

Grade 2

Forces and Motion

Standards	FOSS Alignment	Assessment
2.P.1 Understand the relationship between sound and vibrating objects.		
<p>2.P.1.1. Illustrate how sound is produced by vibrating objects and columns of air.</p>	<p>FOSS Next Generation Science Resources: Sound and Light “Vibrations and Sound” pp. 3-7 “Listen to This” pp. 8-14 “Strings in Motion” pp. 24-32 “More Musical Instruments” pp. 33-37</p>	
<p>2.P.1.2. Summarize the relationship between sound and objects of the body that vibrate – eardrum and vocal cords.</p>	<p>FOSS Next Generation Science Resources: Sound and Light “Animals Ears and Hearing” pp. 15-23</p>	



Grade 2

Matter: Properties and Change

Standards	FOSS Alignment	Assessment
2.P.2 Understand properties of solids and liquids and the changes they undergo.		
<p>2.P.2.1. Give examples of matter that change from a solid to a liquid and from a liquid to a solid by heating and cooling.</p>	<p>FOSS Next Generation Solids and Liquids Investigation 4: Solids, Liquids and Water Part 1: Solids and Water pp. 232-242</p>	<p>FQA: Students mix various solids with water and describe their observations of the solid before and the changes after they were mixed with the water. After, they develop procedures to see if the solids can be separated, including evaporation. Students draw the results and discuss the cause-effect relationships.</p>
	<p>FOSS Next Generation Solids and Liquids Investigation 4: Solids, Liquids and Water Part 2: Liquids and Water pp. 243-250</p>	<p>FQA: Water is added to the contents of the seven bottles of liquid used in Investigation 2. Students draw a representation of the liquids and describe the mixture prior to shaking the bottle. They draw and record their observations after they shake the bottle and again after they have let the mixture settle.</p>
	<p>FOSS Next Generation Solids and Liquids Investigation 4: Solids, Liquids and Water Part 3: Toothpaste Investigation pp. 251-256</p>	<p>PA: Students determine if toothpaste is a solid or liquid by initially observing toothpaste, adding water, shaking and recording additional observations; making claims from their evidence and communicating way they believe toothpaste is a solid or a liquid.</p>
	<p>FOSS Next Generation Solids and Liquids Investigation 4: Solids, Liquids and Water Part 4: Changing Properties pp. 257-268</p>	<p>FQA: After investigations of heating and cooling solids and liquids, students identify the phase changes; whether the processes are caused by heating or cooling, and whether the changes are reversible or irreversible.</p>
	<p>FOSS Next Generation Solids and Liquids Investigation 4: Solids, Liquids and Water Part 5: Tea Time pp. 269 - 273</p> <p><i>FOSS Digital Resources:</i> "Mix It Up" "Heating and Cooling" "Is Change Reversible?"</p> <p><i>FOSS Science Resources:</i> "Solids and Liquids" "Change It!"</p>	<p>Investigation 4 I-Check</p>
<p>2.P.2.2 Compare the amount (volume and weight) of water in a container before and after freezing.</p>	<p>FOSS Next Generation Solids and Liquids Investigation 4: Solids, Liquids and Water Part 4: Changing Properties pp. 257-268</p>	<p>FQA: After investigations of heating and cooling solids and liquids, students identify the phase changes; whether the processes are caused by heating or cooling, and whether the changes are reversible or irreversible.</p>



Grade 2

Matter: Properties and Change (cont.)

Standards	FOSS Alignment	Assessment
2.P.2 Understand properties of solids and liquids and the changes they undergo.		
<p>2.P.2.3 Compare what happens to water left in an open container over time as to water left in a closed container.</p>	<p>FOSS Next Generation Solids and Liquids Investigation 4: Solids, Liquids and Water Part 1: Solids and Water pp. 232-242</p>	<p>FQA: Students mix various solids with water and describe their observations of the solid before and the changes after they were mixed with the water. After, they develop procedures to see if the solids can be separated, including evaporation. Students draw the results and discuss the cause-effect relationships.</p>

