

Bottle Flip STEM Lab



Scientific Method • Variables • Data & Graphing

✓ Classroom-Ready

✓ Data tables + bar graph templates included



Students test
different bottle flip
conditions and
collect flip data to
determine which fill
level works best.

SCROLL
to take a look inside!



HOW THIS ACTIVITY HELPS YOU

- **Saves Prep Time** - Everything is pre-made, ready to go, and fully editable.
- **Provides Built-In Assessments** - The activity includes an easy marking rubric.
- Perfect for: Scientific Method**
- **Introduction, Lab Work, Practice, and more!**

BOTTLE FLIP INVESTIGATION

What affects a successful flip?

- amount of water
- flip technique
- bottle type
- surface

SCIENTIFIC METHOD

- Ask a Question
- Do Background Research
- Form a Hypothesis
- Test with an Experiment
- Analyze Results
- Draw Conclusions
- Communicate Results

BOTTLE FLIP CHALLENGE

BOTTLE FLIP DATA TABLE

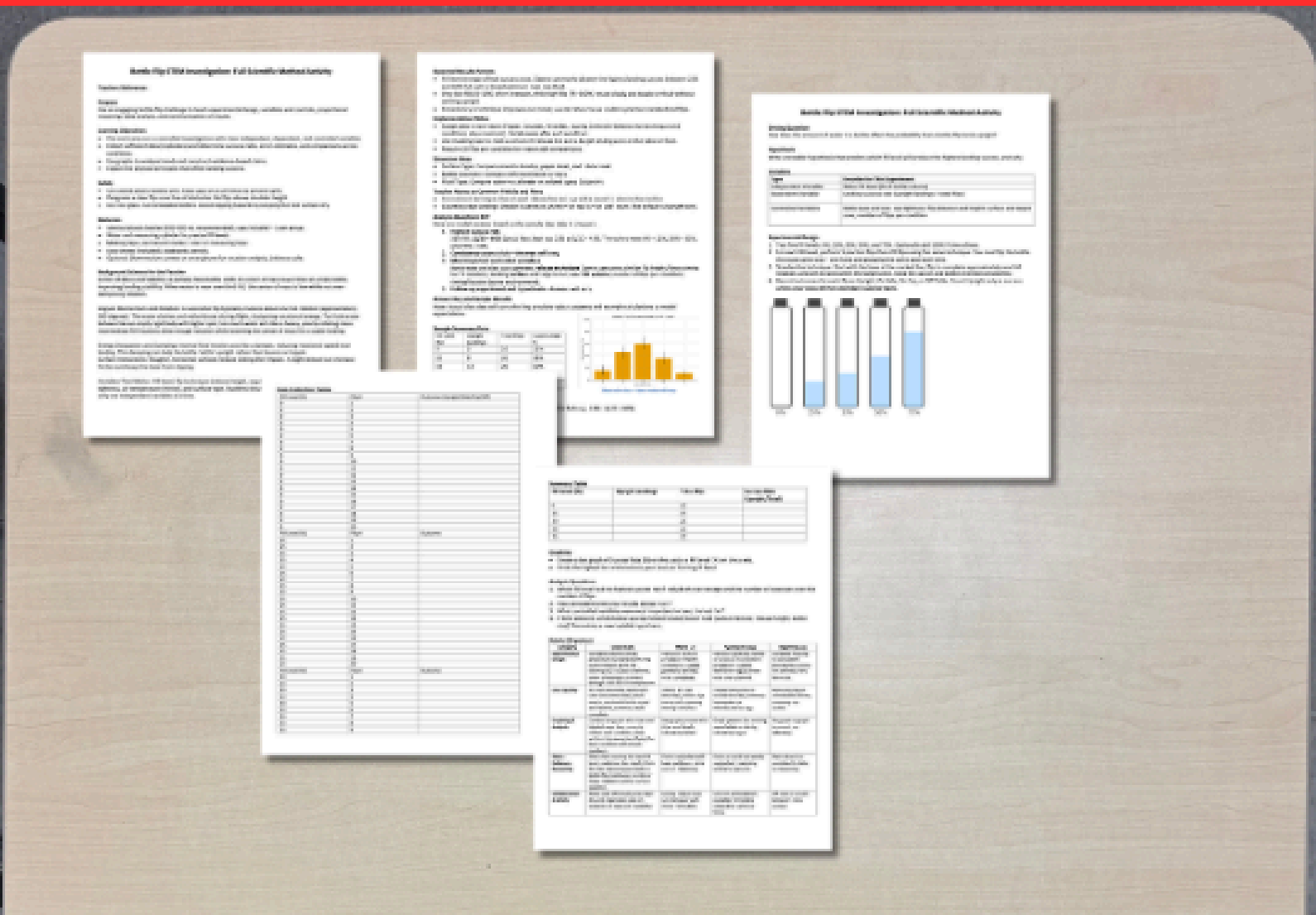
RESULT (Success/Fail)	NOTES

Rubric (20 points)

