

### 3. Learning to Question

*Why do we need to be good questioners?*

The art of crafting good questions is key to both teaching and learning. Being able to create probing questions empowers both teachers and students. Questioning is a lifelong learning skill that is critical for success in the 21st century.

**Who** needs to be a good questioner? Teachers, students, researchers, pollsters, interviewers, planners, journalists, diagnosticians, mechanics, technicians, repair people, doctors, nurses, personal trainers, designers, builders, architects, salespeople, travelers, tourists, consumers, investigators, inspectors, parents, lawyers, etc. Asking effective questions is an important life skill.

**What** is a good question? There are many different types of questions. Basically a good question is the one that gets us the information we need at any given time. Sometimes the answer will be a simple “yes” or “no”; however, on other occasions it will be much more complicated and so will the question that is required to prompt that answer. A good research question is one that guides the questioner through a quest to build personal meaning and understanding. Again this can be very simple or very complex.

**Where** does questioning belong in the curriculum? The role of questioning runs throughout the curriculum. Motivation to learn is often spurred on by questions. Clarifying details and thoughts, developing understanding, sourcing information, and selecting relevant information are among the many skills crucial to all disciplines that depend on effective questioning skills. Critical thinking, regardless of the subject content, depends on the ability to ask effective questions. The need for questioning skills is ubiquitous.

**When** do we teach questioning strategies? In the primary years we teach students to differentiate between statements and questions. We also introduce them to the “5 W’s.” We need continue to take a systematic approach to teaching questioning skills. It is crucial is that questioning skills are introduced and taught formally (Ciardiello, 1998). Regardless of the grade level, take time to observe and assess student skill levels so that you can intervene with appropriate learning experiences.

**How** do we teach students to become good questioners? What tools can we use to help develop and hone questioning skills? The following tasks are designed to help you do just that.

- How can the “5 W’s and How” help students in Question Trekking?
- How can I help students organize data?

- How can questioning help students explore a topic?
- Q Task Quickies: KWL Quickies
- How can creating a question web help students develop a focus?
- How can I introduce the Question Builder to students?
- How can the Question Builder be used to help guide research?
- Q Task Quickies: Using the Question Builder
- How will a rubric help students create better research questions?
- How can students narrow and focus their questions?
- Q Task Quickies: Power-Up Q Cards
- How do I help students create a statement of purpose?
- How do students get to the right question?
- How can I help students move from question to thesis statement?

“The important thing is not to stop questioning.” Albert Einstein

## How can the “5 W’s and How” help students in Question Trekking?

### **Q Task**

Students will apply basic question starters to develop questions specific to their need.

### **Clarifying the Task**

In this example, the class is beginning a study of mechanisms and structures. They are to go on a trek in their neighborhood searching for interesting mechanisms and structures. As they observe these sites, they will keep a record of the questions they have about them.

### **Building Understanding**

Model this task by showing students an interesting mechanism, such as specialized kitchen or garden tool, they may not be too familiar with.

- Pass the tool around the classroom for students to examine.
- Review the question starters: *who, what, when, where, why, and how*.
- Give students time to think about what they know about the topic the tool relates to and what they are curious about.
- Chart what students know and what questions they have. As you chart their questions, highlight the question starters and encourage students to develop their questions using all five starter words.

### **Demonstrating Understanding**

Prepare students for their trek in the neighborhood. Provide each student with copies of the Question Trekking organizer (page 50) so they can keep good records of their discoveries and questions. Students will make a quick sketch, and jot down what they know and questions they have about the mechanism. You will need to plot out the walk ahead of time, making sure that students will be able to spot a variety of mechanisms and or structures on the route you take.

### **Q Tip**

An extension of this task would make an excellent homework assignment: gather background information about other topics such as animal habitats, transportation, uses of electricity, etc.

# Question Trekking



Sketch	What I Know
Questions I Have	
Who	
What	
When	
Where	
Why	
How	
How can I find answers to my questions?	

## How can I help students organize data?

### **Q Task**

Students will develop questions to guide searches in several sources.

### **Q Tip**

Students may not find information to answer all their questions in every source; make sure they know that this is okay. They may find conflicting information in the sources they have. This is a great teachable moment to talk about the importance of using more than one resource, and the need to make sure sources are up-to-date and reliable.

### **Clarifying the Task**

In this example, the class is studying nocturnal animal life. They have read stories, viewed videos, and talked about nocturnal animals. Now they are ready to select an animal they are curious about and search for more information. This simple Q Task provides a framework for young and inexperienced researchers to organize their findings.

### **Building Understanding**

- Once students have selected an animal, ask them to fold a paper in half to create a T-chart. Have students brainstorm everything they know about their topic and record the information on the left side of the chart. Then ask students to brainstorm all the questions they have about the nocturnal animal they have selected, and record the information on the right side of the chart. You can prompt their thinking with cards that have question starter words (e.g., *Who, What, Where, When, Why, How*) printed on them.
- Ask students to find a partner, share their questions, and talk about which questions would be good search questions. Have students eliminate or revise any questions that would have one-word answers. Each student should select four good search questions and record them on the My Search Record organizer (page 52).
- Arrange for students to search in the school library for resources that will help them answer their questions. Review strategies for evaluating the usefulness of a resource. Students should select four resources that will help them find answers to their search questions. Encourage students to select a variety of sources if possible; e.g., books, encyclopedias (both print and electronic), web sites, magazine, etc.

### **Demonstrating Understanding**

Assist students with the process of using their questions to guide their searches.

- Model for them how to find keywords in their questions that will help them to use tables of contents and indexes to target the information they need.
- Review how to skim and scan and how to take jot notes.
- Return to the My Search Record organizer and instruct students to use each resource, focusing on only the questions they have recorded as they make their notes in the appropriate boxes.

# My Search Record

Topic: \_\_\_\_\_ Name: \_\_\_\_\_

<b>Sources</b> <b>Questions</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>1)</b>				
<b>2)</b>				
<b>3)</b>				
<b>4)</b>				

## How can questioning help students explore a topic?

### **Q Task**

Students will use questions to guide their exploration of a new topic.

### **Clarifying the Task**

In this example, students will be studying the impact of European explorers on North America. Students need to gain some general knowledge of explorers before they embark on their own voyage of discovery. In this Q Task, students will explore a variety of resources to discover general information about a number of European explorers.

### **Building Understanding**

- Introduce the topic of European explorers with a short video clip and establish the time period and some general knowledge about Europe and North America at the time. Ask students what they know already about European explorers. Chart their ideas.
- Introduce the question starters *Who, What, When, Why, and Where*. Ask students to think of what they need to know about European explorers. Chart their questions.
- Ask students where they can find information about European explorers and chart their responses. Ask students for keywords that would help them target information they need. Collaboratively develop a list of key words students will use for their searches.

