

# 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
6. Using “The Argumentation Toolkit”

This presentation’s PowerPoint and handouts can be found at [argumentationtoolkit.org](http://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

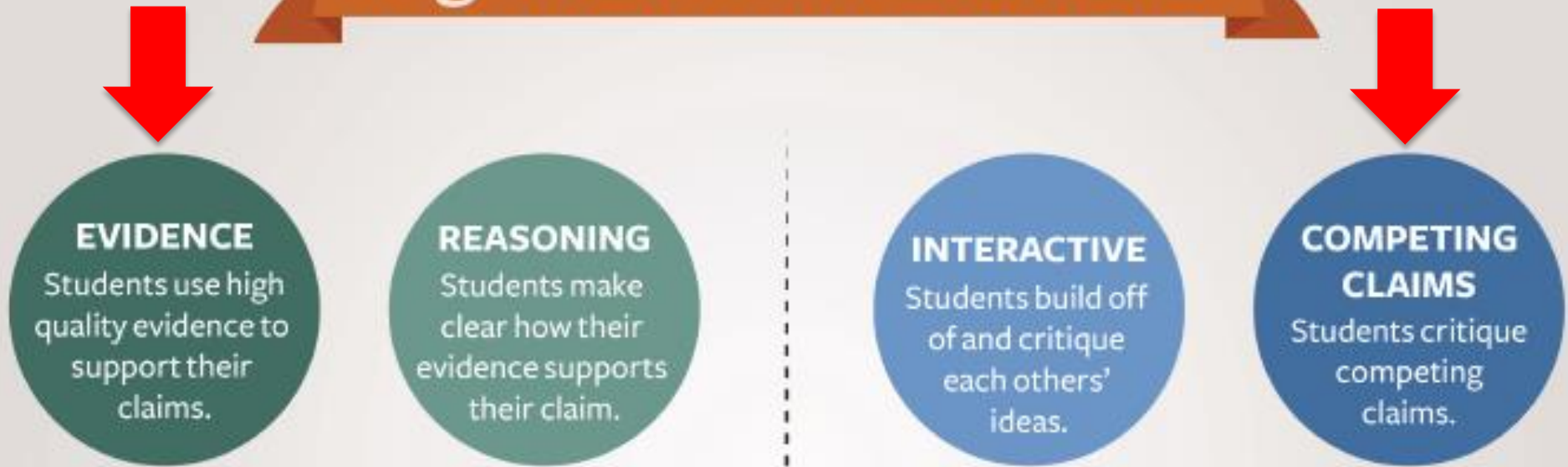


# Session Goals

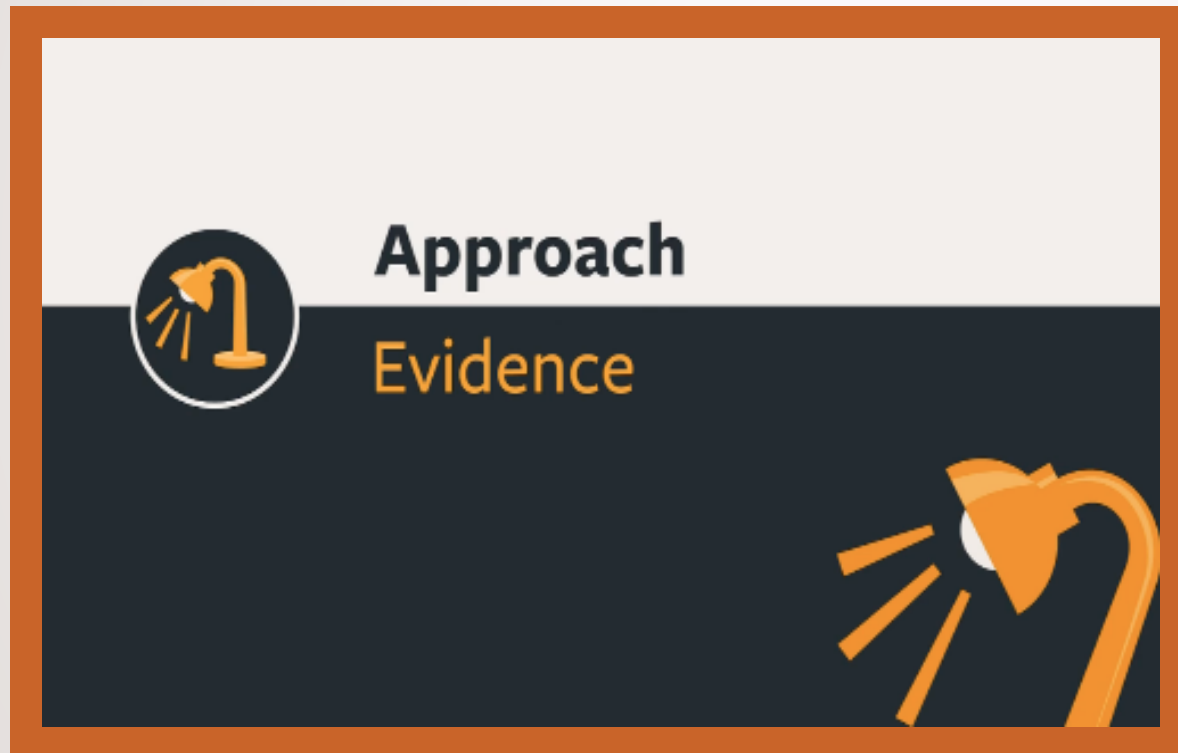
1. Introduce the four areas of argumentation in which students need extra support:  
1) *Evidence*, 2) *Reasoning*, 3) *Student Interaction*, and 4) *Competing Claims*.
2. Develop an understanding of argumentation as a *social process* in which students build, question and critique claims using evidence 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