Grade 2

Earth Systems, Structures and Processes

Standards	FOSS Alignment	Assessment
2.E.1 Understand patterns of weather and factors that affect weather.		
2.E.1.1. Summarize how energy from the sun serves as a source of light that warms the land, air and water.	FOSS Next Generation Air and Weather Investigation 2: Observing the Sky Part 2: Measuring Temperature and Daylight pp. 147-158	FQA: After students have collected enough temperature data, they analyze the data and make a claim of what time of the day is warmest based on their evidence.
	FOSS Next Generation Air and Weather Investigation 3: Wind Explorations <i>FOSS Science Resources:</i> "Resources"	Students learn the sun is a natural resource that heats air, land and water and impacts our weather.
	FOSS Next Generation Air and Weather Investigation 4: Looking for Change Part 2: Daylight through the Year pp. 244-249	FQA: Students collaborate to create a graph of daily sunlight over 12 months and identify the pattern of change over the year.
	FOSS Next Generation Air and Weather Investigation 4: Looking for Change Part 3: Comparing the Seasons pp. 250-259	FQA: Students gather temperature and weather data over the course of the school year and graph the results. Students log, using pictures and words, how the temperature and weather change over the seasons.
	FOSS Next Generation Air and Weather <i>FOSS Digital Science Resources:</i> "What's the Weather?" <i>FOSS Science Resources:</i> "Changes in the Sky" "Seasons" "Getting through the Winter"	ELA: After reading "Seasons", students organize their understanding into a content grid. Students practice their inference skills and consider what type of weather conditions can be present in each season i.e. effect of sunlight on temperature, amount of precipitation.
2.E.1.2. Summarize weather conditions using qualitative and quantitative measures to describe: <ul style="list-style-type: none"> • Temperature • Wind direction • Wind speed • Precipitation 	FOSS Next Generation Air and Weather Investigation 2: Observing the Sky Part 1: Weather Calendars pp. 140-146	1.1, 1.2, 1.3
	FOSS Next Generation Air and Weather Investigation 2: Observing the Sky Part 2: Measuring Temperature and Daylight pp. 147-158	PA: Students are asked to predict whether it is warmer or colder outside than in their classroom, and then go outside to take the temperature and evaluate their prediction. They locate and record the position of the sun in the sky.
	FOSS Next Generation Air and Weather Investigation 2: Observing the Sky Part 3: Watching Clouds pp. 159-169	FQA: Students describe the clouds and the weather conditions by completing a weather chart comparing different elements of weather conditions. They provide constructive feedback to each other to make their entries stronger.



Grade 2

Earth Systems, Structures and Processes (cont.)

Standards	FOSS Alignment	Assessment
2.E.1 Understand patterns of weather and factors that affect weather.		
<p>2.E.1.2. Summarize weather conditions using qualitative and quantitative measures to describe:</p> <ul style="list-style-type: none"> • Temperature • Wind direction • Wind speed • Precipitation 	<p>FOSS Next Generation Air and Weather Investigation 2: Observing the Sky Part 4: Observing the Moon pp. 170-178 <i>FOSS Digital Resources:</i> "Cloud Catcher"</p> <p><i>FOSS Science Resources:</i> "What is the Weather Today?" "Clouds" "Water in the Air" "Changes in the Sky"</p>	<p>Investigation 2 I-Check</p>
	<p>FOSS Next Generation Air and Weather Investigation 3: Wind Explorations Part 1: Bubbles in the Wind pp. 194-198</p>	<p>PA: Students strategically use bubbles to see how air moves and then explain the relationship between bubble and air movement.</p>
	<p>FOSS Next Generation Air and Weather Investigation 3: Wind Explorations Part 2: Wind Speed pp. 199-204 Part 3: Pinwheels pp. 205-209</p>	<p>FQA: Using a class-constructed anemometer, students describe how strong the wind is blowing through drawings and, with emphasis on wind scale, through conversation.</p>
	<p>FOSS Next Generation Air and Weather Investigation 3: Wind Explorations Part 4: Wind Vanes pp. 210-217</p>	<p>FQA: Students construct a weather vane and, using their weather vane outside, describe which way the wind is coming from and what other patterns, such as cloud movement with the wind, they observe.</p>
	<p>FOSS Next Generation Air and Weather Investigation 3: Wind Explorations Part 5: Kites pp. 218 –224</p> <p><i>FOSS Digital Resources:</i> "Wind Speed"</p>	<p>Investigation 3 I-Check</p>
	<p>FOSS Next Generation Air and Weather <i>FOSS Science Resources:</i> "Understanding the Weather" "Resources"</p>	<p>FQA: After reading "What is the Weather Today?" student's record a meteorologist is a person who studies weather, using instruments to get information about the weather such as temperature, wind speed, wind direction, and uses the information to predict what the weather will be.</p>
<p>2.E.1.3. Compare weather patterns that occur over time and relate observable patterns to time of day and time of year.</p>	<p>FOSS Next Generation Air and Weather Investigation 4: Looking for Change Part 1: Changes over a Month pp. 238-243</p>	<p>PA: Students independently record weather for a month period, graph the different weather using symbols, and interpret the graph to describe the weather over the period of time.</p>



