

Using the Showing Evidence Tool to Target Thinking Skills

Activities

Activity 1: Looking at Showing Evidence in Action 9.01

- Discuss:** Argumentation in the classroom
- Review:** Components of an argument
- Discuss:** Your *Showing Evidence* case

Activity 2: Digging Deeper into Argumentation 9.06

- Discuss:** Uses and expectations for argumentation in your classroom
- Analyze:** A unit that uses *Showing Evidence*
- Discuss:** Rating rubrics, evidence, claims, and making conclusions
- Review:** Benefits of the *Showing Evidence Tool*

Activity 3: Viewing Project Ideas 9.20

- Review:** Thinking skills supported by the *Showing Evidence Tool*
- View:** Sample projects
- Brainstorm:** Project ideas that could incorporate *Showing Evidence*

Activity 4: Clarifying Project Ideas for Using Showing Evidence 9.27

- Review:** The needs of your unit
- View:** Sample project descriptions
- Consider:** Implementation models for the *Showing Evidence Tool*

Activity 5: Sharing Your Ideas 9.32

- Discuss:** Your ideas for using *Showing Evidence* in your classroom

Activity 6: Planning Your Project 9.33

- Create:** A project description and prompt
- Set Up:** A *Showing Evidence* project online

Extension Activity: Understanding Best Practices with Showing Evidence 9.41

- View:** Strategies and project ideas for using the *Showing Evidence Tool*

References 9.42

Module Summary 9.43

MODULE 9

Using the Showing Evidence Tool to Target Thinking Skills

Description: During this module, you learn more about argumentation and the communication, thinking, and collaboration skills that are associated with that process. You also discuss the benefits of the *Showing Evidence Tool*, view project ideas, and brainstorm ways to integrate the *Showing Evidence Tool* into your Unit.

Activity 1: Looking at Showing Evidence in Action

Step 1: Considering Argumentation in the Classroom

Argumentation is essential to human thinking and discourse. People construct and evaluate arguments every day in school, work, and informal settings to resolve issues as simple as what brand of soda to buy to as complex as whether stem cell research should be legalized. The ability to evaluate and construct arguments is particularly important in today's society where individuals are constantly confronted with new information. Argumentation is about making claims and providing justification for those claims. Justification means that people can question why they should believe an assertion or claim. A claim should not just be an individual's opinion, but should be justifiable if another individual challenges it.

The Importance of Including Argumentation in the Classroom

Argumentation:

- **Prepares students for real-world problems.** Argumentation is a significant part of higher-order thinking and reasoning (Kuhn, 1992), and is used across different content areas and professions (Reznitskaya & Anderson, 2002). Arguments are an important part of everyday life, and therefore, learning to construct and evaluate arguments is critical.

Using the Showing Evidence Tool to Target Thinking Skills

- **Helps students develop higher-order thinking skills.** Engaging in argumentation in the classroom helps students take critical stances when confronted with arguments. Classroom argumentation also helps students learn how to evaluate the quality of what they read or hear (Reznitskaya & Anderson, 2002). If students receive explicit instruction and support in creating arguments, they are more likely to support their claims with the appropriate evidence and reasoning (McNeill, Lizotte, Krajcik, & Marx, 2004).
- **Increases students' content knowledge.** Creating strong arguments requires an understanding of argumentation as well as a solid understanding of the appropriate content knowledge. By engaging in argumentation, students can increase their content knowledge (Driver, Newton, & Osborne, 2000). Students need to think deeply about the content and construct their own understanding of the content as they construct their arguments.
- **Encourages thoughtful student discussions.** Including argumentation in the classroom can result in an environment where students question each other's claims and ask for appropriate evidence, warrants, and backing (Jiménez-Aleixandre, Rodríguez & Duschl, 2000). Students actively engage and debate important ideas.

Step 2: Taking a Look at the Format of an Argument

One of the most common formats for an argument was developed by Stephen Toulmin in 1958. His argumentation structure contains six components:

- Claim
- Data
- Warrant
- Backing
- Qualifier
- Rebuttal

The *Showing Evidence Tool* uses a modified version of Toulmin's argumentation model. The basic structure is similar, although the terms have been changed to make them more accessible to students:

- Make a claim (Toulmin's claim)
- Provide evidence (Toulmin's data)
- Evaluate the quality of evidence (Toulmin's qualifier)
- Make explicit links between the claim and evidence (Toulmin's warrant)
- Provide reasoning for why the evidence supports the claim (Toulmin's backing)
- Consider counterarguments

Using the Showing Evidence Tool to Target Thinking Skills



Note: Additional information on Toulmin and his argumentation model is available starting in the *Thinking Tools, Showing Evidence Tool* folder on the Curriculum Resource CD. You may also want to review the resources on argumentation available at:



www.intel.com/education/designprojects

Click **Thinking Skills**, click **Higher-Order Thinking Skills**, click **Analysis**, and then click **Argumentation** in the call-out box.

Showing Evidence Evidence also adds the idea of counterargument—students consider the evidence against their claim as well as the evidence for their claim.

In the table below, the elements of an argument are defined, along with examples from an argument about whether genetically engineered food should be banned in the United States.

Note: Because this table is provided to give examples of the components of an argument, only one example for supporting and opposing evidence is listed. However, an argument would normally include multiple pieces of evidence.

Component	Definition	Example
Claim	The conclusion or assertion that a student is attempting to prove.	Genetically modified foods should not be banned.
Evidence	Facts or data that are used to support the claim.	Crops can be genetically engineered to produce a pesticide.
Quality of Evidence	Confidence in the evidence: Do you trust the source? Do multiple sources agree?	<i>High quality</i> —Many sources discuss this. Numerous crops, such as potatoes, cotton, and corn, have been modified with a Bt gene that controls production of a toxic protein.
Linking Claim and Evidence	A connection between the claim and evidence.	If a crop produces a pesticide that is harmful only to pests, this is a very strong reason to allow genetically engineered food.
Reasoning	The general principle or idea that allows you to make the connection between the claim and the evidence.	A pesticide is a chemical substance used to kill pests, like insects. By genetically engineering crops to produce insecticides, fewer crops will be lost to insects, which will produce more food.
Counterargument	Consideration of evidence (counterevidence) and reasoning that goes against the claim.	Genetically engineering crops that include pesticides can kill other “non-target” insects, such as monarch butterflies.

Using the Showing Evidence Tool to Target Thinking Skills

Showing Evidence requires students to specifically link their claims and evidence. This helps students consider the relevance and the importance of their evidence. Besides connecting their evidence, students need to provide reasoning to explain why the evidence supports their claim. The reasoning should include general ideas or principles that allow students to make that connection. In the preceding example, students talk about pesticides and why pesticides might be an important consideration in whether genetically engineered food should be banned.

Different thinking skills are required depending on whether students make a claim and then gather evidence, or they gather evidence first, and then determine their claim. Both approaches are valid and require students to evaluate evidence when making a conclusion about a claim.

Step 3: Looking Closely at Your Showing Evidence Case

Using *Showing Evidence* in Module 4, you were able to make a claim, identify evidence, weigh the evidence, link the evidence to the claim by identifying its support or opposition of the claim, and then make a conclusion based on the evidence. Review your *Showing Evidence* case again, focusing on the elements of an argument. Consider the following questions as you discuss your initial experience with the *Showing Evidence Tool*.

