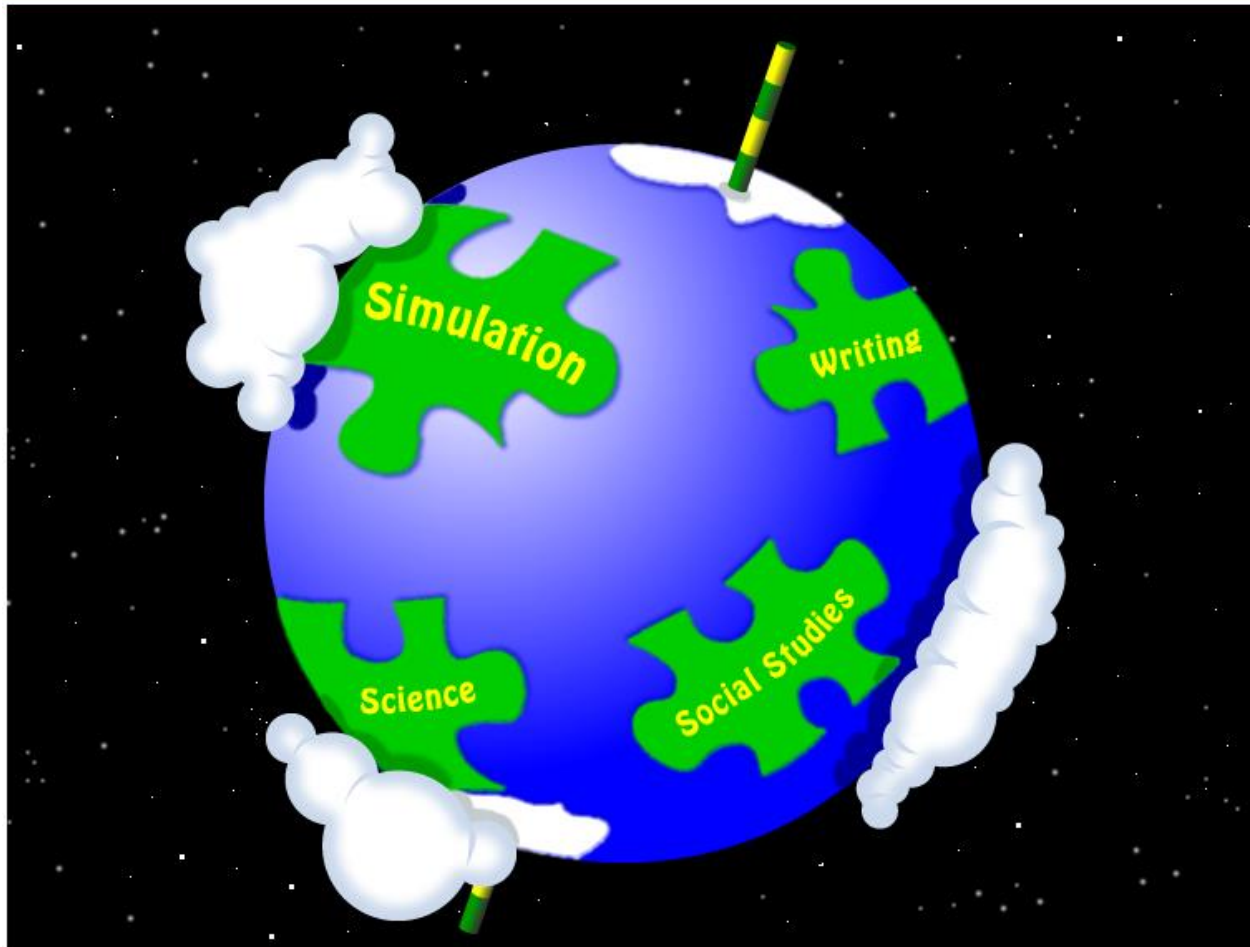# Water Simulation
Teacher Curriculum Guide©

GlobalEd2

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Revised by Nicole Powell & Scott W. Brown (2013)

Contents

Welcome GlobalEd 2 Teachers

We are delighted that you and your students are participating in the GlobalEd 2 Project. In an effort to assist you in implementing the GlobalEd 2 project in your classrooms, we created the GlobalEd 2 Teacher Curriculum Guide.

We begin the GlobalEd 2 Teacher Curriculum Guide by introducing the GlobalEd 2 project and explaining the three phases of the simulation—the preparation phase, the Interactive phase and the debriefing phase. We also provide you with detailed lesson plans to support your simultaneous instruction of science, social studies and writing in your classroom. We recognize that each school has its own unique administrative constraints and diverse student needs. Therefore, we encourage you to revise the lessons in order to accommodate your school and your students. In the appendix of the Teacher Curriculum Guide we provide assessment materials to assist you in assessing your students' progress. The national Social Studies, Science and Language Arts standards are located in the appendix as well.

The GlobalEd 2 Teacher Curriculum Guide makes references to supplementary research and educational materials, including PowerPoints that we created to provide you and your students with additional information about water science. The PowerPoints are located on the Teachers section of the GlobalEd 2 website. You can access these PowerPoints by accessing the GlobalEd 2 teacher page at http://www.globaled.uconn.edu/teachers_water/index.html. The Water Science PowerPoints are located under Curriculum Resources.

In addition to the Teacher Curriculum Guide, we created the GlobalEd 2 Student Workbook. The Student Workbook provides your students with the scenario and the four issues areas. It also provides various worksheets to help your students learn about water scarcity, the country your class is representing, and a variety of Social Studies, Science and Language Arts concepts. A number identifies each worksheet in the Student Workbook. The Teacher's Curriculum Guide references the worksheet number so that you and your students can easily identify it. You can either make photocopies of the individual worksheets in the Student Workbook, or you can copy the entire Student Workbook for each of your students. If you decide to copy individual worksheets for your students, we recommend that you instruct your students to store the worksheets and other pertinent GlobalEd 2 material in their GlobalEd 2 folder. Many of the worksheets students complete are referenced multiple times throughout the various phases of the GlobalEd 2 project and students will need to keep the worksheets in a safe place in order to refer back to them.

Lastly, the GlobalEd 2 Team is accessible by e-mail. Please feel free to contact us anytime at: globaled2@gmail.com

Best wishes,
The GlobalEd 2 Team

Welcome to GlobalEd 2 - Expanding the Science and Literacy of Curricular Space

Utilizing educational technologies currently available in most middle schools (computers with Internet connection) GlobalEd 2 situates students in a virtual, international decision-making environment focused on critical world issues. Across the country about 12-16 social studies classrooms participate in the simulation. Each classroom is assigned a country to represent. Within each classroom or "country", students are further divided into issue area groups such as global health, human rights, international economics, and either conflict and cooperation or global environment.

The students in these issue area groups then interact with their counterparts in other "countries" over a five-week period, through a web-based environment in order to negotiate some mutually agreeable resolution to a world issue like water scarcity or global climate change. The students in the different classrooms are "blinded" from one another. As such, they are known only as "the Iranian human rights council" or the "Uganda economic group". This removes any issue of gender, racial or socio-economic bias from entering into the deliberations.

Students learn a great deal about the country they are representing, the other countries in the simulation, global policy and the art of international negotiation - all traditional standards in the social studies curricula. However, also note that the students are negotiating content that has a scientific focus, and that all of the communications are written. In the water simulation, the focus is on the world's water scarcity problem. The climate change simulation focuses on the global effects of a changing climate. During "negotiations" among countries issue area groups, students must learn about scientific concepts like the water cycle, pollution, desalination, climate change, greenhouse gases and carbon sequestration. So in addition to meeting the social studies standards for 7th/8th grade, GlobalEd 2 serves as an expanded curricular space for engaging students in real life science and writing tasks - both of which are important 21st century skills.
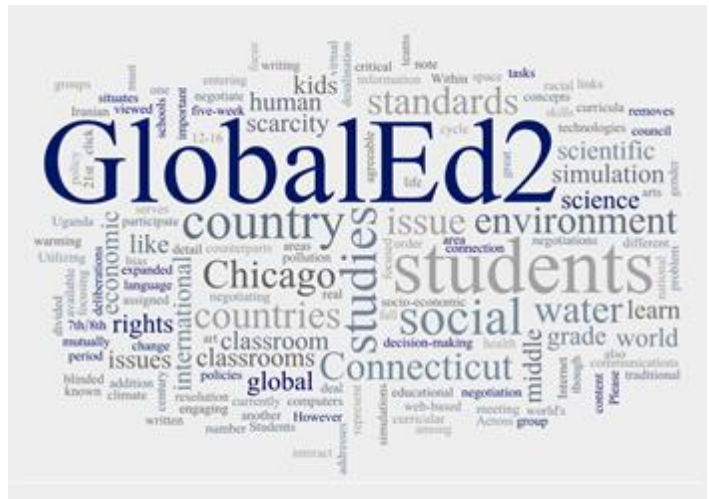
Issue Area Groups

There are four issue areas in the Water Scenario: (1) global environment, (2) international economics, (3) human rights, and (4) global health. During the research phase of the GlobalEd 2 project the issue area groups become experts on their country's position, interests, goals, and strategies relevant to the respective issue area. This knowledge enables them to discuss topics pertaining to their issue areas and craft policy proposals during the interactive phase of GlobalEd 2 project. Each issue area section within the scenario is complemented by a set of research questions and agenda questions to guide the students' research endeavors. You, the teacher, will need to assign each of your students to one of the four issue areas. We recommend that you assign your students to various issue area groups after the class as a whole has gained a preliminary understanding of water scarcity and is familiar with the country your class is representing. Students are typically ready to be assigned issue areas during the third week of the preparation phase of the GlobalEd 2 project. Assigning your students to various issue area groups based on their unique strengths, taking into account their academic, social, and technological abilities, and their willingness to work collegially with the other students assigned to the same issue area group, will ensure a successful simulation experience.

Three Phases of the GlobalEd 2 Project

- Research/Preparation
- Interactive
- Debriefing

Research/Preparation Phase (approximately six weeks)

Prior to introducing your students to the scenario, you must administer the student pre-assessments. The pre-assessments capture your students' baseline knowledge. After you have administered these assessments, you and your students may embark on the GlobalEd 2 project.

During the preparation phase, you, as the teacher, are tasked with introducing your students to the scenario, teaching your students about science concepts relevant to water scarcity, assisting your students with researching the country your class is representing, and assisting your students with researching the issue areas to which they are assigned. The preparation phase is essential because it is during this phase that students develop their knowledge about water scarcity, the country your class is representing, and the issue area to which they are assigned. The knowledge base your students develop over the eight week preparation phase enables your students to successfully engage in international negotiation during the Interactive phase of the GlobalEd 2 project. During the preparation phase, in addition to building a knowledge base, your students develop their academic/scientific writing skills and are introduced to how they are expected to correspond with delegations from other countries during the simulation.

During the preparation phase, your students hone their research skills. They critically evaluate a variety of resources and develop note-taking strategies that enable them to organize information in a way that can easily be accessed during the Interactive phase of the GlobalEd 2 project. In an effort to aid you in facilitating your students research efforts, this Teacher

Curriculum Guide provides you with lesson plans and supplemental resources, which are available on the GlobalEd 2 website.

The concluding activity of the preparation phase involves developing an opening statement. This activity occurs after your students have extensively researched water scarcity, the country your class is representing and the issue areas to which they are assigned. Students are required to use claims that are supported by evidence and reasoning in their opening statements. We encourage you to provide your students with models of both strong and weak opening statements so they can identify features that comprise a good opening statement. Each issue area group is responsible for creating an opening statement and posting it at the start of the Interactive phase of the GlobalEd 2 Project.

Interaction Phase (approximately six weeks)

The Interactive phase provides students with the opportunity to participate in international negotiations and to create policies that reflect the desires of the country they're representing. During the Interactive phase, your students work primarily within their issue area groups. Each issue area group participates in two conferences during the Interactive phase. The conferences are guided by agenda questions. During the conferences, each country's issue area group negotiates possible solutions to the challenges posed within the issue areas. It is important to remind your students that they are representing a country in these negotiations and must act accordingly. Throughout the five week Interactive phase students are also responsible for sending daily messages or communiqués and reading the messages that other countries post. This is an important aspect of the Interactive phase because the daily messages reflect on the discussion that occurs during the conferences.

Your students will learn: A communiqué is a diplomatic message sent as an e-mail message or as a real time conferencing statement within the simulation. Communiqués are short one or two paragraph messages that summarize an issue. The purpose of a communiqué is to document a particular position as a starting point for further discussion and for future reference. Communiqués serve many functions: they provide information, pose questions to other countries, ask for clarification or further evidence, propose a solution, or answer questions other countries have posed. Each communiqué should contain three elements: a claim, evidence, and reasoning. We recommend providing your students with examples of communiqués and reviewing what a good communiqué looks like. The Teacher Curriculum Guide provides you with lessons to facilitate your students understanding of communiqués.

At the end of the Interactive phase, issue area groups are responsible for composing closing statements. The components of a closing statement include: (a) mention of progress (or lack thereof) during the simulation's negotiations, (b) discussion of where negotiations need to go from this point forward, and (c) an explanation of primary roadblocks to future political or scientific progress. The closing statement is similar to the opening statement. It is essential that students are allotted adequate time to create and revise their closing statements.

Debriefing Phase (approximately two weeks)

The debriefing phase allows students to reflect on their GlobalEd 2 experience. During the debriefing phase students take part in various in-class discussions that enable them to reflect on their experience. Students also take part in the debriefing conference, which allows students

to discuss how the simulation impacted them personally and how it possibly changed their view of the world. At this time, students have the opportunity to express their frustrations and celebrate their accomplishments over the course of the simulation.

During the debriefing phase, we recommend that you, the teacher, take time to create space in your classroom for your students to reflect on their experiences throughout the simulation. In-class discussion allows your students to express how the simulation affected their understanding of the world. We recommend that you provide your students with questions to spark a reflective conversation. For example:

- How was the simulation experience similar (or dissimilar) to the real world?
- How did technology impact what you did? What would have been different if negotiations had been conducted face-to-face?
- In what ways did the scientific concepts we discussed before the simulation come into play during the simulation? Do you think it is important that policy-makers seek the guidance of scientific experts before enacting policy?
- What else should you have known to be able to negotiate and make decisions effectively during the simulation?
- What would you change about the simulation experience? Why?
- What did you learn about water scarcity? How was this different from what you might learn in a traditional science class?
- What did you learn about the countries that participated in the simulation? How was this different than how you might typically learn in a social studies class?

Push your students to go beyond the common responses: "It was fun" or "I liked my group." You might find it useful to ask what sort of policies your students proposed during the simulation and how other countries received those policy proposals. It may also be helpful to ask your students to compare the experiences they had within their issue area groups. For example, were some groups able to more effectively communicate with other countries, and if so, why do the groups feel this was the case. Or, perhaps some issue area groups were able to persuade their adversaries to agree to support a policy proposal, while other issue areas were not. Explore why this might have occurred.

Having students write a reflection paper about the simulation, conduct an examination of message flows, or compare their opening statements to their closing statements may provide students with additional debriefing benefits. These additional activities will enable students to reflect on how much they learned. Debriefing will allow your students to solidify their learning experience and express how this experience has impacted their thinking.

You also need to administer the post-assessments during this time.

Additional Materials for Teachers
Teacher's Guide to the Scenario Introduction and Issue Areas

The GlobalEd 2 Water Simulation Scenario Introduction and the Water Simulation Scenario Issue Areas provide students with information pertaining to water scarcity, the environment, international economics, global health and human rights. The student version of the Scenario Introduction and Scenario Issue Areas are provided in the Student Workbook and on the GlobalEd2 website. The Teacher's Guide to the GlobalEd 2 Water simulation Scenario

Introduction and Issue Areas is found in Appendix C of this guide. It provides you, the teacher, with questions for your students to think about before reading the scenario, a list of concepts that students should familiarize themselves with, and questions students should begin to think about after they have finished reading the scenario.

Lessons Plans

Most lesson plans include objectives, materials lists, detailed procedures, and assessments. Each lesson has also been identified by focus: social studies (SS), science (Sci), writing (w), and general (G). The general lessons include research skills such as reviewing Internet sources and creating research questions.

PowerPoint Presentations

The GlobalEd 2 website provides you with supplementary materials, such as PowerPoint presentations that allow you to provide water science instruction to your students. For example, students may need additional support to understand the hydrological cycle. If this is the case, you can use the Hydrological Cycle PowerPoint to review the key concepts and ideas. These PowerPoints are designed to take 5-15 minutes and can be used in conjunction with any lesson. While students are conducting their research on their issue area and the scientific issues related to that area, they may come across concepts that they need additional support to understand. Please take advantage of these additional resources.

National Standards

The simulation is designed to meet national standards for Social Studies, Science and Language Arts. For example, with respect to Social Studies standards, students learn about other cultures in two ways. First, they must research the foreign policy and cultural perspectives of a country other than their own and represent that country's views as its policy-makers during the simulation. Students learn that every culture perceives phenomena in different ways and productive policy initiatives must account for these divergent perceptual lenses. Second, many are, for the first time, able to experience and evaluate American foreign policy from a "non-American" perspective, as they must respond to statements and actions made by a United States team in the simulation. A full explanation of the standards are found in the appendix of this guide.

Teacher Checklist by Phases

Research/Preparation Phase

- ☐ Send home parental permission forms with GlobalEd2 students
- ☐ Read aloud students assent form in class and allow students to sign it
- ☐ Administer pre-assessments
- ☐ Introduce students to the GlobalEd 2 project
    - ☐ Provide an overview of how the GlobalEd 2 project works, including a preliminary introduction to all of the different phases
    - ☐ Introduce the Water Scenario and the scientific concepts associated with water scarcity
    - ☐ Introduce your class to the country they are representing
    - ☐ Overview of "how the simulation works"
- ☐ Assign students to an issue area group: (1) global environment, (2) international economics, (3) human rights, and (4) global health
- ☐ Prepare students to write opening statements using claims, evidence, and reasoning in their writing
    - ☐ Review examples of opening statements
- ☐ Instruct each issue area group to create an opening statement
    - ☐ Have students post opening statement prior to the beginning of the Interactive phase.

