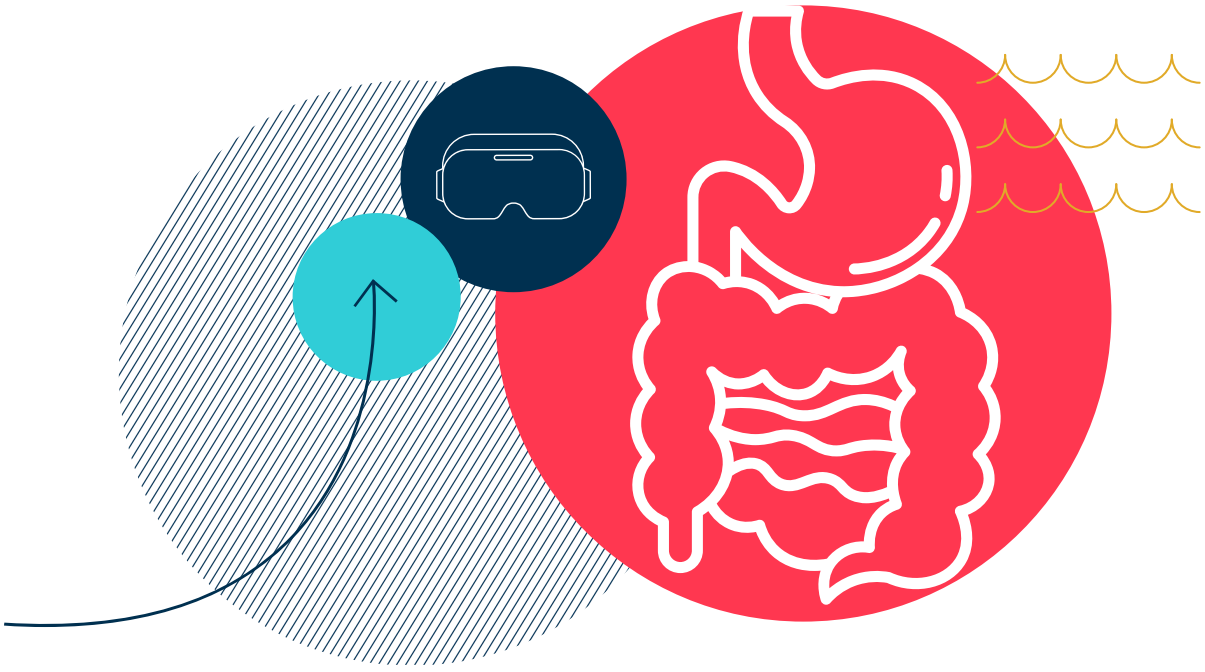
THE BRITISH INTERNATIONAL SCHOOL
ABU DHABI
A NORD ANGLIA EDUCATION SCHOOL

7A CELLS, TISSUES, ORGANS AND SYSTEMS

Application worksheets



Name: _____

Class: _____

Teacher: _____

Please remember to ensure your booklets are self/peer assessed using a green pen and the information given in class. Answers can also be found on your class OneNote.

Name _____ **Class** _____ **Date** _____

1 Circle the names of the life processes in the box.

breathing	erosion	excretion	getting older	growth	movement
nutrition	reproduction	respiration	sensitivity	speaking	

2 Tick *one* box to complete this sentence in the best way.

An organism is:

☐ a part of your body ☐ a type of plant

☐ any living thing ☐ a tiny creature that causes diseases

3 Draw lines to match the words to their meanings.

Word
excreting
growing
reproducing
respiring

Meaning
increasing in size
releasing energy
getting rid of waste
making copies

4 **a** Circle the thing that is non-living.

b State *two* reasons for your choice.

_____

_____

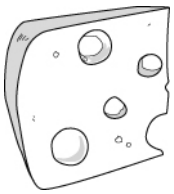
I can…

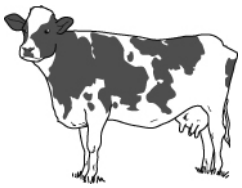
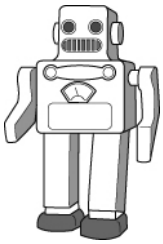
- recall and describe the life processes
- explain the differences between organisms and non-living things.

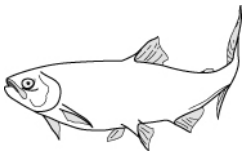
Sorting items

Name _____ **Class** _____ **Date** _____

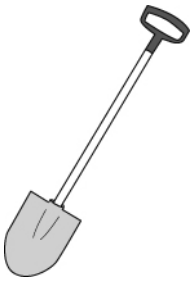
Cut out the pictures and sort them into groups of living and non-living things.







Evidence sheet

Name _____ **Class** _____ **Date** _____

1 Stick the pictures you have chosen into the boxes.

2 Complete the sheet to explain why you think the pictures show living or non-living things. Write in the blanks and cross out the words you do not need.

The picture shows _____.

I think that _____ is/are living/non-living.

My evidence for thinking this is that _____

_____

_____

The picture shows _____.

I think that _____ is/are living/non-living.

My evidence for thinking this is that _____

_____

_____

I can…

- use life processes to justify whether something is an organism or is non-living
- use evidence to draw a conclusion.

Name _____ **Class** _____ **Date** _____

This is ASIMO, a robot built by Honda that acts like a human.

Mass	48 kg
Height	130 cm
Walking speed	2.7 km/h
Running speed	9 km/h
Battery	lithium ion
Operating time	1 hour

1 **a** Look at the questions in the table below. In the second column, write in the life process that each question refers to.

b In the last two columns, put ticks (✓) for the life processes shown by ASIMO and by humans.

Question	Life process	ASIMO	Human
Can it move?			
Can it produce babies?			
Does it grow?			
Does it need oxygen?			
Does it produce waste products?			
Can it sense things around it?			
Does it need a source of energy?			

