Unit 6: Little Scientists

Content Area: **Pre-School**
Course(s): **Pre-School**
Time Period: **Marking Period 4**
Length: **7 Weeks**
Status: **Published**

Unit Overview

The Little Scientists unit is a seven week unit that begins at the end of April and ends with a week left of school. Preschoolers are natural scientists with questions about the world and the need to investigate. The unit is a science based unit with literacy, mathematics, social studies and art incorporated through the letter, number, and topic activities. This unit will help students study scientific topics such as balls, buildings, dinosaurs, and habitats and oceans. We will spend 1-2 days learning about Mother's Day, 1-2 days learning about Father's Day, and we will participate in Field Day (creates a short week) during this unit. Students will learn to identify, write, and the sounds associated with the letters Y, E, L, and O. Students will learn to identify and count numbers 18, 19, and 20. Students will learn the attributes and be able to recognize the shapes hexagon and pentagon in the environment. Students will learn to identify the colors purple, silver and gold. Social skills covered will be based on the concepts students need to review.

Standards

SCI.PK.5.1	Children develop inquiry skills.
MA.PK.4.1	Children begin to demonstrate an understanding of number and counting.
SCI.PK.5.2	Children observe and investigate matter and energy.
SCI.PK.5.3	Children observe and investigate living things.
MA.PK.4.3	Children begin to conceptualize measurable attributes of objects.
MA.PK.4.4	Children develop spatial and geometric sense.
ELA.W.PK	Writing
ELA.PK.L.PK.4	Begin to determine the meaning of new words and phrases introduced through preschool reading and content.
ELA.PK.L.PK.5	With guidance and support, explore word relationships.
ELA.RI.PK	Reading Informational Text
HPE.PK.2.4	Children develop competence and confidence in activities that require gross- and fine-motor skills.
SED.PK.0.1	Children demonstrate self-confidence.
SED.PK.0.2	Children demonstrate self-direction.
VPA.PK.1.4	Children express themselves through and develop an appreciation of the visual arts (e.g., painting, sculpting, and drawing).

Essential Questions

1. What makes balls move?
2. What do buildings in our neighborhood and other places look like?

3. How can we build a strong building?
4. What were the characteristics and habitat of dinosaurs?
5. How do habitats support the animals that live there?
6. What makes an ocean habitat?

Application of Knowledge: Students will know that...

- 18, 19, and 20 are numbers referring to a specific quality.
- A graph is used to collect and organize information.
- A habitat is the home of an animal or plant.
- A hexagon and pentagon are shapes with specific attributes.
- A sphere is a 3D shape found in our environment, (such as a ball).
- Animals that are extinct, such as dinosaurs, lived a long time ago.
- Buildings are made of various materials and some are stronger than others.
- Buildings serve different purposes in our community.
- Pushing and pulling are forces that cause motion.
- Sports use different types of balls to play the game.
- The shape of a ball and the force used to bounce it will affect how it bounces.
- We can use small objects to measure bigger objects.
- Y, E, L, and O are letters and each represent a specific sound.

Application of Skills: Students will be able to...

- Create a graph.
- Create a habitat.
- Describe the characteristics of a herbivore and carnivore.
- Identify the colors purple, silver, and gold.
- List animals that live in an habitat, (ocean, savannah, jungle, forest, desert, etc.).
- Make and test predictions.
- Measure objects using non standard measurement.
- Recognize and name letters Y, E, L, and O.
- Recognize and name numbers 18, 19, and 20.
- Recognize and name the shapes: hexagon and pentagon.
- Understand information on a graph by discussing which category has more/less on the graph.

Assessments

1. Final quarterly self portrait
2. Final quarterly progress report (IEP Direct)

3. Final quarterly assessment test (Teacher generated)
4. Informal teacher observations
5. Weekly daily reports
6. Complete portfolio assessment
7. Final report card

Suggested Activities

Weeks 1 and 2- Balls Study

- Circle and represent groups that show 18.
- Write number 18 in various ways (rainbow writing, sensory writing, dry erase).
- (Week 1: Y and Week 2: E) Practice recognizing letter E and Y by completing find and dot, sensory writing, tracing, and activities using E and Y words.
- Demonstrate how to write letter E and Y and practice writing Y on large Fundations white board. Use vocabulary sky line, plane line, grass line, and worm line when demonstrating.
- Introduce color purple. Mix blue and red paint to create the color purple.
- Shared writing- Provide students with different kinds of balls. Pass them around and encourage students to examine how the balls look and feel. Ask students to describe the balls and record their ideas.
- Use a paper plate and black pentagon cut outs to create a soccer ball.
- Provide paper plates and ask students to design their own ball. What are the features of their ball (does it bounce/roll, is it used to play a sport, etc.).
- Predict and test an assortment of balls to see if they bounce.
- Predict and test an assortment of balls to see if they roll.
- MM30 Bounce, bounce, bounce.
- Match balls to the sport that uses each one.
- Make play dough (or use bouncy ball recipe, slime recipe) from scratch. Roll the playdough into balls. Order from smallest to largest.
- Graph students favorite ball.
- Read *Have a Ball*, *Bounce*, and *Play Ball!*

