

Curriculum Map
Fourth Grade Science
Westside Atlanta Charter School
2018-2019 School Year

Date	Standard	Assessment	Additional Information
8/1-8/3	N/A	Informal assessment of classroom guidelines and expectations	Discuss and review Science safety tips and concepts
8/6-8/10	L1 Obtain, evaluate, and communicate information about the roles of organisms and the flow of energy within an ecosystem. b. Develop simple models to illustrate the flow of energy through a food web/food chain beginning with sunlight and including producers, consumers, and decomposers.	Ecology (L1) pre-assessment	Students will develop their thinking about the predator/prey relationships between living things. Students will develop their own food chains. Extension: Project Based Learning (PBL) - Students will play the role of lobbyists for an endangered species. They will research the species's role in the food web and then devise a recovery plan to save the species from extinction.
8/13-8/17	L1 Obtain, evaluate, and communicate information about the roles of organisms and the flow of energy within an ecosystem. c. Design a scenario to demonstrate the effect of a change on an ecosystem.	Informal assessment of L1 concepts and scientific thinking	Students will develop their inquiry-based thinking skills in the context of the L1 Science standard. Students will design and experiment about Isopods, carry out their experiments, and report their findings.
8/20-8/24	L1 Obtain, evaluate, and communicate information about the roles of organisms and the flow of energy within an ecosystem. a. Develop a model to describe the roles of producers, consumers, and decomposers in a community.	Formative assessment of L1 concepts	Students will discover the surprising nutrient which accounts for most of a plant's food. They will also conduct an investigation to determine if this nutrient can plausible account for a plant's weight.

<p>8/27-8/31</p> <p>*Early Release 8/31</p>	<p>L1 Obtain, evaluate, and communicate information about the roles of organisms and the flow of energy within an ecosystem.</p> <p>a. Develop a model to describe the roles of producers, consumers, and decomposers in a community.</p>	<p>Formative assessment of L1 concepts</p>	<p>Students will discover the role fungi play in decomposing dead materials and in creating soil. Students will plan and conduct an investigation to discover the factors affecting decomposition.</p>
<p>9/3-9/7</p> <p>*School Closed 9/3</p>	<p>L1 Obtain, evaluate, and communicate information about the roles of organisms and the flow of energy within an ecosystem.</p> <p>a. Develop a model to describe the roles of producers, consumers, and decomposers in a community.</p>	<p>Formative assessment of L1 concepts</p>	<p>Students will discover the critical role earthworms play in decomposing dead material and releasing nutrients into the soil. Students will observe earthworms and then design their own “fair test” investigations of earthworm behavior.</p>
<p>9/10-9/14</p>	<p>L1 Obtain, evaluate, and communicate information about the roles of organisms and the flow of energy within an ecosystem.</p> <p>d. Use printed and digital data to develop a model illustrating and describing changes to the flow of energy in an ecosystem when plants or animals become scarce, extinct or overabundant.</p>	<p>Formative assessment of L1 concepts</p>	<p>Students will combine what they have learned about plants, animals, and decomposers to see how they interact in an ecosystem. Students will develop a model of their own pond ecosystems.</p>
<p>9/17-9/21</p>	<p>L1 Obtain, evaluate, and communicate information about the roles of organisms and the flow of energy within an ecosystem.</p> <p>d. Use printed and digital data to develop a model illustrating and describing changes to the flow of energy in an ecosystem when plants or animals become scarce, extinct or overabundant</p>	<p>Formative assessment of L1 concepts</p>	<p>Students will investigate the hypothesis that an asteroid impact caused the extinction of dinosaurs. Students will create their own dinosaur food webs, then trace the flow of energy from the sun throughout the web.</p>
<p>9/24-9/28</p>	<p>L1 Obtain, evaluate, and communicate</p>	<p>Summative</p>	<p>Students will engage in a variety of activities to review</p>

