

Ohio Standards Connections:

-Measurement Standard: Students estimate and measure to a required degree of accuracy and precision by selecting and using appropriate units, tools and technologies.

D. Apply measurement techniques to measure length, weight and volume (capacity).

6. Select and use appropriate measurement tools; e.g., a ruler to draw a segment 3 inches long, a measuring cup to place 2 cups of rice in a bowl, a scale to weight 50 grams of candy.

-Life Sciences: Students demonstrate an understanding of how living systems function and how they interact with the physical environment. This includes an understanding of the cycling of matter and flow of energy in living systems. An understanding of the characteristics, structure and function of cells, organisms and living systems will be developed. Students will also develop a deeper understanding of the principles of heredity, biological evolution, and the diversity and interdependence of life. Students demonstrate an understanding of different historical perspectives, scientific approaches and emerging scientific issues associated with the life sciences.

Discover that there are living things, non-living things and pretend things, and describe that basic need of living things

1. Explain that animals, including people, need air, water, food, living space and shelter; plants need air, water, nutrients (e.g., minerals), living space and light to survive.

Lesson Summary:

The grade level that this lesson focuses on is second grade. Math and Science will be integrated into this lesson by having the students grow their own plants in an effort to better understand the daily life of a migrant worker. This lesson will incorporate Math through the measurement of the materials that will be used to grow these specific plants. The class will then focus on Science by examining the life cycle of a plant and understanding how the plant grows successfully. The goals of this lesson are specifically designed to help development in the areas of cognitive, emotional, physical, social, and artistic growth. Throughout the entire lesson the students are going to be learning cognitively and developing their thinking skills. The student's emotional and social development will grow through working together in groups. Physical development will be incorporated in the lesson by working with small objects, which aid in the development of small muscle skills. Artistically the students will advance through creative artwork in the form of poster making.

Estimated Duration:

50 Minutes

Commentary:

The students have been learning about the life of those migrant workers in Hartville, Ohio, through the reading of the book Growing Season.

Jimmy has dyslexia and attached is the modifications that will be met throughout the lesson.

Sarah is a good partner for Jimmy because she is the class's best reader and is very impatient with Jimmy.

The students have already learned the Math concepts needed for this lesson. This lesson will help reinforce the Math standards and show what the students have comprehended.

Pre-Assessment:

The students will be put into groups and make their own KWL chart. See attachment for the KWL chart. The teacher will be walking around the classroom and will observe what the students are writing and how they are cooperating with their peers. After 3 minutes the students will return to their seats and as a class they will discuss what was written on their KWL chart.

Scoring Guidelines:

The teacher will use their own judgment to decide whether or not the students are ready to perform this lesson, based on their KWL chart. The teacher should make any modifications to this lesson if needed based on the students

previous knowledge of this information.

Post-Assessment:

This class enjoys doing art projects, making a poster will motivate them to look up the correct information to complete this assignment successfully. The students will make posters demonstrating the life cycle of a plant. See attachment for the guidelines on how to complete the poster. A short 5-question worksheet, to be completed with a parent, will also be given over some of the basic Math measurements used over this lesson. See attachment for quiz.

Scoring Guidelines:

See attachment for a grading rubric on the poster of the life cycle of a plant. The Math worksheet is worth 10 points and each question is worth 2 points.

Instructional Procedures:

Pre-assessment (see above box) (5 minutes)

As a class discuss the life cycle of a plant, use textbooks and any other visual aids that are available to the teacher (10 minutes)

Explain to the students that they will be growing their own plant, in a way that is similar to the migrant workers (1 minute)

Review Math measurements needed to complete the lesson example, Cups, Inches, Feet, Teaspoon, Tablespoon, etc. (4 minutes)

Break into groups (remember to keep Jimmy's group close to the teacher) (1 minute)

Pass out the materials and the direction sheet (remember Jimmy's group receives a direction sheet that is modified) (1 minute)

The students will begin to work independently as a group and at their own pace to plant their own plant (see attachments for procedure sheet) (20 minutes)

The students will clean up their areas and return to their seats (2 minutes)

Review the stages that their plants will go through, how the students will care for their plant, talk about what they did was similar to what the migrant workers do, and explain the homework (see homework box for further information) (6minutes)

Differentiated Instructional Support

Dyslexia is defined as a neurologically based learning disability that hampers language acquisition and processing

(Wadlington, 2000). Students with dyslexia have problems learning to read, spell, write, and sometime with math.

Students with dyslexia have severe problems with receptive and/or expressive language; therefore, teaching these students

can be especially difficult for language arts teachers (Wadlington, 2000). The following are accommodations for Jimmy

that will help him complete this lesson successfully.

Direction sheet for Jimmy's group will be in bigger font with bigger spaces in between sentences

Jimmy's group will be close to the teacher during the project.

Jimmy's group will also contain Sarah, the class's best reader.

Extension

The growing of the plant will take many weeks, so this lesson will be reinforced everyday. The students will check and water their plants everyday. On Fridays students will use their ruler to measure how much their plant has grown. The students will record their information in some way that will incorporate another Math lesson, such as graphing.

Homework Options and Home Connections

See Post-Assessment for explanation. See attachments for the poster making guidelines sheet and the take home Math

quiz. When the students are finished with their homework, encourage them to ask their parents to go online and check out the educational websites listed under technological connections.

Interdisciplinary Connections

Math and Science are integrated together in this lesson. The students will demonstrate their understanding of the Math content standard by applying it to the Science project. Through the preparation of the seeds and the growing of their own plant, the students will be observing the life cycle of a plant everyday. The class will also be experiencing, in similar ways, what the migrant workers have to do in order to grow food. Through the integration of these two subject areas, the students will be able to relate what they learned in class to jobs in the society.

Materials and Resources:

For teachers

- Enough milk cartons for one per group
- 1 bag of soil, enough for one cup per group
- Large bowl or bucket of water
- Enough seeds for two per group
- Measuring cups and spoons (ideally enough for one per group)
- Direction sheets for the project, one per group
- Teacher's textbook
- Any available visual aids
- Take home quiz, one per student
- Poster making guideline sheet, one per student

For students

- Textbook
- Ruler
- Paper or Poster board
- Crayons or Markers
- Pencil

Key Vocabulary

- Inches
- Cups
- Feet

Tablespoon

Teaspoon

Grow

Plant

Life Cycle

Technology Connections

HYPERLINK "http://www.funbrain.com/measure/index.html" \o "Math Fun"[Fun Practice with Measurements](http://www.funbrain.com/measure/index.html)

<http://www.funbrain.com/measure/index.html>

HYPERLINK "http://www.urbanext.uiuc.edu/gpe/" \o "The Life Cycle of a Plant"[Discover How Plants Grow](http://www.urbanext.uiuc.edu/gpe/)

<http://www.urbanext.uiuc.edu/gpe/>

The first website will help students reinforce the Math content standards in a fun way. The second website can be used to gain information to complete their poster about the life cycle of a plant.

Research Connections

This lesson incorporates Lev Semionovich Vygotsky's learning theory. Vygotsky was a Russian psychologist who created a learning theoretical framework known as the Zone of Proximal Development. The Zone of Proximal Development (ZPD) deals with a child's readiness for learning. ZPD is broken down into two parts. The first part of ZPD deals with a child's ability to complete a task on their own, based on previously learned concepts. The second part of ZPD deals with a child's ability to complete a task under the guidance of an adult or more developed peer. Vygotsky claimed that children acquire knowledge and develop skills through interaction with others who are more competent than themselves. Vygotsky pointed out that children regularly perform new tasks in collaboration with others before they are able to perform them alone (Feldman, & Gray, 2004).

