How Does Your Cabbage Grow?

by Chasity Curtis

Grade 3: Math & Science

Duration: Introductory Lesson: 30 - 45 minutes, On-going investigation: 12 weeks

Materials:

Per Student Cabbage Growth Journal (see attached reproducibles)
Hand lens
Centimeter ruler

For the Class - Meter sticks

Chart paper

Lesson Objectives / Outcomes:

The students will:

- Care for a cabbage plant from seedling to harvest.
- Record, analyze, and interpret data using a bar graph.
- Measure height and diameter using the metric system.
- Find the difference between past and current measurements.
- Record scientific observations, inquiries, and sketches.

Vocabulary:

height
diameter
observation
bar graph
centimeter
meter
metric system
difference (subtraction)

Preparation:

- Print and staple Cabbage Growth Journals.
- · Create a class KWL anchor chart.

Whole Group Engagement Activity:

To activate prior knowledge, ask students this question:

"What do you know about cabbage?"

Students are likely to come up with a variety of answers. Have them record these answers under the 'K' part of their personal KWL chart.

Allow several students to share their responses aloud with the class. Record these responses on the class KWL anchor chart.

Next, ask students to locate the column labeled 'W' on their KWL chart. Have students record what they want know about cabbage in this column. Again, allow



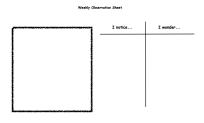
to

students to share some of their responses, and record these on the class KWL anchor chart.

At the end of the unit, students will complete the 'L' section of their KWL chart with what they have learned.

Activity:

1. Introduce students to the **Bonnie Plants 3rd Grade Cabbage Program**. You may want to have students visit the website to learn more about the program.



2. Distribute plants to students. Have students spend a couple of minutes sketching their new cabbage plant on the first **Weekly Observation Sheet**. Encourage students to be as detailed as possible since their

cabbage plant will soon undergo many changes.

Next, have students record the date and age of the plant (plants will be approximately 28 days old when delivered to the classroom.)

Note: Before measuring the height and diameter of the plants, you'll want to ensure that your students are familiar with these concepts, as well as how to take accurate measurements. You'll also want to set some parameters for measuring. For example, you may want to start at the soil line when measuring height, and measure the outermost leaves when looking for diameter.

Instruct students to record what they notice, as well as any questions they may have on the 'I Notice, I Wonder' t-chart.

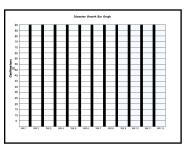
The **Weekly Observation Sheet** should be completed once a week for the next 12 weeks. Choosing a designated day for recording measurements and observations is recommended.

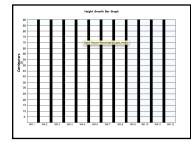


3. Students will also record their measurement data on the **Growth Recording Chart**. Each

week, students will record the *difference* in height and diameter growth in the column marked with the +/-.

4. Finally, color in the diameter respective graphs.





students will height and on the growth bar

Guiding Questions:

- Which weeks had the greatest difference in growth? The least?
- During which weeks did you notice the most growth?
- What questions have you developed about your plant's growth?
- What unexpected observations have you made?
- What predictions do you have about next week's growth?
- How does your plant's growth differ from your partner's?
- Do you think all plants will grow at the same rate?

On-going Assessments:

- Are students correctly measuring the height and diameter using the metric system?
- Can students analyze and interpret the data from the bar graph?
- Are students able to identify the difference in the amount of growth from one week to the next?
- · Are student observations, sketches, and inquiries complete and on-task?



Extension Activities:

- Find the circumference and radius of the cabbage plant once the head develops.
- Track the daily temperature using a line graph.
- Find an alternative way to represent the data collected.
- · Write a silly story about a giant cabbage plant that comes to life.
- Use a Venn Diagram to compare and contrast your cabbage plant with another student's plant.

Internet Resource:

Link to Bonnie Plants 3rd Grade Cabbage Program: http://cabbageprogram.bonnieplants.com/

Relevant Literature:

The Giant Cabbage: An Alaskan Folktale by Cherie B. Stihler Plantzilla by Gerdine Nolen