### **Demonstrating Understanding**

- Introduce the resource stations (print encyclopedia, electronic encyclopedia, books, pictures, and video) set up in the library. Provide students with blank copies of Quick Fact Trading Cards (page 54).
- Instruct students to rotate through the stations. They will skim, scan, read, view, and listen to variety of carefully selected resources and complete as many trading cards as possible in the time available.
- Now help students make connections.
  - Have students gather in small groups and sort their trading cards alphabetically by explorer's last name.
  - Have students sort their cards chronologically, by departure point, by destination, and then by reason for the excursion.
  - Have them share the quick facts they recorded on their cards and take note of any conflicting data.
  - Ask groups to share how they sorted their cards, to point out interesting connections or patterns they see, as well as conflicting information. Discuss how to verify information when you have a conflict.

Students now have a working background knowledge. They should be ready to decide on a focus for further investigation of European explorers.

### **Q Tip**

Students need to have background knowledge before they can develop questions about a topic. For other ideas on building background knowledge see Koechlin and Zwaan (2005 and 2004), and Marzano *Building Background Knowledge for Academic Achievement* (2005).

# Quick Fact Trading Cards

## Quick Fact Trading Cards

Who?

What?

When?

Where?

Why?

## Quick Fact Trading Cards

Who?

What?

When?

Where?

Why?

## Quick Fact Trading Cards

Who?

What?

When?

Where?

Why?

## Quick Fact Trading Cards

Who?

What?

When?

Where?

Why?

## KWL Quickies

KWL is a tried and true technique for developing students' metacognitive skills. It also confirms for students that learning is a thinking process and that there are steps to take when trying to comprehend something new. Developed by Donna M. Ogle in the 1980s as a strategy to encourage active reading of expository text, this strategy — like all good teaching strategies — has increased in value and diversified in application over time. One of the many benefits of this strategy is that it values student questioning. We have provided a few variations for you to consider.

### Exploring a Topic

Successful research is built on the opportunity to explore a topic and to build a knowledge base from which inquiry can sprout. Use KWL after activating prior knowledge with a story, video clip, scavenger hunt, speaker, etc. There are many ways to implement the strategy.

- The KWL Chart (page 58) can be built collaboratively on chart paper.
- In the K column, record information students already know about the topic.
- In the W column, record what students want to know or what they wonder about.
- Provide students with exploratory experiences, such as browsing through books and selected Internet sites.
- In the L column, record new information students have learned.

Students can complete KWL charts individually, but be sure that you build in opportunity for students to talk about what they are recording. Debrief by asking students how the KWL chart has helped them gain interest in the topic.

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### Preparing for Research

Before students embark on a search to find information for their research project, they need to get their thoughts organized and make some plans. The KNoWledge organizer (page 60) will spur questioning, and will help students activate prior knowledge, identify sources, and focus on keywords to guide searches. When students complete this organizer, they will be ready to use their searching time more efficiently and will have more time for actually processing the information they find.

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### Assessment

- Before starting a unit, use the KWL strategy as a diagnostic assessment of student knowledge about a topic.
  - Have students record what they think is important about the topic in the first column of a KWL Chart (page 58) and questions they have in the second column.
  - In the third column, have students make a web of their understanding about this topic.
- Post-unit, have students complete another KWL Chart. Have students compare their pre- and post-unit KWLs and write a reflection about their growth.

## **KWL Quickies (continued)**

### **Comprehending Text**

KWL is an engaging alternative to note-taking and is a true demonstration of comprehension of text.

- Select an article or textbook passage to support the curriculum topic.
  - Develop an anticipation-guide activity to provide clues to the reading passage and activate thinking about the topic.
  - After this introduction, ask students to record what they think is important and relative to this topic in the K column of a KWL Chart (page 58).
  - Give them some time to think, and then have them develop questions they would like to find answers to in the W column.
  - Remind students to use their question-building skills to develop different kinds of questions, such as fact gathering, analysis, reflective, and predicting questions.
  - Ask students to read the text, keeping their assumptions and questions in mind. As they read, instruct them to record what they are learning in the L column.
  - After reading, have students meet with a partner, compare their learning, and revisit the text as necessary to confirm information or understanding.
  - Debrief with the entire class, discussing their new knowledge as well as how the KWL process helped them comprehend the text.
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### **Science Projects**

Use the KWHLQ Chart (page 61) to track growth during a science project. Students use the H column for recording plans for how they will find out what they need to know. The reflective Q box is for new questions.

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### **Problem Solving and Decision Making**

Use the KWHLQ Chart (page 61) to provide structure to the difficult processes of problem solving and decision making.

- Try it out collaboratively to explore classroom and playground problems, such as bullying, vandalism, littering, etc.
  - Demonstrate how the KWHLQ can be tool to help when making decisions, such as making major purchases.
  - Let students apply KWHLQ to solve problems and make personal decisions such as career choices.
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## **KWL Quickies (continued)**

### **Storybook Wishes**

- Use the KWW Chart (page 59).
- Show the cover of well-illustrated picture book and ask students to tell you what they know about the story from reading the illustration on the cover.
- Record responses in the K column.
- Now picture walk through the book, asking students to read the pictures and tell you what they know from the illustrations
- Before reading, invite students to ask questions about the story and record these in the middle Wonder column.
- After completing the reading, go back and confirm the ideas recorded in the K column, or correct incorrect assumptions.
- Revisit the middle Wonder questions and see if you discovered the answers to all the student questions in the story.
- Now ask students to think about the events in the story and think about anything they would like to change. Record their thoughts in the Wish column.

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### **Compare Fact and Fiction**

Use the KWL Chart (page 58) when comparing fact and fiction.

- After reading fictional stories, say, about monkeys, record the characteristics of monkeys identified in the stories in the K column of a large group chart.
- Discuss how authors of fiction give animals attributes that aren't consistent with real animals. In the W column, list the attributes from fiction that they question.
- Explain the purpose of non-fiction materials and the difference between fact and fiction. Share selected non-fiction books and/or video clips on the topic.
- In the L column, list the factual characteristics of monkeys identified from the resources. Review the K column and confirm and highlight fictional characteristics of monkeys. Students would now be ready to use an organizer to record similarities and differences between monkeys in fiction and monkeys in non-fiction.

# KWL Chart

<b>Know</b>	<b>Wonder</b>	<b>Learn</b>

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# KWW Chart

What I/we <b>K</b> now	What I/we <b>W</b> onder	What I/we <b>W</b> ish

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# KNOWledge

<b>What do I Know</b>	<b>What do I Need to know</b>	<b>Where can I find information</b>
<b>What keywords and phrases will Lead me to information I need?</b>		

Adapted from Koechlin and Zwaan, 1997.