Interactive Phase

- ☐ Within each issue area group have students:
    - ☐ Review opening statements of other countries
    - ☐ Begin daily message exchanges
    - ☐ Participate in two scheduled issue area conferences
    - ☐ Prepare closing statement and upload prior to the end of the Interactive phase
- ☐ The entire class should be engaged in:
    - ☐ Researching the country the class is representing, water scarcity, and the issue area they are assigned
    - ☐ Honing their writing skills: communiqué exchanges, diplomatic language, and use of claim-evidence-reasoning writing

Debriefing Phase

- ☐ Conduct an in-class reflective discussion and have students complete the reflective assignments
- ☐ Possible assignments
    - ☐ Take home paper
    - ☐ Examination of message flows
    - ☐ Look back at opening statements – how far did the students come?
- ☐ Have students participate in scheduled debriefing conference
- ☐ Administer post-assessments

Calendar of Research/Preparation Phase Lessons

Week	Day 1	Day 2	Day 3	Day 4	Day 5
1	1: Introducing GlobalEd 2	2: Why is Water so Important?			
2	3: Carrying Water Activity (Part 1)	4: Our Simulation Country	5: The Issue Areas		
3	6: Claim, Evidence, and Reasoning	7: Academic vs. Propaganda Persuasion	8: Assertions, Questions, Proposals	9: Meeting our Issue Area Groups	
4	10: Reviewing Internet Resources and Determining Website Validity	10: Reviewing Internet Resources and Determining Website Validity (Cont.?)	11: Creating Research Questions	12: Beginning the Research	12: Beginning the Research (Cont.)
5	13: Carrying Water Activity (Part 2)	14: Opening Statements and Hamburgers	15: More Research	16: Culture Activity	17: More Research (week 5)
6	18: Geography Activity	19: Writing Your Opening Statement	20: Graphic Organizers for Opening Statements: Statement of problem facing country	21: Graphic Organizers for Opening Statements: What the country has done	22: Graphic Organizers for Opening Statements: Statement of problem facing broader international community
7	23: Graphic Organizers for Opening Statements: Signaling of policy intent	24: Pulling Together the Opening Statements	25: Issue Area Goals	26: Creating our Issue Area Opening Statements	26: Creating our Issue Area Opening Statements (Cont.?)
8	26: Creating our Issue Area Opening Statements (Cont.?)	26: Creating our Issue Area Opening Statements (Cont.?)	27: Highlighting the Issue Area Opening Statements	28: Using Checklists to Revise the Issue Area Opening Statements	29: Posting Issue Area Opening Statements and Exploring the User Interface

Calendar of Interactive Phase Lessons

Week	Day 1	Day 2	Day 3	Day 4	Day 5
1	1: Allies and Adversaries	2: Reviewing the Types of Posts	3: Preparing for the First Live Conference	3: Preparing for the First Live Conference (Cont.?)	3: Preparing for the First Live Conference (Cont.?)
2	4: First Live Conference	5: A Typical Day during the Interactive Phase	6: Diplomatic Language	7: Reviewing Academic vs. Propaganda Language	
3	8: Preparing for the Second Live Conference	5: A Typical Day during the Interactive Phase	5: A Typical Day during the Interactive Phase	5: A Typical Day during the Interactive Phase	
4	9: Creating our Closing Statements	10: Writing the Closing Statements	10: Writing the Closing Statements (Cont.?)		
5	10: Writing the Closing Statements (Cont.?)	10: Writing the Closing Statements (Cont.?)	11: Highlighting Closing Statements		

Calendar of Debriefing Phase Lessons

Week	Day 1	Day 2	Day 3	Day 4	Day 5
1	1: We Made It! Reflecting on the Simulation as a Whole	2: Revisiting Allies and Adversaries	3: Debriefing Conference	4: Comparing Our Opening and Closing Statements	
2	5: Successful and Unsuccessful Communiqués	6: Final Reflection	6: Final Reflection (Cont.?)	6: Final Reflection (Cont.?)	6: Final Reflection (Cont.?)

Water Simulation Lesson Plans

Research/Preparation Phase Lessons

Interactive Phase Lessons

Debriefing Phase Lessons

Research/Preparation Phase Lesson 1: Introducing GlobalEd 2

Week: 1   Period(s): 1   Focus: Sci

Overview: The students learn what GlobalEd 2 is and are introduced to the simulation issue. The students decide whether to participate in the research study.

Materials:

- Parental Permission Forms for each student
- Student Assent Forms for each student
- Chart paper or poster board and markers
- LCD projector and computer
    - Ready with downloaded videos – these videos originally appeared on http://www.un.org/waterforlifedecade/index.html
        - *Water: Drop of Life* can now be found at: http://www.youtube.com/watch?v=6IC9R7hezd0
        - *Splish and Splash* can be found at: http://www.un.org/waterforlifedecade/kids.html - choose and download "Splish and Splash Video"
        - To save the videos, when you click on the video select "Save file." This way your video will play at the highest resolution possible.
- GlobalEd 2 Student Workbook
    - *4. Water: Drop of Life* Video Viewing Task
    - *5. Splish and Splash* Video Viewing Task
- Materials for Available Fresh Water Demonstration
    - 2-liter plastic bottle
    - 2-3 tsp salt, green food coloring
    - 4 tbsp (60 ml) yellow corn oil
    - water

Procedure:

- Please begin class by reading aloud the student assent forms and allow the students to sign the assent forms whereby signifying their willingness to participate in the GlobalEd 2 project. Please collect the assent forms from the students before moving on to the substantive lesson.
- Introduce students to GlobalEd 2. Explain that they will be working in the coming weeks as "science advisors" to global decision makers to address the global water problem.
- Use chart paper or poster board to record student responses to the question "What are global water issues?"
- Select a video or videos to watch with your students. It is recommended you select either *Water: Drop of Life* or *Splish and Splash,* and then view *Thirsty world: Desperate quest for water.* While watching the video, students should complete the Video Viewing Task for the video you selected.

- o *Water: Drop of Life* - available at http://www.youtube.com/watch?v=6IC9R7hezd0 (10:36 min)
  - Geared towards older audience. Narrator discusses water scarcity and other water issues.
- o *Splish and Splash* - available at http://www.un.org/waterforlifedecade/kids.html (16:45 min)
  - Geared towards children. Introduced to water issues by two animated drops of water, Splish and Splash.
- o *Thirsty world: Desperate quest for water* – available at http://www.cnn.com/2008/TECH/science/09/23/what.matters.thirst/index.html (1:57 min)
  - Excerpt from "What Matters," the latest book by "Day in the Life" series creator David Elliot Cohen. The photo essay and narration show the importance of safe drinking water and water sanitation.

- Reread the chart "What are global water issues?" and using another color marker, ask students to add other global water issues to their original list. Store this paper to refer back to at the end of the simulation during **Debriefing Phase Lesson 1: We Made It! Reflecting on the Simulation as a Whole.**
- Conduct the "Available Fresh Water Demonstration."

> ### Available Fresh Water Demonstration
>
> *You will need:*
> - *2-liter plastic bottle*
> - *2-3 tsp salt*
> - *green food coloring*
> - *4 tbsp (60 ml) yellow corn oil*
> - *water*
>
> 1. Put a few drops of green food coloring into the bottom of the plastic bottle.
> 2. Pour water into the container until just past the base of the neck.
> 3. Add 2-3 tsp. of salt to the green water. Explain that this water represents ocean water which is salty and cannot be used to drink or water fresh water plants.
> 4. Slowly pour 4 tbsp (60ml) of corn oil on top of the salt water in the 2 liter bottle. Explain that the corn oil represents 3% of the fresh water that is available on Earth. This is all the fresh water that is available for drinking, plant use and all of our other fresh water needs.
>
> *Source: http://www.carlsbadca.gov/water/wdkids2.html*

- Distribute Parental Permission Forms to each student.

Other Resources

- United Nations Cyber School Bus Water Slideshow. "International Year of Freshwater 2003." Available at: http://www.un.org/cyberschoolbus/freshwater2003/slide2_a.asp

Answer Key for 4. Water: Drop of Life Video Viewing Task

1. Answers vary
2. 2.5%
3. Possible answers
   a. Human waste
   b. Agricultural waste
   c. Industrial waste
4. 70%

Answer Key: 5. Splish and Splash Video Viewing Task

1. Possible answers
   a. Don't run the water while washing the dishes.
   b. Only run your washing machine and dishwasher when full.
   c. Keep pitcher of water in refrigerator, better than running the faucet until its cold.
   d. Install a low flow showerhead.
   e. Turn off the water while you brush your teeth.
   f. Fill a milk bottle with water and put it in the toilet cistern.
   g. Everything relates to water- It makes up fruits and vegetables, so be aware of how water relates to all elements of your life.
   h. Make smart choices; choose products that come from agriculture that respect the environment.
   i. Keep your community clean, recycle, do not litter.
   j. Get friends and families to be water conscious.
   k. In many countries water is of excellent quality, drink tap water to save environment.
2. Nearly 2 million
3. 70%
4. Possible answers
   a. Use machine to water close to the ground
   b. Use a hose with holes in it
   c. Link water to a computer in greenhouses
5. Use filters

Research/Preparation Phase Lesson 2: Why is Water so Important?

Week: 1   Period(s): 1   Focus: Sci

Overview: Students learn why water is so important, and delve into some of the key concepts surrounding the Earth's water resources: scarcity of fresh water, hydrological cycle, and water quality issues.

Materials:
- LCD projector and computer or overhead projector to project the **1. Water Simulation Scenario Introduction**
- Highlighters
- Materials for key terms list –
  - index cards to write words on or
  - chart paper to make a list of key terms
- Materials for Water Cycle Experiment
  - a large clear glass bowl
  - a small bowl
  - cling film
  - a weight
- GlobalEd 2 Student Workbook
  - **1. Water Simulation Scenario Introduction**
  - **6. Personal Water Audit**
- **C.1. Teacher's Guide to the Simulation Introduction and Issue Areas** (found in the appendix of this guide)

Key Terms:
Water
Hydrologic cycle
Scarcity
Sulfur Dioxide
Nitrous dioxide
Sovereignty
Security
Climate change
Infrastructure
Refugees
Desertification
Displacement
Optimal solutions

Procedure:
- Use **C.1. Teacher's Guide to the Simulation Introduction and Issue Areas** (found in the appendix of this guide) to help you prepare for this lesson. This guide provides you with information to guide your discussion by providing you with questions to ask your students before and after they read the scenario, as well providing you with a list of key concepts.
- Explain to your students the **1. Water Simulation Scenario Introduction** is going to provide more information about global water issues and will help prepare them for their GlobalEd 2 simulation. Remind them that they are science advisors at this point, and that the science they learn now will give them the background knowledge they need to become effective decision makers during the Interactive phase of the GlobalEd 2 project.
- Use an LCD projector or an overhead projector to review how to read informational texts. Prior to reading the text, demonstrate the usefulness of looking through the text at the figures or images to preview what you are reading. Use this as an opportunity to review note-taking and highlighting skills. Read a section of the text with your students,

and have them identify key words or ideas to highlight. Have students highlight and take notes on their own copy of the scenario. While reading the scenario, you can begin your class key terms or vocabulary list, whereby keeping track of important water concepts and words. You can keep this list posted in your classroom on chart paper or a bulletin board throughout the simulation for students to review. Some possible terms are included in the "Key Terms" list above.

- After reading the text, take time to discuss the research questions at the end.
- Conduct the "Water Cycle Experiment" with your students.

Water Cycle Experiment

You will need – a large clear glass bowl, a small bowl, cling film and a weight (or a pebble).

- Step 1: Put some water into the bottom of the large glass bowl.
- Step 2: Place the small bowl carefully in the center of the large bowl.
- Step 3: Cover the top of the large bowl with cling film so there are no gaps. Don't pull it too tightly.
- Step 4: Place a weight in the centre of the cling film so the film sags in the middle.
- Step 5: Place the bowl in direct sunlight and leave it for a few hours.

The sun will heat the water in the bowl causing it to evaporate into water vapour. This will then rise, hit the cling film, cool and then condense forming water droplets. The droplets will continue to collect on the cling film until they become too heavy to stay there when they will drip down and fall into the small bowl in the center. The weight is there to provide a sloping surface for the water to drip down and guide it into the smaller bowl.

Source: http://www.shoalwater.nsw.gov.au/education/watercycle_experiment.htm

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Assessment:
- Assess your students understanding of the 1. Water Simulation Scenario Introduction text during the discussion of the research questions at the end of the section.

Homework:
- Students should complete 6. Personal Water Audit for homework the night before lesson 3.

Research/Preparation Phase Lesson 3: Carrying Water Activity (Part 1)

Week: 2   Period(s): 1   Focus: Sci

This lesson is from the Earth Day Network. To see the full lesson plan, go to:
http://www.eeweek.org/assets/files/EDN%20Water%20Lessons/Carrying_Water_5-8.pdf

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Carrying Water
Brenna Holzhauer

INTRODUCTION

In this lesson, students will audit their personal daily water usage, and will participate in a class discussion about water use and conservation. Through an introduction to the Kenyan village of Kapsasian, group mathematical problem solving, and class discussions, students will have a better understanding of the problems faced by those who lack access to water.

LESSON OVERVIEW

Grade Level & Subject: Grades 5 – 8: Mathematics and Social Studies (Mathematics calculations are most appropriate for Grades 7 & 8 or advanced Grade 6. This lesson can be adjusted by skipping the **Kapsasian Calculations** section.)

Suggested Length: One class period (45 – 90 minutes)

Objectives:
After completing this lesson, students will:
- Have a better understanding of their personal daily water usage.
- Brainstorm ideas of ways to conserve water and reduce their daily usage.
- Understand the problems associated with lack of access to water in other parts of the world.
- Improve their math and problem-solving skills in a real world context.

Materials Needed:
- Chalkboard or whiteboard
- Completed **6. Personal Water Audit**

Assessment:
- Review pre-assignment: **6. Personal Water Audit**
- Evaluate student participation in and contribution to class discussion

LESSON BACKGROUND
Conversion Information:
- 1 U.S. liquid gallon is equal to 3.785411784 liters
- 1 U.S liquid gallon is equal to 128 fluid ounces
- 1 kilometer is equal to 0.621371192 mile

Information:
According to World Health Organization estimates in 2006, 1.1 billion people do not have access to improved sources of drinking water. The lack of access to improved sources of drinking water negatively impacts almost every aspect of peoples' daily life.[1] Nearly everywhere around the globe, collecting water is the responsibility of women and children. Women and children often have to collect and carry water for several miles every day. In addition to the time and energy spent on water collection, unsafe and unsanitary conditions exacerbate the water scarcity problem. Although most citizens in the United States generally have reliable access to clean water, conditions such as drought, pollution, increased population and unequal distribution of natural resources threaten our water supply, therefore, it necessary for each of us to conserve water by finding ways to reduce our daily water usage.

Resources:
- **The Global Water Network:** www.globalwaternetwork.org
- **Kenya:**
  - CIA World Factbook: www.cia.gov/library/publications/the-world-factbook/geos/ke.html
  - Official Kenya Destination Website: www.magicalkenya.com

LESSON STEPS
Warm-up: 6. Personal Water Audit – *Pre-Assignment*
1. To be done as homework the night before the lesson. Send students home with **6. Personal Water Audit.** This assignment will give students insight into their own daily water usage, and will be an indication of how much water is needed on a daily basis.

Activity One: Daily Water Usage - *Discussion*
1) Begin by listing a range of student water usage totals (as calculated in their **6. Personal Water Audit** pre-assignment) on the chalkboard or whiteboard. Guide students in determining the class average of daily water usage.
2) Lead a discussion of the **6. Personal Water Audit** results, water use, and availability. Use the following questions and answers as a guide:
   a) Were you surprised by your daily personal water usage? Did you imagine that you used more or less water each day? How does your personal total differ from the class average?
   b) How much of your total water was actually *used* and how much was wasted down the drain?
   c) How would your audit look if you did it on a different day of the week or a different time of year? *(Think about summer vs. winter, weekdays vs. weekends, playing with a sprinkler or filling a pool, watering a garden or yard, laundry day, etc.)*
   d) Do you think you actually use more water than what was calculated in your **6. Personal**

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[1] Philadelphia Global Water Initiative, retrieved from www.pgwi.net January 2009.

Water Audit? Why or why not? Remember, this was an audit of your personal water use. (*Remind students that a large majority of water used in the US is in agriculture and industry. For example, it takes thousands of gallons of water to raise a cow to make beef, and nearly all of their food and drink required water to process. In addition, almost every product they use required water to make, transport, etc.*)

e) How do you think your water usage compares to other people in the US? (*Ex: Southwest is very dry, Northwest is very wet, urban vs. rural, poverty levels, etc.*)

f) How do you think your water usage compares to people in other countries? *(Consider climate, cost, availability, access, etc.)*

g) Conditions such as drought, pollution, rising population, and unequal distribution of natural resources threaten our water supply, even in the US. What might happen if we were faced with extreme water shortages? *(Cost would go up, our usage would have to go down, access would be less reliable, conservation practices would become more common, etc.)*

CONCLUSION

In this lesson, students audited their personal daily water usage for a better understanding of how much water is used and wasted on a daily basis. They also discussed the implications and consequences of water shortage. Through class discussions and brainstorming, they thought about ways to conserve water in their own lives.

Research/Preparation Phase Lesson 4: Our Simulation Country

Week: 2   Period(s): 1   Focus: SS

Overview: Students identify the location, population, and water resources of their simulation country.

Materials:
- Computer with Google Earth installed and a projector
    - To install Google Earth go to http://earth.google.com/.
- GlobalEd 2 Folder (for each student)
- GlobalEd 2 Student Workbook
    - **3. Country Profiles for the GlobalEd Simulation**
- Paper and pencils

Procedure:
- Introduce your students to their simulation country. Remind students that they will act as scientific advisors for this nation and they need to learn all they can about the country.
- Use the Google Earth to show your students their country. To begin enter the address of your school under "Fly To." The program will zoom in on the school. Then, enter the name of your simulation country. Now you will fly to the country and see some of the surrounding area. Next, enter the name of the capital of your country. When you fly in, there should be some blue squares, these are places in the city that you can zoom in on and see detailed photographs. Be sure to identify the continent on which your country is located, countries that share the same geographic region as your country (Asia, South America, sub-Saharan Africa…), and the countries that border your country.
- Visually explore the country with your students. You can click on the map and drag the cursor to view different parts of the country or you can type in the names of other areas in the country. Talk about how much of the country is covered with green vegetation and how much water is visible. Ask children to hypothesize if their country is water rich or water poor.
- Now that your students have an idea of what the country looks like and its geographic location in the world, ask students to brainstorm a list of questions about things they want to learn about their country. Record the list and have your students record the list as well.
    - Some questions might include:
        - How many people live in the country?
        - What type of government does the country have?
        - How much water is available?
        - What types of work do people do?
- Visit the following websites to search for the answers to the students questions:
    - CIA World Fact Book. Available at:
      https://www.cia.gov/library/publications/the-world-factbook/

- o Global Water Network. "Global Water Statistics." Available at:
  http://www.globalwaternetwork.org/
    - ▪ Global Water Statistics includes information about Purchasing Power
      Parity per capita income; this is on the country page under
      "Socioeconomic status." For example, in Uzbekistan in 2005 on average
      individuals had an income of the equivalent of $533 a year. This statistic
      divides the Gross Domestic Product, which is a basic measure of a
      country's overall economic output, by all of the people in the country,
      including children. Statistics like these are powerful for your students.
- As you find the answers to the questions the students posed, have your students write
  them down. They will refer back to this information throughout the simulation. Students
  need to have a dedicated place, like the GlobalEd 2 folder, to keep all of their simulation
  documents, information, and notes in.
- Have your students turn to 3. Country Profiles for the GlobalEd Simulation for a
  preliminary glance at their country. This information will be particularly useful during
  the simulation because the country profiles allow students to get an idea of what the
  other countries with whom they are negotiating with are like.