Review these questions on your own, and then be prepared to have a whole group discussion about your initial experience with *Showing Evidence*.

1. Making a Claim

- How does the argumentation process change if you start with evidence first, rather than making a claim based in part on prior knowledge and then looking for evidence to support it?
- If, during your collection of evidence, you found that your claim could not be supported, would you consider changing your claim? Or would you make a new one? Or would you stay with the current claim and use the evidence to show the claim cannot be supported?

2. Gathering Evidence

- In this first use of the tool, the evidence bin was pre-populated with teacher-created evidence. In what ways was that helpful? How might it also hinder your investigation?
- Did you gather your own evidence? If so, how did you select or find the evidence? What were you looking for in your choice of evidence?

Using the Showing Evidence Tool to Target Thinking Skills

3. Evaluating the Evidence

- Did you have discussions about the validity, reliability, or relevance of the evidence?
- What kinds of evidence would you consider credible or reliable?

4. Linking Evidence to the Claim

- Did all the evidence weigh equally in support or opposition of the claim?
- Did you have questions about any of the evidence as to whether the evidence truly supported or opposed the claim?
- Could any of the evidence be used to both support and oppose the claim, depending on how the evidence was used?
- Did you have questions about any of the evidence belonging in the argument?

5. Considering Counterarguments

- Why is it important to include both supporting and opposing pieces of evidence in an argument?
- What discussions did you have as you considered the opposing evidence?
- Did the opposing evidence weigh equally with the supporting evidence?

6. Making a Conclusion

- What did you consider as you discussed whether the claim could be supported by the available evidence?
- Did you discuss whether the claim should be rewritten? Would it help clarify the issue if sub-claims could be explored?
- The claim itself doesn't answer the question of the case or argument; the conclusion does. What did you conclude about the claim?

Overall

- What information would you have liked to know prior to starting your work?
- In what ways did the *Showing Evidence Tool* help you to refine and evaluate your ideas?

Using the Showing Evidence Tool to Target Thinking Skills

Activity 2: Digging Deeper into Argumentation

Step 1: Thinking about Your Classroom

Think of the many ways that argumentation is required in your classroom.

- When do your students engage in argumentation?
- At what points do students have problems in creating and supporting a clear argument?

Step 2: Setting Up Expectations for an Argument

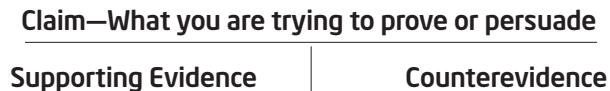
Research suggests many benefits for including argumentation in the classroom but also shows that students have difficulty constructing arguments. When students in grades 5–12 have been asked to construct arguments without specific instruction in this area, they typically generate weak arguments (Means & Voss, 1996). Even with instruction, students have difficulty providing certain components of arguments, such as describing their reasoning for why their evidence supports their claim (McNeill et al., 2004). Students need instructional support as they construct arguments. Consider how you can use the *Showing Evidence Tool* as a scaffold for students, as well as the strategies you would need to use in class to help students create high-quality arguments.

Using the Showing Evidence Tool to Target Thinking Skills

Understanding the Parts of an Argument

Discussing the components of an argument at its most basic levels is critical before using the *Showing Evidence Tool*, particularly with younger students. The simplest argument consists of only a claim and evidence.

- **Claim**—The conclusion or assertion that a person is attempting to prove.
- **Evidence** —The facts or data used to either support or oppose the claim. This is also known as proof, data, arguments, observations, or grounds. The support of a claim can come in the form of facts and statistics, expert opinions, examples, explanations, logical reasoning, witness testimony, documentation, and so forth.



When an argument is more complicated, particularly when multiple claims could be supported, the following components become essential to evaluating and justifying the claim:

- **Quality of the evidence**
 - Is the source reliable and credible?
 - Is the author of the source just someone with a Web site or is the author an expert in the field? Is the associated organization well respected and considered trustworthy?
 - Does the source have a built-in bias? If so, does it compromise the quality of the evidence?
 - Is it a primary or secondary source?
 - Other source quality evaluation criteria:
 - How accurate is the evidence?
 - How old is the evidence? Does age of the content matter for this topic?
 - Is the evidence verifiable?
 - Is the data presented appropriately and accurately? Is it misrepresented or taken out of context?
 - Is the data or content provided as evidence of a fact, an interpretation of a fact, or someone's opinion?

Using the Showing Evidence Tool to Target Thinking Skills

- If the evidence is student-created (experiments, mathematical proofs, their own data gathering, and so forth), what steps were taken to ensure that the evidence is accurate?
- Other accuracy evaluation criteria: _____



Note: View examples of argumentation errors and misuse of evidence in Evaluating Arguments in the *Thinking Tools, Showing Evidence Tool* folder on the Curriculum Resource CD.

- **Strength of the evidence to support or oppose the claim**
 - Were all important counter-arguments explored and included?
 - Is the evidence central to the argument?
 - Does the evidence go to the heart of the claim?
 - If this piece of evidence were taken away, would your argument fall apart?
 - Does the evidence provide only superficial or minor support?
 - Other strength criteria: _____

- **Reasoning for why the evidence supports or opposes the claim**
 - What general principle or idea allows the connection of the evidence to the claim?
 - How does this particular piece of evidence support or oppose the claim?
 - Other reasoning criteria: _____

Using the Showing Evidence Tool to Target Thinking Skills

Step 3: Reviewing a Sample Case

In this step, you open a sample student case for *The Case of the Mysterious Malady* unit designed for high school students. For context, review the Unit Summary and Curriculum-Framing Questions below. Then, with a partner, open the sample student case and review the team's exploration of the case prompt, *What is the cause and source of Sally's illness?* Consider the elements of an argument on the previous pages as you review this argument case.

Unit Summary

Students act as consulting investigators for the Environmental Protection Agency (EPA) to evaluate the illnesses of a family in the area. They receive memos with clues that guide them through their team's research of a potential toxin. Students use previous experience with gas laws and apply their knowledge to determine the source of the illness. Students evaluate four different claims and find research that either strengthens or weakens each claim. They use the *Showing Evidence Tool* to organize their evidence and come to a conclusion as to what is causing the illnesses. Students' research and persuasive skills are put to the test as teams argue their conclusions in a mock trial.

Curriculum-Framing Questions

Essential Question

How do we decide which scientific claims to believe?

Unit Questions

How does one gather and process scientific data to support a claim?

How can we apply gas laws to help us solve a problem?

Why might symptoms not provide enough information when we are trying to diagnose an illness?

Content Questions

What is a toxin?

How does the random motion of molecules explain diffusion of gases such as carbon monoxide, chlorofluorocarbons, and radon?

How does the Ideal Gas Law apply to the diffusion of toxic gas indoors?

Using the Showing Evidence Tool to Target Thinking Skills



1. Open *Showing Evidence* from your Favorites.
(www.intel.com/education/showingevidence)

2. Click **Project Examples**.

3. Click **Unit Plans**.

4. Click the Unit Plan title, **Mysterious Malady**.



5. Scroll down to view the live version of the *Showing Evidence* case. With your partner, explore some of the evidence, explanations, ratings, and comments by double-clicking the elements in the case.






