



# Anand Varma: Beauty and the Bizarre Study Guide

When Anand Varma takes a photograph of a parasitic wasp consuming a caterpillar from the inside, he doesn't want you to be disgusted—he wants you to be amazed! He's devoted years of his life to perfecting his techniques to create dramatic, bizarre—and beautiful—images of the miniature world around us. In these unique images, he reveals the secret life cycle of the honeybee, captures the lightning-fast behaviors of hummingbirds, and offers students a rare and astonishing glimpse at our world's small wonders.

Use the resources in this collection to prepare your students for their upcoming National Geographic Live student experience. Use the “Before the show” ideas to introduce students to Anand Varma and the topics (biology, biodiversity, fieldwork) that he will discuss during the show. Use the “After the show” ideas to extend the learning after the event has ended.

## Before the show:

- Have students review Anand Varma’s biography using the links in the Explore More tab on this page.
- Have students read the Biodiversity encyclopedic entry. Lead a class discussion about different kinds of biodiversity. After reading, ask: What do we know about biodiversity? Why is biodiversity important? Then, have students read the field work encyclopedic entry. Ask: How is field work connected to biodiversity?
- Watch the First 21 Days of a Bee’s Life and Proof: For a Biologist-Turned-Photographer, a Beehive Becomes a Living Lab videos in the Explore More tab to familiarize students with the work the speaker has done to study the biology of bees and factors in their development. Ask: Why is it important to understand more about bees? What can we learn by observing their first 21 days?
- Engage students in exploring the biodiversity of their own environments by using the provided Mapping Biodiversity activity.
- Have students do their own field work with the provided Build Your Own Bee Hotel activity.
- Provide each student with a KWL Chart. Introduce the program they will attend and, who the speaker is, and offer a brief description of what the speaker’s topic(s) will be. Have students fill out the What I Know and What I Want to Know columns of the KWL Chart. Have them fill out the What I Learned column after the show.

- Use the graphic organizer collection to select a graphic organizer to help your students organize their questions and new knowledge before, during, and after the program. For example:
- Download and print the T Chart. Have students label the left column with Questions I Have and the right column with Answers, and then conduct research about the speaker and speaker topic ahead of the program. Have students record answers to their questions during or after the program. Have students conduct research to complete any unanswered questions for homework. Have each student share a question and answer with the class.
- Download and print the provided Five Ws Chart. Have each student bring their copy to the matinee program and take notes. Have students share and discuss their notes after the show.

### After the Show

- Use the Explorer Comparisons worksheet and have a class discussion to help students make connections between themselves and Anand Varma. Distribute the worksheet to students before the presentation and review the directions with them. Review any terms with which they are unfamiliar. After the presentation, have students share the notes that they took during the show. Have a class discussion about attitudes and skills and how students demonstrate them in their everyday lives. Have students record their personal examples on the worksheet.
- Review the continents, countries, or areas that the speaker presented. Ask: What continents, countries, or areas does the speaker work in? Have younger students imagine that these places were characters in the stories that Anand Varma shared. Ask: What role did place play in Anand Varma's story? Why was location important to the story? How did the characteristics of the place influence the story? Note: You may need to introduce the concept of place for your students, before they can answer and discuss these questions.
- Discuss and define any unfamiliar terminology that the speaker used. Ask: What vocabulary words did Anand Varma use that were new to you? Invite volunteers to write the words on the board, and have the class define them as a group using information they learned from the speaker or through research. If desired, have students record unfamiliar terminology during the show on one half of a T Chart. Then, have them write the definitions on the other side following this class discussion.
- Have a class discussion about the attitudes National Geographic explorers embody. Ask: What attitudes did Anand Varma talk about today? In what ways does Anand Varma demonstrate curiosity, responsibility, empowerment, and persistence in his work? Why do you think these attitudes are important for explorers? Students can use their Five Ws Chart for reference and a graphic organizer to organize their ideas.
- Have a whole-class brainstorm on how students can make changes or support the speakers' work. Ask: What, if any, call to action did the speaker make? How can you implement any changes in your day-to-day life? What can we work on together as a group?