

01. 0620\_s14\_ms\_63 Q: 1

(a) (i) water (1) [1]  
 not: steam

(ii) two arrows, one under magnesium, one on wool (1) [1]

(b) (i) grey/silver (1)

white (ash) (1)

glows/ignites/burns (1) max 2 [2]

(ii) dissolves/forms solution/alkali (1)

blue/purple/pH>7 (1) [2]

(c) catches fire/explodes/pops (1)

hydrogen (1) [2]

02. 0620\_s16\_ms\_61 Q: 4

any 6 from: weigh calcium; with lid/cover; heat/burn; allow air to enter/lift lid; cool; reweigh CaO; reheat to constant mass; calculate/find the difference;	<b>6</b>
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03. 0620\_w12\_ms\_61 Q: 3

- (a) (i) silver/grey (1) **not:** shiny [1]  
 (ii) white (1) [1]
- (b) oxygen (1) [1]
- (c) to let air/oxygen enter or make sure all magnesium reacted owtte (1) [1]
- (d) error in weighing (1) [2]  
 loss of magnesium oxide (1)  
 some magnesium unreacted (1) max 2
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04. 0620\_w12\_ms\_62 Q: 3

- (a) spatula (1) **not:** spoon [1]
- (b) nitric/HNO<sub>3</sub> (1) [1]
- (c) (i) toxic/poisonous/harmful gas given off or named toxic gas (1) [1]  
 (ii) idea of ensuring constant mass (1)  
 reaction complete (1) [2]
- (d) (i) spillage (1)  
 inaccurate weighing (1)  
 loss by spitting (1)  
 reaction not complete/owtte (1)  
 some solid left in beaker (1) [2]
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05. 0620\_w12\_ms\_63 Q: 2

- (a) hydrogen (1) [1]
- (b) volumes completed correctly [3]  
 0 18 30 40 43 54 58 60  
 -1 for each incorrect  
 ignore extra decimal place e.g. 43.00
- (c) points plotted correctly (3) [4]  
 smooth curve (1)  
 -1 for each incorrect
- (d) (i) point at 4 minutes (1) off curve owtte (1) [2]  
 (ii) 47 – 49 (1) ignore units [2]  
 indication on graph (1)
- (e) magnesium powder/higher temperature/more concentrated acid/catalyst used (1) [2]  
 faster/more surface area/more collisions (1)

06. 0620\_w13\_ms\_62 Q: 3

- (a) both masses correct 31.2 and 31.8 (1) [1]
- (b) all masses correct (2), -1 each incorrect [2]  
 31.9, 32.2, 32.2
- (c) to allow air/oxygen in (1) [1]  
**not:** release/allow gas to escape
- (d) to make sure all calcium reacted/owtte (1)  
 eliminate anomalies/reduce errors/reference to accuracy (1)  
 constant mass (1) max [2]  
**not:** fair test/take average/reference to reliability
- (e) results table completed for mass of oxygen reacted (1) [1]  
 0.21, 0.28, 0.31, 0.36

- (f) all points plotted correctly (4), -1 each incorrect  
straight line drawn with a ruler through all points except 0.4 g (1) [5]
- (g) point at 0.4 g mass calcium/0.21 g oxygen/Experiment 4 (1) [1]
- (h) any evidence of extrapolation/indication (1) 0.45 g oxygen reacted (1)  
mass of calcium oxide = 1.15 g (1) [3]

07. 0620\_w18\_ms\_62 Q: 1

(a)	Tong(s)	1
(b)	White ash / powder / solid / smoke	1
(c)	Magnesium oxide	1
(d)	To dissolve(more solid) / makes a solution	1
	Increases speed / make dissolve completely	1
(e)	>7 and not >14	1
(f)	Goggles / blue glass	1



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