Activity 9 Marking Scripts

Activity 2

Question Number	Answer	Additional guidance	Mark
10(a)	A description that makes reference to the following points: • carbohydrate for energy / respiration (1) • lipid / fat for energy / storage / insulation / myelin / hormones / protecting organs (1) • protein for growth / repair / (named) enzyme / hormones / antibodies / neurotransmitter (1) • water as solvent / transport / reactions / temperature regulation / prevent constipation / help egestion (1) • fibre / roughage for peristalsis / move food / prevent constipation / help egestion (1)	Allow correct named hormone for Mp2 and Mp3 Mp3 Ignore skin / nails / hair / bones Ignore prevents cancer	**5**

A: Humans need carbohydrates, proteins, water and fibre. They also need plenty of lipids for energy. Iron is important for haemoglobin and vitamin A helps vision. Vitamin C is also important for stopping scurvy and vitamin D and calcium are needed to stop rickets.

B: Starch and fats are important for energy. Too much sugar though will cause obesity. Proteins and amino acids are used for growth and repair of tissues. Fresh fruit and vegetables are important for peristalsis of the gut (they prevent constipation.)

Activity 3

Question Number	Answer	Additional guidance	Mark
10(c)	A description that makes reference to six of the following points: • C change / different concentrations of growth substances (1) • O same species / same plant / same type of plant/ named plant / same age / same size / eq (1) • R repeat (1) • M1 count number of roots / length of roots / measure roots with ruler / eq (1) • M2 stated time period of one day plus (1) • S1 same (control) temperature / oxygen / light / carbon dioxide (1) • S2 same compost / water / humidity / soil / mineral ions / named mineral ion / same <u>volume</u> of plant growth substance (1)	Auxin and no auxin = 0 M1 Ignore mass S2 Ignore nutrients	**6**

A. I will take several oat seedlings. I will grow them so that their roots begin to develop. I will then add a range of different auxin concentrations to each of the roots. I will repeat each concentration with three plants to make it reliable. I will put the plants into soil and see how much they grow over a constant time period. I will keep everything the same, such as the amount of nutrients in the soil.

B.

C: different auxin concentrations

O: same species

R: repeats

M: length of root in one week

S: oxygen, minerals, carbon dioxide

I will make a range of concentrations of auxin. I will then take plants of the same species (and same age) and place the different concentrations of auxin on the roots of each one. I will repeat this two more times so that there are three for each concentration. I will

measure the lengths of the roots for all the plants. I will put the plants into soil with the same compost (same mineral ion concentrations.) I will measure the lengths of the roots one week later to see how much they have grown. I will keep the oxygen and carbon dioxide concentrations the same.

C: Take two plants of the same species. Place the roots of one in plant hormones but not the other. The plant hormones should make the roots grow longer than the one without the hormones. This is because the plant hormones affect the speed which roots and shoots grow. The hormones used could include auxin which also affects phototropism and geotropism. I will repeat the experiment.

Activity 4

(c) If the mineral ions are not absorbed, they are egested in the faeces.

The faeces of genetically modified (GM) farm animals contain less phosphate than the faeces of normal farm animals.

(i) Some people catch fish from rivers near farm land.

Discuss why these people might support the genetic modification of farm animals.

(4)

Question Number	Answer	Additional guidance	Mark
4(c)(i)	An answer that makes reference to the following points: • fewer plants / fewer algae / less eutrophication (1) • (more) light **and** (more) photosynthesis (1) • (less) <u>decomposition</u> / <u>decomposed</u> / <u>decomposers</u> (1) • (more) oxygen / not anoxic / less BOD (1) • respiration (ONCE) (1) • (catch) more fish / fewer fish killed / better catch / fish survive / fish do not suffocate / eq (1)	Allow converse for all Mps	**4**

(c) If the mineral ions are not absorbed, they are egested in the faeces.

The faeces of genetically modified (GM) farm animals contain less phosphate than the faeces of normal farm animals.

(i) Some people catch fish from rivers near farm land.

Discuss why these people might support the genetic modification of farm animals.

(4)

If there is less phosphate passing into the river, there will be less eutrification. This means less algae will grow. Algae would block light and so many algae would die - this would give decomposer bacteria food. The decomposer bacteria would respire and use up Oxygen. This means there would be less oxygen for fish which would die. This means that less phosphate = more fish = more money!

(c) If the mineral ions are not absorbed, they are egested in the faeces.

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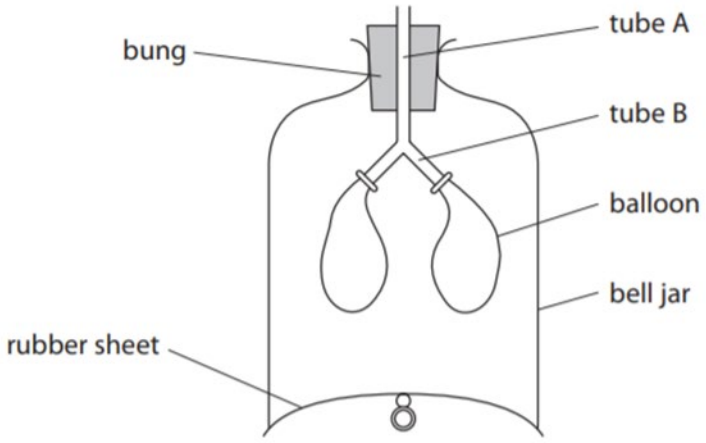
Discuss why these people might support the genetic modification of farm animals.

(4)

Less phosphate = less algal blooms. (Phosphate is a fertiliser). The phosphate would also bioaccumulate and pass up the food chain. Phosphates are also linked to pollution such as acid rain and global warming. If less algae grow, there will be more fish for the fishermen so that they will make more money. (The algae would poison the fish).

8 A teacher uses this bell jar model of the thorax to show the process of ventilation.



(b) Evaluate whether the bell jar model can completely demonstrate the process of ventilation.

(4)

Question Number	Answer	Mark
8(b)	An answer that makes reference to four of the following points: • reference to diaphragm (1) • balloons represent lungs (1) • reference to trachea / windpipe / bronchus (1) • reference to ribs / ribcage / movement of chest / ribcage / bell jar does not move (1) • reference to intercostal muscles (1)	**4**

(b) Evaluate whether the bell jar model can completely demonstrate the process of ventilation.

(4)

The bell jar is a good model because it shows how the lungs move in and out. It doesn't have alveoli so can't show gas exchange. There are no chest muscles on it. The balloons are like the lungs and the glass tubes are like bronchioles.

(b) Evaluate whether the bell jar model can completely demonstrate the process of ventilation.

(4)

The bell jar is a very good model for ventilation.

Good things about it:
- balloons are like lungs
- balloons can change size.
- it has a trachea that splits into two bronchi.
- the sheet is a diaphragm that moves up + down.

Bad things:
- glass jar won't move.
- ribs are not there.
- no intercostal muscles
- lungs don't fill jar.

Overall: I think it is a good model. ~~or the~~.