How Many Times Can You Stick a Post-It Note?

By Keith Michael Krise

SAFETY SUGGESTIONS

- Safety goggles required
- Do not eat or drink any of the materials used in this activity

Disposal: There are no hazardous materials used in this activity. All materials can be disposed of in the trash after the activity.
Note: Follow Milli's Safety Tips found in this issue of *Celebrating Chemistry*.

Introduction

Post-It Notes are small pieces of paper with a strip of adhesive along the top edge of its back side. Unlike other kinds of tape, the adhesive on Post-It Notes allows the paper to be stuck to surfaces, but also to be easily peeled away, and re-stuck to other surfaces.

A 3M scientist, Dr. Spencer F. Silver, discovered the adhesive on Post-It Notes by accident, but did not have a use for it at first because it was not very sticky. Later, Art Fry, another 3M engineer, was marking pages in a choir songbook using small pieces of paper. The trouble was, the paper would never not stay in place, and would fall out of his book.

Then Fry, who knew about Dr. Silver's new glue, had a great idea: he could use the new adhesive for removable bookmarks! In 1980, after years of hard work, the removable bookmarks with the not-so-sticky adhesive were first sold as the classic yellow Post-It Note that everyone knows today. Post-It Notes have been a success and, 40 years later, they are found in schools, homes, offices, and choir practices (of course!) around the world! Let's investigate the stickiness of Post-It Notes!

Materials

- Post-It Notes
- Sand
- Water
- Smooth, dry, and clean surface (kitchen counter, window glass)
- Rough surface (brick, concrete)
- Glue stick
- Small squares of paper

What did you observe?

What happens to the Post-It Note and the temporary "sticky note" after repeated sticking, unsticking, and re-sticking to different kinds of surfaces? Record your observations in the table below.

Surface Type	Post-It Note	Temporary "sticky note"
Sandy		
Wet		
Rough		
Skin		

Procedures

1. Take a new Post-It Note and stick it to a smooth, dry, and clean surface. Then remove the note and re-stick it to the surface in the same place. Continue to stick and unstick the note until it no long will remain stuck on the surface. Keep track of how many times you do this.
2. Repeat this process with a new Post-It on each of the following:
   a.) a surface covered with a small amount of sand
   b.) a smooth surface made wet with a few drops of water
   c.) a rough surface
   d.) the skin on your hand
   e.) somewhere on your clothing

   For each surface you tested, how many times could you stick, unstick, and re-stick the Post-It Note? What did you observe after repeated sticking and unsticking on each surface?
3. Record your observations for each surface in the "What did you observe?" section.
4. You can also make your own temporary "sticky-note" using a glue stick. On one edge of a small piece of paper, spread a small strip of glue. For your temporary "sticky-note," how many times can you stick, unstick, and re-stick it on the different surfaces you used above? What did you observe after repeated sticking and unsticking on each surface?

Which surface was the *best* for repeated unsticking and re-sticking of the Post-It Note? Why do you think this might be?

Some people use sticky notes on their clothes to help them remember a job or errand they are to do. Does that seem like a good idea?

How did the temporary note work, compared to the Post-It Note?

How does it work?

Unlike more permanent adhesives, the adhesive found on Post-It Notes is made up of a single layer of small spheres connected to the paper of the sticky note, but that do not evenly cover the surface. This layer of spheres has the appearance of the surface of a basketball. Because of the space between these spheres and the soft, stretchy material the spheres are made of, the adhesive does not stick strongly and can be easily stuck, unstuck, and re-struck without tearing when removed!

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