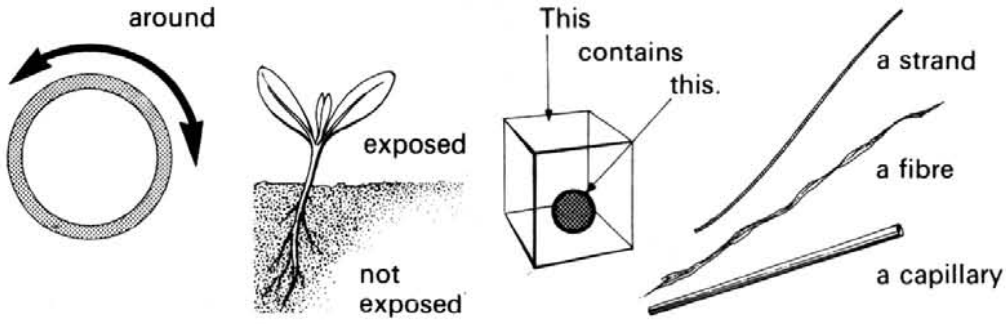
Section 3 Reading

7. Read this passage. The diagrams show the meaning of new words.



Teeth

The lower part of a tooth is inside the jaw-bone, while the upper part is exposed. The exterior of the exposed part consists of enamel. This is a very hard, non-living material which forms a good surface for biting.

Under the enamel there is a part made of a material called dentine. This is also hard but it is less brittle than enamel. It is like bone in structure. It contains living strands of cytoplasm.

In the centre of the tooth there is a material called pulp. This consists of soft connective tissue. Inside the pulp there are sensory nerve endings and blood capillaries.

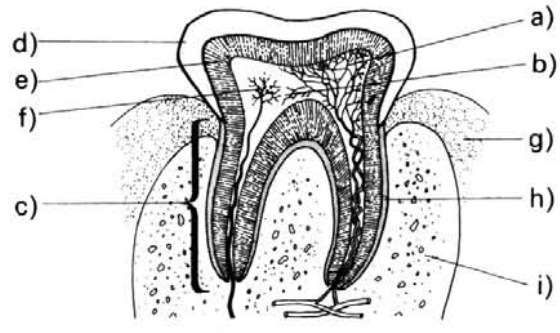
The lower part of the tooth is called the root. It is held to the jaw-bone by tough fibres.

Around the dentine at the root there is a thin layer of cement. This is also a bone-like material.

The flesh around the base of the enamel is called the gum.

Now add these labels to the diagram below:

jaw-bone	pulp	cement
enamel	sensory nerve ending	gum
dentine	blood capillaries	root



Molar tooth (nerve shown on the right, blood capillaries on the left)

8. Write short answers to these questions:

a) Which part of the tooth is outside the jaw-bone?
b) What is there on the surface of this part?
c) Which two materials are like bone?
d) What is on the surface of the lower part of the tooth?
e) Where is the soft part of the tooth?
f) Which material is not living?

9. Look at these examples:

Similarities: The leaves of a plant are found above the ground.
The flowers of a plant are found above the ground.

i.e. *Both* the leaves *and* the flowers of a plant are found above the ground.

Differences: The shoot is found above the ground.
The root is found below the ground.

i.e. The shoot is found above the ground, {*while* / *whereas*} the root is found below the ground.

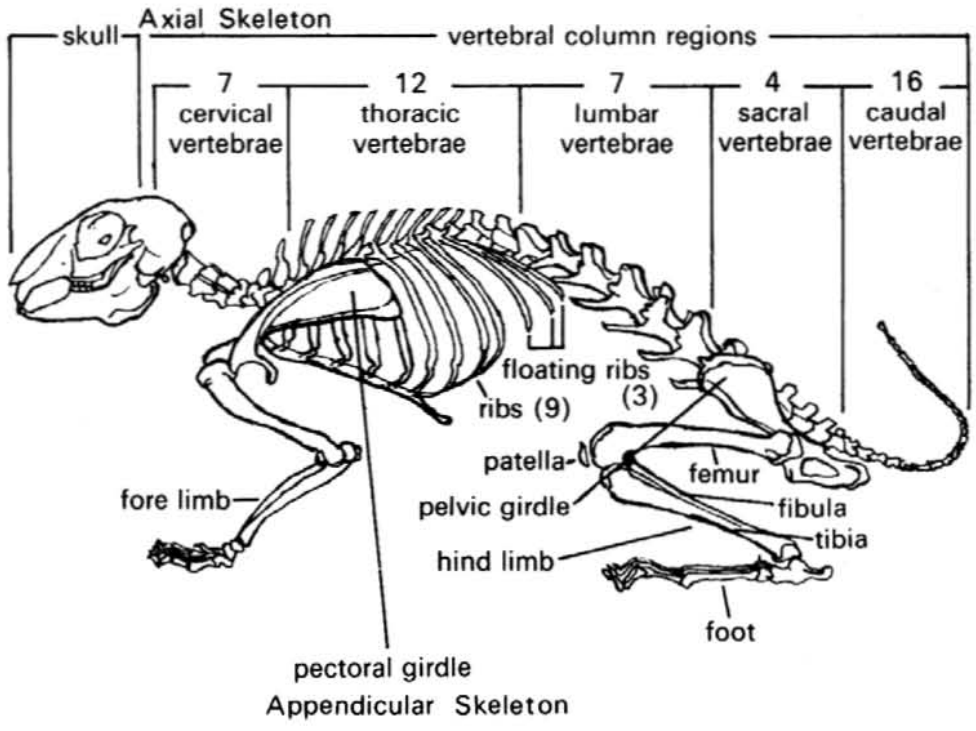
Now join these pairs of sentences with *both . . . and* or *while/whereas*:

