

# Phoenixville Area School District Understanding by Design (UbD) Science

**Grade Level: Grade 1**

**Unit Name: Plants and Animals**

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Stage 1 Desired Results		
	<b>Transfer</b>	
<p><b>Overarching NGSS &amp; PA Standards:</b></p> <p><b>3.1.1.A</b> Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.</p> <p><b>3.1.1.B</b> Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.</p>	<p><i>Students will be able to independently use their learning to...</i></p> <ol style="list-style-type: none"> <li>1. <i>Ask questions and/or define problems</i></li> <li>2. <i>Develop and/or use models</i></li> <li>3. <i>Plan and/or carry out investigations</i></li> <li>4. <i>Analyze and interpret data using computational thinking</i></li> <li>5. <i>Obtain, evaluate, and communicate information (supported by evidence)</i></li> <li>6. <i>Construct explanations and design solutions</i></li> </ol>	
	<b>Meaning-Making</b>	
	<p><i>Students will understand ...</i></p> <ol style="list-style-type: none"> <li>1. <i>Adult plants and animals can have offspring</i></li> <li>2. <i>How plant growth occurs from seeds</i></li> <li>3. <i>How to make new plant offspring from their parents</i></li> <li>4. <i>The phenomenon of young plant development</i></li> <li>5. <i>The idea that animals and plants have different body parts that help them survive and grow.</i></li> <li>6. <i>In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive.</i></li> <li>7. <i>Young animals and plants are very much, but not exactly like, their parents.</i></li> </ol>	<p><b>ESSENTIAL QUESTIONS</b> <i>Students will keep considering...</i></p> <ol style="list-style-type: none"> <li>1. What structures can you identify on a young plant growing from a seed?</li> <li>2. Where can new plants come from besides seeds?</li> <li>3. How do plants and animals survive in their habitat?</li> <li>4. What do offspring get from their parents that help young survive?</li> </ol>
	<b>Knowledge and Skills Acquisition</b>	

<p><b>3.1.1.C</b> Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.</p> <p><b>STEM</b> <b>K-2 ETS1-2</b></p> <p>Which branch(es) of science applies: <b>LS</b></p>	<p style="text-align: center;"><b>UNDERSTANDINGS</b></p> <p><i>Students will know...</i></p> <ol style="list-style-type: none"> <li><i>How to set up terrariums using seeds and plants</i></li> <li><i>Alternative ways to make plants that do not involve planting seeds in soil</i></li> <li><i>Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals and plants respond to these inputs with behaviors that help them survive, (i.e., when a human touches something hot, an electrical signal is sent to their brain from the nerves in their hand, once the brain registers what has happened, the brain sends back a signal to the arm telling the muscles to lift the hand immediately...plants also have ways to protect themselves, like when the plant closes up during cold nights to block the cold and trap in resources.</i></li> <li><i>In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive.</i></li> <li><i>Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.</i></li> </ol>	<p><i>Students will be skilled at...</i></p> <ol style="list-style-type: none"> <li>Plan and carry out investigations explaining the structures of a young plant growing from a seed.</li> <li>Plan and carry out investigations explaining where new plants can come from besides seeds.</li> <li>Plan and carry out investigations explaining how plants and animals survive in their habitat.</li> <li>Plan and carry out investigations explaining what offspring get from their parents that help young survive.</li> </ol>
<b>Key Vocabulary</b>		
( <b>bolded</b> words are essential vocabulary)		
<b>fertilizer, lawn, light, nutrient, plant, seed, soil, sprout, function, leaf, observe, stem, structure, root, node, bud, habitat, map, map key, terrarium, behavior, desert, forest, grassland, ocean, pond, rain forest, shelter, survive, system, tundra, predator, bulb, offspring, parent</b>		
<b>Stage 2 – Evidence</b>		
<b>Evaluative Criteria</b>	<b>Assessment Evidence</b>	
<p>What criteria will be used in each assessment</p>	<p><b>PERFORMANCE TASK(S):</b></p> <ol style="list-style-type: none"> <li>Imagine you are an animal living in the wild. You have to help your young survive a full day and night. What do you need? <ol style="list-style-type: none"> <li>define the problem</li> </ol> </li> </ol>	<p>Differentiation Considerations:</p>

<p>to evaluate attainment of the desired results?.</p> <p>Teacher observations notes and rubrics</p>	<p>b. create the solution  c. Devise a list of what supplies you need (food and shelter)  d. design and solution  e. Write them down on paper  f. Label all items.  g. communicate the information with classmates</p> <p>II. There is a blizzard and you will be snowed in your house for a week. What do you need to survive?  a. define the problem  b. create the solution  c. Devise a list of what supplies you need.  d. design and solution  e. Draw a picture and label what you need  f. communicate the information with classmates</p> <p>III. Investigations:  1. <b>Task(s):</b> Students engage with the phenomenon of plant growth from seeds. They conduct a schoolyard plant hunt and continue to look for variation. They use media to look at variation in kinds of animals and individuals of the same type.   <b>Assessment:</b> Investigation 1 I-Check</p> <p>2. <b>Task(s):</b> Students observe and describe the phenomenon of making new plants from stems, then they observe them grow over time.   <b>Assessment:</b> Investigation 2 I-Check</p> <p>3. <b>Task(s):</b> Students set up terrariums using seeds, plants and local animals to provide for the needs of the organisms. They will observe their interactions over time. Students learn about other organisms through media and compare and sort structures and functions. Through an outdoor simulation, students engage with and describe the phenomena of variations by looking at they ways animals store food for winter survival. Students will also learn how engineers use nature to solve human problems.   <b>Assessment:</b> Investigation 3 I-Check</p>	<p>For labs, consider that some students may wish to:</p> <ul style="list-style-type: none"> <li>• explain verbally instead of in a written format</li> <li>• draw their responses</li> <li>• write in their first language</li> </ul> <p>If challenges arise with the complexity of the task(s), some students may need:</p> <ul style="list-style-type: none"> <li>• more incremental steps</li> <li>• an alternative activity</li> </ul> <p>Other considerations:</p> <ul style="list-style-type: none"> <li>• When grouping students consider matching different skills sets</li> <li>• When asking students to describe a model, give them the opportunity to draw or write it, as well.</li> <li>• Teacher can scribe written responses for students</li> </ul>
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	<p>4. <b>Task(s):</b> Students plant bulbs using an unconventional method to observe and describe the phenomenon of young plant development. The plant parts are observed closely over time to see which parts will develop into new plants. They will also use the new plants to compare the new offspring to their parent plants. Students will use media to learn about how behaviors of animals help their young to survive. Students will also be able to describe the phenomenon of how young organisms resemble their parents.</p> <p><b>Assessment:</b> Investigation 4 I-Check</p>	
<p>Rubrics</p>	<p style="text-align: center;">OTHER EVIDENCE:</p> <ul style="list-style-type: none"> <li>• Checklists of collaborative behaviors in labs and activities</li> <li>• Checklists of collaborative behaviors in class discussions</li> <li>• Journal entries</li> </ul>	<p>Differentiation Considerations:</p> <p>For journal entries, consider that some students may wish to:</p> <ul style="list-style-type: none"> <li>• draw instead of write entries</li> <li>• write in their first language</li> <li>• explain verbally</li> </ul> <p>If challenges arise with the complexity of the task(s), some students may need:</p> <ul style="list-style-type: none"> <li>• more incremental steps</li> <li>• an alternative activity</li> </ul>