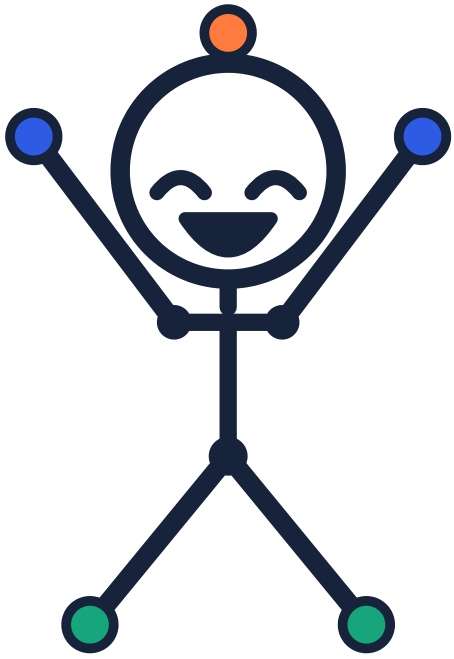
Young Innovators
FOR CHANGE
innovateyouth.org

A FULL-YEAR ENTERPRISE PROGRAM · GRADE 5

The Numbers Year

36 weekly assignments. A partner, a line of products, and two selling sessions with one change in between.



This book belongs to

_____

My partners (from week 13) _____

Our business _____

Teacher _____

School year _____

Free to print, copy and use. No license, no account, no cost to any student or school.

START HERE HOW THIS BOOK WORKS

Sell it. Measure it. Change one thing. Sell it again.

Two pages every week, front and back. About thirty-five minutes.

The shape of a week

Page 1 teaches one idea and gives you something to do with it. **Page 2** is practice, a question for home, and a harder challenge. It works as classwork or as homework, and it needs no computer.

Weeks 1 to 12 are the arithmetic, learned on other people's numbers. Weeks 13 to 24 you and a partner build a line of products and write a plan with a forecast in it. Weeks 25 to 36 you sell, measure, change one thing, and sell again.

The boxes on the page

IN CLASS	The Grade 5 standard your class is most likely working on that week. This book sits beside your math lesson rather than competing with it.
MONEY WARM-UP	Two minutes of arithmetic. Decimals this year, because a business is where 5.NBT.7 stops being an exercise.
WORDS TO KEEP	One or two words pinned down properly. Adults use these words loosely; you will not have to.
NUMBERS FILE	The one thing you build all year. Twenty-four pages by week 36, every one of them measured rather than remembered.
FROM YOUR FILE	Which earlier pages this week needs. This year is cumulative: week 22 is impossible without weeks 20 and 21.
TALK ABOUT IT	Two questions for someone at home or at school. They make the week stick, and take about five minutes.
STUCK? TRY THIS	A way in when the page has stopped making sense. Read it before you give up, not after.
CHALLENGE ZONE	Harder, and usually open. Where a student who finishes early should go.

About the two selling sessions

Weeks 29 and 34 are real selling. In between, the class works out what the numbers say and each team changes **one thing**. That is what makes this year an experiment rather than an event. The sessions do not need two separate days: two halves of one market with a break between works.

The money is play money, in a closed classroom economy. The class bank lends every team the same startup fund, they buy materials from a class supply table, sell and make their own change, then repay the fund. When everything sells, what is left is profit. **Selling food?** Follow the school's food and allergy rules, and see week 28.

WEEK	TITLE	STRAND	WHAT IT SITS BESIDE IN CLASS
TRIMESTER 1 · WEEKS 1–12 · MEASURE IT			
1	**Money to the Penny**	Measuring	Adding and subtracting decimals to hundredths (5.NBT.7)
2	**Two Kinds of Cost**	Measuring	Multiplying decimals (5.NBT.7)
3	**Cost Per Unit, Properly**	Measuring	Dividing decimals and whole numbers (5.NBT.6, 5.NBT.7)
4	**Margin**	Money	Fractions as division; comparing shares (5.NF.3)
5	**Break Even**	Money	Dividing to solve problems (5.NBT.6, 5.NBT.7)
6	**The Price Ladder**	Money	Multiplying and subtracting decimals (5.NBT.7)
7	**Reading a Sales Chart**	Measuring	Plotting ordered pairs on the coordinate plane (5.G.1, 5.G.2)
8	**The Average Sale**	Measuring	Dividing to find an average (5.NBT.6)
9	**Four Products, One Table**	Money	Operations with decimals (5.NBT.7)
10	**Good Days and Bad Days**	Measuring	Range, and plotting data on a grid (5.G.2)
11	**Who Else Is Selling?**	Measuring	Dividing a total; fractions as division (5.NBT.6, 5.NF.3)
12	**The Numbers Detective**	Review	Review: decimals, division, margin, break even (5.NBT.6, 5.NBT.7, 5.NF.3)
TRIMESTER 2 · WEEKS 13–24 · BUILD THE LINE			
13	**Your Team, Your Roles**	Building	Adding and subtracting fractions with unlike denominators (5.NF.1)
14	**The Problem You Will Solve**	Building	Multi-step problems with decimals (5.NBT.7)
15	**Good, Better, Best**	Building	Multiplying fractions and decimals (5.NF.4, 5.NBT.7)
16	**Build All Three Rough**	Building	Converting measurement units (5.MD.1)
17	**Score It With Real People**	Building	Collecting data; finding an average (5.NBT.7)
18	**Cut One**	Building	Comparing decimals and fractions (5.NBT.3, 5.NF.3)

WEEK	TITLE	STRAND	WHAT IT SITS BESIDE IN CLASS
19	**Your All-In Cost**	Money	All four operations with decimals (5.NBT.7)
20	**What It Costs Before You Sell Anything**	Money	Adding decimals; multi-step problems (5.NBT.7)
21	**Pricing the Line**	Money	Operations with decimals; comparing (5.NBT.7, 5.NBT.3)
22	**Your Break-Even, In Units**	Money	Dividing decimals; rounding up in context (5.NBT.7)
23	**The Forecast**	Money	Multiplying and adding decimals (5.NBT.7)
24	**The Business Plan**	Review	Review: decimals, fractions, division (5.NBT.7, 5.NF.1, 5.NBT.6)
TRIMESTER 3 · WEEKS 25–36 · RUN IT TWICE			
25	**Your Table and Your Story**	Selling	Volume and area for packing and layout (5.MD.3, 5.MD.5)
26	**Signs and Prices People Can See**	Selling	Area; converting units (5.MD.1)
27	**The Pitch, With Numbers**	Selling	Reporting on a topic with facts (SL.5.4)
28	**Inventory and Prep**	Running It	Multiplication and division with decimals (5.NBT.6, 5.NBT.7)
29	**Session One**	Running It	Recording data; adding decimals (5.NBT.7)
30	**Count It Up, By Product**	Money	All four operations with decimals (5.NBT.7)
31	**Forecast Against Actual**	Money	Subtracting decimals; interpreting differences (5.NBT.7)
32	**What the Numbers Say**	Money	Plotting data; fractions as division (5.G.2, 5.NF.3)
33	**Change One Thing**	Running It	Multi-step problems; predicting with decimals (5.NBT.7)
34	**Session Two**	Running It	Recording data; adding decimals (5.NBT.7)
35	**Did It Work?**	Review	Dividing and comparing decimals (5.NBT.3, 5.NBT.7)
36	**Your Numbers Story**	Review	Review; writing an opinion supported by facts (W.5.1)

WEEK 1 MEASURING

Money to the Penny

Whole dollars are not enough. A real business lives in the cents after them.

IN CLASS THIS WEEK
Adding and subtracting decimals to hundredths (5.NBT.7)

MONEY WARM-UP · 2 MINUTES
A cup costs $0.37 to make. You make 24 of them. What did they cost altogether? _____

WORDS TO KEEP

to the penny	Written with both decimal places, because the cents add up.
rounding	Fine for a rough guess. For a cost or a total, only to the nearest cent, at the end.



Why the cents matter

Thirty-seven cents does not feel like a number worth worrying about. Over 200 sales it is **$74**.

Beginners round to the nearest dollar because it is easier. Then the total is wrong by more than the profit was. This year every cost, every price and every total is written to the penny.

Round or exact?

Situation	Round or exact?	Why
Guessing if an idea is worth trying	round	you only need roughly
Working out cost per item		
Telling a customer the price		
Counting the cash box at the end		

Line them up

Decimal points under decimal points, always. Work these out.

	Problem	Answer
a	$0.37 + $1.20 + $0.08	
b	$5.00 − $3.65	
c	$0.45 × 12	
d	$14.40 ÷ 12	
e	$2.50 + $0.99 + $0.07	

The rounding trap

A seller says each item costs “about 50 cents” when it really costs $0.62. They make 150. How far out is their total?

_____

▶ ADD TO YOUR NUMBERS FILE

Start your Numbers File in the folder your teacher gives you. Write the date on the front. Everything you work out this year goes in it, and by June it is the record of a real business.

💬 TALK ABOUT IT

Find a price ending in 99 cents on a flyer, a menu or a store sign.

Ask someone at home or at school why the store chose that number instead of a round one.



STUCK? TRY THIS

Write the numbers in a column with the decimal points lined up before you add. Most decimal mistakes are lining-up mistakes, not arithmetic mistakes.

★ CHALLENGE ZONE

A store sells 1,000 items a week and its cost per item is wrong by 3 cents.

Work out how much that mistake costs over a whole year. Then say whether 3 cents is a small number.

WEEK 2 MEASURING

Two Kinds of Cost

Some costs happen once. Some happen again every single time you sell one.

