

WS1

Learning about the site

1. Have a good look around you.
Describe what you can see.

2. What do you think this land is used for?

3. Why do you think it is used in this way?

4a. Who do you think looks after this land?

4b. How do they look after it? What kind of things do they do?

5. Turn over your sheet of paper and draw a picture of what you can see.

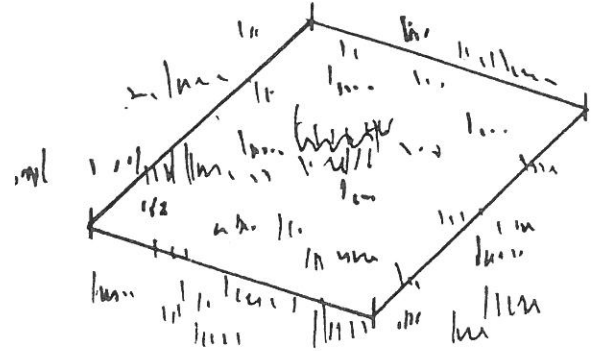
Try to show how the land is being used, the different plants that are growing, and anything else that you think is important.

WS2

Finding out what is growing in the soil
and digging a soil pit?

Your teacher will help you choose a place to dig a soil pit.
Before you start digging find out what is growing in the soil.

1. Use pegs and string to mark out a patch of ground that is 1 metre long by 1 metre wide.

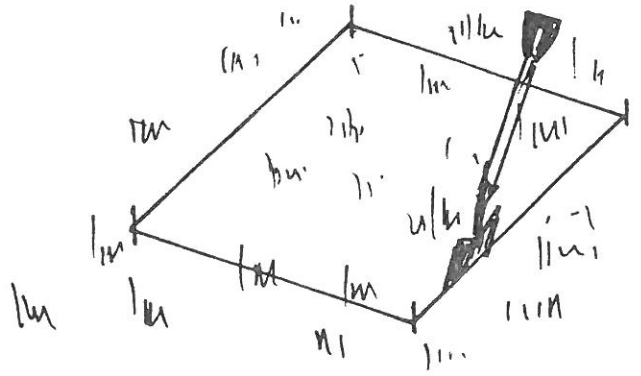


2. What types of plants are growing in your square? How many different types can you find?

3. Make a list of the plant names, and the number of each type of plant that you can find in the square.

4. Digging the soil pit.

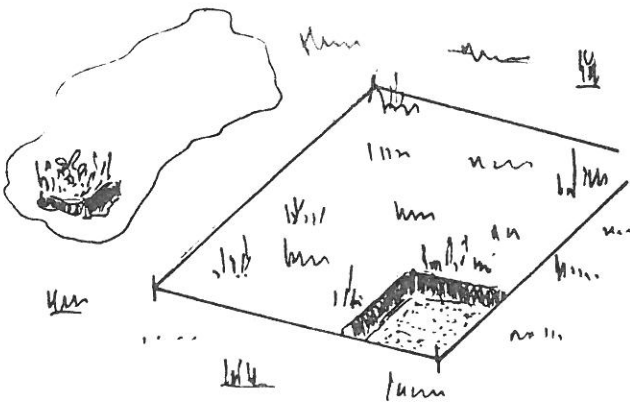
Lay two large sheets of plastic next to your square. Use a spade to make a cut in the ground all the way round the edge of the square.



Starting in one corner of the square, push the spade underneath the plants and their roots.

Lift the plants and roots up from the soil and carefully put them, roots down, onto one sheet of plastic.

