Core Research:
Research and the CCLS

Grades 3-6

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OCMBOCES

13 Ways to Raise a Student Who Hates Research

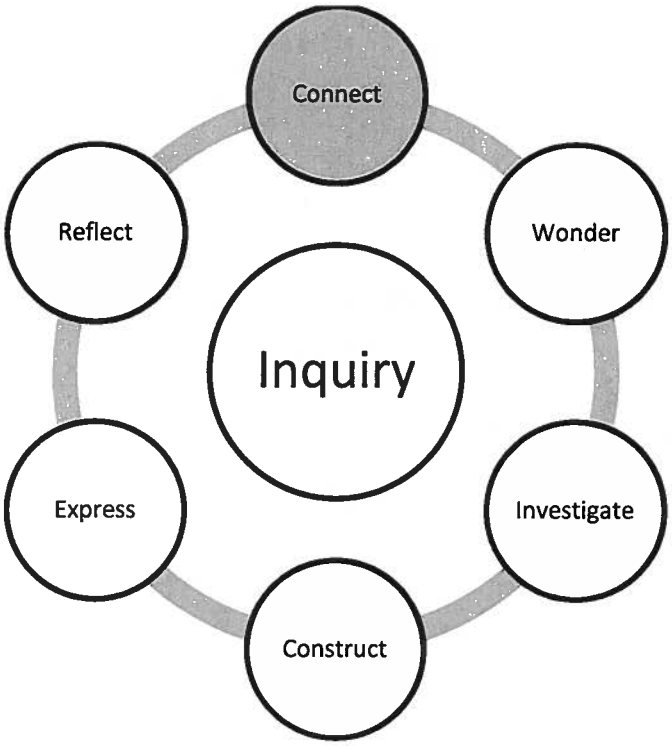
1. Assume research is hard. Or boring. Or both.
2. "Do research" *only* once a year, for eight weeks.
3. Always assign topics to students, and offer no choice.
4. Assign books to students and/or a strict requirement. ("Three books. Two articles. One Internet site.")
5. Notecards. Yes.
6. Give out graphic organizers that provide fill-in-the-blank templates for every step of their process. ("The state bird is _____. It looks like _____.")
7. When students copy directly out of books they are reading, assume it is developmental.
8. If you wish to improve notetaking, repeat to students: "Put it in your own words."
9. As an alternative to point 8, teach students a complex way of taking notes that you would never do yourself.
10. Make sure students believe that writing about their research is a way to prove they followed your assignment and read the required material.
11. Because research is hard/boring (see point 1), accept that students research writing will lack voice and passion.
12. Provide little time in school for reading or writing. Feedback is only necessary when they turn in "drafts."
13. Be their only audience. Have students end their research process by turning their work in only to you.

Excerpted from "13 Ways to Raise Students Who Hate Research" by Christopher Lehman
http://www.choiceliteracy.com/articles-detail-view.php?id=1584

ODELL EDUCATION

STAGES OF INQUIRY

I. INITIATING INQUIRY	**Students determine what they want to know about a topic and develop inquiry questions that they will investigate.**
II. GATHERING INFORMATION	**Students find and take notes on sources that will help them answer their inquiry questions and define the scope of their investigation.**
III. DEEPENING UNDERSTANDING	**Students analyze key sources to deepen their understanding and answer their inquiry questions.**
IV. FINALIZING INQUIRY	**Students synthesize their information to determine what they have learned and what more they need to know about their area of investigation. They gather and analyze more information to complete their inquiry.**
V. DEVELOPING AND COMMUNICATING AN EVIDENCE-BASED PERSPECTIVE	**Students review and synthesize their research to develop and communicate an evidence-based perspective on their area of investigation.**



Connect

Initiating Inquiry

- Connect to own experience
- Connect to ideas of others
- Connect to previous knowledge and verify its accuracy
- Gain background and context

Generate, Sort, Connect, Elaborate: Concept Maps

A routine for organizing one's understanding of a topic through concept mapping

Select a topic, concept, or issue for which you want to map your understanding.

- Generate a list of ideas and initial thoughts that come to mind when you think about this particular topic/issue.
- Sort your ideas according to how central or tangential they are. Place central ideas near the center and more tangential ideas toward the outside of the page.
- Connect your ideas by drawing connecting lines between ideas that have something in common. Explain and write in a short sentence how the ideas are connected.
- Elaborate on any of the ideas/thoughts you have written so far by adding new ideas that expand, extend, or add to your initial ideas.

Continue generating, connecting, and elaborating new ideas until you feel you have a good representation of your understanding.

Purpose: What kind of thinking does this routine encourage?
This routine activates prior knowledge and helps to generate ideas about a topic. It also facilitates making connections among ideas. Concept maps help to uncover students' mental models of a topic in a non-linear way.

Application: When and where can it be used?
This routine can be useful as a pre-assessment before the beginning of a unit of study if students already have a lot of background information about the topic. Conversely, it can also be useful as a post or ongoing assessment to see what students are remembering and how they are connecting ideas. Individual maps can be used as the basis for construction of a whole classroom map. Maps can also be done progressively, with students adding to their maps each week of the unit.

Launch? What are some tips for starting and using this routine?
Depending on how much familiarity students have with concept maps, you may need to demonstrate making a concept map using this routine with the whole class. However, if students are relatively familiar with the idea of concept maps, you can launch right into the routine explaining that students will be making concept maps but in a structured way. Give time for students to complete each step of the routine before moving on to the next step. It isn't necessary that students generate an exhaustive list of all their ideas initially, but make sure they have time to generate a rich and varied list before moving on. Tell students that at any point they can add new ideas to their list and incorporate them into their map. If you are adding to a map over time, you might want to have students use a different color pencil each time they make additions. Explaining and discussing maps with partners helps students to consolidate their thinking and gain other perspectives.

THINK / PUZZLE / EXPLORE

A routine that sets the stage for deeper inquiry

1. What do you <u>think</u> you know about this topic?
2. What questions or <u>puzzles</u> do you have?
3. What does the topic make you want to <u>explore</u> ?

Purpose: What kind of thinking does this routine encourage?

This routine activates prior knowledge, generates ideas and curiosity and sets the stage for deeper inquiry.

Application: When and where can it be used?

This routine works especially well when introducing a new topic, concept or theme in the classroom. It helps students take stock of what they already know and then pushes students to identify puzzling questions or areas of interest to pursue. Teachers can get a good sense of where students are on a conceptual level and, by returning to the routine over the course of study, they can identify development and progress. The third question is useful in helping students lay the ground work for independent inquiry.

