Frontier Elementary UDL Lesson Plan

Veggie Chop and Data Analysis
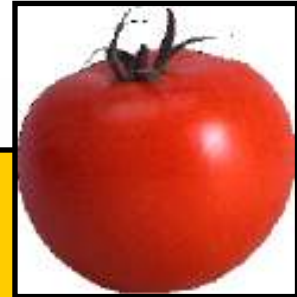## Grade 1

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Author's Note

My passion is children; my gift to connect with them is teaching. It seems that my *role as educator* is as varied as those I have been blessed to teach. My first teaching experience began at the age of twelve with the *opportunity to teach* Sunday school to primary students. I was hooked.

Since that time I have shared learning experiences with students ranging from *ages three* to *sixty-five*. Professionally, I am in my seventh year of teaching where I have taught grades one, two, and five. I also had the opportunity to serve our school as the Title I coordinator. Non-professionally, I have served as a volunteer educator in my local church and community. A recent accomplishment is my involvement in the conception and development of a *new preschool ministry.*

Technology continues to inspire me and my participation in our school's UDL team has enhanced instruction and motivated increased learning in my classroom.

Lesson Introduction:

This Saxon math lesson was adapted in order to include technology in its implementation, thus allowing **all** students the opportunity to have a bodily-kinesthetic learning experience. The primary focus for student learning includes identification of fractional parts of a whole, developing a bar graph, and writing observations about the data collected. The use of a Smartboard in this lesson is used to motivate and facilitate optimal learning.

Indiana State Standards
Mathematics and Science

Math
Number Sense
1.1.7 – Recognize when a shape is divided into congruent parts.

1.1.10 – Represent, compare, and interpret data using pictures and picture graphs.

Computation
1.2.1 – Show the meaning of addition using objects

1.2.2 – Show the meaning of subtraction using objects.

Algebra and Functions
1.3.3 – Recognize and use the relationship between addition and subtraction.

Problem Solving
1.6.2 – Use tools such as objects or drawings to model problems.

1.6.3 – Explain the reasoning used and justify the procedures selected in solving a
           problem.

1.6.5 – Understand and use connections between two problems.

Science
Scientific Inquiry
1.1.1 – Observe, describe, draw, and sort objects carefully to learn about them.

1.1.2 Investigate and make observations to seek answers to questions about the world.

Computation and Estimation
1.2.1 – Use whole numbers in counting, identifying, measuring, and describing objects
           and experiences.

1.2.2 – Use sums and differences in investigations and judge the reasonableness of the
           answers.

1.2.3 – Explain to other students how to go about solving numerical problems.

Communication Skills
1.2.7 – Write brief informational descriptions of a real object, person, place, or event
           using information from observations.

Numbers
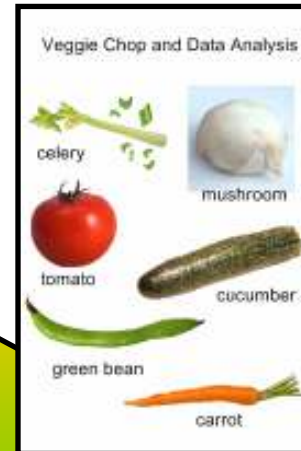1.5.2 – Make and use simple graphs to tell about observations.

More information on Indiana Academic State Standards:
Http://www.Indianastandards.org
Developing Educational Standards http://edStandards.org/Standards.html
MCREL http://www.mcrel.org/standards/
Indiana Learning Standards http://www.doe.state.in.us/standards/

Planning Pyramid

Objectives:

The students will identify fractional parts of a whole, taste-test various vegetables, collect and collate data on vegetable preferences, construct a bar graph, and give oral and written observations about the data collected.

Some students will be able to identify how many parts each vegetable needs to be divided into for all students in the classroom to have a taste sample. Some will be also be able to make data comparisons beyond the concepts of "greatest" and "least." Some will also be able to write and explain corresponding fractions indicating the function of both the numerator and denominator.

Most students will be able to divide vegetables into fractional parts of a whole, create a bar graph with the data collected, and make observations based on the data collected.

All students will be able to identify how many parts each vegetable was divided into. All will be able to identify personal taste preferences and contribute to data collection and construction of the bar graph. All students will be able to make observations on which vegetables were most and least preferred by their classmates.
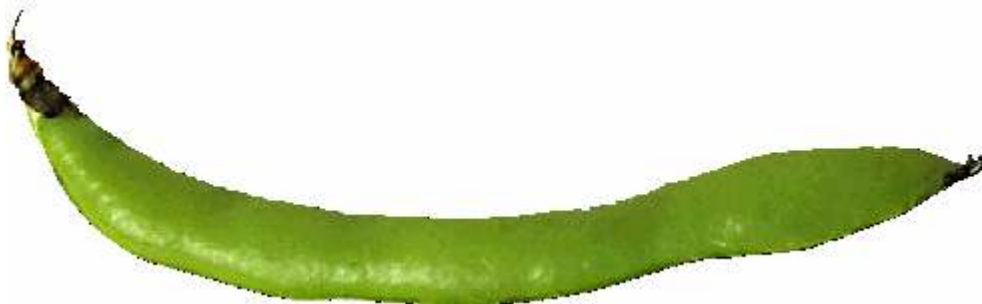
Procedures

Day 1

1. Assess prior knowledge and build anticipation by explaining the lesson objectives.
2. Ask what each vegetable is called. Explain that you would like to share each kind of vegetable with the class, giving each student an equal share to taste-test.
3. For each of the 6 different vegetables (see the list of materials needed below) ask: How many students are in our class? How many _____ (specific vegetable/s) are on the plate? What should we do to insure that each student gets an opportunity to taste a fair share? If we cut each vegetable into ____ pieces, would there be enough pieces for each student?
4. Cut the "real" vegetables with knife while students use the Smartborad (Smart Notebook Lesson) to divide the clipart vegetables into the appropriate number of "fair-share" pieces.
5. Explain that when you cut something into _____(2, 3, 4, 6, 8, 10) equal parts we call each part one - _____ (half, third, fourth, sixth, eighth, and tenth).
6. Model how the appropriate fraction is written on the Smartboard, explaining the numbers represented in both the numerator and denominator. Have students practice writing each fraction and while explaining what the fraction means.
7. After all the vegetables are cut into appropriate fractional pieces, give students a sample of each vegetable. Instruct students that this is a taste-test and that they do not need to eat something they find objectionable, but are requested to take a small taste of each item so that they can verify whether or not they like the vegetable.
8. Give each student a 1-inch color-coded square that represents each vegetable tasted. Instruct students that if they liked the taste of the vegetable to put the corresponding square into the envelope designated for that specific vegetable (They should be encouraged to indicate a preference for more than one vegetable).
9. Collect the remaining color-coded squares (indicating the vegetables students did not like) and place the data-filled envelopes aside for Day 2.
10. Explain that you will use the tags collected to create a graph tomorrow.
11. Debrief the activity by asking the students what they learned in math today.

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<u>Day 2</u>

12. Review the activities from Day 1. Reinforce student learning of fractional parts. Discuss the taste-testing procedures and the collection of data on whether or not students liked the vegetables.
13. Have students make and discuss predictions on which vegetables the class liked the most and the least.
14. Have cooperative groups count the squares collected during Day 1 and make a bar graph on the Smartboard.
15. Have students make observations and orally discuss what the data indicates.
    a. How many children liked tomatoes?
    b. How many children liked cucumbers?
    c. How many children liked celery?
    d. Which vegetable was the group favorite?
    e. Which vegetable did the fewest children like?
    f. How many more children liked (vegetable) than liked (vegetable)?
    g. How many fewer children liked (vegetable) than liked (vegetable)?
    h. Which three vegetables were the most well-liked?
    i. Which vegetables were chosen more often than green beans?
    j. Which vegetables were chosen less often than carrots?
    k. Who can think of another question to ask about our graph?
    l. What would be a good title for our graph?
16. Encourage students use their learning logs to record two things they know by looking at the data on the graph.
17. Debrief the graphing activity by asking students what they learned in math today.

Assessment

1. The students will be evaluated for participation according to the highlighted Indiana state standards for first graders in mathematics and science.
2. Anecdotal notes will be taken to assess/confirm student's ability to divide whole objects into fractional parts; identify and write fractions corresponding to those parts; gather, sort, and display data; accurately create a bar graph using the data; analyze the collated data; and orally discuss and write about their observations.

Materials

- Smartboard (vegetable clipart)
- Smart Notebook Template Page
  Smart Notebook Lesson
- Envelopes
- Paper plates
- Cutting board and knife
- Color-coded, 1 inch picture tags correlated to the vegetables students will sample
- Cherry Tomatoes (1 per 2 students)
- Mushrooms (1 per 4 students)
- Green Beans (1 per 3 students)
- Carrots (1 per 6 students)
- Celery stalks (1 per 8 students)
- Cucumber (1 per 10 students)

UDL Team Objective

By the end of the 2-day lesson, students will have had the opportunity to become actively involved in data collection and analysis. The use of the Smartboard will encourage active participation of **all** students in the process of safely dividing vegetables into fractional parts, writing fractions, contributing personal data, and interpreting collated data in a large group instructional setting.

Teacher/Learner Library
Related Links

Healthy Recipes

http://discoveryhealth.foodfit.com/dh_recipe_search.asp

Math Links

http://www.coolmath.com/index.html

http://www.coolmath4kids.com/

http://www.edhelper.com/math_grade1.htm

http://www.internet4classrooms.com/skills_1st.htm

Teacher Resources

Saxon Math

http://saxonpublishers.harcourtachieve.com/en-US/saxonpublishers.htm

Modifications

Learning Barrier	Possible Solutions	Weblink / Resources
Student cannot read at grade level.	1. Buddy read. 2. Choral reading	
Student has difficulty comprehending the material.	1. Visually map concepts. 2. Review and check for understanding.	
Student has difficulty mastering the vocabulary of the unit.	1. Assist students in identifying parts of a fraction by with visual indicators attached to their desks. 2. Visually map words. 3. Visually map concepts.	
Student needs instructional material in a language other than English.	1. Use an instructional assistant to convert lesson into other language. 2. Use multiple visual representations of concepts.	
Student has difficulty with handwriting (speed or accuracy).	1. Use Danas, WordPad, Smartboard, or other grade-appropriate hardware/tools. 2. Use cooperative learning partners to transpose responses.	
Student needs additional challenges.	1. Encourage independent creation of bar graphs. 2. Have students extend the lesson by asking students to survey, collect, and display their own data on a bar graph.	
Student has difficulty with calculating activities.	1. Cooperative groups. 2. Individualized review and monitoring of one-to-one correspondence, addition, and subtraction	
Student needs help with conducting research.	1. Use a webquest to facilitate research.	