

The Daily Dewdrop



Key Groups:
School groups,
Families, Boy
Scouts (ages 12-
15)

Subject: Water
Cycle

Duration: 1
hour

Abilities:
researching,
synthesizing,
drawing,
analyzing

Materials:
paper, pencils,
coloring
materials,
camera
(optional)

Vocabulary:
infiltration,
sublimation,
deposition,
percolation, acid
rain,
deforestation,
hydroelectricity,
borehole,
infrared
radiation,
eutrophication,
deoxygenation

Background:

With new technology and mounting research, we are becoming more aware of the affects our actions have on the water cycle. For billions of years, the water cycle has sustained and enhanced the quality of life on Earth, and we all hope it will continue to do so in the future. We all want to see a clean and healthy world, but to have such a world we must do our part now so that the dreams of our parents become the reality

of our children. Every day is an opportunity to make a change. No one really knows how much they can do until they take a stand and try. Our actions may seem small at times, but in no circumstance are they in vain. The caring actions of a single person are always meaningful. Though we may not get a lot done by ourselves, together, we can accomplish great things. We only have to envision it with creativity and pursue it with

conviction to achieve it.

Method:

Before starting this exercise, go over some new terms regarding the water cycle with the kids:

Infiltration: The process of water seeping into the ground to become ground water or soil moisture.

Sublimation: Water changes directly from snow or ice into water vapor.

Deposition: Water changes directly from water vapor into snow or ice.

Percolation: Water flows downward through soil and rocks because of gravity.

Activity:

Kids will create a newspaper (written in columns) for their community, school, classroom, or family.

Divide the kids up into groups and explain that each group will make a page in the newspaper, *The Daily Dewdrop*. Everyone will get to put their names on the front of the letter under the title: "Dewdrop Reporters."

The kid's tasks are these:

-Come up with a creative title for their article.

-Include the date

-Research their topic; explain what it is, why it is important or affects the water cycle, and what people can do to help.

-Add a relevant picture to their article.

Now here are some topics the kids can cover:

1. Deforestation is the removal of trees on a large scale. Ordinarily, water transpires from trees and evaporates into the atmosphere until it falls back to Earth as precipitation. Thus, deforestation in one place can affect the weather in another place, because if too many trees are cut down, not enough water returns to the atmosphere or is recycled back to Earth. In your local area, the land becomes unbalanced and arid. When it does rain, more run-off and leaching happens, because the water isn't soaked up by the soil. Areas may be more likely to have droughts and flooding, which affect us and our natural world.

2. The greenhouse effect is a natural occurrence of Earth's atmosphere locking in many gases, which in turn secure infrared radiation to maintain Earth's moderate temperature range. Many scientists think human activities such as burning fossil fuels may be influencing the general rise of the Earth's temperature. Raising the

Earth's temperature results in an increase of evaporation, melting of ice (glaciers) or other aspects of the water cycle that negatively influence the climate on Earth. Carbon dioxide emissions change air and ocean temperatures which change air currents, evaporation rates, and weather patterns. Global warming of surface water magnifies the influence of pollutants.

3. Much of Utah's electricity is generated by hydropower dams. This is done by changing the gravitational energy of water held behind the dam into electrical energy when it travels downhill through a turbine. The force of the water turns the turbine blades generating electricity. This is a non-polluting renewable way to generate electricity, but hydropower dams can have negative impacts on the environment. Dams can affect the function of the river both upstream and downstream. They can also block the movement of migrating fish. Lakes are typically created when water builds up behind a dam. The accumulation of silt behind a dam can decrease the amount of water in the lake. Depending on how the dam is managed, the amount of water may be reduced downstream, and plants and animals may find themselves with too little water.

4. Wells and boreholes (narrow shaft bored in the ground, either vertically or horizontally) can use up water in

underground aquifers at rates higher than they can naturally be recharged. Some of the water in ground water is more than a 1,000 years old.

5. Pollution, such as excess sediment, affects stream channels by inhibiting normal flow or making it hard for water to seep into the ground (where water starts to percolate). It also reduces its usefulness to humans, animals, and plants. Sediment can clog the stream banks making it difficult for plants to grow. Another type of pollution is eutrophication. Eutrophication occurs when excess nutrients, from things like fertilizer contaminates a body of water. Too many nutrients may cause algae to flourish, which clogs stream channels. When algae die they decompose in a way that takes oxygen from the water. When there is too much algae the water becomes uninhabitable for fish and many other aquatic organisms due to deoxygenation of the water. Pollution such as trash and acid rain also poses a threat to animal life.

