Unit 3- Mimicking Organisms to Solve Problems

Content Area: **Science**
Course(s): **Science 1**
Time Period: **January**
Length: **25 Days**
Status: **Published**

Unit Summary

Students develop an understanding of how plants and animals use their parts to help them survive, grow, and meet their needs. Students also need opportunities to develop possible solutions. As students develop possible solutions, one challenge will be to keep them from immediately implementing the first solution they think of and to instead think through the problem carefully before acting. Having students sketch their ideas or make a physical model is a good way to engage them in shaping their ideas to meet the requirements of the problem. The crosscutting concept of structure and function is called out as an organizing concept for the disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in constructing explanations, designing solutions, and in developing and using models. Students are expected to use these practices to demonstrate understanding of the core ideas.

Standards

CCSS.Math.Practice.MP2	Reason abstractly and quantitatively.
CCSS.Math.Practice.MP5	Use appropriate tools strategically.
LA.RI.1.1	Ask and answer questions about key details in a text.
LA.RI.1.2	Identify the main topic and retell key details of a text.
MA.1.NBT.B.3	Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.
MA.1.NBT.C.4	Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models (e.g., base ten blocks) or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.
MA.1.NBT.C.5	Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.
LA.RI.1.10	With prompting and support, read informational texts at grade level text complexity or above.
MA.1.NBT.C.6	Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
MA.1.MD.A.1	Order three objects by length; compare the lengths of two objects indirectly by using a third object.
LA.W.1.7	Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions).
LA.W.1.8	With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
LA.SL.1.1	Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.

LA.SL.1.1.A	Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).
LA.SL.1.1.B	Build on others' talk in conversations by responding to the comments of others through multiple exchanges.
LA.SL.1.1.C	Ask questions to clear up any confusion about the topics and texts under discussion.
LA.SL.1.2	Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
LA.SL.1.3	Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
LA.SL.1.6	Produce complete sentences when appropriate to task and situation.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
SCI.1.1-LS1-1	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.
TECH.8.1.2.A.CS1	Understand and use technology systems.

Student Learning Objectives

Students will learn to...

- analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.
- read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.

Essential Questions

- How can humans mimic how plants and animals use their external parts to help them survive and grow?

Enduring Understandings

Students will understand that...

- All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow.
- Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive.
- Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.
- Young animals are very much, but not exactly, like their parents. Plants also are very much, but not exactly, like their parents.
- Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.

Application

Students will be able to independently use their learning to…

- Observe patterns in the natural world to describe phenomena, and used as evidence.
- Recognize that the shape and stability of structures of natural and designed objects are related to their function(s).
- Provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.

Skills

Students will be skilled at...

- making observations (firsthand or from media) to construct an evidence-based account for natural phenomena.
- using materials to design a device that solves a specific problem or a solution to a specific problem.
- reading grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world.
- looking for patterns and order when making observations about the world.