2 Which life processes does a car show that ASIMO does not?

_____

3 Is fire an organism? Explain your reasoning.

_____

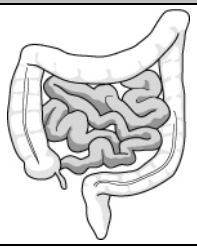
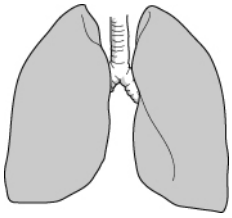
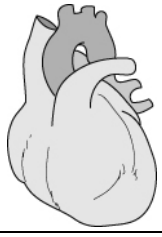
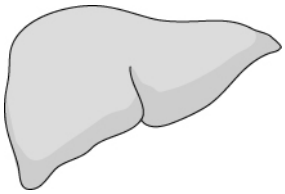
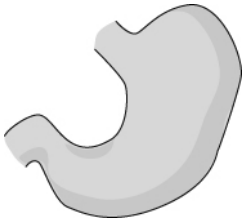
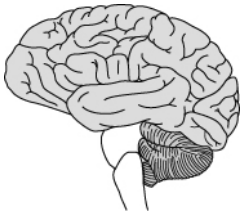
_____

I can…

- recall the life processes
- describe the life processes
- use life processes to justify whether something is an organism or is non-living
- identify ways in which an organism shows each life process.

Name _____ **Class** _____ **Date** _____

Draw lines to match the organ with its name and its job. The first organ has been done for you.

Picture	Name	Job
	lungs	controls the body
	brain	gets oxygen into the blood
	liver	pumps blood
	leaf	makes food
	heart	makes and destroys substances
	intestines	breaks up food
	stomach	breaks up food and takes it into the blood

I can…

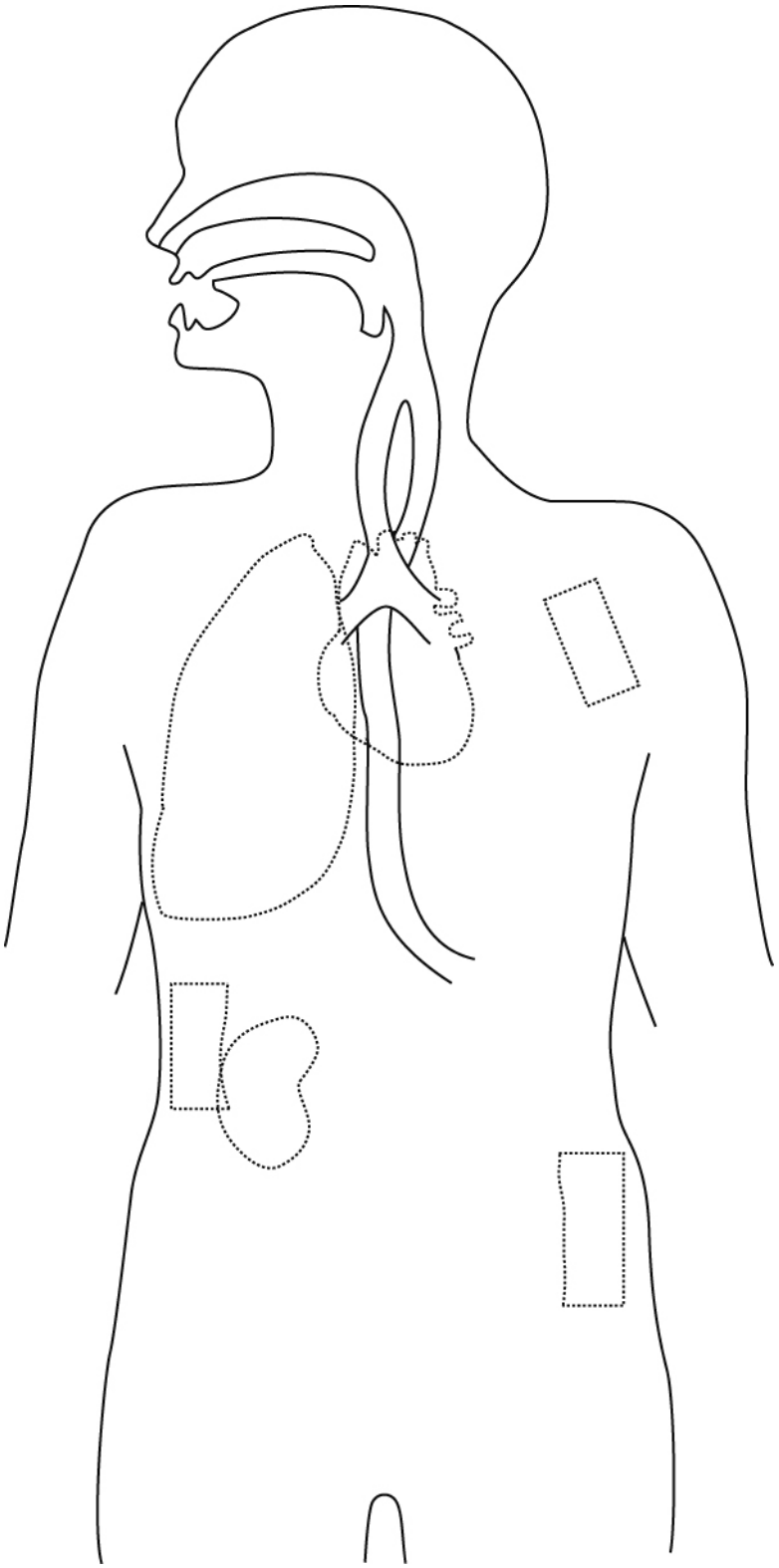
- identify some organs
- match organs with their functions.

Name _____ **Class** _____ **Date** _____

Carefully stick the organs from Worksheet 7Ab-5 onto this outline.

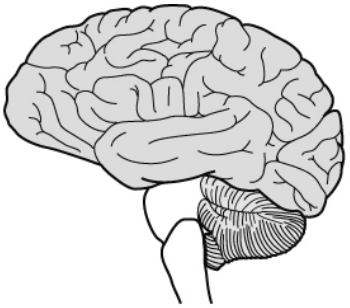
I can…

- identify and locate some organs.

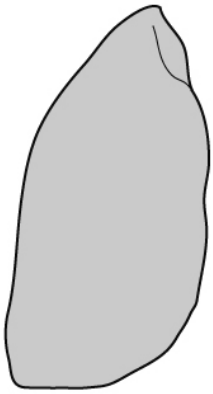


To transplant organs, doctors need to know where they go! Cut out the organs. Some have tabs that you need to cut around – do not cut these off! Then arrange the organs on the human outline on Worksheet 7Ab-4. When you know the order in which they need to be stuck, glue them onto the outline.

