

Crystal River Primary Eco School

Rock Star Eelgrass Curriculum

Kindergarten through 5th grade

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The Rock Star Eelgrass Curriculum is designed to guide Florida elementary school students to become stewards of their natural resources. Students participate in lessons that focus on environmental impacts. They grow Rock Star Eelgrass (or other native submerged aquatic vegetation) in their classrooms and engage in hands-on activities. These lessons can be replicated in other schools in Citrus County and other counties across the state.

This curriculum began as a collaborative effort between Duke Energy, Crystal River Primary, and Save Crystal River. In 2017, a grant provided by the Duke Energy Foundation allowed for every class at the primary school to plant and grow a tank of Rock Star Eelgrass. This helped to incorporate the hands-on science experience into all aspects of their curriculum from math, to biology, to art class. The students at Crystal River Primary have benefited from the collaboration between school and community members. Save Crystal River have lead efforts to engage students in ways that they can make a difference in local waters. Duke Energy has supported the Rock Star Eelgrass Program by funding projects at the school. Save Crystal River and Duke Energy have joined the students in planting Rock Star Eelgrass Farms. Every student at Crystal River Primary has had the opportunity to plant Rock Star Eelgrass in a classroom aquarium (i.e. eelgrass farms). Students at various age levels have followed the curriculum presented in this document. The culmination of this ongoing program is for fifth grade students to plant the Rock Star Eelgrass at Hunters Spring Park in Crystal River, Florida in May of each year. In 2018, the program was expanded upon to create this standardized curriculum and we look forward to continuing to expand this wonderful program. The time and effort of our community partners has been inspired by the students who are enthusiastic about protecting their natural resources.

Restoring the springs is a community effort in Crystal River. Students at Crystal River Primary participated by writing over 6800 letters to state legislators urging them to protect and restore our local waters. The Florida Legislators in 2015 were moved by the passion of the students and the Kings Bay Restoration Project received initial funding that year. This ongoing restoration will continue to at least 2023 with the hope that all of Crystal River will again have clean water with native vegetation.

To learn more about the restoration activities, please visit:
<http://www.kingsbayrestorationproject.com>

We would like to thank the Mrs. Donnie Brown, principal at Crystal River Primary School for allowing us to conduct this program with her students. We are grateful to all of the teachers for participating and providing feedback on this program. Thank you to Duke Energy for providing funding, donating eelgrass, and volunteering time to make this program happen – we couldn't have done this without their wonderful support. Last, but not least, thank you to all the members of Save Crystal River for donating time and energy to help the students become better stewards of our beautiful Crystal River.

Dr. Michelle Sivilich
Executive Director
Save Crystal River





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Kindergarten





Kindergarten Rock Star Eelgrass Curriculum

Description:

This curriculum is designed to engage student learning while participating in the Rock Star Eelgrass Program. Students will learn the role eelgrass plays in maintaining a healthy ecosystem. By participating in this program, students will understand ways to make positive impacts and become better stewards of our ecosystems.

Objective:

Students will understand that they can make positive impacts to their ecosystems. Students will participate in a program that gives them first-hand experience solving environmental issues. Students will become better stewards of their environment.

Lesson Title: Rock Star Eelgrass Farm	
Grade Level: K	Life Science
SC.K.N.1.1	Collaborate with a partner to collect information.
SC.K.N.1.2	Make observations of the natural world and know that they are descriptors collected using the five senses.
SC.K.N.1.3	Keep records, as appropriate, - such as pictorial RECORDS - of investigations conducted.
SC.K.N.1.4	Observe and create a visual representation of an object which includes its major features.
SC.K.N.1.5	Recognize that learning can come from careful observation.
SC.K.L.14.3	Observe plants and animals, describe how they are alike and how they are different in the way they look and in the things they do.
SC.K.P.8.1	Sort objects by observable properties, such as size, shape, color, temperature (hot or cold), weight (heavy or light), and texture.

<p>Lesson Materials:</p> <p>Clear Plastic Tote or Aquarium</p> <p>Sand</p> <p>Rock Star Eelgrass</p> <p>Wi-Fi Microscopes</p> <p>Virtual Reality Goggles</p> <p>SMART Table (Optional)</p> <p><u>Literacy Component:</u> <u>I Can Save the Earth!: One Little Green Monster Learns to Reduce, Reuse, Recycle</u> by Alison Inches</p>	<p>Assessments:</p> <p>Use student journals weekly to make observations of the eelgrass. Observations should include quantitative and qualitative data drawn from observations of classroom eelgrass farm. Teachers should encourage students to record the date as well.</p> <p>Pre/Post test: Teachers will assess student knowledge using pre/post test (see attached).</p> <p>Formative Assessment: Students will use Core Connections to sort examples of ways that they can help or hurt the environment. (See attached).</p> <p>Optional: Use SMART Table with groups of students to complete the sort.</p>
<p>Lesson Overview:</p> <p><u>Learning Objectives</u></p> <p>Students will understand that they can make positive impacts to their ecosystems. Students will participate in a program that gives them hands-on experience solving environmental issues. Students will become better stewards of their environment.</p>	



Teacher Background:**Prior Knowledge**

Students must understand the plant life cycle. Students must know how to sort.