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# KWLHQ Chart

	<b>what do I Know?</b>			<b>How will I find out?</b>	<b>what did I Learn?</b>
<b>Questions I have now</b>			<b>next Steps</b>		

## How can creating a question web help students develop a focus?

### **Q Task**

Students will brainstorm and web questions about a topic.

### **Clarifying the Task**

In this example, students will use the background knowledge on European explorers they build in the Q Task on page 53.

In this Q Task, students work collaboratively to explore the breadth and depth of the topic and use this experience to narrow down the large topic to a focus for their personal inquiry.

### **Building Understanding**

Introduce the Question Storming strategy and model how to use it.

- Brainstorm for questions about a topic students are familiar with; for example, transportation. Use a data projector and commercial software, acetate on an overhead projector, or chart paper to begin building a web of questions about transportation.
- Then brainstorm for more questions about the original questions, and record them with arrows from the original questions. Continue to expand the web as long as questions flow.

You may need to model this strategy with several topics, as students are used to brainstorming for what they know, but are not accustomed to brainstorming for what they need and want to know in the form of questions.

### **Demonstrating Understanding**

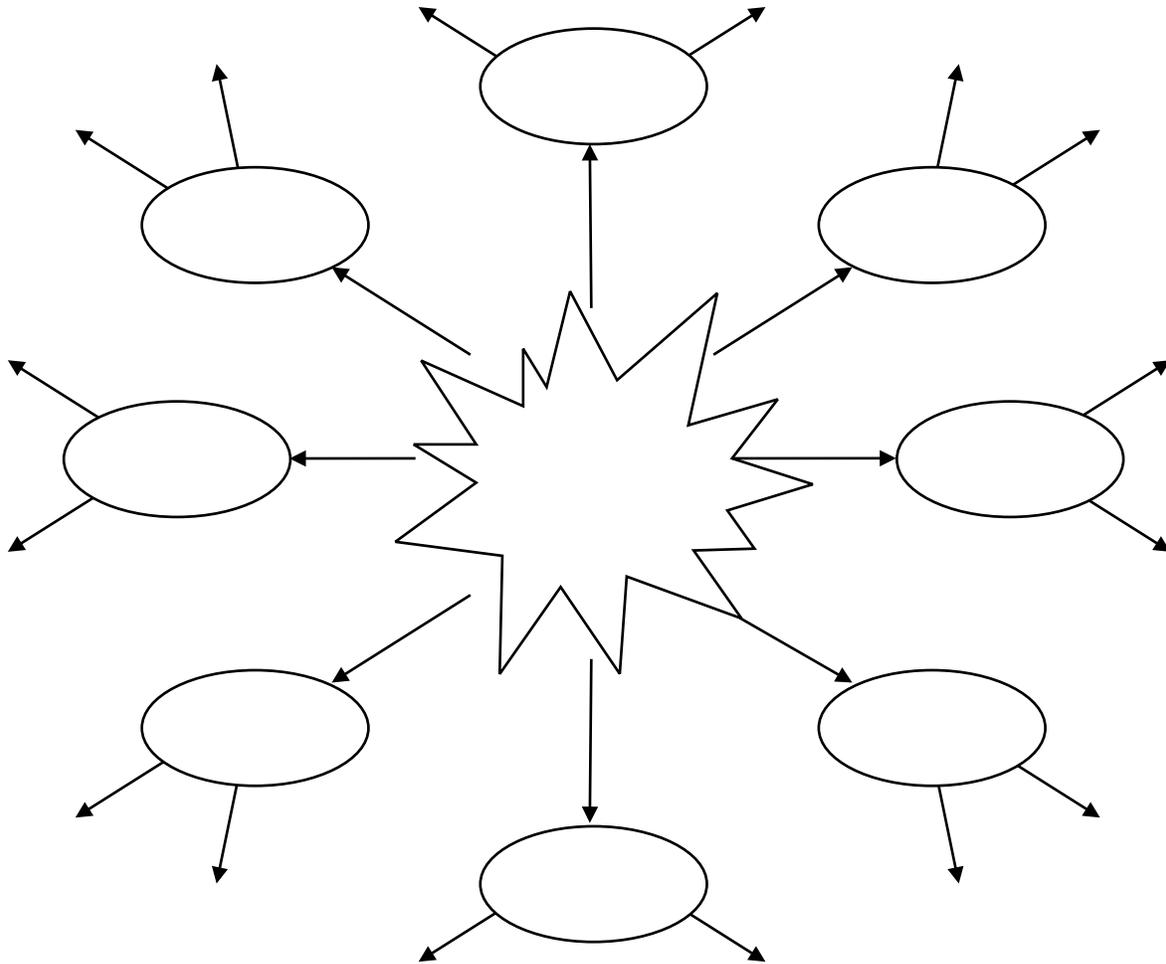
- Ask students to meet in small groups with others who are interested in the same European explorer. Have them develop questions using the Webbing Questions worksheet (page 63).
- Remind students that they are not brainstorming what they know, but rather what they want to know in the form of questions. Also, the questions need to build out from the original question.
- In groups, they will share questions with the class. Have students revisit their trading cards from the Q Task on page 54, and consider the group questions to help them settle on the aspects of European exploration or the particular explorer(s) they want to investigate.
- Have them individually complete a Webbing Questions organizer and select a few questions they are interested in exploring further.

### **Q Tip**

To add a tactile dimension, have students brainstorm questions on sticky notes so they can move their questions around.

# Webbing Questions

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?

Adapted from Koechlin and Zwaan (2005).

## How can I introduce the Question Builder to students?

### **Q Task**

Students will learn the structure of the Question Builder Chart (page 65).

### **Q Tip**

When students are ready, proceed to discuss the purpose of different question starter patterns; see the Q Matrix in Weiderhold (1995). Weiderhold's book and excellent commercial materials to support questioning using the Q Matrix are available from Kagan Cooperative Learning <http://www.kaganonline.com/Catalog/index.html>  
This Q Task was adapted from a task in Koechlin and Zwaan (2004).

### **Clarifying the Task**

This task will help students learn about a structure and pattern of questioning they can use to experiment with in developing their own questions. The purpose of the Question Builder Chart (inspired by the Q Matrix in Weiderhold, 1995) is to give students question starters or prompts to help them construct questions for specific purposes.

### **Building Understanding**

In this example, the class is working on a theme unit on Leaving Home.

