



THE BOOK OF CARS & TRUCKS

Clever Cogz Series
The Book of Cars and Trucks
by Neil Clark
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24 pages, color illustrations
Hardcover, 8 x 8 inches

Essential Questions in This Unit:

- What are the basic features of all cars and trucks?
- What are the specific features of cars, race cars, dump trucks, and other vehicles?
- How do engines work?
- How are cars and trucks powered?
- What advantages does the outer design of automobiles provide?
- What are the safety features of cars?

Learning Objective: Part of the Clever Cogz series, Cars and Trucks teaches children about the inner mechanics, design and functionality of various road vehicles. From regular passenger cars to racing cars to dump trucks, this book describes in simple text and fun illustrations such topics as how engines work, aerodynamics of car design, features of camper vans, and aspects of fire engines. Students are challenged to think about vehicles around them as they learn the basics of automotive and mechanical engineering.

Classroom Discussion Topics:

1. Ask students to describe the basic features of all cars and trucks, including wheels, tires, engine, and more. What does each feature do? Why is each feature an important component of a car? What happens if one component doesn't work properly?
2. Does each student's family have a car at home, a truck, or both? How many vehicles does their family have? Go around the room and ask each student to describe the exterior features of their car, how their car is powered, how many seats it has, and other features. What similarities do the students' vehicles share? What are the differences?
3. Introduce the topic of car safety to kids. What is the first thing they must always do when getting into a car? What other safety features should they follow? What safety features do cars come with? Extend the discussion to safety on the road, cars and students around school, and driving rules around emergency vehicles. What other safety measures can students think of?
4. Look deeper at the mechanics of car engines – how do they work? What makes the car move forward? Then discuss how drivers have control over their engines, including how the accelerator and brake pedals affect the engine; why gas, electricity or other power source is important for the engine; other fluids that go into the engine; and what might happen if something breaks down.
5. After discussing engines, talk about the general theme of movement with the class. How do other vehicles move? What is speed, and how do we measure that in cars? What other things get their speed measured, including people, animals, our pulse, boats, airplanes, or the wind?
6. In the book, the topic of weight is mentioned for trucks and dump trucks. Look closer at how much weight different vehicles can hold. How much weight can a regular car hold? What about a family mini van or a large semi truck? Compare weights with everyday objects to give perspective – for example, the world's biggest dump truck can carry as much as 100 elephants.
7. Talk about what other road/ground vehicles may not be mentioned in the book, those that also run with an engine and have tires. Are there any they can spot in your community? A few to consider are tractors, larger recreational vehicles (RV's), police cars, ambulances, or garbage trucks. What special features might these have? Have students ever sat in one or ridden in it?

Student Activities:

1. Ask students to create classroom reports on the family vehicle. These should include such facts as color, shape and how it's aerodynamic, exterior features, safety features, interior controls, and specifications like what kind of fuel it uses and how fast it can go. Kids may choose to include a drawing or photo. Get them to share their reports with class.
2. Ask a local police officer, fire department or other safety officer to visit school with their vehicle so the children can take a look inside. How is the vehicle important to their job? What features do they use and like best? Or, if it's allowed in your area, visit a local car dealership's service department to ask a technician to talk about cars and how they work. What common problems do they find as they fix cars? How do they fix them?
3. Conduct a weight and speed measurement activity in class. What formulas do we use to calculate speed and weight? If you can, find a scale and bring some lighter and heavier things to class to compare weights. How much would it take

to fill a car or truck? Then look at speed in relation to weight – do heavier things tend to go faster or slower? Does weight affect how fast things drop (i.e., bring up the concept of gravity).

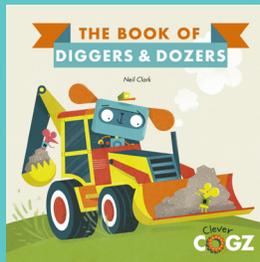
4. Think about discussing transportation in class, and ask students to build model cars or trucks using popsicle sticks, small plastic wheels, etc. How will students make them look and roll as actual vehicles do? Discuss the concept of aerodynamics and car design. How can students create their cars to go faster?

5. Show various road signs in class and ask students to draw them for classroom display. You may also want to create flash cards so students can practice what they look like. Your local motor vehicle department's website or office should have information about all road signs that motorists should be aware of. What are common road signs in your area? Are there uncommon ones we should know about as well?

Further Reading:



The Book of Space Rockets
ISBN: 9781786036339



The Book of Diggers & Dozers
ISBN: 9780711243415



The Book of Flying Machines
ISBN: 9780712243446



STEAM Stories: Robot Repairs
ISBN: 9781786032799



Around The World in Every Vehicle
ISBN: 9781682973882