



GSK Science in the Summer™

In partnership with The Franklin Institute

Be a Chemist!

LAB NOTEBOOK

NAME:

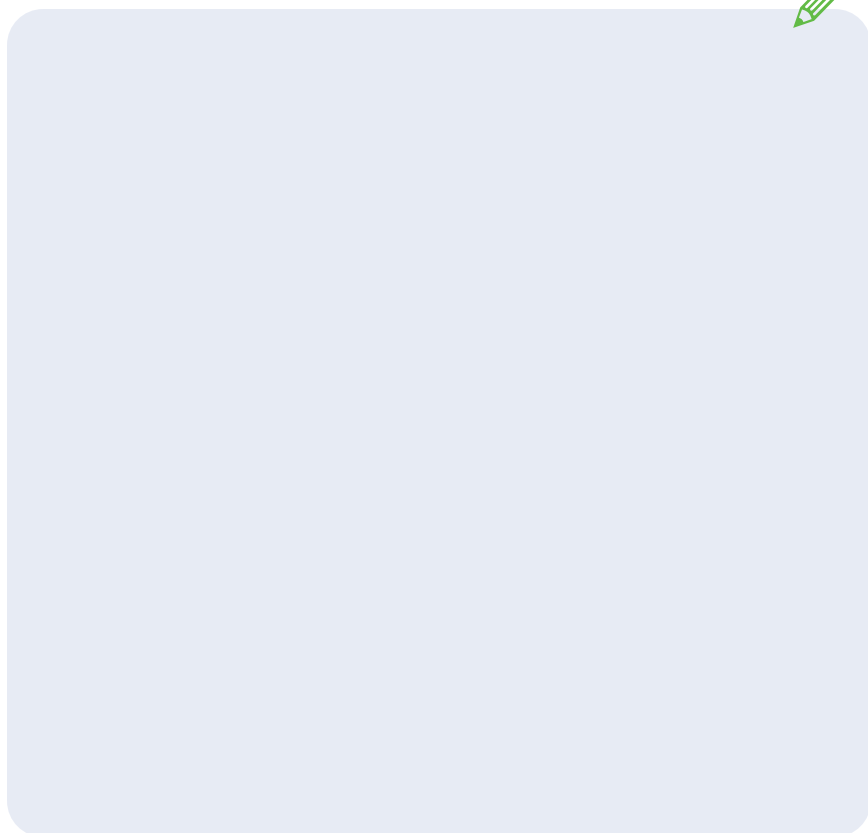
*Use this notebook to take notes, record your discoveries,
and try new experiments at home.*

*What can
you create with
CHEMISTRY?*

Session 1: Get a Reaction!

Chemists use chemical reactions to create new products and materials.

How were you like a chemist today?

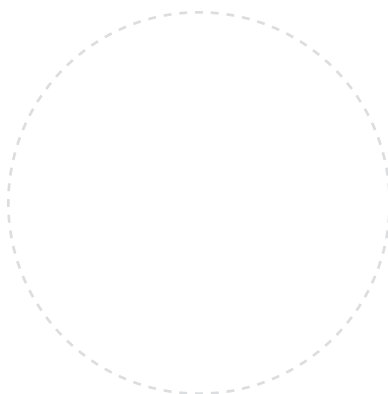
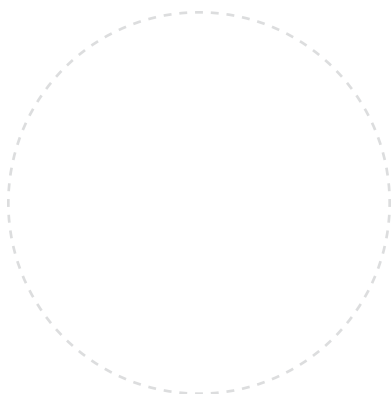


MEDICINAL CHEMIST



MATERIALS CHEMIST

What skills did you practice?



Medicine Makers

Observations

| <i>Antacid</i> | <i>Antacid + water</i> |
|----------------|------------------------|
| | |

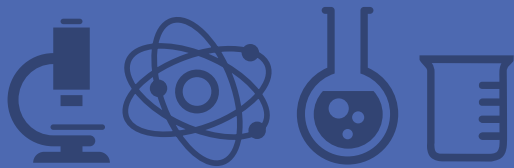


Tests

| | | | |
|--|--|--|--|
| | | | |
| | | | |
| | | | |

What formula worked best?

| |
|--|
| |
|--|



Slime Specialist

Sample Formula



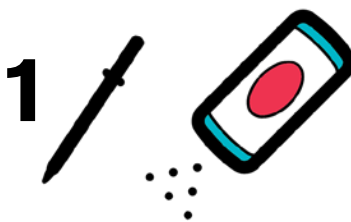
1 Spoonful of Glue



1 Spoonful of Water



Mix Well



1 Pipette-full of Borax Solution



Mix Again



Slime Data Table

| Formula tested | Slime result |
|----------------|--------------|
| | |
| | |
| | |
| | |

Best formula:

Session 2: Change It Up!

Chemists make changes to substances to solve problems.

How were you like a chemist today?



A large, empty pink rectangular box with rounded corners, intended for a student to write their response to the question "How were you like a chemist today?".

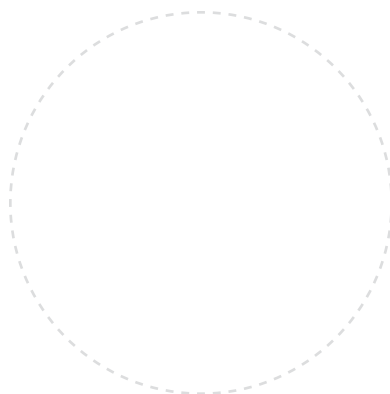
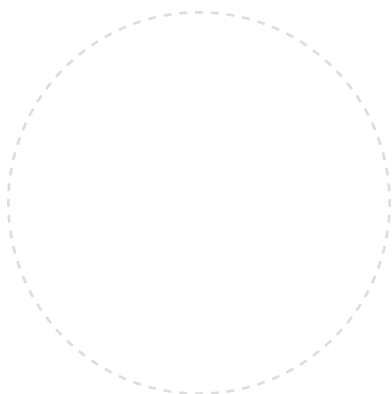


WATER CHEMIST



COLOR CHEMIST

What skills did you practice?



Water Watchers

Water sample observations:

How did you try to clean it?



pH Scale

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



acidic
[vinegar]

neutral
[water]

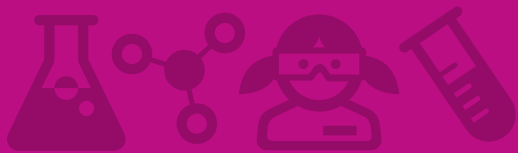




neutral
[water]

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.

Tests

Color Creators

Butterfly Pea Flower

What does the liquid look like?



The butterfly pea is a plant that comes from Asia.

Tests



Scientists

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.



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?

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

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?

Scientists

Water Chemist

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.



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?

Color Chemist

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.



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

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do more
feel better
live longer