



Mission Heights Junior College

Common *Assessment Task*

Year 9 Science 2020

Name: _____ **Whanau/Class :** _____

Instructions:

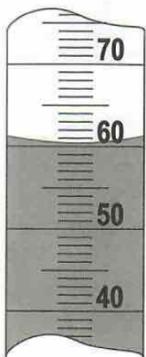
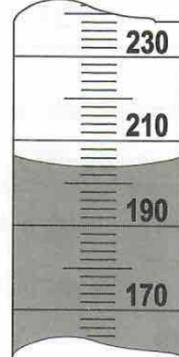
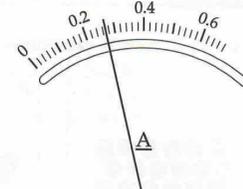
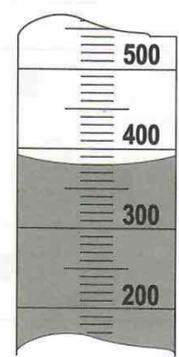
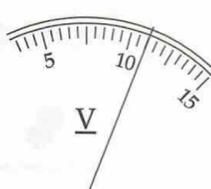
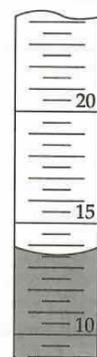
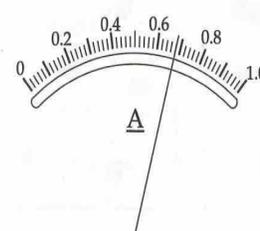
- The time allowed for this CAT section is 1.5 hour in total for 3 questions; 30 minutes per question.
- You should attempt all the questions provided in sections.
- Start writing when you are instructed to do so.
- You have 5 minutes of reading time before you start writing.
- Use the space provided after each question to write all your answers. If you need extra writing sheets then ask your teacher.
- Check that this booklet has pages _____ in the correct order and the last two pages are blank.

YOU MUST HAND THIS BOOKLET TO THE TEACHER AT THE END OF THE TEST.

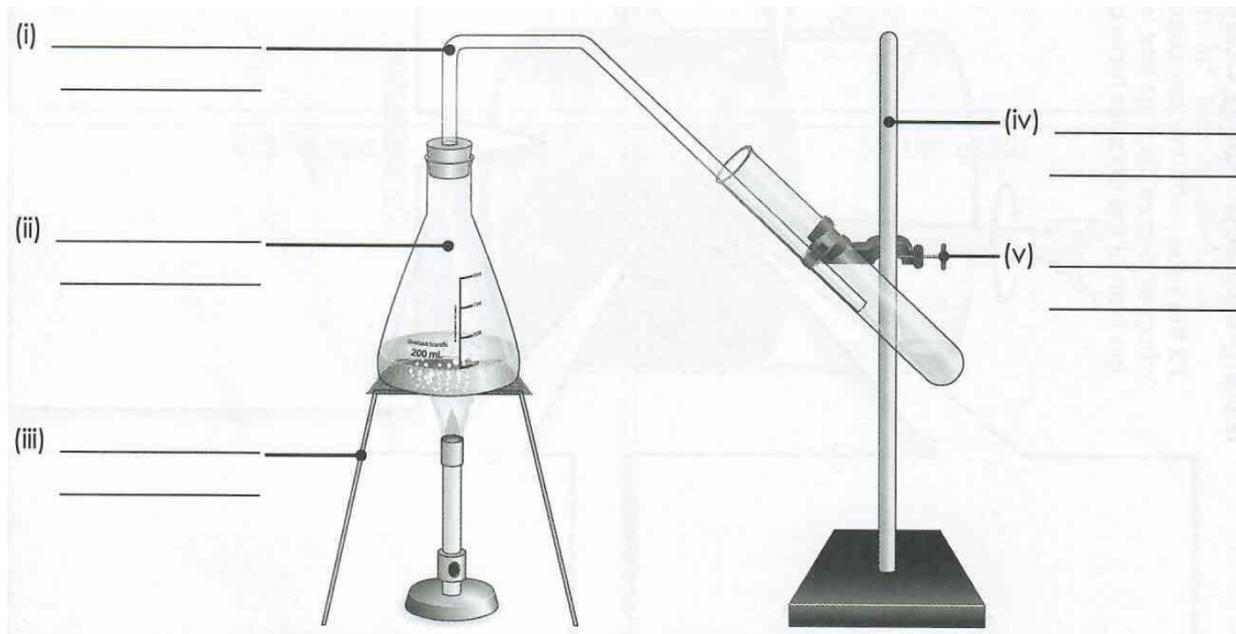
Question 1: (30 minutes) **Total 20 marks max**