IN CLASS THIS WEEK
Multiplying decimals (5.NBT.7)

MONEY WARM-UP · 2 MINUTES
A sign costs $9.00 once. Each cup costs $0.40. What do 20 cups plus the sign cost? _____

WORDS TO KEEP

fixed cost	Paid once whatever happens. The sign, the table, the label stamp.
variable cost	Paid again for every single item you make.



Fixed and variable

A **fixed cost** is paid once whatever happens. The sign. The table. The stamp for the labels.

A **variable cost** happens again for every single item. The paper cup. The lemon. The bag it goes in.

Adding them all together hides the difference. Splitting them is what lets you answer the question in week 5.

Sort these

Cost	Fixed or variable?
The cardboard for your sign	
Beads for one bracelet	
Borrowing a table for the day	
The bag each item goes in	
A stamp for your labels	

Total cost at three sizes

Fixed costs $9.00. Variable costs $0.40 each.

If you make	Variable cost	Fixed cost	Total
10		$9.00	
25		$9.00	
50		$9.00	

Now work out the cost of **one** item at each size, fixed cost included.

If you make	Cost of one, fixed cost included
10	
25	
50	

What you noticed

The cost of one went down as you made more. Say why in one sentence.

_____

TALK ABOUT IT

Ask a grown-up you trust to name a cost a store or a school pays whether it is busy or quiet.

Ask what a busy day costs it that a quiet day does not.



STUCK? TRY THIS

Ask of each cost: if I made one more, would I pay this again? If yes it is variable. If no it is fixed.

★ CHALLENGE ZONE

Making more spreads the fixed cost over more items, so each one gets cheaper.

So why does no business just make an enormous number of everything? Give two real reasons. Both of them are about what happens to the ones you do not sell.

WEEK 3 MEASURING

Cost Per Unit, Properly

Divide to get one. Then remember the ones that went wrong.

IN CLASS THIS WEEK
Dividing decimals and whole numbers (5.NBT.6, 5.NBT.7)

MONEY WARM-UP · 2 MINUTES
A pack of 45 stickers costs $6.75. What does one sticker cost? _____

WORDS TO KEEP

all-in cost	What one sellable item costs you: materials divided down, waste added on.
spoilage	The ones that come out wrong. You paid for them anyway.

Working down to one

Materials arrive in packs. You never use a whole pack on one item, so every material has to be divided down before it can be added up.

Worked example. A $6.75 pack holds 45 stickers, so one sticker is $6.75 ÷ 45 = **$0.15**. A card uses 3 stickers, so the stickers in one card cost $0.45.

Do the same for these

Material	Pack price	How many in a pack	Used per item	Cost per item
Stickers	$6.75	45	3	$0.45
Cardstock	$4.80	60 sheets	1	
Ribbon	$4.80	300 cm	10 cm	
Ink	$9.00	150 prints	2	
Bag	$5.40	90 bags	1	
Label	$2.10	70 labels	1	
TOTAL per item				

The ones that go wrong

About one in every ten comes out badly and cannot be sold. You still paid for it.

Question	Answer
Cost of materials for 10 items	
How many are actually sellable	
All-in cost of one sellable item	

That all-in cost is the one to use. Businesses call the waste **spoilage** and they all plan for it.

Which is bigger?

Your cost per item before spoilage, and after. How much did it move, in cents?

_____

💬 **TALK ABOUT IT**

Ask a grown-up you trust what a cafeteria, store or restaurant throws away.

Ask whether anyone counts it.



STUCK? TRY THIS

Divide first, multiply second. Pack price divided by how many in the pack gives you one. Then multiply by how many you use.

★ **CHALLENGE ZONE**

A supplier offers a bigger pack: 200 stickers for $24.00 instead of 45 for $6.75.

Work out the cost per sticker both ways. Then say what you would need to know before buying the big pack. There is more than one right answer.

WEEK 4 MONEY

Margin

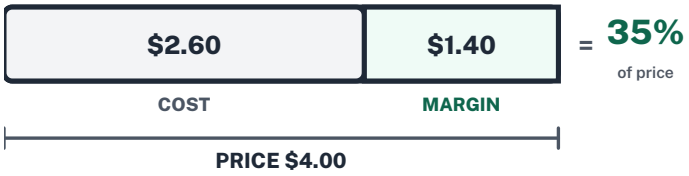
The gap between price and cost, and that gap as a share of the price.

IN CLASS THIS WEEK
Fractions as division; comparing shares (5.NF.3)

MONEY WARM-UP · 2 MINUTES
Price $4.00, cost $2.60. What is the gap? What fraction of the price is it? _____

WORDS TO KEEP

margin	Price minus what one item cost you. What you keep from each sale.
share of price	Out of every dollar a customer hands you, how much stays.



Two ways to say the same sale

The gap is **$1.40**. As a share of the $4.00 price it is **7/20**, a little more than a third. Out of 100 that is 35, which businesses write as 35%.

Why bother with the share? Because it lets you compare two things that cost completely different amounts. A $1.40 gap is excellent on a $4 item and terrible on a $40 one.

Fill the table

Item	Price	Cost	Margin	Share of price
Card	$4.00	$2.60	$1.40	7/20
Bracelet	$3.00	$1.00		
Bag	$5.00	$4.00		
Button	$2.00	$0.50		

Which is the better product?

Look at your table. Rank the four by margin in dollars, then rank them again by share of price.

Rank	By dollars	By share
1 (best)		
2		
3		
4		

They disagree

The two rankings are not the same. Explain why, and say which one you would trust when choosing what to make.

_____

_____

💬 TALK ABOUT IT

Ask an adult to guess what share of a restaurant meal's price is the food itself.

Ask what the rest of the price has to pay for.



STUCK? TRY THIS

Share of price means: out of every dollar the customer hands you, how much stays? Work out the gap first, then compare it to the price.

★ CHALLENGE ZONE

Two products. One has a $2.00 margin and sells 10. One has a $0.80 margin and sells 40.

Work out the total margin from each. Then say which product you would rather have, and what extra fact would change your mind.

WEEK 5 MONEY

Break Even

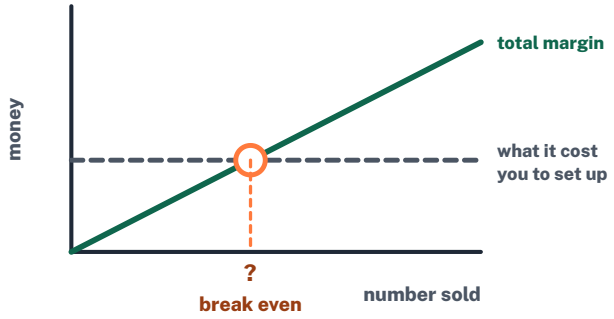
How many you must sell before you have made a single cent.

IN CLASS THIS WEEK
Dividing to solve problems (5.NBT.6, 5.NBT.7)

MONEY WARM-UP · 2 MINUTES
Fixed costs are $24.00. You make $1.50 margin on each sale. How many sales before you have covered the $24? _____

WORDS TO KEEP

break even	The number of sales that covers your fixed costs exactly.
loss	Anything below break even. A real result, not a disgrace.



The most useful number in the book

Your fixed costs are already spent before you sell anything. Every sale after that pays some of them back.

FIXED COSTS ÷ MARGIN ON ONE = BREAK EVEN

Below that number you have lost money. Above it you are making some. It is one of the first things to ask about any small business.

Work these out

Fixed costs	Margin on one	Break even at
$24.00	$1.50	16
$18.00	$0.90	
$30.00	$2.50	
$12.50	$0.50	

When it does not divide evenly

Fixed costs $20.00, margin $1.50. Work out $20.00 ÷ $1.50.

You cannot sell part of an item, so round **up**. Why up and not down?

Is it reachable?

Your break even is 34 items and about 60 people will walk past your table. Is that plan sensible? Say what you would change.

TALK ABOUT IT

Ask an adult whether anything they have organized had to cover a cost before it made anything: a school trip, a raffle, a club.

Ask what happened when not enough people signed up.



STUCK? TRY THIS

Fixed costs divided by the margin on one sale. Not divided by the price. It is the margin that pays the fixed costs back.

★ CHALLENGE ZONE

You could cut your sign from $9.00 to $3.00 by making it yourself out of paper. Your margin is $1.50 a sale.

Work out how much your break-even number falls. Then say what a worse sign might cost you in sales, and whether the trade is worth it.

WEEK 6 MONEY

The Price Ladder

Every price is a bet: fewer sales at more each, or more sales at less each.

IN CLASS THIS WEEK
Multiplying and subtracting decimals (5.NBT.7)

MONEY WARM-UP · 2 MINUTES
At $3.00 you sell 30. At $4.00 you sell 22. Which brings in more money? _____

WORDS TO KEEP

price ladder Every price you could charge, with what would sell at each.

Raising the price does two things

It gives you more from every sale, and it gives you fewer sales. The only way to know which wins is to work it out.

Cost is $1.20 an item, and this example has no fixed costs. Fill in the ladder and find the best row. It is usually not the top one and it is usually not the bottom one.

The ladder

Price	You would sell	Money in	Cost of those	Profit
$1.50	46			
$2.00	40			
$2.50	35			
$3.00	30			
$4.00	22			
$5.00	12			
$6.00	5			

Read your own table

Question	Answer
Which price brings in the most money?	
Which price makes the most profit?	
Are they the same row?	
Which price would you choose?	

The two numbers people confuse

Money in and profit peak at different prices in this table. Explain to somebody why that happens.

💬 TALK ABOUT IT

Ask someone at home or at school to name something people stop buying when its price goes up.

Then something people keep buying even when the price goes up. What is the difference between the two things?



STUCK? TRY THIS

Do one row completely before starting the next. Money in is price times how many. Cost is $1.20 times how many. Profit is the first minus the second.

★ CHALLENGE ZONE

Your table only guesses how many would sell at each price.

Write down two ways you could find out for real instead of guessing, and say which one you could actually do before market day.

WEEK 7 MEASURING

Reading a Sales Chart

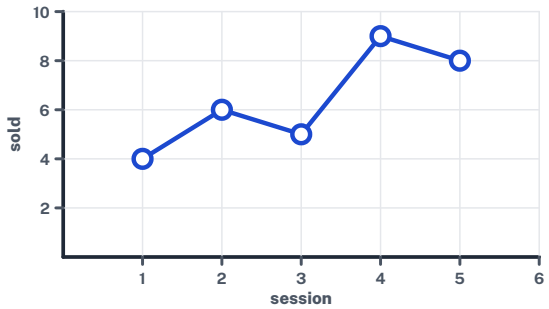
Numbers in a row hide the shape. Plotted on a grid, the shape is obvious.

IN CLASS THIS WEEK
Plotting ordered pairs on the coordinate plane (5.G.1, 5.G.2)

MONEY WARM-UP · 2 MINUTES
A stand sold 4, 6, 5, 9 and 8 items in five sessions. What is the total? _____

WORDS TO KEEP

ordered pair	Across first, then up. Session 4 with 9 sold is (4, 9).
trend	Which way the points are going, which a total cannot show you.



Every point is a pair

Session 4, nine sold. That is the ordered pair **(4, 9)**: across first, then up.

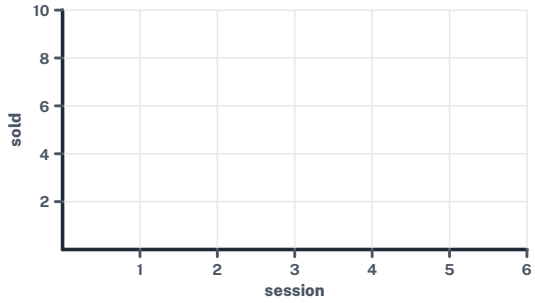
Once the points are on the grid you can see things a list of numbers hides. Where it dipped. Whether it is climbing. Which session was unlike the rest.

Read the chart above

Question	Answer
Which session sold the most?	
Which sold the fewest?	
Between which two sessions did it rise the most?	
Write session 2 as an ordered pair	

Plot your own

A second stand sold 2, 5, 7, 8 and 10. Plot it, then join the points.



Compare the two

Which stand would you rather run, and why? The totals are the same, so answer using the **shape**.

_____

_____

💬 TALK ABOUT IT

Ask a grown-up you trust whether they have seen something tracked on a chart, at work, at school or in the news.

Ask what they look for when they see it: the total, or which way it is going?



STUCK? TRY THIS

Across first, then up. The first number in the pair is how far along the bottom, the second is how far up.

★ CHALLENGE ZONE

The two stands sold the same total, but the shapes are different.

Say which stand you would bet on for session 6, and explain your reasoning using the chart rather than the total.

WEEK 8 MEASURING

The Average Sale

One number that stands in for a whole day, and what it hides.

IN CLASS THIS WEEK
Dividing to find an average (5.NBT.6)

MONEY WARM-UP · 2 MINUTES
Six customers spent $3.00, $4.50, $2.00, $7.00, $3.50 and $4.00. What did they spend altogether? _____

WORDS TO KEEP

average Total divided by how many. What each would be if all were equal.

Add them up, share them out

The **average** sale is the total money divided by the number of customers. It answers: if every customer had spent the same, what would it have been?

It is useful because it lets you plan. If your average sale is $4.00 and you need $80, you need about 20 customers.

Work it out

Customer	Spent
1	$3.00
2	$4.50
3	$2.00
4	$7.00
5	$3.50
6	$4.00
TOTAL	

Question	Answer
Number of customers	
Average sale	

Now plan with it. To take $60 at that average, how many customers do you need? _____

What the average hides

Two stands both averaged $4.00 a customer.

Stand	What the six customers spent
A	$4, $4, $4, $4, $4, $4
B	$1, $1, $1, $2, $3, $16

Same average, completely different days. Which stand would you rather run next week, and why?

Two ways to raise it

Name one way to raise your average sale that is not raising your price.

💬 TALK ABOUT IT

Ask an adult where they have heard an average used to describe a lot of people.

Ask whether they thought it described them.



STUCK? TRY THIS

Total first, then divide by how many. If the division does not come out exactly, give your answer to the nearest cent.

★ CHALLENGE ZONE

Stand B's day depended almost entirely on one customer spending $16.

Work out stand B's average **without** that customer. Then say what that tells you about how much to trust an average from a small number of sales.

WEEK 9 MONEY

Four Products, One Table

The moment you sell more than one thing, you need to know which one is carrying you.

IN CLASS THIS WEEK
Operations with decimals (5.NBT.7)

MONEY WARM-UP · 2 MINUTES
You sold 14 cards at $2.50 and 9 buttons at $1.50. How much came in altogether? _____

WORDS TO KEEP

product line	More than one thing sold to the same customer.
total margin	Margin on one, times how many sold. The number that pays you.

A line, not a product

Selling one thing is the simple case. This year you will sell more than one, and they will not perform the same.

One will sell in numbers and make almost nothing each. One will hardly sell but pay well when it does. Only a table tells you which is which, and the answer is often not the one you expected.

Fill it in

Product	Sold	Price	Cost	Money in	Margin each	Total margin
Cards	14	$2.50	$1.10			
Buttons	9	$1.50	$0.40			
Bags	4	$6.00	$3.80			
Key chains	21	$1.00	$0.55			
ALL						

Now answer the real questions

Question	Answer
Which sold the most?	
Which brought in the most money?	
Which made the most total margin?	
Which made the most margin per sale?	

Four questions, and the answer is not the same product every time. That is the point of the table.

Drop one

If you had to stop making one of the four, which would it be? Give a reason from the table, not a feeling.

_____

_____

▶ ADD TO YOUR NUMBERS FILE

Copy FIXED COSTS ÷ MARGIN = BREAK EVEN onto the inside cover of your Numbers File. You will use it again in week 12 and in weeks 22, 23 and 24.

💬 TALK ABOUT IT

Show an adult your finished table and ask which product they would drop.

See whether they picked the same one you did, and why.



STUCK? TRY THIS

Do one row all the way across before starting the next. Money in is sold times price. Margin each is price minus cost. Total margin is margin each times sold.

★ CHALLENGE ZONE

Bags sell in tiny numbers but make the most margin per sale.

Work out how many extra bags you would have to sell to beat the cards on total margin. Then say whether that is realistic, using the numbers in the table.

WEEK 10 MEASURING

Good Days and Bad Days

The average tells you the middle. The spread tells you what to expect.

IN CLASS THIS WEEK
Range, and plotting data on a grid (5.G.2)

MONEY WARM-UP · 2 MINUTES
A stand sold 3, 9, 4, 11, 6, 8 and 5 over seven days. What is the biggest number minus the smallest?

_____

WORDS TO KEEP

range Biggest minus smallest. What the average cannot tell you.

Two stands, same average

Both of these averaged 6 sales a day over a week. They are not the same business.

Stand	Mon	Tue	Wed	Thu	Fri	Sat	Sun
A	6	5	7	6	6	7	5
B	1	12	2	11	1	13	2

The **range** is the biggest minus the smallest. Work it out for each.

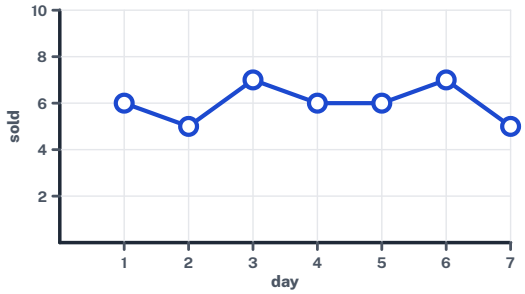
	Range
Stand A	
Stand B	

Why it matters for stock

You have to decide how many to bring before you know how many will sell. Answer for each stand.

Question	Stand A	Stand B
Fewest I might sell		
Most I might sell		
How many would you bring?		

Stand A from page 1, plotted day by day.



The cost of guessing wrong

If you bring	and sell	what happens?
Too many	fewer	
Too few	more	

Which is worse?

Bringing too many, or too few? Your answer should depend on what you are selling. Say what would change it.

_____

_____

TALK ABOUT IT

Ask an adult about a place that sells out early, and a place that always has plenty.

Ask which one annoys them more, and why.



STUCK? TRY THIS

Range is one subtraction: largest minus smallest. It does not need the average at all.

★ CHALLENGE ZONE

Stand B sold the same total as stand A but half its days were nearly nothing.

Write down one kind of business that really behaves like stand B, and say what its owner has to do differently because of it.

WEEK 11 MEASURING

Who Else Is Selling?

Your customers have a fixed amount to spend and other stands want it too.

IN CLASS THIS WEEK
Dividing a total; fractions as division (5.NBT.6, 5.NF.3)

MONEY WARM-UP · 2 MINUTES
60 shoppers each have $8 to spend. How much money is in the room altogether? _____

WORDS TO KEEP

share	Your slice of all the money in the room.
even share	Total money divided by number of stands. A ruler, not a target.

The money in the room is a number

At your market every shopper is given the same amount, so the total money is something you can actually work out. It does not grow because you want it to.

Which means every stand is competing for slices of the same amount. Your **share** is the slice you get.