- Select a picture book. Show the cover and initiate discussion. Invite students to ask questions. Record the questions.
- Read to a climactic point in the story and ask for more questions. Record.
- Finish the story, review, and discuss recorded questions. Again ask for further questions. Record.
- Review all the generated questions for the purpose of learning more about different kinds of questions and their purposes.
- Clip questions from the chart and ask students to look for similarities.
- Cluster by question starter: *who, what, when, where, why, how, or which*.
- Instruct students to look at the second word of each question: *is, are, were, would, will, etc.*
- Use a large wall space to sort and organize questions into a matrix. Discuss which questions were easy to answer and why, which were more difficult, and which had no direct answer in the story but are really interesting questions.

### **Demonstrating Understanding**

- Group students and provide each group with a large copy of the Question Builder Chart (page 65), or have the students make their own chart on a large piece of chart paper.
- Instruct students to skim newspapers and magazines to look for questions to clip out.
- Have students glue the questions they discover onto their chart.
- Debrief with the entire class and discuss their successes and challenges with this task.

# Question Builder Chart

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

Inspired by Weiderhold (1995)

## How can the Question Builder be used to help guide research?

### **Q Task**

Students will experiment with the Question Builder Chart (page 65) to formulate focus questions to guide their research tasks.

### **Q Tip**

- Very young students will need a volunteer or a student learning buddy to help them record their discovery questions and read to find answers to their questions. Search findings can be illustrations, or text printed by the learning buddies.
- More experienced researchers can use index cards, folded paper, or templates for organizing their research notes.

### **Clarifying the Task**

Students are familiar with the Question Builder Chart. In this example, the class has explored the topic—the world of insects—by taking a nature walk, browsing non-fiction books, viewing videos. They have discussed and recorded interesting discoveries and are now ready to select an insect they are really curious about for their personal search project. This information questioning strategy enables beginning and experienced researchers, as well as students with low language acquisition, to experiment with many possible questions until they find the “just right” question(s) for their project.

### **Building Understanding**

Prepare a large Question Builder Chart (page 65). Model how to use the Question Builder prompts to develop questions.

- Select a topic the class should have some general background knowledge about, such as planning a party or a school event.
- As students volunteer questions, record them directly on the Question Builder. Students will discover that not all the prompts work well for every topic. Caution students not to force questions.
- Ask students to think about which questions might make good research questions. Share and highlight these questions.

### **Demonstrating Understanding**

- Ensure that each student has selected an insect topic for his or her personal research project. Provide each student with a Question Builder Chart (page 65). Instruct students to experiment with formulating questions about their insects. Have them record their efforts on the chart.
- Now have students work with a partner to discuss their questions and select the best five for their personal project.
- Have students construct a search booklet. Have them create a cover and write a guiding question at the top of each page.
- Students will use teacher-selected resources at their reading level to search for the answers to their questions. They will record the information in their search booklet under the appropriate question.

## Using the Question Builder

Your students will need many opportunities to use the Question Builder prompts. Have them work in small groups at first so they can support each other. When they have had lots of practice experimenting with the prompts they can use the strategy independently to brainstorm questions for specific purposes. The Question Builder Chart (page 65) and Question Builder Frames (page 68) can be adapted for endless applications for all grade levels. The following are examples of using this questioning strategy to critically examine information and develop understanding.

### Interpreting Graphs and Charts

As a pre-reading strategy, have students examine charts and/or graphs in a text selection. Using the prompts from the Question Builder Chart or Question Builder Frames, have them develop questions about what they see. Post reading, have students go back to their pre-reading questions and try to answer them. If any of their questions cannot be answered from the text, ask them to develop a plan to try to find the answers.

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### Analyzing Primary Artifacts

Provide each group of students with a photograph, letter, poster, or other primary artifact that will help them discover firsthand information about the people, places, or events being studied. Ask students to examine and discuss the artifact and, using the prompts from the Question Builder Chart or Question Builder Frames, develop questions about what they see. Have each group share their questions. Chart any common issues or concerns arising from their questions. These ideas could form the focus of further class investigations about the people, places, or events under study.

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### Looking for Patterns and Trends

Provide students with statistical data; e.g., population breakdowns over a period of time. Have students examine the data and use the Question Builder Chart or Question Builder Frames to develop questions about the data they are examining. Instruct students to swap questions with another group. Answer their questions based on the raw data. Share any patterns they have discovered in the population statistics, as well as potential trends for the future.

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### Textbook Twist

Note making, answering teacher questions, and completing fill-in-the-blank worksheets from textbook content becomes tedious for students. Occasionally twist the process: instruct students to read the textbook selection and develop some thought-provoking questions about the material they are reading. They can use the Question Builder Chart or Question Builder Frames to experiment with questions, then select their best for sharing as a record of their content understanding.

# Question Builder Frames

**Who**

is, are, was, were  
did, does  
can, could  
would, should  
will, might

**What**

is, are, was, were  
did, does  
can, could  
would, should  
will, might

**When**

is, are, was, were  
did, does  
can, could  
would, should  
will, might

**Where**

is, are, was, were  
did, does  
can, could  
would, should  
will, might

**Why**

is, are, was, were  
did, does  
can, could  
would, should  
will, might

**How**

is, are, was, were  
did, does  
can, could  
would, should  
will, might

**Which**

is, are, was, were  
did, does  
can, could  
would, should  
will, might

Inspired by Weiderhold (1995)

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## How will a rubric help students create better research questions?

### **Q Task**

Students will use a rubric to guide the design of inquiry questions.

### **Q Tip**

Your students cannot ask questions when their knowledge of the topic is limited. Educational video is a perfect medium for sparking interest in a topic and providing vital background knowledge. Video can provide vicarious experiences to new worlds for students.

### **Clarifying the Task**

In this example, students are preparing to conduct research on issues related to safe drinking water. The teacher will facilitate several exploratory activities. Students will use a rubric to guide them as they create their individual inquiry question(s).

