Molecular biology

with Dr Vincent Ricigliano

Talking *points*

Comprehension

1. Why do bees eat both nectar and pollen?
2. Why are bees important for human food production?
3. Why are bees suffering from malnutrition?

Application

4. If you were working in Vincent's lab, what questions would you ask beekeepers to understand whether microalgae pollen substitutes are an effective food source for bees?

Analysis

5. Why is it important that artificial bee food sources 'do not compete with human food production'?

Evaluation

6. How do you think climate change will affect bee populations and human food supplies in the future?
7. How could agricultural practices change to improve bee health while still ensuring sufficient food for human populations?
8. What do you think are the pros and cons of using live animals in research studies, such as in Vinent's work to improve honeybee health?

Activities

Plant a pollinator garden

Find a small patch of land in your school or neighbourhood that can be transformed into a haven for pollinators such as bees and other insects. Research which native plants attract pollinators and plant these in your garden. Remember, bees thrive on diverse diets, so include a variety of different plants. As your garden grows, keep a record of what insects you observe. What is the relationship between which insects visit the garden and when different plants flower? In what way do other factors, such as temperature, influence the abundance of insects?

The importance of pollinators

Create an engaging and eye-catching poster about the importance of pollinators to display at a garden centre. The poster should educate the public and encourage them to think about how the plants they buy will impact pollinators. You could focus on a specific animal (such as bees, butterflies, bats, hummingbirds, etc.) or cover the range of pollinators that exist in your region. You could include facts and figures about the role pollinators play in providing our food, information about the threats facing pollinators around the world, and how people can personally make a difference to save pollinators.

More *resources*

- Watch an animation about Vincent's research: www.futurumcareers.com/can-microalgae-improve-honeybee-health
- Learn more about the Honey Bee Breeding, Genetics and Physiology Research Laboratory: www.ars.usda.gov/southeast-area/baton-rouge-la/honeybeelab
- Learn more about the importance of honeybees from Project *Apis m.* (www.projectapism.org) and Friends of the Earth (www.friendsoftheearth.uk/nature/why-do-we-need-bees).
- Learn how bees are transported around the US to commercially pollinate crops: www.earthdate.org/episodes/the-business-of-bees
- This video explains the power of pollinators: www.youtube.com/watch?v=eDxZojp9yNg