

GCSE Science/Biology

Mark Scheme

GCSE Science/Biology
Internally Assessed Activity Unit B1a
Topic 1 - Environment

Who's eating what?

1	a		Wheat, humans, in correct order;	1	
	b	i	Wheat, beef cow, humans in correct order; Arrows pointing the correct way (towards the organisms doing the eating); Max one mark if humans also included in pyramid	1 1	
		ii	Wheat circled;	1	
	c		Pyramid drawn with wheat at bottom and bar for wheat wider than bar for beef/cow; Bars labelled;	1 1	
					Total 6 marks

2	a		4 (kJ);; (63+33=) 96 seen for 1 mark	2	
	b		Energy is lost in the faeces and urine from animals; Energy is used in respiration; There are parts of the plant/animal which are not eaten; Energy is used to make proteins/to build tissues;	1 1 1 1	
	c		Eating plant material is more efficient/saves energy; Plus one from: Idea that energy is lost between trophic levels; Mode of energy lost e.g. heat, respiration, excretion, digestion; A greater percentage of plant material is edible compared to animal material/animal bones cannot be eaten; Idea that plants cost less to grow than animals; Idea that costs are less in harvesting plants/costs more in slaughtering animals;	1 1	
					Total 8 marks

3	a		Soya beans;	1	
	b	i	Idea of fair test;	1	
		ii	Any appropriate factor e.g. ; Temperature, rainfall, amount of sun, altitude	1	
	c		Grow more plants; Any one of Produce/eat less meat; Grow more soya beans;	1 1	
	d	i	9 billion (billion must be present);	1	
		ii	Line parallel to x axis from world population graph at 2050 to y axis;	1	
					Total 7 marks

4	a		two from Check that food is still edible/not poisonous; Check that the plant does not grow out of control; pass gene onto other plant (in the wild); reduce biodiversity;	2	
	b		Two of the following pairs of modification and linked effect; (Maximum of two marks for modification if no linked effects given.) More plants/bigger plants per area: therefore increased yield: Increase drug resistance: therefore less lost to disease; Faster growth: therefore more than one crop per year; Larger ears: therefore more wheat per plant; If not wheat, then more fruit per plant: therefore increase yield;	4	
					Total 6 marks

					Overall total 27 marks
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