6. The use of toxic chemicals in agriculture and manufacturing runoff (chemical fertilizers and pesticides) can pollute surface water or seep into the ground and contaminate the groundwater. Even people who do not live near water bodies can add to pollution by letting their sprinklers run too long, washing cars at home, hosing down driveways, or not picking up their pet's waste. Water

carries trash, fertilizers, and pet waste into natural water sources.

Some things people can do to help: recycle or correctly dispose of household items and wastes. Don't pour them into sinks or toilets. Second, don't overwater your lawn or use too many pesticides or fertilizers. Third, don't wash your car at home. Fourth, pick up pet waste and put it in the trash.

These are just some ideas, but encourage kids to research other affects to the water cycle.

An outline of the newspaper is provided at the end to help kids get started. They are free to add to the newspaper if they wish, and doing so would encourage more creativity.

Once everyone is finished with their part, compile all the creations into one newspaper.

Assessment:

Students can present their topic to the other groups and then everyone can give a brief description of how humans negatively impact the water cycle in many ways.

If they have a camera, have the kids take their own pictures to avoid any copyright issues which may arise.

Further Learning:

Kids keep a journal and record how they did their part to help the water cycle for a week or two.

Test whether or not the rain in your neighborhood is acid rain, by collecting rain in a jar and then dipping a litmus paper and color chart (available from pet stores) into the water. Determine whether the water is acid, alkaline, or neither ('pH balanced') by comparing the color of the litmus paper to the colors on the chart.

Works Cited

How Humans Affect the Water Cycle. (n.d.).

Retrieved July 5, 2013, from Credit Valley Conservation:

<http://www.creditvalleyca.ca/watershed-science/our-watershed/the-water-cycle/how-humans-affect-the-water-cycle/>

Humans and the Water Cycle. (2009, June 2).

Retrieved July 5, 2013, from Science Learning:

<http://www.sciencelearn.org.nz/Contexts/H2O-On-the-Go/Science-Ideas-and-Concepts/Humans-and-the-water-cycle>

The World's Water Supply. (n.d.). Retrieved July 5, 2013, from World Savvy:

http://worldsavvy.org/monitor/index.php?option=com_content&view=article&id=701&Itemid=1186

Week Day:

Date:

Daily Dewdrop

Local News
Starting Now

YOUR HOME  YOUR COMMUNITY  YOUR NEWSPAPER



A WEEKLY LOOK

Find the many ways we all use water from day to day

Title of Deforestation Article:

Author and Caption:

Title of the Greenhouse Effect Article:

Author:

Caption:

Title &Page
Continuation #

Title of Hydroelectricity Article :

Author:

Caption:

Title &Page
Continuation #

Title & Page
Continuation #

Title—Continued:

Title of Wells and Boreholes Article:

Title & Page Continuation #

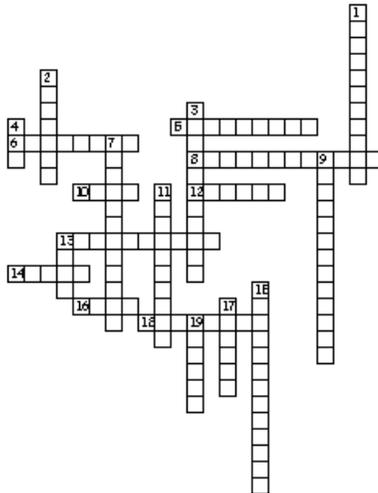
Crossword

Across

- 5. Water goes one place to another
- 6. Bad rain
- 8. Water becomes a cloud
- 10. Most common way water falls to earth
- 12. State of matter that flows
- 13. Another name for the water cycle.
- 14. Ice is the state of mater.
- 16. Building block of matter
- 18. Many atoms