	information about the roles of organisms and the flow of energy within an ecosystem.	assessment of L1 concepts	key concepts about Ecology. They will demonstrate their understanding in a summative assessment. Extension: Students who have completed the extension project will present their Recovery Plans to the class.
10/1-10/5 *Conference Day 10/5	E3. Obtain, evaluate, and communicate information to demonstrate the water cycle. a. Plan and carry out investigations to observe the flow of energy in water as it changes states from solid (ice) to liquid (water) to gas (water vapor) and changes from gas to liquid to solid. b. Develop models to illustrate multiple pathways water may take during the water cycle (evaporation, condensation, and precipitation).	Pre-assessment of Weather Unit (E3, E4) concepts	Students will examine clues about how clouds look and feel to discover what they're made of and how they form. Students will also create a "gas trap" to observe what happens when water changes from liquid to gas. Then, students will develop a model of the water cycle that illustrates the many ways that water can go through the water cycle, Extension: Students will photograph evidence of the water cycle in their own communities. Then, they will create a digital ThingLink that illustrates and explains the water cycle in action.
10/8-10/12	Fall Break	--	--
10/15-10/19	E4. Obtain, evaluate, and communicate information to predict weather events and infer weather patterns using weather charts/maps and collected weather data. c. Ask questions and use observations of cloud types (cirrus, stratus, and cumulus) and data of weather conditions to predict weather events.	Formative assessment of E4 concepts	Students will learn how to make predictions about the weather by observing clouds and their changes. Students will create a book to record their notes and use it to practice storm prediction. Extension: Students will use data collected from various measurement tools to compose a weather forecast for the Westside community.
10/22-10/26	E4. Obtain, evaluate, and communicate information to predict weather events and infer weather patterns using weather charts/maps and collected weather data. d. Construct an explanation based on research to communicate the difference	Formative assessment of E4 concepts	Students will be introduced to the concept of "climate" and explore the world's five major climates. They will produce a world map and spot patterns in order to discover the various climates.

	between weather and climate.		
10/29-11/2	<p>E4. Obtain, evaluate, and communicate information to predict weather events and infer weather patterns using weather charts/maps and collected weather data.</p> <p>a. Construct an explanation of how weather instruments (thermometer, rain gauge, barometer, wind vane, and anemometer) are used in gathering weather data and making forecasts.</p> <p>b. Interpret data from weather maps, including fronts (warm, cold, and stationary), temperature, pressure, and precipitation to make an informed prediction about tomorrow's weather.</p>	Summative assessment of E3 and E4 concepts	Students will utilize weather maps and instruments to report on past weather and predict future weather. Additionally, students will explore the causes and effects of natural hazards, such as tornadoes, hurricanes, and dust storms. They will design multiple solutions to keep a house from blowing away in a windstorm, then compare the merits of their solutions.
11/5-11/9	<p>P1. Obtain, evaluate, and communicate information about the nature of light and how light interacts with objects.</p> <p>a. Plan and carry out investigations to observe and record how light interacts with various materials to classify them as opaque, transparent, or translucent.</p>	Formative assessment of P1 concepts	Students will consider materials from the perspective of how much light they let through. Then, students will use these materials to create a work of art.
11/12-11/16 *Early Release 11/16	<p>P1. Obtain, evaluate, and communicate information about the nature of light and how light interacts with objects.</p> <p>b. Plan and carry out investigations to describe the path light travels from a light source to a mirror and how it is reflected by the mirror using different angles.</p> <p>c. Plan and carry out an investigation utilizing everyday materials to explore examples of when light is refracted.</p>	Pre-assessment of Light and Sound Unit (P1, P2) concepts; Informal assessment of P1 concepts	<p>Students will engineer pinhole viewers to investigate the properties of light in a variety of experiments and activities.</p> <p>Extension: Students will generate their own questions about the properties of light. Then, they will design and execute their own investigations to answer one of those questions. Students will report their findings to the class via an educational presentation of their choosing (PowerPoint, video,</p>