Additional Resources

Teachers may use Getepic.com to access several related texts. This is a free resource for teachers.

Additional children's books on GetEpic.com

<https://www.getepic.com/collection/1345755/eco-books>

1. Read Aloud and Environment Sort

Book: I Can Save the Earth!: One Little Green Monster Learns to Reduce, Reuse, Recycle
by Alison Inches

Activity:

Step 1. Teacher will read book to students and engage students with probing questions throughout story.

Step 2. Students will complete a sort of examples of ways that help the environment and hurt the environment.

Step 3. Independent activity: Students will draw a picture of a way that they can help the environment in their journal.

2. Rock Star Eelgrass Farm

Students will build a Rock Star Eelgrass Farm for their class. The students will observe their class Rock Star Eelgrass Farm throughout the year. Students will record observations they make as the Rock Star Eelgrass grows in their own observation journals. The class can interact with the Rock Star Eelgrass and learn through interactive activities.

Directions for Building

Materials: Rock Star Eelgrass, Clear Plastic Tote, Sand, River Water, Ruler, and clear Beaker.

Step 1. Students add approximately two inches of sand to bottom of tote. The sand will act as substrate for the eelgrass to grow.

Step 2. Students will add river water to tote. Allow a day for the sediments in the water to settle before next step.

Step 3. Students will plant Rock Star Eelgrass into the sand.

Activities

1. Journal: Students will record observations as the Rock Star Eelgrass grows throughout the year.
2. Measure progress: Students measure the eelgrass growth.
3. Measure gas released from eelgrass: Students place a beaker over some of the eelgrass in the tote. Students can witness the oxygen that the Rock Star Eelgrass releases by capturing it in a beaker.

3. Virtual Reality Underwater Tour

Materials: Virtual Reality Goggles preloaded with 360° underwater video from Hunter Springs.

Activity: Students will use Virtual Reality goggles to explore underwater. They will observe eelgrass growing in its natural habitat.

4. Take a Closer Look with Wi-Fi Microscopes

Materials: Wi-Fi Microscopes, Rock Star Eelgrass, lawn grass, and student journals.

Activity: Students will compare and contrast Rock Star Eelgrass and lawn grass. They will record the similarities and difference they witness through pictures. The students will record their observations in their journals.

Optional: SMART Table can be used to explore eelgrass with Wi-Fi microscope.

5. Stewardship Field Trip

Field Trip: Kindergarten students will participate in a field trip to the Crystal River Creative Playground.

Activities: Students will have a picnic lunch and then discuss why it is important to clean up after themselves. Students will then sort their lunch trash into recycling bins.

Materials: Recycling bins, plastic gloves, and bus transportation.



First Grade





1st Grade Rock Star Eelgrass Curriculum

Description:

This curriculum is designed to engage student learning while participating in the Rock Star Eelgrass Program. Students will learn the role eelgrass plays in maintaining a healthy ecosystem. By participating in this program, students will understand ways to make positive impacts and become better stewards of our ecosystems.

Objective:

Students will understand that they can make positive impacts to their ecosystems. Students will participate in a program that gives them first-hand experience solving environmental issues. Students will become better stewards of their environment.

Instructional Time:

Lesson Title: Rock Star Eelgrass Farm	
Grade Level: 1	Life Science
SC.1.N.1.1	Raise questions about the natural world, investigate them in teams through free exploration, and generate appropriate explanations based on those explorations.
SC.1.N.1.2	Using the five senses as tools, make careful observations, describe objects in terms of number, shape, texture, size, weight, color, and motion, and compare their observations with others.
SC1.N.1.3	Keep records as appropriate - such as pictorial and written records - of investigations conducted.
Sc.1.E.6.2	Describe the need for water and how to be safe around water.
SC.1.L.14.3	Observe plants and animals, describe how they are alike and how they are different in the way they look, and in the things they do.
SC.1.L.16.1	Make observations that plants and animals closely resemble their parents, but variations exist among individuals within a population.
SC.1.L.17.1	Through observation, recognize that all plants and animals, including humans, need the basic necessities of air, water, food, and space.
SC.1.P.8.1	Sort objects by observable properties, such as size, shape, color, temperature (hot or cold), weight (heavy or light), texture, and whether objects sink or float.