6. What questions would you ask this team about its ratings and explanations?

7. What kinds of questions could the teacher ask, either verbally or as comments in the tool, to help students reflect more deeply on their thinking in general?

8. Review the Curriculum-Framing Questions at the top of the Unit Plan (or on page 9.09). How does the Showing Evidence Tool help students find answers to the Unit Questions and help them begin to understand the Essential Question?

Using the Showing Evidence Tool to Target Thinking Skills

Evaluation of Evidence Quality

					
Quality of Evidence	<p>Facts, numerical data:</p> <ul style="list-style-type: none"> Source is a government or educational Web site or a publication known for its expertise (for example, EPA). Information is current. Information is from the original source. Information is complete and extensive. <p>Subjective opinion/policy information:</p> <ul style="list-style-type: none"> Information is clearly objective and unbiased. Information is accurate and verifiable. 	<p>Facts, numerical data:</p> <ul style="list-style-type: none"> Source is a popular magazine, news article, or a reputable, educational Web site. Information is current. Original source is stated. Information is complete and thorough. <p>Subjective opinion/policy information:</p> <ul style="list-style-type: none"> Information is objective and unbiased. Information is accurate and verifiable. 	<p>Facts, numerical data:</p> <ul style="list-style-type: none"> Source is a popular magazine, news article, or a reputable, educational Web site. Some information is outdated. Original source is stated. Information appears complete. <p>Subjective opinion/policy information:</p> <ul style="list-style-type: none"> While the source may have bias, the information doesn't appear to be distorted. Information appears to be accurate. 	<p>Facts, numerical data:</p> <ul style="list-style-type: none"> Source is a Web site that appears to be reputable, but their data does not include references to its original source. Information is undated or outdated. Some information may be missing or out of context. <p>Subjective opinion/policy information:</p> <ul style="list-style-type: none"> Information appears to be slanted to support a biased viewpoint. Some information is not accurate and may conflict with information found in more reputable sources. 	<p>Facts, numerical data, or subjective opinion/policy information:</p> <ul style="list-style-type: none"> Source is a personal Web site with no author stated or author is clearly not an expert in the subject matter. Source is a tabloid newspaper or other non-reputable publication. Information is clearly slanted to support the source's biased viewpoint. Information is not accurate and conflicts with information found in more reputable sources. Content is purely someone's personal opinion.

Module 9

Using the Showing Evidence Tool to Target Thinking Skills

The use and inclusion of counter-arguments is very important in an argument. You should not leave out significant evidence that opposes your claim. Students need to understand the importance of including evidence that opposes the claim in order to truly evaluate the claim.

Evaluation of the Evidence Strength

Strength of Evidence in Support of Claim	Critical Support If the evidence is true, it makes a very strong case for the claim.	Important Support A small amount of room for interpretation or other variable is possible, but basically the evidence is strong in its support of the claim.	Helps Build a Case for the Claim Other pieces of evidence are included that are more critical to the case, so this evidence is not terribly important, but it does help to build the case.	Superficial Support The evidence seems to support the claim, but significant uncertainties exist as to whether that support really proves the claim is true.	Insignificant Support The evidence has little effect on the determination of whether the claim is true or valid.
Strength of Evidence in Opposition of Claim	Critical Opposition If the evidence is true, it makes a very strong case against the claim.	Important Opposition A small amount of room for interpretation or other variable is possible, but basically the evidence is strong in its opposition of the claim.	Helps Build a Case Against the Claim Other pieces of evidence are included that come into play, so this evidence is not terribly important, but it does help to build the case against the claim.	Superficial Opposition The evidence seems to weaken the claim, but significant uncertainties exist as to whether that opposition really proves the claim is false.	Insignificant Opposition The evidence has little effect on the determination of whether the claim is untrue or invalid.



The rubric is available for your own use in the *Thinking Tools, Showing Evidence Tool* folder on the Curriculum Resource CD.

Using the Showing Evidence Tool to Target Thinking Skills

Step 5: Determining Acceptable Evidence

Different subject areas may require different types of evidence. For example:

- A literature course may require quotations from text as evidence.
- A science course may accept experiment results and research from scientific journals.
- A history course may accept primary sources, certain academic Web sites, and a list of approved books.
- A project about a social issue may permit survey results, interviews, approved Web sites, and certain books.
- The audience is an important factor to consider when determining the “best” evidence to use in an argument. For instance, what is important to a teenager may be different from what is important to a politician. How will you incorporate the idea of considering the intended audience when making an argument?

When determining acceptable types of evidence for students to use, consider the following questions:

- Should students consider all evidence—even poor evidence—or will there be a minimum threshold for quality?
- What is the highest or most desirable source for evidence?
- Do you expect direct quotes or summaries of the evidence?
- How do you want the source cited?
- Are you requiring a minimum number of supporting and/or opposing pieces of evidence?
- Considering your subject area, what kinds of evidence or sources would you accept in a research project or debate?

Using the Showing Evidence Tool to Target Thinking Skills

Step 6: Evaluating the Claim

As evidence becomes attached to a claim, the pro and con arguments begin to stack up. This provides a visual indication as to whether the scales are tipping one way or another for a supported claim or an unsupported claim. Both the *Support* and the *Quality* ratings must be taken into consideration when weighing the evidence. Consider some of the discussions you might want to have with your class:

- If a poor-quality piece of evidence strongly supports a claim, should the evidence be disregarded?
- What if a claim has a lot of mediocre evidence? How is quantity weighed in comparison to quality?
- What happens when a jury has to make a decision about whether someone is guilty or innocent? What do they consider? How can that process be related to the evaluation of a claim?

What other discussions would you want to have with your class?

The rubric on the following page is a starting point for discussion in determining the overall rating of a claim. What would you change or add to this rubric to help your students evaluate and rate the claim after evidence has been collected and considered?

Using the Showing Evidence Tool to Target Thinking Skills

Evaluation of Claim

★★★★★	★★★★☆	★★★☆☆	★★☆☆☆	★☆☆☆☆
<p>True and Valid</p> <p>Considering all of the evidence and the quality of that evidence, it is quite obvious that the claim is true and valid.</p>	<p>Likely True</p> <p>There is room for interpretation or other possibility, but considering all of the evidence and the quality of that evidence, the claim is strongly supported and is most likely true and/or valid.</p>	<p>“Hung Jury”</p> <p>The evidence provided does support the claim, but there are still uncertainties as to whether that support really proves the claim is true. This rating is the result of a “hung jury.”</p>	<p>“Reasonable Doubt”</p> <p>Circumstantial or minor evidence does seem to support the claim, but not enough to make a decision. “Reasonable doubt” exists.</p>	<p>Unfounded</p> <p>Considering all of the evidence and the quality of that evidence, the claim has been proven beyond a shadow of a doubt to be untrue.</p>




This rubric is available for your own use in the *Thinking Tools, Showing Evidence Tool* folder on the Curriculum Resource CD.

