Think Models for Collaborative Knowledge Building

Places

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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 coped 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.

Think Model #6: Concept Jigsaw Puzzle

Design Assessment	Create Essential Questions	Select Goals

Background Knowledge is Developed	A Question That Requires Research	Individuals or Groups Research Different Aspects of the Question	Present a Second Question Requiring Combined Expertise to Solve	Groups with Combined Expertise Build an Answer	Big Picture; Deep Understanding

Groups (research phase): Group A, Group B, Group C, Group D

Introduction; Background → Engaging Question → [Groups A–D] → Higher-Level Question → [Group ABCD × 4] → The Big Think

Critical Information Points

Assessment

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?

- Population Patterns
- Land Use
- Travel and Tourism
- Globalization
- Physical Regions
- Natural Disasters
- Resource Management
- Mapping
- Climatic Regions

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　　　Find Your Twin WebQuest　　Gr. 4–8

Which province/territory of Canada is a good match for your state?

Introduction: The USA is politically divided into 52 States. Canada has 10 Provinces and 3 Territories. Often countries and cities seek out a twin to enhance tourism and industry.

Task: You are working with a team of researchers in the department of public relations for your state. Your current assignment is to find an area of Canada with which to twin.

Process—*Compare Contrast*
Reason for Comparison To find a match for twinning.
Establish Background and Comparison Criteria Take a virtual tour of your state. Think about why your state is special. Create a web to illustrate the important aspects of your state. Decide on the criteria you will use to compare your state to a province in Canada. You want to find a close match based on that criterion so you will be looking for similarities.
Gather and Sort Data Take notes on the organizer *Discovering Similarities,* using one Topic column for your state and one for the province you have identified. Divide up the provinces and territories in your team and virtually visit provinces in Canada. Keep notes based on your important criteria.
Compare Meet as a team and share your findings. Compare the information to your state web. Decide on the best match. Compose a letter to the Premier of this province in Canada and invite them to twin with your state basing your rationale on your analysis of the collected data.

Information Sources
http://travelyukon.com/en/
http://www.gov.nt.ca/
http://www.gov.nu.ca/Nunavut/
http://www.hellobc.com/en-CA/default.htm
http://www.discoveralberta.com/
http://www.sasktourism.com/
http://travelmanitoba.com/
http://www.ontariotravel.net/TcisCtrl?site=consumers&key1=home&language=EN
http://www.bonjourquebec.com/
http://novascotia.com/en/home/default.aspx
http://www.tourismnewbrunswick.ca/en-ca/
http://www.gov.pe.ca/visitorsguide/index.php3
http://www.newfoundlandandlabradortourism.com/

Evaluation
□　appropriate criteria set
□　adequate, accurate and relevant data
□　sorted similarities accurately
□　noted differences
□　instant clarity of message

✷ The Big Think ✷

Content
H.O.T.—As a class, analyze collective results. *So What?* Did everyone select the same twin? Why or why not? Identify the differences in terms of products, natural resources, vacation activities, food, etc. Which differences would enhance the richness of both areas? *What Next?* Now that you have identified a twin, you need to plan a public relations event and brainstorm ways to promote this new relationship to improve tourism and industry for your state.
Process
Active Discussion—Review the evaluation criteria. *So What?* How helpful were they? *What Next?* How can we use our assessment results to become better learners?

Compare and Contrast Model

Discovering Similarities

When you compare, you are looking for similarities. Decide on the criterion for your comparison. What are the most important features worth comparing for this activity? Gather data based on the criteria and make brief notes. Identify and record the similarities. Now number the similarities in order of importance for your activity.

Criteria	Topic:	Topic:	Similarities

Example # 3   Grad Trip   Gr. 6–8

Where should the class plan to go for their year-end excursion?

Advice to Action

The graduating class is planning a year-end excursion. They want to consider everyone's preferences, but there are so many other things they need to consider. In pairs, students brainstorm a list of factors to consider. (e.g. cost per student, sponsorship, fundraising, and possible locations as well as district regulations regarding chaperones, transportation, accommodation, meals, etc.). Share with the class. List information needs and experts to consult. E.g. survey students to develop a list of trip preferences, consult parent association, school administration, possible sponsors. Divide up the tasks and have students gather the needed information.

Hold a class conference to present findings and to decide on the parameters to be set (e.g. cost per student, distance, special needs and accommodations, etc.). Review the preferences of students and locations suggestions of administration and parents. Evaluate the suggested locations based on some of the established parameters and decide on 6–10 possible sites for further investigation.

The Matrix Model

Build a giant matrix on a class bulletin board. Assign a location for each group investigation. As students gather data, pictures, maps, and brochures, they mount them on the class matrix.

Excursion suggestion	Location: Distance, travel time, and costs	Accommodation: locations, amenities and costs and availability	Site-seeing: tours and costs	Food choice and costs	Clothing requirements		
1)							
2)							
3)							
4)							
5)							

Groups analyze their gathered data, and decide on the top three choices to present.

✷ The Big Think ✷

Content

H.O.T.—*So What?* Consult with other groups and select the location preferred by most groups. *What Next?* After the excursion assess how well the trip met their expectations.

Process

Active Discussion—List all the experts and resources consulted during the process. *So What?* Why do we need to do our 'homework' when making major decisions? *What Next?* How can you apply this process?

Example #4   The Language of Geography   Gr. 7–10
How can we make content terminology come alive?

Reason for Comparison
To help students visualize and develop understanding of geographic terminology utilizing metaphors and analogies.

Establish Background and Comparison Criteria
Introduce by sharing analogies and/or metaphors with students and establishing definitions. Play 4 corners. Post the words *mountain*, *valley*, *river*, and *ocean* in corners of the room. Ask students to think about how 'school' is like one of these geographic terms and decide which one represents school best for them. Tell them they need to be ready to defend their choice. Give students time to walk around and chat with each other about choices. Next ask each corner group to discuss why they chose this corner and make a list of relationships between school and the term they chose. Explain how, when creating analogies and metaphors, we are looking for relationships between dissimilar things or topics based on criteria or what's worthy of comparison.

Gather and Sort Data
Show a good video clip that spans many types of geographic land and water forms. Have students list geographic terms they sight in the video. Have students go through their geography notebooks, add more terms, and seek definitions when necessary. Ask students/teams to select 3 or 4 terms for development. Provide students with the organizer, *Creating Metaphors,* and/or *Creating Analogies.* Model how to use the organizer by creating a metaphor and/or analogy as a group. Students research their terms, consulting a dictionary, a thesaurus, and Geography resources. They brainstorm then sort their data and thinking, using the criteria on the organizer.

Compare
Students use the results of their brainstorming to create analogies and/or metaphors.

✶ **The Big Think** ✶

Content
Active Discussion—In groups, share creative results. *So What?* Discuss common understanding of terms**.** ***What Next?*** Create an interactive virtual Geography word wall. http://wordwallweb.com/index.php or http://www.wallwisher.com/

Process
H.O.T.—Discuss what makes a good analogy/metaphor. *So What?* Establish, with students, criteria for assessing the impact of their analogies/metaphors (instant message, plausible relationship, improved visual image, etc.). Have students self assess their efforts and select their best for sharing. *What Next?* Have students collect analogies, similes, and/or metaphors they see or hear in ads, articles, etc. and record them and the source, on a chart. Study the chart and their assessment criteria to discover where the most creative uses of language are happening. In the sports columns? In advertising? In current events?

Compare and Contrast Model

Creating Metaphors

Creating a metaphor is relating a topic to something else that seems quite different but has similar attributes or the same general pattern.
Create a web of related ideas about your topic.

```
              Things

  People                  Feelings

          Topic:

  Places                  Colors

              Ideas
```
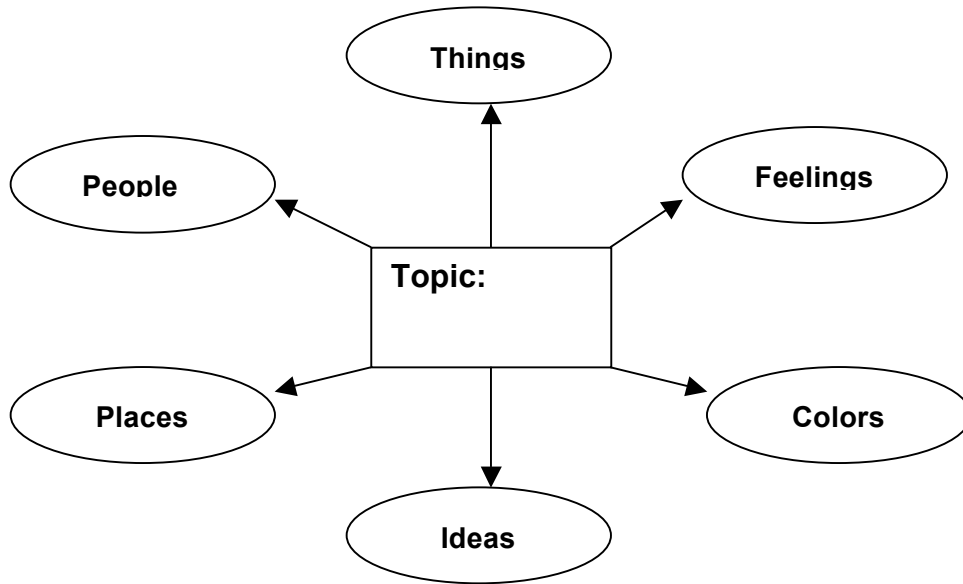
Examine your web and highlight the relationships that you think are the most powerful. You are looking for a sharp contrast as well as a strong image to express your topic as a metaphor. Experiment until you find one you really like.

	is	
	is	
	is	
	is	
	is	
	is	

Creating Analogies

Brainstorm ways your topic is like something else by using your senses.

Topic:……………………				

Looks like…	Sounds like….	Feels like…	Tastes like….	Smells like….

Use your brainstorming to create some analogies. Think about how your topic is like something else even though it is different. Look for patterns. Try lots of combinations until you find the best one.

…………………..is to……………………as…………………..is to………………

…………………..is to……………………as…………………..is to………………

…………………..is to……………………as…………………..is to………………

…………………..is to……………………as…………………..is to………………

Eample #5   **Population Patterns**   **Gr. 9–12**
Discover population patterns and demonstrate visually.

Problem
Examine and analyze population statistics for patterns.
Gather Data
Ensure a cross representation of developed and developing countries and areas of the world are examined. Validate all sources of information. Decide on the categories of data to collect so they can be recorded in a spreadsheet or database for analysis (e.g. ages and gender of people, occupations, education, types of communities, span in years or decades).
Analyze Relationships
In small groups, have students examine the data collected and look for possible patterns, connections, missing, and conflicting data. Revisit sources as necessary to fill gaps. Have students use the potential of the spreadsheet software or database to experiment with relationships and visual representation (e.g. line graph, bar graph, pie chart, population pyramid, flow chart, and map). Groups study the results and develop some hypothesis statements about their findings.
Select and Use Effective Tool
Groups decide on the most effective visuals to provide a clear picture of their hypothesis.
Create and Critique
Groups plan their presentation and decide on a presentation format (e.g. overheads, slide show, pamphlet, poster, etc). Groups develop their presentation, rehearse, and share findings.

✳ **The Big Think** ✳

Content
Active Discussion—After group sharing, list and discuss common findings and discrepancies in understandings. *So What?* How could multiple interpretations of the same data occur? What are the implications? *What Next?* Consult trusted authorities to confirm understanding.

Process
New Problem or Challenge—Examine various types of visuals used by learners. Sort into categories. *So What?* Discuss when each different type of visual is most effective. *What Next?* Collect effective visualizations of data (newspapers, magazines, pamphlets, Internet) and build a portfolio/display to enhance future applications.

Chapter 2

When do we study PLACE in environment?

Habitat

Climate

Endangered Wildlife

Place in Environment

Resource Management

Weather

Going Green

Ecozones

Stewardship
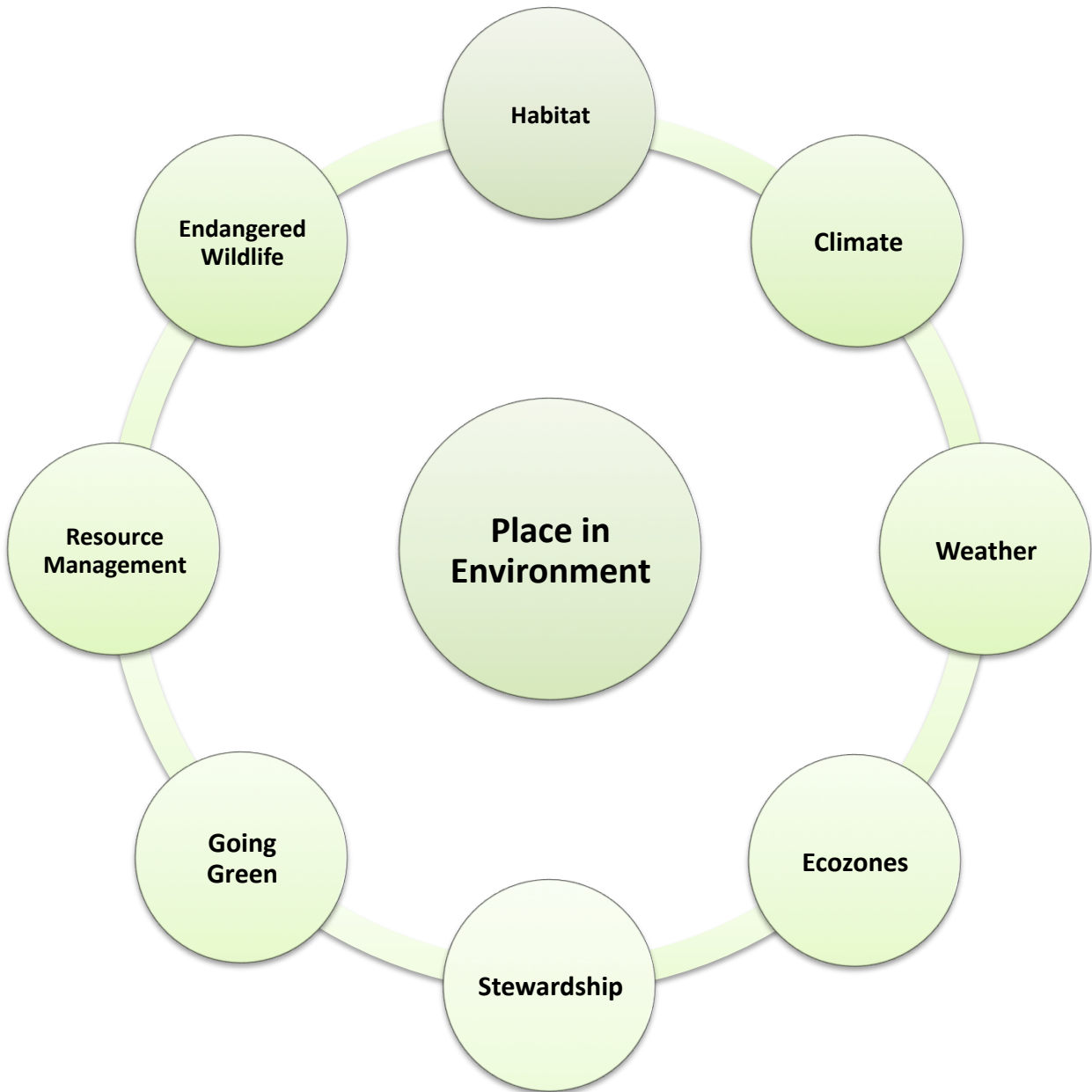
Example #1   Animal Needs   Gr. 1–3

How are animals the same?

Introduce and Build Background

In this task for younger learners, they will review the concepts of similarities, differences, and diversification of animal life and be introduced to a new concept of basic needs for survival. Immerse students in experiences with good picture books and videos of animals. Group students and provide them with a stack of animal cards or pictures from calendars, old magazines, or discarded books. Ask each group to sort the animal pictures in as many different ways as they can think of and to record the similarity (criteria) they used for sorting. Discuss sortings with each group and share with class as a whole.

Build Expertise	Combine Expertise to Build New Understanding
How are animals different?	What are the survival needs common to all animals?
Group A - Discover how animals move differently Group B - Discover how animals defend themselves differently. Group C - Discover how animal babies are different. Group D - Discover how animal homes are different. Group E - Discover how animal foods are different. Conference with each expert group and consolidate their findings.	Group – ABCDE Group – ABCDE Group – ABCDE Group – ABCDE Group – ABCDE Share group discoveries and chart the main ideas. Go back to the essential question, *How are animals the same?*

Note: Students will need a recording sheet or booklet to keep track of their discoveries in words and/or pictures. Attention to grouping, variety of text, and visuals is key for young researchers to have success. If possible invite adult volunteers or older 'learning buddies' to assist less-able students.

✶ The Big Think ✶

Content

Active Discussion—Review the chart of commonalities for animal survival. *So What?* Share a picture book such as *Our Big Home: An Earth Poem* and discuss what people need to be safe and healthy. Compare people needs to animal needs. *What Next?* Work more with *Our Big Home: An Earth Poem* and talk about ways we can care for the earth so all living things can survive.

Process

Thoughtful Writing—Review and chart the skills students used/learned. *So What?* Ask students to share what they enjoyed about the animal study and what they found difficult to do. *What Next?* What can I do to become a better researcher? See organizer *Thinking About Your Research.*

Thinking About Your Research

What did you like doing the best?

What did you have trouble with?

What do you wonder about now?

How can you be a better researcher?

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
New Problem or Challenge—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 me take a position? Did / change my opinion? ***What Next?*** How do we keep track of clues we find in print information?

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
Thoughtful writing—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 what they learned. *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 and media types 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?

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   **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

I didn't know that!	Questions I have?????

