Reflection Title: The Power of Play

Learning Activity: *Down the Drain*

Subject Areas: English, Science, and Technology Integration

Focus Areas: water crisis, conservation

Grades: 6-8

Duration: 3-5 Class Periods (135-300 min)

Common Core State Standards: Reading: 1, Writing: 1, 3, 4, 6, Speaking and Listening: 1, 5

Learning Activity Overview:
Join Josh to explore your use of water and develop plans to reduce water consumption in your households. Integrating technology into the investigation, students will produce digital stories that share their plans with a larger audience.

Objectives:
- LW will demonstrate their understanding of the global water crisis by developing strategies to reduce his or her personal impact on the environment.
- LW write and deliver a persuasive narrative.
- LW create a digital story that incorporates visual and audio components.

Preparation:
- Print and copy handouts:
  - Josh’s Reflection ([www.oneworldeducation.org](http://www.oneworldeducation.org))
  - Measuring Your Water Use
  - Water Use Strategies
  - Planning Handout for a Creating a Digital Story
  - Self-Evaluation and Assessment
  - Digital Story Rubric
- Gather materials (see *Digital Storytelling in the Classroom* for more specific information) and reserve the computer lab so that students can create their digital story.
- Consult IT teachers and staff to make sure the appropriate software is installed on the student computers (PC: Photostory, MAC: iPhoto)

Reflection Prompt:
Josh writes, “Buckets and dog bowls were overflowing at [the faucet’s] base, and the rest of the clean water was gushing straight off into the sewer grid on the side. I couldn’t help but feel some stinging guilt at this sight.”

Essential Question: What is the global water crisis? What can students like you do to help conserve water?

Procedure:

Step 1: Getting Started (Class 1)
Post the following questions and answers (the correct answer [written below] and two-three incorrect choices) on the board or on separate pieces of chart paper, leaving significant room between questions.
Give each student four “post-it” notes and instruct them to demonstrate which they believe is the correct answer to each question by placing a post-it by that answer. This activity should be done individually and quietly.

1. How many gallons of water do average Americans use each day? (80-100 gallons a day)
2. How many people worldwide do NOT have access to safe drinking water? (884 million, or 1 in 8)
3. How much of the water on the planet is safe and accessible? (less than 1%)
4. How many people die each year from water-related diseases because they drink unsafe water? (3.75 million people)

Step 2: Making the Connection (Class 1)
Have students read Josh’s Reflection individually or as a class. Have students share their impressions of the Reflection and ask any clarifying questions. In this discussion, introduce the Reflection Prompt by rereading it and posing the following questions:

- Why does Josh feel guilty about the overflowing water?
- Does he have a responsibility to act? If so, what should he do? If not, why not?
- Is guilt generally a “productive” emotion? Explain your answer.
- To what extent is Josh’s experience unique to a student in the developing world?

At the conclusion of the discussion in Class #1, introduce the digital storytelling assignment. Explain that students will be creating a persuasive digital story about reducing household water use based on an examination of how water resources are used in their own homes. Teachers may want to hand out the Rubric and the Planning Handout for Creating a Digital Story at this time. Discussing the expectations prior to creating the stories will allow students to ask questions with the assignment in mind. If time permits, show an example so that the students have an idea of how powerful a digital story with still images can be.

Step 3: Measuring Your Water Use (Homework)
After reading the Reflection, students should complete the student handout called Measuring Your Water Use. Because this involves some “household data” this should be given for homework. This data may be more accurate and complete if collected over the course of several days. Students should collect the data and answer the related questions on the handout. They should be prepared to discuss their findings during Class #2, when they will strategize about how to reduce their personal water use.

Step 4: Develop a Strategy to Reduce Water Use (Class 2 - Computer Access)
Once students have completed the Measuring Your Water Use activity at home, initiate a class discussion about the results. Questions to promote discussion include, but are not limited to:

- How does your water use compare to the national average? How does it compare to water access worldwide?
- What responsibility, if any, do we have to reduce water use?
- What challenges does the lack of safe water pose for the developing world? For developed countries like the U.S.?
- What impact can one person or one family have on this type of environmental problem?

After the discussion, give students the Water Use Strategies handout. This handout prompts students to brainstorm strategies before doing additional research. The handout has links to suggested online resources.
resources to help students choose three ways in which they can reduce their household water use. These strategies will be incorporated into the digital story in the next class. Notes: If class time is limited, students could complete the Water Use Strategies handout for homework. If students do not have access to the Internet at home, teachers may consider giving hard copies of the articles suggested on the handout.

Step 5: Planning (Class 3 - Computer Access)
During this class, students will gather materials and plan their digital story. Objectives for the day include gathering approximately 10 images, planning the persuasive narrative to accompany the photos, and finding music for the background audio. Students should refer to the Planning Handout for Creating a Digital Story, which provides space to do this planning, as well as suggestions for finding images and music that is in the public domain. Students who do not finish locating their images and planning their story should do so for homework so they are prepared for Class 4. Note: Teachers should have students save the images and music in one folder (either on the school’s network or on a flash drive) so that students can find and access them easily when they come to the next class.

