

Title

The Water Cycle Mini Lesson

Grade Level

Second & Fifth

Student Target

Second Grade Science Benchmarks

- SC.2.N.1.1 Raise questions about the natural world, investigate them in teams through free exploration and systematic observations, and generate appropriate explanations based on those explorations.
- SC.2.N.1.3 Ask “how do you know?” in appropriate situations and attempt reasonable answers when asked the same question by others.
- SC.2.E.7.1 Compare and describe changing patterns in nature that repeat themselves, such as weather conditions including temperature and precipitation, day to day and season to season.
- SC.2.E.7.2 Investigate by observing and measuring, that the Sun’s energy directly and indirectly warms the water, land, and air.
- SC.2.E.7.3 Investigate, observe and describe how water left in an open container disappears (evaporate), but water in a closed container does not disappear (evaporates).
- SC.2.E.7.4 Investigate that air is all around us and that moving air is wind.
- SC.2.P.8.2 Identify objects and materials as solid, liquid, or gas.
- SC.2.P.8.4 Observe and describe water in its solid, liquid, and gaseous states.
- SC.2.L.17.1 Compare and contrast the basic needs that all living things, including humans, have for survival.

Fifth Grade Science Benchmarks

- SC.5.E.7.1 Create a model to explain the parts of the water cycle. Water can be a gas, a liquid, or a solid and can go back and forth from one state to another.
- SC.5.E.7.2 Recognize that the ocean is an integral part of the water cycle and is connected to all of Earth’s water reservoirs via evaporation and precipitation processes.
- SC.5.E.7.3 Recognize how air temperature, barometric pressure, humidity, wind speed and direction, and precipitation determine the weathers in a particular place and time.
- SC.5.E.7.4 Distinguish among the various forms of precipitation (rain, snow, sleet, and hail), making connections to the weather in a particular place and time.
- SC.5.P.8.1 Compare and contrast the basic properties of solids, liquids, and gases, such as mass, volume, color, texture, and temperature.
- SC.5.P.10.2 Investigate and explain that energy has the ability to cause motion or create change.
- SC.5.L.15.1 Describe how, when the environment changes, differences between individuals allow some plants and animals to survive and reproduce while others die or move to new locations.
- SC.5.L.17.1 Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics

Second Grade Florida Core Standards Language Arts

- LAFS.2.L.3
- LAFS.2.RI.1
- LAFS.2.RI.3
- LAFS.2.RL.1
- LAFS.2.RL.3
- LAFS.2.SL.1
- LAFS.2.SL.2
- LAFS.2.W.3

Second Grade Florida Core Standards Math

MAFS.2.G.1
MAFS.2.MD.4
MAFS.2.OA.1

Fifth Grade Florida Core Standards Language Arts

LAFS.5.L.3
LAFS.5.RI.1
LAFS.5.RI.2
LAFS.5.RI.3
LAFS.5.RL.1
LAFS.5.RL.3
LAFS.5.RF.3
LAFS.5.SL.1
LAFS.5.SL.2
LAFS.5.W.2
LAFS.5.W.3
LAFS.5.W.4

Fifth Grade Florida Core Standards Math

MAFS.5.G.1
MAFS.5.G.2
MAFS.5.MD.1
MAFS.5.MD.2
MAFS.5.OA.2

Materials

Teacher

- Water pitcher
- Water
- Salt
- Wooden stirring spoon

Student

- String
- Large glass jar (1 glass jar per 4-5 students)
- Pencils
- Paper clip

Warm-up

- Have your students understand that all the water on earth is the only water we have; the dinosaurs drank it, Christopher Columbus sailed in it, and in 100 years it will still be here. Water will continue being on earth, it just changes forms constantly. Living in Florida, we have had humid summer days and steamy nights, but where did that water vapor come from and where is it going?
- Most of the water is in the Oceans. They're big, they're huge, and they cover more than two-thirds of the earth's surface. The oceans of the world cover nearly 70% of the earth's surface; the oceans contain nearly 97% of the planet's entire water supply.
- Teachers will pose the question "Why is the ocean salty?" and ask the students to write down their response based on experiences, observations, and previous knowledge.

