Introduction to Argumentation: Using Evidence in a Card Sort

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Agenda

1. Welcome and introduction
2. Video: Using evidence to consider competing claims
3. Activity: Mystery fossil card sort
4. Video & Discussion: Arguing about competing claims
5. Session Takeaways

This presentation’s PowerPoint and handouts can be found at argumentationtoolkit.org under the “About” tab
Introductions

• Introduce yourself to the group
  • Grades/subject areas that you teach
  • Comfort with scientific argumentation

Not comfortable  Very comfortable
Session Goals

1. Introduce the four areas of argumentation in which students need extra support: 1) Evidence, 2) Reasoning, 3) Student Interaction, and 4) Competing Claims.

2. Develop an understanding of argumentation as a social process in which students build, question and critique claims using evidence and reasoning.

3. Introduce a Card Sort, an instructional activity that encourages students to think about what evidence does and does not support a claim.
Argumentation Elements

**EVIDENCE**
Students use high quality evidence to support their claims.

**REASONING**
Students make clear how their evidence supports their claim.

**INTERACTIVE**
Students build off of and critique each others’ ideas.

**COMPETING CLAIMS**
Students critique competing claims.

**CLAIM**

- **EVIDENCE A**
- **EVIDENCE B**
- **EVIDENCE C**
1. Video: Using evidence to consider competing claims

This video focuses on how evidence can be used to evaluate multiple claims.
2. Activity: Mystery Fossil Card Sort

The task:

- Work in pairs or small groups to categorize evidence cards as supporting either:
  1. The fossil tooth came from a prehistoric mountain lion.
  2. The fossil tooth came from a prehistoric shark.
  3. Other
- Make sure to articulate *why* you sort cards as you do
Setting up your cards

- Start with Group 1 (white evidence cards); then Group 2 (gray evidence cards)
Discussion about Card Sort

After sorting the cards from Group #1:
- Which claim do you feel is best supported given the existing evidence?

After sorting all the cards, including those from Group #2:
- What did you talk about when you were discussing the evidence?
- Did your conversations change once you received the cards from Group 2?
- How can you envision your students engaging in this activity? What would work well? What challenges would they have?
3. Video & Discussion: Arguing about competing claims

Video 2 describes engaging students in arguing about competing claims

Discussion Questions:

- What are the benefits to having your students engage in competing claims?
- What challenges do you think your students might have when engaged in this work?
- What types of activities (e.g. card sort, evidence from text, science seminar) can you envision incorporating into your instruction? Why?
4. Session Takeaways

Evidence is observations or data about the natural world that is used to support claims.

Competing claims provide students with an authentic reason to argue.

Weighing competing claims can encourage students to think about how the evidence supports the claim, and refine their understandings of the science concepts.

Some pieces of evidence can be stronger than others in support of a claim.
Using The Argumentation Toolkit

• Want to learn more?
  http://www.argumentationtoolkit.org/

• Includes:
  – Videos
  – Strategy guides

• Organized by:
  – Argumentation element
  – Activity type
Using The Argumentation Toolkit

This section is organized around four argumentation elements that students need extra support with: 1) Evidence, 2) Reasoning, 3) Student Interaction, and 4) Competing Claims. Each page provides videos that include a definition of that element, a rationale for the focus, and teaching strategies. Each resource is located on just one page; however, many of the videos cut across the four argumentation elements since they often occur simultaneously in a lesson.

Below is one featured video from the “Student Interaction” section. However, the video does include all four elements over the course of the students’ argumentation discussion.
Evidence

Evidence is information about the natural world that is used to support a claim. In scientific argumentation, evidence includes data, such as observations and measurements about the natural world. Students often have difficulty using appropriate and sufficient evidence to support their claims.

The Approach video below provides an overview of this element. The other videos include activities and strategies to support students in learning about and using evidence.

Approach: Evidence

Consider Quality of Evidence with the Evidence Gradient Tool
Using The Argumentation Toolkit

- Look under “Teacher Learning” for activities

The Argumentation Toolkit

We have designed learning modules as suggested ways to use resources in the Argumentation Toolkit. These learning modules include agendas and other resources to demonstrate how the Argumentation Toolkit may be used to support teacher learning about argumentation. Each module is divided into two ways: 1) Learning Module (multiple sessions bundled in sequences) and 2) Individual Session.

Each session is viewable in two ways: 1) by scrolling down a page, or 2) by clicking a button under the agenda and viewing the session as a slideshow. The content in both versions is the same.

Organized by Learning Module

The modules each include a sequence of four 45-minute sessions for a total of 3 hours. These can be used for one longer meeting (i.e. 3 hours) or used over multiple sessions (4 sessions 1 month apart, each for 45 minutes). We recommend using the Introductory Module on Scientific Argumentation first. Any of the other modules may be used after the first one depending on the needs and interests of teachers.
## Using The Argumentation Toolkit

- Look under “Teacher Learning” for activities

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Argumentation Toolkit
http://www.argumentationtoolkit.org/

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PARTNERS AND RECOGNITION

Developed in collaboration with Boston College

Funding provided by National Science Foundation
NSF DRL-1119584

Any opinion, findings, and conclusions or recommendations expressed in this material are those of the authors(s) and do not necessarily reflect the views of the National Science Foundation.