

Cases

Six cases to build – and one rule: name both sides before you decide

THIS BOOK BELONGS TO

Colour a badge in each time you close a case



The String and the Circle
Sheets 9–13



One Square Metre
Sheets 14–18



One Break, or Many
Sheets 19–23



Four Forces, One Sheet of Paper
Sheets 24–28



Whose Story Got Kept
Sheets 29–33



The Honest Misleading Graph
Sheets 34–38

The four beats

Predict
write it down before you know

Gather
get the evidence yourself

Weigh
both sides, with reasons

Decide
and say what would change your mind

Grown-ups: the

Weigh beat is the whole point of this volume. Grade 6 asks students to

assess the importance of biodiversity,

evaluate the impact of electricity,

assess the impact of space exploration, and describe the advantages

and disadvantages of payment methods. A one-sided answer has not met any of those expectations, however enthusiastic it is.

Grade 6 · six cases · 46 sheets



What "weigh it" actually means

Not "is it good or bad." Both sides, with a reason for each — and then a decision anyway.

practise

write

✓ **A worked one: road salt in winter**

For: it stops cars sliding, and it saves lives on winter roads.

Against: it damages soil, corrodes cars, and ends up in freshwater.

Decision: keep using it, but use less and apply it more precisely.

What would change my mind: a de-icer that worked as well without the damage.

The question	One point for	One point against
Should there be homework?		
Should phones be allowed at school?		
Should the school day start later?		

Now pick one and decide. And add the line that most people skip: what would change your mind?

"Nothing would change my mind" is an honest answer. It is also worth noticing about yourself.

Grown-ups: this sheet is the whole book in miniature. Every case ends with the same four lines.

Warm-up

Predicting badly, on purpose

A prediction you got wrong is worth more than one you got right — but only if you wrote it down first.

- 
predict


check later

Question	My prediction, before I check	Right?
How many times does the diameter fit round a circle?		
How many different species live in one square metre of lawn?		
If one bulb goes out, will the other stay lit?		
Does a heavier paper plane fly further?		
Whose letters from 1890 still survive?		
Can a true graph give a false impression?		

Come back and fill the last column as you finish each case. Do not change the middle column.

Why not change it? Explain what you would lose by quietly correcting a prediction after the fact.

Scientists call this pre-registration — writing the prediction down where you cannot edit it. It exists because everybody, honestly and without meaning to, remembers predicting the thing that happened.

Grown-ups:
the instruction not to change the prediction is the important one. Hindsight bias is universal, not a character flaw.

Warm-up · A1

Gathering it yourself

You will measure, count, build and read in this book. Each one has a way of going wrong.

-  practise
-  notice

Way of gathering	How it goes wrong	What to do about it
Measuring with string or a ruler	the string stretches; you read from an angle	
Counting living things	you miss the small ones; you count one twice	
Building a circuit or a structure	a loose connection looks like a real result	
Reading a historical source	you only find the sources that are easy to find	

Practise measuring. Measure the same round object three times with string. Write all three.

1 2 3

Are they identical?

They will not be. That spread is not failure — it is how precise your method is. What would you report as your measurement?

.....

.....

.....

Three measurements tell you something one cannot: how much you can trust the number.

Grown-ups: the idea that a spread of readings is information rather than error is the single most useful measurement idea at this age.

Warm-up · A1

Evidence, and what it can carry

Some evidence proves a lot. Some proves less than it looks like it does.

judge rank

The evidence	Strong, medium or weak?	Why
I measured it three times and got nearly the same answer		
It happened once, to me		
Everyone in my class got the same result		
Someone confident told me		
A graph on a website, with no source given		
Two independent sources say the same thing		

"It happened once, to me" is weak evidence and strong feeling. Why is that combination dangerous?

Independent matters. Two websites copying the same original are not two sources. They are one source, twice.

Grown-ups: "two sources that turn out to be the same source" is the most common research error at this age and well worth naming. Warm-up · A3



Safety, and looking after things

Two of these cases involve electricity and one involves going outside. Read this once, properly.

