



## Curiosity Guide #606

### Springs

Accompanies Curious Crew, Season 6, Episode 6 (#606)

#### Bowling Ball Bounce

Investigation #7

#### Description

Will a light or a heavy bowling ball bounce more? Find out!

#### Materials

- 16-pound bowling ball
- 8-pound bowling ball
- Screw eyes
- Drill
- Drill bit
- 2 tension springs
- Rope
- 2 S-hooks
- Measuring tape

#### Procedure

- 1) Drill a small hole in the top of each bowling ball.
- 2) Screw an eye into the top of each ball.
- 3) Using the S-hooks to fasten each end, hang the rope from a tree limb, swing set, or some fixed, rigid support.
- 4) Hang the tension springs on the rope, equidistant from the center.
- 5) Measure the height from the bottom of a spring to the ground.
- 6) Hang the 8-pound ball on the first spring.
- 7) Figure out how much the spring stretches by measuring again from the ground to the bottom of the spring.

- 8) Gently pull down on the ball and take note of the rhythm of the bounce.
- 9) Predict what will happen with the heavier ball. Then hang the 16-pound ball from the second spring. Measure and compare.

Note: This can be set up on a smaller scale with small springs and weights.

### My Results

### Explanation

When the bowling ball is hooked to the spring, the ball stretches the spring down and puts the spring under tension. Pulling down on the ball gets the ball to oscillate, or bounce, up and down in rhythm. One complete bounce is called the period. When you try the heavier ball, the spring stretches further, but this makes the period of the bounce take longer because the ball travels further up and down. How loose or stiff the spring is will also affect the period of the bounce.

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