

MATH UNIT

What a thing really costs

Grade 4

7 lessons

7 × 30 minutes

3 source books

210 minutes in all

THE QUESTION THIS UNIT FOLLOWS

What are you actually being asked to work out?

ABOUT THIS UNIT

Grade 4 money work is where prose stops being decoration. A ledger of costs contains no plus, no minus and no equals; one ordinary word tells a reader to subtract, and taking it out turns the same digits into a different answer. This unit begins there and returns to it.

The rest is the arithmetic a real purchase asks for: adding a column of decimals and testing it against what somebody has; building a per-unit price so that two prices can be compared at all; finding a part of an amount by folding rather than by rule; and discovering that the larger percentage can produce the larger bill when the fine print aims it somewhere small.

THE MATHEMATICAL ARC

Each lesson does one job the lesson before it made possible.

- 1 Add the cost column, subtract from the price, and find the line you dropped
- 2 One word is the only operation sign the table has
- 3 A column of decimals against a budget, and then the tax
- 4 Build a per-unit price and divide a total by it
- 5 A common unit before a comparison
- 6 A half and two fourths of one amount, on a folded strip

7 A percentage is a rate of something

SOURCE BOOKS

Every lesson in this unit is already published under Math lessons. Nothing here asks you to teach anything you cannot open today.



Follow Your Money

2 lessons in this unit



Shopping Trip Math

3 lessons in this unit



The Hundred-Dollar Robber

2 lessons in this unit

HOW TO USE THIS GUIDE

Open the source lesson before you teach.

Each day names one lesson that already exists under Math lessons, with its book, its number and its title. This guide says what that lesson is doing in the sequence and what to collect from it; the lesson itself carries the steps, the printables and the answers.

Thirty minutes a day.

Five minutes to connect to yesterday, the twenty-minute source lesson, five minutes to close on something you can see. A day that runs long should lose the close, never the core.

Teach a lesson on its own if you need to.

Every day carries a one-sentence opening for a teacher who is using that lesson outside the sequence.

Stop after a checkpoint.

The unit holds together if you stop after either checkpoint and come back to it. Stopping between a checkpoint and the next one leaves a lesson without the evidence it was built on.

WHERE THIS FITS IN YOUR YEAR

When to teach it

Late in the year, once decimals are secure to hundredths. It sits well beside a class enterprise or fundraising project.

What students need first

Children can add and subtract decimals to hundredths with the points aligned, and can divide a two-digit number by a one-digit one.

What this unit develops

Adding a column of money and subtracting from a price; identifying the operation a sentence names; testing a total against a budget; unit price by division; comparing on a common unit; finding a half and a fourth of an amount; applying percentages of different scope.

What it prepares them for

Rates, proportional reasoning, and any later work where a claim about value has to be checked.

CURRICULUM CONNECTIONS

None claimed. The lessons in this unit carry their own standards classifications on their own pages, checked lesson by lesson. A unit-level expectation is a different claim, and none has been verified for this unit, so none is printed here. Use the placement guide above to site the unit in your year, and the individual lesson pages for the codes.

UNIT AT A GLANCE

#	MATHEMATICAL MOVE	SOURCE LESSON	COLLECT
1	Add the cost column, subtract from the price, and find the line you dropped	Follow Your Money lesson 1, What's Left: Reading a Price Down to the Last Line	A worked ledger with running totals in the margin and the answer written at the bottom.
2	A table with no symbols: one word is the only operation sign it has	Follow Your Money lesson 6, The Word That Tells You to Subtract	A two-answer slip carrying both results and the gap between them circled.
3	A column of decimal amounts against a budget, and then the tax on top <i>Checkpoint after this lesson</i>	Shopping Trip Math lesson 2, Does the money stretch to the bird seed?	A cost card with the total in the box, agreed by two independent additions.
4	Build a per-unit price, then divide a total by it and say what the quotient counts	The Hundred-Dollar Robber lesson 2, How much candy does thirty dollars buy?	The per-pound price circled, and the division written as a sentence with the number of stacks counted.
5	A common unit before a comparison: the bigger price that buys the cheaper paint	Shopping Trip Math lesson 3, The bigger price that buys the cheaper paint	Two per-quart prices written on one line with the saving on a single quart between them.
6	A half and two fourths of one amount, folded so all three shares are visible at once <i>Checkpoint after this lesson</i>	The Hundred-Dollar Robber lesson 4, Where was the four hundred dollars going?	A coloured strip with every part labelled and no part covered twice.
7	A percentage is a rate of something: why fifteen percent loses to ten	Shopping Trip Math lesson 4, Why fifteen percent loses to ten	Two computed bills side by side, each reached by its own method.

UNIT VOCABULARY

Words students say, not words they are taught to define.

what's left The last line of a ledger, and an answer rather than a scrap.

less The one word that turns a column into a subtraction.

unit price What one of something costs, found by dividing.

percent A rate that acts on a stated amount; the amount is what the fine print names.

MATERIALS

From the source lessons

Each day's materials are listed on that day's page below and on the source lesson itself. Nothing is duplicated here.

New for this unit

- Checkpoint 1 page, one per child
- Checkpoint 2 page, one per child
- Performance task set: a blank ledger form, two priced items with different pack sizes, a coupon card and a budget card, per pair
- Performance task page, one per child

ASSESSMENT PLAN

Daily evidence

Keep the checked ledger from lesson 1, the two-answer slip from lesson 2, and the folded strip from lesson 6.

Checkpoint 1, after lesson 3: Does it balance?

A price of \$20.00 and four cost lines: \$3.45, \$6.20, \$1.85 and \$4.10. The child adds the column, subtracts from the price, and says what is left.

Book-free. A ruled ledger card, no book.

Look for. \$15.60 and \$4.40, with the decimal points aligned. A child whose total is out by a whole line should be sent hunting for the line rather than told.

Checkpoint 2, after lesson 6: Which is the better buy?

One brand at \$4.80 for four, another at \$6.60 for six. The child finds each unit price and says which is cheaper and by how much per item.

Book-free. Two price cards, no book.

Look for. \$1.20 and \$1.10; the second is cheaper by ten cents each. A child who compares \$4.80 with \$6.60 has not built the common unit.

Culminating task: Cost it out

Each pair fills a ledger for a small purchase: they write the price on the top line, list the costs, write the operation word themselves, and work the ledger to what is left. They then take two priced items with different pack sizes and find a unit price for each so they can say which is the better buy. They apply the coupon on the card, reading the fine print to see what it acts on, and finally test the whole total against the budget card and say whether it fits, with both numbers in the sentence.

Collect. The completed ledger with its operation word, the two unit prices with the comparison, the coupon working, and the budget verdict.

What it assesses. Reading the operation, adding decimals, unit price, and the scope of a rate — every move the unit built, all inside amounts a class shop could really use.

DAILY LESSON PAGES

Lesson 1

Add the cost column, subtract from the price, and find the line you dropped**SKILL LESSON****Follow Your Money** (/math-library/367.html) · lesson 1, What's Left: Reading a Price

Down to the Last Line · Grade 4 · 20 minutes

Adding a column of money amounts and subtracting to find what is left

I CAN

I can work a ledger and check it.

BIG IDEA

A ledger that does not balance means a line was dropped, and the job is to find which one rather than to accept the number.

SUCCESS

The child's answer agrees with the book's last line, or the child finds and names the line they dropped.

CONNECT | 5 MIN

First lesson. Show one ledger with its last line covered and ask what the covered number must be. Take the answers and cover it again.

TAUGHT ON ITS OWN

This book prints the same table more than forty times, and every one of them balances: a price on top, costs beneath, and a last line that is the price minus the costs.