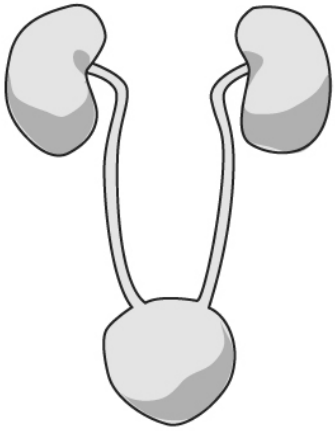
1



2

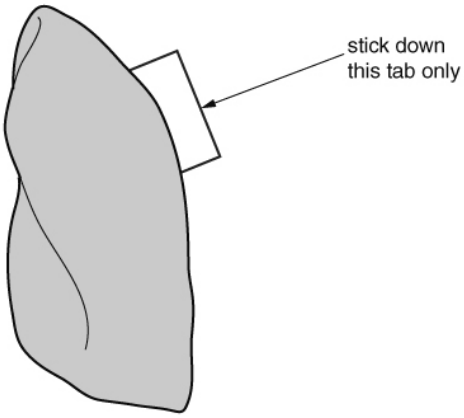


3



4

5



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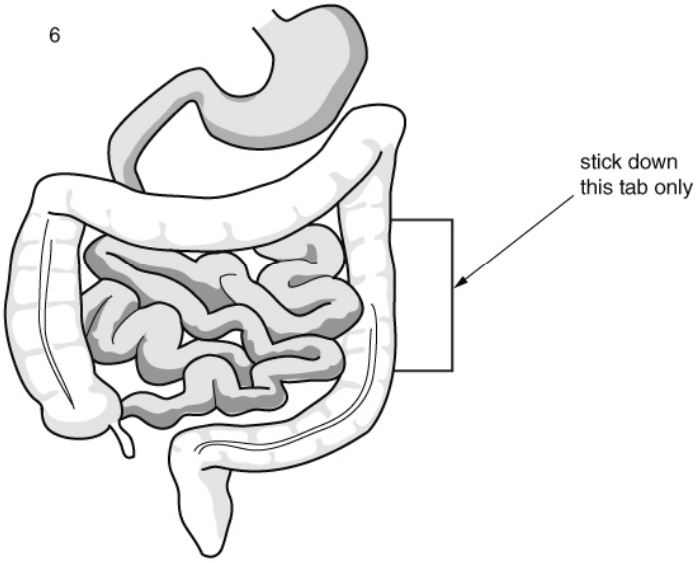

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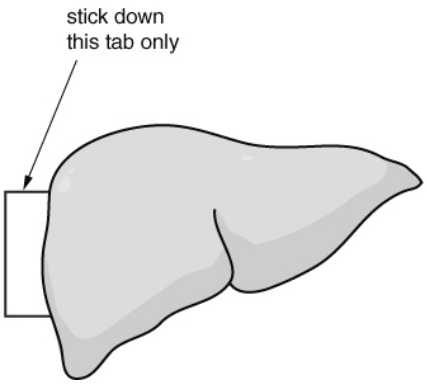
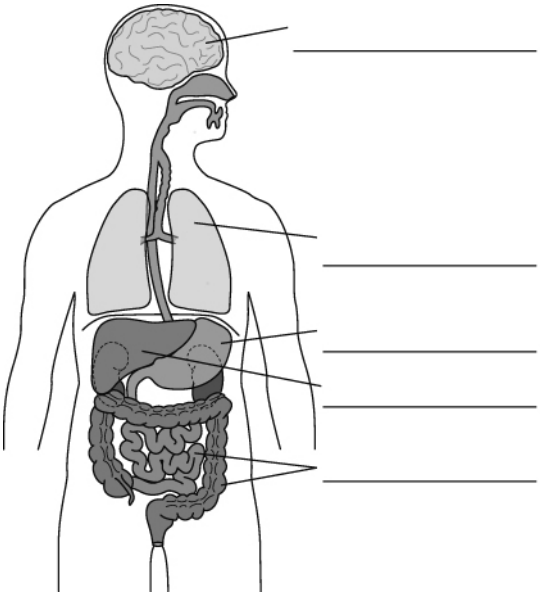
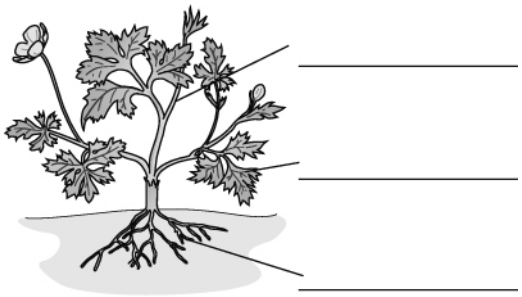


Name _____ **Class** _____ **Date** _____

1 Label the diagrams using the words in the box.

brain	intestines	leaf	liver	lung	root	stem	stomach





2 On the diagram of the human body, draw the position of the heart.

3 Select *two* of the parts of the human and explain what they do.

a _____

b _____

4 Select *two* of the parts of the plant and explain what they do.

a _____

b _____

5 Which of these is the best definition for the word 'organ'? Tick *one* box.

☐ part of an animal with an important job

☐ part of a plant that you can eat

☐ word that means 'a living thing'

☐ part of an organism with an important job

I can…

- locate and identify some organs
- state the meaning of: organ
- describe some organ functions.

Name _____ **Class** _____ **Date** _____

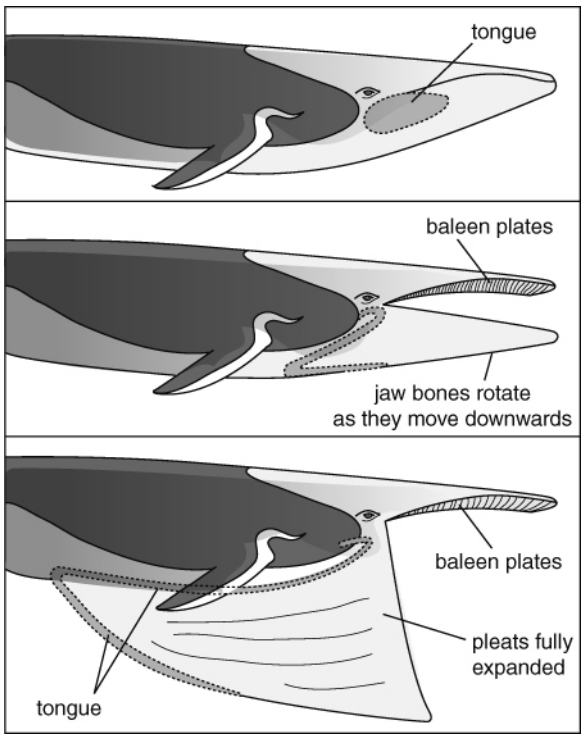
Blue whales feed on shrimp-like animals called krill. Adults eat up to 3600 kg of krill each day. To feed, a whale lunges at some krill and takes an enormous gulp of water, up to about 90 tonnes.

