CHAPTER 2 Machines

2.1 Extension Exercise

Summary of Simple Machines

Complete this worksheet to help you summarize section 2.1.

1. (a) List four types of simple machines and one example of each type.

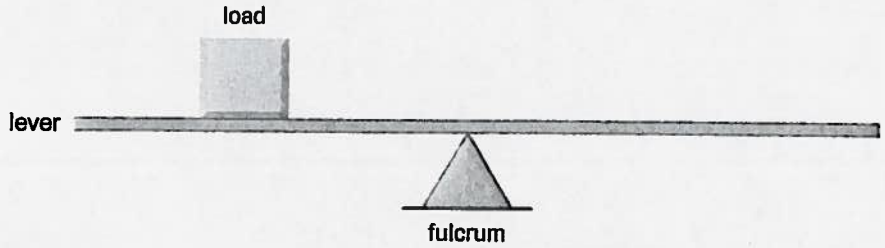
   (b) What is a machine? Describe the functions of a machine.

2. Complete the chart by drawing a diagram of each class of lever. On each diagram, label the lever, fulcrum, effort force, load force, effort arm, and load arm.

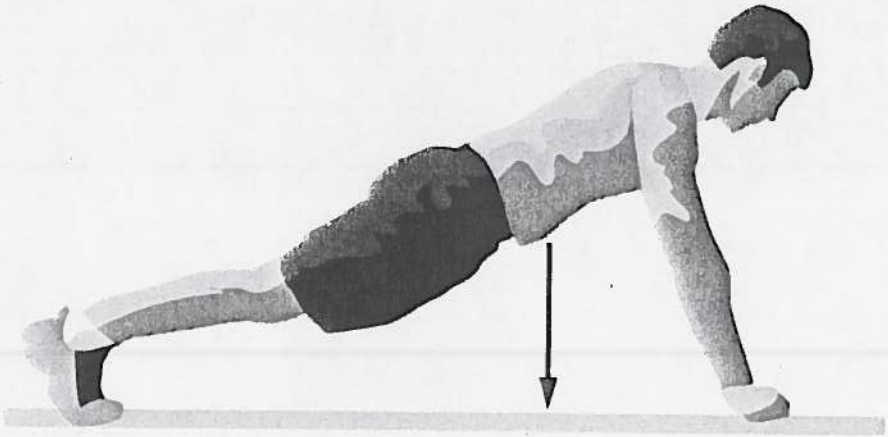
First - class lever	
Second - class lever	
Third - class lever	

3. Below is a system diagram of a load on a teeter-totter. The class of lever depends on the position of the effort force with respect to the load and the fulcrum. Complete the diagram by drawing the following effort forces:

(a) F_{E1} for a first-class lever (b) F_{E2} for a second-class lever (c) F_{E3} for a third-class lever



4. The arrow pointing down represents the weight of the person doing the pushups in the figure below. Complete the diagram by labelling the effort force, load, and fulcrum. What class of lever is this person? Explain.



5. (a) A book is placed on a desk, and someone pushes down on the book. What must happen to the normal force of the desk on the book? Explain.

(b) Consider a doorstop placed under a door. What happens to the normal force on the doorstop that is exerted by the floor if someone pushes on the door? Explain.

(c) What happens to the maximum force of static friction on the doorstop when someone pushes on the door?

(d) Explain how a doorstop works and why it is considered a simple machine.