

Scientific Inquiry: Questions, Variables & Evidence

Plan safe investigations by identifying a testable question, what changes, what is observed/measured and what should stay consistent.

LEARN • PRACTISE • CREATE • REFLECT

Original BrightPencil Kids resource - adult-led where appropriate

A4 edition • 12 purposeful pages • review copy

Print. Learn. Grow.

Grown-up guide

Learning objective

Plan safe investigations by identifying a testable question, what changes, what is observed/measured and what should stay consistent.

Use this pack well

- Model the first example aloud, then let the learner try.
- Ask “How do you know?” more often than “Are you finished?”.
- Use real objects, talk, movement or observation when the activity suggests it.
- Stop or shorten the session if attention or enjoyment drops.
- Open-ended pages can have many successful answers.

Quality note

This resource was written originally for BrightPencil Kids. Curriculum sources informed scope and progression only; no third-party worksheet or story text is reproduced.

Learn the idea

1 A testable question links what you change to what you observe or measure.

2 Keeping key conditions consistent improves comparison.

3 Conclusions should match the evidence, including unexpected results.

Talk about it

Explain one idea in your own words. Give an example from real life, a drawing or an object if that helps.

Rewrite a vague curiosity into a testable question.

Identify change, measure/observe and keep-same factors in a ramp test.

Choose a table for repeated results.

Separate prediction, result and conclusion.

Spot a conclusion that claims more than the evidence shows.

Try it beyond the page

Real-world / hands-on connection

With adult guidance, plan one safe fair-comparison investigation before carrying it out.

Before you finish

What did you notice?

What evidence, object or example helped you?

What would you change if you tried again?

Create something

Your project

Create an investigation planner with question, prediction, method, table and conclusion space.

Use this space for planning, drawing, mapping, designing or notes.

CHALLENGE

Think deeper

1. Why repeat measurements?

2. Should results be changed to match a prediction?

3. What makes a conclusion scientific?

Quick review

1. In one sentence, explain the big idea of “Scientific Inquiry: Questions, Variables & Evidence”.

2. Draw or write one example that shows you understand.

3. Choose one activity from this pack and explain the strategy you used.

4. Write one question you still have.

Answer & discussion notes

Use these as guidance, not scripts. Open questions can have different successful responses when the reasoning is sensible and evidence-based.

1. Suggested response

To improve reliability and notice variation.

2. Suggested response

No.

3. Suggested response

It is based on recorded evidence and limited to what was tested.

Review before publication

Check age fit, factual accuracy, clarity, accessibility, rights provenance and whether the activity works in practice. This file remains a review copy until those checks are signed off.

FINISH

My learning reflection

I finished this BrightPencil learning pack.

One thing I understand better now:

A strategy that helped me:

Something I created or noticed:

My next small question or goal:

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