Assessment:
- Check to be sure students record the question posed by the class about the country and
  the answers the class found to those questions.

Research/Preparation Phase Lesson 5: The Issue Areas

Week: 2   Period(s): 1   Focus: SS, Sci

Overview: Students identify key water issues related to the issue areas: Environment, Global Health, Human Rights and International Economics.

Materials:
- GlobalEd 2 Student Workbook
  - 2. Water Simulation Scenario Issue Areas
- LCD projector and computer or overhead projector to project 2. Water Simulation Scenario Issue Areas
- Highlighters
- Materials for key terms list –
  - index cards to write words on or
  - chart paper to make a list of key terms
- **C.1. Teacher's Guide to the Simulation Introduction and Issue Areas** (found in the appendix of this guide)

Key Terms:
Water scarcity
Dead zones
Quality of water
River mouth
Organic matter
Respiration
Environmental degradation
Economic growth
Economic development
Sustainable development
Desalinization
Finite resource
Potable water
Developing countries
Hydropower dam
International Bill of Rights
Universal Declaration of Human Rights
Diarrhea
Fecal-oral transmission
Pathogens
Fecal matter
Microbial pollution
Ecosystems

Procedure:
- Use **C.1. Teacher's Guide to the Simulation Introduction and Issue Areas** (found in the appendix of this guide) to help you prepare for this lesson. This guide provides you with information to guide your discussion, questions to ask students before and after they read the scenario issue areas, and a list of key concepts.
- Explain to your students that the **2. Water Simulation Scenario Issue Areas** reading is going to provide more information about the issue areas that they will be a part of during the GlobalEd 2 simulation. Next week students will be divided into issue area groups. The purpose of this lesson is to introduce all students to the various issue areas.
- Use an LCD projector or an overhead projector to review how to read informational texts. Prior to having your students read the scenario issue areas, demonstrate how they should look through the text at the figures or images to preview what they are about to read. Use this time to review note-taking and highlighting skills as well. Read a section of the text with your students, and then have them identify key words or ideas to highlight. Have students highlight and take notes on their own copy of the scenario issue areas. During the reading of this text, you can add to your class key term or vocabulary list important water concepts and words, which you began in lesson 2. Some *possible* terms are included in the "Key Terms" list above, select terms that you want to focus on.

- After reading each section of the text, take time to discuss the research questions at the end. Encourage students to share their ideas.

Assessment:

- Listen to discussions about the research questions. Make note of any concepts that are particularly difficult, so you can review these in the future. Review students own key words/terms list.

Research/Preparation Phase Lesson 6: Claim, Evidence, and Reasoning

Week: 3   Period(s): 1   Focus: W

Overview: Introduce students to the rules of diplomacy. Formal introduction to writing using a **Claim**, supporting **Evidence**, and **Reasoning** to connect the two.

Materials:
- Whiteboard or chart paper and markers
- GlobalEd 2 Student Workbook
  - 7. Claim, Evidence, Reasoning
  - 8. Rules of Diplomacy
  - 9. Claim-Evidence-Reasoning in Everyday Life

Procedure:
- Review the 8. Rules of Diplomacy page from their GlobalEd 2 Student Workbook. Remind students that throughout the simulation they will act as scientific advisors for their class's country. Learning to write and think like a scientific advisor will help them be successful negotiators.
- Introduce the concept of Claim, Evidence, and Reasoning through a think-aloud, class brainstorm about how students think they can change people's minds, and how other people change our minds. Some sample questions to ask are:
  - Is it possible to change someone's mind?
  - Should you try to change a person's mind?
  - How do you change someone's mind?
  - How do other people change your mind?
  - What are some things people do to change your mind that work?
  - What are some things people do to try to change your mind that you don't like or don't work?
- You will also want to facilitate a discussion about what the terms claim, evidence and reasoning mean. Try not to prompt students to supply the "correct" definitions, by rather let students arrive at their own definition of the terms. Teaching the correct definition of the terms come later. You might want to consider asking your students the following questions:
  - What do you think of when you hear the word "claim"?
  - What do you think of when you hear the word "evidence"?
  - What do you think of when you hear the word "reasoning"?

- Provide students with 7. Claim, Evidence, Reasoning. Review the definitions and discuss how the definitions differ from the brainstorm:
  - **Claim –**   a statement, fact or opinion
  - **Evidence –**   information that provides proof of the claim
  - **Reasoning –**   a statement offered to explain or justify; connects the evidence to the claim

- You may find it useful to use these simple examples or an example and non-example Opening Statements (or your own) to show how the chain of reason works:
    - Example: Scientific reasoning
        - Claim: The sun is hot.
        - Evidence: My skin feels warm.
        - Reasoning: My skin became warmer when the sun came up.
    - Example: Social reasoning
        - Claim: My mom is mad.
        - Evidence: She is frowning.
        - Reasoning: She was frowning yesterday when she said "I am mad."
    - Example: Political reasoning
        - Claim: Japan should join our international organization.
        - Evidence: Japan needs to increase their food supply.
        - Reasoning: Countries in our organization will send food to other countries.
- Think Aloud / Modeling: Tell students they must come up with a C-E-R chain they might use in their own lives. They do not have to use examples that are true or real evidence. Model this in a think-aloud, walking them through the connections between the three elements. Use this example or your own:
    - Claim – My favorite band is the best band.
    - Evidence – They have 5 #1 songs.
    - Reasoning – No other bands have as many number one songs.
- Guided Practice: Student's must write out their own C-E-R chain. If needed, post these guiding descriptions:
    - Your Claim – Something you think is true
    - Your Evidence – What made you think it was true
    - Your Reasoning – What *about* the evidence convinced you?
- Meet-Pair-Share: Discuss in groups or as a class.
    - What was the most difficult part of this exercise? Why?
    - Would this be a useful thing to know how to do? Why or why not?
    - Why might this be a better way to present an argument? [This question leads into the next]
    - What happens if you try to present an argument without using this technique?

Assessment:
- Review students' examples of C-E-R in class and for homework.

Homework:
- Student should complete 9. Claim-Evidence-Reasoning in Everyday Life.
- OR - If students are familiar with Internet research, this can be extended to require a real claim that is validated with research.

Research/Preparation Phase Lesson 7: Academic vs. Propaganda Persuasion

Week: 3   Period(s): 1   Focus: W

Overview: Students identify writing as academic or propaganda persuasion. Students write both academic and propaganda claims.

Materials:
- Whiteboard or chart paper and markers
- Pre-written propagandist and academic post (you can also use the examples provided)
- GlobalEd 2 Student Workbook
  - 10. Persuasive Writing: Valid vs. Invalid
- Paper and pencils for students
- **C.2. Academic vs. Propaganda Argumentation Techniques Charts** (found in the appendix of this guide)

Procedure:
- **C.2. Academic vs. Propaganda Argumentation Techniques Charts** (found in the appendix of this guide). This will provide you with the background information you need to teach your students about academic and propaganda argumentation. Your students have a simplified version in the student workbook: 10. Persuasive Writing: Valid vs. Invalid.
- With an understanding of claim/evidence/reasoning, students can begin to understand the difference between clear, academic persuasion and unclear, propagandist persuasion. During class review the concepts:
  - Academic
    - Uses the Claim/Evidence/Reasoning chain
    - Uses objective, not emotional language
    - Students may understand this as "speaking to adults" language
  - Propaganda
    - Presents Claim without Evidence and/or Reasoning
    - Uses overly emotional language
    - Students may understand this as "speaking to your friends" language
- Modeling
  - Discuss a claim that you want to convince the students of:
    - You should do your homework.
    - You should join (insert extra-curricular activity).
    - You should stay in school.
  - Present to your students two short discussion-post style explanations of your claim (100 – 150 words). One should be academic and the other propagandist. See **C.2. Academic vs. Propaganda Argumentation Techniques Charts** (found in the appendix of this guide) for examples and help writing in these styles.
    - Begin with the propagandist post. For example:
      "Doing your homework is cool. All of the cool students in your class are turning in their homework. Be like the cool students in your class and turn

your homework in too. Students who turn in their homework have more fun than students who do not turn in their homework. Students that do their homework are also more attractive and have more friends. If you do your homework you will be popular. If you do your homework, your friends will ask you to hang out with them on the weekends. If you do your homework other students will think that you are cool and you will have lots of friends and be popular. Do your homework."

- Think aloud how the writing is conceived, including what the writer is hoping to achieve with the content, style, and word choice.
- Ask students how they react to the language of the post. Does it convince you of the claim?
- Think-aloud through writing the academic post. For example:
  "You should do your homework because doing your homework facilitates your in-class learning and promotes an advanced comprehension of the material you are studying. Subsequently, you receive better grades in the course. A better understanding of the material you are studying also promotes higher scores on the assessments that enable you to get accepted into better schools and have brighter futures. Completing your homework assignments helps you to retain the information you are learning. This allows you to perform at a higher level on in-class assignments, as well as on tests and quizzes. Receiving higher grades in your courses makes it more likely that you will get into a better high school. The curriculum at more prestigious high schools helps you to score higher on the standardized tests that colleges evaluate during the admission process. College graduates get jobs that make more money than high school graduates. Doing your homework will help you get better grades which will help you get into better schools and into college."
- Discuss the comparison between the two. Which is more effective? If one is more effective, why might you want to use the other one instead? What are the drawbacks of each?

  o Introduce students to the <u>10. Persuasive Writing: Valid vs. Invalid</u>. Have students identify the different academic and propaganda techniques in the writing examples you provided.
  o Ask students to repeat the exercise using their own claims, one in academic language and one using propagandist language. Remind them to use the <u>10. Persuasive Writing: Valid vs. Invalid</u> to help students write their claims.
    - Which is easier to write?
    - Which do they think is most effective?
    - How can they improve on the academic post?
    - Ask students to exchange work, commenting on which post is more effective and how their classmates might improve the academic post.

Assessment:

- Review students' claims using **C.2. Academic vs. Propaganda Argumentation Techniques Charts** (in the appendix of this guide).

Research/Preparation Phase Lesson 8: Assertions, Questions, Proposals
Week: 3   Period(s): 1   Focus: W

Overview:
Students are introduced to what a communiqué is and how it is used in the simulation.
Students learn to write different types of discussion posts: assertions, questions, and proposals.

Materials:
- GlobalEd 2 Student Workbook
  - **11. What is a Communiqué?**
  - **12. Assertions, Questions, Proposals: Types of Communiqués**
  - Completed student homework from the C-E-R lesson **9. Claim-Evidence-Reasoning in Everyday Life**
  - **13. Assertions, Questions, Proposals Task** (homework)
- Whiteboard or chart paper and markers
- GlobalEd 2 Folders
- Paper and pencils for students

Procedure:
- Explain that today you are going to introduce the students to communiqués. Review **11. What is a Communiqué?** with students.
- Explain that after students post their issue area group's opening statement, daily messaging with other countries becomes the means by which to communicate during the Interactive phase. In order to communicate effectively, students need to learn to craft various types of communiqués. Review **12. Assertions, Questions, Proposals: Types of Communiqués** with students. Discuss the following:
  - What are the purposes of each?
  - Are there any types of posts that would not fall into these categories?
  - In which situations might you use each type of post?
- Review a claim from the "Claims, Evidence, Reasoning" lesson. These are some of the examples provided in that lesson:
  - Example: Scientific reasoning
    - Claim: The sun is hot.
    - Evidence: My skin feels warm.
    - Reasoning: My skin became warmer when the sun came up.
  - Example: Social reasoning
    - Claim: My mom is mad.
    - Evidence: She is frowning.
    - Reasoning: She was frowning yesterday when she said "I am mad."
  - Example: Political reasoning
    - Claim: Japan should join our international organization.
    - Evidence: Japan needs to increase their food supply.
    - Reasoning: Countries in our organization will send food to other countries.

- Select one of the C-E-R examples and model posts of each kind: Assertion, Question, Proposal. If you feel your students need more support, select a second C-E-R example and have the students help compose a post of each kind.
- Have students take out their **9. Claim-Evidence-Reasoning in Everyday Life** homework. Then, have the students create posts of each kind to follow up their own claims from the homework. Use the following guidelines for students' posts to give them structure:
  - Assertion
    - Statement of the concept or opinion which is clear to someone not familiar with the topic
    - At least one statement connecting your assertion to the information discovered in your question
    - At least one piece of factual evidence to support your claim
    - 1 or more statements connecting the evidence to the claim (reasoning)
  - Question
    - Develop a question about something you'd like to know. Must contain the following elements
      - Statement of the question. Be sure the question would be clear to someone not familiar with the topic
      - Explain why the question is important
      - Suggestions for possible action depending on the answer
  - Proposal
    - Statement of the proposed action. Be sure the proposed action would be clear to someone not familiar with the topic
    - At least one statement connecting the proposal to your assertion
    - Anticipation of at least two possible outcomes
- You may find it useful for students to exchange their work, encouraging their partner to determine whether the posts actually match the type of post indicated.
- Discuss the challenges in trying to focus the post to a particular type.

Assessment:
- Review students' written assertions, questions, and proposals.

Homework:
- **13. Assertions, Questions, Proposals Task** should be used as a homework activity.

Research/Preparation Phase Lesson 9: Meeting our Issue Area Groups

Week: 3   Period(s): ½   Focus: SS, Sci

Overview: Students meet their issue area group and begin discussing their issue area.

Materials:
- GlobalEd 2 Student Workbook
  - 1. Water Simulation Scenario Introduction
  - 2. Water Simulation Scenario Issue Areas
- List of Issue Area Groups
- (Optional) Select a Water PowerPoint to review or introduce key ideas.

Procedures:
- Introduce your students to their issue area and their issue area groups. Give the groups time to reread the issue area text: 2. Water Simulation Scenario Issue Areas.
- Encourage students to refer back to the 1. Water Simulation Scenario Introduction information to facilitate their connection between the broader challenges posed by water scarcity and the more specific challenges detailed in their respective issue areas.
- Have the groups discuss the questions at the end their issue area section.
- Have students begin a list of questions their group has about their country and issue area.
- (Optional) PowerPoint presentation about water issue.

Assessment:
- Circulate while the students are talking with their issue areas and listen for any confusion about science concepts. Base future lessons about climate change issues around common misunderstandings of science and social studies concepts.

Research/Preparation Phase Lesson 10: Reviewing Internet Resources and Determining Website Validity

Week: 4   Period(s): 1-2   Focus: G

Overview: Students learn to discriminate between valid Internet resources and those that should not be used when conducting research.

Teachers: The Liger webpage referenced during this lesson includes challenging text and some students may require additional support to complete the exercise. You may find it useful to have students work in groups, taking into consideration students reading level ability.

Materials:
- Computer with projector to introduce the lesson
- Computers for individual students or groups of students
- GlobalEd 2 Student Workbook
  - **14. Free Forever: Dog Island** (or use the digital version on the website)
  - **15. The Fabulous Kakapo** (or use the digital version on the website)
  - **16. Ligers-Big Cats** (or use the digital version on the website)
  - **17. Northwest Pacific Tree Octopus** (or use the digital version on the website)
  - **18. Determining Website Validity**

Procedure:
- Students or groups of students are tasked with reviewing a website and answering questions about it to determine which websites provide reliable information. (Dog Island and Tree Octopus are fake, whereas, Ligers and Kakapos are real animals.)
- Talk to your students about the Internet. The Internet has a wealth of information, but it is important to recognize that anyone can create a website. As a result, when conducting research we have to carefully examine which websites we use. Books are **_typically_** reviewed by publishers and are checked for incorrect information. This is not always the case for websites.
- Explain to the students that they are going to learn about: dog island, ligers, kakapo, and tree octopus.
- Show your students the website: https://sites.google.com/site/globaled2internetresearch/. Read the directions at the top of the page together, so the students know that two of the websites are fakes. Open the page for Global Environment "Dog Island" by clicking on the hyperlinked text or the image. At the bottom of the page is a link to a document. Demonstrate how to download the document to the computer and save it so the students can answer the questions to turn in.
- You can have students work individually or in groups. If you choose to have them work on the worksheet individually, it is recommended that they sit by someone reviewing the same website so they can talk while they explore the sites.

- After the students finish viewing their site, if other students are still working, encourage them to explore the other websites.
- Once all of the students have completed reviewing their website and answering the questions, then you can begin the discussion on Internet reliability.
- Ask some of the students to share their responses to the final questions:
  - Do you believe the information presented on this website?
  - Give two reasons why you believe or do not believe the information on the website.
- Reveal that Dog Island and Tree Octopus are fake websites.
- Have the students turn to **18. Determining Website Validity**. Review the document with them, talking through each of the points. Open the "Dog Island" page that some of the students reviewed. Walk through the questions on the **18. Determining Website Validity** page and help them see how these questions can help them determine if a website is real. Then, walk through the "Kakapo" website and review the questions again. If you have extra time, you can review the "Liger" and "Tree Octopus" pages.
- Stress to your students that as they review websites for their research, they should look at the website and determine if it is "Objective, Accurate, Reliable, Current, and has appropriate Links."

Assessment:
- Review students' Internet validity worksheets to determine if they identified valid web resources.

Research/Preparation Phase Lesson 11: Creating Research Questions
Week: 4   Period(s): 1   Focus: G

Overview: Students create research questions for their issue area.

Materials:
- Computer with projector to introduce the lesson
- Computers for individual students or pairs of students
- GlobalEd 2 Student Workbook
  - 19. Brainstorming Research Questions
  - 20. Research Source List
  - 1. Water Simulation Scenario Introduction
  - 2. Water Simulation Scenario Issue Areas
- (Optional) Select a Water PowerPoint to review or introduce key ideas.