Category	Exceeds (4)	Meets (3)	Approaches (2)	Beginning (1)
Experimental Design	Variables clearly named; procedure standardizes the flip (same release point and technique); success is defined; order of testing is planned; enough trials for fair comparison.	Variables named; procedure mostly consistent; success generally defined; trials completed.	Variables partially named or unclear; inconsistent procedure; success definition vague; fewer trials than planned.	Variables missing; no consistent procedure; success not defined; very few trials.
Data Quality	All trials recorded neatly with clear outcome codes; totals match; any invalid trials noted and redone; summary table complete.	Almost all trials recorded; minor slips corrected; summary mostly complete.	Several omissions or unclear entries; summary incomplete or mismatched to logs.	Many missing or unreadable entries; summary not usable.
Graphing & Analysis	Correct bar graph with titles and labeled axes; bars correctly reflect each condition; clear written takeaway identifying the best condition with simple numbers.	Bar graph present with titles and labels; takeaway stated.	Graph present but missing some labels or clarity; takeaway vague.	No graph or graph incorrect; no takeaway.
Claim-Evidence-Reasoning	Clear claim naming the best fill level; evidence cites results from this lab; reasoning connects to bottle flip mechanics (center of mass, rotation control, surface stability).	Claim supported with basic evidence; some correct reasoning.	Claim present but weakly supported; reasoning unclear or generic.	Claim absent or unrelated to data; no reasoning.
Collaboration & Safety	Roles used effectively; area kept dry and organized; caps on; students on task and respectful.	Mostly cooperative; safe behavior with minor reminders.	Uneven participation; repeated reminders needed for safety or focus.	Off-task or unsafe behavior; roles unclear.

What Will Your Students Learn?

NO-PREP. JUST PRINT TO GO!



Turn a student-favorite challenge into a STEM and Scientific Method investigation

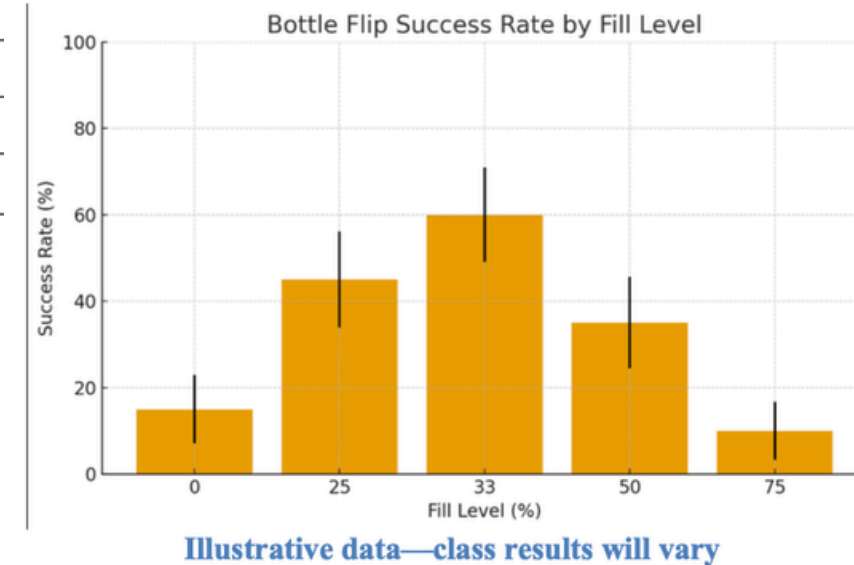
- How to plan and carry out a controlled STEM investigation
- How to identify independent, dependent, and controlled variables
- How water fill level affects the success of a bottle flip
- How to collect repeated trial data and calculate success rates
- How to create and interpret a graph using class data
- How center of mass, rotation, stability, and energy transfer affect motion
- How to use evidence to support a scientific claim
- How to communicate results using the scientific method

- Teacher guide (purpose, setup, safety, background science, pacing)
- Student packet (driving question, hypothesis, variables, detailed procedure)
- **Data tables for multiple fill levels (0%, 25%, 33%, 50%, 75%)**
- Graphing page (bar graph prompts and clear labels)
- **Analysis questions with model answers**
- Simplified rubric (design, data quality, graphing & analysis, CER, collaboration)
- **Optional extensions for inquiry and differentiation**
- Includes **FOUR BONUS** Activities worth over \$10

What You Get

Sample Summary Data

Fill Level (%)	Upright Landings	Total Flips	Success Rate %
0	3	20	15%
25	9	20	45%
33	12	20	60%
50	7	20	35%
75	2	20	10%



Scientific Method – M&M's Activity and Graphing Experiment

- ✓ A fun activity to introduce your students to the Scientific Method
- ✓ The lab is available in Word and PDF format

Parachute STEM Lab - Canopy Diameter vs Descent Time

Scientific Method • Variables • Data & Graphing

- ✓ Classroom-Ready
- ✓ Data tables + bar graph templates included

Crash Course Biology 2.0 #2: The Scientific Method

- ✓ Classroom Ready - Just Print and Go!
- ✓ Active Engagement - Keep Students' Attention
- ✓ Direct Video Link Included

WATCH VIDEO



Includes Student Copy and Answer Key

The Scientific Method Word Search and Scramble

THREE Activities in One!

