Pitt County Schools
Science – Grade 3
Instructional Guide

TIME FRAME: FIRST GRADING PERIOD

SCOS GOALS AND OBJECTIVES	ESSENTIAL QUESTIONS, BENCHMARKS, AND SKILLS	ESSENTIAL TASKS, STRATEGIES, PROJECTS, CONNECTIONS	RECOMMENDED RESOURCES AND ASSESSMENT
COMPETENCY GOAL 3: The learner will make observations and use appropriate technology to build an understanding of the earth/moon/sun system.	**Investigable Questions:** 1. How does a person's shadow change at different times of the day? 2. What effect does the depth of the water have on the bending of light? 3. What effect does the passage of time (one full month) have on the appearance of the moon?		
3.01 Observe that light travels in a straight line until it strikes an object and is reflected and/or absorbed. *2.06-H Advocate for the proper usage of various methods of sun protection (e.g. big floppy hats, sunglasses w/ UV protection, proper technique of sunscreen application and reapplication, protective clothing).*	**Essential Questions:** • How does light travel? • What happens to light when it travels in a straight line? • What happens to light when it does not travel in a straight line? • What colors make up white light? **Benchmarks:** • Describe or draw what happens to light when it travels in a straight line. • Describe what happens when light is bent? Draw a picture of observations. • Have students make a rainbow using a prism and mirror.	**Essential Activities:** • Prism activities to show refraction (text, p.F39 and F44) • Rainbow activity text page F42. • Make a prism using a prism and mirror.	Harcourt text Unit F, page F32 AIMS: Cycles of Knowing and Growing Harcourt Science Text F42 Trade book: Day Night, Light Night by Franklyn Branley All About Light: Do It Yourself Science

			Book by Melvin Berger The Optics Book: Fun Experiments with Light, Vision and Color by Shar Levine
3.02 Observe that objects in the sky have patterns of movement including: • Sun. • Moon. • Stars.	**Essential Questions**: • What is the solar system? • How does the moon and earth interact? • What is beyond the solar system? • How does day become night? • What causes seasons? **Benchmarks:** • Make a model of the solar system with clay or Styrofoam. • The students will demonstrate how the moon and the earth interact. • The students will demonstrate what causes seasons using a flashlight and globe.	**Essential Activities:** Research and report on planets and constellations. (Big Six format) Fieldtrip to the Planetarium	(The Harcourt text Unit D, Chapter 3, Lesson 1, page D56). Earth Seasons (Lesson 2, page D. 66) Moon (Lesson 3, D74). Beyond Solar System (Lesson 4, D82) Seasons (page D93) AIMS: Cycles of Knowing and Growing Trade books: The Magic School Bus: Inside the Solar System Planets in Our Solar System by Franklyn M. Brandley
3.03 Using shadows, follow and record the apparent movement of the sun in the	**Essential Questions:** • What causes shadows?	**Essential Activities:** • Flashlight activities	Making shadows with your hand

sky during the day.	• Why does the shadow change throughout the day? **Benchmarks:** • Have students go outside at various times of day and measure the shadows. They can use markers to mark the length of their shadows. • Graph the results	with globe	activity (Text page F32) AIMS: Cycles of Knowing and Growing
3.04 Use appropriate tools to make observations of the moon.	**Essential Questions:** • What are the phases of the moon? **Benchmarks:** • Draw or describe the shape of the moon at each phase for several months (on a calendar).	**Essential Activities:** Tracking the moon for several months	Text D74-D77 Trade book: The Moon Book by Gail Gibbons
3.05 Observe and record the change in the apparent shape of the moon from day to day over several months and describe the pattern of changes.	**Essential Questions:** • What are the phases of the moon? • Does the moon change shape? Explain. **Benchmarks:** • Act out and describe the reasons for the phases of the moon.	**Essential Activities:** Act out or demonstrate the positions of the moon.	Text D74-D77 Trade book: The Sun and the Moon by Patrick Moore
3.06 Observe that patterns of stars in the sky stay the same, although they appear to move across the sky nightly.	**Essential Questions:** • Do the stars in the sky actually move? • How does the appearance of the stars change with each season? **Benchmarks:** • Report on the different constellations. • Have students make their own constellations using dark paper and chalk or star stickers.	**Essential Activities:** Demonstrate the position of the stars even though they appear to be moving	Text D 84-D89 Trade book: The Stars: Lights in the Night Sky by Geanne Bendick