Read View Listen Connect

I agree/disagree…	I wonder…
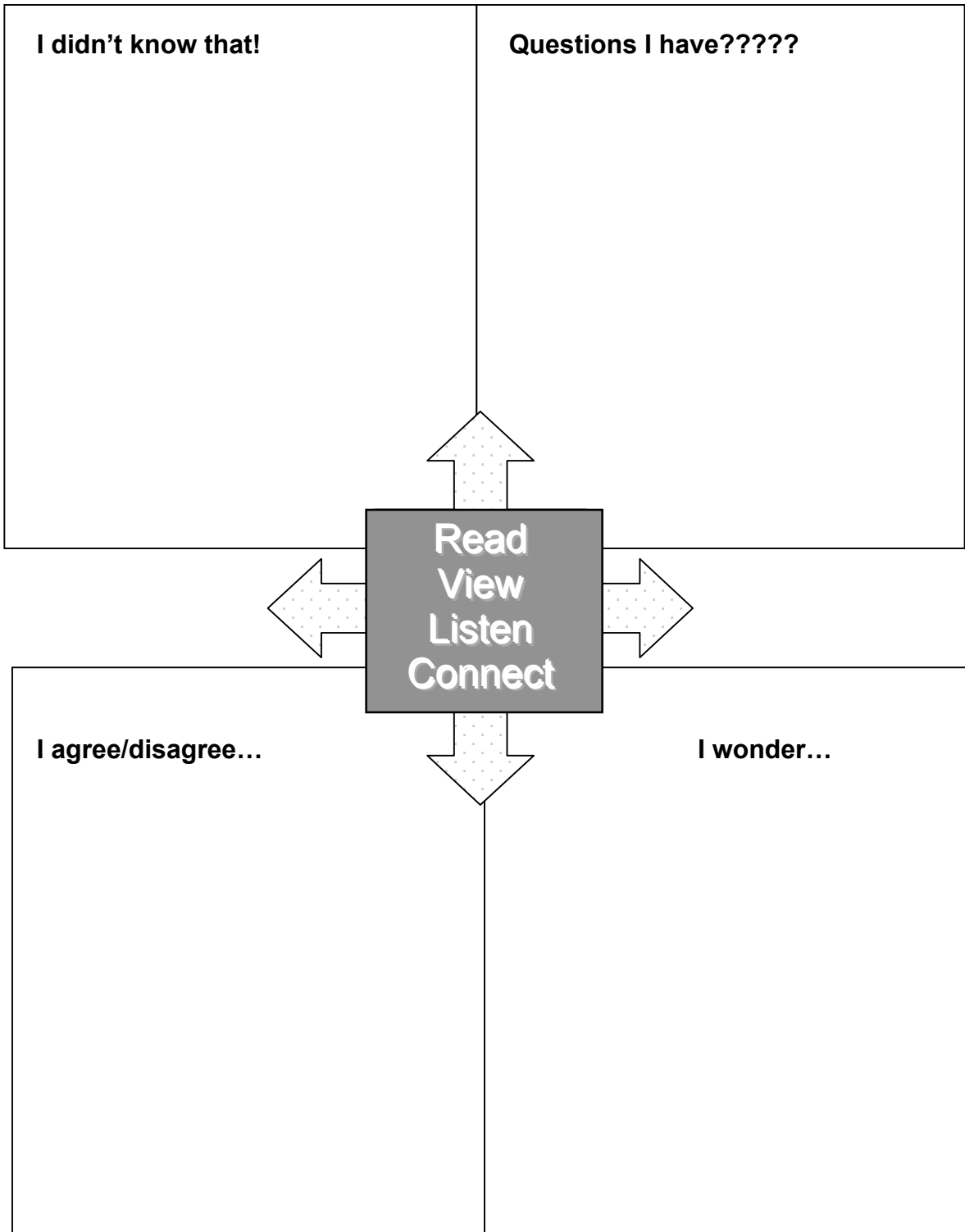
Title of resource…………………………………………………………..

Kind of resource…………………………………………………………………………

Example #5   Chains and Webs   Gr. 4–7

What does a food chain look like? How do food chains form a food web in an ecosystem?

Problem
Students are studying the complex balance of ecosystems. Their problem is to create a visual representation of this complexity by creating the food chains and webs within the ecosystem they have studied.

Gather Data
Students need to plan their investigation, develop key words for searches and use a variety of reliable sources to gather data about life within their ecosystem.

Analyze Relationships
As students gather the names of plant and animal life in their ecosystem, they also begin to organize this information in charts or webs.
Students look for relationships and develop flow charts of each food chain. They examine the food chains for further links and build food webs within their ecosystem.

Select and Use Effective Tool
Demonstrate the use of effective software such as Inspiration™ for showing relationships and building webs.

Create and Critique
Students create their visual webs and confirm their inter-relationships by reviewing the notes and/or consulting their references. They peer review and revise as necessary to create the most effective visual representation of the food chains and webs within their ecosystem.

✷ **The Big Think** ✷

Content
Construct Visuals—Work in small groups to combine food webs and create a larger ecosystem. *So What?* How does an ecosystem stay in balance? What happens if there is a break in a chain? *What Next?* Read *Wolf Island* and *Ladybug Garden* by Cecilia Godkin and discuss natural and human caused breaks in food chains. Direct learners to research and write their own stories about the consequences of breaks in food chains.

Process
H.O.T.—Review the visuals created by the students. *So What?* What are the benefits of using a technology tool to create food webs? *What Next?* Search for other technology applications that help with visualization. Add these tools to personal learning networks.

Example #6   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 though 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
Thoughtful Writing—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
H.O.T.—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, Problems

Book/Story:………………………………………..

Author:…………………………………………….

Problem

Causes

Effects

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

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

Example #8   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 and video cameras. 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						

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

Example #9   **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
H.O.T.—*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?

Forming an Opinion

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

Inquiry Question/Problem

My Ideas	Supporting Data

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?

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 #10   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 #11 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
Interact with an Expert—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
H.O.T.—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?

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[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 #12   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
Active Discussion—*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.

E-Tour Rubric

Criteria / Level	Background Building	Navigating	Note Taking
	Did you discover lots of new information about the topic?	*Were you able to navigate the tour without getting lost?*	*Were you able to select and record accurate and useful information quickly?*
Level 4	- accurate and abundant information collected from the tour - effective and efficient use of both itinerary and guiding questions	- 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	- skims and scans to identify relevant information - efficiently selects relevant data and makes effective use of allotted time
Level 3	- accurate and adequate information collected from the tour - information collected indicates guiding questions and itinerary were used effectively	- uses hot links selectively to locate required information - able to return to home page and navigate back and forth	- skims and scans to gain an overview - identifies useful information and makes effective use of time
Level 2	- incomplete or inaccurate information collected from the tour - information collected indicates some of the guiding questions were used and the itinerary was followed loosely	- uses hot links randomly and with limited success - able to use navigation tools with some success	- skims and scans with some success - has difficulty evaluating usefulness of data and runs out of time
Level 1	- little information collected from the tour - paid little attention to either guiding questions and or itinerary	- shows little understanding of significance of hot links - indicates little or no understanding of navigation tools such as "back" arrow or "home" link	- 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

What is commonly recycled?

What is the impact of recycling on municipal budgets?

What are municipalities doing to help or hinder the cause?

What do the skeptics say about recycling?

Why recycle?

What else should be happening?

What are the connections between recycling and:
- packaging?

- beverages?

- fast food?

-automobiles?

What Next?
Questions for further research or action.

-consumers?

-

Ideas for action.

-

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/htm/ReCurm.htm

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

Tour Check

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

Example #13   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
Active Discussion—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. *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
New Problem or Challenge—*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.

Collaboration Rubric

Achievement Level	Personal Responsibility	Support/ Appreciation	Focus	Problem Solving	Engagement
Level Four	- takes on leadership role - fulfills all aspects of the role - works as part of the team	- facilitates sharing of ideas and information - honors and praises strengths of others - assists others while respecting their roles and responsibilities	- 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	- is proactive in solving problems - asks probing questions and listens attentively - tests and evaluates solutions - facilitates consensus	- highly motivated - exhibits excitement - plans and works with others
Level Three	- understands personal role - fulfills assigned role duties - contributes fair share to task	- shares ideas and information - open to ideas/ point of view of others - shows awareness/ concern for feelings of others	- focuses on plan and carries it out - focuses on topic throughout task - completes all tasks on time	- uses a variety of strategies to solve problems - considers all solutions - assists others in problem solving	- very interested - positively and actively engaged - organizes task activities
Level Two	- not fully aware of role assigned - carries out some, but not all, role responsibilities - makes a minor contribution	- shares with reluctance - listens to ideas of others on occasion - offers some support to others	- follows plan some of the time - loses focus of topic and/or plan - completes some tasks on time	- unsure how to deal with most problems - usually goes along with suggested solutions - looks to others for help	- exhibits some interest - usually cooperates with others - lacks organizational skills
Level One	- little awareness of team roles - takes no responsibility for role - contribution of little value	- little effort to share information and ideas - works in isolation - offers little support for others	- pays little attention to plan - not focused on topic or task - does not meet timelines	- gives up readily when problems arise - sometimes frustrated by problems - relies on others to solve problems	- shows no interest in activities - has difficulty working with others - is very disorganized

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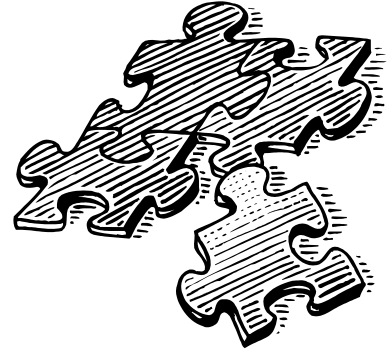
Everyone on the team had an important job to do.
How well did we do our jobs?

Team spirit

Team effort

Meeting task expectations

Meeting timelines

Quality of our work

Goals for next time

Working as a group helped us to...

Example #14   Global Citizens   Gr. 8–10

Who is responsible for care of our planet? What are the responsibilities of individuals and countries with regard to global issues? What is understood by the term "global citizen"?

Background

Introduce the concept of global issue by reading and discussing *If the World Were a Village* by David Smith. Brainstorm to identify organized groups with global concerns. Select specific groups for this study.

Specialist Team		Sharing Team	
First Question: *What are the roles and responsibilities of global organizations?* Group A - United Nations Group B - World Wildlife Association Group C - World Watch Group D - International Red Cross Group E - World Health Organization	**Research** Organize groups of five. Each Specialist Team researches a global organization in terms of their roles and responsibilities and history. Have students create a triple T-Chart organizer for recoding their discoveries.	**Concept Forming Question:** *What are the responsibilities of individuals and countries with regard to global issues? What is understood by the term "global citizen"?* Group ABCDE Group ABCDE Group ABCDE Group ABCDE Group ABCDE	**JigSaw** One student from each Specialist Team joins the new Sharing Team. Students present their expert information about the global organization they researched. Using the *Global Organization* worksheet group records key points. Ask groups to identify the scope of concerns and discuss and formulate some ideas about responsibilities. With this background, discuss the roles and responsibilities of individuals and countries, with regard to global issues. Work together to develop a definition for the term "global citizen".

✳ The Big Think ✳

Content

Thoughtful Writing—Share group findings and definition with the class. ***So What?*** Return to the essential question, Who is responsible for care of our planet and what are those responsibilities? ***What Next?*** What are the major concerns and what can we do about them as young 'global citizens'?

Process

New Problem or Challenge—Share the URLs used by each group for their investigations. ***So What?*** How can we keep track of these organizations and their projects and progress? ***What Next?*** Set up a collaborative digital space for the class to revisit organizations and continue their work.

Global Organization

Who is responsible for care of our planet?

Organization:	
Roles	Responsibilities

Organization:	
Roles	Responsibilities

Organization:	
Roles	Responsibilities

Organization:	
Roles	Responsibilities

Organization:	
Roles	Responsibilities

Organization:	
Roles	Responsibilities

Chapter 3

When do we study PLACE in Culture?

The Arts

Language Writing

Community

Countries

Immigration

Education

History

Media Studies

Ritual & Celebration

Place in Culture

Example #1   Community Workers   Gr. 1–3
Who helps to make our community a good place to live? How do community helpers work together in our community?

Build Background
Play a matching game. Find pictures of community helpers, mount those pictures on cardstock, and cut into 2-4 pieces depending on student ability. Mix up the pieces and give each student a piece. They have to find their 'missing information' by finding other students with pieces needed to create a complete picture. Have the group now find books about their community helper and explore them to discover more about the helper.

Connect to Old and New Learning
In a sharing circle have each group dramatize something they have discovered about the helper they explored. Invite other students to add information from their own experiences or ask a question.

Build and Research Questions
Introduce the 6 Ws and How. Explain how these starter words help us to build good questions for research. Brainstorm, and record, questions about community helpers, using each of the question starters. Ask students to select a community helper they want to learn more about. Provide students with a *My Thinking About* organizer and have them build questions about the helper that has aroused their curiosity. Students use the questions to focus their research. They record their discoveries and then create a picture to represent their information.

✸ The Big Think ✸

Content
New Problem or Challenge—Group learners and share pictures and learning. ***So What?*** Present a problem to each group and ask them to discuss the problem and decide what community helpers they think could help with that problem. ***What Next?*** Guide students on a walk or bus tour in your community. Take digital photos of community helpers at work. Invite older computer buddies to help students build a slide show of "How community helpers work together in our community."

Process
New Problem or Challenge—Discuss with students how the questions helped them find their missing information. ***So What?*** Compare questions from *My Thinking About* organizer. Divide the questions into 'fact finding' questions and 'wondering' questions. ***What Next?*** Are there any questions we have not found the answers to? How can we try to find answers?

My thinking about……………………………………….

I wonder…	I discovered…..	I see…..
Who		
What		
When		
Where		
Why		
Which		
How		
Books I used		

Example #2   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
Tabulate ratings of 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 #3 **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. **Build Background** Gain a feel for the time period by investigating important people and events as well as the culture. **Research** Collect information for an appropriate introduction to 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. **Construct ReCreation** 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. **Perform.**

Information Sources
- Kingwood College Library: American Cultural History: http://kclibrary.nhmccd.edu/decades.html
- Rewind the '50s: http://www.loti.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
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 make a YouTube video.
Active Discussion—*So What?* Review decades research notes and debate the focus question, *How much influence does music play in cultural history? What Next?* 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
Thoughtful Writing—*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?

Example #4   The Power of Native Art   Gr. 6–9
What are the elements of Native Art that contribute to such a strong voice?

Explore Issue or Event/Build Background
Immerse students in North American Native Art experiences (e.g. visit museums and art galleries, both real and virtual, invite Native storytellers and dance groups, view films, examine art artifacts and photos). Create displays and read Native tales and powerful picture books such as *Our Native Land* by George Littlechild. Discuss themes, images, texture, color, and patterns that are prevalent in Native Art.

Research to Validate Authenticity
Form research teams, based on interest, to explore various genres of Native Art (e.g. dance, storytelling, sculpture, painting, crafts, authors, and music). Have teams research the history of a Native art form, regional and tribal differences, famous examples, and specific artists for their genre. Jigsaw groups and instruct them to share their genre research and then look for common elements and characteristics of Native Art in all its forms.

Build a Story and Construct Re-Creation
Discuss with students contemporary issues and themes that touch their lives (e.g. celebrations, choices, anxieties, environmental concerns, bullying, gun violence, health care, war, etc.). Have students work in their groups to draft a contemporary story. Instruct students to apply the characteristics and elements that they discovered in their research to construct their re-creation with a strong Native voice.

Perform
Plan a day of celebration and sharing. Have students display their artwork (paintings, sculptures, crafts), tell their stories, and perform dance and music in Native voice. Take digital photos and video footage of the day and have students create a webpage to share their re-creations.

✳ The Big Think ✳

Content
Active discussion—*So What?* Discuss the essential question**,** *what are the elements of Native Art that contribute to such a strong voice?* ***What Next?*** Collaborate with a Native community school. Add a blog, and wiki, to the student Re-Creation webpage to continue sharing and learning through the common voice of art.

Process
Invite a native person, a museum curator, or other expert to attend your re-creation either in person or virtually. Afterwards, have a group reflection with the expert.
Interact with an Expert—*So What?* What successes did we have and how could we better capture the essence of a culture? ***What Next?*** Add authentic Native voices to the student webpage by linking to stories, art, music and film.

Example #5   Immigration to Canada/US   Gr. 6–10

How does immigration impact on peoples' lives?

Introduction
Share a good story about an immigration experience (personal, book or video).Have students discuss their ancestral roots with their families. Then ask students to locate their countries of origin and approximate date of immigration on a large map on a bulletin board and with punch pins mark the country they, their parents, grandparents and extended families were born in. Use this data to create graphs and charts. Have students use a split page organizer to list what they now know about immigration and questions that they now have as a result of this activity. Share the questions and arrange them on a web with the engaging question at the centre. *Why do people move from one country to another?* Use these questions to generate a note taking organizer for students.
Select origins to research and group students to become experts about immigration from those countries.

Build Expertise	Combine Expertise to Build New Understanding
Why do people move from one country to another?	*What were the challenges facing immigrants?*
Group A – Country 1 Group B – Country 2 Group C – Country 3 Group D – Country 4	Share reasons for movement and regroup students posing a higher level question. New groups may have to conduct further research. Group ABCD Group ABCD Group ABCD Group ABCD

✳ **The Big Think** ✳

Content
Return to questions students had about immigration. If they have not been answered conduct further research. **Active Discussion**—*So What?* Discuss the essential question, *How does immigration impact on peoples' lives? What Next?* Research immigration experiences today. Do people move for the same reasons? Do they face the same challenges? Have students work with their new knowledge to create a play, movie, photo journal, poem, or virtual museum, etc. Have students create an information pamphlet for new immigrants. Be sure the creation conveys how immigration impacts senses and emotions as well as physical and financial implications.

Process
Have students assess how well their group worked together using the organizer *Take the Team Test.* **H.O.T**—*So What?* What went well? Where were the problems? *What Next?* How can we improve our teamwork skills?

