

Who's Living in My Soil? A Game of Clue

Essential Question:

Who are the Soil Department workers and how do they help make healthy soil?

At a Glance:

Learners identify various soil workers through a series of clue cards that match information provided on the Soil Eco-service Worker Cards.

Background Information:

See *Background Information for Garden Earth –Soil Production Department*. This will be a review of the soil workers from previous lessons and hook the learners' interest to the current lesson.

Getting Ready:

Print the *Who's Living in My Soil?* clue cards on cardstock and cut them apart. Mix them up before passing them out to students.

Procedure:

1. Show learners the eco-service worker cards for several soil workers (see supply list), pointing out the information on the back of the cards. The cards shown should include the answers to the activity, although additional ones will make the activity more challenging. Display the eco-service worker cards at the front of the classroom where the students can see them during the activity.
2. Tell students that they will each receive a *Who's Living in My Soil?* clue card that will help them figure out what soil worker they are. Some students will have clues that match their soil worker, while others will be working to figure out a different soil worker.
3. There are 4-5 clues that match each of the soil workers. Each clue is labeled according to its worker (i.e. Soil Worker 1, Soil Worker 2, etc.).
4. Students will first find the other students whose clues go with their soil worker (all Soil Worker 1's get in a group). Then learners are to decide as a group which soil worker matches their clues. Many (but not all) of the clues will come from the Eco-service worker cards, which students may use to identify their organism.
5. Once all the students have found their group and decided on their organism, have them introduce their soil worker and its ecological role to the class.

Discussion/Assessment:

Name five soil workers.

What different roles do the soil workers play in the Soil and Recycling Department?

What are some other soil workers that weren't mentioned in this activity? (*fungus, centipede, termite, spider, mite, land slug, cockroach*)

Location: Indoors

Objectives: Learners will

- 1) identify at least five soil workers.
- 2) discover roles of various soil workers.

Skills: identification, communication, teamwork, analysis

Supplies:

- Soil: Who's Living in My Soil? cards
- GEN Eco-Service Worker Cards
 - Pillbug
 - Carpenter Ant
 - Millipede
 - Land snail
 - Earthworm
 - Dung beetle

Subjects: science

Time: 25 minutes

Answer Key:

Pillbug or Roly-Poly (Soil Worker 1)

Clue 1: I am an isopod. This means I have 10 pairs of small walking legs.

Clue 2: I curl into a ball when I am disturbed.

Clue 3: I eat rotting leaves and bark and the fungi that grows on it. I am an important 'Recycler'.

Clue 4: My exoskeleton is made up of gray, flattened plates that make me look like an armadillo.

Clue 5: I am about $\frac{1}{4}$ - $\frac{1}{2}$ inch long and am found in damp places in gardens and forests.

Millipede (Soil Worker 2)

Clue 1: My name means 'thousand legs'. I have one pair of legs on each of my first three segments and two pairs of legs on each of the other segments.

Clue 2: I eat dead and decaying leaves, flowers, and animals like earthworms, snails and insects. I also feed on the fungi growing on dead organisms. I am an important 'Recycler'.

Clue 3: I can grow to over 3 inches long and have a segmented body. I am thick-skinned and black or dark brown with reddish or yellow edges.

Clue 4: People often confuse me with centipedes, but we're not even related! We are the same in that we both like dark, moist places and are nocturnal.

Clue 5: After mating, a female eats soil, then poops it out and makes a nest to place her eggs in.

Carpenter ant (Soil Worker 3)

Clue 1: I help the Soil Department by breaking down dead wood.

Clue 2: I live in a colony with a queen, female workers and males.

Clue 3: I am $\frac{1}{4}$ to $\frac{1}{2}$ inch long and am black or reddish in color.

Clue 4: Our nests are built in the cavities of woods. Other species build mounds in the soil and are useful in aerating the soil by burrowing tunnels.

Dung beetle (Soil Worker 4)

Clue 1: I am $\frac{1}{4}$ - $2\frac{3}{8}$ inches long and can be brown or colorful, depending on the species.

Clue 2: I am found in leaf litter or on the surface of the ground. The best place to find me is in fresh poop!

Clue 3: I eat dung, or poop! I help the Soil Department by breaking down animal feces and returning the nutrients to the soil. Some species will also feed on dead animals or decaying plants.

Clue 4: As part of reproduction, a male and female roll a ball of dung. The female then lays one egg in the dung ball and covers it with soil. The larva feeds on the dung and pupates in the soil.

Clue 5: The sacred scarab beetle of Egypt is part of my family.

Earthworm (Soil Worker 5)

Clue 1: My body is long, tubular, segmented, legless and covered with slimy mucus. There are 4 pairs of tiny bristles on each segment of my body that help me to move through the soil.

Clue 2: I help the Soil Department by aerating the soil and recycling soil matter. I also dig tunnels, loosening and mixing the soil.

