

Mathletics

Series



Student



Measurement

My name _____



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Series A – Measurement

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Series Author:

Rachel Flenley

Length – language of size

- 1  What are some words we use to describe **size**? Draw or write some more.

big thin

-
- 2  Draw pictures to match.

Big dog **small** dog.

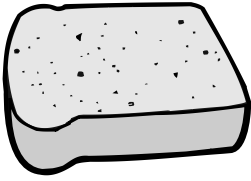
Wide ribbon ... **narrow** ribbon.

Short tree **tall** tree.

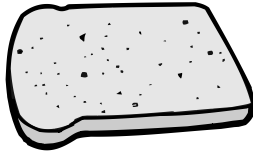
Tiny frog **enormous** frog!

Length – language of size

thick



thin





wide

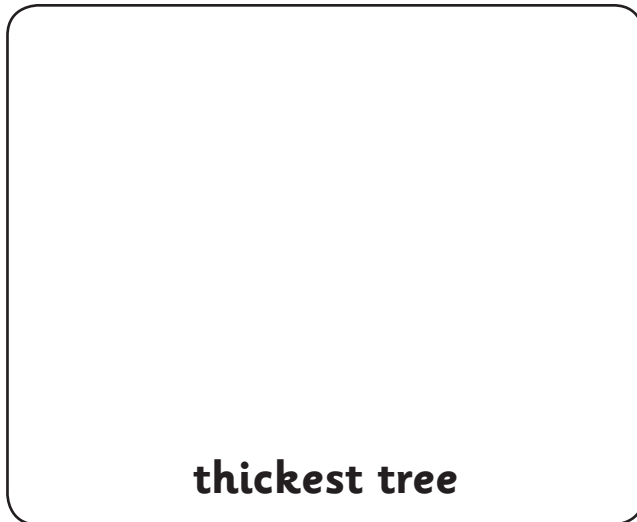



narrow

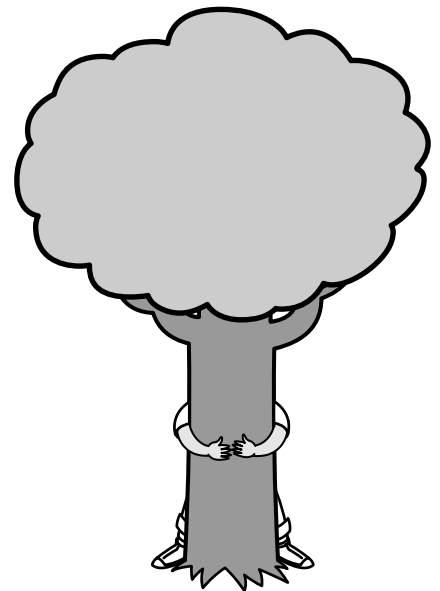


Sometimes we use the words **wide** and **narrow** to talk about how **thick** or **thin** something is.

- 1   Use your hands or arms to measure and find the **thickest** and **thinnest** tree at your school. Draw them.



- 2  How did you work this out?



Length – language of size

You will need:



some partners



scissors



a helper



What to do:

Cut out the size words below.

Fold them up and put them in a container.

Take turns pulling out a word and acting it out with your body.

You can ask the helper to read the words to you.

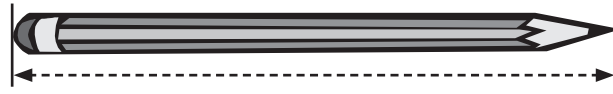
Can your partners guess which word you are acting out?

Play until all the words are gone.

big	little	tall
short	long	wide
tiny	enormous	fat
skinny	thick	thin

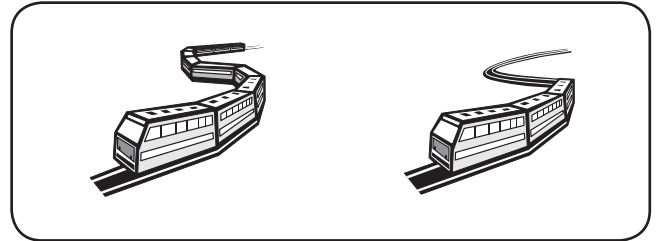
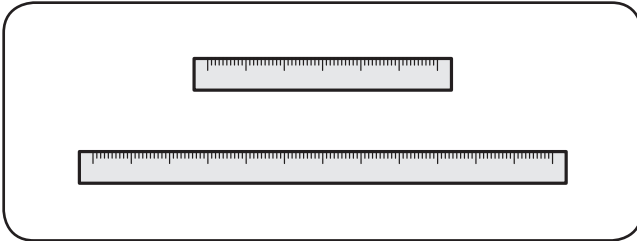
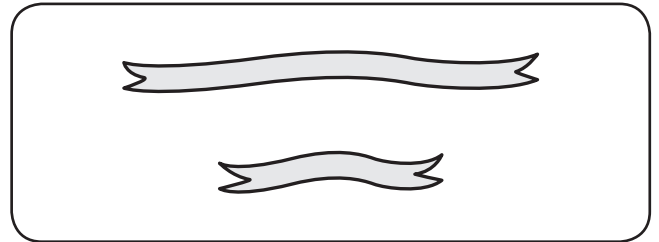
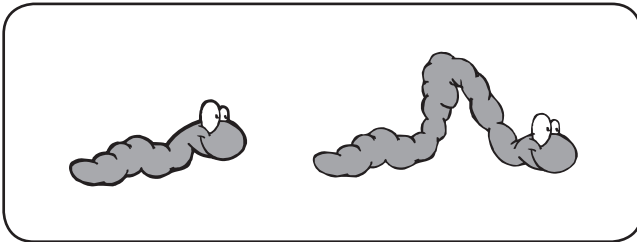
Length – length

What is length? It is how **long** or **short** something is.





We measure from end to end.



1  Circle the **long** one in each box.





2  Draw a **long** line of people and a **short** line of people.

Length – length

- 1   How many **long** steps does it take to get from one end of your classroom to the other? How many **short** steps?
-

- 2   Find another distance to measure using **long** steps and **short** steps. Record your findings.

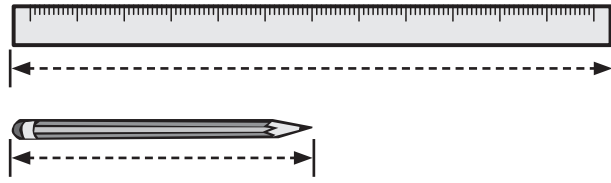
I measured ...

- 3   Now measure the length of your classroom using pencils or books. Record your findings.

Length – comparing lengths

The ruler is **longer** than the pencil.

The pencil is **shorter** than the ruler.



You will need:



a popstick



classroom objects

What to do:

Find some things that are **longer** than your popstick.

Find some things that are **shorter** than your popstick.

Find some things that are about **the same** length as your popstick.

Record them.

longer than



about **the same** as

shorter than

Length – comparing lengths

You will need:



scissors

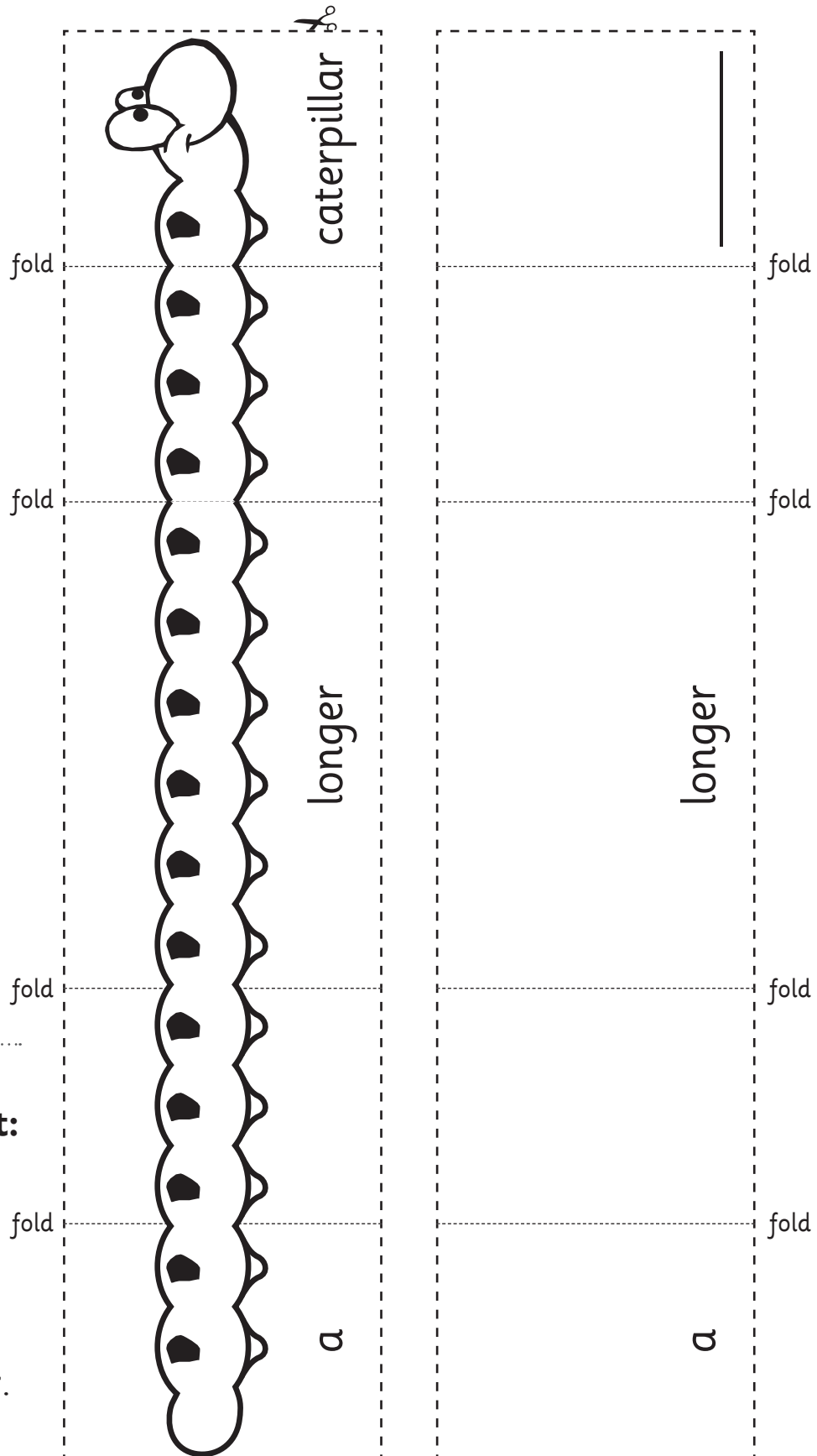


pencils



What to do:

Cut out the caterpillar expander and fold it to make a caterpillar. Open it to see a **longer** caterpillar.



What to do next:

Create your own creature in the empty frame. Fold it to make it shorter and longer.

Length – comparing lengths

You will need:



scissors



pencils



wool



small paper plate



copy

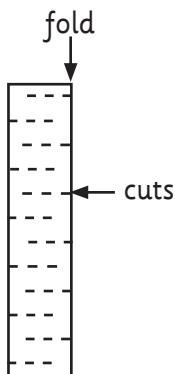
What to do:

You are going to make a stretchy creature that you can make longer and shorter.



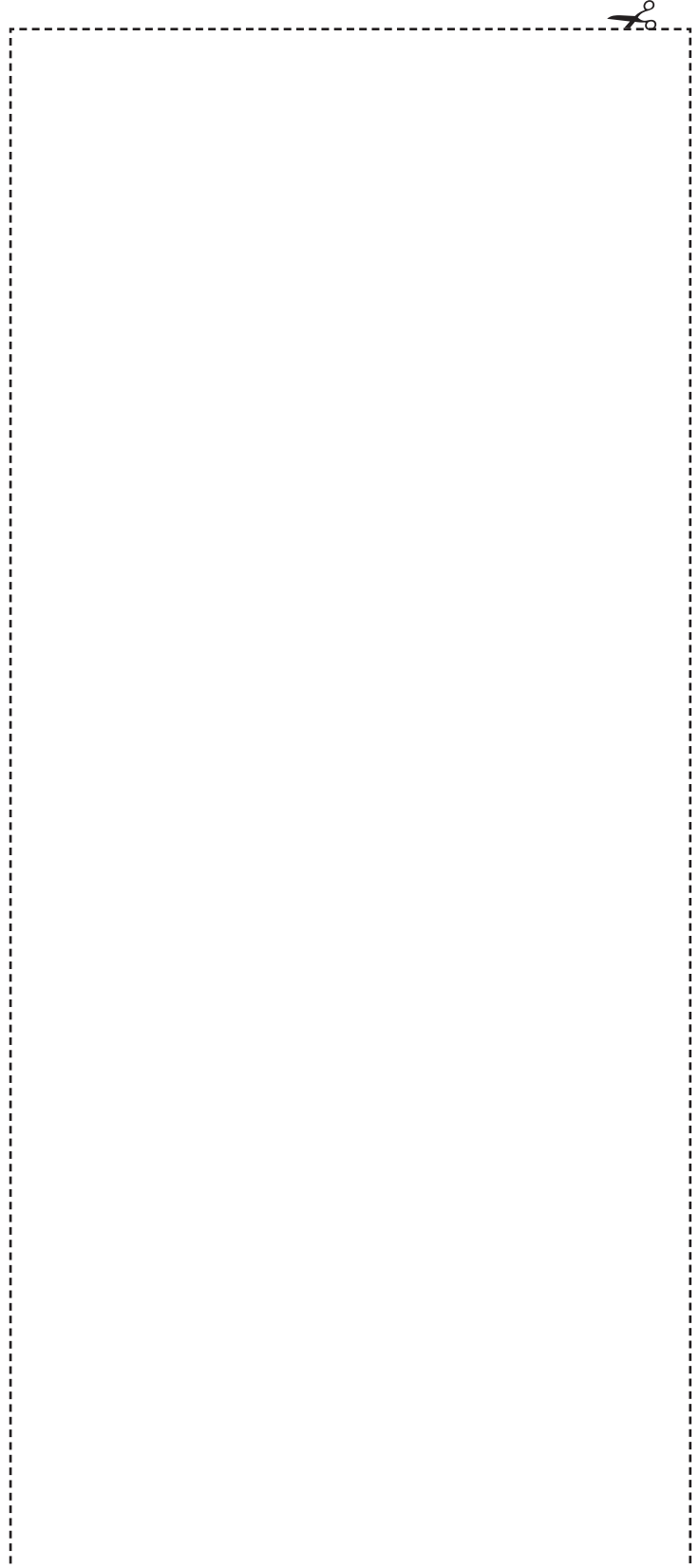
Cut out the box.
Fold it in half,
lengthwise.

Make cuts like this,
but make sure you
stop before you get
to the other side.



Carefully unfold the box. This is your creature's body. Use a paper plate for the head and wool for the tail. Decorate your creature.

Stretch your creature in and out, naming it as shorter and longer as you go. Watch out! It will rip if you pull too hard.



Length – comparing and ordering lengths

You will need:  a partner  streamers  scissors

What to do:

Cut a piece of streamer. Show it to your partner. Ask them to cut:

- a piece of streamer that is **longer** than it
- a piece of streamer that is **shorter** than it
- a piece of streamer that is **about the same** as it.

Together, put the streamers in order from shortest to longest. You may need some sticky tape to hold them down on the carpet or table.

Swap jobs.

.....

What to do next:

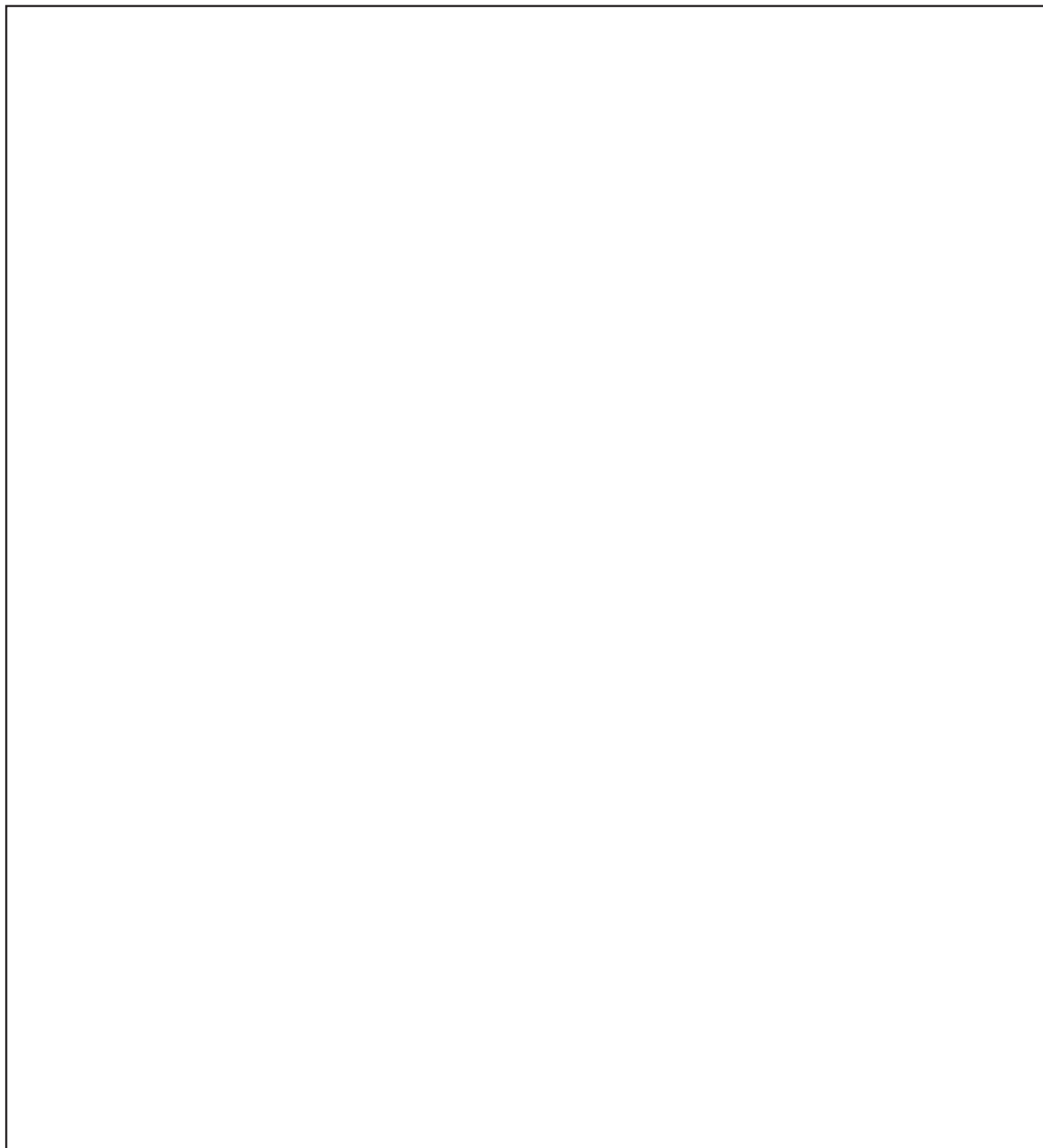
Cut a piece of streamer that is **longer** than your hand but **shorter** than your foot. Stick it here and write, draw or tell someone how you worked it out.

