Chemists use chemical reactions to create new products and materials.

How were you like a chemist today?

MEDICINAL CHEMIST

MATERIALS CHEMIST

What skills did you practice?

Medicine Makers

Observations

| Antacid | Antacid + water |

Tests

What formula worked best?
**Slime Specialist**

**Sample Formula**

1 Spoonful of Glue + 1 Spoonful of Water

Mix Well

+ 1 Pipette-full of Borax Solution

**Slime Data Table**

<table>
<thead>
<tr>
<th>Formula tested</th>
<th>Slime result</th>
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<tbody>
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**Best formula:**


Session 2: Change It Up!

Chemists make changes to substances to solve problems.

How were you like a chemist today?

Water Watchers

Water sample observations:

How did you try to clean it?

What skills did you practice?
pH Scale

The pH scale shows us how acidic or basic a substance is.

1 2 3 4 5 6 7 8 9 10 11 12 13 14

- **Acidic** (vinegar)
- **Neutral** (water)
- **Basic** (baking soda)
Color Creators
Cochineal Shell

What does the liquid look like?

The cochineal (kah-chin-EE-ul) is a tiny insect that comes from Central America.

Color Creators
Butterfly Pea Flower

What does the liquid look like?

The butterfly pea is a plant that comes from Asia.
Medicinal Chemist
Medicinal chemists study and create medicines. They might make a new medicine to treat an illness or try to make an old medicine work better. Some medicinal chemists test chemicals from nature to see if they can be turned into medicines.

Materials Chemist
Materials chemists study and create new materials to do different things. A materials chemist might work to make unbreakable glass for phone screens or a waterproof fabric for keeping backpacks dry inside.

Explore at Home
When baking soda and vinegar react, where do the bubbles go?
Try this experiment to find out: https://sciencebob.com/build-a-fizz-inflator/
What happens if you add less baking soda, or less vinegar? What else could you test?

Explore at Home
How can you create different slime materials?
Test different formulas using some of these substances:
- Cornstarch
- Vegetable oil
- Flour
- Shaving cream
- Liquid soap
- Water
What other ideas could you try?
Water Chemists

Water chemists study how water changes and how it affects people and nature. Some water chemists work to keep a city’s drinking water clean. Others find out how changes in ocean water affect the animals and plants who live in it.

Color Chemists

Color chemists make and study dyes and pigments. Dyes and pigments give color to things like crayons, paints, clothing, plastic toys, or lipstick. Some color chemists study old paintings. They investigate the chemicals in the original paints and help protect and fix them.

Scientists

Explore at Home

Some substances mix, or dissolve, in water and some don’t. Mix some of these substances:

- Salt
- Vegetable oil
- Cornstarch
- Milk
- Lemon juice
- Butter

Do they dissolve in water?
How could you separate them back out again?
What other ideas could you test?

Explore at Home

Could you make colored paint from leaves? Rocks? Tree bark?
Find things from nature in your neighborhood and see what colors you can create.
(Ask a grown-up first to make sure it is OK to take them!)

Which liquids will you add to them to create a paint?
RESOURCES

WEBSITES:
GSK Science in the Summer – scienceinthesummer.com
Learn about the national GSK Science in the Summer™ program, locations, and resources.
Franklin Institute – fi.edu
Learn about The Franklin Institute science museum, programs and resources.
Adventures in Chemistry – acs.org/education/whatischemistry/adventures-in-chemistry
Lots of information and experiments about chemistry from the American Chemical Society.
Exploratorium – exploratorium.edu/explore/chemistry
Check out videos, activities and experiments about chemistry.
Science! KIDS | PBS – pbs.org/show/science-kids
Check out videos, activities and experiments about chemistry.
How to Smile – howtosmile.org
A database of STEM experiments and activities for children of all ages.
Chemistry Careers – acs.org/content/acs/en/careers/college-to-career.html
Learn more about different chemistry jobs and the chemists who do them.

BOOKS:
11 Experiments That Failed by Jenny Offill & Nancy Carpenter
Ada Twist, Scientist by Andrea Beaty
Bartholomew and the Oobleck by Dr. Seuss
Change It! Solids, Liquids, Gases and You by Adrienne Mason
What’s Chemistry All About? by Alex Frith
The Everything Kids’ Science Experiments Book by Tori Robinson
The Science Chef by Joan D’Amico and Karen Eich Drummond

GSK Science in the Summer™
In partnership with The Franklin Institute

Be a Chemist!
LAB NOTEBOOK

NAME:

Use this notebook to take notes, record your discoveries, and try new experiments at home.