Q1. a) Model the Sun and **record your observations** below.

Method:

1. Set up a hot plate
2. Fill a large glass pyrex beaker (or a pot) with cold water and place it on the hot plate
3. Turn the hot plate on and bring to boil
4. Observe the change that takes place

My Observations:

Q1. b) Draw the particle diagram of water at **room temperature** and at the **temperature of the hot plate** when the water is boiling:

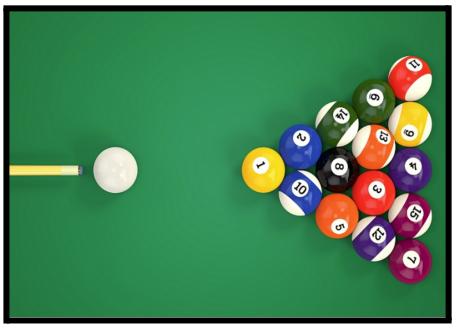
Q1. c) As a class, **act out** these **two** particle diagrams of water.

Q1. d) Consider:

i) Which model had more **movement** and caused the most **collisions**?

ii) What does this experiment tell you about the **behaviour of particles in the Sun?**

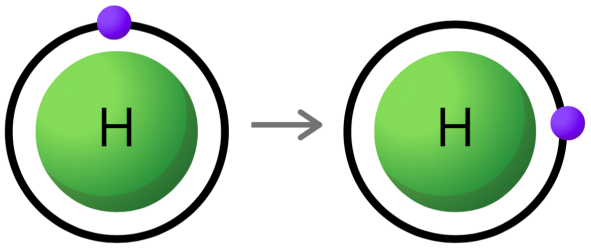
Q2. a) Examine the following images and **describe the pattern** you observe.



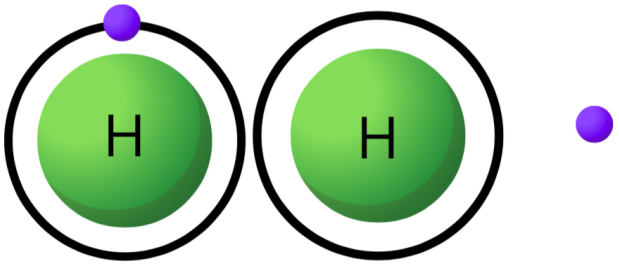
My Observations:

Q2. b) The diagram shows two Hydrogen atoms. One atom moves very fast towards the other and they collide.

Before:



After:



Using the diagram, describe what happens when the atoms **collide**.

Q3. Here is information about the chemical element Sodium from the periodic table. Using this information fill table A.

11
Na
23

Table A.

	Number of Protons present	Number of Neutrons present	Number of Electrons present
Sodium			

Table B gives the charges of each subatomic particle.

Table B.

	Proton	Neutron	Electron
Charge	+1	0	-1

Using Table A and Table B describe **what would happen to the charge of an atom** of Sodium if it lost 1 electron. What is the **name** given to this type of atom?

Q4. An astrophysicist called **Cecilia Payne-Gaposchkin** discovered that the Sun is made of mostly Hydrogen and Helium gaseous atoms (they are gas).
In Q1 you modelled the behaviour of atoms in the Sun so you have learned that the atoms are moving very fast as the temperature increases.
In Q2. you investigated what happens to atoms that collide and how the charge of an atom changes if it loses electrons.

Putting all of this together, describe **what you think happens to Hydrogen and Helium gaseous atoms in the Sun when they collide**. How does this tell us more about what the Sun is made of?