Chestnut Grove Academy

Biology

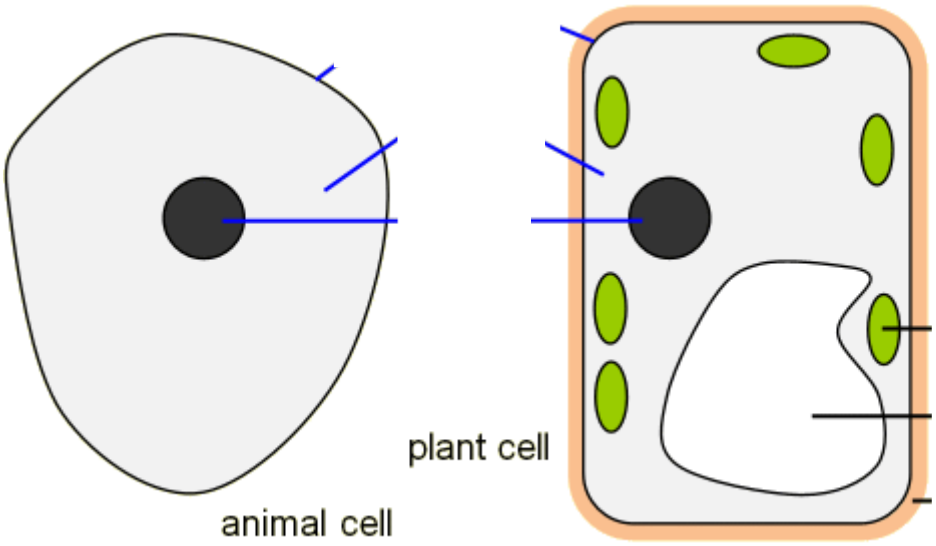
1. Cell Biology

Revisiting Booklet

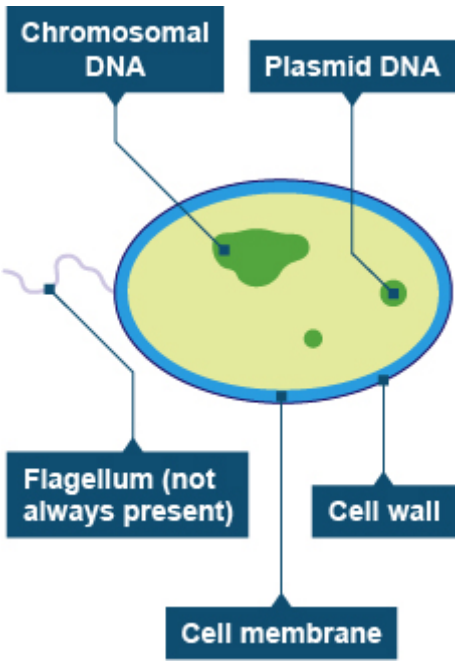
Name:

Cells and Cell Structure

Label plant and animal cells.



Organelle	Function



Describe the adaptations of this bacteria.

Plant and algae have cell walls made of cellulose.

Why?

Define these key words:

Cell

Tissue

Organ

Organ system

Cell Specialisation

Name of cell	Plant or Animal???	Diagram	Adaptations
Sperm red blood cell			
Nerve cell			
Muscle cell			
Root hair cell			
Xylem			
Phloem			

Cell Differentiation

What is cell differentiation?

.....

.....

At what stage of an animal's life do most of the cells differentiate?

.....

What is the purpose of cell differentiation in animals?

1.

2.

When a cell has undergone cell differentiation, we call the cell...

.....

How is differentiation in plant cells different to animal cells?

.....

.....

Microscopy

Name the two types of microscope:

.....

.....

Define key words:

Magnification

Resolution

Outline the differences between the two types of microscope you names, using the key words above.

