Grade 7	Herbert Hurd Primary School	November 2017
	Technology Assessment	Total 50

Question 1

1) **Look at the table listing the steps in the design process. Match them with their description.**
Write the number and letter only as your answer.

1.1Investigate	A) A set of questions about how well the design process was carried out.
1.2 Design	B) Do drawings, sketches and technical drawings. Develop a plan.
1.3 Communicate	C) Find and use information and identify/solve the need or problem.
1.4 Make	D) Design specifications are written. Provide details about the product you will design.
1.5 Evaluate	E) Present your product and design solutions.

[5 marks]

2) **Choose the correct answer. Write down only the number and the correct letter, e.g. 1a.**

2.1 A crank...
a) is used in tricycles only
b) is a second-class lever system
c) is used to steer a bicycle
d) is found in mechanisms like see-saws

2.2 A short circuit happens when...
a) the circuit is open
b) bare wires touch
c) there is no connection
d) the circuit is closed

2.3 Outlines are?
a) lines that are used to construct other lines
b) dashed lines
c) give a clear and accurate description of the product
d) need to be thick and dark

2.4 Which of the following is the **incorrect** use of a pulley system?
a) Cranes: to lift heavy materials
b) Escalators: to carry people up and down
c) Blinds: to open and close
d) Crank: to move the pedal

2.5 When we say that we are recycling items we mean...
a) we renew an old untidy product by adding a coat of paint
b) we buy refillable products whenever possible
c) we reuse many products instead of throwing them away
d) all of the above

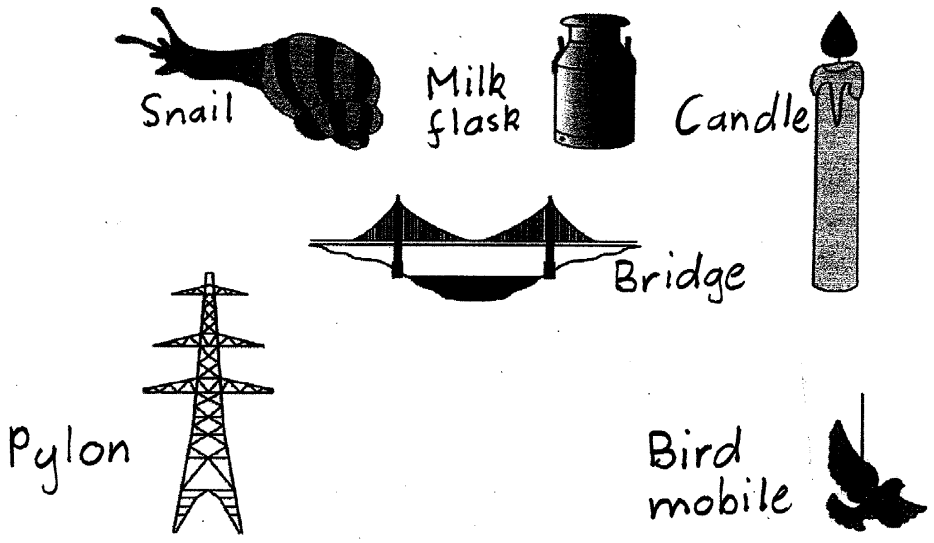
2.6 An alloy is
a) the material that something is made of
b) a mixture of more than one metal
c) a metal that contains iron
d) the ends of the magnet

[6 marks]

