Science 5 E’s Lesson Plan

**UNIT: Hydrosphere and Water**

**TOPIC: Properties of Water**

**GOAL/S: The student will describe the water cycle as the distribution and circulation of Earth’s water through glaciers, surface water, groundwater, oceans, and atmosphere. HC.06.01.01.b**

**OBJECTIVE/S: The student will classify different bodies of water as flowing or still liquid or solid, and salt water or fresh water.**

**\_X\_ Pre-Activity**

**\_\_ Reading (BDA)**

**\_\_ Resource sheet**

**\_\_ Research**

**\_\_ Project**

**\_\_ Lab**

**\_\_ Web Activity**

**\_x\_ Other: ActiveInspire presentation,**

**Video Clip**

**EXPLORE:**

**Begin Active Inspire Water Presentation one slide at a time. Students will view the video clip about water and the water cycle on slide 2.**

TRANSITION: Put white boards and markers to the side.

**\_\_ Warm-Up**

\_x\_ Discussion

**\_\_ Brain Storming**

**\_x\_ Prior Knowledge**

**\_\_ Challenge**

**\_\_ Other**

**ENGAGE:**

 **Show the students a photograph of the United States, from space. Ask the students if they can identify the water that is visible from space. Students can work in groups using white boards to identify:**

 **Ocean**

 **Rivers**

 **Lakes**

 **Ice Caps ?**

 **Clouds ?**

**MATERIALS:**

 **Computer with ActiveInspire installed**

 **LCD Projector**

 **White boards and markers, optional**

 **Every Pupil Response System- thumbs up or thumbs down if clickers not available**

TRANSITION: Show students how active inspire pen and eraser work on computer.

**\_\_ Homework**

**\_\_ Quiz**

**\_\_ Project**

**\_\_ Report**

**\_\_ Lab**

**\_x\_ Review**

**\_\_ Engagement**

**\_x\_ Discussion**

**\_\_ Game**

**\_x\_ Data Table**

**\_\_ Sketch**

**\_\_ Graphic Organizer**

**\_\_ Other**

**EVALUATE:**

**Refer back to unit organizer and fill in the terms as shown on Unit organizer slide 3. Answer any questions about misconceptions at this time.**

**Students will name at least 2 bodies of water and classify each as flowing or still liquid or solid, and salt water or fresh water. This list will be compiled on ActivInspire slide for all students.**

**Students will identify the hydrosphere as all water on Earth using Every Pupil Response.**

1 1. Ocean, river, lake, glacier, or ground water

2. Flowing water or stationary water

3. Fresh water or salt water

4. Solid water or liquid wat. Ocean, river, lake, glacier, or ground water

2. Flowing water or stationary water

3. Fresh water or salt water

4. Solid water or liquid water

TRANSITION:

**\_X\_ Peer Activity**

**\_\_ Research**

**\_\_ Reading (BDA)**

**\_\_ Interview**

**\_\_ Crossover Activity**

**\_\_ Real-World App.**

**\_\_ Other**

**EXTEND:**

**Students will review by then identifying these characteristics for each body of water. Students can take turns at the computer and LCD screen while the rest use white boards.**

TRANSITION: Have students return to white board and markers so that all can answer the next questions.

**\_\_ Debriefing**

**\_\_ Writing Activity**

**\_\_ Venn Diagram**

**\_\_ Role Playing**

**\_X\_ Discussion**

**\_X\_ Visual Aid**

**\_\_ Questioning**

**\_x\_ Other: ActiveInspire presentation**

**EXPLAIN:**

**Allow students to take turns using computer mouse to make connecting lines between the body of water pictures and the identifying category: Flowing or Stationary, Solid or Liquid, Fresh Water or Salt Water.**

Science 5 E’s Lesson Plan

**UNIT: Hydrosphere and Water**

**TOPIC: States of Matter**

**GOAL/S: The student will describe the water cycle as the distribution and circulation of Earth’s water through glaciers, surface water, groundwater, oceans, and atmosphere. HC.06.01.01.b**

**OBJECTIVE/S: The student will describe states of matter based on observable properties.**

**\_X\_ Pre-Activity**

**\_\_ Reading (BDA)**

**\_\_ Resource sheet**

**\_\_ Research**

**\_\_ Project**

**\_\_ Lab**

**\_\_ Web Activity**

**\_x\_ Other: ActiveInspire presentation,**

**Video Clip**

**EXPLORE:**

**States of Matter demonstration: Fill a beaker half full of very hot/boiling water, and cover with a watch glass with ice cube on it. Place a thermometer in the beaker and on the watch glass. Record the temperatures every 2 minutes.**

**Place covered beaker under document camera. Record what happens: the ice cube melts, the underside of the watch glass becomes wet. Use the recording feature of the document camera to make a movie of the experiment for future use or viewing by absent students.**

TRANSITION: Turn on document camera and connect to computer for recording.