(W/A/Ab/B)

A. Laboratory work often involves reading scales on meters, on measuring cylinders and on other recruitment. Read the scales below and record your readings in the spaces provided. **(5 marks max)(AT)**

 <p>a) _____ ml</p>	 <p>b) _____ ml</p>	 <p>c) _____ °C</p>	 <p>d) _____ Amps</p>
 <p>e) _____ ml</p>	 <p>f) _____ Volts</p>	 <p>g) _____ ml</p>	 <p>h) _____ Amps</p>

B. The apparatus shown below can be used to separate a mixture of sugar and water,



a) By using the words in the box below, **label** the equipment used in the experiment above (5 marks max) (AT)

Beaker, Bunsen Burner, Thermometer, Conical Flask, Retort Stand, Clamp, Test tube, Glass Tube, Rubber bung, Glass bowl, Metal stand

b) When you are not using a burner you should always switch it off - **Discuss** why (2 marks max)

c) What is the name of the separation technique in the diagram above ?

(2 marks) _____

d) Using the words *evaporate* and *condense*, briefly **explain** how distillation works and in which piece of apparatus this process occurs **(6 marks max)**

Question 2: (30 minutes) **Total 20 marks max** **(W/A/Ab/B)**

If you heat calcium carbonate, it turns into calcium oxide and gives off carbon dioxide gas. The word equation for the reaction is:



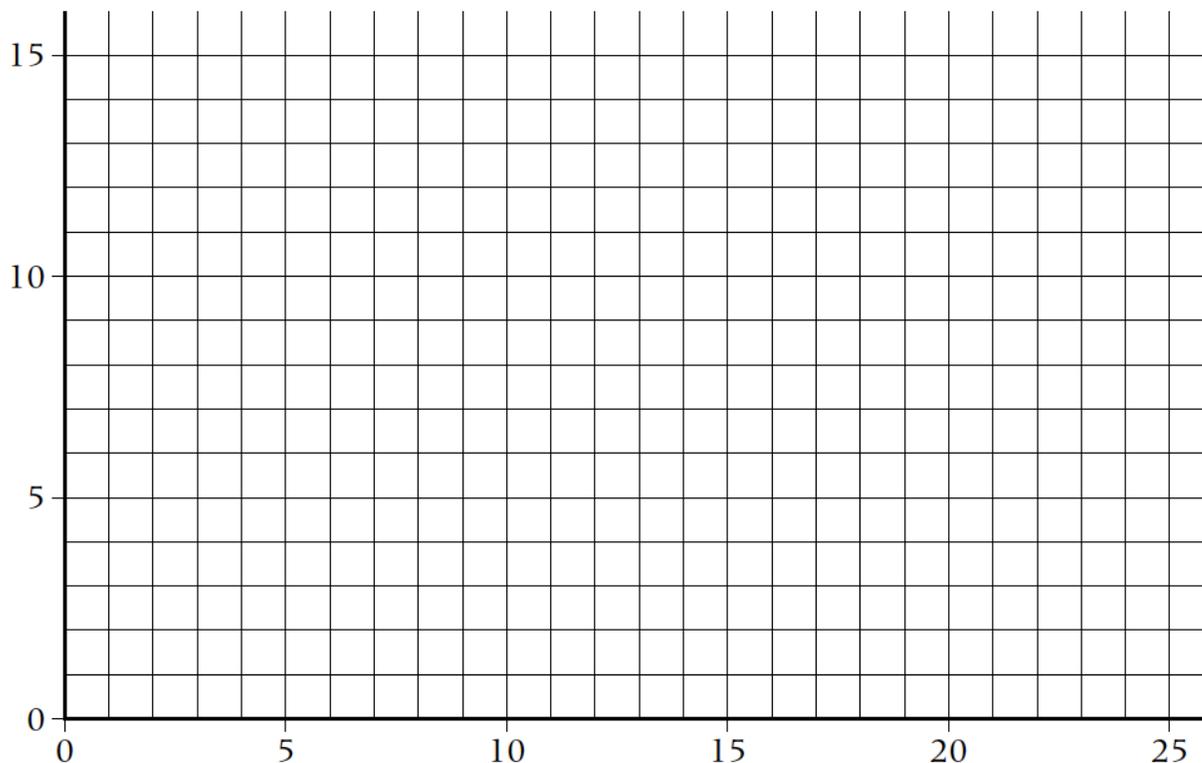
Five pupils heated different amounts of calcium carbonate. The table below shows their results:

Pupil	Mass of calcium carbonate at start (g)	Mass of calcium oxide at end (g)
Angela	5	3.0
Ben	10	5.5
Con	15	8.5
Deepak	20	13.5
Ellie	25	14.0

a) Plot their results on the graph paper below. Remembering your graph plotting rules.

