

4. Where do the names of the elements come from?

Some were named as substances before they were known to be elements.

examples:

Some are named from the natural substance that they are found in.

borax:

beryl stones:

zircon:

Some elements were named after figures in mythology.

Thor:

Prometheus:

Pluto:

Some elements were named after scientists.

Albert Einstein:

Alfred Nobel:

Ernest Rutherford:

Some were named after the home of their discoverer or the place where they were discovered (or made).

France:

Scandinavia:

California:

5. What are the symbols that we use for the elements?

It's a little inconvenient to have to write out the names for the elements all the time.

Dalton invented a set of symbols. Why don't we use these?

ELEMENTS	
Hydrogen 1	Strontian 86
Azote 5	Barytes 68
Carbon 5	Iron 50
Oxygen 7	Zinc 56
Phosphorus 9	Copper 56
Sulphur 13	Lead 90
Magnesia 20	Silver 190
Lime 28	Gold 190
Soda 28	Platina 190
Potash 42	Mercury 167

Today we use letters.

Some elements have only one capital letter.

sulfur:

nitrogen:

hydrogen:

Some elements have a capital letter and a lower case letter.

calcium:

magnesium:

helium:

Some elements have symbols that don't seem to match their names because the symbols come from Latin:

mercury:

silver:

sodium:

others:

6. Which are the most common elements?

Known universe:

Earth (crust, oceans, atmosphere):

the human body:

7. What do the elements look like in their pure form?

Of the 118 known elements, _____ have been found or made in such small amounts that we can't be sure what they look like.

Two examples:

astatine:

copernicium:

That leaves ___ that we can talk about here.

Two main divisions:

Which of the following elements are which? How can you tell?

First we'll look at the metals:

characteristics:

appearance:

exceptions:

What about the nonmetals?

gases:

liquids:

crystalline solids:

There are also some elements that are sort of in between metals and nonmetals – we call them:

elements:

characteristics:

Knowing whether an element is a metal, nonmetal, or metalloid in its pure form will help us predict:

Some elements have more than one form that they can be in when pure.

carbon:

graphite

diamond

phosphorus:

white phosphorus

red phosphorus

When elements in their pure state have more than one physical form, these are called:

Can you find any of the elements in their pure form in nature?

Calcium is commonly found as a compound of calcium, carbon, and oxygen called calcium carbonate. You can find it in:

Calcium in its pure form is not found naturally; it can be obtained by electrolysis of calcium compounds. It is a metal, and reacts with air.

Elements that can be found in pure form in nature are sometimes called “native” elements.

examples: