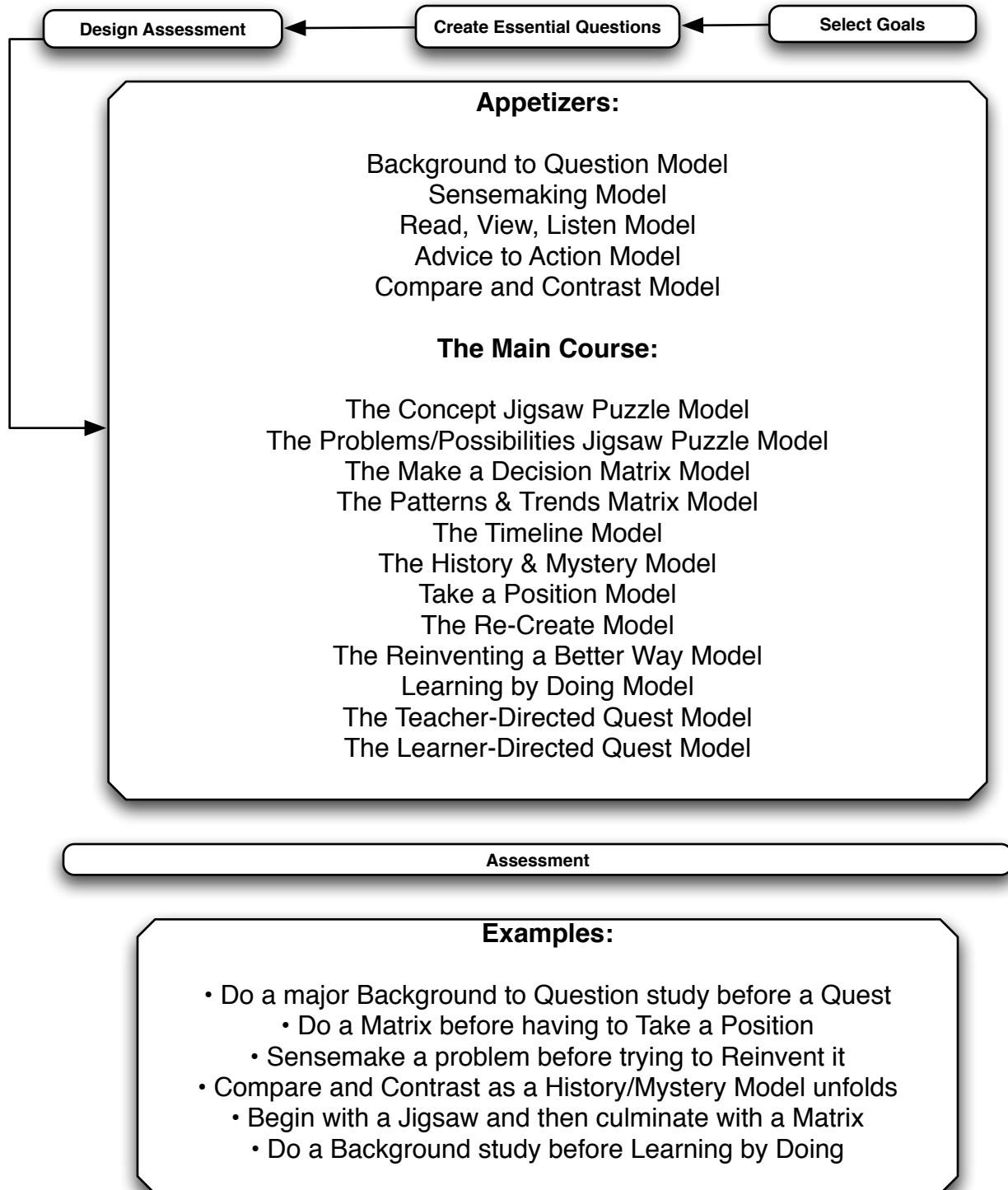
Possible Projects:

- Local concerns
- Global issues
- Environmental stewardship
- Design and technology
- Political action
- Health issues
- Support for a cause
- Initiating change
- Citizenship
- Media creation

☆ **Life Skill: With a spark you can light a fire.** ☆

Think Model #18: Mix It Up!