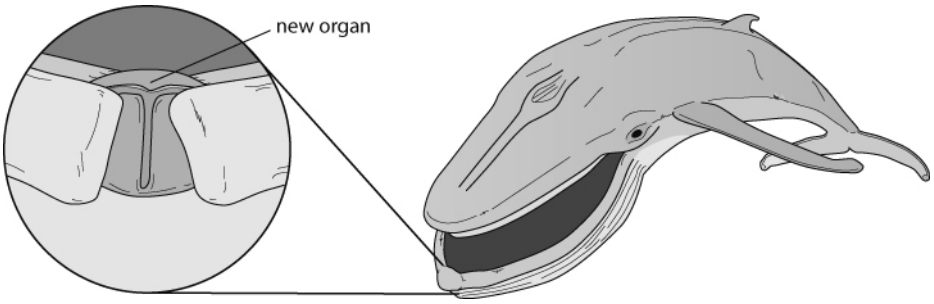
A blue whale has separate left and right jawbones, which are not fixed together and are only joined loosely to the skull. So, the two jawbones rotate and move slightly apart from one another as they move downwards. This stretches the mouth to about 3 m wide, and opens out pleats (like a kilt) in the throat.

As the mouth opens, the tongue changes shape completely; it stretches out like a giant balloon and forms a stopper at the back of the mouth.

The mouth then closes and the tongue changes shape again, forcing the water through comb-like baleen plates and out through the front of the mouth. The 'combs' filter out the krill to be swallowed.

The movements of the two jawbones, the pleats and the tongue are quite complicated and need to happen in the correct order. In 2012, American scientists discovered a new organ in these whales that helps to detect krill and then control the 'gulping' process. They made their discovery by cutting up jaws from similar whales that had been caught by fishermen near Iceland and by examining these jaws using scanning methods (like you would find in a hospital).





1 **a** Identify *two* unit symbols used in the passage.

b Why are the same unit symbols used by scientists all over the world?

2 **a** What life processes does the newly discovered organ carry out?

b With what other life processes does the newly discovered organ help?

3 **a** Which other organs in the blue whale's body also help with the life processes you mentioned in question **2**? Present your answer using the life processes as subheadings.

b Briefly describe the functions of all the organs you listed in part **a**.

4 To which other organ in a whale is the newly discovered organ most similar? Explain your reasoning.

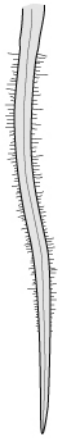
5 List the events that occur when a blue whale feeds.

I can…

- describe the functions of and identify similarities between major animal organs
- divide and organise information in appropriate sections
- explain why internationally agreed symbols and conventions are useful.

Name _____ **Class** _____ **Date** _____

1 Match the tissues to the correct parts on the diagrams by drawing lines.



fat tissue	root hair tissue	xylem tissue	muscle tissue

2 Complete this sentence by ticking *one* box to select the correct ending. If you cut open a carrot, you can tell that it has more than one tissue because you can see:

- ☐ that different areas are different colours.
- ☐ that the whole carrot is orange.
- ☐ that a carrot plant has leaves.

3 Complete the sentences using *some* of the words from the box.

fat	hair	muscle	organ	root
tissue	tissues	water	xylem	

An organ is made out of different _____. Each _____ has an important job to do. For example, in a _____ the _____ tissue takes _____ quickly from the ground. The _____ tissue carries the water to all the other parts of the plant.

I can…

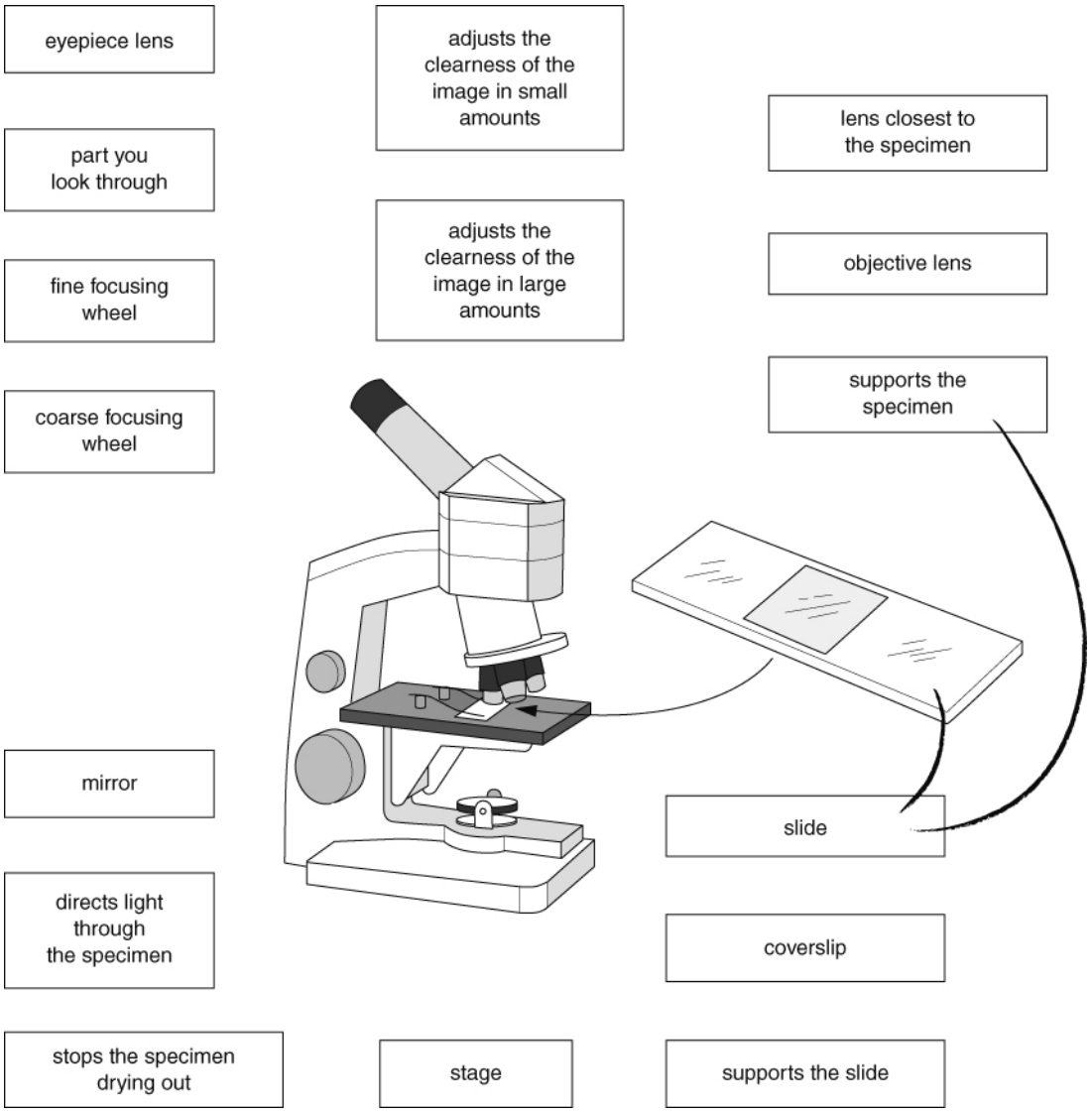
- identify named tissues in organs
- state the meaning of: tissue
- describe the functions of different tissues in an organ.

Name _____ **Class** _____ **Date** _____

1 What is a microscope used for? Tick *one* box.

- ☐ to make things appear smaller
- ☐ to make things appear larger
- ☐ to look at things attached to a computer
- ☐ to look at things that are far away

2 Draw lines to match each part of the microscope with its name and what it is used for. One has been done for you.



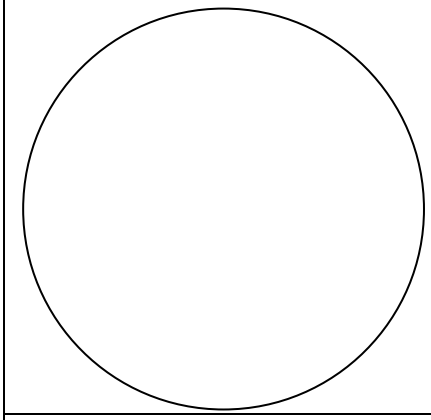
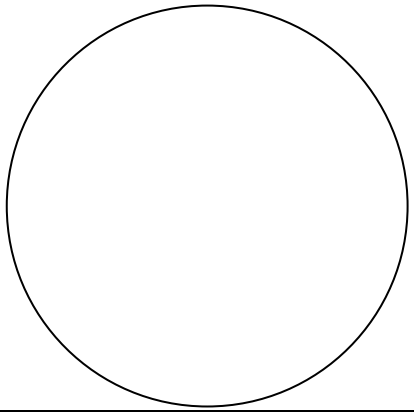
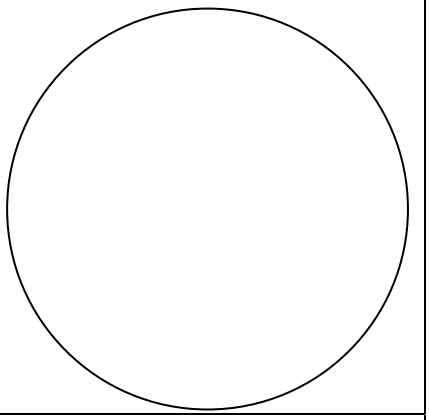
I can…

- state the use of a microscope
- identify the parts of a microscope and their uses.

Name _____ **Class** _____ **Date** _____

Look at your slide using a microscope. Examine your slide at three magnifications.

Results

Low power	Medium power	High power
Name of tissue:	Name of tissue:	Name of tissue:
The microscope magnification:	The microscope magnification:	The microscope magnification:
Drawing of what you see: 	Drawing of what you see: 	Drawing of what you see: 
Description:	Description:	Description:

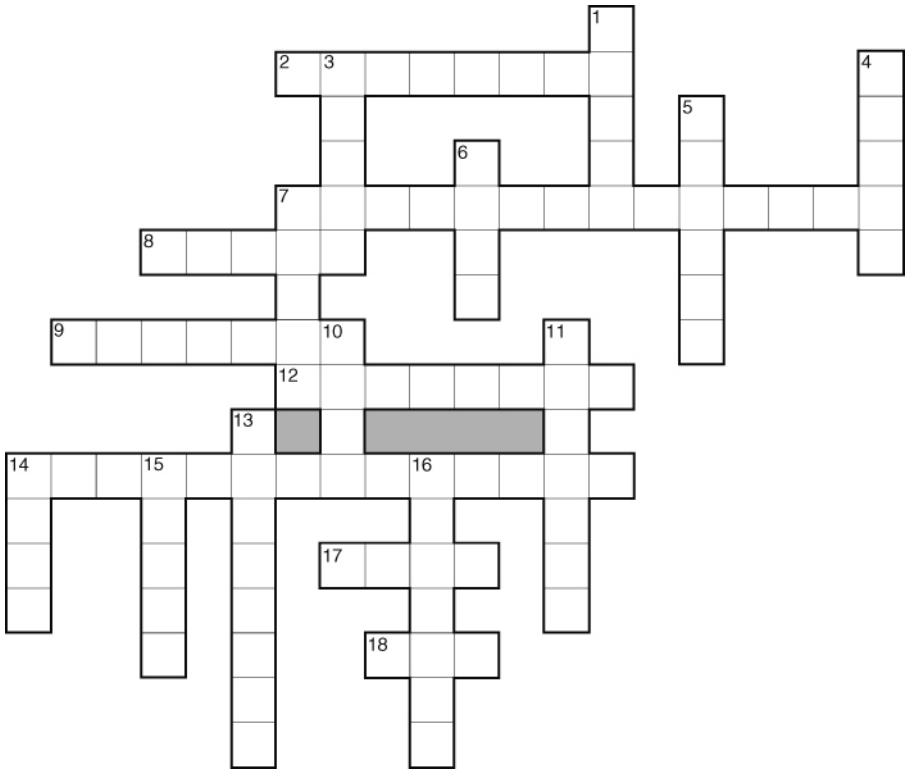
I can…

- record observations using words and drawings
- calculate the magnification of a microscope.

