

· **“This program is remarkable.** It is hard to mirror virtually, because of the vast knowledge the instructors have. For example, when students have questions, the instructors immediately know the answer and probe for more understanding. The virtual is extremely good too, but just want you to know what a valuable program this is to our students!!”
-Sarasota County teacher

LIFE

LEARNING IN FLORIDA'S ENVIRONMENT

TEACHER GUIDE



For more information about LIFE:
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ABOUT LIFE

LEARNING IN FLORIDA'S ENVIRONMENT

LIFE post-Covid-19:

- When Covid-19 forced schools into remote learning prior to our final field trips of the 2019-2020 school year, the LIFE team pivoted to provide videotaped LIFE Science Shorts as an alternative.
- Since then, we have filmed 18 LIFE Science Shorts, most aligned to 3rd-5th grade science standards.
- Each video is ~15 minutes. Most include an activity that can be done at home or in class.

How to Use this Handbook:

- Locate topic you are interested in (on "Category" list or "Big Idea" list), then find alphabetically by title
- Have students complete the pre-test by using link provided*
- Provide students link to view LIFE Science Short
- Have students complete post-test after viewing LIFE Science Short video*
- Contact Dr. Katherine Clements for further support or educational opportunities.
- kclements@scgov.net or 941.861.9822

*University of Florida requires us to collect evaluation data on our educational programming. Please have students complete the pre and post-tests.



Plant Morphology and Reproduction



Freshwater Bird Adaptations



Weather: How Hurricanes Form



How Pollution Affects Our Watersheds

Photos of pre-Covid LIFE; Jake Hartvigsen and K. Clements

post-Covid LIFE Videos

LIFE pre-Covid-19:

- Created in 2004 by the Department of Environmental Protection.
- In Sarasota County, LIFE is a multi-agency environmental education effort going into its fourth year.
- LIFE provided three in-class presentations followed by field trips throughout the school year for 4th and 5th grade students.
- Provided an opportunity for students to act as wildlife biologists, marine scientists, and more with the goal of making science and scientific careers more accessible.
- Focused on important local ecosystems, land management challenges, and choices students could make to decrease environmental impact.
- Aligned to Florida State science standards and supports teacher-identified needs for curriculum review to support standardized test success.

CATEGORIES:

(topics may occur in more than one category)



Freshwater Ecosystems

Freshwater Bird Adaptations



Upland Ecosystems

Plant Parts (Morphology) and
Reproduction



Coastal

Mangrove Ecosystems

How pollution effects our watersheds

Marine Invertebrate Classification



Weather and Hurricanes

Clouds, Lightning, and Thunder

How Hurricanes Form

Preparing for Hurricanes



Plants

Plant Parts (Morphology)
and Reproduction

What Plants Need

Flower Power and the Process
of Pollination

Mangrove Ecosystems



Nutrient Cycles

The Carbon Cycle

Composting and
Renewable Energy (Nitrogen Cycle)

How Hurricanes Form
(Water Cycle)



Sustainability

Solar Energy

Microplastics and Why
Matter Matters

Recycle Right

How pollution effects our watersheds

Composting and Renewable Energy



Animals

Food Chains and Food Webs

Florida Snakes

Insect Observation and Life Cycles

Marine Invertebrate Classification

Freshwater Bird Adaptations

BIG IDEAS:

Earth Systems and Patterns:

Clouds, Lightning, and Thunder
How Hurricanes Form
Preparing for Hurricanes
The Carbon Cycle

Heredity and Reproduction:

Flower Power and the Process of Pollination
Insect Observation and Life Cycles
Plant Parts (Morphology) and Reproduction

Interdependence:

Food Chains and Food Webs
Mangrove Ecosystems
What Plants Need and How to Garden in Florida
Solar Energy
Microplastics and Why Matter Matters
How Pollution Affects our Watershed
Composting and Renewable Energy
Recycle Right

Diversity and Evolution of Living Organisms:

Freshwater Bird Adaptations
Marine Invertebrate Classification
Florida Snakes



The Carbon Cycle

(13:23)

#Carbon #OceanAcidification #Organisms #Photosynthesis #FossilFuels #HumanImpact

Summary

Learn about forms of carbon storage and how carbon is released, and how human actions impact this natural cycle leading to changes in our environment.