3. <u>Write True or False only .</u>

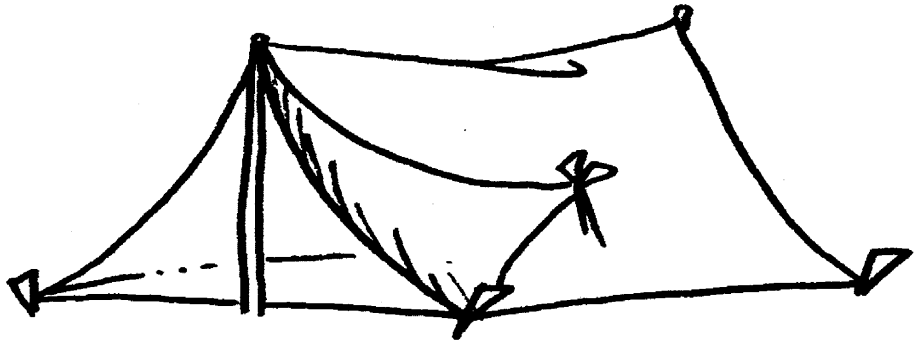
3.1 An emergency situation does not happen unexpectedly.
3.2 An electromagnet is useful in the scrap metal industry.
3.3 An insulator is a material that allows something to flow through it.
3.4 Mechanisms are used to make work easier so that humans use less energy.
3.5 A shelter is a basic need. [5 marks]

4. Structures. Study the pictures below.



4.1 Group the items into 3 types of structure. **<u>Write a heading for each category and fill in the name of the objects in the correct columns.</u>** (6)

5. The design process-case study: A camping trip



You and three of your friends are camping next to the Vaal River. A terrible storm rips your tent apart. The wind force is so strong that everything collapses. It keeps raining hard. All you can see on the side of the river is the debris that has washed to the side of the river and other torn and broken tents. Luckily you still have your cooler box with a limited amount of food and water, matches, a pocket knife and your wet sleeping bags.

You need to build a shelter to stay warm until the storm subsides. The shelter needs to be waterproof. It must be made of materials that you have in your possession or that you find along the riverside. It must last until the rescue teams can come and save you, as all the roads are flooded and closed off because of the storm.

5.1 Write a short design brief. (2)

5.2 List 2 specifications. (2)

5.3 List 2 constraints. (2)

5.4 Draw a sketch of what you will make. Label your materials. Your sketch should be 3D. (4)

5.5 Assuming you had all the necessary materials, write two ways in which you could waterproof your tent and two ways in which you could fireproof it. (4)

Question 6

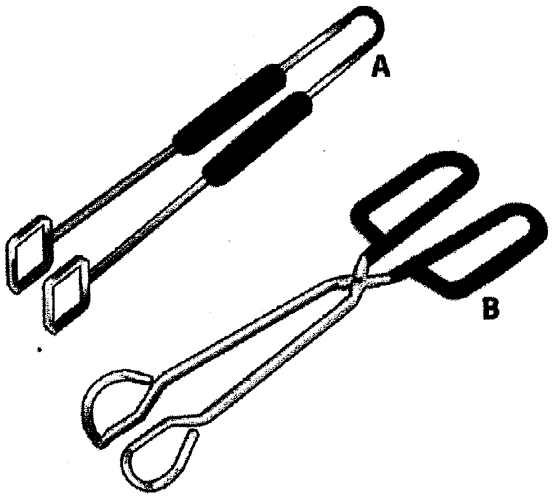
6. The Bongile family left their farm after a devastating veld fire destroyed their home and all their crops.

They are being housed in a temporary tented camp on the outskirts of a neighbouring town.

6.1 Why would you **not** refer to the Bongiles as refugees? (1)

6.2 What kind of disaster is a veld fire? (1)

6.3 *Mrs Bongile helps to prepare food for her family and the other people in the camp. She needs a pair of tongs for placing large pieces of wood on the fire.*



(i) Name the class of lever to which each pair of tongs belongs. (2)

(ii) Explain what mechanical advantage is. (2)

(iii) Draw a basic diagram of the pair of tongs Mrs Bongile should choose, that will give her the greatest mechanical advantage. Label the load, effort and fulcrum. (3)

(iv) Give an example of a first class lever. (1)

Question 7

7.1 Describe the difference between pneumatics and hydraulics. (2)

7.2 Give an example of a mechanism that would use pneumatics and a mechanism that would use hydraulics. (2)