# 1. Video: Using evidence to consider competing claims



This video focuses on how evidence can be used to evaluate multiple claims



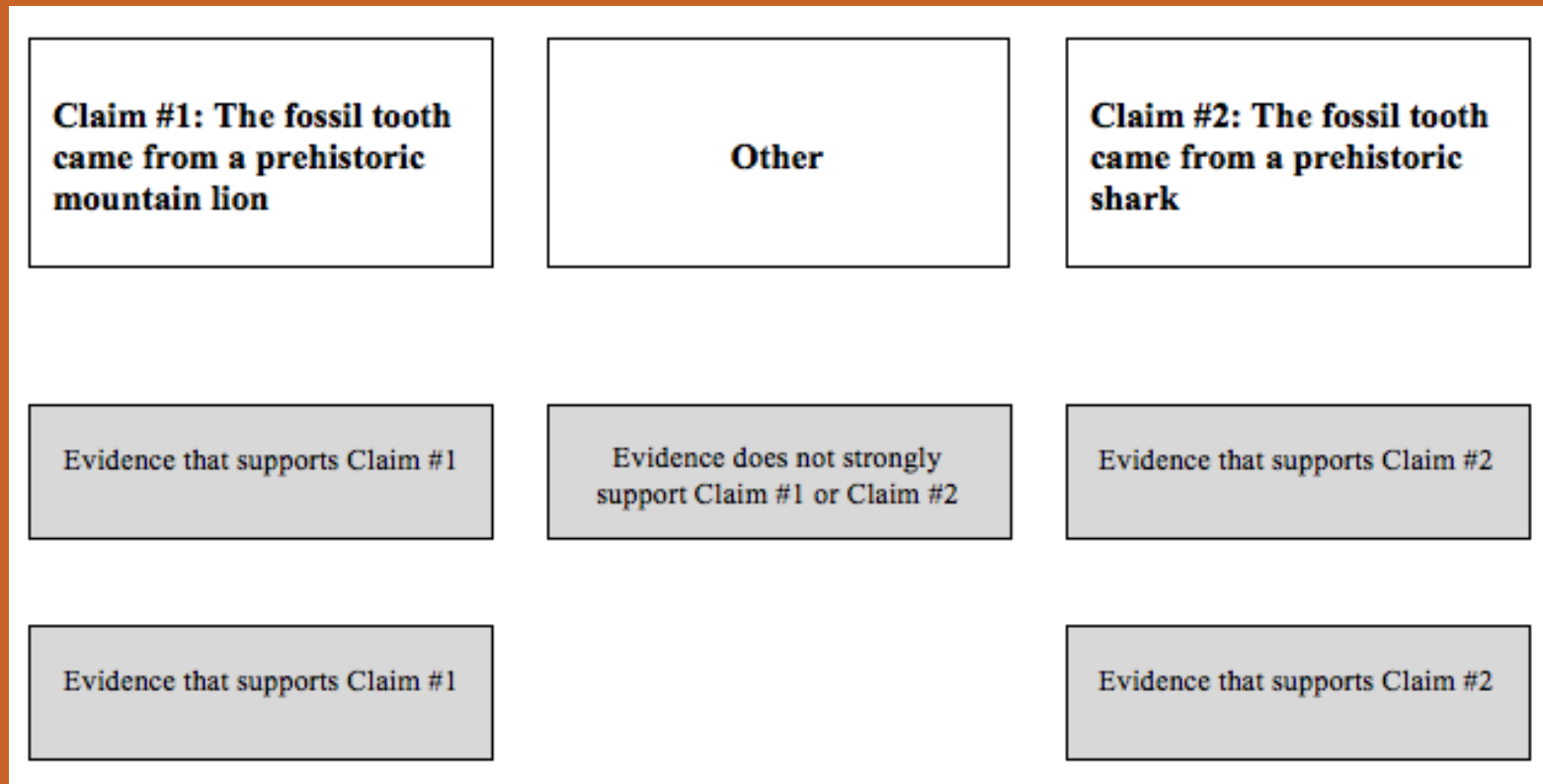
## 2. Activity: Mystery Fossil Card Sort