In your own classroom, you can determine how you want to use the description areas of the claim. In this case, the section *Your Explanation* is used to provide additional detail to further define what the team means in their one-sentence claim. The *Your Rating* section is where students make a final assessment with a five-star rating system as to whether the claim has been proven to be true or valid—or not—and to explain how they came up with that determination.

Using the Showing Evidence Tool to Target Thinking Skills

YOUR CLAIM
Freon gas is under pressure, leaking into the home, thermally reacting to
Your Explanation
Freon is used in air conditioning & cooling systems.
Your Rating
★★★★☆
This scenario seems plausible because most the symptoms listed

 **Note:** View the additional argumentation resources in the *Thinking Tools, Showing Evidence Tool* folder on the Curriculum Resource CD.

Step 7: Making a Conclusion

Students use the *Conclusion* area to answer the question of the case. In the conclusion, students can make thoughtful summaries about the claim and evidence as they consider the issue as a whole.

Conclusion:
The evidence suggests the cause of Sally Citizen’s illness is a combination of two toxic chemicals: 1) Carbon Monoxide and 2) Freon. Both toxins are highly toxic to humans. The Citizen family had experienced symptoms of high concentrations of both.

The conclusion area is also helpful if students have multiple claims that they considered in their cases. The conclusion gives the breadth and full understanding of the answer. Using the court case analogy, it may not be enough to simply answer the question of whether the accused is guilty of the crime, but also to consider whether it was intentional. The conclusion area provides a space where students can voice their concerns about the areas of the case that are not so clear-cut.

In what other ways could you see the conclusion space being used?

Using the Showing Evidence Tool to Target Thinking Skills

Step 8: Reviewing the Benefits of the Showing Evidence Tool

The *Showing Evidence Tool* provides the scaffolding needed to create an effective argument. Review the following benefits as you begin to consider how this tool could be used in your own classroom.

Benefits of the Showing Evidence Tool

Students:

- Improve collaboration and higher-order thinking skills
- Engage in discussion and understand complex ideas
- Develop visual representation skills
- Use precise language when presenting or evaluating evidence.
- Improve argumentation skills through the peer review process

Teachers:

- Shift to student-centered instructional practices
- View the progression of the students' thinking, ideas, and research
- Can quickly and easily set up and manage as many team projects as needed
- Provide ongoing feedback and guidance using the comments feature

Using the Showing Evidence Tool to Target Thinking Skills

Activity 3: Viewing Project Ideas

In this activity, you identify the components of a good project, view examples, and brainstorm ideas for integrating the *Showing Evidence Tool* into your unit.

Step 1: Reviewing the Power of the Showing Evidence Tool

In the previous modules, Bloom’s Taxonomy was used to consider the types of thinking that the *Visual Ranking Tool* could support and Costa and Kallick’s Habits of Mind was used to review the range of thinking that could be supported by the *Seeing Reason Tool*. During this step, consider how the *Showing Evidence Tool* could be used to support the thinking skills identified in Marzano’s Dimensions of Learning (1992).

Components of Learning		Focus	Use of Showing Evidence to Support Marzano’s Dimensions of Learning
Dimension 1	Attitudes and Perceptions	<ul style="list-style-type: none"> ▪ Establishing positive attitudes about the classroom climate <ul style="list-style-type: none"> - Feeling accepted by teacher and peers - Perceiving order ▪ Valuing and finding interest in classroom tasks 	<ul style="list-style-type: none"> ▪ Understanding expectations of peer and teacher review (for example, the comment feature is used by teacher and peers in a defined way to pose questions and provide comments) ▪ Feeling safe to make a claim and support it, understanding that the assessment of their case is based on the quality of the argument, not right or wrong choices of claims or evidence
Dimension 2	Acquire and Integrate Knowledge	<ul style="list-style-type: none"> ▪ Relating new knowledge to what students know ▪ Organizing and internalizing knowledge: <ul style="list-style-type: none"> - Declarative Knowledge - Facts, concepts, generalizations, and principles - Procedural Knowledge - Skills, procedures, and processes 	<ul style="list-style-type: none"> ▪ Collecting and sorting evidence ▪ Creating an appropriate claim that provides a statement of fact, definition, value, or policy that will be evaluated ▪ Understanding the use of the tool (for example, following a model of for creating new claims and evidence)

Using the Showing Evidence Tool to Target Thinking Skills

	Components of Learning	Focus	Use of Showing Evidence to Support Marzano’s Dimensions of Learning
Dimension 3	Extend and Refine Knowledge	<ul style="list-style-type: none"> ▪ Developing in-depth understanding and applying and refining that knowledge using reasoning processes: <ul style="list-style-type: none"> - Comparing—How are these things alike? - Classifying—How can these be organized? - Inductive Reasoning—Based on these facts, what is your conclusion? - Deductive Reasoning—Based on this rule, what conclusions can you draw that must be true? - Analyzing Errors—How is this information misleading? - Constructing Support—What is an argument that would support this claim? - Abstracting—To what other situations can this apply? - Analyzing Perspectives—What is the reasoning behind this perspective? - Analyzing Perspectives—What is the reasoning behind this perspective? 	<ul style="list-style-type: none"> ▪ Rating and evaluating positive and negative evidence, and then weighing that evidence to come to a conclusion about a complex issue ▪ Comparing and classifying the different types of evidence quality ▪ Basing conclusions on the preponderance of evidence ▪ Analyzing the reliability, credibility, and accuracy of the evidence ▪ Creating a complete argument to support or refute a well-founded claim ▪ Considering bias in evidence

(Continued)

Using the Showing Evidence Tool to Target Thinking Skills

Components of Learning		Focus	Use of Showing Evidence to Support Marzano’s Dimensions of Learning
Dimension 4	Use Knowledge Meaningfully	<ul style="list-style-type: none"> ▪ Constructing tasks to encourage meaningful use of knowledge: <ul style="list-style-type: none"> - Decision Making - Investigation - Experimental Inquiry - Problem Solving - Systems Analysis 	<ul style="list-style-type: none"> ▪ Choosing the best and most representative evidence ▪ Investigating all sides of an argument ▪ Considering all possibilities of an argument before making a decision ▪ Using the final outcome of the argument to help plan and decide the next steps for solving a problem or dealing with an issue ▪ Analyzing the parts to clearly see the whole
Dimension 5	Productive Habits of Mind	<ul style="list-style-type: none"> ▪ Developing habits of mind to think critically, think creatively, and regulate their behavior: <ul style="list-style-type: none"> - Critical Thinking - Creative Thinking - Self-Regulation—Metacognition 	<ul style="list-style-type: none"> ▪ Using the anytime, anywhere nature of the tool to continue building a well-reasoned argument ▪ Self-monitoring their own progress and the quality of their argument assessments

Using the Showing Evidence Tool to Target Thinking Skills

Step 2: Understanding What Makes a Good Showing Evidence Project

The *Showing Evidence Tool* is most beneficial when students need to develop arguments supported by evidence or facts. Developing these arguments often involves analyzing conflicting information, sorting through complex ideas, or evaluating controversial topics. *Showing Evidence* can be used in a variety of projects to:

- Analyze experiments and draw conclusions
- Research hypotheses
- Understand different perspectives
- Investigate social issues
- Analyze characters or plots
- Evaluate credibility
- Apply knowledge
- Create a cost-benefit analysis
- Organize ideas for projects or essays
- Debate a controversial issue

Characteristics of a project that integrates the *Showing Evidence Tool*:

- Contains elements of a controversial issue, debatable topic, moral or ethical dilemma, social issue, or challenge to an existing opinion
- Provides engaging, thought-provoking, and open-ended project questions
- Answers to the project are not readily attainable or evident
- Conflicting evidence exists, with multiple perspectives or methods of evaluation

Using the Showing Evidence Tool to Target Thinking Skills

Plan for Opportunities to Reflect and Revise

To maximize learning, good projects have time built-in for student reflection. The *Showing Evidence Tool* supports investigation that occurs in cycles of evidence gathering, using the *Showing Evidence Tool*, and reflecting. After building an initial case, students experiment or research to gather more data and evidence, and then return to revise and adjust their cases, based on research and reflection. Journal reflections and peer review can be used in the tool to help students focus and refine their work. Students also need time away from the computers to plan and carry out the next cycle of data gathering and revision.