a) The buds are found at the tip of the shoot.
The flowers are found at the tip of the shoot.
b) The outer layer is called the cortex.
The middle layer is called the cambium.
c) The calyx is outside the reproductive organs.
The corolla is outside the reproductive organs.
d) The stamen is a reproductive organ.
The pistil is a reproductive organ.
e) A hypogynous flower has a conical ovary.
A perigynous flower has a cup-shaped ovary.
f) The arteries take blood from the heart.
The veins take it back to the heart.

Unit 3 Structure

Section 1 Presentation

1. Look and read:

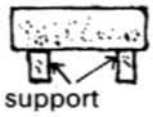


Skeleton of a rabbit showing axial skeleton and left side of appendicular skeleton

The skeleton *consists of* two sections – the axial skeleton and the appendicular skeleton.
The vertebral column *is made up of* bony segments called vertebrae.
The vertebral column *is divided into* five regions.
These regions *include* the cervical vertebrae, the thoracic vertebrae *etc.*
The bone of the vertebrae *surrounds* the spinal cord (nervous tissue), which runs through the centre of the vertebral column.

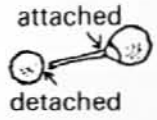
anterior view of vertebrae

The skeleton *is composed of* a hard material called bone.
The body *is supported by* the skeleton.

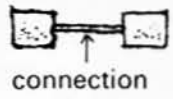


support

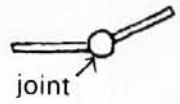
The ribs *are attached to* the vertebral column.



The limbs *are connected to* the axial skeleton *by* the girdles.



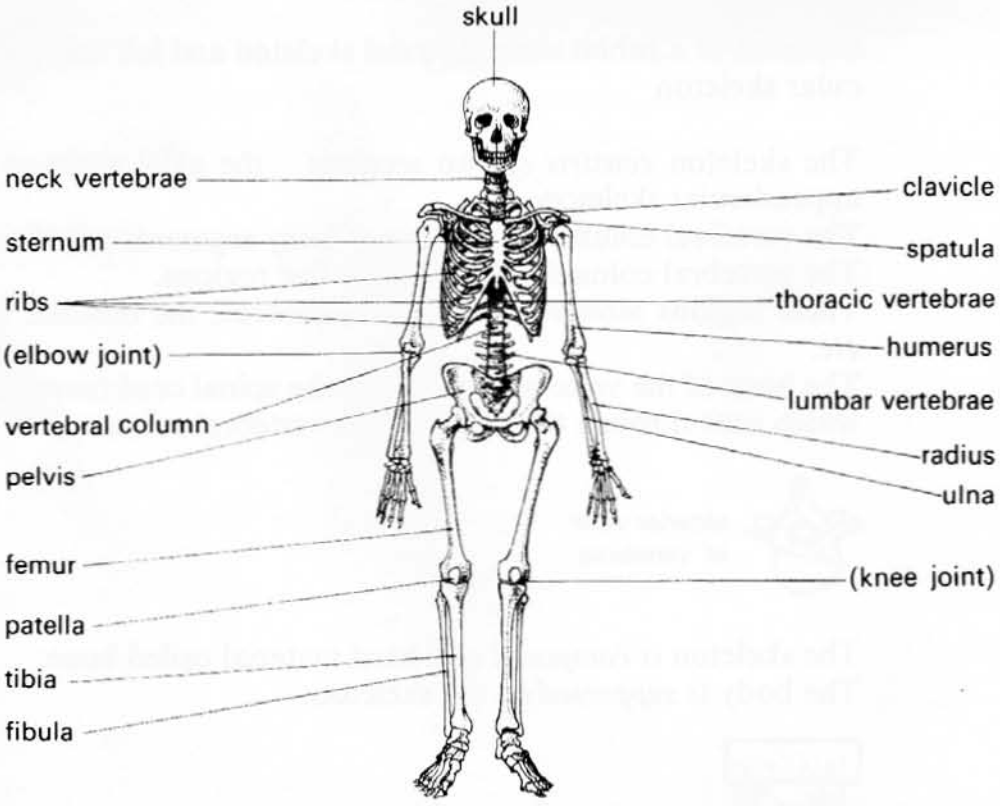
The bones in the limbs *are joined* together. The regions where they join are called *joints*.