Main Lesson

1. The teacher will prepare a salt water solution before the lab begins by filling a pitcher full of water, adding several tablespoons of salt and stir until dissolved. Continue adding salt until no more can dissolved.
2. Groups of 4-5 students will each get a glass jar, sting, a paper clip and a pencil
3. The group will connect the paper clip to the middle of the pencil with their string. The pencil will rest horizontally across the jar allowing the paper clip to be suspended in the jar, but not allowing it to hit the bottom.
4. The salt water solution is added to the jar and will be placed in a sunny spot by a window or outside. Over a week period, the water will evaporate out of the jar and salt will start to collect on the paper clip and string.

Reflection

- As the water evaporates, the salt in the solution that was dissolved in the water will adhere to the surface of the paper clip and string and return to a solid state. You may be able to see the salt crystals on the bottom of the jar as well.
- What happened to the water? What happened to the salt? Why? You students have witnesses a portion of the water cycle as well as specific properties and phases of water.
- Ocean water has a specific level of salinity that varies according to temperature, location, water currents, dissolved minerals, and other factors.

Assessment

Participation on the activity

Grade reflection on post lesson questions

Attachments

- Information packet about the Loxahatchee River Center
- Map of the Loxahatchee River Watershed
- The Water Cycle Regular Lesson

Title

The Water Cycle Regular Lesson

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Fifth Grade Science Benchmarks

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- SC.5.E.7.2 Recognize that the ocean is an integral part of the water cycle and is connected to all of Earth’s water reservoirs via evaporation and precipitation processes.
- SC.5.E.7.3 Recognize how air temperature, barometric pressure, humidity, wind speed and direction, and precipitation determine the weathers in a particular place and time.
- SC.5.E.7.4 Distinguish among the various forms of precipitation (rain, snow, sleet, and hail), making connections to the weather in a particular place and time.
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- SC.5.P.10.2 Investigate and explain that energy has the ability to cause motion or create change.
- SC.5.L.15.1 Describe how, when the environment changes, differences between individuals allow some plants and animals to survive and reproduce while others die or move to new locations.
- SC.5.L.17.1 Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics

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MAFS.5.G.2
MAFS.5.MD.1
MAFS.5.MD.2
MAFS.5.OA.2

Materials for Pre & Post Lessons

Teachers

- River Center Packet
- Water Cycle Mini Lesson
- Large long paper for displaying in the classroom

Student

- Writing materials

Pre-visit Warm-up Lesson (Completed in classroom before visiting)

1. Review the information in the Loxahatchee River Center packet with your students
2. Complete optional mini lesson provided by River Center education staff upon field trip registration confirmation
3. Review the interactive website activity <http://loxahatcheeriver.org/rivercenterflash/index.html>

Main Lesson (Completed during visit with River Center staff)

1. Welcome, introduction to the River Center, overview of today's field trip, and safety/rules talk
2. Divide the students into 2 groups to rotate through 3 different activities
 - a. Lovin' the Loxahatchee River Tour – focusing on water types, organism adaptations, and habitats
 - b. Water Cycle hands-on activity (See below)
 - c. Water resources discussion – Where our water comes from, how we use water, where it goes once it's down the drain, water conservation
3. Touch tank demonstration

Water Cycle Main Lesson (Completed in classroom before visiting)

1. Students are seated in the classroom and discuss all different ways humans, wildlife, plants use water

2. River Center staff use student volunteers as water molecules to demonstrate evaporation, condensation, precipitation, percolation, and runoff
3. This related greatly into their previous discoveries of the Loxahatchee River watershed and the Loxahatchee River District
4. Students then create their own water cycle craft activity

Post-visit Reflection Lesson (completed in classroom after visiting)

Using a long sheet of paper ask the students to list at least 100 words that have something to do with water, including how it is important to humans, wildlife, and plants. Keep students stretching into new areas by suggesting examples and categories.

Assessment

Participation in the activity

Attachments

- Information packet on the Loxahatchee River Center