(Be Creative in Combining/Modifying All the Models)



☆ **Life Skill: I can learn anything I need to know, do, or understand.** ☆

Examples by Model

Model	Title	Grade Level	Page
Advice to Action Model	Safe Water	5–6	9
	Good Snacks	1–4	70
	Safety on the Net WebQuest	6–12	108
	Financial Planning	10–12	114
Background to Question Model	Severe Storms	5–8	46
	Science Fair Sampler	5–8	82
	Recycling E-Tour	6–12	128
Compare and Contrast Model	Big and Bigger	2–4	40
	Themes and Schemes	8–10	57
Concept Jigsaw Model	Just Like Me	1–3	38
	The Message is...	4–12	153
Decision Matrix Model	Choose a Pet for the Classroom	K–3	6
	Playground Fun	2–4	8
	Weather	5–8	12
	Hurricane Watch	7–12	23
	Find the Best Location WebQuest	8–12	26
	Select a Candidate	10–12	35
	Mining Investments	10–12	36
History and Mystery Model	The Unsinkable Ship	6–8	53
	Mayday	9–12	113
Learn by Doing Model	Wetlands	4–8	44
	Scary Sharks	3–6	98
	My Personal Space	7–12	136
Mix it Up Model	Support for Children at Risk WebQuest Pt. 1	9–12	87
	Support for Children at Risk WebQuest Pt. 2	9–12	90
	Putting the Wheels in Motion	4–6	99
	Packaged Problems	4–8	102
	Time for Technology	7–10	133
	The Power Struggle	9–12	154
Patterns and Trends Matrix Model	Marketing to Teens WebQuest	10–12	67
	Fairy Tales	2–6	151
	Responsibility	1–4	71

Problems/Possibilities Jigsaw Model	Endangered Animals	4–8	76
	Bully WebQuest	4–8	78
	Investigate the Swamp	6–8	81
	Greener School	8–12	85
	Investigating Health Problems	9–12	93
	Drug Safety	10–12	94
	Make Your Own Ending	2–4	147
Re-Create Model	Music Concert WebQuest	6–8	54
	Voices in History	6–8	56
	The Invention	7–12	137
Read, View, and Listen Model	Fad Diets	9–12	32
	Not Just a Pretty Face	2–5	42
	Mosquito Alert	9–12	116
	Questions, Questions	2–3	143
	Magical Rainforests	4–6	145
Reinventing a Better Way Model	Faster, Higher, Stronger	9–12	110
	So You Want to Study Birds, Eh?	6_10	107
	Play Day Games	1–4	124
	Dump Those Batteries	4–8	125
	Too Long	5–8	126
	Throw Away World WebQuest	6–10	127
Sensemaking Model	Convenience or Necessity	7–12	16
	Interventions in Ecosystems	5–8	48
	Is it Twisted, Bent or Spun?	9–12	61
	Conflict and Peace	2–12	73
	Story/Novel Mapping	1–6	142
Take a Position Model	Playground Cleanup	2–3	7
	Media Influence	7–10	13
	Candidate Candor	7–12	20
	Pesky Propositions	9–12	27
	Messing with Mother Nature WebQuest	9–12	30
	Controversial Contests	5–9	104
	Story Endings	1–4	140
Timeline Model	Book Club Choices	4–6	152
	The Eye of the Storm	9–12	64

