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Science Action Labs

Name _____

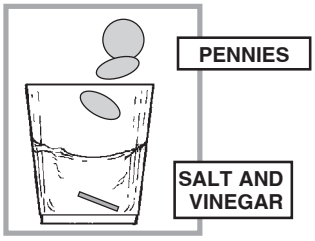
Penny Science

Newton Wants You to Know

You know that it takes 100 pennies to equal a dollar. Nowadays, pennies are not worth much.

Historians think that metal coins were first made in 600 B.C. in a country that is now Turkey. Most coins are made of alloys of different metals. The pennies you will be experimenting with are made of copper and zinc.

Penny Experiments

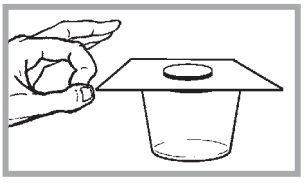


Dirty Money

Who likes dirty money? Clean your dirty pennies in a solution of salt and vinegar. Leave them in the solution for a few days.

Penny Surprise

Take a good look at a clean penny. Try to make a large drawing of all the details you see on both sides. Now here's a surprise. Use a magnifier to look at the Lincoln Memorial. You will see the image of Lincoln inside.



Penny Inertia

Your penny has inertia. This means that it doesn't want to leave you. Place a card on top of an empty glass so that part of the card sticks over the side. Place a penny in the center of the card. Use a finger to quickly flick the card beyond the glass. Your penny won't leave with the card.

NEWTON'S ACTION LAB

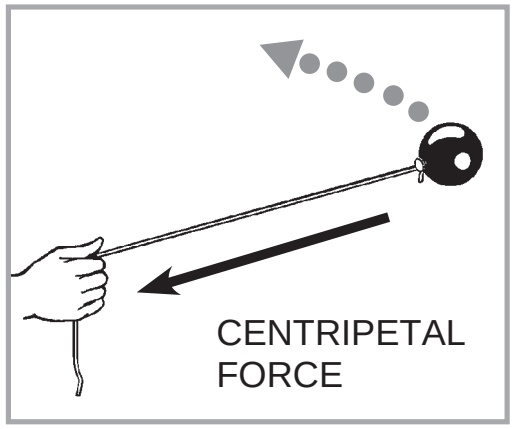
Science Fun 2

Name _____

Spinning Science

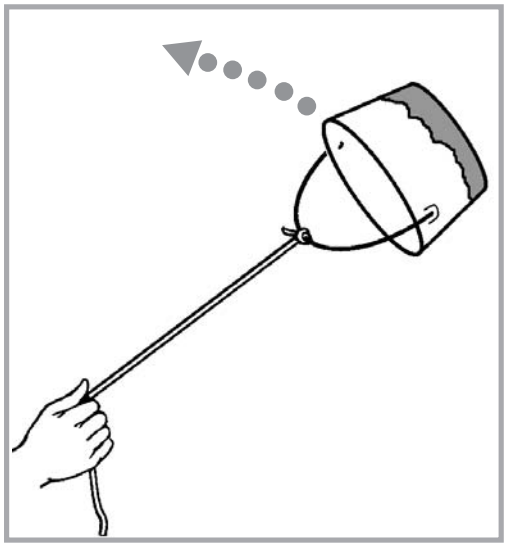
Newton Wants You to Know

A ball tied to a string is spinning in a circle. Without the string, the ball would fly into space. The string exerts a **centripetal force** that pulls inward and results in a circular path for the ball.



Sometimes nonscientists refer to the tendency of a spinning object to be pulled outward as **centrifugal force**. That is the outward force that can separate cream from milk or remove water in your spinning clothes dryer. Hospitals use a spinning centrifuge to separate the different parts of blood.

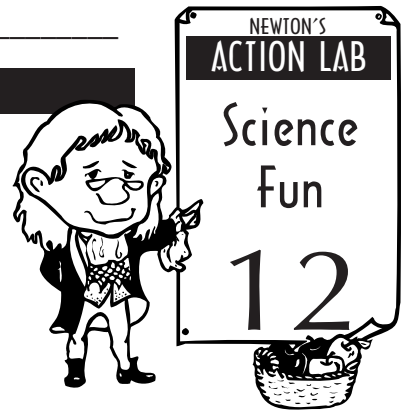
Spinning Experiments



Upside-Down Water Bucket

Obtain a small plastic bucket. Tie 3′ (.9 m) of strong rope to the handle. Add 1″ (2.5 cm) of water. **Go outside. Carefully** rotate the bucket of water vertically in a full circle. The water won't spill even when the bucket is upside down. Try spinning the bucket horizontally above your head. The water still won't spill. Can you stop the spinning without spilling the water?

Name _____



Gravity Sci-Fun

Newton Explains Center of Gravity

Every object has a center of gravity. That is the point where all its mass (similar to weight) is evenly distributed.

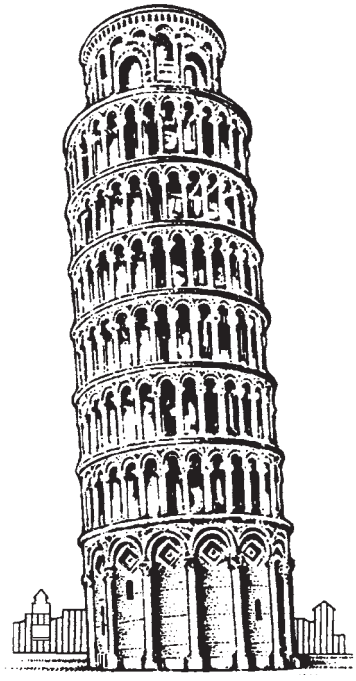
Your body has a center of gravity. If you bend too far forward or backward, you will fall.

Cars are built low to have a low center of gravity. Imagine making a sharp turn in a 20′ (6 m) high car. The high car would have its center of gravity shifted and fall over.

You've seen a picture of the famous Leaning Tower of Pisa in Italy. It is 180′ (54 m) high. It leans to one side more than 10′ (3m). If it leans to the side a bit more, it would topple because its center of gravity has changed.

Scientists have found ways to reduce the lean and keep the tower from falling. What would you suggest that they do?

The Leaning Tower of Pisa



180 Feet Tall

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