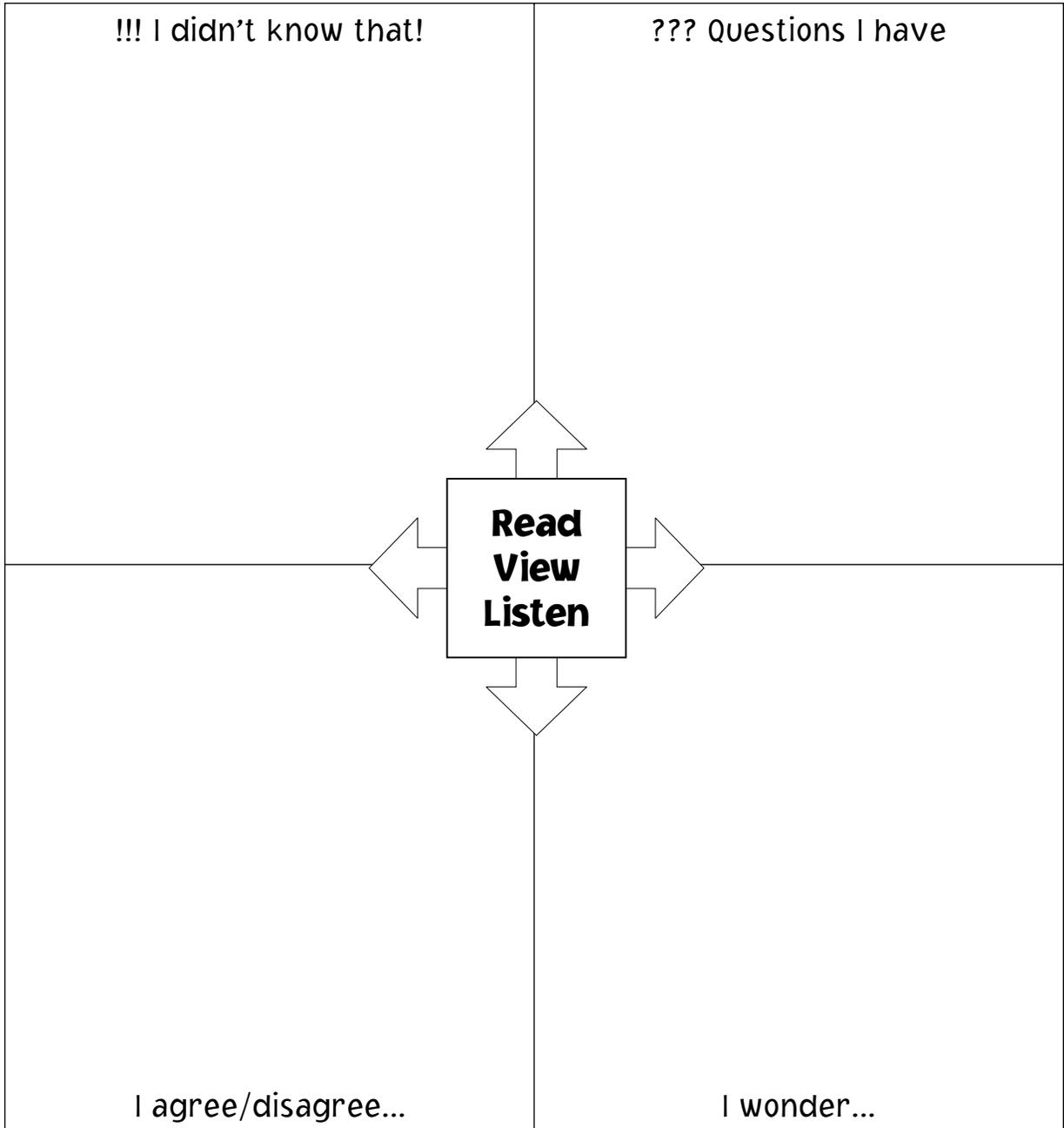
### **Building Understanding**

- Introduce the topic by charting the essential human needs for survival. Discuss what may happen if any or several of these needs are not met.
- Use a video dealing with issues related to safe drinking water to further discussion. Have students use the RVL Connect organizer (page 70) to record their thoughts during the video. Share the student thoughts.
- Collect news articles or passages from texts that deal with water issues, such as unsafe or limited drinking water in various locations in the world, the impact of flooding or other disasters, polluted water, etc. Group students and provide each group with copies of the same article. Ask students to read the article and highlight key passages they are curious about.
- Have students individually record questions they have after reading the article. Have them share with the group, then ask the group to compile a list of questions they feel would make good inquiry questions. Each group then shares the question list. Display question charts.

### **Demonstrating Understanding**

- Introduce the Your Research Question rubric (page 71). Select a few questions and, with students, rate them using criteria from the rubric. Discuss how to make them better inquiry questions.
- Have students develop their own individual inquiry questions. Conference with students and use the rubric criteria to make each question as effective as possible.

# RVL Connect



Title of resource \_\_\_\_\_

Kind of resource \_\_\_\_\_

From Koechlin and Zwaan (2004). Copied with permission.

# Your Research Question

Criteria Level	Focus	Interest	Knowledge	Processing
<b>Your Research Question:</b>	<i>Does your question help to focus your research?</i>	<i>Are you excited about your question?</i>	<i>Will your question help you learn?</i>	<i>Will your question help you understand your topic better?</i>
<b>Level 4</b>	<ul style="list-style-type: none"> <li>focus targets a defined inquiry and examines all relevant perspectives</li> </ul>	<ul style="list-style-type: none"> <li>inspires further investigation and more questions</li> </ul>	<ul style="list-style-type: none"> <li>evokes personal action and/or motivates application or transfer</li> </ul>	<ul style="list-style-type: none"> <li>requires independent analysis, synthesis, and application of information</li> </ul>
<b>Level 3</b>	<ul style="list-style-type: none"> <li>focus targets a defined inquiry and explores several perspectives</li> </ul>	<ul style="list-style-type: none"> <li>stimulates curiosity and enthusiasm</li> </ul>	<ul style="list-style-type: none"> <li>directs personal reflection and opinion</li> </ul>	<ul style="list-style-type: none"> <li>requires general comparison based on criteria</li> </ul>
<b>Level 2</b>	<ul style="list-style-type: none"> <li>manageable, with limited exploration potential</li> </ul>	<ul style="list-style-type: none"> <li>motivates some personal interest</li> </ul>	<ul style="list-style-type: none"> <li>requires collection of facts and opinions</li> </ul>	<ul style="list-style-type: none"> <li>requires classification of data</li> </ul>
<b>Level 1</b>	<ul style="list-style-type: none"> <li>broad and unmanageable or narrow, with little scope</li> </ul>	<ul style="list-style-type: none"> <li>of little personal interest</li> </ul>	<ul style="list-style-type: none"> <li>requires lists, one-word answers</li> </ul>	<ul style="list-style-type: none"> <li>requires data collection only</li> </ul>
<b>Comments and Goals</b>				

## How can students narrow and focus their questions?

### Q Task

Students will Power Up inquiry questions for research by using starter and focus words.

- Stimulates your curiosity
- Guides your research quest
- Encourages you to dig deep for information
- Challenges you to think about your discoveries
- Prompts you to analyze your findings
- Helps you make personal meaning
- Keeps you focused
- Sparks your imagination

### Q Tip

For further examples of questioning using focus words, see Koechlin and Zwaan (1997).

### Clarifying the Task

In this example, students have been introduced to the topic of natural disasters. They have explored natural disasters through stories, songs, video, books, newspaper articles, pictures, and Internet sites. They are ready to develop their inquiry questions.

