

# Mystery

## What is it?

A tool that sparks interest and engagement by presenting students with a content-related “mystery” that needs to be solved; students use teacher-provided clues to develop and test possible solutions

## What are the benefits of using this tool?

Students often view the process of generating and testing hypotheses as something they’re forced to do in science class, not something they like to do. But when we present students with puzzling phenomena and challenge them to generate possible explanations (hypotheses), the process of generating those explanations is one they actually enjoy. This tool makes generating and testing hypotheses exciting by presenting students with content-related mysteries and asking them to generate and test possible solutions. The element of mystery serves to pique student interest, while the generating/testing process develops both content knowledge and critical thinking skills, including analyzing data, synthesizing information, and supporting ideas with evidence.

## What are the basic steps?

1. Identify an event, phenomenon, or concept that you want students to understand and explain. Frame it as a mystery that students will need to investigate/solve (e.g., “How is it possible that a giant metal boat can stay afloat when this tiny piece of metal sinks in a glass of water?”).
2. Develop a clear idea of the solution/explanation you want your students to generate. List the big ideas students will need to understand in order to arrive at the solution you have in mind.
3. Create a set of clues that will enable students to discover the solution and the big ideas that underpin that solution. Clues can take any form you want—data tables, images, maps, sound clips, factual information in sentence form, etc. See Teacher Talk for more on generating clues.
4. Divide students into teams. Present the mystery, give each team a set of clues, and tell students to
  - Examine the clues carefully. Group related clues together, and give each group a descriptive label. (Clarify that students may place the same clue in more than one group.)
  - Summarize the key ideas from each group. (Think: What are the clues telling you?)
  - Identify connections between or among clue groups. (Do you see common threads or themes?)
  - Think about how the clues/groups are connected to the mystery as a whole.
  - Generate a tentative solution that’s supported by the clues. Be ready to share and defend it.
5. Invite students to share their ideas and solutions—and the clue evidence that supports those ideas/solutions—both as they work and at the end of the lesson. Use probing questions to help students evaluate and refine their ideas. See Teacher Talk for specific suggestions.
6. Assess and reinforce students’ grasp of the relevant content at the end of the lesson by asking students what they learned and by reviewing the critical concepts/ideas as a class.