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## Core Curriculum/Florida

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Scientific Inquiry

BIG IDEA 1: The Practice of Science

A: Scientific inquiry is a multifaceted activity; the processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.

B: The processes of science frequently do not correspond to the traditional portrayal of “the scientific method.”

C: Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.

D: Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.

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.

SC.1.N.1.3 Keep records as appropriate—such as pictorial and written records—of investigations conducted.

- Treasures From the Earth
- Magnifying Materials
- What Do You Sink Will Float?
- Cup of Worms
- Sizing Up Bears
- Shapes on the Move
- Color Sort
- A Garden to Sort
- What’s Hot and What’s Not
- Balancing Bean-y Babies
- Texture Rough, Texture Smooth
- What Do You Sink Will Float?
- Backpack Bounty
- Making Sense of Crickets
- Lenses & Ladybugs
- We’ve Got Guppies
- Cup of Worms
- Super Tuber
- Searching for Stems
- Observe a Leaf
- Leaf Safari
- This Is My Flower
- The Seed Within
- Wash ’n’ Wear Caves
- A Drip on a String
- Making Sense of Crickets
- Lenses & Ladybugs
- Root Study
- Stem Study
- Super Tuber
- Searching for Stems
- Observe a Leaf
- Leaf Safari
- This Is My Flower
- Inside a Seed
- The Seed Within
SC.1.N.1.4 Ask “how do you know?” in appropriate situations.

*What Goes Up—Must Come Down*
Plants and Water
Plants and Space
Plants and Sunlight

Earth Science

**BIG IDEA 5: Earth in Space and Time**
Humans continue to explore Earth’s place in space. Gravity and energy influence the formation of galaxies, including our own Milky Way Galaxy, stars, the Solar System, and Earth. Humankind’s need to explore continues to lead to the development of knowledge and understanding of our Solar System.

SC.1.E.5.1 Observe and discuss that there are more stars in the sky than anyone can easily count and that they are not scattered evenly in the sky.

*Constellation Creations*
*Spatter Paint Stars*
*Stars in the Sky*

SC.1.E.5.2 Explore the Law of Gravity by demonstrating that Earth’s gravity pulls any object on or near Earth toward it even though nothing is touching the object.

*What Goes Up—Must Come Down*
*Reader’s Theater: The Law of Gravity*

SC.1.E.5.3 Investigate how magnifiers make things appear bigger and help people see things they could not see without them.

*Magnifying Materials*
*Many Magnifiers*

**BIG IDEA 6: Earth Structures**
Humans continue to explore the composition and structure of the surface of the Earth. External sources of energy have continuously altered the features of Earth by means of both constructive and destructive forces. All life, including human civilization, is dependent on Earth’s water and natural resources.

SC.1.E.6.1 Recognize that water, rocks, soil, and living organisms are found on Earth’s surface.

*Treasures From the Earth*
*Surface Search*

SC.1.E.6.2 Describe the need for water and how to be safe around water.

*Water Watchers*
*Water Safety*
*Drawing up Safety*
*Plants and Water*

SC.1.E.6.3 Recognize that some things in the world around us happen fast and some happen slowly.

*Fast and Slow Changes*
*Hurricane Houses*
*Wind and Wave Action*
*Reader’s Theater: As the World Changes*
*Edible Earthquakes*
*Caves*
*Wash ‘n’ Wear Caves*
*A Drip on a String*
Physical Science

BIG IDEA 8: Properties of Matter
A: All objects and substances in the world are made of matter. Matter has two fundamental properties: matter takes up space and matter has mass.
B: Objects and substances can be classified by their physical and chemical properties. Mass is the amount of matter (or “stuff”) in an object. Weight, on the other hand, is the measure of force of attraction (gravitational force) between an object and Earth. The concepts of mass and weight are complicated and potentially confusing to elementary students. Hence, the more familiar term of “weight” is recommended for use to stand for both mass and weight in grades K-5. By grades 6-8, students are expected to understand the distinction between mass and weight, and use them appropriately.

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.
- Sizing Up Bears
- Shapes on the Move
- Color Sort
- A Garden to Sort
- What’s Hot and What’s Not
- Balancing Bean-y Babies
- Texture Rough, Texture Smooth
- What Do You Sink Will Float?
- Backpack Bounty

BIG IDEA 12: Motion of Objects
A: Motion is a key characteristic of all matter that can be observed, described, and measured.
B: The motion of objects can be changed by forces.

SC.1.P.12.1 Demonstrate and describe the various ways that objects can move, such as in a straight line, zigzag, back-and-forth, round-and-round, fast, and slow.
- Shapes on the Move
- Make Your Move
- Willy the Worm
- Move, Move, Move

BIG IDEA 13: Forces and Changes in Motion
A: It takes energy to change the motion of objects.
B: Energy change is understood in terms of forces—pushes or pulls.
C: Some forces act through physical contact, while others act at a distance.

SC.1.P.13.1 Demonstrate that the way to change the motion of an object is by applying a push or a pull.
- Finding Forces
- Blow and Go
- Modifying Motion

Life Science

BIG IDEA 14: Organization and Development of Living Organisms
A: All plants and animals, including humans, are alike in some ways and different in others.
B: All plants and animals, including humans, have internal parts and external structures that function to keep them alive and help them grow and reproduce.
C: Humans can better understand the natural world through careful observation.

