



Lesson Title: Tops and Bottoms

Grade: 1-2

Duration of Lesson: 1 – 50 minute class

***Brief:** Students will understand that plants have different parts: roots, stems, leaves, seeds, flowers, etc. Lesson is based upon children's book **Tops and Bottoms** by Janet Stevens*

***Note:** This lesson is best to teach in the early fall when harvest is near*

Materials:

- Tops and Bottoms by Janet Stevens
- Seed Packets: corn, lettuce, spinach, carrots, radish, etc.
- Plants with roots and tops attached: Potato plant, spinach or lettuce with roots attached, radishes and carrots with tops attached, and any other food items with the plant parts intact.
- Copy of Appendix A
- One copy of worksheet 1 for each student

Key Terms

- Leaf
- Stem
- Seeds
- Root
- Flower
- Harvest

Standards/Objectives

Montana State Standards:

Science: Content Standard 1: Students, through the inquiry process, demonstrate the ability to design, conduct, evaluate, and communicate results and reasonable conclusions of scientific investigations. Benchmark 1.1 Content Standard 3: Students, through the inquiry process, demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment. Benchmark 3.1

Math: Content Standard 2: Data Analysis. Benchmarks 2.1, 2.2 Content Standard 3: Geometric Reasoning. Benchmarks 3.1,3.2

Understanding(s) /Big Ideas:		Essential Question(s):	
Students will understand that plants have different parts: roots, stems, leaves, seeds, flowers, etc.		Where on a plant does my food come from?	
Students will know: Students will know that foods come from different part of plants and will know the different parts of a plant.		Students will be able to: Observe and determine where on plants their food is grown.	
Performance / Observations			
Performance Task(s): Identify food parts of plants by observation. Observe and identify location of food growth on plants, graph the data.		Other Evidence: Students will receive a grade based on their participation and completion of the projects, and use of vocabulary terms related to plant growth for food.	
Learning / Inquiry Activities			

Prep/Introduction:

Read *Tops and Bottoms* by Janet Stevens. Explain that when the characters in the book gather the food this is called harvesting food. Farmers and gardeners harvest their food as well. Let students know that after harvest we buy the foods farmers and gardeners grew. We buy these foods in our local grocery stores or at farmer’s markets.

There are many ways to harvest foods. Some foods like wheat and potatoes are harvested using machinery; other foods like raspberries must be harvested by hand.

Learning / Inquiry Activities:

Discuss the different plant parts (roots, stems, flowers, seeds, and fruit) and where they grow on the plant in relation to tops, bottoms, or middle.

Show the examples of the foods you brought in for demonstration, ask students to identify the food sources on each plant, and if it grows on the top, middle, or bottom of the plant.

Ask students to think of as many items as they can that come from each food (corn is used for the following: bread, vegetables, sugars, biofuels, and animal feed).

From each whole food plant item you brought in, ask students to identify each of the other plant parts. Can any of the other plant parts be used for food? Some parts may not be used for human consumption, but may be made into animal feed, like corn stalks.

Following the discussion post copies of Montana food crops on the board. (Appendix A)
Students will identify if the food crop grows on the top, middle, or bottom of the plant and use that information to fill out the worksheet below.

For more information on many of the crops below please visit aginmontanaschools.org and check out the wide variety of lesson plans.

Fruit and vegetables grown and harvested in Montana!

RED FRUITS AND VEGETABLES

Red Apples

Cherries

Chokecherries

Raspberries

Strawberries

Red Peppers

Radishes

Radicchio

Red Onions

Red Potatoes

Rhubarb

Tomatoes

YELLOW FRUITS AND VEGETABLES

Yellow Apples

Apricots

Oranges

Peaches

Yellow Pears

Butternut Squash

Carrots

Yellow Peppers

Yellow Potatoes

Pumpkin

Rutabagas

Yellow Summer Squash

Sweet Corn
Sweet Potatoes
Yellow Tomatoes
Yellow Winter Squash

WHITE FRUITS AND VEGETABLES

Cauliflower
Garlic
Jerusalem Artichokes
Kohlrabi
Mushrooms
Onions
Parsnips
Potatoes (White Fleshed)
Shallots
Turnips
White Corn

GREEN FRUITS AND VEGETABLES

Green Apples
Honeydew
Green Peas
Arugula
Asparagus
Broccoli
Green Beans
Green Cabbage
Cucumbers

Leafy Greens
Leeks
Lettuce
Green Onions
Peas
Green Peppers
Snow Peas
Spinach
Sugar Snap Peas
Zucchini

PURPLE FRUITS AND VEGETABLES

Plums
Elderberries
Purple Asparagus
Purple Cabbage
Purple Carrots
Purple Peppers
Potatoes (purple fleshed)

GOLDEN GRAINS

Oats
Wheat
Barley

LEGUMES

Beans
Lentils
Peas

Lesson Extensions: Graph the data that was collected during this lesson. Graph the items on the above list by color, shape, location on plant, etc.

Partial listing of foods for examples sourced from:
http://www.fruitsandveggiesmorematters.org/?page_id=1600

Montana Department of Agriculture
In part with Agriculture in Montana Schools