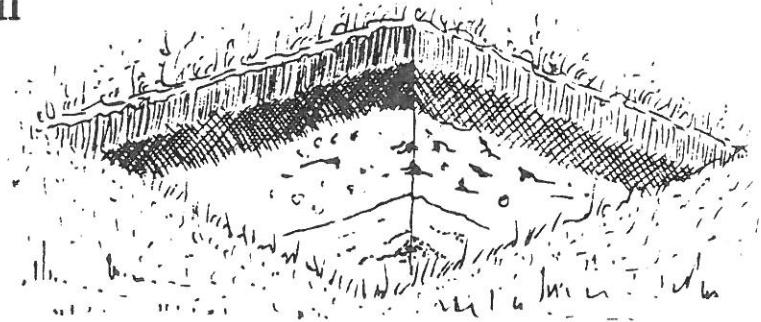
Remove the rest of the plants from the square in the same way, and put the plants on the plastic sheet.



When you have dug up the plants you can start to dig a deeper hole inside your square. Put the soil you dig out onto the second plastic sheet.

Keep digging until your soil pit is 30 cms deep and 1 metre across.

1. Look at one of the walls of the soil pit. This is called a **soil profile**.



2. Look at the soil from the top to the bottom of the soil profile. Perhaps there are some different layers of colour, some stones, or plant roots. What can you find?

3. Make a drawing of the soil profile.

4. Use a piece of string to mark a straight line from the top to the bottom of the profile. Push a marker into the soil next to the string, at the points where the colour changes. Start at the top and work towards the bottom.

5. Use a ruler to measure the distance from the top of the soil profile down to each marker.

Use the chart on the other side of this sheet to record the distances to each marker. Then see what you can find out about the soil in each layer.

Marker number	Distance to marker from top	Colour of layer	Feel of layer	Minibeasts in layer	

Looking for minibeasts

1. Spread out a sheet of white plastic and empty your soil onto it. Use your hands to gently spread out the soil. Look out for the small creatures that are in the soil.
2. When you find a minibeast try to decide what it is. Then put it in a container while you look for other minibeasts.

How many minibeasts have you found?

3. What ways can you think of to divide the minibeasts into groups?

Use one of your ideas to sort your minibeasts into groups. Use a different container to hold each group. What groups have you made?

4. Make a bar chart to show the number of minibeasts in each group. Remember to write the name of each group on the chart.

5. Choose one of the minibeasts and make a picture of it.

See what you can find out about your minibeast.

WS5

Soil colour

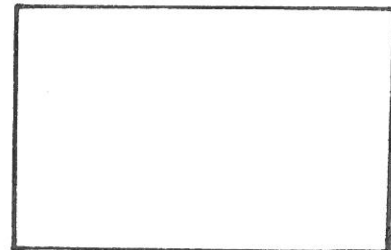
1. Spread out a sheet of plastic and empty the soil onto it.
2. What colours can you see in the soil?
3. What is the main colour of the soil?
4. Can you find a colour that matches your soil in the paint chart?

What is it called?

5. Mix about a teaspoonful of soil with a few drops of water to make a paste.

What happens to the colour of the soil when you add water?

Use your finger to smear the soil paste into this box.



The paint colours have fancy names.
Can you think of a special name for your soil colour?

Write it under the box.

The feel of the soil can help us find out if the soil is easy to dig, whether it will grow plants easily and how well the soil holds water. The feel of the soil or the soil texture depends on the amount of sand, silt and clay in the soil.

1. Put a teaspoonful of sand, and a small lump of clay on a saucer. Look at the sand and clay through a magnifying glass.

What are the differences between the sand and the clay?

Can you see the grains of sand?

Clay is also made of grains or particles, but they are so small that we can only see them through a powerful microscope. Silt particles are not as big as the particles in sand, but they are bigger than clay particles.

2. Take a pinch of sand and rub it between your finger and thumb. What does it feel like?

Now, take a small piece of clay and rub it between your finger and thumb. What does that feel like?

