

**TOWNSHIP OF FRANKLIN PUBLIC SCHOOLS
SCIENCE CURRICULUM
GRADE 2**

| SKILL AREA | STUDENT OBJECTIVE | EXAMPLE/ACTIVITIES | RESOURCE/MATERIALS | ASSESSMENT | NJ CORE CURRICULUM STANDARD |
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| A. LIFE SCIENCE 1. Plants | Students will be able to: <ul style="list-style-type: none"> • classify plants based on their characteristics. • identify the basic needs of plants. • identify the parts of a plant. • identify parts of a seed. | <ul style="list-style-type: none"> • Using old magazines, have students cut out pictures of various types of plants and glue them onto paper labeled with different headings such as: Plants With Leaves, Plants With Needles, Flowering Plants, and Fruit Producing Plants. • Have students plant 3 bean seeds in 3 separate containers. One will get water and sunlight; one will get just water; and one will get just sunlight. Students will keep a daily log of how each plant does after 10 days, then 20 days. • Have students observe plants around them and draw a model of a plant on paper. Have them color and label each plant part and share. • Hold up a lima bean seed. Have students draw it and then have them predict what the inside will look like by drawing it. Next, give each student a seed. Allow them to cut them in half with their finger nail and using a lens, observe the inside. Now have them draw another picture of the inside of the seed and compare pictures. | <ul style="list-style-type: none"> • Teacher's Manual p. A6-7 • Magazines, paper, glue, scissors • Bean seeds, soil, cups, log books • Paper, crayons or markers, pictures of plants or real plants • Soaked lima bean seeds, hand lenses, paper and pencil | <ul style="list-style-type: none"> • Answer Questions in Lesson Review • Student Observation • Answer Questions in Lesson Review p. A15 • Answer the "Inquiring Further" Questions | <ul style="list-style-type: none"> 5.1 A-1,2 5.5 A-1 5.10 A-1 5.1 A-1,2 B-1 5.5 A-1,2 5.10 A-1 5.1 A-1,2 5.5 A-1,2 |

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| B. PHYSICAL SCIENCE 1. Matter (cont'd.) | Students will be able to: <ul style="list-style-type: none"> • describe the 3 properties of matter. • identify mixtures and solutions. • identify ways matter can be changed. | <ul style="list-style-type: none"> • Have students cut out pictures of items that are solids, liquids, and gases. Divide their paper into thirds and glue the pictures onto the paper under the correct heading. Share their findings. Discuss the differences between each property. • Have students make predictions about what might happen if they mix together different solids with different liquids. Record their ideas and then experiment by mixing the items and record and share their results. Compare their predictions with the actual results. • Do the Investigate Activity by placing an ice cube on a plate and making predictions about how long it will take for an ice cube to turn into a liquid. Discuss ways to make it happen faster (by using heat). Discuss ways to become a solid again (by refreezing). | <ul style="list-style-type: none"> • Old magazines • Glue, paper • Lab Manual • Various solids & liquids: sand, water, rocks, oil, & other liquids & solids • Plastic cup with lid • Ice cubes, paper plates, paper, pencil • Student Text p. B18-B19 • Flip chart | <ul style="list-style-type: none"> • Teacher Observation • Answer Lesson Review Questions • Chapter Review • Complete Lab Manual p. 37 | <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">5.6</td> <td style="width: 50%;">A-1</td> </tr> <tr> <td>5.1</td> <td>A-1</td> </tr> <tr> <td colspan="2"> </td> </tr> <tr> <td>5.6</td> <td>A-1</td> </tr> <tr> <td>5.1</td> <td>B-1</td> </tr> <tr> <td colspan="2"> </td> </tr> <tr> <td>5.6</td> <td>A-1.3</td> </tr> <tr> <td>5.1</td> <td>A-2</td> </tr> </table> | 5.6 | A-1 | 5.1 | A-1 | | | 5.6 | A-1 | 5.1 | B-1 | | | 5.6 | A-1.3 | 5.1 | A-2 |
| 5.6 | A-1 | | | | | | | | | | | | | | | | | | | | |
| 5.1 | A-1 | | | | | | | | | | | | | | | | | | | | |
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| 5.6 | A-1 | | | | | | | | | | | | | | | | | | | | |
| 5.1 | B-1 | | | | | | | | | | | | | | | | | | | | |
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| 5.6 | A-1.3 | | | | | | | | | | | | | | | | | | | | |
| 5.1 | A-2 | | | | | | | | | | | | | | | | | | | | |

