

### 1.3 Mass and weight

01. 0625\_s17\_qp\_41 Q: 3

Fig. 3.1 shows remote sensing equipment on the surface of a distant planet.

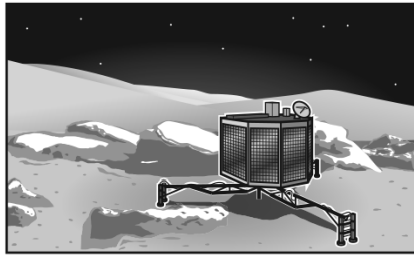


Fig. 3.1

(a) The mass of the equipment is 350 kg. The acceleration of free fall on the surface of this planet is  $7.5 \text{ m/s}^2$ .

(i) State what is meant by the term *weight*.

.....  
 ..... [1]

(ii) Calculate the weight of the equipment on the planet.

weight = ..... [2]

(b) The equipment releases a balloon from a point that is a small distance above the surface of the planet. The atmosphere at the surface of this planet has a density of  $0.35 \text{ kg/m}^3$ . The inflated balloon has a mass of 80g and a volume of  $0.30 \text{ m}^3$ .

Make an appropriate calculation and then predict and explain the direction of any motion of the balloon. Show your working.

prediction .....  
 explanation .....  
 ..... [4]

[Total: 7]