

Grade 3

Forces and Motion

Standards	FOSS Alignment	Assessment
3.P.1 Understand motion and factors that affect motion.		
<p>3.P.1.1. Infer changes in speed or direction resulting from forces acting on an object.</p>	<p>FOSS Next Generation Motion and Matter Investigation 1: Motion and Matter Part 1: Two Forces pp. 82-95</p> <p><i>FOSS Digital Resources:</i> "Magnetic Poles"</p> <p><i>FOSS Science Resources:</i> "Magnetism and Gravity"</p>	<p>FQA: Students draw a model that shows the two forces at work, interacting with the paper clip on a string and the magnets. They add words that explain the force of magnetism and gravity as the pulling forces, including the pulling force of the string. Students have summary discussions describing the push and pull forces of magnets, the difference between the pull of magnetism and gravity (magnetism is both push and pull, but only acts on some objects, while gravity only pulls but acts on all objects).</p>
	<p>FOSS Next Generation Motion and Matter Investigation 1: Motion and Matter Part 2: Magnetic Force Investigations pp. 96-103</p> <p><i>FOSS Science Resources:</i> "What Scientist Do"</p>	<p>PA: After investigating the distance at which 1 and 3 magnets will attract a paperclip, students analyze the data collected and predict the snap district for 2 magnets. They collaborate and carry out the investigation using two magnets. They communicate their findings and note the pattern they found in their data which they used to make the prediction.</p>
	<p>FOSS Next Generation Motion and Matter Investigation 1: Motion and Matter Part 3: More About Forces pp. 104-116</p> <p><i>FOSS Digital Resources:</i> "All About Motion and Balance" "All About Magnets"</p>	<p>FQA: Students address the question of what causes a change in motion by explaining balanced forces cause no change of motion, unbalanced forces cause a change of motion. They give evidence from their investigations of books falling, chairs moving when pushed, throwing up a baseball to support their conclusions.</p>
	<p>FOSS Next Generation Motion and Matter <i>FOSS Science Resources:</i> "Change of Motion"</p>	<p>FQA: Students experiment with making a spinner and make connections to the text "What Goes Around." They observe and record that they begin the top rotation by pushing it between their palms causing the force applied by hand, that a smooth surface minimizes the friction that would slow down and stop a top, and a heavier mass near the bottom of the shaft helps a top spinning faster and longer.</p>

Grade 3

Forces and Motion (cont.)

Standards	FOSS Alignment	Assessment
3.P.1 Understand motion and factors that affect motion.		
<p>3.P.1.1. Infer changes in speed or direction resulting from forces acting on an object.</p>	<p>FOSS Next Generation Motion and Matter Investigation 2: Patterns of Motion Part 3: Twirly Birds pp. 142-151</p>	<p>PA: Students make a twirly bird and test the rate of fall. Using this first test as their standards, students change 1 variable at a time, such as length of the wings, length of the body, using paper clips, and communicate their findings. The teacher should observe their descriptions of the forces at work and their cause-and-effect relationships observed.</p>
	<p>FOSS Next Generation Motion and Matter Investigation 2: Patterns of Motion Part 4: Tops pp. 152-161</p>	<p>FQA: Students experiment with making a spinner and make connections to the text "What Goes Around." They observe and record that they begin the top rotation by pushing it between their palms causing the force applied by hand, that a smooth surface minimizes the friction that would slow down and stop a top, and a heavier mass near the bottom of the shaft helps a top spinning faster and longer.</p>
<p>3.P.1.2. Compare the relative speeds (faster or slower) of objects that travel the same distance in different amounts of time.</p>	<p>FOSS Next Generation Motion and Matter Investigation 1: Motion and Matter Part 3: Twirly Birds pp. 142-151</p>	<p>PA: Students make a twirly bird and test the rate of fall. Using this first test as their standards, students change 1 variable at a time, such as length of the wings, length of the body, using paper clips, and communicate their findings. The teacher should observe their descriptions of the forces at work and their cause-and-effect relationships observed.</p>
	<p>FOSS Next Generation Motion and Matter Investigation 3: Engineering Part 1: From Here to There pp. 174-180 Part 2: Distance Challenge pp. 181-189</p> <p><i>FOSS Science Resources:</i> "What Engineers Do" "Science Practices" "Engineering Practices" "Soap Box Derby" "The Metric System"</p>	<p>PA: Students are challenged to design a cart that best moves from "here to there" using only the materials provided by the teachers. Successful teams share their designs. Student groups get a second chance to improve their designs. They create design diagrams and write about their successes and failures. They identify problems and create test solutions.</p>