Examples by Grade Level

Grade Level	Title	Model	Page
K-3	Choose a Pet for the Classroom	Decision Matrix Model	6
1-3	Just Like Me	Concept Jigsaw Model	38
1-4	Good Snacks	Advice to Action Model	70
	Responsibility	Problems/Possibilities Jigsaw Model	71
	Play Day Games	Reinventing a Better Way Model	124
	Story Endings	Take a Position Model	140
1-6	Story/Novel Mapping	Sensemaking Model	142
2-3	Playground Cleanup	Take a Position Model	7
	Questions, Questions	Read, View, and Listen Model	143
2-4	Playground Fun	Decision Matrix Model	8
	Big and Bigger	Compare and Contrast Model	40
	Make Your Own Ending	Problems/Possibilities Jigsaw Model	147
2-5	Not Just a Pretty Face	Read, View, and Listen Model	42
2-6	Fairy Tales	Patterns and Trends Matrix Model	151
2-12	Conflict and Peace (ESL)	Sensemaking Model	73
3-6	Scary Sharks	Learn by Doing Model	98
4-6	Putting the Wheels in Motion	Mix it Up Model	99
	Magical Rainforests	Read, View, and Listen Model	145
	Book Club Choices	Take a Position Model	152
4-8	Wetlands	Learn by Doing Model	44
	Endangered Animals	Problems/Possibilities Jigsaw Model	76
	Bully WebQuest	Problems/Possibilities Jigsaw Model	78
	Packaged Problems	Mix it Up Model	102
	Dump Those Batteries	Reinventing a Better Way Model	125
4-12	The Message is...	Concept Jigsaw Model	153
5-6	Safe Water	Advice to Action Model	9
5-8	Weather	Decision Matrix Model	12
	Severe Storms	Background to Question Model	46
	Interventions in Ecosystems	Sensemaking Model	48
	Science Fair Sampler	Background to Question Model	82
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5-9	Controversial Contests	Take a Position Model	104
6-8	The Unsinkable Ship	History and Mystery Model	53
	Music Concert WebQuest	Re-Create Model	54
	Voices in History	Re-Create Model	56
	Investigate the Swamp	Problems/Possibilities Jigsaw Model	81

6–10	So You Want to Study Birds, Eh?	Reinventing a Better Way Model	107
	Throw Away World WebQuest	Reinventing a Better Way Model	127
6–12	Safety on the Net WebQuest	Advice to Action Model	108
	Recycling E-Tour	Background to Question Model	128
7–10	Media Influence	Take a Position Model	13
	Time for Technology	Mix it Up Model	133
7–12	Convenience or Necessity	Sensemaking Model	16
	Candidate Candor	Take a Position Model	20
	Hurricane Watch	Decision Matrix Model	23
	My Personal Space	Learn by Doing Model	136
	The Invention	Re-Create Model	137
8–10	Themes and Schemes	Compare and Contrast Model	57
8–12	Find the Best Location WebQuest	Decision Matrix Model	26
	Greener School	Problems/Possibilities Jigsaw Model	85
9–12	Pesky Propositions	Take a Position Model	27
	Messing with Mother Nature WebQuest	Take a Position Model	30
	Fad Diets	Read, View, and Listen Model	32
	Is it Twisted, Bent or Spun?	Sensemaking Model	61
	The Eye of the Storm	Timeline Model	64
	Support for Children at Risk WebQuest Pt. 1	Mix it Up Model	87
	Support for Children at Risk WebQuest Pt. 2	Mix it Up Model	90
	Investigating Health Problems	Problems/Possibilities Jigsaw Model	93
	Faster, Higher, Stronger	Reinvent a Better Way Model	110
	Mayday	History and Mystery Model	113
	Mosquito Alert	Read, View, and Listen Model	116
	The Power Struggle	Mix it Up Model	154
	10–12	Select a Candidate	Decision Matrix Model
Mining Investments		Decision Matrix Model	36
Marketing to Teens WebQuest		Patterns and Trends Matrix Model	67
Drug Safety		Problems/Possibilities Jigsaw Model	94
Financial Planning		Advice to Action Model	114