

# 1<sup>st</sup> Year Science, Mid-term 2022

**Mr. A. Goodison**

Student Name \_\_\_\_\_

Answer all questions in the spaces provided.



Good luck!

An image of comet Neowise captured over Dublin Bay taken by Antonio Martin Carrillo on the 12<sup>th</sup> of July 2020.

Question	Marks	Awarded
Total	30	
Grade descriptor		

Junior Cycle	
Percentage	Grade Descriptor
≥ 90 to 100	Distinction
≥ 75 and < 90	Higher Merit
≥ 55 and < 75	Merit
≥ 40 and < 55	Achieved
≥ 20 and < 40	Partially Achieved
≥ 0 and < 20	Not Graded (NG)

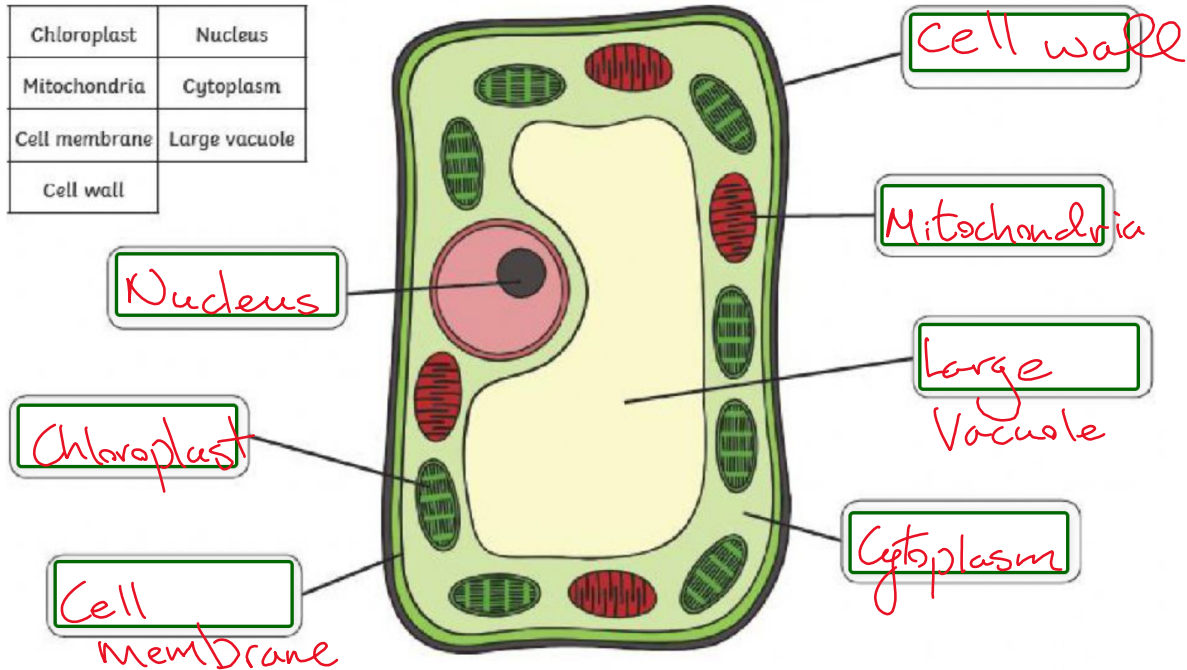
### Question 1

(a) Label the parts of the plant cell

(7)

### Plant Cell Diagram

Chloroplast	Nucleus
Mitochondria	Cytoplasm
Cell membrane	Large vacuole
Cell wall	



(b) Name two differences between plant and animal cells.

(2)

Plant cells have a large vacuole, chloroplast and cell wall whereas animal cells do not have these.

d) Give the function of the nucleus of the cell

(1)

Stores DNA OR controls the activities of the cell

### Question 2

Katie was asked to investigate what effect temperature has on the height a ball will bounce to. She gave her hypothesis which is below:

**Hypothesis:** "If I increase the temperature of the ball, then I think the height the ball will bounce to will decrease."

(a) The independent variable is the variable Katie will change. What is the independent variable in this experiment? Temperature (1)

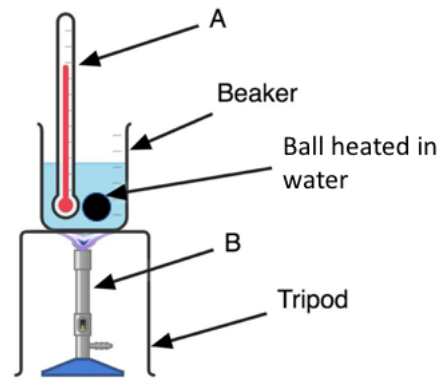
The diagram of how Katie heated the ball is shown.

