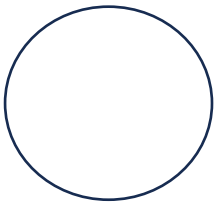
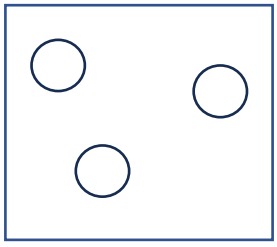
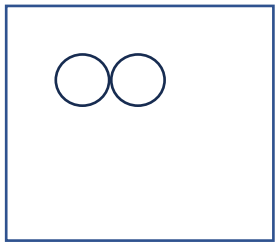
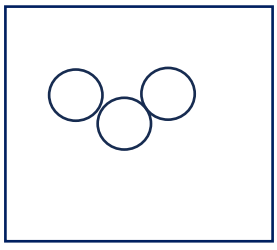
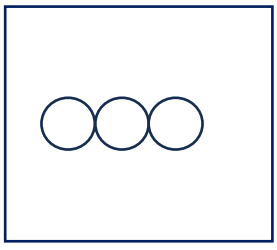
Mission Assignment: Explain the differences between atoms, elements and compounds

KS3-02-04

Atoms, Elements and Compounds

	Key words explained	
Atom	The smallest particle that can exist and from which everything is made. Dalton described a model of atoms where they were shaped like a billiard ball	
Element	A substance made up of only one type of atom Helium atoms do not join up with each other and exist as single atoms. Oxygen exists as two atoms joined together in a molecule of oxygen	 helium  oxygen
Compound	A substance made when atoms of different elements join together by chemical bonds. Water consists of 1 oxygen and 2 hydrogen atoms bonded together. Carbon dioxide consists of 1 carbon and 2 oxygen atoms bonded together.	 water  carbon dioxide

Atoms, Elements and Compounds

In the spaces below draw a diagram of each of your models. Then explain how each model represents an atom, element and compound respectively

	Diagram	Explanation
Atom		
Element		
Compound		

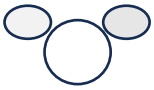
Challenge

How do atoms, elements and compounds differ from chemical mixtures?

Mission Assignment: Explain the differences between atoms, elements and compounds

KS3-02-04

Atoms, Elements and Compounds

A 	B 	C 
D 	E 	F 

1. Which of the boxes best represents a particle diagram of a compound?

2. Hydrogen atoms are smaller than any others. Elemental hydrogen is a molecule. Which of the boxes best represents hydrogen?

3. Which of the boxes best represents a particle diagram of elements?

4. Oxygen is a gas with the formula O_2. Which diagram best represents oxygen?

5. Carbon dioxide has the formula CO_2. Which diagram best represents carbon dioxide? Explain your answer.

6. In the space below, draw a particle diagram of the compound methane which has a formula of CH_4.

Atoms, Elements and Compounds

In the spaces below draw a diagram of each of your models. Then explain how each model represents an atom, element and compound respectively

	Diagram	Explanation
Atom	Students' own answers	
Element		
Compound		

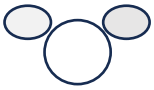
Challenge

How do atoms, elements and compounds differ from chemical mixtures?

Mission Assignment: Explain the differences between atoms, elements and compounds ANSWERS

KS3-02-04

Atoms, Elements and Compounds

A 	B 	C 
D 	E 	F 

1. Which of the boxes best represents a particle diagram of a compound?
A, C and E

2. Hydrogen atoms are smaller than any others. Elemental hydrogen is a molecule. Which of the boxes best represents hydrogen?
F

3. Which of the boxes best represents a particle diagram of elements?
B, D and F

4. Oxygen is a gas with the formula O_2. Which diagram best represents oxygen?
D

5. Carbon dioxide has the formula CO_2. Which diagram best represents carbon dioxide? Explain your answer.
A as D is oxygen so contains two oxygen atoms that are the same and another atom which is carbon.

6. In the space below, draw a particle diagram of the compound methane which has a formula of CH_4.

Will have one carbon and 4 hydrogen attached.