**\_\_ Warm-Up**

\_\_ Discussion

**\_X\_ Brain Storming**

**\_\_ Prior Knowledge**

**\_\_ Challenge**

**\_\_ Other**

**ENGAGE:**

**Solve the problem:**

**You have a glass of lemonade with ice on a hot day. The outside of your glass is so wet that your hand gets wet and slippery. In addition, the ice keeps melting so quickly that your lemonade is watered down. What can you do to prevent the ice from melting?**

**MATERIALS:**

**Beaker, watch glass to cover, boiling water, ice cubes, thermometer**

**Frame Organizer- 3 levels for different ability students**

TRANSITION: Pass out Frame Routine handouts to all students.

TRANSITION: Have students turn over their frame organizer to write on the back.

TRANSITION: Ask the students to read over their examples with other groups nearby.

**\_\_ Homework**

**\_x\_ Quiz**

**\_\_ Project**

**\_\_ Report**

**\_\_ Lab**

**\_\_ Review**

**\_\_ Engagement**

**\_\_ Discussion**

**\_\_ Game**

**\_\_ Data Table**

**\_x\_ Sketch**

**\_\_ Graphic Organizer**

**\_\_ Other**

**EVALUATE:**

**Refer back to unit organizer and fill in the terms as shown on Unit organizer slide 4. Answer any questions about misconceptions at this time.**

**Exit Ticket:**

 **Define any 3 of the 5 terms:**

* + **Solid**
	+ **Liquid**
	+ **Gas**
	+ **Melting**
	+ **Freezing**

**You may use words or pictures to define the terms.**1. Ocean, river, lake, glacier, or ground water

2. Flowing water or stationary water

3. Fresh water or salt water

4. Solid water or liquid wat. Ocean, river, lake, glacier, or ground water

2. Flowing water or stationary water

3. Fresh water or salt water

4. Solid water or liquid water

**\_x\_ Peer Activity**

**\_\_ Research**

**\_\_ Reading (BDA)**

**\_\_ Interview**

**\_\_ Crossover Activity**

**\_x\_ Real-World App.**

**\_\_ Other**

**EXTEND:**

**Ask students to create definitions in their groups for :**

 **Melting**

 **Freezing**

**Based on what they have learned about solids, liquids, gases.**

**For those students who finish quickly, ask them to create examples of substances that can freeze and melt over and over again.**

**(ie.- water, ice cream)**

**Refer back to unit organizer and fill in the terms as shown on Unit organizer slide 3. Answer any questions about misconceptions at this time.**

**\_\_ Debriefing**

**\_\_ Writing Activity**

**\_\_ Venn Diagram**

**\_\_ Role Playing**

**\_\_ Discussion**

**\_\_ Visual Aid**

**\_\_ Questioning**

**\_x\_ Other:**

**Frame Routine**

**EXPLAIN:**

**Show the students the Frame Routine Organizer and explain its use as a graphic organizer for ideas and facts.**

**Have the students fill in the definition/what it’s about: States of Matter are the form of a substance. (Some students will receive a copy that has the definition on it, others will receive a fill-in-blank form).**

**Allow students to brainstorm examples of each in their table groups.**

**Go over examples as a class.**

Science 5 E’s Lesson Plan

**UNIT: Hydrosphere and Water**

**TOPIC: The Water Cycle**

**GOAL/S: The student will describe the water cycle as the distribution and circulation of Earth’s water through glaciers, surface water, groundwater, oceans, and atmosphere. HC.06.01.01.b**

**OBJECTIVE/S: The student will identify the various stages and paths of the water cycle.**

**\_X\_ Pre-Activity**

**\_\_ Reading (BDA)**

**\_\_ Resource sheet**

**\_\_ Research**

**\_\_ Project**

**\_\_ Lab**

**\_\_ Web Activity**

**\_x\_ Other:**

**Predicting**

**EXPLORE:**

**After the video, ask students in pairs to predict what they are seeing.**

**Students can then share their predictions with another group at their table.**

TRANSITION: Pass out computers, placing students in “like ability” reading pairs.

**\_\_ Warm-Up**

\_x\_ Discussion

**\_\_ Brain Storming**

**\_x\_ Prior Knowledge**

**\_\_ Challenge**

**\_\_ Other**

**ENGAGE:**

**Show students the NASA video “The Water Cycle” using computer and projector. The movie can be shown using the following links:**

[**http://svs.gsfc.nasa.gov/vis/a010000/a010500/a010501/water\_cycle\_youtube\_1280x720.mov**](http://svs.gsfc.nasa.gov/vis/a010000/a010500/a010501/water_cycle_youtube_1280x720.mov) **(no music)**

**download from:** [**http://www.youtube.com/watch?v=0\_c0ZzZfC8c&feature=related**](http://www.youtube.com/watch?v=0_c0ZzZfC8c&feature=related)

**or direct from:**

[**http://svs.gsfc.nasa.gov/vis/a010000/a010500/a010501/**](http://svs.gsfc.nasa.gov/vis/a010000/a010500/a010501/)

**MATERIALS:**

 **Computer with NASA video preloaded and LCD Projector**

 **Computer lab with 15+ computers for student use**

 **PowerPoint book “The Water Cycle” in online student handout folder**

 **Path of One Drop handout- 3 levels**

TRANSITION: Pass out the handout “One Drop’s Path”

**\_\_ Homework**

**\_\_ Quiz**

**\_\_ Project**

**\_\_ Report**

**\_\_ Lab**

**\_x\_ Review**

**\_\_ Engagement**

**\_\_ Discussion**

**\_\_ Game**

**\_\_ Data Table**

**\_\_ Sketch**

**\_x\_ Graphic Organizer**

**\_\_ Other**

**EVALUATE:**

**Refer back to unit organizer and fill in the terms as shown on Unit organizer slide 5. Answer any questions about misconceptions at this time.**

**Students will complete the self-quiz at the end of the story with their reading partner. Students can go back to review as much as needed.**

**Students will turn in their list of the pathway of “One Raindrop”.**

1. Ocean, river, lake, glacier, or ground water

2. Flowing water or stationary water

3. Fresh water or salt water

4. Solid water or liquid wat. Ocean, river, lake, glacier, or ground water

2. Flowing water or stationary water

3. Fresh water or salt water

4. Solid water or liquid water

**\_X\_ Peer Activity**

**\_\_ Research**

**\_\_ Reading (BDA)**

**\_\_ Interview**

**\_\_ Crossover Activity**

**\_X\_ Real-World App.**

**\_\_ Other**

**EXTEND:**

**Have the students work in pairs to complete the self-quiz.**

**Ask the students to turn in their computer. Then they can work together to complete the story of one raindrop- where does it go as it travels through the water cycle. Some students will receive a copy that has prompts to help them, other students will receive a copy with only a start and end point, and the most advanced students will have no prompts.**

**Review the Unit Organizer with students, filling in the details for the water cycle.**

**\_\_ Debriefing**

**\_\_ Writing Activity**

**\_\_ Venn Diagram**

**\_\_ Role Playing**

**\_\_ Discussion**

**\_X\_ Visual Aid**

**\_\_ Questioning**

**\_x\_ Other:**

**Book Builder presentation**

**EXPLAIN:**

**Students will read the PowerPoint Book “The Water Cycle”.**

**The book can be read 3 different ways:**

1. **The student can read the book at own pace, using arrow keys to move from page to page.**
2. **Students with reading difficulties can click on the large speaker buttons on each page to have that page read to the student.**
3. **Students who are having difficulty with the concept after reading, or advanced students who want to learn more, can click on the smaller speaker for further explanation.**

TRANSITION: Show students how to access the PowerPoint book, The Water Cycle.