Launch: What are some tips for starting and using this routine?

With the introduction of new topic—for example, earth, leaves, fractions, Buddhism—the class can engage in the routine together to create a group list of ideas. Between each phase of the routine, that is with each question, adequate time needs to be given for individuals to think and identify their ideas. You may even want to have students write down their individual ideas before sharing them out as a class. In some cases, you may want to have students carry out the routine individually on paper or in their heads before working on a new area.

Keep a visible record of students' ideas. If you are working in a group, ask students to share some of their thoughts and collect a broad list of ideas about the topic on chart paper. Or students can write their individual responses on post-it notes and later add them to a class list of ideas.

Note that it is common for students to have misconceptions at this point—include them on the list so all ideas are available for consideration after further study. Students may at first list seemingly simplistic ideas and questions. Include these on the whole class list but push students to think about things that are truly puzzling or interesting to them.

SEE / THINK / WONDER

A routine for exploring works of art and other interesting things

- What do you see?
- What do you think about that?
- What does it make you wonder?

Purpose: What kind of thinking does this routine encourage?

This routine encourages students to make careful observations and thoughtful interpretations. It helps stimulate curiosity and sets the stage for inquiry.

Application: When and where can it be used?

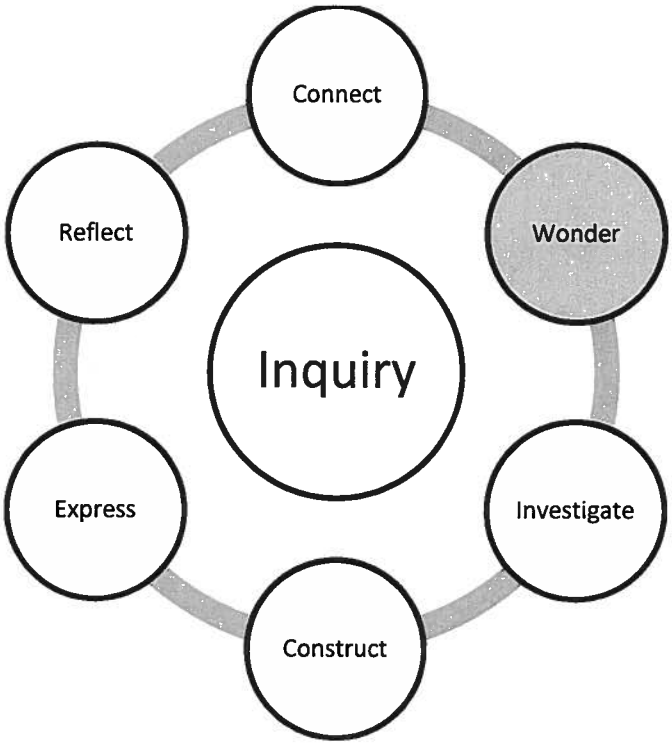
Use this routine when you want students to think carefully about why something looks the way it does or is the way it is. Use the routine at the beginning of a new unit to motivate student interest or try it with an object that connects to a topic during the unit of study. Consider using the routine with an interesting object near the end of a unit to encourage students to further apply their new knowledge and ideas.

Launch: What are some tips for starting and using this routine?

Ask students to make an observation about an object – it could be an artwork, image, artifact or topic – and follow up with what they think might be going on or what they think this observation might be. Encourage students to back up their interpretation with reasons. Ask students to think about what this makes them wonder about the object or topic.

The routine works best when a student responds by using the three stems together at the same time, i.e., "*I see..., I think..., I wonder ....*" However, you may find that students begin by using one stem at a time, and that you need to scaffold each response with a follow up question for the next stem.

The routine works well in a group discussion but in some cases you may want to ask students to try the routine individually on paper or in their heads before sharing out as a class. Student responses to the routine can be written down and recorded so that a class chart of observations, interpretations and wonderings are listed for all to see and return to during the course of study.



Wonder

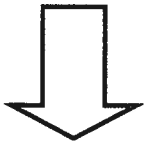
Generating Questions

- Develop wonder question that will lead to new understandings about key ideas
- Frame questions using different levels of thinking with a push to higher levels (e.g. asking "Why?" and "How?" in addition to asking "What?")
- Develop question to lead to active investigation and decision-making not passive information gathering
- Make predictions and hypotheses based on prior knowledge and background information. Predict answers to wonder questions and what type of information will answer the questions

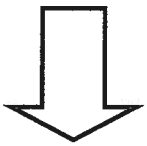
Name_____ Class_____

Prior Knowledge and New Understandings

I knew...



I now know...



I was surprised to learn...

CREATIVE QUESTIONS

A routine for generating and transforming questions

1. Pick an everyday object or topic and brainstorm a list of questions about it.

2. Look over the list and transform some of the questions into questions that challenge the imagination. Do this by transforming questions along the lines of:
   - *What would it be like if...*
   - *How would it be different if...*
   - *Suppose that...*
   - *What would change if...*
   - *How would it look differently if ...*

3. Choose a question to imaginatively explore. Explore it by imaginatively playing out its possibilities. Do this by: Writing a story or essay, drawing a picture, creating a play or dialogue, inventing a scenario, conducting an imaginary interview, conducting a thought experiment.

4. Reflect: What new ideas do you have about the topic, concept or object that you didn't have before?

Purpose: What kind of thinking does this routine encourage?

Formulating and exploring an interesting question is often as important than finding a solution. This routine encourages students to students create interesting questions and then imaginatively mess around with them for a while in order to explore their creative possibilities. It provides students with the opportunity to practice developing good questions that provoke thinking and inquiry into a topic.

Application: When and where can it be used?

Use Creative Questions to expand and deepen students' thinking, to encourage students' curiosity and increase their motivation to inquire. This routine can be used when you are introducing a new topic to help students get a sense of the breadth of a topic. It can be used when you're in the middle of studying a topic as a way of enlivening students' curiosity. And it can be used when you are near the end of studying a topic, as a way of showing students how the knowledge they have gained about the topic helps them to ask ever more interesting questions. This routine can also be used continuously throughout a topic, to help the class keep a visible, evolving list of questions about the topic that can be added to at anytime.

Launch: What are some tips for starting and using the routine?

Before using Creative Questions you might want to ask students what *they* think makes a good question. Then, when you show the Creative Questions, explain that this routine is a tool for asking good questions. Start the routine by providing a topic, concept or object– Sudan, medieval punishment, a stethoscope, genetic engineering. Ask them to use the Creative Questions to generate a list of questions about the topic or object. Initially, it's best to work together as an entire group. Once students get the hang of the routine, you can have them work in small groups, or even solo.

