

Safety Research Trail

Trace how research, inventions, and career resources connect.

4.4 "Scientific and engineering practices. The student knows the contributions of scientists and recognizes the importance of scientific research and innovation for society..."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline research or discovery facts, circle each innovation or effect on society, and number the STEM career resources in the passage.

From Research to Safer Rides

- ① In the 1950s, doctors and engineers studied injuries from car crashes. Their research showed that a lap belt could help hold a rider in place, but it could also cause serious injuries. Engineer Nils Bohlin used this research to design the three-point seat belt in 1959. It crossed the chest and lap, spreading crash forces over stronger parts of the body.
- ② Further crash research led car makers to improve seat belts, airbags, and child safety seats. Today, three-point belts are required in new passenger vehicles in many countries. These innovations help prevent deaths and injuries, so families, hospitals, and communities are affected. The work also gives scientists new questions, such as how different body sizes fit safely in a vehicle.
- ③ To investigate a STEM career such as vehicle safety engineer, use more than one resource. A museum may show early safety inventions, while a library can provide books about crash testing. A professional engineering organization or a car company website can describe job skills. You might also interview an engineer mentor. Compare what each source says, then ask which classes, tools, and problems are part of the job.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 How did crash research help Nils Bohlin design a safer seat belt?

2 What are two ways that vehicle safety innovations affect society?

3 What new question can vehicle safety research help scientists investigate?

4 Name two resources a student could use to learn about a vehicle safety engineer. Tell what each resource could provide.

3 YOUR TURN _____ Your own words

Choose a STEM career that is not named in the passage. In four sentences, describe one discovery or innovation connected to that career, explain how it affects society, and name two resources you would use to investigate the career and what you would learn from each.

PART 1 • READ AND MARK

Underline research or discovery facts, circle each innovation or effect on society, and number the STEM career resources in the passage. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	How did crash research help Nils Bohlin design a safer seat belt?	Research showed that lap belts could cause serious injuries. Bohlin designed a three-point belt that crossed the chest and lap and spread crash forces.
2	What are two ways that vehicle safety innovations affect society?	They help prevent deaths and injuries. They affect families, hospitals, and communities.
3	What new question can vehicle safety research help scientists investigate?	Scientists can investigate how people with different body sizes fit safely in a vehicle.
4	Name two resources a student could use to learn about a vehicle safety engineer. Tell what each resource could provide.	A museum may show early safety inventions, and a library can provide books about crash testing. A professional organization or car company website can describe job skills, and an engineer mentor can be interviewed.

PART 3 • YOUR TURN (SAMPLE ANSWER)

I want to investigate the career of an environmental engineer. An environmental engineer can design a water filter that removes harmful germs, helping communities get safer drinking water. I would use a library book to learn about water testing. I would also interview an environmental engineer mentor to learn which tools and classes the job requires.

Accept equivalent explanations that connect research to a safety innovation and identify its effects on people or communities. For Your Turn, accept any accurate STEM career, connected discovery or innovation, societal effect, and two appropriate resources with a reasonable purpose for each.