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| <p>B. PHYSICAL SCIENCE</p> <p>2. Sound, Heat & Light</p> | <p>Students will be able to:</p> <ul style="list-style-type: none"> • identify high and low sounds and ways to change pitch. • identify materials that conduct heat. • identify sources of light. • recognize that light travels in a straight line and identify what happens when light strikes an object. | <ul style="list-style-type: none"> • Read the story “The Three Bears.” Use the various voices for the bears. Baby Bear’s voice should sound high, while Papa Bear’s should sound low. Discuss the differences in pitch. Explain that they know another meaning for the word “pitch” - to throw a ball. Allow students to try to make their voices high and low. • Help students brainstorm a list of places where they have felt heat (beach, desert, kitchen, etc.). After completing the lesson, you may want to help students determine the source of heat for each place on the list. • Ask students to draw or list any sources of light they know about. Let them share the lists or drawings they made. Use their ideas to make a big list of “light words” and post it in the classroom. • Make sure that the students are in groups of four and are given various materials to use to complete the experiments in Lab Manual p. 46: a mirror or foil (to bounce light), hand lens or eyeglasses (to bend light), cellophane (to let light pass through) and books (to block the light). | <ul style="list-style-type: none"> • Story “The Three Bears” • Chart paper, marker • Paper, pencils • Eyeglasses, lens, mirror, foil, cellophane, books • Student Text p. B36-B37 | <ul style="list-style-type: none"> • Teacher Observation • Answer Lesson Review Questions • Answer Lesson Review Questions • Complete Lab Manuel p.46 | <p>5.7 A-1 B-1</p> <p>5.9 A-1 <u>Grade 4</u> 5.7 B-1</p> <p>5.9 A-1 <u>Grade 4</u> 5.7 B-2</p> <p><u>Grade 4</u> 5.7 B-2</p> |

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| <p>B. PHYSICAL SCIENCE</p> <p>2. Sound, Heat & Light (cont'd.)</p> <p>3. Force, Magnets & Electric</p> | <p>Students will be able to:</p> <ul style="list-style-type: none"> • experiment to determine how changing an object's distance from a light source changes the size of it's shadow. • identify ways to make objects move. • describe how gravity affects objects. • identify when magnets attract and repel each other | <ul style="list-style-type: none"> • Read the book, "Day Light, Day Night." Then complete the experiment with shadows. • Brainstorm words that can describe movements and list them on chart paper. For example: hop, fly, roll, push, pull, run, slide, etc. Then invite students to select a word and act it out. • Experiment by having the students choose various nonbreakable objects and by dropping them from the same height to determine what happens. Use lab Manual p. 52. • Complete the "Push & Pull Magnets" Explore Activity. | <ul style="list-style-type: none"> • Flashlight, batteries, • Book "Day Light, Day Night" • Student Text p. B47-B48 • Chart paper, marker • Various classroom objects • Student Text p. B48-B49 • 3 donut magnets, 1 unsharpened pencil • Student Text p. B50-B51 | <ul style="list-style-type: none"> • Complete Lab Manual p. 47-48 • Teacher Observation • Completed Lab Manual p. 52 • Completed Lab manual p. 54 | <p>5.9 A-1 <u>Grade 4</u> 5.7 B-2</p> <p>5.7 A-1,2</p> <p>5.7 A-1</p> <p>5.7 A-1</p> |