			speech, etc.).
11/19-11/23	Thanksgiving Break	--	--
11/26-11/30	<p>P2. Obtain, evaluate, and communicate information about how sound is produced and changed and how sound and/or light can be used to communicate.</p> <p>a. Plan and carry out an investigation utilizing everyday objects to produce sound and predict the effects of changing the strength or speed of vibrations.</p>	Informal assessment of P2 concepts	Students will build a paper cup telephone to investigate the connection between sounds and vibration.
12/3-12/7	<p>P2. Obtain, evaluate, and communicate information about how sound is produced and changed and how sound and/or light can be used to communicate.</p> <p>a. Plan and carry out an investigation utilizing everyday objects to produce sound and predict the effects of changing the strength or speed of vibrations.</p>	Informal assessment of P2 concepts	<p>Students will explore the role that air plays in enabling a sound vibration to travel. Students will investigate the properties of sound and create a model of sound vibration.</p> <p>Extension: Students will generate their own questions about the properties of sound. Then, they will design and execute their own investigations to answer one of those questions. Students will report their findings to the class via an educational presentation of their choosing (PowerPoint, video, speech, etc.).</p>
12/10-12/14	<p>P2. Obtain, evaluate, and communicate information about how sound is produced and changed and how sound and/or light can be used to communicate.</p> <p>b. Design and construct a device to communicate across a distance using light and/or sound.</p>	Informal assessment of P2 concepts	Students will discover that sound is a wave. They will model the relationship between a sound's wavelength and its pitch. Additionally, students will design a new device that communicates across a distance using light/sound.
12/17-12/21	P2. Obtain, evaluate, and communicate information about how sound is produced	Summative assessment of	Students will engage in a variety of hands-on exploration centers designed to deepen their

*Early Release 12/21	and changed and how sound and/or light can be used to communicate. b. Design and construct a device to communicate across a distance using light and/or sound.	P1 and P2 concepts	understanding of both sound and light waves. Additionally, they will construct and refine the light/sound communication device designed last week.
12/24-12/28	Winter Break	--	--
12/31-1/1	Winter Break	--	--
1/7-1/11	P3. Obtain, evaluate, and communicate information about the relationship between balanced and unbalanced forces. a. Plan and carry out an investigation on the effects of balanced and unbalanced forces on an object and communicate the results.	Pre-assessment of Forces (P3) concepts	Students will engineer a slide and investigate factors that affect motion on slides. They will use their observations to determine the forces that affect the motion of their slides. Extension: Students who have a clear understanding of forces and motion will have the opportunity to extend and apply their knowledge by creating a functioning Rube Goldberg machine.
1/14-1/18	P3. Obtain, evaluate, and communicate information about the relationship between balanced and unbalanced forces. b. Construct an argument to support the claim that gravitational force affects the motion of an object.	Self-assessment of P3 concepts	Students will apply what they have learned about force and motion to new situations. They will deepen their understanding of force and motion and gain a more generalized knowledge of these concepts.
1/21-1/25 * School Closed 1/21	P3 c. Ask questions to identify and explain the uses of simple machines (lever, pulley, wedge, inclined plane, wheel and axle, and screw) and how forces are changed when simple machines are used to complete tasks.	Formative assessment of P3 concepts	Students will learn that by thinking about forces, they can accomplish extraordinary things. Students will create "hoppers" and then modify them to make them jump as high as possible.
1/28-2/1	P3. Obtain, evaluate, and communicate	Formative	Students will learn about bridge design and use their

	<p>information about the relationship between balanced and unbalanced forces.</p> <p>a. Plan and carry out an investigation on the effects of balanced and unbalanced forces on an object and communicate the results.</p>	assessment of P3 concepts	knowledge of forces to engineer a strong bridge made out of paper.
2/4-2/8	<p>P3. Obtain, evaluate, and communicate information about the relationship between balanced and unbalanced forces.</p> <p>c. Ask questions to identify and explain the uses of simple machines (lever, pulley, wedge, inclined plane, wheel and axle, and screw) and how forces are changed when simple machines are used to complete tasks.</p>	Formative assessment of P3 concepts	Students will learn about friction and investigate what materials slide best.
2/11-2/15 * No Class 2/15	<p>P3. Obtain, evaluate, and communicate information about the relationship between balanced and unbalanced forces.</p> <p>c. Ask questions to identify and explain the uses of simple machines (lever, pulley, wedge, inclined plane, wheel and axle, and screw) and how forces are changed when simple machines are used to complete tasks.</p>	Formative assessment of P3 concepts	Students will investigate how simple machines are used in the real world. Then students will construct a simple machine that they can use to improve the life of a person in need.
2/18-2/22 *School Closed 2/18	<p>P3. Obtain, evaluate, and communicate information about the relationship between balanced and unbalanced forces.</p>	Summative assessment of P3 concepts	Students will engage in a variety of activities to review key concepts about balanced and unbalanced forces. They will demonstrate their understanding in a summative assessment.
2/25-3/1	E2. Obtain, evaluate, and communicate	Pre-assessment	Students will learn that the setting sun isn't moving;