1. Basic 25-Name Word Search
2. Scrambled Names Word Search
3. Word Scramble and Contribution Activity



INCLUDED BONUSES

The following activities are included in your purchase.

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TWF

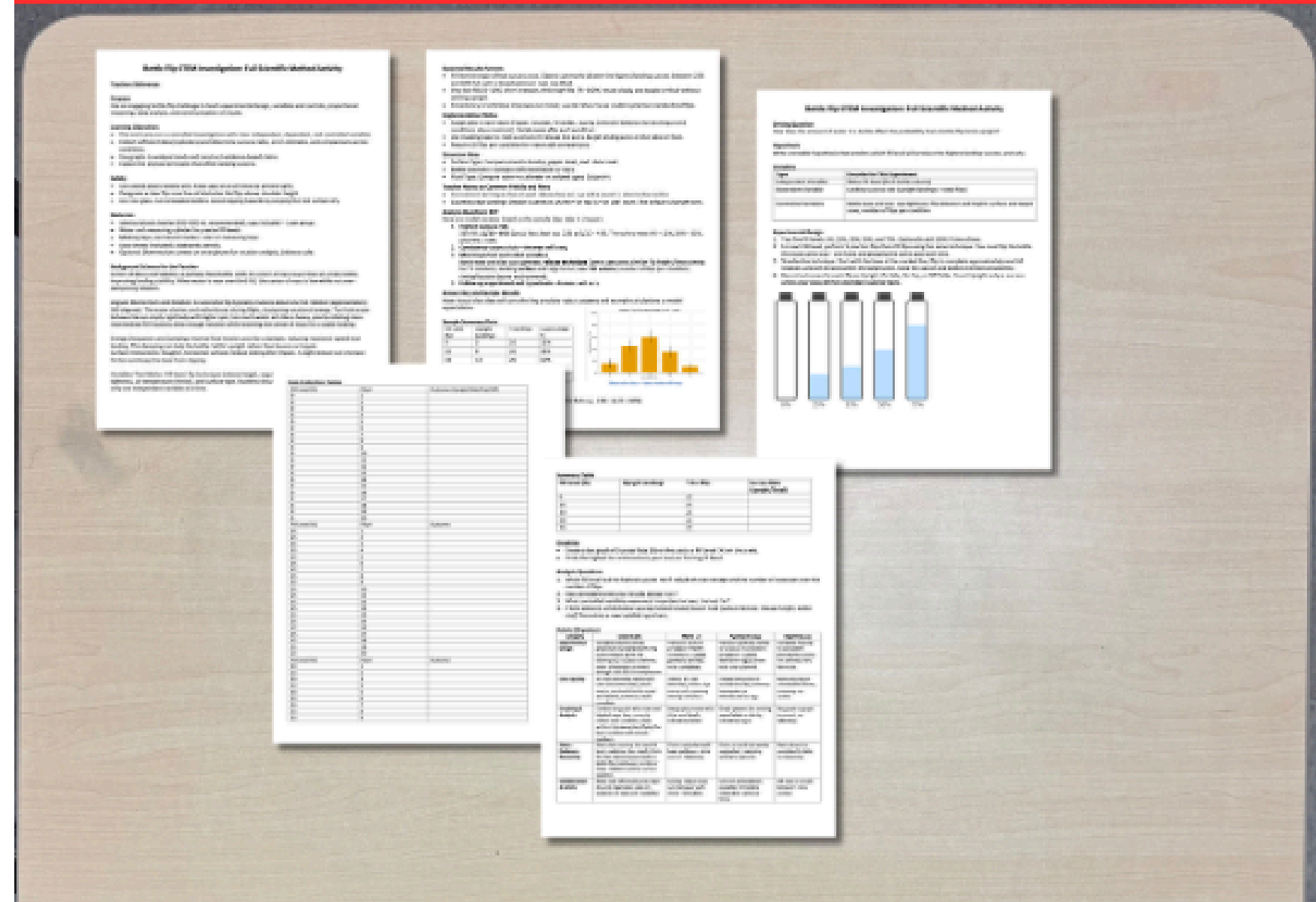


Your Activity

- Is a fun and interactive way to reinforce concepts and study
- **DIGITAL** and **PRINT** ready
- **FULLY EDITABLE**
- Complete Answer Key



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Thanks
**for your interest
in this resource!**

I am a real person and if
you have any questions,
suggestions, or concerns,
please reach out.



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Teach With Fergy

*Let's
Connect!*

