



# COMPUTER SCIENCE WITH PROFESSOR KLARA NAHRSTEDT

## TALKING POINTS

### KNOWLEDGE:

1. Can you find out more about semiconductors? When were they invented? What are they used for? Try and find out as much as you can to understand why they are so important.
2. How long is a nanometre? Can you work out how many nanometres there are in a mile?

### COMPREHENSION:

3. Why is it important for some environments to be ultra-clean when certain materials are being worked on or with?

### APPLICATION:

5. Can you think of some benefits to ensuring that laboratories do not even contain dust particles?
6. If you could choose to either work as a computer scientist on developing sensors to keep cleanrooms clean or work as a materials scientist or a semiconductor fabrication chip engineer inside the cleanrooms, which would you pick? Why?

### ANALYSIS:

7. What do you think about the idea that a computer scientist is working on developing sensors that are helping other scientists who work on materials that will benefit computer science in the future? What does this do to your general understanding of science and collaboration?

### SYNTHESIS:

8. Can you think of some examples of previous scientific discoveries enabling new ones?

### EVALUATION:

9. What do you think about Klara's response to the question about the attributes that have made her a successful scientist? What does it do to your understanding of what it might mean to be a scientist? Do you have any of these attributes? Are there any attributes you have that you think would benefit your scientific pursuits?

## ACTIVITIES YOU CAN DO AT HOME OR IN THE CLASSROOM

- Computer science is clearly a broad field with an incredible number of possible pathways and career opportunities. Create a leaflet that details all of the career routes you can think of – perhaps, include what characteristics and attributes you think each opportunity is suited to.
- Imagine you are a researcher at a university with a mock cleanroom that is designed to communicate the importance of Klara's research. Of course – the room is not ultra-clean (it is just for show). Plan a ten-minute presentation where you explain to visitors what a cleanroom is and why it is important that researchers like Klara are helping to maintain the environment!

## MORE RESOURCES

### GIRLS WHO CODE

The University of Illinois, Urbana-Champaign offers many public outreach schemes for schools and young people. One initiative is Girls Who Code, which is 'on a mission to close the gender gap in technology and to change the image of what a programmer looks like and does':

<https://girlswhocode.com/>