<p>Lesson Materials:</p> <p>Clear Plastic Tote or Aquarium</p> <p>Sand</p> <p>Rock Star Eelgrass</p> <p>Wi-Fi Microscopes</p> <p>Virtual Reality Goggles</p> <p>SMART Table (Optional)</p> <p><u>Literacy Component:</u></p> <p><u>I Can Save the Ocean!: The Little Green Monster Cleans Up the Beach</u> by Alison Inches</p>	<p>Assessments:</p> <p>Use student journals weekly to make observations of the eelgrass. Observations should include quantitative and qualitative data drawn from observations of classroom eelgrass farm. Teachers should encourage students to record the date as well.</p> <p>Pre/Post test: Teachers will assess student knowledge using pre/post test (see attached).</p> <p>Formative Assessment: Core Connections guided writing (see attachment).</p> <p>Optional: Use SMART Table with groups of students to complete the sort prior to writing.</p>
<p>Lesson Overview:</p> <p><u>Learning Objectives</u></p> <p>Students will understand that they can make positive impacts to their ecosystems. Students will participate in a program that gives them hands-on experience solving environmental issues. Students will become better stewards of their environment.</p>	
<p>Teacher Background:</p> <p><u>Prior Knowledge</u></p> <p>Students must have an understanding of plants.</p> <p><u>Additional Resources</u></p> <p>Additional children’s books on GetEpic.com https://www.getepic.com/collection/1345755/eco-books</p>	



1. Read Aloud and Teacher Guided Writing

Book: I Can Save the Ocean!: The Little Green Monster Cleans Up the Beach

by Alison Inches

Activity:

Step 1. Teacher will read book to students and engage students with probing questions throughout story.

Step 2. Students will learn about the benefits of Rock Star Eelgrass.

Step 3. Students will write about eelgrass (See attached for teacher-guided writing lesson).

2. Rock Star Eelgrass Farm

Students will build a Rock Star Eelgrass Farm for their class. The students will observe their class Rock Star Eelgrass Farm throughout the year. Students will record observations they make as the Rock Star Eelgrass grows in their own observation journals. The class can interact with the Rock Star Eelgrass and learn through interactive activities.

Directions for Building

Materials: Rock Star Eelgrass, Clear Plastic Tote, Sand, River Water, Ruler, and clear Beaker.

Step 1. Students add approximately two inches of sand to bottom of tote. The sand will act as substrate for the eelgrass to grow.

Step 2. Students will add river water to tote. Allow a day for the sediments in the water to settle before next step.

Step 3. Students will plant Rock Star Eelgrass into the sand.

Activities

1. Journal: Students will record observations as the Rock Star Eelgrass grow throughout the year.
2. Measure progress: Students measure the eelgrass growth.
3. Measure gas released from eelgrass: Students place a beaker over some of the eelgrass in the tote. Students can witness the oxygen that the Rock Star Eelgrass releases by capturing it in a beaker.

3. Virtual Reality Underwater Tour

Materials: Virtual Reality Goggles preloaded with 360° underwater video from Hunter Springs.

Activity: Students will use Virtual Reality goggles to explore underwater. They will observe Eelgrass growing in its natural habitat.

4. Take a Closer Look with Wi-Fi Microscopes

Materials: Wi-Fi Microscopes, Rock Star Eelgrass, lawn grass, and student journals. SMART table optional.

Activity: Students will compare and contrast Rock Star Eelgrass and other plants. They will record the similarities and differences they witness. The students will write their observations in their journals.

5. Field Trip Underwater Observations

Field Trip: Students will participate in a field trip to Ellie Schiller Homosassa Wildlife State Park.

Activities: Students will observe underwater habitat from underwater viewing area. Students can record observations in their journals.

Materials: Journals, bus transportation, and entrance fees to park.



Second Grade



2nd Grade Rock Star Eelgrass Curriculum

Description:

This curriculum is designed to engage student learning while participating in the Rock Star Eelgrass Program. Students will learn the role eelgrass plays in maintaining a healthy ecosystem. By participating in this program, students will understand ways to make positive impacts and become better stewards of our ecosystems.

Objective:

Students will understand that they can make positive impacts to their ecosystems. Students will participate in a program that gives them first-hand experience solving environmental issues. Students will become better stewards of their environment.

Instructional Time:

Lesson Title: Rock Star Eelgrass Farm	
Grade Level: 2	Life Science
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.1.2	Compare the observations made by different groups using the same tools.
SC.2.N.1.5	Distinguish between empirical observation (what you see, hear, feel, smell, or taste) and ideas or inferences (what you think).
SC.2.E.7.3	Investigate, observe, and describe how water left in an open container disappears (evaporates), but water in a closed container does not disappear (evaporate).
SC.2.L.16.1	Observe and describe major stages in the life cycles of plants and animals, including beans and butterflies.
SC.2.L.17.1	Compare and contrast the basic needs that all living things, including humans, have for survival.
SC.2.L.17.2	Recognize and explain that living things are found all over Earth, but each is only able to live in habitats that meet its basic needs.
SC.2.P.8.1	Observe and measure objects in terms of their properties, including size, shape, color, temperature, weight, texture, sinking or floating in water, and attraction and repulsion of magnets.