✓ check

agree

Electricity

- ☐ Batteries only — never mains, never a wall socket
- ☐ Never connect a battery straight to itself with wire
- ☐ If anything gets warm, disconnect it
- ☐ Tell an adult before you start

Outside

- ☐ An adult knows where you are
- ☐ Look, do not pick or move living things
- ☐ Put back anything you lifted, the way you found it
- ☐ Wash your hands afterwards

The one that is not about safety. When you turn a log or a stone over to see what lives underneath, something's roof just came off. Put it back exactly as it was. That is not a rule about you — it is a rule about them.

Signed: Date:

Grown-ups: the "put the log back" rule does more for how a child treats living things than any amount of instruction.

Warm-up · A1 safety

What you will need

Almost all of it is already in the house. Tick what you have; the rest can be borrowed or swapped.

✓ gather

Case	What it needs	Got it?
1 · The String and the Circle	string, a ruler, three round objects, a calculator	
2 · One Square Metre	string or four sticks, a magnifier if you have one, a notebook	
3 · One Break, or Many	a battery, two small bulbs or LEDs, wire or foil, tape	
4 · Four Forces	paper, a tape measure, paper clips, a clear floor	
5 · Whose Story Got Kept	somebody to interview, and a way to write it down	
6 · The Honest Misleading Graph	squared paper, a ruler, coloured pencils	

Missing something? Write what you would use instead. Most substitutions work fine, and choosing one is part of the work.

No bulbs? Case 3 works with a torch you can take apart, or you can draw the circuits and reason it out — but building it is much better.

Grown-ups: nothing here needs buying. A battery and two bulbs is the only thing that might need borrowing from school.

Warm-up

How a case is laid out

Every case is five sheets and runs in the same order. Once you have done one, you know the shape of all six.

read

Sheet	Beat	What happens
1	The brief	What the case is, what you need, and the four beats laid out
2	Predict	Write down what you think — before you touch anything
3	Gather	Do the thing. Record what actually happened, including the messy parts
4	Weigh	Both sides, with a reason each. This is the new one
5	Decide	Your position, and what would change your mind

Sheet 4 is the one people want to skip. It feels like slowing down when you already know the answer. It is the reason this volume exists — and in Ontario's achievement chart it is where **Thinking** is assessed, which is where Level 4 lives.

Before you start. Which case are you most looking forward to, and why?

Grown-ups: If time is short, the beat to protect is **Weigh** . Predict and Gather are already familiar from Grades 1-5. Warm-up

Your case record

Fill a row in each time you close a case. It is the whole book on one page.


keep it up

Case	Prediction right?	The strongest point <i>for</i>	The strongest point <i>against</i>	My decision
1 String and Circle				
2 One Square Metre				
3 One Break or Many				
4 Four Forces				
5 Whose Story				
6 Misleading Graph				

At the end. How many of your six predictions were right? Is that a good number or a bad one?

Six out of six would be suspicious. If you never predict wrong, you are only predicting things you already knew.

Grown-ups:
the last note is worth saying out loud. Being wrong in a controlled way is the point of predicting.

Warm-up



The String and the Circle

Five sheets · you need string, a ruler, three round things and a calculator

 read it

 get ready

Everybody is told that π is 3.14. Almost nobody is shown where it comes from. You are going to find it yourself, with string, and it will come out at about 3.14 every single time.

The four beats

Predict

Guess how many times the width fits round the outside

Gather

Measure three round objects and divide

Weigh

Your three answers are not identical. What does that mean?

Decide

Is π a number you discovered, or one you were told?

Before you turn the page. What do you already know about this? Write it down — even if it turns out to be wrong.

Grown-ups: you need string, a ruler, three round things and a calculator.

Math E2.3 · E2.4



Write it down first

Before you touch anything. A prediction only counts if it exists before the evidence does.

 predict

 say why

How many times do you think the **diameter** — the distance straight across — fits around the outside of a circle?

☐ about 2

☐ about 3

☐ about 4

☐ about 6

Why do you think that? One sentence. This is the bit you will want to reread afterwards.

Nearly everyone guesses 4, because a circle looks like it should fit a square. Write your guess down and do not change it.

Grown-ups: resist correcting a wrong prediction here. It is worth far more left standing.

Math E2.3 · E2.4



Go and get the evidence

Measure three round objects. String round the outside, ruler on the string.

 gather

 record

Object	Circumference (C)	Diameter (d)	$C \div d$

Do each object twice and use the average. String stretches.

Draw what you actually did — the setup, not a diagram from a book.

What went wrong or surprised you? Include it. The messy parts are usually the interesting ones.

Grown-ups: recording what went wrong is a real scientific habit, and children will hide it unless you ask. Math E2.3 · E2.4



Both sides, with a reason each

The new beat. Hold two true things at once before you decide anything.

 weigh

 justify

This is true

Your three answers came out slightly different.

Your own evidence for it:

And so is this

They all came out close to the same number.

Your own evidence for it:

Both of those are true at once. What does the spread tell you about your *method*, and what does the closeness tell you about *circles*?

If one side feels obviously right, you have probably not stated the other side at its strongest. Go back and make it harder to argue with.

Grown-ups: this is the sheet that earns the volume its name, and the one students will want to rush.

Math E2.3 • E2.4



Now actually decide

Weighing is not the same as sitting on the fence. You still have to come down somewhere.

 decide

 close it

π is about 3.14. You got it by measuring. Did you discover it, or confirm it?

A bicycle wheel has a diameter of 70 cm. Use your own value of π to work out how far it travels in one turn. Then use 3.14. How different are they?

And the line most people skip. What would change your mind?

You just did what mathematicians did for thousands of years, in about twenty minutes, with string.

Case 1 closed. Go and colour in badge 1 on the cover.

Grown-ups: "what would change your mind" is the strongest single indicator of Level 4 thinking there is.

Math E2.3 · E2.4

One Square Metre

Five sheets · you need string or sticks, and somewhere outside

 read it

 get ready

You do not need a rainforest to study biodiversity. Mark out one square metre of ground, count what lives in it, then do it again somewhere different. The difference between the two numbers is the whole strand.

The four beats

Predict

How many different species in a mown lawn? In an unmown edge?

Gather

Count both. Carefully, and twice

Weigh

A mown lawn is tidier. An unmown edge holds more life

Decide

What should happen to the edges of your school field?

Before you turn the page. What do you already know about this? Write it down — even if it turns out to be wrong.

Grown-ups: you need string or sticks, and somewhere outside.

Science B1 · B2 · A1

Write it down first

Before you touch anything. A prediction only counts if it exists before the evidence does.

 predict

 say why

Two square metres of ground: one **mown short**, one **left to grow**. How many different species in each?

☐ mown: ___ species

☐ unmown: ___ species

☐ I think the difference will be small

☐ I think it will be large

Why do you think that? One sentence. This is the bit you will want to reread afterwards.

Species means different kinds — not how many individuals. Ten dandelions is one species.

Grown-ups: resist correcting a wrong prediction here. It is worth far more left standing.

Science B1 · B2 · A1

Go and get the evidence

Count both squares. Look at the soil surface, under leaves, and on the stems.

gather

record

What I found	Mown square	Unmown square	Plant, animal, fungus?

Count twice, ten minutes apart. You will find things the second time that you missed.

Draw what you actually did — the setup, not a diagram from a book.

What went wrong or surprised you? Include it. The messy parts are usually the interesting ones.

Grown-ups: recording what went wrong is a real scientific habit, and children will hide it unless you ask. Science B1 · B2 · A1



Both sides, with a reason each

The new beat. Hold two true things at once before you decide anything.

 weigh

 justify

This is true

Short grass is easier to walk on, play on and maintain, and it looks cared for.

Your own evidence for it:

And so is this

Longer edges hold far more species, including the insects that pollinate everything else.

Your own evidence for it:

Both of those are real. Who benefits from each one — and are they the same people?

If one side feels obviously right, you have probably not stated the other side at its strongest. Go back and make it harder to argue with.

Grown-ups: this is the sheet that earns the volume its name, and the one students will want to rush.

Science B1 · B2 · A1

Now actually decide

Weighing is not the same as sitting on the fence. You still have to come down somewhere.

 decide

 close it

Should some of your school field be left unmown? Say where, how much, and why.

Name one thing that would make you change your answer — a cost, a risk, or a piece of evidence you do not have.

And the line most people skip. What would change your mind?

An unmown strip a metre wide along one fence is the commonest answer, and it is a good one. Small and specific beats large and vague.

Case 2 closed. Go and colour in badge 2 on the cover.