After students finish generating questions, ask them to pick one of the questions to investigate further. Encourage students to explore it by imaginatively playing out its possibilities. Writing a story or essay, drawing a picture, creating a play or dialogue, inventing a scenario, conducting an imaginary interview, or conducting a thought experiment are just some of the possible ways for students to find out about their questions. At the end of the exploration process be sure to take time to reflect on new insights and ideas about the topic, object or concept.

QUESTION STARTS

A routine for creating thought-provoking questions

1. Brainstorm a list of at least 12 questions about the topic, concept or object. Use these question-starts to help you think of interesting questions:

Why...?	*How would it be different if... ?*
What are the reasons...?	*Suppose that...?*
What if...?	*What if we knew...?*
What is the purpose of...?	*What would change if...?*

2. Review the brainstormed list and star the questions that seem most interesting. Then, select one or more of the starred questions to discuss for a few moments.

3. Reflect: What new ideas do you have about the topic, concept or object that you didn't have before?

Purpose: What kind of thinking does this routine encourage?

This routine provides students with the opportunity to practice developing good questions that provoke thinking and inquiry into a topic. It also helps students brainstorm lots of different *kinds* of questions about a topic. The purpose of asking deep and interesting questions is to get at the complexity and depth of a topic. The purpose of brainstorming varied questions about a topic is to get at the breadth, and multi-dimensionality of a topic.

Application: When and where can it be used?

Use Question Starts to expand and deepen students' thinking, to encourage students' curiosity and increase their motivation to inquire. This routine can be used when you are introducing a new topic to help students get a sense of the breadth of a topic. It can be used when you're in the middle of studying a topic as a way of enlivening students' curiosity. And it can be used when you are near the end of studying a topic, as a way of showing students how the knowledge they have gained about the topic helps them to ask ever more interesting questions. This routine can also be used continuously throughout a topic, to help the class keep a visible, evolving list of questions about the topic that can be added to at anytime.

Launch: What are some tips for starting and using the routine?

Before using Question Starts, you might want to ask students what *they* think makes a good question. Then, when you show the Question Starts, explain that this routine is a tool for asking good questions. Start the routine by providing a topic– Stockholm, a compass, the Equator, good sportsmanship. Ask them to use the Question Starts to generate a list of questions about the topic. Initially, it's best to work together as an entire group. Once students get the hang of the routine, you can have them work in small groups, or even solo. Or mix it up. For example, do step 1 as a whole class, do step 2 in pairs, and step 3 as a whole class again.

After students finish generating questions, you can use the questions they created in a variety of ways: pick one of the questions to investigate further, have a discussion about some of the questions, give students information to read about the topic, ask them to investigate it in other ways, or do nothing further as simply creating the list of questions is worthwhile since it gives students a sense of the breadth of a topic and sparks curiosity about it.

Students' questions can be written down and recorded so that they are listed for all to see. If students are working solo, they can keep their list of questions in a journal, or you can create a "collage" out of students' individual lists and display it on the classroom wall.

Name_____ Class_____

Writing Questions That Lead to Inquiry

Question:

_____

_____

_____

Can your question be answered by research?

✓ Is this a topic that someone would have written about? If yes, why do you think so?

_____

_____

✓ Will there be facts as well as opinions about this topic?

_____

_____

Will your question lead to an interesting inquiry investigation?

✓ Am I interested in the topic?

✓ Does the question go beyond a yes/no answer?

✓ Is the question complex enough to require information beyond a few simple facts to answer it?

✓ Does the question lead to investigating multiple points of view?

How could you revise the question to make it answerable and more interesting?

Revised Question:

_____

_____

_____

Question Sorts Routine

A routine for identifying powerful questions to guide inquiry and deepen understanding

1. Individually or as a group brainstorm a large set of questions on the topic and write each question on post it notes or note cards.

2. Create a horizontal continuum using masking tape on the table or draw one on the white board. This horizontal axis will represent generativity, that is, how likely the question is to generate engagement, insight, creative action, deeper understanding, and new possibilities. As a group, discuss and place each question on the horizontal line

3. Create a vertical continuum (axis) bisecting the horizontal axis. This line represents how genuine, that is, how much we care about investigating it, the question is. As a group, discuss and place each question by moving the post note up or down on the vertical axis.

Purpose: What kind of thinking does this routine encourage?
To identify powerful questions that can guide inquiry and deepen our understanding, we need questions that are both generative (that take us somewhere) and genuine (that we care about). This routine helps students look at the questions they have generated, maybe through another routine such as Think-Puzzle-Explore or See-Think-Wonder, and identify which are most worth investigating.

Application: When and where can it be used?
When students questions will be the drivers of future inquiry, you may want to use this routine to make sure that their inquiry gets off to a good start. Inquiry, whether independent or teacher-led, depends on good questions. This routine helps students think about what makes a good question.

Launch? What are some tips for starting and using this routine?
You may want to talk about what makes a good question and elicit students' ideas. Then you can introduce the idea of generative and genuine questions as two criteria that can be helpful in making decisions about what questions are worth investing our time. However, these are by no means the only criteria for evaluating questions, just one tool. There won't necessarily be a set answer. It is students' discussion of the questions and their reasons behind their placements that is important. This routine sorts questions into 4 quadrants. The upper right section (quadrant 1) contains the questions best for inquiry: those that are both genuine and generative. Conversely, the bottom left (quadrant 3) contains those questions that should probably be discarded. The top left (quadrant 2) contains questions that can probably be assigned for students to quickly look up independently and report back on. The bottom right (quadrant 4) contains some good questions but ones students don't seem interested in at the moment.

POSING INQUIRY QUESTIONS

Successful researchers pose good inquiry questions. When you have to solve a difficult problem or want to investigate a complex idea, developing questions about things you need to know helps guide your research. But not all questions are helpful. Some lead to dead ends, while others can lead to lots of knowledge and understanding. The best questions lead to more questions!

GENERATING QUESTIONS

Generating questions is fun and starting with lots of questions helps you find the best ones. When brainstorming questions, consider many things about the topic you want to research:

- What is it?
- What are its important places, things, people, and experts?
- Where did it come from?
- What other things is it connected to?

SELECTING AND REFINING QUESTIONS

Once you have a list of possible questions, ask yourself:

Are you genuinely interested in answering your question?
Research requires hard work. If you don't care about your questions you won't do the work to answer them. The best questions are about things you actually want and need to know.