<p>Lesson Materials:</p> <p>Clear Plastic Tote or Aquarium</p> <p>Sand</p> <p>Rock Star Eelgrass</p> <p>Wi-Fi Microscopes</p> <p>Virtual Reality Goggles</p> <p>SMART Table (Optional)</p> <p><u>Literacy Component:</u> <u>The Lorax</u>, by Dr. Suess</p>	<p style="text-align: center;">Assessments:</p> <p>Use student journals weekly to make observations of the eelgrass. Observations should include quantitative and qualitative data drawn from observations of classroom eelgrass farm. Teachers should encourage students to record the date as well.</p> <p>Pre/Post test: Teachers will assess student knowledge using pre/post test (see attached).</p> <p>Formative Assessment: Core Connection mentor sentence activity (see attached).</p> <p>Optional: Use SMART Table with groups of students to complete shared writing activity.</p>
<p>Lesson Overview:</p> <p><u>Learning Objectives</u></p> <p>Students will understand that they can make positive impacts to their ecosystems. Students will participate in a program that gives them first-hand experience solving environmental issues. Students will become better stewards of their environment.</p>	
<p>Teacher Background:</p> <p><u>Prior Knowledge</u></p> <p>Students must understand the relationship between plants and their ecosystems. Students must also have experience with mentor sentences.</p> <p><u>Additional Resources:</u></p> <p>Additional children’s books on GetEpic.com https://www.getepic.com/collection/1345755/eco-books</p>	



1. Read Aloud and Mentor Sentence

Book: The Lorax, by Dr. Seuss

Activity:

Step 1. Teacher will read book to students and engage students with probing questions throughout story.

Step 2. Students will discuss the story and how it relates to them.

Step 3. Students will complete the mentor sentence (see attached).

Step 4. Students will watch the movie The Lorax. Then students will compare and contrast the text with the movie.

2. Rock Star Eelgrass Farm

Students will build a Rock Star Eelgrass Farm for their class. The students will observe their class Rock Star Eelgrass Farm throughout the year. Students will record observations they make as the Rock Star Eelgrass grows in their own observation journals. The class can interact with the Rock Star Eelgrass and learn through interactive activities.

Directions for Building

Materials: Rock Star Eelgrass, Clear Plastic Tote, Sand, River Water, Ruler, and clear Beaker.

Step 1. Students add approximately two inches of sand to bottom of tote. The sand will act as substrate for the eelgrass to grow.

Step 2. Students will add river water to tote. Allow a day for the sediments in the water to settle before next step.

Step 3. Students will plant Rock Star Eelgrass into the sand.

Activities

1. Journal: Students will record observations as the Rock Star Eelgrass grows throughout the year.
2. Measure progress: Students measure the eelgrass growth.
3. Measure gas released from eelgrass: Students place a beaker over some of the eelgrass in the tote. Students can witness the oxygen that the Rock Star Eelgrass releases by capturing it in a beaker.

3. Virtual Reality Underwater Tour

Materials: Virtual Reality Goggles preloaded with 360° underwater video from Hunter Springs.

Activity: Students will use Virtual Reality goggles to explore underwater. They will observe eelgrass growing in its natural habitat.

4. Take a Closer Look with Wi-Fi Microscopes

Materials: Wi-Fi Microscopes, Rock Star Eelgrass, lawn grass, and student journals. SMART table optional.

Activity: Students will compare and contrast Rock Star Eelgrass and other plants. They will record the similarities and differences they witness. The students will write their observations in their journals.

5. Field Trip and ECO Boat tour of Kings Bay

Field Trip: Students will take an ECO Boat tour of Kings Bay.

Activities: Students will observe the natural flora and fauna while taking a boat tour of Kings Bay. Students will record observations in their journals.

Materials: Journals, and bus transportation



Third Grade

3rd Grade Rock Star Eelgrass Curriculum

Description:

This curriculum is designed to engage student learning while participating in the Rock Star Eelgrass Program. Students will learn the role eelgrass plays in maintaining a healthy ecosystem. By participating in this program, students will understand ways to make positive impacts and become better stewards of our ecosystems.

Objective:

Students will understand that they can make positive impacts to their ecosystems. Students will participate in a program that gives them first-hand experience solving environmental issues. Students will become better stewards of their environment.

