

# MONKEY BUDDIES LEARNING LAB

Brain Maker Mini Curriculum

## THE MAGIC AND SCIENCE OF BUBBLES

Read carefully. Think clearly. Test fairly.

K-2 + Grades 3-5 in One Packet

Print-and-Go • Screen-Free • Homeschool + Classroom Friendly

Name: \_\_\_\_\_

Date: \_\_\_\_\_



## Table of Contents

**Chapter 1: Bubble Science Guide**

**Chapter 2: Bubble Explorers (K-2)**

**Chapter 3: Bubble Lab (Grades 3-5)**

**Plus: scale-the-recipe math + extensions**



# Permission to Copy

Copyright © 2026 Monkey Buddies Learning Lab (Chrissi Dennis). All rights reserved.

## **Friendly classroom license**

You may copy the student activity pages for one household OR one classroom. Please do not resell, upload, or share this file online, or distribute beyond one household/classroom.

Thank you for supporting independent creators and screen-free learning!

## How to Use This Packet

- Choose your level: Chapter 2 is designed for K-2.
- Chapter 3 is designed for Grades 3-5.
- Make three solutions: Baseline (soap + water), Glycerin, and Sugar.
- Run the same test with each solution for a fair comparison.
- For best results, let the solutions rest 30–60 minutes (overnight is best).

### Safety

Do not taste bubble solution. Wash hands after you complete the experiment. Use outdoors or on a wipeable surface.

Although these ingredients are not toxic, this is science and following certain protocol is expected.

Key takeaway: We don't eat science.

# CHAPTER 1

## Bubble Science Guide

Key ideas • recipes • vocabulary • history • tips



## Bubble Science Snapshot

A bubble is a thin film of soapy water that traps air inside.

- Surface tension: Water has an invisible 'skin' that wants to pull tight.
- Soap (a surfactant): Soap weakens that tight skin so the film can stretch.
- Why bubbles are round: A sphere holds the most air with the least surface area.
- Why bubbles shimmer: Thin-film interference makes rainbow colors as the film thickness changes.

### Brain Maker Move

When you test, keep everything the same except ONE ingredient. That is how scientists prove what caused the change.

# Vocabulary

*Find the definition for these vocabulary words*

- bubble film: \_\_\_\_\_
- surface tension: \_\_\_\_\_
- surfactant: \_\_\_\_\_
- variable: \_\_\_\_\_
- trial: \_\_\_\_\_
- evidence: \_\_\_\_\_
- conclusion: \_\_\_\_\_

## A Brief History of Bubble Fun

Bubbles have been a simple joy for centuries. Long before bottled bubble toys, children made bubbles using soapy water and simple tools.

- Bubbles show up in famous European paintings from the 1600s as a childhood pastime.
- In the late 1800s, bubble imagery became popular in advertising and culture.
- In the 1900s, bottled bubble solution helped bubbles become a classic toy.

### Teacher note

You are teaching physics, chemistry, and measurement using something kids already love.

# Bubble Magic in Action

Real life Bubble Science on a Monkey Buddies Fun Friday.



# Three Bubble Recipes for Testing

Each recipe makes about 1 gallon. This works well for classrooms with 20–30 students.

## Mixing Rules (same for all three)

- 1) Pour water first.
- 2) Add soap slowly down the side.
- 3) Stir gently 10–15 times (avoid foam).
- 4) Rest 30–60 minutes (overnight is best).

|               | WATER   | DAWN DISHWASHING LIQUID          |
|---------------|---------|----------------------------------|
| A) Baseline   | 16 cups | 2 2/3 cups                       |
| B) + Glycerin | 16 cups | 2 2/3 cups<br>+ 1/2 cup glycerin |
| C) + Sugar    | 16 cups | 2 2/3 cups<br>+ 1/2 cup sugar    |

## Why rest the solution?

Resting reduces foam and lets the mixture settle so it forms a smoother, stronger bubble film.

# CHAPTER 2

## Bubble Explorers (K-2)

Predict • test • notice • share



## Common Core Connections (K-2)

- ELA: RI.K.1/RI.1.1/RI.2.1 (ask and answer questions)
- W.K.8/W.1.8/W.2.8 (recall and write about experiences)
- SL.K.1/SL.1.1/SL.2.1 (discussions).
- Math: K.MD.A.1, 1.MD, 2.MD (describe and measure attributes).

### Learning goal

I can test three bubble recipes and tell which one worked best using what I observed.

## K-2: My Prediction

Circle the recipe you think will make the BEST bubbles:

**Baseline** | **Glycerin** | **Sugar**

Because I think: \_\_\_\_\_

\_\_\_\_\_

## K-2: What Happened?

Test each recipe 3 times. Draw or write what you notice.

### Baseline (soap + water)

Try 1: \_\_\_\_\_

Try 2: \_\_\_\_\_

Try 3: \_\_\_\_\_

### Glycerin (soap + water + glycerin)

Try 1: \_\_\_\_\_

Try 2: \_\_\_\_\_

Try 3: \_\_\_\_\_

### Sugar (soap + water + sugar)

Try 1: \_\_\_\_\_

Try 2: \_\_\_\_\_

Try 3: \_\_\_\_\_

## **K-2: Which Recipe Was Best?**

My best recipe was: Baseline / Glycerin / Sugar

I know because: \_\_\_\_\_

\_\_\_\_\_

**Draw your best bubble here:**

# CHAPTER 3

## Bubble Lab (Grades 3-5)

Fair test • 5 trials • averages • CER writing



## Common Core Connections (Grades 3-5)

- ELA: RI.3.1/RI.4.1/RI.5.1 (text evidence); W.3.2/W.4.2/W.5.2 (explanatory writing); SL.3.1/SL.4.1/SL.5.1 (discussion).
- Math: 3.MD.A.2 (measurement); 5.MD.B.2 (data display).
- Math Practices: MP1, MP2, MP3, MP4, MP5 (reasoning, argument, modeling).