Now answer these questions:

a) What does the appendicular skeleton consist of?
b) Do the regions of the vertebral column include the ribs?
c) What is the hind limb made up of?
d) Which part of the hind limb is divided into several small bones?
e) Which bones surround the lungs?
f) What is the spinal cord composed of?
g) What is supported by the cervical vertebrae?
h) Which ribs are attached at one end and detached at the other?
i) How is the fore limb connected to the axial skeleton?
j) Which bone is joined to the pelvic girdle?

2. Look at this diagram:



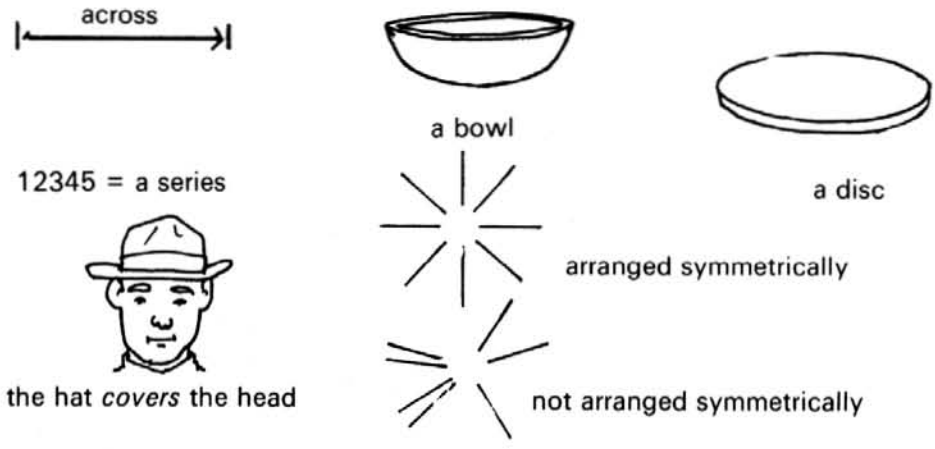
The human skeleton

Now complete these sentences with words from the list:

are attached to	is connected to
consists of	is composed of
are supported by	are joined to
include	is divided into
joint	

a) The skeleton . . . many bones joined together.
b) These bones . . . the skull, the vertebral column, the pelvis etc.
c) The pelvis . . . bone tissue.
d) The skull and upper parts of the skeleton . . . the vertebral column.
e) The radius and the ulna . . . the humerus.
f) This . . . is called the elbow.
g) The anterior ends of the ribs . . . the sternum.
h) The humerus . . . the vertebral column by the spatula.
i) The vertebral column . . . neck vertebrae, thoracic vertebrae and lumbar vertebrae.

3. Complete these sentences by saying what the parts are called. Note the new words illustrated by the diagrams:



Example: The part of the skeleton which is located above the spine

$$is \begin{Bmatrix} called \\ known\ as \end{Bmatrix} \text{ the skull.}$$

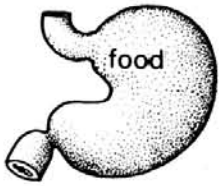
a) The large bowl-shaped bone which surrounds the base of the spine . . . .
b) The two bones in the lower part of the skeleton which are parallel and detached but joined at each end . . . .
c) The group of bones which are arranged symmetrically on each side of the vertebral column . . . .
d) The long flat bone located at the front of the upper part of the skeleton, to which the ribs are attached . . . .
e) The disc-shaped bone which covers the front of the knee-joint . . . .
f) The bones which are connected by the knee joint . . . .

g) The bones which support the pelvis . . . .
h) The two bones which run horizontally across the top of the ribs . . . .
i) The series of bones which make up the spine . . . .

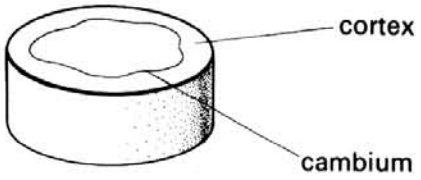
Section 2 Development

4. Look at these examples:

The root of the tooth *is embedded in* the gum.



The stomach { *contains* / *is filled with* } food.



The cortex of a plant stem *is lined with* cambium.