Instructional Time:

Lesson Title: Rock Star Eelgrass Farm	
Grade Level: 3	Life Science
*SC.3.N.1.1	Raise questions about the natural world, investigate them individually and in teams through free explorations and systematic investigations, and generate appropriate explanations based on those explorations.
*SC.3.N.1.2	Compare the observations made by different groups using the same tools and seek reasons to explain the differences across groups.
SC.3.N.1.3	Keep records as appropriate, such as pictorial, written, or simple charts and graphs, of investigations conducted.
SC.3.N.3.2	Recognize that scientists use models to help understand and explain how things work.
SC.3.N.3.3	Recognize that all models are approximations of natural phenomena; such as, they do not perfectly account for all observations.
*SC.3.P.8.3	Compare materials and objects according to properties such as size, shape, color, texture, and hardness.

SC.3.L.14.1	Describe structures in plants and their roles in food production, support, water and nutrient transport, and reproduction. Also assesses: 3.L.14.2; 4.L.16.1 <i>The student will: identify and/or describe the parts of plants and/or the part's role; describe how plants respond to stimuli; describe processes of sexual reproduction in flowering plants.</i>
*SC.3.L.14.2	Investigate and describe how plants respond to stimuli (heat, light, gravity), such as the way plant stems grow toward light and their roots grow downward in response to gravity.
*SC.3.L.17.1	Describe how animals and plants respond to changing seasons.
*SC.3.L.17.2	Recognize that plants use energy from the Sun, air, and water to make their own food.

<p>Lesson Materials:</p> <p>Clear Plastic Tote or Aquarium</p> <p>Sand</p> <p>Rock Star Eelgrass</p> <p>Wi-Fi Microscopes</p> <p>Virtual Reality Goggles</p> <p>SMART Table (Optional)</p> <p><u>Literacy Components:</u></p> <p><u>How the World Works: A Hands-On Guide to Our Amazing Planet</u> by Christian Dorion</p>	<p style="text-align: center;">Assessments:</p> <p>Use student journals weekly to make observations of the eelgrass. Observations should include quantitative and qualitative data drawn from observations of classroom eelgrass farm. Teachers should encourage students to record the dates as well.</p> <p>Pre/Post test: Teachers will assess student knowledge using pre/post test (see attached).</p> <p>Formative Assessment: Students will complete a Venn Diagram that compares similarities and difference between eelgrass and other plants.</p> <p>(Other plants could include lawn grass, flowers, algae, trees, etc.)</p> <p>Optional: Use SMART Table create Venn Diagram.</p>
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Lesson Overview:

Learning Objectives

Students will understand that they can make positive impacts to their ecosystems. Students will participate in a program that gives them first-hand experience solving environmental issues. Students will become better stewards of their environment.

Teacher Background:

Prior Knowledge

Students must understand the relationship between plants and their ecosystems. Students must understand how plants impact our ecosystem. They must understand how a Venn Diagram works.

Additional Resources

Additional children's books on GetEpic.com
<https://www.getepic.com/collection/1345755/eco-books>

1. Read Aloud and Venn Diagram

·Book: How the World Works: A Hands-On Guide to Our Amazing Planet by Christian Dorion

Activity:

Step 1. Teacher will read book to students and engage students with probing questions throughout story.

Step 2. Students will discuss the story and how it relates to them.

Step 3. Students observe Rock Star Eelgrass and other plants (Wi-Fi microscopes available to observe plants).

Step 4. Students will complete the Venn Diagram (see attached).

2. Rock Star Eelgrass Farm

Students will build a Rock Star Eelgrass Farm for their class. The students will observe their class Rock Star Eelgrass farm throughout the year. Students will record observations they make as the Rock Star Eelgrass grows in their own observation journals. The class can interact with the Rock Star Eelgrass and learn through interactive activities.

Directions for Building

Materials: Rock Star Eelgrass, Clear Plastic Tote, Sand, River Water, Ruler, and clear Beaker.

Step 1. Students add approximately two inches of sand to bottom of tote. The sand will act as substrate for the eelgrass to grow.

Step 2. Student will add river water to tote. Allow a day for the sediments in the water to settle before next step.

Step 3. Students will plant Rock Star Eelgrass into the sand.

Activities

1. Journal: Students will record observation as the Rock Star Eelgrass grows throughout the year.
2. Measure progress: Students measure the eelgrass growth.
3. Measure gas released from eelgrass: Students place a beaker over some of the eelgrass in the tote. Students can witness the oxygen that the Rock Star Eelgrass releases by capturing it in a beaker.

3. Virtual Reality Underwater Tour

Materials: Virtual Reality Goggles preloaded with 360° underwater video from Hunter Springs.

Activity: Students will use Virtual Reality goggles to explore underwater. They will observe eelgrass growing in its natural habitat.

4. Take a Closer Look with Wi-Fi Microscopes

Materials: Wi-Fi Microscopes, Rock Star Eelgrass, lawn grass, and student journals. SMART table optional.