Take the Team Test

How well did we work as a team?
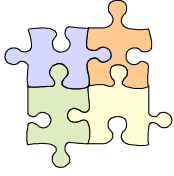
We each took responsibility by:

1

2
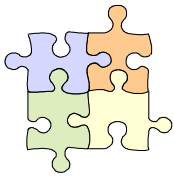
We made sure we stayed on task by:

1

2
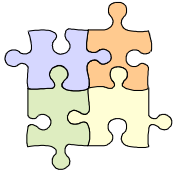
We supported each other by:

1

2
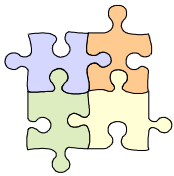
Our team could be stronger if:

1

2
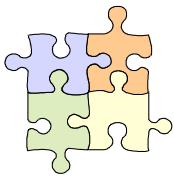
Our group is proud of:

1

2

Example #6 **Grading Schools** **Gr. 10–12**
Which post-secondary educational facilities are best for me?

Reason for Comparisons
This activity will help students to research and analyze data to enable them to find the schools that are best for them after finishing secondary education.

Form Criteria
In groups have students brainstorm for the things they will look for in a post secondary school. Share and chart their ideas. Cluster similar ideas and develop a set of criteria for assessing the suitability of prospective schools. E.g. academic programs, fees, scholarships, admission requirements, web service, access to library, distance education, athletics, recreation, housing, virtual tour, disability services, bookstore, location, transportation links etc. Individual students will consider items in the criteria list and make note of their personal requirements with regard to each criterion. E.g. must be on a bus route that links with home, must offer secondhand texts for sale, would like an Olympic sized pool on campus or nearby.

Gather Data
Provide students with the URLs of state/province wide post secondary institutions or instruct students to conduct their own searches if time permits. Have them search these sites to discover data to satisfy each criterion and then enter the data in a searchable database.

Sort Based on Criteria
Using the database software students can sort and compare the collected data.

Make the Comparison
Students experiment with several kinds of graphs and charts to select those that best illustrate their analysis.

✳ **The Big Think** ✳

Content
H.OT.—Share and discuss graphs and analysis of schools. *So What?* Individually, learners select their top three schools and complete the organizer, *School Selection: So What?* *What Next?* Learners put together a portfolio of graphs and data to present to their families/caregivers to support their selections.

Process
Active Discussion—In groups learners discuss the official websites of post-secondary facilities that they used to search for information they needed**. *So What?* Did you find out everything you needed to know? What problems did you encounter? How user-friendly were the sites? What Next? Make recommendations to the site managers that would assist future patrons with their searches.

School Selection: So What?

Take a closer look at the shools you selected. Consider them using these prompts.

Selection Criteria

Schools	Must Haves	Would Like to Have
School # 1		
School # 2		
School # 3		

Schools	Pros	Cons
School # 1		
School # 2		
School # 3		

Do these schools really meet the selection criteria you and your parents have?

Should you go back and reconsider some others?

Example #7   Higher Education   Gr. 10–12

What are the current trends in post secondary education? How might these trends affect career choices?

Build Background

We know investment in education is an investment in the future. Yet, we find parents struggle with budgets, students vie for scholarships, and colleges and universities compete to gain funding. We need to consider the anonymous quote, "If you think education is expensive, try ignorance" when we think education costs too much money. Apart from the cost there are other factors at play today that need to be considered in order to gain a better picture of what is really happening in education.

Gather Data & Organize Data on Matrix

Explore national and local websites to gain an overview of the important statistical data that is available. Instruct students to keep a record of questions they have and important traits they discover in their early exploration. Use these records to decide on the traits for the matrix. Some important traits to consider: cost of programs, scholarships, gender, age, foreign students, distance learning, etc. Select a balanced sampling and organize students into groups by States/Provinces. Have each group record data for each trait in the matrix. Remind students that accurate data and documentation of sources is essential.

Trends in Post Secondary Education				
Groups	Traits/Questions to Answer			
	High School Completion (M/F)	College/University enrollment(2000+) (M/F)	Popular courses (M/F)	Drop-out rates (M/F)
Group A				
Group B				
Group C				

Analyze Matrix and Examine Results

Instruct students to generate graphs with the data to help summarize and analyze findings. Look for relationships, surprises, discrepancies, etc. Compare and discover patterns between locations and across traits. Using patterns discovered, predict possible trends in education for the next 7 years. What are the trends with regard to skills and professions? Who is studying what? Does gender play a role? Why? How might all this impact lifestyles? Discuss current family lifestyles: who works, who takes care of the children, cooks the meals, provides financial support, etc. Are these trends linked?

✲ **The Big Think** ✲

Content

Use the organizer *Career Directions* for individual synthesis. **Interact with an Expert Model**—*So What?* With an invited expert, explore what the futurists are saying about 21st century careers and the education they require. Are post secondary institutions ready for the 21st century? *What Next?* How does this information affect planning for career choices?

Process

H.O.T.S.—*So What?* Which sources had the most useful data for building the matrix? *What Next?* Use the same process to examine education in other countries. Are the patterns and trends global or are there significant differences? Why?

Career Directions

Patterns and Trends discovered in post secondary education:

Futurists' **Predictions:**

Possible **Career Choices:**

Good **Career Resources:**
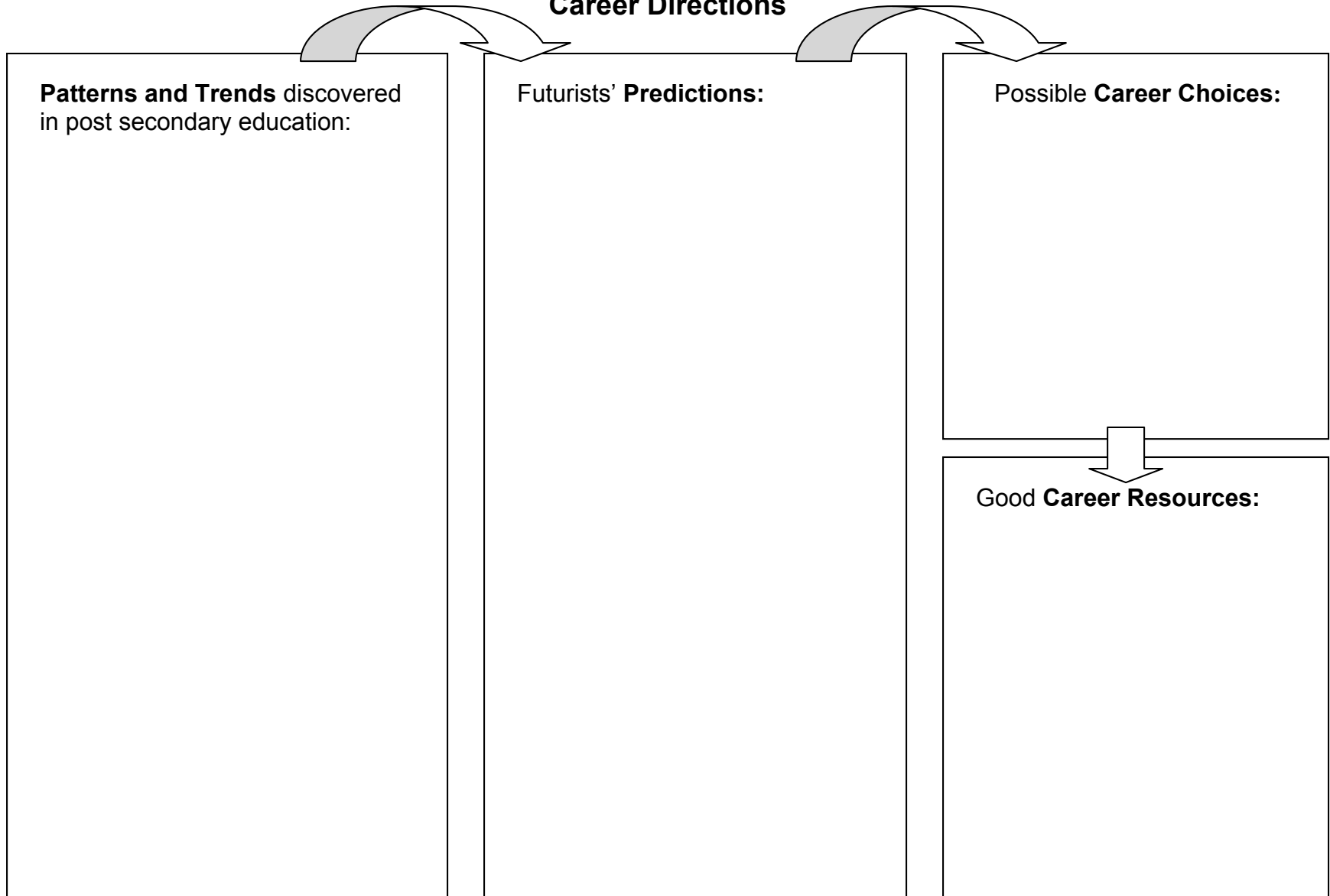
Chapter 4

When do we study PLACE in Economy?

Example #1   Trading Partners   Gr. 4–8
Who makes our clothes and accessories?

Build Background
Have students brainstorm items they like to trade with their friends (e.g. sports cards, games, books, etc.). What are the advantages of trading? Research and discuss the history of trading goods.

Gather Data
Organize groups of 4–5 students. Provide students with 6–8 sticky notes each or per group. Tell students to examine their school supplies (clothing and accessories) and record item names and the place they were made on sticky notes, one per item.

Organize Data on Matrix
Ask students to sort their items into categories. Then organize them by creating a matrix on a large piece of chart paper. Remind students that they need x and y categories to create a matrix where x = locations and y = items.

Analyze Matrix and Examine Results
1) Have students discuss the patterns they see and summarize them on the bottom of their matrix.
Discussion points:
• Are there significant clusters of sticky notes in any cell(s)?
• What does that tell us?
• Why are there more items in some cells than others?
• Could you have organized the categories differently?
• Are you surprised by the data? How?
• Is there a pattern you expected to see that isn't there?
2) Hang the matrix charts about the room. Have students do a gallery walk and look for other patterns as well as any trends they can glean from the collective information.
Discussion Points:
• What information is similar, related, or repeated?
• Is there a repeated pattern?
• What is the reason for the pattern?
• Might the pattern hold over time to develop a trend?
• How does……………relate to ………………………..?
• How is………………similar to………………………..?

✷ The Big Think ✷

Content
Active Discussion—*So What?* Return to the focus question and discuss, *Who makes our clothes and accessories? **What Next?*** Collect data about other items such as sports equipment, appliances, furniture, tools, etc. at home and at school. Analyze with a new matrix. Compare the findings to the clothing patterns and trends. Are they consistent? Why or why not?
Process
How can we find authoritative information about our topic? Consult references and compare findings from the class matrix to actual data about clothing trading partners. **Create New Questions—*So What?*** What questions do you have about what you observed? Can you make some predictions based on the patterns and trends you have discovered? Do trends change? What is the rate of change? Why might a trend change? Why would someone want to know this? ***What Next?*** Develop learning advice on analyzing for patterns and trends for the Virtual Learning Commons.

Example #2   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
  o   data gathered is accurate, adequate and relevant
  o   students sorted data and recorded it in appropriate sections of organizer
  o   students discovered implications and came to a personal conclusion
  o   checklists were used to assess and improve completed organizers

✴ **The Big Think** ✴

Content
Work in groups to uncover similarities in causes and effects of interventions.
Thoughtful Writing— *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
Share visualizations. **Active Discussion—*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.

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 fore 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 *Determing Impact*, *InfoTasks for Successful Learning*, Pembroke Publishers

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

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 **connect**ing ideas
- **distinguish** between fact and opinion
- **analyze** conflicting information
- **identify** bias and perspective
- **identify** cause and effect
- **determine** relationships
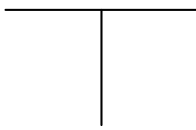
T-Chart	Sequence/Time Line	Venn Diagram	Triple Venn Diagram
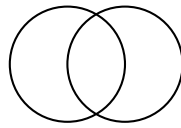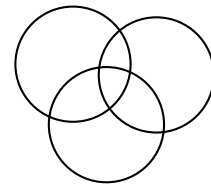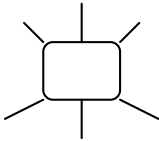
Web	Change		
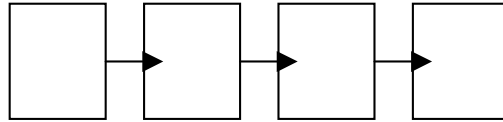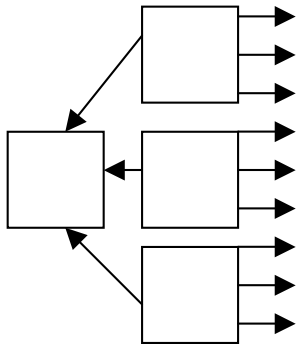
Cause and Effect	Process Steps	Branch Diagram
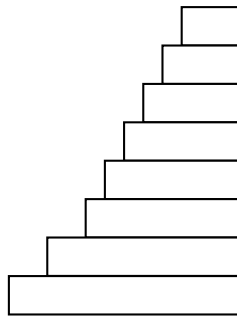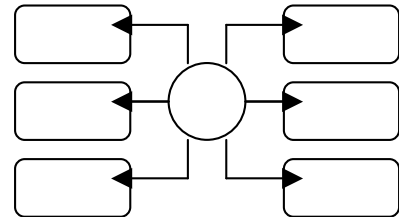
Why do you need an organizer? You can ask your teachers for ready-made templates or you can create your own on the computer using draw software. Make use of shapes, arrows, shading and color. Try out some ideas and make sketches of your own design. **Which organizer is best for your need? Why?**

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
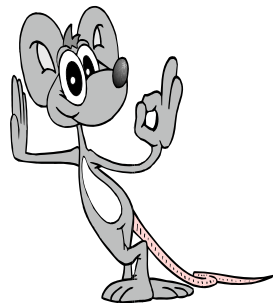
OK   How did it go? What would you change?

Example #3   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

Background 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.).

Gather Data 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.

Organize Data on Matrix 3) Use a spreadsheet as a matrix for collecting data. Analysis of this matrix will help you decide on the three most favorable locations.

Analyze Matrix and Examine Results 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

Invite an expert to the class and present the findings. **Interact with an Expert—*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

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

Example #4   The Economy of Safety   Gr. 9–12

What are the potential effects of e-coli and salmonella on local, national, and global economies?

Introduction

Economics classes are investigating international reactions to examples of crisis situations in major market products. The first crisis topic is the occurrences of e-coli and salmonella in various food items. Introduce by showing students some political cartoons on the topic and discussing the perspectives and issues represented. Ask students what they know about this topic and chart their responses. Identify the main countries of concern and the possible perspectives that should be investigated.

Read View Listen

Form groups and ask the students to divide up the work so that major countries and stakeholders involved will be investigated. Have students conduct searches in periodical databases that subscribe to international papers. Each student should select at least three articles to review. Provide students with copies of the *Concept Mapping Worksheet* so they can record their notes and create concept maps from the information gleaned in each article**.**

Compare

Instruct students in the groups to share their summary notes and concept maps. Review the guiding question. Have the group create a chart to record the potential effects of e-coli and salmonella on local, national and global economies that they have researched. Instruct students to identify their sources, the perspectives taken, and any overt media spin on the issue.

Country	Occurrences	Effects	Potential Impact

Return to search more articles if necessary. Share and discuss common findings and discrepancies.

✴ **The Big Think** ✴

Content

Thoughtful Writing—*So What?* What were the major hurdles facing people during these crises? Why is this important to know? ***What Next?*** Are these problems common to other crisis management situations**?** Select another crisis topic and conduct a study. Compare the class findings.

Process

List sources learners used to access current data on the crisis. **H.O.T.S.—*So What?*** How effective were our searches to find good reliable data? ***What Next?*** Set up RSS feeds of best sources for economic issues.

Concept Mapping Worksheet

Use the following worksheet to record notes as you read in the left hand column and make a concept map in the right hand column. Create your own form as you get experience.

Reading Log	
Source (Citation of what I am reading):	
My reading notes:	Concept map of ideas I am encountering:
Summary of what I have read:	

Example #5   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
What do we now know about the different specialists involved in accident investigation? **New Problem or Challenge**—*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
Review the sources used for data gathering. **Active Discussion**—*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 #6   Mining Investments   Gr. 10–12

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

Build Background
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.

Gather 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 data from the spreadsheet to create graphs to help with analysis. Decide on ranking criteria and guidelines. Have pairs select the best options, based on analysis, and prepare a presentation to make recommendations to investors. Present to the class (investors). Video-tape presentations.

✳ **The Big Think** ✳

Content
Small groups review the presentations and supporting documents. **H.O.T.S.**—*So What?* Decide on the best overall investments. *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
Brainstorm questions students have now that they have been through this process. **Interact with an Expert**—*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 5

When do we study PLACE in Time?

Example #1   Birth Dates   Gr. K–3

What can we learn from our birth dates?

Introduction
Read lots and lots of story books about birthdays. Brainstorm for birthday words and activities and build a Birthday word wall. Send home a letter to caregivers informing them of the Birth Date unit and asking for their assistance in helping children gather data about the day they were born. Create a form requesting all the data needed (e.g. date, day, time, location of birth, weight and length at birth etc.) depending on how you plan to analyze the timeline data.

Gather and Sort Data Sets
Group students' birthdays by months of the year or seasons. Provide each student with a *Birth Date Profile* page. Arrange for parent volunteers or older learning buddies to work with students if needed. Instruct students to complete their profile based on the information provided by the caregiver. Have students research to find other data, such as birthstone and flower, famous people born on the same day, etc., needed for the profile. When profiles are completed have groups arrange them in chronological order by birth date to create a timeline.

Place Data on Timeline
Join all group timelines together to create a year long timeline of student birth profiles. Segment the timeline by month and/or seasons using colored paper for mounting and labeling of months and seasons. (The students could also create their profiles on computer by entering their individual data on a teacher created template and the files could be linked together later to create a slideshow.)

Analyze Timeline
The timeline will now provide a rich database of information ready for analysis. Ask students if they see any patterns or interesting connections in the data and if they have some other ideas for how to use the data. Which month has the most birth dates? The fewest? Which season has most and fewest? How many birthdays are on holidays? What time of the day were most children born?
Create graphs to show how many boys and girls were born in each month, season, on each day of the week, etc. Arrange children by height at birth; is the relationship still the same today?

