4.44 Introducing weight

Topic: Measurement
Subtopic: Weight
Activity type / skill: Orientation
Literacy focus: Vocabulary

Objective
- Provide orientation to the subtopic.
- Make links to prior knowledge.
- Link to the mathematics curriculum.

What you need
- Student worksheet (see next page)
- Audio track 4.44a
- Audio track 4.44b

What to do
1. Look at the top of the first page of the student worksheet and read the riddle and look at the pictures. (The answer is, of course, weight or mass.)

2. Encourage students to think about the fact that something heavy may be comparatively small and give other examples of small heavy things.

3. Look at the bottom of the first page of the student worksheet and discuss the weight of objects and people in the pictures:
   - Are they heavy or light?
   - Why?
   - Why are things weighed?
   - How are things weighed in New Zealand and in their home countries?

4. Look at the top of the second page of the student worksheet. Play track 4.44a (Track 17 for this topic) and read and listen to the information about weight and mass.

5. Look at the bottom of the second page of the student worksheet. Read the information about standard measurements together and discuss other things that may be the given weights. Use the words ‘heavier’ and ‘lighter’ in discussion. Look around the room and find other objects and estimate their weight.

6. Look at the third page of the student worksheet. Read the information about weighing and talk about how things are weighed today.
   - What kinds of scales have students used?
   - What kind of scales have they seen?

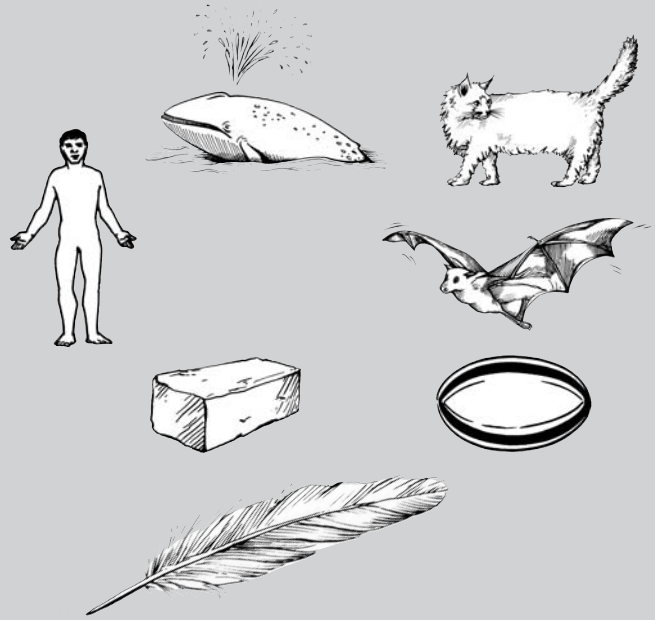
7. Look at the fourth page of the student worksheet. Play track 4.44b (Track 18 for this topic) and read listen to the information about weightlifting. Talk about what they have read:
   - Have they watched weightlifting on TV?
   - What weight do they think they can lift?
   - Have they tried weight training at a gym or know someone who has?
   - What does it involve?

A whale has more of it than a cat

A person has more of it than a bat

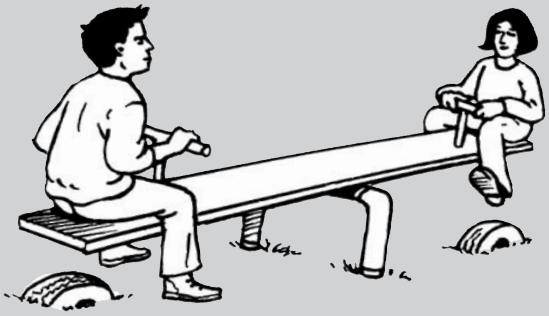
A brick has more than a rugby ball

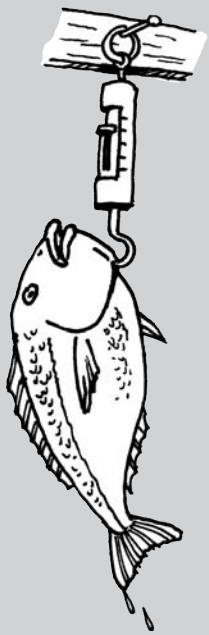
And a feather has very little at all.

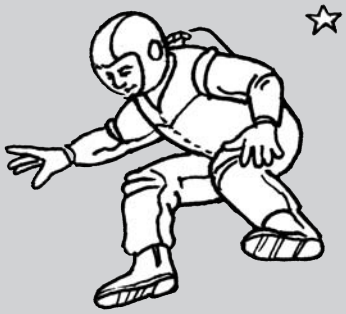


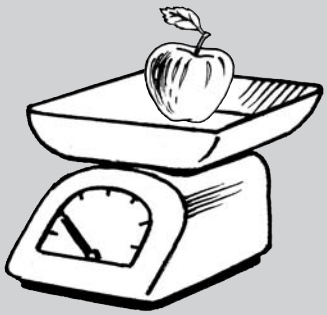
Can you guess what it is? _____

Mass Weight









Track 17

Weight and mass

A **kilogram** measures **mass**.
It tells us the mass of a kilogram of cheese,
how much cheese there is.
Mass does not change.