Procedure:
- Explain to students that they will be working with the issue area groups to create research questions. Review 19. Brainstorming Research Questions with your students.
- Provide your students with an example of a general research question about climate change as it relates to the country your class is representing and the issue areas within which the students are assigned. Use the 1. Water Simulation Scenario Introduction to identify something you want to research. For an example of a general research question pertaining to the issue area and the country your class is representing, refer to the issue area research questions at the end of the issue area sections.
- Have students get into their issue area groups. Encourage them to refer to the 2. Water Simulation Scenario Issue Areas research questions to help them create 5-7 research questions. They can choose to modify the existing research questions or create their own questions. Encourage them to write both factual and interpretive questions. Collect the questions from each group, so you can review them before they begin their research. You will want to make sure that their questions are specific enough and appropriate for their issue area and country.
- After they have crafted all of their questions for their group, introduce your students to the 20. Research Source List. As they find sources, they will record each source on the 20. Research Source List in their Student workbook. Model for your students how you want them to write the sources. Provide a model of an Internet source and a book source. As students are gathering data, instead of having to write the source name or author each time they write down a fact, they can write down the source number from their 20. Research Source List beside the fact.
- (Optional) PowerPoint presentation about water.

Assessment:
- Review 20. Brainstorming Research Questions.

Research/Preparation Phase Lesson 12: Beginning the Research

Week: 4   Period(s): 1   Focus: G

Overview: Students research their questions.

Materials:
- Computer with projector to introduce the lesson
- Computers for individual students or pairs of students
- GlobalEd 2 Student Workbook
  - **20. Research Source List**
- GlobalEd 2 Folder
- The research questions the issue area groups crafted in lesson 11
- (Optional) Select a Water PowerPoint to review or introduce key ideas.

Procedure:
- Explain that the students will begin their research today. Begin by showing the students the GlobalEd 2 student webpage http://www.globaled.uconn.edu/water_climate.html . Walk them through the science and social studies sections, explaining that these websites have been selected by the GlobalEd 2 team and are valid websites. Use the research question you wrote as an example yesterday as a class to model how you can search for information to answer that question. Model how to record the source on the **20. Resource Source List**. Write your question at the top of the board and model how to write down the facts that will help you answer your question, including the source number where you found the information.
- You may find it helpful to introduce students to a research strategy wherein they write each question on the top of a sheet of notebook paper and keep the paper in their GlobalEd 2 folder. As they find new facts that help them answer each respective question they add the facts to the lists demarked by that particular research question.
- You may also find it useful to have the issue area groups divide up the questions and work on finding information that answers different questions. At the end of the period, have the students within the issue area groups share some of the information they found.
- Take a few minutes to have student share successful search strategies and information they have found with their classmates.
- (Optional) PowerPoint presentation about water issue.

The Following Day:
- Have students continue to work on answering the research questions. If you noticed any areas they were having difficulty, take a few minutes at the beginning of the period to address those areas.

Research/Preparation Phase Lesson 13: Carrying Water Activity (Part 2)

Week: 5   Period(s): 1   Focus: Sci, SS, W

The first part of the lesson is *Preparation Phase Lesson 3: Carrying Water Activity (Part 1).*
   Modify this portion of the lesson to represent your simulation country.

This lesson is from the Earth Day Network. To see the full lesson plan, go to:
http://www.eeweek.org/assets/files/EDN%20Water%20Lessons/Carrying_Water_5-8.pdf

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Carrying Water
Brenna Holzhauer

INTRODUCTION
In this lesson, students will audit their personal daily water usage, and will participate in a class discussion about water use and conservation. Through an introduction to the Kenyan village of Kapsasian, group mathematical problem solving, and class discussions, they will have a better understanding of the problems faced by those with lack of access to water.

LESSON OVERVIEW
Grade Level & Subject: Grades 5 – 8: Mathematics and Social Studies (Mathematics calculations are most appropriate for Grades 7 & 8 or advanced Grade 6. This lesson can be adjusted by skipping the **Kapsasian Calculations** section.)

Suggested Length: One class period (45 – 90 minutes)

Objectives:
After completing this lesson, students will:
- Have a better understanding of their personal daily water usage.
- Brainstorm ideas of ways to conserve water and reduce their daily usage.
- Understand the problems associated with lack of access to water in other parts of the world.
- Improve their math and problem-solving skills in a real world context.

Materials Needed:
- Chalkboard or whiteboard
- **Kapsasian Calculation**s (found at the end of this lesson)
- **Kapsasian Calculations – ANSWER KE**Y (found at the end of this lesson)

Assessment: Students will be assessed through the following activities:
- Completion of **Kapsasian Calculations**

- Participation in and contribution to class discussion

LESSON BACKGROUND

Conversion Information:

- 1 U.S. liquid gallon is equal to 3.785411784 liters
- 1 U.S liquid gallon is equal to 128 fluid ounces
- 1 kilometer is equal to 0.621371192 mile

Information:

According to World Health Organization estimates in 2006, 1.1 billion people do not have access to improved sources of drinking water. The lack of access to improved sources of drinking water negatively impacts almost every aspect of peoples' daily life.[2] Nearly everywhere around the globe, collecting water is the responsibility of women and children. Women and children often have to collect and carry water for several miles every day. In addition to the time and energy spent on water collection, unsafe and unsanitary conditions exacerbate the water scarcity problem. Although most citizens in the United States generally have reliable access to clean water, conditions such as drought, pollution, increased population and unequal distribution of natural resources threaten our water supply, therefore, it necessary for each of us to conserve water by finding ways to reduce our daily water usage.

Resources:

- **The Global Water Network:** www.globalwaternetwork.org
- **Kenya:**
  - CIA World Factbook: www.cia.gov/library/publications/the-world-factbook/geos/ke.html
  - Official Kenya Destination Website: www.magicalkenya.com

LESSON STEPS

Activity Two: Imagining Kapsasian, Kenya

1. Show Kenya on a map *(Eastern Africa, bordering the Indian Ocean, between Somalia and Tanzania)*. Find out what students may already know or think about Africa and Kenya - have students brainstorm what it might be like there right now. Consider season, weather, temperature, people, culture, technology, language, food, drink, schools, etc. (*Example: hot, mostly arid or semi-arid, grasslands, some agriculture, ranges from drought to strong rains, desertification, pollution, safaris, villages, cities, deserts)*

2. Have students close their eyes and imagine they are living in the village of Kapsasian, Kenya. Read the following passage[3]:

You live in the village of Kapsasian, Kenya, in eastern Africa. Although there is a rainy season, it is usually hot and dry. Piped water is unavailable in your area, and no one in your village has running water in their homes. Every time you and your family wash your hands, take a bath, have a drink, or prepare a meal, you use water. Where does it come from? There are about seven thousand other people in and around your town – how do they get water? Whose job is it to provide water for every household, building and school? In most families it is up to the women and children to find and collect water.

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[2] Philadelphia Global Water Initiative, retrieved from www.pgwi.net January 2009.
[3] Inspired by "Water Source for Kapsasian Community Dispensary in Kenya," Global Water Network, retrieved from www.globalwaternetwork.org January 2009.

The nearest water source is a small plastic tank one kilometer from your home, or more than half a mile away. When this tank is empty or dirty, water must be obtained from seasonal springs which could be up to several hours walking distance from your village! Even these dry up during the dry season, and the entire population suffers from outbreaks of waterborne diseases, such as typhoid and dysentery, from sharing contaminated water.

How much of your day do you spend carrying water? How much can you carry by yourself? Do you have time to go to school? When do you play with your friends? Can you walk in the dark? How do you bathe and where do you go to the bathroom? Think about these questions and how it would affect your life to not have clean running water. How would you reduce your water use, and how would you prioritize between drinking, cooking, cleaning, bathing, or recreation?

Activity Three: Kapsasian Calculations
1. Pass out **Kapsasian Calculations**.
2. Break students up into small groups to work on the calculations together. Encourage them to answer as many questions as they can without a calculator.

Wrap Up: Lessons Learned – Conservation Discussion
1. Ask students what they learned from the **Kapsasian Calculations**. These are real-life problems faced by billions of people around the world. Do they have a better idea of the issues associated with lack of access to water? *(This could include illness, lack of sanitation, lack of time for education, recreation, and professional activities, etc.)*
2. Have students imagine that they and their families must live off of less than 10 gallons of water a day. How would life be different? *(Consider cooking, cleaning, toilet use, bathing, drinking, appliances, etc.)*
3. Transition into a discussion of what students could do to reduce their daily water usage. *(For example, do not let water run when brushing teeth or washing dishes, take shorter showers, do full loads of laundry or dishes, use rainwater to water lawns, etc.)*
4. Empower students to share these ideas with friends and family. Remind them of the lessons learned and the importance of water conservation around the world.

Extension: Global Water Network
- As a class or in small groups, visit the "Adopt-a-Water-Project" section at www.globalwaternetwork.org to learn more about Kapsasian, Kenya, and a water source project to benefit the area.
- Visit the "Adopt-A-Water-Project" section at the Global Water Network (www.globalwaternetwork.org) to read about other water-related projects around the world. Compare these stories to the scenario and discussions in class. How many people around the world deal with these issues everyday?
- You can also make donations through The Global Water Network to support these projects. Consider adopting a project, and have your class brainstorm ways to fundraise contributions.

CONCLUSION
In this lesson, students audited their personal daily water usage for a better understanding of how much water is used and wasted on a daily basis. They also discussed the implications and consequences of water shortage. By imagining themselves as a child living in Kapsasian, Kenya, they were able to empathize with the difficulties and problems associated with lack of water access. Through math calculations and problem-solving, they were exposed to the real-life situations of billions of people around the world. Finally, through class discussions and brainstorming, they thought about ways to conserve water in their own lives.

Kapsasian Calculations

Name: _____ Date: _____

Answer the following questions about carrying water in Kapsasian, Kenya.

1. a) You can carry 2 liters of water at a time, and your sister can carry 3 liters of water at a time. If your family requires 10 liters of water each day, how many trips must you make together to collect water?

b) Your sister is sick from drinking unclean water, and will require 2 extra liters of water in addition to your family's usual 10. Because she is feeling weak, you must instead bring your little brother to help you collect water. If he can carry 1 liter at a time, how many trips for water must you make together that day?

2. On Monday, the nearest water source is a ¾ hour walk each way. By Thursday, this source has dried up, and you must now walk 1½ hours each way to another dam. If you made 2 trips each day, how many hours did you spend walking to collect water in one week (Monday – Sunday)?

3. a) School in Kapsasian begins for you at 7:45 am. Based on the information in Question #2, what time would you need to wake up on Monday to make one trip before school?
b) What time would you need to wake up on Friday to make one trip before school?

Kapsasian Calculations

ANSWER KEY

1.

      a)   *2 liters + 3 liters = 5 liters per trip.*
                10 liters/5 liters = **2 trips per day**

      b)   *2 liters + 1 liters = 3 liters per trip*
                12 liters/3 liters = **4 trips that day**

2.   *Monday, Tuesday, Wednesday: .75 hrs x 2 = 1.5 hrs per trip*
              1.5 hrs x 2 trips = 3 hrs per day
              3 hrs x 3 days = 9 hrs
              Thursday, Friday, Saturday, Sunday: 1.5 hrs x 2 = 3 hrs per trip
              3 hrs x 2 trips = 6 hrs per day
              6 hrs x 4 days = 24 hrs
              Total: 9 hrs + 24 hrs = **33 hrs that week**

3.

      a)   *7:45 – 1.5 hrs = you would need to awaken no later than* **6:15am**

b)   **7:45 – 3 hrs = you would need to awaken no later than** 4:45am

Research/Preparation Phase Lesson 14: Opening Statements and Hamburgers

Week: 5   Period(s): 1   Focus: W

Overview: Students are introduced to the components of the opening statement.

Materials:
- Whiteboard or chart paper and markers or an overhead projector
- Hamburger Graphic Organizer, drawn on the board or chart paper or projected using an overhead projector
- GlobalEd 2 Student Workbook
  - 20. Research Source List
  - 21. Opening Statement Organization- Hamburger
  - 21. Structure of an Opening statement – Ukraine Example

Procedures:
- Ask students to list things that have a beginning, middle and an end. Write their responses down (*e.g.*, movies, songs, days, meals, house-building).
- Next, draw a picture of a hamburger on the board or project a copy of the student hamburger. The hamburger serves as your graphic organizer. The hamburger should have a top and bottom bun, lettuce, tomato and patty. As discussed above, even a hamburger has a top, middle, and a bottom.
- Review 21. Opening Statement Organization- Hamburger with your students. Review the more detailed explanation of each part of the hamburger.
- Next review 21. Structure of an Opening statement – Ukraine Example. Walk the students through the example, focusing on the content of an opening statement portion.
- Have students begin to fill out the 21. Opening Statement Organization- Hamburger. Students should craft their salutation and record their ***claims*** for each of the components of the opening statement. Encourage students to think about what they need to know to formulate a cohesive argument and what additional questions or information they need to obtain to increase their understanding of their issue area. Have students record additional questions.

Assessment:
- Ask students questions about the different parts of an opening statement and review their written work.

Research/Preparation Phase Lesson 15: More Research

Week: 5   Period(s): 1   Focus: Sci, SS, W

Overview: Students analyze the components of the opening statement and review the research they have conducted and dive into additional research that needs to be conducted to answer the research questions they formulated.

Materials:
- Books and other library resources about water and their country
- Computers for individual students or groups of students
- GlobalEd 2 Student Workbook
  - 20. Research Source List
  - 21. Opening Statement Organization- Hamburger
- (Optional) Select a Water PowerPoint to review or introduce key ideas.

Procedures:
- (Optional) PowerPoint presentation about water issue.
- Students continue to research their respective issue area and the country the class is representing. Within their issue area groups, instruct students to review the components of the opening statement and identify any additional research questions that need to be addressed. Students should review their research findings with the understanding that the information they have collected will form the knowledge base by which they will create their opening statements and have productive discussion during the Interactive phase of the GlobalEd 2 project.

Assessment:
- Review the research conducted in groups.

Research/Preparation Phase Lesson 16: Culture Activity

Week: 5   Period(s): 1   Focus: SS

Overview: Students define culture. Students identify how the culture of their country may impact the water negotiations.

Materials:
- Books and other library resources about water and their country
- Computers for individual or groups of students
- GlobalEd 2 Student Workbook
  - 23. Culture Activity
  - 20. Research Source List

Procedure:
- Explain to the students that today they will be focusing on their country's culture. Ask students to explain what culture means. If they do not know, then use the Internet and an online dictionary, like dictionary.com to find a definition. Talk through the different definitions and help them determine, which definition explains culture when discussing the culture of a country. Their country may have different cultural groups within it.
  - For the purposes of this activity, this definition of culture is useful.
    Culture: 6. *Anthropology.* the sum total of ways of living built up by a group of human beings and transmitted from one generation to another.
    http://dictionary.reference.com/browse/culture
- Students will be completing the 23. Culture Activity from their Student Workbooks. Encourage them to use the websites on the bottom of the activity as well as the Social Studies section of the GlobalEd 2 Students section. Have students work in their issue groups or with a partner to answer the questions.
- Be sure to allow enough time at the end of the period to discuss what students found out about their country's culture so that students can write down interesting facts that other groups found.

Assessment:
- Review students 23. Culture Activity sheets to determine if they understand how their country's culture will impact the water negotiations. If students are unclear, spend time the following day researching their country's culture.

Research/Preparation Phase Lesson 17: More Research (Week 5)

Week: 5   Period(s): 1   Focus: Sci, SS, W

Overview: Students continue to conduct research about the country the class is representing and the issue areas they assigned.

Materials:
- Books and other library resources about water and their country
- Computers for individual or pairs of students
- GlobalEd 2 Student Workbook
  - 20. Resource Source List
- GlobalEd 2 Folders
  - Research notes
- (Optional) **A.7. GlobalEd 2 Research Process Rubric** found in the appendix of this guide.
- (Optional) Select a Water PowerPoint to review or introduce key ideas.

Procedure:
- (Optional) PowerPoint presentation about water issue.
- Students will continue to research their questions. If needed, you can conduct a mini-lesson on different research strategies or specific water issues.

Assessment:
- Review the students' notes on their research questions and their 20. Resource Source Lists.
- (Optional) At this point you may want to use **A.7. GlobalEd 2 Research Process Rubric** found in the Appendix of this guide to more formally review students research process.

Research/Preparation Phase Lesson 18: Geography Activity

Week: 6   Period(s): 1   Focus: SS

Overview:

- Students locate the countries participating in the simulation and investigate the access to water. Students identify how access to water by all of the countries in the simulation will impact negotiations.

Materials:

- Maps and other resources about water and their country
- Computers for individual or pairs of students
- GlobalEd 2 Student Workbook
  - **24. Geography Activity**

Procedure:

- Instruct students to complete the **24. Geography Activity**.
- Encourage students to use all of the maps listed on the activity page.
- At the end of the period, have student come together to talk about their findings. *What simulation countries have the least access to water? How will this impact negotiations? How much water does their country have available?*

Assessment:

- Review students' responses to question 4 of the **24. Geography Activity**.

Research/Preparation Phase Lesson 19: Writing Your Opening Statement

Week: 6   Period(s): 1   Focus: W

Overview: Students begin writing their opening statements.

Materials:
- GlobalEd 2 Student Workbook
    - **7. Claim, Evidence, Reasoning**
    - **21. Opening Statement Organization - Hamburger**
    - **25. What Makes a Good Opening Statement?**
    - **26. How to Craft a Policy-Proposal** (homework)
- Computers for students

Procedure:
- Your students are now becoming experts on their issue area and country. It is time to continue to craft their opening statements. Together review **21. Opening Statement Organization - Hamburger** (which covers the structure) and **7. Claim, Evidence, Reasoning** (which covers the content). Creating the opening statements will be a challenging process. Students have two levels they have to think about (1) the structure and (2) the content.
- Explain to students that they will spend time reviewing examples of opening statements online found on the "Student" page under "Writing," "Opening Statements" Have the students work on individual computers and read each of the examples looking at all six of the examples. While reviewing the web pages, students should the complete **25. What Makes a Good Opening Statement?** activity
- After the students have completed the task, they can continue their research until everyone has finished. After everyone has finished, take a few minutes to discuss opening statements.
- If there is time, help students begin to think about their opening statements. Have them review their **21. Opening Statement Organization- Hamburger**. Encourage them to think of each part of the structure as a separate paragraph (except for General Salutation). This will help them ensure that they address each part of the opening statement.
    - Statement of problem facing country
    - What the country has done
    - Statement of problem facing broader international community
    - Signaling of policy intent
- Stress to the students that for any statement or claim they make, they must back it up with evidence and reasoning.

