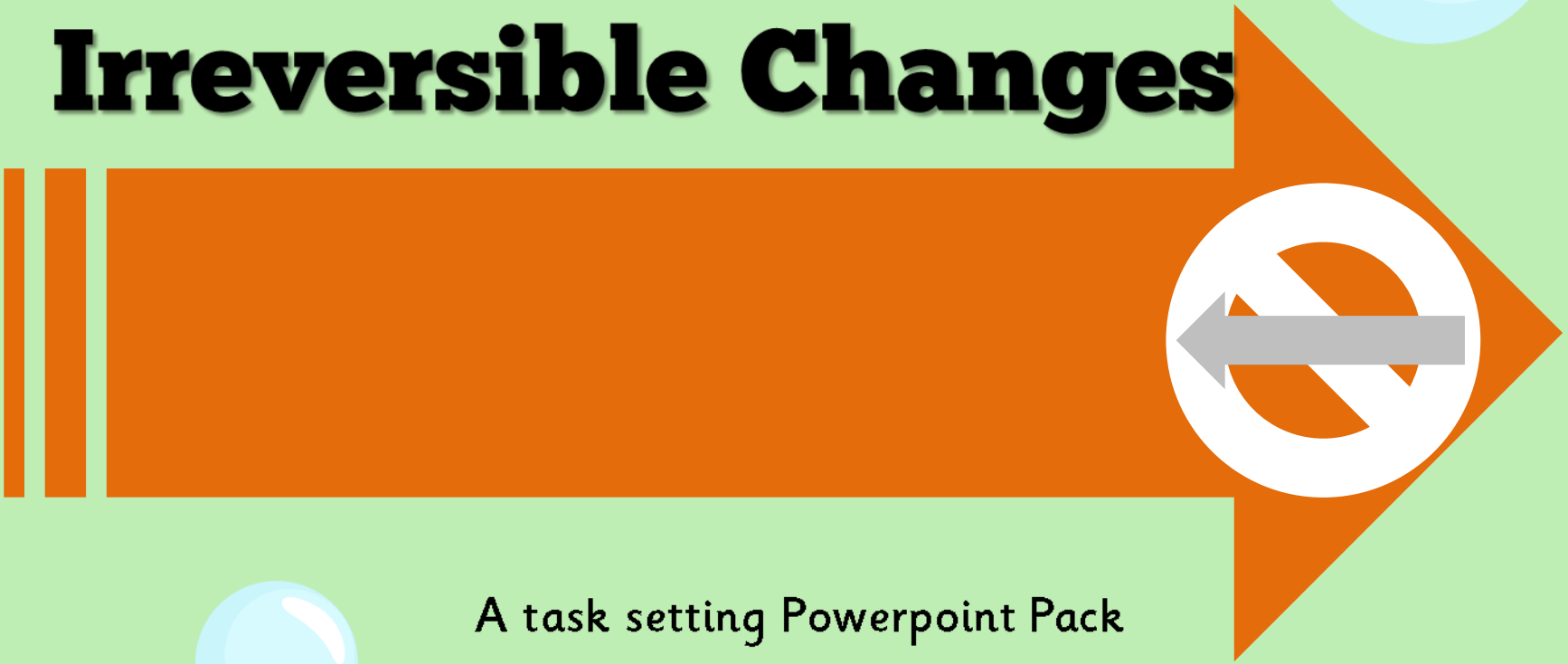
New Materials and Irreversible Changes



A task setting Powerpoint Pack

Can I identify and explain irreversible chemical changes?

Success Criteria

- I can identify irreversible chemical changes.
- I can explain irreversible chemical changes.
- I can describe the new materials created in irreversible chemical changes.

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Can I understand irreversible changes?

Contents

- An Irreversible change results in the formation of new materials. This kind of change is not usually reversible.
- In most cases a new material is formed.
- Examples of irreversible changes are: heating, mixing, burning and rusting.

What happens when you heat up an egg?

Contents

What changes do you notice? Can the changes be reversed?

Kitchen Creations

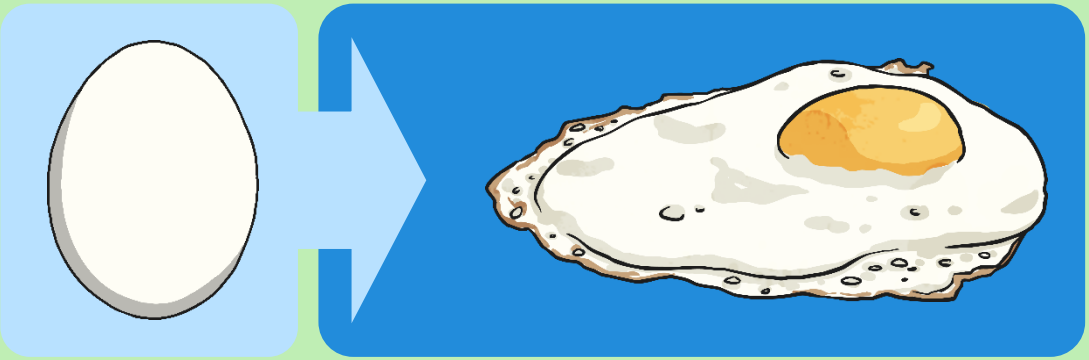
The kitchen is where our food is made and cooked. But did you know it is also home to many scientific reactions?

