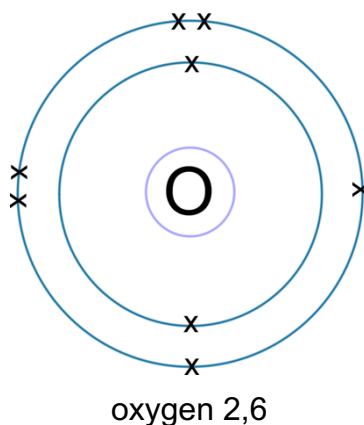


## Electrons in atoms

- Electrons orbit the nucleus in energy levels called shells.
- Electrons occupy the lowest energy level first.
- The lowest energy level is nearest the nucleus.
- The first energy level can only hold 2 electrons.
- The next energy levels each hold 8 electrons.

If we take oxygen, with an atomic number of 8, we can represent the arrangement of its 8 electrons like this:



## Activity 1

### Tracking the electrons

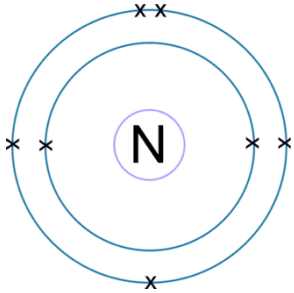
In the boxes below, draw atomic diagrams for the named elements. You will need to look at a periodic table to find their symbols as well as their atomic numbers.

1. helium	2. carbon	3. sulfur
4. magnesium	5. aluminium	6. argon

**Activity 2 Using the clues!**

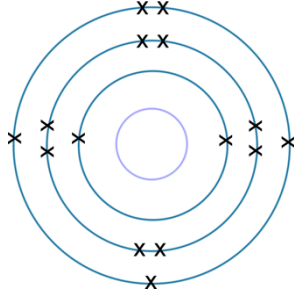
1. Identify the elements below.
2. Write the symbol of each one in its middle circle.
3. Below each diagram, write the element name and how the electrons are arranged.
4. The first one has been done for you.

1.

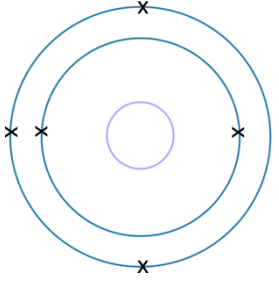


nitrogen 2,5

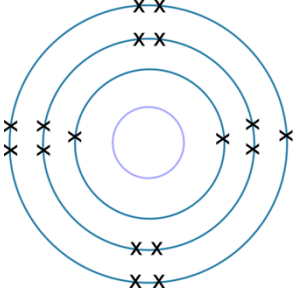
2.



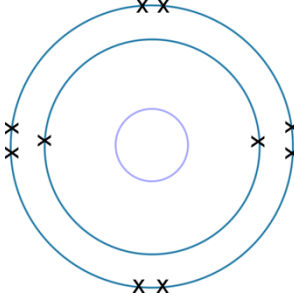
3.



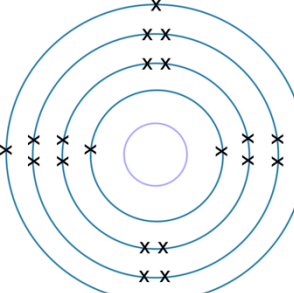
4.



5.



6.



**Activity 3 Looking for patterns**

Use a periodic table to help you complete the charts.

group 1	symbol	atomic number	electron configuration
lithium			
sodium			
potassium			

group 0	symbol	atomic number	electron configuration
helium			
neon			
argon			

**Questions**

1. What patterns do you notice between the members of Group 1?
2. What patterns do you notice between the members of Group 0?
3. What patterns would you expect to see as you go down Group 2?