Grown-ups: "what would change your mind" is the strongest single indicator of Level 4 thinking there is.

Science B1 · B2 · A1



Five sheets · you need a battery, two bulbs, wire and tape

 read it

 get ready

The four beats

Predict

Which circuit keeps working when you remove a bulb?

Gather

Build both. Remove a bulb from each

Weigh

Series is simpler and cheaper. Parallel is more reliable

Decide

Which would you wire a house with, and why?

rown-ups: you need a battery, two bulbs, wire and tape.



Write it down first

Before you touch anything. A prediction only counts if it exists before the evidence does.

 predict

 say why

Two bulbs on one loop (**series**), and two bulbs on branches that rejoin (**parallel**). Unscrew one bulb from each. What happens?

☐ series: the other stays lit

☐ series: the other goes out

☐ parallel: the other stays lit

☐ parallel: the other goes out

Why do you think that? One sentence. This is the bit you will want to reread afterwards.

Also predict which will be *brighter* with both bulbs in. Most people get that one wrong too.

Grown-ups: resist correcting a wrong prediction here. It is worth far more left standing.

Science C1 · C2 · A1

Go and get the evidence

Build both circuits. Draw exactly what you built, including where the tape is.

 gather

 record

Circuit	Both bulbs in – how bright?	One bulb removed – what happened?

If nothing lights, check the tape first. A loose connection looks exactly like a real result.

Draw what you actually did – the setup, not a diagram from a book.

What went wrong or surprised you? Include it. The messy parts are usually the interesting ones.

Grown-ups: recording what went wrong is a real scientific habit, and children will hide it unless you ask.

Science C1 · C2 · A1



Both sides, with a reason each

The new beat. Hold two true things at once before you decide anything.

weigh

justify

This is true

A series circuit uses less wire, is quicker to build, and one switch controls everything.

Your own evidence for it:

And so is this

A parallel circuit keeps working when one part fails, and each bulb gets full brightness.

Your own evidence for it:

Why would anyone ever choose series, given all that? Name one situation where you would *want* one break to stop everything.

If one side feels obviously right, you have probably not stated the other side at its strongest. Go back and make it harder to argue with.

Grown-ups: this is the sheet that earns the volume its name, and the one students will want to rush.

Science C1 · C2 · A1



Now actually decide

Weighing is not the same as sitting on the fence. You still have to come down somewhere.

 decide

 close it

You are wiring a house. Series or parallel — and what is the one place in that house where you would use the other one?

Now the bigger question. Ontario's electricity comes from hydro, nuclear, wind, solar and gas. Pick one and name a genuine advantage and a genuine disadvantage.

And the line most people skip. What would change your mind?

A safety cut-off is series on purpose. Breaking it must stop everything — that is the entire job.

Case 3 closed. Go and colour in badge 3 on the cover.

Grown-ups: "what would change your mind" is the strongest single indicator of Level 4 thinking there is.

Science C1 · C2 · A1

Four Forces, One Sheet of Paper

Five sheets · you need paper, a tape measure, paper clips and a clear floor

 read it
  get ready

Lift, weight, thrust and drag are arguing with each other on every flight that has ever happened. A paper plane is the cheapest possible way to change one of them and measure what it does.

The four beats

Predict Does adding weight to the nose make it fly further?	Gather Three throws each, one change at a time
Weigh Further is not the same as better. What were you optimising?	Decide Which design wins — and for what job?

Before you turn the page. What do you already know about this? Write it down — even if it turns out to be wrong.

Write it down first

Before you touch anything. A prediction only counts if it exists before the evidence does.

-  predict
-  say why

You add two paper clips to the nose of a paper plane and change nothing else. What happens to the distance it flies?

☐ much further
 ☐ slightly further

☐ about the same
 ☐ shorter

Why do you think that? One sentence. This is the bit you will want to reread afterwards.

Also predict what happens to how *straight* it flies. Distance and stability are not the same thing.

Go and get the evidence

Three throws per design, same person, same spot, same effort. Change one thing at a time.

 gather

 record

Design	What I changed	Throw 1	Throw 2	Throw 3

Why three throws? Because one throw could be a fluke, and you cannot tell which one it was.

Draw what you actually did — the setup, not a diagram from a book.

What went wrong or surprised you? Include it. The messy parts are usually the interesting ones.