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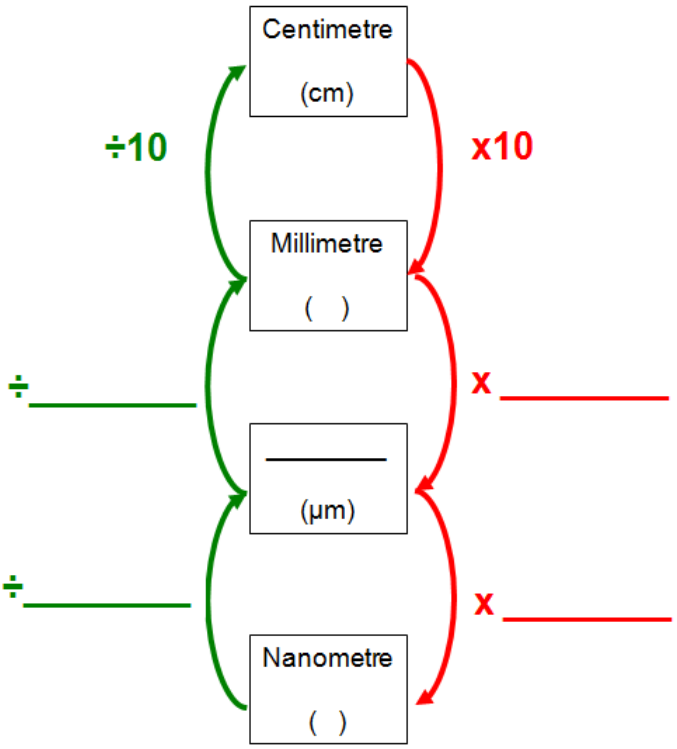
.....

.....

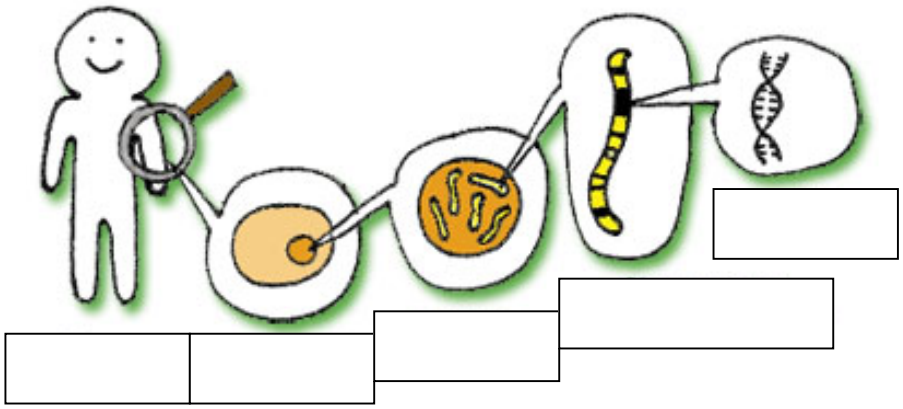
Recall the equation to calculate magnification:

How do you convert between these units in microscopy?



Chromosomes

Label the diagram:



Chromosomes are made of:

Chromosomes always come in:

There are _____ _____ of chromosomes in human body cells

Mitosis and the Cell Cycle

Name the process by which body cells divide: .....

Name the process by which sex cells divide: .....

Before a cell can divide, two things must happen:

1.

2.

Describe the two steps of mitosis.

1. .....

   .....

2. .....

   .....

3. .....

   .....

4. .....

   .....

Why do cells undergo mitosis?

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What are stem cells?

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What are stem cells used for in:

Embryos:

Adults:

Plants:

Stem cells from human embryos can be cloned and differentiate into other different types of human cell. What can human stem cells be used to treat?

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What are the potential risks around using stem cells in medical treatment?

.....

.....

Where are stem cells found in plants?

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Stem cells in plants can be used to produce clones of plants quickly and economically. There are two main uses of this:

1.

2.

Transport in Cells

How do substances move into and out of cells?

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What is diffusion?

.....

.....

How can the rate of diffusion be increased?

1. .....
2. .....
3. .....

Name the gas that diffuses into cells for respiration: .....

Name the gas that diffuses out of cells as a waste product of respiration:

.....

How does urea leave the blood plasma for excretion by the kidney:

.....

Why does a single celled organism NOT need a specialised exchange system?

.....

.....

What are the key features of a specialised exchange surface:

1.
2.
3.
4.

How is the small intestine of a human adapted for exchange?

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How are the lungs of a human adapted for exchange?

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How are the gills of a fish adapted for exchange?

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How are the roots of a plant adapted for exchange?

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Which gas diffuses into a plant leaf and why?

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Which gas diffuses out of a plant leaf and why?

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How are leaves adapted for gas exchange?

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Define:

- osmosis

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- partially permeable

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The plant cell wall provides support. How?

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Plants without water ..... because they lack .....
.....

Define:

- active transport

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Give an example of where active transport takes place in plants.

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Give an example of where active transport takes place in humans.

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