

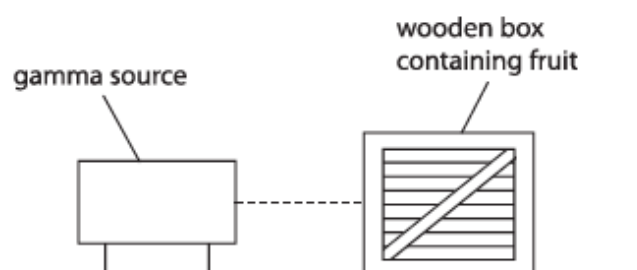
Activity 3 – Physics

Paper 1P, Q3b

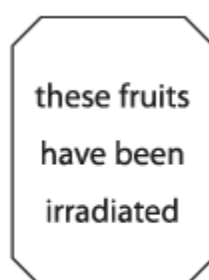
3 This question is about food preservation.

(a) The diagram shows how gamma radiation is used to irradiate fruit stored in a wooden box.

The radiation kills bacteria on the fruit.



(b) The wooden box has this label.



Explain why fruit irradiated with gamma radiation is safe to eat.

(2)

(b)	<p>any two from:</p> <p>MP1. fruit has no bacteria / (all) bacteria on fruit have been killed;</p> <p>MP2. fruit has not been contaminated;</p> <p>MP3. fruit has not been made radioactive;</p> <p>MP4. radioactive source has not been in contact with the fruit;</p>	<p>allow fruit does not contain any radioactive isotopes</p> <p>allow fruit does not emit radiation</p>	2
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8 Schiaparelli is a spacecraft that was sent to Mars in 2016.

(a) Schiaparelli slowed down as it fell vertically through the atmosphere of Mars.

(ii) Schiaparelli then opened a parachute to slow down.

Explain how the spacecraft reached a low terminal velocity after opening its parachute.

Use ideas about forces in your answer.

(4)

(ii)	any four from:	allow "drag" for air resistance throughout condone "gravity" for weight throughout	4
	MP1. air resistance increases (greatly) when parachute is opened;	allow "upwards force" for air resistance	
	MP2. idea that air resistance is greater than weight;	allow upward force is bigger than downward force	
	MP3. (therefore) resultant force is upwards;	allow deceleration / upwards acceleration ignore "it slows down"	
	MP4. idea that as speed decreases, air resistance decreases;		
	MP5. resultant force (eventually) becomes zero;	allow forces are balanced/equal air resistance = weight	
	MP6. constant speed achieved;	allow idea that there is no acceleration	