Clue 3: My castings, or poop, are very nutrient rich. Many people invite me to live in their gardens or use my poop as compost.

Clue 4: I can live up to 10 years. I can even regenerate segments of my body if cut or injured. Pretty cool, huh!

Clue 5: We stay in moist soil burrows during the day and emerge at night. During winter, we hibernate in balls with our friends deep in the soil.

Land snail (Soil Worker 6)

Clue 1: We vary in size and color. I have a shell on my back that covers vital organs.

Clue 2: My soft, mucus-coated 'foot' can be seen protruding from my shell. It has two pairs of tentacles, the longer having eyes at the tip.

Clue 3: We are found in moist, shady areas. We need limestone to build our shells, so are more numerous in areas where the soils contain limestone.

Clue 4: I eat leaves, grasses, and rotting plants. The radula in my mouth grates food into small pieces. We help the Soil Department by adding organic matter to the soil.

Who's Living in My Soil? Clue Cards

<p>Soil Worker 1: I am an isopod. This means I have 10 pairs of small walking legs.</p>	<p>Soil Worker 1: I curl into a ball when I am disturbed.</p>
<p>Soil Worker 1: I eat rotting leaves and bark and the fungi that grows on it. I am an important 'Recycler'.</p>	<p>Soil Worker 1: My exoskeleton is made up of gray, flattened plates that make me look like an armadillo.</p>
<p>Soil Worker 1: I am about $\frac{1}{4}$ - $\frac{1}{2}$ inch long and am found in damp places in gardens and forests.</p>	<p>Soil Worker 2: My name means 'thousand legs'. I have one pair of legs on each of my first three segments and two pairs of legs on each of the other segments.</p>
<p>Soil Worker 2: I eat dead and decaying leaves, flowers, and animals like earthworms, snails and insects. I also feed on the fungi growing on dead organisms. I am an important 'Recycler'.</p>	<p>Soil Worker 2: I can grow to over 3 inches long and have a segmented body. I am thick-skinned and black or dark brown with reddish or yellow edges.</p>

<p>Soil Worker 2: People often confuse me with centipedes, but we're not even related! We are the same in that we both like dark, moist places and are nocturnal.</p>	<p>Soil Worker 2: After mating, a female eats soil, then poops it out and makes a nest to place her eggs in.</p>
<p>Soil Worker 3: I help the Soil Department by breaking down dead wood.</p>	<p>Soil Worker 3: I live in a colony with a queen, female workers and males.</p>
<p>Soil Worker 3: I am $\frac{1}{4}$ to $\frac{1}{2}$ inch long and am black or reddish in color.</p>	<p>Soil Worker 3: Our nests are built in the cavities of woods. Other species build mounds in the soil and are useful in aerating the soil by burrowing tunnels.</p>
<p>Soil Worker 4: I am $\frac{1}{4}$ - $2 \frac{3}{8}$ inches long and can be brown or colorful, depending on the species.</p>	<p>Soil Worker 4: I am found in leaf litter or on the surface of the ground. The best place to find me is in fresh poop!</p>

<p>Soil Worker 4: I eat dung, or poop! I help the Soil Department by breaking down animal feces and returning the nutrients to the soil. Some species will also feed on dead animals or decaying plants.</p>	<p>Soil Worker 4: As part of reproduction, a male and female roll a ball of dung. The female then lays one egg in the dung ball and covers it with soil. The larva feeds on the dung and pupates in the soil.</p>
<p>Soil Worker 4: The sacred scarab beetle of Egypt is part of my family.</p>	<p>Soil Worker 5: My body is long, tubular, segmented, legless and covered with slimy mucus. There are 4 pairs of tiny bristles on each segment of my body that help me to move through the soil.</p>
<p>Soil Worker 5: I help the Soil Department by aerating the soil and recycling soil matter. I also dig tunnels, loosening and mixing the soil.</p>	<p>Soil Worker 5: My castings, or poop, are very nutrient rich. Many people invite me to live in their gardens or use my poop as compost.</p>
<p>Soil Worker 5: I can live up to 10 years. I can even regenerate segments of my body if cut or injured. Pretty cool, huh!</p>	<p>Soil Worker 5: We stay in moist soil burrows during the day and emerge at night. During winter, we hibernate in balls with our friends deep in the soil.</p>

<p>Soil Worker 6: We vary in size and color. I have a shell on my back that covers vital organs.</p>	<p>Soil Worker 6: My soft, mucus-coated ‘foot’ can be seen protruding from my shell. It has two pairs of tentacles, the longer having eyes at the tip.</p>
<p>Soil Worker 6: We are found in moist, shady areas. We need limestone to build our shells, so are more numerous in areas where the soils contain limestone.</p>	<p>Soil Worker 6: I eat leaves, grasses, and rotting plants. The radula in my mouth grates food into small pieces. We help the Soil Department by adding organic matter to the soil.</p>