



# TESTING THE EFFECT OF STRESS ON PLANT GROWTH

**QUESTION:** How does stress affect the growth of plants?

**HYPOTHESIS:** \_\_\_\_\_  
\_\_\_\_\_



## MATERIALS

- 2–3 fast-growing plants (bean, radish, or sunflower seedlings)
- 2–3 identical pots or cups
- Potting soil
- Water
- Ruler
- Labels or tape and marker
- (Optional) Notebook or camera for recording observations



## VARIABLES

- Independent Variable (what you change):  
Type of stress
- Dependent Variable (what you measure):  
Plant growth (height)
- Controlled Variables (what you keep the same):  
Plant type, soil, pot size, amount of water (for control), light exposure, temperature



## TYPES OF STRESS TO TEST

Choose one stress to test (or more if you have extra plants):

- Less water (drought)
- Too much water
- Less light
- Physical damage (e.g., bent stem, leaves removed)
- Salty soil



## PROCEDURE

1. Plant the same type of seeds in 2–3 identical pots with the same soil.
2. Label the pots:
  - Control (no stress)
  - Stress (and name the stress type, e.g., Less Water)
  - (Optional) Second stress type
3. Give all plants the same amount of water and place them in the same location for light and temperature.
4. After the plants sprout, begin the stress treatment:
  - Keep the Control plant under normal conditions.
  - Apply the stress to the Stress plant(s) only.  
*Example: Water the "Less Water" plant with about half the normal amount.*
5. Measure plant height (cm) from the soil line to the top of the plant every day.
6. Record your data and observations for at least 7–10 days.
7. Compare the growth of the control plant to the stressed plant(s).



## DATA TABLE (Plant Height in cm)

| Day | Control<br>(No Stress) | Stress Plant<br>(Type: _____) | (Optional) Second<br>Stress Plant<br>(Type: _____) |
|-----|------------------------|-------------------------------|----------------------------------------------------|
| 1   |                        |                               |                                                    |
| 2   |                        |                               |                                                    |
| 3   |                        |                               |                                                    |
| 4   |                        |                               |                                                    |
| 5   |                        |                               |                                                    |
| 6   |                        |                               |                                                    |
| 7   |                        |                               |                                                    |
| 8   |                        |                               |                                                    |
| 9   |                        |                               |                                                    |
| 10  |                        |                               |                                                    |



## OBSERVATIONS

Describe what you see each day. How do the plants look? Any color changes, drooping, or other differences?

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## CONCLUSION

What happened to the plant under stress compared to the control?

What does this tell you about how stress affects plant growth?

Was your hypothesis correct? Why or why not?



## EXTENSION IDEAS

- Test a different type of stress.
- Change the level of stress and compare.
- Research how plants handle stress in nature.