G8 Science: Class 7 Homework

1. Name the six simple machines and give an example of each. **[12 marks]**

Simple Machine	Example

2. Describe the relationship between input force, output force and load force. **[3 marks]**

3. Draw diagrams of the three different classes of lever, showing the fulcrum, the input force and the output force for each. **[3 marks]**

4. Compare the advantages and disadvantages of doorknobs versus lever-style door openers. Which would be easier for people with special physical needs to use? Why? **[3 marks]**

5. Compare and contrast mass and weight. **[3 marks]**

6. Use the words “mass” or “weight” to correctly complete the following sentences. **[4 marks]**

   a) Even if gravity changes, the _____ of an object does not change.

   b) The _____ of an object would change if the gravity changed.

   c) Kilogram (kg) is the metric unit for _____.

   d) The newton (N) is the metric unit for _____.

7. What is the formula for calculating work and what are the units? **[2 marks]**

8. Calculate the work done in the following instances. Use GRASS method.

    - Pushing a car 15m using a force of 500N **[5 marks]**

    - Lifting a 100N sewing machine from the floor to a tabletop 75cm high **[5 marks]**

9. If you pushed a car 25m and did 60kJ of work, how much force did you use? Use GRASS method. **[5 marks]**

10. Imagine putting yourself in a push-up position and staying there. Assume that neither the floor nor your body moves. You will use a lot of energy but do no work. How can energy be consumed when no work is done? **[3 marks]**

11. Classify each of the following as examples of kinetic and potential energy. **[4 marks]**

A car is driving along a level road	
An elastic band is stretched to twice its normal length	
A book is at rest on the top shelf of a bookcase	
A lightning bolt produces thunder that travels at 1250 km/hour	

12. Describe two simple machine components inside each of the following devices:
[12 marks]

a) Nail Clipper

b) Wine Bottle Opener

c) Scissors

d) Pencil Sharpener

e) Pizza Slicer

f) Conveyor Belt