Skateboarding Science: Exploring Friction in Action!

Lesson Plan for 4th-6th grade

Created by Braden Verge BS, MS in Education; Physical Education Teacher and RAD Dad

Suggested Pre-Requisite lessons:

- Law of Acceleration Day 1
- Law of Acceleration Day 2

Learning Objective:

- Students will be able to describe and comprehend the concept of friction and its importance in skateboarding.
- Students will be able to demonstrate how different surfaces and materials affect friction in skateboarding.
- Students will engage in hands-on activities and experiments to understand friction better.

Equipment Needed:

- Skateboard (if available)
- Various skateboard wheels and bearings (e.g., hard, soft, ceramic and steel bearings)
- Smooth surface (e.g., gymnasium floor)
- Rough surface (e.g., asphalt or concrete)
- Measuring tape
- Stopwatch
- Chalk or masking tape
- Safety gear (helmets, knee pads, etc.)

_

Introduction to Friction (10 minutes):

- Start the lesson by asking students if they have ever seen or ridden a skateboard.
- Explain that skateboarding involves a fascinating concept called “friction” that helps skateboarders control their movements.
- Define friction as a force that opposes the motion of one surface sliding or rolling over another surface.

The Impact of Surface (10 minutes):

- Discuss how different surfaces affect skateboard friction.
- Set up an experiment: Use chalk or masking tape to create a straight path on both a smooth gymnasium floor and a rough asphalt or concrete surface.
- Ask students to predict which surface will cause the skateboard to stop faster.
- Have the students take turns pushing the skateboard on both surfaces, timing how long it takes to stop.
- Discuss the results and explain how rougher surfaces create more friction, slowing the skateboard down.

The Role of Wheels (20 minutes):

- Explain that skateboard wheels are designed to reduce friction.
- Show different types of skateboard wheels (hard, soft, made from different materials).
- Discuss how these wheels impact the skateboarding experience.
- Set up an experiment with the same skateboard and different wheels.
- Let students test each set of wheels and measure the distance the skateboard travels before stopping.
- Discuss the results and explain how wheel material and hardness affect friction.

Safety and Conclusion (5 minutes):

- Discuss the real-world applications of understanding friction in skateboarding, like improving performance and safety.
- Recap the key points about friction, different surfaces, and wheel materials.
- Ask students to share any new insights they've gained about friction and skateboarding.

_

Assessment:

- Have students write a short paragraph explaining how friction affects skateboarding performance.
- Discuss their responses as a class to ensure comprehension.

_

Extension:

1. Encourage students to research and present a famous skateboarder or a groundbreaking skateboard design that has had a significant impact on the sport, discussing the role of friction in their success or innovation.
2. If you enjoyed this lesson, consider pairing it with or extending it into a full unit with these related lessons: Math and Skateboards

---

Ready to roll?

Connect with us to get trained and bring skateboarding to your school! Whether you're building a full unit or have a lesson idea in mind, we're here to support you—with ready-to-use lessons and a welcome mat for new ones. Make skateboarding part of your curriculum today and reach out to us at learn@firstpush.org

---

Follow for more!

Sign up for our newsletter by clicking here: First Push

- @firstpushsyndicate
- @First Push Syndicate
- @F1rstPush
- @First Push Syndicate

FirstPush.org
61 Locust Street Suite 220 Dover, New Hampshire 03820