

Great Science Toolkit

Downloadable prompts for pupils to improve each aspect of the enquiry cycle – for ages 5-7, 7-11 and 11-14 years



Question Makers

What? Question starters to inspire pupils to ask different questions

Why? Providing lots of questions to handle and build towards an enquiry scientific question



Enquiry Planning Tool

What? Structures enquiry planning from question start to conclusion

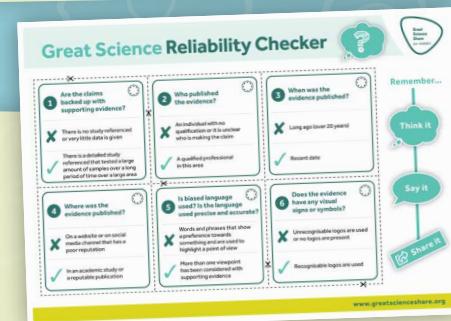
Why? Clarifies the difference between independent and dependent variables



Prediction Prompts

What? Sentence starters that structure predictions across 3 age phases

Why? So that early ideas about what might happen are linked to reasoning



Reliability Checkers

What? 6 question cards to evaluate the trustworthiness of information

Why? To improve research by secondary sources by moving from fact finding to critiquing and judging what's been found

Great Science Conclusion Creator Age 11–14 years

Sentence 1
What is your answer to your scientific question?
The findings of my enquiry suggest that...

Sentence 2 Supporting Evidence
How do your findings support your answer?
The evidence suggests that...
This is because...

Sentence 3 Contradicting Evidence
Was there any evidence that did not support your answer?
The pieces of evidence that did not support your answer were...
I did not believe this was reliable because...

Remember...
Think it
Say it
Write it

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Conclusion Creators

What? Sentence starters that structure conclusion writing across 3 age phases

Why? So that conclusions are drawn from evidence and linked to conceptual understanding

The Great Science Share Progression Tool

Progression in asking scientific questions

3-5 years	5-7 years	7-11 years	11-14 years
Explore through play Ask the pupils to move around the room, running, jumping, skipping, climbing, crawling, etc. Ask them to notice what they can see in the environment as they move around. Identify What are we seeing? - What are we hearing? - What are we smelling? - What are we touching? - What are we tasting? You may wish to encourage pupils to draw what they have seen. See 3.7 Asking Scientific Questions: Skills Starter video for more information.	Ask simple questions and encourage them to be as accurate as possible Ask simple questions and encourage them to be as accurate as possible. Identify What are we seeing? - What are we hearing? - What are we smelling? - What are we touching? - What are we tasting? You may wish to encourage pupils to draw what they have seen. See 3.7 Asking Scientific Questions: Skills Starter video for more information.	Ask relevant questions and use evidence to support their answers Ask relevant questions and use evidence to support their answers. Identify What are we seeing? - What are we hearing? - What are we smelling? - What are we touching? - What are we tasting? You may wish to encourage pupils to draw what they have seen. See 3.7 Asking Scientific Questions: Skills Starter video for more information.	Ask questions and encourage them to be as accurate as possible Ask questions and encourage them to be as accurate as possible. Identify What are we seeing? - What are we hearing? - What are we smelling? - What are we touching? - What are we tasting? You may wish to encourage pupils to draw what they have seen. See 3.7 Asking Scientific Questions: Skills Starter video for more information.

Note: That is a Patterns Seeking inquiry (pupil cannot change or control the variables as easily as in a comparative fair test. In this case, they should be encouraged to look for differences in the instruments or tools for fair testing.)

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Progression Tool

What? Each part of the enquiry cycle explained across 4 age phases of learning

Why? Assisting adaptive teaching, assessment for learning and feedback to improve pupils' working scientifically knowledge and skills

Great Observe and Draw Prompt

Age range: 5-7 years

Use these steps to help you observe and draw a scratch drawing.

Top tips

- Just use lines, not shapes
- Use a pencil to draw a straight line
- The ends of the line should be sharp points
- Use a ruler to draw straight lines
- Always draw from the outside in
- Draw inside the lines accurately

1 Shapes
What shapes can you see?
Circle, oval, square etc.

2 Labels
Can you label the different parts?
What key words do you need?

3 Size
What are the different parts?
What is the largest thing you have drawn? How much smaller are the other parts?

4 Colour
What colours are the different parts?

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Observe & Draw

What? Step-by-step prompts to enhance scientific drawing skills

Why? So illustrations of observations of the natural world and scientific equipment are drawn with precision and accuracy

Great Science Talking Prompts

Reacting Behaviours

- Supporting**
When you agree with someone or like their idea
That's great! Yes, I agree with you!
- Summarising**
When you bring together what has been said
So if we put all the ideas together, what have we said...
- Giving Information**
Sharing things you know
The facts are... They say that because...

Clarifying Behaviours

- Disagreeing**
When you say you're not sure about something
I disagree with what you say. I don't think that...
- Testing Understanding**
Ask questions to check that others understand you
So you mean that... Can you tell me more about that?
- Seeking Information**
Ask questions to find out more
Do you think that...? Can we take a quick look at that? Why do you think that?

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Talk Prompts

What? 6 talk prompt cards to stimulate reacting and clarifying verbal behaviours

Why? So that pupils can influence ideas and opinions in a constructive and purposeful way

Share Spinner

What you need?
A pair of scissors, glue or sticky tape.

How does it work?

- Print and cut out of the net.
- Print and cut out the spinner.
- Place the paperclip over the centre of the circle.
- Push the end of the pencil through the paperclip onto the centre of the circle.
- Push the paperclip to let it spin.
- Ask a question using the question word that the paperclip lands on.

Share Dice

What you need?
A pair of scissors, glue or sticky tape.

How does it work?

- Print and cut out of the net.
- Print along the lines and use glue or sticky tape to make your dice.
- Roll the dice to help you to choose an audience to share with.

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