(b) Name the instrument (A) in the diagram that is used to measure temperature.

Thermometer (1)

(c) Name the device (B) in the diagram used to heat the water.

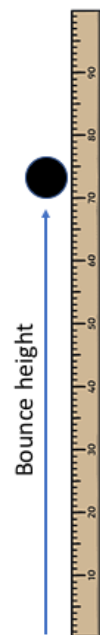
Bunsen burner (1)



Katie removed the ball from the water and dropped the ball from a height. She measured the height the ball bounced back up to (bounce height) as shown in the diagram.

Katie collected the following data for the bounce height of the ball at different temperatures

Temperature (°C)	Bounce height (cm)
20	52
30	55
40	61
50	66
60	70



(d) Does the data in the table support Katie's hypothesis? Explain your answer. (2)

**No, she thought the bounce height would decrease as the temperature increased. But the bounce height actually increased.**

(e) During the experiment Katie measured the height of the ball. What measuring instrument could she have used to measure height? (1)

**Meter stick OR ruler**

(f) Give a safety precaution when using a Bunsen burner in the lab. (1)

**Tie back long hair OR wear safety goggles OR use the safety flame when not heating**

(g) The student wanted to be able to make a fair comparison between each investigation of the different temperatures. Describe one thing the student should have done to allow a fair comparison. (1)

**The students should have used the same ball OR same surface OR heated the ball for the same amount of time**

### Question 3

Complete the table below for the instruments shown.

(6 marks)

In each case, state what physical quantity the instrument measures. Also state the unit used for that measurement. (Some parts of the table are already completed for you)



Stopwatch



Graduated cylinder



Trundle Wheel

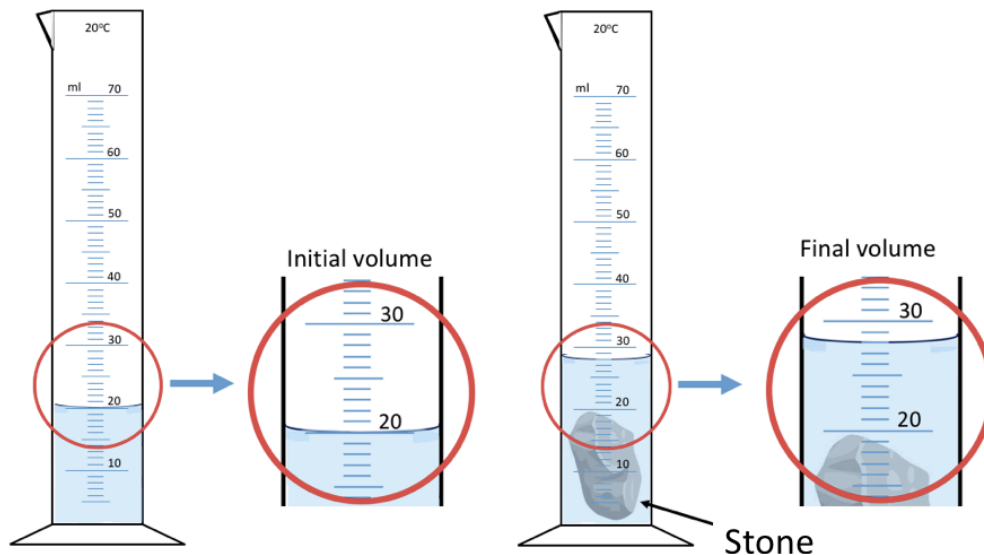


Mass balance

Instrument	Quantity measured	Unit
Stopwatch	<i>Time</i>	<i>Seconds</i>
Graduated cylinder	Volume	mL OR cm <sup>3</sup>
Trundle wheel	Length OR distance	Meters OR kilometres
Mass balance	Mass	Kg OR g

### Question 4

Your science teacher has asked you to find the **volume** of a stone using a graduated cylinder. During the experiment you made the observations as seen in the diagram below.



Study the diagram above for measuring the volume of the stone carefully.

- What was the initial volume of water? 20 ml (1)
- After the stone was added, what was the final volume? 28 ml (1)
- Calculate the volume of the stone  $28 - 20 = 8 \text{ ml}$  (1)

### Question 5

Anna is a builder and wants to order concrete for the balcony of an apartment she is building. She needs the depth of the floor to be 0.5 m, the width to be 15 m while the length will be 30 m. Calculate what **volume** of concrete is required for the floor. Include the **unit** in your answer

(3)

Calculation

$$\begin{aligned} \text{Volume} &= \text{length} \times \text{width} \times \text{depth} \\ &= 30\text{m} \times 15\text{m} \times 0.5\text{m} \\ &= 225 \text{ m}^3 \end{aligned}$$



Happy midterm to the best students!

If you are finished early and have checked all of your answers, colour in the picture below.