Work out the room

Question	Answer
Shoppers	60
Each is given	$8.00
Total money in the room	
Number of stands	12
An even share for each stand	

Above or below an even share?

Your plan is to take $60. Compare that with an even share.

Question	Answer
An even share is	
My plan is	$60.00
That is what fraction of the room?	
Above or below even?	

What would justify it?

Planning above an even share is allowed, but it needs a reason. Write yours, or lower your plan.

_____

_____

💬 TALK ABOUT IT

Ask someone at home or at school about two stores near each other that sell similar things.

Ask how each one is different, and which one people seem to pick.



STUCK? TRY THIS

An even share is the total money divided by the number of stands. It is not a target. It is a ruler for checking whether your plan is sane.

★ CHALLENGE ZONE

Twelve stands, and four of them are selling roughly the same thing as you. Say the shoppers who want that kind of thing will spend $120 between them.

Work out the even share of that $120 among just those five stands. Then say what you could change so that a shopper picks yours, and note that lowering the price is only one of the answers.

WEEK 12 REVIEW

The Numbers Detective

Everything from weeks 1 to 11, used on one real business you have seen.

IN CLASS THIS WEEK
Review: decimals, division, margin, break even (5.NBT.6, 5.NBT.7, 5.NF.3)

MONEY WARM-UP · 2 MINUTES
A stand buys 80 items at $1.35 each and sells them all at $3.00. What is the total margin? _____

WORDS TO KEEP

estimate A number you can explain. Worth far more than a blank.

Your assignment

Pick a real small business you have seen. Estimate its numbers the way an analyst would, and mark every guess with a **?** so you remember which figures you actually know.

The file

What you are working out	Your estimate
What it sells (name two or three things)	
Roughly what one of them costs to make or buy	
What it charges	
Margin on one, in dollars	
Margin as a share of the price	
Fixed costs it pays whether or not anyone comes	
Roughly how many it needs to sell to break even	

The two questions that matter

Question	Your answer and reasoning
Which of its products do you think pays best?	
What would you change first?	

How confident are you?

Count how many rows in your file are guesses. Out of seven, how many did you actually know?

_____

Name the one fact that, if you could ask the owner, would improve your estimate most.

_____

▶ ADD TO YOUR NUMBERS FILE

Put your detective file in your Numbers File. It is the last week you spend on somebody else's business. Next week you start your own, with a partner.

💬 TALK ABOUT IT

Show your file to an adult and ask which of your estimates looks wrong.

Ask them what the business pays for that you did not put on the list.



STUCK? TRY THIS

You will not be able to find the real numbers, and that is fine. An estimate you can explain beats a blank every time. Mark it with a question mark and move on.

★ CHALLENGE ZONE

Add rent, electricity and the owner's own time to your fixed costs.

Redo the break-even number with those included. Most small businesses look very different once you do. Write one sentence about what you found.

WEEK 13 BUILDING

Your Team, Your Roles

Trimester 2 starts here. Two or three of you, one business, and jobs decided now.

IN CLASS THIS WEEK
Adding and subtracting fractions with unlike denominators (5.NF.1)

MONEY WARM-UP · 2 MINUTES
Three partners split a profit. One takes 1/2, one takes 1/4. What fraction is left for the third?

_____

WORDS TO KEEP

partner Someone who shares the work, the decisions and the profit.

Decide it now, not after market day

Every argument a small partnership has is about one of three things: who does what, who decides, and who gets what.

All three are easy to agree now and much harder to agree after market day, with money on the table. So you write them down this week and sign it.

Who does what

Job	Whose job	Backup
Making the products		
Keeping the numbers		
The sign and the table		
Talking to customers		
The cash box		
Buying the materials		
Packing and carrying it		

Splitting the profit

Write your split as fractions. They must add to one whole, and you have to show that they do.



Partner	Fraction	Why that share
Adds to		

Two hard questions

Who decides if you disagree? And what happens if somebody stops doing their job?

_____

_____

▶ ADD TO YOUR NUMBERS FILE

Page 1 of your Numbers File: your roles, your profit split written as fractions that add to one, and both answers to the hard questions. Sign it.

💬 TALK ABOUT IT

Ask an adult who has worked in a team what made it work, or not work.

Ask whether it was about the work or about who decided.



STUCK? TRY THIS

An equal split is the easiest to agree and the easiest to defend. If you want an unequal one, the reason has to be about work done, not about whose idea it was.

★ CHALLENGE ZONE

One partner does most of the making. Another finds most of the customers.

Argue for an equal split in two sentences, then argue against it in two. Then decide, and say which argument you found harder to make.

WEEK 14 BUILDING

The Problem You Will Solve

One problem, one customer, and a customer you can reach more than once.

IN CLASS THIS WEEK
Multi-step problems with decimals (5.NBT.7)

MONEY WARM-UP · 2 MINUTES
You have $30.00 to start. Materials cost $1.85 per item. How many can you make? _____

WORDS TO KEEP

repeat customer Somebody you can sell to twice. This year that is the rule.

The new rule this year

Your customer has to be somebody you can sell to **twice**. This year you run two selling sessions, not one, so a one-off crowd will not do.

That rules out some good ideas and it is meant to. Repeat customers are where the interesting arithmetic lives.

Three candidates

The problem	Who has it	Can I reach them twice?	Score /3
1.			
2.			
3.			

The one you are committing to

Write it as one sentence naming who, what goes wrong, and why it is worth fixing.

_____

_____

What they do about it now

Nobody has an unsolved problem. They have a bad solution. Find out what it is by asking three people.

Who I asked	What they do about it now
1.	
2.	
3.	

Your opening

What is wrong with what they do now? That gap is the only reason anyone would switch to you.

_____

▶ ADD TO YOUR NUMBERS FILE

Page 2 of your Numbers File: your problem in one sentence, your customer, and what three real people told you they do about it now.

💬 TALK ABOUT IT

Explain your problem to an adult in under thirty seconds.

Ask whether they have ever had it. Write down what they say even if it is no.



STUCK? TRY THIS

If you cannot name a specific place and time where you would find your customer a second time, the problem is not ready. Make it smaller and more local.

★ CHALLENGE ZONE

Your problem may already have a solution people are happy with.

Find out what it costs. If you cannot beat it on price, write down the two other things you could beat it on.

WEEK 15 BUILDING

Good, Better, Best

Three products, one customer. Not three businesses.

IN CLASS THIS WEEK
Multiplying fractions and decimals (5.NF.4, 5.NBT.7)

MONEY WARM-UP · 2 MINUTES
A small costs $1.20, a large costs 1 and 1/2 times that. What does the large cost? _____

WORDS TO KEEP
good, better, best Three versions at three prices, for one customer.



same customer, three prices

Why three

A customer who says no to $5.00 may say yes to $2.00. A customer who was always going to buy might have paid $8.00.

One price catches one kind of customer. Three prices catch three. The trick is that all three must be for the **same person** solving the **same problem**, or you have started three businesses by accident.

Your three

	What it is	Roughly what price?
GOOD		
BETTER		
BEST		

The test

Question	Yes or no	If no, fix it
Same customer for all three?		
Same problem for all three?		
Can I actually make all three?		
Is BEST clearly better than GOOD?		

What makes BEST better?

Bigger, or more of them, or nicer, or faster? Name the one thing, because the customer has to see it in a second.

_____

▶ ADD TO YOUR NUMBERS FILE

Page 3 of your Numbers File: your three products, what each one is, and what makes BEST better than GOOD in one word.

💬 TALK ABOUT IT

Think of something sold in three sizes or versions, on a menu or a store shelf you have seen.

Ask someone at home or at school why a store would sell three instead of one.



STUCK? TRY THIS

Start from the middle one. Design BETTER first, then make a cheaper version and a nicer version of the same thing.

★ CHALLENGE ZONE

Stores often make the middle option the one they most want you to buy.

Write down how the other two could be designed to make the middle one look like the obvious choice. This is a real technique, and noticing it is the point.

WEEK 16 BUILDING

Build All Three Rough

Three bad versions this week beats one good one.

IN CLASS THIS WEEK
Converting measurement units (5.MD.1)

MONEY WARM-UP · 2 MINUTES
A ribbon is 3 meters long. Each item needs 25 cm. How many items from one ribbon? _____

WORDS TO KEEP

prototype A rough version made fast, so you find out what is hard to build.

Rough on purpose, three times

Make all three now, badly and fast. You are not trying to impress anyone; you are trying to find out which one is hard to make.

That matters more than it sounds. A product that takes twice as long is a product you will bring half as many of.

Time yourself making one of each

	Minutes to make one	What went wrong	Materials used
GOOD			
BETTER			
BEST			

Measure them

Write every measurement in the same unit before you compare. Centimeters are usually easiest.

	Size	In cm
GOOD		
BETTER		
BEST		

How many could you make in an hour?

	Minutes each	In 60 minutes
GOOD		
BETTER		
BEST		

Divide 60 by your minutes each. Round down: half an item is not a thing you can sell.

The surprise

Which one took much longer than you expected? What would you change to speed it up?

_____

_____

▶ ADD TO YOUR NUMBERS FILE

Page 4 of your Numbers File: your three rough versions, timed and measured, with a note on what went wrong building each.

💬 TALK ABOUT IT

Show all three to someone at home or at school without saying which is which.

Ask them to put them in order of price. See whether they get the order you intended.



STUCK? TRY THIS

Time it with a clock, not a guess. A guessed time is often too short, and the numbers in weeks 22 and 23 are built on this measurement.

★ CHALLENGE ZONE

BEST takes three times as long as GOOD to make.

Work out whether you would make more money spending an hour on BEST or an hour on GOOD, using your rough prices from week 15. Show the arithmetic both ways.

