# Let's Make Stew!

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**LEVEL**: Grades 4-6

**SUBJECTS**: Math, Science,

**AZ ACADEMIC STANDARDS**: R-F5, R-F3, R-E2, R-E5, PO1, PO2, PO4, PO5, W-E1, W-E2, 1M-E3, 1M-E6, 5M-E1, 5M-E2, SC04-S4C4

**MATERIALS**
A copy of "Still-Life Stew" for each student.
Agriculture Notebook (15 page booklet with cover; made from ruled paper for pages and construction paper for the cover), 1 per student.
**For the classroom garden:**
One 4'x8" wooden planter box mounted on two 16" wheeled barrel movers (found in garden center), one wooden lattice picket, 2-3 cubic feet of topsoil, two trowels, two cultivators, *one package green bean seeds, *one package pepper seeds, one 2-liter clear plastic jar filled with potting soil for each small work group, two paper plates for each small work group
*** small plants may be used if a shorter growing season is desired**.
**Still-life Picture**: Modeling clay (one cube 4"x 4" per student), white glue, wire, 4 boxes of toothpicks, tempera paint (primary colors), paint brushes (narrow-fine and wide-course), oven, cookie sheet
**Stew**: (In quantities previously determined by small groups), potatoes, tomatoes, leeks, bell peppers, eggplant, zucchini, green beans, mushrooms, spinach, garlic, olive oil, salt, black pepper, spices to taste, water, paring knives, cutting board, crock pot, kitchen scale, paper cups (1 per student), plastic spoons (1 per student), napkins (1 per student), soup ladle.

**VOCABULARY**
still-life, agriculture, crops, propagate, narrative, serving, stew, yield

**RELATED LESSONS**
If it Smells Good, is Edible and Attracts Wildlife, Then it's a Practical Garden!
Where do they Go?
Don't Wait, Just Propagate!
How do Plants Make Food?
Survival of the Fittest
Getting to the Root of the Matter
This Can't be a Plant
Soggy Seeds
Plant Seedling
Plants, Plants and More Plants

**SUPPORTING INFORMATION**
Part of Arizona's rich history involves this state's contributions to the welfare of our nation. Many of these contributions stem from the ideal conditions for farming a variety of crops. The long, temperate seasons coupled with the irrigation systems have made it possible to lengthen the harvest periods of many crops including a variety of peppers, carrots, citrus. These same crops must be farmed for shorter periods of time in other states due to their colder, wetter climates.

**BRIEF DESCRIPTION**
Using the book, "Still-Life Stew" as a foundation, students will explore, investigate, and experience vegetable gardening in a planter box, read and follow a recipe, and read other written directions in order to create a finished product. Students will learn to identify the physical characteristic of a variety of vegetables.

**OBJECTIVES**
Identify a reading selection as fiction or nonfiction or poetry.
Spell and define vocabulary words related to this lesson.
Identify author's purpose in writing.
Conduct Internet research to determine planting and cultivation of various vegetables.
Follow the sequence of steps in a recipe.
Use math to increase the serving yield of a recipe.
Investigate the locations of the produce crops mentioned in "Still-Life Stew."

**ESTIMATED TEACHING TIME**
Varies by lesson - 45 minutes - 2 hours.

**SUPPORTING INFORMATION (cont'd)**

Farms feed the world. Without farmers, we could not go to the neighborhood grocery store and buy the wide variety of foods we enjoy in our daily lives. Without this variety of foods, we would find it impossible to nourish our bodies properly. Without proper nourishment, we could not participate in many of the activities we enjoy in our leisure and must do for our survival. A variety of foods also give us pleasure in feeding our bodies. Many vegetables grown in Arizona such as carrots, peppers, broccoli, cauliflower, corn and squash provide us with the flavors we look forward to tasting.