SOURCE CORE | 20 MIN

Pairs read a ledger aloud and name its three parts, add only the cost lines writing each running total in the margin, then subtract the circled total from the price and write what is left.

COLLECT

A worked ledger with running totals in the margin and the answer written at the bottom.

CLOSE | 5 MIN

Pairs uncover the book's last line, set their number beside it, write agrees or add the column a second time to find the dropped line, and say aloud which line it was.

From the source lesson: Pencil ledger card, one per pair; Pencil per student; Notebook ledger card with a wide margin, one per student; Ledger answer strip, one per student; Pet food ledger card, one per student; Decimal grid strip, one per student; Backpack ledger card, one per student; Word cards: ledger, cost, what's left

Watch for: A child adds the price into the cost column. Point at the top line and ask what it is, before the adding starts.

Lesson 2

A table with no symbols: one word is the only operation sign it has

MATH THROUGH THE READING

Follow Your Money (/math-library/367.html) · lesson 6, The Word That Tells You to Subtract · Grade 4 · 20 minutes

Students find the one word that turns a column of prices into a subtraction, swap it for its opposite, and show the table stops balancing while every digit stays the same.

I CAN	I can find the operation in a table with no signs.
BIG IDEA	There is no minus sign anywhere on the page; one word on its own line is the entire instruction.
SUCCESS	Two answers are written for one table, one under each word, with the gap between them circled.
CONNECT 5 MIN	Yesterday you worked a ledger. Today you are going to look for the plus sign and find that there is not one.
TAUGHT ON ITS OWN	Forty-three times this book prints a column of money with no operation sign anywhere in it, and what tells a reader to subtract is a single word.
SOURCE CORE 20 MIN	Pairs hunt the card for any operation symbol and report there is none, find the one word that tells them what to do, work the table as that word says, then lift the word strip, lay the opposite one in its place and work the table again changing no digit.
COLLECT	A two-answer slip carrying both results and the gap between them circled.
CLOSE 5 MIN	Each student writes one sentence naming the word, the operation it called for and both answers, and a partner checks that the sentence carries two numbers and the name of the word.

From the source lesson: Pencil ledger card with the operation line left blank, one per pair; Word strips reading Less and Plus, one pair of strips per pair of students; Two-answer recording slip, one per student; Pencil per student; The pencil table enlarged with its operation line covered, kept up for the whole lesson; The sentence about price minus the cost of materials, with the words that follow it shown only after segment three

Watch for: A child changes a digit to make the swapped version work. Nothing changes but the word; that is the experiment.

Lesson 3**A column of decimal amounts against a budget, and then the tax on top****SKILL LESSON****Shopping Trip Math** (</math-library/525.html>) · lesson 2, Does the money stretch to

the bird seed? · Grade 4 · 20 minutes

Adding a column of money amounts and testing a total against a budget

I CAN

I can add a column of decimals and test it against a budget.

BIG IDEA

A yes-or-no question about money is settled by a column of decimals with the points aligned and nothing dropped.

SUCCESS

Two independent additions of the same column agree before anything is tested.

CONNECT | 5 MIN

You can work a ledger somebody else laid out. Today you write the column yourself and there is a fixed amount it has to fit inside.

TAUGHT ON ITS OWN

The book hands over a cart of five priced items, a stated budget and a tax rate, and asks a yes-or-no question the arithmetic settles.

SOURCE CORE | 20 MIN

Pairs copy the prices onto a cost card one per row with the points stacked, add from the bottom up, then trade cards and add the partner's column from the top down, reconciling any disagreement together.

COLLECT

A cost card with the total in the box, agreed by two independent additions.

CLOSE | 5 MIN

Pairs add the bird seed on a sixth row, set the new total beside the budget and say which is larger, then multiply the total by eight hundredths, round to the nearest cent, add it on a seventh row and test again.

