Learning Logic: A Unit for Introducing Reasoning and Communication

Unit Outline

Skills:

* Developing Reasoning Habits
* Developing Scientific Explanations

Subject/Grade Level:

* 8th grade Physical Science

Unit Overview:

* Day 1: Solving Logic Grid Puzzles
* Day 2: Identifying Situations of Irrelevant or Insufficient Clues
* Day 3: Making Formal Claims
* Day 4: Writing Formal Scientific Explanations

Learning Objectives:

* Students will be able to draw appropriate conclusions from a series of clues.
* Students will identify situations of irrelevant or insufficient evidence.
* Students will construct viable arguments based on facts and reasoning.

Next Generation Middle School Physical Science Standards:

Science and Engineering Practices

* Science knowledge is based upon logical and conceptual connections between evidence and explanations.
* Construct and present oral and written arguments supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.

Common Core State Standards:

Reading Standards for Literacy in Science and Technical Subjects 6-12

7. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

Writing Standards for Literacy in History/Social Sciences, Science, and Technical Subjects 6-12

1. b. Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.

c. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.

d. Establish and maintain a formal style.