Grade 3

Forces and Motion (cont.)

Standards	FOSS Alignment	Assessment
3.P.1 Understand motion and factors that affect motion.		
<p>3.P.1.2. Compare the relative speeds (faster or slower) of objects that travel the same distance in different amounts of time.</p>	<p>FOSS Next Generation Motion and Matter Investigation 3: Engineering Part 4: Cart Tricks pp. 198-204</p> <p><i>FOSS Science Resources:</i> "Magnets at Work"</p>	<p>PA: Students are challenged to use magnets to do cart tricks and they are each given one of three tricks using magnets are carts travel down a ramp. They are provided the specific materials and given the criterion. They present their design solutions to their classmates and discuss problems and possible solutions. They then design a cart trick with magnets of their own. Students should note that the patterns of an object's motion in various situations can be observed and measured and provide evidence.</p>
<p>3.P.1.3. Explain the effects of earth's gravity on the motion of any object on or near the earth.</p>	<p>FOSS Next Generation Motion and Matter Investigation 1: Motion and Matter Part 1: Two Forces pp. 82-95</p> <p><i>FOSS Digital Resources:</i> "Magnetic Poles"</p> <p><i>FOSS Science Resources:</i> "Magnetism and Gravity"</p>	<p>FQA: Students draw a model that shows the two forces at work interacting with the paper clip on a string and the magnets. They add words that explain the force of magnetism and gravity as the pulling forces, include the pulling force of the string. Students have a summary discussion describing the push and pull forces of magnets, the difference between the pull of magnetism and gravity (magnetism both pushes and pulls, but only acts on some objects, while gravity only pulls but acts on all objects).</p>
	<p>FOSS Next Generation Motion and Matter Investigation 1: Motion and Matter Part 3: More About Forces pp. 104-116</p> <p><i>FOSS Digital Resources:</i> "All About Motion and Balance" "All About Magnets"</p>	<p>FQA: Students address the question of what causes a change in motion by explaining balanced forces cause no change of motion, unbalanced forces cause a change of motion. They give evidence from their investigations of books falling, chairs moving when pushed, throwing up a baseball to support their conclusions.</p>
	<p>FOSS Next Generation Motion and Matter <i>FOSS Science Resources:</i> "Change of Motion"</p>	<p>Investigation 1 I-Check</p>
	<p>FOSS Next Generation Motion and Matter Investigation 2: Patterns of Motion Part 3: Twirly Birds pp. 142-151</p>	<p>PA: Students make a twirly bird and test the rate of fall. Using this first test as their standards, students change 1 variable at a time, such as length of the wings, length of the body, using paper clips, and communicate their findings. The teacher should observe their descriptions of the forces at work and their cause-and-effect relationships observed.</p>