TIME FRAME: SECOND GRADING PERIOD

SCOS GOALS AND OBJECTIVES	ESSENTIAL QUESTIONS, BENCHMARKS, AND SKILLS	ESSENTIAL TASKS, STRATEGIES, PROJECTS, CONNECTIONS	RECOMMENDED RESOURCES AND ASSESSMENT
COMPETENCY GOAL 2: The learner will conduct investigations to build understanding of soil properties.	**Investigable Questions:** 1. Does the type of soil effect how quickly it will settle out of water? 2. Which will decompose faster, compost with worms or without worms? 3. Will grass seeds grow better in clay, sand, or topsoil over a 2 week period? 4. Does the type of soil effect the amount of water it will hold?		
2.01 Observe and describe the properties of soil: • Color. • Texture. • Capacity to hold water.	**Essential Questions:** • What are the properties of soil? **Benchmarks:** • The student will identify and list the different colors and sizes of soils grains from a sampling. **Skills:** • Observation, Compare/Contrast	**Essential Activities:** • STC Soils Lesson 1 Field trip to a nursery Write soils' poems	**Primary Resource:** **STC Soils:** Lesson 1 Record Sheet 1-A p.28 TE pp. 17-50 Harcourt Unit C Chapter 3 Lesson 1 pp. C- 62-C65 Lesson 2 pp. C66-C71 Performance Assessment: AG 41-AG42 Investigate Log Wkbk. p. 94-96 AIMS: Over Head and Underfoot AIMS: Primary Earth

2.02 Investigate and observe that different soils absorb water at different rates.	**Essential Questions**: • How do different types of soil absorb water? **Benchmarks:** • The student will be able to describe how different soils absorb water at different rates. **Skills:** • Observation, prediction, compare/contrast	**Essential Activities:** • STC Soil Lessons 4 & 5	**Primary Resource:** **STC Soils**: Lesson 1 Record Sheet 1-A p.28 TE pp. 17-50 Harcourt Unit C Chapter 3 Lesson 1 pp. C- 62-C65 Lesson 2 pp. C66-C71 Performance Assessment: AG 41-AG42 Investigate Log Wkbk. p. 94-96 AIMS: Over Head and Underfoot AIMS: Primary Earth
2.04 Identify the basic components of soil: • Sand. • Clay. • Humus.	**Essential Questions**: • How do soils differ? • How can you distinguish one component from another? **Benchmarks:** **Skills:** • Observation, Compare/contrast, Evaluate, Conclude	**Essential Activities:** • STC Soils Lessons 3, 6, 7, 8 • STC Soil Lessons 11,12 (spirals back to 2.02)	**Primary Resource:** **STC Soil Kit**

2.03 Determine the ability of soil to support the growth of many plants, including those important to our food supply.	**Essential Questions:** • How does soil support the growth of plants? **Benchmark:** • The student will read a Science selection "The Earthworm: Nature's Plow" and answer teacher prepared EOG stem questions. **Skills:** • Evaluate • Determine Relationship • Conclude	**Essential Activities:** • STC Soils Lesson 9, 10 Grow a vegetable garden Soil scientist guest speakers Read Diary of An Earthworm	**Primary Resource:** **STC Soils**: Lesson 10 read a Science passage Reading Selection p. 118 Harcourt Unit C Chapter 3 Activities P. C 81 AIMS: Field Detectives AIMS: Water Precious Water AIMS: Primarily Plants Diary of An Earthworm
2.05 Determine how composting can be used to recycle discarded plant and animal material. 2.06 Determine the relationship between heat and decaying plant matter in a compost pile.	**Essential Questions:** • What is the purpose of composting? • Where do dead plants go? **Benchmarks:** • The student will use their compost sampling to observe, and record changes that have occurred over time. **Skills:** • Prediction • Observations • Compare	**Essential Activities:** • Make a composting bag STC Lesson 2, 13	**Primary Resource:** **STC Soils**: Lesson 2 and 13 Record Sheet 2-A and Record Sheet 13-A Harcourt Unit 3 Chapter 3 Lesson 1 C 60-C61 Investigate Log Wkbk. P. 90-92

Extension Activity to Assess Competency Goal 2		**Essential Activities:** STC Soils Lessons 14, 15, 16	**Primary Resource:** **STC Soil Kit**

TIME FRAME: THIRD GRADING PERIOD

SCOS GOALS AND OBJECTIVES	ESSENTIAL QUESTIONS, BENCHMARKS, AND SKILLS	ESSENTIAL TASKS, STRATEGIES, PROJECTS, CONNECTIONS	RECOMMENDED RESOURCES AND ASSESSMENT
COMPETENCY GOAL 4: The learner will conduct investigations and use appropriate technology to build an understanding of the form and function of the skeletal and muscle systems of the human body.	**Investigable Questions:** 1. What effect does exercise have on heart rate? 2. Which muscle is stronger, the arm or leg? 3. Without the use of your thumb, what effect does this have on doing everyday school activities?		
4.01 Identify the skeleton as a system of the human body.	**Essential Questions:** • What would be the function of the skeleton as a system of the human body? **Benchmarks:** • The student will be able to list the function of the skeletal system.	**Essential Activities:** 4.01 Investigations 1: Parts 1-2 pp.8-20 FOSS Web, Activity: MR. BONES FOSS HUMAN BODY Science Story "A Marvelous Machine" p1-3	**Primary Resource:** **Foss - Human Body Kit** Trade book: The Magic School Bus: Inside the Human Body
4.02 Describe several functions of bones: • Support. • Protection. • Locomotion.	**Essential Questions**: • What is the function of the bones? **Benchmarks:** • The student will be able to describe the position and the function of various bones in the body.	**Essential Activities:** 4.02: FOSS HUMAN BODY: Investigation 1 Parts 1 and 2, pages 8-20 FOSS HUMAN BODY: Science stories "A Marvelous Machine" pages 1-3	**Primary Resource:** **Foss - Human Body Kit**