### 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

Some pieces of evidence can be stronger than others in support of a claim

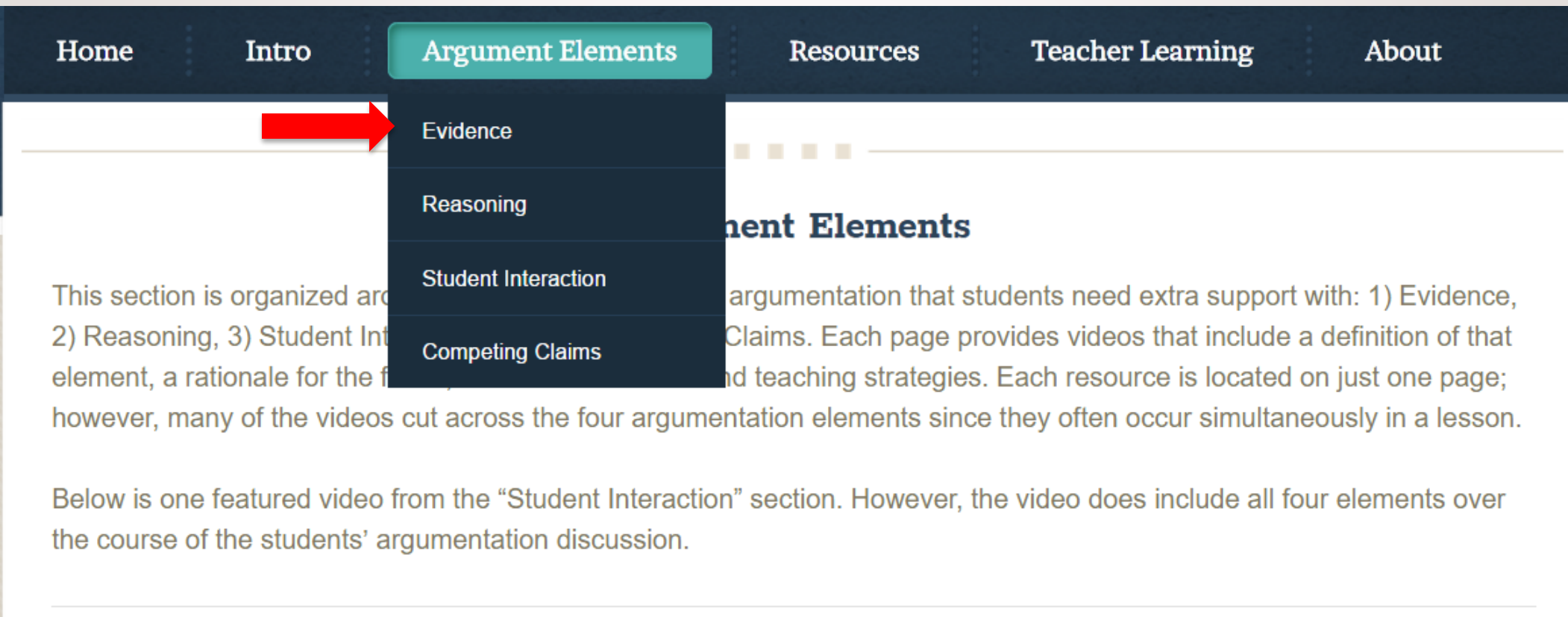
Weighing competing claims can encourage students to think about how the evidence supports the claim, and refine their understandings of the science concepts



