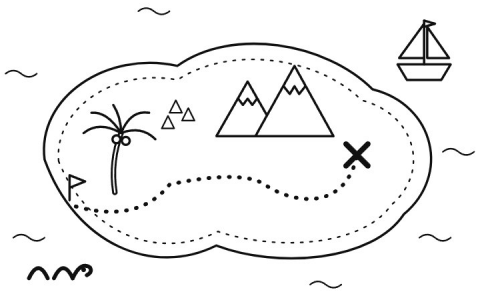
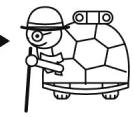
EXPLORER SKILLS FOR EVERY SUBJECT

The Badge Collection



"Hello, I'm Professor Moss, and I'll be guiding you through these challenges with my friends Pip and Dash. Everything in the test is inspired by lessons you already do at primary school. We are interested in **how you think** in new situations, not how much you can remember. There are no extra facts or tips that a tutor can help you memorise!"



BEFORE YOU START · EXPLORER'S NOTES

✓ These practice questions will **NOT** be on the real test. They show you different styles of question.

✓ The real questions might be easier or harder than these.

✓ The test covers **English** and **Maths**.

✓ English and Maths questions can be multiple choice **or** short written answers, or both.

✓ Use a **black pen** and the answer-sheet rules from the Field Journal (page 7).

✓ Have fun! Each badge is a chance to try something new.

✓ **Start with your Explorer's Field Journal**, then collect your badges here – in any order you like.

Look out for the same signs as your Field Journal: ✎ writing activity · ⏱ timed challenge · ⚑ answers at the back (for grown-ups)

HOW TO EARN A BADGE

1. Read the **habits** and tick the ones you already do
2. Follow Professor Moss through the **example question**
3. Try at least one **Campfire Challenge**
4. Colour in your **badge**!

My badge tracker

COLOUR AND DATE EACH ONE WHEN YOU EARN IT



Reading Detective

English · pages 2–3

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Number Pathfinder

Maths · pages 4–5

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VOCABULARY VALLEY

Thinking like a Reading Detective



Pip: "A tricky word isn't *a* wall – it's *a* clue! Detectives don't give up on it, they investigate."

1 Habits of a great Reading Detective

TICK THE ONES YOU DO

- ☐ **I get curious about new words.** An unfamiliar word is *a* puzzle to solve.
- ☐ **I look for clues nearby,** in the sentences before and after.
- ☐ **I think about similar words** I already know (*visible* → vision, invisible).
- ☐ **I can explain *a* word** in my own words.
- ☐ **I reread the sentence** – and any tricky section – slowly.
- ☐ **I use the context:** what is happening in the story at that moment?
- ☐ **I test my meaning** by putting the word into *a* different sentence. Does it still make sense?

2 Example question

SHORT ANSWER

What item do explorers carry to give light at camp after dark?

A ☐ **A** ☐ ☐ **E** **R** ☐ gives light at camp after dark.



MOSS WORKS IT OUT

① Count the boxes: 7, so it's a 7-letter word.
② Find the clues: light, camp, after dark… explorers carry one of these!
③ TORCH? Only 5 letters, so no. LANTERN has 7 letters ✓
④ Write it in CAPITALS, one letter in each box.

Campfire Challenges

① **Vocabulary Treasure Hunt.** ✎ ⚑ Work out what each **bold** word means from the clues around it. Write your guess, then check in *a* dictionary.

*The explorers **trudged** through the **murky** swamp, **famished** after six hours without food. When they finally stopped, Dash gulped down his sandwich **ravenously**.*

WORD	MY GUESS	THE CLUE THAT HELPED	DICTIONARY ✓
trudged			
murky			
famished			
ravenously			

② **Word Detective.** ✎ Find **3 new words** in your own reading book. For each one, write how you worked out what it must mean – *then* check in *a* dictionary.

MY WORD	HOW I WORKED OUT WHAT IT MEANS	DICTIONARY ✓

THE EVIDENCE TRAIL

Thinking like a Reading Detective



Pip: "Good detectives don't just guess – they can point to the clue that proves it."

