

Name:
Science Class:
Teacher:
Hand in day:

Y9 Science

Term 3 Homework Booklet

Chemistry

	Hand in Date	Parents Signature
Atomic structure and the periodic table		
Homework 1		
Homework 2		
Homework 3		
Homework 4		

Topic 1: Atomic structure and the periodic table

Homework 1

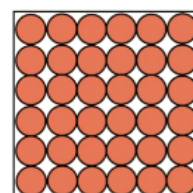
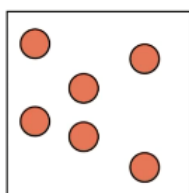
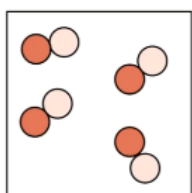
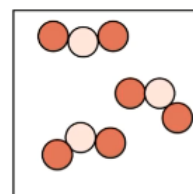
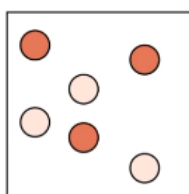
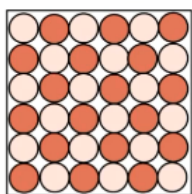
Watch the video '**atoms, elements, compounds, mixtures**' then answer the questions below:

Questions

1. What is the definition of an atom?
2. What is the definition of an element?
3. Give 2 examples of elements that exist as single atoms?
4. Give 2 examples of elements that exist as molecules?
5. What is the definition of a compound?
6. Write the formula of water and draw a diagram to show a water molecule.
7. Name the following compounds from the formula provided:



8. What is the definition of a mixture?
9. Identify each diagram as either an element, mixture or compound



10. Are mixtures generally easy or difficult to separate? Explain your answer.

Homework 1: Answers

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

Topic 1: Atomic structure and the periodic table

Homework 2

Watch the video '**atomic structure**' then answer the questions below:

Questions

1. What is the size of an atom in nanometres?
2. What fraction of the size of an atom is the nucleus?
3. Which particles are found in the nucleus?
4. Where are the negative electrons found in the atom?
5. Fill in the table below:

particle	relative charge	relative mass
proton		
neutron		
electron		

6. What does the atomic number tell us about an atom?
7. What does the relative atomic mass (mass number) tell us about an atom?
8. Find carbon (C) on your periodic table. How many protons? neutrons? electrons? does carbon have?
9. Find aluminium (Al) on your periodic table. How many protons? neutrons? electrons? does aluminium have?
10. Find potassium (K) on your periodic table. How many protons? neutrons? electrons? does potassium have?

Homework 2: Answers

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

Topic 1: Atomic structure and the periodic table

Homework 3

Watch the video '**electronic structure**' then answer the questions below:

Questions

1. How many electrons can the 1st shell of electrons hold?
2. How many electrons can the 2nd and 3rd shell hold?
3. Which number tells us the number of electrons in an atom, the atomic number (bottom) or the mass number (top)?

If lithium has 3 electrons, this can be drawn as a dot and cross diagram, or shown in shorthand as 2,1

Using shorthand, show the electron structure of:

4. Sulfur
5. Neon
6. Potassium

Using a dot and cross diagram, draw the electron structure of:

7. Lithium
8. Fluorine
9. Aluminium
10. If the electron configuration of an element is 2,8,8,2 which element in the periodic table must it be? Explain how you arrived at your answer

Homework 3: Answers

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

Topic 1: Atomic structure and the periodic table

Homework 4

Watch the video '**the periodic table**' then answer the questions below:

Questions

1. Early attempts to classify the elements in the periodic table were based on atomic _____?
2. What was Newlands' law of octaves?
3. Why did scientists not accept Newlands' idea?
4. What did Mendeleev do to account for the fact that not all elements had been discovered when he made his periodic table?
5. What did Mendeleev do with the position of some elements to better fit the chemistry, like iodine and tellurium?
6. How is the modern periodic table arranged?
7. Which element can be found in:
 - a) group 1, period 4
 - b) group 7, period 2
 - c) group 4, period 5
8. Vertical columns in the periodic table are called groups. Why do elements in the same group have similar chemical reactions? Explain your answer using the idea of electron structure
9. Horizontal rows in the periodic table are called periods. What do elements in the same period have in common about their electron structure?
10. Some groups have special names. What is the special name of:
 - a) group 1
 - b) group 7
 - c) group 0

Homework 4: Answers

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.