

PLANT SCIENCES AND BIOENGINEERING WITH DR ALEXANDER JONES

TALKING POINTS

KNOWLEDGE

1. What are phytohormones and what are they for?
2. What is the Gibberellin Perception Sensor?

COMPREHENSION

3. How do plant hormones differ from animal hormones?
4. What are some of the effects of gibberellin in plants?

APPLICATION

5. Aside from detecting GA, what are other instances where biosensors could be useful?
6. How could Annalisa's findings on root growth lead to further useful research?

ANALYSIS

7. Why do you think GA has so many different functions, rather than plants using different phytohormones for each function?
8. Why are model organisms useful for scientists?

EVALUATION

9. What are the arguments for and against genetic modification of crops? How do you think the issue should be approached?
10. How do you think plant science (previously botany) has developed over the last hundred years?

ACTIVITIES YOU CAN DO AT HOME OR IN THE CLASSROOM

Use the internet to fill in the table below, which lists the 'big five' types of plant hormone. Remember that the science is complicated and not fully understood!

TYPE OF PLANT HORMONE	FUNCTIONS (Including in different parts of the plant and at different stages of its lifecycle)	HOW DO WE KNOW ITS FUNCTIONS? (Give an example of a significant experimental technique)	WHY IS THIS USEFUL? (Think about crops, artificial selection, genetic modification and food processing)
GIBBERELLIN			
AUXIN			
CYTOKININ			
ETHYLENE			
ABSCISIC ACID			

MORE RESOURCES

- The Sainsbury Laboratory has a range of outreach resources, including the *IntoBiology* website which explores cutting-edge scientific research:
<https://www.slcu.cam.ac.uk/outreach/resources>
- This video from *Biographics* examines the legacy of plant scientist Norman Borlaug, who was instrumental in breeding the shorter crop varieties of the Green Revolution:
<https://www.youtube.com/watch?v=tj5LfV1X2c>
- This page has recordings of talks given by plant scientists at the University of Cambridge during the 2020 Festival of Plants, including one from Bijun Tang: <https://www.botanic.cam.ac.uk/festival-of-plants-2020/festival-of-plants-day-1-plant-science/plant-science-talks/>