SC.1.L.14.1 Make observations of living things and their environment using the five senses.
- Making Sense of Crickets
- Lenses & Ladybugs
- We’ve Got Guppies
- Cup of Worms

SC.1.L.14.2 Identify the major parts of plants, including stem, roots, leaves, and flowers.
- Plants and Their Parts
- Root Study
- Stem Study
- Super Tuber
- Searching for Stems
- Observe a Leaf
- Leaf Safari
- This Is My Flower
- Inside a Seed
- The Seed Within
- Plant Part Mark Up
- Plant Parts
SC.1.L.14.3 Differentiate between living and nonliving things.

Living or Nonliving?
Living and Nonliving Things
Pets Rock
Livin’ or Not
Schoolyard Survey
Putting Pictures in Place
Mixed Up Triplets
Pocketbook Pictures

BIG IDEA 16: Heredity and Reproduction

A: Offspring of plants and animals are similar to, but not exactly like, their parents or each other.

B: Life cycles vary among organisms, but reproduction is a major stage in the life cycle of all organisms.

SC.1.L.16.1 Make observations that plants and animals closely resemble their parents, but variations exist among individuals within a population.

Lenses & Ladybugs
Who’s My Mom?
Meet the Guppy Family
Find the Family
Family Traits
Spot the Difference
See the Differences

BIG IDEA 17: Interdependence

A: Plants and animals, including humans, interact with and depend upon each other and their environment to satisfy their basic needs.

B: Both human activities and natural events can have major impacts on the environment.

C: Energy flows from the sun through producers to consumers.

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.

We’ve Got Guppies
Attending to Needs
Nothin’ but Needs
Shrinking Supplies
Plants and Water
Plants and Space
Plants and Sunlight
What Do Plants Need?
Survivors
We Have Needs
Background Information

Life on Earth depends on the sun. The sun gives us light and heat. The ultraviolet rays from the sun can cause damage to our skin and to our eyes. It is important for young children to understand that the sun provides the Earth with heat and light, and since children often spend a great deal of time outdoors, they should also know how to protect themselves from overexposure.

Management

1. Copy the helpful and harmful effects of the sun that are generated by the students and recorded on chart paper in Part One of this activity onto the hand out of the sun’s rays before copying. Each student will need one page of the rays for the sun model in Part Two of this activity.

2. For Part Two, students will need one and a half paper plates for their sun models. Yellow plates can be purchased, or the students can color white paper plates with crayons, markers, or paint. Students may need assistance in attaching the half plate to the whole plate as described in the procedure.

3. Each student will need a pair of paper sunglasses. To make the sunglasses, copy the page onto card stock. Cut out the eye areas and laminate or cover with colored plastic wrap. Fold on the dotted lines and attach the head straps. Use the slits in the bands to adjust them to fit.

4. Cut yarn into one-meter lengths. Each student will need a length.

Procedure

Part One

1. Ask the Key Question.

2. Ask students to think about helpful and harmful effects of the sun. Record their comments on chart paper.

   • Helpful: light, heat, warmth, helps plants grow, helps us see in the daytime, etc.

   • Harmful: sunburns, suntans, it makes us sweat, hurts our eyes, makes playground equipment hot, etc.

3. Ask what would happen if we didn’t have the sun. Discuss what the Earth might be like without the sun. Conclude that we need the sun to live on Earth.
4. Have the class suggest ways that we can protect ourselves from the harmful effects of the sun. Ask if anyone has ever worn sunscreen. Invite a student to tell why we wear sunscreen. [to protect our skin from sunburn] Discuss that the sun can harm our skin and our eyes.

5. End with a discussion about wearing protective gear such as a hat and sunglasses when they are outside experiencing the sun’s heat and light.

Part Two
1. Review the helpful and harmful effects of the sun.
2. Explain to the students that they will be making models of the sun.
3. Distribute the whole plates and half plates. Show students how to invert the half plate onto the top of the whole plate to form a pocket. Staple them together around the rim.
4. Distribute glue and the copies of the sun’s rays. Read the words recorded on the rays. Demonstrate how students should cut out the sun’s rays and glue them to the underside of the rims of the whole paper plate.
5. Allow the glue to dry. Punch two holes and attach yarn so that students can wear them like necklaces.
6. Ask students what they should do to prevent themselves from getting sunburned. [wear sunscreen] Give students a piece of drawing paper and instruct them to draw a bottle of sunscreen. Have them place the picture of sunscreen into the pocket of the sun.
7. Ask students how they can protect themselves from the bright light of the sun. [wear sunglasses] Give each student a copy of the sunglasses and assist with assembly. Have students place their sunglasses in the pocket of the sun.
8. Challenge students to tell as many people as possible about what they have learned about the sun. Ask them to have everyone that they tell about the sun autograph the back of their sun necklace.

Connecting Learning
1. Does the sun light the Earth? How do you know that?
2. What other things does the sun do?
3. Why is it not a good idea to play outside on a sunny day without sunscreen?
4. What can we do to protect ourselves from too much of the sun’s heat and light?

Extensions
1. Purchase UV beads and observe the intensity of the sun in different locations and at different times of the day.
2. Go to www.epa.gov/sunwise for information about Mission SunWise. It is a free program that is available from the Environmental Protection Agency.
Copy this page onto card stock and cut out the glasses and strips. Attach one strip to each side of the glasses so that the slits are facing in opposite directions. Cut out the eyeholes. Laminate or cover the lens area with colored cellophane.

(Be sure to tell students that they are pretend sunglasses and should not be worn for eye protection.)
Sun’s Rays