Tissues and organs crossword

Name _____ **Class** _____ **Date** _____

1 Use the clues to fill in the correct words on the crossword grid. The number of letters in each word is shown in brackets.



Across

2 Food goes through this organ on its way to the stomach. (8)

7 This organ absorbs water from food that has not been digested in the small intestine. (5, 9)

8 The organ that controls our bodies. (5)

9 This organ stores urine. (7)

12 Tissue that plants use to take water from soil. (4, 4)

14 Organ that absorbs food so that it enters your blood. (5, 9)

17 Organ that holds plants in the soil. (4)

18 Tissue that protects the heart. (3)

Down

1 Organ that pumps blood around the body. (5)

3 A group of different tissues working together. (5)

4 Tissue that plants use to carry water. (5)

5 Tissue that can move itself. (6)

6 Organ in which plants make food. (4)

7 This organ makes new substances and breaks down other substances. (5)

10 Organ in a plant where you would find root hair tissue and xylem tissue. (4)

11 These organs clean the blood. (7)

13 Tube that carries air to and from the lungs. (8)

14 A plant organ that carries water to the leaves. (4)

15 You use these organs when you breathe. (5)

16 The organ that food goes into before entering the small intestine. (7)

I can…

- recall named tissues in organs
- describe the functions of different organs and tissues.

Name _____ **Class** _____ **Date** _____

1 Read the instructions for using a microscope below. Number the steps in the order that you should do them.

_____ Look into the eyepiece lens.

_____ Place the slide on the stage.

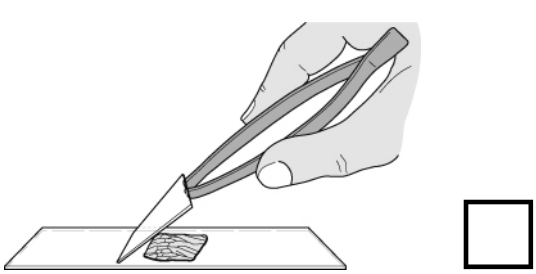
_____ Place the smallest objective lens over the hole in the stage.

_____ Turn the coarse focusing wheel until what you see is clear.

_____ Turn the coarse focusing wheel until the objective lens and the stage are as close as possible.

_____ Adjust the light source.

2 **a** The drawings show a slide being made. Number the steps in the correct order.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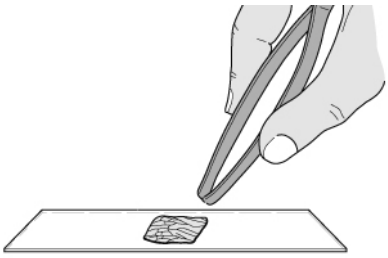
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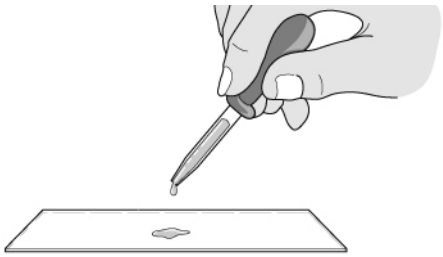
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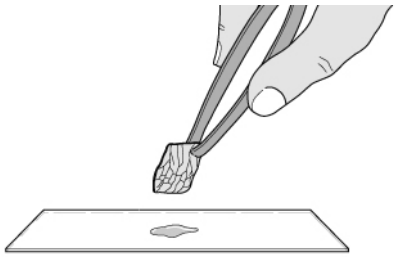

☐

b On the drawings, label *one* of each item in the box below.

coverslip	pipette	slide	specimen

3 Why do we use coverslips? Tick *two* reasons.

☐ to squash thick specimens
☐ to stain the specimen
☐ to magnify the specimen
☐ to hold the specimen in place
☐ to stop the specimen drying out
☐ to heat up the specimen

I can…

- describe how to use a microscope
- describe how to make a slide
- organise information in a list in a suitable way.

Name _____ **Class** _____ **Date** _____

1 The table below shows different tissues in three organs. Fill in the gaps in the table. You may find some of the words in the box helpful.

muscle	protection	root hair	xylem

Tissue	Function of tissue	Organ where the tissue is found	Function of organ
			Pumps blood
			Takes water into the plant
			Carries substances around the plant, to and from the leaves

2 Write a definition for the word ‘organ’. Use the word ‘tissues’ in your definition.

An organ is _____

_____

_____

I can…

- recall named tissues in organs
- describe the functions of different organs and tissues
- describe the general structure of organs.

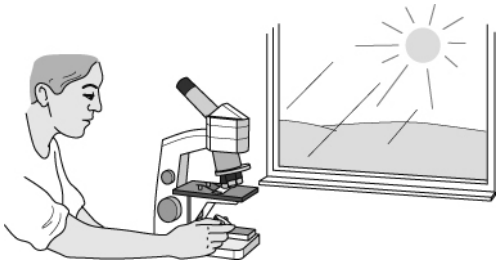
Microscope problems

Name _____ **Class** _____ **Date** _____

1 Look carefully at the pictures showing Jackie using a microscope and preparing slides. Explain what she is doing wrong in each case.

a

b



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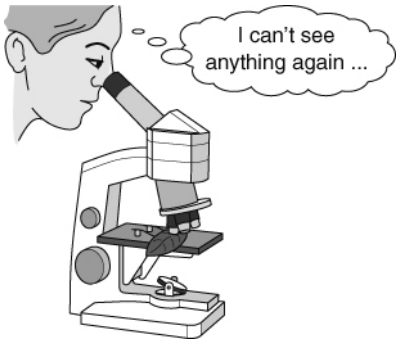


2 Fill in the correct microscope magnification in the table.

Magnification of eyepiece lens	Magnification of objective lens	Total magnification
×5	×10	
×5	×40	
×10		×150

3 What does a stain do? Tick the *best* answer.

- ☐ makes parts of a specimen stand out
- ☐ holds the specimen in place
- ☐ makes the specimen a pretty colour
- ☐ stops the specimen drying out

I can…

- describe how to use a microscope
- explain the use of different parts of a slide
- calculate microscope magnifications.

Name _____ **Class** _____ **Date** _____

1 **a** Which microscope would you use to see inside a cell in the most detail? Tick *one* box.

 ☐

 ☐

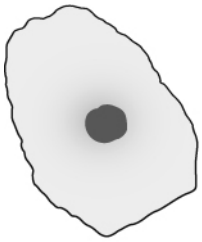
 ☐

b Why is the microscope you chose in part **a** the most suitable? Tick the *best* reason.

