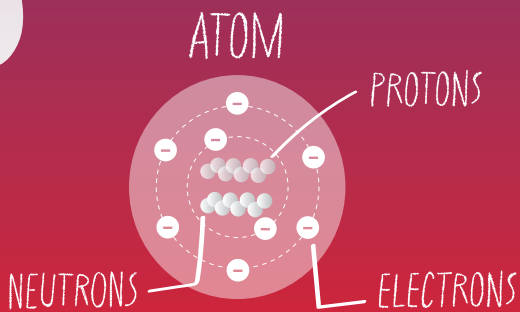


DREAM. BUILD. BECOME.

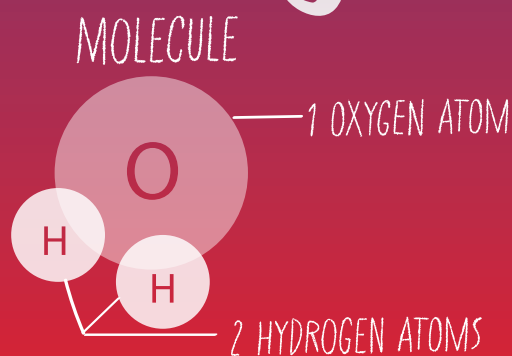
ACE METAL FOUNDATIONS

By IACMI

Color Changing Slime



OXYGEN (O)



H_2O =WATER

THERMO: HEAT



Color-Changing Slime



Prior Knowledge

This activity requires little prior knowledge. Students should be able to count to 3 and need able to recognize the numbers “1”, “3”, “4”, and “8.” If students are unable to recognize these numbers, a fundamental understanding of relative size can help ensure success by removing the tablespoon, 1/8 teaspoon, and $\frac{3}{4}$ teaspoon from the measuring spoon ring. 

Color-Changing Slime

Lesson Overview

This activity allows young learners to explore how some materials can change and respond to the world around them. Using color-changing slime, students observe what happens when the slime is touched, stretched, or warmed by their hands. They will discover that while slime may look ordinary at first, it can do something extraordinary – change color!

This activity introduces students to the idea of materials and helps them notice that not all materials act the same way. Some materials stay the same, while others are “smart” and can change when their environment changes. Students use their senses to observe, describe, and talk about what they see happening to the slime.

Through guided play and discussion, students begin to understand that scientists and engineers study materials to learn what they can do, and how they can be used. The lesson encourages curiosity, careful observation, and simple cause-and-effect thinking.

Vocabulary

Material: What something is made of

Change: When something becomes different

Observe: To look closely and notice what is happening

Respond: When something changes because of what is happening around it

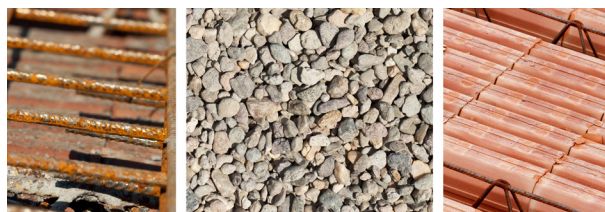


Figure 1: Various materials used in construction.



Figure 2: A person holding fully formed slime.

Color-Changing Slime

The Foundations of Super Materials

Today, we are going to explore something squishy, stretchy, and surprising: slime! At first, slime might look ordinary, but it has a special secret. When we touch it and play with it, it can change color right before our eyes.

Scientists love to ask questions about things like this:

- What is this made of?
- What can it do?
- What makes it change?

Today, you are the scientist!

What is a Material? A material is what something is made of.

Look around you. Your shirt is made of material, your desk is made of materials, and the slime you will make is made of materials, too.

Some materials stay the same, no matter what we do to them. Other materials are super materials – they can change when we touch them, move them, or warm them up.

Meet a Super Material

The slime we will make today is a super material because it can change color when you hold it, stretch it, or squish it in your hands.

This slime has a special powder in it with tiny pieces inside that respond to how warm or cold something is. When you hold the slime, your warm hands help those color pieces change, and the slime looks like a new color. When the slime cools down, it can change back again. That's what makes this slime a super material.

Why do Scientists use Smart Materials?

Smart materials are used because they can do special jobs. Smart materials can change when they get warm, wet, bent, or touched. This helps scientists and engineers make things that work better, last longer, or help keep people safe. By studying smart materials, scientists learn how to turn ordinary things into extraordinary tools that can help people every day.

Color-Changing Slime

Materials

Materials Supplied in Kit	
Per Student • 2 tablespoons of Elmer's glue • 1 spoon of thermochromic powder • [3] 1/8 teaspoons of baking soda • 3/4 teaspoon of contact solution • 1 Ziploc bag • 1 craft stick (to assist with removing glue from measuring spoon)	Shared • Elmer's glue • Thermochromic powder (one of the provided spoon's worth per student) • Baking soda • Eye contact solution • [5] 1 Tablespoon scoops • [5] 1 teaspoon scoops • [5] 1/8 teaspoon scoops



Activity Directions

Step 1: Start with the Base

- Place 2 tablespoons of glue into your plastic bag
- Add 1 spoonful of color-changing powder to the bag
- Seal the bag tightly
- Use your hands to gently mush and squish the bag until the glue and powder are mixed

Color-Changing Slime

Activity Directions Continued

Step 2: Add the Activator

- Open the bag and add three $\frac{1}{8}$ teaspoons of baking soda
- Seal the bag again
- Use your hands to mush and mix the ingredients through the bag until everything is combined

Step 3: Watch the Slime Form

- Open the bag and carefully add $\frac{3}{4}$ teaspoon of contact solution
- Seal the bag one last time
- Mush, squeeze, and press the bag with your hands
- Keep mixing until the slime starts to pull together and looks stretchy instead of runny

Step 4: Observe your slime

- Hold the bag in your hands
- Stretch and squish the slime through the bag
- Watch closely and note the color change as your hands warm up the slime



Safety Note

- *While this activity uses skin-friendly materials, every child's skin is different. In very rare cases, students with particularly sensitive skin have experienced minor, but adverse reactions. For this reason, the slime is made and interacted with in the plastic bag. Students with known skin sensitivities should not be encouraged to play with the slime using their bare hands.*

Color-Changing Slime

Discussion Prompts or Reflection

- What do you already know about slime or gooey materials?
- What happened as you held the slime in your hands?
- Why do you think your hands help change the color of the slime?
- Is your slime a “super material”? What makes it super?

Variations and Enrichment

- Encourage small groups to make their slime with slightly different ingredients amounts, such as more glue, less glue, more contact solution, etc. Then have students compare the outcomes of the different formulations.
- Invite students to test how temperature affects the slime. Allow the students to let their slime rest near a window allowing natural light in to add to the notion that the slime is reacting to its environment (the heat) not necessarily their hands.
- Have the students design a use for the slime. Examples may include: a toy, a temperature warning, use in a mood-changing object, etc.

Foundation Exploration

- **Toy makers** regularly choose materials that stretch, squish, bounce, or change colors. They ask what a toy should feel like, how it should move, and what will make it more fun to play with.
- **Clothes designers** sometimes incorporate smart materials to make clothes more comfortable or more interesting
- **Engineers and builders** carefully consider the materials they use when making things every day. These choices can result in stronger, safer, and more durable buildings, roads, and more
- **Artists** sometimes use materials that change color, glow, or more and stretch to create more exciting art