

Discussion / Activity 1 Suggested Answers**INSPECTION COPY
for schools only****Elements**

**1. What were Aristotle's 4 elements? Earth, water, fire & air.
(He believed everything was made from these.)**

2.

a) What is "chemical decomposition"?

The breaking down of a substance into simpler substances.

b) What definition of an element arose from the Alchemist's experiments with chemical decomposition?

An element is a substance which cannot be chemically decomposed into simpler parts.

c) What is the definition of an element based on atoms?

An element is a substance composed of just one kind of atom.

d) In the Periodic Table, each element has an "Atomic Number".

What is one fact about the atoms that this tells you?

The Atomic Number tells you how many electrons each atom of that element has.



Discussion / Activity 2 Suggested Answers

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More About Elements

1. Which one of these elements was probably known to the Alchemists?

Chlorine (Cl), Barium (Ba), Mercury (Hg). Explain your answer.

Mercury. Its symbols don't match its name. This probably means it had a previous name from which the symbols come.

2. Fill in the table to summarise the differences between metals & non-metals.

Property	Metals	Non-Metals
Shiny or dull?	Shiny.	Most are dull.
Conductor of Electricity?	Yes.	Most are not.
Malleable & Ductile?	Yes.	No. Brittle.

3.

a) What is meant by “malleable”?

Malleable substances can be hammered or rolled into flat sheets.

b) What is meant by “ductile”?

Ductile substances can be pulled out into a wire.

4.

a) What is meant by a “trans-uranium” element?

An element beyond uranium in the Periodic Table.

b) How are these elements made? In a nuclear reactor.



Discussion / Activity 3

Suggested Answers

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Compounds & Reactions

1. Compare a mixture with a compound in terms of the particles in it.

A mixture contains various different particles... impure.

A compound contains only 1 type of particle... pure.

2. How do the properties of a compound compare to the properties of the elements it is made from?

Usually the properties of the compound are totally different to the properties of the elements in it.

3. List 3 things that are commonly observed to happen during a chemical reaction.

The starting chemical(s) disappear. New substances appear. The temperature changes.

Gas bubbles appear. Colour changes. (any 3)

4. What is a molecule?

A molecule is a particle made up of 2 or more atoms joined together.

5. Divide the following into 2 lists; physical changes v. chemical changes.

Physical: evaporation, distillation, sieving, condensation.

Chemical: decomposition, burning.