Grown-ups: recording what went wrong is a real scientific habit, and children will hide it unless you ask. Science D1 · D2 · A1

Both sides, with a reason each

The new beat. Hold two true things at once before you decide anything.

 weigh  justify

This is true

The nose-weighted plane went further and flew straighter.

Your own evidence for it:

And so is this

The unweighted plane stayed in the air longer and glided more gently.

Your own evidence for it:

Those are two different jobs. If you wanted a plane to reach the far wall, which wins? And if you wanted it to stay up the longest?

If one side feels obviously right, you have probably not stated the other side at its strongest. Go back and make it harder to argue with.

Now actually decide

Weighing is not the same as sitting on the fence. You still have to come down somewhere.

 decide  close it

Design the best paper plane for one named job — longest distance, longest time aloft, or most accurate. Say which job, and why your design suits it.

Now the strand's real question. Flying machines get people and goods around the world, and aviation is a significant source of emissions. Name one genuine benefit and one genuine cost.

And the line most people skip. What would change your mind?

"Best" is meaningless until you say best at what. That is true of paper planes and of almost everything else in this book.

Case 4 closed. Go and colour in badge 4 on the cover.

Grown-ups: "what would change your mind" is the strongest single indicator of Level 4 thinking there is. Science D1 · D2 · A1



Whose Story Got Kept

Five sheets · you need somebody to interview, and a way to write it down

 read it

 get ready

History is built from whatever survived. Letters, photographs, official records. Ask yourself who in 1890 was likely to have a letter kept — and who was not. The gaps in the record are not random.

The four beats

Predict

Whose lives from 150 years ago are best recorded?

Gather

Interview somebody, and look for evidence near you

Weigh

Written records are reliable. They are also incomplete

Decide

How should a historian handle a group with no written record?

Before you turn the page. What do you already know about this? Write it down — even if it turns out to be wrong.

Grown-ups: you need somebody to interview, and a way to write it down.

Social Studies Strand A

Write it down first

Before you touch anything. A prediction only counts if it exists before the evidence does.

 predict

 say why

Of these four people living in 1890, whose life do you think is **best recorded** today?

☐ a landowner

☐ a domestic servant

☐ a newly arrived family who spoke neither English nor French

☐ a community with a spoken rather than written tradition

Why do you think that? One sentence. This is the bit you will want to reread afterwards.

Then ask the harder question: is that because their life mattered more, or for some other reason?

Grown-ups: resist correcting a wrong prediction here. It is worth far more left standing.

Social Studies Strand A

Go and get the evidence

Two kinds of gathering. Interview one person, and find one piece of physical evidence near you.

 gather

 record

Source	What it told me	What it could not tell me

Good interview questions are open: "What do you remember about...?" and "What do people get wrong about it?"

Draw what you actually did — the setup, not a diagram from a book.

What went wrong or surprised you? Include it. The messy parts are usually the interesting ones.

Grown-ups: recording what went wrong is a real scientific habit, and children will hide it unless you ask. Social Studies Strand A



Both sides, with a reason each

The new beat. Hold two true things at once before you decide anything.

 weigh

 justify

This is true

Written records are dated, specific, and can be checked against each other.

Your own evidence for it:

And so is this

They over-represent people who could write, owned property, and had somebody keeping their papers.

Your own evidence for it:

So a written record is both the most reliable evidence and a biased sample. How can a historian use it honestly, knowing that?

If one side feels obviously right, you have probably not stated the other side at its strongest. Go back and make it harder to argue with.

Grown-ups: this is the sheet that earns the volume its name, and the one students will want to rush.

Social Studies Strand A



Now actually decide

Weighing is not the same as sitting on the fence. You still have to come down somewhere.

 decide

 close it

A community's history was passed on by speaking, not writing. Should a historian treat oral history as evidence? Give your position and your reasoning.

Find out which First Nations, Métis or Inuit peoples have connections to where you live, and how those connections are recognised today.

And the line most people skip. What would change your mind?

Missing from the record is not the same as missing from history. Oral history, objects, buildings, songs and place names all carry evidence.

Case 5 closed. Go and colour in badge 5 on the cover.

Grown-ups: "what would change your mind" is the strongest single indicator of Level 4 thinking there is.

