

**Focus:** Butterfly Life Cycle

**Grade Level:** K-2

**Session Length:** Four activities of 20-30 minutes each

### Driving Questions

- How can we record our observations using our reporter notebook?
- What is the mystery bug at Crystal Cove State Park?

*During Week 1: What's This Bug?, students are introduced to the idea of nature reporting and then investigate an unknown bug at Crystal Cove State Park.*

On Day 1, students are introduced to their new role as nature reporters and practice using their reporter notebook by recording observations of a nature object. On Day 2, students observe models of the unknown bug and a hard, shell-like object and use a field guide to identify the bug. They draw a picture in their notebook. On Day 3, students learn about the life cycle of a butterfly by watching a short video, putting together pieces of a life cycle, and drawing a picture of the life cycle in their notebooks. On Day 4, students look for bugs around their school and use a field guide to try to identify the bugs.

### Learning Outcomes and Assessments

<i>By the end of this module, students will be able to...</i>	<i>You can assess this using...</i>
<b>1. Use</b> their reporter notebook to make observations about a nature object.	Reporter notebooks on Day 1
<b>2. Use</b> a field guide to identify an unknown insect.	Class discussion; Reporter notebooks on Day 2 and Day 4
<b>3. Draw and explain</b> the four stages of a butterfly's life cycle.	Class discussion; Reporter notebooks on Day 3

**Weekly Sequence**

Section	Description	Length	Format
Day 1	<p><b>What's This Bug?: Intro to Nature Journaling</b> Students are introduced to their role as a nature reporter as they use their reporter notebook to practice making observations about a nature object.</p>	20-30 minutes	Classroom and School grounds
Day 2	<p><b>What's This Bug?: Unknown Bug</b> Students are introduced to the week's mystery, where an unknown bug has been spotted at Crystal Cove State Park! They observe small models of the bug, use a field guide to identify it, and draw a picture of it in their notebooks.</p>	20-30 minutes	Classroom
Day 3	<p><b>What's This Bug?: Life Cycle</b> Students continue to investigate the mystery bug as they learn about the life cycle of a butterfly. They watch a short video, observe plastic models representing all four life stages, and draw a picture of the life cycle in their notebooks.</p>	20-30 minutes	Classroom
Day 4	<p><b>What's This Bug?: Bugs at School</b> Students look for bugs on their school grounds and draw pictures in their notebooks. They use a field guide to try to identify the bugs.</p>	20-30 minutes	Classroom and School grounds

## Big Science Idea

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Butterflies live extraordinary lives! They go through four stages during their life cycle: egg, larva, pupa, and adult butterfly. This developmental process is called metamorphosis. Each stage looks so dramatically different from the others that it can be hard to believe that it is the same animal at each stage.

Adult female butterflies lay eggs on leaves. Inside the egg, a larva (also called a caterpillar) is growing. When it is ready to emerge from the egg, it chews its way out of the egg and emerges from the egg. The caterpillar spends its life eating leaves to store up energy that will be used when the caterpillar becomes an adult. As the caterpillar eats, it grows, and sheds its exoskeleton 4-5 times.

Once the larva is fully grown, it becomes a pupa (also known as a chrysalis). During the pupa stage, the organism transforms from the caterpillar into an adult butterfly. This stage can last from a few weeks up to a couple of years, depending on the species. Many changes take place during this transformation that allow special cells to grow quickly and form into the body parts of an adult butterfly: long legs, wings, long antennae, and compound eyes.

Most adult butterflies live for only one or two weeks and spend their time feeding on the nectar of flowers (although some don't eat at all or feed on other food sources), mating, and laying eggs.

### *If you want to learn more...*

- [\*Butterfly Life Cycle\*](#)
- [\*Video: What Happens Inside a Butterfly's Chrysalis\*](#)
- [\*Free Nature Journaling Teacher Resources\*](#)

### *If you want to share more with students...*

- [\*National Geographic Kids: The Butterfly Life Cycle!\*](#)
- [\*Animated Film: The Very Hungry Caterpillar\*](#)
- [\*Book Reading: The Very Hungry Caterpillar\*](#)

Day 1

**Intro to Nature Journaling**  
(25-30 minutes)

Each teacher will need...	Each student will need...
<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Day 1 Slideshow</b></li> <li><input type="checkbox"/> Computer, projector, and speakers</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Reporter notebooks</li> <li><input type="checkbox"/> Pencil</li> <li><input type="checkbox"/> Colored pencils</li> </ul>

**Before you start teaching...**

- Open the day's slideshow and check to make sure that the videos play with sound.
- Gather enough reporter notebooks and pencils so each student will have their own.
- Gather colored pencils.

