

<p>Content Area: AP Environmental Science Boise High Unit: Water, Water Pollution and Human Health</p>	<p>Idaho State Science Standard: HS ESS3 Earth and Human Activity: Use a computational representation to illustrate the relationships among Earth systems and how those</p>	<p>Lesson Title: Direct and Virtual Water Use Modeling and Visualizations</p>
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WICOR Planning Template

This instructional planning tool supports the four areas of WICOR—Writing, Inquiry, Collaboration, Organization, and Reading

PLEASE FILL OUT ALL THE TOP BOXES COMPLETELY – ONLY FILL OUT ONE OF THE WICOR STRATEGY BOXES

	<p>Common Core Standard(s): Math standards: HSN-Q.A.1, HSN-Q.A.2, HSN -Q.A.3</p>	
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Topic: Water Use - Direct (as in the water in our homes) and Virtual (as in the water in our food and manufactured goods)

Demonstration/Assessment (what students will know and do): Students will use two different online modeling calculators to get a sense of what their water footprint is and why. Students will also select three info-graphics from “Your Water Footprint” (Leahy) for evaluation and analysis of the use of water in our manufactured goods.

Level: High School/Undergraduate

Time required: 2 days

Materials: Devices (1:1) and Infographics from Leahy, handouts

Resources: *Environmental Science for AP* (Freidman, 1st Ed.), *Your Water Footprint* (Leahy), <http://www.watercalculator.org/q/household/>
<http://waterfootprint.org/en/resources/interactive-tools/product-gallery/>

Anticipatory Set:

Paper or Plastic?

How much water is in this paper bag?

How much water is in this plastic bag?

This is actually an environmental science classic. Most would assume that paper bags are more sustainable. And for many reasons plastic bags are atrocious. However, the water footprint of a single use paper bag is very high. We can examine the infographics as a way to introduce this lesson and be on our way.

Materials:

Water calculator handout - notecatcher

Laptops

Infographics from “Your Water Footprint” (I used 8 different ones, and I let the students select 3 each - I had about 10 of each in each stack and the students returned after use).

In this modeling students will do the following.

1. Anticipatory Set with Mrs. Ward showing info graphics on paper and plastic bags.
2. Hypothesize household water use
3. Household water calculators <http://www.watercalculator.org/g/household/>
4. Virtual water calculator <http://waterfootprint.org/en/resources/interactive-tools/product-gallery/>
 - a. Check - are the students seeing the relationship to water footprints and food choices? Can “eating lower on the food chain” become part of this conversation?
5. Water Footprint Infographics - select 3, interpret, reflect
6. Final reflection/discussion

W- What activities will include writing?

Students will respond in writing (see handout [here](#)) to several prompts both personal/family level (as far as water consumption) and larger global sustainability issues.

I- What activities will include inquiry?

By using the modeling software and tools students are inquiring about their own families contribution to water use and water waste. This issue is pressing and the need for individual awareness is paramount.

C- What activities will include collaboration?

Collaboration is implied and embedded through use of Water Teams.

O- How did you address organization?

Organization is implied and embedded by using our interactive notebook.

R- What activities will include reading?

They are reading several types of infographics and responding. Reading graphs and charts as types of text is critical in our course and scientific literacy.

Notes:

This activity, to do well, takes two regular class periods. Laptops are preferred to phones (the online calculators and linked data sets work better). A follow up lesson could go back into the infographics and really connect to the importance of our food choices and our disposable products. In the future I will connect this to “how much water do we throw away every day” which I think could be really powerful to also get at our trash/waste issues.