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| <p>B. PHYSICAL SCIENCE</p> <p>1. Force, Magnets & Electric (cont'd.)</p> | <p>Students will be able to:</p> <ul style="list-style-type: none"> • explain how electricity moves. • name some uses of electricity and some ways to use it safely. | <ul style="list-style-type: none"> • Using a small light bulb, a battery, and some wire, demonstrate how electricity travels in a path called a “circuit” through the wire. Use the Explore Activity in Student Text . B56-B57. • Ask students to name some devices that use electricity. Then ask how to use it safely. List the ideas on chart paper and compare them. | <ul style="list-style-type: none"> • Battery, wire, light bulb • Student Text p. B56-B57 • Chart paper, markers | <ul style="list-style-type: none"> • Completed Lab Manual p. 58 • Teacher Observation • Chapter Review | <p>5.6 A-1 5.7 A</p> <p>5.7 A-1 5.1 C-1,2</p> |
| <p>C. EARTH SCIENCE</p> <p>1. The Earth</p> | <ul style="list-style-type: none"> • identify features of the earth such as mountains and lakes. • identify types of rocks. | <ul style="list-style-type: none"> • Sing “This Land is Your Land” and “America the Beautiful.” Then ask students to think of any land or bodies of water mentioned in the songs. List them on chart paper, and then brainstorm other types of land forms. Discuss land and water features you might see if you were flying in a plane. • Provide a collection of rocks for students to examine. Ask students to describe ways the rocks are alike and different. Share photos of various rock formations and explain that rocks are made of minerals. Make a chart to list and compare the different rock features discussed. Do Transparency #7 as a class. | <ul style="list-style-type: none"> • Songs, cassette recorder, chart paper, marker • Rock collection, photos of rock features, chart paper • Transparency #7 | <ul style="list-style-type: none"> • Teacher Observation • Teacher Observation | <p>5.8 B-1 D-1</p> <p>5.8 A-1 5.3 D-1</p> |

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| <p>C. EARTH SCIENCE</p> <p>1. The Earth (cont'd.)</p> | <p>Students will be able to:</p> <ul style="list-style-type: none"> • identify ways rocks and soil can be changed. • identify ways that volcanoes and earthquakes change the earth. • identify natural resources and their uses. | <ul style="list-style-type: none"> • Complete the Explore Activity - Show Erosion. Have students complete the Lab Manual p. 65 using it as a Before and After Worksheet showing the process of erosion experiment. Use Student Text p. C12-C-12. • Invite students to build a block city on a piece of cardboard. Then have them gently shake the cardboard to see what happens. Compare this to an earthquake. Then complete the Investigate Activity to make a model of a volcano. Complete the Lab Manual p. 67. Discuss how the model is similar to a real volcano and how a real volcano eruption effects trees, buildings and people. Use Student Text p. C16-C17. • Display pictures of the following objects: a bottle of water, a piece of coal, natural gas, a stick of wood, a can of oil, solar energy, and a windmill. Ask students to tell what each thing is and one way it can be used. Record students' ideas on the chalkboard. Discuss different ways we use water and how coal, oil, and gas can be used to heat water to make electricity and to heat stoves for cooking. Have them draw 2 ways they use water. Share with the class. | <ul style="list-style-type: none"> • Soil, cup, pan, water • Student Text p. C12-C13 • Blocks, cardboard, modeling clay, vinegar, container, baking soda, pan • Student Text p. C16-C17 • Pictures of various objects, drawing paper, crayons, chalkboard, chalk | <ul style="list-style-type: none"> • Completed Lab Manual p. 65 • Completed Lab Manual p. 67 • Teacher Observation • Teacher Observation | <p>5.6 A-1,2 5.8 A-1 B-2 D-1</p> <p><u>Grade 4</u> 5.8 C-1</p> <p>5.8 B-1 5.10 B-1</p> |

