Assessment Schedule – 2005

Science: Describe the chemical properties and effects of fertilisers (90766)

Evidence Statement

Q	Achievement	Achievement with Merit	Achievement with Excellence
1(a)	nitrogen phosphorus potassium 2/3 required		
2(a)	B		
2(b)	D / A / E / F **OR** Fertilisers high in available nitrogen.	D / A / E / F **AND** Fertilisers high in available nitrogen.	
2(c)	Total MW = 174 **OR** $K_2 = 78$	$\frac{78}{174} = 45 \pm 1\%$	
3(a)	Loses or gains electrons.		
3(b)	+ /positive / – /negative ONE correct		
3(c)	ammonium NH_4 (f/o error but must be positive ion selected.)		
3(d)	Soluble/diffusion mentioned or inferred. NOT osmosis	Nutrients need to be soluble **AND** absorbed by diffusion into the plant.	Nutrients need to be soluble **AND** absorbed by diffusion into the plant **AND** when the concentration of ions outside the plant is greater than inside the plant.
3(e)	ONE problem **OR** ONE minimisation method, as in Excellence.	ONE problem **AND** ONE minimisation method, as in Excellence.	They are soluble **AND** can be pollutants **AND** can be minimised by making slow release or less soluble forms.
4(a)	Element needed in very small amounts.		
4(b)	Help plants grow better.	To produce specific molecules needed for life processes.	
5	Fast release of nitrogen causes pollution/run off.	Slow release fertilisers release nitrogen at a rate that is used by plants, but slow enough so that none makes it into the water supply.	

Q	Achievement	Achievement with Merit	Achievement with Excellence
6(a)	Excess nitrogen getting into waterways.		
6(b)	Put excess nitrogen onto land. **OR** excess nitrogen runs off into waterways during rain.	Excess applied nitrogen runs off into waterways during rain.	
6(c)	Use slow release fertilisers **OR** use less nitrogenous fertiliser **OR** control animal wastes getting into our waterways. **OR** plant riparian strips near waterways (ONE required)	Use slow release fertilisers **OR** use less nitrogenous fertiliser **OR** control animal wastes getting into our waterways **OR** plant riparian strips near waterways (TWO required)	Use slow release fertilisers **OR** use less nitrogenous fertiliser **OR** control animal wastes getting into our waterways **OR** plant riparian strips near waterways. (THREE required)

Judgement Statement

Achievement	Achievement with Merit	Achievement with Excellence
A total of SEVEN opportunities answered at Achievement level (or higher). 7 × A	A total of NINE opportunities answered with at least FIVE at Merit level or higher. 5 × M *plus* 4 × A	A total of NINE opportunities answered with TWO at Excellence level and at least THREE at Merit level or higher. 2 × E *plus* 3 × M *plus* 4 × A