

DAYS 1-2: At any time in teaching a water unit, you can introduce this project. Start by asking students the following questions:

1. Why is water important to life?
2. How much water do you use in a week?
3. How much water do you need?
4. What is found in the water we drink?

These questions can be discussed as a class, in small groups or written about individually.

After discussion, you can either assign this as a project to make an infographic or just have the students fill in the worksheet. If it is a project this can be done as a group or solo project. Students will need computer access in order to collect data. Students will need to fill in the worksheets in order to properly design their infographic. It will take 1-2 days for them to collect information.

Sample infographics:

http://amwater.com/files/WinterWeather_INFOGRAPHICv2.pdf

<http://www.amwater.com/files/Outdoor%20Tips.pdf>

http://en.wikipedia.org/wiki/User:Victuallers/wikitown#mediaviewer/File:MonmouthpediA_infographic.jpg

DAYS 3-4 It will take students a few days to create their infographic and perform their survey. You can use class days for them to work on the infographic. If you choose not to allow class time for students to make their infographic, then it is strongly suggested this not be a group project. Because infographics can be made digitally, be cautious that some students may not have access to a printer. You could require all infographics be made by hand.

There are some online infographic generators that are free for student use (such as piktochart.com), but students can also use word processing programs as well as other art programs if they choose to make the infographic digitally.

If you start this project on a Monday you can have all completed work come in the following Monday. That way students have the weekend to finish up anything they might have not finished in class and add any last minute details. Once completed, students can self and peer grade on the rubric doing a gallery walk.

As part of this infographic, students will create a survey that will serve as a mini experiment. They need at least 3 questions to ask their audience concerning water. Encourage students to make simple questions that are either multiple choice, true/false or permit simple answers. Two sample questions are listed below:

- What percent of the Earth's surface is covered in water?
- True/False: Over 10% of all water on Earth is drinkable in its current state.

To help the student identify their variables you can remind them of the definitions.

- The **independent** variable is the item they are changing in the experiment (the people they ask).
- The **dependent** variable is the data being measured (the answers to their questions).
- The **controlled** variables are everything in the experiment that stays the same (number and type of questions, order they are asked, where they are asked, etc).

SAFETY/SECURITY ISSUES:

Remind students to cite sources for any images used in their infographic.

REFERENCES

<http://www.nextgenscience.org/next-generation-science-standards>

<http://piktochart.com/>

STUDENT RESOURCES

<http://www.amwater.com/caaw/Learning-Center/Water-101/what-is-water-used-for.html>

<http://water.epa.gov/>

NOTES/REFLECTIONS/EXTENSIONS:

Infographics should be stand-alone images that do not require explanations. Finding various infographics online for the students to see will help guide them in their quest for representing their findings.

EXTENSIONS: You could have the class vote on the best project in the class. You can award extra points to the winner and/or hang the winning project in the school's front office.

NAME _____

DATE _____

THE WATER PROJECT

Water is essential for life, but why? What does water do for us? How much water do we use? How much do we actually need? This project will allow you to explore not only water's importance to life but how it is used, how much is consumed and what others know about water.

You will research information all about water and create an infographic of your findings. An infographic is a poster or chart that uses pictures, drawings, graphs and words to convey information about a topic.

THE PROCESS

You will conduct research on the following and include this information in your infographic. As you find information, cite your source.

- Why water is necessary for life
- Molecular structure of water
- 5 uses of water by industry
- Which industry uses the most water and how much
- Sources of drinking water and the cost to acquire and clean water
- Identify 3 chemicals found in our drinking water and why are they there
- Determine how much water you use in a week (see attached)
- Determine how much water a human actually needs to survive
- Identify 3 ways to reduce water use
- From your findings, design a water survey for people to take (you need to ask at least 3 questions)

THE RULES

- You must include at least 3 graphs
- You must include at least 3 pictures/images
- All of the information in the Process Section above must be present
- You can use words and sentences on your infographic, but NOT paragraphs
- The infographic should include color, be neat, creative and organized
- This can be handmade or created digitally

