



Unit 1

GOALS

IN THIS UNIT, YOU WILL:

- Read about a person who captures amazing images of nature.
- Learn about a new way of viewing the world.
- Explore how the natural world has inspired the development of new technology and inventions.

THINK AND DISCUSS

1. What are some things in nature that we cannot see with our own eyes?
2. Binoculars and microscopes are tools that help us look at nature more closely. Can you think of other examples? Which ones have you used?

HIDDEN MIRACLES



A male hummingbird pollinating
an orchid

PRE-READING

A. Look at the photos on pages 10–13. What do you think each one shows? Read the captions to check your ideas.

B. Answer the following questions about the passage on pages 11–13.

1. Read the introduction. Who is the passage about? What is his profession?

2. What kinds of things do you think time-lapse photography can show us?


3. Read the sentences in bold in the passage. List the topics you think the passage will cover. Share your ideas with a partner.

4. Skim the entire passage. What kind of passage is this?

- a. An art book excerpt
- b. A science article
- c. An interview



Close-up of a caterpillar's mouth as seen under an electron microscope

 Filmmaker Louie Schwartzberg has shot everything from TV commercials to documentaries, but he is best known for his time-lapse photography, a technique that captures images on film very slowly. When shown at regular speed, the viewer can see things the human eye cannot normally see. Schwartzberg's remarkable documentary—*Mysteries of the Unseen World*—**illustrates** his talent for capturing the wonders of nature using this technique.



VIEWING NATURE'S BEAUTY THROUGH A NEW LENS

National Geographic spoke with Louie Schwartzberg about the **challenges** and rewards of his career in photography, the **issues** he feels most passionate about, and why he believes it's important that we all become more connected to nature.

How did you become interested in nature photography and filmmaking?

- 1 I found my voice with photography as a student at UCLA [the University of California at Los Angeles]. We had anti-war protests going on right outside my classroom, so I picked up a camera and started to **document** that. And when I met my greatest teacher,

then I fell in love with nature. He taught me everything about lighting, composition, color, and how to live a sustainable, creative life.

Can you explain a little more about your Moving Art project and what the mission is?

- 2 Basically, I've got a thousand hours of material that I've filmed over the years. The mission is to be able to share how cool nature is—there's amazing time-lapse, slow motion, and aerals. You may have heard of nature deficit disorder,

aerals: *n.* images that are taken from above, as from an airplane

anti-war protests: *n.* demonstrations that express opposition to war

where kids are suffering from the fact that they're not connected to nature, but I think what we need to do is engage them where they are. That's what I'm trying to do.

You've been shooting time-lapse 24/7 for over three decades. What have you been shooting?

- 3 Flowers, **primarily**. They kind of seduce you with their beauty and you fall in love with them. That's why I made a film about pollination, which is so critical. A third of our food comes from pollinating plants. But to answer your question **specifically**, I've got two cameras going nonstop 24 hours a day, seven days a week, because time is precious and I don't want to waste a single second. I've squeezed 35 years of shooting into 12 hours of material.

What are some of the challenges that you deal with when you're time-lapse filmmaking?

