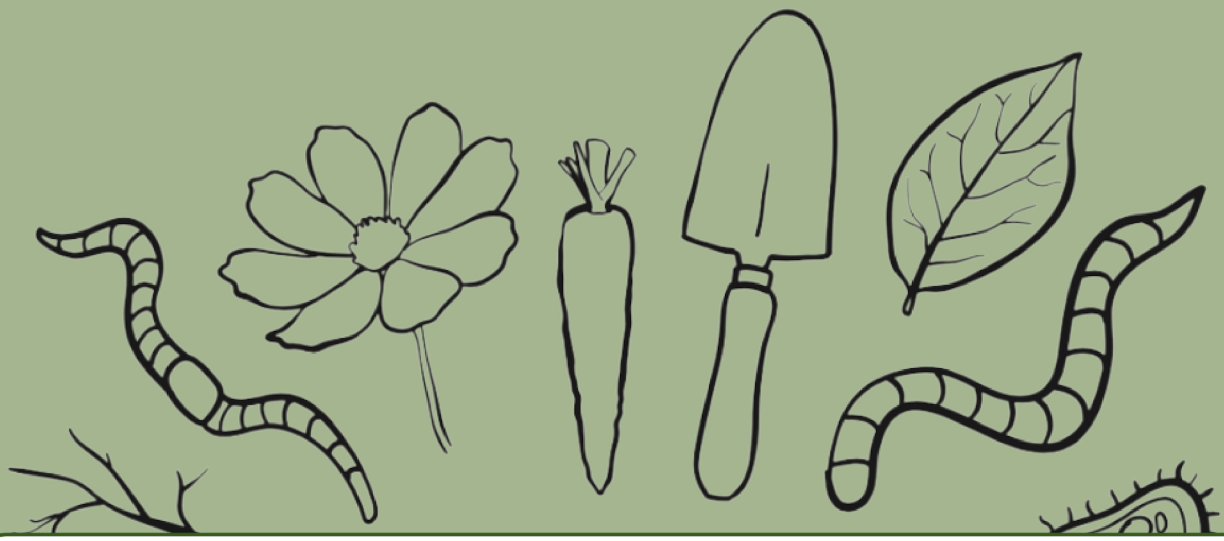
soilsafe kids



Ask an Expert Workbook - Answers

Workbook Overview

This programme introduces experts in soil and what their values, concerns, and areas of interest are. We hope you will develop an appreciation for what soil is and be able to identify some of its scientific properties. We also encourage you to think about soil and its everyday uses!

The 'Ask an Expert' videos are available in the 'Resources' section of the Soilsafe Kids website: https://soilsafe.auckland.ac.nz/soilsafe-kids/.
Videos are also available with New Zealand Sign Language.

Table of Contents

TIP Sheet 1

Term, Interpretation, Picture

As you watch Dr. Emma Sharp's Ask an Expert' videos, write down what you think each term means. Then draw a picture to help you remember more easily! The first one has been done for you.

Term	Interpretation
Environment	surroundings - like soil, climate, living things
Geography	science relating to space, place, and the location and interaction of living and non-living things
Fertile	capable of growing crops
Economic	a use that makes money for individuals, communities, companies or a country
Social	to do with human relationships
Food security	availability of food and access to affordable and good for us food
Biology	science relating to living things and processes of life

TIP Sheet 2

Term, Interpretation, Picture

As you watch Dr. Martin Brook's 'Ask an Expert', write down what you think each term means. Then draw a picture to help you remember more easily!

Term	Interpretation
Engineering	a subject that looks at how to build things and how to make nature's power useful for humans
Geology	science relating to the history of the Earth
Geotechnical	a type of engineering that focuses on soil and rock
Hazard	a natural process that may be dangerous
Floodplain	an area of land likely to be covered in water during or after a large storm
Earthquake	a natural process that causes the ground to shake
Consistency	how regular a texture is
Plasticity	ability to be molded or changed in shape

TIP Sheet 3

Term, Interpretation, Picture

As you watch Dr. Melanie Kah's 'Ask an Expert' videos, write down what you think each term means. Then draw a picture to help you remember more easily!

Term	Interpretation
Chemistry	science relating to the structure and properties of substances and the changes they go through
Groundwater	water found underground
Surface water	any water above ground - streams, rivers, lakes, creeks
Contaminate	to add something harmful which makes something impure or not useable
Biodiversity	the number of different types of plants and animals
Organism	a person, plant, or animal
Metal	some of the tiny building blocks that make up the world around us
Pesticide	something that is used to destroy plants or animals that are bad for crops

Worksheet 1: Why should we care?

This 1st video introduces Dr. Emma Sharp, who is an Environmental Geographer at the University of Auckland.

1. What values does Emma mention?

- economic
- scientific
- social
- environmental

2. What are Emma's concerns for soil?

Use of fertile land for things not producing food and animals in the soil

3. Draw a garden and five things you may find.

Students' own drawing and answers.

Worksheet 2: What grows in soil?

This 2nd video further explores Dr. Emma Sharp's thoughts on soil and why it is important.

1. What food is grown in soil?

- Students' own answers - vegetables, etc.
- _____
- _____
- _____

2. Describe or name one animal that lives in soil in Aoteaora:

Students' own answers - worms, weta, grasshoppers, cicadas, etc; e.g. worms break down organic matter into things plants can use.

3. What are some things most plants need to grow?

Light, water, air, nutrients, space to grow, the right temperature, time.

4. Are there any fruits or vegetables that are special to your culture? If so, what are they?

Students' own answers.

Worksheet 3: Properties of Soil

This 3rd video introduces Dr. Martin Brook, who is an Engineering Geologist at the University of Auckland.

1. In New Zealand, we mostly live on floodplains. What is a floodplain?

Your TIP Sheet on page 4 of this workbook may be helpful!

an area of land likely to be covered in water during or after a large storm

2. What are three properties of soil that Martin looks at?

1. clay minerals
2. grain size
3. consistency

3. A key function of soil Martin describes is plasticity. What is plasticity?

Your TIP Sheet on page 4 of this workbook may be helpful!

Plasticity is the ability of soil to be deformed/change shape under stress without cracking, and to retain the shape when the pressure is removed.

Worksheet 4: Contaminants in Soil

This 4th video introduces Dr. Melanie Kah, who is an Environmental Chemist at the University of Auckland.

1. What does Melanie measure in soil, and what are some examples?

Contaminants.

Examples: metals, pesticides, plastic.

2. True or False: a spoonful of soil has more organisms than the number of people in the world.

- [x] True
- [ ] False

3. Why is biodiversity important?

Your TIP Sheet on page 5 of this workbook may be helpful!

It is essential for the processes that support all life on Earth. It is needed for healthy ecosystems.

3. What are some things you have found in soil that were not plants and animals?

Students' own answers.

Worksheet 5: Protecting our Water

This 5th video further explores Dr. Melanie Kah's thoughts on soil and her concerns for it.

1. Why do we use pesticides in soil?

Your TIP Sheet on page 5 of this workbook may be helpful!

To control weeds and pests that harm plants and crops.

2. How does soil protect water resources?

Soil acts as a filter for rainwater after it is absorbed into the ground.

3. What can you do to protect our soil and water?

students' own answers. Examples: grow food, composting, planting trees, worm farms, reduce use of pesticides, speak out for soil.