

# Logical Reasoning

Lesson Focus: How can logic strengthen an argument?		
Learning Objectives	Vocabulary	Links with Approaches to Learning (ATL)
<ul style="list-style-type: none"><li>To understand that arguments are constructed of premises and conclusions.</li><li>To construct a well-made argument that is clear, coherent, and supported by specific examples.</li></ul>	premise conclusion claim counterclaim critical thinking	<b>Thinking Skills</b>  Construct arguments logically using premises and conclusions.  Develop lines of reasoning.
Preparation Tasks	Differentiation	
<ul style="list-style-type: none"><li>You may wish to share articles <a href="#">one</a> and <a href="#">two</a> with students before the session or have them conduct their own research into the topic of reducing plastic.</li><li><a href="#">Clone</a> the following discussion and share it with students: <a href="#">What is the best way to fight climate change?</a></li><li>Create a new Kialo discussion with the question <i>Should governments implement strict regulations to cut plastic production?</i> and the thesis <i>Governments should implement strict regulations to cut plastic production.</i></li><li>Use <a href="#">Small Group Mode</a> to give groups access to their own version of the discussion, if appropriate.</li></ul>	<b>Support:</b> Break the articles down into premises and conclusions to support students with adding claims and counterclaims to the discussion.  <b>Extend:</b> Ask students to explore syllogisms and compose their own, using premises and conclusions.	
Introduction: Premises and Conclusions / Claims and counterclaims		
<ul style="list-style-type: none"><li>Ask students what comes to mind when they hear the word “argument.”<ul style="list-style-type: none"><li>Use their responses to establish a definition of an academic argument e.g., An argument is a set of premises that support a conclusion.</li></ul></li><li>Use an example to clarify the meaning of premises and conclusions e.g.,:</li><li><b>Premise 1:</b> All mammals are animals.</li><li><b>Premise 2:</b> All whales are mammals.</li><li><b>Conclusion:</b> Therefore, all whales are animals.</li><li>Explain that a key part of critical thinking is being able to deconstruct arguments to assess their validity (logical consistency), logic (how well the argument flows), and soundness (truthfulness of the premises).</li></ul>		
Main Activity: Part 1		
<ul style="list-style-type: none"><li><a href="#">Clone</a> and share the Kialo discussion <a href="#">What is the best way to fight climate change?</a> with students. (You may wish to use <a href="#">Small Group Mode</a>.)</li><li>Once students have familiarized themselves with the discussion, discuss how the pro/con structure allows claims and counterclaims to be organised clearly.</li></ul>		

- Explain that in a Kialo discussion, the [thesis](#) or theses is/are the main conclusions and the claims and counterclaims are the premises. They may also represent sub-conclusions. A well-made argument is composed of the same structure, organized in a logical way.
- As a class, identify examples of premises and conclusions within the discussion.
- Note that arguments are supported by sources and examples.

## Main Activity: Part 2

- Students should work in small groups appropriate to the class size.
- [Create a new Kialo discussion](#) with the question ***Should governments implement strict regulations to cut plastic production?*** and the thesis ***Governments should implement strict regulations to cut plastic production.***
- Use [Small Group Mode](#) to give groups access to their own version of the discussion, if appropriate.
- Students will apply their knowledge from the introduction by independently adding claims and counterclaims to the discussion.
- Students will need access to these articles as the basis for their arguments (see Preparation Task):
  - [Global plastic production must be cut to curb pollution, study says](#)
  - [Plastics Pollution Has Become a 'Crisis,' Biden Administration Acknowledges](#)
- Ask groups to identify the main premises and conclusions for both sides of the argument within the articles.
  - They may find it helpful to highlight these in different colors on paper or electronic copies of the articles.
  - They may also wish to conduct their own independent research.
- Show students how to deconstruct a simple argument from one of the articles into claims to develop an individual line of reasoning e.g.,
  - Mismanaged plastic waste will double to 121m tonnes by 2050 if limits are not placed on the production of plastic.
  - This waste will leach into the environment.
  - It could be harmful to people's health.
- Groups should then continue to add their own claims and counterclaims to the discussion based on the articles and their research.
  - To guide students, use [Tasks](#) to assign them a specific number of claims to write.

## Reflection Activity

- Ask students to reflect on their claims using these prompts:
  - What is the main conclusion of your argument?
  - What premises (reasons/evidence) support it?
  - What might someone on the other side say in response to your claim?
  - How would you strengthen your claim against this counterargument?