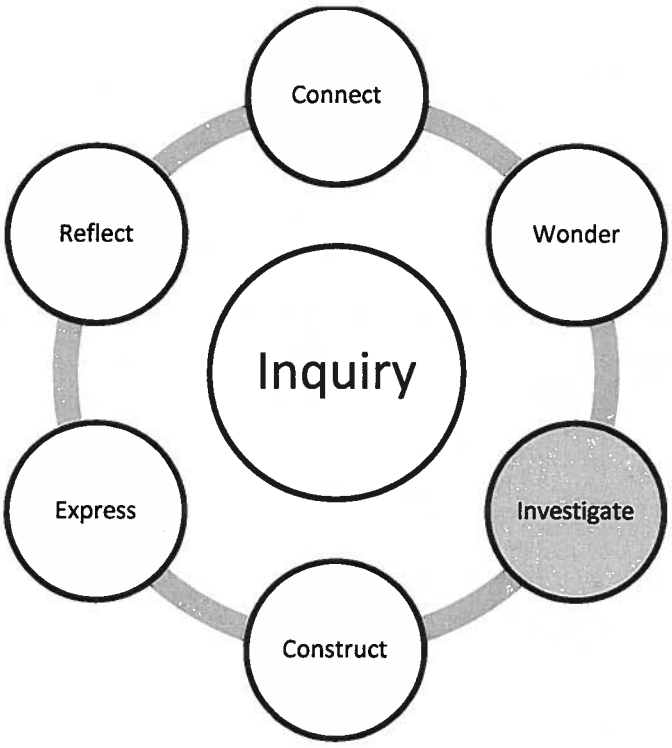
Can your question be answered through your research?
Some questions are unanswerable (How many walnuts are there in the world?) or take years to answer (What is the meaning of life?) Your questions must put you on path to learn something about your topic.

Is your question clear?
Do you and others understand what you are asking? If it's confusing, then perhaps you are asking more than one thing. That's great: just break it into two questions. The more good questions you have the better.

What sort of answers does your question require?
Interesting research comes from interesting questions. Good inquiry questions take lots of investigating that might even lead to lots of answers, and even more questions. Questions that can be answered with a simple YES or NO generally do not make good inquiry questions.

Do you already know what the answer is?
Good inquiry questions are actually questions! If you already know the answers to the questions, then you won't really be researching. Your questions should help you to become more expert at the things you want to know about.

Adapted from Posing Inquiry Questions, Odell Education,
http://www.ocmboces.org/tfiles/folder2316/Posing-Inquiry-Questions.pdf



Investigate

Gathering Information

- Plan investigation and develop search strategies to find relevant, high-quality information
- Identify evaluate and use multiple sources of information
- Find and evaluate information to answer questions.
- Paraphrase, summarize, interpret and evaluate information. Find and evaluate main ideas and supporting and conflicting evidence. Select information to keep or discard.
- Consider author's point of view.
- Take notes using a variety of formats
- Use information and technology responsibly
- Think about the information to formulate new question, hypotheses

Teacher / Librarian Relationship

Co-Teaching	Collaboration
Cooperation	Connection

ASSESSING SOURCES

ASSESSING A SOURCE TEXT'S CREDIBILITY

Look at the information you can find about the text in the areas below, and consider the following questions to assess a source text's credibility:

PUBLISHER	DATE	AUTHOR	TYPE
• What is the publisher's relationship to the topic area? • What economic stake might the publisher have in the topic area? • What political stake might the publisher have in the topic area?	• When was the text first published? • How current is the information on the topic? • How does the publishing date relate to the history of the topic?	• What are the author's qualifications/ credentials relative to the topic area? • What is the author's personal relationship to the topic area? • What economic/political stakes might the author have in the topic area?	• What type of text is it: explanation, informational article, feature, research study, op/ed, essay, argument, other? • What is the purpose of the text with respect to the topic area?

ASSESSING A SOURCE TEXT'S ACCESSIBILITY AND INTEREST LEVEL

Consider your initial experience in reading the text, how well you understand it, and whether it seems interesting to you:

ACCESSIBILITY TO YOU AS A READER	INTEREST AND MEANING FOR YOU AS A READER
• Am I able to read and comprehend the text easily? • How do the text's structure and formatting either help or hinder me in reading it? • Do I have adequate background knowledge to understand the terminology, information, and ideas in the text?	• Does the text present ideas or information that I find interesting? • Which of my Inquiry Paths will the text provide information for? • Which inquiry questions does the text help me answer? How?

ASSESSING A SOURCE TEXT'S RELEVANCE AND RICHNESS

Using your Research Frame as a reference, answer the following questions:

RELEVANCE TO TOPIC & PURPOSE	RELEVANCE TO AREA OF INVESTIGATION	SCOPE AND RICHNESS
• What information does the text provide on the topic? • How might the text help me accomplish the purpose for my research?	• How is the text related to the specific area I am investigating? • Which of my paths of inquiry might the text provide information for? • Which inquiry questions might the text help me address? How?	• How long is the text and what is the scope of the topic areas it addresses? • How rich and extensive is the information it provides? • How does the information in the text relate to other texts I have found?

Name_____ Class_____

Using a Website to Find Appropriate Information

Question:

What is the Website about?	**Clues:**	 **Is it easy to tell what the Website is about?**
Who is the author/creator of the Website?	**Clues:**	 **Is the author/creator of the website trustworthy?**
Is the content well-written on the Website?	**Clues:**	 **Is the Website easy to read and find the main ideas?**
Find three facts from the Website to answer your question.	1) 2) 3)	 **Is this fact helpful?**  **Is this fact helpful?**  **Is this fact helpful?**

Name_____ Class_____

Evaluation Tool Sheet

Resource:

Usefulness

Criteria	Yes/No	Evidence
Does the information in the resource answer my question(s)?		
Is the information current? When was the information written?		
Is the information provided fact or opinion?		

Relevance

Criteria	Yes/No	Evidence
Is the information from a primary source or secondary source?		
Is the information provided objective or only one side of an argument? Is there a particular point of view?		
Is the information related to your topic?		

Accuracy

Criteria	Yes/No	Evidence
Do you know who the author of the information is? Is it clear or hidden?		
Is the source of the information trustworthy?		
Does the resource provide a comprehensive overview or a sketchy one?		

