

Level 2 Grades 2 - 3



I'm a Soil Hero!

HEALTHY SOIL =
HEALTHY PLANTS =
HEALTHY FOOD =
Healthy you



A Comfy Home for erin

What do you think makes a home comfy?

Write three things that you think make a home comfy.

1. _____
2. _____
3. _____

5 Senses

Sight



Smell



Touch



Taste



Hearing



We find things comfy because they please our **senses**.

There are five senses: **sight**, **hearing**, **smell**, **taste** and **touch**.

Draw a line from each thing you wrote to the sense that it pleases.

Erin the Earthworm is looking for a comfy home.

Erin lives in the soil and has some senses to please like we do. Earthworms do not have eyes, ears, or a nose, but they do have nerve endings. They can tell whether they are in the dark or the light. Since they have a sense of touch, they can feel things moving around them.

Earthworms may not have a nose, but they still have to breathe! They breathe in **oxygen** and breathe out **carbon dioxide** just like we do, but they breathe through their skin.



There are hollow spaces in soil that hold air. This air is needed by the organisms living in the soil.

What a breath of fresh air!

Plants must have water from the soil to live. We must have plants to live!

Earthworms make their homes **IN** the soil. We build our homes **ON** the soil. What else do we build on soil? List six places that you go to every week that are built on soil.



Thousands of living organisms can be found in one square inch of soil!



Erin the Earthworm is just one of millions of living things that dwell in the soil under our feet! Have you ever picked up a rock that was lying on soil and looked under it? You might have seen spiders, beetles, centipedes, millipedes, and pill bugs scurry away. Most of the living things in soil are so tiny you cannot see them. Soil is full of **life** that you **can** and **cannot** see. **Healthy soil is important to the life in it and our life on it!**

A Healthy Home for erin

Solve the addition and subtraction problems below. Then use the code to match the answers with the letters. Write the letters on the lines below to find out what can be found in healthy soil.

6 10 16 15 19 20 11 14

7 20 3 15 19

11 10 17 10 16 8

3 5 10 16 8 14

20 10 19

18 19 8 20 16 10 4

6 20 3 3 15 19

- | | | |
|-------------------------|-------------------------|-------------------------|
| 18 - 3 = ___ = E | 7 + 3 = ___ = I | 20 - 6 = ___ = S |
| 10 + 8 = ___ = O | 10 - 7 = ___ = T | 15 + 4 = ___ = R |
| 11 - 3 = ___ = G | 11 + 9 = ___ = A | 13 - 9 = ___ = C |
| 12 + 4 = ___ = N | 14 - 8 = ___ = M | 10 + 1 = ___ = L |
| 12 - 5 = ___ = W | 9 + 8 = ___ = V | 13 - 8 = ___ = H |

There are many minerals found in the soil (such as calcium) that humans, animals and plants must have to be healthy.



Healthy soil is full of living things like plant roots, insects, worms and organisms so small you cannot see them.



Organic matter is decaying plant or animal material that makes soil very healthy for all the organisms living in it.



Healthy

SOIL

is important
to the life **IN**
it and our life
ON it!

Use the maze to connect each clue to the item that Healthy Soil gives us. Use a different color to draw each line.



Clue

We use lumber that comes from trees grown in soil, and bricks baked from soil to build our homes. We build our homes, schools, stores and playgrounds on soil.



Healthy Soil Gives Us...

clean water to drink



Healthy Soil Gives Us...

nutritious food to eat



CLUE

All water comes in contact with soil. It may soak through soil as rain or melted snow; it may be found under it in underground rivers or aquifers; or it may float on soil in a lake, ocean or pond. Soil helps filter and clean water.



Healthy Soil Gives Us...

air to breathe



CLUE

Plants get minerals and nutrients from soil. We get minerals and nutrients we need to stay healthy from plants that we eat. We also get protein we need from animals such as cows. Cows eat hay and grass grown in soil.



Healthy Soil Gives Us...



a place to live

Healthy Soil Gives Us...

clothes to wear



CLUE

Plants use energy from the sun to make their own food. This process is called photosynthesis. During this process, plants release oxygen that we need to breathe. These plants live in soil.



