

**Natural Resources Shaping Arguments**

Standards Addressed

This project addresses a wide range of Next Generation Science Standards, though it is especially focused on this set.

ESS2-2. Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.

ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.

ESS2.C: The Roles of Water in Earth’s Surface Processes

Nearly all of Earth’s available water is in the ocean. Most fresh water is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere.

ESS3.C: Human Impacts on Earth Systems

Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth’s resources and environments.

It also addresses a wide range of Common Core Standards, especially this set.

*ELA/Literacy*

**RI.5.1** Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

**RI.5.7** Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.

**RI.5.9** Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.

**W.5.8** Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished

work, and provide a list of sources.

**W.5.9** Draw evidence from literary or informational texts to support analysis, reflection, and research.

*Mathematics –*

**MP.2** Reason abstractly and quantitatively.

Debatable Questions

These are the debatable questions that will guide this argument-based activity on the world’s natural resources.

 **Is our world is facing a severe shortage of food?**

 **Is our world is facing a severe shortage of fresh water?**

 **Is our world is facing a severe shortage of energy?**

Method and Process

The following are the steps in the process of implementing the Shaping Arguments Project.

**(1)** The class should be introduced to the set of debatable questions on natural resources. Provide context for the questions, as needed. Solicit from students two or three argumentative claims that can be made on each side of the questions based solely on what they already know or have heard of the issues

**(2)** The class should be divided into six groups, with an affirmative and a negative group for each issue. Assign a captain for each group, who will be responsible for ensuring that the group is ready for the Shaping Arguments activity itself, and will help ensure that all students participate.

**(3)** Introduce students to the issues, using the videos and articles, asking students to annotate, participate in classroom-wide and group discussion, and answer short-response, argument-based questions in writing.

**(4)** Review argumentative claims with students collectively, generating a list of at least five for each side of each of the three issues – so 30 total claims. Discuss the strengths and weaknesses of each. It will be from this list of claims that groups choose for the arguments they build. If necessary, suggest the addition of argumentative claims that can be made from Selected Passages Set.

**(5)** Distribute argument builders and counter-argument builders to each group. Also distribute and review the use of the Selected Passages Set. Groups should begin to build three arguments to support their position.

**(6)** Collect or review the argument builders in class, providing feedback and suggestions for revision and improvement.

**(7)** Post Collected Evidence Anchor Charts and ask that students copy out evidence that they are using in their argument builders to these charts. Students from the opposing group can see what evidence they are planning to use, and therefore they can hone their counter-argument building accordingly.

**(8)** Review the format for the Shaping Argument Activity. Each round should last 30 minutes. The format should be:

 **Arguments and counter-arguments 15 minutes**

 **Rebuttal arguments 10 minutes**

 **Final evaluation and closing statements 5 minutes**

**(9)** Conduct the Shaping Argument Activity over two days, with two rounds the first day and one round the second day. Have students who are not in a round use the Argument Shaping Response Form to evaluate the argumentation of the other groups.

**(10)** When the groups are ready to go, begin the activity with the first round on the first debatable question. Call on students, alternating sides (affirmative and negative). Students should speak for 45 seconds or less. No student can speak a second time until every student in their group has spoken once.

**(11)** During the round, students can do one of three things. (1) They can make an argument for their side of the debate, or add evidence or backing to an argument their side has already made. (2) They can make a counter-argument to an argument the other side has made. Or (3) they can respond to (i.e., rebut) a counter-argument or another response made in the round.

**(12)** Very important: you should track the argumentation on a board or projector for the class. Each side’s argumentation should have its own color – e.g., affirmative in black marker, negative in red marker. And you should use shapes around the argumentation. Arguments should have a circle around them. Counter-arguments and additional responses should have a square or rectangle around them. Also, lines should connect argumentation when it is responsive, and the lines should have an arrow pointing to the argument that is being engaged with and responded to. Only track new, additive argumentation; do not take note of what is repetitive or non-germane. (See the model for an illustration of shaping arguments by tracking them on a board, as described here.)

**(13)** You can offer a verdict on each round by very briefly analyzing the tracked argumentation on the board, noting especially successful uses of evidence or of refutation, and resolving each argument toward an overall choice of one of the sides.

**(14)** Conclude the project by having students write an argument essay from an argument writing template.

**(15)** Use Argument-Centered Education assessment rubrics for in-class debating and argument

writing.