Length – comparing and ordering lengths

You will need:  leaves  glue or sticky tape

What to do:

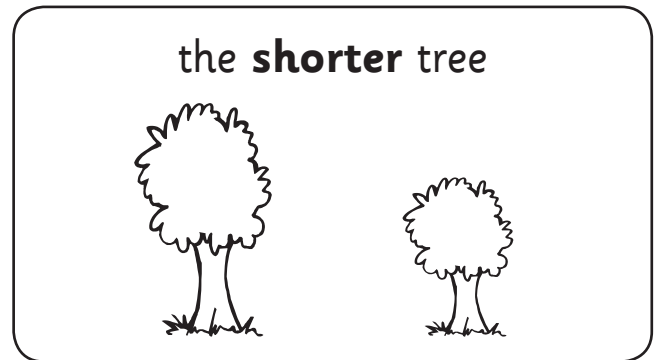
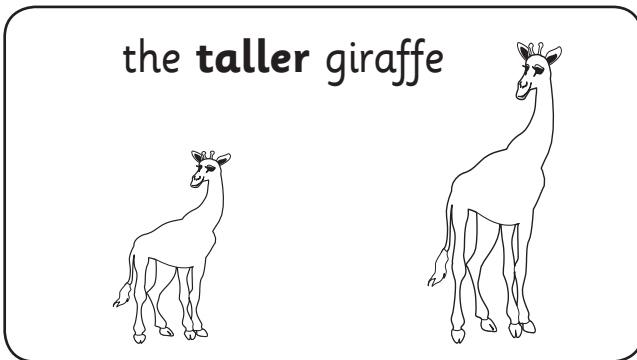
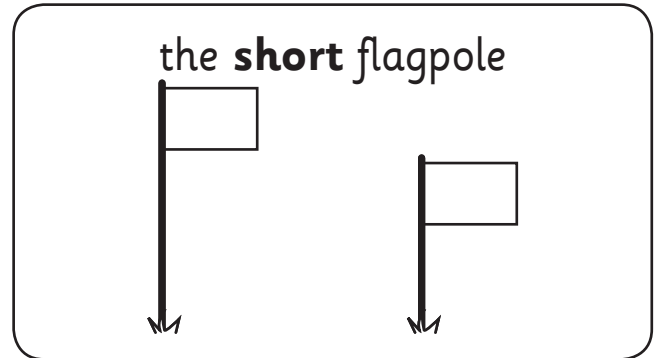
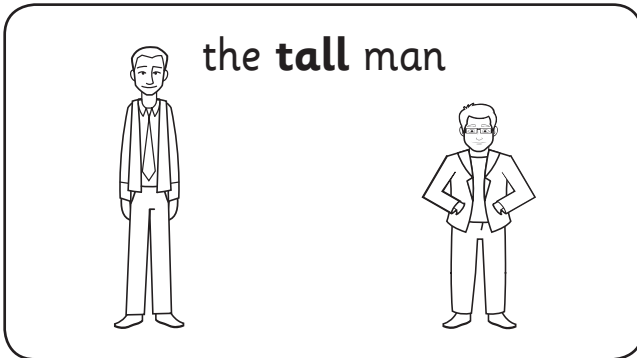
Find 5 leaves of different lengths. Stick them below in order from shortest to longest.



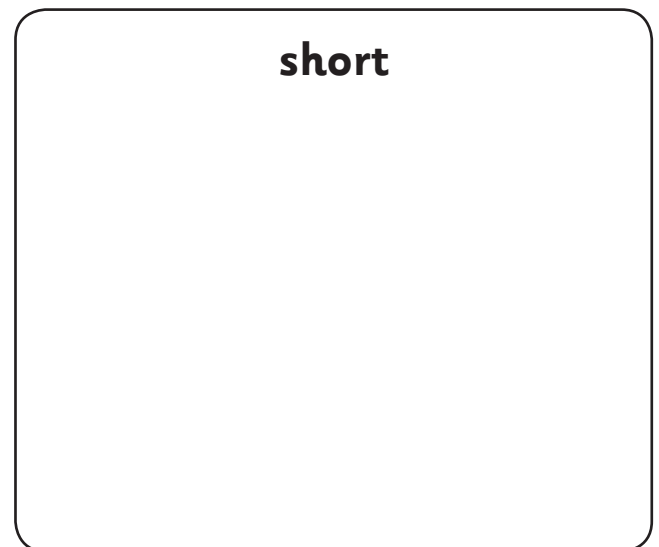
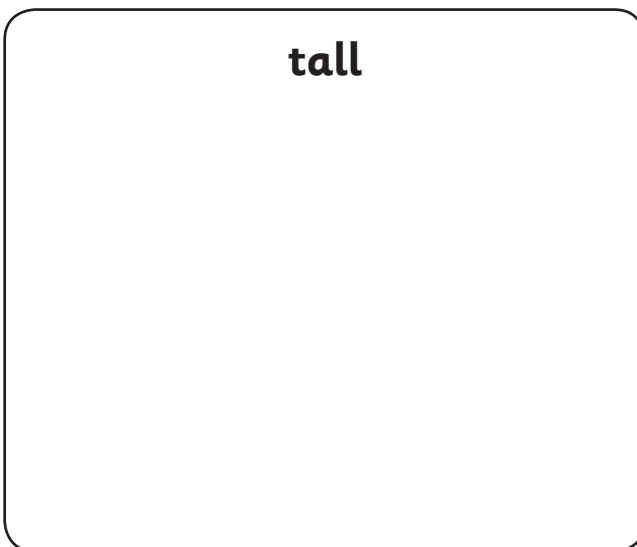
Length – height

When something is standing up, we usually call its length '**height**'.
It's still length, it's just a different word for it.
We use words like **tall** and **short** to describe height.

1 Colour.



2 Draw and name someone you know who is



Length – height

1   Find someone in the room who is **taller** than you.

Find someone in the room who is **shorter** than you.

Draw and name them. Don't forget to draw you!


Cut out the frame and fold the sides back to show you on the front.

