mystery science

Grades K-5
Mini-Lesson: “Why were traffic lights invented?”

VIDEO TRANSCRIPT

VIDEO 1

Hey, it's Esther! Have you ever played the game "Red Light, Green Light"? The leader of the game is called the stoplight. When he says “Green light” you run towards him. But when he says “Red light”, you have to stop. The goal is to get all the way to the stoplight without running into the red light. This game is inspired by real life. Stoplights, also called traffic lights, tell traffic when to go and when to stop. Someone named Ryan has a question about traffic lights. Let's give Ryan a call.

[Video Call]

- Hi, Esther!

- Hi, Ryan!

- I have a question for you. Why were traffic lights invented?

- That's a great question.

I'm sure you've seen traffic lights before. Depending on where you live, you might even see so many traffic lights every day that it's easy to not think about them. They're just an ordinary part of a busy street. But I have a question for you, what do you think would happen if we didn't have traffic lights?

VIDEO 2

These days, you're most likely to find traffic lights when two or more roads meet at what's called an intersection. Take a look at this busy intersection here. There are so many different kinds of traffic, cars crossing this way, cars crossing that way, plus buses, bikes, and people walking. Imagine what would happen if they all tried to cross the intersection at the same time. Yikes! They would crash. To cross an intersection safely, traffic needs to take turns. But how do you know when it's your turn? This is what traffic lights are for. They tell people when it's safe to cross the road and when they have to wait other traffic to finish crossing. But there was a time before traffic lights. Even before cars were invented, busy intersections around the world became crowded with horses, carriages, carts, and people. Some inventions were created by one inventor, but traffic lights weren't like that. Because so many places had overcrowded intersections, inventors scattered around the world were inspired to help people take turns crossing the roads. I wanna tell you about one of those inventors here in the US. This is Garrett Morgan. Garrett Morgan is best known for creating an early traffic light, but his story as an inventor goes way beyond that one machine. By the year 1920, Garrett Morgan had been thinking like an inventor for a long time. He'd already invented several products, from hair care creams to a speedier sewing machine. He was especially good at inventing things that solved problems. For example, as a young man, Garrett Morgan read a news story about a terrible fire in a New York City factory. Many people had been hurt. Garrett Morgan learned that firefighters had struggled to rescue workers trapped in a burning building, not just because of the flames, but also because the building was filled with smoke, which made it hard for them to breathe. Now, this fire really had nothing to do with Garrett Morgan. He didn't know anyone involved and it happened many miles away from him. Still, when Garrett Morgan heard about the fire, he

thought about what he could do, what he could invent to help. He invented what he called a safety hood, a gas mask that could help firefighters breathe safely in smokey areas. With Garrett Morgan's invention, firefighters could rescue more people from future fires. A few years later, Garrett Morgan found yet another problem that needed solving. As the story goes, Garrett Morgan was out on the street one day when he saw a car smash into a horse-drawn cart at an intersection. Now, sadly, this was a pretty common thing to see at the time. Garrett Morgan lived in Cleveland, Ohio, a busy city with lots of traffic, and back then, not many good ways to help traffic move safely. Many people saw crashes like these, but Garrett Morgan was an inventor. When he saw the crash, he immediately started thinking about what he could create to keep crashes like these from happening. His solution was an invention he called the three-position traffic signal, an early traffic light. Here's what it looked like. Garrett Morgan's traffic light might not look much like the traffic lights you see today, but it basically worked the same. His light had three arms, which a traffic officer could move into different positions. Depending on which direction the arm was pointed, some lanes of traffic saw a light that said stop, while others saw a light that said go. This helped cars, carriages, and other traffic take turns crossing. And when all the arms were raised like this, that meant that all the traffic had to slow down and get ready to stop. Maybe you can think of a part of a modern traffic light that does something similar: a yellow light. This—slow down and stop—signal gave the traffic crossing one-way time to get out of the intersection before traffic crossing the other way started crossing. Garrett Morgan's invention made the streets of Cleveland safer. And soon, people started trying it out in other cities and towns in the US, Canada, and even Britain. But remember, Garrett Morgan wasn't the only inventor to come up with a version of a traffic light. Many other inventors before and after him added their own designs and ideas. In Britain, an inventor created an early traffic light using red and green lanterns. It did help direct traffic, but the lanterns kept exploding. Later, Los

Angeles tried traffic lights with bells that rang every time a light changed. Useful, but a little annoying. One traffic light invented in Baltimore even changed when you honked your car horn. And eventually, inventors started building traffic lights closer and closer to the ones we use today, like this design invented in Detroit, Michigan. So in summary, traffic lights were invented because many creative people like Garrett Morgan chose to think like inventors. They saw a problem, crashes, and crowded intersections, and thought about what they could create to solve it. Even though some ideas worked better than others, their combined efforts led to the traffic lights that still helped keep us safe today. And we still need people to think like inventors. What problems do you see? What do people need help with and what solutions can you invent? I can't wait to see what you come up with. That's all for this week's question. Thanks, Ryan, for asking it!