**Instructional Learning Sequence**

1. Open the slideshow and play the video on **Slide 2** for the class. Erick will introduce students to the Crystal Cove Conservancy News (CCCN) and their new role as nature reporters for the upcoming weeks.
2. Advance to **Slide 3**, where Erick will introduce the students to the reporter notebooks that they will use over the next four weeks.
3. Move on to **Slide 4**, which has written instructions for how students will use their notebooks:
  - Take notes and record clues
  - Draw pictures
  - Add detail by using descriptive words
  - Record and graph data

Explain to students that over the next four weeks, they will use their reporter notebook to record notes, observations, and drawings to help CCCN solve mysteries and challenges that occur at Crystal Cove State Park as they take on the role of nature reporters. Explain that nature journaling is a great way for nature reporters (and scientists) to record all of the observations they make in the natural world.

4. Move on to *Slide 5*, which shows the information that students should write on the front cover of their reporter notebook:

- Their name
- Their teacher's name
- Summer 2021

Pass out the reporter notebooks to students. Give students time to use crayons, colored pencils, or markers to decorate and personalize their notebooks.

5. Move to *Slide 6* and play the video. Erick will explain that students will use their new reporter notebooks to record their observations of a nature object. They will go outside and choose an object to observe and record their observations.

6. Before going outside, move to *Slide 7* to show students the written instructions for what they will do outside:

- Find a nature object and a quiet spot to sit.
- Write the date, time, and location at the top of the page.
- Draw a picture of the object.
- Record any notes about the color, texture, and smell.
- Make sure students are prepared to share when they are done!

Review the instructions with the students to ensure they understand what they will do once they are out of the classroom. Provide the necessary directions for safety and logistics for how they will find their nature object outside. For example, you may want to make sure they know that they should walk at all times and should always be within eyesight of you and any other adults who may be accompanying them. Give explicit directions for boundaries so they know which areas of the school grounds they are allowed to explore to find and observe their nature object. Also, make sure students understand that they can observe flowers or leaves, but that they shouldn't remove flowers or leaves from plants.

7. Take the students outside so they can find and observe their nature object. Walk around the area to check on progress and answer any questions. Make sure to give students updates on how much time they have left so they can record all of their observations in their notebooks. Once time is up, gather all of the students and return to the classroom.

8. Once you are back in the classroom, move to *Slide 8*, which shows the students the questions they will be answering as they share their observations:

- What was your nature object?
- What did it look like?
- What did you notice about it?

Facilitate a class discussion so students can share their object and observations. You could also have students work in small groups or in pairs to share their observations.

Day 2

**Breaking News! Unknown Bug**  
(20-30 minutes)

<i>Each teacher will need...</i>	<i>Each student will need...</i>
<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Day 2 Slideshow</b></li> <li><input type="checkbox"/> Computer, projector, and speakers</li> <li><input type="checkbox"/> (3) Sets of models of the larva and chrysalis stages of a butterfly life cycle</li> <li><input type="checkbox"/> <b>Digital Bug Field Guide: Unknown Bugs</b></li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Reporter notebooks</li> <li><input type="checkbox"/> Pencil</li> <li><input type="checkbox"/> Colored pencils</li> <li><input type="checkbox"/> Computer (optional)</li> </ul>

*Before you start teaching...*

- Open the day's slideshow and check to make sure that the videos play with sound.
- Gather the models of the larva and chrysalis stages of a butterfly life cycle and decide on a plan for how students will take turns observing the models. (You will not need the butterfly or egg models for this day!).
- Gather crayons, colored pencils, or markers.
- If you want each student to look at their own digital field guide, gather enough computers for each student.

### *Instructional Learning Sequence*

1. Open the slideshow and play the video on *Slide 2*. Erick will introduce the students to the breaking news that an unknown bug has been seen at Crystal Cove State Park. He will ask the students to use a model of the bug and a hard, shell-like object found near the bug to identify the bug.

After viewing the video, ask students to explain to you what their job as nature reporters will be to ensure they understand how they can help Erick.

2. Move on to *Slide 3*. and play the video. Erick will explain that the students will use a field guide to identify the unknown bug.

3. Move on *Slide 4*, which shows the directions for how the students will use the field guide and the models to identify the bug:

1. Make observations about the unknown bug models that were sent to your class.
  - What do you notice about the bug? What color is it? Does it have legs? Wings? Antenna?
  - What do you notice about the other object?
2. Use the field guide to identify the unknown bug.
3. Once you think that you have identified the unknown bug, draw it in your reporter notebook!

4. Review the directions with the students. Project the field guide and ask students to open it on their computers if you want each student to see the field guide on their own. Review the field guide so students understand how to use it.

Explain that they will share the models so they need to be patient as the models are passed around the room. Explain the system you will use to pass the models around the room. (For example, will the students sit in small groups and share the models? Or, will each student get to observe the models independently?).

5. Hand out the larva and chrysalis models and crayons, colored pencils, or markers. Give students time to identify and draw their organism in their reporter notebook. Walk around the room to check on progress, make sure the models are being shared, and answer questions.

6. Once students are done making observations, move on to *Slide 5* which gives directions for students to share their ideas for the name of the unknown bug. Facilitate a class discussion and ask students for their ideas and make sure they also explain why they chose the organism they chose.