**Vocabulary Definitions:**

still-life: a painting of inanimate objects such as fruit, flowers, etc.
crops: any agricultural products growing or harvested; the yield of any product in one season or place.
propagate: to cause a plant or animal to reproduce itself.
narrative: a story account.
serving: a single portion of food.
stew: a dish of meat and vegetables cooked by slow boiling.
yield: crop produce results.

**Text Structure Attributes:**

Fiction: inventive story, follows a sequence, has a problem and solution
Nonfiction: factual with a main idea with supporting details, compare and contrast, or cause and effect.
Poetry: uses imagery, focus is on sensory language, uses repetition, may have a rhyme scheme, personifies inanimate objects, uses word and/or sound patterns

**Poetry Patterns to Discuss:**

Free Verse: no external pattern to be followed
Couplet: line 1 rhymes with line 2, line 3 rhymes with line 4, etc. (aa,bb,cc,etc.)
Tercet: lines 1, 2, and 3 rhyme, lines 4, 5, and 6 rhyme, etc. (aaa,bbb,ccc,etc.)
Quatrain: lines 1 and 3 rhyme, lines 2 and 4 rhyme, etc. (abab, cdcd, etc.)
Spenserian Stanza: abab, bcbc, cdcd, etc.

**GETTING STARTED**

Based on a class of 30 students, the following quantities are calculated:

**Classroom Garden**:

One 4"x8" wooden planter box mounted on two 16" wheeled barrel movers (found in garden center), four ½" 2-inch long bolts with nuts, one wooden lattice picket, 2-3 cubic feet of topsoil, two trowels, two cultivators, *one package pepper seeds, one 2-liter plastic soda bottle for watering.

**Assembly of Classroom Garden**: Position the planter box on barrel movers so that one barrel mover is on each end of the planter box (see attached diagram). Drill two ½" holes in each end of the planter box through the barrel mover as well. Thread the bolts through the holes and secure each bolt with a nut so that the planter is anchored onto the barrel movers. *Note: A handle made from rope or a piece of cabinet hardware may be secure to the ends of the planter box to facilitate movement of the garden.*

**Still-life:** 1 pint of each primary of tempera paint, 4 boxes of toothpicks, 12 wide-course paint brushes, 12 narrow-fine paint brushes, 4 pounds modeling clay, 4 bottles white glue, 1 long group of 8-10 student desks arranged together to make a rectangular table with seats on all sides, butcher paper to cover table for work surface.

**Stew:** 12 potatoes, 16 tomatoes, 12 leeks, 6 bell peppers, 4 eggplant, 10 zucchini, 58 green beans, 30 mushrooms, 4 bunches of spinach, 12 cloves garlic, 1 tablespoon olive oil, 4 cups water, 1 long group of 8-10 student desks arranged together to make a rectangular table with seats on all sides, butcher paper to cover table for work surface

**PROCEDURES**

**Day 1:** Distribute Agriculture Notebooks to students. Instruct students to label the first page of their notebooks "Vocabulary." Write "agriculture" on the board. Ask students to define this word. Write the definition of agriculture on the board, (see Vocabulary Definitions in Supporting Information.) Instruct students to copy this definition on the vocabulary page of their notebooks. Write "still-life" on the board. Ask students for ideas as to the meaning of this word. Distribute copies of "Still-Life Stew" to students. Read "Still-Life Stew" with the entire class. Define "still-life" and write the definition on the board. Instruct students to copy this definition in their notebooks. Tell students that these vocabulary words will appear on spelling tests throughout this unit. Discuss the type of selection this is, (fiction, nonfiction, or poetry). Discuss the attributes that make this selection fiction, nonfiction or poetry (see Text Structure Attributes in Supporting Information). Instruct students to select a page to write the date and the title of this selection at the top and write the type of selection it is. Students will list the attributes that make this a fictional selection.