Grade 3

Matter: Properties and Change

Standards	FOSS Alignment	Assessment
3.P.2 Understand the structure and properties of matter before and after they undergo a change.		
<p>3.P.2.1. Recognize that air is a substance that surrounds us, takes up space and has mass.</p>	<p>Delta Science Reader States of Matter <i>"What Is Matter?" pp. 2-3</i> <i>"What Are Solids, Liquids, and Gases?" pp. 4-6</i></p>	
<p>3.P.2.2. Compare solids, liquids, and gases based on their basic properties.</p>	<p>Delta Science Reader States of Matter <i>"What Are Solids, Liquids, and Gases?" pp. 4-6</i></p>	
<p>3.P.2.3. Summarize changes that occur to the observable properties of materials when different degrees of heat are applied to them, such as melting ice or ice cream, boiling water or an egg, or freezing water.</p>	<p>FOSS Next Generation Motion and Matter Investigation 4: Mixtures Part 1: Mixing Solids and Liquids <i>FOSS Science Resources:</i> <i>"Mixtures"</i></p>	<p>Students should be able to express their understanding from the reading that mass is never destroyed, but that it can change. When wood burns, it produces light and heat, which are energy. The fire changed most of the mass of the wood into gas, fine particles that drifted off into the air, and ashes - all three which have mass.</p>
	<p>Delta Science Reader States of Matter <i>"What Are Physical Changes?" pp. 7-11</i></p>	



Grade 3

Energy: Conservation and Transfer

Standards	FOSS Alignment	Assessment
2.P.3 Recognize how energy can be transferred from one object to another.		
3.P.3.1. Recognize that energy can be transferred from one object to another by rubbing them against each other.	Delta Science Content Reader: Heat and Light Energy <i>"What Is Heat?" pp. 2-9</i> <i>"How Thermal Energy Moves"</i>	
3.P.3.2. Recognize that energy can be transferred from a warmer object to a cooler one by contact or at a distance and the cooler object gets warmer.	Delta Science Content Reader: Heat and Light Energy <i>"What Is Heat?" pp. 2-9</i> <i>"How Thermal Energy Moves"</i>	



Grade 3

Earth in the Universe

Standards	FOSS Alignment	Assessment
3.E.1 Recognize the major components and patterns observed in the earth/moon/sun system.		
<p>3.E.1.1. Recognize that the earth is part of a system called the solar system that includes the sun (a star), planets, and many moons and the earth is the third planet from the sun in our solar system.</p>	<p>Delta Science Reader Solar System <i>"Our Solar Planets" pp. 2</i> <i>"The Inner Planets" pp. 4-8</i> <i>"The Outer Planets" pp. 9-12</i></p>	
<p>3.E.1.2. Recognize that changes in the length and direction of an object's shadow indicate the apparent changing position of the Sun during the day although the patterns of the stars in the sky, to include the Sun, stay the same.</p>	<p>FOSS Second Edition Sun, Moon, and Stars Investigation 1: The Sun Part 2: Shadow Tracking pp. 56-67</p> <p><i>FOSS Science Resources:</i> <i>"Changing Shadows"</i> <i>"Summary: The Sun"</i></p>	<p>Students experience making shadows first in the classroom. They move outdoors and work in pair, tracing their partner's shadow on the ground, labeling it with their name and time of day. They are asked to note which direction their shadow is facing. They return to the room to model, as a class, earth rotation and the effect of the sun on the earth. They return outdoors in 3 to 4 hours to find their shadow is different because the sun's position in the sky has changed. They read and discuss the two articles and then complete entries on their content chart: A shadow is made outdoors when light from the Sun is blocked by an object, like a person. Shadows change shape and direction over a day because the Sun's position changes in the Sky. The direction and height of the Sun determines what direction the shadow will point and how long it will be.</p>