☐ It is the oldest. ☐ It is the biggest.

☐ It is the largest. ☐ It has the highest magnifications.

2 Draw lines from the boxes to label the cells.



cytoplasm

cell surface membrane

nucleus

3 Complete this table to compare the parts found in plant and animal cells.

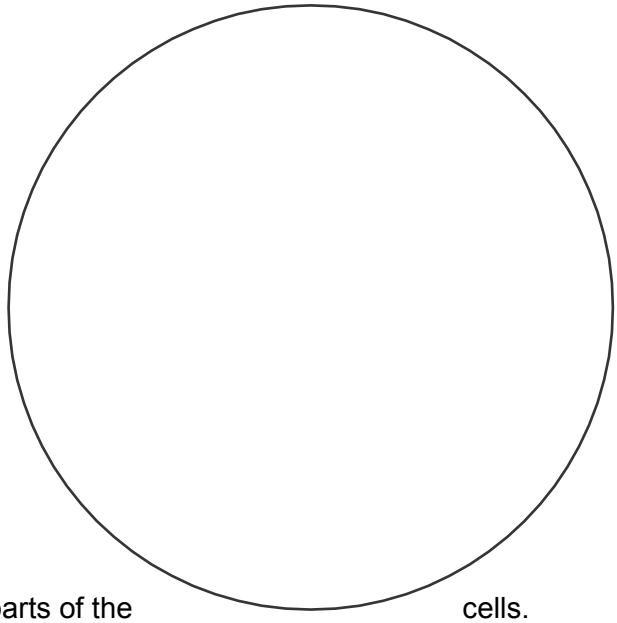
Part	Found in animal cells?	Found in plant cells?
cell surface membrane		
cell wall		
chloroplasts		
cytoplasm		
nucleus		
vacuole		

I can…

- describe what a microscope does
- identify the parts of animal and plant cells.

Name _____ **Class** _____ **Date** _____

1 **a** Draw one or two of the cells you are looking at in the circle.



b Add labels to the parts of the cells.

2 **a** Are these plant or animal cells? _____

b What evidence have you used to support your choice in part **a**?

_____

3 Describe any special features of these cells: _____

4 What tissue are the cells from? _____

5 Magnification: _____

6 **a** Stain used (if any): _____

b What does this stain do? _____

7 Are there any special features of these cells? If so, what are they?

_____

I can…

- use a microscope to examine tissues
- recall the parts of cells
- record results clearly
- work out microscope magnifications.

Human cheek cells

Name _____ **Class** _____ **Date** _____

Your teacher may watch to see if you can:
- use a microscope correctly
- use equipment safely and carefully.

Aim

To examine some of your cells.

Prediction

A prediction is what you think you will find.

1 a Draw a picture of what you think you will find.

b Why do you think you will see this? _____

_____

_____

Method

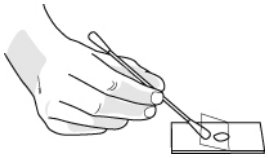
Apparatus
- coverslip
- pipette
- microscope
- stain (e.g. methylene blue)
- slide
- cotton bud

⚠ Be careful with stains – they stain skin and clothes!

Place all used cotton buds, slides, etc., into the place your teacher shows you.

A Take a cotton bud and place it against the inside of your cheek. Then take it out of your mouth.

B Put a drop of stain on a slide.

C Dip the end of the cotton bud into the stain and stir gently. 	**D** Place a coverslip on the edge of the pool of stain, lowering it gently into place using the cotton bud. 
E Observe your cells under a microscope.	

Recording your results

2 Draw a picture of what you see in the space below. Add labels if you can.

Considering your results/Conclusion

3 **a** What did you see using the microscope? _____

b Was this what you expected to see? _____

c If not, how was it different? _____

_____

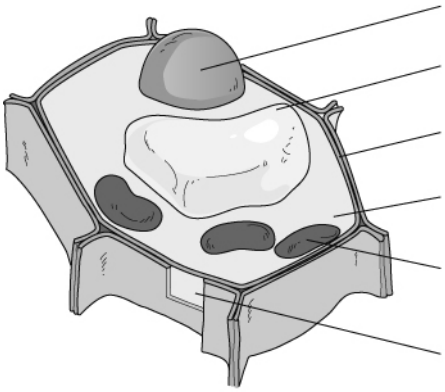
I can…

- make a prediction using scientific ideas
- use a microscope to examine tissues
- recall the parts of cells
- record results clearly
- draw a conclusion.

Name _____ **Class** _____ **Date** _____

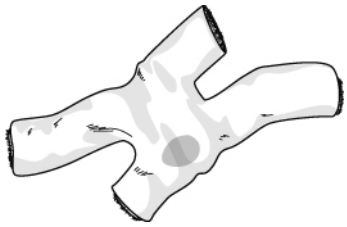
1 **a** Join the lines from the cell to the names of the parts.

b Then draw lines from the parts to their jobs.



chloroplast	helps support the cell
nucleus	makes food
cell wall	where the cell's activities happen
cytoplasm	controls what goes in and out
vacuole	controls the cell
cell surface membrane	stores substances

2 The drawing shows a cell from heart muscle tissue.



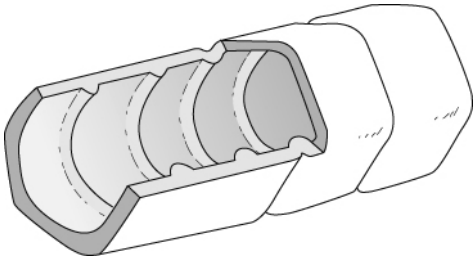
a What parts would you expect to find in this cell? _____

_____

b What is this cell able to do that a fat cell from the heart cannot do?

