Bouncing Balloons

MAKE A SUPER BOUNCY BALL OUT OF A BALLOON.

Sports + Engineering = Great Fun!
Sports engineering focuses on designing, developing, and testing sports equipment, such as balls. When a ball collides with something hard, its shape alters. But if the material used to make the ball is elastic, the ball will return to its original shape, causing it to bounce. Some balls, like basketballs, are very bouncy and some, like baseballs, hardly bounce at all.

You'll Need (per small group):

- 1 uninflated balloon
- 1 rubber band or binder clip
- items to add weight, such as paper clips, coins, or dry rice
- 1 ft. of tape
- a ruler or measuring tape
- paper and pencil
- optional: scale, sports balls, funnel

30–45 min.

SMART START: Here's one way to start this activity and get girls thinking. Put different kinds of sports balls around the room and give the girls a chance to explore their properties. The girls can make a list of each ball's size, weight, shape, etc. What makes one bounce better than another? 3 6

POINTER: Each group gets only one balloon. Tying off balloons with rubber bands or binder clips instead of knots makes redesigning easier!

Here's how:

1. **Brainstorm and plan.** Ask your girls to get into small groups [1] and deliver the **SciGirls Challenge:** Engineer a super bouncy ball out of a balloon and the materials provided. Give the groups 10 minutes to brainstorm and agree on a design before beginning construction. [3] How can they change the size of their balloon? The weight?

2. **Try out these tests.** Encourage girls to invent their own, as well. [4]
   - **Bounce height** Drop the balloon on the floor from a set height and use a ruler to measure how high it bounces.
   - **Elasticity** Count the number of times the balloon bounces after being dropped.
   - **Weight** Use a scale to find out how heavy the balloon is.

3. **Share results.** Create a graph or chart with all the groups' data and discuss the results. Which design produced the highest bounce, or the greatest number of bounces? Why? How do these designs differ? [6]

[1-7] See **SciGirls Seven** strategies on page 3.