Plan for Student Teams

Although individual students can use the *Showing Evidence Tool*, the tool is more powerful when used by teams. Students are able to share their opinions as they consider the evidence to use and why the evidence is important. Students are more engaged in learning when they share opinions about particular evidence or try to convince their teammates to change the quality ranking of a piece of evidence. Such discussions help students further clarify their ideas. Working as a team, students make decisions, prioritize, negotiate, and seek consensus.

Consider Assigning Reviewing Teams

The *Showing Evidence Tool* allows teams to review other teams' work. Including team review in a project can help students become more thoughtful and express ideas more clearly. Providing guidelines on content and structure of feedback helps students develop constructive feedback. Teams can be paired together because they have differing opinions, or teams can be paired if they share the same views on an issue.

 Using the Showing Evidence Tool to Target Thinking Skills

Activity 4: Clarifying Project Ideas for Using Showing Evidence

Step 1: Reviewing the Needs of Your Unit

Before determining a possible use for the *Showing Evidence Tool* in your unit, review your targeted higher-order thinking skills, standards, and learning objectives. Compare them with the thinking skills that would be supported by *Showing Evidence*.

1. Open your Unit Plan.
2. Review your Habits of Learning Taxonomy.
3. Review the standards identified in your Unit Plan and note those standards that could benefit from the *Showing Evidence Tool*. If the standards are not already highlighted in a color specific for *Showing Evidence*, you may want to highlight them now or identify them beside the keywords listed below.

- analyze _____
- argument _____
- conjecture _____
- debate _____
- evaluate _____
- evidence _____
- hypothesis _____
- investigate _____
- persuade _____
- position _____
- premise _____
- social issue _____
- thesis _____
- other: _____

Note: In your search of the standards, do not be limited by the preceding keywords. You may need to look for the hidden opportunities for higher-order thinking, especially if your state's standards focus mainly on very specific knowledge-based tasks or understanding.

Using the Showing Evidence Tool to Target Thinking Skills

- Review your learning objectives and identify which objectives could be supported by *Showing Evidence*. You may want to highlight them in your Unit Plan or identify them below.

Do not try to force using the *Showing Evidence* when it is not a good use of time or academically warranted.

- Consider how the learning objectives for the sample project descriptions on the following pages (and in Appendix D) would be supported through using *Showing Evidence*. Keep your standards and objectives in mind as you think about your own project.



Note: If you do not believe *Showing Evidence* is a good fit for your unit, you can try out another idea for a different unit.

Step 2: Viewing Sample Project Descriptions and Prompts

When you create a *Showing Evidence* project online, you need to enter a project description and prompt to guide your students' work. Use this time to help clarify your project ideas.

Project Description

Just like in *Visual Ranking* and *Seeing Reason*, the project description is a focused, short paragraph that describes the project to your students and explains how they will use the *Showing Evidence Tool* to help them answer the questions of the project. The project description should be able to convey in a few sentences why the project or problem is worthy of study, as well as define what your students will try to solve, produce, respond to, test, find out, or recommend.

Prompt

In addition to completing the *Project Description*, you need to create a prompt, which is the question that students respond to in their case. This question and resulting investigation provide a foundation for students to build understanding around the complexities of the project or problem.

Using the Showing Evidence Tool to Target Thinking Skills

The following are examples of learning objectives, project descriptions, and prompts:

- **Language Arts**
 - **Learning Objectives:**
 - Analyze different perspectives and maintain respect for the point of view of others
 - Use varied sources (literature, current events, law, and policy) to provide evidence for your argument
 - Present a persuasive oral presentation
 - **Project Description:** Some school administrators, teachers, and parents feel strongly about the need to protect students from exposure and access to controversial materials. Even books that are called “classics” can be deemed “inappropriate.” Now that we have read *Huckleberry Finn*, consider its use and appropriateness for school. If this book were banned, it would mean removing it from the library, prohibiting its use in the classroom, and prohibiting students and teachers from having the book on school property. Analyze the social, political, and legal issues surrounding *Huckleberry Finn* as you consider whether it should be used in school.
 - **Prompt:** Should *Huckleberry Finn* be banned in our school?
- **Health**
 - **Learning Objectives:**
 - Analyze the health risks of tobacco
 - Research current law and regulations
 - Propose a solution for the regulation, use, and distribution of tobacco
 - **Project Description:** Health advocates have long lobbied for government restrictions over the tobacco industry because of the known health risks associated with smoking, such as various cancers, emphysema, bronchitis, asthma, and heart disease. Even though the Surgeon General declared nicotine an addictive drug in 1988, tobacco is not under the jurisdiction of the Food and Drug Administration (FDA), and is therefore not subjected to the same testing and marketing regulations as other drugs or food products. Anti-tobacco activists maintain that the FDA should regulate tobacco, because the addictive nature of nicotine hooks smokers as adolescents and makes it difficult for them to quit as adults. Determine whether tobacco should be regulated by the FDA or whether the government should just let individuals decide how to live their own lives.*
 - **Prompt:** Should tobacco be regulated by the FDA?

*Modified from: <http://faculty.valenciac.edu/ckatz/pathfinders/Tobacco%20Industry.htm>

Using the Showing Evidence Tool to Target Thinking Skills

- **Math**
 - **Learning Objectives:**
 - Use symbolic algebra to represent situations and to solve problems, specifically those that involve linear relationships
 - Formulate, investigate, and evaluate mathematical conjectures
 - Examine patterns and structures to formulate generalizations
 - **Project Description:** What would the perimeter be if you lined up (sharing one full side) any number of regular triangles in a row? Squares in a row? Regular pentagons in a row? Regular hexagons in a row? What is growing and changing for each polygon? What is different across the polygons? Can you create a rule for each polygon? Can you create a rule for any number of n -sided regular polygons? Use your generalization for any number of n -sided regular polygons to make mathematical conjectures backed by data and reasoning, and organize them through the use of the *Showing Evidence Tool*. Create your conjecture in the *Showing Evidence* workspace. You must find at least four pieces of evidence or data that supports the conjecture, and it must form a logical mathematical argument. Your evidence must back up your work on the problem and must not be based on opinions or guesses.
 - **Prompt:** What is the perimeter of any number of n -sided regular polygons lined up in a row?
- **Science**
 - **Learning Objectives:**
 - Understand the weather system, water cycle, and carbon cycle
 - Analyze data on weather patterns
 - Research and synthesize findings from leading scientists in the field
 - Make conclusions based on scientific data and make a proposal for any policy changes
 - **Project Description:** Global warming refers to an average increase in the Earth's temperature, which in turn causes changes in climate. A warmer Earth may lead to changes in rainfall patterns, a rise in sea level, and a wide range of impacts on plants, wildlife, and humans. When scientists talk about the issue of climate change, their concern is about global warming caused by human activities. The topic of global warming can often involve heated debates. Some say global warming is a scare tactic that is based on flawed interpretation. Others say it is a real concern that is based on obvious scientific data. Now it is your turn to enter

Using the Showing Evidence Tool to Target Thinking Skills

the debate—but with cool heads and well-reasoned and supported arguments. Determine whether the threat is real, and if so, whether we can do anything about it.