General Tips

Groups should have no more than three students

Good idea to put newspapers under the bag of soil and bowl of water for easy clean up

Continue to supervise students throughout project

Groups that finish early could visit the websites that are listed in this lesson

Write websites on the board, students can copy and visit them at home

Attachments

HYPERLINK "Plant Planting Directions.doc" \o "Planting Project Directions"[Planting Project Directions](#)

HYPERLINK "Modified Plant Planting Directions.doc" \o "Modified Planting Project Directions"[Modified Planting Project Directions](#)

HYPERLINK "Student and Parent Math Practice Worksheet.doc" \o "Student and Parent Math Practice Worksheet"[Student and Parent Math Practice Worksheet](#)

HYPERLINK "Student and Parent Math Practice Worksheet Mod.doc" \o "Modified Student and Parent Math Practice Worksheet"[Modified Student and Parent Math Practice Worksheet](#)

HYPERLINK "Plant Life Cycle Poster.doc" \o "Poster Making Guidelines"[Poster Making Guidelines](#)

HYPERLINK "Plant Life Cycle Poster mod.doc" \o "Modified Poster Making Guidelines"[Modified Poster Making Guidelines](#)

HYPERLINK "Life Cycle of a Plant Grading Rubric.doc" \o "Life Cycle of a Plant Poster Rubric"[Life Cycle of a Plant Poster Rubric](#)

HYPERLINK "Integrated Lesson Plan References.doc" \o "References for Vygotsky and Dyslexia Research"[References for Vygotsky and Dyslexia Research](#)

Growing Plants just like the Migrant Workers

Second Grade

Lesson Plan by Amanda Sturm and Elizabeth Adams

Growing Your Own Plant

Write your names on the bottom of the milk carton.

Take your measuring cup up to the bag of soil. Use your hands to scoop out soil and place it into the measuring cup. Measure out 1 cups of soil.

Place the soil into your milk carton.

Use your thumb to make a 1½ inch hole in the center of the soil. Use your ruler to make sure the hole is 1½ inches deep.

Place 2 seeds in the whole.

Cover the seeds with soil and pat down lightly.

Take your milk cartoon to the bowl of water. Measure out 1 tablespoon of water with measuring spoons.

Water your plant.

Put your plant by the window.

Start to clean up your area.

Name _____

Name _____

Directions: Circle the best answers. Some questions you must use your ruler for.

1.) How many inches long is the red line?

- a. 4 inches b. 2 inches c. 0 inches

2.) How many cups of blue water are in the measuring cup?

- a. 1 cup b. 3 cups c. 2 cups

3.) How many inches tall is this tree?

- a. 1 inch b. 4 inches c. 7 inches

4.) Use your ruler to draw a line that is 3 inches long.

5.) How many inches are in a foot? (Hint: a ruler is one foot)

Student and Parent Math Practice Worksheet

Plant Life Cycle Poster

Directions: Make a poster showing the life cycle of a plant. Use your textbook for help. Include pictures for each stage and a short explanation. Write your name on the back.

Use:

Poster board or 7'' x 11'' plain paper

Makers/Crayons/Colored pencils

Plant pictures

Draw them yourself

Get off of internet

Cut out of a magazine

Life Cycle of a Plant Grading Rubric

Information	<p>Information about the different life cycle stages is correct</p> <p>The information is located by the picture it is explaining</p>		20
Pictures	<p>Correctly show the life cycle stage it is supposed to be representing</p> <p>Pictures are either draw, from a magazine, or the computer</p>		20
Order	Pictures and information is order correctly		10
Neatness	<p>Information is neatly written</p> <p>Pictures are neatly drawn or glued</p> <p>The layout out the poster is neatly organized</p>		5
Color	Poster is colorful and attractive		5
Total		60	

References for Dyslexia Research

Bailey, S., Jacob, S., & Wadlington, E. (1996). Teaching students with Dyslexia in the regular classroom.

Childhood Education, 73, 2-5. Retrieved October 10, 2006 from the Education Research Complete database.

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Failure, 44(2), 61-65. Retrieved October 10, 2006 from the Education Research Complete database.

References for Learning Theory Research

Feldman, J., & Gray, P. (2004). Playing in the Zone of Proximal Development: Qualities of self-directed age

mixing between adolescents and young children at a Democratic School. *American Journal of Education, 110*, 108-

145. Retrieved October 10, 2006 from the Education Research Complete database.

Geake, J., & Kanevsky, L. (2004). Inside the Zone of Proximal Development: Validating a multifactor model of

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