

The Coal, Steam, and Smoke Story

How the Industrial Revolution connects to the climate story we live in today

About 250 years ago, Britain changed faster than ever before. New machines, powered by coal and steam, transformed how people worked and lived.

That moment in history - the Industrial Revolution - is also where today's climate story begins. In this activity you'll trace that connection.

1

Build the timeline | 10 min

With a partner - number these cards in order

These six statements describe the Industrial Revolution - but they're jumbled up. **Number them 1–6** in the order they happened.

A Steam engines were invented, giving factories a powerful new source of energy beyond human or animal muscle.	B Before this period, most people worked on farms or made goods by hand at home, using relatively little energy.	C Factories needed huge amounts of coal to keep their steam engines running, so coal mining expanded rapidly.
D Burning coal released smoke and gases into the air - including carbon dioxide, in much greater quantities than ever before.	E Factories were built, and many people moved from the countryside to growing towns and cities to work in them.	F Other countries followed Britain's lead, and burning coal and oil for energy spread around the world - a pattern that continues today.

2

Why coal? | 7 min

Pairs or small groups discussion

Discuss this question with your partner, then jot down your best answer.

Why do you think coal became so important during this time, when people had managed without it before?

3

Joining the dots | 8 min

Pairs

Read this short explanation, then answer the question below.

When we burn coal, oil, or gas, it releases carbon dioxide - a gas that traps heat in our atmosphere. Since the Industrial Revolution began, humans have been burning these fuels in huge and growing amounts, which is the main reason our planet has been warming up.

In your own words, explain the link between the Industrial Revolution and climate change today.

4

Then and now energy | 5 min

Whole class

One thing I'd want people 250 years from now to know about how we power our world today is...

Guidance for teachers

30 mins · Y5-6 (ages 9-11) · Pairs → Groups → Whole class

Before you start

This works well alongside an existing Industrial Revolution topic, or as a standalone bridge between history and climate education. It assumes no prior science knowledge of carbon dioxide or the greenhouse effect, though it pairs naturally with the Blanket Around the Earth activity if you've already covered that.

Stage 1 answer: B → A → C → D → E → F

1 Build the timeline · 10 min · Pairs

Hand out the cards or read them aloud first if your class needs support with the historical vocabulary (e.g. 'steam engine', 'Industrial Revolution').

"Think about what would need to happen first before something else could happen - that's your clue to the order."

After 6-7 minutes, reveal the order together (B→A→C→D→E→F), pausing on card F to flag that this is where the story becomes a global, ongoing one rather than something that finished in the past.

-  **If needed:** If a pair is stuck: ask them to find the card that describes 'before everything changed' - that's always card B, and a good starting anchor.
-  **If needed:** For pupils who finish early: ask them to guess what year range this took place in, before you confirm (roughly 1760-1840 in Britain).

2 Why coal? · 7 min · Pairs or small groups

This is a genuine 'why' question rather than a fact-recall one - encourage pupils to reason it through rather than guess at a single correct answer.

"Think about what coal could do that human or animal effort alone couldn't."

Useful idea to draw out if it doesn't come up naturally: coal allowed machines to work far harder and faster than people or animals, which made goods cheaper and faster to produce - but also meant far more energy was being used than ever before.

-  **If needed:** If groups struggle to get started: ask them to imagine moving heavy goods by hand-cart versus by train, and what's different.
-  **If needed:** For pupils who finish early: ask what they think happened to the people whose jobs changed because of these new machines.

3 Joining the dots · 8 min · Pairs

Read the explanation box aloud as a class - this is the key scientific link in the whole activity, so it's worth taking slowly and checking understanding before pupils write their own explanation.

"Burning fuels like coal releases carbon dioxide. That gas traps heat. The more we've burned since the Industrial Revolution, the more our planet has warmed."

Pupils then write the link in their own words - look for them connecting at least two of the following ideas: burning fuel, carbon dioxide / gases, trapped heat, and warming building up over time.

-  **If needed:** If pupils struggle to write a full explanation: offer a sentence starter - 'When people started burning ____, it released ____, which ____.'
-  **If needed:** For pupils with strong understanding: ask them to also explain why this is described as a 'revolution' and not just a change.

Closing reflection - read out a few sentences if time allows, or simply let pupils complete it as a personal note to finish the lesson.

“Imagine someone reading this in 250 years, the way we’re learning about people from 250 years ago today. What would you want them to know?”

This works well as a quiet, individual close rather than a group discussion - it gives pupils a moment to connect the history lesson back to their own present.

-  **If needed:** *If a pupil struggles to start: suggest they think about something they'd want to have changed, or something they'd want explained to future people.*
-  **If needed:** *If time is short: this can be set as the very last two minutes of the lesson, written rather than shared aloud.*

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