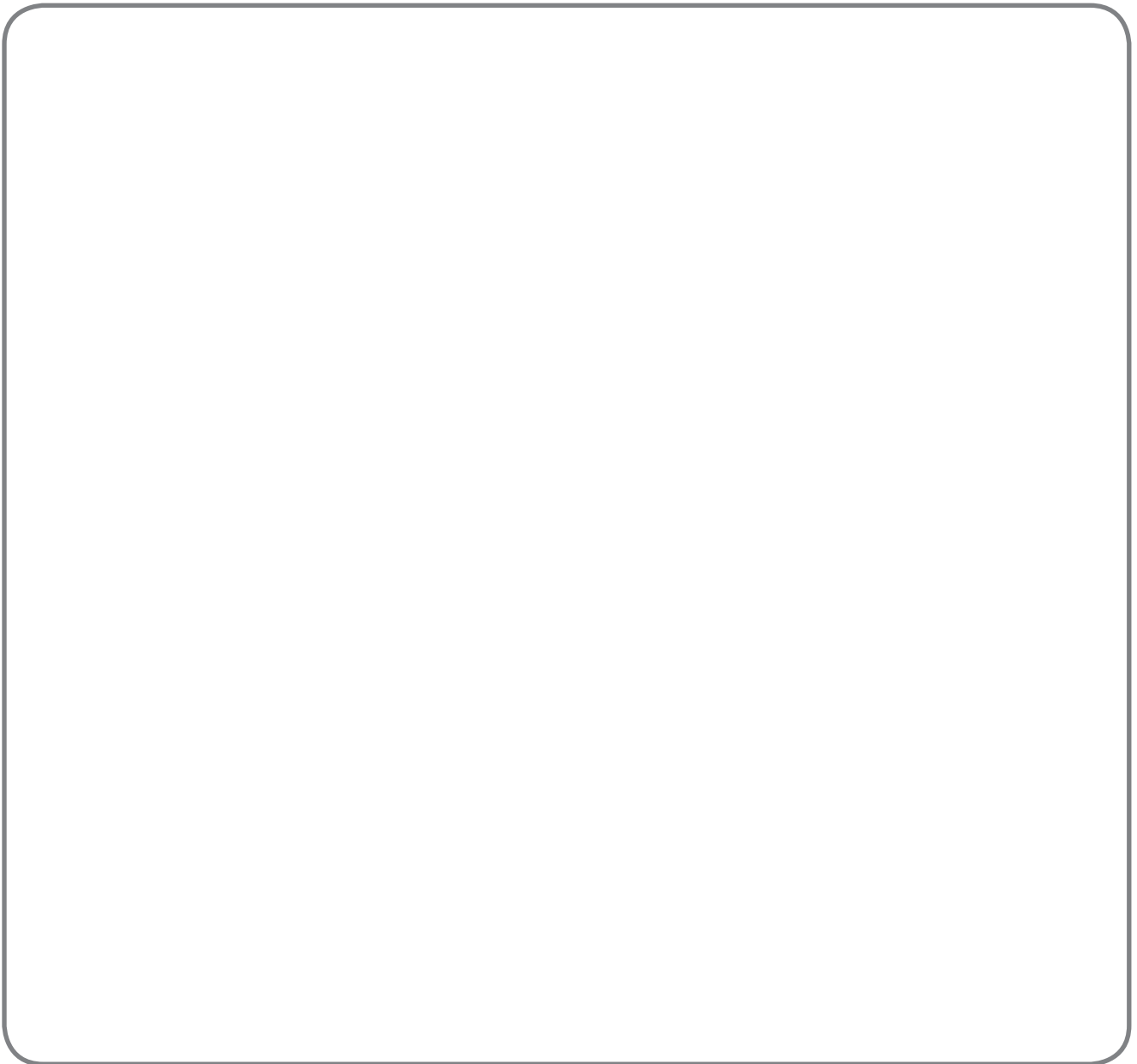
Ask people to guess who could be on the other pages.



<hr/> <p>is shorter than me.</p>	<p>Me</p>	<hr/> <p>is taller than me.</p>
--------------------------------------	-----------	-------------------------------------

Length – height

- 1  Draw a picture of your family in order of height.
Label each person.



 Who is **tallest** in your family?

Who is **shortest** in your family?


Where do you fit?

Length – distance

When we measure how far away something is, we call it **distance**.



We use words like **near** and **far** to describe distance.

- 1  Find a partner to play 'Simon says' with.

Take turns telling each other to stand **near** and **far away** from different things. Can you trick each other?

- 2  Colour the person who is



- 3  Draw a person **near** the swing.



Length – distance

When we compare distances we use words like **nearer**, **closer** and **further** away.

You will need:  a partner  classroom objects

What to do:

Find something to use as a prize such as a book or a toy. Hide it.

Your partner needs to find the prize.

You will give clues such as 'close', 'closer', 'further' to tell your partner how they are going.

Swap jobs.

You are getting closer!



What to do next:

Gather up a small collection of classroom objects such as pencil pots, books and blocks. Put one object in the middle of your table.

Take turns giving each other instructions such as:

'Put the ruler closer to the pencils.'

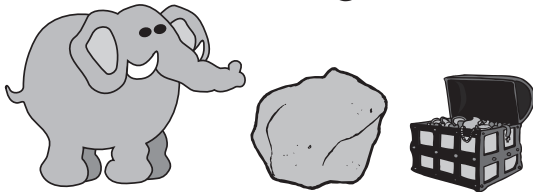
'Put the book far away from the pencils.'

'Put the block nearer to the book than it is to the ruler.'

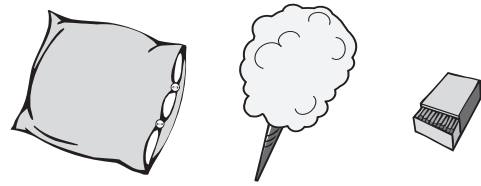
Give 5 instructions, then swap jobs.

Mass – language


Things with a lot of mass
are **heavy**.

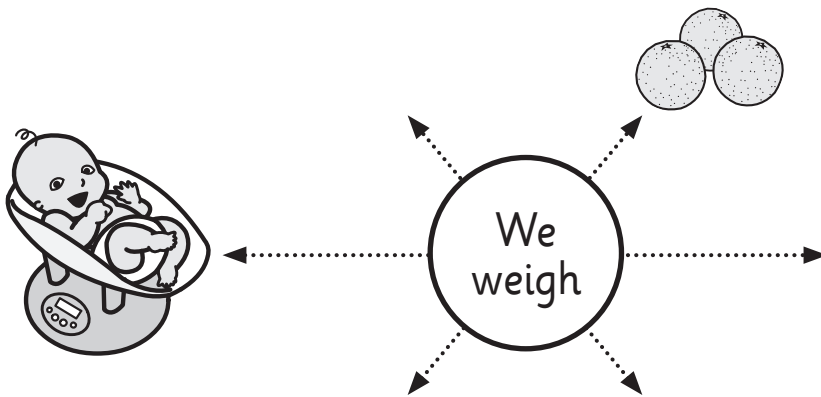


Things with a little bit of mass
are **light**.



We weigh things to find out how much mass they have.

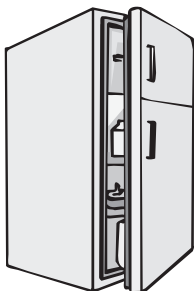
- 1  Draw or write some more things that we weigh.



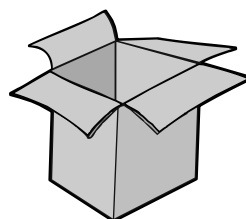
We can also push things to find out how much mass they have.
Heavy things are harder to push. Light things are easier to push.

- 2  Draw another thing that is



hard to push



easy to push



Mass – language



- 1   Go on a hunt round your classroom and find 5 **light** things and 5 **heavy** things. Record them.

light things

These have **less** mass.

heavy things

These have **more** mass.

-
- 2   Share your list with a partner. Do they agree with you about where you have put things? If you disagree, can you both be right? Why or why not?

Mass – size and mass

Are big things always heavy? Are small things always light?




- 1  Brainstorm with a partner to think of something that is

big **and** heavy

big **and** light

small **and** light

small **and** heavy

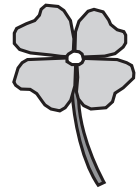
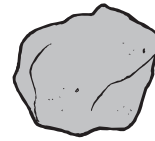
- 2  Find a lump of plasticine. Weigh it in your hands. Now flatten it and weigh it in your hands again. Has the mass changed? Does it feel heavier or lighter, or does it feel the same? Tell someone.

Mass – comparative language

This rock has **more mass** than the flower.

It is **heavier** than the flower.

The flower is **lighter** than the rock.



You will need:  a partner  classroom objects

What to do:

Work with a partner to find some things that are **heavier** than, **lighter** than, or have about the **same** mass as the pencil pot. Draw them.

heavier than

about **the same** as



lighter than

What to do next:

How did you work this out? Draw, write or tell someone your strategy.

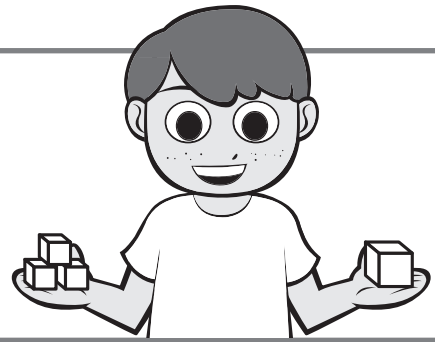
Mass – estimating



We can use our hands to compare masses.