- **Prompt:** Global warming: How real of a threat is it?

- **Social Studies/History**

- **Learning Objectives:**

- Understand how laws are proposed, passed, and implemented
- Assess the benefits and the drawbacks of the Patriot Act
- Write a persuasive letter

- **Project Description:** The U.S. Patriot Act was designed to help law enforcement detect and prevent terrorism. Since its passage in Congress in October of 2001, some have said the Patriot Act has played a key part in a number of successful operations to protect innocent Americans from the deadly plans of terrorists. Others say that it goes too far and threatens the very rights and freedoms that we are struggling to protect. Parts of the Patriot Act are going to expire this year unless Congress votes to renew them. Research this law and determine whether it should be renewed as is, changed, or allowed to expire. From your research and evidence, you will be writing to your representatives in Congress and entreating them to consider your viewpoint.

- **Prompt:** Is the Patriot Act good for America?

Note: For more examples, see ideas starting on Appendix C.03.

Note any interesting project ideas here.

Using the Showing Evidence Tool to Target Thinking Skills

Activity 5: Sharing Your Ideas

Using a wiki or working in small groups, share your ideas for a project that incorporates *Showing Evidence*.

Share your ideas as you reflect on your plan for *Showing Evidence*:

- What idea do you have for using *Showing Evidence*?
- How will *Showing Evidence* fit into your Unit Plan and help your students meet the learning objectives and apply higher-order thinking skills?
- If you have already decided that *Showing Evidence* will not be a good fit for your unit, what ideas do you have for using *Showing Evidence* with your students in other units?
- Does your unit involve a controversial issue, debatable topic, moral or ethical dilemma, social issue, or challenge to an existing opinion that is well suited for *Showing Evidence*?
- What concerns do you have about using this tool in your unit?
- What feedback would you like from others?

In small groups, discuss each other's ideas. If using a wiki, share your wiki pages and provide feedback on others' ideas. Specifically, provide feedback on how to best use the tool to encourage higher-order thinking skills.



1. Open the wiki site URL for this course from your Favorites.
2. Edit your page and create a new entry to summarize your ideas for using *Showing Evidence*. Besides reflecting on the questions above, include:
 - An overview of how the *Showing Evidence Tool* would be integrated into your unit
 - Concerns, questions, and desired feedback



3. Save your wiki page.
4. Share your wiki page in a small group and, if needed, note any feedback directly on your page. Discuss project ideas, concerns, and questions with your colleagues. Provide suggestions to help them better target higher-order thinking and, possible cause-and-effect issues in the unit.



Using the Showing Evidence Tool to Target Thinking Skills

Activity 6: Planning Your Project

Step 1: Considering How Best to Use the Tool

The *Showing Evidence Tool* provides students with the ability to hypothesize, research, analyze evidence, and make conclusions. You can direct your students to use one of two usage models as they evaluate claims and evidence.

Usage Model 1: Create claims and support with evidence (closest to scientific method, proving a hypothesis)

- Establish initial position—stake your claim
- Build set of evidence items
- Evaluate quality of evidence (for reliability; how true is the evidence)
- Link evidence to claim
- Evaluate strength with which evidence supports the claim
- Evaluate claim and make new claim(s), as needed

Usage Model 2: Analyze evidence to make a claim or form a hypothesis (building a theory, analyzing data)

- Start with a set of evidence items
- Evaluate quality of evidence (for reliability; how true is the evidence)
- Analyze evidence and make a claim
- Link evidence to claim
- Evaluate strength with which evidence supports the claim
- Evaluate claim and make new claim(s), as needed

Consider the following questions before you set up your project online.

1. Will you require your students to start with a claim and then collect evidence to see if they can support the claim? Or, will your students collect evidence and then determine the claim?

Using the Showing Evidence Tool to Target Thinking Skills

- 2. Will you provide your students with a claim or choice of claims? Or, will you allow them to determine and create their own claim? If you are going to pre-populate the case with a claim, draft an idea for the claim here.

- 3. How will your students find and create their evidence? Will you provide any of the evidence as a starter set in the *Showing Evidence Tool*? If so, what kinds of evidence do you need to locate?

- 4. Preview the checklist on page 10.07 and keep in mind its criteria for a well-developed project and case as you try out your project ideas.

Step 2: Creating a Showing Evidence Project from an Existing Project

If you saw a project online that you would like to use as a starting point, you can use the project wizard to copy the project’s description, prompt, and any teacher-created evidence or claims to your teacher workspace. If you choose to complete this step, go to Step 6 when you are finished to assign teams to your new project. If you want to create a new project based on your own ideas—and not copy an existing project, skip this step and go directly to Step 3 on page 9.36.

Copying an Existing Project to Your Workspace



- 1. Open *Showing Evidence* from your Favorites. (www.intel.com/education/showingevidence)
- 2. Click **Project Examples**.
- 3. Open the appropriate project in either *Unit Plans* or *Project Ideas*.
- 4. Copy the project into your Teacher Workspace. (See Teaching Tools, Showing Evidence Tool Skill 3.7.)



Note: If you are not already logged in, you will be directed to a page that requests that you log on. Your login information may be written on Overview vii or in the Login Information document in your Project Folder. Information document in your Project Folder.

Refer to the following skills in the *Help Guide* for this section:

- Showing Evidence Skill 3.7: Creating a Showing Evidence project from an existing project

Using the Showing Evidence Tool to Target Thinking Skills

Review Your Unit Ideas and Edit the Project Information Online

1. Open your Unit Plan.
2. Review your Curriculum-Framing Questions. Consider how your students' work with *Showing Evidence* could help support your unit's questions.
3. Review your project priorities on pages 2.20-2.22.
4. Preview the Project Reflection Checklist on page 10.07.

Note: You may also want to review the Project Rubric on page 2.18-2.19.



5. Edit the title, description, and prompt of your project as necessary. You can also change to the standard or simplified version of the workspace. (See Teaching Tools, Showing Evidence Tool Skill 3.10.)
6. Change the vocabulary of the *Showing Evidence* labels, if desired. The vocabulary that is used in the *Showing Evidence Tool* can be changed to match the particular project or subject matter that your student teams will address. (See Teaching Tools, Showing Evidence Tool Skill 3.9.)