Activity: Students will compare and contrast Rock Star Eelgrass and other plants. They will record the similarities and differences they witness. The students will write there observations in their journals.

5. Wetlands Field Trip

Field Trip: Students will participate in a field trip to Three Sister Springs Wildlife Preserve.

Activities: Students will observe natural Florida wetlands habitats. Students will create their own wetlands model by building a watershed.

Materials: Bus transportation, turkey baster, aluminum roasting pan, modeling clay, sand, artificial turf, gravel, and rocks.



Fourth Grade



4th Grade Rock Star Eelgrass Curriculum

Description:

This curriculum is designed to engage student learning while participating in Rock Star Eelgrass Program. Students will learn the role eelgrass plays in maintaining a healthy ecosystem. By participating in this program, students will understand ways to make positive impacts and become better stewards of our ecosystems.

Objective:

Students will understand that they can make positive impacts to their ecosystems. Students will participate in a program that gives them first-hand experience solving environmental issues. Students will become better stewards of their environment.

Instructional Time:

Lesson Title: Rock Star Eelgrass Farm	
Grade Level: 4	Life Science
SC.4.N.1.1	Raise questions about the natural world, use appropriate reference materials that support understanding to obtain information (identifying the source), conduct both individual and team investigations through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.
SC.4.N.1.2	Compare the observations made by different groups using multiple tools and seek reasons to explain the differences across groups.
SC.4.N.1.3	Explain that science does not always follow a rigidly defined method (“the scientific method”) but that science does involve the use of observations and empirical evidence.
SC.4.N.1.6	Keep records that describe observations made, carefully distinguishing actual observations from ideas and inferences about the observations.
SC.4.N.3.1	Explain that models can be three dimensional, two dimensional, an explanation in in your mind, or a computer model.
SC.4.E.6.5	Investigate how technology and tools help to extend the ability of humans to observe very small things and very large things.
SC.4.E.6.6	Identify resources available in Florida (water, phosphate, oil, limestone, silicon, wind, and solar energy).

SC.4.P.8.1	Measure and compare objects and materials based on their physical properties including: mass, shape, volume, color, hardness, texture, odor, taste, attraction to magnets.
SC.4.P.8.2	Identify properties and common uses of water in each of its states.
SC.4.L.16.1	Identify processes of sexual reproduction in flowering plants, including pollination, fertilization (seed production), seed dispersal, and germination.
SC.4.L.16.2	Explain that although characteristics of plants and animals are inherited, some characteristics can be affected by the environment.
SC.4.L.16.4	Compare and contrast the major stages in the life cycles of Florida plants and animals, such as those that undergo incomplete and complete metamorphosis, and flowering and nonflowering seed-bearing plants. <i>Students will identify, compare, and/or contrast the major life cycles of Florida plants and/or animals.</i>
SC.4.L.17.4	Recognize the ways plants and animals, including humans, can impact the environment.

<p>Lesson Materials:</p> <p>Science Curriculum Guided Readers</p> <p>Clear Plastic Tote or Aquarium</p> <p>Sand</p> <p>Rock Star Eelgrass</p> <p>Wi-Fi Microscopes</p> <p>Virtual Reality Goggles</p> <p>SMART Table (Optional)</p> <p><u>Literacy Component:</u> <u>The Adventures of a Plastic Bottle: A Story About Recycling</u> by Alison Inches</p>	<p style="text-align: center;">Assessments:</p> <p>Use student journals weekly to make observations of the eelgrass. Observations should include descriptions with sentences and pictures.</p> <p>Pre/Post test: Teachers will assess student knowledge using pre/post test (see attached).</p> <p>Formative Assessment: Now that we have learned about Rock Star Eelgrass, write an essay explaining ways students can help the environment.</p>
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Lesson Overview:

Learning Objectives

Students will understand that they can make positive impacts to their ecosystems. Students will participate in a program that gives them first-hand experience solving environmental issues. Students will become better stewards of their environment.

Teacher Background:

Prior Knowledge

Students must understand the relationship between plants and their ecosystems. Students must understand the Core Connections essay framework.

Additional Resources:

Additional children’s books on GetEpic.com
<https://www.getepic.com/collection/1345755/eco-books>

1. Read Aloud and Rock Star Eelgrass Essay

Book: The Adventures of a Plastic Bottle: A Story About Recycling by Alison Inches

Activity:

Step 1. Read The Adventures of a Plastic Bottle: A Story About Recycling by Alison Inches

Step 2. Discuss positive impacts of recycling and planting Rock Star Eelgrass.

Step 3. Students will write an essay using the following prompt:

Now that we have learned about recycling and Rock Star Eelgrass, write an essay explaining ways students can help the environment.