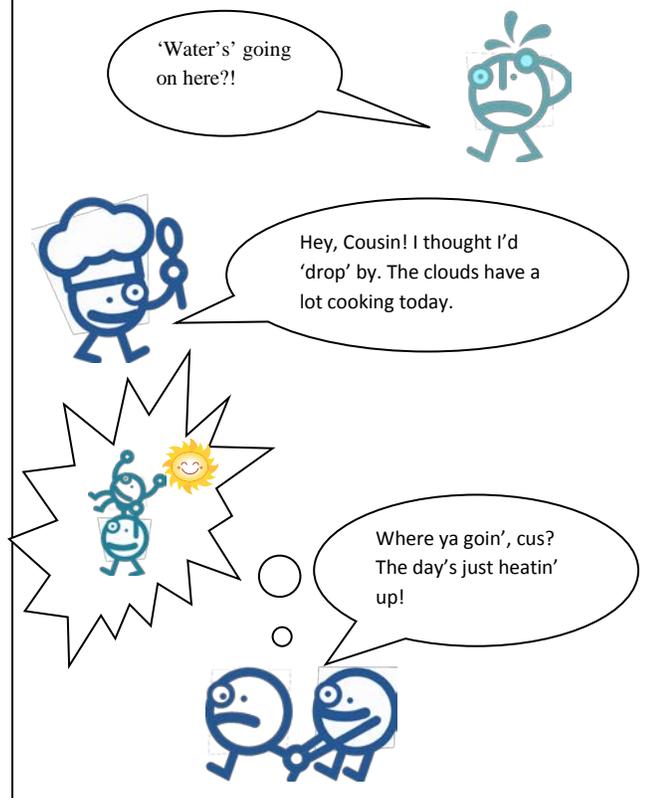
Down

- 1. Solid to gas
- 2. Large ice formations
- 3. Water runs underground
- 4. Vapor is the state of matter
- 7. Water soaks into the ground
- 9. Evaporation from plants
- 11. Gas to solid
- 13. Balls of ice
- 15. Water falling from the clouds
- 17. Water going over the ground.
- 19. The water cycle exchanges this as water moves



Acid rain solid liquid gas
 hydrologic reservoir energy
 sublimation deposition gas
 condensation precipitation
 transpiration percolation
 molecule rain runoff
 infiltration atom glacier

Dewdrop Comics



Title—Continued:

--	--

Title of Animal and Plant Article:

--

Author and
Caption:

Title— Continued:

--	--

The Forecast for the Water Cycle

Monday Tuesday Wednesday Thursday Friday Saturday Sunday

For Our Community:



For Utah:



For the Nation:

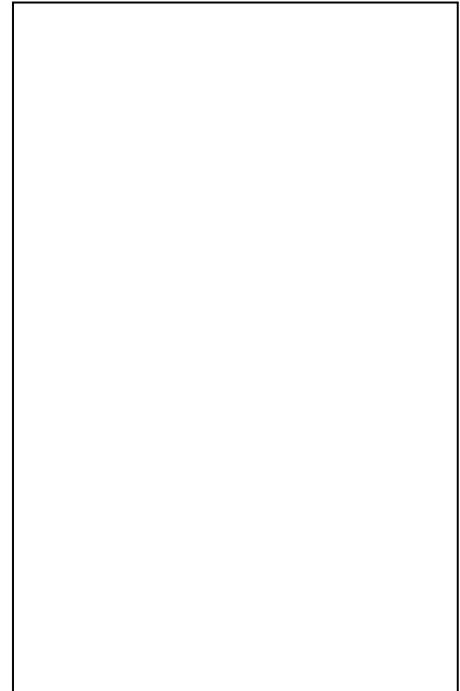


For the World:



How We Affect the Water Cycle: Title”

Two vertical lines defining a narrow column for writing.

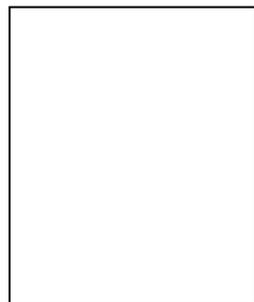


Author and Caption:



Our Water Uses

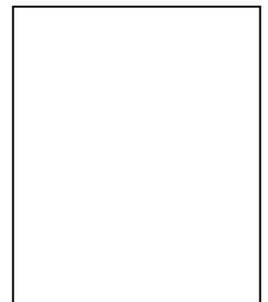
A vertical line defining a narrow column for writing.



Author and Caption:



How Plants and Animals Use Water



Author and Caption:

Ads for jobs involving the
Hydrologic Cycle:

Title—Continued

Title—Continued

Title of Agriculture Article:

Daily Dewdrop

Critic Reviews of Our Water Management: Title:



Advice Colum for Our Water Management: Title:



Editorial Opinions about the Water Cycle: Title:



Gossip Colum about the Water Cycle: Title:

