2.3 Estimating and Graphing Growth of Potato Plants

# Instructions

**Materials Needed:**

* Potato plants (either grown in the classroom or outdoor garden)
* Ruler or measuring tape
* Graph paper or digital graphing tool
* Pencils or markers
* Calendar or growth log (for tracking weekly observations)
* Watering can (for care of the plants)

**Setup:**

1. **Prepare the Potato Plants:**
   * If you are growing potatoes in a classroom or garden, ensure that each plant is marked or separated for tracking. You can either plant potatoes directly in soil or place them in pots with soil to track their growth over time.
   * Make sure each potato plant has proper light, water, and space to grow.
2. **Set Up Tracking Tools:**
   * Provide each student with a log or chart to record weekly measurements of the plant height. The log should include columns for the date and height measurement.
   * If using graph paper, draw a graph template with a vertical axis for height and a horizontal axis for time (weeks).

**Activity Instructions:**

1. **Measuring the Growth:**
   * Each week, measure the height of the potato plant from the base of the stem to the top of the plant. Use a ruler or measuring tape to ensure accuracy.
   * Record the height on the tracking chart/log. If you’re using a digital tool, input the data into the graphing system.
2. **Estimating Growth:**
   * Encourage students to make predictions each week about how much they think the plant will grow based on previous data. These predictions can be compared with the actual growth.
   * Discuss how weather, soil conditions, or watering might influence the growth rate of the potato plants.
3. **Graphing the Data:**
   * After measuring and recording the plant height each week, plot the data on the graph. Each point on the graph should correspond to a weekly measurement of plant height.
   * Connect the data points to form a line, illustrating the plant’s growth over time.
   * Students can use different colours to represent multiple plants or changes in growth conditions (e.g., after adding more water or sunlight).
4. **Data Analysis and Discussion:**
   * Once the graph is completed, students can analyse the trends in the growth rate.
   * Discuss questions such as:
     + Is the plant growing at a consistent rate?
     + Are there any sudden changes in growth?
     + What factors might explain any growth spurts or slowdowns?
5. **Estimation Challenge:**
   * Have students predict how tall they think the potato plants will be at the end of the experiment and compare their estimates with the final measurements.

**Safety Note:**

* Ensure that students handle the plants gently to avoid damaging the roots or stems.
* Supervise when measuring to ensure accuracy and prevent any misuse of tools.

**Learning Outcomes:**

1. **Data Collection and Tracking:** Students will practice measuring, recording, and tracking data systematically over time.
2. **Graphing and Data Visualisation:** Students will learn how to represent data visually through graphs, helping them understand trends and relationships between variables.
3. **Estimation Skills:** Students will develop estimation skills by predicting growth rates and comparing them to actual measurements.
4. **Scientific Observation:** Students will develop skills in making scientific observations and interpreting data, building their understanding of the scientific method.
5. **Understanding Plant Growth:** Students will gain a deeper understanding of how plants grow and what factors might influence their development.

This activity integrates science, math, and observation skills, allowing students to engage in real-world data collection while learning about plant biology and growth. It also reinforces the importance of accurate measurement and prediction in scientific investigations.