



Chemical Chaos

7 Weeks



Rationale/Intent

After Professor Plutonium's unexpected visit, the challenge is set to create an interactive, informative and mind-blowing Science Fair to inform the population at large of the wonders of reversible and irreversible states of matter. Through this project, as aspiring scientists, they will investigate and test substances that can be recovered from mixtures and solutions, as well as discovering that some cannot building on the key knowledge and skills from Year 4. Children will take on roles negotiating tasks as they go and work together to plan, investigate and present their scientific findings, including writing explanations for Professor Pu's own scientific journal. They will be showing the British values of mutual respect and tolerance when working in a group to present their findings at the science fair.

Throughout this project, the children will be immersed in developing their knowledge and skills as geographers; researching and analysing their local area, identifying human, physical and topographical features. There are opportunities to develop their ASCENT value of community, understanding how their local area has developed over time and generating ideas of development for the future.

Hook

An eccentric scientist, Professor Plutonium (Pu) sends Year 5 a video message - demonstrating experiments to the children, challenging them to become scientists by exploring his investigations ready to share at the Science Fair.

Mini hook - Intech Winchester Science Centre

Outcome

An interactive Hill View Intech Science Fair, where Year 5 can educate and share their love of science with the rest of the school and their parents.

English

Link text; Horrible Science; Chemical Chaos

Linked texts and extracts are used as 'What a good one looks like' to teach from and are used to enable children in the writing process, using **Talk for Writing**, to successfully achieve the main writing outcomes for the project.

Main writing outcomes

Poetry:

Plan and write an acrostic poem/What am I? riddle, describing the different states of matter using correct terminology.

Non- narrative-explanation;

Write an explanation of reversible and irreversible changes for Professor Pu to present in the World Scientific Journal, using appropriate grammar and punctuation, (fronted adverbials, noun phrases, appropriate conjunctions -causal connectives).

Non- narrative-scientific report;

Complete a standard (proforma provided) scientific report using modal verbs and devices that ensure cohesion to predict, describe the scientific process and arrive at a conclusion e.g. Firstly, after that.

Writing skills to cover

Use of passive voice
Use of adverbials to qualify
Figurative language
Formal tone

Punctuation and Grammar

Homophones
Adverbials
Sentence structures

Weekly free writes; are used to develop individual targets, re-visit previous learning and offer a range of opportunities and genres to apply previously taught skills.

Science

Investigate Professor Plutonium's (Pu) first challenge of comparing and grouping materials by their state of matter (solids, liquids and gases), giving simple descriptions of each.

Plan, carry out and report on a scientific enquiry to answer Professor Pu's question about how some materials can dissolve to become a solution and be recovered from the solution.

Make predictions and investigate how Professor Pu could separate various materials from a mixture through filtration, evaporation, condensation and sieving.

Observe the process of burning materials, noting the changes and identifying the new materials made as a result.

Create a scientific investigation on a specified aspect of materials to demonstrate and explain the scientific processes involved and subsequent conclusions, so that it is accessible and meaningful to the audience of the Science Fair.

Geography - discrete

Describe where the UK is located, and that it consists of England, Scotland, Wales and Northern Ireland, locate some key topographical features of the UK and locate where they live within the UK.

(NC - name and locate counties and cities of the United Kingdom, geographical regions and their identifying human and physical characteristics, key topographical features (including hills, mountains, coasts and rivers), and land-use patterns; and understand how some of these aspects have changed over time).

Describe changes that have happened in their local area, share their hopes for the future of the area. Describe how another region of the UK has changed over time and understand that change is continual. Use appropriate geographical vocabulary to describe change.

(NC - name and locate counties and cities of the United Kingdom, geographical regions and their identifying human and physical characteristics, key topographical features (including hills, mountains, coasts and rivers), and land-use patterns; and understand how some of these aspects have changed over time).

Offer opinions on their local area at present and the changes underway. Explain some of the ways in which development can be sustainable. Understand that people hold differing views about change in their region.

(NC - name and locate counties and cities of the United Kingdom, geographical regions and their identifying human and physical characteristics, key topographical features (including hills, mountains, coasts and rivers), and land-use patterns; and understand how some of these aspects have changed over time).

<p>Art - discrete</p> <p>Artist Study - David Hockney (photographer) - link to cubism. (NC - Pupils should be taught about great artists, architects and designers in history).</p> <p>Skills - Experiment with continuing line and tone on a black and white picture. {NC- Pupils should be taught to improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials [for example, pencil, charcoal, paint, clay]}.</p> <p>Explore cubist art and perspectives. (NC- Pupils should be taught to improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials [for example, pencil, charcoal, paint, clay]).</p> <p>Take photos of each other from different perspectives and fit them together into a piece of artwork.</p> <p>Final piece - Complete a self-portrait using sketching pencils, based on a close up photograph by matching the tone, line and pattern, inspired by cubism.</p>	
<p>Visits and visitors</p> <p>Eccentric scientist video/visitor Intech - Winchester Science Centre - Friday 14th October Geography fieldwork - changes in local area - Redhill/local area</p>	
<p>Cultural capital;</p> <p>ICT</p> <p>Create a multiple choice quiz related to states of matter and changing states and format as a questionnaire to be given to visitors to the Science Fair, to test their knowledge and understanding. (See BBC bitesize) Create a multi- media presentation to support the investigation to be represented at the Science Fair.</p> <p>PE</p> <p>Create a 'states of matter dance' using the movement patterns and changes in tempo and rhythm to illustrate scientific properties and processes.</p>	
<p>Home Learning-</p> <p>Choose an experiment from sciencebob.com that focuses on filtration (reinforce safety and risk assessment), plan, carry out and write up in a chosen format to share with classmates.</p>	