Assessment: Review students' **25. What Makes a Good Opening Statement?**

Homework: Students should read **26. How to Craft a Policy-Proposal** for homework.

Research/Preparation Phase Lesson 20: Graphic Organizers for Opening Statements: Statement of problem facing country

Week: 6   Period(s): 1   Focus: W

Overview: Students learn to use graphic organizers to write the **statement of problem facing their country**, and focus on making claims, and providing evidence and reasoning.

Materials:
- GlobalEd 2 Student Workbook
    - 27. GlobalEd 2 Linear Paragraph
    - 28. GlobalEd 2 Graphic Organizer Paragraph
- (Optional) Access to a computer with digital copies of the aforementioned documents available at:
  http://www.globaled.uconn.edu/student_water/simulation/student_workbook.html
- **We recommend that students use the digital graphic organizers** because this will enable them to cut and paste their work into a word document when creating the final version of their opening statement. This will allow them to focus on polishing their writing and ensuring they have used diplomatic language to express their ideas.

Procedures:
- *Writers use a variety of tools to help them organize their writing. Our opening statements are a new genre of writing and require us to use claims, evidence, and reasoning to prove our ideas to others. To help us write our opening statements we will use organizers. There are two types of organizers: one is linear and one is graphic. You can choose to use either type to help you write your opening statement. If you want you can try one organizer for one paragraph, and then try another organizer for another paragraph. For each paragraph, you __must__ have one claim and __at least__ one piece of evidence and reasoning. Your argument will be stronger if you include more pieces of evidence and reasoning.*
- Show students the 27. GlobalEd 2 Linear Paragraph and the 28. GlobalEd 2 Graphic Organizer Paragraph . Students should choose one style of organizer to complete the **statement of problems facing the country**.
- Within their issue areas have students discuss the **statement of problem facing their country**. This will help them plan what they want to say for this portion of their opening statement. Then have the students fill out the graphic organizer. Be sure they save their work so that they can use it to craft their opening statement.
- At the end of the period, ask for a few students to volunteer to share some of their claims, evidence, and reasoning for their **statement of problem facing country.**
- At the end of the period, ask for a few students to volunteer to share some of their claims, evidence, and reasoning for their **statement of problem facing country.**

Assessment: Review students graphic organizers and ensure they understand how to use claims, evidence, and reasoning.

Research/Preparation Phase Lesson 21: Graphic Organizers for Opening Statements: What the country has done

Week: 6   Period(s): 1   Focus: W

Overview: Students use graphic organizers to write **what the country has done** focusing on claims, evidence, and reasoning.

Materials:
- GlobalEd 2 Student Workbook
  - 27. GlobalEd 2 Linear Paragraph
  - 28. GlobalEd 2 Graphic Organizer Paragraph
- (Optional) Access to a computer with digital copies of the aforementioned documents available at:
  http://www.globaled.uconn.edu/student_water/simulation/student_workbook.html

Procedures:
- Take a few minutes to review how the students used graphic organizers to help them organize their **statement of problem facing country.** Today students will work on **what the country has done** portion of their opening statements. Again, students can choose between the two graphic organizers.
- Have students pair up with someone from their issue area and talk through their plan for **what the country has done**. This will help them plan what they want to say for this portion of their opening statement.
- Once students have filled out the graphic organizer, they can use it to write their opening paragraph.
- At the end of the period, ask for a few students to volunteer to share some of their claims, evidence, and reasoning for their **what the country has done.**

Assessment:
- Review students graphic organizers and ensure they understand how to use claims, evidence, and reasoning.

Research/Preparation Phase Lesson 22: Graphic Organizers for Opening Statements: Statement of problem facing broader international community

Week: 6   Period(s): 1   Focus: W

Overview: Students use graphic organizers to write **statement of problem facing broader international community** focusing on claims, evidence, and reasoning.

Materials:
- GlobalEd 2 Student Workbook
    - 27. GlobalEd 2 Linear Paragraph
    - 28. GlobalEd 2 Graphic Organizer Paragraph
- (Optional) Access to a computer with digital copies of the aforementioned documents available at:
  http://www.globaled.uconn.edu/student_water/simulation/student_workbook.html

Procedures:
- Take a few minutes to review how the students used graphic organizers to help them organize their **what the country has done.** Today students will work on the **statement of problem facing broader international community** portion of their opening statements. Again, students can choose between the two graphic organizers.
- Have students pair up with someone from their issue area and talk through their plan for **statement of problem facing broader international community**. This will help them plan what they want to say for this portion of their opening statement.
- Once students have filled out the graphic organizer, they can use it to write their opening paragraph.
- At the end of the period, ask for a few students to volunteer to share some of their claims, evidence, and reasoning for the **statement of problem facing broader international community.**

Assessment:
- Review students graphic organizers and ensure they understand how to use claims, evidence, and reasoning.

Research/Preparation Phase Lesson 23: Graphic Organizers for Opening Statements: Signaling of policy intent

Week: 6   Period(s): 1   Focus: W

Overview: Students use graphic organizers to write s**ignaling of policy intent** focusing on claims, evidence, and reasoning.

Materials:
- GlobalEd 2 Student Workbook
    - 27. GlobalEd 2 Linear Paragraph
    - 28. GlobalEd 2 Graphic Organizer Paragraph
- (Optional) Access to a computer with digital copies of the aforementioned documents available at:
  http://www.globaled.uconn.edu/student_water/simulation/student_workbook.html

Procedures:
- Take a few minutes to review how the students used graphic organizers to help them organize their **statement of problem facing broader international community.** Today students will work on the **signaling of policy intent** portion of their opening statements. Again, students can choose between the two graphic organizers.
- Have students pair up with someone from their issue area and talk through their plan for **signaling of policy intent.** This will help them plan what they want to say for this portion of their opening statement.
- Once students have filled out the graphic organizer, they can use it to write their opening paragraph.
- At the end of the period, ask for a few students to volunteer to share some of their claims, evidence, and reasoning for the **signaling of policy intent.**
- By the end of today, students should have filled out four graphic organizers, one for each portion of the opening statement. Next week they will use these graphic organizers to pull together their opening statement so they can begin to revise it.

Assessment:
- Review students graphic organizers and ensure they understand how to use claims, evidence, and reasoning.

Research/Preparation Phase Lesson 24: Pulling Together the Opening Statements

Week: 7   Period(s): 1   Focus: W

Overview: Students write their opening statements using claims, evidence, and reasoning.

Materials:
- GlobalEd 2 Student Workbook
  - Completed <u>27. GlobalEd 2 Linear Paragraph</u> or <u>28. GlobalEd 2 Graphic Organizer Paragraph </u>for each paragraph
- Computers for students to compose opening statements
- GlobalEd 2 Folder
  - Student research
- (Optional) **A.5. GlobalEd 2 Opening Statement Rubric** or **A.6. GlobalEd 2 Opening Statement Mechanics** found in the appendix of this guide.

Procedures:
- At this point students have completed organizers for each of the paragraphs, which collectively comprise an opening statement. Over the next two periods, students should compose their opening statements. If students have used digital copies of the graphic organizers, then model for the students how they can copy and paste the text that currently exists in the organizers into a new document that they can edit.
- Remind students that in addition to the four paragraphs they have created graphic organizers for, they will also need to include a salutation to the international community. With their graphic organizers, writing their opening statements should be much easier. Stress to the students that they should use diplomatic language and the information that they found during the research process to make their claims, and provide evidence and reasoning.

Assessment:
- Review students opening statements to ensure they have all of the structure and content components.
- You can assess individual students opening statements using the rubrics found in the appendix **A.5. GlobalEd 2 Opening Statement Rubric** or **A.6. GlobalEd 2 Opening Statement Mechanics** .

Research/Preparation Phase Lesson 25: Issue Area Goals

Week: 7   Period(s): 1   Focus: G

Overview: Issue area groups create their goals for the simulation.

Materials:
- GlobalEd 2 Student Workbook
  - 29. What are Our Goals for Our Issue Area?
- GlobalEd 2 Folder
  - Students' opening statements
  - Research
- (Optional) Select a Water PowerPoint to review or introduce key ideas.

Procedures:
- *The Interactive phase begins in less than 2 weeks. Now that we have each created an opening statement, we are ready to come together to create our issue area opening statements. In order to begin these statements we need to determine our goals for the simulation based on the needs of our country and the specific requirements of our issue area. These goals will become the signaling of policy intent portion of our opening statements. Today, work with your group to decide what goals you have for the simulation. Create these goals based on what you have learned through your research.*
- With their issue area groups, student should complete: 29. What are Our Goals for Our Issue Area?
- After students have created their issue area goals, then they can read their opening statements to their issue area groups. Students should take notes on any ideas they get from listening to their peers statements or any ideas that come up when they share their own statements.
- (Optional) PowerPoint presentation about water issue.

Assessment:
- Review 29. What are Our Goals for Our Issue Area?

Research/Preparation Phase Lesson 26: Creating our Issue Area Opening Statements

Week: 7-8   Period(s): 1-4   Focus: W

Overview: Issue area groups work collaboratively to create their opening statements using claims, evidence, and reasoning.

Materials:
- GlobalEd 2 Student Workbook
    - 29. What are Our Goals for Our Issue Area?
- Copies of linear and graphic organizers for opening statement paragraphs for groups
- GlobalEd 2 Folders
    - Student's Research
    - Opening statement
- Computers for students to type their opening statements

Procedures:
- Issue areas groups should work collaboratively to create their opening statements. Talk to the students about how to determine who is responsible for the various parts of the opening statement. Encourage students to use their individual opening statements and the issue area goals they crafted to help them construct an issue area opening statement. Provide students with linear and graphic organizers for their opening statements to help them organize the information.
- Over the next few periods, help the students write their issue area group opening statement. You may find it useful to meet with each issue area group to assess their progress and to help them create a plan for writing their opening statement.

Assessment:
- Review issue area opening statements to ensure they are using claims, evidence, and reasoning.
- Anecdotal notes of about how students work within their issue area groups.

Research/Preparation Phase Lesson 27: Highlighting the Issue Area Opening Statements

Week: 8   Period(s): 1   Focus: W

Overview: Students identify the structure and content components of their opening statements to facilitate revision. Students also check to be sure they have advanced scientific evidence to support their claims. They are acting as science advisors to policy makers at this point.

Materials:
- Two copies of the issue area opening statements for each member of the team
- 3 colors of highlighters
- Computers for each issue area

Procedures:
- *Today we are going to revise our issue area group opening statements. First, we are going to review the good examples of an opening statement from the GlobalEd 2 website and see how they highlighted the good content and good structure. Each person in your issue area group is going to highlight their issue area groups opening statement. Your job will be to first highlight each claim, evidence, and reasoning, like the example on the website. Next, you will use the second copy of the opening statement to highlight (a) general salutation, (b) statement of problem facing country, (c) what the country has done, (d) statement of problem facing broader international community, and (e) signaling of policy intent. After you have highlighted both copies of your issue area opening statement, you will discuss with your issue area group what you feel may still be missing or additional information you want to add to your opening statement.*
- Work with your students while they are reviewing their opening statements. Help them use the example from the website to highlight their opening statements.
- By the end of the period, students should have finished their first round of revisions.

Assessment:
- Monitor students' revision and provide assistance as necessary.

Research/Preparation Phase Lesson 28: Using Checklists to Revise the Issue Area Opening Statements

Week: 8   Period(s): 1   Focus: W

Overview: Students use the opening statement checklist to revise their opening statements.

Materials:
- Copy of issue area opening statements for each student
- GlobalEd 2 Student Workbook
    - 30. GlobalEd 2 Opening Statement Checklist
- (Optional) Rubrics to evaluate students found in this guide
    - **A.7. GlobalEd 2 Opening Statement Rubric**
    - **A.8. GlobalEd 2 Opening Statement Mechanics**

Procedures:
- With partners from their issue areas, students will review their opening statements using the 30. GlobalEd 2 Opening Statement Checklist from their student workbook. After each set of partners has finished reviewing the opening statement, the issue area groups will collectively decide on any final revisions to their opening statement. This is the final day to edit and revise their opening statements. Tomorrow students will post the opening statements for each issue.

Assessment:
- Review the issue area opening statements using **A.7. GlobalEd 2 Opening Statement Rubric** or **A.8. GlobalEd 2 Opening Statement Mechanics.**

Research/Preparation Phase Lesson 29: Posting Issue Area Opening Statements and Exploring the User Interface

Week: 8 (or Week 1 of the Interactive Phase)   Period(s): 1   Focus: G

Overview: Students post their issue area opening statements. Students learn how to use the simulation interface.

Materials:
- Issue Area Opening Statements
- Computers for individuals or issue area teams to explore the user interface
- (Optional) Computer and projector

Procedures:
- If needed, give your students a few minutes to put the finishing touches on their opening statements.
- You can have students visit http://www.globaled.uconn.edu/student_water/simulation/simulation_login.html to view videos about logging into the simulation, viewing a message, composing a message, and conferences **or** the class can watch the videos together on using a projector.
- Show your students the GlobalEd 2 simulation interface. Demonstrate how to post the opening statements, by logging on to the site and selecting "Messages," "Compose Message" and selecting who the post should be sent to. Walk students through the website and allow them to explore.
- When students post the opening statement for their issue area, the subject of the message should be "Opening Statement – (Issue Area)" this will allow readers to easily identify the post as the opening statement for a specific issue area and country. Be sure to have students check the appropriate issue area box on the message and address the message to all countries.

Interactive Phase Lesson 1: Allies and Adversaries

Week: 1   Period(s): 1   Focus: SS

Overview: Students learn about the simulation environment by reading the posted opening statements and identify potential allies and adversaries.

Materials:
- LCD projector and computer
- Computers for each issue area group
- GlobalEd 2 Student Workbook
  - **31. Allies and Adversaries**

Procedure:
- Students should have already posted their opening statements and they are now ready to read what the other countries opening statements say.
- Introduce your students to the idea of allies and adversaries:
  - **Allies** – countries who see the issue the same way as your country and will most likely support your proposals
  - **Adversaries** – countries who see the issue differently than your country and may try to block your proposals
- Ask your students to identify some examples of current allies and adversaries of the United States.
  - For example, Great Britain, Canada, Australia and Israel are allies of the United States. Given the current international political climate the United States and Iran are considered adversaries.
- Introduce your students to the **31. Allies and Adversaries** activity.
- Instruct your students to review the other countries opening statements. While reading through the opening statements, they will be looking for countries that may become allies or adversaries throughout the simulation. Remind students how to enter the simulation and find messages sent to their respective issue areas.
- Encourage them to send individual messages to countries that may serve as allies and think about how to approach their adversaries to garner their support.
- Remind students that they can take notes on a particular message by clicking on "Add Comment." This feature allows students to add comments to a message for other teammates to view at a later date. No other teams can read the comments students post in this manner.

Assessment:
- Review students **31. Allies and Adversaries** activity.

Interactive Phase Lesson 2: Reviewing the Types of Communiqués

Week: 1   Period(s): 1   Focus: W

Overview: Students identify types of posts. Students create an appropriate post for the daily messaging forum with their team.

Materials:
- Computers for each issue area
- GlobalEd 2 Student Workbook
    - **11. What is a Communiqué?**
    - **12. Assertions, Questions, and Proposals: Communiqués**
- (Optional) Select a Water PowerPoint to review or introduce key ideas.

Procedure:
- During the third week of the preparation phase, you introduced your students to communiqués and different types of discussion posts. Review **11. What is a Communiqué?** and **12. Assertions, Questions, and Proposals: Communiqués** with your students. Explain that they should keep the points conveyed in these documents in mind when they are creating communiqués during the simulation.
- In their issue area groups, have students decide on a type of post they would like to create. One idea would be to write a message to one of the countries they identified as an ally. Another option is to choose to write to all of the countries in their issue area. When creating their post, they should ensure that they have a clear understanding of the intent of their message. As always, remind students to use claim-evidence-reasoning when creating messages.
- (Optional) PowerPoint presentation about water issue.

Assessment:
- Review the issue area posts and ensure students are able to write a specific type of message.

Interactive Phase Lesson 3: Preparing for the First Live Conference

Week: 1   Period(s): 1-3   Focus: Sci, SS

Overview: Students analyze the upcoming first conference questions and determine what makes sense for their country.

Materials:
- LCD projector and computer
- Computers for each issue area team
- GlobalEd 2 Folder
  - Students' Research Notes
- GlobalEd 2 Student Workbook
  - 20. Research Source List
- (Optional) Select a Water PowerPoint to review or introduce key ideas.

Procedures:
- Students need to prepare for their first live conference. To be successful, your students need to review the agenda questions for their issue area. These agenda questions are available under the conference tab of the simulation homepage. Using the projector, demonstrate how to find the agenda questions. Click the appropriate conference and view the agenda questions. Each issue area has specific questions your students need to be prepared to address during the conference. Show your students how to find the issue area agenda questions. Before your students begin, remind them about the importance of providing evidence and reasoning to back up the claims they make. Your students have conducted a great deal of research about their issue area and country. Remind them to refer back to their research and 20. Research Source List for ideas about how their country should respond to the agenda questions. Remind them to draw on their knowledge of science as well.
- In their issue area groups, have the students review the questions. At least one student should take notes on what the team discusses. For each agenda question they should craft a response and provide some research to support their claims. If they feel they do not know enough to adequately answer the question, then students should be given time to conduct further research. Encourage students to continue to add new sources to their 20. Research Source List and compile additional notes so they can refer back to the research they have conducted later.
- This lesson could require a number of days, especially if the students need to conduct a significant amount of additional research to respond to the agenda questions.
- (Optional) PowerPoint presentation about water issue.

Assessment:
- You can review each issue areas ideas for responses to the agenda questions, listen in on conversations, or review the transcripts from their initial issue area conference (after the conference has occurred).

Interactive Phase Lesson 4: First Live Conference

Week: 1-3   Period(s): 1   Focus: Sci, SS, W

Overview: Students participate in the live conference with their issue area groups.

Materials:
- Computer for the issue area group that is participating in the conference
- GlobalEd 2 Student workbook
  - 32. First Conference Reflection

Procedure:

The conferences for each issue area group take place on different days throughout the simulation. While one issue area group is participating in a live conference, the other students in the class should continue preparing for their upcoming conferences by sending communiqués, reviewing messages that have been sent to them, or by participating in other activities to further acquaint them with their country and the other countries participating in the simulation.

