

GRADE 5 LEARNING PACK

Error Detection & Debugging Reasoning

Locate errors in multi-step reasoning by checking assumptions, operations and consistency rather than only final answers.

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

Locate errors in multi-step reasoning by checking assumptions, operations and consistency rather than only final answers.

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 wrong final answer can arise from an early correct-looking step.

2 Debugging compares each step with the rule it is supposed to follow.

3 Explaining the cause of an error is more useful than merely replacing the answer.

Talk about it

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

Build a clear model or organiser that shows: A wrong final answer can arise from an early correct-looking step.

Use supplied evidence to test this idea: Debugging compares each step with the rule it is supposed to follow.

Compare two cases and explain where this principle matters: Explaining the cause of an error is more useful than merely replacing the answer.

Find one weak claim or assumption and revise it so it matches the evidence.

Write a short conclusion that states evidence, limitation and next question.

Try it beyond the page

Real-world / hands-on connection

Debug arithmetic, logic and route-planning examples.

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 a “buggy solution” with one deliberate error and an annotated correction.

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

CHALLENGE

Think deeper

1. Why inspect intermediate steps?

2. Is rerunning the same method enough?

3. What makes a useful correction note?

Quick review

1. In one sentence, explain the big idea of “Error Detection & Debugging Reasoning”.

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

They reveal where reasoning first diverged.

2. Suggested response

Not if the same error remains.

3. Suggested response

It identifies the cause and the rule that fixes it.

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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