Grade 2

Earth Systems, Structures and Processes (cont.)

Standards	FOSS Alignment	Assessment
2.E.1 Understand patterns of weather and factors that affect weather.		
2.E.1.3. Compare weather patterns that occur over time and relate observable patterns to time of day and time of year.	FOSS Next Generation Air and Weather Investigation 4: Looking for Change Part 2: Daylight through the Year pp. 244-249	FQA: Students collaborate to create a graph of daily sunlight over 12 months and identify the pattern of change over the year.
	FOSS Next Generation Air and Weather Investigation 4: Looking for Change Part 3: Comparing the Seasons pp. 250-259	FQA: Students gather temperature and weather data over the course of the school year and graph the results. Students log, using pictures and words, how the temperature and weather change over the seasons.
	FOSS Next Generation Air and Weather <i>FOSS Digital Resources:</i> "What's the Weather?" <i>FOSS Science Resources:</i> "Changes in the Sky" "Seasons" "Getting through the Winter"	After reading "Seasons" students organize their understanding into a content grid. Students practice their inference skills and consider what type of weather conditions can be present in each season (e.g. effect of sunlight on temperature, amount of precipitation.)
2.E.1.4. Recognize the tools that scientists use for observing, recording, and predicting weather changes from day to day and during the seasons.	FOSS Next Generation Air and Weather <i>FOSS Science Resources:</i> "Understanding the Weather" "Resources"	FQA: After reading "What is the Weather Today?" students record a meteorologist is a person who studies weather, using instruments to get information about the weather such as temperature, wind speed, wind direction, and uses the information to predict what the weather will be.

Grade 2

Structures and Functions of Living Organisms

Standards	FOSS Alignment	Assessment
2.L.1 Understand animal life cycles.		
<p>2.L.1.1. Summarize the life cycle of animals:</p> <ul style="list-style-type: none"> • Birth • Developing into an adult • Reproducing • Aging and death 	<p>FOSS Next Generation Insects and Plants Investigation 1: Mealworms Part 1: Mealworms pp. 78-92</p>	<p>FQA: Students record, in their mealworm calendar, the date of the mealworm arrival and make predictions of what they will observe happening to the mealworms in the next several weeks.</p>
	<p>FOSS Next Generation Insects and Plants Investigation 1: Mealworms Part 2: Larva, Pupa, Adult pp. 93-103</p>	<p>PA: Students make continual observations of their mealworm and log changes on the mealworm observation chart and class calendar. The teacher conducts 30-second interviews to see how students are analyzing and interpreting the changes from a larvae to the pupa stage.</p>
	<p>FOSS Next Generation Insects and Plants Investigation 1: Mealworms Part 3: Life Cycle pp. 104</p>	<p>FQA: Students complete a summary chart of the structures and behaviors for the larva, pupa, and adult beetle. The egg state is added at the bottom of the chart</p>
	<p>FOSS Next Generation Insects and Plants <i>FOSS Science Resources:</i> "Animals and Plants in their Habitat"</p>	<p>Investigation 1 I-Check</p>
	<p>FOSS Next Generation Insects and Plants Investigation 3: Milkweed Bugs Part 1: Eggs pp. 180-184</p>	<p>FQA: Students observe a vial with a yellow object and describe the changes they observe as the object changes from yellow, to orange, to red and hatch into insects.</p>
	<p>FOSS Next Generation Insects and Plants Investigation 3: Milkweed Bugs Part 2: Habitats pp. 185-194 Part 3: Growing Milkweed Bugs pp. 195-201</p>	<p>FQA: Students observe the changes in their milkweed bugs and share their drawings, made over the course of their observations. They sequence pictures of a factious Triangle Bug and write appropriate captions for each picture.</p>
	<p>FOSS Next Generation Insects and Plants Investigation 3: Milkweed Bugs Part 4: Insect Search pp. 202</p> <p><i>FOSS Digital Resources:</i> "Insect Hunt"</p> <p><i>FOSS Science Resources:</i> "So Many Kinds, So Many Places"</p>	<p>Investigation 3 I-Check</p>
	<p>FOSS Next Generation Insects and Plants Investigation 4: Plant Eaters Part 1: Eggs and Larvae pp. 228-234 Part 2: Silkworm Structures pp. 235-245</p>	<p>FQA: After observing and recording the changes to this point in the silkworms, students compare and contrasts the silkworm compared to the mealworm with words and drawings.</p>