Grade 3

Earth Systems, Structures and Processes

Standards	FOSS Alignment	Assessment
3.E.2 Compare the structures of the Earth's surface using models or three-dimensional diagrams.		
<p>3.E.2.1. Compare Earth's saltwater and freshwater features (including oceans, seas, rivers, lakes, ponds, streams, and glaciers).</p>	<p>FOSS Third Edition Water Investigation 1: Water Observations Part 1: Drops of Water pp. 62</p> <p><i>FOSS Science Resources:</i> <i>"A Report from the Blue Planet"</i></p>	<p>Students recall from their reading the description a "space visitor" made of Earth. The find evidence in the reading that he claimed the surface of earth was 75% covered by water which reflected blue. The space visitor described saltwater oceans; fresh water; three states of water being solid (ice), liquid, and gas (water vapor). The ocean is 97% of the Earth's water, with 2% of the Earth's water frozen, leaving only 1% of usable water.</p>
<p>3.E.2.2. Compare Earth's land features (including volcanoes, mountains, valleys, canyons, caverns, and islands) by using models, pictures, diagrams, and maps.</p>	<p>Delta Science Reader Earth Movements <i>"What Are Earth's Landforms?" pp. 4-5</i></p>	



Grade 3

Structures and Functions of Living Organisms

Standards	FOSS Alignment	Assessment
3.L.1 Understand human body systems and how they are essential for life: protection, movement and support.		
<p>3.L.1.1. Compare the different functions of the skeletal and muscular system.</p>	<p>FOSS Next Generation Structures of Life Investigation 4: Human Body Background for the Teacher pp. 270-277 Part 1: Counting Bones, Pages 282-292</p> <p><i>FOSS Digital Resources:</i> "Mr. Bones"</p> <p><i>FOSS Science Resources:</i> "The Human Skeleton"</p>	<p>FQA: Students become familiar with the human skeletal system by first jump rope. They determine bones are inside your body and they did not bend when they were jumping rope. They locate some joints and determine they connected separate bones and could bend. They are introduced to a photograph of a real skeleton. They discuss how the skeleton gives us support - legs support standing, neck supports heard, etc. They identify parts of the skeleton that provides protection - skull pretests the brain, rib cage protects the lungs and heart. They put together a puzzle of the skeleton and describe characters of bones - the femur needs to support a lot of weight to it needs to be large and strong. The Human Skeleton reading further reinforces their knowledge and understanding of the functions of the skeletal system - the pelvic girdle cradles and shields the intestines and the bladder, and they along with the skull and ribs are considered "superprotectors." The spine, shoulder, and hip are considered "flexible" bones because of the connecting joints.</p>



Grade 3

Structures and Functions of Living Organisms (cont.)

Standards	FOSS Alignment	Assessment
3.L.1 Understand human body systems and how they are essential for life: protection, movement and support.		
<p>3.L.1.1. Compare the different functions of the skeletal and muscular system.</p>	<p>FOSS Next Generation Structures of Life Investigation 4: Human Body Part 3: Joints and Muscles pp. 303-317 Part 4: Fingerprints pp. 318-329</p> <p><i>FOSS Science Resources:</i> "Your Amazing Opposable Thumbs" "Joints and Muscles"</p>	<p>FQA: Students learn that the rigid, hard skeleton bends because it is articulated, meaning jointed. The initial focus is on their opposable thumbs. Students are given some "tasks" with the catch that they will have their thumbs taped to the side of their index fingers. They discuss how they felt and how they solved the problem of not being able to grasp with their thumbs. They list the advantages of an opposable thumb. They read and discuss <i>Joints and Muscles</i> and build a model of a leg and arm with rubber bands and paper clips simulating the muscles and tendons. They answer the question about what makes our skeletal system flexible. Joints and muscles allow us to move and make our skeletal system flexible. Joints are where two bones meet and they can be hinge, gliding, or ball-and-socket joints. Muscles go across joints and connect bones and when they contract (or shorten), they pull on the bones, causing them to move. Muscles attach to bones with a tissue called tendon.</p>
<p>3.L.1.2. Explain why skin is necessary for protection and for the body to remain healthy.</p>	<p>Delta Science Content Reader Human Body Systems pp. 21</p>	