Note: All of your students assigned to a project use the same vocabulary set. The labels you select are used in the tool for just this project.

7. Add or edit any pre-populated evidence or claims, if desired. (See Teaching Tools, Showing Evidence Tool Skills 3.20 and 3.21.)

Note: You will not be able to change, delete, or add to any pre-populated evidence or claims after you have assigned teams—unless you unassign them first. If you have doubts about any elements you are considering as pre-populated items in this practice case, you may want to simply add them in the *Student Workspace*, rather than in the *Teacher Workspace*. Since this is a practice project, it will not impact your practice project in any significant way.

8. After editing the project information online, copy the details into your Unit Plan.



Note: If you do not think *Showing Evidence* is a good fit for your unit, save and open the *Showing Evidence Project Idea* document in the *Thinking Tools, Showing Evidence Tool* folder on the Curriculum Resource CD and try out a project idea for a different unit.



9. Save your Unit Plan.
10. Return to your Teacher Workspace and click **Submit**. This brings you to a page where you may assign student teams.
11. Review Steps 3–5 to familiarize yourself with the project-creation options.
12. Go to Step 6 on page 9.39 to assign teams to your project.

Refer to the following skills in the *Help Guide* for this section:

- Showing Evidence Skill 3.9: Changing Showing Evidence labels
- Showing Evidence Skill 3.10: Editing a project
- Showing Evidence Skill 3.20: Creating a claim
- Showing Evidence Skill 3.21: Creating evidence

Do not force the use of *Showing Evidence* when it is not a good use of time or academically warranted.

Using the Showing Evidence Tool to Target Thinking Skills

Step 3: Creating Your Own Project Description and Prompt

If you completed Step 2 and used the project wizard to copy a project to your Teacher Workspace, skip Steps 3–5. Otherwise, review the following tips for creating a Project Description. Then draft your project ideas on the following page.

- Setup of an authentic problem, significant question, or real-life scenario
- Explanation as to why this project or problem is worthy of study
- Definition of what your students will try to solve, produce, respond to, test, recommend, or find out
- Description of what students will be required to decide, prioritize, negotiate, or seek consensus on
- Use of age-appropriate language that makes the topic engaging and interesting

Consider the following questions as you develop a project description that reflects your project:

- Does the project engage the students' interest? Will it motivate them to pursue and explore the concepts deeply?
- Is the project cast in a context familiar to the students? Is it based on a real-world situation, scenario, or controversy?
- Is the project staged well? Is the project developed so that student interest builds?
- Is the information provided adequate to solve the questions of the project? Is too much information provided? Too little?
- Does the complexity and length of the project warrant and support working collaboratively?
- Is the problem or scenario of the project open-ended, which will provide different entry points and paths for your students?
- Does the project challenge students to use higher-order thinking skills?

Modified from:

"Guidelines for Reviewers"

Problem-Based Learning Clearinghouse

University of Delaware

Using the Showing Evidence Tool to Target Thinking Skills

Draft Your Project Ideas

1. Open your Unit Plan.
2. Review your Curriculum-Framing Questions. Consider how your students' work with Showing Evidence could help to support your unit's questions.
3. Review your project priorities on pages 2.20-2.22.
4. Preview the Reflection Checklist on page 10.07.

Note: You may also want to review the Project Rubric on pages 2.18–2.19.

5. Use the following table to draft the Project Description and Prompt for your case or type them directly into your Unit Plan.



Note: If you do not think the *Showing Evidence Tool* is a good fit for your unit, open the *Showing Evidence Project Idea* document from the *Thinking Tools, Showing Evidence Tool* folder on the Curriculum Resource CD and save it to your Project Folder. In Module 10, you can try out a project idea for another unit.

Example	Project Description	Until recently, Sally was living her dream. She had a loving and caring husband, two wonderful children, and had just moved into her lovely new custom-built home. Sally was very happy...until she started getting sick. You will research and evaluate evidence on four possible causes of Sally's illness. Based on your research, you will come to a conclusion as to what is the most likely cause and source of Sally's illness.
	Prompt	What is the cause and source of Sally's illness?
Possible Ideas	Project Description	
	Prompt	

Using the Showing Evidence Tool to Target Thinking Skills

Step 4: Planning Your Use of Showing Evidence

1. If you did not complete the *Showing Evidence* section of the Unit Plan in the previous step, type the details for the Project Title, Project Description, and Prompt in your Unit Plan.



2. Save your file.

Step 5: Creating a New Showing Evidence Project



1. Open *Showing Evidence* from your Favorites and log on to your Teacher Workspace. (www.intel.com/education/showingevidence)



2. When setting up a new *Showing Evidence* project, consider the following. (See Teaching Tools, Showing Evidence Tool Skill 3.8.)

Refer to the following skills in the *Help Guide* for this section:

- Showing Evidence Skill 3.8: Creating a new Showing Evidence project
- Showing Evidence Step 3.8.5: Setting up a standard project
- Showing Evidence Step 3.8.6: Setting up a simplified project 3.21: Creating evidence

- **The Project Name** could specifically reference the purpose or use of the *Showing Evidence Tool* in your overall project. This title appears in the *Student Workspace* as well as above your students' *Showing Evidence* cases. You can change the name of the project later if you wish. (You may want to copy and paste the title from your Unit Plan.)

Note: When more than one project is assigned to a team, a list of available projects appears on the *Student Workspace* page. Students should be able to differentiate the projects by looking at the project names. This is one reason that you should create a project name that specifically identifies the focus or use of the *Showing Evidence Tool*, rather than just the unit name.

- **The Project Description** appears in the Student Workspace, so you should use vocabulary that is age-appropriate. (See page 9.37 or copy and paste the description from your Unit Plan.)
- **The Prompt** (the section asking, What question will your students be asked to answer in this project?) is also displayed on the top of the students' *Showing Evidence* case. (See page 9.37 or copy and paste the statement from your Unit Plan.)
- *Showing Evidence* can be set up with a *Standard* or *Simplified* version of the tool. The simplified version does not require students to rate the evidence or support, nor explain how the evidence supports or opposes the claim. This version may be helpful with younger students or during practice session where you simply want students to get used to the idea of documenting evidence and weighing support for a claim. (See Teaching Tools, Showing Evidence Tool Skill 3.8.5 and 3.8.6.)

Using the Showing Evidence Tool to Target Thinking Skills

- You can change the vocabulary of the *Showing Evidence* labels. The vocabulary that is used in the *Showing Evidence Tool* can be changed to match the particular project or subject matter that your student teams will be addressing. (See Teaching Tools, Showing Evidence Tool Skill 3.9.)
- You can pre-populate the student teams' cases to include claim(s) or unrated evidence. Set up the workspace as you want it to appear when your students begin working on their cases. (See Teaching Tools, Showing Evidence Tool Skills 3.20 and 3.21.)



Note: You will not be able to change, delete, or add to any pre-populated evidence or claims after you have assigned teams unless you unassign them first. If you have doubts about any elements you are considering to add as pre-populated items in this practice case, you may want to simply add them in the Student Workspace, rather than in the Teacher Workspace. Since this is a practice project, it will not impact your practice project in any significant way.