Science 5 E’s Lesson Plan

**UNIT: Hydrosphere and Water**

**TOPIC: The Water Cycle**

**GOAL/S: The student will describe the water cycle as the distribution and circulation of Earth’s water through glaciers, surface water, groundwater, oceans, and atmosphere. HC.06.01.01.b**

**OBJECTIVE/S: The student will identify the various stages and paths of the water cycle.**

**EXPLORE:**

**After the video, ask students in pairs to review the terms from the water cycle book on their white board.**

**Students should be able to remember at least one:**

1. **Evaporation**
2. **Condensation**
3. **Precipitation**
4. **Runoff**
5. **Transpiration**

**The teacher should give the first one to struggling groups.**

**Groups that finish early should begin to draw sketches.**

**\_\_ Pre-Activity**

**\_\_ Reading (BDA)**

**\_\_ Resource sheet**

**\_\_ Research**

**\_\_ Project**

**\_\_ Lab**

**\_\_ Web Activity**

**\_x\_ Other: Review**

TRANSITION: Pass out white boards or paper for brainstorming.

**\_\_ Warm-Up**

\_\_ Discussion

**\_\_ Brain Storming**

**\_x\_ Prior Knowledge**

**\_\_ Challenge**

**\_X\_ Other:**

**Video clip**

**ENGAGE:**

**Review with students the NASA video “The Water Cycle” using computer and projector. The movie can be shown using the following links:**

[**http://svs.gsfc.nasa.gov/vis/a010000/a010500/a010501/water\_cycle\_youtube\_1280x720.mov**](http://svs.gsfc.nasa.gov/vis/a010000/a010500/a010501/water_cycle_youtube_1280x720.mov) **(no music)**

**download from:** [**http://www.youtube.com/watch?v=0\_c0ZzZfC8c&feature=related**](http://www.youtube.com/watch?v=0_c0ZzZfC8c&feature=related)

**or direct from:**

[**http://svs.gsfc.nasa.gov/vis/a010000/a010500/a010501/**](http://svs.gsfc.nasa.gov/vis/a010000/a010500/a010501/)

**MATERIALS:**

 **Computer with NASA video and LINCS sample card preloaded**

 **LCD Projector**

**PowerPoint book “The Water Cycle”**

 **LINCS cards- 4” by 6” file cards – or paper cut in half- 4 per student**

TRANSITION: Pass out extra cards as needed.

**\_\_ Homework**

**\_\_ Quiz**

**\_\_ Project**

**\_\_ Report**

**\_\_ Lab**

**\_\_ Review**

**\_\_ Engagement**

**\_\_ Discussion**

**\_\_ Game**

**\_\_ Data Table**

**\_X\_ Sketch**

**\_x\_ Graphic Organizer**

**\_\_ Other**

**EVALUATE:**

**Refer back to unit organizer and fill in the terms as shown on Unit organizer slide 6. Answer any questions about misconceptions at this time.**

**Check student LINCS cards for appropriate connections and**

**completion.**

1. Ocean, river, lake, glacier, or ground water

2. Flowing water or stationary water

3. Fresh water or salt water

4. Solid water or liquid wat. Ocean, river, lake, glacier, or ground water

2. Flowing water or stationary water

3. Fresh water or salt water

4. Solid water or liquid water

**\_X\_ Peer Activity**

**\_\_ Research**

**\_\_ Reading (BDA)**

**\_\_ Interview**

**\_\_ Crossover Activity**

**\_X\_ Real-World App.**

**\_\_ Other**

**EXTEND:**

**Student pairs should be directed to create additional linking stories and pictures for the Path of a Drop outlines that they created in the previous lesson.**

**Students who struggle with the original set of cards can spend extra time on their cards.**

**\_\_ Debriefing**

**\_\_ Writing Activity**

**\_\_ Venn Diagram**

**\_\_ Role Playing**

**\_\_ Discussion**

**\_X\_ Visual Aid**

**\_\_ Questioning**

**\_x\_ Other:**

**Book Builder presentation**

**EXPLAIN:**

**Show the students how to use the LINCS card strategy using the**

**LINCS card sample and projector.**

**Give students the Lincs cards on copies- distribute the appropriate**

**Card set to each student based on reading ability.**

**Have students create LINCS cards with definition, linking word, linking sentence, and picture.**

**Encourage those who finish first to add color or help others.**

TRANSITION: Direct students back to projector.

