Does it Hold Water?

Summary
Investigate logical fallacies to see the flaws in arguments and learn how to be a better critical thinker and to make better decisions.

Workplace Readiness Skill
Critical Thinking and Problem Solving

Workplace Readiness Definition
• recognizing, analyzing, and solving problems that arise in completing assigned tasks
• identifying resources that may help solve a specific problem
• using a logical approach to make decisions and solve problems.

Vocabulary
• Problem Solving
• Critical Thinking
• Inductive Reasoning
• Deductive Reasoning
• Cause-Effect
• Analysis
• Logic
• Process
• Logical fallacy
• Aristotle, Plato, Socrates
• Systems thinking
• Argument
• Rhetorical

Context Questions
• How can problem solving set you apart from your peers or coworkers?
• How can you demonstrate your ability and willingness to solve problems, in a job interview?
• How is being a problem solver beneficial to your employer?
• How is following a problem solving method beneficial to your employment?
• How do problem solving and critical thinking interrelate? How do they differ?
• When problems arise at work, what are some resources that can help?
• What are some common ways to solve problems in the workplace?
• How does the scientific method vary from the more general problem solving steps listed in this activity?
• What can you do to make yourself a better problem solver?
• What additional workplace readiness skills are closely related to critical thinking and problem solving? Which are needed to complete this activity?
• How is good citizenship tied in with being a critical thinker?
• What are some alternative models for problem-solving and decision-making methods?
• Why is it good to sometimes fail?

Guidelines
1. Examine the examples of logical fallacies from a PDF you can download from yourlogicalfallacyis.com.
2. Concentrate on just a few examples.
3. Match scenario-based arguments with the logical fallacy they represent.
4. Advertisements typically use logical fallacies to sell you things you may not need. See if you can write your own example for one of the following logical fallacies.
Exercise
Here are the logical fallacies we will be focusing on (taken from Your Logical Fallacy Is):

1. **Straw Man**: Misrepresenting someone’s argument to make it easier to attack.
2. **Slippery Slope**: Asserting that if we allow A to happen, then Z will consequently happen too, therefore A should not happen.
3. **Black-or-White**: Where two alternative states are presented as the only possibilities, when in fact more possibilities exist.
4. **False Cause**: Presuming that a real or perceived relationship between things means that one is the cause of the other.
5. **Anecdotal**: Using personal experience or an isolated example instead of a valid argument, especially to dismiss statistics.
6. **The Texas Sharpshooter**: Cherry-picking (i.e., custom selecting) data clusters to suit an argument, or finding a pattern to fit a presumption.
7. **Ambiguity**: Using double meanings or ambiguities of language to mislead or misrepresent the truth.

Match the logical fallacies (above) with these examples:

A. **Example**: My flight was delayed, therefore, the airline I flew is poorly managed.
B. **Example**: 9 out of 10 dentists would recommend this toothpaste.
C. **Example**: Beth had a heart attack at the early age of 45. As a child, she had chicken pox. Therefore, people who had chicken pox will also have heart attacks at an early age.
D. **Example**: If you aren’t for me, you are against me.
E. **Example**: Because John loved to play video games, he began skipping class, therefore video games need to be banned.
F. **Example**: Laura said that funding for the arts should be increased, therefore, she believes that small business loans are wasteful. This argument assumes that Laura cannot support both.
G. **Example**: Last winter we received more snow than usual. This disproves global warming.

Reflection after Completion (may be a questionnaire or included as part of the proposal)

- What is the problem with supporting your ideas in the workplace with only personal belief?
- How can you use critical thinking skills to find the flaws in other people’s ideas or arguments?
- Why is it important to identify a specific process for solving problems? What influences your selection of process?
- What have you learned about logic and problem solving from this exercise?
- How can reading, education, and research help you support your arguments?

Evaluation
See rubric

Notes:
Use the resources to get a better idea of why being able to identify logical fallacies is important.
Example:
Use the exercise examples (above) to create your own example of a logical fallacy or find an actual example of a logical fallacy on the web. Think of this as essentially false advertising, saying things that the author cannot prove or in which the argument itself is flawed.

Differentiation:
1. Technology use—use word graphic design software to create your examples as images.
2. Multisensory options—watch the videos for this activity.
3. Community connections—identify examples of critical thinking used in the workplace.
4. Small-group learning—complete the exercises with your peers.
5. Vocabulary strategies—word wall and matching, match words or phrases under each term in the skill area, “problem solving” and “critical thinking.”
6. Student organization of content—final product should include all completed exercise, your own example of a logical fallacy, and answers to all reflection questions.

Matching Exercise Answer Key:
1. F
2. E
3. D
4. C
5. A
6. G
7. B

Resources:
- Your Logical Fallacy Is, https://yourlogicalfallacyis.com/
- Five Fallacies, Idea Channel, PBS Digital Studios, PBS Idea Channel https://www.youtube.com/watch?v=8qb-h0sXkH4
- Even More Fallacies, Idea Channel, PBS Digital Studios, PBS Idea Channel https://www.youtube.com/watch?v=ybOvddwpJAg