# 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



The screenshot shows the navigation menu of the Argumentation Toolkit website. The menu items are Home, Intro, Argument Elements, Resources, Teacher Learning, and About. The 'Argument Elements' menu is expanded, showing a list of sub-items: Evidence, Reasoning, Student Interaction, and Competing Claims. A red arrow points to the 'Evidence' sub-item. Below the navigation menu, the page content is visible, including a section titled 'Argument Elements' and a paragraph of text.

Home   Intro   **Argument Elements**   Resources   Teacher Learning   About

Evidence  
Reasoning  
Student Interaction  
Competing Claims

## Argument Elements

This section is organized around the four elements of argumentation 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.

# Using The Argumentation Toolkit

## 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.

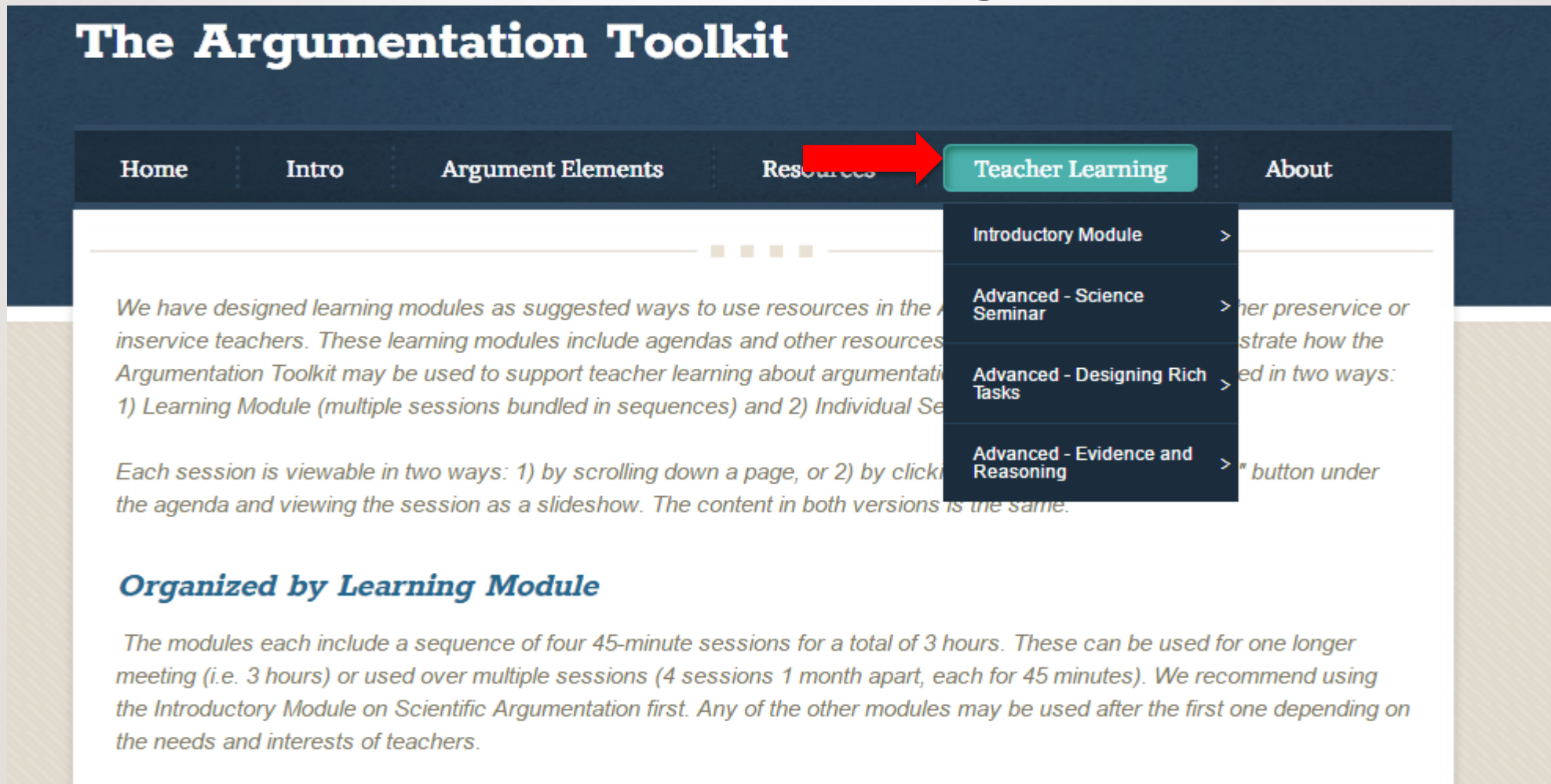
### *Approach: Evidence*





# Using The Argumentation Toolkit

- Look under “Teacher Learning” for activities



The screenshot shows the website's navigation bar with the following items: Home, Intro, Argument Elements, Resources, **Teacher Learning** (highlighted in teal), and About. A red arrow points to the Teacher Learning menu, which is open and lists the following options: Introductory Module, Advanced - Science Seminar, Advanced - Designing Rich Tasks, and Advanced - Evidence and Reasoning. The main content area below the navigation bar contains text about learning modules and a section titled "Organized by Learning Module".

## The Argumentation Toolkit

Home Intro Argument Elements Resources **Teacher Learning** About

Introductory Module >

Advanced - Science Seminar >

Advanced - Designing Rich Tasks >

Advanced - Evidence and Reasoning >

We have designed learning modules as suggested ways to use resources in the Argumentation Toolkit may be used to support teacher learning about argumentation. These learning modules include agendas and other resources. Each session is viewable in two ways: 1) by scrolling down a page, or 2) by clicking the agenda and viewing the session as a slideshow. The content in both versions is the same.

