

Grade 4 Science - Living Systems

Activity #7

Plant Detectives - Instructions

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Plant Detectives – Tracking Plant Responses

Learning Goals

- Understand that plants respond to environmental stimuli (light, water, gravity).
- Observe and describe how plants grow toward light or water.
- Predict plant responses to different conditions.
- Develop observation and recording skills.

Materials Needed

- 3 small potted plants or bean seedlings
- Cardboard box (shoebox works great)
- Flashlight (optional)
- Watering can or spray bottle
- Ruler
- Journals or observation sheets
- Markers/labels
- Optional: camera or tablet for photo journaling

Activity Part 1: Light Maze Challenge

Goal: See how plants grow toward light.

Instructions:

1. Cut holes in the side of the cardboard box to make a “light maze.”
2. Place a potted plant inside the box and close the lid.
3. Put the box near a bright window or shine a flashlight through one hole for 6–7 days.
4. Observe how the plant bends or grows toward the light.

Students Record:

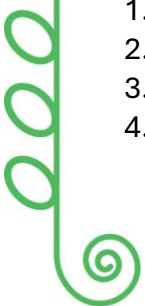
- Daily plant position/shape
- Direction of growth
- Sketches/photos

Activity Part 2: Water Side Test

Goal: See how roots grow toward water.

Instructions:

1. Fill a tray or shallow box with dry soil.
2. Plant a seedling in the center.
3. Only water one corner of the box.
4. Over the next 7 days, gently brush away some topsoil to check root direction.



Students Record:

- Root direction
- Changes in growth
- Hypotheses and conclusions

Activity Part 3: Upside Down Experiment

Goal: See how plants grow in response to gravity.

Instructions:

1. Plant a bean seed in a clear plastic cup with moist paper towels.
2. Tape the cup sideways or upside down on a wall or box.
3. Observe how roots grow downward and shoots grow upward over several days.

Students Record:

- Direction of root/shoot growth
- Time taken to change direction
- Diagrams and explanations

Wrap-Up Discussion Questions

- Why do you think the plant bent toward the light?
- What helps plants know which way to grow?
- How do these responses help plants survive in nature?
- What did you find surprising or cool?

Extension Ideas

- Make a video journal or stop-motion video of plant changes.
- Create a poster about “How Plants Know What to Do!”
- Research how sunflowers follow the sun (heliotropism).

