

Seattle Public Schools Science Standards

Food Chemistry

(Science and Technology for Children)

Grade 4

PHYSICAL
SCIENCE

EARL #1 The student understands and uses scientific concepts and principles.

Component	Benchmarks	Lesson #s
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"> identify and describe properties of materials record results of measurements use properties to sort, order, and classify objects 	2 – 4, 6, 7, 9, 10, 12, 13, 16

LIFE
SCIENCE

EARL #1 The student understands and uses scientific concepts and principles.

1.1 – Use characteristics to describe living things.	<p><i>Basis of biological diversity</i></p> <ul style="list-style-type: none"> observe and describe the needs of a variety of living things (e.g., nutrients, water, and air) 	1, 5, 8, 11, 14, 15
1.2 – Recognize the components, structure, and organization of systems and the interconnections within and among them.	<p><i>Human biology</i></p> <ul style="list-style-type: none"> understand that humans obtain nutrients from food for energy, growth, and body repair (e.g., carbohydrates provide energy) 	5, 8, 11, 14, 15
1.3 – Understand how interactions within and among systems cause changes in matter and energy.	<p><i>Life processes and the flow of matter and energy</i></p> <ul style="list-style-type: none"> recognize that air, water, nutrients, and the chemicals in food are continually recycled (e.g., nutrient cycles) understand that energy from food is necessary for living things <p><i>Environmental and resource issues</i></p> <ul style="list-style-type: none"> recognize that humans and other living things depend on the natural environment and can cause changes in their environment that affect their ability to survive 	1, 5, 8, 11, 14, 15 5, 8, 11, 14, 15

SCIENCE
SKILLS/
PROCESSES

EARL #2 The student understands the skills and processes of science and technology.

2.1 – Develop the ability necessary to do scientific inquiry.	<p><i>Questioning</i></p> <ul style="list-style-type: none"> ask questions about objects, organisms, and events in the environment <p><i>Designing and conducting investigations</i></p> <ul style="list-style-type: none"> plan and conduct simple investigations, using appropriate tools, measures, and safety rules <p><i>Evidence and explanation</i></p> <ul style="list-style-type: none"> use data to construct reasonable explanations 	All lessons 2 – 4, 6, 7, 9, 10, 12, 13, 16 3, 4, 6, 7, 9, 10, 12, 13, 16
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SCIENTIFIC
THINKING

	<p>Communication</p> <ul style="list-style-type: none"> record and report observations, explanations, and conclusions using oral and written expression 	All lessons
2.2 – Apply science knowledge and skills to solve problems or meet challenges.	<p>Identifying problems</p> <ul style="list-style-type: none"> identify problems found in familiar contexts in which science and technology can be or have been used to design solutions <p>Designing and testing solutions</p> <ul style="list-style-type: none"> propose, design, and test a solution to a problem <p>Evaluating potential solutions</p> <ul style="list-style-type: none"> evaluate how well a design or a product solves a problem 	5, 8, 11, 14 – 16 To be determined To be determined
EARL #3 The student understands the nature and contexts of science and technology.		
3.1 – Understand the nature of scientific inquiry.	<p>Intellectual honesty</p> <ul style="list-style-type: none"> understand that all scientific observations should be reported accurately even when they contradict expectations <p>Limitations of science and technology</p> <ul style="list-style-type: none"> distinguish between questions that can be answered with science and technology and those that cannot <p>Dealing with inconsistencies</p> <ul style="list-style-type: none"> explain why similar investigations may not produce similar results <p>Evaluating methods of investigation</p> <ul style="list-style-type: none"> recognize that results of scientific investigations can come from expected and unexpected sources (e.g., through sharing the results of investigations) <p>Evolution of scientific ideas</p> <ul style="list-style-type: none"> know that ideas in science change as new scientific thinking, theories, and evidence arise 	3, 4, 6, 7, 9, 10, 12, 13, 15, 16 All lessons 3, 4, 6, 7, 9, 10, 12, 13, 16 2 – 4, 6, 7, 9, 10, 12, 13, 16 15
3.2 – Know that science and technology are human endeavors, interrelated to each other, to society and to the workplace.	<p>All peoples contribute to science and technology</p> <ul style="list-style-type: none"> know that science and technology have been practiced by all peoples throughout history <p>Relationship of science and technology</p> <ul style="list-style-type: none"> recognize that people have invented tools for everyday life and for scientific investigations <p>Careers and occupations using science, mathematics, and technology</p> <ul style="list-style-type: none"> identify the knowledge and skills of science, math, and technology used in common occupations 	15 2 – 4, 6, 7, 9, 10, 12, 13, 16 All lessons