

How Strong Is It?



OVERVIEW

We all use sticky notes often, but have you ever really stopped to think about how a sticky note sticks to different surfaces? Your young scientists have completed experiments testing the strength of sticky notes using different variables: the force used to attach the sticky notes to a surface, and the surface area of the adhesive part of the sticky note that is attached to the surface.

Students will continue their inquiry at home by involving their parents/guardians in additional investigations of sticky notes in everyday situations around the home.

OBJECTIVES

Students will be able to:

- test sticky notes for their adhesive strength.
- describe the effect the type of surface has on the stickiness of a sticky note.
- find the area of various household objects.
- measure the stickiness level of sticky notes on various surfaces.

BACKGROUND INFORMATION

Materials such as masking tape, scotch tape, glues, and sticky notes that adhere to surfaces work because of the adhesive forces between two surfaces. Students make use of such items in their everyday lives and by investigating some of their properties of adhesion, these items can be used to develop and practice student inquiry skills in a fun manner. Students learn inquiry skills through curiosity, asking questions about the world around them, making observations and gathering data, and working to make sense of this data. Practicing these skills at home will greatly benefit your young scientist in countless ways.

MATERIALS (BY ACTIVITY)

- Weight It Down Activity
 - Sticky notes
 - One CD (any cd will work)
 - String
 - Weights (examples: batteries, heavy washers, full box of paper clips, etc.)



- Surface Area Activity
 - Notebook or paper
 - Pen/pencil
 - Household objects to measure area (examples: rugs, newspaper, kitchen table, etc.)

- Real-Life Area Activity
 - Notebook or paper
 - Pen/pencil
 - Household items where area is a factor in performance (examples: snowshoes, skis, refrigerator magnets, roller skates, etc.)

- The Surface Matters Activity
 - Sticky notes
 - Notebook or paper
 - Pen/pencil
 - Various surfaces (examples: tile, wood floor, concrete, carpet, etc.)

HOME ACTIVITY

1. **Weight It Down Activity:** If you have an old CD, some string and weights, and sticky notes, have your young scientist demonstrate how they conducted their investigation at school. You could discuss what they found out and try to duplicate those findings at home.

2. **Surface Area Activity:** One of the factors or variables your young scientist investigated at school had to do with surface area; specifically, how much area on the back of the sticky note was covered with adhesive. Practice finding and comparing the area with items found around the home such as place mats, pictures, rugs, newspaper, etc. Area can be calculated using this equation:

 $A = \text{length (x) height.}$

3. **Real-Life Area Activity:** Can you and your young scientist find situations around the home where area is a factor in performance? For example: Snowshoes or skis? Holding a heavy object on the refrigerator with fewer or more magnets?

4. **The Surface Matters Activity:** Investigate what effect the type of surface has on a sticky note's ability to stick to that surface. Is there any way you and your young



scientist could assign a number to the ability of the note to stick? For example: create a stickiness scale of 1-5 and determine the criteria for each number.

VOCABULARY

- **Area:** The space occupied by the surface of an area. \

$$\text{Area} = \text{length (x) height}$$

- **Inquiry skills:** The ability to develop questions, design investigations, collect and analyze data (information), and report findings.

THOUGHT/CONVERSATION STARTERS

- How much weight can a sticky note hold?
- How do you find the area of an object?
- Does the area of an object affect its performance?
- Are some surfaces better and worse for sticky notes to stick?

DOCUMENT THE LEARNING IDEA

- Take pictures and/or videos of the activities as you complete them. You may choose to turn these into a digital collage or video to showcase your findings.
- Draw pictures of your family completing the activities and what you found in your explorations.
- Take notes during your explorations in a journal or on a piece of paper.

*Work together as a family to document your learning. Add a short description to your creation, explaining what you did and what you learned. Bring the creation to school to share with the class.

CONTINUE MAKING CONNECTIONS

The next time you go to the grocery store, take note of the various advertisements (the signs, sale prices, information cards, price tags, etc.). Discuss with your family how the area of the item affects its performance (if it is a small sign, it can only be seen by someone standing right in front of it, etc.). Talk about how that sign is posted- is it hanging, was it stuck to a surface with tape, is it standing up with a stand. If it is sticking to a surface, observe the surface it is stuck to as well as the size of the adhesive part. Bring as much as you can from this lesson into the grocery store experience.