



FIGURE SKATER SPIN

SCIENCE SAFETY

PLEASE follow these safety precautions when doing any science experiment.

- **ALWAYS** have an adult present.
- **ALWAYS** wear the correct safety gear while doing any experiment.
- **NEVER** eat or drink anything while doing any experiment.
- **REMEMBER** experiments may require marbles, small balls, balloons, and other small parts. Those objects could become a CHOKING HAZARD. Adults are to perform those experiments using these objects. Any child can choke or suffocate on uninflated or broken balloons. Keep uninflated or broken balloons away from children.

INGREDIENTS

- Rotating Chair or Stool

INSTRUCTIONS

STEP 1: Sit in the rotating chair or on the rotating stool.

STEP 2: Make sure your feet are tucked in and not touching the ground. Pull your arms close to your chest. Have a friend spin you in the rotating chair or rotating stool.

STEP 3: As you are spinning, stretch your arms out wide from your chest and observe. Compare the effects of different strengths and different directions of pushes and pulls on the motion of you, when spinning in the rotating chair or on the rotating stool.

EXPLANATION

You'll noticed a big difference in speed when your arms are close to your chest versus when they are stretched out wide. The reason, when you stretch your arms out wide, your mass is distributed over a greater area, slowing you down.

OLYMPICS CONNECTION

Have you ever noticed how figure skaters spin super-fast when they pull their arms closer to their bodies? This speeded-up rotation results from a sudden redistribution of mass.



SCIENCE BACKGROUND

A force is a push or pull, which can cause an object to be in motion. Pushes and pulls can have different strengths and directions. Each force acts on one particular object and has both strength and a direction.

An object at rest typically has multiple forces acting on it, but they add to give zero net forces on the object. Forces that do not sum to zero can cause changes in the objects speed or direction of motion. Motion is a change in position. The mass of an object affects the objects motion. An object with more mass requires a greater force to put the object in motion. Speed is how far an object moves over a specific period of time. An object moving at a greater speed changes position faster than an object moving at a slower speed. Inertia is the tendency of an object to resist change.

I CAN STATEMENTS

- ✓ I can plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.

NEXT GENERATION SCIENCE STANDARDS CONNECTION

K – Forces and Interactions: Pushes and Pulls

