

Using Earth's res, Potable Water

Mark Scheme

Level	GCSE (9-1)
Subject	Combined Science: Trilogy - Chemistry
Exam Board	AQA
Topic	5.10 Using Resources
Sub-Topic	Using Earth's res, Potable Water
Difficulty Level	Bronze Level
Booklet	Mark Scheme

Time Allowed: 46 minutes

Score: /44

Percentage: /100

Grade Boundaries:

M1.(a)	Flask	1
(b)	Fractional distillation	1
(c)	A – boiling <i>in this order</i>	1
	B – condensing	1
(d)	Pentane	1
(e)	Formulation	1
(f)	the fuel is a pure compound	1
	and crude oil is a mixture or the fuel is made up of four hydrocarbons <i>allow crude oil contains a large number of compounds and the fuel contains four</i> and crude oil could have many more	1
(g)	$(35 + 37 + 37 / 3) = 36.33$	

1

36

1

allow $(35 + 48 + 37 + 37 / 4 =) 39(.25)$ for 1 mark

[10]

M2.(a) Desalination

1

Sterilising

1

(b) Chloride ion

1

(c) correct bar for NO_3^-

1

(d) **D**

1

(e) any **two** from:

- people have the right to choose (opinion)
- ethical / moral question
- cannot be tested by experiment

2

(f) $\frac{1.5}{4.0} \times 100$

1

- (g) the percentage tooth decay increases with age 1
- by 4 % for each increasing age group 1
- (h) reduces tooth decay (for all age groups) 1
- greater reduction in older people 1
- [12]**

- M3.(a)** (i) Solids 1
- (ii) Chlorine 1
- (iii) kill microbes / bacteria
allow to make the water safe to drink
ignore disinfect
ignore remove / get rid of microbes 1
- (b) energy
allow heat 1
- (c) improve dental health
allow reduce tooth decay
allow (local) government requirement
allow help teeth 1
- [5]**

M4.(a)	(i)	economical	1
	(ii)	phytomining	1
	(iii)	carbon dioxide	1
(b)	(i)	copper / Cu	1
		iron sulfate / FeSO_4	1
	(ii)	copper / ions have a positive charge <i>it = copper ions</i> <i>allow copper ions have a different charge</i> <i>accept copper / ions are free to move</i> <i>accept to gain electrons</i> <i>accept copper / ions are attracted to the negative electrode</i> or <i>opposite charges attract</i>	1
(c)	any two from:	<i>ignore not biodegradable or does not decay</i> <ul style="list-style-type: none">copper ores are limited / running out <i>allow copper is running out</i>copper can be recycledcopper can be reusedcopper is expensivelandfill sites are filling upcopper compounds are toxic <i>allow copper is toxic</i>	2
			[8]

- M5.(a) (i) gas 1
- (ii) Increases 1
- (b) (i) -1
allow Cl⁻
allow –
allow negative 1
- (ii) sodium + chlorine → sodium chloride
allow correct symbol equation 1
- (c) reduce microbes
accept sterilise
accept prevent diseases
allow disinfect
allow kill bacteria / germs / microbes / micro-organisms
allow to make it safe to drink
ignore get rid of bacteria 1
- (d) any **one** from:
• no freedom of choice
allow unethical
• fluoride in toothpaste
• too much can cause fluorosis
allow too much can cause damage to teeth 1

[6]

M6. (a) contains (large amounts of) dissolved solids / difficult to remove dissolved solids

allow salty / too much salt

allow sea water makes you thirsty / vomit

allow polluted / untreated / contaminated

1

(b) filtered: removes solids / removes insoluble material / dirt
ignore large objects

1

chlorine: kills/destroy bacteria/microbes/ germs etc

allow disinfect / sterilise or gets rid of bacteria

ignore purify / clean

1

[3]