4.03 Describe the functions of different types of joints: • Hinge. • Ball and socket. • Gliding.	**Essential Questions**: • What is the function of the different kinds of joints? • How do joints impact your daily activity? **Benchmarks:** • The student will be able to identify activities that various joints allow them to do.	**Essential Activities:** 4.03: FOSS HUMAN BODY: Investigation 2, Parts 1-4, pages 8-25 FOSS HUMAN BODY: Science Stories, "Comparing Joints", pages 12-13	**Primary Resource:** **Foss - <u>Human Body Kit</u>**
4.04 Describe how different kinds of joints allow movement and compare this to the movement of mechanical devices.	**Essential Question:** • Where are the different joints of the body located? **Benchmarks:** • The student will be able to locate and label different types of joints in the body.	**Essential Activities:** 4.04: FOSS HUMAN BODY: Investigation 2 parts 1-4, pages 8-25 Investigation 2 Science Extension page 32 FOSS HUMAN BODY: Science Stories, Comparing Joints", pages 12-13	**Primary Resource:** **Foss - <u>Human Body Kit</u>**
4.05 Observe and describe how muscles cause the body to move. *4.06-H Summarize the components and functions of the muscular skeletal system.*	**Essential Questions**: • How do muscles cause the body to move? **Benchmarks:** • The student should be able to demonstrate and describe how the muscles of the body work.	**Essential Activities:** 4.05 FOSS HUMAN BODY: Investigation 3, parts 1-3, pages 8-21 FOSS HUMAN BODY SCIENCE STORIES: "Muscles" pages 14-15, "Muscles and Bones: Working Together" pages 16.	**Primary Resource**: **Foss - <u>Human Body Kit</u>**

TIME FRAME: FOURTH GRADING PERIOD

SCOS GOALS AND OBJECTIVES	ESSENTIAL QUESTIONS, BENCHMARKS, AND SKILLS	ESSENTIAL TASKS, STRATEGIES, PROJECTS, CONNECTIONS	RECOMMENDED RESOURCES AND ASSESSMENT
COMPETENCY GOAL 1: The learner will conduct investigations and build an	**Investigable Questions:** 1. What effect does Miracle Grow have		

understanding of plant growth and adaptations.	on the growth of plants? 2. Given a set of different tools, which would be better for transporting pollen? 3. What type of soil will plants grow best?		
1.01 Observe and measure how the quantities and qualities of nutrients, light, and water in the environment affect plant growth. 1.02 Observe and describe how environmental conditions determine how well plants survive and grow in a particular environment.	**Essential Questions**: • What do plants need? **Benchmarks:** • The student will be able to identify the four needs of a plant.	**Essential Activities:** • Grow different kinds of plants by controlling variables	Harcourt text Unit A page A4-A-9 AIMS: Primarily Plants AIMS: Field Detectives AIMS: Overhead and Underfoot
1.03 Investigate and describe how plants pass through distinct stages in their life cycle including. • Growth. • Survival. • Reproduction.	**Essential Questions:** • What is the life cycle of a plant? **Benchmarks:** • The student will be able to conclude that a seed passes stages from seedlings to mature plants. • The student will draw a model of the life cycle of a plant.	**Essential Activities:** Measure plant growth	Harcourt Text A10-A17 AIMS: Budding Botanist
1.04 Explain why the number of seeds a plant produces depends on variables such as light, water, nutrients, and pollination. 1.06 Observe, describe and record properties of germinating seeds.	**Essential Questions:** • How do seed sprout? **Benchmarks:** • The student should be able to describe or draw the stages a seed goes through to be a young plant.	**Essential Activities:** Grow a vegetable garden	Trade Book: The Garden in the City by Gerda Muller AIMS: Budding Botanist AIMS: Primarily

			<u>Plants</u> Trade Book: Backyard Sunflower by Elizabeth King Harcourt Text Page A10-A17
1.05 Observe and discuss how bees pollinate flowers.	**Essential Questions:** • What is pollination of a plant? **Benchmarks:** • The student will be able to identify ways in which pollen can be transported.	**Essential Activities:** Find a guest speaker on bees. Research and draw the parts of a flower.	Harcourt Text Page A10-A17