Weeks 3 and 4- Building Study

- (Week 3) Circle and represent groups that show 19.
- Write number 19 in various ways (rainbow writing, sensory writing, dry erase).
- (Week 4) Practice recognizing letter L by completing find and dot, sensory writing, tracing, and activities using L words.
- Demonstrate how to write letter L and practice writing L on large Fundations white board. Use vocabulary sky line, plane line, grass line, and worm line when demonstrating.
- Print building pictures. Ask students to select one picture to talk about and describe. Record their descriptions.
- Read *The Three Little Pigs*. Discuss which material made the strongest house.
- Students will design their own building on paper and dictate to a teacher what their building is made of. Record answer at the bottom of the page.
- Use MM31- "What's Inside The Box?" to introduce building materials such as a tape measure, level, hammer, screwdriver, wrench.

- Read *Build It From A-Z.*
- Be architects and create blue prints using legos and paint on blue construction paper.
- Talk a walk around the school. Discuss the parts of the building students are interested in. Sit outside and draw observations of the building (intentional teaching card LL45).
- Partner students and challenge them to work together to construct a building with small blocks or connecting blocks. Display pictures of building for inspiration. Talk about the parts of the building each group has built.
- M59: More or Fewer Towers- Students pick a number card 0-20 and build a tower with that many snap cubes. Students will spin a spinner to decide if they will build a tower with more or fewer snap cubes.
- Read Poem "A Building My Size" using MM49 "A Tree My Size".
- Read *Buildings, Buildings, Buildings*.
- Read *House, Sweet House* and discuss the type of building the students live in.
- MM06, "This Is The Way." Follow the guidance on the card using carpentry-related phrases (saw the wood, pound the nail, paint the wall, etc).
- Build with small blocks and ask students to make predictions about how many blocks tall they can make their tower before it falls.
- Create graphs by answering the questions of the day:
    - Which would you use to build your house: straw sticks, or bricks?
    - Which building do you like best? (Display two different building photos.)
    - Have you ever seen a building like this? (Display a picture of an interesting building found in another country).
    - When you grow up, what job would you like to try? (Display photos of jobs having to do with buildings.)

Week 5- Field Day and Review

- Circle and represent groups that show 20.
- Identify the written number 20.
- Write number 20 in various ways (rainbow writing, sensory writing, dry erase).
- Review letters learned by playing alphabet games. For example: alphabet whack it, alphabet kaboom, uppercase and lowercase matching.
- Review numbers learned by playing number games. For example: number whack it, race to 10/20, race to fill the cup, count and clip cards.
- Review shapes learned by playing shape games. For example: wiggle worm, shape hunt.

Week 6- Dinosaurs

- Continue letter review.
- Continue number review.
- Introduce the shape pentagon. Color, trace, connect the dots, and draw the shape.
- Students will color and cut out pentagons to glue onto and complete a Stegosaurus.
- Prepare a dinosaur footprint (3 1/2 ft by 1 1/2 ft). Use different non standard units each day to measure the footprint. Record the data. Ask students what they notice. Did they use less of the smaller units or bigger units?
- Read *Dinosaurs* (sound book) to learn about the characteristics of dinosaurs.
- Dig for "dinosaur bones". Hide paper puzzle pieces of a dinosaur skeleton in sand. Provide students with scoops and paintbrushes to help with their dinosaur dig. Assemble the puzzle.
- Create a dinosaur using shape cutouts, markers, watercolor, or other art mediums.
- Sing and dance to *Dinosaur, Dinosaur Turn Around* to practice gross motor skills.
- Create fossils using salt dough, dinosaur toys, and paint.

Week 7- Habitats and Oceans

- Practice recognizing letter O by completing find and dot, sensory writing, tracing, and activities using O words.
- Demonstrate how to write letter O and practice writing O on large Fundations white board. Use vocabulary sky line, plane line, grass line, and worm line when demonstrating.
- Watch videos showing different habitats. Create lists of each habitat and what animals and plants can be found there.
- Sort animals (pictures or toys) into the correct habitat. Discuss why or why not an animal would live in that habitat (for example, a dolphin wouldn't live in a forest because they need to live in the ocean to survive-they swim, eat fish, breath underwater and air).
- Draw or use pictures to create a collage of the students favorite habitat. Print and display habitat pictures for inspiration. Provide students with plenty of time (2-3 days) to add a lot of detail to their pictures. Encourage students to label their habitat (provide a list of habitats or sound it out). Students will present their pictures to the class.
- Focus on the ocean habitat. Read a story or watch a video that depicts the ocean habitat. Discuss what ocean animals need to survive that their habitat provides them.
- Create an octopus out of the letter O, construction paper strips and googly eyes. Students will practice their fine motor skills by folding the paper strips into an accordion.
- Read *Rainbow Fish*. Introduce the color silver and create a rainbow fish using silver glitter to trace scales, let dry, and fill with watercolors.

