

Formative Assessment- Force and motion

1. Which force is responsible for the following effects [1 x7 = 7 marks]

- a. A book slows down as it slides across the table.
- b. A brick falls down when released.
- c. The earth remains in orbit about the sun.
- d. A compass points north.
- e. A balloon that is rubbed against a jumper sticks to the wall.
- f. A scrap metal sorter lifts iron scrap from a mixed pile of iron and aluminum.
- g. You squeeze a sponge.

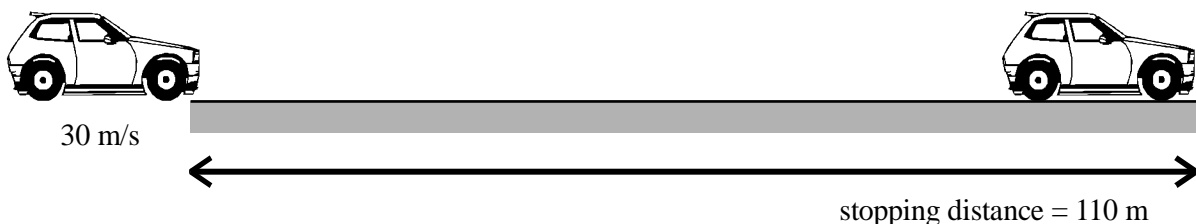
2. Draw force diagrams for each of the following situations. Name the forces [4x2= 8marks]

- a. An apple hanging from a tree.
- b. An apple falling through the air.
- c. An apple resting on the table.
- d. A girl standing on the ground.

3. Explain the following [1x2= 2 marks]

- a. It is much more difficult to push a boat across a sandy beach than to push it through water.
- b. Oil is applied to hinges.

4. When the car travels at 30 m/s, its **braking distance** is 90 m. The highway code says the **stopping distance** for a car moving at 30 m/s is 110 m. [3 marks]



(i) Explain why the **stopping distance** is greater than the braking distance.

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(ii) Suggest **two** factors that can increase the **braking distance** at 30 m/s.

1.

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2.

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5. If you lift your exercise book into the air and let go of it, it falls to the ground. [4marks]

a. What is the force that makes the book fall to the floor?

b. Do any other forces act on the book as it falls to the floor? Name them.

6. The diagram shows three forces acting on a cyclist. Which is the cyclist's weight? [1mark]