✸ **The Big Think** ✸

Construct a Visual—Review and chart all the big ideas students have discovered from the timeline. *So What?* Create a class calendar including birthdates and student photos and drawings as well as interesting class trivia gleaned from the analysis of the timeline. (Collect examples of author calendars for students to examine.) *What Next?* Research a famous person born on your birthday. Investigate how children in other countries celebrate birthdays.

Process
Active Discussion—*So What?* How has the timeline helped us to learn about time and each other? How can we use the timeline over the rest of the school year? *What Next?* Create other relevant timelines such as a day at school, their life and/or a grandparent's life.

Birth Date Profile

Birth Date Information for:…………………………………………………………………

Date of Birth:……………………………………………………………………………
                Day   Month   Date

Time of Birth:……………………………………………………………………………

Weight :…………………………………………Length……………………………………

Location of birth:…………………………………………………………………………
               Address/City/Town   Country

I share my birthday with ……………………………………who is famous

because……………………………………………………………………………

……….baby picture
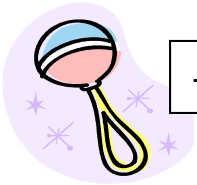
……………….today

Example #2   **Growing Up**   **Gr. 1–3**
How much have I changed since I was a baby?

Problem
During the "all about me" unit, students will examine how they have changed over time. Review the concept of change through pictures and discussion. Chart some changes suggested by the children. Introduce the notion of growing up with the popular story by Robert Munsch, *Love You Forever.*

Gathering Facts
Ask students, "What changes occurred in this story?" Sort the changes on a T-chart (Mother's changes, boy's changes) as students recall. Review the story and illustrations as necessary. Have students work with a partner or a small group. Ask students to choose a change in the boy's or the mother's life and create a drawing to illustrate the change. Provide students with drawing materials and a square piece of sturdy paper. Ensure that all major changes have an illustrator.

Creating Timeline
When the illustrations are complete, pin them to a long cord across the classroom, like clothes on a clothesline. This will create a visual timeline of the boy's and the mother's life.

Analysis
Invite students to retell the story. Discuss feelings about growing up from all perspectives: the boy's, the mother's and the listener's.

✸ **The Big Think** ✸

Content
Construct Visuals—Chart the changing feelings of the boy, mother, and listener throughout the story. *So What?* Discuss how and why feelings change with different events. *What Next?* Students can create a visual timeline of their own growing up years. Send home a letter to families explaining the project. Have each student interview family members to discover important events in their lives (e.g. birth, sitting up, first tooth, swimming lessons, birthdays, parties etc.). Provide students with several copies of the organizer *Growing Up*. Students illustrate the important events in their lives and create a personal pictorial time line.

Process
Active Discussion—*So What?* How did the clothesline timeline help to retell the story? *What Next?* How else can we create timelines?

Growing Up

Example #3   Clockwork   Gr. 1–4
How do clocks help us?

Problem
Teachers want students to understand the role of time and time pieces in daily life and have them see the importance of being able to tell time.

Gathering Facts
Have students look through old magazines and catalogues for pictures of clocks and other timepieces. Cut out, sort, and categorize.

Introduce engaging question. Arrange students in triads with another classmate and an older learning buddy. The task is to interview a school community member and record what they do during the school day. Provide triads with a Clockwork *Time Log* organizer and the interview questions. Use a different color for each group. Groups proceed to interview an assigned school member (e.g. principal, teacher, secretary, caretaker, parent, library media specialist, ed assistants, students etc). They record activity for each time slot from 8:00 am to 4:00 pm.

Creating Timeline
Have each group cut up their time log chart and place information on a large circular time-line with a clock face in the middle.

Analysis
Ask each group to share the "day story" of their survey subject, hour by hour, and then pose some analysis questions. E.g. Are there any times when several people are doing the same thing? Do the things one person does affect others? What might happen if someone didn't have a clock? Record the findings on a chart.

✸ **The Big Think** ✸

Content
H.O.T.—Revisit the essential question and list student responses. *So What?* Brainstorm for ways clocks help at home and in the community and add to the list. *What Next?* Learners create a collage of illustrations to show ways clocks help them and their school community. Discuss any problems with these timekeepers.

Process
Active Discussion—Show learners several examples of typical linear timelines. *So What?* Our timeline was a circle. Why did we use a circle? *What Next?* What other topics would be good to represent in a 'time-circle'?

Clock Work Time Log

Time	Activity	Who
8:00-8:30		
8:30-9:00		
9:00-9:30		
9:30-10:00		
10:00-10:30		
10:30-11:00		
11:00-11:30		
11:30-12:00		
12:00-12:30		
12:30-1:00		
1:00-1:30		
1:30-2:00		
2:00-2:30		
2:30-3:00		
3:00-3:30		
3:30-4:00		
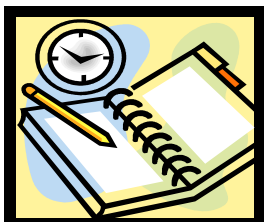
Team Names: Date:
1)

2)

3)

Example #4 Early Settlers/Pioneers Gr. 2–4

How do the lives of children today compare with the lives of the children of early settlers?

Reason for Comparison
In order to empathize with early settler children, students need to understand what it was like to be a child in that time. Comparing specific daily activities with those of the early settlers' children is a vehicle for creating that understanding.

Establish Background and Comparison Criteria
Brainstorm and list what makes a typical day for your students. Discuss where their activities take place, what they use at home, at school, after school, on holidays, etc. Identify activities to compare (mealtime, playtime, school, chores). Provide students with *That Was Then, This is Now* worksheet, and in small groups have them discuss and fill in the NOW side.

Gather and Sort Data
Share information from groups and create a master NOW list on a large chart or projection. Ask students to "wonder" about early settler children and create a wonder list of questions to guide the class inquiry. Review picture reading skills
Read several picture books about early settlers that focus on the lives of children. After each reading ask children if they discovered the answers to any of their wonder questions. Chart their responses on the THEN side of the master chart. Read non-fiction books with students and/or share a video to confirm findings from the picture books and add new discoveries to the chart. Continue until the chart is complete.

Compare
Ask students to complete the THEN side of their organizers using text and/or sketches depending on their abilities. When students have completed recording their data, meet as a class group. Restate the big question, *How do the lives of children today compare with the lives of the children of early settlers?* Identify and discuss similarities and differences. Create a large VENN to summarize the analysis.

✷ The Big Think ✷

Content
H.O.T.—Discuss how their day would be different if they had lived as an early settler. ***So What?*** Now ask students to consider which lifestyle appeals to them. In groups complete a That's Good That's Bad chart. ***What Next?*** Create timelines for a day in the life of a child today and a day in the life of an early settler child.

Process
Construct Visuals—Discuss and then create a visual of the steps of the guided process used to compare and contrast children of the two eras. ***So What?*** What new skills did we learn? What new tools did we use to learn? Add these to the visual. ***What Next?*** Examine work during the Settler/Pioneer era and list occupations. Ask students to follow the compare/contrast process to research and compare a pioneer occupation with a modern version on their own (e.g. teacher, farmer, printer, doctor, blacksmith, seamstress, storekeeper, etc.).

That Was Then, This is Now

Then	Now
Meals What do children eat? How are meals prepared? Where do children eat?	**Meals** What do children eat? How are meals prepared? Where do children eat?
School Where do children learn? What do they learn? What tools do they have to help?	**School** Where do children learn? What do they learn? What tools do they have to help?
Play What do children do for fun? Where do they play? What equipment do they have?	**Play** What do children do for fun? Where do they play? What equipment do they have?

Example #5   Schools of the Past   Gr. 3–6

What was school like for my grandparents?

Introduce the Problem

Read lots of books about contemporary grandparents. Share stories and pictures of grandparents. Pose the focus question: *What was school like for my grandparents?* Ask students what questions they have about school for their grandparents. Chart their questions. Cluster questions by similar topics and create categories. Use these categories for headings to organize student notes and sketches (e.g. classroom, libraries, teachers, materials and equipment, sports, etc.). Note: In the event that this is problematic for some students adjust the focus from 'grandparents' to 'long ago'. .

Gather and Sort Primary and Secondary Evidence

Rotate students though investigations using as many authorities as possible. Have students use the organizer *Solving My Research Mystery*.

Authority 1—Interviews with Grandparents, community elders, and/or staff who are grandparents

Authority 2—Books about appropriate decades and counties

Authority 3—Class photos of grandparents/community elders and schools

Authority 4—Schoolbooks and other artifacts from the appropriate era

Authority 5—Online and local archives

Compare and Contrast

Pose a second question: Was school for my grandparents the same as my school life? Ask students to examine their notes and think about their school life. Instruct them to highlight with a color 3 things that are the same for them at school and with another color highlight 3 things that are different. Have students meet with a partner and tell their research story.

Evidence Check

Go back to charted questions. Have we answered all our questions? List new questions we now have that we would like to find answers to. Where can we find those answers?

✳ The Big Think ✳

Content

H.O.T.—Identify and chart all the similarities and differences between school in your grandparents' time to now. ***So What?*** Where are the biggest differences? Why?
 What Next? How does their experience compare to pioneer or early settler days? What do you think schools of the future will be like?

Process

H.O.T.—List sources used and rank them in order of relevance to the task.
So What? Ask: Where did you find the best information about schools of the past?
What Next? Create an archive of primary and secondary sources to support further study.

Solving My Research Mystery

How helpful were your sources?

Information Books	☺	😐	☹
Interviews	☺	😐	☹
Photographs	☺	😐	☹
Artifacts	☺	😐	☹
The Web	☺	😐	☹

3 Discoveries you made:

....

....

....

2 Problems you had:

....

....

1 Questions you have now:

....

....

Example #6   European Explorers Trek to North America   Gr. 4–6
What are the 5 W's of European explorers?

Goal
Learners need to gain some general knowledge of explorers before they embark on their own voyage of discovery to study the impact of European Explorers on North America.

Explore, Skim and Scan
Introduce the topic with maps, stories, pictures or video clips and brainstorm a list of key words students should use for searches. Students have blank *Quick Fact Trading Cards* to complete on the explorers of their choice. They rotate through the resource stations (print encyclopedia, electronic encyclopedia, books, pictures, and video) set up in the library and complete as many cards as possible in the time available. They skim, scan, read, view and listen to a variety of carefully selected resources.

Make Connections
Students gather in small groups, and sort their trading cards alphabetically by explorer's last name. They share the quick facts they recorded on their cards and take note of any conflicting data. Have students sort their cards chronologically, by departure point, by destination, and reason for the excursion.

Build Questions
Have groups discuss findings and develop questions using the *Question Storming* worksheet. Groups share questions with the class. Have students revisit their trading cards, and consider the group questions to help them settle on the aspect of European exploration or the particular explorer(s) they want to investigate. Students create a question for individual study. Introduce focus words such as impact, effect, results, resulted, relationships, conditions, significance etc. to help learners build good inquiry questions. Review the *Question Rubric,* explaining criteria, so students understand how their questions will be evaluated.

✳ **The Big Think** ✳
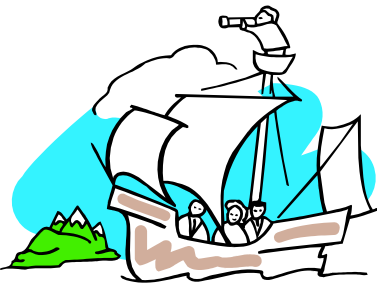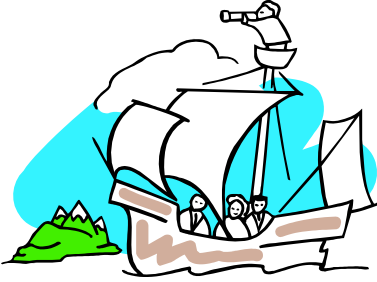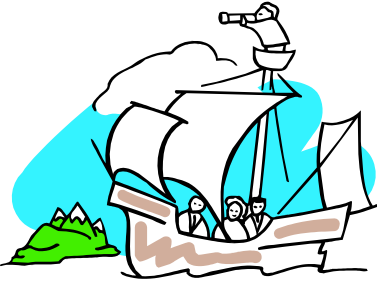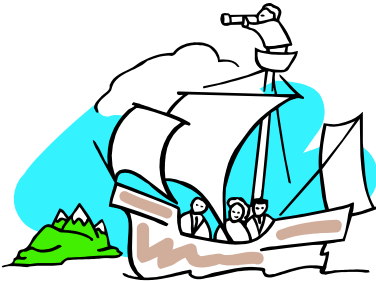
Content
Active Discussion—In new groups share and discuss questions. *So What?* What do you know now that you didn't before? How has asking questions helped us to broaden our understanding of European Explorers? *What Next?* Consult with a peer, and teachers to refine inquiry questions. Develop a plan for research.

Process
H.O.T.—In small groups compare questions; look for commonalities and exceptions. *So What?* How did question storming and focus words help build better questions? *What Next?* Start a question building tool kit.

Quick Fact Trading Cards

<table>
<tr>
<td>

European Explorers
Quick Fact Trading Cards

Who?

What?

When?

Where?

Why?

</td>
<td>

European Explorers
Quick Fact Trading Cards

Who?

What?

When?

Where?

Why?

</td>
</tr>
<tr>
<td>

European Explorers
Quick Fact Trading Cards

Who?

What?

When?

Where?

Why?

</td>
<td>

European Explorers
Quick Fact Trading Cards

Who?

What?

When?

Where?

Why?

</td>
</tr>
</table>

Question Storming

Write your topic in the centre starburst. Record questions you have about this topic in the surrounding ovals. Continue to develop questions about these questions to further explore and refine your topic.
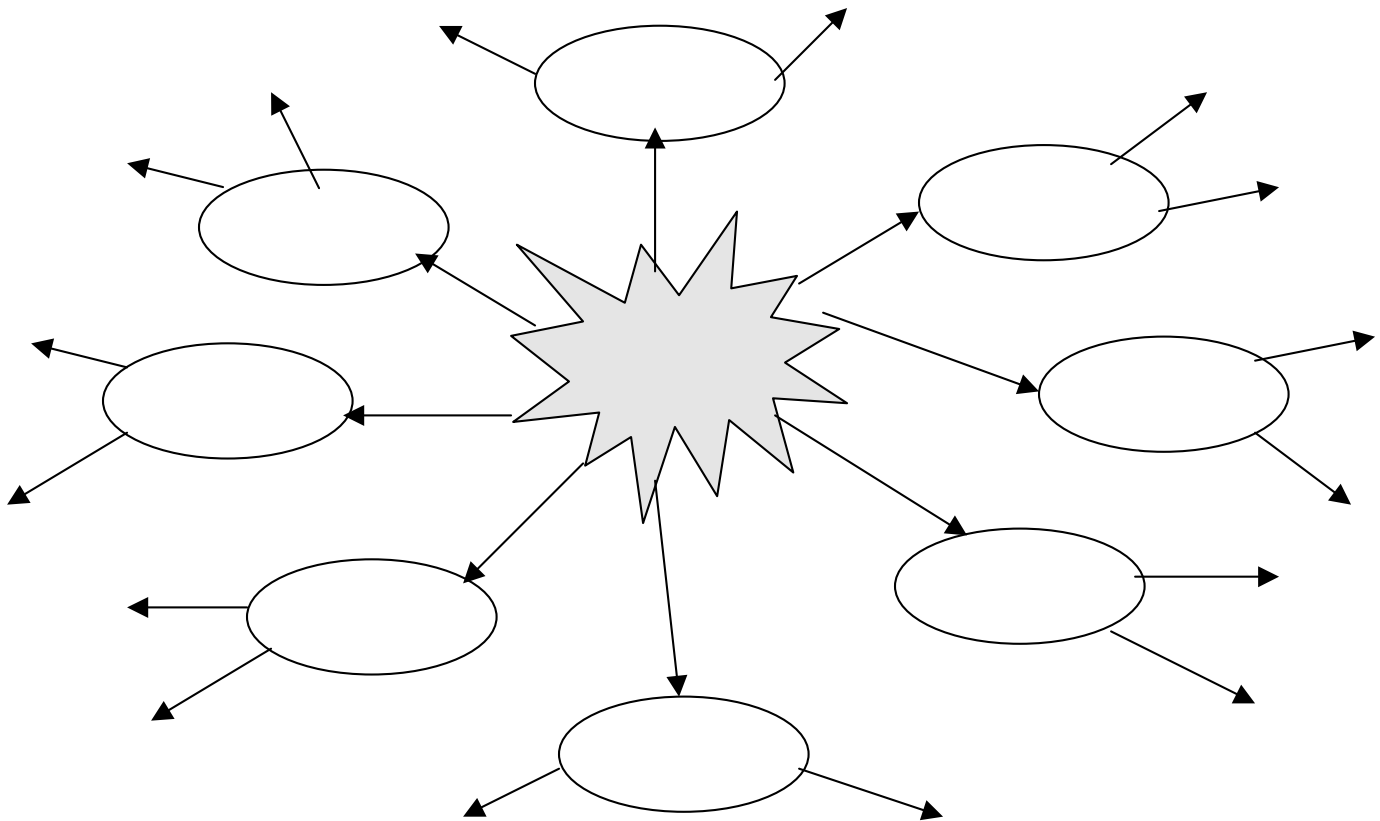
Which questions would you really like to explore for your research project?

Example #7   **Mayan Mysteries**   **Gr. 4–6**
What evidence can you find to prove that the ancient Mayans were a highly skilled civilization?

Problem
What is acceptable evidence and where do we find it? Read aloud a Mayan myth and discuss what we have learned about this culture through their stories. Introduce the guiding question and brainstorm other places to look for evidence of the ways of life of this ancient civilization.
Study Primary and Secondary Evidence
Assign groups a selected set of resources rich with information on Mayan culture. E.g. Authorities: 1. on-line encyclopedia, 2. videos, 3. non-fiction books, 4. book-marked websites. Students use *Mysteries of Mayan Culture* to record their evidence and their explanation of why or how it demonstrates superior skills.
E.g. Evidence: Mayan glyphs, Support: very complex and hard to read because the symbols are paired in columns and read in a zig zag.
Compare/Contrast Activity
Have two groups meet and present their findings. They should look for similarities, differences, and missing or conflicting information. They should help each other to identify gaps in the evidence or other flaws in conclusions. Groups confirm with each other the items to be declared "evidence of a highly skilled civilization."
Evidence Check
Students should return to their sources if they feel they have not been able to build a convincing amount of supporting evidence. They may also need to revisit sources to confirm ideas.