*The week of Mother's Day use 1-2 days to read books about Mother's Day and create Mother's Day gifts (cards, flower pot craft and picture, about Mom interviews, picture frames, etc.).

*The week of Father's Day use 1-2 days to read books about Father's Day and create Father's Day gifts (tie magnet, cards, picture frames, about Dad interviews, etc.).

Activities to Differentiate Instruction

Differentiation for special education:

- General modifications may include:
    - Modifications & accommodations as listed in the student's IEP
    - Assign a peer to help keep student on task
    - Modified or reduced assignments
    - Reduce length of assignment for different mode of delivery
    - Increase one-to-one time
    - Working contract between you and student at risk
    - Prioritize tasks
    - Think in concrete terms and provide hands-on-tasks
    - Position student near helping peer or have quick access to teacher
    - Anticipate where needs will be
    - Break tests down in smaller increments
- Content specific modifications may include:
    - Create larger templates for writing activities.
    - Include pictures with words.
    - Highlight dotted lines for writing and cutting activities.

- Include dots to indicate starting points when writing.
- Verbally and physically prompt students to ensure that they are able to follow daily routines successfully.
- Students with expressive language challenges may join in gradually and will have proximal seating to afford optimal visual and auditory cues for songs, stories, and finger plays.

Differentiation for ELL's:

- General modifications may include:
  - Strategy groups
  - Teacher conferences
  - Graphic organizers
  - Modification plan
  - Collaboration with ELL Teacher
- Content specific vocabulary important for ELL students to understand include:
  - Building, Tool, Construction, Architect, Window, Door, Roof, Ocean, Savannah, Arctic, Desert, Jungle, Forest, Habitat, Dinosaur, Extinct, Field Day, Mother's Day, Father's Day, Ball, Smooth, Rough, Bounce, Roll

Differentiation to extend learning for gifted students may include:

- Focus on letter sounds.
- Spell three letter CVC words.
- Independent writing activities.
- Leading the group.
- Basic addition and subtraction with manipulatives.

Integrated/Cross-Disciplinary Instruction

The Little Scientists unit is a cross curricular unit with a focus on science topics. Students will learn literacy, mathematics, science, and social studies skills when studying topics balls, building, dinosaurs, and habitats and oceans. Topics of study can be integrated into centers. For example:

- Sensory table:
  - Ball study- Fill with small balls or cotton balls.
  - Dinosaurs- Fill with sand, small plastic dinosaurs, and digging tools.
  - Habitats- Fill with materials to reflect a specific habitat. For example, fill with water, ocean animal toys, seashells, and water toys for the ocean habitat. For the forest habitat fill with green gift "grass", forest animal toys, small rocks, and tree cookies or small plastic trees.
- Science:
  - Building- Challenge students to build with various materials, (toilet paper rolls with holes for straws to connect, playdough and rocks, small blocks, cups).
  - Dinosaurs- Display dinosaur books and toys.
  - Habitats- Display habitat books, pictures of habitats, and plastic animal toys to match to each habitat.
  - Balls- Display variety of balls or present students with challenges (can you build a ramp to make the ball roll, can you build a marble run, which ball do you think bounces the highest- make a prediction and test).

- Art:
    - Display photos relative to each topic (balls, buildings, dinosaurs, habitats and the plants and animals that live in them).

Resources

Books: Have a Ball, Bounce, Play Ball!, The Three Little Pigs, Build It From A-Z, Buildings, Buildings, Buildings, House, Sweet House, Dinosaurs (Sound Book), Rainbow Fish.

Songs and Rhymes: Bounce, bounce, bounce (MM03), A Building My Size (MM49), This Is The Way (MM06), Dinosaur, Dinosaur Turn Around.

Other Resources: Creative Curriculum for Preschool Teaching Guide, Creative Curriculum for Preschool Mighty Minutes cards, Creative Curriculum for Preschool Intentional Teaching Cards, Creative Curriculum for Preschool: Building Study, Creative Curriculum for Preschool: The Ball Study, Skillstreaming in Early Childhood, Third Edition by E. McGinnis (social skills).