GRADE 4 LEARNING PACK

Working Scientifically: Variables, Repeats & Evidence

Plan a safe investigation by identifying a question, variables, measurements, repeated trials and evidence-based conclusion.

LEARN • PRACTISE • CREATE • REFLECT

Original BrightPencil Kids resource - adult-led where appropriate

A4 edition • 12 purposeful pages • review copy

Print. Learn. Grow.

FOR PARENTS & TEACHERS

Grown-up guide

Learning objective

Plan a safe investigation by identifying a question, variables, measurements, repeated trials and evidence-based conclusion.

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.

STUDY

Learn the idea

1 **A testable question can be investigated with observations or measurements.**

2 **A fair comparison changes one main factor while controlling important conditions.**

3 **Repeating measurements helps reveal variation and unusual 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.

PRACTISE

Guided practice

Challenge 1

Turn a broad curiosity into a testable question.

Challenge 2

Identify changed, measured and controlled factors in a simple ramp test.

PRACTISE

Build the skill

Challenge 3

Explain why three trials are usually stronger than one.

Challenge 4

Record an unusual result rather than deleting it.

PRACTISE

Independent thinking

Challenge 5

Write a conclusion that matches the evidence without claiming more than was tested.

APPLY

Try it beyond the page

Real-world / hands-on connection

Plan a safe household/classroom investigation with an adult, such as paper-airplane distance or cooling water, and decide what to measure before starting.

Before you finish

What did you notice?

What evidence, object or example helped you?

What would you change if you tried again?

CREATE

Create something

Your project

Create a one-page investigation planner: question, prediction, variables, method, table, conclusion.

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

CHALLENGE

Think deeper

1. Why repeat trials?

2. Should an unexpected result be erased?

3. What makes a conclusion trustworthy?

REVIEW

Quick review

1. **In one sentence, explain the big idea of “Working Scientifically: Variables, Repeats & 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.**

FOR GROWN-UPS

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 see variation and improve confidence.

2. Suggested response

No.

3. Suggested response

It is limited to and supported by the evidence collected.

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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