Name: Grade 8:

TECHNOLOGY TERM 3 70 MARKS

Design and build a headgear for a mine shaft

Investigate		10
Design		10
Make		10
Evaluate		10
Communicate		10
Neatness		5
Creativity		5
Original work		5
Given on the due date		5
		70

* DUE DATE: 1/9/2021
* CAN BE DROPPED OFF WITH SECURITY AT SCHOOL GATES

GRADE 8
TECHNOLOGY

* WORK MUST BE DONE IN NOTEBOOK.

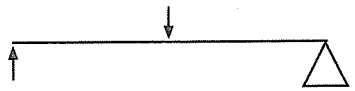
Instructions

1. Answer all the questions.
2. Write neatly and clearly.
3. All sketches or drawings must be done in pencil with labels in pen.
4. Write your name, class and initial of your teacher on your answer sheet.
5. Number the questions as they appear on the question paper.
6. Read the questions and instructions for each question carefully.

Question 1 [13 marks]

1.1 State two ways in which levers make our work easier. (2)

1.2 Copy the table below. In the middle column label the load (L), fulcrum (F) and effort (E) for each class of lever. In the third column give an example of a linked lever for each class. (6)

Type of lever	Insert your labels (L, F and E) in this column	Example of linked lever
First-class		
Second-class		
Third-class		

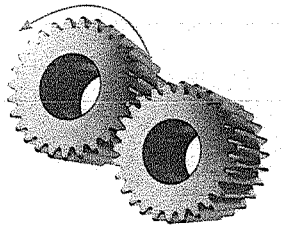
1.3 Explain how you would halve the effort required to lift a load resting one metre from the fulcrum. (2)

1.4 If a lever is used to move a load of 20N and the effort required is 2N, calculate the mechanical advantage obtained by using the lever. (3)

Question 2 [19 marks]

2.1 State three changes that various gear systems can provide. (3)

2.2 If the driver gear in the gear train below rotates anti-clockwise, in which direction does the driven gear rotate? (1)

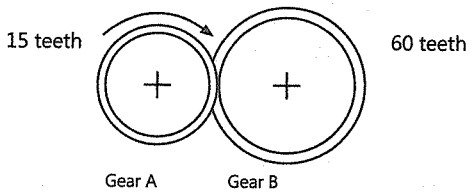


2.3 A driver gear has 15 teeth and transfers a force to a larger driven gear with 30 teeth. Calculate the mechanical advantage of the system. Show all your workings. (3)

2.4 What do you understand by the term "force multiplication"? (1)

2.5 A driver gear with 20 teeth transfers force to a driven gear in a system that has a mechanical advantage of 3:1. Calculate the number of teeth of the driven gear. (4)

2.6 Study the diagram carefully and then complete a systems diagram by indicating the input, process and output for the system. (3)



2.7 When Gear A rotates 20 times it causes Gear B to rotate 10 times. Gear A has 40 teeth.

2.7.1 How many teeth does Gear B have? (1)

2.7.2 State which is the driver gear. (1)

2.7.3 State which is the driven gear. (1)

2.7.4 If Gear B is required to rotate in a clockwise direction, in which direction must Gear A rotate? (1)