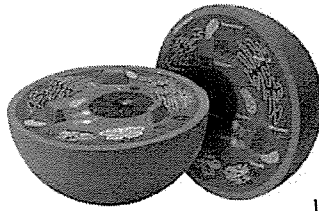


8 SCIENCE BIOLOGY ASSIGNMENT

CELLS



Name: _____

Teacher: _____

Form: _____

Due date: _____

ANSWER KEY

Aim: This assignment will allow you create your own plant or animal cell and find out about the history of cell discovery.

IMPORTANT INFORMATION

Plagiarism

- This assignment is to be done individually, not with a partner.
- You must write in your own words not copy sentences word for word from another student or another source.
- Plagiarising = instant zero on assignment and you will have to re-do it.

Assessment policy

Have sick note/legitimate reason from parent = new negotiated due date.

Assignment not submitted on due date and no sick note from parents = -20% mark

Assignment not submitted on new negotiated due date = -40% mark

+ Letter home to parents

+ Must attend academic completion to complete assignment

OR

Submit assignment to student services before academic completion date and academic completion not necessary.

Academic completion not attended = zero on assignment + Saturday detention

If you know that you cannot submit your assignment on the due date, let your teacher know **BEFORE** the due date (email them if you are not in school) or just email them your assignment the night before.

Part one: create your own plant or animal cell

Materials: these are some suggestions of materials you can use.

- | | | | |
|------------------------|----------------------|-----------------------|--|
| - Shoe box | - Styrofoam pieces | - Newspaper | - Thread |
| - Cardboard box | - Packing foam | - Magazines | - Crepe paper |
| - Tissue box | - Buttons | - Wool | - Cotton wool |
| - Tissue paper | - Large googely eyes | - Felt | - Plasticine |
| - Corrugated cardboard | - Pop sticks | - String | - Sequins |
| - Glitter | - Tooth picks | - Wire | - Small sticks |
| - Small pom poms | - Paint | - Ice cream container | - Coloured sticky tape |
| - Pipe cleaners | - Tissue paper | - Stickers | - Cellophane |
| - Beads | - Modelling clay | - Honey nuts | - Small electrical items
(from taken apart radio, tv. etc.) |

Guidelines

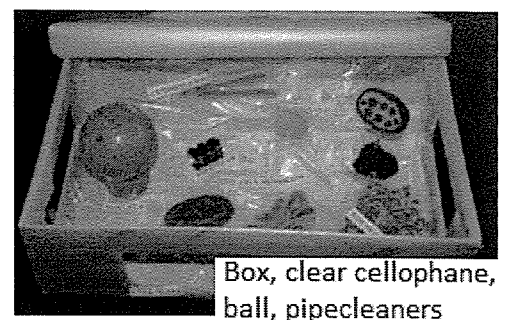
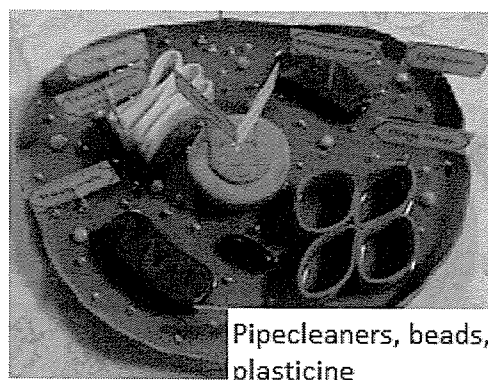
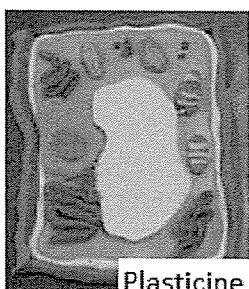
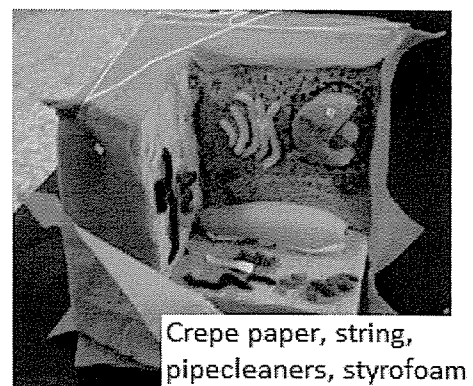
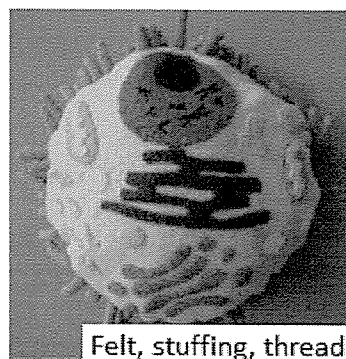
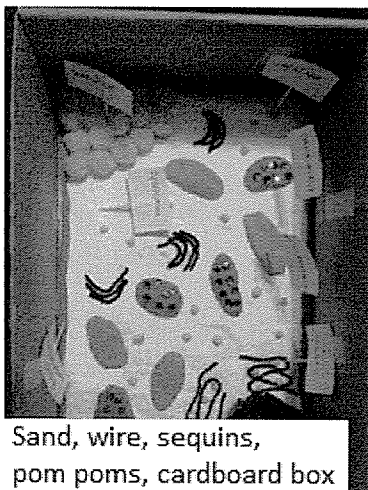
1. You can only create either one plant cell or one animal cell model.
2. The minimum size of the model is 10cm x 10cm x 10cm and the maximum size is 30cm x 30cm x 30cm.
3. Do not use edible items (no lollies etc).
4. If you create a plant cell you must include the following structures:
 - Cell wall
 - Cell membrane
 - Chloroplasts
 - Vacuole
 - Cytoplasm
 - Nucleus