1 Habits of a great Reading Detective

TICK THE ONES YOU DO

- ☐ **I read between the lines (infer).** What does the author want me to work out?
- ☐ **I look for the author's clues** – word choices, actions, feelings.
- ☐ **I pick out the important details** and don't get lost in small ones.
- ☐ **I can explain a character's actions** – why did they do that?
- ☐ **I can summarise a paragraph** in a sentence or two.
- ☐ **I find evidence.** I ask: "What in the text supports my answer?"
- ☐ **I spot patterns,** like repeated words or ideas.
- ☐ **I think about who the text is for** and why it was written.
- ☐ **I can work out unfamiliar words** from the clues around them.

2 Example question

MULTIPLE CHOICE

Fabien is drafting some new ideas for a story for a 4-year-old. Which of the following is the best choice for his story?

A The feral dog ran uncontrollably into the dense woods, leaping effortlessly over fallen branches. The terrified hare that was his target darted unexpectedly into the impenetrable brambles.

B The happy dog ran and ran. He had a long tongue that stuck out the side of his mouth. He was a bit out of breath but was happy to be free in the field.

C The boy ran as fast as he could. His tear-stained face was battered by the howling wind. He repeatedly screamed his dog's name into the storm, hoping in vain that his canine friend would appear.

D With the slightest hint of dawn, while the early birds do cheep and the cockerels do crow, the jolly farmer sets about his routine; his trusted furry companion never far from his side.



MOSS WORKS IT OUT

① Underline the key clue: a 4-year-old. So: simple words, short sentences, a happy feeling. ② A uses hard words (feral, impenetrable) ✗ ③ C is scary and sad ✗ ④ D is one long, tricky sentence ✗ ⑤ B is simple, short and cheerful → B ✓

Campfire Challenges

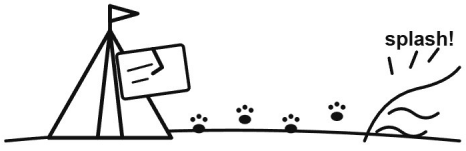
① **Fact or Inference?** ✎ ⚑ Write **F** if the text says it, or **I** if you worked it out.

Pip's boots were caked in mud and she was shivering. She wrapped both hands around a steaming mug.

STATEMENT	F / I
Pip's boots are muddy.	
Pip is cold.	
Pip has been walking somewhere wet.	
Pip is holding a mug.	
Pip is glad to be back at camp.	

② **Clues and Questions.** ✎ ⚑ Who do you think took the map? Which clues are your evidence?

When the crew woke up, the treasure map had gone. Muddy paw prints led from the tent to the river. Dash's sandwich was missing too – and Moss had heard a splash in the night.



My theory: _____

My evidence: _____

A question I'd ask: _____

NUMBER PATHFINDER: BASE CAMP

Thinking like a Problem Solver



Moss: "Every mountain is climbed one step at a time. Strong base-camp skills make the summit much easier!"

1 Habits of a great Number Pathfinder

TICK THE ONES YOU DO

- ☐ **I know my number facts quickly** – times tables, number bonds, halves and doubles.
- ☐ **I estimate first** so I know roughly what the answer should be.
- ☐ **I spot patterns** in numbers.
- ☐ **I read the question twice** and decide which of add (+), subtract (−), multiply (×) or divide (÷) I need.
- ☐ **I understand place value** – what each digit is worth (the 3 in 352 is 300).
- ☐ **I can use more than one strategy** – counting on, column method, rounding and adjusting.
- ☐ **I ask: does my answer make sense?**

2 Example question

SHORT ANSWER

Max has £20. He buys a book priced £6.99, some felt tip pens priced £3.50 and a drawing pad priced £2.99. How much change will he receive?

£ ☐ . ☐☐

MOSS WORKS IT OUT

① Estimate: £7 + £3.50 + £3 = about £13.50, so change is about £6.50.
② Calculate: £6.99 + £3.50 + £2.99 = £13.48
③ £20.00 − £13.48 = **£6.52** ④ Check: £13.48 + £6.52 = £20 ✓ and it's close to my estimate ✓
⑤ Fill the boxes: 6 . 5 2

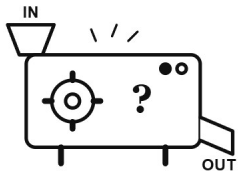
Moss's shortcut: £6.99 is £7 − 1p and £2.99 is £3 − 1p, so £13.50 − 2p = £13.48. Is there another method? There usually is!

