

Unit 2: From Molecules to Organisms: Structure and Processes

Content Area: **Science**
Course(s):
Time Period: **Generic Time Period**
Length: **3 weeks**
Status: **Published**

Disciplinary Core Ideas

Growth and Development of Organisms

- [Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. \(3-LS1-1\)](#)

LA.3.SL.3.5	Use multimedia to demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details.
MA.3.3.NBT	Number and Operations in Base Ten
3-LS1	From Molecules to Organisms: Structures and Processes
3-LS1-1	Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.
MA.3.3.NF	Number and Operations—Fractions
LA.3.CCSS.ELA-Literacy.RI.3.7	Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).

Essential Questions

Essential Unit Question:

Do all living things have the same life cycle?

Are there advantages to being different?

Objectives:

Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.

Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing

Concepts that will be taught:

- Science findings are based on recognizing patterns.
- Similarities and differences in patterns can be used to sort and classify natural phenomena.
- Patterns of change can be used to make predictions.
- Reproduction is essential to the continued existence of every kind of organism.
- Plants and animals have unique and diverse life cycles.
- Cause-and-effect relationships are routinely identified and used to explain change.
- Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing.

Students will be able to:

- Sort and organisms (inherited traits) using similarities and differences in patterns.
- Make predictions using patterns of change. • Develop models to describe phenomena.
- Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. (I.e., Changes organisms go through during their life form a pattern.)
- Identify cause-and-effect relationships in order to explain change.
- Use evidence (e.g., observations, patterns) to construct an explanation.
- Use evidence to construct an explanation for how the variations in characteristics among individuals of the same

species may provide advantages in surviving, finding mates, and reproducing.

Examples of cause-and-effect relationships could include:

-Plants that have larger thorns than other plants may be less likely to be eaten by predators.

- Animals that have better camouflage coloration than other animals may be more likely to survive and therefore more likely to leave offspring.

Activities

Textbook

1. Have students observe pea seeds with a hand lense. Place seeds in a cup and cover with water. Look at seeds again next day and record observations. Use toothpick to separate seed and record findings as well as put seed in bag with moist paper towels. Record observations for a week to see how a plants life begins. (Page A 24-25)
2. Complete Interpret Illustrations Page 19-20, Students will be able to identify the life cycle order of a seed and conifer

Mystery Science: Plant Adventures

Mystery #1: (Seed Dispersal) In this Mystery, students will learn how seeds must get away from their parent plant in order to survive.

Mystery #2: (Roots, Water and Minerals) In this Mystery, students will learn the importance of water (which is taken in by the roots) for plants, and what it is about dirt that plants really need. They'll build a Root Viewer to see up close how roots behave.

Mystery #3: (Light, Leaves, & Competition) In this Mystery, students will learn the importance to sunlight to plants, which is collected by their leaves. Knowing how plants respond to sunlight, they will build creative Grass Heads. This mystery requires two class periods.

Mystery #4: (Adaptation and Habitat) In this Mystery, students will learn that plants have different needs in terms of sunlight and water. In the activity we will revisit our Grass Heads

Materials & Resources

www.mysteryscience.com

Pea seeds, hand lens, plastic cup, water, paper towel, plastic bag, toothpick, Interpret Illustrations page 19-20

Mystery Science:

Mystery #1

Each student will need:

- a copy of paper templates and instruction sheets for the [Spinner](#), the [Glider](#), or the [Rotocopter](#). Each student will make one flyer.
- scissors
- a pen or pencil
- a paper clip

The teacher will need:

- a clothespin
- a chair for the “official seed dropper” to stand on
- a dark piece of paper labeled ZONE OF DARKNESS. The smaller the paper, the easier it is for students to succeed. To make it easy, use a letter-sized page. To make it more difficult, go with a larger sheet.

Mystery #2

Each student will need:

- a CD case. Ask each student to bring an empty CD case from home or buy some at an office supply store or [Amazon](#).
- 5 radish seeds. A 3-gram seed packet from your local garden/hardware store
- a pencil
- a small piece of masking tape
- a plastic sandwich bag (to hold the CD case)
- a wet paper towel
- a [Root Viewer Worksheet](#)

Mystery #3:

Each student will need:

- a Grass Head worksheet
- a ruler
- a ballpoint pen or Sharpie (water-soluble markers will not work)
- a popsicle stick
- 3 small rubber bands
- 2 paper towels
- a paper plate
- a nylon kneesock, cut as described below

In addition, you will need:

- about 2 cups (about one pound) of fast-sprouting grass seeds
- bowls to hold $\frac{1}{4}$ cup of grass seed (one bowl for each group of 4 students)
- cups of water (one cup for each group of 4 students)
- a few ceramic coffee mugs and four plates (styrofoam, plastic, or ceramic) for the grass

heads while they are sprouting. (Plates must have raised edges so they'll hold water.)

Mystery #4:

Each student needs:

- the Grass Head they made earlier
- the [Grass Head Worksheet](#) from last week's lesson
- a pencil
- a paper plate to put their grass head on

Assessment

Chapter 1 test (Page 1)

Chapter 1 Review (Page A34-35)

Chapter Vocabulary (Page 23, Reading in Science Resources)

Mystery Science:

Mystery 1-4 assessment

Summative Assessment

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

