



## Curiosity Guide #606

### Springs

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

#### Tension Spring Stretch

Investigation #5

#### Description

Paper clips can't stretch, or can they? Find out!

#### Materials

- Ruler
- Tape
- Small tension spring
- 2 needle nose pliers

#### Procedure

- 1) Tape the ruler on the table.
- 2) Place one end of the spring at the end of the ruler.
- 3) Hold the spring in place with a pair of needle nose pliers.
- 4) Measure the tension spring. How long is the spring in the relaxed state?
- 5) Gently begin to pull the spring open from the other end, being careful not to deform the spring.
- 6) How long did the spring get?

#### My Results

## Explanation

Tension springs, or extension springs as they are sometimes called, are springs made from metal. Tension springs are designed to use energy to pull things together. The coils of tension springs are tightly wound and are often touching in the relaxed state. Also, these springs usually have hooks on the ends to attach between objects. When a load is added to the tension spring, the coils are pulled apart, and the spring gets longer. Tension springs store potential energy until the force is removed. At that time, the energy transfers to kinetic energy and shrinks the spring.

**Investigate further.** Tension springs are designed to pull objects together. The design of tension springs is to have coils that are wound tightly together when in a relaxed position. Think about a trampoline. When no one is on the trampoline, the springs remain tight all the way around the mat. When someone starts to jump, the springs stretch. The jumping energy gets transferred into the springs as elastic potential energy. Then the coils spring back to a closed position and launch the jumper into the air. Springs are not only useful. Springs can be a lot of fun!

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