Watch this clip to find out more about the science of cooking.

Kitchen Creations

In the clip, we saw eggs being cooked.

How did the eggs change?



The egg shell is cracked, and the raw egg pours into the pan. As the liquid egg white and yolk are heated, they start to change. The clear liquid egg white firms up and becomes opaque white. It changes into a solid. The orange liquid egg yolk also solidifies and turns lighter in colour.

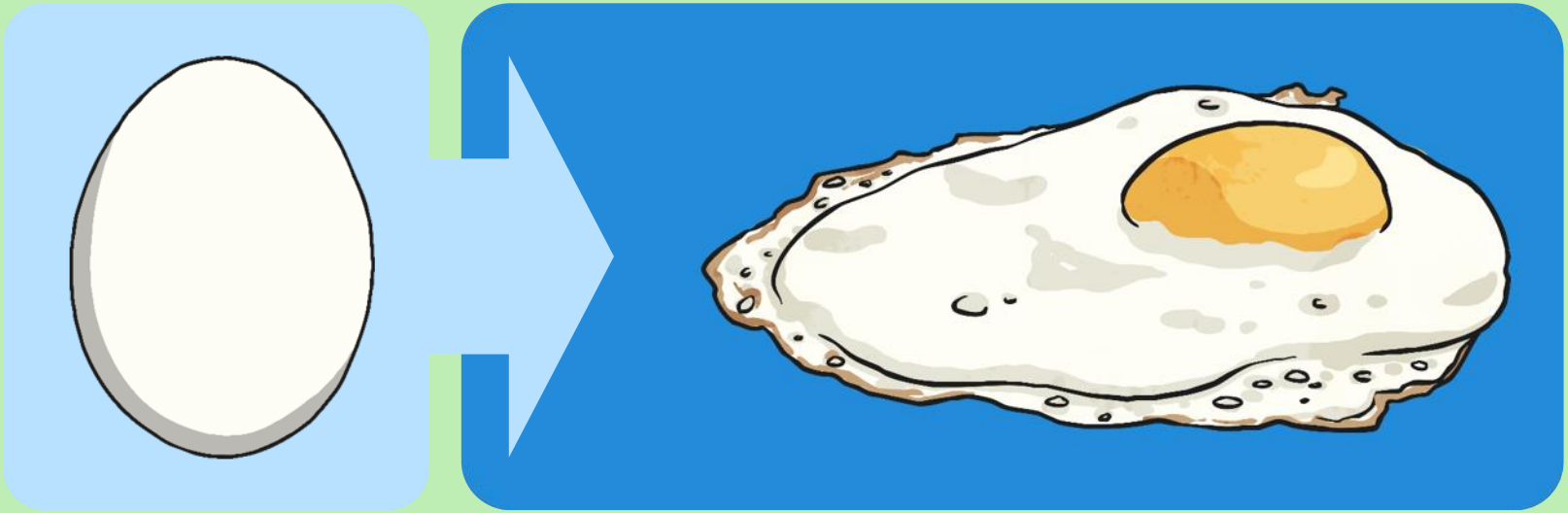
Kitchen Creations

The heat causes an irreversible chemical change to occur.
The cooked egg cannot be cooled and turned back into a raw egg.
It is a chemical change because a new product has been made, and irreversible because it cannot be changed back.

Melting, freezing, evaporating, condensing and dissolving are examples of reversible physical changes.

These are physical changes because no new materials are created. They are reversible changes because they can be changed back or reversed.

Kitchen Creations



Heat caused the chemical change to occur.

What happens when you heat sweet potatoes?

Contents

What changes do you notice? Can the changes be reversed?

Can I understand that some materials can cause an irreversible change?

Contents

What happens when you mix bicarbonate of soda and vinegar?

Watch the video to see what happens!

Contents

https://youtu.be/_CYgsqji_0k

What happens when you place bread in front of a heat source?

Contents

Describe the changes made when bread turns to toast.

Contents

What happens when you burn a candle? (DO NOT TRY THIS)

Watch this video (you may want to fast forward a bit)
https://youtu.be/xNQ-xH_FOc0

What happens to the wax?

Did it change in shape or form?

Consider whether the wax has made a reversible change or an irreversible change?

Why are some of these nails rusty and some not?

Contents

Do all metals rust?

What are the conditions that cause some metals to rust?

How could you test these ideas?

LO: To apply learning

Contents

Apply what you have learnt about rusting.

- What are the problems caused by rusting?
- How might you prevent rusting?
- Can you find out how rusting is prevented?

True or False?

Use what you have learnt to decide whether these questions are true or false. After you have made your decisions click on the questions to see if you were correct.

Melting chocolate is an irreversible change.

Heating materials always causes reversible changes.

An irreversible change is one that cannot be changed back.

Reversible changes create new materials.

Irreversible changes can create useful materials.

