**Subject area/course**: Science/Environmental Science

**Grade level/band**: 11-12

**Task source**: Envision Schools; Task author: Sarah Berry

**Nuclear Power: Negotiation of Nations**

**TEACHER'S GUIDE**

1. **Task overview**:

In this task, students assume the role of a representative of a country responsible for drafting a proposal to bring to the global nuclear power summit. Students will research the current context in their country and decide whether their country will support or oppose a proposal to bring nuclear power to every country in the world. Students will write a 4- to 5-page argumentative essay to bring to the global climate summit that includes the current context of their country, their position in this global debate, and a detailed analysis of why their position is the most logical considering their country’s current ecological, economic, and social/political context. Finally, students will represent their country as the global climate summit debates the nuclear power proposal.

1. **Aligned standards:**
2. **Primary Common Core State Standards**

[CCSS.ELA-Literacy.RST.11-12.7](http://www.corestandards.org/ELA-Literacy/RST/11-12/7/) Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

[CCSS.ELA-Literacy.RST.11-12.9](http://www.corestandards.org/ELA-Literacy/RST/11-12/9/) Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

[CCSS.ELA-Literacy.WHST.11-12.1.a](http://www.corestandards.org/ELA-Literacy/WHST/11-12/1/a/) Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.

[CCSS.ELA-Literacy.WHST.11-12.5](http://www.corestandards.org/ELA-Literacy/WHST/11-12/5/) Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

[CCSS.ELA-Literacy.WHST.11-12.1.e](http://www.corestandards.org/ELA-Literacy/WHST/11-12/1/e/) Provide a concluding statement or section that follows from or supports the argument presented.

[CCSS.ELA-Literacy.WHST.11-12.7](http://www.corestandards.org/ELA-Literacy/WHST/11-12/7/) Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

1. **Critical abilities**

Research: Conduct sustained research projects to answer a question (including a self-generated question) or solve a problem, narrow or broaden the inquiry when appropriate, and demonstrate understanding of the subject under investigation. Gather relevant information from multiple authoritative print and digital sources, use advanced searches effectively, and assess the strengths and limitations of each source in terms of the specific task, purpose, and audience.

Analysis of Information: Integrate and synthesize multiple sources of information (e.g., texts, experiments, simulations) presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to address a question, make informed decisions, understand a process, phenomenon, or concept, and solve problems while evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

Use of technology: Present information, findings, and supporting evidence, making strategic use of digital media and visual displays to enhance understanding. Use technology, including the Internet, to research, produce, publish, and update individual or shared products in response to ongoing feedback, including new arguments or information.

Communication in Many Forms: Use oral and written communication skills to learn, evaluate, and express ideas for a range of tasks, purposes, and audiences. Develop and strengthen writing as needed by planning, revising, editing, and rewriting while considering the audience.

Interpersonal Interaction and Collaboration: Develop a range of interpersonal skills, including the ability to work with others, to participate effectively in a range of conversations and collaborations.

1. **Next Generation Science Standards**

* Construct and revise an explanation based on valid and reliable evidence obtained from a variety of sources (including students’ own investigations, models, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. (HS-LS1-6),(HS-LS2-3)
* Ask questions that arise from examining models or a theory to clarify relationships. (HS-LS3-1)
* Make and defend a claim based on evidence about the natural world that reflects scientific knowledge, and student-generated evidence. (HS-LS3-2)
* Evaluate the claims, evidence, and reasoning behind currently accepted explanations or solutions to determine the merits of arguments. (HS-LS2-6)
* Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects. (HS- LS4-2),(HS-LS4-4),(HS-LS4-5)

1. **Time/schedule requirements:**

This task will take approximately three to four weeks. See the checklist of activities in the Student Support section below for details.

1. **Materials/resources:**

* One notecard per student for the first activity
* Access to the Internet for research
* Introductory readings provided by the teacher

1. **Prior knowledge:**

None listed.

1. **Connection to curriculum:**

None listed.

1. **Teacher instructions:**

After introducing the task to students, allow students to pick countries at random or in another manner that works well for your class. One possible way to group students is to show them a list of countries that are available for study and ask them to fill out a note card with the following information:

* Name
* Three countries they would be happy to study in the order of preference
* The names of three people in the class they would especially like to work with

The following is a possible list of countries from which students may choose. You may add to or subtract from this list based on units of study that your class has completed.

* Australia
* China
* France
* Germany
* Japan
* Kazakhstan
* North Korea
* Russia
* Saudi Arabia
* Switzerland
* Ukraine
* United States

1. **Student support:**

The following checklist of activities may serve as a guide to help students in this assignment. It isn’t a complete list of everything students will need to do to be successful.

|  |  |  |  |
| --- | --- | --- | --- |
| Complete? | Task Name | Description | Due Date (Fill in with your teacher) |
| ☐ | Country Introduction | Research your country and write one paragraph about your country and their current energy use. |  |
| ☐ | Nuclear Energy Research | Research the pros and cons of nuclear energy use. |  |
| ☐ | Nuclear Energy Mini-Debate | Debate in small groups from both the supporting and opposing sides of this argument. |  |
| ☐ | Claim | Write your initial claim about how you think your country would feel about nuclear power. |  |
| ☐ | Economic Support Paragraph | Write a paragraph with evidence in support of your claim about how nuclear power would affect your country economically. |  |
| ☐ | Environmental Support Paragraph | Write a paragraph with evidence in support of your claim about how nuclear power would affect your country environmentally. |  |
| ☐ | Social Support Paragraph | Write a paragraph with evidence in support of your claim about how nuclear power would affect your country socially. |  |
| ☐ | First Draft of Opening Statement | Combine information from your country introduction, 3 supporting paragraphs, and a conclusion to create an opening statement for your country. |  |
| ☐ | Peer Editing | Your fellow country members will read your opening statement and give you feedback. Together, you will decide which parts of each opening statement you want to use in the final debate. |  |
| ☐ | Practice Debate #1 | Mini-debate with three rounds: 1. Read position statements. 2. Open debate. 3. Form alliances. 4. Open debate. |  |
| ☐ | Final Draft of Opening Statement | You will have time to revise your opening statement based on peer and teacher feedback. The final draft should be ready for the exhibition. |  |
| ☐ | Practice Debate #2 | This will be a dress rehearsal for the exhibition. |  |
| ☐ | Exhibition | Debate will follow the same format as Practice Debate #1, but you will be grouped with different team members. |  |

1. **Extensions or variations:**

* Students could add a multimedia presentation including a PowerPoint and/or video presentation in support of their arguments.
* Several classes could combine to argue for or against nuclear power in their countries.
* As an alternative to informational texts, students could be provided with short videos or podcasts to provide material regarding nuclear power and/or their chosen country.
* Students could be allowed to work in pairs collaborating on the research component.
* Students should be provided access to guiding charts/tables to help them organize information.

1. **Scoring:**

Student work can be scored using the SCALE Scientific Literacy Rubric and the SCALE Effective Communication Oral Presentation Rubric.