Social Studies Strand A



The Honest Misleading Graph

Five sheets · you need squared paper, a ruler and coloured pencils

 read it

 get ready

You are going to draw two graphs of the same four numbers. One will look dramatic and one will look boring. Neither will contain a single false number. That is the most useful thing in the Data strand.

The four beats

Predict

Can a graph mislead without any of its numbers being wrong?

Gather

Draw the same data twice, with different axes

Weigh

One graph highlights a real change. One keeps it in proportion

Decide

Which would you publish — and does it depend who you are?

Before you turn the page. What do you already know about this? Write it down — even if it turns out to be wrong.

Grown-ups: you need squared paper, a ruler and coloured pencils.

Math D1.3 · D1.6 · D1.4



Write it down first

Before you touch anything. A prediction only counts if it exists before the evidence does.

 predict

 say why

Four values: 94, 95, 96, 97. Can you draw two accurate graphs of these that give completely different impressions?

- ☐ no — accurate data gives an accurate impression
☐ yes, without changing a single number

- ☐ yes, but only by cheating
☐ not sure

Why do you think that? One sentence. This is the bit you will want to reread afterwards.

Do not look ahead. Write down what you think is possible before you find out.

Grown-ups: resist correcting a wrong prediction here. It is worth far more left standing.

Math D1.3 · D1.6 · D1.4

Go and get the evidence

Draw both graphs. Same four numbers, same shape of chart, one difference only.


gather


record

Graph	Where the axis starts	How big the change looks

Graph A: axis from 0. Graph B: axis from 90. Everything else identical.

Draw what you actually did — the setup, not a diagram from a book.

What went wrong or surprised you? Include it. The messy parts are usually the interesting ones.

Grown-ups: recording what went wrong is a real scientific habit, and children will hide it unless you ask.
Math D1.3 · D1.6 · D1.4



Both sides, with a reason each

The new beat. Hold two true things at once before you decide anything.

 weigh

 justify

This is true

The axis-from-90 graph makes a real three-point change clearly visible instead of invisible.

Your own evidence for it:

And so is this

The axis-from-90 graph makes a three-percent change look like the difference between nothing and everything.

Your own evidence for it:

Neither graph is false. So is starting an axis part-way up ever the honest choice? When?

If one side feels obviously right, you have probably not stated the other side at its strongest. Go back and make it harder to argue with.

Grown-ups: this is the sheet that earns the volume its name, and the one students will want to rush.

Math D1.3 · D1.6 · D1.4



Now actually decide

Weighing is not the same as sitting on the fence. You still have to come down somewhere.

 decide

 close it

You are making an infographic about something that matters to you. Which axis do you choose, and what do you owe the reader?

Now find a real one. Look at a graph in a news story or an advertisement and check where its axis starts. Write down what you found.

And the line most people skip. What would change your mind?

The honest answer is that both graphs are legitimate, and that is exactly why you check the axis yourself instead of trusting the shape.

Case 6 closed. Go and colour in badge 6 on the cover.

Grown-ups: "what would change your mind" is the strongest single indicator of Level 4 thinking there is.

Math D1.3 · D1.6 · D1.4

How many did you get wrong?

Go back to sheet 2 and fill in the last column. Do not edit the middle one.

✓ score it

reflect

Case	What I predicted	What happened	Right?
1 String and Circle			
2 One Square Metre			
3 One Break or Many			
4 Four Forces			
5 Whose Story			
6 Misleading Graph			

Score:

.....

 out of 6

Which wrong prediction taught you the most?

.....

Six out of six would be suspicious. Why?

.....

Three or four is a healthy score. It means you were predicting things you did not already know — which is the only kind of prediction worth making.

Grown-ups: celebrate the wrong predictions here, genuinely and out loud. That is what makes a child willing to commit to one next time.

All cases

Six cases, one move

Every case ended the same way, in a different subject. You may not have noticed it happening.

connect name it

Case	Subject	The two true things you had to hold at once
1	Math	
2	Science · Biodiversity	
3	Science · Electricity	
4	Science · Flight	
5	Social Studies	
6	Math · Data	

So what is the move? One sentence, your own words. Not "look at both sides" — say what that actually involves.

Where would it help outside school? Name a real decision where jumping straight to Decide would get you the wrong answer.

