ENGLISH HERITAGE
EDUCATION

KS2

CAN SCIENCE SAVE THE CELL BLOCK?

RICHMOND CASTLE

LESSON 3

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STARTER

WHAT IMPACT DO PEOPLE HAVE?

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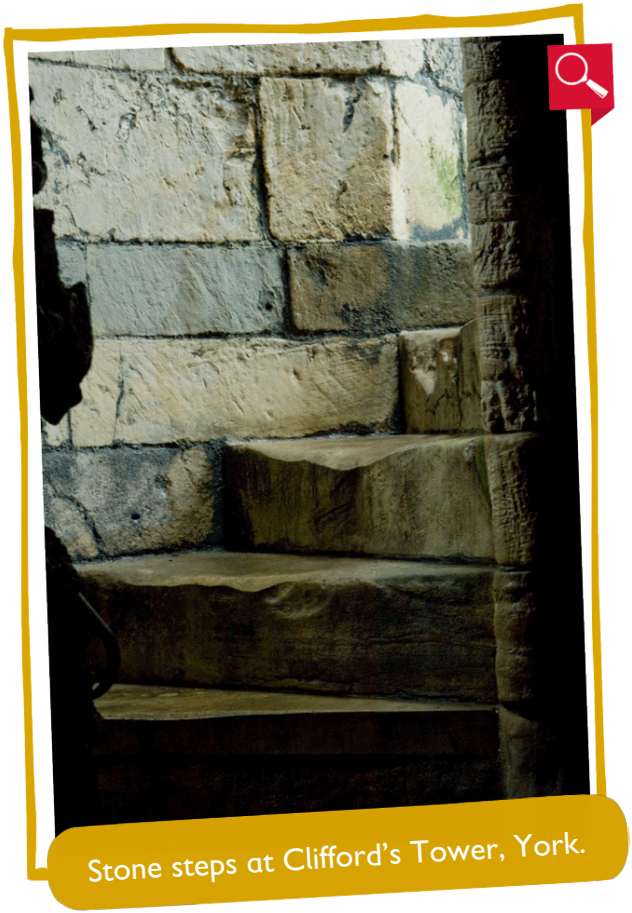
STARTER

Charles Darwin's chair in his study at Down House.



Stone steps at Clifford's Tower, York.

- What do these photos have in common?
- Can you think of somewhere in your school where the same thing is happening?
- Why is it happening?

We know that to protect the graffiti, we need to control the amount of moisture in the air in the cell block. We need to stop the humidity levels rising and falling.

Moisture gets into the cell block when the weather is rainy or damp.

Graffiti in the cell block.

CHALLENGE TIME

Think, pair, share:

What impact would people have on the amount of moisture?

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EXPERIMENT 3

WHAT IMPACT WILL PEOPLE HAVE ON THE CELL BLOCK?

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EXPERIMENT 3: EQUIPMENT AND METHOD

Equipment

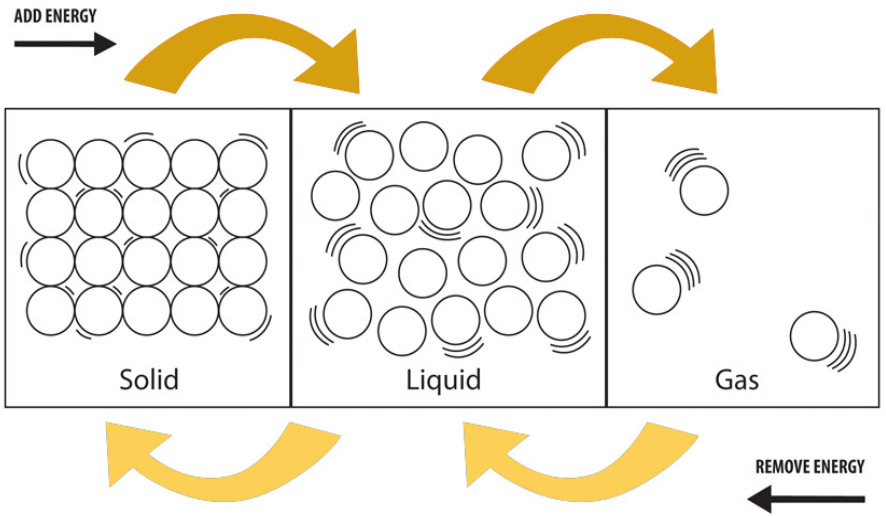
- glass pane
- you!

Method

- Breathe gently on the glass.
- Ask your partner to observe what happens.
- Record it on your worksheet.
- Now join up with another pair and all four of you breathe on the dish.
- What happened?
- Record it on your worksheet.

RESULTS: WHAT HAPPENED?

- The water vapour from your **warm** breath **cooled** when it hit the colder surface of the glass dish.
- When cooled, water vapour molecules **slow down** and turn back into water.
- This is called **condensation.**



Condensation.

CHALLENGE TIME

In groups, use role play to act out the movements of molecules condensing from gas into liquid.

