

ACTIVITY 6 – sample student work

Physics

Paper 1P, Q6(a)(ii)

6 (a) A student investigates how current varies with voltage for a metal filament lamp.

(ii) Describe a method the student could use for their investigation.

(4)

(ii)	any four from: MP1. record ammeter and voltmeter reading; MP2. repeat readings (for each voltage) and find average; MP3. idea of changing the voltage / current; MP4. plot a graph of voltage and current; MP5. switch off current/circuit between readings;	allow 'measure voltage and current' allow repeating experiment to find average allow described method that would change voltage or current e.g. adding more cells, changing circuit resistance etc. ignore "let lamp cool between readings"	4
------	---	--	---

Paper 1P, Q12(b)

(b) The ball of dough hits the floor and does not rebound.

Describe the energy transfers taking place from when the dough is dropped to after it has hit the floor.

You should refer to energy stores as well as transfers between energy stores at these stages.

- before the dough is dropped
- just before the dough hits the floor
- after the dough has hit the floor

(4)

(b)	<p>any four from:</p> <p>MP1. mention of energy being transferred <u>mechanically</u> at any stage in the response;</p> <p>MP2. (before it is dropped) dough initially has energy in its gravitational store (and no energy in its kinetic store);</p> <p>MP3. (just before it hits the floor) energy is in the dough's kinetic store (and less energy in its gravitational store);</p> <p>MP4. (as the dough falls / after the dough has hit the floor) the thermal store of the air / floor / surroundings has increased;</p> <p>MP5. (after the dough has hit the floor) the thermal/elastic store of the dough has increased (and the kinetic store of the dough is zero);</p> <p>MP6. energy has been transferred to the surroundings (mechanically and) by radiation;</p>	<p>condone the ball initially having GPE</p> <p>condone energy transferred to KE</p> <p>condone energy transferred to heat energy of the surroundings ignore references to sound energy</p> <p>condone energy transferred to elastic/heat energy of the dough</p>	4
-----	---	---	---

Paper 1PR, Q4(b)(ii)

(ii) Photograph 2 shows the swimming pool with a plastic cover over the water.



Photograph 2

Explain why the plastic cover reduces how much the water cools down at night.

(4)

(ii)	<p>any four from:</p> <p>MP1. cover traps air;</p> <p>MP2. (trapped) air is a poor conductor / (good) insulator;</p> <p>MP3. plastic is a poor conductor / (good) insulator;</p> <p>MP4. conduction reduced;</p> <p>MP5. convection reduced / stopped;</p> <p>MP6. less evaporation (from water surface);</p>	<p>ignore reference to radiation</p> <p>ignore 'traps heat'</p> <p>condone "conduction stopped"</p> <p>condone "no evaporation"</p>	4
------	---	---	---

Paper 1PR, Q2(a)(iii)

(iii) The daughter nuclei can cause contamination and irradiation.

Describe the difference between contamination and irradiation.

(2)

(iii)	idea that contamination is when a non-radioactive object comes into contact with a radioactive material; idea that irradiation is when radiation is present;	Condone idea of exposure for 1 mark if no other mark scored	2
-------	---	---	---