(10 marks)

- Include: graph heading, axis labelled, units etc



b) Whose results do not fit the pattern? **(1)** _____

What do you call this and how can you tell? **(1)**

c) All the pupils measured the masses of the chemicals very accurately. Suggest a reason why this pupil could have got a result that did not fit the pattern. **(3)**

d) Using the graph, **determine** what mass of calcium oxide would you expect to get if you heated 12g of calcium carbonate? **(4)**

Use the graph to help you work out the answer - mark on the graph so that we can see how you got your answer _____

Question 3: (30 minutes) **Total 20 marks max**

(W/A/Ab/B)

Question 3: (Total 20 marks max) 30 mins

(W/A/Ab/B)

Read and understand some background information from this scientific article.

[Understanding geologic time](#)

Beth Geiger June 13, 2019

**This article has been shortened for the purpose of this examination

Imagine the nearly unimaginable: 4.6 billion years. That's how old the Earth is. And to measure it, scientists use special terms, most of which focus on the planet's changing geology. That's why, in fact, it's known as geologic time.

Almost as mind-boggling is how geologists figured this all out. Like chapters in a very, very thick book, layers of rock chronicle Earth's history. Put together, the rock records the long saga of life on Earth. It shows how and when species evolved. It also marks when they thrived — and when, over millions of years, most of them went extinct. As species evolve or go extinct, the fossils trapped in the rock layers reflect these shifts.

Using dazzling detective skills, geologists created a calendar of geologic time. They call it the Geologic Time Scale. It divides Earth's entire 4.6 billion years into four major time periods. The oldest — and by far the longest — is called the Precambrian. After the Precambrian come the Paleozoic Era and Mesozoic Era. Last but not least is the Cenozoic (Sen-oh-ZOE-ik) Era, the one in which we live. The Cenozoic started about 65 million years ago.

Unlike months in a year, geologic time periods aren't equally long. That's because Earth's timeline of natural change is episodic. That means changes happen in spurts, rather than at some slow and steady pace.

How do we know the actual ages on the Geologic Timeline? The principle is called the Law of Superposition. It states that in an undisturbed stack of rock layers, the oldest layers will always be on the bottom, and the youngest on top. The Law of Superposition allows geologists to compare the age of one rock or fossil to another. It makes the sequence of geologic events more clear. It also gives clues into how species evolved, and what creatures co-existed — or didn't.

Right now, new layers of limestone and shale are forming at the bottoms of Earth's oceans and lakes. Rivers move gravel and clay that will someday become rock. Volcanoes spew out new lava. Meanwhile, landslides, volcanoes and shifting tectonic plates constantly re-shape Earth's surface. These deposits slowly add layers that will end up marking the current geologic period. It's known as the Holocene.

And now that people have been around for the equivalent of 12 seconds, some geologists propose adding a new period to the Geologic Time Scale. It will mark the time since humans began altering Earth. Starting about 10,000 years ago, it is tentatively being called the Anthropocene. Its geologic layers will be quite a mix.

1. The earth's age is measured by its layers and is reported as eras.

a. Write the geological eras discussed in the article in the order they occurred on earth: **(3)**

Anthropocene, Precambrian, Mesozoic, Holocene, Paleozoic, Cenozoic
Oldest

Newest / Current

- b. Describe how we know geological eras aren't all the same length of time. Give an event that likely caused the end of a geological era. **(2)**

2. Dinosaurs roamed the earth during the Jurassic and Triassic periods, which were part of the Mesozoic era. Scientists identified these periods using dinosaur fossils.

- a. Would we find dinosaur fossils deep in the bottom layers of the earth's crust? Why or why not? **(4)**

3. In reference to our current period, the article states, “it will mark the time since humans began altering Earth... it’s geologic layers will be quite mixed”.

a. With the current level of society’s consumerism, give examples of what these geological layers will be made of. **(5)**

b. Do you think we should be concerned with this mix? **Justify** your response. **(5)**