### Building Understanding

- Review the question starters: *who, what, when, why, where, and how*. Review starters for a statement of purpose: *discover, investigate, and compare*.
- Introduce the elements of a rich research question (see margin).
- Introduce students to Power-Up words that will help them develop a focused inquiry question. See the Power-up Your Inquiry Question organizer (page 73).
- Highlight question starter words and focus words. Discuss the potential of these questions as rich research questions based on the required elements. Students should be able to see that the focus words help define the inquiry, and that “How” and “Why” question starters always produce rich questions.

### Demonstrating Understanding

Using the Power Up Your Inquiry Question organizer (page 73), have each student develop a personal inquiry question(s).

Share sample questions about hurricanes.

- **What** is a hurricane?
- **Investigate** the **kinds** of severe storms and how are they are predicted.
- **Examine** the **consequences** of severe storms for families and businesses.
- **What are** the possible **implications** of recent severe storms for building codes and disaster planning?
- **What** are the **similarities** and **differences** between hurricanes and other types of storms?
- Is there a **connection** between global warming and severity of recent tropical storms?
- **What** can be done to limit the **impact** of severe storms on people, structures and the environment?
- **How** can we ensure that **effective** evacuation and **survival** plans for coping with future disasters are put in place in all vulnerable locations?
- **How might** we **apply** knowledge of design and environmental conditions to improve urban settlement **patterns**?

# Power Up Your Inquiry Question

Question starters		Focusing questions			Looking for relationships	
Who	Discover	changes	types	kinds	significance	compare
What	Investigate	jobs	roles	importance	consequence(s)	contrast
When	Compare	purpose	structure	characteristics	project	cause
Where	Uncover	value	lifestyle	relationships	implication	effect
Why	Determine	function	defence	adaptations	connection	value
How	Examine	capacity	survival	conditions	correlation	analyze
Which...	Study Research	intent	result outcome	infer imply	pattern(s) trend(s)	
<p>Use this checklist to review your inquiry question(s):</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Stimulates your curiosity</li> <li><input type="checkbox"/> Encourages you to dig deep for information</li> <li><input type="checkbox"/> Challenges you to think about your discoveries</li> <li><input type="checkbox"/> Prompts you to analyze your findings</li> <li><input type="checkbox"/> Guides your research quest</li> <li><input type="checkbox"/> Keeps you focused</li> <li><input type="checkbox"/> Sparks your imagination</li> <li><input type="checkbox"/> Helps you to make personal meaning</li> </ul>		<p>Use one or more of the focus or relationship words in your question to give it research power. Brainstorm your question ideas and record your best efforts here.</p>				
<p>Review your questions using the checklist above and record your inquiry question(s) here. Conference with your teacher and teacher-librarian before you begin your quest.</p>						

## Power-Up Q Cards

Thinking is enhanced and memory reinforced by tactile and visual experiences with information. Turn developing effective research questions into a hands-on as well as minds-on (Wiggins and McTighe, 1998) experience for your students.

### Create Packs of Power-Up Q Cards

See the Power Up Your Inquiry Question organizer (page 73). Make a card for each Power-Up word. Handprint them on card stock, or print out several sets at a time using commercial software on business card stock. Print one word on each card. Color code the word if possible; e.g., question starters in green, focus words in blue, relationship words in orange.

### Using the Power-Up Q Cards

- Model the process.
- Strategically pre-select a few cards based on the topic being studied.

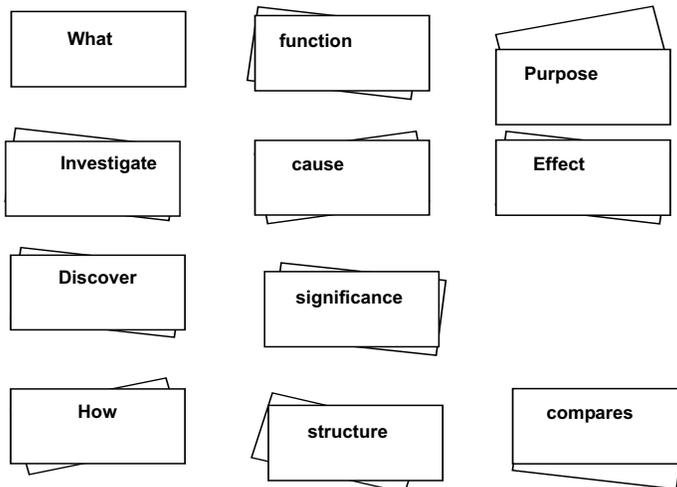
If students studying human anatomy, you might give them a pack containing the following assortment.

**Question Starters:** How, What, Discover, Investigate

**Focus Words:** function, survival, defence, role, purpose, structure

**Relationship Words:** consequence(s), significance, effect, cause, compare

- Have students work in small groups, using a few of the Power-Up Q Cards to help them create effective research questions. Instruct students to manipulate the cards and experiment with different combinations to spark ideas for good research questions.
- Students should keep a print record of their best questions.



## How do I help students create a statement of purpose?

### **Q Task**

Students will understand that focus questions or statements of purpose can be used to guide inquiry.

### **Q Tip**

Give students Bloom questioning roles in literature circles or information circles. Ensure that each day students are assigned a different Bloom category. See Bloom (1956), and also <http://nerds.unl.edu/pages/preser/sec/articles/blooms.html>

### **Clarifying the Task**

An inquiry does not have to be guided by a formal question with a question mark at the end. A statement of purpose is also a legitimate guide to an inquiry task. In this task, the organizational structure of Bloom's Taxonomy will help students consider the type of thinking that their question or statement of purpose will produce. Although Bloom's Taxonomy is traditionally applied to the questions and tasks teachers ask of students, it is also an understandable structure for discussing levels of thinking with students. Higher-level inquiry is not only possible but desirable in today's information-rich learning environments.

### **Building Understanding**

- Introduce the structure of Bloom's Taxonomy and give students some history of the importance of this work and how much it has influenced education since the mid-1950s.
- Read a popular story, revisit the novel you are reading aloud to your students, or select a thought-provoking article dealing with an issue related to current subject matter.
- Develop a range of sample questions and focus statements you might ask students about the reading material. Ensure that all levels of Bloom's Taxonomy are addressed and that students understand what a statement of purpose is (e.g., Discover the role of frogs in a swamp habitat).

### **Types of Thinking**

**Knowledge:** identification and recall of information

**Comprehension:** organization, selection, and understanding of facts and ideas

**Application:** use of facts, rules, and principles in new situations

**Analysis:** taking information apart and looking for relationships

**Synthesis:** bringing ideas together to create new patterns and build personal meaning

**Evaluation:** making judgments and decisions

- Discuss the type of thinking each question or focus statement will generate. Invite students to make up more questions or focus statements.