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| <p>C. EARTH SCIENCE</p> <p>2. Weather & Seasons (cont'd.)</p> | <p>Students will be able to:</p> <ul style="list-style-type: none"> • identify seasonal weather conditions and their effects on plants and animals. • describe the water cycle. • describe severe weather conditions and ways to stay safe in severe weather. | <ul style="list-style-type: none"> • Read the book “The Reasons for The Seasons” by Gail Gibbons. Discuss the fact that the animals that do not store food in fall for winter must survive on food left over from the previous summer. Point out that not only do some animals sleep during the winter, but that most plants stop growing. Have students draw an outdoor scene including a tree and various animals. Have them divide their paper into 4 sections and draw the same scene in each season. Discuss how each picture changes. • Complete the Explore Activity - Observe the Water Cycle. Use Student Text p. C38-C39. Allow students to complete the experiment using the Lab Manual p. 78. Remind students that the word “cycle” means circle. Discuss their findings. • Read the story “The Playhouse” by Pauline Cartwright, which explains how floods effect the earth and the environment. Next, play a Lotto Game about weather. Make game board grids with 4 sections. Have volunteers draw a picture in each section depicting rainy, sunny, snowy, and stormy weather. Have small groups play the game by matching pictures of clothing and activities to each type of weather. | <ul style="list-style-type: none"> • Book “The Reasons for the Seasons” • White construction paper, pencils, crayons • Cups, plastic wrap, clock, tape, warm water • Student Text p. C38-C39 • Book “The Playhouse” • Poster board, magazine pictures showing clothing & activities in different types of weather, including people taking precautions/ shelter in bad weather | <ul style="list-style-type: none"> • Teacher Observation • Completed Lesson Review Questions • Lab Manual p. 78 • Teacher Observation • Chapter Review | <p>5.5 A-1 5.8 B-4 5.9 A-1</p> <p>5.8 B-1,2</p> <p>5.8 B-3,4</p> |

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| <p>C. EARTH SCIENCE</p> <p>3. The Solar System</p> | <p>Students will be able to:</p> <ul style="list-style-type: none"> • describe how the rotation of the earth causes day and night. • describe features and phases of the moon and observe them. • identify the sun and planets in our solar system. | <ul style="list-style-type: none"> • Complete the Explore Activity - Show How the Earth Rotates. Use Student Text p. C48-C49 and Lab Manual p. 81. Place students in groups of 2. Allow each group to complete the experiment and share their results. • Using the Flip Chart and Student Text p. C-50-C53, discuss the phases of the moon. Complete the Investigate Activity - How Can You Record the Phases of the Moon? Using a blank calendar, give the students a month to complete the activity. Invite students to take turns recording their daily observations on a class chart. Allow time for students to discuss changes they observe. They should make a drawing of the moon each night on their blank calendar. Discuss results. Use Lab Manual p. 83. • Display Wall Chart p. 47. Provide students with self stick notes labeled with the names of the planets, the moon, and the sun. Invite students to identify the objects in our solar system and discuss where they are located. | <ul style="list-style-type: none"> • Globes, stickers, flashlights • Student Text p. C48-C49 • Flip Chart & Student Text p. C50-53 • Crayons or markers • Wall Chart p. 47 • Sticky notes | <ul style="list-style-type: none"> • Completed Lesson Review Questions • Lab Manual p. 81 • Teacher Observation • Completed Lab Manual p. 83 • Teacher Observation | <p>5.7 A-1 5.9 A-2 B-1</p> <p>5.9 A-1 B-1</p> <p>5.7 A-1 5.9 A-1,2</p> |

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| B. EARTH SCIENCE 3.The Solar System (cont'd.) | Students will be able to: <ul style="list-style-type: none"> • identify space exploration as a way we have learned about the solar system. | <ul style="list-style-type: none"> • Read the story “Floating in Space” by Franklyn M. Branley. Then make a timeline chain. Help students research important events in U.S. space exploration. Invite students to each choose an event to illustrate. Have them assemble the strips in order by date. Then staple the strips to make a chain. Display the chain in the classroom and share. | <ul style="list-style-type: none"> • Book “Floating in Space” • Encyclopedia, 3" x 12" paper strips, markers, crayons, stapler | <ul style="list-style-type: none"> • Teacher Observation • Chapter Review • Unit C Performance Assessment | 5.9 C-1 |
| D. HUMAN BODY 1. How Your Body Works | <ul style="list-style-type: none"> • describe the functions of the brain. • describe the functions of the heart and lungs. | <ul style="list-style-type: none"> • Play a brain game. Invite students to take turns giving commands to other students. Students move the appropriate body parts when commands are given. Have students explain what they are doing when they get messages from their brain. They can use Lab Manual p. 65 with this. Have them explain which senses they used also. • Provide wind instruments, such as harmonicas, recorders, kazoos, and whistles. Invite students to blow on an instrument and place one hand on their upper abdomen while they do so. Ask students to describe what they feel and guess what makes the instrument work. Discuss what the lungs and heart do. Make a chart to list their functions. | <ul style="list-style-type: none"> • Lab Manual p. 65 • Various wind instruments, chart paper, marker | <ul style="list-style-type: none"> • Teacher Observation • Lab Manual p. 65 • Teacher Observation | 2.1 B-1 5.5 A-2 2.1 B-1 5.5 A-2 |