CLUE
Cotton grows in soil. Many of our clothes (like denim jeans, tee shirts, socks and underwear) have cotton in them. Wool comes from sheep that are raised on soil. Many coats contain wool. The leather used to make shoes and boots can come from cattle that eat grass and hay grown in soil.





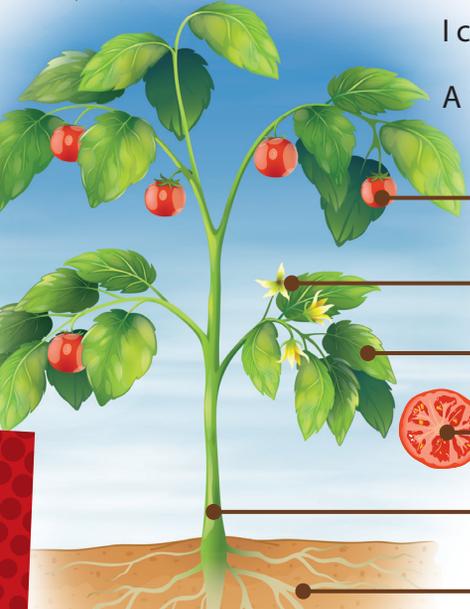
Plants Taste Yummy!

HEALTHY SOIL = HEALTHY PLANTS = HEALTHY FOOD = Healthy you



Plants grow in soil and can give us all of the fruits, vegetables and grains we need to be healthy. Plants have six parts: **flower**, **leaf**, **fruit**, **seed**, **stem** and **root**. Answer the questions with one of the plant parts and then label the part on the picture.

- I have **petals** and I make **seeds**. What am I? _____
- I carry **water** from the roots to the leaves. What am I? _____
- I use **energy** from the **sun** to make food for the plant. What am I? _____
- I hold and **protect** the seeds. What am I? _____
- I collect **water**, **minerals** and **nutrients** from soil. What am I? _____
- A new **plant** can grow from me. What am I? _____



We eat different parts of different plants. Sometimes we eat the leaf, sometimes the fruit, other times the root, stem, flower or seeds. The Green family has taken good care of their soil. They planted their garden today. **List the fruits and vegetables in their garden next to the correct plant part that can be eaten.**



| | |
|--------------|-------------|
| stem _____ | fruit _____ |
| flower _____ | root _____ |
| leaf _____ | seeds _____ |



Be a

Healthy soil is important to all of us.

- Most plants need soil to grow. Many animals make their homes in or on soil, and they eat plants that grow in soil.
- People eat both plants and animals for food. We also use trees grown in soil, and clay from soil to build our homes on soil. We all need to do our part to keep our soil healthy!

compost

Composting is easy and is a great way to help keep your soil healthy.

Composting is also a super way to reuse **organic** waste instead of throwing it away.

You can compost dead leaves and grass, newspaper, and even vegetable scraps from dinner (Scraps only! You need to eat your vegetables!). You can spread compost around your plants and trees. You can work it into the soil before you plant a garden, or you can spread it on top of your lawn. Adding compost is like giving the soil a vitamin!



Contact your local Conservation District to learn more about composting.

What does organic mean?

If something is organic it means that it was once part of something that was alive. For example, paper is organic because it is made from trees that were once alive. A potato peel is organic because it came from a potato that grew on a living plant.



s oil hero!

Protect your soil. Here are a few ideas to get you started.

List 5 reasons **YOU** need healthy soil:

1. _____

2. _____

3. _____

4. _____

5. _____

mulch

Mulch helps keep weeds away, helps keep plant roots from getting too hot or too cold, and helps keep soil moist.

Mulch also adds nutrients to soil as it **decomposes**. Mulch is good for soil! Straw, dry leaves, wood shavings and pine needles can all be used as mulch. Spread mulch in a thick layer around your plants and watch them grow!



What does decompose mean?



Decompose means to break something down into smaller or simpler parts. For example, over time wood chips break down to become part of the organic matter in soil.

Write one action **YOU** will take to keep soil healthy.

recycle

Recycling is easy and can help keep soil healthy in many ways.