### 3-5: Question + Variables

Question: Which bubble solution makes the strongest bubbles?

Independent variable (what you change): \_\_\_\_\_

Dependent variable (what you measure): \_\_\_\_\_

Controls (what stays the same): wand, person, location, rest time, number of dips, etc.

### 3-5: Data Table (5 Trials Each)

| Solution | Trial 1 | Trial 2 | Trial 3 | Trial 4 | Trial 5 | Average |
|----------|---------|---------|---------|---------|---------|---------|
| Baseline |         |         |         |         |         |         |
| Glycerin |         |         |         |         |         |         |
| Sugar    |         |         |         |         |         |         |

#### Measure idea

You can measure bubble strength by time to pop (seconds), bubble size (cm), or number of strong bubbles made in 30 seconds.

### 3-5: Conclusion (CER)

Claim: My strongest solution was \_\_\_\_\_

Evidence: My data shows \_\_\_\_\_

---

Reasoning: This makes sense because soap lowers surface tension and the additive changes how strong the film is.

---

## Scale It Down / Math It Up

The recipes are written as 1-gallon classroom batches. Use this page to scale down for home or scale up for larger groups.

| Batch Size           | Baseline                                   | + Glycerin                               | + Sugar                                  |
|----------------------|--|--|--|
| 1 Gallon             | 16 cups water<br>2 $\frac{2}{3}$ cups Dawn | Baseline + $\frac{1}{2}$ cup<br>glycerin | Baseline + $\frac{1}{2}$ cup<br>sugar    |
| $\frac{1}{2}$ Gallon | 8 cups water<br>1 $\frac{1}{3}$ cups Dawn  | Baseline + $\frac{1}{4}$ cup (4<br>Tbsp) | Baseline + $\frac{1}{4}$ cup (4<br>Tbsp) |
| $\frac{1}{4}$ Gallon | 4 cups water<br>$\frac{2}{3}$ cup Dawn     | Baseline + $\frac{1}{8}$ cup (2<br>Tbsp) | Baseline + $\frac{1}{8}$ cup (2<br>Tbsp) |

### Brain Maker Math

When you scale a recipe, you multiply every ingredient by the same number ( $\frac{1}{2}$  for half batch,  $\frac{1}{4}$  for quarter batch). Keeping the same ratio keeps the bubble solution consistent.

### Half batch baseline

8 cups water + 1  $\frac{1}{3}$  cups Dawn

### Quarter batch baseline

4 cups water +  $\frac{2}{3}$  cup Dawn

### Math it up

If you cut a recipe in half, cut every ingredient in half.

If you double a recipe, double every ingredient.

This is real-world fractions and measurement!

## Sources (Teacher Reference)

Add your sources here if you include specific historical facts or quotes. (Optional for classroom use.)

- Common Core State Standards Initiative: ELA-Literacy and Mathematics ([corestandards.org](http://corestandards.org))
- Optional: science museum bubble exhibit references or reputable science education sources

# BUBBLE LAB SUPPLIES + AMAZON LINKS

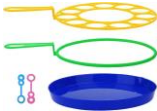



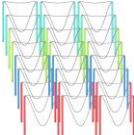

Magic and Science of Bubbles • Clickable links (PDF friendly)

## Brain Maker Setup (fast):

- 3 trays labeled:
  - A Baseline
  - B Glycerin
  - C Sugar
- 1 gallon per tray (classroom size)
- Stir gently + rest 30–60 minutes

## Teacher Tip:

Put a towel under each tray if testing indoors. A quick rinse of wands between stations keeps results cleaner.

| Pic   | Item (you label)             | Why we use it  | Amazon Link   |
|---|------------------------------|--|---|
|   | Two tester wands.            | For smaller groups using two testers at a time. Do not deviate from the wand you are using during the activity.              | <a href="https://amzn.to/4fCXixM">https://amzn.to/4fCXixM</a>   |
|  | Dawn Liquid Dishwashing Soap | Preferred for its child and environmentally friendly properties since it will likely be poured out and splashed.             | <a href="https://amzn.to/42PPm4V">https://amzn.to/42PPm4V</a>   |
|  | Food Grade Glycerin          | Safe if ingested. In fact, my students wanted to taste it. We did a mini search on other reasons to use it.                  | <a href="https://amzn.to/4dusmP5">https://amzn.to/4dusmP5</a>   |
|  | Fun and durable wands        | I have purchased the JOYIN brand three times for my classroom and my summer program. Some are viable for testing activities. | <a href="https://amzn.to/4e1hKHo">https://amzn.to/4e1hKHo</a>   |
|  | BIG Bubble wands             | Viable for testing experiments and fun bubble magic.   | <b>28 Piece</b><br><a href="https://amzn.to/4nMY1hS">https://amzn.to/4nMY1hS</a><br><b>8 Piece</b><br><a href="https://amzn.to/3Rr3GhL">https://amzn.to/3Rr3GhL</a> |
|  | Bubble tub                   | Size matters with your bubble tub of testing solution. So does durability.   | <a href="https://amzn.to/4wKfoUM">https://amzn.to/4wKfoUM</a>   |

As an Amazon Affiliate, I earn from qualifying purchases.