2. Rock Star Eelgrass Farm

Students will build a Rock Star Eelgrass Farm for their class. The students will observe their class Rock Star Eelgrass farm throughout the year. Students will record observations they make as the Rock Star Eelgrass grows in their own observation journals. The class can interact with the Rock Star Eelgrass and learn through interactive activities.

Directions for Building

Materials: Rock Star Eelgrass, Clear Plastic Tote, Sand, River Water, Ruler, and clear Beaker.

Step 1. Students add approximately two inches of sand to bottom of tote. The sand will act as substrate for the eelgrass to grow.

Step 2. Students will add river water to tote. Allow a day for the sediments in the water to settle before next step.

Step 3. Students will plant Rock Star Eelgrass into the sand.

Activities

1. Journal: Students will record observations as the Rock Star Eelgrass grows throughout the year.
2. Measure progress: Students measure the eelgrass growth.
3. Measure gas released from eelgrass: Students place a beaker over some of the Eelgrass in the tote. Students can witness the oxygen that the Rock Star Eelgrass releases by capturing it in a beaker.

3. Virtual Reality Underwater Tour

Materials: Virtual Reality Goggles preloaded with 360° underwater video from Hunter Springs.

Activity: Students will use Virtual Reality goggles to explore underwater. They will observe eelgrass growing in its natural habitat.

4. Take a Closer Look with Wi-Fi Microscopes

Materials: Wi-Fi Microscopes, Rock Star Eelgrass, lawn grass, and student journals. SMART table optional.

Activity: Students will compare and contrast Rock Star Eelgrass and lawn grass. They will record the similarities and differences they witness. The students will write their observations in their journals.

5. Recycling Field Trip

Field Trip: Students will participate in a field trip to recycling center.

Activities: Students will learn about recycling. Students will create a plan to reduce, reuse, and recycle at home and school.

Materials: Journals and bus transportation.



Fifth Grade



5th Grade Rock Star Eelgrass Curriculum

Description:

This curriculum is designed to engage student learning while participating in the Rock Star Eelgrass Program. Students will learn the role eelgrass plays in maintaining a healthy ecosystem. By participating in this program, students will understand ways to make positive impacts and become better stewards of our ecosystems.

Objective:

Students will understand that they can make positive impacts to their ecosystems. Students will participate in a program that gives them hands-on experiences solving environmental issues. Students will become better stewards of their environment.

Lesson Title: Rock Star Eelgrass Farm	
Grade Level: 5	Life Science
SC.5.N.1.1	<p>Define a problem, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types such as: systematic observations, experiments requiring the identification of variables, collecting and organizing data, interpreting data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.</p> <p>Also assesses: 3.N.1.1; 4.N.1.1; 4.N.1.6; 5.N.1.2; 5.N.2.4</p> <p><i>Student will: evaluate a written procedure or experimental setup; identify appropriate forms of record keeping; interpret and analyze data to generate appropriate explanations based on that data; identify examples of or distinguish among observations, predictions, and/or inferences; explain the difference between an experiment and other types of scientific investigations; identify a control group in an experiment and/or explain its importance</i></p>
SC.5.E.7.1	<p>Create a model to explain the parts of the water cycle. Water can be a gas, liquid, or a solid and can go back and forth from one state to another.</p> <p>Also assesses: 5.E.7.2</p> <p><i>The student will: identify and/or explain the parts of the water cycle; identify the states of water associated with each part of the water cycle and/or explain the phase changes that occur as water moves from one part of the water cycle to another; identify and/or describe the role of the ocean in the water cycle.</i></p>
SC.5.E.7.2	<p>Recognize that the ocean is an integral part of the water cycle and is connected to all Earth's water reservoirs via evaporation and precipitation processes</p>

SC.5.E.7.5	Recognize that some of the weather-related differences, such as temperature and humidity, are found among different environments, such as swamps.
SC.5.P.8.1	<p>Compare and contrast the basic properties of solids, liquids, and gases, such as mass, volume, color, texture, and temperature.</p> <p>Also assesses: 3.P.8.1; 3.P.8.2; 3.P.8.3; 4.P.8.1</p> <p><i>The student will: compare and/or contrast the physical properties of solids, liquids, and/or gases; describe or classify a material as a solid, liquid, or gas</i></p>
SC.5.P.8.3	<p>Demonstrate and explain that mixtures of solids can be separated based on observable properties of their parts such as particle size, shape, color, and magnetic attraction.</p> <p>Also assesses: 5.P.8.2</p> <p><i>The student will: describe and/or explain how mixtures of solids can be separated; identify common materials that dissolve in water; identify or describe conditions that will speed up or slow down the dissolving process.</i></p>
SC.5.L.17.1	<p>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.</p> <p>Also assesses: 3.L.17.1; 4.L.16.2; 4.L.16.3; 4.L.17.1; 4.L.17.4; 5.L.15.1</p> <p><i>The student will: explain, compare, and/or contrast how adaptations by animals or plants enable them to survive in different environments; describe or explain how animals and/or plants respond to changing seasons; distinguish plant or animal characteristics that are inherited from those that are affected by the environment; identify characteristics of animals that are inherited or distinguish inherited characteristics from those that are shaped by learning; compare the seasonal changes in Florida plants and/or animals to those in other regions of the country; identify ways in which plants and/or animals can impact the environment; describe how, when the environment changes, differences between organisms allow some plants and animals to survive and reproduce while others die or move to new locations.</i></p>