THE RUBRIC

TOPIC	1	2	3	4	5
Graphs	1 graph is present	2 are present but not accurately labeled	2 are present and labeled	3 are present but not accurately labeled	3 are present and labeled
Pictures or Images	1 picture is present	2 are present but not all are topic related	2 are present and are topic related	3 are present but not all are topic related	3 are present and are topic related
Water importance	Topic is not addressed	Topic is addressed but lacking details	Topic is addressed and mostly accurate	Properly addressed and scientifically accurate, but lacking detail	Properly addressed and scientifically accurate
Molecular Structure of water	Structure is not identified		Structure is identified, not accurate		Structure is identified and accurate
Uses of Water by Industry	1 use identified	2 uses identified	3 uses identified	4 uses identified	5 uses identified
Water sources, cost to acquire/clean	No sources listed, costs not listed for acquiring and cleaning	One sources listed, costs not listed for acquiring and cleaning	One source listed, cost clearly identified for acquiring and cleaning	Two sources listed, costs clearly listed for acquiring and cleaning	Multiple sources listed, costs clearly listed for acquiring and cleaning
Chemicals in water	2 or less chemicals identified, not explained	2 chemicals identified, purpose of chemical explained	3 chemicals identified, purpose of chemical not explained	3 chemicals identified, purpose not thoroughly explained	3 chemicals identified, purpose of chemical explained
Industry that uses most water	Industry and amount of water used not identified		Industry identified, but not amount of water		Industry identified as well as amount of water
Personal Water Use	Data about water use not conveyed		Data about personal water use somewhat conveyed		Data about personal water use properly conveyed
Water amount needed to survive	Amount of water not provided		Amount of water provided, not explained		Amount of water provided and explained
Ways to reduce water use	No ideas identified	1 idea identified	2 ideas identified		3 ideas identified
Water Survey	Survey not conducted	1 or 2 questions, data difficult to understand	<3 questions asked, data represented nicely	3 questions asked, data represented nicely	>3 questions asked, data represented nicely
Neatness	Not organized, sloppy, not easy to read	Mostly organized, somewhat neat	Organized, relatively easy to read, somewhat neat	Organized, well laid out, easy to read, mostly neat, supports main idea	Extremely organized, supports main idea, easy to read, neat, professional

A = 59 - 65

B = 52 – 58

C = 46 – 51

D = 39 – 45

F = < 38

NAME _____

DATE _____

RESEARCH

Why is water necessary for life?

Citations:

Molecular structure of water

Citations:

5 uses of water by industry

1.

2.

3.

4.

5.

Citations:

Which industry uses the most water? How much?

Citations:

Sources of drinking water, cost to acquire and clean water

Sources?

Cost to acquire/clean

Citations:

3 chemicals found in our drinking water. Why are they there?

1.

2.

3.

Citations:

PERSONAL WATER USE

Fill in the table and do the math to determine how much water you use in a week.

TOPIC	A. Number of times per week	B. Gallons of water per use	A x B
Flush Toilet		4 gallons	
Shower (5 min)		15 gallons	
Shower (10 min)		30 gallons	
Bath		35 gallons	
Dishwasher		10 gallons	
Hand wash dishes		14 gallons	
Brush teeth (water left on)		2 gallons	
Brush teeth (water turned off)		0.3 gallons	
Washing machine (front loader)		20 gallons	
Washing machine (top loader)		40 gallons	
Washing hands		0.5 gallons	
TOTAL			

How much water do you need to actually survive? EXPLAIN

Citations:

3 ways to reduce water use

1.

2.

3.

WATER SURVEY

Design a survey for people to take about water. You need at least 3 survey questions.
List the survey QUESTIONS for the audience below:

What do you think their answers will be? This is your hypothesis.

How many people will you ask? (Minimum is 5) _____

WATER SURVEY

List the variables of this experiment:

Independent: _____

Dependent: _____

Controlled: _____

How will you collect your data? EXPLAIN BELOW.

Make a graph of the data you collected. This can be a line graph, bar graph, pie graph, etc.