

S1 Handout 13

Lesson #: 13

Module: Logic

Category: Critical Thinking 101

Title: Inductive vs. Deductive Reasoning

Objectives:

By the end of this lesson, you should be able to...

- Explain the difference between deductive and inductive reasoning.
- Explain the inductive limitations of the scientific method.

Introduction:

We've seen that deductive and inductive *arguments*, respectively, try to prove a claim is certainly true or imply a claim is probably true. But inductive and deductive *reasoning* are a little bit different. Deductive reasoning argues from universal to particular, while inductive reasoning argues from particular to universal. Watch the video to unpack these concepts and see how they answer the question, "can science really 'prove' things?"

Video: Critical Thinking Scan - S1 Episode 13: Inductive vs. Deductive Reasoning

Video Questions:

Fill in the blanks:

1. Deductive reasoning is when you start with a known _____ of reality and conclude smaller _____ from it.
2. But inductive reasoning is when you start by looking at little _____, and then try to construct a larger _____ of reality based on them.

True or false:

3. The scientific method is primarily **deductive** because it draws "big picture" conclusions from smaller data points. _____
4. With enough details and data points, we can use the scientific method to reach a pretty reasonable conclusion. _____
5. Generally, researchers use the scientific method to absolutely prove their conclusions. _____

Bonus questions:

1. Why can scientists with different worldviews can look at the same little facts and arrive at very different conclusions?

2. Why is Scripture our only sure starting point for reasoning about how the pieces of the world around us fit together?

Journal activity: Think of some everyday examples where you might use inductive and deductive *reasoning* to make inductive or deductive *arguments*. If it helps, note the universal/big picture and particular/little fact(s) in each argument. (Example – *Deductive reasoning, inductive argument: I like most deserts with chocolate [universal/big picture]. Hot fudge sundaes [particular/little fact] contain chocolate. So, I'll probably like hot fudge sundaes too.*)

Verses:

- Proverbs 25:2
- Isaiah 46:9-10

Dig Deeper:

Articles:

- Avery Folley, "Feedback: You Can Question Science," Answers in Genesis, May 16, 2018, <https://answersingenesis.org/what-is-science/feedback-you-can-question-science/>.
- Mike Matthews, "Can We Prove the Bible is True?" Answers in Genesis, April 1, 2011, <https://answersingenesis.org/is-the-bible-true/can-we-prove-the-bible-is-true/>.

Book chapter:

- Roger Patterson, "What is Science?" in *Evolution Exposed: Biology* (Answers in Genesis, 2006), <https://answersingenesis.org/what-is-science/what-is-science/>. Full book is available to read online at AnswersinGenesis.org/answers/books.

Note: for further caveats about how induction and deduction relate to science and worldview, see the footnotes in this blog post: Patricia Engler, "Two Types of Reasoning," Answers in Genesis, August 5, 2020, <https://answersingenesis.org/blogs/patricia-engler/2020/08/05/two-types-reasoning/>.

Lesson #13 Answer Key:

1. big picture, details
2. details, picture
3. False
4. True
5. False

Bonus question – example answers:

1. Pieces of evidence are facts from observational science, and facts don't speak for themselves. They have to be interpreted, and different scientists can interpret the same facts differently because of their different starting assumptions.
2. While we don't know everything, God does. He has absolute knowledge of how all the "puzzle pieces" of reality fit together because he created the big picture. And He's given us a puzzle box that shows us the big picture of reality, through His word, the Bible.