Activities: Carbon cycle experiment with baking soda, vinegar, and a balloon. Create your own carbon cycle.

Links

[Click here for link to pretest](#)

Video Link:
<https://youtu.be/au8JpbsrbdM>

[Click here for link to posttest](#)

Benchmarks

- **SC.8.N.1.1** Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.
- **SC.8.L.18.1** Describe and investigate the process of photosynthesis, such as the roles of light, carbon dioxide, water and chlorophyll; production of food; release of oxygen.
- **SC.8.L.18.2** Describe and investigate how cellular respiration breaks down food to provide energy and releases carbon dioxide.
- **SC.8.L.18.3** Construct a scientific model of the carbon cycle to show how matter and energy are continuously transferred within and between organisms and their physical environment.



Experiment with the carbon cycle alongside Sarah Davis.



Clouds, Lightning, and Thunder

(16:02)

#Matter #CloudFormation #Rain #Lightning #Charges #Polarization #Protons #Electrons
#ThunderFormation #Soundwaves #LightningFormation #WeatherImpacts #Lightwaves

Summary

Learn about the formation of clouds, why lightning occurs and its relation to magnets, and why thunder occurs and its connection to heat and sound waves.

Activities: Cloud in a bottle, Air expansion experiment, Make a wave activity.

Links

[Click here for link to pretest](#)

Video Link:

<https://youtu.be/WQzYGkP92sE>

[Click here for link to posttest](#)

Benchmarks

- **SC.2.N.1.1, SC.3.N.1.1, SC.4.N.1.1, SC.5.N.1.1** 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.
- **SC.4.N.1.7** Recognize and explain that scientists base their explanations on evidence.
- **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.7.5** State the importance of preparing for severe weather, lightning, and other weather related events
- **SC.3.P.10.1, SC.4.P.10.1** Observe and describe some basic forms of energy, including light, heat, sound, electrical, and the energy of motion.
- **SC.3.P.10.2** Recognize that energy has the ability to cause motion or create change
- **SC.4.P.8.4** Investigate and describe that magnets can attract magnetic materials and attract and repel other magnets.
- **SC.5.P.10.3** Investigate and explain that an electrically-charged object can attract an uncharged object and can either attract or repel another charged object without any contact between the objects.



Composting and Renewable Energy

(9:14)



#Balance #Nitrogen #Carbon #Water #FoodWaste #Recycling #RenewableEnergy

Summary

Learn the basics of composting and various methods, plus other ways to reimagine good scraps and food waste.

Activities: Start a compost pile at home.

Links

[Click here for link to pretest](#)

Video Link:
<https://youtu.be/D7TpmUXRG88>

[Click here for link to posttest](#)

Benchmarks

- **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.E.6.3** Recognize that humans need resources found on Earth and that these are either renewable or nonrenewable.
- **SC.4.L.17.4** Recognize ways plants and animals, including humans, can impact the environment.



Explore biogas digestors and composting with Randy Penn.



Florida Snakes

(14:51)

#Exothermic #Safety #EnvironmentalImportance #FoodWeb #PetSnakes #Vertebrates #Adaptations

Summary

Learn about snake adaptations and anatomy, snake safety, and their importance to our environment.

Activities: Make your own snake kite.

Links

[Click here for link to pretest](#)

Video Link:

<https://www.youtube.com/watch?v=FPd5jMEkVww>

[Click here for link to posttest](#)

Benchmarks

- **SC.3.N.1.1, SC.4.N.1.1, SC.5.N.1.1** 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.
- **SC.3.L.15.1** Classify animals into major groups (mammals, birds, reptiles, amphibians, fish, arthropods, vertebrates and invertebrates, those having live births and those which lay eggs) according to their physical characteristics and behaviors.
- **SC.4.L.17.4** Recognize ways plants and animals, including humans, can impact the environment
- **SC.5.L.14.2** Compare and contrast the function of organs and other physical structures of plants and animals, including humans, for example: some animals have skeletons for support -- some with internal skeletons others with exoskeletons -- while some plants have stems for support.
- **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



Flower Power and the Process of Pollination

(10:50)

#OriginOfProducts #Pollinators #FlowerAnatomy #FlowerDissection

Summary

Learn about flower anatomy, flower dissection, and the importance of pollination to our food systems.

Activity: Dissect a flower.

Links

[Click here for link to pretest](#)

Video Link:

<https://www.youtube.com/watch?v=5km61yC0LqU>

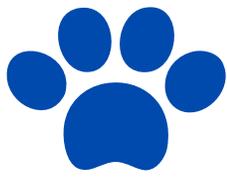
[Click here for link to posttest](#)

Benchmarks

- **SC.3.N.1.1, 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.3.L.14.1** Describe structures in plants and their roles in food production, support, water and nutrient transport, and reproduction.
- **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.16.4** Compare and contrast the major stages in the life cycles of florida plants and animals such as... flowering and nonflowering seed-bearing plants



Dissect a flower with Dr. Marguerite Beckford for a better understanding of the process of pollination!



Food Chains and Food Webs

(8:24)

#Interconnectivity #HumanImpact #Producers #Herbivores #Carnivores #ApexPredators #FoodWeb

Summary

Learn about producers and consumers and how they form food chains, and how ecosystems are interconnected food chains that form a food web.

Activities: Make your own food web.

Links

[Click here for link to pretest](#)

Video Link:

<https://youtu.be/YeSgUj-KYW8>

[Click here for link to posttest](#)

Benchmarks

- **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.L.17.2** Explain that animals, including humans, cannot make their own food and that when animals eat plants or other animals, the energy stored in the food source is passed to them.
- **SC.4.L.17.3** Trace the flow of energy from the Sun as it is transferred along the food chain through the producers to the consumers.
- **SC.4.L.17.4** Recognize ways plants and animals, including humans, can impact the environment.

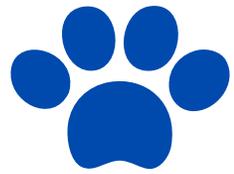


Model food chains with Jennifer DeHart using stuffed animals.



Freshwater Bird Adaptations

(14:22)



#Adaptations #BirdBeaks #BirdFeet #BirdSkulls #Binoculars #Explore #Instincts

Summary

Learn about adaptations that birds have which help them survive in their environment. Discover unique characteristics of bird beaks, feet, and skulls!

Activities: Observe birds and their characteristics. Design your own bird.

Links

[Click here for link to pretest](#)

Video Link:

https://youtu.be/l_QD-JZreaM

[Click here for link to posttest](#)

Benchmarks

- **SC.4.N.1.1, SC.5.N.1.1** 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.
- **SC.4.N.1.4** Attempt reasonable answers to scientific questions and cite evidence in support.
- **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.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.



Review how to properly use binoculars with Julianna Costanzo so you can easily observe birds and their adaptations



How Hurricanes Form

(14:06)



#Temperature #Evaporation #Condensation #Pressure #Clouds
#SaffirSimpsonHurricaneScale #Geography #StormSurge #ProtectionFromNature

Summary

Learn how hurricanes form by looking at evaporation, condensation, and air pressure. Learn the geography of why hurricanes occur in Florida and how they interact with our environment.

Activities: Evaporation in a cup, Condensation in a jar, Hurricane in a bowl.

Links

[Click here for link to pretest](#)

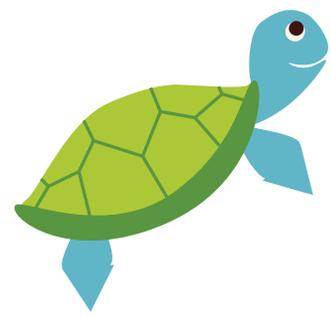
Video Link:

<https://youtu.be/ONQr3cPhFBO>

[Click here for link to posttest](#)

Benchmarks

- **SC.2.N.1.1, SC.3.N.1.1, SC.5.N.1.1** 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.
- **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.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.7.5** State the importance of preparing for severe weather, lightning, and other weather related events
- **SC.3.P.9.1** Describe the changes water undergoes when it changes state through heating and cooling by using familiar scientific terms such as melting, freezing, boiling, evaporation, and condensation.
- **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 weather in a particular place and time.



How pollution affects our waterways

(9:53)



#WaterPollution #HumanImpact #PlasticPollution #Erosion #ChemicalPollution

Summary

From lawn fertilizers to motor oils to microplastics, a number of materials used by humans can have serious consequences for our waters.

Activities: Investigate plastics in the household and find alternative products.

Links

[Click here for link to Pretest](#)

Video Link:
<https://youtu.be/d7WqLbFsztk>

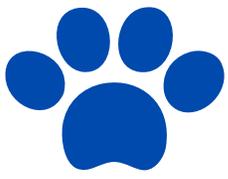
[Click here for link to posttest](#)

Benchmarks

- **SC.3.N.1.1, 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.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; as such, they do not perfectly account for all observations
- **SC.4.E.6.6** Identify resources available in Florida (water, phosphate, oil, limestone, silicon, wind, and solar energy).
- **SC.4.L.17.4** Recognize ways plants and animals, including humans, can impact the environment



Explore runoff in the enviroscape with Alexa Kurowski.



Insect Observation and Life Cycles

(15:33)

#Interconnectivity #HumanImpact #Producers #Herbivores #Carnivores #ApexPredators #FoodWeb

Summary

Learn about the Phylum Arthropoda and Class Insecta, how to identify insects, and ways to observe our insect friends.

Activities: Use a beat sheet to find insects and observe them

Links

[Click here for link to pretest](#)

Video Link:
<https://youtu.be/JGwCFa8zsjg>

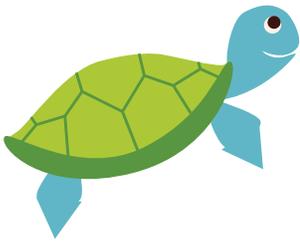
[Click here for link to posttest](#)

Benchmarks

- **SC.4.N.1.1, SC.5.N.1.1** 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.
- **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.
- **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.



Learn all about bugs, their life cycles, and how to find them in your backyard with Carol Wyatt-Evens.



Mangrove Ecosystems

(12:15)



#Identification #Adaptations #Leaves #EcosystemServices #Watersheds #Invasives

Summary

Learn about the importance of mangrove ecosystems to our shorelines and wildlife in Florida. Identify the differences and similarities of red, white, and black mangroves.

Activities: N/A

Links

[Click here for link to pretest](#)

Video Link:

<https://youtu.be/MMsRqO9hYqA>

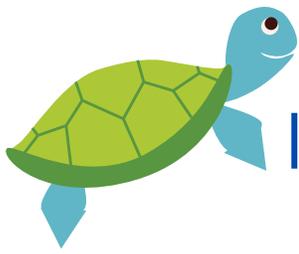
[Click here for link to posttest](#)

Benchmarks

- **SC.3.N.1.1, SC.4.N.1.1, SC.5.N.1.1** 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.
- **SC.3.L.14.1** Describe structures in plants and their roles in food production, support, water and nutrient transport, and reproduction.
- **SC.4.L.17.4** Recognize ways plants and animals, including humans, can impact the environment
- **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 cycle variations, animal behaviors and physical characteristics.



Learn to identify mangrove species with Armando Ubeda.



