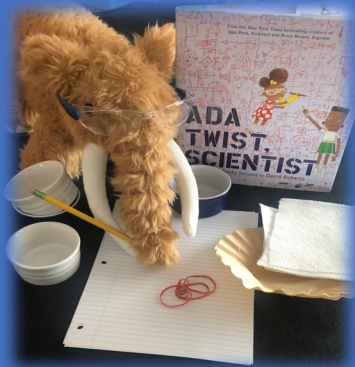
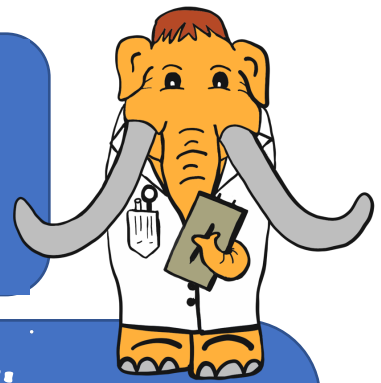


Science Saturday @ Home

Ada Twist, Scientist by Andrea Beaty
Test Your Sense of Smell!



Gathering Supplies:

Paper
Pencil

4 Cups or Small Bowls
Paper Towels or Coffee Filters

Rubber Bands

Items From Kitchen and Household

In the book *Ada Twist, Scientist*, a young girl named Ada is discovering that she loves to ask questions and one of those questions is "What is the source of that terrible stinking?". Try testing your sense of smell. What smells are good and what smells are stinky? "How does a nose know there's something to smell?"

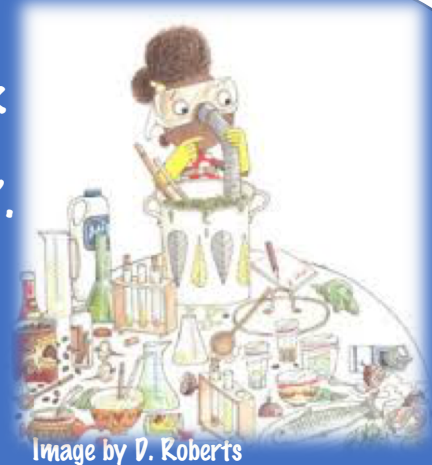


Image by D. Roberts

How To Steps:

Part 1: WHAT IS STINKY?

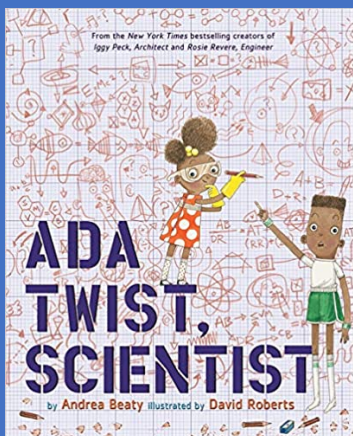
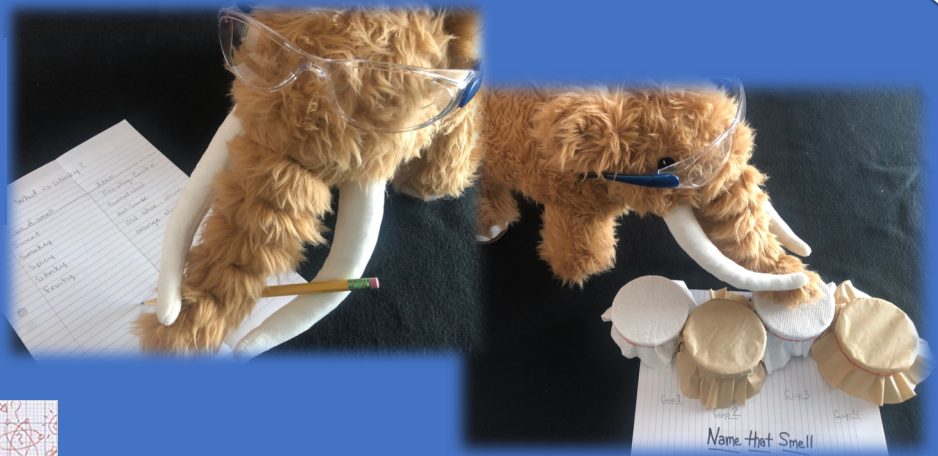
1. Take a piece of paper and make two columns on it. In the first column list words that describe different types of smells. How many words can you think of? Sweet, stinky, spicy...
2. Go around your house and see if you can find items that have smells that you listed. How does mustered smell? How does hand soap smell?
3. Read the Did You Know sections about the how the nose knows!

How To Steps:

Part 2: CAN YOU NAME THAT SMELL?

1. You can set up a smell test for your family or have a family member set up one for you! Find 4 small cups or bowls that are not clear. You don't want them to see what is inside!
2. Put some type of food item into each of the bowls. Some slices of lemon, a spoon of frosting, squirt of mustard, some coffee grounds, or a scoop of strawberry jam are just some ideas of what you could use. Try to find things that have different types of smells.
3. Use a rubber band to put a coffee filter or piece of paper towel over the top of the cups. You want to be able to smell what is inside but not see it!
4. Test your family's sense of smell! Can everyone tell what is in the cups from the smell? Are some people better at knowing smells than others?

Max and his smelly experiments!



Ada Twist, Scientist
By Andrea Beaty Illustrated by David Roberts.
Abrams Books for Young Readers, 2016

Did You Know? Science of Smell

Your nose is a scent organ. It is made up of olfactory cells which can detect over 10,000 different smells or odors. Smell can warn us of danger in the case of smoke for a fire, or help us to taste delicious food. Your nose can even help to bring old memories back to you by association, like Christmas with the smell of a pine tree or your mom and her perfume.

When you smell an odor, tiny molecules of the item you are smelling travel into your nose and come into contact with the cilia on your olfactory membrane. Cilia are tiny hairs that send nerve signals to the brain. The smells are interpreted by the olfactory bulb, an extension of the brain.

The olfactory membranes of some animals are much larger than ours and contain many more receptors. Sharks are able to smell very small amounts of blood in the water from over a mile away. Some dogs are trained to smell people trapped in a building or under the snow!

Did You Know? Women in Science



Born in 1947 in Seattle, Washington, Linda Buck described herself as being a curious kid. She loved biology but when she got to college she wasn't sure what she wanted to study. Once she found Immunology, she found her way of helping people.

Immunology is a branch of medical science that looks at how the human body protects us from illness and disease through the body's immune system. In 1988 Dr. Buck started studying genes that encode odor receptors in our nose.

Scientists knew that smells are made up of odor molecules and that small changes in these molecules caused changes in how our brain interprets the smell, but how did the brain get its information? That is where Buck and her colleague Richard Axel come in. They found that we have 350 different odor receptors in our nose! One type of receptor can only detect a small number of different molecules. When an odor molecule attaches to a receptor a signal is sent to the olfactory part of the brain. A single smell like warm cookies is made up of many different odor molecules. The combinations of signals sent from different receptors are then interpreted by the brain to be warm cookies!

In 2004 Dr. Buck and Dr. Axel were awarded the Nobel Prize in Medicine for their work!