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| <p>D. HUMAN BODY</p> <p>How Your Body Works (cont'd.)</p> <p>Nutrition</p> | <p>Students will be able to:</p> <ul style="list-style-type: none"> measure lung capacity by blowing bubbles. identify features of proper nutrition and how nutrition keeps us healthy. describe the digestive system. | <ul style="list-style-type: none"> Use Student Text p. D12-D13. Complete the Investigate Activity - How Long Can You Blow Bubbles? Allow students to work in pairs and complete the experiment. Use Lab manual p. 92 (make sure students don't share straws). Write the words: "Breakfast," "Lunch," and "Dinner" on the chalkboard. Invite students to name foods that would be good to eat at each meal. Record them under the proper heading. Explain what a "Food Pyramid" is. Have students complete the Explore Activity - Make a Food Guide Pyramid. Use Student Text p. D22-D23 and Lab Manual p. 97. Explain that certain body parts that are used to break down food are called the "digestive system." Prepare sticky notes with the words: "mouth," "esophagus," "small intestine," "large intestine," and "stomach" on them. Then display the Wall Chart p. 57. Ask students to name the body parts on the notes and ask for volunteers to stick the correct note on the diagram in the right place. Discuss. Then complete Transparency p. 11, and read Student Text p. D28-D29. | <ul style="list-style-type: none"> Straws, cups, water, timer Student Text p. D12-D13 Student Text p. D22-D23 Lab Manual p. 97 Newspaper ads, magazines, food coupons, scissors, glue, large construction paper Sticky notes labeled Wall Chart p. 57 Student Text p. D28-D29 Transparency p. 11 | <ul style="list-style-type: none"> Activity Rubric Complete Lab Manual p. 92 completed Completed Lesson Review Questions Lab manual p. 97 completed. Completed Lesson Review Questions Transparency p. 11 completed Chapter Assessment | <p>5.5 A-2</p> <p>2.1 C-1,2,3 2.2 B-1,2 5.5 A-1</p> <p>2.1 B-1 5.5 A-2 5.10 B</p> |

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| <p>D. HUMAN BODY</p> <p>Keeping Healthy</p> | <p>Students will be able to:</p> <ul style="list-style-type: none"> • determine that exercise is important for health. • use a calendar to keep track of daily exercise. • identify ways to stay healthy. | <ul style="list-style-type: none"> • Show photos of different people doing various forms of exercise. For example: skating, swimming, bike riding, running, dancing, doing karate, etc. Discuss why exercise is important. Have students draw themselves doing their favorite forms of exercise. Share. • Complete the Investigate Activity - How Much Exercise Do You Get? Using Student Text p. D38-D39, have students make a calendar for the month and each morning write or draw what they did the day before to get exercise. Then have them complete Lab Manual p. 106 (each day). Later, staple pages to create a booklet. Compare with other classmates. • Read the book “Germs Make Me Sick!” by Melvin Berger. Discuss and explain how germs spread infection. Help students to find examples of how the body fights back. Have students draw cartoons to show ways they can avoid getting sick, such as by washing their hands, eating healthy foods, etc. | <ul style="list-style-type: none"> • Photos of people exercising, paper, crayons • Student Text p. D38-D39 • Construction paper, markers or crayons • Copies of Lab Manual p. 106 • Book - “Germs Make Me Sick!” • Constructions paper, markers, crayons | <ul style="list-style-type: none"> • Teacher Observation • Activity Rubric Completed • Completed Calendar & Lab Manual Pages • Teacher Observation • Unit D Performance Assessment | <p>2.1 A-1,2 2.2 B-1 C-1 5.5 A-2</p> <p>2.2 C-1 5.3 D-1 5.5 A-2</p> <p>2.1 D-1,2,3,4 5.5 A-1</p> |