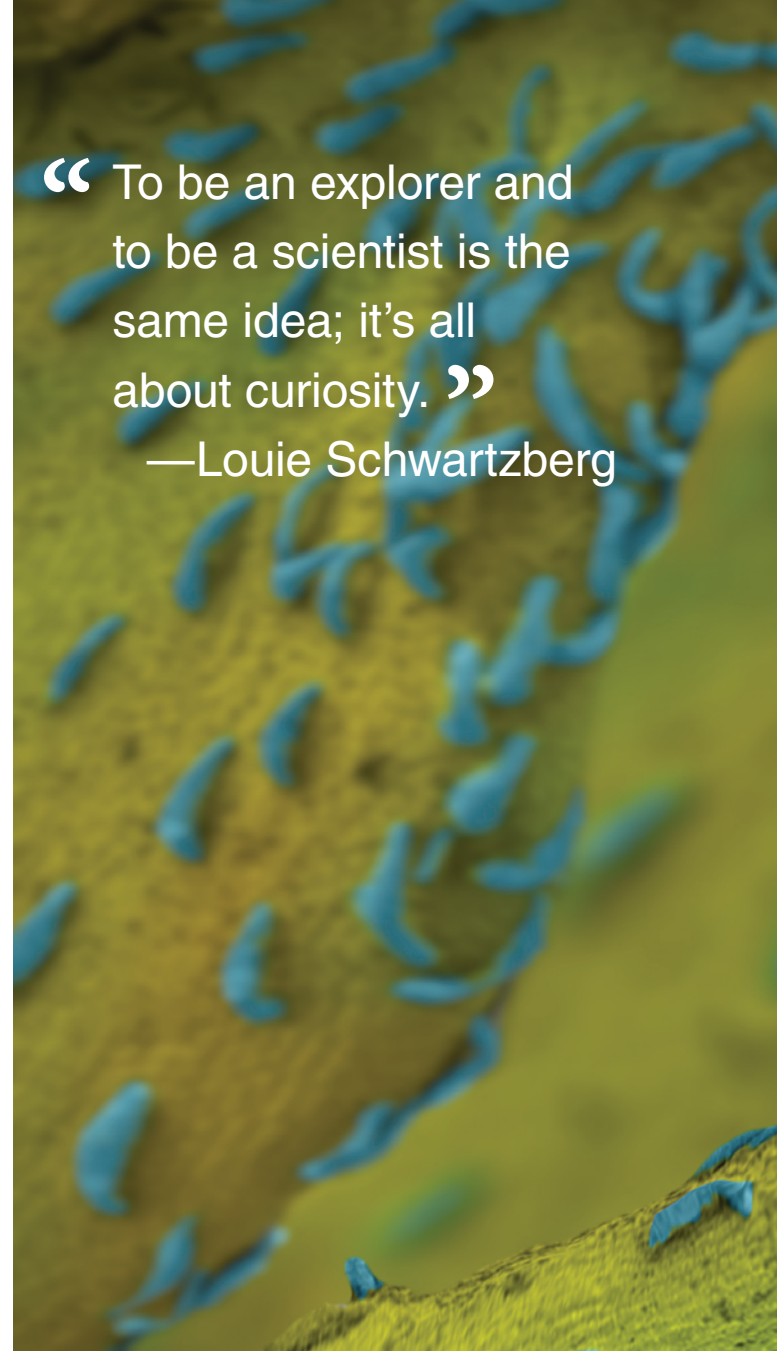
- 4 The biggest ones, I think, are mosquitoes. They come out at sunset, at early dawn, and at twilight. . . . but besides the mosquitoes, when I'm on location, it's about survival. I've got to figure out food, water, transportation, and how to get back home when it gets dark. It's not just the technique, but I do it because I think time-lapse can **transform** your consciousness by helping you see things from a different point of view. That's when you change your perspective. And when you change your perspective, that's how you develop gratitude.

What's one of the most memorable experiences you've had in nature while doing your work?

- 5 I was recently in Panama shooting hummingbirds in slow motion. It's just amazing to see their world. They're very territorial with the way they kind of fight each other to get the flower. And nectar-feeding bats in the Sonoran Desert—I got this incredible shot of a baby bat breastfeeding on the mother bat as the mom is feeding on a flower in the desert. Most people don't realize the entire Sonoran Desert would not exist without these nectar-feeding bats.