WEEK 17 BUILDING

Score It With Real People

Eight people, three products, one scoring sheet. Numbers, not opinions.

IN CLASS THIS WEEK
Collecting data; finding an average (5.NBT.7)

MONEY WARM-UP · 2 MINUTES
Eight people score a product out of 5. The scores total 28. What is the average? _____

WORDS TO KEEP

signal Something two or more people said. One person saying it is an opinion.

Show, do not explain

Put all three in front of somebody and say nothing except the price. Everything you have to explain is something a customer will not understand either.

Then ask two questions and write the answers down exactly.

The scoring sheet

Score out of 5: would you buy this? Ask eight people.

Person	GOOD	BETTER	BEST	Which would you actually buy?
1				
2				
3				
4				
5				
6				
7				
8				
TOTAL				

Work out the averages

	Total score	Average out of 5	Votes to buy
GOOD			
BETTER			
BEST			

The highest average and the most votes to buy can be different products. Which was it for you?

What two or more people said

Anything said twice is a signal. Anything said once is an opinion. Write the signals.

▶ ADD TO YOUR NUMBERS FILE

Page 5 of your Numbers File: all eight scoring rows, the three averages, and the signals you heard more than once.

💬 TALK ABOUT IT

Ask an adult about a time they liked something but did not buy it.

Ask what the difference was between liking it and paying for it.



STUCK? TRY THIS

A high score and an actual purchase are different things. People are generous with scores and careful with money, so the final column matters most.

★ CHALLENGE ZONE

One product scored highest but almost nobody chose to buy it.

Write down two reasons that could happen. One should be about price, and one should not be.

WEEK 18 BUILDING

Cut One

Three is too many to make well. Kill the weakest one yourself, on the numbers.

IN CLASS THIS WEEK
Comparing decimals and fractions (5.NBT.3, 5.NF.3)

MONEY WARM-UP · 2 MINUTES
Product A scores 3.5 out of 5. Product B scores 7/2 out of 5. Which is higher? _____

WORDS TO KEEP

cutting Stopping the weakest idea on purpose, before it costs you.

Cutting is a skill

Most beginners keep everything because dropping an idea feels like failing. Keeping a weak product costs you the time you needed for the strong ones.

So this week you cut one on purpose, using the week 16 and 17 numbers rather than which one you liked making.

Put the evidence in one place

Copy the first three across from weeks 16 and 17. Do not go from memory. For the rough margin, take your week 15 price and subtract a quick guess at what the materials cost. Mark that guess with a ?.

	Avg score	Votes to buy	Minutes to make	Rough margin
GOOD				
BETTER				
BEST				

Now work out the one number that puts them on the same footing: margin per minute of your time.

	Rough margin	Minutes to make	Margin per minute
GOOD			
BETTER			
BEST			

The decision

Cut one, and keep two. Write which, and give one reason from each of two different columns.

	Your answer
I am cutting	
Reason from the scores	
Reason from the time or the margin	

What you gain

Work out how many extra of your remaining products you could make with the time the cut one would have taken.

_____

▶ ADD TO YOUR NUMBERS FILE

Page 6 of your Numbers File: the comparison table, which product you cut, and the two reasons.

💬 TALK ABOUT IT

Tell an adult which one you cut and why.

Ask them about something they gave up on, and whether they wish they had done it sooner or later.



STUCK? TRY THIS

If two products score the same, cut the one that takes longer to make. Time is the material you cannot buy more of before market day.

★ CHALLENGE ZONE

Somebody in your team wants to keep the product you are cutting.

Write down the strongest argument for keeping it, then say what evidence would change your mind. If no evidence would, you are not deciding on the numbers.

WEEK 19 MONEY

Your All-In Cost

Every material, divided down, with the wasted ones paid for. To the penny.

IN CLASS THIS WEEK
All four operations with decimals (5.NBT.7)

MONEY WARM-UP · 2 MINUTES
A pack of 24 costs $8.40. You use 2 per item. What is the cost per item? _____

WORDS TO KEEP

all-in cost Materials, packaging and waste, for one sellable item.

◂ YOU WILL NEED, FROM YOUR NUMBERS FILE

- page 3: your three products
- page 4: what each one is made of and how long it takes
- page 6: the one you cut

Do this for both products

This table is for Product 1. Copy it onto paper for Product 2. Pack price divided by how many in the pack, times how many you use. Add packaging. Then add the waste.

Material	Pack price	How many in a pack	Used per item	Cost per item
Example	$8.40	24	2	$0.70
Materials subtotal				

The two lines people forget

	Product 1	Product 2
Materials subtotal		
Packaging: bag, label, tie		
Waste: about 1 in 10 goes wrong		
ALL-IN COST OF ONE		

How the waste line is worked out

If you make 10 and one is unsellable, you paid for 10 and can sell 9. Divide the cost of 10 by 9.

Question	Product 1	Product 2
Materials and packaging for 10		
How many are sellable		
All-in cost of one sellable item		

Compare with your guess

In week 18 you guessed roughly what the materials would cost. How far out were you, in cents?

_____

▶ ADD TO YOUR NUMBERS FILE

Page 7 of your Numbers File: two full materials tables and the all-in cost of one of each, to the penny.

💬 TALK ABOUT IT

Show an adult your materials table and ask what you left off.

Adults are very good at this. Write down whatever they spot, even if you disagree.



STUCK? TRY THIS

Divide before you multiply. Pack price divided by how many are in the pack gives the cost of one, and only then multiply by how many you use.

★ CHALLENGE ZONE

Your waste rate is a guess. Suppose it is really 1 in 5, not 1 in 10.

Redo the all-in cost of one for both products at that rate. Then say which product is hurt more by waste, and why.

WEEK 20 MONEY

What It Costs Before You Sell Anything

Add up the costs that stay the same however many you make or sell.

IN CLASS THIS WEEK
Adding decimals; multi-step problems (5.NBT.7)

MONEY WARM-UP · 2 MINUTES
Sign $6.50, price cards $3.20, tablecloth $4.00. What are the fixed costs altogether? _____

WORDS TO KEEP

fixed costs Costs that stay the same however many you make or sell.

◂ YOU WILL NEED, FROM YOUR NUMBERS FILE

- page 7: the all-in cost of one of each



Your fixed costs

None of these change with how many you make or sell. Every one of them has to be earned back before you make a cent.

Fixed cost	Amount
Sign and any decoration	
Price cards for the table	
Anything for the table itself	
Tools you bought once, to make any of them	
TOTAL FIXED COSTS	

Borrowed is not free

If you borrow something and have to give it back or replace it, write down what it would cost to replace. Which of yours is borrowed?

_____

What the fixed cost does to one item

Spread your fixed costs over different numbers of sales.

If you sell	Fixed cost per item	Plus all-in cost	Cost of one, fixed cost included
10			
25			
50			

The trap

Your price has to beat the cost of one with fixed cost included, not just the all-in cost. At which of those three sales numbers does your week 15 price still work?

_____

▶ ADD TO YOUR NUMBERS FILE

Page 8 of your Numbers File: your full fixed cost list with a total, and the table showing what fixed costs do to the cost of one item.

💬 TALK ABOUT IT

Ask a grown-up you trust what a store or a restaurant still pays for on a day when no customers come at all.

Ask whether those costs stop when things are quiet.



STUCK? TRY THIS

A cost is fixed if it is the same whether you make 10 or 50. Test each one with that question and the list sorts itself.

★ CHALLENGE ZONE

You could spend $12 on a really good sign or $3 on a plain one.

Work out how many extra sales the good sign would have to bring in to be worth it, using your own margin. Then say whether you believe it would.

WEEK 21 MONEY

Pricing the Line

Two products, two prices, and they have to make sense next to each other.

IN CLASS THIS WEEK
Operations with decimals; comparing (5.NBT.7, 5.NBT.3)

MONEY WARM-UP · 2 MINUTES
Cost $1.35. You want a margin of about half the price. What price would do that? _____

WORDS TO KEEP

price point One chosen price. A line has several, on purpose.

◂ YOU WILL NEED, FROM YOUR NUMBERS FILE

- page 5: what your eight testers scored and said
- page 7: the all-in cost of one of each



Three ways in, then a decision

Method	What it gives you	Product 1	Product 2
Cost plus	all-in cost plus what you want to keep		
Look around	what similar things sell for		
Ask them	what your week 17 people said		

Your prices

	All-in cost	Price	Margin	Share of price
Product 1				
Product 2				

Do they work as a pair?

Question	Yes or no	If no, what changes?
Is the better one clearly more expensive?		
Is the gap between them big enough to notice?		
Is each price above its cost of one, fixed cost included (week 20)?		
Are both easy to pay in coins?		

The cheap one has a job

The lower-priced product is often there to get somebody to stop and buy anything at all. Does yours do that? Say how.

_____

▶ ADD TO YOUR NUMBERS FILE

Page 9 of your Numbers File: both prices, both margins, the share of price for each, and one sentence on why those two prices work together.

💬 TALK ABOUT IT

Ask someone at home or at school why people sometimes choose the more expensive of two versions.

Ask what can make the extra money feel worth it.



STUCK? TRY THIS

Price the better product first, then set the cheaper one clearly below it. Doing it the other way around usually leaves the two prices too close together.

★ CHALLENGE ZONE

If the two prices are very close, most people buy the better one and you sell almost no cheap ones.

Work out whether that would actually be bad for you, using your own margins. The answer is not obvious, so show the arithmetic.

WEEK 22 MONEY

Your Break-Even, In Units

The number that decides whether your plan is sensible or a wish.