_____

3 The drawing shows a xylem cell from a plant.



a Suggest what its job is. _____

b Describe the evidence that supports your answer to part **a**. _____

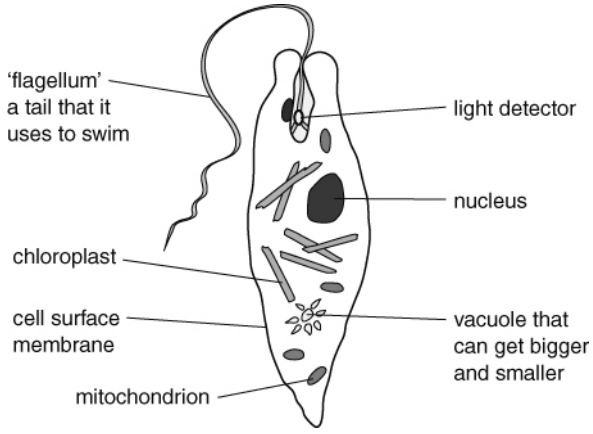
_____

I can…

- describe what a microscope does
- recall the functions of plant and animal cell parts
- describe how some cells are specialised.

Name _____ **Class** _____ **Date** _____

1 The drawing shows an organism called *Euglena.*



a The length of the drawing is 5 cm. In reality, *Euglena* cells are about 0.1 mm long. You are going to calculate the magnification of the drawing. Follow these steps and show your working at each step.

i Convert the length of the drawing into mm.

ii Divide your answer by the length of *Euglena*. This is the number of times bigger the drawing is compared with a real *Euglena*.

iii Write a multiplication sign in front of your answer to show your answer as a magnification.

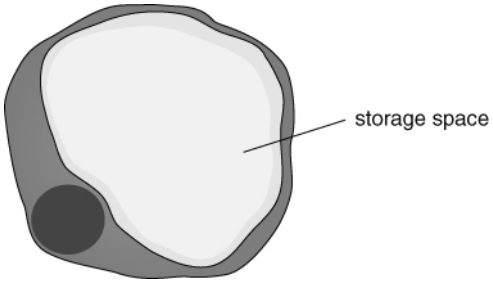
b Which part of *Euglena* is responsible for carrying out the following life processes?

i movement **ii** sensitivity **iii** nutrition

c *Euglena* cells also respire. What part of the cell carries out this life process?

d Explain why it is difficult to decide whether *Euglena* is a plant or an animal.

2 **a** Cells are often specialised – they have special jobs to do. The drawing below shows a specialised cell. Is it from a plant or from an animal? Explain your reasoning.



b Which part of a plant cell is most useful for deciding whether a cell is from a plant or not? Explain your reasoning.

3 Some specialised cells have more of a certain part than other cells do. Some specialised cells have less of a certain part or lack a part altogether. Suggest *one* part for each of these cells that would be increased, decreased or absent. Explain your reasoning for each cell.

a a plant cell that helps to support the plant

b a muscle cell in your leg

c a cell near the surface of a green leaf

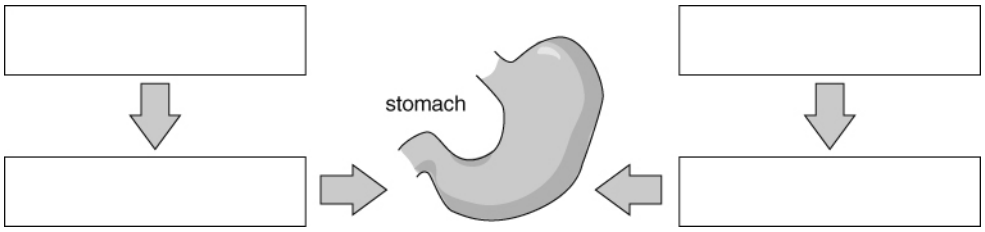
d a cell in a tree root

I can…

- recall the functions of plant and animal cell parts
- work out magnifications
- classify cells as being from plants or animals
- identify specialisations of cells.

Name _____ **Class** _____ **Date** _____

1 a The stomach contains different tissues. One is called smooth muscle tissue and one is called nerve tissue. Using this information, complete the diagram below to show how the stomach is made of different tissues and cells.



b The stomach is part of an organ system. Which one? _____

2 Which definition is the best way of explaining what an organ system is? Tick *one*.

- ☐ all the tissues found in an organ
- ☐ the organs found in the body
- ☐ a way of sorting organs into groups
- ☐ a group of organs working together

3 Complete the table.

Organ system	Function	Organs
circulatory system		
digestive system		
locomotor system	movement	bones, muscles
nervous system	communication, sensing things	brain, spinal cord, nerves
urinary system		

I can…

- describe how cells, tissues, organs and organ systems are linked
- identify some human organ systems, their functions and their organs.

Organs systems wordsearch

Name _____ **Class** _____ **Date** _____

You will need *three* different coloured pens. Fill in the colours here:

This colour [ ] shows an organ in the digestive system.
This colour [ ] shows an organ in the breathing system.
This colour [ ] shows an organ in the circulatory system.

These words are hidden in the grid below.

blood	gullet	heart	intestines	liver	lungs	mouth
		stomach	vessels	windpipe		

The words may be in any direction (even diagonally) but not backwards.
Once you have found a word, draw a line through it using the correct colour.

I	N	T	E	S	T	I	N	E	S
H	E	A	R	T	D	S	F	G	H
K	L	I	U	O	Y	M	W	G	G
H	T	U	O	M	G	O	I	J	U
G	H	L	J	A	H	U	N	J	L
F	B	U	H	C	J	T	D	A	L
B	B	N	A	H	A	H	P	H	E
Z	X	G	J	H	L	I	I	V	T
V	E	S	S	E	L	S	P	O	T
F	G	O	M	L	I	V	E	R	S

I can…

- recall the names of the organs in some organ systems.

Name _____ **Class** _____ **Date** _____

1 **a** Draw lines to link each life process with an organ system.

b Draw lines to link each organ system with two organs that it contains.

Life process	Organ system	Organ
nutrition	nervous system	brain
respiration	breathing system	stomach
excretion	digestive system	kidneys
sensitivity	urinary system	lungs
		spinal cord
		windpipe
		bladder
		small intestine

2 What *three* organs does a plant's water transport system contain?

_____ _____ _____

3 David has been taken to hospital and has been fitted with a mask that supplies oxygen. However, he does not feel any better and feels faint and a bit dizzy. The doctor says that he thinks this might be because not enough oxygen is getting to the parts of the body.

a Which organ system is responsible for taking oxygen into David's body?

_____

b Which other organ system may not be working properly in David's body?

_____

c Explain your reasoning for your answer to part **b.**

_____

_____

4 Complete these sentences:

a Lots of cells of the same type make a _____

b Different tissues together make an _____

c Organs work together in an organ _____

I can…

- recall the functions of some organ systems and the organs they contain
- describe how cells, tissues, organs and organ systems are linked.