✸ **The Big Think** ✸

Content
New Problem or Challenge—Each group prepares and presents a presentation to support their findings. *So What?* How did the ancient Mayan society achieve such sophistication? *What Next?* What would people in the future identify as evidence that we are a highly skilled society?

Process
Active Discussion—Review the process of comparing research findings. *So What?* What new things did we learn when we compared our research? How does comparing help us to be better learners? *What Next?* How could we use technology to help us make comparisons?

Mysteries of Mayan Culture

Look for clues that the Mayans were very skilled people.
List the examples in the **Evidence** column.
Ask yourself why this clue shows they were highly skilled.
List your proof in the **Support** column.

Evidence	Support

Example #8   **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
Thoughtful Writing—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
Active Discussion—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 #9   Technology Through the Ages   Gr. 6–9
Where has technology left its marks on time?

Introduction
This is a timed activity to assess how efficiently students can work to find basic facts about a topic. Brainstorm a list of noteworthy technological inventions.

Gather and Sort Data Sets
Learners work in pairs to research technologies to discover when they were invented and collect as many other significant facts as they can gather in the short time allotted. Partners use at least two different sources each and they must be able to confirm their data. Provide them with the organizer *Technology Timeline Activity* and assign technology types, or cut one organizer into strips and give each team a technology to research.

Place Data on a Timeline
When the time is up have students organize themselves into a physical timeline based on their research data. Begin by identifying the earliest and most recent dates as the beginning and end of the timeline so others can fall into place. Ask teams to share their Info Bits chronologically, thus creating a human oral timeline.

Analyze Timeline
Before students dismantle the timeline ask them to look for clusters, connections, gaps, etc. Have students meet with others who investigated a technology they are interested in and share and compare their Info Bits.

✳ The Big Think ✳

Content
New Problem or Challenge—*So What?* Investigate to determine how inventions are interdependent. For example: If the tin can weren't invented, then…Or, because cardboard was invented… What other events and issues might have affected types and timing of technological inventions? ***What Next?*** Have students select a technology focus they are interested in, such as information technology, printing, prosthesis, music recordings, etc., and create a technology timeline that illustrates a the evolution of a type of technology and also relates to major world happenings during that time period. Have learners research technologies from two different time periods and compare the development that occurred. Ask students to create a timeline of technologies that have been developed in their lifetime. What new technologies might be developed in the next century? Develop a technology timeline of the future.

Process
Thoughtful Writing—What makes a good timeline? ***So What?*** How did the human timeline help you understand technologies' mark on time? ***What Next?*** What technology tools could help us to build effective timelines?

Technology Timeline Activity

Technology	Date Invented	Info Bits	Sources
Hearing Aid			
Television			
Incandescent Light Bulb			
Polaroid Camera			
Space Shuttle			
Video Game			
Hubble Telescope			
Burglar Alarm			
Dishwasher			
Windshield Wiper			
Tin Cans			
Zipper			
Vacuum Cleaner			
Photocopier			
Ball Point Pen			
Computer Mouse			
Microwave			

Example #10   Digging Up History WebQuest   Gr. 6–9

How can history help us in the future?

Introduction
They say that we have to look into the past if we are to plan for the future. If that is true then archaeology must hold a mirror to our future on Earth. There are many different types of archaeology but every specialty follows a similar process of careful and systematic efforts to reveal the truth about the past based on the evidence uncovered.

Task
You are an archaeologist working for Project Future Earth. Working in your specialty team you will dig up discoveries about the past and project these findings into possible implications for our future.

- Historical Sites
- Environment/Geology Sites
- Animal and Plant Sites
- Underwater Sites
- Oral History

Process - History & Mystery Model
The problem you are to solve is this: *How can history help us in the future?*
Gather and Sort Primary and Secondary Evidence Do your research with team members to explore your specialty area. Keep accurate records and reflect on how each discovery might tell us something of our future on Earth.
Compare and Contrast Jigsaw to meet with other specialists and compare findings. Summarize findings to prepare a presentation of archaeological evidence and inferences made about the future of Planet Earth.
Evidence Check Return to expert groups to check completeness and validity. Refine as necessary. Present your conclusions to Project Future Earth.

Information Sources
- Archaeology for Kids—US Department of The Interior:
  http://www.nps.gov/history/archeology/public/kids/index.htm#
- Canadian Museum of Natural History:
  http://www.civilization.ca/cmc/archeo/ouverte.html
- The Basics—Archaeology: http://www.42explore2.com/archlgy.htm
- Links from the DIG magazine site: http://www.digonsite.com/links.html

Evaluation
- collected relevant, factual data
- identified bias, misconceptions and inaccuracies
- insightful effective comparison
- productive collaboration
- rationalized and confirmed a plausible solution

✳ **The Big Think** ✳

Content
Active Discussion—*So What?* How does archaeology keep history alive? *What Next?* Create a Forecast Almanac for Planet Earth based on presentations. Present forecasts on the school's morning news show. Explore careers in archaeology to see if there is an area that interests you.

Process
Thoughtful Writing—Review process used to validate sources of information. *So What?* Why is an evidence check necessary when building historical truths? *What Next?* How can we do a better job of evaluating sources?

Example #11   Back to the Future   Gr. 7–10
How can digging into past history help us today and tomorrow?

Select
Assemble a collection of excellent time-travel novels at appropriate reading levels and interests. Select novels that travel *back* in time. Introduce the novels and the guiding question. Students select a novel of interest and try it out. If after the first few pages they are not hooked, ask them to try another one until they find the just right book for this project.

Explore
Students read their novels independently. Provide them with sticky notes and ask them to keep track of interesting place names, historical events, dates, and people encountered when the protagonist travels back in time. Arrange meeting times so students can have discussions about the books they are reading and the places and events encountered in the time travel.

Research
When the novel is finished, ask students to create an event line from the data they collected while reading the novel. Arrange for students to have ample time and guidance researching the time period and location their novel travels back to.

Construct
Show students examples of Jackdaws containing primary artifacts about a period of time. Instruct students to create a jackdaw about the time travel in the novel they just read. They can include maps, letters, diaries, photos, sketches music, art, and artifacts all related to the story. The jackdaws can be physical or electronic collections.

Perform
Invite another class(es) to meet with students so they can present their novels through the jackdaws. If the jackdaws are electronic, they can be mounted on the school library web page for all to discover. Ask students to discuss the guiding question after presentations.

✳ The Big Think ✳

Content
H.O.T.—After presentations analyze the novels and chart findings in a matrix using headings such as: time period, location(s) protagonist characteristics etc. *So What?* Are there any similarities between novels, protagonists, issues explored, and catalysts for time travel? *What Next?* Explore other historical periods that would make interesting time travel.

Process
H.O.T.—Assess the strategy of keeping track of events, characters, time periods during the reading process. *So What?* What worked well, what didn't? Why? *What Next?* Invite an author who writes time travel or historical fiction to discuss with learners the process they go through when developing a novel.

Example #12   Government Achievements   Gr. 7–12

What did the government achieve during its term?

Gather and Sort Data

Each student will become an expert on a President/Prime Minister. As a class, decide on what is important and identify categories for collecting and recording data (public appearances, meetings, campaign duties, government business...). Create a graphic organizer for sorting and recording data. Remind students to validate sources and keep an accurate list of works consulted. Instruct them to also note the important historical, cultural, societal, and political events that establish the context for government actions.

Place Data on Timeline

When students have collected the necessary data, instruct them to prioritize, summarize, and then select the important achievements to be ordered on the timeline. Have each student create a timeline for their respective era and plot important achievements along with significant contextual reference points (establish a standard increment). Timelines can be created on paper or using software such as Timeliner from Tom Snyder Productions.

Analyze Timeline

Look for links, influences, cause and effect, and impacts to make connections between government achievements and contextual references.

✳ The Big Think ✳

Content

H.O.T.—Combine individual timelines to create one comprehensive class timeline. *So What?* Study and analyze by looking for connections, patterns and historical influences and concepts. Are there repeated patterns among leaders or significant differences? *What Next?* Challenge students to portray their findings creatively through story, skit, music, poetry, cartoon, etc.
Investigate other world leaders over the same time period and compare timelines.

Process

Active Discussion—*So What?* How does the timeline help identify cause and effect? Why else are timelines important? *What Next?* Build a collection of exemplar print and digital timelines for future reference.

Chapter 6

When do we study Virtual PLACE?
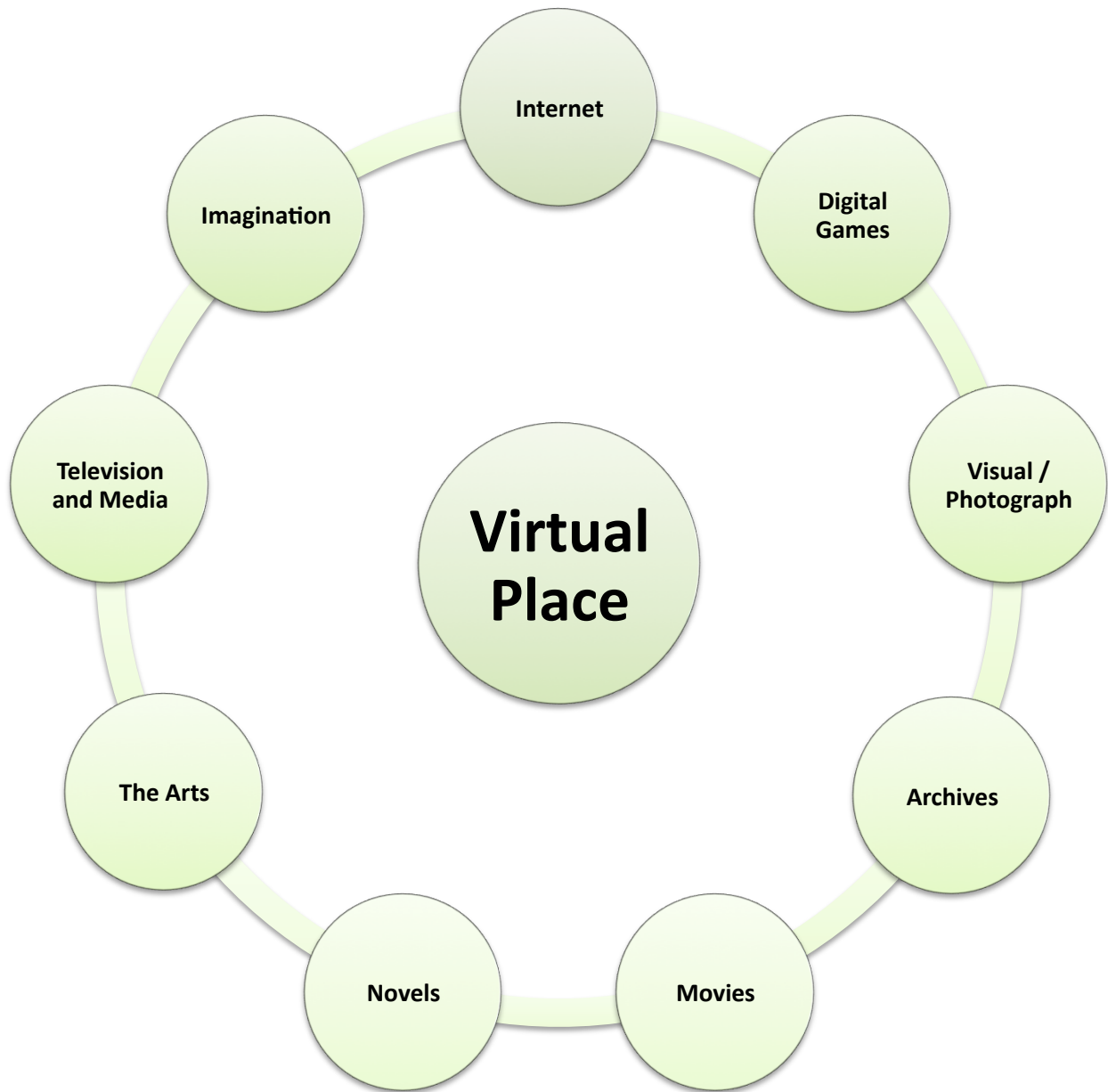
Example #1   Step In - Step About - Step Out   Gr. 6–8
What was life like for working children in the late 19th and early 20th century?

Select
One hundred and fifty years ago, only the children of the wealthy were educated. Most other children worked at home, in the fields, in mines, and even in factories at a very young age. Collect archival photographs of children at work in various jobs. You could print, reference, and mount them like an old album, or select from archival Internet sites and bookmark them.

Explore
Explore a video about working children to introduce the topic (e.g. *Pit Pony* Produced by Cochran Entertainment or *Chandler's Mill* produced by the National Film Board of Canada). Introduce the guiding question and display the photos. Display *Picture Prompts* to guide their picture reading. Allow all students time to view all the photos and then select a photo they are very curious about.

Research
Invite students to step into the picture and project themselves back in time until they are right there with the child. Ask students to step about inside the photo. What do they see, hear, and smell? Have students use *Step In-Step About-Step Out* to record their findings and then develop lots of questions they want to ask the child in the photo. Have students research in the library to discover as much as possible about the time period, work, and life of children.

Construct
Now ask students to step out of the photo and use their research notes and the photo to reconstruct a day or a series of days in the child's life in the form of diary entries.

Perform
Students create a museum type exhibit with the photo, diary entries, and perhaps an artifact such as a piece of clothing, button, ribbon, or coin.

✳ **The Big Think** ✳

Content
New Problem or Challenge—Learners do a gallery walk of the museum exhibits and keep notes of their connections to each display on an RVL Connect organizer. In groups have learners share their connections and discuss the hardships for child laborers. ***So What?*** As a class determine the key causes and effects of child labor during this time. ***What Next?*** New Problems: What evidence can you find that indicates child labor is still a problem today? Why has this problem not been solved? How are children protected from child labor today?
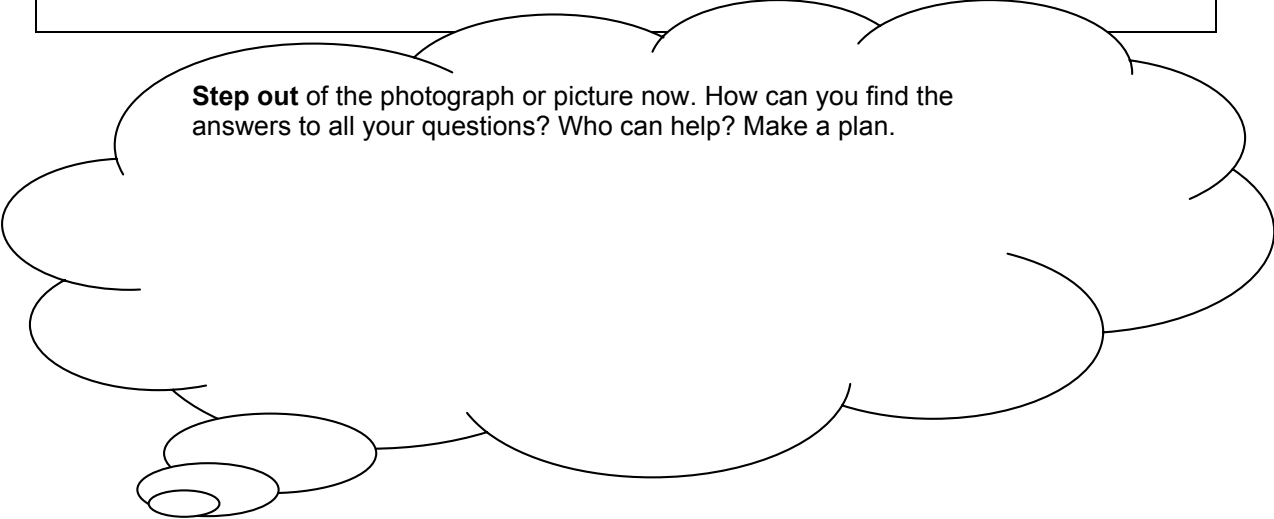
Process
Active Discussion—***So What?*** In groups ask learners to discuss how they gleaned information from the visual archival material they had. ***What Next?*** Invite an archivist to conference with the class and discuss the process of preserving history through artifacts.

Step In - Step About - Step Out

Step in to the photograph/picture you have selected. **Step about** and observe your surroundings.

What do you see?	What do you hear?	What do you smell?

Make lists of all the questions you have now about the place you are in.

Step out of the photograph or picture now. How can you find the answers to all your questions? Who can help? Make a plan.

Picture Prompts

Where is this scene located?

What is happening in the picture?

What might have happened just prior to the picture?

What might happen next?

Who do you see in the picture?

Who do you not see that might be involved? Why?

What might happen after the picture?

Example #2   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- *Advice to Action*

Build Background

Research and analyze safety concerns.

Predict

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

Gather and Analyze Expert Advice

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

Meet 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? 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 #3   My Personal Space   Gr. 7–12
How can I better organize my resources, and my home and school personal spaces?

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

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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 #4   **Women in the Media**   **Gr. 10–12**

Background
Explore the imaging of women over the ages, in North America, using archival photos, music, art, and video.

Does media affect the imaging of women?			
Specialist Team		**Sharing Team**	
First Question: *How are women portrayed through the media in North American society today?*	**Research:** Organize groups of four. Each Specialist Team researches the imaging of women through a popular cultural medium. Provide students with *Keeping Organized* worksheet for recording their discoveries.	**Concept Forming Question:** *Are there any common patterns or trends in the imaging of women in popular culture today?*	**JigSaw:** One student from each Specialist Team joins the new Sharing Team. Students share their expert information about the cultural medium they researched. Students discuss their findings, look for patterns or trends, and identify any common elements. They record each common element on a card.
Group A - movies		Group ABCD	
Group B - music		Group ABCD	
Group C - sports		Group ABCD	
Group D - advertising		Group ABCD	

✳ **The Big Think** ✳

Content
Thoughtful Writing—As a class discuss the common elements discovered. Post the list in a Web 2.0 space so learners can respond. ***So What?*** Has the imaging of women changed over time? Why or why not? Do media affect the imaging of women? Why or why not? ***What Next?*** Develop questions for further independent study.