You will want to capture your students' initial reactions to their first conference. After engaging in the first live conference, each student in the group should complete the 32. First Conference Reflection Paper. You may assign this as homework, or your students can take 5-10 minutes at the beginning of the next period to complete the activity. This activity will be used to help students prepare for the second conference in **Interactive Phase Lesson 8: Preparing for the Second Live Conference.**

Interactive Phase Lesson 5: A Typical Day during the Interactive Phase

Week: 1-5

Overview: Students participate in the ongoing international negotiations with their issue area team.

Materials:
- LCD projector and computer
- Computers for each issue area team
- Students' Research Notes
- GlobalEd 2 Student Workbook
  - 20. Research Source List
  - 34. Feedback Protocols for GlobalEd 2 – Analyzing Communiqués
- (Optional) Rubrics to evaluate students found in this guide
  - **A.1. GlobalEd 2 Collaborative Work Skills Issue Group Process Rubric**
  - **A.2. GlobalEd 2 Critical Thinking Rubric**
  - **A.3. GlobalEd 2 Discussion Post Rubric**
  - **A.4. GlobalEd 2 Discussion Post Rubric Holistic**
- (Optional) Select a Water PowerPoint to review or introduce key science ideas.

Procedure:
- At the beginning of the period, you may find it useful to present one of the Water Science PowerPoint presentations.
- Issue area groups should review all new messages and craft any necessary responses. Students can use 34. Feedback Protocols for GlobalEd 2 – Analyzing Communiqués to discuss and analyze their communiqués before posting them.
- If needed, the students should conduct additional research to respond to messages.
- At this point, students have a variety of resources at their disposal: research notes, their 20. Research Source List, previous messages to reflect upon, and all of the GlobalEd 2 student materials. One of the challenges for students may be organizing all of these resources and you may find it useful to share with your students a handful of organizational strategies.
- Issue area teams should be encouraged to continue conversations with their allies and foster productive relationships with their adversaries by creating new communiqués.
- Teams should also continue to prepare for future live conferences by referencing the posted agenda questions to guide their research and help them focus on the specific issues within their issue area.
- Throughout the entire simulation, remind students of the importance of using claim-evidence-reasoning chains in their writing and relying on science to propose solutions.

Assessment:

- Many rubrics are available to help you evaluate students' progress and understanding. These rubrics are found at the end of this guide.
    - **A.1. GlobalEd 2 Collaborative Work Skills Issue Group Process Rubric**
    - **A.2. GlobalEd 2 Critical Thinking Rubric**
    - **A.3. GlobalEd 2 Discussion Post Rubric**
    - **A.4. GlobalEd 2 Discussion Post Rubric Holistic**

Interactive Phase Lesson 6: Diplomatic Language

Week: 2   Period(s): 1   Focus: W

Overview: Students review diplomatic language and examine a communiqué to ensure it is written with diplomatic language.

Materials:
- Whiteboard and markers
- GlobalEd 2 Student Workbook
    - 8. The Rules of Diplomacy
    - 34. Use of Diplomatic Language, Done Well and Done Poorly
- (Optional) Rubrics to evaluate students found in the appendix of this guide
    - **A.3. GlobalEd 2 Discussion Post Rubric**
    - **A.4. GlobalEd 2 Discussion Post Rubric Holistic**

Procedures:
- Students were initially introduced to the 8. The Rules of Diplomacy in week 3 and revisited these concepts in week 6 when they reviewed 26. How to Craft a Policy-Proposal.
- Share 34. Use of Diplomatic Language, Done Well and Done Poorly with your students. You can have them read it individually, in small groups, or as a whole class. While reviewing the document have the students think about the differences between the good and bad examples of diplomatic language. After reviewing the document, have the students share characteristics of "good" examples and "bad" examples. Record these characteristics on the whiteboard so they can see the differences between the examples.
- Finally, have the students' craft their next communiqué with their issue area groups and review it. Be sure to have students focus on the quality of their diplomatic language.

Assessment:
- Review the communiqués crafted by the issue area groups. You can use **A.3. GlobalEd 2 Discussion Post Rubric** or **A.4. GlobalEd 2 Discussion Post Rubric Holistic** (found at the in the appendix of this guide).

Interactive Phase Lesson 7: Reviewing Academic vs. Propaganda Language

Week: 2   Period(s): 1   Focus: W

Overview: Students analyze their previous communiqués to identify the type of persuasion strategy they used and to determine whether they used academic or propaganda language.

Materials:
- Computer access for each issue area group
  - Or printed copies of 1-3 communiqués from each issue area
- GlobalEd 2 Student Workbook
  - 10. Persuasive Writing: Valid vs. Invalid
  - 35. Reviewing our Posts: Academic vs. Propaganda Argumentation
- **C.2. Academic vs. Propaganda Argumentation Techniques Charts** (found in the appendix of this guide)

Procedures:
- **C.2. Academic vs. Propaganda Argumentation Techniques Charts** (found in the appendix of this guide).
- Review 10. Persuasive Writing: Valid vs. Invalid with your students at this time. Remind your students that effective arguments require academic argumentation.
- In their issue area teams, have students review their last 1-3 communiqués (depending on how many they have written and the amount of time available for this exercise). Use 35. Reviewing our Posts: Academic vs. Propaganda Argumentation to guide the activity. Have students identify the different argumentation techniques they have used in their communiqués. If the students used propaganda techniques, then have them rewrite the portion of the post that used the propaganda technique using academic language. In crafting their next 2 communiqués, have the issue area groups use at least two different academic argumentation techniques to communicate with other countries.
- If there is time available, students can begin to craft their next communiqué, being sure to include one of the academic argumentation techniques.

Assessment:
- Review student worksheet 35. Reviewing our Posts: Academic vs. Propaganda Argumentation to determine whether students can successfully identify the strategies they used to convey information in previous posts.
- Review the communiqués students are currently drafting to identify whether they used the academic argumentation techniques, specifically the ones they set out to use in crafting their messages.

Interactive Phase Lesson 8: Preparing for the Second Live Conference

Week: 3   Period(s): 1-2   Focus: Sci, SS

Overview: Students analyze the second conference questions and determine how their country should proceed in the negotiations.

Materials:
- LCD projector and computer
- Computers for each issue area team
- GlobalEd 2 Folder
  - Students' Research Notes
- GlobalEd 2 Student Workbook
  - 20. Research Source List
  - 32. First Conference Reflection

Procedures:
- Students need to prepare for their second live conferences. At this point, they have successfully completed their first conference and the 32. First Conference Reflection worksheet. After all four issue areas have completed their first conference, take some time to discuss how the first conference went. Students can refer to their 32. First Conference Reflection worksheets to remember the details of their first conference. Here are some questions for class discussion.
  - What went well?
  - What was challenging?
  - What will you do differently for the second live conference?
  - Which countries agree with your ideas?
  - Which countries disagree with your ideas?
  - What were some useful scientific solutions that were proposed?
- After discussing the first conference and some ideas for what students may do differently for the second conference, they are ready to review the agenda questions for the second conference. These agenda questions are available on the simulation interface homepage under the conference tab. Select the appropriate conference and review the agenda questions. Each issue area has specific questions they need to be prepared to address. Show your students how to find the issue area agenda questions. Before having your students begin, remind them about the importance of using evidence and reasoning to back up their claims. Students have conducted a great deal of research about their issue area and country. Remind them to refer back to their research and 20. Research Source Lists for ideas about how their country should respond to the questions.
- In their issue area groups, have the students review the questions. At least one student should take notes on their team's discussion. For each question students should craft a response, drawing on research to support their claims. If they feel they do not know enough to adequately answer the question, students should be given additional time to

conduct further research. Encourage students to continue adding new sources to their list and information to their research notes so they can refer back to this later.

- This lesson could require a number of days if the students need to conduct a significant amount of additional research to respond to the agenda questions.

Assessment:

- You can review each issue area groups responses to the agenda questions, listen in on conversations, or review the transcripts from their second issue area conference (after it takes place).

Interactive Phase Lesson 9: Creating our Closing Statements

Week: 4 or 5   Period(s): 1   Focus: W

Overview: Students begin composing their closing statements.

Materials:
- Computers for each issue area team
- GlobalEd 2 Folder
    - Students' Research Notes
- GlobalEd 2 Student Workbook
    - 20. Research Source List
    - 36. Components of a Closing Statement
    - 37. Our Closing Statement

Procedure:
- Your students have participated in at least one conference and have been exchanging communiqués for at least 4 weeks. Your students have demonstrated their understanding of the scientific and political concepts during the simulation as they relate to water scarcity, and have used claim-evidence-reasoning to craft communiqués, using academic language. They are now prepared to begin composing their closing statements.
- Introduce your students to the format of the closing statement with **36. Components of a Closing Statement**. Each issue area team is responsible for composing one closing statement. You can either have your students brainstorm independently first using **37. Our Closing Statement** and then have them discuss their ideas with their issue area teams. ***Or*** have the students talk amongst their issue area teams first, and then write down their ideas using **37. Our Closing Statement**. The goal is for the students to have thought through their initial ideas before preparing their closing statements.
- At the end of the period, take a few minutes to have the issue area teams share some of their ideas for their closing statements.

Assessment:
- Review students **37. Our Closing Statement** worksheets.

Interactive Phase Lesson 10: Writing the Closing Statements

Week: 4 or 5   Period(s): 2-4   Focus: W

Overview: Students continue writing their closing statements.

Materials:
- Computers for each issue area team
- GlobalEd 2 Folder
  - Students' Research Notes
- GlobalEd 2 Student Workbook
  - 20. Research Source List
  - 36. Components of a Closing Statement
  - 37. Our Closing Statement

Procedure:
- Your students are ready to compose their issue area closing statements. Decide how you want your students to create the closing statements or give your students some options.
  - Have each student create his/her own closing statement and then have the issue area teams work together to turn these documents into a single closing statement.
  - Have the issue area teams meet and divide the responsibility for crafting the closing statement. For example, the entire team could work together on an outline using a copy of 37. Our Closing Statement and then be broken into pairs or work individually on specific parts of the closing statement. After all the parts are complete, the team could review each other's work and edit the final document.
- Once you have determined the best way for your students to create their closing statements, provide them with enough time to develop a first draft of a closing statement.

Assessment:

Review students' closing statements.

Interactive Phase Lesson 11: Highlighting Closing Statements

Week: 5   Period(s): 1-2   Focus: W

Overview: Students edit and revise their closing statements.

Materials:
- 2 printed copies (for each student) of the issue area groups closing statement
- 3 different highlighter colors
- GlobalEd 2 Student Workbook
  - 36. Components of a Closing Statement
- (Optional) **A.1. GlobalEd 2 Closing Statement Rubric** or **A.2. GlobalEd 2 Closing Statement Mechanics** found in the appendix of this guide.

Procedure:
- After issue area teams have completed their first draft of their closing statements, they are ready to review and edit them. Students will use 36. Components of a Closing Statement to help them identify the components and structural elements required in their closing statements. Provide each student with 2 copies of their issue area group's closing statement. Each student will review the closing statement. The first time they read the closing statement they will be looking for the components of the closing statement:
  1. **Mention of progress (or lack thereof) during the simulations negotiations.**
  2. **Discussion of where negotiations need to go from this point forward**.
  3. **What are primary roadblocks to further progress**?

  They will highlight each component in a different color.

  Then, using the other copy of the closing statement have students shift their focus to structure:
  - **Claim**
  - **Evidence**
  - **Reasoning**

  The students will highlight each in a different color.
- After highlighting the components and structure of their closing statements, have students reread the document looking for places that need further clarification or the components or structure need improvement.
- The issue area team should revise and create their final draft of their closing statement.
- Post all closing statements by the final day of the simulation. When students post the closing statement for their issue area, the subject of the message should be "Closing Statement – (Issue Area)" this will allow readers to easily identify the post as the closing statement for a specific issue area and country. Be sure to have students check the appropriate issue area box on the message and address the message to all countries.

Assessment:

- (Optional) **A.1. GlobalEd 2 Closing Statement Rubric** or **A.2. GlobalEd 2 Closing Statement Mechanics** found in the appendix of this guide.

Debriefing Phase Lesson 1: We Made It! Reflecting on the Simulation as a Whole

Week: 1   Period(s): 1   Focus: G

Overview: Students reflect on the simulation process.

Materials:
- Chart from **Preparation Phase Lesson 1: Introducing GlobalEd 2**: "What are global water issues?"
- Global Ed 2 Student Workbook
  - 38. Simulation Reflection
- (Optional) Parking Lot – bulletin board or place on the board for students and teacher to use post its to put questions to pick up at a later point in time – see Teacher Tips below

Procedures:
- You and your students have explored the world of international negotiations. Together you have experienced the intersection between science, social studies, and literacy in a meaningful way. These experiences, hopefully, have changed the way your students view these different subject areas and given them an appreciation of the trials of negotiation. Take some time to tell your students how proud you are of all they have accomplished. They have worked hard throughout the simulation and so have you.
- Show your students their chart from the first lesson with their responses to the question: "What are global water issues?" See if they have any additional contributions and note these in a different colored marker. They can refer to this during their discussions about the simulation.
- First, give your students some time to discuss the simulation with their Issue Area teams, this will allow them to develop their ideas before coming together as an entire class. Students should use the 38. Simulation Reflection worksheet to guide their discussions with their issue area teams. You may find it useful to have your students fill out this worksheet.
- After providing your students with adequate time to discuss the questions in their Issue Area groups, bring the class together for a discussion. The purpose of this discussion is to assess the simulation experience of your students and prepare them for the debriefing conference. See the "Teachers Tips" box in this lesson for help orchestrating the class discussion.
- If you have additional time, have students review the other countries closing statements in preparation for the debriefing conference.

Assessment:
- Review the students' notes from their 38. Simulation Reflection worksheet.
- Listen to the issue area discussions and the class discussion.

<u>Teachers Tips</u>

- Two broad types of questions that we all use as teachers:
    - <u>Discussion questions</u> – broad; large topics; usually pre-defined – in this case the Simulation Reflection questions
    - <u>Facilitating questions</u> – ones that are used "on the fly" to push students to think further
- Some ideas for <u>facilitating questions</u>
    - Tell me more. Unpack that statement.
    - What do you mean by that?
    - Why do you think that?
    - Do others in the class feel the same way? …agree with that statement?
    - Let's take a vote. How many agree with…feel the same way as…
    - Does someone want to add to that?
    - Was it the same across issue groups? (comparative)
    - How does that relate to what others have already said?
    - Why did/didn't you do that?
    - How did that make you feel?
- Create a "Parking Lot" for questions that you want to pick up later. Have a designated spot on the board or on a bulletin board that you or students can put post-its with questions.
- *Be an Active Listener!*
    - This style of teaching is emotionally and intellectually exhausting. Much easier to lecture.
    - Must be able to follow all aspects of the discussion.
    - Make links across student comments. In what ways do they relate to one another, even if they are "talking around" a similar issue?
    - Take brief notes, if you have a hard time keeping track of threads. Then probe on those links.

Debriefing Phase Lesson 2: Revisiting Allies and Adversaries

Week: 1   Period(s): 1   Focus: SS

Overview: Students review predictions about allies and adversaries. Students identify allies and adversaries at the end of the simulation.

Materials:
- Computers for Issue Area groups
- Global Ed 2 Student Workbook
  - **31. Allies and Adversaries**
  - **39. Allies and Adversaries Revisited!**

Procedures:
- Review with your students the terms ally and adversary. Explain to your students that today they will be reviewing the communiqués, live conferences, and closing statements from the simulation. They will be looking to identify which countries were allies and which were adversaries. They will also need to refer back to the **31. Allies and Adversaries** activity they completed during the first week of the simulation. You can choose to have your students complete this activity, independently, with a partner from their issue area group, or with their issue area group.
- Provide your students with time to complete the **39. Allies and Adversaries Revisited!** worksheet.
- Take a few minutes at the end of the period to have students share what they found. You might spark discussion with the following questions.
  - Which countries surprised you?
  - Which countries did you identify as allies before the simulation began and at the beginning of the simulation that continued to be allies throughout the simulation?
  - Which countries did you identify as adversaries? Did they continue to be adversaries throughout the entire simulation?
  - Take a poll: Did all of the issue areas have the same allies and adversaries?
  - Was any team able to change an adversary into an ally during the simulation?
- If you have additional time, have students review the other countries closing statements in preparation for the debriefing conference.

Assessment:
- Review students' **39. Allies and Adversaries Revisited!** worksheet.

Debriefing Phase Lesson 3: Debriefing Conference

Week: 1   Period(s): 1   Focus: G

NOTE: This conference may take place earlier or later in the sequence of debriefing lessons depending on your schools' schedule and the GlobalEd 2 calendar.

Overview: Students reflect on the simulation during the debriefing conference

Materials:
- Computers for Issue Area groups
- Chart paper detailing student responses to the question: "What are global water issues?"
- Global Ed 2 Student Workbook
  - **38. Simulation Reflection**
  - **39. Allies and Adversaries Revisited!**

Procedures:
- Students participate with their issue area teams in the debriefing conference. Students can refer to their **38. Simulation Reflection** worksheet, and the **39. Allies and Adversaries Revisited!** worksheet.

Assessment: Review the debriefing conference transcript.

Debriefing Phase Lesson 4: Comparing Our Opening and Closing Statements

Week: 1 or 2   **Period(s):** 1   **Focus:** W

Overview: Students compare and contrast their opening and closing statements.

Materials:
- Computers for Issue Area Groups
  - *Or* printed copies of the statements for each student
- Global Ed 2 Student Workbook
  - 40. Opening and Closing Statements

Procedure:
- Throughout the simulation, your students have been developing their academic writing skills. By comparing and contrasting their opening and closing statements they will have the opportunity to see how far their writing has come. Use 40. Opening and Closing Statements to have students' examine their statements.
- At the end of the period, take some time to discuss the differences and similarities in the students opening and closing statements as a whole class.

Assessment:
- Review students' 40. Opening and Closing Statements and listen to discussion.

Debriefing Phase Lesson 5: Successful and Unsuccessful Communiqués

Week: 2   Period(s): 1   Focus: Sci, SS, W

Overview: Students identify successful and unsuccessful communiqués. Students reflect on problem-based learning.

Materials:
- Computers for Issue Area Groups or individual students
- Global Ed 2 Student Workbook
  - **41. Successful and Unsuccessful Communiqués**

Procedure:
- Students identify successful and unsuccessful communiqués. Have students complete **41. Successful and Unsuccessful Communiqués** individually, with a partner, or with their issue area group.
- After the students have completed the task. Facilitate a group discussion about composing communiqués and what they identified as successful and unsuccessful.
- Move the conversation to how different the GlobalEd 2 project is from what they would typically do in a social studies class. Ask the students how problem-based learning, like this simulation differs from traditional learning.
  - What have they learned from this experience that they could not have learned simply by writing a report about water scarcity in their country?
  - What do they like about problem based learning?
  - What is challenging about problem based learning?

