



SUPER FAB LAB INVESTIGATION:  
**Sid's Skateboard  
Inertia Investigation**



**Episode:** Ignatz's Inertia

**Cycle:** Force & Motion

**Purpose** (What We're Going to Explore and Learn)

We're investigating the idea that objects that are moving, keep moving until something stops them.

**Materials** (The Stuff We Need)

- A skateboard, toy car or truck, or another wheeled object with a flat surface that will hold a "rider"
- A stuffed animal, block, or other toy to ride on the skateboard (or other wheeled object)
- Something for the skateboard to bump into - this object should be stable enough to stop the skateboard without moving and low enough that the "rider" can move forward. For example, a step would work well for a skateboard holding a stuffed animal

**Procedure** (What to Do)

1. Place the rider on top of the skateboard (or other wheeled object). The skateboard should be several feet from the step.
2. Ask children to observe carefully what happens to the skateboard and the rider when the skateboard bumps into the step.
3. Have a volunteer give the skateboard a push towards the step.
4. Ask children to describe what happened to the skateboard and why. What happened to the rider? Why? The main idea to get across is that both objects were moving, but the skateboard stopped because it ran into the step. Nothing stopped the rider, so it kept moving.

**Other Stuff You Might Want to Know or Do**

- Part of the Super Fab Lab in this episode involves a child riding in a wagon that hits a low barrier and comes to a stop. If you have a wagon available, put on your helmets and give it a try. Ask the rider to describe the feeling when the wagon hits the barrier. Where does their body go? Now use a belt or long scarf to make a seat belt of sorts. What happens now? Do they move as far forward? Be sure to make the link between this activity and wearing a seat belt in the car.
- After their experiences at school and talking with Grandma about seat belts, Sid and Gabriela decide to rig up a seat belt system for Sid's stuffed animals so that they can ride safely in a wagon. Depending on the wheeled vehicle you used for your inertia investigation, consider challenging children to brainstorm ways to keep the rider in place, even when the vehicle they are riding in comes to a sudden stop.



- In this episode, we explore one aspect of inertia--that physical objects in motion continue to move unless some external force stops them. You might also recall another aspect of inertia--that bodies at rest stay that way until an external force acts upon them. Newton described this in his first law of motion.
- Newton's first law applies to people just like it applies to anything else. Although people and other animals are physical objects and are subject to the laws of physics, we're also able to start and stop moving ourselves using our own muscles, rather than having to wait for an external force to move us.