Scientist Name:

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Today Science Club are going to be.....

CHEMISTS!

We are going to do a series of experiments on **solids, liquids** and **gases, all materials** can be put into these three groups.

Solids are easy to control, don't change shape or volume and you can hold them.

Liquids are more difficult to control, change shape depending on the container but don't change volume, flow downwards but their surfaces stay level.

Gases are very hard to control, most are invisible and a mixture (e.g. air), has the same shape and volume as the container but spreads out if not and increases in volume.

Air is the gas above the Earth's surface and is made up of 78% Nitrogen, 21% Oxygen, 1% Argon and various trace gases that include CO^2. What do we need from air to live? Oxygen / Co_2. And what do we mainly breathe out? Oxygen / CO_2.

Dry Ice:

CO_2 is a gas which is found in air (albeit only 0.04%). Dry ice is the solid form of this gas, and, unlike water, it goes from a solid straight to a gas without a liquid phase (called **sublimation**) at -78.5 ^oC.

Is this **warmer** or **colder** than water's freezing temperature?

Liquid Nitrogen:

Nitrogen is odourless, colourless, and tasteless, and boils at −196 °C. Our bodies contain around 3% Nitrogen.

In liquid form it is very dense, 1 L of liquid = 694 L of gas!

Is this **warmer** or **colder** than dry ice's gas temperature?

Any questions please email: HassellScienceClub@gmail.com

Chemistry Quiz

1. What do we commonly measure temperature in?

2. What is the common order of water phases and at which temperatures?

a)___ _____at_____ ^{o}C.__b)_____ _____at_____^{o}C.__c)_____ _____ at _____ ^{o}C.

3. When you heat something up, it evaporates or condenses?

4. Can you pour a solid? Yes / No

5. What gases is air made up of?

6. Can the volume of a gas change? Yes / No

7. When water evaporates into the air, how can you catch it and turn it back into a liquid?

8. Put the following next to the arrows where you think they go: **a)** in your fridge, **b)** hot tea, **c)** sunny day in summer, **d)** in your freezer, **e)** ice skating weather.