

Exploring the material world through comparing chemical and physical changes.

UNDERSTANDING THE CHEMICAL MODEL OF SIMPLE CHEESE MAKING.

ESSENTIAL QUESTION

When a cheese is not a cheese can it still be a cheese?

WHAT ARE WE LEARNING?

- Asking questions, finding evidence and exploring simple models to develop simple explanations.
- Appreciating that science is a way of explaining the world.
- Understanding how cultural practices vary, but reflect similar purposes.

TRY THIS WITH

- Years 3-8
- Students who love eating cheese.
- Students who are always asking... but why? ...what if?

FIND

- | | |
|----------|-----------|
| Identify | Recognise |
| Classify | Explain |
| Compare | Discuss |

Place an uncovered cup of milk in the fridge and one on a shelf in your classroom.
 Create a [timelapse](#)-esque photographic journal using [iMotion](#).
 Document the changes in both cups of milk over a two week period.
 Ask: Is this cheese? Encourage students to record reasons for both why and why not.
 Build a [word bank of smelly words](#) describing the milk.
 Use them to create a smelly word poem.
 Watch [5 Ooey Goey Facts About Cheese](#).
 List animals whose milk is used to make cheese.
 Build a [Pinterest Board](#) that contains as [many different cheeses](#) as possible.
 Focus students on discovering where these cheeses have come from.
 Plot a selection of these cheeses' origins on [Map Fling](#).
 Record student facts, questions, origins and theories on [recycled milk bottles](#).
 Watch the [Is It Cheese?](#) animation.
 Add a can of [red bull to a cup of milk](#) - is this cheese?



APPLY

- | | |
|-------------|----------|
| Demonstrate | Question |
| Discover | Examine |
| Inspect | Infer |

Watch ['What is the pH Scale?'](#) for your own professional understanding.
 Research what changes the colour of pH strips.
 Test various liquids, using the pH strips and aim to find 4 colours.
 Label the liquid tested on each strip and create a [colour spectrum](#) artwork.
 Create a [YouTube Playlist](#) of [cool chemical reactions](#).
 Make [plastic](#) from milk, using the instructions.
 Demonstrate to the class how to make [paneer](#).
 Demonstrate the making of mozzarella, using the recipe provided. NB: you may like to trial making [mozzarella](#) yourself first.
 Focus students on the [Melt, Stretch, Crumble](#) criteria as it relates to each "cheese".
 Co-create the criteria for assessing whether or not your products are cheese.
 Create [venn diagrams](#) using [Canva](#) to compare cheeses and melt, stretch, crumble.
 Listen to the [cheese expert](#) share their knowledge of the cheese making process.
 Locate your own local cheese expert and pose any questions you may have.



PRODUCE

- | | |
|---------|---------|
| Compile | Share |
| Think | Create |
| Do | Develop |

Investigate further, by changing a single variable:
 Change the [temperature](#) - Can you make plastic with cold milk?
 Change the fat content - Can you make cheese with trim milk?
 Change the strength of the acid - Can you make cheese using orange juice?
 Conduct a [silent debate](#) about whether milk plastic is a cheese.
 Use Flipgrid to make a class photo booth and 'Say Cheese'.
 Record students showing their ideas, thoughts, knowledge of cheese.
 Create an on-line quiz about cheese, using [Kahoot](#).
 Challenge students to demonstrate their understanding of cheese making without words.
 Consider incorporating [group movement](#) - use space, colour and shape.
[Capture images](#) (moving or still) of student presentations.
 Share your findings with an audience... parents, another class, at an assembly, with School Kit.



SUCCESS CRITERIA

Students can check they have completed the task successfully by:

- Identifying the differences and similarities of cheese.
- Explaining the simple science behind what makes a cheese.
- Creatively expressing their knowledge of the cheese making process.

PRINCIPLES	VALUES	KEY COMPETENCIES	LEARNING AREAS	WORD BANK	KEY CONCEPTS
Cultural diversity Learning to learn	Community and participation Inquiry and curiosity	Thinking Relating to others Participating and contributing	Science Social Science	Coagulation Casein Chemical Reaction Characterisation	Compare and Contrast Fair Testing Acids and pH Evaluating