Name_____ Class_____

Website Evaluation

Use the following criteria and questions to evaluate Websites for use in your research:

Criteria	Your Evaluation
Website • Title • Author or Publisher • Last Updated • URL	
Authority • What are the credentials of the author or publisher? • Is this a personal page or is it sponsored by an organization? • What is the point of view or perspective of the creator?	
Navigation • What navigation tools are embedded in the site (e.g., navigation bar, tabs, left or right channel, site map) and how easily is the site navigated? • What tools are offered to make the text easier to navigate (e.g., headings, bullets, graphics, highlighting)? • Are all embedded links active?	
Relevance • Does the Website address your topic and research questions? • Can you read and understand the text?	
Accuracy • Does the information appear to be accurate because it matches information found in other resources? Is it up-to-date? • Is the information mostly facts or opinion? • Is believable evidence provided to back up all statements?	
Comprehensiveness • Is the information complete and comprehensive? • Does the site present more than one perspective?	

Name_____ Class_____

FACT VS. OPINION

Directions: Understanding text often involves being able to tell the difference between fact and opinion. Often writers will mix fact and opinion, and it becomes the job of the reader to sort them out.

Facts are objective (i.e., the can be proven).

- *The White House is where the president lives.*

Opinions are subjective (i.e., they express a preference or bias).

- *I think all dogs are mean.*

	Text details & direct quotes from text	**Explain how you know the details are facts or opinions**
FACTS		
OPINIONS		

Name_____ Class_____

Using Multiple Sources

My Research Notes About:

_____

_____

Source Formats include: • **Print** • **Nonprint** • **Electronic** • **Human**	**Question 1**	**Question 2**	**Question 3**
Source 1 **Source format:**	**Notes**	**Notes**	**Notes**
Source 2 **Source format:**	**Notes**	**Notes**	**Notes**
Source 3 **Source format:**	**Notes**	**Notes**	**Notes**

Name _____ Date _____

Nonfiction Book

Title of the Book _____

Author _____

1. Is the author an expert on the subject? _____Yes _____No _____Unsure
2. On the back of the title page check for the following information:

   Copyright date _____

   Number of editions _____
3. Is the copyright date recent enough to include the newest facts on the topic?

   _____Yes _____No _____Unsure
4. Are there pictures and diagrams? _____Yes _____No

   If so, are they helpful? _____Yes _____No
5. Is the book convenient to use? Rate the following:

   Index: _____Excellent _____Fair _____Not helpful

   Table of Contents: _____Excellent _____Fair _____Not helpful

   Headings: _____Excellent _____Fair _____Not helpful

   Vocabulary in Italics: _____Excellent _____Fair _____Not helpful
6. Does the book cover the topic fully and is the information easy to understand?

   Why or why not? _____

   _____
7. What made you select this book as a resource? _____Cover _____Title ____Other
8. What overall rating would you give this resource?

   _____ Use with caution

   _____ Good basic information

   _____ Excellent for assignment

Name_____ Class_____

Paraphrasing Chart

Paraphrasing means to put some text that you've read or heard into your own words.

Start with **Notes** where you write down information from the text – main ideas, facts, supporting evidence. In **My Paraphrase** column, write 2-3 sentences in which you explain the main ideas in your own words. In the **My Thoughts** section, write what these ideas make you think about – what feelings, predictions, or conclusions can you draw?

NOTES FROM ORIGINAL SOURCE	MY PARAPHRASE
MY THOUGHTS	

Name_____ Class_____

Notetaking Grid

Topic:	Key Question:	Key Question:	Key Question:	Key Question:
Resource:				
Resource:				
Connect & React				

Adapted from: *Helping Students Write the Best Research Reports Ever* by Laase & Clemmons

Name_____ Class_____

Notetaking Grid

	Resource (Website)	Information	Vocabulary (Key Words)	Paraphrase
Key Question				
Key Question				
Key Question				

Research Status Chart

I've gathered some information	I've gathered lots of information	I've finished gathering information	I've started working on projects	I've finished several projects

From *The Research-Ready Classroom*, Mike Anderson and Andy Dousis, 2006

Research Status Survey

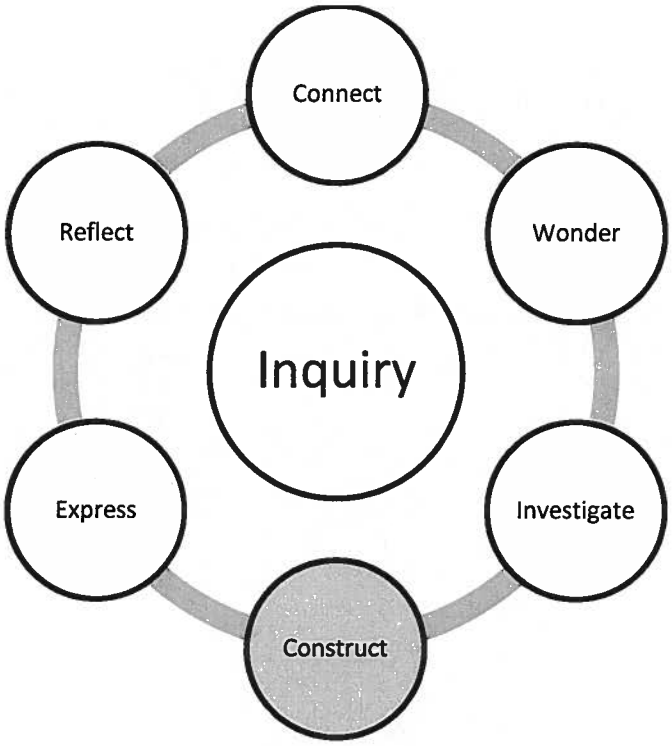
Topic_____

What is going well with your research right now?

What do you wish was going better?

What will you do next?

From *The Research-Ready Classroom*, Mike Anderson and Andy Dousis, 2006



Construct

Deepening Understanding and Finalizing Inquiry

- Organize information to detect relationships among ideas
- Draw inferences justified by the evidence
- Think about the information to test predictions and hypotheses
- Compare evidence and pattern in data
- Use evidence to construct reasonable explanations
- Recognize authors' points of view and consider alternative perspectives
- Construct clear and appropriate conclusions based on evidence
- Connect new understandings to previous knowledge

I USED TO THINK..., BUT NOW I THINK...

A routine for reflecting on how and why our thinking has changed

Remind students of the topic you want them to consider. It could be the ideal itself—fairness, truth, understanding, or creativity—or it could be the unit you are studying. Have students write a response using each of the sentence stems:

- I used to think....
- But now, I think...

Purpose: What kind of thinking does this routine encourage?