**Day 2:** Write "crops," "propagation" and "yield" on the board. Instruct students to write each word on the

vocabulary page of their notebooks. Ask students to

**PROCEDURES (cont'd)**
define each of these words. Allow them to use their dictionaries if necessary. Develop an understandable definition of each word as a group. Instruct students to write these definitions in their notebooks. Remind students that these words will be appearing on spelling tests in the near future. Remind students of the reading of "Still-Life Stew." Discuss the vegetables mentioned in this selection and which ones (if any) may be grown in Arizona. Brainstorm the needs for these vegetables to grow and why Arizona might be an ideal place to grow them (plenty of sunshine, irrigation system, mild to warm climate). Write students' ideas on the board and encourage students to make their own copies of the brainstorming session in their Agriculture notebooks. Show students the planter box mounted on the barrel movers. Discuss making a classroom garden and growing a select few of the vegetables from "Still-Life Stew." As a whole group, measure and divide the space in the planter box into the number of areas needed for each small working group to plant their own vegetables. Guide students to a decision to attempt to propagate and grow green beans, peppers, and carrots. Divide students into small working groups and have each group select a student to work on the computer for research (see Internet Research forms attached), 2 students to research in the library (see Library Research form attached), and the remainder of the group will keep records and organize information for their group. One student from each group will plant the seeds according to the plan the group develops. Each group will develop a list of questions they need to answer before beginning their garden. These questions will be used for Internet searches as well as Library research. As students find information to answer their questions, they will bring these answers to their group and the group will begin to organize the information into a plan for soil preparation, watering schedule, sunlight requirements, and planting instructions for their group's section of the garden. Student groups will begin to create plans for what they will grow, how often to water, how much to plant, etc. (see Garden Plan Outline)

**Day 3**: Divide class into small work groups. Bring in the planter box mounted on the barrel movers, filled with top soil. Give to each group a jar of potting soil and 2 paper plates. Place a small amount of topsoil on a paper plate for each group. Encourage each group to pour a similar amount of potting soil onto the other plate. Students will examine the two soil samples and create a Venn diagram to list the attributes of each sample and show the similarities and differences. After about 10 minutes bring the groups back together as a whole group and compare the Venn diagrams, using these to develop one large Venn diagram on the board (data for Venn diagrams *may* appear as **Potting Soil**: loose, course, dark, white pieces. **Top Soil:** tightly packed, pieces of sticks, parts of leaves, light colored, fine, sticks together. **Both:** dirt, smells, feels gritty). Distribute paper cups (each with one hole in the bottom. Distribute small containers of water (approximately 5 ml). Instruct students to place each soil sample into a paper cup. Then instruct students to pour the water onto the soil samples and observe what happens. Discuss how potting soil allows for water and air to pass through it easily and the top soil tends to be more tightly packed. Discuss the implications of a seed being planted in each type of soil and what may happen to the seed as the soil is watered over a period of time. Guide students to the conclusion that the topsoil provides for more support for a seed due to its greater density. Use this discussion to demonstrate to students that topsoil is better for farming and gardening with seeds as it lends support to the seed and helps it maintain its position in the planting bed. As groups are finishing their Venn diagrams, the planter in each group will use the plan their group has developed to plant their seeds in their section of the planter box with teacher guidance. The groups will compare their plans to develop a single watering schedule for the entire planter box. The planter box will be moved outside for sunlight each morning and brought back in at dismissal time each afternoon.

**Day 4**: Review the poetry patterns to be discussed Free Verse, Couplet, Tercet Quatrain, Spenserian Stanza. Distribute copies of "The Vegetables Go to Bed." Tell

students we will read this selection and that they are to take out their Agriculture Notebooks and label a page with the date and the title of this selection. Read the selection slowly, stopping periodically to make certain students are following along. At the end of the selection, lead the class in a discussion to determine the author's purpose (to inform in an entertaining manner) writing this selection. Instruct students to divide into their small work groups and discuss what type of selection this is. Students are to list in their notebooks the attributes that make this the type of selection they have determined it to be. Bring groups back into a whole class group after allowing 10-15 minutes for small group discussion and have groups share their results. After leading class to develop the consensus that this is a poem, instruct students to resume their small group discussion to identify the pattern used in this poem. Students will write the name of the poetry pattern used and an explanation of its attributes that prove their identification to be correct. Bring groups back into large group discussion to check student groups' understanding of the pattern (Quatrain) most closely followed in this poem.