Baking bread is an irreversible change.

TASK 1 (In resources)

Can I understand irreversible Change?

Complete the chart below by identifying which materials are reversible and which ones are irreversible.

Reversible	Irreversible

Cut and stick the examples of changing materials in the correct columns.

Chocolate Making	Bread Toasting	Candle Burning	Wax Melting
Sugar Dissolving	Wood Burning	Biscuits Baking	Water Boiling
Puddle Evaporating	Water Condensing	Butter Melting	Potatoes Boiling
Ice Melting	Oil and Water Mixing	Milk and Vinegar	Cakes Baking

Task 2

Read about the scientists that have improved our lives

Contents

LO: To understand how scientists have improved our lives

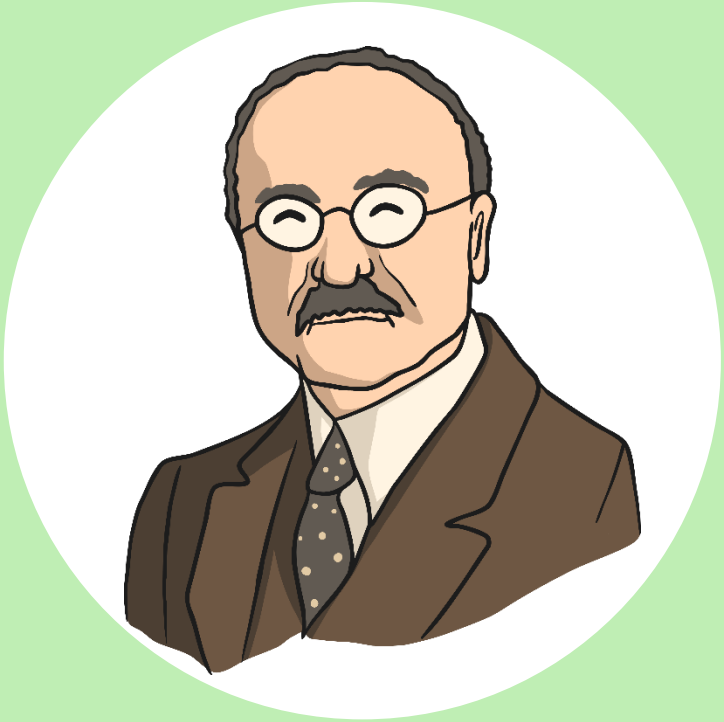
Ruth Benerito

Ruth Benerito is famous for inventing wrinkle free cotton.

- What can you find out about Ruth Benerito?
- What problems did she solve?
- How did her invention improve people's lives?

Leo Baekeland

Contents

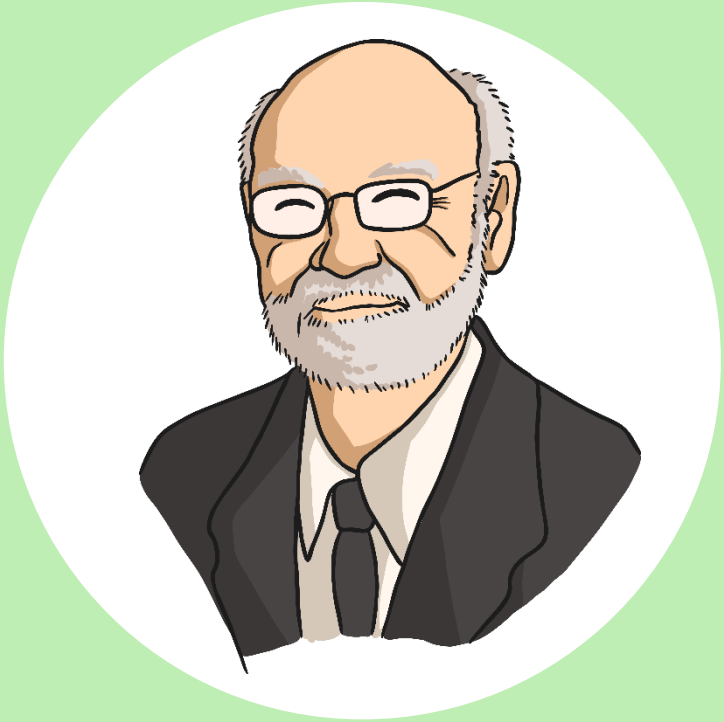


Leo Baekeland is famous for inventing bakelite, one of the first plastics.

- What can you find out about Leo Baekeland?
- What problems did he solve?
- How did his inventions improve people's lives?

Spencer Silver

Contents



Spencer Silver is famous for inventing the glue used for post-its.

- What can you find out about Spencer Silver?
- What problems did he solve?
- How did his invention improve people's lives?

Madame C.J. Walker

Contents

Madame C. J. Walker is famous for inventing and selling cosmetic products.

- What can you find out about Madame C. J. Walker?
- What problems did she solve?
- How did her invention improve people's lives?

Harry Brearly

Contents

Harry Brearley is famous for inventing stainless steel

- What can you find out about Harry Brearley?
- What problems did he solve?
- How did his invention improve people's lives?