

Grade Level Expectations (Grades 3 & 4)

Water

DRAFT

FOSS Investigations	Essential Learning Indicators Targeted
<p>Investigation 1: Water Observations Part 1 – Looking at Water Part 2 – Surface Tension Part 3 – Water on a Slope</p> <p>Investigation 2: Hot Water, Cold Water Part 1 – Build a Thermometer Part 2 – Sinking and Floating Water Part 3 – Water as Ice</p> <p>Investigation 3: Water Vapor Part 1 – Evaporation Part 2 – Evaporation Locations Part 3 – Surface Area Part 4 – Condensation</p> <p>Investigation 4: Waterworks Part 1 – Water in Earth Materials Part 2 – Waterwheels Part 3 – Water From Home Part 4- Choosing your own investigation</p>	<p>*1.1.5 Understand physical properties of Earth materials including rocks, soil, water, and air. W</p> <ul style="list-style-type: none"> • Describe the states of water on Earth (i.e. clouds, fog, dew, rain, hail, snow, ice) as solid, liquid, or gas. <p>1.2.1 Analyze how the parts of a system go together and how these parts depend on each other. W</p> <ul style="list-style-type: none"> • Identify the parts of a system (e.g. a device, natural or living thing) and how the parts go together. • Describe the function of a part of a system. • Describe a simple system that can perform a task and illustrate how the parts depend on each using common classroom materials. • Explain how one part of a system depends upon other parts of the same system. <p>*1.2.2 Understand that energy can be transferred from one object to another and can be transformed from one form to another. W (Investigations 2 & 3)</p> <ul style="list-style-type: none"> • Identify where or when a part of a simple system has the greatest or least energy. • Describe transfers of energy (e.g. heat energy is transferred from hot water to a cup) <p>1.2.3 Know that substances are made of small particles. W (Investigations 1- 3)</p> <ul style="list-style-type: none"> • Identify small parts of a substance as still being that substance. <p>*1.3.1 Understand forces in terms of strength and direction. W (Investigations 1,& 4)</p> <ul style="list-style-type: none"> • Describe a force that is acting on an object in terms of strength and direction. <p>*1.3.3 Understand that a substance remains the same substance when changing state. W (Investigations 2 & 3)</p> <ul style="list-style-type: none"> • Observe and describe water changing state from ice to liquid water to water vapor and back (e.g. with freezing, melting, evaporation, and condensation water remains water). <p>*2.1.1 Understand how to ask a question about objects, organisms, and events in the environment. W</p> <ul style="list-style-type: none"> • Identify the question being answered in an investigation • Ask questions about objects, organisms, and events based on observations of the natural world. <p>*2.1.2 Understand how to plan and conduct simple investigations following all safety rules. W</p> <ul style="list-style-type: none"> • Make predictions of the results of an investigation. • Identify and use simple equipment and tools to gather data and extend the senses • Follow all safety rules during investigations. <p>*2.1.3 Apply evidence to construct a reasonable explanation using data.</p> <ul style="list-style-type: none"> • Generate a scientific conclusion including supporting data from an investigation. • Describe a reason for a given conclusion using evidence from an investigation. • Generate a scientific explanation of observed phenomena using given data. <p>*2.1.4 Understand how to use simple models to represent objects, events, systems, and processes. W (Investigations 2-4)</p> <ul style="list-style-type: none"> • List similarities between a model and what the model represents. • Create a simple model to represent common objects, events, systems, or processes. • Investigate phenomena using a simple physical or computer model or simulation. <p>*2.1.5 Understand how to report investigations and explanations of objects, events, systems, and processes. W</p> <ul style="list-style-type: none"> • Report observations or data of simple investigations without making inferences. • Summarize an investigation by describing reasons for selecting the investigation plan, materials used, observations, data, results, explanations and conclusions and safety procedures used. <p>*2.2.1 Understand that all scientific observations should be reported accurately and honestly even when the observations contradict expectations. W</p> <ul style="list-style-type: none"> • Explain why scientific observations are recorded accurately and honestly. • Explain why scientific records of observations are not changed even when the records do not match initial expectations.

FOSS Investigations	Essential Learning Indicators Targeted
	<ul style="list-style-type: none"> • Explain why honest acknowledgement of the contribution of others and information sources are necessary. <p>3.1.1 Understand problems found in ordinary situations in which scientific design can be or has been used to design solutions. <i>W</i> (Investigation 4)</p> <ul style="list-style-type: none"> • Describe how science and technology could be used to solve a human problem. • Describe the scientific concept, principle or process used in a solution to a human problem. • Describe how to scientifically gather information to develop a solution. <p>*3.1.2 Understand how the scientific design process is used to develop and implement solutions to human problems. <i>W</i> (Investigation 4, part 2)</p> <ul style="list-style-type: none"> • Propose, implement, and document a scientific design process used to solve a problem or challenge: define the problem; scientifically gather information and collect measurable data; explore ideas, make a plan, list steps to do the plan, scientifically test solutions; document the scientific design process. • Describe possible solutions to a problem. • Describe the reason(s) for the effectiveness of a solution to a problem or challenge. <p>*3.1.3 Analyze how well a design or a product solves a problem. <i>W</i> (Investigation 4, part 2)</p> <ul style="list-style-type: none"> • Identify the criteria for an acceptable solution to a problem or challenge. • Describe the reason(s) for the effectiveness of a solution to a problem or challenge using scientific concepts and principles. • Describe the consequences of the solution to a problem or challenge. • Describe how to change a system to solve a problem or improve a solution to a problem. • Test how well a solution works based on criteria, and recommend and justify, with scientific concepts or principles and data, how to make it better. <p>3.2.2 <i>Understand that people have invented tools for everyday life and for scientific investigations. W</i></p> <ul style="list-style-type: none"> • <i>Describe tools (technology) invented to advance scientific investigations.</i> • <i>Describe how scientific tools help people design solutions to human problems.</i> <p>3.2.3 <i>Understand how knowledge and skills of science, mathematics, and technology are used in common occupations.</i></p> <ul style="list-style-type: none"> • <i>Identify science, math, and technology skills used in a career.</i> • <i>Identify occupations using scientific, mathematical, and technological knowledge and skills.</i> <p>3.2.4 <i>Understand how humans depend on the natural environment and can cause changes in their environment that affect humans' ability to survive. W</i></p> <ul style="list-style-type: none"> • <i>Describe how human can cause changes in the environment that affect the livability of the environment.</i> • <i>Describe the limited resources humans depend on and how changes in these resources affect the livability of the environment for humans</i>

* GLE's assessed in formative assessments found in WA Assessment Folio.

GLE's in italics are not currently addressed in the investigations but could be addressed with extension activities, FOSS Science Stories, and other resources.