

Worksheet 3.2

Patterns in the Periodic Table

1 Complete the sentences and diagram below.

Scientists look for patterns in data. Historically, when they arranged the known elements in order of relative, they found that there was a repeating pattern. These patterns were shown clearly when the elements were arranged in a

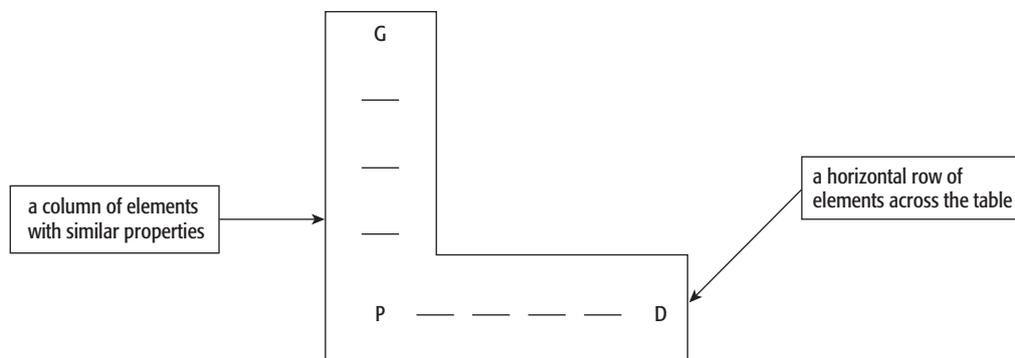
Each row in the table is called a period, with metals on the

and on the right. The vertical columns of elements in the table

were made up of elements with properties.

Modern versions of the Periodic Table put the elements in order of number,

also known as the atomic number.



2 Complete the information below about Group I elements.

The alkali metals:

- ◆ are – you can cut them with a knife
- ◆ are – but only when freshly cut
- ◆ quickly in moist air – they react with water and oxygen
- ◆ have low – some float on water
- ◆ react with water to form gas and an solution of the metal

For example: sodium + water → sodium hydroxide + hydrogen

lithium + → +

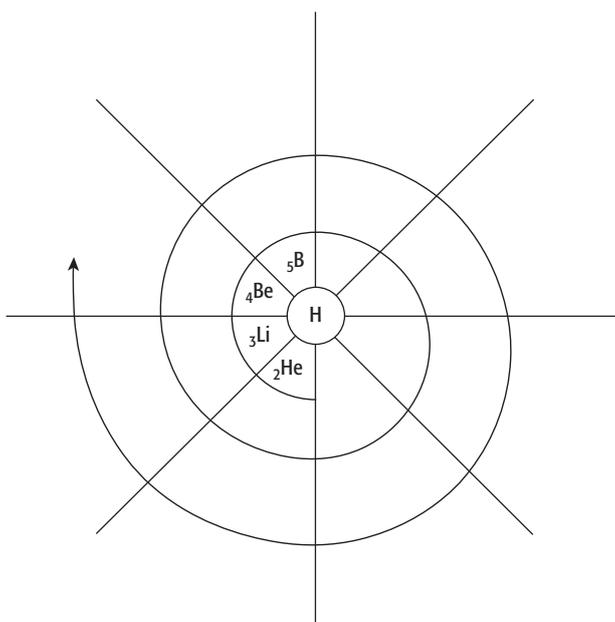
.....

..... + water → caesium hydroxide +

3 Complete the following table:

Halogen	Symbol	Physical state (at r.t.p.)	Formula of compound with potassium	Electron arrangement
fluorine			KF	
		gas		
bromine				2,8,18,7
	I			2,8,18,18,7

4 The diagram shows a novel spiral form of the Periodic Table. The first five elements are positioned for you.



- Complete this diagram by putting in the symbols and atomic numbers for the elements up to and including the element with atomic number 20.
- Label the segments that correspond to:
 - the alkali metals
 - the noble gases.
- Expand the diagram to suggest how the transition metals could be included.