7 What can it do?

can and *can't*

1 Read about ASIMO. Is he a toy or is he a real robot?

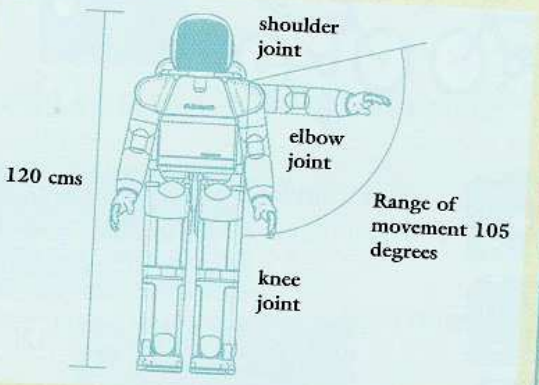
Meet ASIMO
(**A**dvanced **S**tep in **I**nnovative **MO**bility)

ASIMO is a humanoid robot, developed by the Honda Motor Co. He is 120 cms tall and he weighs 43 kgs. You can control him with a computer or give him voice instructions. ASIMO is a service robot. He is designed to help people. He can walk and climb stairs, so he can carry food upstairs to a sick person and do other jobs around the home.

Here are ten things ASIMO can do.

1 walk forwards and backwards
2 bend and straighten his joints
3 adjust the size of the steps he takes
4 climb up and down stairs
5 turn left, right, and around
6 raise and lower his arms 105 degrees
7 operate light switches
8 open and close doors
9 carry loads
10 push carts

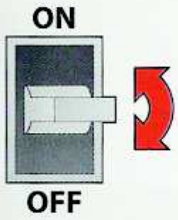
Walking speed:	1.6 km/h (approx. 1 mph)
Operating degrees of freedom	
Head:	2° of freedom
Arms:	5 x 2 = 10° of freedom
Hands:	1 x 2 = 2° of freedom
Legs:	6 x 2 = 12° of freedom

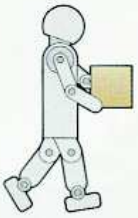


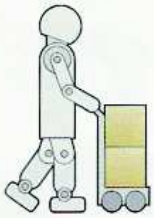
2 Read the information again. Answer the questions.

1 What is ASIMO?
2 Which company developed ASIMO?
3 Can ASIMO understand voice instructions?
4 Can ASIMO turn on a light?
5 Can ASIMO take small and large steps?
6 Can ASIMO run?

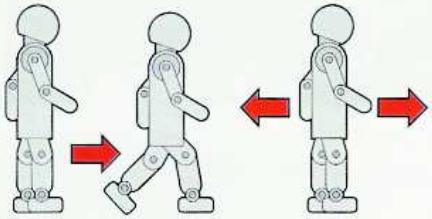
3 Look at the list of ten things ASIMO can do in **1**. Match them with the correct picture.



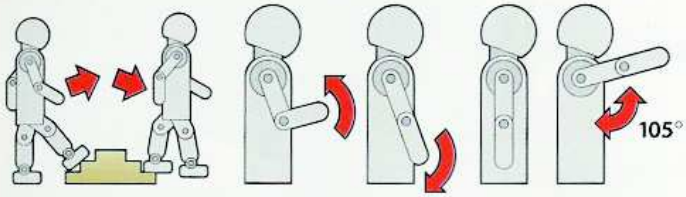




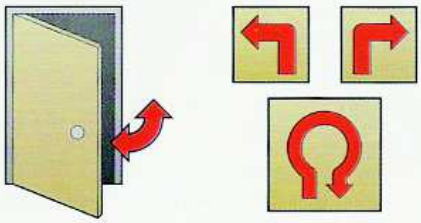
a ..... b ..... c .....



d ..... e .....



f ..... g ..... h .....



i ..... j .....

4 ASIMO can't raise his arm more than 110 degrees. And he can't dance. Think of more things he can't do. Work with some other students. Make a list.

Example
He can't swim. He can't use a telephone.

5 Imagine your teacher is ASIMO. Give them instructions for things they *can* do, for example, switch on the light, open the door, etc. Give them instructions for things they *can't* do too.

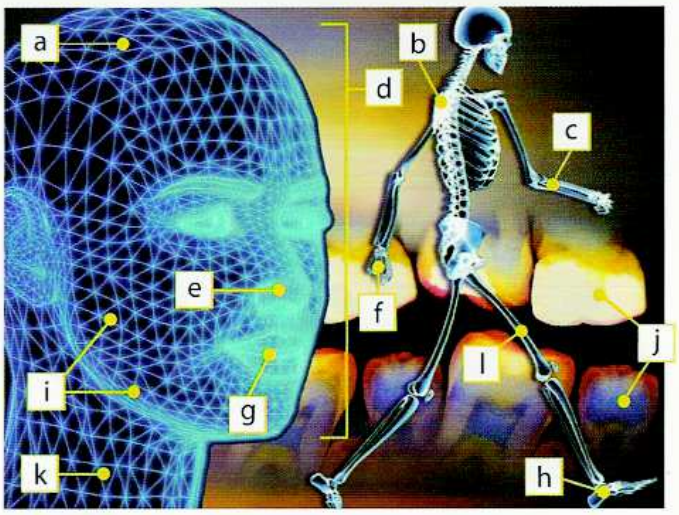
A *Walk forwards two steps. Raise your left arm. Switch on the light.*
B *I can't! I can't reach the switch!*

Body parts

1 Point to these parts of your body.

leg	foot	neck	head	mouth	nose
arm	teeth	back	hand	face	jaws

2 Match the body parts with the words in **1**.



3 We use these words to describe other things. Write the names of the parts in these pictures.

a *mouth* b ..... c ..... d .....

e ..... f ..... g ..... h .....