<p>Lesson Materials:</p> <p>Clear Plastic Tote or Aquarium</p> <p>Sand</p> <p>Rock Star Eelgrass</p> <p>Wi-Fi Microscopes</p> <p>Virtual Reality Goggles</p> <p>SMART Table (Optional)</p> <p><u>Literacy Components:</u></p> <p><u>One Well: The Story of Water on Earth</u> by Rochelle Strauss</p> <p>Science Curriculum Guided Readers</p>	<p>Assessment:</p> <p>Use student journals weekly to make observations of the eelgrass. Observations should include quantitative and qualitative data drawn from observations of classroom eelgrass farm. Teachers should encourage students to record the date as well.</p> <p>Pre/Post test: Teachers will assess student knowledge using pre/post test (see attached).</p> <p>Formative Assessment: Student will create an action plan and write a letter to local legislators.</p>
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<p>Lesson Overview:</p> <p><u>Learning Objectives</u></p> <p>Students will understand that they can make positive impacts to their ecosystems. Students will participate in a program that gives them first-hand experience solving environmental issues. Students will become stewards of their environment.</p> <p><u>Prior Knowledge</u></p> <p>Students must understand the relationship between plants and their ecosystems. Students must understand how to write a letter.</p> <p><u>Additional Resources:</u></p> <p>Additional collection of children’s books on GetEpic.com https://www.getepic.com/collection/1345755/eco-books</p> <p>Bill Nye Video about Wetlands https://www.youtube.com/watch?v=BeUPbGWg2KU</p>
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1. Read Aloud/ Action Plan Addressed to Legislators

Book: One Well: The Story of Water on Earth by Rochelle Strauss

Activity: Read One Well: The Story of Water on Earth by Rochelle Strauss.

Students will develop an action plan on ways that they can positively impact their own natural environment.

Step 1. Have students brainstorm the best ways to positively impact their own environment.

Step 2. Have students list ways that they can positively impact their own environment.

Step 3. Have students organize steps to perform action plan.

Step 4. Have students articulate their action plan in a letter addressed to local legislators.

2. Rock Star Eelgrass Farm

Students will build a Rock Star Eelgrass Farm for their class. The students will observe their class Rock Star Eelgrass Farm throughout the year. Students will record observations they make as the Rock Star Eelgrass grows in their own observation journals. The class can interact with the Rock Star Eelgrass and learn through interactive activities.

Directions for Building

Materials: Rock Star Eelgrass, Clear Plastic Tote, Sand, River Water, Ruler, and clear Beaker.

Step 1. Students add approximately two inches of sand to bottom of tote. The sand will act as substrate for the eelgrass to grow.

Step 2. Students will add river water to tote. Allow a day for the sediments in the water to settle before next step.

Step 3. Students will plant Rock Star Eelgrass into the sand.

Activities

1. Journal: Students will record observations as the Rock Star Eelgrass grows throughout the year.
2. Measure progress: Students measure the eelgrass growth.
3. Measure gas released from eelgrass: Students place a beaker over some of the Eelgrass in the tote. Students can witness the oxygen that the Rock Star Eelgrass releases by capturing it in a beaker.

3. Virtual Reality Underwater Tour

Materials: Virtual Reality Goggles preloaded with 360° underwater video from Hunter Springs.

Activity:

Step 1. Students will use Virtual Reality goggles to explore underwater. They will observe Eelgrass growing in its natural habitat.

Step 2. Students can write their observations that they made underwater in their journal.

4. Take a Closer Look with Wi-Fi Microscopes

Materials: Wi-Fi Microscopes, Rock Star Eelgrass, lawn grass, and student journals. SMART table optional.

Activity: Students will compare and contrast Rock Star Eelgrass and lawn grass. They will record the similarities and differences they witness. The students will write their observations in their journals.

5. Plant Rock Star Eelgrass

Field Trip: Students will participate in a field trip to plant the Rock Star Eelgrass that they grew at school.

Activities: Students will plant the Rock Star Eelgrass that was grown in the school at Hunter Springs Park.

Materials: Rock Star Eelgrass and bus transportation.