### **Demonstrating Understanding**

- Provide students with Categorizing Questions and Focus Statements with Bloom (page 76). Review the categories, prompts, and sample question starters.
- Group students and give each group a picture book or an article at their interest and developmental level. Instruct students to read and discuss the book and then create a question or task statement for each of Bloom's levels, using the Building Questions and Focus Statements with Bloom organizer (page 77).
- Have groups exchange books and questions and assess if the questions and task statements match the assigned Bloom category. Discuss discrepancies and any other problems the students encountered.

# Categorizing Questions and Focus Statements with Bloom

<b>Knowledge: identification and recall of information</b>	
Prompts	Samples
List, Tell, Describe, State, Identify, Label, Recognize	Who/what/when/where...? Describe how... Identify those who...
<b>Comprehension: organization, selection, and understanding of facts and ideas</b>	
Prompts	Samples
Relate, Interpret, Summarize, Outline, Infer, Explain, Interpret	What is the main idea...? Explain what is meant by... What are facts? What are opinions?
<b>Application: use of facts, rules, and principles in new situations</b>	
Prompts	Samples
Apply, Prepare, Construct, Simulate, Discover, Solve	How is ____ related to ____? Why is ____ significant? Predict what would happen if...
<b>Analysis: taking information apart and looking for relationships</b>	
Prompts	Samples
Compare, Sequence, Contrast, Classify, Distinguish, Relate	How does ____ compare/contrast with ____? What's the relationship between ____ and ____? What are the causes and effects of...?
<b>Synthesis: bringing ideas together to create new patterns and build personal meanings</b>	
Prompts	Samples
Solve, Develop, Reconstruct, Create, Combine, Design, Rearrange	What might happen if you combined ____ with ____? What solutions can you suggest for...? Develop a plan for... Develop a point of view on ... How does ____ influence ____? What are the alternatives to...?
<b>Evaluation: making judgments and decisions</b>	
Prompts	Samples
Recommend, Rank, Prioritize, Appraise, Justify, Defend, Criticize	What is the most important.... and why? Which is better, logical, valid, appropriate? Judge the effects of... Appraise the situation and defend your opinion on...

Based on Bloom (1956)

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# Building Questions and Focus Statements with Bloom

<b>Knowledge: identification and recall of information</b>	
Prompts	Your Turn
List, Tell, Describe, State, Identify, Label, Recognize	
<b>Comprehension: organization, selection, and understanding of facts and ideas</b>	
Prompts	Your Turn
Relate, Interpret, Summarize, Outline, Infer, Explain, Interpret	
<b>Application: use of facts, rules, and principles in new situations</b>	
Prompts	Your Turn
Apply, Prepare, Construct, Simulate, Discover, Solve	
<b>Analysis: taking information apart and looking for relationships</b>	
Prompts	Your Turn
Compare, Sequence, Contrast, Classify, Distinguish, Relate	
<b>Synthesis: bringing ideas together to create new patterns and build personal meanings</b>	
Prompts	Your Turn
Solve, Develop, Reconstruct, Create, Combine, Design, Rearrange	
<b>Evaluation: making judgments and decisions</b>	
Prompts	Your Turn
Recommend, Rank, Prioritize, Appraise, Justify, Defend, Criticize	

Based on Bloom (1956)

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## How do students get to the right question?

### **Q Task**

Students will develop effective inquiry questions.

### **Clarifying the Task**

Effective inquiry questions or statements of purpose empower students to conduct research that is exciting and meaningful. The purpose is to end the tendency to collect and regurgitate data, and begin the move towards research projects that build understanding, that have personal relevance for the learners and significance for their audience. End plagiarism in your school by teaching students to develop good inquiry questions.

### **Building Understanding**

Model for students how you would use inquiry questions to help you with a task, such as writing an article for a professional journal, planning a special party, or purchasing a new car.

What are you really curious about?  
Why do you want to explore this topic?  
What do you know already?  
What do you need/want to find out?  
How will you make sense of the data you discover?  
Who will your audience be?  
What do you want your audience to understand about your research?  
How will you share your new learning?

### **Demonstrating Understanding**

- Students need lots of practice as well as strategies and tools to help them develop effective research questions. Provide students with many opportunities to experiment with different strategies and tools for constructing questions.
- See the organizers provided: Question Stretchers (page 79), Building a Research Focus (page 80), and Focusing My Inquiry (page 81).
- When students have narrowed their focus and have some questions to consider, introduce the Inquiry Question Contract (pages 82–83). Have students complete the contract to refine their inquiry question or statement of purpose.
- Conference with students and confirm that they are ready to start their research. As students proceed with their research, they may discover that they need to adjust their focus and or their question.

### **Q Tip**

For further exploration regarding building inquiry questions, see Booth (2003) and visit *Questioning.org*, Jamie McKenzie's online journal devoted to questioning at <http://questioning.org/>

# Question Stretchers

## Surface questions

	is	did
Who		
What		
When		
Where		

## Digging questions

	can	would
Who		
What		
When		
Where		

## Digging deeper questions

	will	might
Who		
What		
When		
Where		

## Developing understanding questions

	is	did	can	would	will	might
How						
Why						

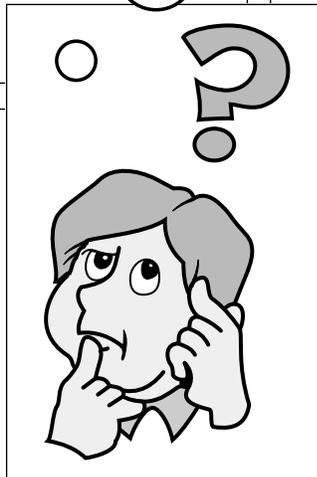
# Building a Research Focus

What do I know already about this topic?

What do I need to consider for this project?

What is my focus now?