Grade 3

Ecosystems

Standards	FOSS Alignment	Assessment
3.L.1 Understand how plants survive in their environments.		
<p>3.L.2.1. Remember the function of the following structures as it relates to the survival of plants in their environments:</p> <ul style="list-style-type: none"> • Roots – absorb nutrients • Stems – provide support • Leaves – synthesize food • Flowers – attract pollinators and produce seeds for reproduction 	<p>FOSS Next Generation Structures of Life Investigation 2: Growing Further Part 1: Germination and Growth pp. 144-152</p>	<p>FQA: Students compare properties of germinated see and compare one structure. They discuss the function of this structure and answer what structures a seedling has to help it grow and survive: Students write that a root is growing, not a stem and that that it is usually for the root to grow first. They write that the root's function is to take in water and nutrients.</p>
	<p>FOSS Next Generation Structures of Life <i>FOSS Science Resources:</i> "Germination"</p>	<p>ELA: Students gather information from the article <i>Germination</i>. They discuss the seed coat being broken, and the seed is swollen, with a root coming out one side and a leaf and stem coming out the other side. The seed needed to soak up water before it could germinate. If a seed does germinate in a good environment, it will grow and survive. If it falls in somewhere that does not provide what it needs, the seed may die.</p>
	<p>FOSS Next Generation Structures of Life Investigation 2: Growing Further Part 2: Life Cycle of the Bean pp. 153-163 <i>FOSS Digital Resources:</i> "How Plants Get Food"</p>	<p>Students discuss plants' basic need and begin a bean growth chart. A video shows <i>How Plants Get Food</i> and students discuss the functions of root hairs - to take in water and nutrients; the stem brings water and nutrients to the leaves; the leaves use energy from sunlight to make food from water and carbon dioxide. After the 6-week observation of the bean plant, noting the development of flowers, the discussions following the video, students demonstrate their understanding of the bean plant's life cycle by sequencing pictures from seed to mature plant.</p>
<p>3.L.2.2. Explain how environmental conditions determine how well plants survive and grow.</p>	<p>FOSS Next Generation Structures of Life Investigation 1: Origin of Seeds Part 2: The Sprouting Seed</p>	<p>PA: Students investigate what happens to seeds when they are just watered and not planted in soil. Students need to understand the cause and effect of adding the water to the seed containers. They learn through observation that water does have an effect. Seeds swell up, lose the seed coat, possibly change color, smell, become slippery, and have structures grow from them.</p>

Grade 3

Ecosystems (cont.)

Standards	FOSS Alignment	Assessment
3.L.1 Understand how plants survive in their environments.		
<p>3.L.2.2. Explain how environmental conditions determine how well plants survive and grow.</p>	<p>FOSS Next Generation Structures of Life <i>FOSS Science Resources:</i> "The Most Important Seed"</p>	<p>ELA: Students discuss the issue that environments are changed by humans when they create rice paddies. Terrestrial (dry land) environments are changed into aquatic (water) environments.</p>
	<p>FOSS Next Generation Structures of Life Investigation 2: Growing Further Part 1: Germination and Growth pp. 144-152</p>	<p>FQA: Students compare properties of germinated see and compare one structure. They discuss the function of this structure and answer what structures a seedling has to help it grow and survive: Students write that a root is growing, not a stem and that that it is usually for the root to grow first. They write that the root's function is to take in water and nutrients.</p>
	<p>FOSS Next Generation Structures of Life <i>FOSS Science Resources:</i> "Germination"</p>	<p>ELA: Students gather information from the article <i>Germination</i>. They discuss the seed coat being broken, and the seed is swollen, with a root coming out one side and a leaf and stem coming out the other side. The seed needed to soak up water before it could germinate. If a seed does germinate in a good environment, it will grow and survive. If it falls in somewhere that does not provide what it needs, the seed may die.</p>
<p>3.L.2.3. Summarize the distinct stages of the life cycle of seed plants.</p>	<p>FOSS Next Generation Structures of Life Investigation 1: Origin of Seeds Part 1: Seed Search pp. 86-99</p> <p><i>FOSS Science Resources:</i> "The Reason for Fruit"</p>	<p>FAQ: Students explore and compare seeds from different fruits. From the reading, they answer: What is a fruit - the structure on a plant that contains the seeds; How does a plant's fruit help it survive and reproduce - fruit protects seeds and attracts animals to carry the seeds away from the parent plant; What is a seed - a living plant in a dormant or resting state; What function does a plant's seed have - seeds grow up to be new plants and are the structures that allow plants to reproduce.</p>
	<p>FOSS Next Generation Structures of Life Investigation 1: Origin of Seeds Part 2: The Sprouting Seed</p>	<p>PA: Students investigate what happens to seeds when they are just watered and not planted in soil. Students need to understand the cause and effect of adding the water to the seed containers. They learn through observation that water does have an effect. Seeds swell up, lose the seed coat, possibly change color, smell, become slippery, and have structures grow from them.</p>

Grade 3

Ecosystems (cont.)

Standards	FOSS Alignment	Assessment
3.L.1 Understand how plants survive in their environments.		
<p>3.L.2.3. Summarize the distinct stages of the life cycle of seed plants.</p>	<p>FOSS Next Generation Structures of Life <i>FOSS Science Resources:</i> "The Most Important Seed"</p>	<p>ELA: Students discuss the issue that environments are changed by humans when they create rice paddies. Terrestrial (dry land) environments are changed into aquatic (water) environments.</p>
	<p>FOSS Next Generation Structures of Life Investigation 1: Origin of Seeds Part 3: Seed Soak pp. 112-123 <i>FOSS Science Resources:</i> "Barbara McClintock"</p>	<p>PA: Students establish a procedure to determine how much water a seed soaks up. They plan to weight the dry seeds and the add water. They observe the changes to the seeds in the sprouter and at the end of the investigation, drain the soaked seeds and weigh them. Students claim after analyzing and interpreting their data is lima beans soak up water and weigh more. They split the seed and identify the seed parts.</p>
	<p>FOSS Next Generation Structures of Life Investigation 2: Growing Further Part 1: Germination and Growth pp. 144-152</p>	<p>FQA: Students compare properties of germinated see and compare one structure. They discuss the function of this structure and answer what structures a seedling has to help it grow and survive: Students write that a root is growing, not a stem and that that it is usually for the root to grow first. They write that the root's function is to take in water and nutrients.</p>
	<p>FOSS Next Generation Structures of Life <i>FOSS Science Resources:</i> "Germination"</p>	<p>ELA: Students gather information from the article <i>Germination</i>. They discuss the seed coat being broken, and the seed is swollen, with a root coming out one side and a leaf and stem coming out the other side. The seed needed to soak up water before it could germinate. If a seed does germinate in a good environment, it will grow and survive. If it falls in somewhere that does not provide what it needs, the seed may die.</p>



Grade 3

Ecosystems (cont.)

Standards	FOSS Alignment	Assessment
3.L.1 Understand how plants survive in their environments.		
<p>3.L.2.3. Summarize the distinct stages of the life cycle of seed plants.</p>	<p>FOSS Next Generation Structures of Life Investigation 2: Growing Further Part 2: Life Cycle of the Bean pp. 153-163</p> <p><i>Structures of Life Digital Science Resources:</i> "How Plants Get Food"</p>	<p>Students discuss plants' basic need and begin a bean growth chart. A video shows <i>How Plants Get Food</i> and students discuss the functions of root hairs - to take in water and nutrients; the stem brings water and nutrients to the leaves; the leaves use energy from sunlight to make food from water and carbon dioxide. After the 6-week observation of the bean plant, noting the development of flowers, the discussions following the video, students demonstrate their understanding of the bean plant's life cycle by sequencing pictures from seed to mature plant.</p>
<p>3.L.2.4. Explain how the basic properties (texture and capacity to hold water) and components (sand, clay and humus) of soil determine the ability of soil to support the growth and survival of many plants.</p>	<p>Delta Science Content Reader "Soils"</p>	