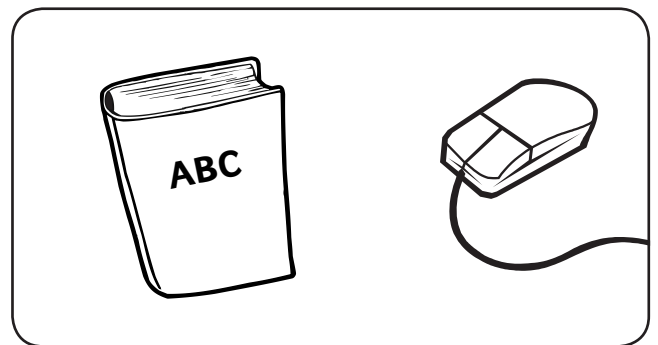
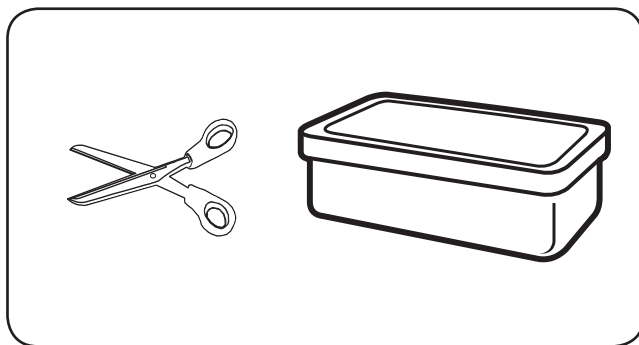
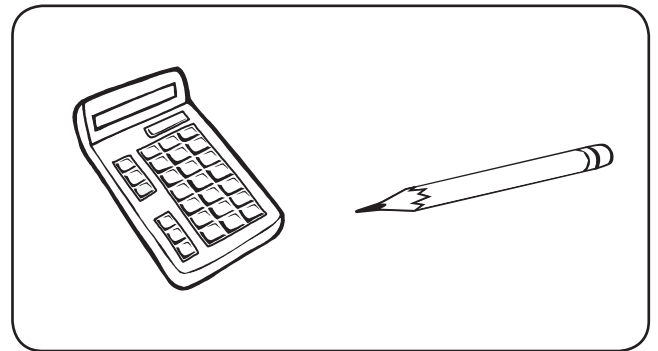
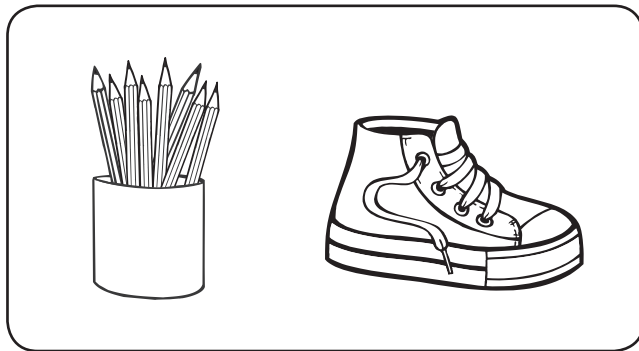
We call this **estimating**.



Things with more mass feel heavier.

They push down on our hands more.






- 1   Find these objects in your classroom. Hold each pair of objects to decide which is heavier. Colour the heavier one.



- 2   Choose 2 classroom objects for each box and draw them. Hold them and colour the heavier one.



Mass – estimating

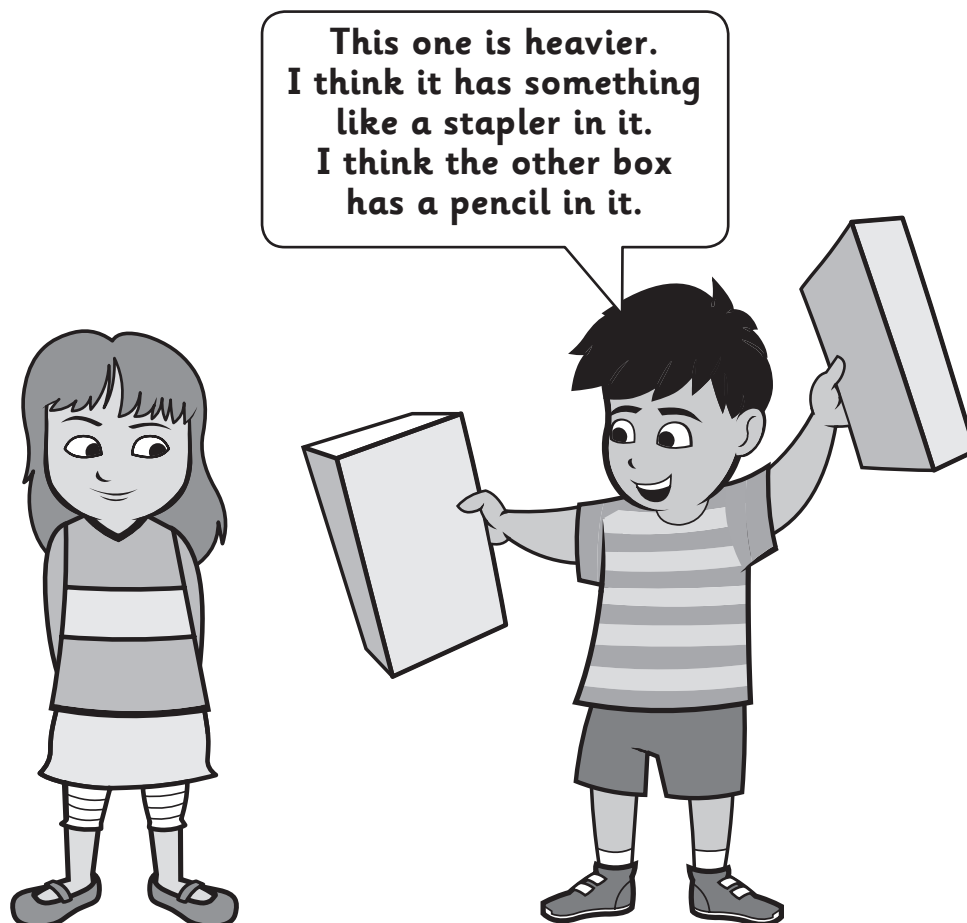
You will need:  a partner  classroom objects
 2 empty boxes about the same size and weight

What to do:

Put an object into each box. Don't let your partner see you do it!
Ask your partner to hold each box and say which is heavier and which is lighter. Ask them to predict what might be in each box.

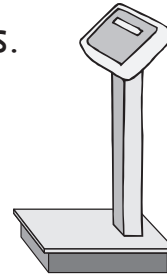
Show them.

Swap jobs and play 3 times each.

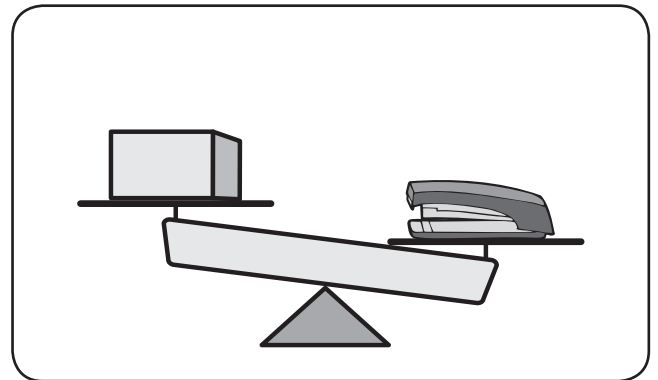
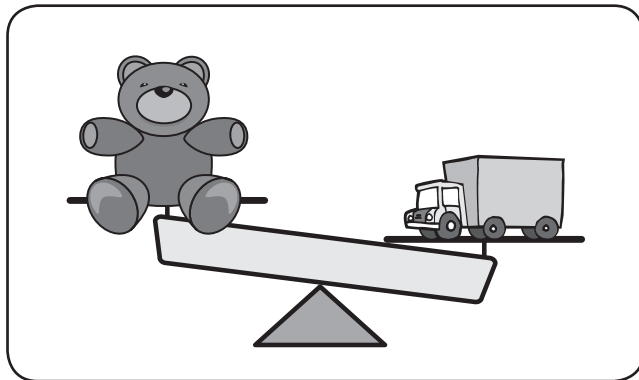
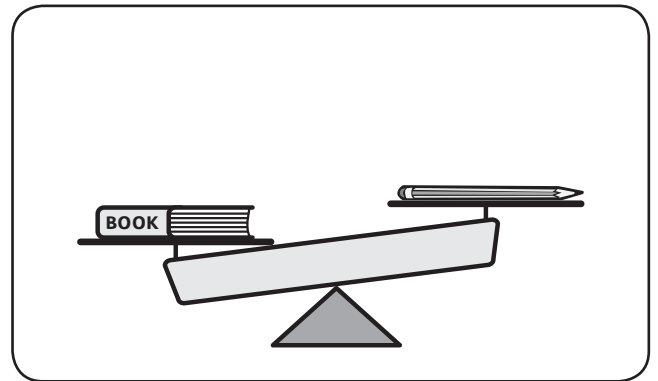
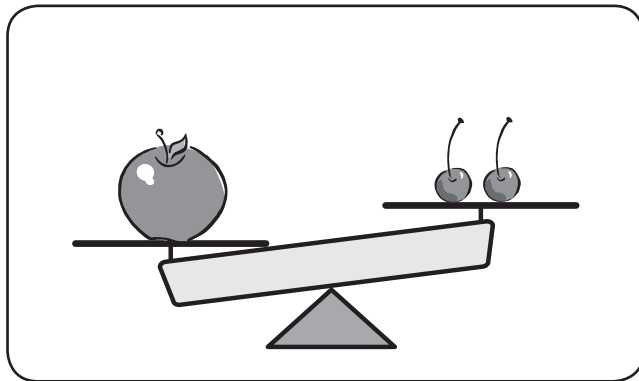


Mass – using balance scales

We can use scales to measure the mass of objects.

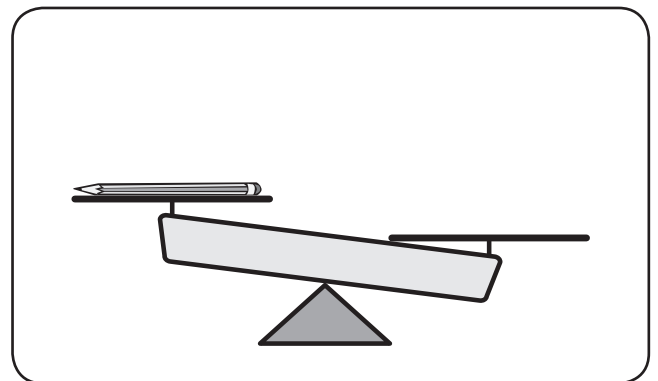
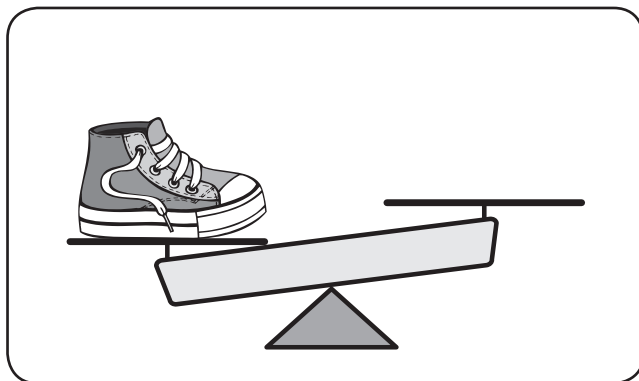


1  Circle the heavier object.



Tell someone how you decided which one was heavier.

2  Draw some things on the other side that would make it look like



Mass – using balance scales

You will need:



a partner



classroom objects



balance scale

What to do:

Choose 2 classroom objects at a time. Draw them in a box.

Predict which object you think will be heavier. Or do you think they will have about the same mass? Tell your partner your prediction.

Weigh the objects. Were you right? Circle the heavier object.

Do this 3 more times with different objects. Do your predictions get better with practice?



heavier than

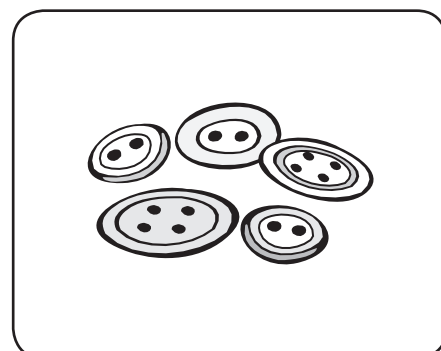
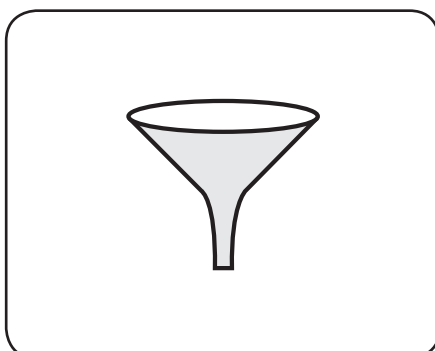
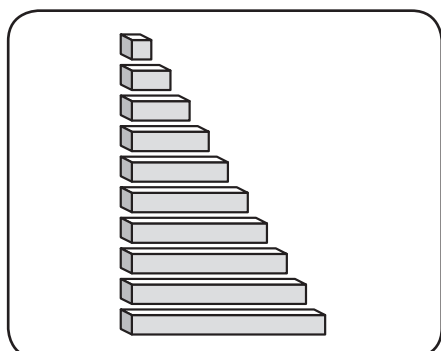
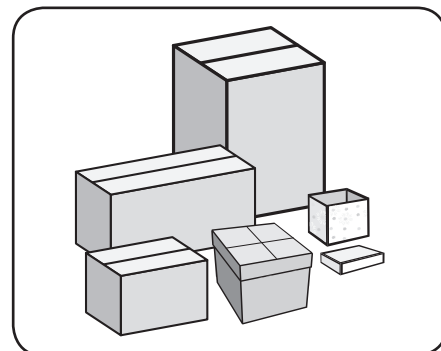
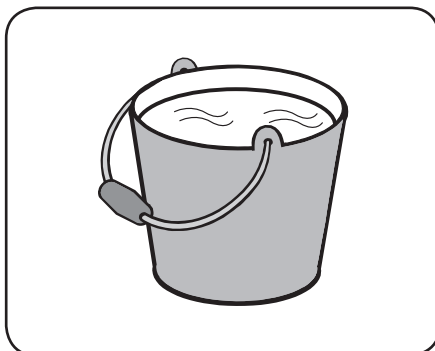
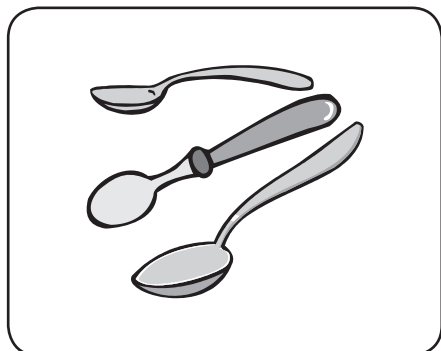
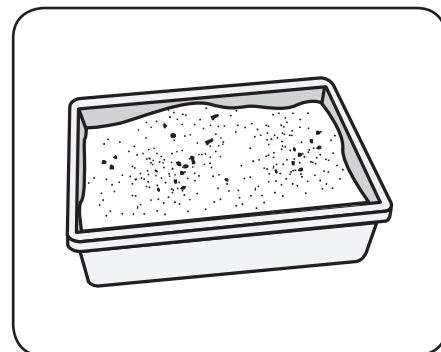
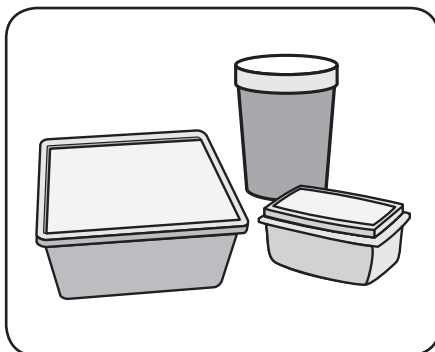
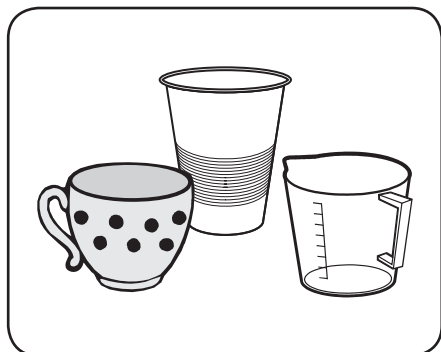
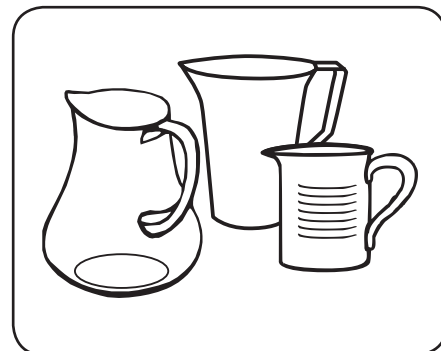
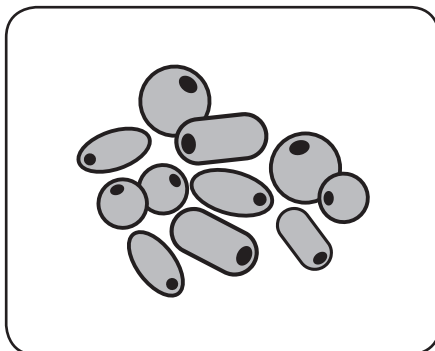
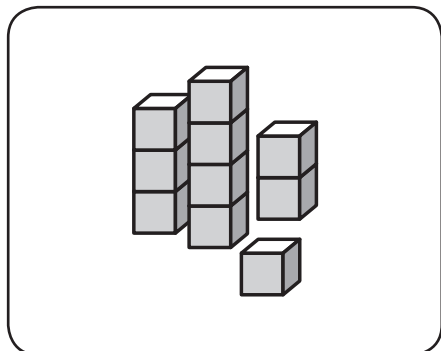
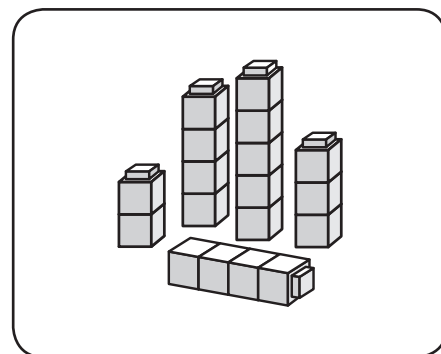
lighter than

about the same mass as

Volume and capacity – equipment

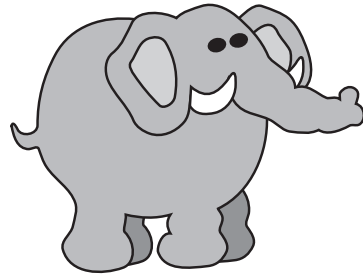
Useful equipment



A selection of the following equipment will be useful for the next section.