Process
Active Discussion—***So What?*** How did working in specialist groups affect our efficiency and effectiveness? How did Jigsawing help to broaden our understanding? ***What Next?*** Why are group work skills important? Do Web2.0 environments change collaboration?

Chapter 7

When do we study PLACE in conflict/issues?

War &
Tactics

Nuclear
Issues

Law/Rules
Ethics

Health
Issues

**Place in
Conflict/
Issues**

Poverty

Prejudice

Socio-
economics

Native
Rights

Religious
Conflict
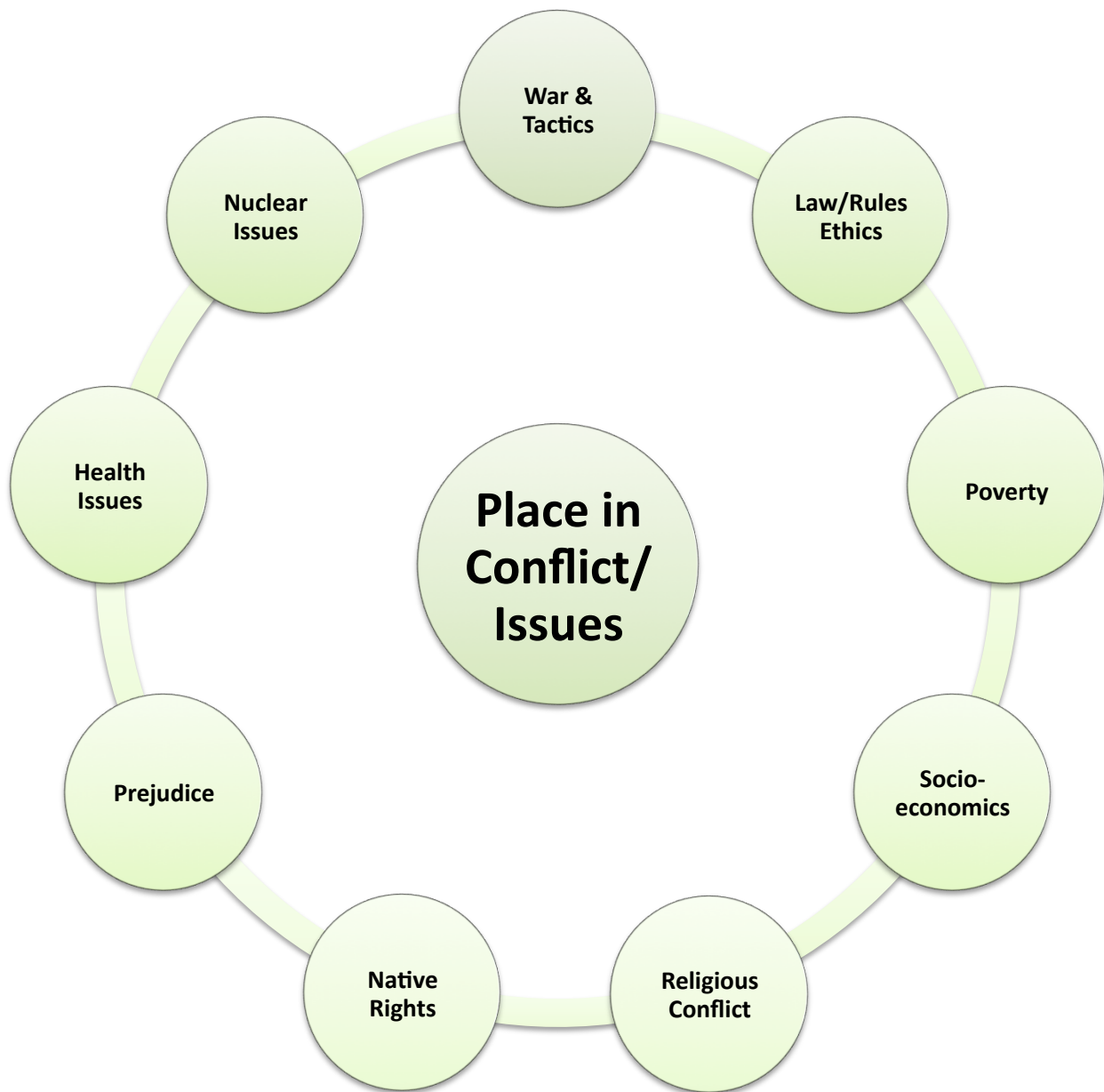
Example #1   Pesky Propositions   Gr. 9–12

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

✴ **The Big Think** ✴

Content
H.O.T.S.—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?

Prevailing Positions

Topic

Important facts
- - - -

Stakeholder

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

Having considered all the issues and their impact, the perspective of this group is...

Because...

Linking to Facts and Opinions

Name:………………………………………………………Topic…………………………………………………………

Facts	My Questions	Opinions	My Reactions

Perhaps…

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Understand Perspectives

Issue

Just the facts

-

-

-

-

Stakeholders

-------------------' perspective

Rationale

-------------------' perspective

Rationale

-------------------' perspective

Rationale

-------------------' perspective

Rationale

Having considered all the perspectives and the reasons for them, my perspective of this issue is...

Because...

Example #2   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
Thoughtful Writing—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
H.O.T.S.—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	- entries show careful selection for relevance and impact (connections, relationships and patterns are evident) - all data is accurate	- 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)	- all sources accurately referenced	- visually appealing - appropriate and effective graphics and use of color - easily legible and well-balanced
Level Three	- entries are adequate, on topic - data is accurate	- 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)	- all sources accurately referenced	- attractive - graphics related to subject. and use of color is effective - clear and uncluttered
Level Two	- some important data is missing - some inaccuracies in data	- scale selected is poor - increments are poorly marked and sometimes inaccurate - some entries are out of sequence - intent is difficult to discern	- most sources accurately referenced	- little attempt to embellish - ineffective use of color and graphics - unclear and/or cluttered
Level One	- data poorly selected in terms of importance, relevance and impact - many inaccuracies in data	- scale is inappropriate or not apparent - increments inaccurate and or ineffectively marked - many entries not in sequence - no indication of intent	- few sources accurately referenced	- no visible attempt to make line attractive - little or no use of graphics and/or color - messy and difficult to read

Example #3   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				

3) 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.
4) 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?

- 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
Construct Visuals—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 #3   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
What are the causes and effects of these global problems? Group students by interest in a global youth issue. Groups will investigate their issue looking for causes and effects of the problem using *Investigating Cause and Effect* for recording their data.	*Why aren't government agencies and NGOs making more progress in solving serious societal issues?* Ask new groups to share information from the Cause and Effect chart for their youth issue and work collaboratively to explore the challenge question.
Group A – spread of aids Group B – child labor Group C – gun violence Group D – poverty Group E – war orphans 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.	Group ABCDE Group ABCDE Group ABCDE Group ABCDE Group ABCDE ***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?

✳ **The Big Think** ✳

Content
Active Discussion—*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

Mix it Up Model

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.

Because….. Due to…..
As a result of…Since…
On account of…..
For this reason…
Leading to……

Issue

So… therefore…. Thus….
As a result…..Hence….
Consequently….
Resulting in….
With the result that….

Causes

Effects
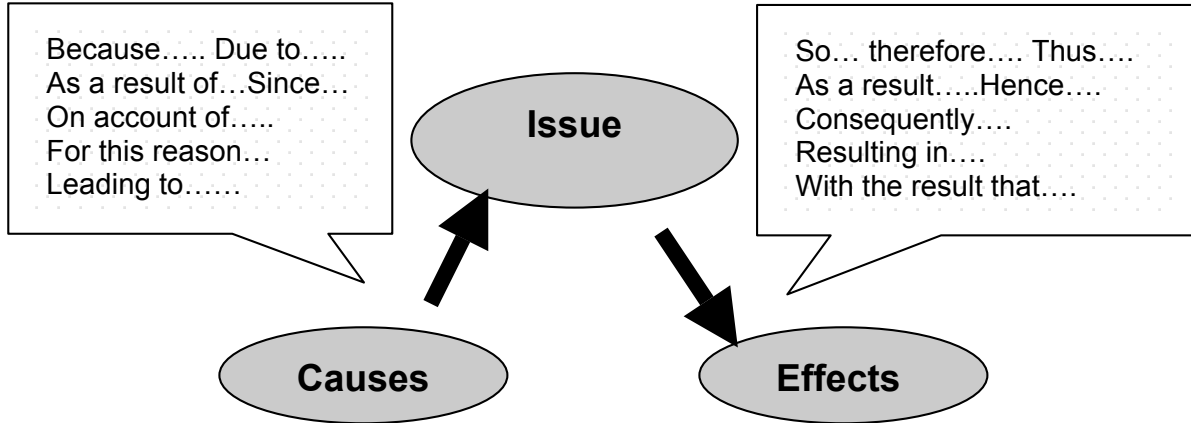
Current Status

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

Chapter 8

When do we study PLACE in story?

Setting

Relationships

Time

Illustrations

Place in Story

Beginning(s)

Mystery Clues

Climax Turning Points

Ending(s)

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 to 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

Construct Visuals—Review the strategies used to explore new solutions, e.g role play, mapping, brainstorming, conferencing. *So What?* Develop a flow chart to illustrate the process and strategies used in taking 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

This is the problem….
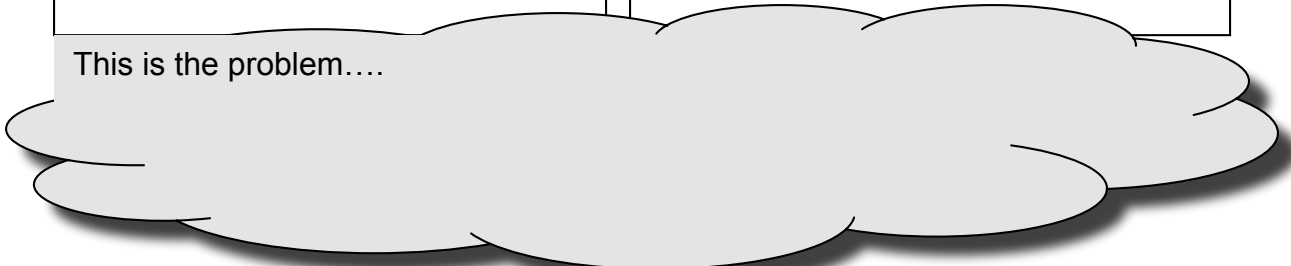
💡 Solution idea **1**	💡 Solution idea **2**
It didn't work because…..	It didn't work because…..
💡 Solution idea **3**	💡 Solution idea **4**
It didn't work because…..	Finally it worked because…..

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
Find a non verbal way to understand and sequence the details of a story in order to relate it to others.

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

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
Active Discussion—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   *Stella Louella's Runaway Book*   Gr. 2–4

How did Stella Louella's library book get lost? How can we find it?

Problem
What clues help the reader discover the title of the book that Louella lost?

Gather Data
Read and enjoy the story *Stella Louella's Runaway Book*. Have students meet in small groups to re-read the story and record the names of the characters on index cards. As the story progresses, ask them to use the other side of the card to record a clue offered by that character.

Analyze Relationships
Ask each group to read *Goldilocks and the Three Bears*. Have students develop index cards (use a different color) for the characters in this traditional story and cards for each major event. Ask students to look for relationships between the characters and events of *Goldilocks and the Three Bears* and the clues in *Stella Louella's Runaway Book*.

Select and Use Effective Tool
Model for students how effective a T-chart is for comparing things such as a tree and a flower.

Create and Critique
Have each group sort the index cards onto a T-chart comparing the two stories. Instruct them to join clues and events with colored string to create a chart that shows the relationships between the clues in *Stella Louella's Runaway Book* and the characters and events in *Goldilocks and the Three Bears*.

✳ **The Big Think** ✳

Content
Active Discussion—Share other stories, such as The Jolly Postman, that are dependent on clues. *So What?* How do the clues make the story interesting? *What Next?* Have small groups work with well known stories or fairy tales to develop a set of clues. Share with other groups and try to guess stories.

Process
Construct Visuals—*So What?* How does the relationship chart help us to see and understand connections in the story? *What Next?* Use a T Chart to show relationships between several new stories.

Suggested Picture Books for this Task
Ernst Campbell, Lisa. *Stella Louella's Runaway Book*. NY: Simon and Schuster Children's Publishing Division, 2001.

Ahlberg, Janet. *Each Peach Pear Plum.* Boston: Little, Brown and Company, 1991.

Ahlberg, Allan and Ahlberg Janet. *The Jolly Postman*. Boston: Little, Brown and Company, 1986.

Ahlberg, Allan and Ahlberg Janet. *The Jolly Christmas Postman*. Boston: Little, Brown and Company, 1991.

Ahlberg, Allan and Ahlberg Janet. *The Jolly Pocket Postman*. Boston: Little, Brown and Company, 1995.

Ernst Campbell, Lisa. *Stella Louella's Runaway Book*. New York: Simon and Schuster Children's Publishing Division, 2001.

Example #4   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
Active Discussion—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.
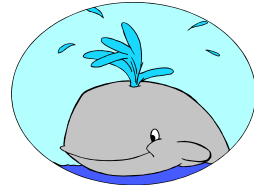
Mission Notes "Saving Humphrey"

Error!

Humpback Facts

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

Survival Needs
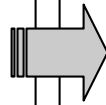
Other stranded humpbacks

Where?   When?   Rescue Attempts

Problems, Problems

Book/Story:……………………………………………

Author:……………………………………………

Problem
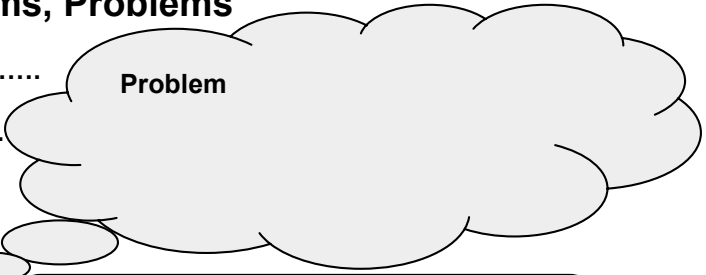
Causes

Effects

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

Hurrah for Our Team
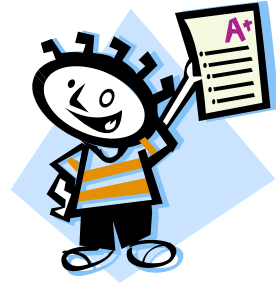
Three ways our team worked well together:

Two things our team could do to improve:

One important thing I learned from my team:

Example #5   Myths and Legends WebQuest   Gr. 4–8

How do we solve a mystery?

Introduction—The Case of Mysterious Happenings

Your Teacher-Librarian gets many questions about the books of Myths, Legends and other unsolved mysteries and wants to finally find the truth about these strange stories.

Task

Your team at Snooper Detective Agency has been commissioned to uncover the truth about a case. In two weeks you must submit a full report including your notes and the evidence gathered. Discuss your findings of this highly sensitive case with only your librarian and members of The Snooper Detective Agency. Double-check all your sources of information to ensure that the data you gather is authentic and valid. Be Alert!

Process – History Mystery Model

1. **Gather and Sort Primary and Secondary Evidence** Snoop around the 00 section in your library and record the names of famous, but still unsolved cases. Decide on the case your group will investigate.
2. Each member of your team will gather data on the case and keep accurate records on the *Confidential Mystery Investigation* organizer. Divide up your workload.
3. Meet to sort data.
4. **Compare and Contrast** the team's data using the *Solving the Mystery* organizer.
5. **Evidence Check** Review your data. Do you need more evidence? Do you have conflicting information? Have you solved your mystery? Do you meet the Evaluation Rubric requirements?
6. Prepare and deliver your report and 3-minute presentation to another team (and theirs to yours).
7. Apply the evaluation rubric to each others' report. What needs to be fixed? Fix it.
8. Jigsaw and present your report to a different team. Apply the Evaluation Rubric again. Make necessary changes so that each team receives a detective badge.

Information Resources

Start with an Encyclopedia search (Online or print) and then check books from your school library collection. Search for your mystery in these websites.

- Monsters, Myths and Mysteries: Great Canadian Legends—CBC Archives: http://archives.cbc.ca/IDD-1-69-1462/life_society/myths_and_legends/
- World Mysteries: http://www.world-mysteries.com/index.html
- The Search for Monsters of Mystery: http://www.nationalgeographic.com/ngkids/9903/monsters/
- Unsolved Mysteries: http://teachers.westport.k12.ct.us/resource/unsolved.htm

Evaluation You will be assessed on how well you have:

- validated your sources of information.
- kept accurate notes.
- analyzed your information.
- summarized and presented your case.

✷ **The Big Think** ✷

Content

Interact with an Expert—Review all cases and list the common elements. *So What?* Prepare questions for a meeting with an expert. *What Next?* Invite a local detective or anthropologist to explain one solved and one unsolved mystery. Share ideas about cases and careers.

Process

Construct Visuals—*So What?* Build a class chart of Steps in Solving a Mystery and Accepted Sources of Evidence. *What Next?* Now that everyone has earned their detective badge, create new class groups. Prepare one or several mysteries for them to solve within a strict time limit.

Confidential Mystery Investigation

Case Code Name: _____

Investigative Team: _____

Possible Clues
-
-
-

Solid Evidence
-
-
-

Source:

Possible Clues
-
-
-

Solid Evidence
-
-
-

Source:

Possible Clues
-
-
-

Solid Evidence
-
-
-

Source:

Solving the Mystery

Evidence confirmed by all team members

-

-

-

-

-

Conflicting Information

-

-

-

-

Confirm or reject this data.

Having considered all the evidence we have determined that ....

Example #6   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 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?