Debriefing Phase Lesson 6: Final Reflection
Week: 2   Period(s): 1-3   Focus: Sci, SS, W

Overview: Students write a final reflection about the simulation process.

Materials:
- Global Ed 2 Student Workbook
  - 38. Simulation Reflection
  - 39. Allies and Adversaries Revisited!
  - 40. Opening and Closing Statements
  - 41. Successful and Unsuccessful Communiqués
  - 42. Final Reflection

Procedure:
- Students write a final reflection on the GlobalEd 2 process. They can use the activities they have completed during the debriefing phase to help them complete the 42. Final Reflection worksheet.

Assessment:
- Review students' final reflections.

Appendix

APPENDIX A: RUBRICS

A.1. GlobalEd 2 Closing Statement Rubric

Name _____ Class_____ Date _____

	5 Points	4 Points	3 Points	2 Points	1 Point	Score
Closing Statement Content (See below)	Includes all 3 content elements	Includes at least 2 elements, but does not fully address all 3	Includes 2 content elements	Includes at least 1 of the elements, but does not fully address 2 elements	0 or 1 elements or unclear	
Argument Structure (See below)	Includes all 3 structure elements with clear reasoning, presented in logical sequence – Presents counterargument	Includes 2 structure elements, or 3 but reasoning unclear – No counterargument	Includes 1 structure elements or 2 but reasoning unclear – No counterargument	Includes no elements or 1 but reason unclear	Includes no argument	
Academic vs. Propagandist Persuasion	Purely academic language - No use of propaganda - Counters opposition's propaganda	Mostly academic language - Minimal or no use of propaganda	Mostly academic language - Some use of propaganda	Mostly propagandist language - Some academic language	Purely propagandist - No academic language	
Mechanics	Adheres to grammar and spelling mechanics	Minimal mechanical problems	Some mechanical problems	Many mechanical problems	Not acceptable, must be rewritten	
					Total	

Content of a Closing Statement (put an X next to each included in the closing statement)
___ 1. Mention of progress (or lack thereof) during the simulations negotiations.
- This may include a discussion of how your country's position and that of other countries has changed as a result of the negotiations.

___ 2. Discussion of where negotiations need to go from this point forward.
- What else needs to be done in order to bring resolution to the issues being discussed?
- Who do you need to work with in order to get closer to resolution?

___ 3. What are primary roadblocks to further progress?
- Political?
- Scientific?

Structure of an Opening statement
- Claim - The claim is an assertion or conclusion that answers the original inquiry question.
- Evidence - The evidence is scientific data that supports the student's claim. This data can come from an experiment that students conduct or from another information source such as a journal article, a textbook, or a data archive. The data needs to be relevant to, and sufficiently support, the proposed claim.
- Reasoning - The reasoning provides a justification that links the claim and evidence and illustrates why the data counts as evidence to support the claim by using the appropriate logic.

A.2. GlobalEd 2 Closing Statement Mechanics

	4 - Exceeds Standards	3 - Meets Standards	2 - Approaching Standards	1 - Below Standards
Audience	Demonstrates a clear understanding of the potential reader and uses appropriate vocabulary and arguments. Anticipates reader's questions and provides thorough answers appropriate for that audience.	Demonstrates a general understanding of the potential reader and uses vocabulary and arguments appropriate for that audience.	Demonstrates some understanding of the potential reader and uses arguments appropriate for that audience.	It is not clear who the author is writing for.
Claim	The position statement provides a clear, strong statement of the author's position on the topic.	The position statement provides a clear statement of the author's position on the topic.	A position statement is present, but does not make the author's position clear.	There is no position statement.
Evidence	Includes 3 or more pieces of evidence (facts, statistics, examples, real-life experiences) that support the position statement. The writer anticipates the reader's concerns, biases or arguments and has provided at least 1 counter-argument.	Includes 3 or more pieces of evidence (facts, statistics, examples, real-life experiences) that support the position statement.	Includes 2 pieces of evidence (facts, statistics, examples, real-life experiences) that support the position statement.	Includes 1 or fewer pieces of evidence (facts, statistics, examples, real-life experiences).
Reasoning	All of the evidence and examples are specific, relevant and explanations are given that show how each piece of evidence supports the author's position.	Most of the evidence and examples are specific, relevant and explanations are given that show how each piece of evidence supports the author's position.	At least one of the pieces of evidence and examples is relevant and has an explanation that shows how that piece of evidence supports the author's position.	Evidence and examples are NOT relevant AND/OR are not explained.
Sentence Structure	All sentences are well-constructed with varied structure.	Most sentences are well-constructed and there is some varied sentence structure in the essay.	Most sentences are well-constructed, but there is no variation is structure.	Most sentences are not well-constructed or varied.
Grammar & Spelling	Author makes no errors in grammar or spelling that distracts the reader from the content.	Author makes 1-2 errors in grammar or spelling that distracts the reader from the content.	Author makes 3-4 errors in grammar or spelling that distracts the reader from the content.	Author makes more than 4 errors in grammar or spelling that distracts the reader from the content.

A.3. GlobalEd 2 Collaborative Work Skills Issue Group Process Rubric

Name _____ Class _____Date _____

	4	3	2	1
Focus on the task	Consistently stays focused on the task and what needs to be done. Very self-directed.	Focuses on the task and what needs to be done most of the time. Other group members can count on this person.	Focuses on the task and what needs to be done some of the time. Other group members must sometimes nag, prod, and remind to keep this person on-task.	Rarely focuses on the task and what needs to be done. Lets others do the work.
Time-management	Routinely uses time well throughout the project to ensure things get done on time. Group does not have to adjust deadlines or work responsibilities because of this person's procrastination.	Usually uses time well throughout the project, but may have procrastinated on one thing. Group does not have to adjust deadlines or work responsibilities because of this person's procrastination.	Tends to procrastinate, but always gets things done by the deadlines. Group does not have to adjust deadlines or work responsibilities because of this person's procrastination.	Rarely gets things done by the deadlines AND group has to adjust deadlines or work responsibilities because of this person's inadequate time management.
Contributions	Routinely provides useful ideas when participating in the group and in classroom discussion.	Usually provides useful ideas when participating in the group and in classroom discussion.	Sometimes provides useful ideas when participating in the group and in classroom discussion.	Sometimes provides useful ideas when participating in the group and in classroom discussion.
Quality of Work	Provides work of the highest quality.	Provides high quality work.	Provides work that occasionally needs to be checked/ redone by other group members to ensure quality.	Provides work that usually needs to be checked/ redone by others to ensure quality.
Working with Others	Almost always listens to, shares with, and supports the efforts of others. Tries to keep people working well together.	Usually listens to, shares, with, and supports the efforts of others. Does not cause "waves" in the group.	Often listens to, shares with, and supports the efforts of others, but sometimes is not a good team member.	Rarely listens to, shares with, and supports the efforts of others. Often is not a good team player.
Attitude	Never is publicly critical of the project or the work of others. Always has a positive attitude about the task(s).	Rarely is publicly critical of the project or the work of others. Often has a positive attitude about the task(s).	Occasionally is publicly critical of the project or the work of other members of the group. Usually has a positive attitude about the task(s).	Often is publicly critical of the project or the work of other members of the group. Often has a negative attitude about the task(s).
Problem-solving	Actively looks for and suggests solutions to problems.	Refines solutions suggested by others.	Does not suggest or refine solutions, but is willing to try out solutions suggested by others.	Does not try to solve problems or help others solve problems. Lets others do the work.

	4	3	2	1
Preparedness	Brings needed materials to class and is always ready to work.	Almost always brings needed materials to class and is ready to work.	Almost always brings needed materials but sometimes needs to settle down and get to work.	Often forgets needed materials or is rarely ready to get to work.

A.4. GlobalEd 2 Critical Thinking Rubric

Name _____ Class_____ Date _____

CATEGORY	EXEMPLARY	STRONG	SOLID	ADEQUATE	IN PROGRESS
KNOWLEDGE	Is able to accurately and completely identify and recall information with clarity and description.	Is able to accurately and completely identify and recall information.	Is able to accurately identify and recall information most information.	Is able to identify and recall some information.	Is not able to identify or recall information, or does so incorrectly.
COMPREHENSION	Organizes and selects facts and ideas. Is able to put these into her own words to demonstrate clear and insightful understanding.	Organizes and selects facts and ideas. Is able to put these into her own words to demonstrate clear and insightful understanding.	Organizes and selects facts and ideas. Is able to put these into her own words to demonstrate clear and insightful understanding.	Organizes and selects facts and ideas. Is able to put these into her own words to demonstrate clear and insightful understanding.	Organizes and selects facts and ideas. Is able to put these into her own words to demonstrate clear and insightful understanding.
APPLICATION	Uses facts, rules, and principles in a creative and insightful way, which demonstrates the ability to apply material appropriately and consistently.	Uses facts, rules, and principles in a creative way, which demonstrates the ability to apply material appropriately.	Uses some basic facts, rules, and principles in an appropriate way.	Uses some basic facts, rules, and principles, but does not apply them consistently or appropriately.	Does not apply the material or is unable to show its significance.
EVALUATION	Draws thoughtful, creative, warranted, non fallacious evaluations. Fairly follows where evidence and reason leads. Criteria are clear, reasonable, and insightful.	Draws warranted, Non-fallacious evaluations. Fairly follows where evidence and reason leads. Criteria are clear and reasonable.	Draws warranted evaluations. Follows where evidence and reason leads with some open mindedness. Criteria are reasonable.	Draws opinions or judgment based on unwarranted or fallacious information. Regardless of the evidence or reasons, maintains or defends views based on self-interest or preconceptions.	Ignores or superficially evaluates obvious alternative points of views. Appears close minded or is hostile to reason.

A.5. GlobalEd 2 Discussion Post Rubric

Name _____ Class_____ Date _____

	5 Points	4 Points	3 Points	2 Points	1 Point	Score
Argument Structure (See below)	Includes all 3 structure elements with clear reasoning, presented in logical sequence. Presents counter-argument	Includes 2 structure elements, or 3 but reasoning unclear – No counter-argument	Includes 1 structure elements or 2 but reasoning unclear – No counter-argument	Includes no elements or 1 but reason unclear	Includes no argument	
Academic vs. Propagandist Persuasion	Purely academic language - No use of propaganda – Counters opposition's propaganda	Mostly academic language - Minimal or no use of propaganda	Mostly academic language – Some use of propaganda	Mostly propagandist language – Some academic language	Purely propagandist – No academic language	
Mechanics	Adheres to grammar and spelling mechanics	Minimal mechanical problems	Some mechanical problems	Many mechanical problems	Many mechanical problems	
					Total	

Structure of a Discussion Post

1. Claim - The claim is an assertion or conclusion that answers the original inquiry question.
2. Evidence - The evidence is scientific data that supports the student's claim. This data can come from an experiment that students conduct or from another information source such as a journal article, a textbook, or a data archive. The data needs to be relevant to, and sufficiently support, the proposed claim.
3. Reasoning - The reasoning provides a justification that links the claim and evidence and illustrates why the data counts as evidence to support the claim by using the appropriate logic.

A.6. GlobalEd 2 Discussion Post Rubric Holistic

Name _____ Class_____ Date _____

Score	Definition
0	Response to topic. Posting responds to the topic in some way but does not provide a claim related to the issue.
1	Undeveloped argument. Posting provides a claim but no evidence is given to support the claim, or the evidence given is unrelated to or inconsistent with the claim, or it is incoherent.
2	Minimally developed argument. Posting states a clear claim and gives one or two pieces of evidence to support the claim, but reasoning is not provided linking the claim to the evidence or is underdeveloped.
3	Partially developed argument. Posting states a claim and gives evidence to support the claim plus some explanation or elaboration of the reasons. The reasons are generally plausible though not enough information is provided to convince a reader (audience awareness) (3A). There maybe some inconsistency, irrelevant information, or problems with organization and clarity (3B).
4	Well-developed argument. Posting states a clear claim and gives evidence to support the claim. The reasons are explained clearly and elaborated using information that could be convincing to the reader. The posting is generally well organized and may include a concluding statement. The posting is free of inconsistencies and irrelevancies that will weaken the argument.
5	Elaborated and addresses opposition. Meets the criteria for previous level. In addition, the posting deals with opposing opinions, even with refutations or alternative solutions. Overall, the posting is persuasive.

(Adapted from Midgette, Haria & MacAuthur, 2007)

A.7. GlobalEd 2 Opening Statement Rubric

Name _____ Class_____ Date _____

	5 Points	4 Points	3 Points	2 Points	1 Point	Score
Opening Statement Content (See below)	Includes all 5 content elements	Includes 4 content elements	Includes 3 content elements	Includes 2 content elements	0 or 1 elements or unclear	
Argument Structure (See below)	Includes all 3 structure elements with clear reasoning, presented in logical sequence – Presents counterargument	Includes 2 structure elements, or 3 but reasoning unclear – No counterargument	Includes 1 structure elements or 2 but reasoning unclear – No counterargument	Includes no elements or 1 but reason unclear	Includes no argument	
Academic vs. Propagandist Persuasion	Purely academic language - No use of propaganda - Counters opposition's propaganda	Mostly academic language - Minimal or no use of propaganda	Mostly academic language - Some use of propaganda	Mostly propagandist language - Some academic language	Purely propagandist - No academic language	
Mechanics	Adheres to grammar and spelling mechanics	Minimal mechanical problems	Some mechanical problems	Many mechanical problems	Not acceptable, must be rewritten	
						Total

Content of an Opening Statement (put an X next to each included in the opening statement)

__ 1. General salutation – The salutation is a greeting that identified the intended readers of the message and uses appropriate diplomatic language.

__ 2. Statement of problem facing country – The statement of problem for the country outlines the issues that the country is facing and why these issues are a problem.

__ 3. What the country has done – This section specifies how the country has attempted to mitigate the problem either nationally or internationally.

__ 4. Statement of problem facing broader international community – This problem statement links up the issues being discussed within the context of the greater international community. In other words, this section attempts to outline why other nations should also be concerned.

__ 5. Signaling of policy intent – The section of the opening statement outline exactly what the country intends to work on with the international community to mitigate the problem both domestically and across national boundaries.

Structure of an Opening statement

- Claim - The claim is an assertion or conclusion that answers the original inquiry question.
- Evidence - The evidence is scientific data that supports the student's claim. This data can come from an experiment that students conduct or from another information source such as a journal article, a textbook, or a data archive. The data needs to be relevant to, and sufficiently support, the proposed claim.
- Reasoning - The reasoning provides a justification that links the claim and evidence and illustrates why the data counts as evidence to support the claim by using the appropriate logic.

## A.8. GlobalEd 2 Opening Statement Mechanics

Name _____ Class_____ Date _____

	4 - Exceeds Standards	3 - Meets Standards	2 - Approaching Standards	1 - Below Standards
Audience	Demonstrates a clear understanding of the potential reader and uses appropriate vocabulary and arguments. Anticipates reader's questions and provides thorough answers appropriate for that audience.	Demonstrates a general understanding of the potential reader and uses vocabulary and arguments appropriate for that audience.	Demonstrates some understanding of the potential reader and uses arguments appropriate for that audience.	It is not clear who the author is writing for.
Claim	The position statement provides a clear, strong statement of the author's position on the topic.	The position statement provides a clear statement of the author's position on the topic.	A position statement is present, but does not make the author's position clear.	There is no position statement.
Evidence	Includes 3 or more pieces of evidence (facts, statistics, examples, real-life experiences) that support the position statement. The writer anticipates the reader's concerns, biases or arguments and has provided at least 1 counter-argument.	Includes 3 or more pieces of evidence (facts, statistics, examples, real-life experiences) that support the position statement.	Includes 2 pieces of evidence (facts, statistics, examples, real-life experiences) that support the position statement.	Includes 1 or fewer pieces of evidence (facts, statistics, examples, real-life experiences).
Reasoning	All of the evidence and examples are specific, relevant and explanations are given that show how each piece of evidence supports the author's position.	Most of the evidence and examples are specific, relevant and explanations are given that show how each piece of evidence supports the author's position.	At least one of the pieces of evidence and examples is relevant and has an explanation that shows how that piece of evidence supports the author's position.	Evidence and examples are NOT relevant AND/OR are not explained.
Sentence Structure	All sentences are well-constructed with varied structure.	Most sentences are well-constructed and there is some varied sentence structure in the essay.	Most sentences are well-constructed, but there is no variation is structure.	Most sentences are not well-constructed or varied.
Grammar & Spelling	Author makes no errors in grammar or spelling that distracts the reader from the content.	Author makes 1-2 errors in grammar or spelling that distracts the reader from the content.	Author makes 3-4 errors in grammar or spelling that distracts the reader from the content.	Author makes more than 4 errors in grammar or spelling that distracts the reader from the content.

A.9. GlobalEd 2 Research Process Rubric

Name _____ Class_____ Date _____

CATEGORY	4 Exceeds Standard	3 Meets Standard	2 Approaches Standard	1 Does not Meet Standard
Research Questions	Writes thoughtful, tightly drawn, well-worded, specific questions that are relevant to the chosen topic.	Writes well-worded, specific questions that are relevant to the chosen topic.	Writes questions which lacked specific focus, are not stated clearly, or are not entirely relevant to the chosen topic.	Writes questions which lacked a focus, are poorly stated, and are not relevant to the chosen topic.
Selection of Sources	Identifies highly appropriate primary and secondary sources in a variety of formats (books, journals, electronic sources).	Identifies mostly appropriate sources in a variety of formats (books, journals, electronic sources).	Identifies a few appropriate sources but made little attempt to balance format types.	Identifies inadequate or inappropriate sources.
Note-taking	Extracts and records relevant ideas, facts, and quotations, covering all perspectives on the topic. Demonstrates paraphrasing and summarizing techniques, and uses highly effective note-taking methods.	Extracts and records mostly relevant ideas, facts, and quotations, covering most perspectives on the topic. Demonstrates paraphrasing and summarizing techniques, and uses appropriated note-taking methods.	Extracts and records some relevant information. Demonstrates some paraphrasing and summarizing. Uses some appropriate note-taking methods.	Extracts irrelevant, inadequate information. Does not demonstrate paraphrasing, summarizing, or effective note-taking methods.

