

Sharpening Critical Thinking: Logical Fallacies and Cognitive Biases Worksheet

Warm-Up: Spot the Problem in These Situations

Read the following seven situations. For each, think about what might be wrong or misleading in the way people are thinking. Discuss or write your thoughts on these questions:

- What could be wrong with this way of thinking?
 - Why do people tend to think like this?
 - What purpose might this kind of thinking serve?
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1. A TV commercial says, "Everyone loves Brand X toothpaste, so you should use it too."
 2. A student believes they failed a test because they had bad luck, not because they didn't prepare well.
 3. A politician attacks their opponent's character instead of addressing the opponent's policies.
 4. Someone claims that if they let their child play video games one day, the child will become addicted and fail at school.
 5. A shopper decides a jacket is good quality only because it has a high price tag.
 6. A person only reads news articles that agree with their political views and ignores the others.
 7. After hearing about a plane crash on the news, a person becomes afraid to fly, thinking crashes happen often.

Part 1: Definitions and Examples

Read the following definitions and examples of most common logical fallacies and cognitive bias.

1. **Strawman Fallacy:** Misrepresenting someone's argument to attack it more easily.
Example: "She wants to cut the school budget; she must want to close all the libraries."
2. **Ad Hominem Fallacy:** Attacking the person rather than their argument.
Example: "Don't trust his opinion on health because he smokes."

3. **False Dilemma (Either/Or):** Giving only two options when more exist.
Example: "You either support the new law or you don't care about safety."
4. **Slippery Slope:** Claiming one action will cause a chain of bad events without proof.
Example: "If we let students use calculators, soon they won't learn to do math at all."
5. **Circular Reasoning:** Using the conclusion as a premise.
Example: "The law is fair because it's just."
6. **Hasty Generalization:** Drawing a conclusion from insufficient evidence.
Example: "My two friends failed the test; the test must be too hard."
7. **Appeal to Authority:** Believing a claim just because an authority says it.
Example: "This medication must work; a famous doctor recommended it."
8. **Bandwagon Fallacy:** Assuming something is true because many believe it.
Example: "Everyone buys this phone, so it must be the best."
9. **Confirmation Bias:** Only noticing info that supports one's beliefs.
Example: "I only read news confirming my political views."
10. **Anchoring Bias:** Relying heavily on first information encountered.
Example: "That jacket costs \$200, so anything cheaper must be cheap quality."
11. **Availability Heuristic:** Judging likelihood by how easily examples come to mind.
Example: "Plane crashes are frequent because I see them on the news."
12. **False Cause (Post Hoc):** Assuming one event caused another just because it came first.
Example: "I wore lucky socks and won; the socks caused the win."
13. **Red Herring:** Bringing up irrelevant info to distract.
Example: "Why focus on pollution? There are bigger problems like poverty."
14. **Appeal to Emotion:** Using emotions instead of logic to persuade.
Example: "Think of the poor puppies; donate now!"
15. **Loaded Question:** Asking a question that assumes something unproven.
Example: "Have you stopped cheating on tests?"
16. **False Equivalence:** Treating two different things as equal.
Example: "Telling a white lie is the same as stealing."
17. **Sunk Cost Fallacy:** Continuing because of past investments.
Example: "I've spent so much on this car, I'll keep fixing it no matter what."

18. **Negativity Bias:** Giving more weight to negative info than positive.
Example: "I got 3 compliments and 1 criticism; I only remember the criticism."
19. **Overconfidence Effect:** Overestimating abilities.
Example: "I don't need to study; I'm sure I'll ace the exam."
20. **Self-Serving Bias:** Taking credit for success but blaming others for failure.
Example: "I did well because I'm capable; I failed because the teacher is unfair."

Part 2: Reflective Exercise: Thinking About Thinking

Answer these questions about logical fallacies and biases in everyday life:

- When and where can we most often hear or see examples of these mistakes in reasoning?
- What purposes do these fallacies and biases serve for people or groups that use them?
- Are there situations where using these kinds of reasoning might be justified or useful? Why or why not?
- How can recognizing these errors help you in your own learning and decision-making?