IN CLASS THIS WEEK
Dividing decimals; rounding up in context (5.NBT.7)

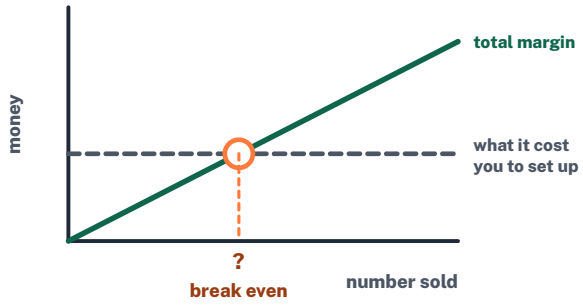
MONEY WARM-UP · 2 MINUTES
Fixed costs $21.00, margin $1.75 each. How many sales to break even? _____

WORDS TO KEEP

break-even units How many items, both products together, you must sell before there is any profit.

◂ YOU WILL NEED, FROM YOUR NUMBERS FILE

- page 8: your total fixed costs
- page 9: your two prices and both margins



Your own number

	Your figure
Total fixed costs (week 20)	
Margin on product 1 (week 21)	
Margin on product 2 (week 21)	
Average margin (if you sell about as many of each)	
BREAK EVEN, IN ITEMS	

Round up, always

If it comes out at 13.4, your break even is 14. Say why you cannot round down.

_____

Is it reachable?

Question	Your answer
How many people will walk past your table?	
What fraction of them would need to buy?	
Is that realistic? Yes or no.	
If no, what are you changing?	

Two ways to lower it

Break even falls if fixed costs go down or margin goes up. Pick one and say exactly what you would change.

_____

▶ ADD TO YOUR NUMBERS FILE

Page 10 of your Numbers File: your break-even working, the number rounded up, and your honest answer about whether it is reachable.

💬 TALK ABOUT IT

Tell an adult your break-even number and how many people you expect.

Ask whether they would put their own money into your plan, and why.



STUCK? TRY THIS

Fixed costs divided by margin, not by price. It is the margin that pays back the fixed costs, and using the price makes your break even look far better than it is.

★ CHALLENGE ZONE

Your break even is spread over two sessions, not one.

Work out how many you need in session one just to be halfway there. Then say what you would do if session one came in well below that.

WEEK 23 MONEY

The Forecast

Write down what you think will happen, before it happens. Then you cannot move it.

IN CLASS THIS WEEK
Multiplying and adding decimals (5.NBT.7)

MONEY WARM-UP · 2 MINUTES
You forecast 18 at $3.00 and 7 at $5.00. What money do you forecast altogether? _____

WORDS TO KEEP

forecast What you predict will happen, written down before it does.

◂ YOU WILL NEED, FROM YOUR NUMBERS FILE

- page 9: your prices and margins
- page 10: your break-even number

The most important page in this book

A guess made afterward is not a forecast. It is a memory, and memories quietly rearrange themselves to match what happened.

So you write this now, in pen, and you do not change it. In week 31 you compare it with the truth. That comparison is where nearly all of the learning in this year actually lives.

Session one forecast

	How many	Price	Money in	Margin each	Total margin
Product 1					
Product 2					
TOTAL					

Check it against three things

Check	Your answer	Does the forecast pass?
Is it above half your break even (your week 22 halfway number)?		
Is it below an even share of the room?		
Can you actually make that many in time?		

If it fails any of the three, change the forecast now, not later. A forecast you already know is wrong is worth nothing.

How sure are you?

Write your forecast total, then a lowest and a highest you would not be surprised by.

Lowest	Forecast	Highest

▶ ADD TO YOUR NUMBERS FILE

Page 11 of your Numbers File: your session one forecast, in pen, with the date you wrote it. Do not change this page later.

💬 TALK ABOUT IT

Read your forecast to an adult and ask if it sounds high or low.

Ask them what they would forecast, and write their number next to yours.



STUCK? TRY THIS

Work out how many you can make first. A forecast above what you can physically bring is not optimism, it is an arithmetic mistake.

★ CHALLENGE ZONE

First forecasts are often too high, because people forecast the day they hope for.

Write down two reasons a forecast tends to be optimistic. Then decide whether to lower yours, and say why you did or did not.

WEEK 24 REVIEW

The Business Plan

Everything from weeks 13 to 23, on one page, with the numbers in it.

IN CLASS THIS WEEK
Review: decimals, fractions, division (5.NBT.7, 5.NF.1, 5.NBT.6)

MONEY WARM-UP · 2 MINUTES
Fixed $18.00, margin $2.25, forecast 30 sales. What profit does that forecast? _____

WORDS TO KEEP

risk Something that could go wrong. Every real plan names its three.

◂ YOU WILL NEED, FROM YOUR NUMBERS FILE

- every page so far. This one is the summary

The plan

	Your answer
Our business is called	
The problem we solve	
Who it is for	
Product 1, price and margin	
Product 2, price and margin	
Total fixed costs	
Break even, in items	
Forecast for session one	
Forecast profit if it comes true	
Our profit split	

The three risks

Name what is most likely to go wrong, and what you would do. Every real plan has this section, and many readers turn to it first.

What could go wrong	What we would do
1.	
2.	
3.	

Read it to somebody

Read the whole page to an adult. Write down the first question they ask, because that is the weakest line on your page.

_____

▶ ADD TO YOUR NUMBERS FILE

Page 12 of your Numbers File: the one-page plan. This is the page you would hand to somebody who asked what you are doing.

💬 TALK ABOUT IT

Ask your reader which number on the page they trust least.

Ask what would make them trust it more. Usually the answer is evidence, not confidence.



STUCK? TRY THIS

Copy the numbers across from your Numbers File rather than remembering them. One wrong number copied here survives all the way to market day.

★ CHALLENGE ZONE

Redo the forecast profit assuming you sell only half of what you forecast.

Are you still above zero? If not, work out the smallest number of sales that keeps you there, and write it on the plan as the number that really matters.

WEEK 25 SELLING

Your Table and Your Story

Trimester 3. Two selling sessions, and everything from here is getting ready.

IN CLASS THIS WEEK
Volume and area for packing and layout (5.MD.3, 5.MD.5)

MONEY WARM-UP · 2 MINUTES
A box is 30 cm by 20 cm by 10 cm. What is its volume in cubic centimeters? _____

WORDS TO KEEP

session One selling stretch. This year there are two, on purpose.

◂ YOU WILL NEED, FROM YOUR NUMBERS FILE

- page 4: how long each product takes to make

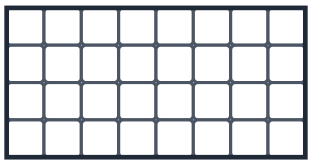
Two sessions, not one

You sell, you measure, you change one thing, and you sell again. That is the shape of the rest of this year and it is the whole reason the forecast in week 23 exists.

It also means session one is not the end of anything. A bad first session is useful information, and you get to act on it.

Your table, drawn to scale

This page uses a table 120 cm by 60 cm; your teacher will tell you yours. Sketch where everything goes.



each square = 15 cm

	Yours
Table size	
Area of the table	
Space one product takes	
How many fit on display	

Packing to carry it

Work out whether your stock fits in the box your teacher gives you.

Question	Answer
Volume of my box	
Volume of one product	
How many fit, roughly	
Enough for the session?	

Your one sentence

Somebody stops and asks what you are selling. One sentence.

_____

▶ ADD TO YOUR NUMBERS FILE

Page 13 of your Numbers File: your table plan to scale, your packing arithmetic, and your one sentence.

💬 TALK ABOUT IT

Set your table up in class exactly as you plan to and show your teacher or another team.

Ask what they would pick up first, and whether they can see both prices.



STUCK? TRY THIS

Draw the table first and put things on it second. Deciding the layout in your head and discovering it does not fit is a market-day morning problem.

★ CHALLENGE ZONE

You have room to display 12 items but you are bringing 40.

Say what you do with the other 28, and what the display should look like as things sell. A table that looks empty sells more slowly than one that looks full.

WEEK 26 SELLING

Signs and Prices People Can See

Every customer who has to ask the price is a customer you might lose.

IN CLASS THIS WEEK
Area; converting units (5.MD.1)

MONEY WARM-UP · 2 MINUTES
A sign is 45 cm by 30 cm. What is its area in square centimeters? _____

WORDS TO KEEP

price display Showing the price so nobody has to ask. Asking loses sales.

Four things and no more

Your name. What it is. **Both prices.** One reason to care.

With two products the prices matter twice as much, because the customer is now making a choice and they will not make it if they cannot see the numbers.

Selling food? The ingredient list goes on too, as week 28 says. It is the one exception.

Plan the sign

Element	What yours says	How tall are the letters?
Business name		
What you sell		
Price of product 1		
Price of product 2		
One reason to care		



The six-foot test

Put it on a wall and go six feet back.

Can you read it from six feet?	Yes or no	Fix
The name		
What it is		
The prices		

Little price cards

A price card next to each product does a different job from the big sign. Say what that job is.

_____

▶ ADD TO YOUR NUMBERS FILE

Page 14 of your Numbers File: your sign plan with letter heights and areas, and what failed the six-foot test first time.

💬 TALK ABOUT IT

Show your sign to somebody for three seconds, then take it away.

Ask them what it said and what the prices were. Whatever they missed needs to be bigger.



STUCK? TRY THIS

Prices go biggest after the name. It is the thing customers look for and the thing they are least willing to ask about.

★ CHALLENGE ZONE

A sheet of poster board is 60 cm by 45 cm and you need one big sign and four small price cards.

Work out sizes that use the sheet with the least waste. Show the areas and say how much poster board is left.