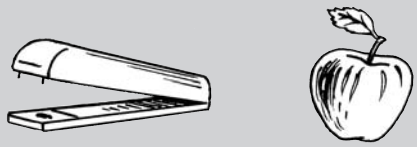
A kilogram measures **weight** too.
Weight is the pull of gravity.
Weight is a measure of how **heavy** cheese is.
Weight can change. Because the force of gravity affects weight a 1 kg block of cheese would be lighter in high mountains or on the moon.

In the everyday world, use the word weight to describe what we weigh.
In maths and science, use the more exact word, mass, to describe what we weigh.
The **weight** of this block of cheese in the shop is 1 kilogram.
The **mass** of this block of cheese in the science classroom is 1 kilogram.

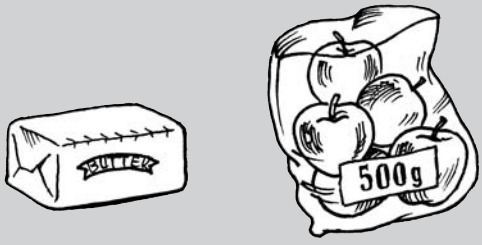
Standard measurements

The **gram** is the base unit for measuring mass.

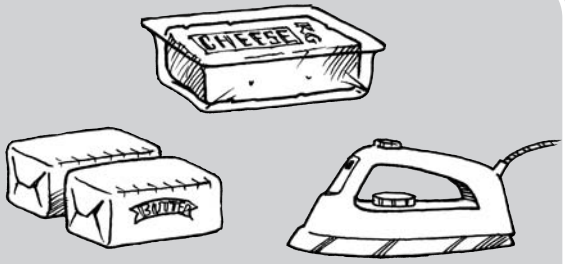
These things have a mass of about 1 gram.



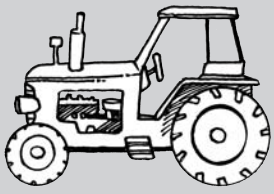
These things have a mass of about 100 g.



These things have a mass of about 500 g.



These things have a mass of about a kilogram.



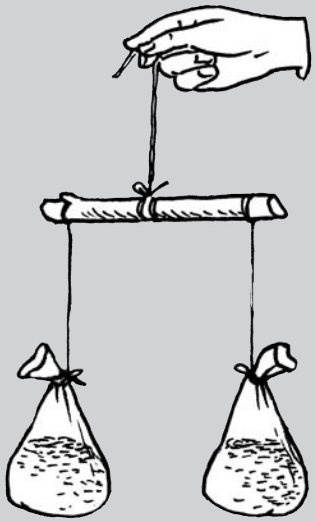
This has a mass of about one tonne.

The standard units of mass are

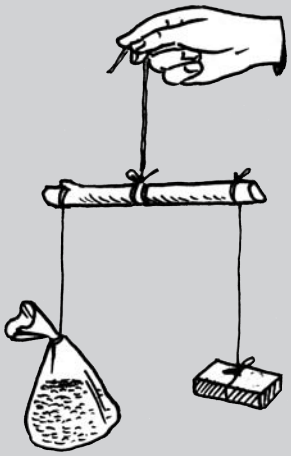
A gram	1 g	1000 mg
a kilogram	1 kg	1 kg = 1000 g
a tonne	1 t	1 t = 1000 kg

Weighing

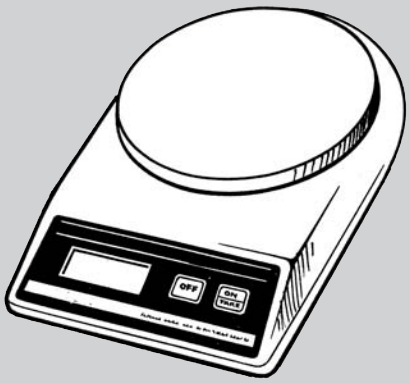
People have always needed to weigh things. They began to weigh by holding something in each hand and deciding which was heavier. They could feel the difference between the weight of the two sides.



Then they thought of making a balance by tying a string around the centre of a stick.



Soon people began to make standard weights. They still used the balance to measure. They put the standard weight on one side and the thing they were weighing on the other side.



Other ways of weighing developed until today there are scales that can weight 0.0001 of a milligram.

Track 18

LIFTING WEIGHTS

Most of us find it difficult to lift a heavy parcel. It is an effort to lift a school bag full of books.

Some people are much better at lifting weights than others. They choose to lift weights as a sport. Weightlifting is a sport at the Olympic Games.

HERE ARE SOME FACTS ABOUT WEIGHTLIFTING

- Weightlifting has been a sport for thousands of years. People lift weights in nearly every country.
- Weightlifters are divided into classes. The class you lift in depends on your bodyweight. The heaviest weightlifters are called heavyweights and some of the lightest are called featherweights. There are ten classes now but in early Olympics there was only one class and only two events.
- Weightlifters are judged on the amount they can lift in relation to their own weight.
- Weightlifters compete in two events called the snatch and the clean and jerk.

- They have three tries at each weight. If two people lift the same total weight, the winner is the person who is lighter.
- The best "heavyweight" weightlifters can lift twice their own body weight. One man, Lamar Gant who comes from the USA, lifted almost 300 kilograms. That was five times his weight.
- Some people do things that seem not to be possible (or sensible). They do things you would never expect. One man lifted a car and its driver off the ground. He used his teeth.