This routine helps students to reflect on their thinking about a topic or issue and explore how and why that thinking has changed. It can be useful in consolidating new learning as students identify their new understandings, opinions, and beliefs. By examining and explaining how and why their thinking has changed, students are developing their reasoning abilities and recognizing cause and effect relationships.

Application: When and where can it be used?

This routine can be used whenever students' initial thoughts, opinions, or beliefs are likely to have changed as a result of instruction or experience. For instance, after reading new information, watching a film, listening to a speaker, experiencing something new, having a class discussion, at the end of a unit of study, and so on.

Launch: What are some tips for starting and using this routine?

Explain to students that the purpose of this activity is to help them reflect on their thinking about the topic and to identify how their ideas have changed over time. For instance:

When we began this study of _____, you all had some initial ideas about it and what it was all about. In just a few sentences, I want to write what it is that you used to think about _____. Take a minute to think back and then write down your response to " I used to think..."

Now, I want you to think about how your ideas about _____ have changed as a result of what we've been studying/doing/discussing. Again in just a few sentences write down what you now think about _____. Start your sentences with, "But now, I think..."

Have students share and explain their shifts in thinking. Initially it is good to do this as a whole group so that you can probe students' thinking and push them to explain. Once students become accustomed to explaining their thinking, students can share with one another in small groups or pairs.

CONNECT / EXTEND / CHALLENGE

A routine for connecting new ideas to prior knowledge

CONNECT:	How are the ideas and information presented CONNECTED to what you already knew?
EXTEND:	What new ideas did you get that EXTENDED or pushed your thinking in new directions?
CHALLENGE:	What is still CHALLENGING or confusing for you to get your mind around? What questions, wonderings or puzzles do you now have?

Purpose: What kind of thinking does this routine encourage?

The routine helps students make connections between new ideas and prior knowledge. It also encourages them to take stock of ongoing questions, puzzles and difficulties as they reflect on what they are learning.

Application: When and where can it be used?

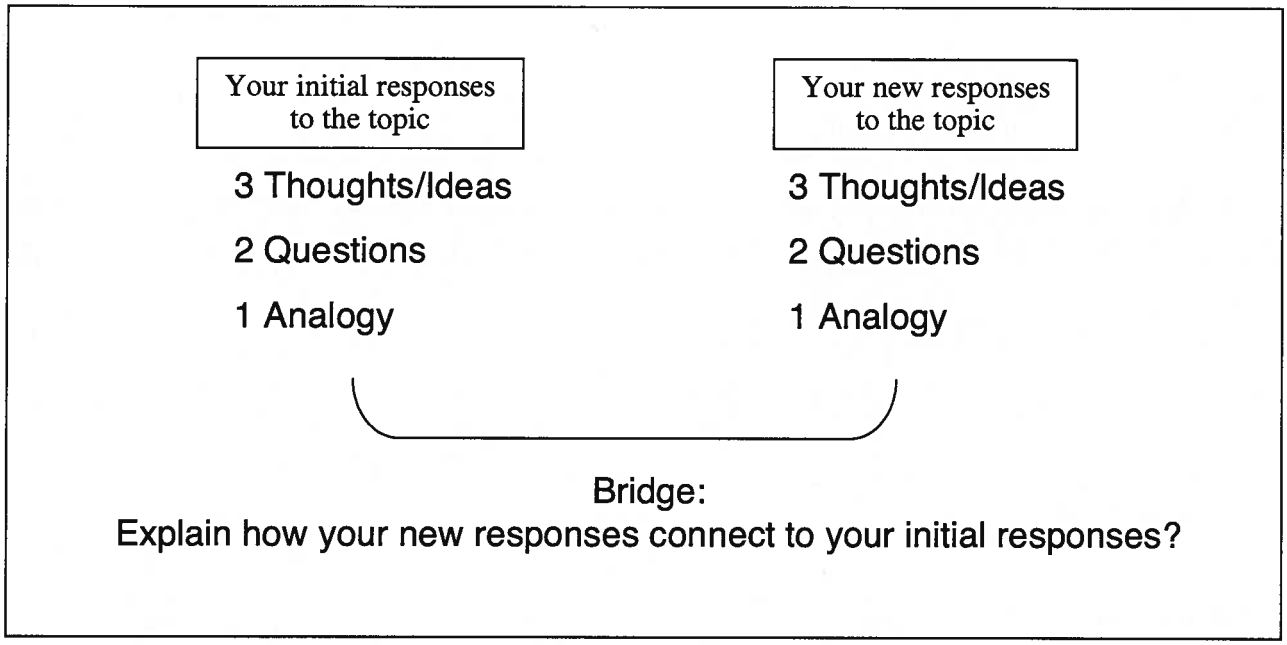
The natural place to use the Connect-Extend-Challenge routine is after students have learned something new. It doesn't matter how *much* they have learned – it can be a lesson's worth, or a unit's worth. The routine is broadly applicable: Use it after students have explored a work of art, or anything else in the curriculum. Try it as a reflection during a lesson, after a longer project, or when completing a unit of study. Try using it after another routine!

Launch: What are some tips for starting and using this routine?

This routine works well with the whole class, in small groups or individually. Keep a visible record of students' ideas. If you are working in a group, ask students to share some of their thoughts and collect a list of ideas in each of the three categories Or have students write their individual responses on post-it notes and add them to a class chart. Keep students' visible thinking alive over time: Continually add new ideas to the lists and revisit the ideas and quetions on the chart as students' understanding around a topic develops.

3-2-1 BRIDGE

A routine for activating prior knowledge and making connections



Purpose: What kind of thinking does this routine encourage?
This routine asks students to uncover their initial thoughts, ideas, questions and understandings about a topic and then to connect these to new thinking about the topic after they have received some instruction.

Application: When and where can it be used?
This routine can be used when students are developing understanding of a concept over time. It may be a concept that they know a lot about in one context but instruction will focus their learning in a new direction, or it may be a concept about which students have only informal knowledge. Whenever new information is gained, bridges can be built between new ideas and prior understanding. The focus is on understanding and connecting one's thinking, rather than pushing it toward a specific outcome.

Launch: What are some tips for starting and using this routine?
This routine can be introduced by having students do an initial 3, 2, 1 individually on paper. For instance, if the topic is "democracy," then students would write down 3 thoughts, 2 questions, and 1 analogy. Students might then read an article, watch a video, or engage in an activity having to do with democracy. Provocative experiences that push students thinking in new directions are best. After the experience, students complete another 3,2,1. Students then share their initial and new thinking, explaining to their partners how and why their thinking shifted. Make it clear to students that their initial thinking is not right or wrong, it is just a starting point. New experiences take our thinking in new directions.