Now read this:

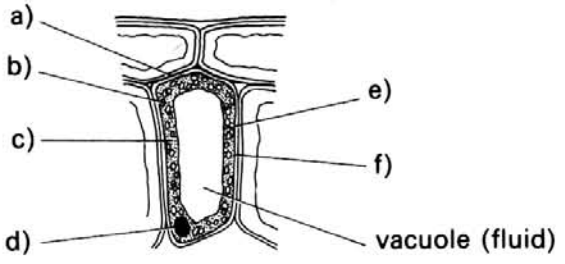
The structure of plant cells

The outer layer of a plant cell is called the cell wall. This is composed of a non-living material called cellulose. The inner surface of the cell wall is lined with a layer of protoplasm. The nucleus is embedded in this layer. The protoplasm which surrounds the nucleus is called cytoplasm. The cytoplasm sometimes contains chloroplasts. These are small bodies composed of protein. The surface of the cytoplasm is covered with a cell membrane. The centre of a plant cell consists of a cavity called the vacuole. It is filled with fluid.

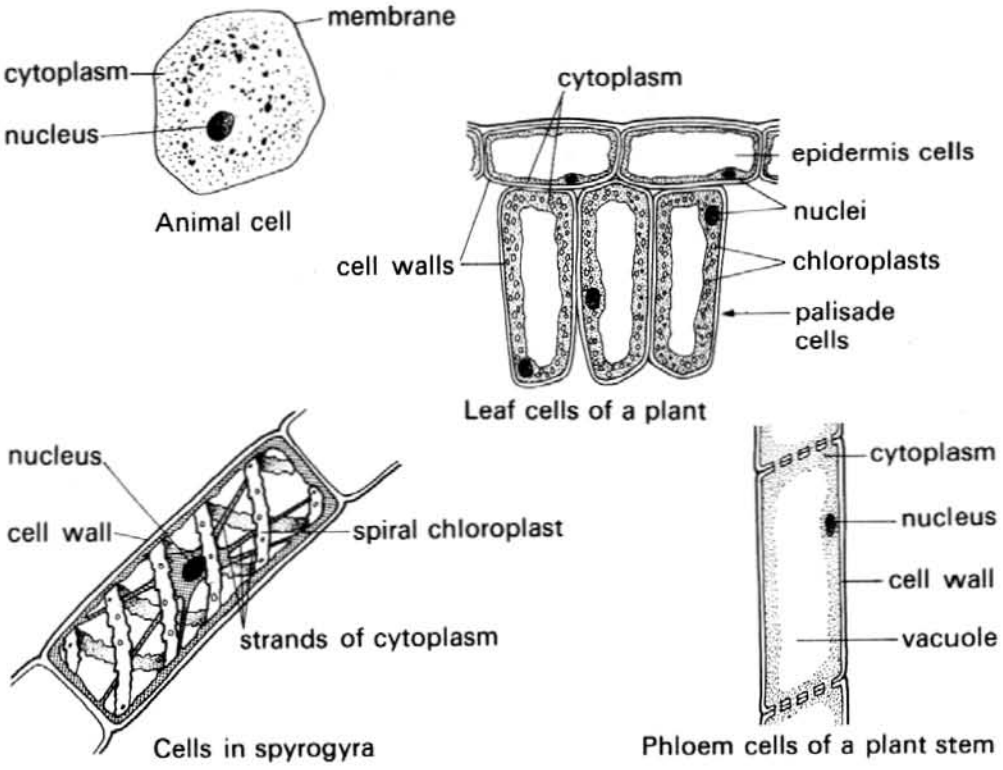
The walls of a plant cell are often joined to other cells which surround it. The lining between the walls of two cells is called the middle lamella.

Now label the parts and composition of a plant cell in this diagram using the following words:

middle lamella	chloroplast	(cellulose)
cell wall	nucleus	(fluid)
vacuole	cytoplasm	(protein)
cell membrane		



5. Look at these diagrams:



Now read these statements comparing the structure of the cells:

Similarities: *Both* plant cells *and* animal cells contain nuclei. A plant cell contains a nucleus. An animal cell *also* contains a nucleus.

Differences: Plant cells contain vacuoles, *whereas* animal cells often do not have vacuoles.
Plant cells contain vacuoles. Animal cells, *however*, often do not have vacuoles.

Now complete these comparisons:

a) . . . plant cells . . . animal cells contain . . . and . . . .
b) Plant cells always contain . . . , . . . animal cells often . . . .
c) Plant cells are surrounded by . . . . Animal cells, . . . , are not . . . .
d) The palisade cells of a leaf contain . . . . The epidermis cells, however, ...
e) In . . . plant cells . . . animal cells, the nucleus . . . by cytoplasm.
f) In . . . the nucleus is embedded in the cytoplasm lining the cell walls, . . . in . . . it is connected to the cell walls by . . . .
g) Cells in spyrogyra are joined end to end. Those in the phloem of a plant stem . . . . However, the end walls of a . . . cell are perforated (i.e. they contain holes), whereas . . . .
h) In . . . the chloroplasts are spiral-shaped, . . . in . . . they are round.