Drops on A Penny Experiment

big little learners

Drops on A Penny  Experiment

Objective:

Preschool Foundations: Science Exploration and Knowledge

- Use observation and counting skills to track and report the number of water drops on a penny
- Make, explain, and revise predictions (hypotheses) through observation and experimentation
- Increase speech/language skills by using vocabulary (e.g., hypothesis, drop), making requests, counting aloud, and practicing pause/wait time
- Support social-emotional development through turn-taking, patience, focus, and emotional regulation when results differ from expectations

Safety notes: ⚠️ Pennies are choking hazards, supervise young children at all times

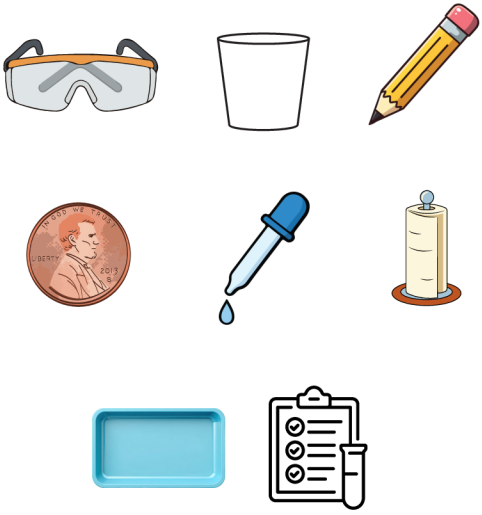
Advanced Preparation:

1. Print 🖨️ Drops on a Penny experiment sheets (Pages 3-5), load smart board slide presentation Drops on a Penny hypothesis sheets (Pages 6-7)
2. Fill cups 1/3 way with water.
3. Prepare trays with one of each material listed on page 3 (pipette, cup of water, paper towel, safety goggles).
4. Separately prepare: penny, pencil and experiment sheet for each child.

Drops on A Penny Experiment

Materials Needed:

- Pennies
- Plastic pipette
- Small cup
- Pencil
- Paper towel
- Tray
- Safety goggles
- Experiment sheet



Process:

- Fill cups 1/3 way with water.
- Prepare trays with one of each material listed above (pipette, cup of water, paper towel, safety goggles).
- Separately prepare: penny, pencil and experiment sheet for each child.

Instructions

1. Introduction: Make a prediction

Say: “We’re going to do an experiment to see how many drops of water can fit on a penny! Before we start, scientists make a guess called a hypothesis.” Invite kids to share or draw their guess.

- *Speech:* Learn new vocabulary like hypothesis, predict, and drop. Practice answering questions using full sentences: “I think ___ drops will fit.”
- *SEL:* Build confidence sharing ideas, practice taking turns, and listening to different predictions.

2. Set up the experiment

Pass out materials and talk through what each item is used for.

- *Speech:* Name tools and describe what they do: pipette, penny, water. Encourage describing steps: “First we fill the pipette.”
- *SEL:* Practice following directions, making choices, and using materials carefully.

3. Practice using the pipette

Show how to squeeze and release to make one drop at a time.

- *Speech:* Use action words like squeeze, release, drip. Encourage narrating actions: “I squeezed slowly.”
- *SEL:* Strengthen frustration tolerance, persistence, and self-control when fine motor tasks feel tricky.

4. Start the experiment

Drop water onto the penny slowly and count each drop together.

- *Speech:* Practice counting aloud, comparing numbers, and describing what happens: “The water is getting bigger.”
- *SEL:* Support focus, patience, and managing excitement while waiting for the penny to overflow.

Instructions

5. Record results

Write down how many drops your penny held.

- *Speech:* Practice sharing results using complete sentences: "My penny held ___ drops."
- *SEL:* Learn that results can be different from our guesses and practice being okay with outcomes.

6. Try again (make a new guess)

Invite kids to make a new prediction and repeat the experiment.

- *Speech:* Use thinking language: "This time I think it will be ___ drops because ___."
- *SEL:* Build a growth mindset by trying again, changing ideas, and learning from experience.

7. Conclusion (talk about what happened)

Ask: "What did you notice?" Explain that water forms a dome because of surface tension and spills when gravity pulls it down.

- *Speech:* Practice describing observations: "I noticed the water stayed on top until it spilled." Introduce simple science words like surface tension and gravity.
- *SEL:* Practice listening to others' ideas and respecting different observations.

8. Extension (keep exploring at home)

Try different coins or add a drop of soap to the water and observe what changes.

- *Speech:* Encourage curiosity questions: "What do you think will happen if...?" and explaining ideas.
- *SEL:* Build independence, curiosity, and confidence exploring new ideas through play and experimentation.

DROPS ON A PENNY

Water molecules stick together tightly. The molecules on the surface are pulled inward and they stick together so strongly that they form a dome. This is called surface tension. Eventually, gravity overcomes this force and the dome breaks, spilling water over the sides of the coin.

How many drops of water do you think a penny can hold?

HYPOTHESIS/GUESS	RESULT
_____ drops	_____ drops
_____ drops	_____ drops
_____ drops	_____ drops
_____ drops	_____ drops

THE CHILDREN'S MUSEUM OF WILMINGTON

DROPS ON A PENNY

Water molecules stick together tightly. The molecules on the surface are pulled inward and they stick together so strongly that they form a dome. This is called surface tension. Eventually, gravity overcomes this force and the dome breaks, spilling water over the sides of the coin.

How many drops of water do you think a penny can hold?

HYPOTHESIS/GUESS	RESULT
_____ drops	_____ drops
_____ drops	_____ drops
_____ drops	_____ drops
_____ drops	_____ drops

THE CHILDREN'S MUSEUM OF WILMINGTON