

# Critical Voter Lesson Plan – Logic

## Overview

Logic is a cornerstone skill for critical thinking and while there are a variety of logical systems that have been developed over the centuries, some foundational logical principles provide the grounding to work through many issues one encounters in life.

The rules of logic can be applied to *arguments* in which the things you are asking someone to accept (*premises*) are spelled out, with a *conclusion* specifying what you claim someone should or must accept if they accept your premises. Once an argument is structured correctly, one can apply tests to that structured argument (such as tests for *validity* and *soundness*) to determine if the argument succeeds or fails.

Since most people argue using normal human language, it often takes work to turn natural language into the formal structure of a logical argument. But once you have mastered this translation process, various tools (such as Venn diagrams) are available to allow you to test an argument for quality.

## Terminology

Important vocabulary terms used in this lesson include:

- Formal logic
- Argument
- Deductive Logic
- Inductive Logic
- Premise
- Conclusion
- Syllogism
- Validity
- Soundness
- Venn Diagram

## Goals

The goal if this lesson is to give students an understanding of how to:

- Translate arguments presented in normal human language into the structured language of a logical argument
- Determine if an argument is valid (i.e., that the premises lead to the conclusion) and sound (that the premises are true or acceptable by a reasonable person)
- Understand the difference between deductive and inductive arguments

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## Primary Resources

The following resources are available at the [www.criticalvoter.com](http://www.criticalvoter.com) web site to support this lesson:

- **Critical Voter:** Chapter 4 (Drawing on Logic)
- **Check for Understanding** – A short quiz designed to determine if someone has understood material in the reading.
- **Blog Entries** – To find additional examples and information on the Critical Voter blog (if available) select “Logic” in the blog’s **Category** list.

## Additional Resources

[Wi-Phi](#) – Online lessons in critical thinking and philosophy, including videos on [validity](#) and [soundness](#)

[The Art of Deception: An Introduction to Critical Thinking](#) by Nicholas Capaldi and Miles Smit – This book illustrates principles of logical argumentation by showing how to debunk deceptive arguments.

## Suggested Activities

Activity	Notes on this activity
Have students read the assigned book chapter and answer the Check for Understanding questions to ensure they have understood the concepts covered in this lesson.	The Check for Understanding quiz is made up of questions which were designed to be easily answerable by anyone who has read the book chapter in its entirety.
Present students with one or more structured deductive arguments and ask them to: <ul style="list-style-type: none"><li>• Identify the premises in an argument</li><li>• Identify the conclusion in an argument</li><li>• Test arguments for validity and soundness</li></ul>	This activity is meant to give students a comfort level with structured arguments, so the arguments presented should start with simple ones (such as a valid and sound argument with just two premises) and then grow increasingly complex with regard to the number of premises and whether or not arguments are valid, sound, both or neither.  Students can test arguments for quality using Venn diagrams.
Present students with an inductive argument that covers the same topic as one of the deductive arguments they just reviewed. Ask them to specify the difference between a deductive and inductive argument.	Students should be able to identify that, with an inductive argument, accepting premises does not require you to accept the conclusion (even if the premises are true and lead to the conclusion).

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Activity	Notes on this activity
<p>Review an argument presented in normal human language (like a TV ad or part of a campaign speech) and ask students to translate what is being said into the structured format of a logical argument.</p>	<p>After students have performed this translation, they should be able to identify whether the argument is based on deductive vs. inductive logic.</p> <p>They should also be able to specify the premises and the conclusion and determine whether the argument is valid and sound.</p>
<p>Ask students to construct a logical argument around a conclusion they would like others to reach.</p> <p>After that argument has been constructed and reviewed for quality, students should then translate that structured argument into normal language so that it sounds natural but still maintains the strengths of the original structured argument.</p>	<p>This process is the reverse of the one followed in the previous activity and is designed to demonstrate to students how arguments presented in normal human language can be built on a sound foundation of a logical argument.</p>