

Investigating

Communicating

Knowledge and understanding

States of Matter

Learning outcomes in focus

Students should be able to:

CW2 develop and use models to describe the atomic nature of **matter; demonstrate how they provide a simple way to account for** the conservation of mass, **changes of state, physical change**, chemical change, mixtures, and their separation

CW4 classify substances as elements, compounds, mixtures, metals, solids, liquids, gases and solutions

NS1 appreciate how scientists work

NS7 organise and communicate their research and investigative **findings** in a variety of **ways fit for purpose and audience**, using relevant scientific terminology and representations

Learning intentions*

We are learning:

- about matter and how it changes.
- about how scientists represent ideas.
- to present work in a way that is clear and interesting.

Teaching and learning context

This task was undertaken by a mixed ability First Year group with a high percentage presenting with conditions such as Dyslexia,

Dyscalculia, Asperger's syndrome, low functioning and high functioning ASD. Prior to the task the students had spent three class periods investigating States of Matter, where they observed the Law of conservation of Mass. Students are familiar with the fact that almost all objects they encounter are composed of Matter. They have examined the three states in which matter can exist and are familiar with the properties of three states of matter.

Task

Working individually write an article or cartoon sketch for the school magazine science section. You will need to communicate the types of matter that can exist in a clear, humorous and fact based manner. Include diagrams and text in your article. The layout must be neat and organised.

Success Criteria**

I can:

SC1: present models of matter

SC2: identify states in which matter can exist

SC3: communicate the properties of states of matter

SC4: communicate how states of matter change

SC5: present scientific information in a clear and appropriate manner

* What the student should know, understand and be able to do at the end of the lesson or series of lessons

** Summary of the key steps the student needs to fulfil in order to achieve in the task

What's the **Matter?** by Ruby Rose Casey ♡

By observing materials in a variety of different situations scientists have identified three states of matter: **Solid**, **liquid** and **Gas**

Solids have a definite shape a definite volume, cannot be easily compressed, cannot flow. **liquids** have no definite shape, have a definite volume, can flow and are not easily compressed. **Gases** have no definite shape, can flow, have no definite volume and cannot be easily compressed.

Changes of State: The state of matter of an object depends on the amount of Heat energy it has. A Solid will change to a liquid (melting) or a liquid to gas (evaporation) A gas to a liquid (condensation) or a Solid to a liquid (freezing)

SC1:
Model does not refer to the atomic/particle nature of matter.

SC2:
Three states are identified.

SC3:
The Properties of three States of Matter are outlined with one error.

SC4:
Communicates change of state in words and diagram.

SC5:
Appropriate presentation.

Overall judgement: In Line With Expectations