SCIENCE FESTIVAL FACILITATOR'S GUIDE

Balloon Skewers

1. Make sure you have the materials you need.

- Balloons (one or more for each adult-student pair, extra for multiple demonstrations)
- Bamboo skewers (one for each adult-student pair)
- Vaseline OR Cooking oil OR Mineral oil
- Small cup or bowl
- Safety glasses (enough for everyone who will be at your station at one time)

2. Watch this video on your smartphone:

https://youtu.be/8G-l1uhGimo

3. Prepare your station.

- Distribute balloons and bamboo skewers, one each per student-adult pair.
- Place the Vaseline jar in an accessible place OR pour some of the oil into a small cup or bowl, so it will be easy for the students to dip their skewers.

Questions to ask participants before they start:

- Has anyone ever pierced a balloon?
- What usually happens when you stick something sharp into a balloon?
- Who thinks that they can put this skewer into an inflated balloon without popping it?
- How would you do it?

Instructions:

Please read each set of instructions out loud. Make sure that you direct the correct person to complete each assigned task.

- **Both:** Put on safety glasses.
- **Adult:** Blow up a balloon and tie it off. Don't over-fill it—if you let a little air out of the balloon, it will be easier to skewer.
- **Student:** Dip the tip of the wooden skewer into Vaseline OR into the cooking oil OR mineral oil.
- **Adult (or student):** Use a gentle twisting motion to insert the skewer into the thick end of the balloon, opposite the knot. Continue pushing on the skewer until it emerges from the other side, directly next to the knot. The balloon should not burst.
- **Student:** Place your hand over the holes to feel any air leaking out.

How It Works:

Balloons are made out of thin sheets of rubber or latex. The material is stretchy because of its elasticity. When the balloon is blown up, the middle area of the balloon stretches more than the ends. A sharp, lubricated point can be pushed through the material at the ends because the rubber or latex can stretch around it. A sharp, lubricated point pushed through the side of the balloon will pop the balloon because in those areas, the material is already stretched.

Vocabulary:

Elasticity: The ability of a material to stretch and then go back to its normal shape.

Real-World Application:

Knowing the elasticity of different materials helps scientists and engineers decide what kinds of materials to use when building things, so that they can withstand the right amount of pressure without breaking.