TIME FOR KIDS

THE CUTTING EDGE

BREAKTHROUGHS IN TECHNOLOGY



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Bigger, Better, Smarter

It's the 21st century. Our world is changing quickly. We have cars that talk, robots that play soccer, and phones that do more than talk. We can "print" new organs. Or search for aliens. It's hard to imagine life without technology. And it's all possible thanks to creative people using cutting-edge computers. Some inventions make our lives easier. Others make us more productive. The most exciting ones inspire new ideas.



a scientist working with the latest technology

THINK LINK

- How have advances in technology made our lives better?
- How has technology made our lives more complicated?
- What technologies would you like to see developed?

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On the Move

In today's world, we are always on the move. With so many forms of transportation, it's easy to get to where we want to go. In fact, we can be on the other side of the world by tomorrow!

Flying Cars

Today, cars can seem as if they're driving us rather than the other way around. The latest cars can park themselves. They can read text messages and call 911 without any help from drivers. There's even a car that flies. It looks like a small helicopter. But it's designed to fly in the air and drive on land. Flying cars should be available to buy in 2014.



a concept car

A Driver in the Passenger Seat

In the future, drivers may not need to do much driving. Carmakers are already testing cars that drive themselves. Perhaps, someday, we will all just relax while the computers in our cars drive us around.

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The Heart of the Matter

Car manufacturers know it's easy for drivers to get distracted while driving, and distractions can be dangerous. Researchers are currently working on ways to monitor the driver's body for clues. Changes in temperature, heart rate, or breathing may mean the driver is stressed. Researchers want to find out when making a phone call or changing the song on an MP3 player is safe and when it could be deadly. If the car can tell the difference, it can help the driver pay attention to the road when it's most needed.



Sensors on the steering wheel monitor the temperature of the driver's face. Stressful situations may cause blood to flood the face and raise the driver's temperature.

Thermometers at the base of the steering wheel compare the temperature of the car interior to the temperature of the driver. A higher temperature may mean the driver is distracted by traffic.

The seat belt monitors the driver's breathing rate. In difficult driving conditions, the driver may grow tense and begin breathing more quickly.

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DIG DEEPER!

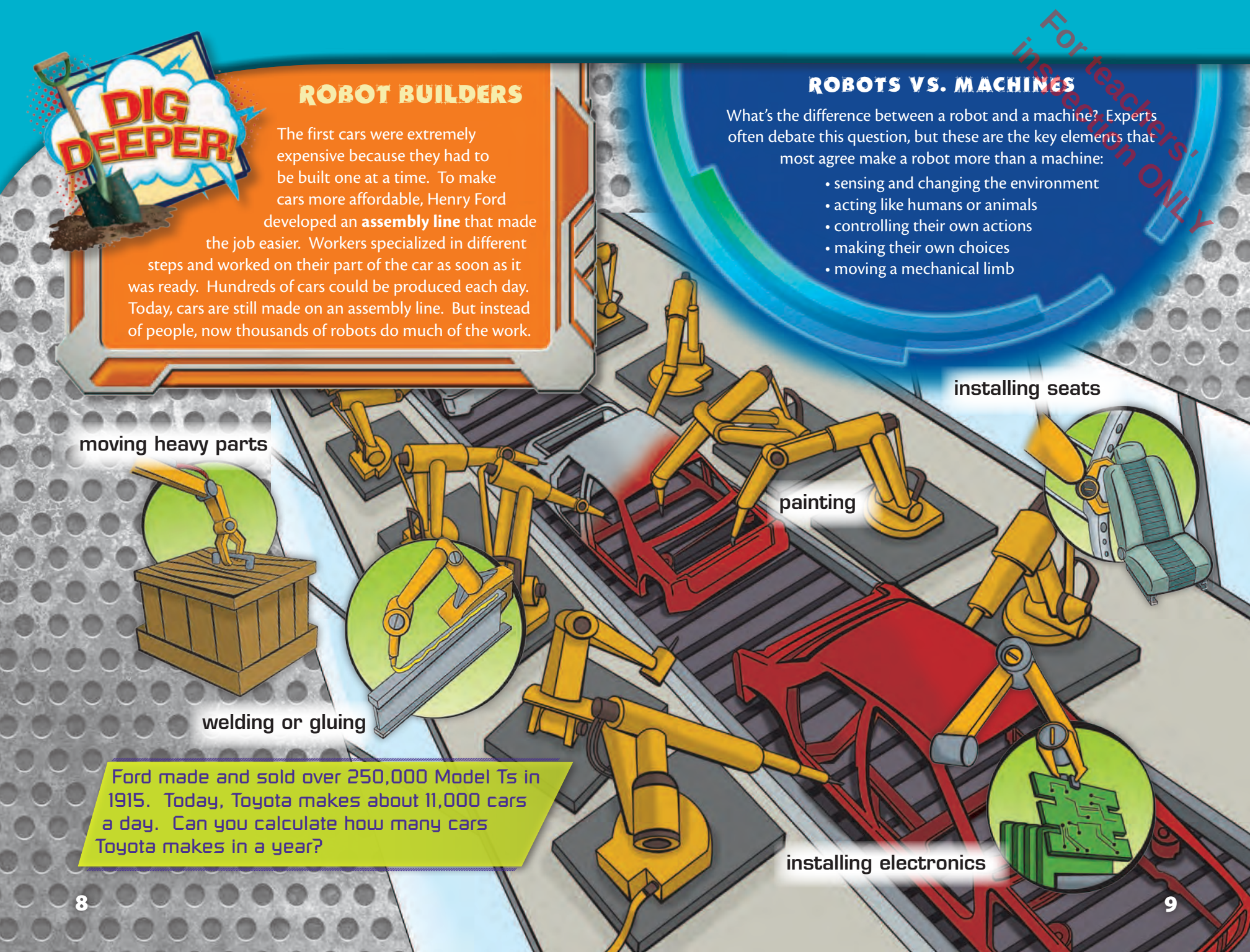
ROBOT BUILDERS

The first cars were extremely expensive because they had to be built one at a time. To make cars more affordable, Henry Ford developed an **assembly line** that made the job easier. Workers specialized in different steps and worked on their part of the car as soon as it was ready. Hundreds of cars could be produced each day. Today, cars are still made on an assembly line. But instead of people, now thousands of robots do much of the work.

ROBOTS VS. MACHINES

What's the difference between a robot and a machine? Experts often debate this question, but these are the key elements that most agree make a robot more than a machine:

- sensing and changing the environment
- acting like humans or animals
- controlling their own actions
- making their own choices
- moving a mechanical limb



Ford made and sold over 250,000 Model Ts in 1915. Today, Toyota makes about 11,000 cars a day. Can you calculate how many cars Toyota makes in a year?