

Needy Weedy

Why do farmers and gardeners worry so much about weeds? In this activity, you will experience through hands-on activities how weeds can compete with crop plants for space, light, nutrients, and water.

Things You'll Need

- Two colours of counting chips, paper clips, beads or other small items (50 of each)
- Desks or tables
- Aprons or pinnies
- Cups
- Kettle
- Bowls & salad dressing
- Planter box/pot, seeds, soil
- Paper and pencils
- Optional: magnifying glasses
- Optional: trowels or metal forks
- Optional: Lego or building blocks
- Edible Weeds Field Guide, Rethinking Weeds Blog post, local weed guide

Suggested Grades

Grades 1-7

Time

2-4 hours

Subjects

Science

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Background: What is a Weed?

A weed is a plant growing where a person doesn't want it. Any plant may be considered a weed. For example, one person may pull out all the dandelions in their backyard to make space for vegetable crops, while their neighbour may let the dandelions grow because of their beautiful flowers and edible leaves. One person's pest is another person's treasure.

Definition of a Weed

The definition of a "weed" is not based on biology. Instead, it is based on a person's opinion of a plant in a certain location. The term weed is often used in human-controlled spaces, such as a garden, lawn or farm. In these spaces, people often want specific plants to grow, such as grass, flowers, and vegetables. Any unwanted plant growing is a weed.

Pros and Cons

Many weeds are edible and have medicinal benefits*. Others have flowers that attract pollinators. There is more information about these benefits [in this blog post](#) and in our [weeds field guide](#). However, many farmers dislike weeds because they compete with intentionally planted crops for space, nutrients, water, and sunlight. Many weeds grow fast, have large root systems, and reproduce quickly. And they can be tough; think about weeds in sidewalk cracks!



Red clover



Purslane



Buttercup



Dandelion

*Only harvest food plants you are 100% certain you can identify! Not all plants are edible, and some plants have lookalikes that may not be edible.



Outside Observation

Instructions:

30 minutes

Optional materials: magnifying glasses, paper, pencils, trowel or fork, printed list of local garden weeds such as [BC Farms & Food list](#) or Fresh Roots' [Edible Weeds Field Guide](#).

Go outside to observe weeds and become familiar with some common ones. You could visit a garden, flower bed, or another space where you know plants are tended and cared for. Alternatively, look around a sidewalk. Bring magnifying glasses and paper to write down observations.

1. Ask students to look at the plants in the area. Can they tell which ones are weeds? Ask them to guess and share their thoughts. Use a field guide to help you identify weeds
2. How would you describe this weed? (ex. pretty, ugly, soft leaves, yellow flower)
3. Now that you have identified some weeds, observe them up close with magnifying glasses. What do you notice about the weeds? What do they look like? How many are there? Where are they? Are there any seeds?
4. Pull out a weed. Was it easy or hard to pull out? Take a look at its roots. Compare different weeds to see how they are similar and different.



Buttercup root



Dandelion root

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Opinions of Weeds

Instructions:

20 minutes

Materials: Paper and pencils, examples of weeds

Either as a class or in groups, continue thinking about weeds and the observations you made. Discuss the following questions:

1. What are some examples of weeds?
2. What are some similarities among the weeds you found?
3. What is the definition of a weed?
4. What do you think are some pros and cons of having weeds on a farm or in a garden? Add your thoughts to a table.
5. What is your overall opinion of weeds? Do you think they are good or bad?

Pros of Weeds	Cons of Weeds



Lambs Quarter



Chickweed



Guasca



Horsetail

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Weeding Example:

Usually, we're excited to see potato plants growing on the farm. However, in the photos below, we consider these potato plants to be weeds. Why? Because they were voluntarily sprouting in beds where we wanted garlic to grow. We hadn't planted potatoes there and did not want them competing with the garlic.



Before weeding potato plants.
The garlic has tall, straight leaves.
The younger potato plants are the
shorter plants with light green leaves.



After weeding potato plants out.
What do you notice has
changed?

**On the farm,
even grass is
sometimes called
a weed!**

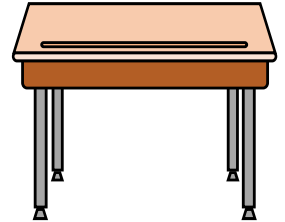
Needy Weedy

Room to Grow:

Instructions

20 - 45 minutes

Materials: Tables or desks with nothing underneath.



Let's see how weeds can crowd out other plants.

1. Act out how a seed grows. Choose together what type of vegetable seed you want to be. Crouch down, with your feet still on the ground, pretending to be a seed. After the seed is watered, it will start to grow towards the light. Begin standing up straight with your arms straight up overhead. Your feet are pressing into the ground, to root yourself. Next, a plant will send out leaves. Open your arms out to your sides. Practice this a few times (it's a nice stretch!).
2. Now, pretend all the desks and tables are weeds. The table legs are the stems, and the tabletops are the leaves.
3. Crawl under the table and pretend to be vegetable seed again, with your feet flat on the floor.
4. The challenge is to try to grow. With your feet planted, see if you can grow your stem and leaves towards the sun.

Reflection

Discussion questions:

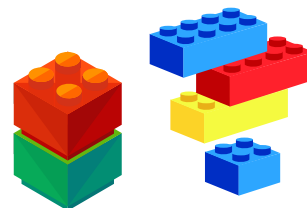
1. What did you have to do to get sunlight and grow?
2. What do you think is one problem with weeds when it comes to growing vegetables?

Extension

Take a walk outside. Can you spot any examples of plants, such as trees or flowers, that are crooked? What do you think caused this? Is it a problem?



