

Toxic socks: nanotechnology, ethics and society

Learning objectives

- 1 Practise discussing and debating issues and expressing an opinion.
- 2 Listen to or defend a point of view that may be different to your own.
- 3 Understand more of the technical, physiological, social and ethical issues around nanoparticles.

Introduction

Silver nanoparticles have antibacterial properties. It is the nanoparticles' size that gives them their special properties. Silver nanoparticles are added to products from socks, to bandages, to washing machines because they kill bacteria and prevent bad smells.

Scientists are recommending a closer examination of the unforeseen environmental and health consequences of nanosilver. Ionic silver, the dissolved form of the element, does not just attack bacteria that cause bad smells. It can interfere with chemical processes essential for life in other microbes and aquatic animals. Ionic silver particles can get into the gills of fish and kill them.

You will take part in a structured debate on the use of silver nanoparticles. The character cards present different points of view on the use of silver nanoparticles in socks to kill odour causing bacteria. The debate is split up into rounds to help you think through the issues and reconsider your own and your character's opinions. The structure helps you build a discussion and back up opinions with facts.

Debate Instructions

The different rounds of the debate will help you to think through the issues and reconsider your opinions.

1. Your teacher will arrange you into groups and give you a character card.
2. Read your character card and try to think about the character's point of view.
3. Take turns to read out your character's **background** until all eight have been shared. How do you think the character's background will affect their opinion on the use of silver nanoparticles in socks? Ask your group to share their ideas. Is there one position they identify with or reject?
4. Next, take it in turns to read out the character's **fact**. Does it change the way your group thinks about the use of nanoparticles?
5. Now take turns to read out your character's **issue**. Does hearing these issues change your or your character's thoughts about whether we should use nanosilver socks?
6. Each character now chooses **ONE** other character to ask their **question** to. Think carefully about who will be most challenged by your question.