Marine Invertebrate Classification

(23:13)



#Adaptations #WaterInterconnectivity #Watersheds #Taxonomy #Vertebrates #Invertebrates

Summary

Learn about taxonomy and how scientists classify living organisms. Review 5 classes of vertebrates and then learn how to identify and classify marine invertebrates.

Activities: Be a taxonomist and classify your toys or your school supplies.

Links

[Click here for link to pretest](#)

Video Link:

<https://youtu.be/uRYOIR2uLYM>

[Click here for link to posttest](#)

Benchmarks

- **SC.3.N.1.1, SC.5.N.1.1** 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.
- **SC.3.N.3.1** Recognize that words in science can have different or more specific meanings than their use in everyday language; for example, energy, cell, heat/cold, and evidence.
- **SC.3.L.15.1** Classify animals into major groups (mammals, birds, reptiles, amphibians, fish, arthropods, vertebrates and invertebrates, those having live births and those which lay eggs) according to their physical characteristics and behaviors.
- **SC.5.L.14.2** Compare and contrast the function of organs and other physical structures of plants and animals, including humans, for example: some animals have skeletons for support -- some with internal skeletons others with exoskeletons -- while some plants have stems for support.
- **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



Microplastics and Why Matter Matters

(17:10)

#Currents #GreatPacificGarbagePatch #Matter #Sink #Float #Dissolve #PlasticPollution

Summary

Learn about matter, the Great Pacific garbage patch, what microplastics are and how they exist throughout the water column.

Activities: Plastic clean-up. Create an invention to clean plastics out of the ocean.

Links

[Click here for link to pretest](#)

Video Link:

<https://www.youtube.com/watch?v=GtILPhfA7yo>

[Click here for link to posttest](#)

Benchmarks

- **SC.3.N.1.1, SC.4.N.1.1, SC.5.N.1.1** 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.
- **SC.3.P.8.2, SC.4.P.8.2, SC.5.P.8.2** Investigate and identify materials that will dissolve in water and those that will not and identify the conditions that will speed up or slow down the dissolving process.
- **SC.3.P.8.3, SC.4.P.8.3, SC.5.P.8.3** 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.
- **SC.4.E.6.6** Identify resources available in Florida (water, phosphate, oil, limestone, silicon, wind, and solar energy).
- **SC.4.L.17.4** Recognize ways plants and animals, including humans, can impact the environment.
- **SC.5.P.8.2** Investigate and identify materials that will dissolve in water and those that will not and identify the conditions that will speed up or slow down the dissolving process.
- **SC.5.P.8.4** Explore the scientific theory of atoms (also called atomic theory) by recognizing that all matter is composed of parts that are too small to be seen without magnification.



Plant Parts (Morphology) and Reproduction (16:45)



#PlantReproduction #Photosynthesis #TypesOfLeaves #Flowers #Pollination #InvasivePlants #CircleOfLife

Summary

Learn about a variety of leaf forms and flower parts, and strategies that help plants survive and reproduce. Contrast flowering vs. non-flowering plants. Invasive plants are introduced.

Activities: Observe plant and flower characteristics in your neighborhood.

Links

[Click here for link to pretest](#)

Video Link:

https://youtu.be/Q_dkwWG7S6E

[Click here for link to posttest](#)

Benchmarks

- **SC.3.N.1.1, 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.3.L.14.1** Describe structures in plants and their roles in food production, support, water and nutrient transport, and reproduction.
- **SC.3.L.15.2** Classify flowering and nonflowering plants into major groups such as those that produce seeds, or those like ferns and mosses that produce spores, according to their physical characteristics.
- **SC.3.L.17.2** Recognize that plants use energy from the sun, air, and water, to make their own food
- **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.16.4** Compare and contrast the major stages in the life cycles of florida plants and animals such as... flowering and nonflowering seed-bearing plants
- **SC.4.L.17.4** Recognize ways plants and animals, including humans, can impact the environment



Preparing for Hurricanes

(12:29)

#Preparedness #Planning #EmergencyItems #Food #Comfort #Medicine #Pets

Summary

Learn how to help your family and pets prepare for a hurricane.