Grade 2

Structures and Functions of Living Organisms (cont.)

Standards	FOSS Alignment	Assessment
2.L.1 Understand animal life cycles.		
<p>2.L.1.1. Summarize the life cycle of animals:</p> <ul style="list-style-type: none"> • Birth • Developing into an adult • Reproducing • Aging and death 	<p>FOSS Next Generation Insects and Plants Investigation 4: Plant Eaters Part 3: Pupae and Adults pp. 246-252</p>	<p>FQA: Students sequence pictures of the silkworm life cycle. They tell about the life cycle of a bee and a milkweed bug.</p>
	<p>FOSS Next Generation Insects and Plants Investigation 4: Plant Eaters Part 4: Plant Eaters pp. 253</p> <p><i>FOSS Digital Resources:</i> "Insect Hunt"</p> <p><i>FOSS Science Resources:</i> "Insect Shapes and Colors" "Insect Life Cycles"</p>	<p>Investigation 4 I-Check</p>
	<p>FOSS Next Generation Insects and Plants Investigation 5: Butterflies Part 1: Caterpillars pp. 274-279</p>	<p>PA: Students predict through drawings what will happen at each stage in the life cycle of the painted larvae. They construct their explanations during teacher/student interviews.</p>
	<p>FOSS Next Generation Insects and Plants Investigation 5: Butterflies Part 2: Chrysalises pp. 280-284</p>	<p>FQA: Students construct their explanation of how a painted lady pupa is different from a silkworm pupa and share their observational evidence with their partner and revise their entries based on the feedback.</p>
	<p>FOSS Next Generation Insects and Plants Investigation 5: Butterflies Part 3: Adult Butterflies pp. 285-293</p>	<p>FQA: Students sequence cut-outs of the butterfly life cycle and write appropriate captions for each cutout.</p>
	<p>FOSS Next Generation Insects and Plants <i>FOSS Science Resources:</i> "Life Goes Around"</p>	<p>Review questions: Students respond to questions based on their reading of "Life Goes Around." Does a ladybug larva look like its parent; what is the life cycle of a ladybug; tell about the life cycle of a different animal; name five animals hatch from egg; name three animals that are born alive.</p>
<p>2.L.1.2. Compare life cycles of different animals such as, but not limited to, mealworms, ladybugs, crickets, guppies or frogs.</p>	<p>FOSS Next Generation Insects and Plants Investigation 1: Mealworms Part 1: Mealworms pp. 78-92</p>	<p>FQA: Students record, in their mealworm calendar, the date of the mealworms arrival and make predictions of what they will observe happening to the mealworms in the next several weeks.</p>



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Structures and Functions of Living Organisms (cont.)