Science 5 E’s Lesson Plan

**UNIT: Hydrosphere and Water**

**TOPIC: Types of clouds**

**GOAL/S: Recognize and describe the water cycle as the distribution and circulation of Earth’s water through glaciers, surface water, groundwater, oceans, and atmosphere. HC.06.01.01.b**

**OBJECTIVE/S: The student will describe cloud formation using the stages of the water cycle. The student will identify the four main types of clouds.**

**ENGAGE:**

**Demonstrate how a cloud holds water using the 2 sponges and water. Each sponge represents dust in the atmosphere. A dry sponge has the ability to hold lots of water, but doesn’t always fill up. Place the second sponge in the water and let it absorb as much as possible. Then hold it up and let the water drip back out into the beaker. This is what happens in a cloud. When it fills with water, the water is released as precipitation.**

**MATERIALS:**

**2 small dry sponges and beaker of water/ Document camera and LCD projector**

**Bottle, water, match, food coloring, balloon or rubber glove, optional**

**Computer lab with 15+ computers for student use**

**Website bookmarked in student access folder:** [**http://eo.ucar.edu/webweather/cloud3.html**](http://eo.ucar.edu/webweather/cloud3.html)

**Inspiration document loaded into student access folder and printed out**

**Copies of modified Inspiration documents for selected students to assist their completion**

**\_\_ Warm-Up**

\_\_ Discussion

**\_\_ Brain Storming**

**\_\_ Prior Knowledge**

**\_\_ Challenge**

**\_X\_ Other:**

**Demonstration**

**EXPLORE:**

**Create a cloud using the demonstration found at**

<http://eo.ucar.edu/webweather/cloudact2.html>

or

<http://weather.about.com/od/under10minutes/ht/cloudbottle.htm>

**\_\_ Pre-Activity**

**\_\_ Reading (BDA)**

**\_\_ Resource sheet**

**\_\_ Research**

**\_\_ Project**

**\_\_ Lab**

**\_\_ Web Activity**

**\_x\_ Other: Review**

TRANSITION: Take out bottle, water, match for demo

**\_\_ Peer Activity**

**\_\_ Research**

**\_\_ Reading (BDA)**

**\_\_ Interview**

**\_x\_ Crossover Activity**

**\_\_ Real-World App.**

**\_x\_ Other: Game**

**EXTEND:**

**Students can complete either of the activities at the bottom of the Types of Clouds site, Cloud Matching Game or Cloud Concentration, to practice their knowledge.**

**Students who finish early can be directed back to the Cloud main page to explore the other information within the site, as a review of how clouds are formed or as a preview of weather.**

**\_\_ Debriefing**

**\_\_ Writing Activity**

**\_\_ Venn Diagram**

**\_\_ Role Playing**

**\_\_ Discussion**

**\_X\_ Visual Aid**

**\_\_ Questioning**

**\_x\_ Other:**

**Book Builder presentation**

**EXPLAIN:**

**Direct students to the website, Cloud Types, at** [**http://eo.ucar.edu/webweather/cloud3.html**](http://eo.ucar.edu/webweather/cloud3.html)

**Ask the students to complete the questions on the Types of Clouds page. Then, direct them to complete the Inspiration template, Types of Clouds. They should include the 3 main types of clouds, their appearance, and whether or not they produce rain. Students will receive templates based on their writing levels.**

**Once all students have had the opportunity to complete the organizer, go over the basic information to insure correctness.**

TRANSITION: Pass out computers for student use.

TRANSITION:

**\_\_ Homework**

**\_x\_ Quiz**

**\_\_ Project**

**\_\_ Report**

**\_\_ Lab**

**\_\_ Review**

**\_\_ Engagement**

**\_\_ Discussion**

**\_\_ Game**

**\_\_ Data Table**

**\_\_ Sketch**

**\_x\_ Graphic Organizer**

**\_\_ Other**

**EVALUATE:**

**Refer back to unit organizer and fill in the terms as shown on Unit organizer slide 7. Answer any questions about misconceptions at this time.**

**Check the students’ Inspiration document for accuracy.**

**Students will take water quiz covering water unit concepts.** Ocean, river, lake, glacier, or ground water

2. Flowing water or stationary water

3. Fresh water or salt water

4. Solid water or liquid wat. Ocean, river, lake, glacier, or ground water

2. Flowing water or stationary water

3. Fresh water or salt water

4. Solid water or liquid water