

Road traffic safety research

with Professor Astrid Linder

Talking points

Knowledge & Comprehension

1. What are crash test dummies used for?
2. What are whiplash injuries and what type of road accident are they most commonly caused by?
3. Why are crash tests a necessary part of vehicle development?
4. What is a component test and why are they valuable?

Application

5. Whiplash injuries are often not visible externally. How do you think Astrid's team measures the severity of whiplash injuries using crash test dummies?
6. How is the average female body different to the average male body, and what implications do these differences have for traffic safety?

Analysis

7. What do you think the advantages and disadvantages of virtual crash test simulations are compared to physical crash tests?
8. What do you think the process of global regulatory change involves? What role can researchers like Astrid play in the process?

Evaluation

9. "Until society demands that this changes, things will stay the same," says Astrid. How can society demand the changes that it believes are important? What can you do as an individual to help bring about societal change?
10. "When the day comes that crashes no longer result in injury or death, I'll be happy to move on to something else," says Astrid. How realistic do you think this vision is? How can research, education and new technologies help to bring us closer to this vision?

Activity

With your classmates, get into teams of three or four. Design a crash test that tests the effectiveness of a safety feature in a car such as airbags, seatbelts or antilock braking systems. Think about how you will work together and delegate tasks, which will include:

- Researching your safety feature and the injuries it is designed to protect against
- Researching best practice for crash test designs
- Designing a dummy and a component test to assess your chosen safety feature
- Determining how many iterations or repeats of the crash test to do
- Estimating the resources and time involved in the crash test
- Creating a graphic and/or illustration that shows how your crash test will work
- Presenting the crash test proposal to the rest of your class

Collaborate together to allocate tasks, including identifying points where you should work together and share your ideas or research. Remember to integrate the lessons learned from the article within your collaborative design.

When completed, decide how you will present your crash test idea to the rest of the class. Make sure to identify and celebrate the contributions of each team member within your presentation.

Listen to other teams' presentations too. How did their approach differ from yours? What insights from their work would you include in a future design? How has sharing ideas with your classmates changed your perspective and inspired new ideas?

More resources

- This TEDx talk from Astrid introduces Eva, the first average female crash test dummy, and how it was designed: [youtube.com/watch?v=jv06vMYCgYY](https://www.youtube.com/watch?v=jv06vMYCgYY)
- This article from Humanetics gives a short history of the crash test dummy and its role in vehicle safety design: humaneticsgroup.com/perspectives/evolution-crash-test-dummy
- 2021-2030 is the Decade of Action for Road Safety. Find the latest news about progress on road safety on this World Health Organisation webpage: who.int/teams/social-determinants-of-health/safety-and-mobility/decade-of-action-for-road-safety-2021-2030
- Did you know, Sweden is the only country to have a crash test moose! Find out more here: bbc.co.uk/news/science-environment-62915382