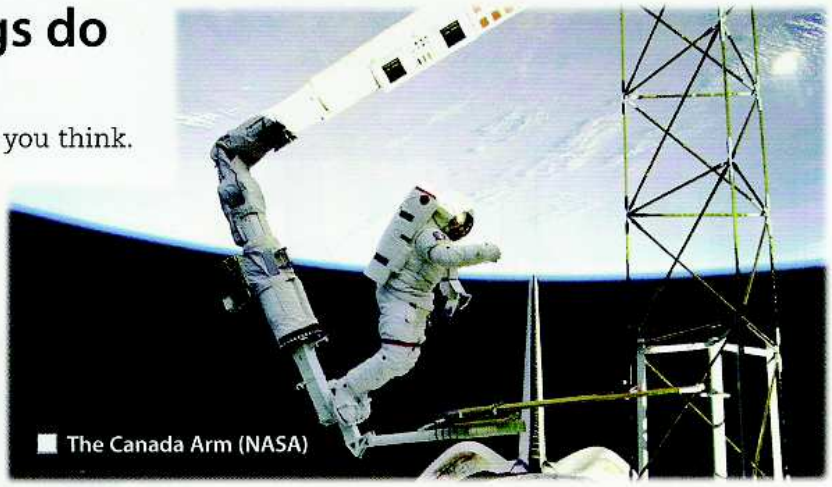
i ..... j ..... k ..... l .....

Explaining what things do

1 What can these robots do? Say what you think.

☐ Robug 3

☐ RL800



■ The Canada Arm (NASA)

☐ IRB 840

☐ Sirius

☐ Sony's Robot Dog

2 7.1 Check your answers. Listen to different people talking about the robots. Number the photos in the order you hear about them.

3 Which robot:

1 is fully automatic?
2 can reach 15 metres?
3 is an electronic pet?
4 has vacuum gripper feet?
5 is the solution for dirty windows?
6 is designed to save floor space?

4 7.1 Listen again and write the missing numbers.

1 Robug 3 can pull loads of ..... lb.
2 Sirius can clean ..... m² of glass in just one hour.
3 The IRB 840 has a maximum load of ..... kg.
4 The International Space Station is ..... miles above the earth.
5 The RL800 is only $ ..... .
6 This Sony Robot Dog is ..... mm long.

Saying hundreds

In British English, say *and* before the tens.
Two hundred and twenty-one pounds.
In American English, you can say *and* or not say *and*.
Three hundred and twenty feet or *Three hundred twenty feet.*

5 Practise saying the numbers in **4**.

Two hundred and twenty-one pounds.
A hundred and twenty square metres.

6 Work with a partner. **A** – look at the information in file 6 on page 103. **B** – look at the information in file 10 on page 105.

Dimensions

1 What kind of robot is this? What can it do? Read about the Robosaurus and find out.

The Robosaurus is a 12-metre-high entertainment robot. It's designed to lift, crush, and burn cars. It weighs 26 tonnes and it's controlled by a human pilot who sits inside its head. 60 m flames come out of its nose, and its mouth opens and closes with a pressure of 140 kg/cm². It can lift cars 15 m in the air and bite them in half with its 30 cm teeth. After shows, the robot becomes a trailer and it can travel by road to the next city. It can fold up to just 14½ metres long, 4 metres high, and 2½ metres wide.

SPECIFICATIONS	
Height (standing)	*12m*
Height (folded up)	
Length (folded up)	
Width (folded up)	
Length of teeth	
Jaw pressure	
Weight	

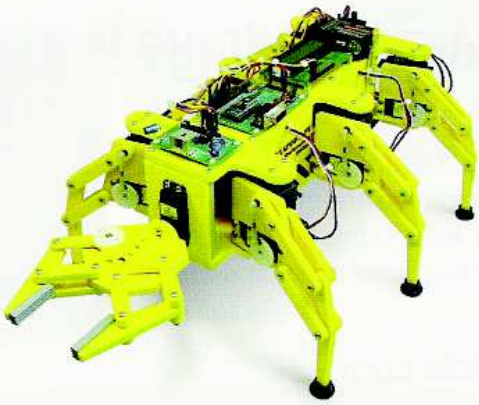
2 Complete the specifications above.

3 Work with a partner. Take turns to ask and answer these questions about Robosaurus.

1 When it's standing, how high is it?
2 When it's folded up, how high is it?
3 How long is it?
4 How wide is it?
5 How long are its teeth?
6 What's its jaw pressure?
7 How heavy is it?

4 Here are some questions about another robot. Complete the words.

1	How h..... is it?	4 in
2	How w..... is it?	8 in
3	How l..... is it?	8 in
4	How h..... is it?	275 g
5	How m..... is it?	$150



5 Work with a partner.
A – look at the information below.
B – look at the information in file 14 on page 106.

A

1 Use the specifications to answer questions about Line Tracker.
2 Ask your partner questions about Hyper Peppy and complete the table.

LINE TRACKER can follow black lines on white paper.

SPECIFICATIONS	
Height	97 mm
Length	157 mm
Width	143 mm
Weight without batteries	250 g
Price	$49.95

HYPER PEPPY can change direction when it hears a loud noise or things are in its way.

SPECIFICATIONS	
Height	
Length	
Width	
Weight without batteries	
Price	