Volume and capacity – volume

Big things take up a lot of space.
Little things take up a little bit of space.





- 1   Make yourself take up

a lot of space

a little bit of space

Ask your partner to draw you in those positions.

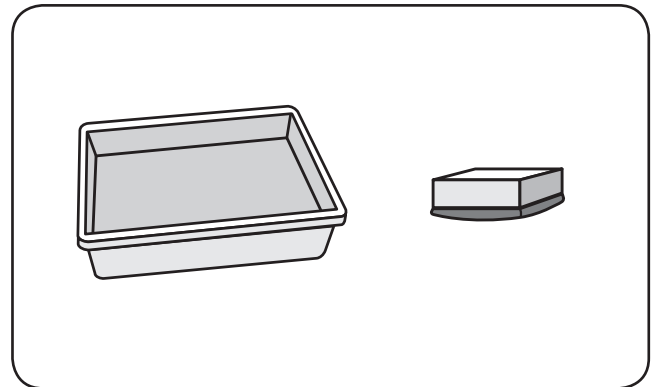
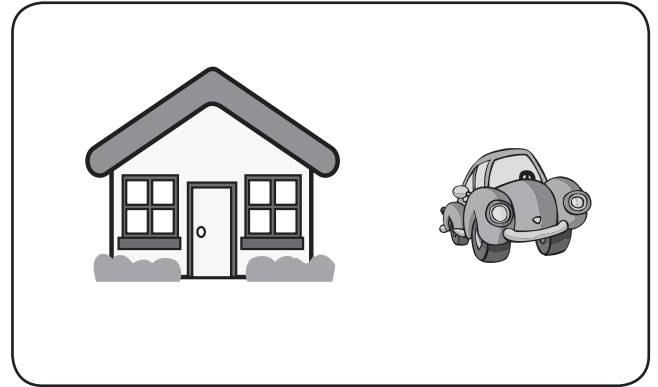
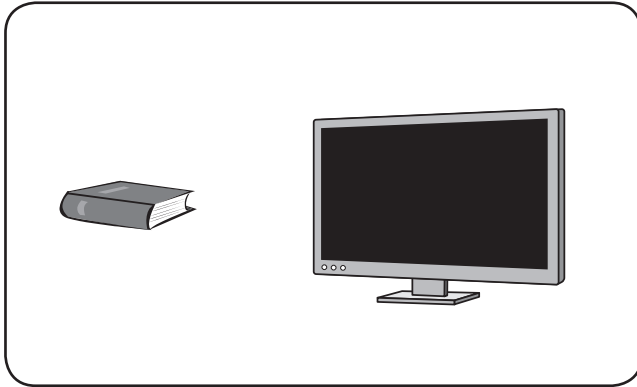
- 2   Tell someone or write words we use to describe things that

take up **a lot** of space
enormous

take up **a little bit** of space
tiny

Volume and capacity – volume

1  Look at the objects. Circle the one that takes up more space.

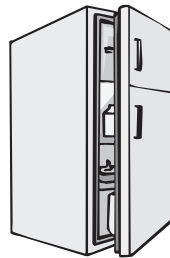


2  Draw something that

takes up **more** space than this



takes up **less** space than this



takes up **about the same**
space as this



Volume and capacity – volume

We can fill things to find out how much space they take up.
The more something holds, the more space it takes up.

You will need:  a partner  blocks, cubes or beads

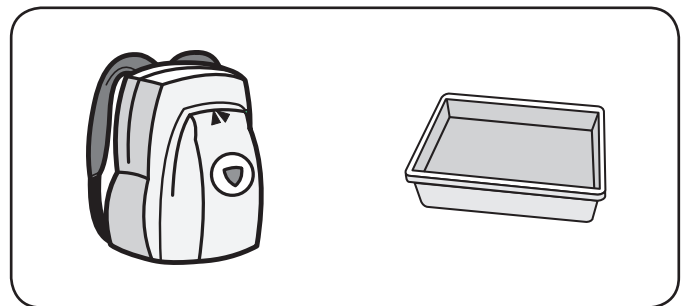
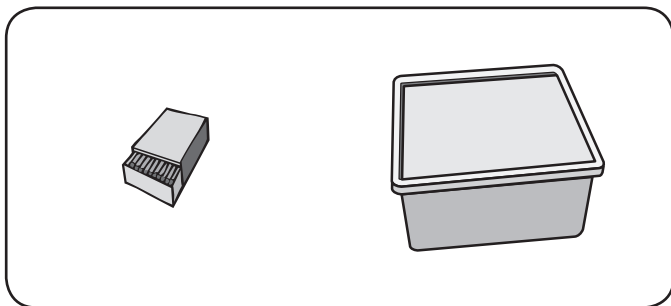
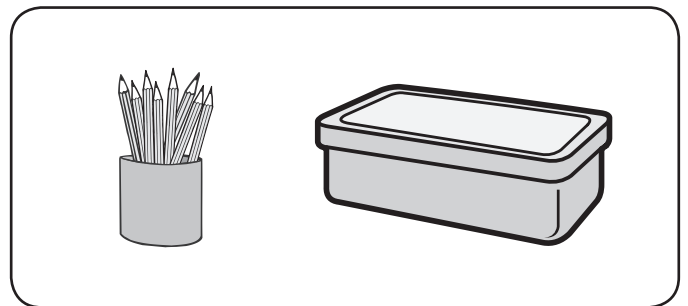
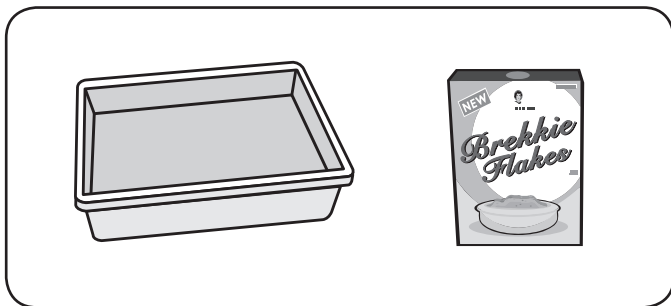
What to do:

Find objects like the ones below.

Which do you think takes up the most space? This means it will hold the most. Tick your prediction.

Decide which is the best thing to use to pack them. Fill them up with the same thing.





Circle the object that takes up the most space. This means it holds the most.



What to do now:

Find 2 objects that take up about the same amount of space.
Tell someone how you worked this out.

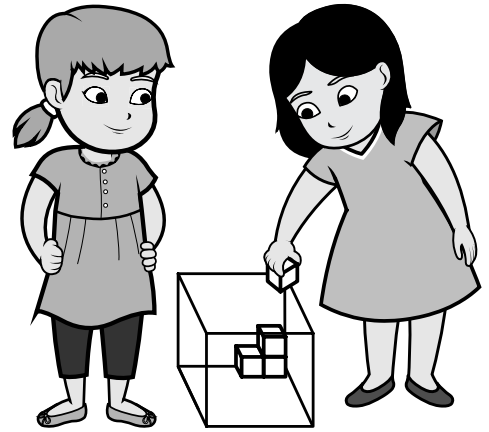
Volume and capacity – volume

You will need:  a partner  blocks or cubes
 boxes or containers  beads or counters

What to do:

Choose a box. Pack it using beads or counters. Empty it and then repack it with blocks or cubes.

Which was best to pack with? Why?
Write or explain to someone.



Choose a different container. Pack it 2 different ways.
Which was best to pack with? Why? Write or explain to someone.

.....

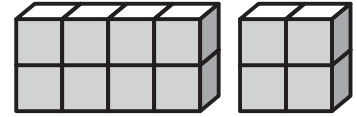
What to do now:

Choose something to build a tower with. Build it.
What did you choose and why? Write or explain to someone.

Volume and capacity – volume

Look at these 2 towers.

Which takes up more space? How can you tell?



You will need:



a partner



blocks or cubes

What to do:

Build a really tall tower. Now build a really short tower.

Which tower takes up more space? Why? Write, draw or tell someone.

What to do next:

Make a tall building using 10 blocks or cubes.

Using another 10 blocks or cubes, make a building that is low and wide.

Look at your buildings. Does one take up more space than the other?

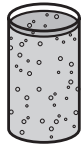
Talk about it with your partner and tell your teacher what you think.

What to do now:

Make as many different shaped buildings as you can using 10 blocks each time.

Volume and capacity – full and empty

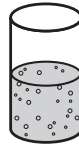
This cup is **full**.



This cup is **empty**.



This cup is **half full**.