Day 3

Life Cycle  
(20-30 minutes)

Each teacher will need...	Each student will need...
<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Day 3 Slideshow</b></li> <li><input type="checkbox"/> Computer, projector, and speakers</li> <li><input type="checkbox"/> (3) complete sets of the model of butterfly life cycle stages (egg, larva, chrysalis, butterfly)</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Reporter notebooks</li> <li><input type="checkbox"/> Pencil</li> <li><input type="checkbox"/> Colored pencils</li> </ul>

*Before you start teaching...*

- Open the day's slideshow and check to make sure that the videos play with sound.
- Gather the three sets of the model of the butterfly life cycle stages (egg, larva, chrysalis, butterfly).
- Gather crayons pencils.

*Instructional Learning Sequence*

1. Open the slideshow and play the video on **Slide 2**. Erick will explain that he has a new clue to share. He thinks the hard, shell-like object might be a chrysalis and suggests looking into the life cycle of a butterfly to see if that helps confirm the identity of the bug. He will tell the students that they will watch a video of the life cycle of a butterfly, and they should take notes in their reporter notebook.
2. Move on to **Slide 3** and play the video of the butterfly life cycle. You may want to pause the video at certain points to give students some time to take notes on the different stages of a butterfly's life cycle.
3. Move to **Slide 4** and play the video. Erick will explain that he has sent more pieces of the model of the organism's life cycle to the classroom and the students will observe those pieces to put together the life cycle. Explain that they will need to share the pieces of the model, and explain the system you will use to pass the models around the room. (For example, will the students sit in small groups and share the models? Or, will each student get to observe the models independently?)



You can also choose to do this activity as a class activity. You can show the students the models (and pass them around the room) and talk about the life cycle as a class and discuss the order of the cycle together. Once the class decides on the order, you can write the life cycle on the whiteboard.

4. Once they have put together the life cycle (independently or as a class activity), ask them to draw the four stages of the life cycle in their reporter notebook. Give students time to work on the task. Give students crayons, colored pencils, or markers to draw the life cycle in their notebooks. Walk around the room to check on progress, make sure the models are being shared, and answer any questions.

5. Once students have finished their drawing, move to [Slide 5](#). This slide provides directions for sharing their ideas for the name of the unknown bug.

Day 4

**Bugs at School**  
(20-30 minutes)

Each teacher will need...	Each student will need...
<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Day 4 Slideshow</b></li> <li><input type="checkbox"/> Computer, projector, and speakers</li> <li><input type="checkbox"/> <b>Digital Bug Field Guide: Bugs at School</b></li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Reporter notebooks</li> <li><input type="checkbox"/> Pencil</li> <li><input type="checkbox"/> Magnifying glass</li> <li><input type="checkbox"/> Computer (optional)</li> </ul>

**Before you start teaching...**

- Open the day's slideshow and check to make sure that the videos play with sound.
- Gather magnifying glasses.
- If you want each student to look at the digital field guide on their own, gather enough computers for each student to have one.

### *Instructional Learning Sequence*

1. When you open the slideshow, advance to **Slide 2** and play the video. Erick will thank the students for identifying the unknown bug and direct students to look for bugs on their school grounds and identify them.

2. Move to **Slide 3** which shows directions for looking for bugs at school:

- Find a bug outside at your school.
- Use your magnifying glass to make observations.
- Write down any observations or make drawings about the bug you are looking at in your reporter notebook.

Before leaving the classroom, review the instructions and give students safety guidelines for their bug hunt. Let them know if you want them to work individually, in pairs, in small groups, or if you will do the activity as a class and look for bugs together. Give explicit directions for boundaries and make sure students know to walk at all times and to stay within eyesight of you and any other adults. Make sure they know not to pick up or touch bugs, not to turn over rocks, and only use the magnifying glass to look at bugs (and not use it to focus sunlight on the bug or on leaves, etc.).

3. Once all instructions are given, head out onto the school grounds and assist students as necessary as they observe and record their observations of bugs. Make sure to give them updates on how much time is remaining as they go through the activity so that they can allocate their time accordingly in order to observe two bugs. When time is up, gather all of the students together and return to the classroom.

4. Once you return to the classroom, move on to **Slide 4** and play the video. Erick will give directions on how to use a digital field guide to identify the bugs the students drew in their notebooks.

5. Project the field guide and ask students to open it on their computers if you want each student to see the field guide on their own. Review the field guide so students understand how to use it. Give students time to use the field guide to identify the bugs they found outside. If there are bugs that they couldn't find on the field guide, ask them to describe them and see if any other students can help identify them.

6. Move to *Slide 5* and facilitate a class discussion so students can share their findings. Some recommended discussion questions include:

- What bugs did you find at your school?
- What do the bugs you found look like?
- Are these bugs that you see very often at school? What about at your home?

7. Move to *Slide 6* and play the video. Erick will thank students for their help today in identifying bugs!