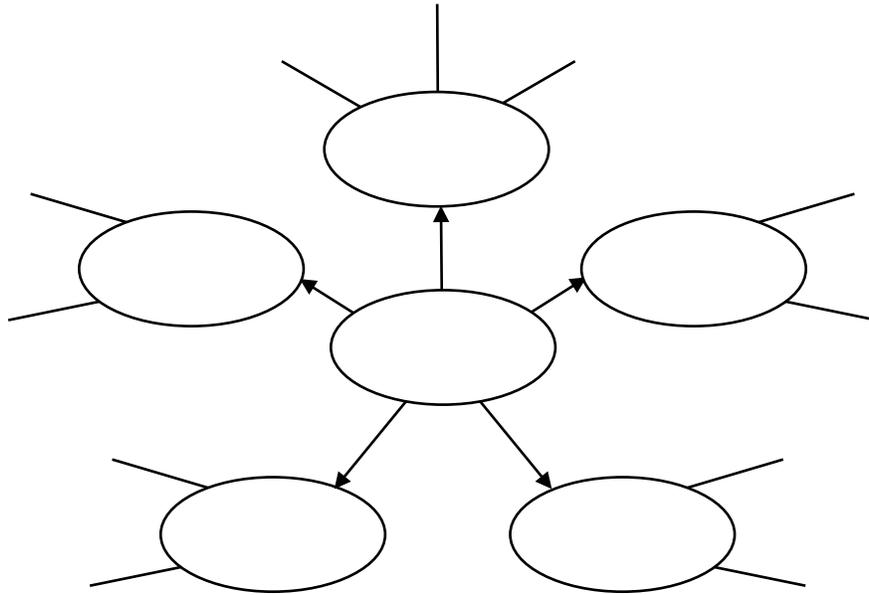
What am I curious about?



How do I start my research?

# Focusing My Inquiry

What is my general topic? What am I specifically interested in? What am I curious about? What do I already know? What do I need to know?



**Focus Words:** What focus words will enrich my research question?  
Which focus words will help me analyze my data?

\_\_\_\_\_

**Inquiry question/statement of purpose:**

\_\_\_\_\_  
\_\_\_\_\_

**Subtopics:** Which subtopics will help me organize my data?  
I predict I will need to explore these categories:

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

*Changes, types, kinds, jobs, roles, importance, characteristics, structure, purpose, value, function, relationships, lifestyle, adaptations, conditions, defense, survival, compare, contrast, cause, effect, value, significance, consequences, impact, infer, imply, project, analyze, etc.*

**Keywords**

# Inquiry Question Contract

Consider these guiding questions as you build your inquiry question:

- What are you really curious about?
- Why do you want to explore this topic?
- What do you know already?
- What do you need/want to find out?
- How will you make sense of the data you discover?
- Who will your audience be?
- What do you want your audience to understand about your research?
- How will you share your new learning?

Complete these statements when you are ready to refine your inquiry focus.

My/our broad topic is \_\_\_\_\_

I/we am/are specifically interested in \_\_\_\_\_

\_\_\_\_\_

because I/we want to find out

\_\_\_\_\_

I/we want others to (know, understand, learn, try, create, make, etc.)

\_\_\_\_\_

I/we will share what I/we have learned by

\_\_\_\_\_

# Inquiry Question Contract (continued)

My/our inquiry question or statement of purpose:

---

---

---

I/we understand that this project will be assessed by

---

---

---

To be successful I/we need to:

Student signature \_\_\_\_\_ Date \_\_\_\_\_

Teacher signature \_\_\_\_\_ Date \_\_\_\_\_

## How can I help students move from question to thesis statement?

### Q Task

Students will use their guiding research questions and teacher prompts to build a thesis.

### Q Tip

Check out these web sites for examples of thesis statements and support to help students as they become more independent in writing a thesis:

*The Writing Lab and Owl at Purdue University*  
<http://owl.english.purdue.edu/owl/resource/545/01>

*What is a Thesis*  
<http://mciu.org/~spjvweb/thesis.html>

### Clarifying the Task

A thesis demonstrates a very high level of understanding about a topic. As young researchers mature, they become more adept at this formal synthesis. When students are developmentally ready, usually at the secondary level, teachers require students to prepare academic papers framed by a personal thesis statement. However, the development of a thesis statement should also be a step in the process of preparing any presentation that requires students to synthesize their findings, and present and defend their personal understandings. In this Q Task, students are already well into the research process. They have explored their topic, developed an inquiry question to guide their research, identified appropriate resources, and started gathering and organizing their data. At this point, before students are finished research, the skill of building a thesis should be introduced.

### Building Understanding

Project a sample essay on a screen and deconstruct the essay using a think-aloud. Highlight the thesis statement and explain that this statement is usually found at the end of the first paragraph statement.

- Examine the essay for the supporting evidence the author uses to defend the thesis. Point out transition words used to link ideas. Identify the kinds of evidence cited; e.g., cause and effect, similarities and differences, illustrations, relationships, etc. Discuss how effectively the author has delivered the argument, and make suggestions for strengthening the essay.
- Group students and provide each group with a sample essay to deconstruct. Circulate and provide support as students work. Ask each group to share the thesis statement of the essay they were assigned, and to explain how well the author defended their thesis.
- Discuss the elements of an effective thesis and chart student responses: e.g., focused and concise, arguable, supported by effective evidence, original thought, etc. Explain to students that their thesis should pass the “So what?” test; i.e., the thesis should be a strong hook to capture their audience’s attention and pique their interest.

### Demonstrating Understanding

- Provide students with the Building Your Thesis Map organizer (page 85). Explain that they will use this organizer to help them move from their research question to a thesis statement. Instruct students to record new questions they have about their topic, as well as the connections they are making as they proceed.
- Review the question prompts and remind students that visual organizers—concept maps, flow charts, Venn diagrams, etc.—are perfect tools for helping them analyze their data and finding relationships.
- Conference with students after they develop their possible thesis statement.
- Conference again when they refine it and prepare to write their essays or develop their multimedia presentation.

# Building Your Thesis Map

During the research process, you will be working towards your thesis. Your research question will guide you along your journey. As you gather more information, you will probably discover that you have more questions. This organizer provides a process path and prompts to record your valuable thoughts and questions as you build your thesis.

<b>Inquiry question</b>	
<b>New questions</b>	<b>Reflections and connections</b>
<b>Question prompts</b> Have you explored all relevant perspectives? Have you discovered any conflicting information? Can you see relationships and patterns building? What similarities and differences have you found? What surprises or disturbs you?	What conclusions are you reaching? Have you formed an opinion? What evidence do you have to support your opinion? Do you need more evidence to defend your position? Why is your research important? Who should know about it/Why?
<b>Possible thesis</b> I believe/propose/conclude/argue...	
<b>Thesis Check Point</b> <input type="checkbox"/> arguable and supported by evidence <input type="checkbox"/> probable or defensible <input type="checkbox"/> specific and effective <input type="checkbox"/> your synthesis <input type="checkbox"/> original thought <input type="checkbox"/> provocative or unique	<b>Test out your thesis ideas.</b> Talk to <input type="checkbox"/> fellow students <input type="checkbox"/> teachers <input type="checkbox"/> teacher-librarian <input type="checkbox"/> parents <input type="checkbox"/> experts
<b>Continue research and keep refining your thesis.</b>	

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