Campfire Challenges

① **Estimation Station.** ✎ ⚑ Guess first, then count. How close were you?

ESTIMATE…	MY GUESS	REAL ANSWER	HOW CLOSE?
Books on one shelf at home			
Steps (stairs) in your house			
Sweets or pasta pieces that fit in a jar			

② **Mystery Rule Machine.** ✎ ⚑ What does the machine do to each number?



MACHINE 1	IN	5	12	9	7	20	Rule:
	OUT	10	24	18			
BONUS	IN	3	5	10	4		Rule:
	OUT	7	11	21		15	
TRICKY!	IN	2	4	6	10		Rule:
	OUT	5	11	17		23	

③ **Does it make sense?** ✎ ⚑ Dash rushed these. **Don't work them out yet!** Round the numbers to estimate first, and write it under the sum. Dash's answer close to yours? ✓ Nowhere near? ✗

Moss: 302 + 297 = 5,099? Estimate: 300 + 300 = 600. Nowhere near! ✗ *Bonus: find the real answers.*

49 + 32 = 81	198 + 403 = 1,601	6 × 51 = 306	2,005 − 998 = 1,007	25 × 4 = 1,000

NUMBER PATHFINDER: THE SUMMIT

Thinking like a Problem Solver

Moss: "The summit is where problems have more than one step. Steady feet – one step at a time!"

1 Habits of a great Number Pathfinder

TICK THE ONES YOU DO

- ☐ **I keep going with a challenge** – being stuck is part of the climb.
- ☐ **I jot my working down** on the question booklet so I don't lose my place.
- ☐ **I ask: is there another method?** and use it to check.
- ☐ **I check units and boxes** – £ or p? cm or m? How many digits fit?
- ☐ **I can compare fractions** – which is bigger?
- ☐ **I break multi-step problems** into smaller steps and do one at a time.
- ☐ **I try calculations with more complex numbers** – bigger numbers, decimals and fractions.
- ☐ **I know the difference between area and perimeter** – inside or around.
- ☐ **I can use my times tables** quickly and accurately.
- ☐ **I can solve multi-step problems,** one step at a time.

2 Example question

MULTIPLE CHOICE

Pip ate $\frac{3}{4}$ of a pizza. Dash ate $\frac{5}{8}$ of a pizza the same size. Who ate more?

A Pip **B** Dash **C** They ate the same **D** You can't tell

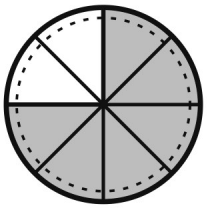
MOSS WORKS IT OUT

① Estimate: $\frac{3}{4}$ and $\frac{5}{8}$ are both more than a half.

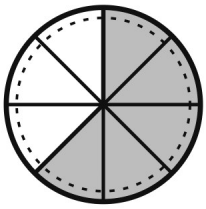
② Make the bottom numbers the same: $\frac{3}{4} = \frac{6}{8}$.

③ Compare: $\frac{6}{8}$ is more than $\frac{5}{8}$.

④ Check with a drawing → **A** ✓



Pip: 3/4 = 6/8



Dash: 5/8

Campfire Challenges

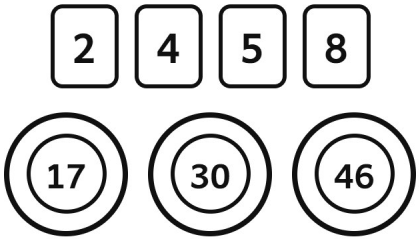
① **Number Target.** Use the number cards **2, 4, 5 and 8** to make each target number. In each calculation, you can use each card **once or not at all**. Use + − × ÷, and work **one step at a time**.

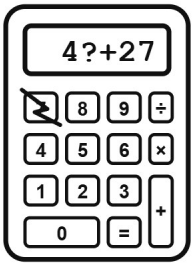
Example: Target 13 → 8 + 5 = 13 ✓

Target 17: _____

Target 30: _____

Target 46: _____





② **Broken Calculator.**

a) The **7** key is broken. How could you still work out **47 + 27**? Find two ways.

