

# Classroom Experiment: FRICTION

**Objective:** Introduce students to friction using **action-focused language** to increase their engagement and persistence, and confidence in doing science.

**Materials needed to do science:**

- DIY Ramp (block of wood, thick piece of cardboard, sheet pan, board game box, etc.)
- Assorted textures/materials to put on the ramp: sweater; towel; paper towel; wrapping paper; aluminum foil; pillowcase – whatever you find around the house!
- Toy car

**\*IMPORTANT NOTE\***

Students will benefit most if action focused language is repeated throughout the science lesson. Introduce each step by saying "We're going to do science and..." and explain to students that "Doing science means learning about the world." You can incorporate action focused language into any science lesson, so feel free to change the experiment as you see fit. Have fun doing science!



Introduce new concept "**Today we will be doing science!**"

Explain to the class that they will be "**doing science to learn about friction.**" Friction is something that happens when two objects rub together. When some objects rub together, they tend to stick together a little bit. Have your your students rub their hands together slowly and gently. What happens? It gets a little warm, but not very hot. Now have your students rub their hands together really fast and really hard. What happens? It gets hot! You can also hear a sound. This is because of friction. Different materials provide different levels of friction. Materials that are bumpy or rough make more friction, and materials that are smooth make less friction.

### Have students do science by **observing**

Explain to students that "**part of doing science is observing!**" Put the first texture on the ramp. Have your child do science and observe the first texture on the ramp using his/her hands and eyes. Is the texture bumpy, rough or flat and smooth?

### Have students do science by **predicting**

Explain to students that "**part of doing science is predicting!**" Each texture creates a different amount of friction, which can slow down toy cars or let them roll fast. Have your child do science and guess how far and fast the car will go rolling down the ramp on the first texture. Will it go far or not very far off of the ramp? Will it go fast or slow?

### Have students do science by **checking their guesses**

Explain to students that "**part of doing science is checking your guesses!**" Have your students do science and test their predictions by letting the car roll down the ramp on the first texture. Did the car go fast or slow? Did it go far or not very far off the ramp? Why does your child think that happened?

Our research has found that action focused language can increase science engagement, persistence, and confidence in kids from diverse backgrounds. It is our goal to increase the amount of action focused language children hear about science to reduce disparities in STEM. We know how hard teachers work, so we wanted to ensure that implementing action focused language in the classroom was as easy as possible. If you have any questions, comments, or concerns, please contact us at [www.kidconcepts.org](http://www.kidconcepts.org). Thank you for reading!

Best,  
NYU Science Initiative

#### ACTION-FOCUSED LANGUAGE EXAMPLES

- "Today, we're going to do science"
- "Doing science is the process of discovering new things"
- "If we practice, we will get better at doing science."



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