APPENDIX B: NATIONAL STANDARDS ADDRESSED
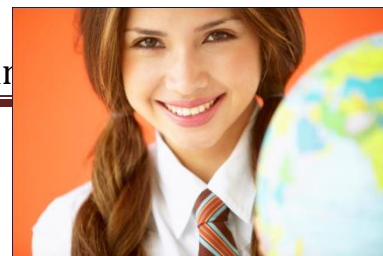
B.1. National Social Studies Standards Addressed

- *Culture* – students learn about other cultures in two ways through GlobalEd 2. First, they must research the foreign policy and cultural perspectives of a country other than their own and represent that country's views as its policy-makers during the simulation. Students learn that every culture perceives a phenomenon in different ways and that productive policy initiatives must account for such divergent perceptual lenses. Second, many are, for the first time, able to experience and evaluate American foreign policy from a "non-American" perspective, as they must respond to statements and actions made by a United States team in the simulation.

- *Time, Continuity and Change* – students must understand the historical background of the country they represent to operate effectively as decision-makers for that country in the simulation setting.

- *People, Places and the Environment* – students learn about world geography and its impact on global politics, and through the Internet-based negotiations, they also learn how technology is changing the way we view space, time, distance and access to information.

- *Individual Development and Identity* – related to the discussion of culture above, GlobalEd 2 provides a constructivist learning environment that allows students to develop and express their own conceptual frameworks and solutions to global problems.

- *Individuals, Groups and Institutions* – students learn about how bureaucracies, governments and international organizations function and make decisions, interfacing with each another in the contemporary world system.

- *Power, Authority, and Governance* – students learn about the decision-making process and develop methods for conflict resolution within their own teams. They also learn how to create solutions and structures for the international system by interacting with the other simulation teams in their efforts to resolve the situations developed in the simulation scenario.

- *Production, Distribution, and Consumption* – students experience the complexity of international political-economic relationships as they attempt to resolve conflicts across the simulation nations and derive opportunities for mutual gain. They encounter directly the mix of motives that exist in international interactions in the contemporary economy.

- *Science, Technology and Society* – the development of higher levels of technological self-efficacy among students and teachers is a central finding from previous GlobalEd program evaluations. In addition, at a substantive level, students learn the interplay of science and technology with politics in issue area negotiations over global warming and world health concerns. Students learn to interpret and present scientific information in their attempts to influence the decisions making of the other countries.

- *Global Connections* – students are linked to other students and a wealth of research resources through this simulated world. They become enmeshed in a world where both countries and issues are interdependent and their problems often defy simple solutions.

- *Civic Ideals and Practices* – the development of a sense of "global citizenship" is a core learning concept in GlobalEd. For the first time, most students are forced to consider not only the "rights" of citizenship and political involvement, but also what "responsibilities" must be borne at home and abroad if they are to remain secure and prosperous.

B.2. National Science Standards Addressed

- **Science as inquiry** – Through the GlobalEd 2 simulation, students engage in the processes of scientific inquiry as they participate in negotiated efforts to solve a global world crisis. Students are required to think critically and logically about the relationship between evidence and explanation, ask questions, construct and analyze alternative explanations, and communicate scientific arguments to their student counterparts.

- **Science and technology** – Through GlobalEd 2, students explore and discuss the interconnectedness of science, the natural world, and technology, the man-made world. They develop their decision-making abilities when engaged in investigations and debates regarding the ways in which technology may be beneficial for the environment, but also, the ways in which it may be harmful. Students propose a solution to a problem and weigh its risks and benefits through a collaborative discussion and deliberation that they partake in with other students participating in the simulation.

- **Content science (physical, life, and earth and space science)** – Through GlobalEd 2, students engage with important science content, related to the simulation that they are in. Examples of science content that is covered through the different versions of the simulation are the life cycle, the hydrologic cycles, genetics, and the environmental cycles.

- **Science in personal and social perspectives** – Given the constructivist learning environment of the GlobalEd 2 simulation and the collaborative nature of the project, students are able to not only develop their decision-making skills individually, but also as citizens of a larger community.

- **History and nature of science** – Through GlobalEd 2 students have an opportunity to discover how the role of science has historically helped to influence the policies of the countries they represent and shaped the cultures in each of these world populations.

- **Unifying Concepts and Processes** – Through GlobalEd 2, students gain insight into how scientific systems operate. More specifically, they develop a better understanding of the interrelated nature of the various aspects of a system (S), such as the hydrologic cycle for example, and gain awareness of the domino effect that could impact the entire world ecology, if any single aspect of it is adversely affected.

B.3. National Language Arts Standards Addressed

- **Different kinds of texts** - Through the research students engage in, regarding issues presented in the GlobalEd 2 simulation, they are exposed to a variety of texts, both print and non-print. Students gain an understanding of various types of texts and more specifically, they become more critical of the types of texts one should consult when composing a scientifically based argument. By acquiring new information presented in the various texts, students build a more coherent understanding of different cultures around the world, as well as, different dilemmas and demands societies face among themselves and between one another.

- **Reading comprehension** - Through the GlobalEd 2 simulation, are exposed to a variety of texts as they conduct research regarding information pertinent to their country's issues, thus they are able to apply a wide range of strategies to comprehend, interpret, evaluate, and appreciate these different texts. They have the opportunity to draw on their previous experiences, as well as their comprehension and decoding skills to understand the texts they consult to compose their arguments.

- **Communication to specific audiences** - Through participation in the GlobalEd 2 simulation, students have the opportunity to use spoken, written, and visual language to communicate effectively with the members of their immediate group and also, with the larger audience of students representing the other countries in the simulation.

- **Writing** - Because all communication in the simulation occurs through writing, students employ a wide range of writing processes and strategies as they interact with different groups in the simulation. More specifically, they learn how to compose a formal scientific argument, as they negotiate resolutions within the virtual international community. In addition, students learn how to adopt their writing style to suit not only the purpose for which they are communicating, but also the audience with which they communicate.

- **Spelling, Grammar, and Literary Terms** - Through GlobalEd 2, students apply knowledge of language structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language, and genre to create, critique, and discuss print and non-print texts, as well as each other's proposals and arguments.

- **Research** - Students within GlobalEd 2 must identify problems faced by both their individual country and the greater international community. Students gather, evaluate, and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, and people) in order to communicate these problems to other participants and to propose evidence-based solutions to the problem/s they have isolated. They also engage in critical analysis of their counterparts' propositions.

- **Information Resources** - In order to conduct their research, students have the opportunity to access and synthesize information from a variety of technological and information resources (e.g., libraries, databases, computer networks, Internet, video). They also

communicate with other students in the GlobalEd 2 simulation electronically, via email, online posting, and synchronies-conferencing.

- *Discussion and debate* - Students participate as knowledgeable, reflective, creative, and critical members of their immediate country groups, as well as the larger student community participating in GlobalEd 2. The intent of the simulation is for students to engage in dialogic debates concerning potential solutions to a problem facing the international community.
- *Lifelong learning* - Since the GlobalEd 2 simulation provides for a constructivist environment and a very student-driven activity, students are able to use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, persuasion, and the exchange of information).

APPENDIX C: OTHER MATERIALS

C.1. Teacher's Guide to the Scenario Introduction and Issue Areas

This guide is intended to help you, the instructor, teach your students about global water issues and the effect water scarcity has on the environment and human society.

The scenario includes an introduction and four issue areas:

1. Human Rights
2. International Economics
3. Global Environment
4. Global Health

We recommend that you present each issue area to your students as a separate lesson, despite the overlap and interconnectedness of the issue areas. We feel that presenting the issue areas one at a time helps students explore global water issues through each individual lense, and subsequently contributes to their development of sound argumentation during the GE2 simulation.

The Teacher's Guide to the GlobalEd 2 Water Scenario includes:

1. Central concepts that are discussed and which reflect the critical understandings students should "come away with"
2. "Reasons to Read" - These are similar to a KWL exercise in which you review what students already Know about the topic, what they might Want to know, and what they have Learned. Review these before, during, and after reading each section of the scenario.
3. Sticky Note Ideas – These are the key ideas. They are represented as "sticky notes" in the scenario.
4. Research Questions– These questions are found at the end of each issue area. These can be used to get your students thinking about water scarcity and how their country has approached the issue. It is hoped that these questions will give students ideas about possible research questions and issues to think about during the simulation.

Introduction

Concepts:
- Distribution of Earth's Water: Sources and percentages of fresh and salt water
- Hydrological cycle
- Physical and Economic Water scarcity
- Use of water for agricultural purposes—to produce food
- Water quality
- Conflict and cooperation over water resources
- The effects of climate change on the world's water resources

Reasons to Read (KWL):
- What do you know about water scarcity?
- Does water scarcity and/or water pollution affect your city or community? Your life?
- What do you think you might want to know (from this section) for your work on GE2?
- How will what you learn (from this section) benefit you?

Sticky Note Ideas:
- Only 3 % of the Earth's water supply is freshwater….
- Water can be a source of conflict but can also promote cooperation among countries….

Research Questions:
1. Does your country currently deal with issues of physical and economic water scarcity?
   a. Will your country have to deal with water scarcity in the future?
   b. What policies are in place in your country to deal with the issue of water scarcity?
   c. What policies would be most effective in dealing with the issue of water scarcity?
2. Is the pollution of water resources in your country a problem?
   a. How is your country handling the pollution of their water resources?
   b. How should countries in general handle the problem of water pollution?
3. How do other countries water scarcity problems impact you?

Global Environment

Concepts:
- Water scarcity – quality and quantity
- Water cycle issues – flooding and desertification
- Dead zones – definition and causes

Reasons to Read (KWL):
- What do you know about water scarcity?
- What happens to countries when there is widespread flooding?
- What do you know about water dead zones?
- Why do you think that poorer countries are harder hit by water issues?
- What do you think you might want to know (from this section) for your work on GE2?
- What do you think you might want to know (from this section) for your own benefit?

Sticky Note Ideas:
- Countries can suffer from water scarcity but also because of too much water…
- The likelihood of dead zones has been increasing over the last 50 years…

Research Questions:
1. Which kind of environmental changes can affect the water cycle and produce water scarcity or flooding? Are dead zones naturally formed or are human beings responsible for their formation?
   a. How do dead zones affect small fishermen in poor and developing countries?
   b. Is your country affected by water scarcity, flooding, or dead zones?
2. Does your country share a source of water (basins, rivers) with other countries? If so, how does your government collaborate with other governments in order to protect those sources of water?

International Economics

Concepts:
- Water issues effects on economic development
- Wealthy countries and water issues
- Poor countries and water issues
- Effect of technology on water and economic development

Reasons to Read (KWL):
- Should richer countries be required to use less water?
- Should richer countries help poorer countries just because they have more resources?
- How can richer countries be persuaded to aid poorer countries?
- What difficulties arise when money or other aid is sent to poorer countries?
- When should richer countries **not** help poorer countries?
- What do you think you might want to know (from this section) for your work on GE2?
- What do you think you might want to know (from this section) for your own benefit?

Sticky Note Ideas:
- Availability or scarcity of water affects the economy of a country (agriculture, industries, food production, energy generation, can be affected).
- Wealthy countries consume more water than poor countries…

Research Questions:
1. Do you agree that the lack of water affects the economic development of countries? Does it affect your own country? Would you agree that the unequal access to technology prevent your country from acquiring safe water for the population?
2. We know that water is crucial for the survival of human beings in rich countries and in poor and developing countries. How do you think countries could cooperate with each other to facilitate the access to clean water? Which actions could rich countries take to avoid wasting water?

Human Rights

Concepts:
- International Bill of Human Rights
- The right to water
- Responsibility of the government to respect human rights

Reasons to Read (KWL):
- What is the right to water?
- Why is it important to protect people's rights to water?
- What is the role of the government to protect people's water rights?
- How should countries work together to ensure the right to water?
- What do you think you might want to know (from this section) for your work on GE2?
- What do you think you might want to know (from this section) for your own benefit?

Sticky Note Ideas:
- The United Nations recognizes water as a human right.
- The UN goal is to halve by 2015 the number of people without access to safe drinking water.

Research Questions:
1. If the UN goal is to "halve, by 2015, the proportion of the population without access to safe drinking water…" which urgent actions should poor and rich countries take to guarantee the right of access to water?
2. Which actions has your government taken to guarantee safe water for the population? And what could your country realistically do in the future to fulfill the right to water?
   a. Has your government issued laws to protect the right of access to water? If so, which kind of laws?
   b. Does your government depend upon international aid to protect the right of access to safe water?
   c. If your country does not deal with current problems of water scarcity, how is your government supporting other countries to fulfill the right of access to safe water for the population?

Global Health

Concepts:
- Unsafe drinking water issues
- Fecal-oral transmission of diseases
- Microbial pollution of water
- Sanitation issues

Reasons to Read (KWL):
- What diseases caused by unsafe drinking water have you heard of?
- How are they spread?
- What can countries do to stop them?
- How do sanitation issues affect global health?
- What do you think you might want to know (from this section) for your work on GE2?
- What do you think you might want to know (from this section) for your own benefit?

Sticky Note Ideas:
- Diarrhea is a disease that affects mostly developing countries and it is caused by drinking dirty water.
- Proper hygiene practices and better sanitation policies could improve health.

Questions:
1. Which substances cause water pollution?
   a. What is the difference between water that is naturally polluted and water that is contaminated by human activity?
2. What water related diseases are most prevalent in your country?
   a. Has your country been facing diseases caused by unsafe water and the lack of sanitation?
   b. Has your government taken clear actions to protect the population from the dangers of diseases caused by unsafe water and the lack of sanitation?

C.2. Academic vs. Propaganda Argumentation Techniques Charts

Academic Persuasion Technique (Valid)	Summary	Sample Sentences
They Say	Begin by addressing the opposing viewpoint, short and to-the-point.	"Russia has recently suggested that we _____."
Summarize	Summarize the opposing argument, even showing where you agree. Blend with your own viewpoint.	"India demonstrates that _____."
Quoting	Use direct quotes from the opposing argument and frame them with your own views.	"China states, '_____'." : According to France, '_____'."
Responses	Agreeing, disagreeing, or a combination, summarizing reasons why. Support with specific references to facts.	"We think Russia is mistaken because they overlook _____." : "We disagree with China because, as research has shown, _____."
But We Say	Distinguish what the opposition is saying from what you are saying.	"Our view is that what Afghanistan insists is _____ is in fact _____."
Address Skeptics	Predict the opposition's objections and address it ahead of time.	"Here, Russia would probably object that _____." : "Environmentalists would probably disagree with _____."
Why It Matters	Address why your position is important, and why other countries should care about your stance.	"Recent research on the impact of water quality shows that _____." : "Although many assume _____, it has recently been found that _____."
Connecting	Connects ideas and show their relationship, often by using connecting words.	"*Although* China has had some success with _____, there is still a need for _____." : "India presents a clear argument for _____. *However,* _____ is still a problem."
In Other Words	Restate views to ensure clarity, avoid confusion, and address potential controversy.	"In other words, _____." : "Our point is not _____, but rather _____."

How to Spot: The valid persuasive techniques above are usually characterized by shorter, clearer sentences. Often the opposition is quoted, but the response to the quote must be analyzed for its technique. Although exaggerated language or punctuation (!) is usually typical of the more propagandist techniques below, adolescents sometimes use a clear argument couched in emotional language.

Adopted from Graff, G. & Birkenstein, C. (2007) *They say/I say: The moves that matter in academic writing*. New York: W. W. Norton & Company, Inc.

Counterargument (Valid)	Summary	Sample Sentences
Question Claims	Look for claims based on common sense or commonly held beliefs.	"The opposition states _____, but what evidence do you have to support this claim?"
Question Samples	Look for research using small experimental groups or biased groups.	"The opposition cites _____, but those figures were taken from a different group of people than we are concerned with."
Question Logic	Look for conclusions that do not follow from evidence.	"The opposition concludes that _____, but such claim does not follow from the evidence they have given."
Question Data	Look for evidence with no reference to the source.	"The opposition claims there are higher levels of _____, but does not reveal where they found this information."

How to Spot: These valid techniques are usually characterized by questions which specifically address the position or evidence of the opposition. Not to be confused with clarifying questions or information-gathering questions. A comparison may also be made between the opposing position and one's own position, if it reveals the weakness in the opposing argument.

Adopted from AAAS. (1993). *Benchmarks for science literacy*. New York: Oxford University Press.

Propagandist Persuasion Technique (Invalid)	Summary	Sample Sentences
Repetition	Basic position, repeated	"We must take this action. This action is imperative. (etc., etc.)"
Satire	Presents opposing position ironically	"I'm sure our citizens would love waiting several years for a solution to their pollution problems."
Shock	Extreme statements to draw attention	"The children living in our central valley are screaming every night for their mothers to get them a simple drink of water."
Lies or Half-truths	Incorrect information, evasive information, or one-sided arguments	"The pollution problems in our country can only be solved by the adoption of the following policies...there is no other way."
Ad Hominem	Position associated with important persons	"The Dalai Llama has often pronounced how he deplores the plight of our people."
Ad Populum	Position associated with important groups	"Scientists and academics the world over are well aware of the importance of addressing this issue as soon as possible."
Bandwagon	Position presented as popular	"The reasonable people of Europe and Asia are all pleading for a resolution to this conflict."
Appeal to Power	Position associated with the powerful people or groups (or large or skilled)	"The superpowers of China, India, and the United States are supporting these policies."
Begging the Question	Statements include assumptions which are questionable	"The adoption of the policies we have presented will lead to improved monitoring of the movement of our citizens in their daily activities."

How to Spot: These invalid techniques of persuasion are usually characterized by emotional language, little to no evidence, and focus on the opposing argument without specifically addressing weaknesses. The argument often detracts from the issue at hand, drawing in connections to unrelated subjects.

Adopted from Hummel, W. & Huntress, K. (1949). *Analysis of Propaganda*. New York: William Sloane Associates, Inc.

Logical Fallacies (Invalid)	Summary	Sample Sentences
Non - Sequitur	Assertions do not follow logically	"Increasing the level of industrial activity in our country will lead to an unhappy population."
Insufficient evidence	Simple assertions, but unsupported	"It seems obvious that most of your citizens would benefit from these policies."
Faulty Syllogism	Faulty causal logic	"High levels of industrialization have led to pollution in our country. Since your country has active industry, you should adopt our anti-pollution policies."
Analogies	False analogies or analogies as proof	"Building housing projects in an undeveloped area is putting the cart before the horse."
False Dilemma	Not a simple yes or no, or not all information given	"We must either adopt this policy, or prepare for war against the United States."

How to Spot: These invalid techniques are usually characterized by simple and often shorter sentences, and statements which are absolutist. There is rarely reference to evidence, and they do not typically address specifics in the opposing argument. Additionally, sentences are often not connected logically, or the focus jumps around from topic to topic.

Adopted from Hummel, W. & Huntress, K. (1949). *Analysis of Propaganda*. New York: William Sloane Associates, Inc