You will need:



a partner



scissors



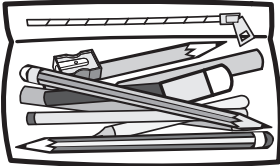
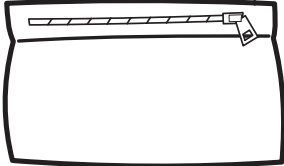
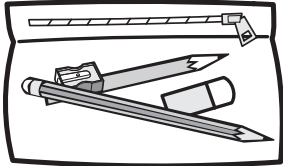
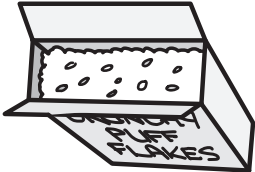
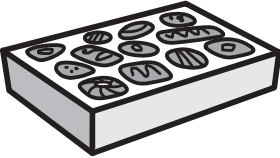
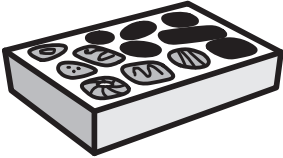

copy

What to do:

Cut out the pictures and headings and put the headings at the top of your work space.

Sort the pictures so they sit under their matching heading.

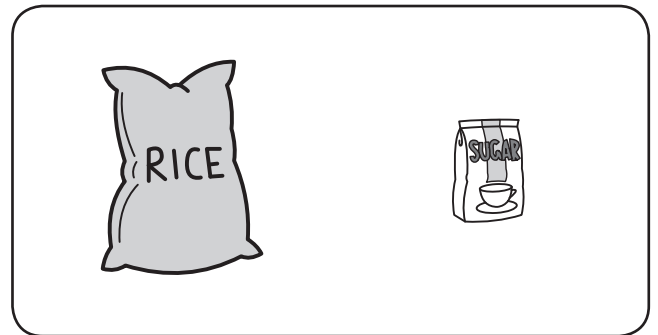
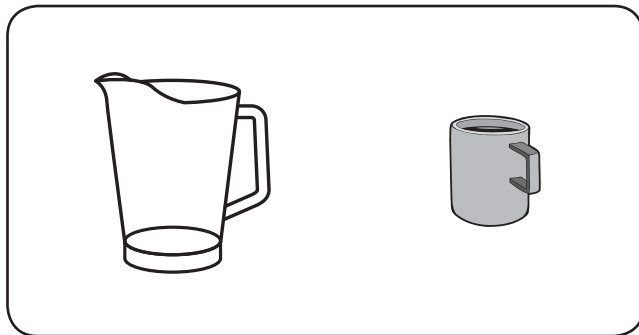
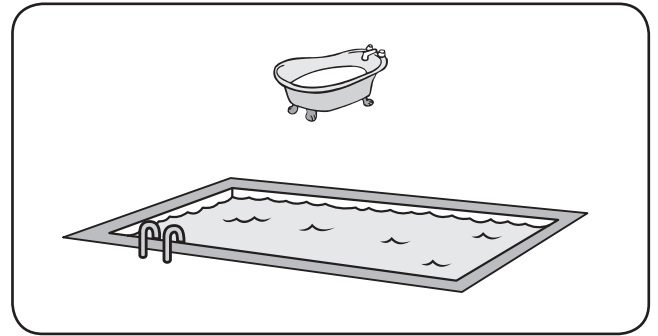
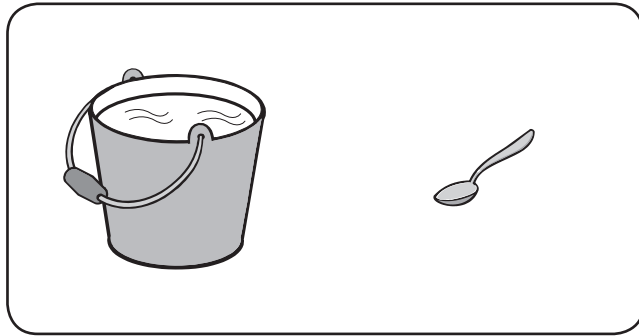
You can work with your partner or race against them.

full	empty	half full
		
		
		
		

Volume and capacity – capacity

When we measure **capacity** we are measuring how much a container can **hold**.

1  Circle the container you think holds the most.






2   Look around your classroom. Find and draw a container that

can hold a **lot**

can hold a **little bit**

can hold **more than** a pencil pot but **less than** your school bag

Volume and capacity – capacity

You will need:  a partner  measuring equipment
 counters, water or rice

What to do:

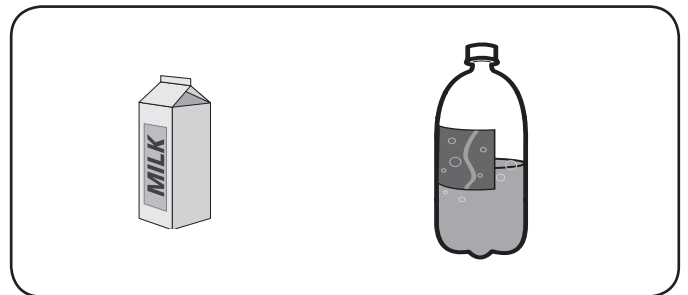
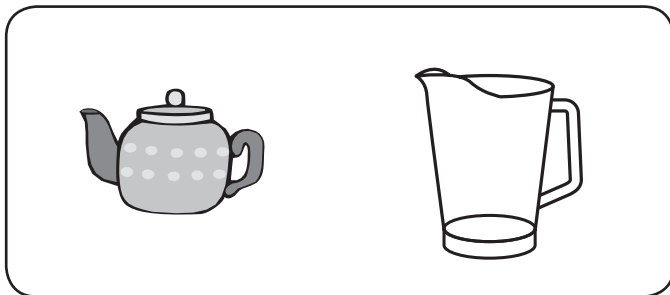
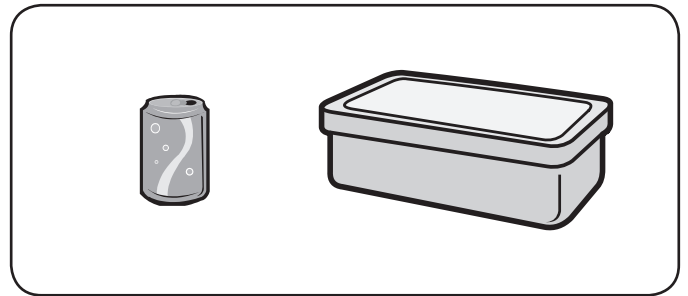
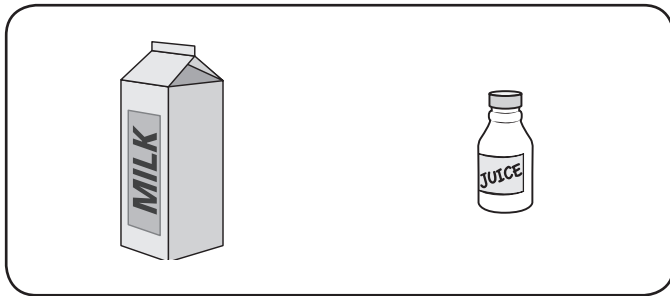
Find containers like the ones below.

In each pair, which one do you think holds the most?

Tick your prediction.

Find a way to compare them. Filling and pouring is a good strategy.

Circle the one that holds the most.







What to do now:

Choose 2 of your experiments. Draw pictures to finish the statements.

holds **more** than

holds **less** than

Volume and capacity – capacity

You will need:  a partner  measuring equipment
 containers  counters, water, rice or sand

What to do:

Fill different containers to find the answers. Find and draw

one that holds **about
the same as**



one that holds **more than**



one that holds **less than**



one that will **fill a
many** times



What to do next:

Pour a cup of water, sand or rice into your
Draw a picture to show how full it is.



Keep filling your



How many cups fill it?

Volume and capacity – capacity

You will need:  a partner  measuring equipment
 a jug  counters, water or rice

What to do:

Find a jug. Fill it with counters, water or rice.

Use it to fill 2 smaller containers. You must use all the contents so you may need to experiment with different containers.

Draw the containers that match your jug.

What to do next:

Fill the jug again.

This time, fill 3 smaller containers with the contents.


Draw the containers that match your jug.

I will need to find
a smaller cup.
Maybe I will try
a medicine cup.



Volume and capacity – explore

We use capacity and volume when we cook. We measure amounts using cups and spoons and we decide on the right sized containers to use.

- 1  Work in a small group with your teacher or helper to make this **play dough recipe**.

You will need:

2 cups of plain flour
4 tablespoons of cream of tartar
2 tablespoons of cooking oil
1 cup of salt
2 cups of boiling water
food colouring
glitter (optional)

a mixing bowl
a mixing spoon
a cup
a tablespoon
a kettle
resealable bags

What to do:

Mix all the ingredients together.

Tip the mixture out onto a table and knead it till it forms a dough.

Share the play dough out between people in your group.

What to do next:

Make different sized play dough creatures. Make one that takes up a lot of space, then make lots of little ones.