

# Seattle Public Schools Science Standards

## Circuits and Pathways

(Insights)

Grade 4

PHYSICAL  
SCIENCE

<b>EARL #1 The student understands and uses scientific concepts and principles.</b>		
<b>Component</b>	<b>Benchmarks</b>	<b>Lesson #s</b>
1.1 – Use properties to identify, describe, and categorize substances, materials, and objects.	<p><i>Properties of substances</i></p> <ul style="list-style-type: none"> <li>identify and describe materials as conductors or insulators of electric current</li> <li>record results of measurements</li> <li>use properties to sort, order, and classify objects</li> </ul> <p><i>Sound, light, and waves</i></p> <ul style="list-style-type: none"> <li>describe experiences with light in terms of bouncing off, passing through, and changes in path direction</li> </ul>	5, 8 – 10, 12  To be determined
1.2 – Recognize the components, structure, and organization of systems and the interconnections within and among them.	<p><i>System</i></p> <ul style="list-style-type: none"> <li>provide evidence that parts of a system work together to produce change</li> </ul> <p><i>Energy sources and kinds</i></p> <ul style="list-style-type: none"> <li>understand that electrical energy keeps things running</li> </ul> <p><i>Energy transfer and transformations</i></p> <ul style="list-style-type: none"> <li>conduct experiments that demonstrate how energy is transferred through a complete circuit</li> </ul>	2 – 8, 10 – 15  2 – 15  3 – 15

SCIENCE  
SKILLS/  
PROCESSES

<b>EARL #2 The student understands the skills and processes of science and technology.</b>		
2.1 – Develop the abilities necessary to do scientific inquiry.	<p><i>Questioning</i></p> <ul style="list-style-type: none"> <li>ask questions about objects, organisms, and events in the environment</li> </ul> <p><i>Designing and conducting investigations</i></p> <ul style="list-style-type: none"> <li>plan and conduct simple investigations, using appropriate tools, measures, and safety rules</li> </ul> <p><i>Evidence and explanation</i></p> <ul style="list-style-type: none"> <li>use data to construct reasonable explanations</li> </ul> <p><i>Modeling</i></p> <ul style="list-style-type: none"> <li>model systems, events, or processes by representing them with concrete objects, analogies, or other conceptual or physical constructs (e.g., graphic organizers)</li> </ul>	All lessons  2 – 15  4 – 15  2 – 15

SCIENTIFIC  
THINKING

	<p><b>Communication</b></p> <ul style="list-style-type: none"> <li>record and report observations, explanations, and conclusions using oral, written, and mathematical expression</li> </ul>	All lessons
2.2 – Apply science knowledge/skills to solve problems, meet challenges.	<p><b>Identifying problems</b></p> <ul style="list-style-type: none"> <li>identify problems in which science/technology can or have been used to find solutions</li> </ul> <p><b>Designing and testing solutions</b></p> <ul style="list-style-type: none"> <li>propose, design, and test a solution to a problem</li> </ul> <p><b>Evaluating potential solutions</b></p> <ul style="list-style-type: none"> <li>evaluate how well a design or a product solves a problem</li> </ul>	10 - 15  6, 7, 9, 11, 14, 15 6, 7, 9, 11, 14, 15
<p><b>EARL #3 The student understands the nature and contexts of science and technology.</b></p>		
3.1 – Understand the nature of scientific inquiry.	<p><b>Intellectual honesty</b></p> <ul style="list-style-type: none"> <li>understand that all scientific observations should be reported accurately even when they contradict expectations</li> </ul> <p><b>Limitations of science and technology</b></p> <ul style="list-style-type: none"> <li>distinguish between questions that can be answered with science and technology and those that cannot</li> </ul> <p><b>Dealing with inconsistencies</b></p> <ul style="list-style-type: none"> <li>explain why similar investigations may not produce similar results</li> </ul> <p><b>Evaluating methods of investigation</b></p> <ul style="list-style-type: none"> <li>recognize that results of scientific investigations can come from expected and unexpected sources</li> </ul>	3 – 15  All lessons  10 – 15  2 – 15
3.2 – Know that science and technology are human endeavors, interrelated to each other, to society and to the workplace.	<p><b>All peoples contribute to science and technology</b></p> <ul style="list-style-type: none"> <li>know that science and technology have been practiced by all peoples throughout history</li> </ul> <p><b>Relationship of science and technology</b></p> <ul style="list-style-type: none"> <li>recognize that people have invented tools for everyday life and for scientific investigations</li> </ul> <p><b>Careers and occupations using science, mathematics, and technology</b></p> <ul style="list-style-type: none"> <li>identify the knowledge and skills of science used in common occupations</li> </ul>	10 – 15  All lessons  All lessons