CLAIM / SUPPORT / QUESTION

A reasoning routine

1. Make a **claim** about the topic	→	**Claim:** An explanation or interpretation of some aspect of the topic.
2. Identify **support** for your claim	→	**Support:** Things you see, feel, and know that support your claim.
3. Ask a **question** related to your claim	→	**Question:** What's left hanging? What isn't explained? What new reasons does your claim raise?

Purpose: What kind of thinking does this routine encourage?

The routine helps students develop thoughtful interpretations by encouraging them to reason with evidence. Students learn to identify truth claims and explore strategies for uncovering truth.

Application: When and where can I use it?

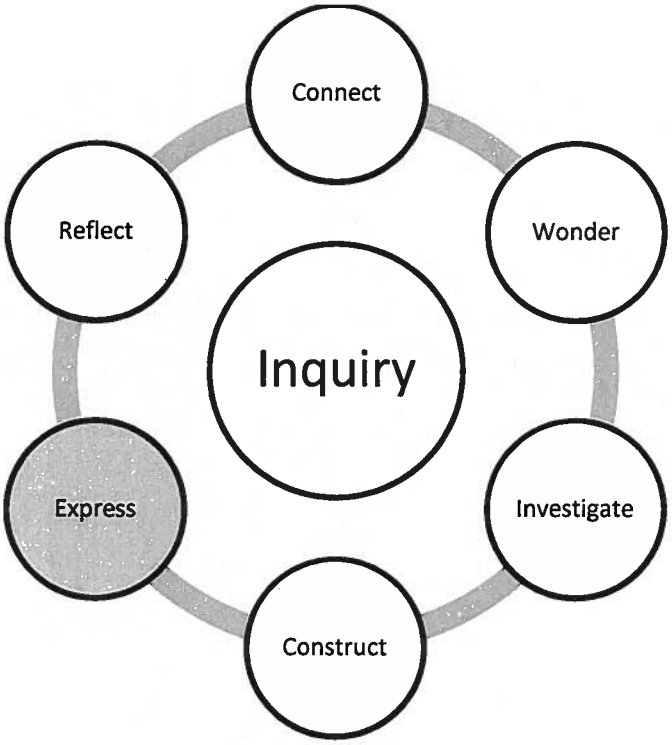
Use *Claim Support Question* with topics in the curriculum that invite explanation or are open to interpretation.

Launch: What are some tips for starting and using this routine?

The routine can work well for individuals, in small groups and for whole group discussions. Begin by modeling the routine: Identify a claim and explore support and questions in a whole group discussion. On the board make one column for SUPPORT and one column for QUESTIONS. Ask the class for evidence that either supports a claim, or questions the claim and write it in the appropriate column. Take turns using the routine so that each student makes a claim, identifies support and asks a question.

Following each person's report, take a moment as a group to discuss the topic in relation to the claim before moving on to the next person. Be patient as students take a few moments to think. You may need to probe further by asking: What are some other questions you might want to ask about this statement? or Can you think of reasons why this may be true? Encourage friendly disagreement – once a student comes up with an alternative perspective about a claim, encourage other students to follow. The questions can challenge the plausibility of the claim, and often lead to a deeper understanding of the reasoning process. Let students know it is fine to disagree with one another's reasons and encourage them to come up with creative suggestions for support and questioning.

After everyone has had a turn, reflect on the activity. What new thoughts do students have about the topic?



Express

Developing and Communicating Evidence-Based Perspectives

- Apply new understandings to new context and new situation – create product to demonstrate new understanding
- Select format based on needs of topic and audience
- Communicate clearly both main and supporting points in product
- Use the writing process to develop product
- Evaluate and revise product based on self-assessment and feedback from others
- Express new ideas or take action to share learning with others

Fifty (or so) Ways to Leave Your . . .
Term Paper or Book Report and Tell Your Story

Although we believe that students need to develop the skills to prepare a thoughtful, well-written research paper, or a formal response to literature, our students have so many other product and publishing options. They can acquire subject knowledge, practice critical thinking and develop transferable information fluency and technology skills through a variety of creative activities.

Consider some of these alternative project options. As you select options, you should consider the importance of student choice and authentic audience. Student work is far more engaging when choice is involved. Student work is most meaningful when it has real purpose and real audience.

1. Infographic
2. Annotated bibliography
3. Curation pages/Pathfinders
4. Newsletter
5. Debate
6. Ignite Talk
7. Pinterest Board
8. Interactive Visual
9. Brochure
10. Résumé
11. Family tree
12. Press conference
13. Trip itinerary
14. Journal entries
15. Blog
16. Chapter of historical novel
17. Critical review
18. Mock trial
19. Acceptance speech
20. Awards event
21. Board game
22. Web page
23. Visit by a person in history to the school
24. A day in the life of plant/machine/disease/person
25. Dinner party
26. Historic experience simulation
27. Skit
28. Online threaded discussion
29. Film treatment
30. Design the movie poster
31. Movie trailer
32. News article
33. Dear Abby letter
34. Letter, email or text stream between people
35. Letter/email to a government official
36. Plan a program
37. Twitter
38. Facebook
39. Manual
40. Write as president, general, inventor, senator
41. Short story
42. What if?
43. CD or album cover with inside background pages
44. Petition
45. "Survivor" television show
46. Epitaph and obituary or eulogy
47. Recipe
48. Photograph album or scrapbook
49. Political cartoon
50. Report card
51. Change it up
52. Lesson plan and lesson
53. Original song, song parody, rap
54. Oversized baseball card or wanted poster
55. Alternate book jacket with blurb
56. Advertising campaign
57. Postage stamp for a person or event in history
58. Picture book or comic book
59. Phone message, telegram, series of texts
60. Crossword puzzle or word search
61. "This Is Your Life" television show
62. Invent a new country
63. Monologue
64. Want ad
65. Timeline
66. Soap opera based on a historical event
67. Invent a new animal
68. Survey
69. What about that traditional paper?
70. Digital storytelling
71. Fundraising

Excerpted from: Valenza, Joyce Kasman, "Fifty or so ways to leave Your...Term Paper or Book Reprot and Tell Your Story", Crowd-Sourced Version, https://docs.google.com/document/d/1aXK6sq1phs4LBMM-i4_dECKPC5_2yBCJzvqMpzgU8vM/edit?pli=1, accessed October 17, 2013.