The Ministry uses two words for this: *assess* and *evaluate*. Both mean weigh it properly, then decide. Now you know what they are asking for.

Grown-ups: transfer across subjects is the strongest indicator of Level 4. This sheet makes the pattern nameable.

All strands

Case 7 – one you choose

Same four beats. Your question this time.

choose plan

A good case question has three properties. You can gather your own evidence. There are two defensible sides. And you do not already know the answer.

My question:

Beat	My plan
Predict	
Gather how, and how many times?	
Weigh what are the two sides?	
Decide and what would change your mind?	

Check your question against the three properties. Which one is it weakest on, and how could you fix it?

.....

Grown-ups: "you do not already know the answer" is the property children skip. A question with a known answer is a demonstration, not a case. A1 · A3

Gather it

Your evidence. Record the messy parts.

gather

record

What I did	What I found	Round
		1
		2
		3

Draw or stick in your evidence.

What went wrong?

Grown-ups: three rounds, as in every other case. One observation is an anecdote.

A1



Weigh it, then decide

The last two beats, on your own question.

 weigh

 decide

One side

The other side

My decision, and why

What would change my mind

Read your two sides back. If somebody who disagreed with you read them, would they say you had been fair?

Grown-ups: "would an opponent say you were fair?" is the best single test of the Weigh beat.

All strands



Show somebody

A case nobody hears is only half a case. Make it fit on one page.



make



present

Must be on it

- ☐ The question
- ☐ How you gathered your evidence, and how many times
- ☐ Both sides — not just the one you chose
- ☐ Your decision, and what would change your mind
- ☐ A graph or drawing, with its axis honestly labelled

Afterwards. What did somebody ask that you had not thought of?

Grown-ups: the requirement to show *both* sides on the poster is what stops it becoming an advertisement for a conclusion.

D1.4 · A3

What you can do now that you couldn't

Tick honestly. A blank is information.

☒ tick

- | | |
|---|---|
| ☐ I write a prediction down before I look | ☐ I do not edit a prediction afterwards |
| ☐ I measure more than once | ☐ I record what went wrong, not just what worked |
| ☐ I can state a side I disagree with, fairly | ☐ I know the difference between weighing and fence-sitting |
| ☐ I can say what would change my mind | ☐ I found π with a piece of string |
| ☐ I know why house lights are wired in parallel | ☐ I know a true graph can give a false impression |
| ☐ I know why some people's lives went unrecorded | ☐ I check where a graph's axis starts |

The one I am proudest of

The one I want to get better at

Grown-ups: rows five and seven are the ones that matter. Stating an opposing view fairly, and naming what would change your mind, are rare in adults.

All strands

Where the cases came from

Every case is built on a real Grade 6 expectation. Here is which one, and how confident I am about it.

Case	Expectation	Verified?
1 The String and the Circle	Math E2.3 — use the relationships between radius, diameter and circumference to <i>explain the formula</i> . Also E2.4.	✓ verified
2 One Square Metre	Science B1 — assess the importance of biodiversity. B2 — understand its contribution to stability.	✓ strand and overall expectations verified
3 One Break, or Many	Science C2 — principles of electrical energy. C1 — evaluate the impact of its use and generation.	✓ strand name is Electrical Phenomena, Energy, and Devices (2022), not the 2007 title
4 Four Forces	Science D2 — properties of air applied to flight. D1 — assess the environmental impacts of flying machines.	✓ strand and overall expectations verified
5 Whose Story Got Kept	Social Studies Strand A — Heritage and Identity: Communities in Canada, Past and Present.	✓ strand name verified · specific codes not checked
6 The Honest Misleading Graph	Math D1.6 — analyse data including <i>misleading graphs</i> . Also D1.3 and D1.4.	✓ verified

The mathematics codes are verified individually against the Ministry expectations chart. Science and Social Studies are verified at strand and overall-expectation level; their specific codes were not checked one by one, so this book cites them at that level only.

For teachers: the Ministry's curriculum is at dcp.edu.gov.on.ca. The companion **Grade 6 Mathematics** book cites all 51 codes individually; the **Everything Else** book carries its own verification page.

Grown-ups: a wrong expectation code in a report card is worse than no code at all, which is why this page exists.

Verification notice