Appendix

18 Think Models Reprinted Here for Your Convenience

Model Layout

Planning for the Concept Jigsaw Puzzle Model

Topic or Issue:

Learning Goals	Essential Questions
	Engaging Question:
	Concept-Forming Question:

Consider the Possibilities

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

Action Plan

- Introduce Task and Build Background
- Engaging Question
- Groups Research Aspects of Question
- Present Higher-Level Question
- Combine Expertise to Build New Understanding

THE BIG THINK

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?

Handy Planning Page

Think Model #6: Concept Jigsaw Puzzle

Design Assessment ← Create Essential Questions ← Select Goals

| Background Knowledge is Developed | A Question That Requires Research | Individuals or Groups Research Different Aspects of the Question | Present a Second Question Requiring Combined Expertise to Solve | Groups with Combined Expertise Build an Answer | Big Picture; Deep Understanding |

Introduction; Background → Engaging Question → Group A / Group B / Group C / Group D → Higher-Level Question → Group ABCD / Group ABCD / Group ABCD / Group ABCD → The Big Think

Critical Information Points

Assessment

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

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

Action Plan

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

Build Background

Connect to Old and New Learning

Build Questions

THE BIG THINK

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).

Think Model #1: Background to Question

Design Assessment	←	Create Essential Questions	←	Select Goals
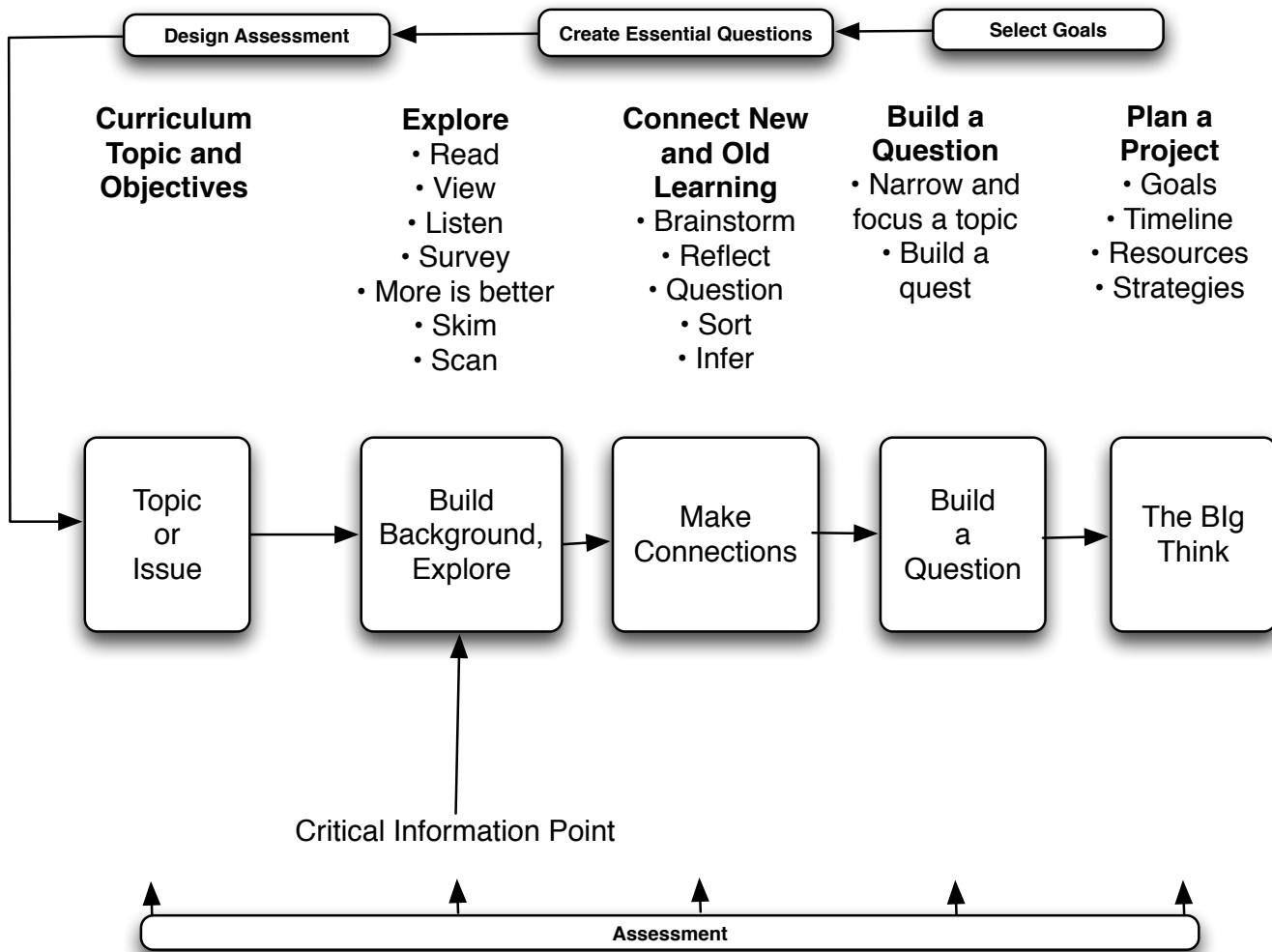
| **Curriculum Topic and Objectives** | **Explore**
• Read
• View
• Listen
• Survey
• More is better
• Skim
• Scan | **Connect New and Old Learning**
• Brainstorm
• Reflect
• Question
• Sort
• Infer | **Build a Question**
• Narrow and focus a topic
• Build a quest | **Plan a Project**
• Goals
• Timeline
• 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

Action Plan

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

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

Design Assessment	←	Create Essential Questions	←	Select Goals

Concepts, Ideas, or Data Either Not Understood or Misunderstood

Collect & Validate Data

Find Connections
• Sort
• Classify
• Patterns
• Missing Data?

Use Graphic Tools to Assist in Visualization

Create
• Re-Work
• Re-Think

Share and Defend New Understanding

Data / Ideas Not Understood → Gather Data → Find and Analyze Relationships → Experiment with Tools → Create and Critique → The Big Think

Critical Information Points

Assessment

Why This Model?

• Helps ESL and language limited Learners demonstrate understanding
• Take advantage of the addage 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

THE BIG THINK

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.

Think Model #3: Read, View, Listen

Design Assessment	←	Create Essential Questions	←	Select Goals

Introduce the Topic(s) and Objectives; Focus Points

Groups or Individuals Read, View, Listen, and Work with Information

Compare/ Contrast Items on Theme Elements

Summary/ Synthesis Activity

Source 1

Source 3

Source 2

Source 4

Introduction → Topical/ Theme Elements

Compare; Contrast → The Big Think

Critical Information Points

Assessment

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

THE
BIG
THINK
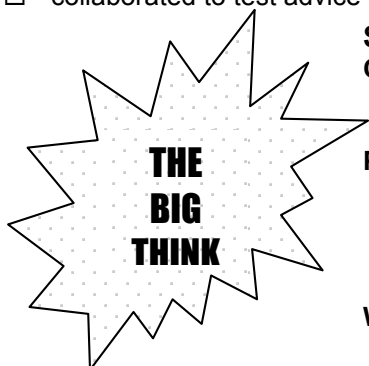
So What?
Content
- ☐ Consider evidence and make a plan
- ☐ Analyze likely consequences of following different advice. What's best?

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

```
Design Assessment  ◄───── Create Essential Questions  ◄───── Select Goals
```

An Engaging Problem or Issue Needing Expert Advice	Predict / Guestimate Possible Advice from Experts	Build Background of the Issue	Gather, Sort, and Analyze Expert Witnesses and Advice	Test Ideas with Others; Compare to Value System	Decide on a Course of Action
Problem or Issue	Predict	Background Building	Gather Expert Advice; Analyze	Conference	The Big Think

Assessment

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

Design Assessment	←	Create Essential Questions	←	Select Goals

Introduce Topic and Identify Purpose	Identify Important Characteristics for Comparison	Use Quality Information Sources; Gather Data	Do the Sort with Tech Assists if Needed	Analyze the Result	See the Big Picture
Reason for Comparison	Establish Criteria for Comparison	Gather Data	Sort Based on Criteria	Make the Comparison	The Big Think

Critical Information Points

Assessment

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

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

Action Plan

Introduce Task and Build Background

Engaging Question

Groups Research Aspects of Question

Present Higher-Level Question

Combine Expertise to Build New Understanding

THE BIG THINK

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
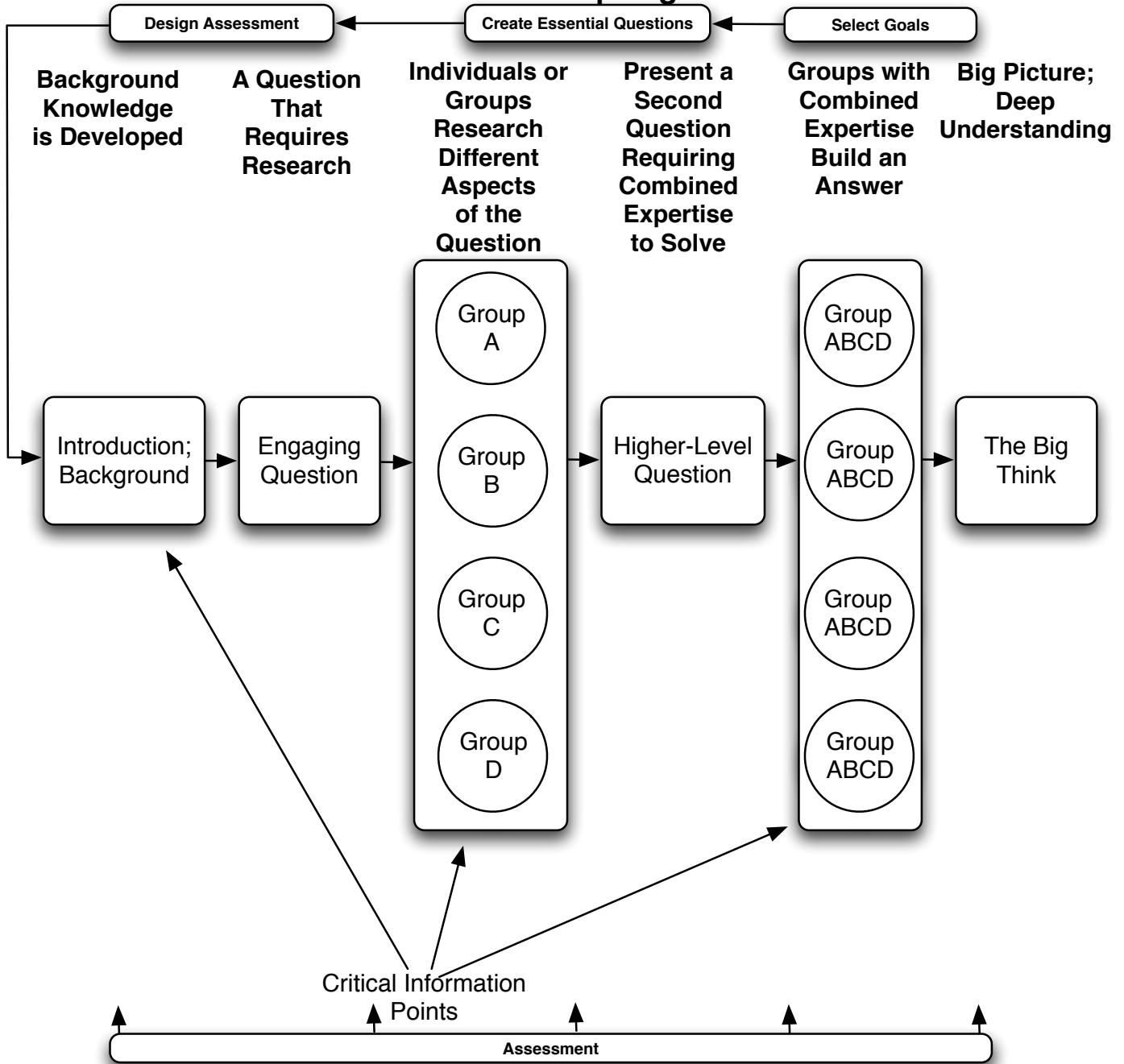
| **Background Knowledge is Developed** | **A Question That Requires Research** | **Individuals or Groups Research Different Aspects of the Question** | **Present a Second Question Requiring Combined Expertise to Solve** | **Groups with Combined Expertise Build an Answer** | **Big Picture; Deep Understanding** |

Introduction; Background → Engaging Question →

Group A
Group B
Group C
Group D

→ Higher-Level Question →

Group ABCD
Group ABCD
Group ABCD
Group ABCD

→ The Big Think

Critical Information Points

Assessment

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.**☆

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

THE BIG THINK

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

Design Assessment	←	Create Essential Questions	←	Select Goals

Develop Background Knowledge	**An Engaging Problem Requires Research**	**Individuals or Groups Research Different Aspects of the Problem**	**A Challenge is Issued to Find Solutions to the Original Problem or a More Complex One**	**Groups with Combined Expertise Build a Solution**	**Big Picture; Alternatives; Solution**
Introduction; Background	Problem	Group A / Group B / Group C / Group D	Likely Alternatives or Solutions	Group ABCD / Group ABCD / Group ABCD / Group ABCD	The Big Think

Critical Information Points

Assessment

Why This Model?

• Learn real world problem-solivng 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 perserverence

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

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

Action Plan

Introduce Decision to be Made

Gather Data

Organize Data on Matrix

Analyze Matrix and Examine Results

THE BIG THINK
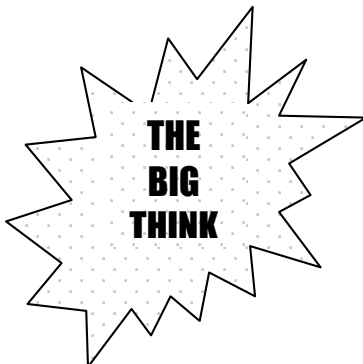
So What?
Content
- ☐ Make a decision and create a plan of action.

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

Design Assessment ← Create Essential Questions ← Select Goals

Introduce an Engaging Problem Requiring Data Across Subjects	Each Group Studies a Subject to Supply Data on Each Trait	Data are Placed on a Large Matrix or Spreadsheet for Comparison	Data is Analyzed, Contrasted, Computed	The Answer/ Decision/ Conclusions

Problem

- Group 1
- Group 2
- Group 3
- Group 4
- Group 5

	Trait 1	Trait 2	Trait 3
Subject	Data	Data	Data
Subject	Data	Data	Data
Subject	Data	Data	Data
Subject	Data	Data	Data
Subject	Data	Data	Data

Analysis of Data

The Big Think

Critical Information Points

Assessment

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

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

Action Plan

Introduce the Problem

Establish Data Set for Study

Gather Data

Organize Data on Matrix

Analyze Matrix and Examine Results

THE BIG THINK
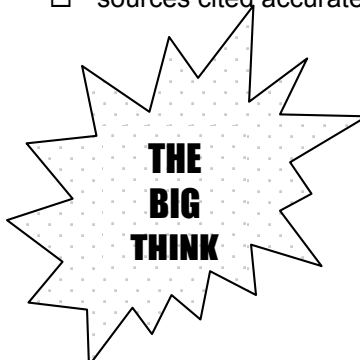
So What?
Content
- ☐ Interpret the significance of the patterns and trends in the matrix.
- ☐ Build generalizations based on the analysis.

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

Design Assessment ← Create Essential Questions ← Select Goals

Introduce an Engaging Problem Requiring Data Across Topics

Each Group Studies a Subject to Supply Data on Each Trait

Data are Placed on a Large Matrix or Spreadsheet for Comparison

Data is Analyzed, Contrasted, Computed

The Under-standing of Pattern/ Trend

Problem

Group 1
Group 2
Group 3
Group 4
Group 5

	Trait 1	Trait 2	Trait 3
Subject	Data	Data	Data
Subject	Data	Data	Data
Subject	Data	Data	Data
Subject	Data	Data	Data
Subject	Data	Data	Data

Analysis of Patterns

The Big Think

Critical Information Points

Assessment

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

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

Action Plan

Identify and Clarify Task

Gather and Sort Data Sets

Place Data on Timeline

Analyze Timeline

THE BIG THINK
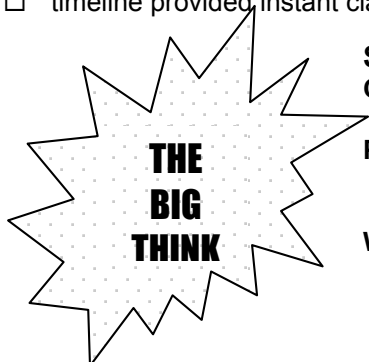
So What?
Content
- ☐ Compare and layer group or class timelines to uncover critical concepts.

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

Identify an Event, Movement, or Mystery	Gather of Facts and Dates	Place on Timeline	Analyze Meaning/ Solution	Big Picture

Problem → Fact Group A / Fact Group B / Fact Group C / Fact Group D → **Main Event** → Study Timeline: • Trends • Patterns • Relationships • Discrepancies • Surprizes → **The Big Think**

Related Events

Related Events

Related Events

Critical Information Point

Assessment

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

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

Action Plan

Introduce the Problem

Gather and Sort Primary and Secondary Evidence

Compare and Contrast

Evidence Check

THE BIG THINK
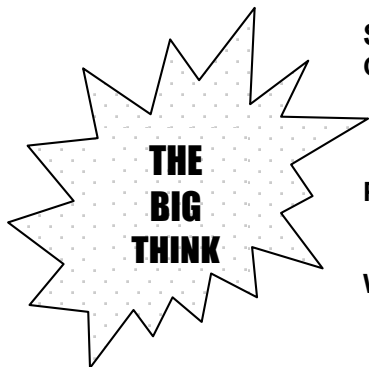
So What?
Content
- ☐ Challenge students to portray their findings creatively through story, skit, music, poetry, etc.
- ☐ After investigating, what happened? What really happened?

