

MATERIALS

- Garden gloves (1 pair per student)
- Trash bags for diseased plant debris, (4) tubtrugs
- (4) spading forks, (4) garden claws, (2) bow rakes
- Straw mulch (approx. ½ bale)
- Chart Paper and Marker

PREPARATION

- Set gloves, trash bags, tubtrugs, spading forks, garden claws, and bow rakes near the Greens bed (cabbage, kale, broccoli, cauliflower...)
- Label a piece of chart paper with today's main garden tasks: (1) remove and compost plants (2) loosen soil, and (3) spread mulch.

PROCEDURE

Part 1: Remove and Compost Plants

- Gather students around the garden bed. Have students identify each plant.
- Demonstrate how to remove plants: use the spading fork to loosen the roots of a plant, then pull it out by its stem. Gently knock the soil off the roots and place the plant in a bucket. (Note: the thick stalks of the plants do not decompose well in the compost bin. Strip everything off the stalk, then put the stalk in the trash bag.)
- Select four students to use the spading forks to loosen the roots of the plants. Select four students to dump full buckets in the compost pile. As the roots of plants are loosened, the remaining students pull out the plants, knock off soil, and place them in the buckets.
- Pass out garden gloves to all students. Go!

Part 2: Loosen the Soil

- After all plants have been removed to the compost pile, spread students out around the garden bed so that they each have enough space to work comfortably.
- Demonstrate how to properly use the garden claw to loosen the soil. Then, distribute garden claws evenly around the bed (to approximately every sixth student). Students will use the claw on the soil in front of them for five seconds, then they will pass the claw to the student on their left. Repeat.
- As each student uses the claw, count to five as a class, then pass. Continue until every student has had the opportunity to use the claw and all the soil is loosened. Collect garden claws and gloves.

Part 3: Apply Straw Mulch

- "We will now 'tuck in our garden bed' for the winter using a 4 inch layer of straw mulch."
- Ask 8 student volunteers will remove "flakes" of straw from the half-bale and shake them over the bed.
- The remaining students will break up any clumps of straw and spread it evenly over the entire garden bed.
- Collect gloves, buckets, and rakes. Return to the outdoor classroom.

Removing Pest Habitat

Patterns & Preparation

ENGAGE

Ask students to draw a picture of one place where they take cover during the winter. Have students share their pictures. Discuss what would happen if they didn't have that place to take shelter in.

OBJECTIVES

- Students will be able to explain how removing the habitat for garden pests will decrease pest populations next year.

EXPLAIN

Halting Pests and Disease

During the growing season, diseases and pests can diminish your yield or even entirely ruin your crops. If you aren't careful, their impact can extend into next year's season as well. For example, some pests like squash bugs and bean beetles can survive the winter on plant debris left in the garden. They then reemerge the following year to decimate your squash and beans. Similarly, diseases like late blight and clubroot can do the same to your potatoes and brassicas. Removing your garden plants completely serves to halt pests and disease. Lightly tilling the soil a bit brings further benefit: it brings the eggs and larvae of overwintering pests closer to the surface of the soil where they will likely be killed by the winter frosts. By putting in time now to remove plant debris, we are improving the odds that next year's crop will be a success.

The Benefit of Mulching

Mulching in the fall protects soil from early spring weeds, provides cover for beneficial soil organisms, keeps soil from eroding, and adds valuable nutrients to the soil. Mulching encourages a diversity of soil life, which in turn decreases plant disease. Beneficial soil creatures keep soil health in balance by preying on pests or out-competing them for food. True, some plant pests also take refuge in the cover of mulch, waiting out the winter until the spring plants emerge. But the benefits of mulching far outweigh this possibility.

ADDITIONAL CONTENT INTEGRATION *(see previous page)*

Before Part 1, put students in groups and give them a set of Insect Pest ID Cards. Have them read the life cycle and habitat sections of the cards and identify the pests that overwinter in the soil. When they are removing plants and loosening the soil ask students to keep an eye out for those pests.

ADDITIONAL MATERIALS

- Paper and crayons
- Insect ID Cards

EVALUATE

Exit Slip: What is one pro and one con of mulching?