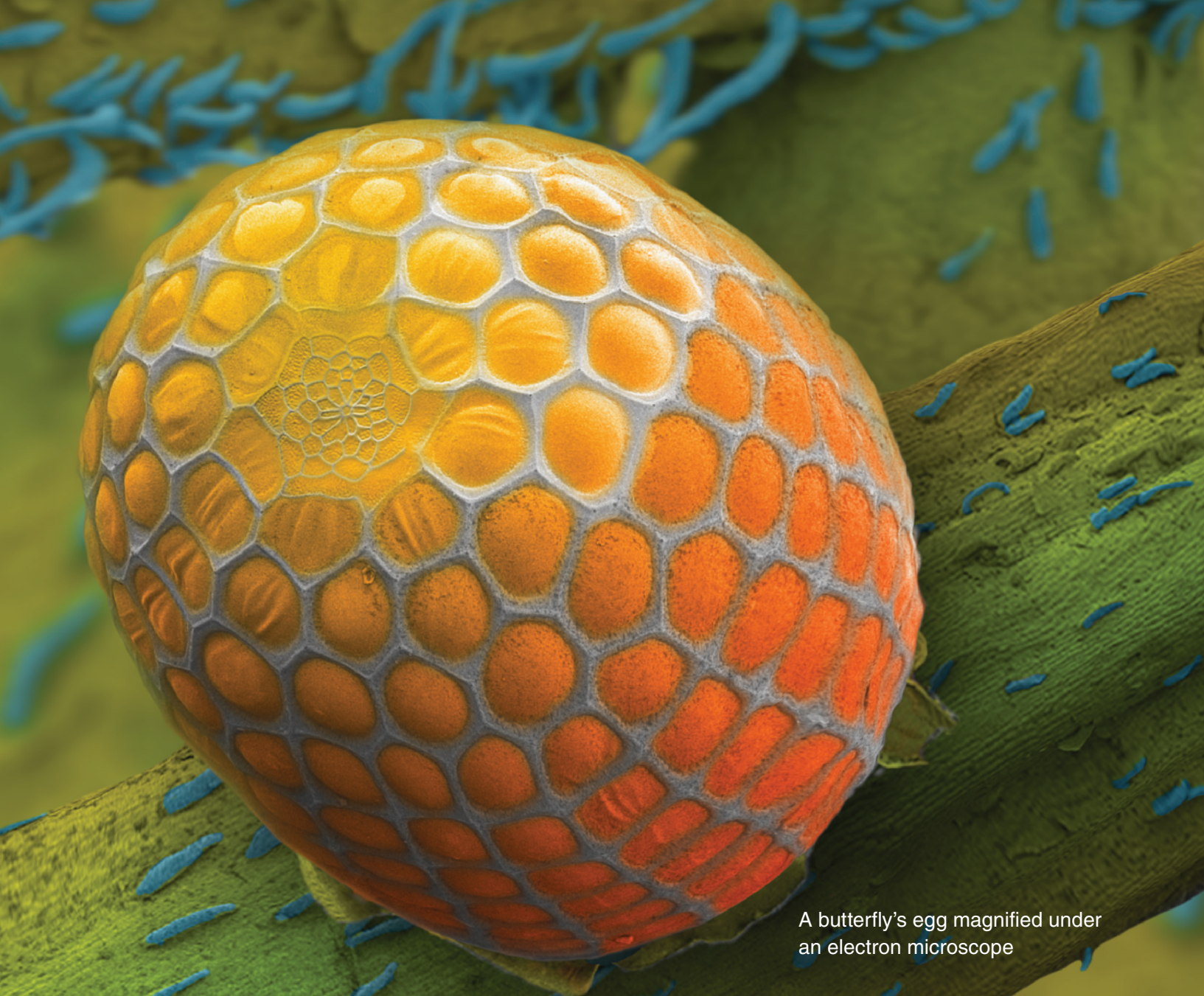
“ To be an explorer and to be a scientist is the same idea; it's all about curiosity. ”

—Louie Schwartzberg



What environmental issues mean the most to you right now?

- 6 I think [bee] colony collapse disorder would be at the top. I've heard scientists say it could be way more serious than climate change. And there's a quote **attributed to** Einstein that if the bees ever disappeared, man would only have four years left to live. It doesn't really matter whether it's true or whether Einstein said it or not. The healthiest food we need to eat—fruits, nuts, seeds, and vegetables—would disappear without pollinating plants. It's pretty serious.



A butterfly's egg magnified under an electron microscope

What would you say is one of the most surprising things you've learned in your career?

- 7 I keep getting the same things **reinforced** over and over. When I film things, I'm connecting with the universal rhythms of the universe, which is the deepest part of my soul. And it's this **constant** reminder that it's all

connected. I also think we always have to be curious, and nature really inspires you to be an explorer [. . .]. To be an explorer and to be a scientist is the same idea; it's all about curiosity. And I think the same thing is true being a filmmaker or an artist. We have different rules, but we're both trying to share the wonders of nature and the universe with people.

[bee] colony collapse disorder: *n.* a mysterious condition that is killing bees and weakening their colonies

gratitude: *n.* thankfulness, appreciation

pollination: *n.* the action of transferring pollen to the stigma of a plant so that it can reproduce

shooting: *v.* taking photographs (of)

twilight: *n.* the period between sunset and darkness

GETTING THE MAIN IDEAS

What main points does Schwartzberg make in this interview?
Check (✓) three ideas he mentions.

- 1. ____ It's important for young people to feel more engaged with nature.
- 2. ____ More investment is needed to improve time-lapse filmmaking technology.
- 3. ____ Time-lapse can help people see the world from a different perspective.
- 4. ____ People should always be curious about the world around them.
- 5. ____ Photography is important for anti-war movements around the world.
- 6. ____ Time-lapse has helped make people more aware of climate change.



▲ A close-up image of a flea seen under an electron microscope

UNDERSTANDING REASONS

Expressions such as *that's why*, *because*, and *so* can help a reader understand the connections between ideas and the reasons for them. However, sometimes the reasons behind an idea are implied and not clearly stated; they are not connected to ideas with specific words or phrases.