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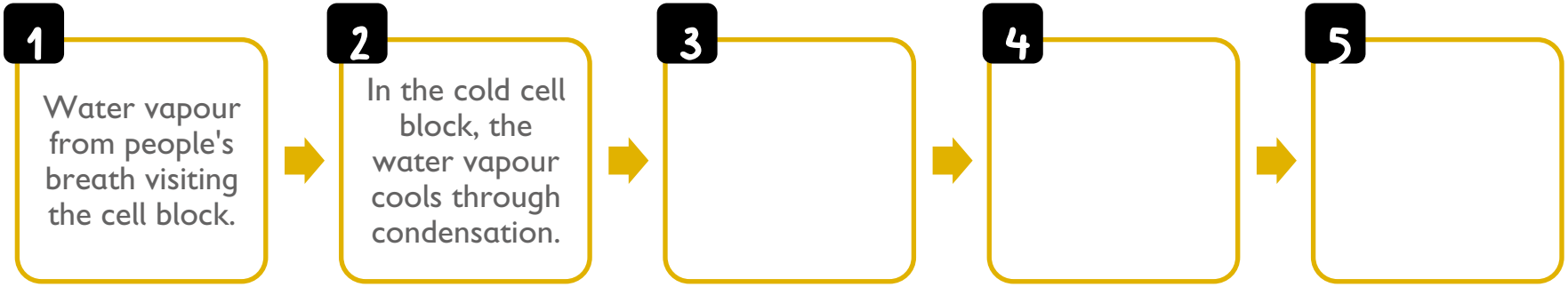
ANALYSIS

HOW DOES CONDENSATION AFFECT THE CELL BLOCK?

ANALYSIS: HOW DOES CONDENSATION AFFECT THE CELL BLOCK?

- **Water vapour** from people's warm breath cools when it hits a colder surface through **condensation**.
- More people = more breath = more water vapour.
- Complete the flow chart to show how we can apply this knowledge, and our learning about humidity levels and salt, to explain what will happen to the graffiti in the cell block:



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CONCLUSION

WHAT HAVE WE DISCOVERED?

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CONCLUSION

The amount of moisture in the air is called the level of **humidity**.

We have discovered that when the level of humidity **changes**, the limewash walls will become damaged and the graffiti will eventually disappear.

To protect the graffiti, we need to keep the level of humidity **stable**, to stop the salts changing shape.

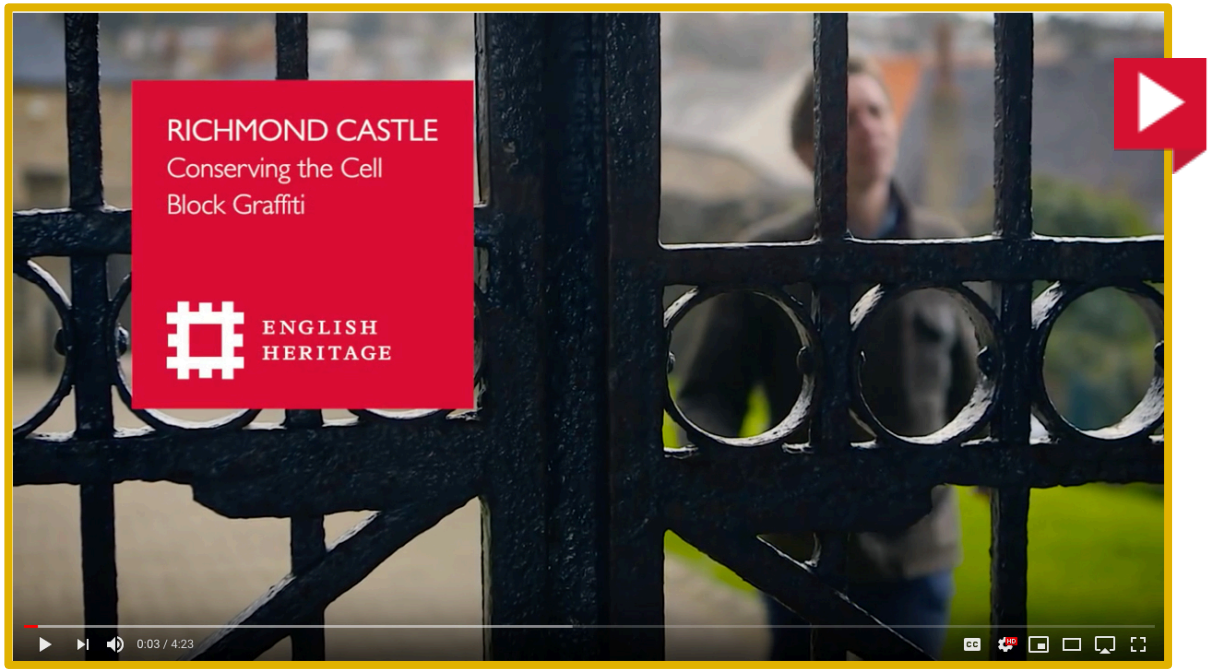
CHALLENGE TIME

Think, pair, share:

How can we keep the level of humidity stable in the cell block?

CONCLUSION

- **Discover** how English Heritage are protecting the graffiti by watching our short video (4 mins 24 secs). Search online for: 'Richmond cell block conservation video'.



- To see more of the graffiti in the cell block, **explore** the gallery on our website. Search online for: 'Richmond cell block graffiti'.

WELL DONE!

- **Well done** for finding out about the science behind the damage to the graffiti in the cell block at Richmond Castle.
- **Great job** on discovering what will happen to the graffiti if we don't do anything to protect it.
- **Brilliant work** on understanding how we can try to protect the graffiti.

You've been great scientists! Thank you for helping me use science to save the cell block.