Recycling cuts down on our need for landfills that are built in soil. Recycling cuts down on mining in soil and saves **natural resources** like iron ore and coal. Recycling saves trees that grow in soil. For example, 17 trees are saved when 1 ton of paper is recycled!



What are NATURAL RESOURCES?

Natural resources are created from nature. They are things that we use that cannot be made by people. For example, we use the trees in a forest for wood to build our houses. Some other natural resources are water, soil, plants and minerals.



digging for words

Dig out the words that are hidden in this puzzle and then circle them. Words can run frontwards, backwards, up, down, or diagonally.

S R P Q P T I U R F C I G R F
 O E O E L L A J D B H M O L L
 F T P N T X A Q H F S O Q P O
 E A A A W A M N O B T C Z B W
 S W O X T M L O T S L R O I E
 R R Y D K J D O N S I Y Y P R
 S F K A B A S A L V O Q S H R
 E E C N J H H I F C S S H L T
 E L E Z Z E L Q J Q F D I N T
 D J P N A Y N C R D M F R Z R
 V I F L A H S A V G E S I O E
 D B T M A T K V T F F I A B E
 H H G M A E M N A K K Y A O S
 Y S Z M W B N I C J A E W B A
 F A E L Z B W P Q N P H B Z I

SOIL
HEALTHY
AIR
WATER
TREES

FOOD
LIFE
PLANTS
FLOWER
PETAL

FRUIT
LEAF
SEED
ROOTS



Ask Maxine

Question:

What is soil erosion?

Answer:

Take a look outside after it rains. Look at the water in rivers, in ponds, or running along the roads. The water may be clear or muddy. If it is muddy, soil is being washed away and mixing with the water. This is soil erosion. Soil is being carried away by rainwater. If you see soil erosion happening in your yard, try planting some plants or trees. Roots from plants and trees help hold soil in place, preventing erosion.

Maxine worked for NACD for 47 years. That's why we always ask Maxine.

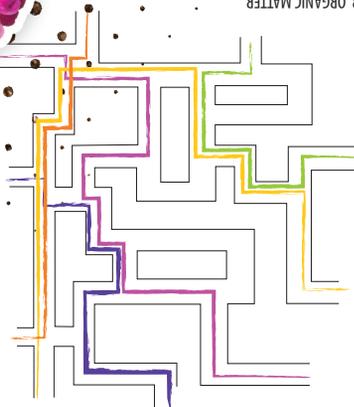


Fig. 4: Healthy Soil Maze

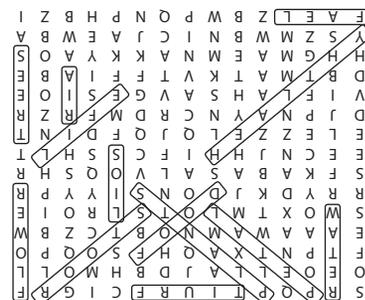


Fig. 8: Digging For Words

ANSWER KEY
 Fig 3: A Healthy Home for Erin MINERALS, WATER, LIVING THINGS, AIR, ORGANIC MATTER.
 Fig 5: Plant Parts I have petals and I make seeds. What am I? FLOWER; I carry water from the roots to the leaves. What am I? STEM; I use energy from the sun to make food for the plant. What am I? LEAF; I hold and protect the seeds. What am I? FRUIT; I collect water, minerals, and nutrients from soil. What am I? ROOT; A new plant can grow from me. What am I? SEED. Green Family Garden: stem-aspargus, flower-cauliflower, leaf-spinach, fruit-tomato, root-carrot, seeds-corn.



National Association of Conservation Districts

National Association of Conservation Districts (NACD)
www.nacdnet.org



www.soils.org

Special thanks to the NACD S&E Committee and reviewers

Contact: stewardship@nacdn.net

Content Writer: Teresa D. Southerland

Booklet designed by Willow Marketing, Indianapolis, IN

Visit <http://www.nacdnet.org/general-resources/stewardship-and-education-materials/2019-life-in-the-soil-dig-deeper/> and www.soils4teachers.org for additional education materials

Booklet designed for use with Grades 2-3