WEEK 27 SELLING

The Pitch, With Numbers

Five sentences. This year one of them has a number in it.

IN CLASS THIS WEEK
Reporting on a topic with facts (SL.5.4)

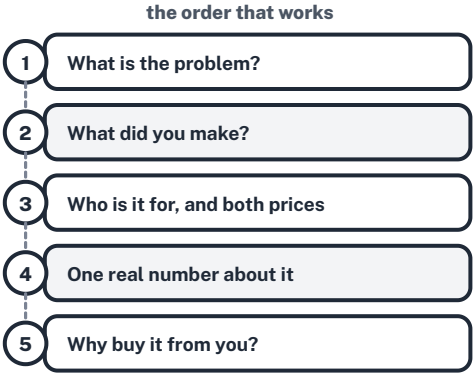
MONEY WARM-UP · 2 MINUTES
You speak to 40 people in 90 minutes. Roughly how long is that each? _____

WORDS TO KEEP

evidence A real number you measured, not an adjective you chose.

The four, plus one

The four sentences of a short pitch, with one addition: somewhere in there you say a real number about your own product.



Write yours

Sentence	Yours
1. The problem	
2. What we made	
3. Who and how much	
4. A real number	
5. Why us	

Which number?

A real number beats an adjective. “It lasts a long time” is weaker than “it lasts about three weeks.” Pick yours from something you actually measured this year.

Where the number could come from	Yours
How long it takes to make	
How long it lasts or how much it holds	
What the week 17 testers said	

Time it

Say all five out loud and time it three times. Write your best time, and what you cut to get there.

▶ ADD TO YOUR NUMBERS FILE

Page 15 of your Numbers File: your five sentences, the number you chose, and where that number came from.

💬 TALK ABOUT IT

Give the pitch to someone at home or at school without showing them anything, so the words do all the work.

Ask which sentence they would cut, and whether the number helped or sounded made up.



STUCK? TRY THIS

Write the five sentences down before you say them. A pitch that is different every time never gets better, because you are not practicing the same thing twice.

★ CHALLENGE ZONE

A number you cannot back up is worse than no number at all.

For your chosen number, write down exactly how you would answer somebody who said “how do you know that?”

WEEK 28 RUNNING IT

Inventory and Prep

Count everything before you start, or you cannot tell what sold.

IN CLASS THIS WEEK
Multiplication and division with decimals (5.NBT.6, 5.NBT.7)

MONEY WARM-UP · 2 MINUTES
You have 34 items and expect to sell 6 out of every 10. Roughly how many is that? _____

◂ YOU WILL NEED, FROM YOUR NUMBERS FILE

- page 11: your session one forecast
- page 12: the plan, with your forecast and break even

How the money works, again

Here is how it works: the class bank lends every team the same **startup fund**. You buy materials from the class supply table with it, sell for play money and make your own change, and repay the fund at the end. What is left is yours.



Opening inventory

Count what you are bringing. This number is half of every calculation in week 30, so count it twice.

	Bringing	Enough for the forecast?
Product 1		
Product 2		

The box

Check off each thing as you pack.

- ☐ stock
- ☐ sign
- ☐ prices
- ☐ tally
- ☐ change
- ☐ pens

Jobs on the day

Job	Who	What they do if it gets busy
Serving		
Money and change		
Tally sheet		
Restocking the display		

Selling food? Follow your school's food and allergy rules. List every ingredient on your sign, and check with your teacher before anything is sold to eat.

Starting change

You need change for the first customer. The class bank gives it to you. How much are you starting with, and in what coins?

▶ ADD TO YOUR NUMBERS FILE

Page 16 of your Numbers File: your opening inventory counted twice, your jobs list and your starting change.

💬 TALK ABOUT IT

Walk an adult through the session minute by minute and ask what you forgot.

Ask what usually goes wrong at events like this.



STUCK? TRY THIS

Pack the box, then take everything out and pack it again. You find the missing thing on the second pass, not the first.

★ CHALLENGE ZONE

You can only display 12 items at a time but you are bringing 40.

Write the restocking rule: at how many left on the table does somebody put more out? A table that looks empty sells more slowly than one that looks full.

WEEK 29 RUNNING IT

Session One

Take this page to the table. Fill it in as it happens.

IN CLASS THIS WEEK
Recording data; adding decimals (5.NBT.7)

MONEY WARM-UP · 2 MINUTES
Before you start, write your forecast total from week 23 here: _____

WORDS TO KEEP

inventory	What you have to sell, counted before you start and after.
traffic	How many people came past. Sales without it cannot be compared.

Tally as it happens

One mark the moment money changes hands, in the right row. A tally filled in afterward is a guess, and weeks 30 to 33 are all built on this page.

	First half	Second half	Total sold
Product 1			
Product 2			
BOTH			
Customers who paid			

Count the traffic too

Every twenty minutes, roughly how many people were near your table? You need this to know whether a slow patch was you or the room.

Time	People about	Sales in that stretch
First 20 min		
Second 20 min		
Third 20 min		

What people said

What they said, in their words	Bought?
1.	
2.	
3.	
4.	
5.	

The ones who walked away

Roughly how many looked and did not buy? _____ What did most of them seem to be reacting to?

_____

▶ ADD TO YOUR NUMBERS FILE

Page 17 of your Numbers File: this whole page, filled in on the day.

💬 TALK ABOUT IT

Before you add anything up, write one sentence about how the session felt.

Then ask an adult who watched what they noticed that you did not.



STUCK? TRY THIS

Mark the tally as the money moves, not at the end. A tally filled in at the end is a guess, not a count.

★ CHALLENGE ZONE

Look at your traffic column against your sales column.

Was your slowest stretch slow because fewer people came past, or because fewer of them bought? Those are completely different problems with different fixes.

WEEK 30 MONEY

Count It Up, By Product

Not one total. One line per product, because that is where the answer is.

IN CLASS THIS WEEK
All four operations with decimals (5.NBT.7)

MONEY WARM-UP · 2 MINUTES
You sold 19 at $2.50 and 8 at $4.00. What came in altogether? _____

WORDS TO KEEP
closing inventory What came home. Opening minus closing is what you sold.

◂ YOU WILL NEED, FROM YOUR NUMBERS FILE
- page 16: your opening inventory
- page 17: the session one tally

The session in one table

	Sold	Price	Money in	All-in cost	Cost of those sold	Total margin
Product 1						
Product 2						
TOTAL						

Then the fixed costs

	Amount
Total margin from above	
Minus total fixed costs (week 20)	
PROFIT SO FAR	

Check it against the box

Count the cash box and take away the startup fund you owe. If your starting change did not come out of the fund, take that away too. What is left is your cash. It should equal profit so far **minus** the cost of what came back unsold (how many came back times the all-in cost), because you paid for those too.

_____

Closing inventory

Count what came back. Opening minus closing should equal what you sold. If it does not, your tally missed some.

	Opened with	Came back with	So you sold	Tally said
Product 1				
Product 2				

Average sale

Total money in divided by the customers who paid, from your week 29 tally. What is it?

_____

▶ ADD TO YOUR NUMBERS FILE

Page 18 of your Numbers File: the by-product table, profit so far, the cash box check and both inventory counts.

💬 TALK ABOUT IT

Tell an adult your money-in number, then tell them your profit number.

Ask which one they would have guessed was closer to the other.



STUCK? TRY THIS

Do one product row all the way across before starting the next. Mixing the two is how the totals stop agreeing with the cash box.

★ CHALLENGE ZONE

Your two inventory counts and your tally probably disagree slightly.

Write down three real reasons that happens at a busy table. Only one of them is someone being careless.

WEEK 31 MONEY

Forecast Against Actual

Open week 23. Put the two numbers side by side and do not flinch.

IN CLASS THIS WEEK
Subtracting decimals; interpreting differences (5.NBT.7)

MONEY WARM-UP · 2 MINUTES
You forecast 25 and sold 18. What is the difference, and is it over or under? _____

WORDS TO KEEP

variance The gap between what you forecast and what actually happened.

◂ YOU WILL NEED, FROM YOUR NUMBERS FILE

- page 11: the forecast you wrote in pen in week 23
- page 18: what actually happened

Draw the bars

Fill in the table below first. Then draw a forecast bar and an actual bar for each product, and for both added together.



The comparison

	Forecast	Actual	Difference	Over or under?
Product 1 sold				
Product 2 sold				
Money in				
Total margin				

Which one was most wrong?

Not the biggest difference in dollars. The biggest difference compared with what you predicted.

Row	Difference	As a share of the forecast
Product 1		
Product 2		
Money in		

Why

Take the row you were most wrong about and write the most likely reason. Then write a second, different reason. Both may be true.

_____

_____

▶ ADD TO YOUR NUMBERS FILE

Page 19 of your Numbers File: the forecast against actual table, filled in, and the two reasons for the row you were most wrong about.

💬 TALK ABOUT IT

Show an adult your forecast and your actual, side by side.

Ask whether they have ever had to say out loud that a plan came in under. What happened next?



STUCK? TRY THIS

Being wrong is the normal result and it is not the interesting part. Which direction, and by how much compared with what you predicted, is the interesting part.

★ CHALLENGE ZONE

Suppose you had forecast perfectly. Would that have been skill, or luck?

Write down what a forecaster could do to be reliably close, and note that doing it requires having been wrong at least once first.

WEEK 32 MONEY

What the Numbers Say

Slice the session four ways. One of the slices is telling you something.

IN CLASS THIS WEEK
Plotting data; fractions as division (5.G.2, 5.NF.3)

MONEY WARM-UP · 2 MINUTES
Of 27 sales, 18 were product 1. What fraction is that, in simplest form? _____

WORDS TO KEEP

segment One slice of the day, or one product, looked at on its own.