Part 3: Identify the Fallacy or Bias

Read the sentences below. Identify and explain which logical fallacy or cognitive bias is being demonstrated.

1. "If you don't agree with the proposal, you don't care about the environment."
2. "I only watch news channels that agree with me."
3. "He's not a doctor, so he can't know about medicine."
4. "Either we ban junk food in schools, or kids will become unhealthy."
5. "I always buy this brand because it's the best."
6. "It rained after I washed my car, so I caused the rain."
7. "Everyone's buying this product, so it must be good."

8. "Don't listen to her argument on climate change; she drives a gas car."
9. "My team loses every game I watch, so I must be unlucky."
10. "Prices start at \$500, so cheaper ones are bad quality."
11. "If we allow kids to skip homework, soon no one will learn anything."
12. "You're either with the government or against it."
13. "You should vote for him because famous experts endorse him."
14. "I never lie, so everything I say is true."
15. "Why talk about job losses when crime rates are rising?"
16. "Stop cheating on tests—when did you start?"
17. "Telling a white lie is just as bad as stealing."
18. "I spent so much money on this phone, I'll keep repairing it."
19. "I only remember the one mistake I made despite many successes."
20. "I didn't prepare for the test because I'm sure I know everything."

Extra: Role-Play Debate: Spot the Fallacy!

1. **Objective:** Improve speaking, listening, and critical thinking skills by recognizing logical fallacies and cognitive biases in arguments while practicing English communication.

2. Instructions:

A. Preparation:

1. Divide the class into groups of 3-4 students.
2. Assign each group a controversial or current topic (see sample topics below).
3. Within each group, assign roles:
 - **Proponent(s):** Argue in favor of the topic.
 - **Opponent(s):** Argue against the topic.
 - **Moderator:** Facilitate the debate and track identified fallacies.

B. Debate Guidelines:

- Each debater prepares 2-3 short arguments supporting their side.
- **Important:** Each debater must deliberately include at least two different logical fallacies or cognitive biases learned from the worksheet in their arguments, but do NOT reveal which ones.
- The moderator listens closely and notes any suspected fallacies or biases.

C. During the Debate:

1. Debaters take turns presenting their arguments.
2. After each speaker, the moderator invites the opposing side to identify any fallacies or biases in the argument just presented.
3. The group jointly discusses and confirms whether the identification is correct.
4. Keep score: Each correct identification = 1 point. If the opposing side misses a fallacy, no points are awarded for that turn.
5. Continue rounds until all speakers present.

D. Debrief:

- Discuss as a class which fallacies/biases were most common and why.
- Reflect on how understanding these fallacies can help in real-life discussions and evaluations of information.

Sample Debate Topics

- Should social media platforms be more strictly regulated?
- Is climate change the greatest challenge facing humanity today?
- Should schools require students to wear uniforms?
- Is technology doing more harm than good in education?
- Should governments impose higher taxes on unhealthy food?
- Is it ethical to use animals for scientific research?
- Should school start times be later to benefit student health?
- Is the influence of advertising on children harmful?

Answer Key: Identify the Fallacy or Bias

1. False Dilemma (Either/Or)
2. Confirmation Bias
3. Ad Hominem Fallacy
4. False Dilemma (Either/Or)
5. Anchoring Bias
6. False Cause (Post Hoc)
7. Bandwagon Fallacy
8. Tu Quoque (Appeal to Hypocrisy)
9. False Cause (Post Hoc)
10. Anchoring Bias
11. Slippery Slope
12. False Dilemma (Either/Or)
13. Appeal to Authority
14. Circular Reasoning
15. Red Herring
16. Loaded Question
17. False Equivalence
18. Sunk Cost Fallacy
19. Negativity Bias
20. Overconfidence Effect