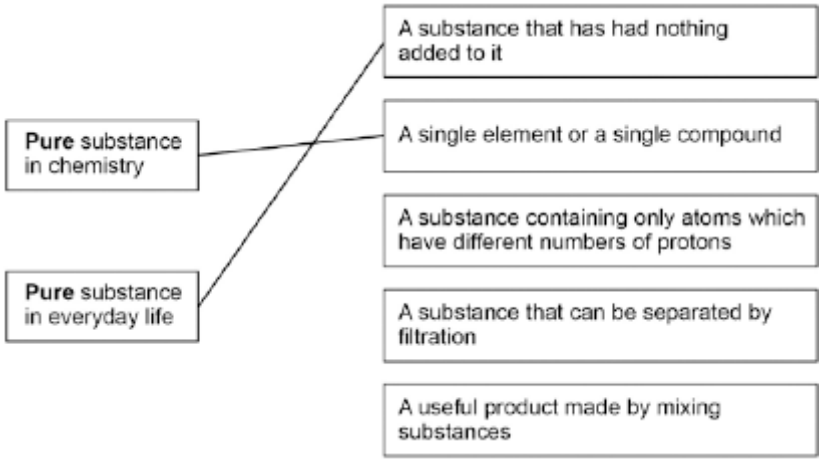
M1.(a) Air

2

Steel

1

(b)



Allow **1** mark for the correct meanings linked to context but incorrect way around

1

1

(c) Damp litmus paper turns white

1

(d) Iron(III)

1

[6]

M2.(a) argon / Ar

1

(b) (i) 0

1

(ii) unreactive

1

(c) (i) 94.96(%)

1

(ii) any **two** from:

- plants or photosynthesis
- absorbed in oceans / *seas*

  *allow oceans store **or** take in **or** dissolve carbon dioxide*
- locked up in (sedimentary) rocks
- locked up in fossil fuels

2

[6]

M3. (a) bar drawn correctly 78 – 80 (%)

1

(b) (i) (Mars has) no (green / living) plants / trees

1

(ii) (argon) is unreactive / inert

accept argon is a noble gas

ignore it is in Group 0

1

(c) (the amount of carbon dioxide has decreased because it has been) absorbed / used by (green / living) plants / trees **or** used for photosynthesis

accept dissolved / absorbed by oceans or locked up in fossil fuels / carbonate rocks

1

(d) the eruption of volcanoes

1

[5]

M4. (a) crust

ignore Earth's

1

core

ignore inner and/or outer

1

(b) bar chart

1

all heights are correct

accept correctly plotted points

1

all labels are correct for nitrogen, oxygen and other / argon

1

(c) (i) decomposed

1

(ii) global warming

1

[7]

M5. (a) (i) nitrogen / N_2

1

(ii) carbon dioxide / CO_2

1

(b) (i) humans / scientists had not evolved

accept it was billions / millions of years ago

allow too long ago

1

(ii) temperature is above 100°C **or** any water would evaporate / boil

accept Venus is too hot

1

(c) any **three** from:

- used by <u>plants</u>
- used for <u>photosynthesis</u>

  *accept <u>plants take in carbon dioxide and give out oxygen</u> for the first two bullet points ie **2** marks*
- <u>dissolves</u> in oceans / seas

  allow absorbs into oceans / seas
- used to form the shells / skeletons of marine organisms
- <u>locked up</u> as limestone / carbonates
- <u>locked up</u> as fossil fuels / oil / coal

3

[7]

M6. (a) core

ignore outer or inner

1

mantle

1

(b) (i) carbon dioxide

accept formula CO_2

1

oxygen

accept formulae O_2 / O

1

(ii) 4%

1

(iii) carbon dioxide has <u>decreased</u> / from 95% to 0%

1

oxygen has <u>increased</u> / from 0% to 21%

1

any **one** from:

(carbon dioxide decrease)

- carbon dioxide used during photosynthesis / by plants
- carbon dioxide dissolves in oceans
- carbon dioxide is locked up in rocks / carbonates / fossil fuels

(oxygen increase)

- oxygen released during photosynthesis / by plants

1

[8]

M7. (a) (i) water <u>vapour</u> given out from volcano

accept steam
not hydrogen and oxygen combining
to form water

1

condensed

accept rain / clouds formed just 'cools' is insufficient

1

(b) nitrogen (left) N_2

*do **not** accept N*

1

oxygen (right) O_2

*do **not** accept O*

1

[4]

M8. (a) respiration

combustion

1 *mark each*

2

(b) methane

water

1 *mark each*

accept steam

*do **not** accept natural gas for methane*

*do **not** accept hydrogen oxide*

2

(c) greenhouse effect (increased)

accept (global) warming

accept polar ice caps melt

accept rising sea levels

accept problems with climatic change

*do **not** accept changes to the weather **or** acid rain*

1

[5]

M9. (a) (i) nitrogen (gas) **or** N_2

if only the formula is given it must be correct in every detail

1

(ii) argon (gas) **or** Ar

1

(iii) oxygen (gas) **or** O_2

1

(b) vapour

1

evaporating

1

sea(s)

1

condenses

1

(c) volcanoes **or** volcanic activity **or** the sea(s)

allow carbonates(s) (rocks)

do not credit inside

1

[8]

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