

Assessment Schedule – 2011

Biology: Demonstrate understanding of biological ideas relating to micro-organisms (90927)

Evidence Statement

ONE	N0	N1	N2	A3	A4	M5	M6	E7	E8
	No evidence or no relevant evidence.	ONE idea given.	TWO ideas given.	Identifies the role of each part	Identifies the role of each part AND names TWO parts correctly.	Explains the role of TWO parts.	Explains role of TWO parts including the hyphae.	Discusses the role of hyphae AND ONE of spores or sporangia AND links this to the survival / reproduction of the fungi.	Discusses the role of all THREE parts AND links these to the survival / reproduction of the fungi.
	<p>A = spores B = sporangium / spore capsule / spore case C = (feeding) hyphae / mycelium</p> <p>Roles identified. Eg: A – used for reproduction / making new fungi B – holds / disperses spores C – used for digestion / feeding / how food gets into fungus.</p>					<p>Part(s) explained must be named correctly.</p> <p>Eg: For A: Spores are small / light / numerous reproductive parts of the fungus, which disperse.</p> <p>For B: Sporangia are spore sacs / holders for spores: which disperse the spores / mature the spores / protect the spores.</p> <p>For C: (Feeding) hyphae absorb nutrients / produce digestive enzymes / carry out extra-cellular digestion.</p>		<p>Part(s) discussed must be named correctly. The discussion MUST relate the structure of the part to the function</p> <p>Eg: For A: Spores are the reproductive units for fungi: they carry the genetic code / DNA to produce another identical fungus OR they are small / light to be carried a distance by wind to land and germinate / start growing on a food source (ie need to link form to function).</p> <p>For B: Sporangia are sacs, which carry / produce the spores. They have a waterproof cell wall, which protects the developing spores. When the spores are ripe / mature, they burst, releasing the spores into the air.</p> <p>For C: The feeding hyphae carry out extra-cellular digestion, secreting enzymes to break down food molecules outside of the fungal organism. The nutrients are then absorbed. The nutrients that are absorbed to allow the fungi to grow and reproduce, increasing its chance of survival.</p>	

TWO	N0	N1	N2	A3	A4	M5	M6	E7	E8
	No evidence or no relevant evidence.	ONE idea given.	TWO ideas given.	Identifies TWO ideas for EACH form of the milk.	Identifies THREE ideas for ONE of the products AND at least two ideas for the other milk product	Explains either temperature OR water content in BOTH of the milk products.	Explains both temperature AND water content in BOTH of the milk products.	Discusses how either temperature OR water content impact on micro-organism activity in powder compared with milk.	Discusses how BOTH temperature (including the idea of bacteria in milk powder being killed by the heat when it is prepared) AND water content impact on micro-organism activity in powder compared with milk.
	<ul style="list-style-type: none"> • Powdered milk has no water content. • Powdered milk can be stored a long time. • Powdered milk can be stored in the pantry (room temp). • Milk has to be kept in the fridge. • Milk contains lots of water. • Milk goes off quickly. 					<p>Eg:</p> <ul style="list-style-type: none"> • Powder has no water content and as such bacteria cannot reproduce / grow in powder. Liquid milk contains water so therefore bacteria are able to reproduce in it. • Milk must be kept in the fridge/at a low temperature to slow down micro-organism growth. Milk powder can be stored at room temperature / for a long time because it has been heated which kills all of the bacteria in it. 		<p>Eg:</p> <ul style="list-style-type: none"> • Micro-organisms need water to reproduce, milk contains water and needs to be stored in the fridge / at a low temperature to limit bacterial reproduction. Powder does not need to be stored in the fridge/at a low temperature as bacterial growth is already limited by a lack of water. <p>OR</p> <ul style="list-style-type: none"> • Milk powder treated at a high temp has no bacteria, so there are none to reproduce. Therefore it can be stored at room temperature. However, liquid milk contains small numbers of bacteria. These will reproduce in milk as it contains water and nutrients. Therefore it needs to be stored in the fridge to slow the rate of reproduction down. 	

THREE	N0	N1	N2	A3	A4	M5	M6	E7	E8
	No evidence or no relevant evidence.	ONE idea given.	TWO ideas given.	FOUR ideas given including ONE each from 3a and 3b.	FIVE ideas given including ONE each from 3a and 3b.	Explains how bacteria OR viruses cause infections.	Explains how bacteria AND viruses cause infections.	Discusses how bacteria OR viruses cause infections, linking the discussion to the reproductive cycle of the micro-organism.	Discusses how bacteria AND viruses cause infections, linking the discussion to the reproductive cycle of the micro-organism.
<ul style="list-style-type: none"> • Pneumonia can be spread by coughing / hand-to-hand contact / blood. • The risk of infection can be reduced by isolating those with infections / good hygiene practices / coughing into a sleeve / frequent hand washing / antibiotics / vaccination etc – accept anything sensible. • Bacteria excrete toxins / substances / chemicals. • Toxins / substances / chemicals cause illness / inflammation of the lung. • Viruses reproduce inside (living) body cells. • Viruses kill living cells. • Bacteria reproduce by binary fission. <p>Evidence may come from labelled diagrams.</p>						<p>Eg: Bacteria excrete toxins which cause body cells to become inflamed / malfunction.</p> <p>Viruses reproduce inside living body cells, causing <u>many</u> cells to die so organs malfunction.</p> <p>As bacteria reproduce and increase in numbers, the amount of toxin they excrete increases.</p> <p>Must consider the impact of infection at the cell level</p>		<p>Eg: Reproduction of viruses and bacteria causes infections for different reasons.</p> <p>Viruses reproduce in a living cell, and because they can make many hundreds of viruses inside each cell before it dies, this causes many more cells to die / organs to malfunction, which leads to illness.</p> <p>Bacterial reproduction doesn't destroy living cells, but instead increases the number of bacteria so that the amount of toxin they excrete increases. It is the toxin which then causes inflammation in parts of the body.</p>	

Judgement Statement

	Not Achieved	Achievement	Achievement with Merit	Achievement with Excellence
Score range	0 – 8	9 – 14	15 – 18	19 – 24