	<p>information to model the effects of the position and motion of the Earth and the moon in relation to the sun as observed from the Earth.</p> <p>a. Develop a model to support an explanation of why the length of day and night change throughout the year.</p>	<p>of Space Unit (E1, E2) concepts; Formative assessment of E2 concepts</p>	<p>rather, Earth is spinning. Students will compare two different models of how the sun rises and sets.</p>
3/4 - 3/8	<p>E2. Obtain, evaluate, and communicate information to model the effects of the position and motion of the Earth and the moon in relation to the sun as observed from the Earth.</p> <p>a. Develop a model to support an explanation of why the length of day and night change throughout the year.</p>	<p>Formative assessment of E2 concepts</p>	<p>Students will learn why our ancestors divided the day into hours and how clocks measure the Sun's apparent movement. Students will make a shadow clock (sundial).</p>
3/11-3/15 *Conference Day 3/15	<p>E2. Obtain, evaluate, and communicate information to model the effects of the position and motion of the Earth and the moon in relation to the sun as observed from the Earth.</p> <p>c. Construct an explanation of how the Earth's orbit, with its consistent tilt, affects seasonal changes</p>	<p>Formative assessment of E2 concepts</p>	<p>Students will be introduced to the Earth's orbital movement around the Sun. They will investigate this concept as a means of seeing why the constellations change.</p>
3/18-3/22	<p>E2. Obtain, evaluate, and communicate information to model the effects of the position and motion of the Earth and the moon in relation to the sun as observed from the Earth.</p> <p>c. Construct an explanation of how the Earth's orbit, with its consistent tilt, affects seasonal changes</p>	<p>Formative assessment of E2 concepts</p>	<p>Students will discover how the sun's path changes with the seasons.</p> <p>Extension: Students will consider what would happen if the Earth was no longer tilted. Then, they will create a fiction picture book imagining what the world would be like if this was the case.</p>
3/25-3/29	<p>E2. Obtain, evaluate, and communicate information to model the effects of the</p>	<p>Performance assessment of</p>	<p>Students will explore why the moon seems to change shape (phases) over the course of a month.</p>

	<p>position and motion of the Earth and the moon in relation to the sun as observed from the Earth.</p> <p>b. Develop a model based on observations to describe the repeating pattern of the phases of the moon (new, crescent, quarter, gibbous, and full).</p>	E2 concepts	
4/1-4/5	Spring Break	--	--
4/8-4/12	<p>E1. Obtain, evaluate, and communicate information to compare and contrast the physical attributes of stars and planets.</p> <p>a. Ask questions to compare and contrast technological advances that have changed the amount and type of information on distant objects in the sky.</p> <p>b. Construct an argument on why some stars (including the Earth's sun) appear to be larger or brighter than others.</p>	Formative assessment of E1 concepts	<p>Students will discover the concept of "wandering stars" and will investigate what it means to see them with their own eyes.</p> <p>Extension: Students will consider whether they would rather be a star or a planet. Then, they will create a presentation (video, skit, speech, PowerPoint, etc.) explaining and justifying their choice.</p>
4/15-4/19	<p>E1. Obtain, evaluate, and communicate information to compare and contrast the physical attributes of stars and planets.</p> <p>c. Construct an explanation of the differences between stars and planets.</p> <p>d. Evaluate strengths and limitations of models of our solar system in describing relative size, order, appearance and composition of planets and the sun.</p>	Performance assessment of E1 concepts	Students will engage in a Project Based Learning activity that will allow them to develop a deep understanding of the physical attributes of stars and planets.
4/22-4/26	All Standards		Science Inquiry Project: Students will select a Science Fair topic and research background information about their inquiry-based research questions.
4/29-5/3	All Standards		Science Inquiry Project: Students will decide how to

*Professional Learning Day 5/3			set up their Science Fair experiments. They will write their research questions, hypotheses, materials, and procedures.
5/6-5/10	All Standards		Science Inquiry Project: Students will conduct their Science Fair experiments and record their data. They will learn how to analyze the data that they collected.
5/13-5/17	All Standards		Science Inquiry Project: Students will write their conclusions and reflections. They will design a presentation to share their findings.
5/20-5/24 *Early Release 5/23 *School Closed 5/24	All Standards	Performance assessment of all Fourth Grade Science Standards	Science Inquiry Project: Students will present their Science Fair projects to peers, teachers, parents, and other WACS stakeholders.