Step 6: Putting It All Together (Class 4 - Computer Access)
In the computer lab, have students open a new Photostory project (Note: teachers should install Photostory and Windows Media Player before this class period. If it is a MAC lab, be sure that iPhoto is available). Students should import and order their pictures and music and record their narratives. When they are finished, they should save and export their file so that it can be shared and viewed easily using Windows Media Player (Note: for more information on Digital Storytelling, please see the teacher handout Digital Storytelling in the Classroom).

Step 7: Share! (Class 5 – Projector/Computer)
Have a film festival with the completed digital stories (depending on the number of students in the class, teachers may want to do this over several days). After viewing the projects, have students reflect on the process, product, and their knowledge of the topic by completing the Self-Evaluation and Assessment handout.

Checking For Understanding: There are opportunities for both formative and summative assessment throughout this learning activity. To assess student understanding:

- **Step 1**—Students demonstrate understanding by successfully participating in the post-it note activity and contributing to the class discussions by either making comments or asking questions.
- **Step 2**—Students demonstrate understanding by contributing to the class discussion based on Josh’s Reflection. Students may ask clarifying questions or make comments. When the digital storytelling assignment and rubric are introduced, students should be able to explain the teacher’s expectations for the project after asking clarifying questions.
- **Step 3**—Students demonstrate understanding by successfully completing the handout “Measuring Your Water Use,” which requires students to collect household data and provide written answers to several questions.
- **Step 4**—Students demonstrate understanding by choosing three ways that their family can reduce household water use. The choice of three strategies should reflect some research on the topic, but should also reflect the personal data they collected in Step 3, and focus on what they have identified as areas that could be improved.

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Step 5—Students demonstrate understanding by completing a storyboard for their digital story and gathering the materials needed to complete the project. The music and photos should be free of copyright, and the persuasive narrative should explain the water reduction strategies they developed.

Step 6—Students demonstrate understanding by compiling their stories (including narrative, photos, music) using the Photostory or iPhoto software.

Step 7—Students will demonstrate understanding by successfully sharing their completed digital story. Students should be able to reflect on the process of creating the story, as well as assess whether their digital story effectively communicated to the audience.

Global Action Activities:

- Have students follow their water reduction plans, and recalculate their water use over time to see how much water they have saved. As a class, students can record water saved for the remainder of the year to keep the momentum going.
- Using the feedback from the students’ Self-Evaluations, choose one Digital Story to present to the school community. To create a more robust presentation, students can incorporate elements of Josh’s reflection, water facts that they encountered in this learning activity, or research using the additional resources (see below).
- Research and plan a class trip to clean up a local river or water source. Partnering with a local water organization on this kind of activity will increase student awareness about the importance of preserving and protecting local sources of fresh water from pollution.
- Have each student find the water treatment facility that serves his or her own neighborhood. Research the process of water treatment with a focus on how wastewater is treated and reused. If possible, plan a field trip to tour one of the plants.
- Have your students test for dangerous levels of lead, copper and arsenic at your school. An excellent independent testing lab is The Environmental Quality Institute, which is a non-profit affiliated with the University of North Carolina. You can order test kits from: http://orgs.unca.edu/EQI/kits.html. Information on these contaminants and the testing process itself is also on the Environmental Quality Institute’s website. The testing costs approximately $30; materials are sent to the school for collection of the water samples.

Extension Activities:

- To continue and expand the discussion of contemporary water issues, have students watch the movie FLOW, an award-winning documentary directed by Irena Salina. The movie builds a case against the growing privatization of water resources and advocates for greater attention to the issue that many say is the most important political and environmental issue of the 21st century. Educational copies of the film are available for $23.99 at the following web site: http://www.flowthefilm.com.
- Have students research water issues in specific countries or regions around the world and compare their findings in an informal jigsaw activity. Students may want to think about water as a health issue or as a geo-political issue related to conflict.
- Discuss the concept of a “carbon footprint” and our individual impact on climate change. Have students measure their family’s carbon footprint and initiate a discussion about how individuals can reduce their impact. Information about carbon emissions, offsets, and a “footprint” calculator can be found at http://www.epa.gov/climatechange/emissions/individual.html and http://coolclimate.berkeley.edu.
Additional Resources:
Water Resources
PlayPumps International: http://www.playpumps.org
Water Partnerships International: http://water.org/index.aspx
Global Water: http://www.globalwater.org/
Global Water Partnership: http://www.gwpforum.org
Water Conserve: http://www.waterconserve.org/

Digital Storytelling Resources
Center for Digital Storytelling: http://www.storycenter.org
Visible Knowledge Project: http://cndls.georgetown.edu/crossroads/vkp
Interactive Narratives: http://www.interactivenarratives.org/
UVA Primary Access: http://www.primaryaccess.org/

Related OWEd Resources:
• Josh’s Reflection: A Small Project Makes a Colossal Difference
• Unit Resource 1: Previewing the Reflection
• Unit Resource 2: Understanding the Reflection
• Unit Resource 3: Visualizing the Reflection
• Unit Resource 4: Reviewing the Reflection
• Down the Drain: Measuring Your Water Use and Questions
• Down the Drain: Water Reduction Strategies and Plan
• Down the Drain: Digital Story Project Description and Planning Guide
• Down the Drain: Digital Storytelling in the Classroom (Teacher Resource)
• Down the Drain: Performance Rubric
• Down the Drain: Self Evaluation and Assessment

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