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

Design Assessment ← Create Essential Questions ← Select Goals

| **Build a Case for Solving the History/Mystery Problem** | **Study Primary/Secondary Evidence** | **Compare/ Contrast Activity** | **Check Evidence** • New Evidence Available? • Reject Some Data? • Meaning; Perception | **Resolution** |

The Problem

Authority 1
Authority 2
Authority 3
Authority 4

A1
A2
A3
A4

Final Check

Need more?

The Big Think

Critical Information Points

Assessment

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 catastropies
• 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

THE BIG THINK
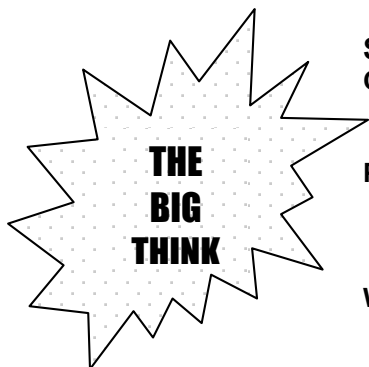
So What?

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

Design Assessment ← Create Essential Questions ← Select Goals

Identify Issue(s)	Investigate Possible Positions	Analyze Feasible Positions	Form an Opinion; Take a Position; Prepare an Argument	Present the Position	So What?
Problem	Investigate	Analyze	Prepare	Present	The Big Think

Critical Information Points

Assessment
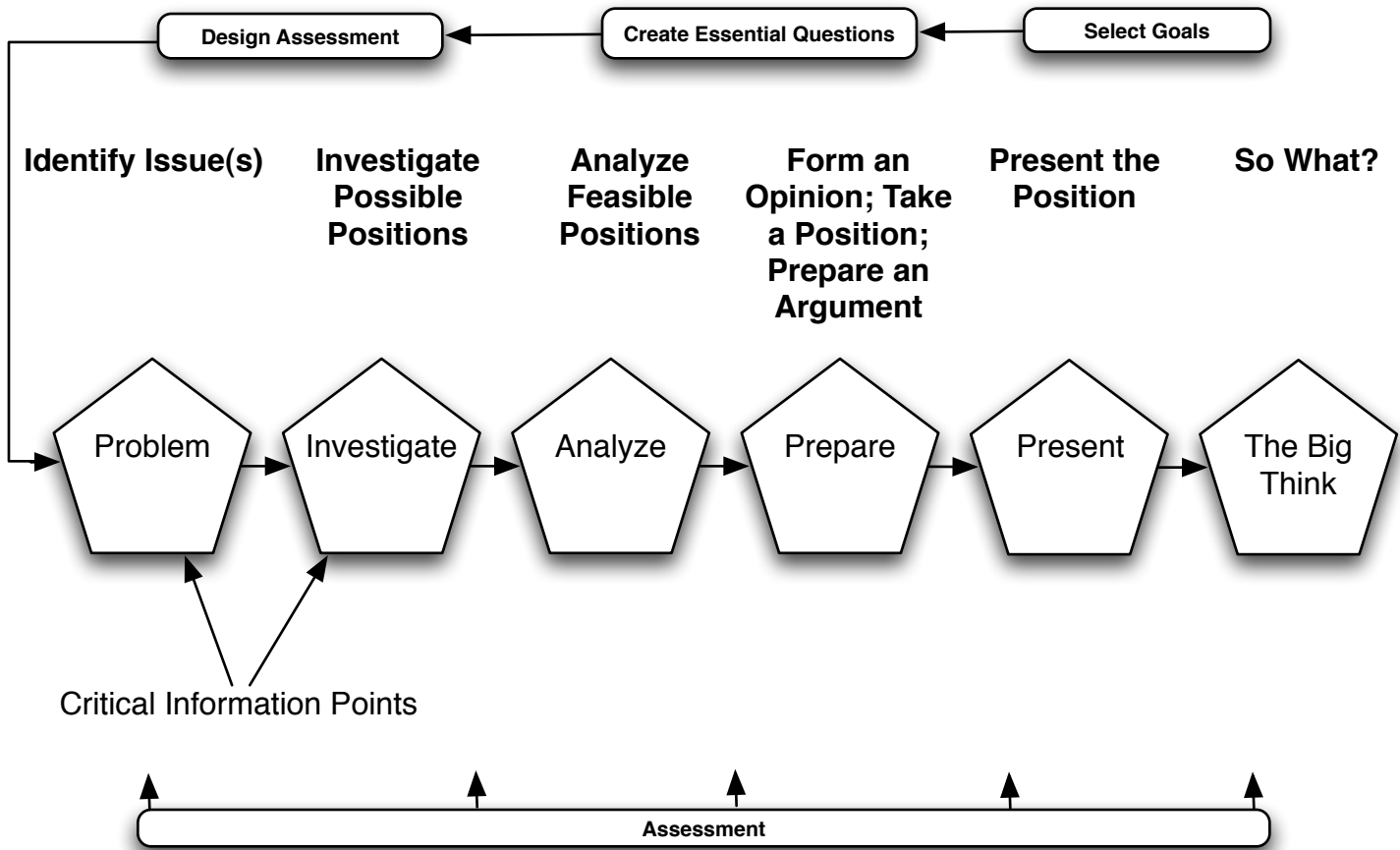
Why This Model?

• 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

THE BIG THINK
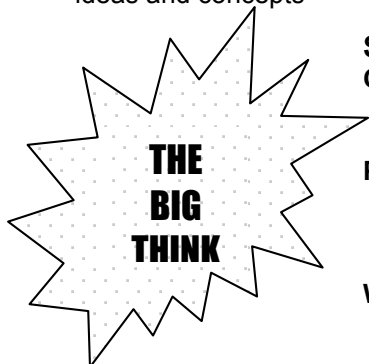
So What?

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

Design Assessment ← Create Essential Questions ← Select Goals

| Identify Event, Issue, Era | Explore Event/ Drama | Research Every Possible Aspect to Ensure Authenticity | Select Format and Construct | Perform as: • Drama • Event • Diary • Newspaper • Picture • Painting • Story | Big Picture |

Select → Explore → Research → Construct → Perform → The Big Think

Critical Information Points

Assessment

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

Select a System; Clarify; Investigate Current Methods

Compare and Contrast

Reinvent

Test and Evaluate

THE BIG THINK

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?
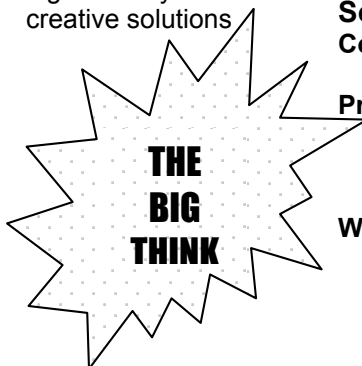
Think Model #14: Reinventing a Better Way
(Systems Analysis)

Design Assessment ← **Create Essential Questions** ← **Select Goals**

Select a System for Study | **Investigate Current Methods** | **Compare/Contrast Activity** | **Evaluate**
- Test
- Try
- Reflect
- Market?

Reinvent
- Retool
- Refine
- Fine Tune
- Streamline

Problem → [Group A, Group B, Group C, Group D] → [A, B, C, D circles] → **Reinvent a Better Way** → **The Big Think**

Differences   Similarities

Critical Information Point

Assessment

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

THE BIG THINK

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

Design Assessment ← **Create Essential Questions** ← **Select Goals**

Preliminary Investigation and Prediciton	**What Could Experience Teach Us?**	**What Skills Will Make the Experience Doable; Beneficial?**	**Real Experience, Simulation, or Vicarious Experience**	**What Have We Learned?**	**See the Big Picture**
Build Back-ground	Develop Questions	Develop Skill and Action Plan	Doing	Reflecting	The Big Think

Critical Information Points

Assessment

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

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
- ☐ dependable 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

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

Conclude, Share, Think

THE BIG 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

Think Model #16: Teacher-Directed Quest
(The Well-Designed Research, Experiment, or Project)

Design Assessment ← **Create Essential Questions** ← **Select Goals**

| Decide on an Engaging Problem, Scenario, or Mission to Accomplish | Plan Division of Labor or Tasks; Assign Roles | Research to Stimulate Work; Advance Toward Goal | Answer the Question; Attain the Mission or Goal | Reflect; Debrief |

Mission; Goal → Plan and Mobilize → Work, Work, Work → Conclude and Share → The Big Think

Critical Information Point

Assessment

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

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

Conclude, Share, Think

THE BIG THINK

So What?
Content
- ☐ Ask: How do my discoveries mesh with the findings of others?
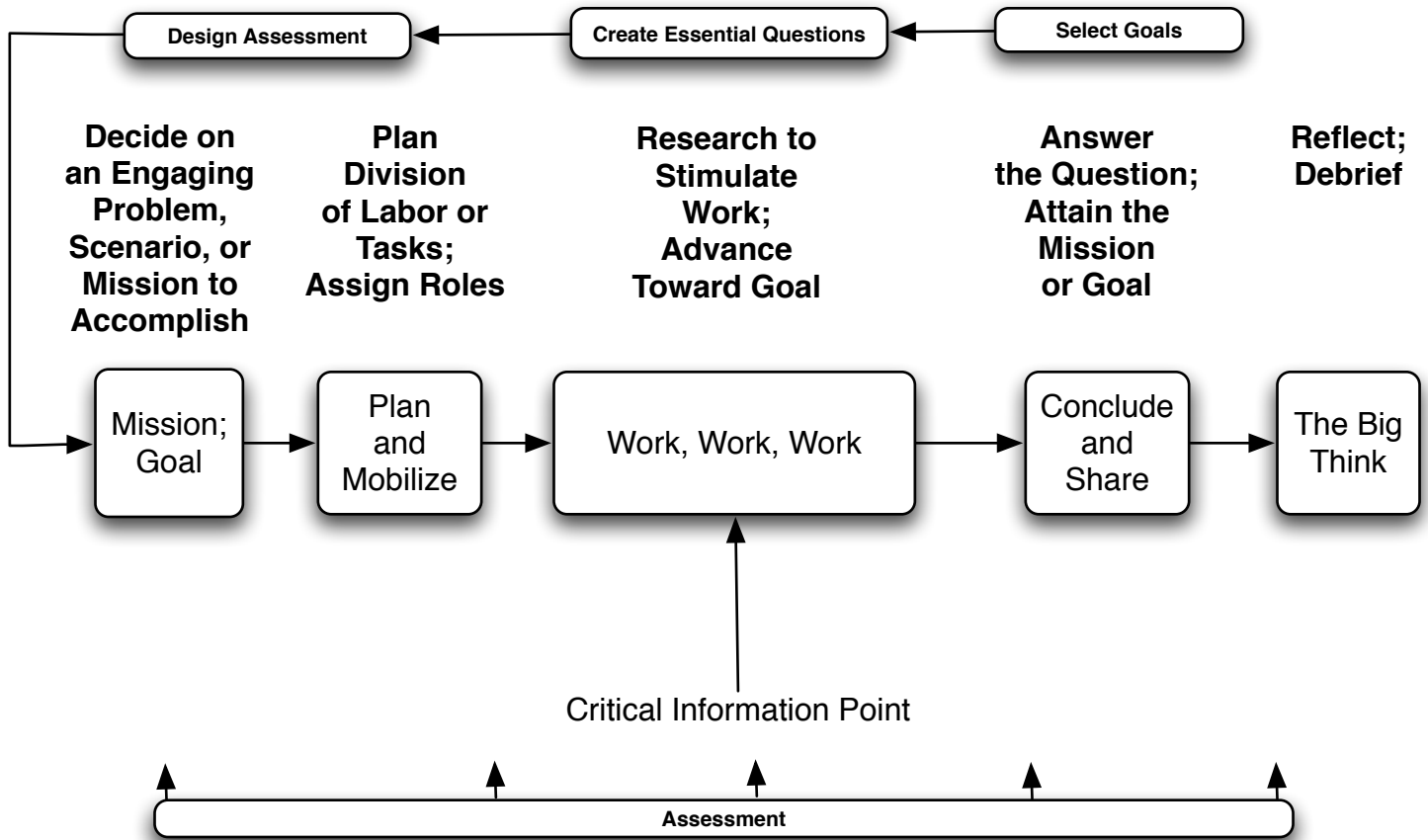- ☐ Compare findings and extract key concepts.

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

Think Model #17: Learner-Directed Quest

Design Assessment ← **Create Essential Questions** ← **Select Goals**

Critical Incident, What Next? Curiosity Problem Decesion

Encourage Listen Talk It Out Review Flight Plan

Open Timetable Safe Environment Conducive Conditions

Stand Back Be Available Cheer!

Space Place Audience Action

Student Growth, Satisfaction

| Student Inspriation | → | Support | → | Open Doors | → | Let Them Go | → | Set the Stage | → | The Big Think |

Critical Information Point

Assessment

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 andmodels
• 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)

Design Assessment	←	Create Essential Questions	←	Select Goals

Appetizers:

Background to Question Model
Sensemaking Model
Read, View, Listen Model
Advice to Action Model
Compare and Contrast Model

The Main Course:

The Concept Jigsaw Puzzle Model
The Problems/Possibilities Jigsaw Puzzle Model
The Make a Decision Matrix Model
The Patterns & Trends Matrix Model
The Timeline Model
The History & Mystery Model
Take a Position Model
The Re-Create Model
The Reinventing a Better Way Model
Learning by Doing Model
The Teacher-Directed Quest Model
The Learner-Directed Quest Model

Assessment

Examples:

• Do a major Background to Question study before a Quest
• Do a Matrix before having to Take a Position
• Sensemake a problem before trying to Reinvent it
• Compare and Contrast as a History/Mystery Model unfolds
• Begin with a Jigsaw and then culminate with a Matrix
• Do a Background study before Learning by Doing

✫   **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	29
	Safety on the Net WebQuest	6–12	95
Background to Question Model	An Extraterrestrial's Guide	3–6	6
	Severe Storms	5–8	32
	Recycling E-Tour	6–12	35
	Community Workers	1–3	46
	European Explorers Trek to North America	4–6	80
Compare and Contrast Model	Find Your Twin WebQuest	4–8	7
	The Language of Geography	7–10	10
	Grading Schools	10–12	53
	Early Settlers/Pioneers	2–4	76
Concept Jigsaw Model	Animal Needs	1–3	16
	Global Citizens	8–10	42
	Immigration to Canada/US	6–10	51
	Women in the Media	10–12	98
Decision Matrix Model	Playground Fun	2–4	48
	Find the Best Location WebQuest	8–12	64
	Mining Investments	10–12	68
History and Mystery Model	Mayday	9–12	67
	Schools of the Past	3–6	78
	Mayan Mysteries	4–6	83
	The Unsinkable Ship	6–8	85
	Digging Up History WebQuest	6–9	88
	Myths and Legends WebQuest	4–8	122
Learn by Doing Model	Wetlands	4–8	27
	My Personal Space	7–12	97
Mix it Up Model	Grad Trip	6–8	9
	Children at Risk WebQuest Pt. 1	9–12	107
	Children at Risk Pt. 2	9–12	110
Patterns and Trends Matrix Model	Hurricane Watch	7–12	39
	Higher Education	10–12	55
	Trading Partners	4–8	58
Problems/Possibilities Jigsaw Model	Endangered Animals	4–8	24

	Greener School	8–12	25
	Investigate the Swamp	6–8	34
	Make Your Own Ending	2–4	118
Re-Create Model	Music Concert WebQuest	6–8	49
	The Power of Native Art	6–9	50
	Back to the Future	7–10	89
	Step In – Step About – Step Out	6–8	92
	The Invention	7–12	125
Read, View, and Listen Model	Not Just a Pretty Face	2–5	19
	Magical Rainforests	4–6	21
	The Economy of Safety	9–12	65
Sensemaking Model	Population Patterns	9–12	13
	Chains and Webs	4–7	23
	Interventions in Ecosystems	5–8	59
	Story/Novel Mapping	1–6	116
	Stella Louella's Runaway Book	2–4	117
Take a Position Model	Playground Cleanup	2–3	18
	Pesky Propositions	9–12	100
	Story Endings	1–4	114
Timeline Model	Birth Dates	K–3	70
	Growing Up	1–3	72
	Clockwork	1–4	74
	Technology Through the Ages	6–9	86
	Government Achievements	7–12	90
	The Eye of the Storm	9–12	104

Examples by Grade Level

Grade Level	Title	Model	Page
K–3	Birth Dates	Timeline Model	70
1–3	Animal Needs	Concept Jigsaw Model	16
	Community Workers	Background to Question Model	46
	Growing Up	Timeline Model	72
1–4	Clockwork	Timeline Model	74
	Story Endings	Take a Position Model	114
1–6	Story/Novel Mapping	Sensemaking Model	116
2–3	Playground Cleanup	Take a Position Model	18
2–4	Playground Fun	Decision Matrix Model	48
	Early Settlers/Pioneers	Compare and Contrast Model	76
	Stella Louella's Runaway Book	Sensemaking Model	117
	Make Your Own Ending	Problems/Possibilities Jigsaw Model	118
2–5	Not Just a Pretty Face	Read, View, and Listen Model	19
3–6	An Extraterrestrial's Guide	Background to Question Model	6
	Schools of the Past	History and Mystery Model	78
4–6	Magical Rainforests	Read, View, and Listen Model	21
	European Explorers Trek to North America	Background to Question Model	80
	Mayan Mysteries	History and Mystery Model	83
4–7	Chains and Webs	Sensemaking Model	23
4–8	Find Your Twin WebQuest	Compare and Contrast Model	7
	Endangered Animals	Problems/Possibilities Jigsaw Model	24
	Wetlands	Learn by Doing Model	27
	Trading Partners	Patterns and Trends Matrix Model	58
	Myths and Legends WebQuest	History and Mystery Model	122
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5–8	Severe Storms	Background to Question Model	32
	Interventions in Ecosystems	Sensemaking Model	59
6–8	Grad Trip	Mix it Up Model	9
	Investigate the Swamp	Problems/Possibilities Jigsaw Model	34
	Music Concert WebQuest	Re-Create Model	49
	The Unsinkable Ship	History and Mystery Model	85

	Step In – Step About – Step Out	Re-Create Model	92
6–9	The Power of Native Art	Re-Create Model	50
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	Mining Investments	Decision Matrix Model	68
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