**Day 5:** Write "narrative," "serving" and "stew" on the board. Ask students to define each word. Students will add these words to the Vocabulary page of their Agriculture Notebooks. Develop a consensus for a working definition of each term. Divide into small work groups. Each group will work together to create a still-life as described in the story read on Day l. During the still-life work, two groups at a time will cut, measure and begin the cooking process for the stew made in the story from Day 1. Duties will be divided up by the members of each group with some supervision from the teacher. Students will sample the stew when it has finished cooking.

**Continuation:** Students will continue to care for the garden until harvest. Students will keep notes regularly in their Agriculture Notebooks about their experiences in working in their groups, challenges that arise throughout this unit and how they are dealt with, and what they would change. After harvest, each student will write a narrative about their experiences with this unit and their opinions of the activities. Narratives will address the content of their notes: their experiences in working in groups, challenges that arise throughout the unit and how they were dealt with, and what they would change.

**EVALUATION OPTIONS**

**Day 1:** Students will hand in their Agriculture Notebooks with vocabulary list and list of attributes for "Still-life Stew." Agriculture Notebooks will contain a list of attributes for a fictional selection, and vocabulary words with definitions.

**Day 2**: Students will hand in their Agriculture Notebooks with correctly spelled vocabulary list, notes from brainstorming session, and list of group duty assignments. Agriculture Notebooks will contain correctly spelled vocabulary list with definitions, a copy of the brainstorming session and a copy of the Internet Research Record (attached).

**Day 3**: Students will hand in Venn diagrams (sample and blank copy attached) from soil study and group plans for the class garden.

**Day 4**: Students will hand in their attribute list for the poetry selection and the poetry pattern. Students will illustrate the poem, (with illustrations that correlate to details of the poem) "The Vegetables Go To Bed."

**Day 5**: Students will hand in their still-life creations.

**End of Unit**: Students will hand in all notes from the unit. Students will complete Cooperative Group Evaluations (attached). Students will take a Vocabulary Quiz (sample attached). Students will create and complete a Peer Questionnaire to evaluate their peers' understanding of the overall unit. Students will hand in their narratives (see attached rubric).

**EXTENSIONS AND VARIATIONS**

1. Students can prepare and deliver oral reports on their garden experiences, including what they could have done differently, what they have learned about the responsibilities involved in providing food for people to eat, and the level of cooperation required to have a successful group project.
2. Students keep pictorial record of the garden, creating a booklet with a weekly drawing of their garden site with a short paragraph describing the progress seen on that day.

**Considerations:** It will be necessary to acquire the materials for the Classroom Garden and assemble it before beginning (detailed instructions and diagram attached). It is recommended to invite parent volunteers to assist on Day 5 in supervising students cutting vegetables for stew.

Due to the variety of technology available in

schools, plans will have to be made to facilitate Internet research.

**RESOURCES**

Pittman, Helena Clare. *Still-Life Stew.* New York: Hyperion, 1998
King, Christopher L. *The Vegetables Go To Bed*. New York: Crown, 1994
Gardening literature to reinforce lesson concepts.
TeAch-nology.com- www.teach-nology.com

**CREDITS**

Consultant: Ian Brook, Craftsman Gardener, Ponefract, West Yorkshire, England.
Garden Diagram: Patrick Hontz, Fourth Grade Teacher, Heatherbrae Elementary, Cartwright School District

**EDUCATORS' NOTES**

**CURRICULUM DESIGN**
Catherine Brookins
4th Grade Teacher
Heatherbrae Elementary School
Cartwright School District

*This Arizona Grown Specialty Crop Lesson Plan was paid for by a grant from the Arizona Department of Agriculture's Office of Marketing and Outreach.*