

Grade Level Expectations (Grade 5) Environments

DRAFT

FOSS Investigations	Essential Learning Indicators Targeted
<p>Investigation 1: Terrestrial Environments Part 1 – Setting Up the Terrariums Part 2 – Recording the Changes</p> <p>Investigation 2: Bugs and Beetles Part 1 – Making Animal Runways Part 2 – Responding to Moisture Part 3 – Responding to Light Part 4 – Designing an Animal Investigation</p> <p>Investigation 3: Water Tolerance Part 1 – Setting Up the Experiment Part 2 – Observing Plants Part 3 – Observing Plants at 11 or More Days</p> <p>Investigation 4: Aquatic Environments Part 1 – Goldfish Aquariums Part 2 – Acid in Water Part 3 – New Organisms</p>	<p>*1.1.6 Understand how to distinguish living from nonliving and how to use characteristics to sort common organisms into plant and animal groups. W a Describe the characteristics of organisms. b Describe and sort organisms using multiple characteristics (e.g. anatomy such as fins for swimming or leaves for gathering light, behavior patterns such as burrowing or migration, how plants and animals get food differently). c Classify and sort common organisms into plant and animal groups.</p> <p>*1.2.1 Analyze how the parts of a system go together, and how these parts depend on each other. W a Identify the parts of a system and how the parts go together. b Describe the function of a part of a system. c Explain how one part of a system depends on other parts of the same system. d Describe what goes into(input) and out of (output) a system.</p> <p>1.3.8 Understand that living things need constant energy and matter. W a Identify sources of energy and matter used by plants to grow and sustain life (e.g. air, water, light, food, mineral nutrients). b Identify sources of energy and matter used by animals to grow and sustain life. c Explain how plants and animals obtain food (e.g. plants make food from air, water, sunlight, mineral nutrients; animals obtain food from other living things).</p> <p>1.3.9 Understand that plant and animal species change over time. W a Recognize and tell how some kinds of plants and animals survive well, some survive less well, and some cannot survive at all in particular environments, and provide examples. b Recognize and describe how individual plants and animals of the same kind differ in their characteristics and sometimes the differences give individuals an advantage in surviving and reproducing.</p> <p>*1.3.10 Understand that an organism’s ability to survive is influenced by the organism’s behavior and the ecosystem in which it lives. W a Describe the characteristics of organisms that allow them to survive in an ecosystem. b Describe the role of an organism in a food chain of an ecosystem (i.e. predator, prey, consumer, producer, decomposer, scavenger). c Describe how an organism’ ability to survive is affected by a change in an ecosystem (e.g. the loss of one organism in a food chain affects all other organisms in that food chain) d <i>Describe the path of substances (i.e. air, water, mineral nutrients) through a food chain.</i></p> <p>*2.1.1 Understand how to ask a question about objects, organisms, and events in the environment. W a Identify the question being answered in an investigation. b Ask questions about objects, organisms, and events based on observations of the natural world. c Develop a new question that can be investigated with the same materials and/or data as a given investigation.</p> <p>*2.1.2 Understand how to plan and conduct simple investigations following all safety rules. W a Make predictions of the results of an investigation. b Generate a logical plan for, and conduct, a simple controlled investigation with the following attributes: prediction; appropriate materials, tools, and available computer technology; variables kept the same; one changed variable; measured/responding variable; gather, record, and organize data using appropriate units, charts, and/or graphs; multiple trials. c Identify and use simple equipment and tools to gather data and extend the senses. d Follow all safety rules during investigations.</p> <p>*2.1.3 Understand how to construct a reasonable explanation using evidence. a Generate a scientific conclusion including supporting data from an investigation. b Describe a reason for a given conclusion using evidence from an investigation. c Generate a scientific explanation of observed phenomena using given data.</p>

FOSS Investigations	Essential Learning Indicators Targeted
<p>Investigation 5: Brine Shrimp Hatching Part 1 – Setting Up the Experiment Part 2 – Determining Range of Tolerance Part 3 – Determining Viability</p> <p>Investigation 6: Salt of the Earth Part 1 – Setting Up the Experiment Part 2 – Observing Plants Part 3 – Choosing Your Own Investigation</p>	<p>d Predict what logically might occur if an investigation lasted longer or was changed.</p> <p>*2.1.4 Understand how to use simple models to represent objects, events, and processes. W</p> <p>a List similarities and differences between a model and what the model represents. b Create a simple model to represent systems (e.g. diagram and/or physical model) c Describe reasons for using a model to investigate phenomena.</p> <p>*2.1.5 Understand how to report investigations and explanations of objects, events, systems, and processes. W</p> <p>a Report observations or data of simple investigations without making inferences. b Summarize an investigation by describing: reasons for selecting the investigation plan; materials used in the investigation; observations, data, results; explanations and conclusions in written, mathematical, oral, and information technology presentation formats; safety procedures used.</p> <p>*2.2.1 Understand that all scientific observations should be reported accurately and honestly even when the observations contradict expectations. W</p> <p>a Explain why scientific observations are recorded accurately and honestly. b Explain why scientific records of observations are not changed even when the records do not match initial expectations. c Explain why honest acknowledgement of the contributions of others and information sources are necessary.</p> <p>2.2.2 Understand that scientific facts are measurements and observations of phenomena in the natural world that are repeatable and/or verified by expert scientists. W</p> <p>a Describe how new scientific facts are established every day(e.g. find examples of new facts in current media) b Describe whether measurements and/or observations of phenomena are scientific facts. c Describe whether a report of an observation is a scientific fact or an interpretation (e.g. seeing a light in the night sky versus seeing a star).</p> <p>2.2.3 Understand why similar investigations may not produce similar results. W</p> <p>a Describe reasons why two similar investigations can produce different results (e.g. identify possible sources of error). b Explain whether sufficient information has been obtained to make a conclusion.</p> <p>*2.2.4 Understand how to make the results of scientific investigations reliable. W</p> <p>a Describe how the method of investigation insures reliable results. b Identify and describe ways to increase the reliability of an investigation (e.g. multiple trials of an investigation increase the reliability of the results).</p> <p>2.2.5 <i>Understand that scientific comprehension of systems increases through inquiry. W</i></p> <p>a <i>Describe how scientific inquiry results in facts, unexpected findings, ideas, evidence, and explanations.</i> b <i>Describe how results of scientific inquiry may change our understanding of the systems of the natural and constructed world.</i> c <i>Explain how ideas about the natural and/or constructed world have changed because of scientific inquiry.</i></p> <p>*3.2.4 Understand how humans depend on the natural environment and can cause changes in the environment that affect human's ability to survive. W</p> <p>a Describe the effects of humans on the health of an ecosystem. b Describe how humans can cause changes in the environment that affect the livability of the environment for humans. c <i>Describe the limited resources humans depend on and how changes in these resources affect the livability of the environment for humans.</i></p>

*GLEs assessed in formative assessments found in WA Assessment Folio.

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