1) Learning Module (multiple sessions bundled in sequences) and 2) Individual Sessions

ed in two ways:

" button under

### 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

## Session Name

## Argumentation Element

## Activity

- |  |  |   |
|--|--|---|
| <ul style="list-style-type: none"><li>• What is the role of evidence in a scientific argument?</li></ul>                                 | <ul style="list-style-type: none"><li>• Evidence</li></ul>         | <ul style="list-style-type: none"><li>• Card Sort</li></ul>                       |
| <ul style="list-style-type: none"><li>• How does considering competing claims support students' use of evidence and reasoning?</li></ul> | <ul style="list-style-type: none"><li>• Competing Claims</li></ul> | <ul style="list-style-type: none"><li>• Cart Sort</li></ul>                       |
| <ul style="list-style-type: none"><li>• What is the role of reasoning in a scientific argument?</li></ul>                                | <ul style="list-style-type: none"><li>• Reasoning</li></ul>        | <ul style="list-style-type: none"><li>• Reasoning Tool, Student Writing</li></ul> |
| <ul style="list-style-type: none"><li>• How do we support students in interacting with peers during argumentation?</li></ul>             | <ul style="list-style-type: none"><li>• Interaction</li></ul>      | <ul style="list-style-type: none"><li>• Analyzing Data</li></ul>                  |
| <ul style="list-style-type: none"><li>• What is a science seminar?</li></ul>   | <ul style="list-style-type: none"><li>• Interaction</li></ul>      | <ul style="list-style-type: none"><li>• Analyzing Classroom Transcript</li></ul>  |

# More information

## Argumentation Toolkit

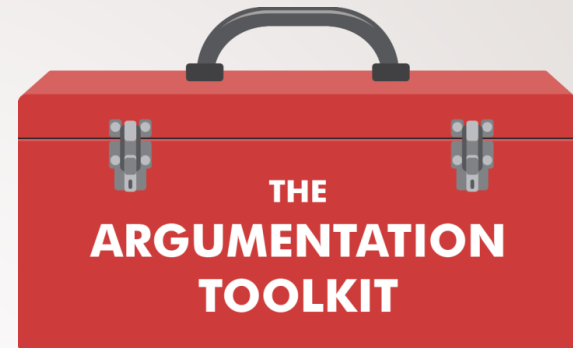
<http://www.argumentationtoolkit.org/>

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The Learning  
Design Group



## PARTNERS AND RECOGNITION



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Any opinion, findings, and conclusions or  
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