If you create an animal cell you must include the following structures:

- | | | |
|-----------------|-------------|-------------------------|
| - Mitochondria | - Vacuole | - Endoplasmic reticulum |
| - Cell membrane | - Cytoplasm | - Lysosomes |
| - Ribosomes | - Nucleus | |

5. Get ideas on the shapes of the structures from pages 48 and 49 of your text book, websites or other books.

Below are some examples you can get ideas from.



On this page draw a neat diagram in lead pencil and label each structure

Fill in the table below with the structures and the functions of each structure (in your own words, not copied out!)

Cell structure (organelle)	Function
Cell membrane	A thin layer that surrounds the cell & controls what comes in & out.
Cytoplasm	The jelly-like material that the organelles float in.
Nucleus	The control centre of the cell
vacuole	structures that store material in a cell.
Chloroplast	The organelle in plant cell where photosynthesis occurs.
cell wall	The rigid outer layer of plant cells.
Mitochondria	Organelles that produce energy.
Ribosomes	Organelles that make proteins
lysosomes	organelles that remove waste from cells
Endoplasmic reticulum	Organelles that move materials through a cell.

In both plant & animal cells
 In both
 In plant cells
 In plant cells
 In animal cells

Part two: the history of cell biology

The discovery of cells was made possible by the development of the microscope in the 17th century. In 1665, the English scientist Robert Hooke used a microscope to examine a thin slice of cork. Hooke described it as consisting of "a great many little boxes." These "little boxes" reminded him of the cubicles or "cells" in which monks lived, so he called them cells.

What Hooke had observed were actually the remains of dead plant cells. The first person to observe living cells was a Dutch trader, Anton van Leeuwenhoek. Although van Leeuwenhoek's microscope was rather simple, in 1673 it was powerful enough to enable him to view the world of microscopic organisms which had never before been seen.

About 150 years passed before scientists began to organize the observations begun by Hooke and van Leeuwenhoek into a unified theory known as the cell theory.

This theory has three parts:

- (1) All living things are composed of one or more cells.
- (2) Cells are the basic units of structure and function in an organism.
- (3) Cells come only from the reproduction of existing cells.

1. Explain what allowed scientists to discover the existence of cells.

(2 marks)

The development of the microscope.
(1) (1)

2. State the name given to the small rooms that monks lived in.

(1 mark)

cubicles

3. Describe what Hooke observed when looking at a thin slice of cork.

(1 mark)

~~little boxes~~ Many little boxes
(1)

4. Describe the discovery that van Leeuwenhoek made.

(2 marks)

The observation of living cells.
(1) (1)

Early evidence for the cell theory was provided by German scientists. In 1838, the botanist Matthias Schleiden concluded that all plants are composed of cells. A year later, the zoologist Theodor Schwann came to the same conclusion about animals. In 1855, Rudolf Virchow, a physician who had been studying how disease affects living things, reasoned that cells come only from other cells. Over the years, modern scientists have gathered much additional evidence that strongly supports the cell theory.

6. The figure below indicates events that led up to the cell theory.

(5 marks)

Complete the table by filling in the blank spaces.

Date	Scientist	Discovery
1665 (0.5)	Robert Hooke (0.5)	Observed the remains of dead plant cells.
1673 (0.5)	Anton van Leeuwenhoek	observed living cells. (0.5)
1838 (0.5)	Matthias Schleiden	stated that all plants are composed of cells (0.5)
1839 (0.5)	Theodor Schwann (0.5)	Stated that all animals are made of cells.
1855	Rudolf Virchow (0.5)	Reasoned that cells come only from other cells (0.5)

7. The cell theory was:

(1 mark)

- a. first identified in 1665.
- ☒ b. the end result of many scientific investigations.
- c. described by Rudolf Virchow.
- d. Both (a) and (b)

MARKING KEY

Content	Description		Your mark
Part one	Cell model is unique and uses original ideas	2	
	Cell model includes all listed structures for chosen cell type	2	
	Cell model is completed to high standard	2	
	Cell structures in model resemble structures in actual cell	1	
	Diagram is completed in lead pencil	1	
	Diagram is neat, an appropriate size and ruler is used to label	1	
	All listed structures for appropriate cell are labelled	1	
	Table includes all listed structures for chosen cell type	3	
	Table includes functions of cells (in own words)	3	
Part two	Questions	12	
Presentation	Correct spelling	1	
	Correct grammar	1	
Total mark		30	

Mark as percentage

%

Teacher's comment:
