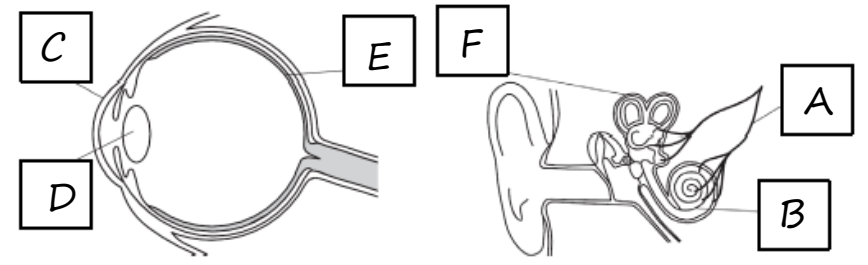
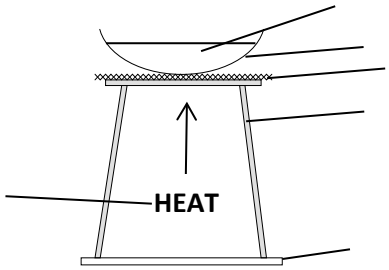
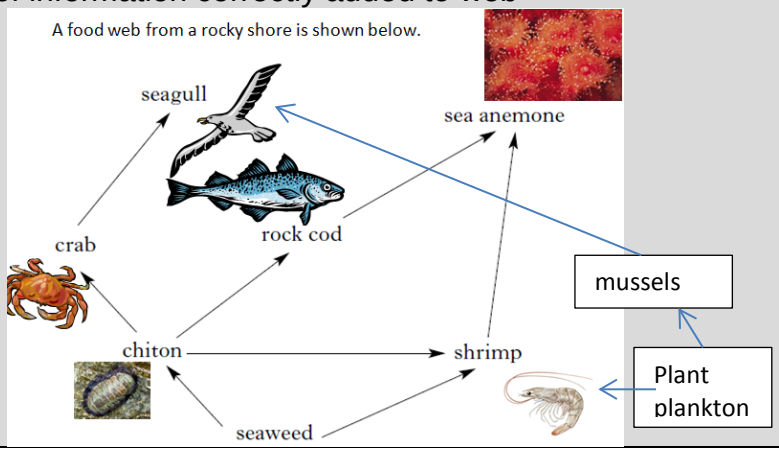
/ means OR eg. green / blue – answer needs green OR blue
( ) means additional, not really required eg. Gauze (mat) – gauze would be sufficient
: means AND eg. red : hot - answer needs red and hot.

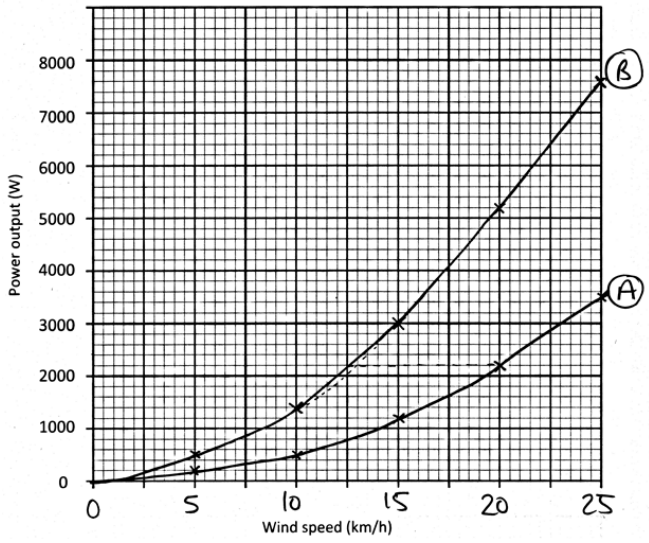
Question		Evidence		Marks
One	1.	Any suitable answer – see picture e.g. • student listening to music • can't hear instructions from teacher • should not wear them / should be listening to teacher		1 mark
	2.	Any suitable answer – see picture e.g. • have left bottles on the floor • could trip over them • should be on table / shelf		1 mark
		Allow 1 mark if has only identified 2 dangers but nothing extra of significance added		
Two	(a)	A = measuring : cylinder B = test tube / boiling tube F = Bunsen burner		1 mark; all correct Or ½ mark:2 correct
	(b)	C : G : E		1 mark; all correct
	(c)	Diagram of beaker	Diagram of conical flask	1 marks; ½ mark each
Three	(a)	hazard		½ mark
	(b)	D		½ mark
	(c)	A		½ mark
	(d)	 Toxic AND corrosive symbols!		½ mark; both correct
Four	(a)	28^{o} C 86 mm 43 mL		1½ marks; ½ mark each
	(b)	3.4 cm (units needed)		½ mark
	(c)	2^{o}C		½ mark
	(d)	60 + 5 = 65 s		½ mark

	(e)	(i) 15 mL	(ii) good drawing of volume at 40 mL including meniscus	1 mark; ½ mark each
Five	(a)	chromatography		1 mark
	(b)	C		½ mark
		it has travelled same distance / to same height / to 3 on scale: as banned dye (spot)		1 mark
	(c)	D		½ mark
	(d)	The spots have travelled different distances Answer refers to scale correctly (A – 1, E – 2)		½ mark ½ mark
Six	(a)	solvent	solute	2 marks; ½ mark each
		dissolving	solution	
	(b)	(i) filter funnel	(ii) condenser	1 mark; ½ mark each
Seven		Electric oven = heat		1 mark
		TV = light : sound (either order)		1 mark; ½ mark each
Eight				3 marks; ½ mark each
Nine	(a)	Sun : glow worm : tv screen		1 mark; all 3 correct
	(b)	Transparent = glad wrap, water Translucent = waxed paper Opaque: mirror, wood		1 mark; all correct
	(c)	Correct ray drawn : arrow on ray		1 mark; ½ mark each
	(d)	Correct position (2½ squares back) Correct orientation (pencil point to right) Correct size and length (same as object)		1 mark; ½ mark each
	(e)	Light from lamp reflected off hair – hits mirror – is reflected back into her eyes OR correct diagram with arrows on rays		1 mark; all correct
	(f)	Correct second mirror at 45^{o} Correct rays with arrows Rays into eye		1 mark; all correct Or ½ mark:2 correct

Ten	(a)	Balls far apart Balls move randomly	½ mark: both correct
	(b)	(i) temperature at which solid turns into a liquid	½ mark
		(ii) gas	½ mark
	(c)	sunnier day / hotter day / windier day	½ mark
Eleven	(a)	(i) nucleus	½ mark
		(ii) a energy level (shell)	½ mark
	(b)	Protons = 1 Electrons = 2 Mass # = 4	½ mark; all 3 correct
	(c)	Elements: Helium / He; Mercury / Hg; Hydrogen / H_2 Compounds: Water / H_2O; Salt / NaCl	1 mark 4-5 correct
	(d)	(i) D (ii) B (iii) C	1 ½ marks; ½ mark each
Twelve		sugar / grass (either order) (biogas) digester methane (gas) electricity	2 marks; 4-5 correct 1 mark; 2-3 correct
Thirteen	(a)	Toes on the back feet …..increases surface area Long tail …helps the lizard to balance Brown skin …for camouflage	1½ marks; ½ mark each
	(b)	Escape from predators / better catch prey (over water)	½ mark
	(c)	Food : territory	1 mark; ½ mark each
Fourteen		a. reproduction b. respiration c. GROWTH d. CIRCULATION e. excretion f. nutrition g. sensitivity h. movement	3 marks; ½ mark each
Fifteen	(a)	objective lens focus knob stage	1 mark; 3 correct ½ mark; 2 correct
	(b)	x400 / 400x	½ mark

	(c)	Cell membrane Nucleus	1 mark; ½ mark each
	(d)	Stain (accept name of a stain e.g. iodine or an incorrect stain such as methylene blue)	½ mark
Sixteen	(a)	(i) evaporated (ii) dissolved (iii) filtered : sterilised (in this order)	1 ½ marks; ½ mark each line
	(b)	(i) single line drawn – either line of best fit omitting point @ 20^{o}C or smooth freehand line through all points but NOT dot to dot.	1 mark
		(ii) 48-50 g (but accept value based on their line even if wrong line) – allow f/o	½ mark
		(iii) as the temperature increases the solubility increases	1 mark
Seventeen		• 2D • Correct symbols for tripod, gauze,evaporating basin and Bunsen • Any 4 correct labels • Nice clean lines, use of ruler etc • Good use of space available  	5 marks; 1 mark each
Eighteen	(a)	Any 3 compared: • Size of ears (African > Asian) • Shape of ears (African fan / Asian flatter) • Weight (African > Asian) • Height (African > Asian) • Tusks (M&F African but just some M Asian)	1 mark; any 3 correct
	(b)	Males leave the herds at puberty	1 mark
	(c)	Hunted for the ivory	1 mark
	(d)	Tusks only found on a few males and none on female Asian elephants	1 mark
	(e)	Less areas of forest so less need for elephants / more machinery used these days	1 mark
Nineteen	(a)	B D C A	1 mark; all correct
	(b)	10	1 mark
	(c)	50%	1 mark
	(d)	So they don't dry out	1 mark

	(e)	Time to allow the woodlice to explore all the environments and find the one that suits them best	1 mark
	(f)	One set of data might not be representative / could spot anomolous results / outliers etc / any reasonable answer that includes averaging	1 mark
Twenty	(a)	Aluminium – low density Ceramic – high melting point Polymer - flexible	1½ marks; ½ mark each
	(b)	Any 3 sensible properties e.g. Light / low density Strong Flexible/bendy Etc	1½ marks; ½ mark each
	(c)	(i) Different sized light bulbs so 100 Watt one will generate more heat than the 60 Watt one	1 mark
		(ii) How the thickness of fibre glass / insulation affects loft insulation	1 mark
		(iii) The thickness of the fibre glass / insulation	½ mark
		(iv) The temperature in the roof/loft	½ mark
		(v) Any three from • same size house • same insulating materials • thermometer in same position • same size / power / 'watts' light bulb • bulb in same position • same thickness walls etc	2 marks ; 3 correct; 1 mark; 2 correct
Twenty one	(a)	Direction of energy flow (accept "is eaten by" for ½ mark)	1 mark
	(b)	(i) consumer (ii) prey (iii) seaweed	1 mark
	(c)	3 pieces of information correctly added to web 	1 ½ marks; ½ mark each

	(d)	If shrimps die out... sea anenome might now eat more rock cod as they have lost shrimps as a food source	1 mark
	(e)	If shrimps die out... Chiton numbers might increase as shrimp aren't eating them and so there will be more food for rock cod and their numbers might increase	1 mark
	(f)	four	½ mark
	(g)	dark ; high tide	1 mark
	(h)	Not seen by predators as it is dark Not likely to be stranded on beach / dry out at low tide (or other suitable reasons) High tide might also be when their food source is most abundant	1 mark
Twenty two	(a)	C	½ mark
	(b)	210 (Watts)	½ mark
	(c)	X 4 / quadrupled	1 mark
	(d)	Any advantage e.g. no pollution	½ mark
	(e)	Any disadvantage e.g. noisy / takes up farm land / some people think they look ugly / disturb native wild life etc	½ mark
	(f)	Wind speed axes correctly plotted (evenly spaced) and 10 little squares = 5 km/h – *allow ½ mark if used half available space* Lines correctly plotted and joined suitably  Key / lines labelled	1 mark 2 mark; 1 mark each 1 mark
	(g)	(Approx 19-20); value must be consistent with student graph	1 mark