◂ YOU WILL NEED, FROM YOUR NUMBERS FILE

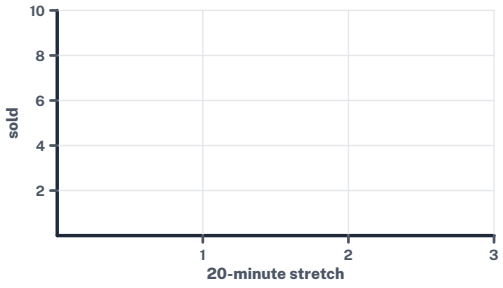
- page 17: the tally and the traffic count
- page 18: the by-product table

Four slices

Slice	What you look at	What you found
By product	which one sold, which one paid	
By time	which stretch was busy	
By customer	average sale, and who bought	
By price	did anyone hesitate at a number?	

Plot the session

Your three time stretches from week 29, plotted.



The one finding

Out of everything above, write the single most useful thing you learned. It should be a sentence with a number in it.

Weak: “product 2 did not sell well.” Strong: “product 2 was a third of what we brought and a tenth of what we sold.”

What you cannot tell

Name one thing your numbers do **not** tell you, however hard you look at them.

▶ ADD TO YOUR NUMBERS FILE

Page 20 of your Numbers File: all four slices, the plotted session, and your one finding written as a sentence with a number in it.

💬 TALK ABOUT IT

Show an adult your four slices and ask which one they find most interesting.

Ask what they would want to know next.



STUCK? TRY THIS

Start with the by-product slice. It is usually the one with the clearest story, and it points at what to change in week 33.

★ CHALLENGE ZONE

Two of your slices might disagree with each other.

If they do, write down what could make both true at once. If they agree, write down what would have to have happened for them to disagree.

WEEK 33 RUNNING IT

Change One Thing

One change, written down with what you expect it to do. Only one.

IN CLASS THIS WEEK
Multi-step problems; predicting with decimals (5.NBT.7)

MONEY WARM-UP · 2 MINUTES
You sell 20 at $4.00 and your margin is $1.80 each. If you drop the price to $3.50 and sell 6 more, do you make more or less? _____

WORDS TO KEEP

one change Change a single thing, so you know what caused the difference.

◂ YOU WILL NEED, FROM YOUR NUMBERS FILE

- page 20: your one finding from week 32

Why only one

Change three things and session two will be different. You will have no idea which change did it.

Change one, and you have a fair chance of telling what caused any difference. This is how a scientist runs an experiment and it is how a business finds out what works.

The candidates

Change	What you would expect	How would you know it worked?
Lower a price		
Raise a price		
Bring more of one product		
Change the sign		
Move where your table is		

Your one change

	Your answer
We are changing	
Because our week 32 finding said	
We expect this to happen	
We will know it worked if	
Everything else stays	the same

Forecast session two

New forecast, in pen, before you sell anything.

	How many	Money in	Total margin
Product 1			
Product 2			
TOTAL			

▶ ADD TO YOUR NUMBERS FILE

Page 21 of your Numbers File: your one change, why you picked it, what you expect, and your session two forecast in pen.

💬 TALK ABOUT IT

Tell an adult your one change and what you expect.

Ask them to guess what will actually happen. Write their guess down next to yours.



STUCK? TRY THIS

Pick the change your week 32 finding points at. A change you cannot connect to something you measured is a guess, and you already have a session's worth of measurements.

★ CHALLENGE ZONE

Suppose session two goes better, but the weather was also nicer and more people came.

Write down how you could still tell whether your change worked. Hint: sales per person who walked past is a fairer measure than sales.

WEEK 34 RUNNING IT

Session Two

Same table, same page, one thing different. Take this with you to sell.

IN CLASS THIS WEEK
Recording data; adding decimals (5.NBT.7)

MONEY WARM-UP · 2 MINUTES
Write your session two forecast total from week 33 here: _____

WORDS TO KEEP

controlled One thing changed, everything else the same, so the result means something.

Tally as it happens

	First half	Second half	Total sold
Product 1			
Product 2			
BOTH			
Customers who paid			

Traffic again

Count it the same way as session one, or the two sessions cannot be compared.

Time	People about	Sales in that stretch
First 20 min		
Second 20 min		
Third 20 min		

Did anyone react to the change?

Write down anything a customer said that was about the thing you changed.

_____

What people said

What they said, in their words	Bought?
1.	
2.	
3.	
4.	

Money in and closing count

	Amount
Money in	
Closing inventory, product 1	
Closing inventory, product 2	

▶ ADD TO YOUR NUMBERS FILE

Page 22 of your Numbers File: this whole page, filled in on the day.

💬 TALK ABOUT IT

Before adding anything up, write one sentence on whether it felt different.

Then ask somebody who watched both sessions what they noticed.



STUCK? TRY THIS

Count the traffic the same way you did in session one, even if it feels fussy. A measurement taken differently cannot be compared with the first one.

★ CHALLENGE ZONE

Your change might have worked and the session might still have been worse.

Write down how both of those could be true at the same time. Naming that possibility now stops you drawing the wrong conclusion next week.

WEEK 35 REVIEW

Did It Work?

Two sessions, one change, and an honest answer about what it did.

IN CLASS THIS WEEK
Dividing and comparing decimals (5.NBT.3, 5.NBT.7)

MONEY WARM-UP · 2 MINUTES
Session one: 27 sales from 60 people. Session two: 31 from 80. Which had the better rate?

_____

WORDS TO KEEP

comparison Two sessions measured the same way, so the numbers mean something.

◂ YOU WILL NEED, FROM YOUR NUMBERS FILE

- page 17 and page 22: both session tallies
- page 21: the change you made and what you expected

Side by side

	Session 1	Session 2	Difference
Product 1 sold			
Product 2 sold			
Money in			
Total margin			
People who came past			

Total margin is margin each times how many sold, for both products. Fixed costs come off once, for the whole year, in week 36.

The fair comparison

More people came to one session than the other, so raw sales are not a fair test. Work out sales per person who walked past.

	Sales	People	Sales per person
Session 1			
Session 2			

Your verdict

Question	Your answer
What did you change?	
What did you expect?	
What actually happened?	
Did the change work?	
How sure are you, and why?	

The honest option

"We cannot tell" is a real answer and sometimes the right one. If that is yours, say what would have made it clearer.

_____

▶ ADD TO YOUR NUMBERS FILE

Page 23 of your Numbers File: the two sessions side by side, the sales-per-person comparison, and your verdict.

💬 TALK ABOUT IT

Tell an adult what you changed and what happened.

Ask them whether they believe the change caused it, and what would convince them.



STUCK? TRY THIS

Compare sales per person, not sales. If twice as many people came to session two, twice the sales is exactly the same performance.

★ CHALLENGE ZONE

One session is not proof. A change that seems to work once may just have been a good day.

Write down how many sessions you would want before you believed it, and why. There is no single right number, but there is a right kind of reasoning.

WEEK 36 REVIEW

Your Numbers Story

A year of measurements, told as one page, with the numbers still attached.

IN CLASS THIS WEEK
Review; writing an opinion supported by facts (W.5.1)

MONEY WARM-UP · 2 MINUTES
Look back at week 1. Which number on those pages looks easy to you now? _____

WORDS TO KEEP

track record What you did, written down at the time. It is worth more than a memory of it.

◂ YOU WILL NEED, FROM YOUR NUMBERS FILE

- all twenty-three pages

The year, in figures

Every line is already in your Numbers File.

	Your answer
Our problem and our customer (week 14)	
What we made, and what we cut (weeks 15, 18)	
All-in cost of one (week 19)	
Our prices and margins (week 21)	
Break even, in items (week 22)	
Forecast, and what actually happened (weeks 23, 31)	
What we changed, and whether it worked (weeks 33, 35)	
Total profit: both sessions' total margins, minus fixed costs once	
Split between partners	

Three things you know now

Specific ones, each with a number in it.

1. _____
2. _____
3. _____

The number that surprised you most

Which single figure was furthest from what you expected in September, and what did it change about how you think?

_____

_____

For next year's class

One sentence you wish someone had told you in week 1.

_____

▶ ADD TO YOUR NUMBERS FILE

Page 24, the last page of your Numbers File: your numbers story. Keep the file. It is the measured record of a real business you ran.

💬 TALK ABOUT IT

Read your whole story out loud to someone at home or at school.

Ask them which number they found most surprising.



STUCK? TRY THIS

Read your Numbers File from page 1. The forecast you wrote in week 23 will look different now that you know what happened, and that is the whole point of having written it in pen.

★ CHALLENGE ZONE

A business that ran twice knows something a business that ran once does not.

Write down what that is, in one sentence. Then say what a third session would have told you that two could not.

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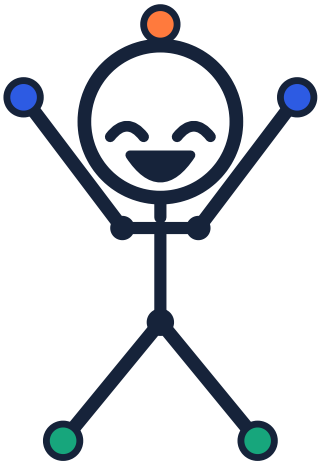
Grade 5 · The Numbers Year

Certificate of Completion

This is to certify that

_____

completed thirty-six weeks of enterprise work. Along the way they measured the arithmetic of a business, built a line of products with a partner, wrote a forecast before anything was sold, practiced selling in two sessions, changed one thing in between, and checked honestly whether that change made any difference.



_____ _____

Teacher Date

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