Activities: DIY Hurricane kit, Emergency supplies scavenger hunt

Links

[Click here for link to pretest](#)

Video Link:

https://youtu.be/g_p9hthkp5E

[Click here for link to posttest](#)

Benchmarks

- **SC.5.E.7.7** Design a family preparedness plan for natural disasters and identify the reasons for having such a plan.



Walk through hurricane preparations with Dr. Maria Portelos-Rometo.



Recycle Right

(15:04)

#Landfills #Materials #PlasticTypes #Rules #Waste #Sustainability #Lifecycle

Summary

Learn the basics of recycling such as which materials are accepted in Sarasota County and how to handle those that aren't.

Activity: Check plastics to see if they're recyclable. Complete a life cycle assessment of any product.

Links

[Click here for link to pretest](#)

Video Link:

<https://youtu.be/e-r5dmEu348>

[Click here for link to posttest](#)

Benchmarks

- **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.L.17.4** Recognize ways plants and animals, including humans, can impact the environment
- **SC.4.E.6.3** Recognize that humans need resources found on Earth and that these are either renewable or nonrenewable.



Learn the ins-and-outs of recycling in Sarasota County with Randy Penn.



Solar Energy

(13:09)

#Renewables #SolarPower #Sun #Electricity #Energy #Reflection

Summary

Learn about solar energy and its myriad of uses, from powering homes and businesses to cooking tasty s'mores.

Activities: Create your own solar oven.

Links

[Click here for link to pretest](#)

Video Link:

<https://youtu.be/vMm2UXd4FRw>

[Click here for link to posttest](#)

Benchmarks

- **SC.3.N.1.1, SC.4.N.1.1, SC.5.N.1.1** 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.
- **SC.3.E.5.2** Identify the Sun as a star that emits energy; some of it in the form of light.
- **SC.3.E.6.1** Demonstrate that radiant energy from the Sun can heat objects and when the Sun is not present, heat may be lost.
- **SC.3.P.10.4** Demonstrate that light can be reflected, refracted, and absorbed.
- **SC.4.E.6.3** Recognize that humans need resources found on Earth and that these are either renewable or nonrenewable
- **SC.4.E.6.6** Identify resources available in Florida (water, phosphate, oil, limestone, silicon, wind, and solar energy).
- **SC.4.P.10.1, SC.5.P.10.1** Investigate and describe some basic forms of energy, including light, heat, sound, electrical, chemical, and mechanical.
- **SC.4.L.17.4** Recognize ways plants and animals, including humans, can impact the environment



What Plants Need and How to Garden in Florida

(14:06)

#Sunlight #Seasons #Soil #Pollinators #Water #Space #FoodWaste

Summary

Learn what plants need to survive and fun activities to reduce your food waste.

Activities: Regrow green onions and make paintings from food waste

Links

[Click here for link to pretest](#)

Video Link:

<https://www.youtube.com/watch?v=BDBJYFcxDy0&t=118s>

[Click here for link to posttest](#)

Benchmarks

- **SC.3.N.1.1, 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.3.L.14.1** Describe structures in plants and their roles in food production, support, water and nutrient transport, and reproduction.
- **SC.3.L.17.2** Recognize that plants use energy from the Sun, air, and water to make their own food.
- **SC.4.L.17.4** Recognize ways plants and animals, including humans, can impact the environment



Join Mindy Hanak at the Culverhouse Garden to talk about plants.

LIFE Team

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Armando Ubeda*, Florida Sea Grant

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Sarasota County Schools

Jennifer Dehart*
5th grade science teacher

"I learned a lot about my State's ecosystem and how pollutants can really affect the ocean wherever you are." -student

" We learned a lot more about different careers that help animals and our earth. I liked learning about the invasive and native species. Thank you for letting us come on the field trips and I liked watching the videos. I think I should go to the University of Florida to learn more." -student

Thank you!

Come experience **LIFE** with us.



Dr. Katherine Clements

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