FORMING EVIDENCE-BASED CLAIMS

Inquiry Question: I use my inquiry question to guide my reading and focus my attention on details for answering it.

SEARCHING FOR DETAILS

As I read, I notice authors use a lot of details and strategies to develop their points and arguments. Below are examples of types of details authors often use in important ways.

SELECTING DETAILS

I select words or phrases from my search that I think are the most important for answering my question. I write the reference next to each detail.

Author's Facts and Ideas
- Statistics
- Examples
- Vivid description
- Characters/actors
- Events

Author's Words and Organization
- Repeated words
- Strong language
- Figurative language
- Tone
- Organizational structure/phrases

Opinions and Point of View
- Interpretations
- Explanation of ideas or events
- Narration
- Personal reflection
- Beliefs

ANALYZING AND CONNECTING DETAILS

I re-read parts of the texts and think about the meaning of the details and what they tell me about my question. Then I compare the details and explain the connections I see among them.

By reading closely and thinking about the details, I can make connections among them. Below are some ways details can be connected.

Facts and Ideas
- Authors use hard facts to illustrate or define an idea.
- Authors use examples to express a belief or point of view.
- Authors use vivid description to compare or oppose different ideas.
- Authors describe different actors or characters to illustrate a comparison or contrast.
- Authors use a sequence of events to arrive at a conclusion.

Words and Organization
- Authors repeat specific words or structures to emphasize meaning or tone.
- Authors use language or tone to establish a mood.
- Authors use figurative language to infer emotion or embellish meaning.
- Authors use a specific organization to enhance a point or add meaning.

Opinions and Point of View
- Authors compare or contrast evidence to help define their point of view.
- Authors offer their explanation of ideas or events to support their beliefs.
- Authors tell their own story to develop their point of view.
- Authors use language to reveal an opinion or feeling about a topic.

MAKING A CLAIM

I state a conclusion I have come to and can support with evidence from the texts after reading them closely.

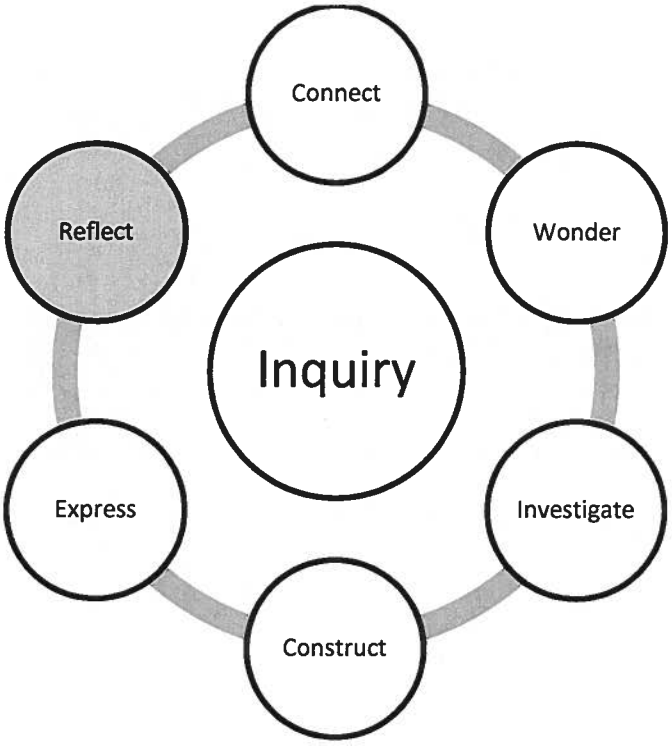
As I analyze and connect the details, I can answer my inquiry question based on evidence from the texts.

CONNECTING IDEAS

USING TRANSITIONAL WORDS AND PHRASES

Transitional words and phrases create links between your ideas when you are speaking and writing. They help your audience understand the logic of your thoughts. When using transitional words, make sure that it is the right match for what you want to express. And remember, transition words work best when they are connecting two or more strong ideas that are clearly stated. Here is a list of transitional words and phrases that you can use for different purposes:

ADD RELATED INFORMATION	GIVE AN EXAMPLE OR ILLUSTRATE AN IDEA	MAKE SURE YOUR THINKING IS CLEARLY UNDERSTOOD	COMPARE IDEAS OR SHOW HOW IDEAS ARE SIMILAR	CONTRAST IDEAS OR SHOW HOW THEY ARE DIFFERENT
• furthermore • moreover • too • also • again • in addition • next • further • finally • and, or, nor	• to illustrate • to demonstrate • specifically • for instance • as an illustration • for example	• that is to say • in other words • to explain • i.e., (that is) • to clarify • to rephrase it • to put it another way	• in the same way • by the same token • similarly • in like manner • likewise • in similar fashion	• nevertheless • but • however • otherwise • on the contrary • in contrast • on the other hand
EXPLAIN HOW ONE THING CAUSES ANOTHER	**EXPLAIN THE EFFECT OR RESULT OF SOMETHING**	**EXPLAIN YOUR PURPOSE**	**LIST RELATED INFORMATION**	**QUALIFY SOMETHING**
• because • since • on account of • for that reason	• therefore • consequently • accordingly • thus • hence • as a result	• in order that • so that • to that end, to this end • for this purpose • for this reason	• First, second, third… • First, then, also, finally	• almost • nearly • probably • never • always • frequently • perhaps • maybe • although



Reflect

- Set high and clear standards for own work
- Reflect with others
- Use criteria to assess own process and product throughout the learning. Make revisions when necessary
- Reflect on won learning to be clear about the change in understanding
- Ask new questions, set new goals for learning

Inquiry Approach versus Coverage Approach

INQUIRY Approach	COVERAGE Approach
• Student voice and choice	• Teacher selection and direction
• Questions and concepts	• Assigned topics and isolated facts
• Collaborative work	• Solitary work
• Strategic thinking	• Memorization
• Authentic investigations	• As if/surrogate learning
• Student responsibility	• Student compliance
• Student as knowledge creator	• Student as information receiver
• Interaction and talk	• Quiet and listening
• Teacher as model and coach	• Teacher as expert and presenter
• Cross-disciplinary studies	• One subject at a time
• Multiple resources	• Reliance on a textbook
• Multimodal learning	• Verbal sources only
• Engaging in a discipline	• Hearing about a discipline
• Real purpose and audience	• Extrinsic motivators
• Caring and taking action	• Forgetting and moving to next unit
• Performance and self-assessments	• Filling bubbles and blanks

From *Comprehension and Collaboration* by Stephanie Harvey and Harvey Daneils, 2009