Electronics engineering

with Dr Radu Sporea

Talking *points*

Knowledge
1. What is a transistor?
2. How thick is the wearable blood flow monitoring device developed by Radu and his team?

Comprehension
3. How does the device monitor a patient's blood flow?
4. How will the device benefit patients and healthcare professionals?

Application
5. In addition to monitoring a patient's blood flow, how else do you think flexible electronics could be used in healthcare?
6. If you worked in a hospital, how would you explain to a patient that they will be fitted with a wearable electronic device to monitor their blood flow after their operation? What questions do you think they would have about the device, and how would you reassure them about its safety and usefulness?

Analysis
7. How have Spencer, Subin, Eva and Hocheon's personal experiences influenced their career pathways?
8. Why is it important that electronics engineers and surgeons collaborated to develop the device? What perspectives do you think each group brought to the project?

Activities

1. Design a device
The team's device was created to solve the problem of doctors having to regularly remove a patient's bandages to check their blood flow after an operation. Design a new flexible electronic device that could solve a different problem in hospitals or healthcare situations. Draw a labelled diagram of your device, considering the following:

- What healthcare-related problem will it solve?
- Where on the body will it be positioned?
- How will it work?
- How will it make doctors' and patients' lives better?
- How will you make it affordable and comfortable?
- What challenges do you think engineers will face during the development process?

2. Explore careers
Eva never initially considered studying engineering because she thought it would be boring and she thought she was not very good at maths. However, it turns out that neither of these things were true, and she regrets not studying engineering sooner!

1. Are there any career options or fields of study that you have dismissed because you think you would find them boring or too difficult? Do some research on these career paths to fully explore what they involve. Find interviews with people working in these fields to learn what such a career would entail. Can they persuade you to reconsider?
2. Design a poster to encourage students to consider careers in electronics engineering. Your poster should explain what a career in electronics engineering could involve and what pathways could lead to these careers, and it should be eye-catching and engaging.

More *resources*

- Learn more about Radu's team: **www.teamsporea.info**

- Read about Radu's previous work printing flexible electronics: **www.futurumcareers.com/when-chips-meet-paper-the-exciting-world-of-printable-electronics**