Changes in State

CREAM TO BUTTER

ESSENTIAL QUESTION

What happens when cream turns into butter?

WHAT ARE WE LEARNING?

- The definition of a dairy product.
- Understanding the changes in state between a liquid and solid.
- The concept of physical change through making butter.

TRY THIS WITH

- Years 1-4
- Students who have an interest in how things change.
- Students who love following a process.

FIND

Identify
Name
Review
Label
Compare
Outline

Discuss solids and liquids and create a display of the things students can identify as either a solid or liquid from things around them every day.

Show a series of explainer videos that demonstrate changing the state of a liquid, a solid, and a gas.

Identify the points in the video that the change in state occurs.

Include specific language (melting, freezing) to describe the changes that occur.

Demonstrate the ability for an object to change it's state by completing the balloon experiment.

Photograph each step.

Annotate the photos to explain what is happening at each step.

Share the photos with other classes and revise edits based on feedback.

APPLY

Categorise
Construct
Research
Illustrate
Manipulate
Examine

Watch the 'About Milk' video on TED-Ed.

Answer the 'think' series of questions.

Explain the process of making butter.

Record this series of responses on Screenr.

Revisit the TED-Ed video and talk through each step to ensure understanding.

Encourage the correct use of the scientific terms.

To check for a deeper understanding, ask students to provide another example of something changing from a liquid to a solid.

Ask where do students think cream might come from? Is it a solid or a liquid?

PRODUCE

Construct
Elaborate
Measure
Discuss
Experiment
Conclude

Explain the experiment.

Ask what do they think will happen to the cream?

Video each step.

Allocate each student group a measure of cream in a sealed jar or see-through container.

Encourage students to roll and shake the jar for about 30 minutes.

While students are shaking the cream, revisit the scientific principles behind the change in state.

Compile the different photographs into a class video that explains the process of changing cream to butter.

Extend students by melting one of the jars of butter to return it from a solid to a liquid. What do you think will happen?

Compile the footage into an iMovie that explains the change in state.

SUCCESS CRITERIA

Students can check they have completed the task successfully by:

- Predicting what change in state will occur.
- Describing in detail what happens when a liquid changes to a solid.
- Using iMovie to explain the process of changing cream to butter.

PRINCIPLES	VALUES	KEY COMPETENCIES	LEARNING AREAS	WORD BANK	KEY CONCEPTS
Learning to learn Community engagement	Innovation, inquiry and curiosity Excellence Integrity	Thinking Using language, symbols and texts Participating and contributing	Science Technology CREST	Solid Liquid Change Process	Changes in State Scientific Method Properties of Matter Making a Prediction