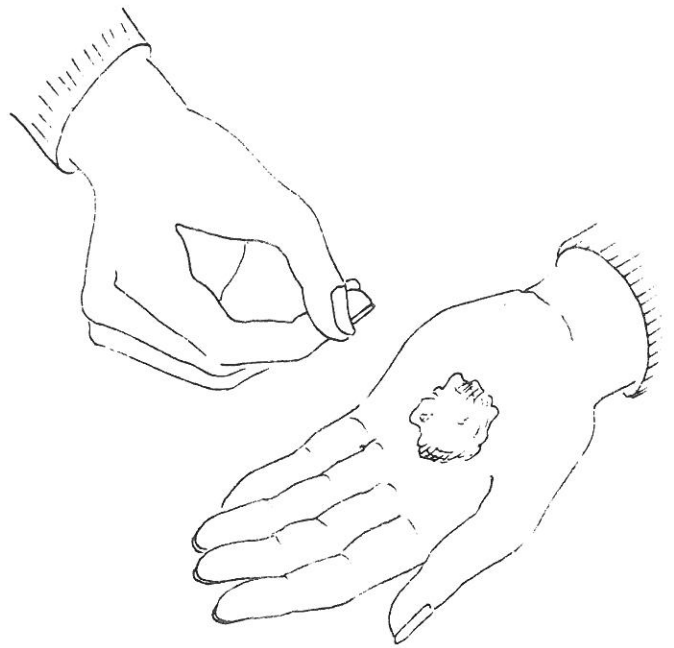
Mix a small amount of sand and clay and rub the mixture between your finger and thumb. What does the mixture feel like?

3. Take a small handful of soil, about the size of a large marble. Add a few drops of water until the soil sticks together.

Take a pinch of the soil and rub it between your fingers and thumb.

Take a bit more soil and rub it over the palm of one hand with your fingers.

What does it feel like?



If the soil feels gritty it is probably a sandy soil. Sandy soils are easy to dig, but it is often difficult to grow good plants in them. Sandy soils do not hold plant food at all well and water drains through the soil quickly. In dry weather the plants find it difficult to get enough water.

If the soil feels smooth and sticky it is a clay soil. Clay soils are sticky and muddy when they are wet, and very hard to dig when they are dry. The best time to dig clay soils is when they are moist, but not too wet. Clay soils hold water and plant food well so they can grow good plants.

If the soil is not very sticky, and not very gritty, it is a loam. Loam soils are the best soils for growing plants, because they are easy to dig and they hold enough water and food for the plants.

What type of soil is yours?

Do you think your soil will grow plants well?

WS7

Water in the soil

1. Look at three different soils through a magnifying glass.

Can you see any air spaces?

Which soil has most air spaces?

What do you think will happen to water if you add it to the soil?

2. Choose one soil. Take a handful of the soil and make it into a ball. Poke a hole in the ball of soil with your finger, then fill the hole with water. What happens to the water?

Make a soil ball with the second soil, and do the water test. What happens?

Now take the third soil and see what happens to the water.

3. Find a clear plastic glass and make a hole in the bottom. Use bluetack to make a plug for the hole. Fill the glass with pebbles. The pebbles are a bit like giant soil particles. What is in the gaps between the pebbles?

Add water to the glass until half of the pebbles are covered with water. What happens to the water when you pour it into the glass?

Pick up the glass and hold it over a bowl or sink. Take off the bluetack plug. What happens to the water?

4. Find six plastic cups. Measure the height of the cups and mark a line half way up each cup.

Make a hole in the bottom of three of the cups using a large nail. Then cover each hole with a circle of paper towel. Fill the cups with soil to the halfway mark. Use a different soil in each cup. Balance each cup in the top of a jam jar.

Fill the other three cups with water to the halfway mark. Carefully pour half a cup of water into each cup of soil.

Time how long it takes for the water to start dripping out of the bottom of the cups.

How long does it take for all the water to drip through the soil?

When the cups have stopped dripping lift them off the jam jars, and pour the water in the jam jars back into the water measuring cups.

Is there more or less water than you poured into the soil?

Is there the same amount of water in each cup?

Why do you think this is?

What colour is the water that has been through the soils?

Common Soil Mini-Beasts.

Note... actual size

