

Unit 2: From Molecules to Organisms: Structures and Processes

Content Area: **Science**
Course(s): **Biology, Earth Science, Physical Science**
Time Period: **Generic Time Period**
Length: **5 weeks**
Status: **Published**

Standards

MA.1.1.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.
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.
1-LS1-2	Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.
1-LS3-1	Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.
SCI.1-LS1-2	Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.
LA.1.RI.1.1	Ask and answer questions about key details in a text.
LA.1.RI.1.2	Identify the main topic and retell key details of a text.
LA.1.RI.1.10	With prompting and support, read informational texts at grade level text complexity or above.
SCI.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.
LA.1.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).
MA.1.1.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.1.1.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.1.1.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.

Learning Objectives

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.

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.

Develop ideas that, like a superhero has special powers, every animal and plant has special parts and behaviors to help them grow and meet their needs.

Essential Questions

How can we become better writers while learning about science?

What are plants?

What are the parts of a plant?

What is the plant life cycle?

How do we use our senses to observe a plant while it's growing?

What are animals?

What are the different groups of animals?

What are the ways we sort animals?

What special parts and behaviors do animals and plants have that help them grow and meet their needs?

Learning Activities

MYSTERY SCIENCE #1 Animal Superpowers

EQ: Why do birds have beaks?

Exploration Video: (15 min)

Activity: Find the best beak (25 minutes)

Make a “pointy beak” for each student. Make a “duck beak” for each student.

Mark off a test area for each group of 4 students.

- If you have a low-pile carpet, mark a 3'X3' square with masking tape.
- If you have hard floors, spread out a bath towel and tape down the corners.

Prepare the following “bird food” for each test area:

- about $\frac{1}{3}$ of a regular paper cup of macaroni
- about $\frac{1}{3}$ of a regular paper cup of dried beans

Materials:

- Plastic drinking straws (NOT the flexible kind): 1 per student and a few extras
- 3 oz. paper cups (i.e. Dixie cups): 1 per student and a few extras
- Regular paper cups (8 oz size): 1 per student and 2 for each group of four students
- Masking tape
- A floor with low-pile carpet or a bath towel: for each group of four students
- Elbow macaroni (uncooked): about 3 oz for each group of 4 students
- Dried beans: about 3 oz for each group of 4 students
- A pair of scissors (for activity prep)

Optional Extras (2 hours)

- Writing Prompt: [If I had a bird beak I would choose...](#)
- Activity Extension: [More ways to experiment](#) with bird “beaks” and “food.”
- Read-Aloud Books: [Online books](#) that focus on ducks, a familiar bird with an interesting bill.
- Video Activity: Watch [videos of birds eating](#) and discuss why each bird has the beak it does.
- Thinking Activity: Explore the [similarities between bird beaks and human tools.](#)

MYSTERY SCIENCE #2 *Animal Superpowers*

EQ: Why are polar bears white?

Exploration Video: (21 min)

Activity: Moth Hide and Seek (25 minutes)

You are going to hide paper moths for your students to find — then your students will hide moths for you (or someone else you enlist) to find.

You need wall space where you can make a paper forest. Each tree is about the size of a door. You can build your trees on an empty wall, a bulletin board, or on a door.

This activity works best if you have three different bark patterns. If you don't have enough space (or time) to make three trees, you can make one tree and two stumps.

Materials:

Figure out what you need to attach your paper trees to your walls.

- Use pushpins or thumbtacks if your trees will be on a bulletin board
- Use [removable sticky glue dots](#) to attach your trees to a painted wall or door

Each student will need:

- At least one [“Color-A-Moth” handout](#) (if you only have a few students, we suggest 2 or 3 per student)
- A [“Look for moths” handout](#)
- Access to crayons, markers, and/or colored pencils in a variety of colors
- Scissors
- A [removable sticky glue dot](#)

Optional Extras (2 hours)

- Writing Prompt: [Camouflage is helpful to animals because...](#)
- Visual Activity: Can you [find the camouflaged animal?](#)
- Readings: [Online readings](#) with comprehension questions.

- Video & Discussion: [*The Mixed Up Chameleon*](#), by Eric Carle, will encourage students to think about structures and features that help animals survive.

-Create KWL flap chart about plants

-Brainpop on plants and how they grow

-Interactive notebook activity: Students will create true/false pockets and place sentences about plants in the correct pockets

-Speaking and listening activity: Students partner up to give each other feedback

-Smartboard lesson about what plants have, need, and give us

-Interactive notebook activity: Students will create pockets for what plants need, have, and give, then cut & paste & correctly sort the pictures

-Speaking and listening activity: Students partner up to give each other feedback

-Smartboard lesson about parts of a plant

-Interactive notebook activity: Students will create a flapchart for the parts of a plant

-Speaking and listening activity: Students partner up to give each other feedback

-Plant journal-Students will plant lima bean seeds and use their senses to observe the plant while it is growing throughout 2 weeks. Students will draw and write about what they observe each day.

-Speaking and listening activity: Students partner up to give each other feedback

-Smartboard lesson about plant life cycle

-Interactive notebook activity: Students will create a spinning life cycle of a plant in their notebook

-Speaking and listening activity: Students partner up to give each other feedback

- Smartboard lesson about animal kingdom (fish, birds, reptiles, amphibians, mammals)
- Interactive notebook activity: Students will cut 5 pockets for the groups of animals & sort pictures of animals into the pockets in their notebook
- Speaking and listening activity: Students partner up to give each other feedback

-Partners will solve a human problem (make clothing to protect bicyclist) by using knowledge about how plants and/or animals use their external parts to help them survive

-Each group will receive a real life human problem & will work together to plan and develop a solution

Materials & Resources

www.mysteryscience.com

Smartboard with internet access

Science Smartboard files (W drive)

Interactive Science Notebook (www.NicoleAndEliceo.com)

scissors

glue sticks

pencils

crayons

lima beans

ziploc baggies

paper towels

Plant Journal

Problem cards

Problem/Solution data sheet

Assessment

Daily Interactive Science Notebook production

Completed plant journal

Completed problem/solution sheet

Accommodations & Modifications

- Large print textbooks
- Additional time for assignments
- Review of directions
- Have student restate information
- Provision of notes or outlines
- Concrete examples
- Adaptive writing utensils
- Support auditory presentations with visuals
- Weekly home-school communication tools (notebook, daily log, phone calls or email messages)
- Space for movement or breaks
- Extra visual and verbal cues and prompts
- Books on tape

- Graphic organizers
- Quiet corner or room to calm down and relax when anxious
- Preferential seating
- Alteration of the classroom arrangement
- Reduction of distractions
- Answers to be dictated
- Hands-on activities
- Use of Manipulatives
- Follow a routine/schedule
- Alternate quiet and active time
- Teach time management skills
- Rest breaks
- Verbal and visual cues regarding directions and staying on task
- Daily check-in special education teacher
- Visual daily schedule
- Varied reinforcement procedures
- Immediate feedback
- Personalized examples