

FUTURE TRANSPORTATION TECHNOLOGIES

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Talking points

KNOWLEDGE

1. What are the two main dangers associated with the internal combustion engine?
2. What three areas will technicians need to study to work with autonomous vehicles?

COMPREHENSION

3. How would you describe the “trickle down” effect in technology?

ANALYSIS

4. Why would it be useful for autonomous vehicles to communicate with each other?

SYNTHESIS

5. What would happen if we all switched to electric vehicles without also generating renewable electricity?
6. Why is it important to see artificial intelligence as a skilled trade?

EVALUATION

7. How safe would you feel getting on a driverless bus to go to school? Why?
8. How would you assess an autonomous vehicle’s safety?
9. Do you think electric vehicles are the best way to reduce greenhouse gas emissions from transport? Why/why not?

CREATIVITY

10. Can you imagine how it would have felt to be alive when horses were first being replaced by cars? What would your hopes and fears have been? Are there similarities to today’s transport revolution?
11. Outside of autonomous vehicles, what applications can you think of for computer vision?

Activity

Moral Machine — tricky questions for a world of autonomous vehicles

Autonomous vehicles will be able to react much faster to situations than a human driver, but this means they will occasionally have to make moral decisions. For example, what if the brakes fail suddenly, and the car has to decide who to protect?

- What other scenarios can you think of where an autonomous vehicle would need to make a moral decision?
- Who do you think should be held responsible for these decisions?
- What factors should be considered when such decisions are made?
- What challenges will these moral decisions pose for autonomous vehicles technicians in the future?

To explore these ideas further, visit Moral Machine (www.moralmachine.net), where you will be asked to judge 13 different scenarios. If you are working in a group, have a discussion and take a vote on which choice you think is better.

Afterwards, evaluate the game. How realistic do you feel it was at representing the decisions a driverless car would have to make? To what extent has it changed how you feel about autonomous vehicles?

More resources

- The Conversation has lots of interesting articles on the topic of autonomous vehicles: www.theconversation.com/uk/topics/autonomous-vehicles-1007
- The US Department of Transportation has a section on its website focusing on the safety of automated vehicles: www.nhtsa.gov/technology-innovation/automated-vehicles-safety
- The UK government has an area of its website dedicated to the latest news in the field of autonomous vehicles: www.gov.uk/government/organisations/centre-for-connected-and-autonomous-vehicles
- Technological revolutions are never easy! Watch this video from *The Guardian* to understand some of the challenges the development of autonomous vehicles poses: www.theguardian.com/technology/video/2022/sep/08/why-self-driving-cars-have-stalled-video
- Find out about the Mobility21 project that Justin and Robert work on: www.mobility21.cmu.edu