Standards	FOSS Alignment	Assessment
2.L.1 Understand animal life cycles.		
<p>2.L.1.2. Compare life cycles of different animals such as, but not limited to, mealworms, ladybugs, crickets, guppies or frogs.</p>	<p>FOSS Next Generation Insects and Plants Investigation 1: Mealworms Part 2: Larva, Pupa, Adult pp. 93-103</p>	<p>PA: Students make continual observations of their mealworm and log changes on the mealworm observation chart and class calendar. Teachers conducts 30-second interviews to see how students are analyzing and interpreting the changes from a larvae to the pupa stage.</p>
	<p>FOSS Next Generation Insects and Plants Investigation 1: Mealworms Part 3: Life Cycle pp. 104</p> <p><i>FOSS Science Resources:</i> "Animals and Plants in their Habitat"</p>	<p>FQA: Students complete a summary chart of the structures and behaviors for the larva, pupa, and adult beetle. The egg state is added at the bottom of the chart</p>
	<p>FOSS Next Generation Insects and Plants Investigation 3: Milkweed Bugs Part 1: Eggs pp. 180-184</p>	<p>FQA: Students observe a vial with an yellow object and describe the changes they observe as the object changes from yellow, to orange, to red and hatch into insects.</p>
	<p>FOSS Next Generation Insects and Plants Investigation 3: Milkweed Bugs Part 2: Habitats pp. 185-194 Part 3: Growing Milkweed Bugs pp. 195-201</p>	<p>FQA: Students observe the changes in their milkweed bugs and share their drawings, made over the course of their observations. They sequence pictures of a factious Triangle Bug and write appropriate captions for each picture.</p>
	<p>FOSS Next Generation Insects and Plants Investigation 3: Milkweed Bugs Part 4: Insect Search pp. 202</p> <p><i>FOSS Digital Resources:</i> "Insect Hunt"</p> <p><i>FOSS Science Resources:</i> "So Many Kinds, So Many Places"</p>	<p>Investigation 3 I-Check</p>
	<p>FOSS Next Generation Insects and Plants Investigation 4: Plant Eaters Part 1: Eggs and Larvae pp. 228-234 Part 2: Silkworm Structures pp. 235-245</p>	<p>FQA: After observing and recording the changes to this point in the silkworms, students compare and contrasts the silkworm compared to the mealworm with words and drawings.</p>
	<p>FOSS Next Generation Insects and Plants Investigation 4: Plant Eaters Part 3: Pupae and Adults pp. 246-252</p>	<p>FQA: Students sequence pictures of the silkworm life cycle. They tell about the life cycle of a bee and a milkweed bug.</p>

Grade 2

Structures and Functions of Living Organisms (cont.)

Standards	FOSS Alignment	Assessment
2.L.1 Understand animal life cycles.		
<p>2.L.1.2. Compare life cycles of different animals such as, but not limited to, mealworms, ladybugs, crickets, guppies or frogs.</p>	<p>FOSS Next Generation Insects and Plants Investigation 4: Plant Eaters Part 4: Plant Eaters pp. 253</p> <p><i>FOSS Digital Resources:</i> "Insect Hunt"</p> <p><i>FOSS Science Resources:</i> "Insect Shapes and Colors" "Insect Life Cycles"</p>	<p>Investigation 4 I-Check</p>
	<p>FOSS Next Generation Insects and Plants Investigation 5: Butterflies Part 1: Caterpillars pp. 274-279</p>	<p>PA: Students predict through drawings what will happen at each stage in the life cycle of the painted larvae. They construct their explanations during teacher/student interviews.</p>
	<p>FOSS Next Generation Insects and Plants Investigation 5: Butterflies Part 2: Chrysalises pp. 280-284</p>	<p>FQA: Students construct their explanation of how a painted lady pupa is different from a silkworm pupa and share their observational evidence with their partner and revise their entries based on the feedback.</p>
	<p>FOSS Next Generation Insects and Plants Investigation 5: Butterflies Part 3: Adult Butterflies pp. 285-293</p>	<p>FQA Students sequence cut-outs of the butterfly life cycle and write appropriate captions for each cutout.</p>
	<p>FOSS Next Generation Insects and Plants <i>FOSS Science Resources:</i> "Life Goes Around"</p>	<p>Review questions: Students respond to questions based on their reading of "Life Goes Around." Does a ladybug larva look like its parent; what is the life cycle of a ladybug; tell about the life cycle of a different animal; name five animals hatch from egg; name three animals that are born alive.</p>



Grade 2

Evolution and Genetics

Standards	FOSS Alignment	Assessment
2.L.2 Remember that organisms differ from or are similar to their parents based on the characteristics of the organism.		
2.L.2.1. Identify ways in which many plants and animals closely resemble their parents in observed appearance and ways they are different.	FOSS Next Generation Insects and Plants <i>FOSS Science Resources:</i> <i>"Life Goes Around"</i>	
2.L.2.2. Recognize that there is variation among individuals that are related.	FOSS Next Generation Plants and Animals <i>FOSS Science Resources:</i> <i>"Variation"</i>	