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Extension

20 minutes

Materials: building blocks or Lego

When you were a vegetable, the nearby weeds made it harder to grow. It was difficult to get sunlight, but is there another issue? Do you think you are a stronger plant when you grow straight up, or crooked?

Experiment:

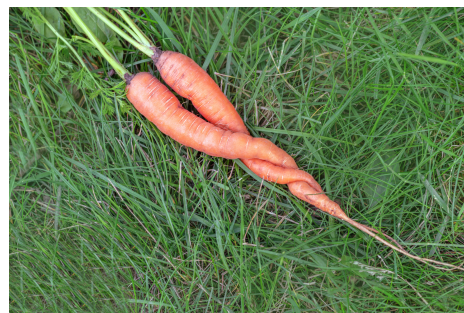
1. Build a tower straight up, one block wide.
2. Build a second tower, one block wide. However, this time you have to stack each block slightly off-center so that it is a bit crooked.
3. If you can build both towers to the same height, blow on them to see which blows over first.
4. Which tower was more difficult to build? If each of these were plant stems, which do you think would be stronger?

Competition Example:

Weeds compete with other plants for space to grow and sunlight. This can cause crops to grow weaker, crooked stems and struggle to get enough sunlight. Crowding can also cause roots to twist and grow crooked. This is often seen in orange carrot roots.

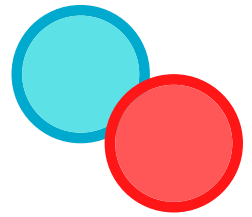


Carrot roots grow straight when they have lots of room to grow and nothing in the root's way.



Twisted carrot roots, possibly caused by overcrowding. A weed root may have been in the way, causing a growing carrot root to change its direction. Do you think a twisted carrot is a problem?

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Plant Competition

Instructions:

30 minutes

Materials: aprons or pinnies, two colours of chips (ideally, one colour is blue), cups

Set-up: In an open area, distribute both colours of chips on the ground. Tell students not to touch them yet.

In this game, students will learn that weeds compete with vegetable crops for water and nutrients to grow. Before beginning the game, review what plants need to grow (sunlight, air, soil, nutrients, water). What happens if they don't get enough of these?

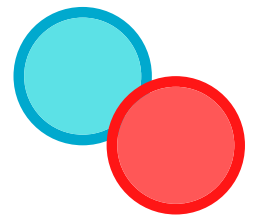
Round 1:

1. Explain that the blue chips represent water, and the other colour chips represent nutrients. Everyone is going to be a plant trying to get as much of these as they can.
2. Assign 1/4 of the class the role of vegetable plants, and the other 3/4 the role of weeds. Give the vegetable plants a pinnie to identify them. Give each student a cup.
3. The vegetable plants will spread out into the game area with the coloured chips on the ground. The weeds will now spread themselves out so that there are three weeds surrounding each vegetable plant. All plants are rooted in the ground, they cannot move their feet.
4. On "Go", students will bend down collect into their cups as many nutrients and water chips as they can. Remember, their feet can't move!
5. Once all the chips are collected, compare whether the weeds or vegetable plants got more water and nutrients.

Reflection:

How might the results impact the growth of the vegetables?
What would happen if our farmers came and weeded?

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Plant Competition Continued

Instructions:

Round 2:

1. For this round, our farmers have come around and plucked out 2/3 of the weeds. There should now only be 1 weed per vegetable plant left.
2. The remaining players will spread out so that there is one weed by each vegetable plant. The weeds who are not participating this time can cheer for the other players. On "Go", students will again collect into their cups as many nutrients and water chips as they can. Again, count how many chips each team has.

Reflection:

Why were the results different in the second round?

This was an example of reducing competition. Can you think of any other examples of competition in nature?

Feed Me Weeds Please!

Instructions:

20-45 minutes

Materials: [Edible Weeds Field Guide](#) and recipes on the "[Rethinking Weeds](#)" blog

Optional Materials: bowls, forks, salad dressing, kettle, cups



Spend some time learning about ways weeds can be eaten or used as medicine, and how to responsibly forage weeds. This information can be found in the Edible Weeds Field Guide.

If possible, harvest and wash some dandelion leaves and purslane to make into a salad (kids love this [salad dressing](#)). Or, harvest clover flowers and pour some hot water over to make tea. Follow the foraging guidelines found in the Edible Weeds Field Guide.

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Wrap-Up Reflection

Instructions:

15 minutes

Materials: pros and cons table from the activity "Opinions of Weeds"

In groups or together as a class, reflect:

1. What other pros and cons of weeds are there?
2. Has your opinion of weeds changed? Why?

Pros of Weeds	Cons of Weeds
Flowers for pollinators	They crowd out vegetables
Many are edible	Compete for nutrients and water
Many have medicinal benefits	Block vegetables from the sun



Broad-Leaf Plantain



Quack Grass



**Morning Glory
(Bindweed)**



Dock

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Long-Term Activity: Watch Weeds Grow

Instructions:

3 weeks

Materials: Planter box/pot, seeds to plant, soil

Weeds often find their way into our gardens, even when we don't plant them.

1. In a planter box outside or large pot, plant a row of seeds. Mark with popsicle sticks where those seeds are.
2. Care for the seeds (water, enough sunlight).
3. After a few of weeks, what plants have poked up? Are there any plants in the pot you did not plant? These are weeds. They grow quickly, and often very close to the seeds.

How are these weeds getting into our garden?

Many weed plants have hundreds of seeds (ex. dandelions) that catch the wind, landing in our garden. Other weeds are very tough. Even if a small part of the weed is left in the soil, it can start to grow a brand new plant (ex. buttercups). These are some reasons why it is so challenging to remove weeds from a garden.

