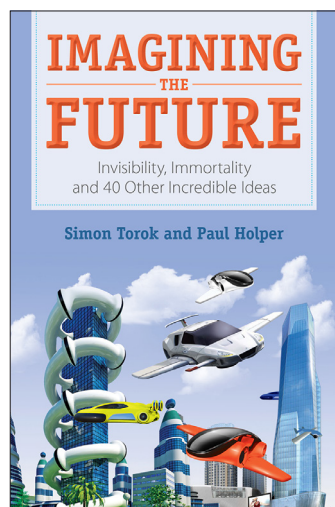


TEACHER NOTES



PUBLISHING



Imagining the Future: Invisibility, Immortality and 40 Other Incredible Ideas

Authors: Simon Torok and Paul Holper

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About the book

Flying through time and flying in cars. Living underwater and living forever. Robot servants. 3D printed food. Wouldn't it be amazing if science fiction became science fact? We're living in a rapidly changing world. Hardly a week passes without an exciting technological breakthrough. That's the power of human innovation – it never stops happening. Inventors keep inventing. Get prepared for the fantastic future with this guide to the unbelievable and incredible inventions just over the horizon. Invisibility, instant transportation, holograms and lots of gadgets were once the dreams of science fiction ... now they might become science fact! Imagining the future is the first step in arriving there. If you can dream it, perhaps one day you can invent it. Strap yourself in and get ready for the future!

About the authors

Simon Torok loves science. Most of his work has involved communicating the importance of science in our lives and its role in understanding the climate. He has worked at CSIRO as a science communicator and as editor of *The Helix* and *Scientriffic* magazines. He has also worked as a climate change communicator at the Tyndall Centre for Climate Change Research in England, and performed with the ANU-Questacon Science Circus doing shows for people around Australia. He has a PhD in climate change and qualifications in science and science communication.

Paul Holper has a passion for technology. He has made a career out of explaining the value and excitement of science and its applications. During 25 years at CSIRO he managed a large environmental program, and was a professional science communicator. Before that he was a secondary school science teacher. Throughout his career, Paul has popularised science through books for children and a general readership. He has a degree in chemistry and qualifications in education and science communication.

Simon and Paul are Directors of the communication company Scientell. They have written many books, several of which have been translated into Spanish, Portuguese, Chinese, Korean and Hungarian. *Imagining the Future* is their 18th book together.

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Curriculum Links

Science; English; ICT Capability; Ethical Understanding; Literacy; Critical and Creative Thinking; Personal and Social Capability; Technologies (Design and Technology; Digital Technologies)

Study Notes

- Read the introduction, 'Are you ready for the future?'. The authors describe how just 100 years ago, the amount of human knowledge doubled every 100 years, but now, it doubles almost every year. What knowledge and technology do we have now that would have seemed like science fiction only 50 years ago? If knowledge is now being constantly outdated, what is the point of learning and researching?
- Read the chapter 'Eternity' (pp. 7–10). Do you think we could ever become immortal? Why/why not? If the human race were to achieve immortality, what challenges might we face as a species? How might we have to adapt to the fact that nobody would die of old age anymore? Imagine you were born in 1900 and were still alive today. What changes would you have witnessed in the world? How would you adapt to the way life has changed from the day you were born to today?
- It might be made of the same basic building blocks, but would 3D printed food be the same as the food you make at home today? (See pp. 118–120.) Explain your answer.
- We already use robotics and artificial intelligence in many fields today. What challenges do you think we might face in the future if robots become more commonplace? Discuss Asimov's three laws of robotics (p. 19). How can we ensure that all robots conform to these laws? How would we proceed if a robot did not follow these laws? For example, there are current experiments being run using prototype self-driving cars (see pp. 26–28). What procedure could we legally follow if a self-driving car hits a human pedestrian, a human-driven car or another self-driven car?
- Divide the class into small groups. Using the chapter 'Cool world' (pp. 53–54) as your starting point, research some of the innovative ways scientists are trying to combat or even reverse the effects of climate change. Do you think the ability to control the weather (see pp. 50–52) is the answer, or should we focus on allowing the natural climate cycles of our planet to reclaim equilibrium?



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- Genetic modification is a contentious issue in modern scientific research. Divide the class into two teams. After reading pp. 55–58 debate the issue posed on p. 55: should we genetically modify children in vitro? Consider the ethical implications of such a practice versus the ability to ensure that children are free of any genetically inherited disorders or diseases.
- Medical research is often at the forefront of scientific and technological innovation. In pairs, list all the different kinds of medical research described in *Imagining the Future* (e.g. expanding brainpower, genetic research, sleep science, cure for the common cold). Choose one of these areas to research further.
- Divide the class into groups of 6–8 people. Imagine your group is the first team to begin the colonisation of Mars. After reading pp. 59–62, agree on the roles that you each will take on as you plan your voyage. You will need a medical officer, a quartermaster to take charge of what supplies you will need, and a horticultural biologist to establish a sustainable food source once you reach the red planet. What other roles and responsibilities will your team need to account for? Over the course of a month, collaborate with your team to record your mission logs from pre-launch preparations, launch, the journey through space, and the first two weeks when you reach Mars.
- Why is there an increasing demand in the world today to develop high-speed transport? (See pp. 69–71). If you could get anywhere in the world within 80 minutes, what possibilities would be available to you? What implications would this have with our current system of national borders, citizenship and immigration laws?
- Why is teleportation such a difficult fiction to bring into reality? Discuss the physics of teleportation outlined on pp. 86–88. There are also metaphysical debates around the possibility of teleportation. As a class, discuss the thought experiment ‘The Ship of Theseus’ and possible resolutions to this paradox.
- What do you imagine to be possible in the future? Write a short, illustrated essay about what you think life will be like 100 years from now. What new technology and knowledge will govern our lives? How will our lives and society at large have changed as a result?



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