Match the reasons (a–f) with the ideas below. Use the information in the passage to help you. Two reasons are extra.

- a. He was able to get a unique photograph of a baby bat in mid-flight.

b. A lot of our most important food would disappear if there were no bees.

c. Pollinating plants are beautiful, and they are important for our survival.
- d. There's so little time and so many things to capture on film.

e. He wants to use time-lapse photography to change people's perspective.

f. Some protests were going on outside his classroom at UCLA.

Idea	Reason
Schwartzberg specializes in photographing flowers.	
Schwartzberg has cameras going continuously, 24 hours a day, seven days a week.	
Schwartzberg is willing to deal with many challenges to capture his images.	
Schwartzberg believes colony collapse is the most important environmental issue.	

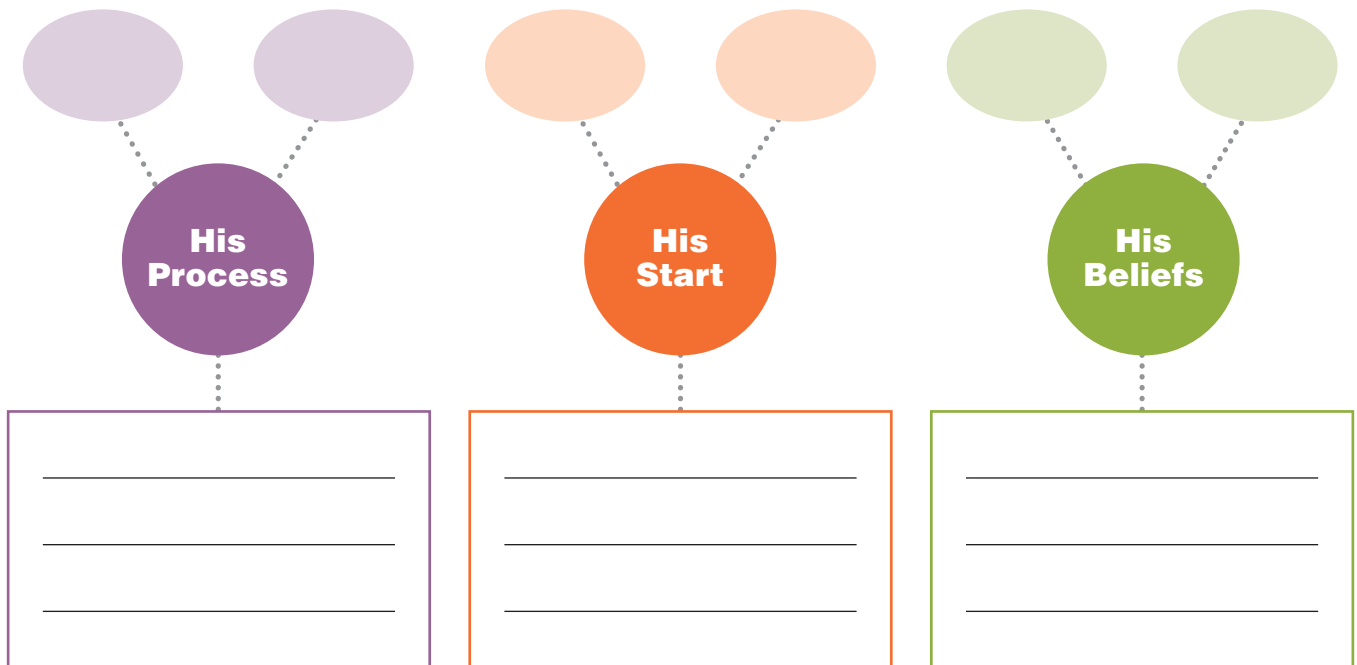
UNDERSTANDING KEY DETAILS

A. What are some key details about Louie Schwartzberg's life and work?

Complete the concept map with the information (a–f).

- a. creates films from an extremely large number of images
- b. learned about photography from a university teacher
- c. everything in nature is connected

- d. was a student at UCLA
- e. time-lapse is about changing the way people see the world
- f. is continuously shooting



B. Add one more detail about Schwartzberg's life and work to each category in the concept map.

PARAPHRASING

Find these sentences in the passage on pages 11–13. Use the context (the sentences before and after) to understand the meaning. Then paraphrase each sentence by rewriting it in your own words.

1. I've squeezed 35 years of shooting into 12 hours of material.

2. . . . when you change your perspective, that's how you develop gratitude.

3. I keep getting the same things reinforced over and over.
