

## NATIONAL SCIENCE STANDARDS

- Life Science: Organism and environment
- Life Science: Regulation and behavior

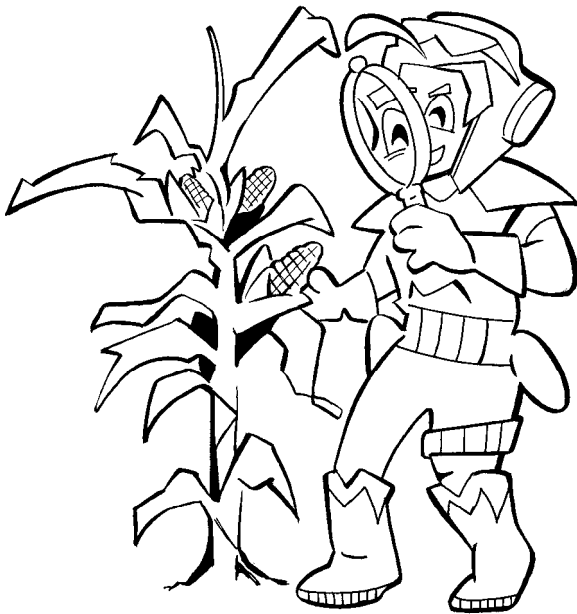
## OBJECTIVE

The student will identify the effects of weeds and pests on farmers crops.

## BACKGROUND

Technology is what allows the agricultural industry to address the natural science requirements of producing food with the social science events of less available farmland and an increasing population.

A plant needs nutrients, light, and air to grow. Farmers work very hard to maintain an ideal growing environment for the crops. Two natural factors that all farmers have to deal with are weeds and pests.



## WORD POWER

**dormant** *adj.* When plants or seeds are dormant, they are alive but not growing.

**insect** *n.* A small creature with three pairs of legs, one or two pairs of wings, three main sections to its body, an exoskeleton, and not backbone.

**pest** *n.* An insect that destroys or damages flowers, fruits, vegetables or grains.

**germinate** *v.* When seeds of beans germinate, they start to grow shoots and roots.

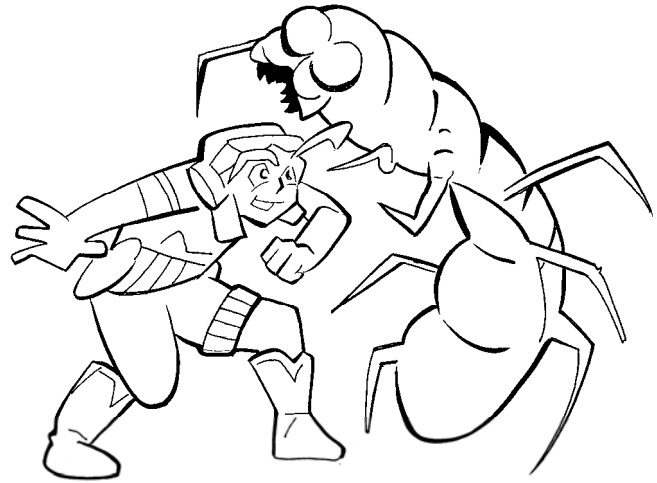
**weed** *n.* An undesirable plant, especially one that growing where it is not wanted.

**yield** *n.* To produce something: *The field yielded 90 tons of potatoes.*

## BACKGROUND, CONTINUED...

The three main reasons weeds harm the farmer's crops resulting in less crop yields are:

1. A weed grows fast and tall. To support that fast growth, weeds rob the nutrients from the soil that are needed for the crop.
2. A common weed, thistle, can grow very quickly to be 10 feet tall. This weed and others can surround the farmer's plants blocking our needed sunlight.
3. Weeds block out needed air circulation. Proper air circulation is needed to prevent disease.



Weeds are constant problems for farmers because each acre of farmland in the U.S. contains millions of buried weed seeds. Many weed seeds can survive in a dormant condition in the soil for decades, and each year some seeds germinate. Once the weed has grown it will produce more seeds that will drop and remain in the soil.

Pests are always looking for food and would destroy almost half of the farmer's crop if they could. Weeds would decrease up to 65% of the amount of food grown.



## INSTRUCTIONAL PROCEDURE

1. Review the background information.
2. Have the students complete Activity 1.

## ASSESSMENT

Do the students understand why weeds decrease a farmer's productivity?

NAME \_\_\_\_\_

## ACTIVITY 1 — WHERE'S THE CARROT?

CARROTS  
GROWING  
WITHOUT  
WEEDS



CARROTS  
GROWING  
WITH  
WEEDS

Carrots need nutrients from the soil, light from the sun and good air circulation to grow. If weeds are also using the same nutrients in the soil to grow what will happen to the carrots?

1. Will the weeds make it harder to harvest (pick) the carrots?      YES or NO
2. Where are the weeds getting the nutrients necessary to grow?
  - a. from the air
  - b. from the soil
  - c. they do not need any nutrients to grow
  - d. from the rain
3. Because the **weeds** are using the available nutrients from the soil what effect might this have on the carrots.
  - a. there will be more carrots grown
  - b. there will be fewer carrots grown
  - c. the carrots will be smaller than normal
  - d. the carrots will be larger than normal
4. Weeds shade the carrot leaves. Without enough \_\_\_\_\_, the carrots cannot use the process of photosynthesis to produce food for growth.
  - a. food
  - b. sunlight
  - c. water