3. Continue with either Step 6 or Step 7 to set up teams.

Step 6: Creating Teams IDs with the Project Wizard

In this step, you create generic Team IDs (Team IDs with the same base word plus a number). You also need to create a reviewing team for your practice project. If you prefer to create specialized Team IDs, skip this step and go to Step 7.

Consider whether you will include reviewing teams in your unit. If so, you can assign one or more reviewing teams to each team. A link to a read-only version of the team's argument case would appear in the reviewing team's workspace. The reviewing team will see the current work of the team they are reviewing, but will not be able to make changes to the work. Reviewing teams can, however, make comments by clicking the small triangle at the upper-right corner of the evidence, the evidence rating, the support rating, or the claim.



1. Use the Project Wizard to create at least two teams for this practice project and assign each of them as a reviewer of the other. (See Teaching Tools, Showing Evidence Tool Skill 3.11.)

Note: If you already have wizard-created teams and you use the project wizard again to set up teams for this project (with the same base word), the wizard will recognize that you already have those teams and assign them to this project. The student teams will be able to view and access both projects from their Student Workspace.



2. Go to Overview page vii to write down your team IDs and passwords or type the information in the Login Information document in your Project Folder.

Refer to the following skills in the *Help Guide* for this section:

- Showing Evidence Skill 3.9: Changing Showing Evidence labels
- Showing Evidence Skill 3.20: Creating a claim
- Showing Evidence Skill 3.21: Creating evidence

For this practice case, be sure to assign a reviewing team.

Refer to the following skills in the *Help Guide* for this section:

- Showing Evidence Skill 3.11: Creating a new set of student teams

Using the Showing Evidence Tool to Target Thinking Skills

For this practice case, be sure to assign a reviewing team.

Step 7: Creating Specialized Student Teams

If you want to create team IDs that designate different team projects, areas of focus, or different perspectives (such as *prosecutor*, *defense*, and so forth), follow the directions in this step to create specialized student teams. You also need to create a reviewing team for your practice project.

Consider whether you will include reviewing teams in your unit. If so, you can assign one or more reviewing teams to each team. A link to a read-only version of the team's argument case would appear in the reviewing team's workspace. The reviewing team will see the current work of the team they are reviewing, but will not be able to make changes to the work. Reviewing teams can, however, make comments by clicking the small triangle at the upper-right corner of the evidence, the evidence rating, the support rating, or the claim.

Refer to the following skills in the *Help Guide* for this section:

- Showing Evidence Skill 3.13: Creating unique team names
- Showing Evidence Skill 3.14: Viewing or editing team information



1. Create at least two teams for this practice project and assign each of them as a reviewer of the other. (See Teaching Tools, Showing Evidence Tool Skill 3.13.)
2. Go to Overview page vii to write down your team ID and password or type the information in the Login Information document in your Project Folder.

Note: You may want to keep the team ID and password the same so students can remember them more easily. If they forget their password, you can see what their password is in the Teacher Workspace, under *Manage Teams*. (See Teaching Tools, Showing Evidence Tool Skill 3.14.)

Using the Showing Evidence Tool to Target Thinking Skills

Extension Activity: Understanding Best Practices with Showing Evidence

The following resources are available to you for self-study or as an optional extension in your course. Complete Step 1 and/or Step 2 to view strategies and project ideas for using *Showing Evidence* in the classroom.

Step 1: Viewing Instructional Strategies

View best practices for planning, implementing, and assessing a project that integrates the *Showing Evidence Tool*.



1. Go to: www.intel.com/education/showingevidence
2. Click **Instructional Strategies**.
3. Click the categories of interest: **Planning a Project**, **Implementing a Project**, or **Assessing Work**.



4. View resources and articles on the Toulmin Model of Argument (on which the *Showing Evidence Tool* is based) and information on evaluating arguments in the *Thinking Tool*, *Showing Evidence Tool* folder on the Curriculum Resource CD.
-
-

Step 2: Viewing Showing Evidence Project Ideas

Although you had an opportunity to view a few project ideas earlier in this module, if you want additional ideas to help focus or expand your project, explore units that integrate the *Showing Evidence Tool*.



1. Go to: www.intel.com/education/showingevidence
2. Click **Project Examples**.
3. View projects that integrate the *Showing Evidence Tool* in either **Project Ideas** or **Unit Plans**.

Using the Showing Evidence Tool to Target Thinking Skills

References

- Driver, R., Newton, P., & Osborne, J. (2000). Establishing the norms of scientific argumentation in classrooms. *Science Education*, 84 (3), 287-312.
- Jiménez-Aleixandre, M.P., Rodríguez, A.B., & Duschl, R.A. (2000). "Doing the lesson" or "doing science": Argument in high school genetics. *Science Education*, 84, 757-792.
- Kuhn, D. (1992). Thinking as argument. *Harvard Educational Review*, 62(2), 155-177.
- Lizotte, D.J., McNeill, K.L., & Krajcik, J. (2004). Teacher practices that support students' construction of scientific explanations in middle school classrooms. In Y. Kafai, W. Sandoval, N. Enyedy, A. Nixon & F. Herrera (Eds.), *Proceedings of the sixth international conference of the learning sciences* (pp. 310–317). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- McNeill, K.L., Lizotte, D.J., Krajcik, J., & Marx, R.W. (2004, April). *Supporting students' construction of scientific explanations using scaffolded curriculum materials and assessments*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.
- Means, M.L., & Voss, J.F. (1996). Who reasons well? Two studies of informal reasoning among children of different grade, ability, and knowledge levels. *Cognition and Instruction*, 14, 139-178.
- Passmore, C., & Stewart, J. (2002). A modeling approach to teaching evolutionary biology in high schools. *Journal of Research in Science Teaching*, 39(3), 185–204.
- Reznitskaya, A., & Anderson, R.C. (2002). The argument schema and learning to reason. In C. C. Block & M. Pressley (Eds.), *Comprehension instruction: Research-based best practices* (pp. 319-334). New York: The Guilford Press.
- Toulmin, S. (1958). *The uses of argument*. Cambridge, UK: Cambridge University Press.
- Voss, J. F., & Van Dyke, J. A. (2001). Argumentation in psychology: Background comments. *Discourse Processes*, 32(2&3), 89–111.



For additional resources on argumentation, view references in the *Thinking Tool, Showing Evidence Tool* folder on the Curriculum Resource CD.

Using the Showing Evidence Tool to Target Thinking Skills

Module 9 Summary

Review the central ideas in this module and the plans or materials you created to help improve student learning.

Use this summary to review this module's main points and check for understanding.

Module 9 Key Points:

- Research shows that, regardless of grade level or subject area, argumentation skills extend learning.
- The argument model used by *Showing Evidence* consists of:
 - Making a claim
 - Providing evidence
 - Evaluating the quality of evidence
 - Making explicit links between the claim and evidence
 - Providing reasoning for why the evidence supports the claim
 - Considering counterarguments
 - Making a conclusion

Accomplishments:

- Looked deeply into a unit that includes the *Showing Evidence Tool* to get ideas on project design, implementation, teacher-student dialog, and assessment
- Set up a project online that integrates the use of the *Showing Evidence Tool*

In Module 10, you will try your ideas for *Showing Evidence*.