Way 1: _____ Way 2: _____

b) Find the missing digits: **☐3 + 2☐ = 70**

c) Harder: **6 × ☐ = 4☐** – there are **two** answers. Can you find both?

Answer Key

PAGES 2–5

Each answer has its reason and the most likely **wrong turn** to talk through. Praise the reasoning as much as the answer.

QUESTION	ANSWER	WHY	WATCH OUT FOR…
P.2 ENGLISH 1 · VOCABULARY VALLEY			
Lantern	**LANTERN**	Gives light at camp after dark; 7 letters fills the 7 boxes, and A, E and R are given.	TORCH: a sensible idea, but it has only 5 letters. The box count is the check.
Treasure Hunt	Meanings that fit the clues	trudged = walked slowly and heavily; murky = dark and hard to see through; famished = very hungry ("six hours without food"); ravenously = very hungrily ("gulped").	Guessing from the sound of the word. Ask: "Which words told you?"
Word Detective	Open	Any 3 new words, each with the clues used to work out its meaning, then a dictionary check.	Looking the word up first instead of working it out from the sentence.
P.3 ENGLISH 2 · THE EVIDENCE TRAIL			
Fabien's story	**B**	The reader is 4: B has simple words, short sentences and a happy mood.	A or D because they "sound like better writing". Best means best for the audience. C is upsetting for a 4-year-old.
Fact or Inference?	**F, I, I, F, I**	Facts are in the text; inferences are worked out from clues.	"Pip is cold" feels like a fact, but the text only says shivering (she could be scared). "Back at camp" is never mentioned.
Clues and Questions	Open	Any theory backed by clues: paw prints → animal; splash → river.	A theory with no evidence. Ask "What made you think that?"
P.4 MATHS 1 · BASE CAMP			
Max's change	**£6.52**	£6.99 + £3.50 + £2.99 = £13.48; £20 − £13.48 = £6.52.	£7.52 or £6.48 from exchanging slips; the estimate (about £6.50) catches these.
Mystery Rule	**× 2**: 7 → 14, 20 → 40	Doubling works for every pair: 5 → 10, 12 → 24, 9 → 18.	"Add 5" works for 5 → 10 only. Test a rule on every pair.
Does it make sense?	a ✓ b ✗ c ✓ d ✓ e ✗	Estimates: a 50 + 30 = 80; b 200 + 400 = 600 (really 601); c 6 × 50 = 300; d 2,000 − 1,000 = 1,000; e 25 × 4 is about 100 (really 100).	Working each sum out in full instead of estimating first; or marking d wrong because 1,007 isn't exactly 1,000 – close is the point.
Bonus machine	**× 2, then + 1**: 4 → 9, 7 → 15	3 → 6 → 7; 5 → 10 → 11; 10 → 20 → 21. Work backwards for 15: 15 − 1 = 14, 14 ÷ 2 = 7.	"Add 4" fits the first pair only. Estimation Station is open.
Tricky machine	**× 3, then − 1**: 10 → 29, 8 → 23	2 → 6 → 5; 4 → 12 → 11; 6 → 18 → 17. Backwards: 23 + 1 = 24, 24 ÷ 3 = 8.	"Add 3" works for 2 → 5 only. Test the rule on every pair.
P.5 MATHS 2 · THE SUMMIT			
Pizza fractions	**A** (Pip)	3/4 = 6/8, which is more than 5/8.	B, because 5 and 8 are "bigger numbers". The bottom number says how small the slices are, not how much was eaten.
Number Target	17: 8 + 5 + 4 30: 5 × 4 = 20, 20 + 8 = 28, 28 + 2 = 30 46: 5 × 8 = 40, 40 + 4 = 44, 44 + 2 = 46	Other routes are fine, e.g. 8 − 2 = 6, 6 × 5 = 30. One step at a time keeps it within Year 5 (order of operations is Year 6).	Using a card twice, or writing it as one long line (5 × 4 + 8 + 2), which needs order of operations.
Broken Calculator	a) 74 b) 43 + 27 c) 6 × 7 = 42 and 6 × 8 = 48	a) e.g. 46 + 1 + 26 + 1, or 50 − 3 + 30 − 3. b) The ones must add to 10 (3 + 7), then 40 + 20 + 10 = 70.	Stopping after one answer in c), when the question says there are two.