



MAKING A RAIN SIMULATOR TO STUDY EROSION PATTERNS

Name: _____

Date: _____

Experiment #: _____

Objective: To build a simple rain simulator and use it to observe how water causes erosion in different soil or surface conditions.



QUESTION

How does different ground cover or soil type affect the amount of erosion caused by rain?



HYPOTHESIS

If _____,
then _____,
because _____.



MATERIALS

- Large plastic bin or tray
- 3 small containers or cups
- Soil or dirt
- Grass or plant clippings
- Mulch, leaves, or small rocks
- PVC pipe ($\frac{1}{2}$ inch) with end caps
- Drill or pin (to make small holes)
- PVC elbows or legs (to hold pipe above tray)
- Measuring cup
- Water
- Ruler



SAFETY

- Ask an adult for help when using tools to drill holes.
- Use the experiment area where water spills are okay.
- Do not drink the runoff water.



TIPS

Keep the amount of water and time the same for each test for fair results.



DATA TABLE

Test Area	Ground Cover (Type)	Runoff Water Collected (mL)	Soil Loss Observed (Low / Medium / High)	Notes / Erosion Patterns
A	Bare Soil			
B	Grass / Plant Cover			
C	Mulch / Rock Cover			



ANALYSIS & CONCLUSION

1. Which test area had the most runoff water? _____
2. Which test area had the least runoff water? _____
3. Which test area had the most soil loss (erosion)? _____
4. What does this experiment show about how plants or ground cover help prevent erosion?



PROCEDURE

1. Build the Rain Simulator:

Drill small holes along the bottom of the PVC pipe. Attach end caps. Use elbows or legs to position the pipe about 6–8 inches above the tray.

2. Prepare the Tray:

Divide the tray into 3 equal sections using dividers or cardboard. Slightly elevate one end of the tray so water can flow forward.

3. Set Up Test Areas:

Fill each section with soil. Cover the sections as follows:

A: Bare soil B: Grass/plant cover C: Mulch or rock cover

4. Simulate Rain:

Pour the same amount of water into the pipe reservoir. Let it rain for 5 minutes.

5. Observe and Measure:

Measure and record the amount of runoff water in each cup. Observe the soil surface and note any erosion patterns.