From the source lesson: The four-row cost card, one per pair; Pencils; A calculator for the checking pass only; A seed strip; A tax strip; A calculator; Word cards: a piece, sales tax, afford**Watch for:** Misaligned decimal points. Stack them in a column on the card before any adding, and check the stack rather than the answer.

Checkpoint after this lesson: Does it balance?. The page is at the end of this guide.

Lesson 4

Build a per-unit price, then divide a total by it and say what the quotient counts

SKILL LESSON

The Hundred-Dollar Robber (/math-library/470.html) · lesson 2, How much candy does thirty dollars buy? · Grade 4 · 20 minutes

Adding two decimal amounts to build a unit price, then dividing a total by it

I CAN	I can build a per-unit price and use it.
BIG IDEA	A price and a tax on separate sign lines make one per-pound price, and dividing a total by it says how much was bought.
SUCCESS	The child says what the quotient counts, not just what it is.
CONNECT 5 MIN	You can add a column and test it. Today two of the numbers have to be joined before any dividing can start.
TAUGHT ON ITS OWN	This is the book's own two-step calculation and the answer is a clue rather than an exercise.
SOURCE CORE 20 MIN	Pairs write the price per pound and the tax per pound with the points stacked and add them, check the sum by a second route on a calculator, then lay play money in stacks of that amount until thirty dollars is laid out and count the stacks.
COLLECT	The per-pound price circled, and the division written as a sentence with the number of stacks counted.
CLOSE 5 MIN	Students label their answer twice, once saying six what and once saying what the thirty and the five each were, then read the book's line about a five-pound bag and say why the size of the purchase makes it a clue.

From the source lesson: A two-row price card with a printed decimal guide, one per pair; Pencils; A calculator, one per pair; Play money in ones, fives and tens; A labelling strip, one per student; Word cards: per pound, tax, divide

Watch for: A bare quotient with nothing named. Ask what the six counts before the answer is accepted.

Lesson 5

A common unit before a comparison: the bigger price that buys the cheaper paint

SKILL LESSON

Shopping Trip Math (</math-library/525.html>) · lesson 3, The bigger price that buys the cheaper paint · Grade 4 · 20 minutes

Finding a unit price by dividing, then comparing two rates

I CAN	I can build a common unit before I compare.
BIG IDEA	Two prices that describe different amounts cannot be compared until both are expressed per the same thing.
SUCCESS	The child says why the smaller number is not automatically the better buy, using the two unit words.
CONNECT 5 MIN	Yesterday you built a per-pound price. Today two prices arrive in different units and the smaller one is the worse buy.
TAUGHT ON ITS OWN	The book sets a trap and then names it: one paint costs \$18.95 and the other \$35.96, and the cheaper-looking one is the worse buy.
SOURCE CORE 20 MIN	Pairs write each price on a card with its unit underneath, fold a paper gallon strip into four equal parts labelled one quart each, divide the gallon price by four and write the answer on one part.
COLLECT	Two per-quart prices written on one line with the saving on a single quart between them.
CLOSE 5 MIN	Pairs buy eight quarts of the better brand as two gallon cans, multiply the gallon price by two, and write one sentence saying why they multiplied the gallon price and not the per-quart price they had just worked out.

From the source lesson: Two brand cards; Pencils; A paper gallon strip; Scissors; A two-box comparison line; A recording strip; Word cards: unit price, per quart, gallon

Watch for: A pair compares the two printed prices directly. Ask what each price is a price of, before any subtraction.

Lesson 6**A half and two fourths of one amount, folded so all three shares are visible at once****SKILL LESSON**

The Hundred-Dollar Robber ([/math-library/470.html](http://math-library/470.html)) · lesson 4, Where was the four hundred dollars going? · Grade 4 · 20 minutes

Finding a half and a fourth of a money amount on a folded strip

I CAN

I can find a half and a fourth of an amount.

BIG IDEA

A folded strip carries the relation between the half and the two fourths where an equation would not.

SUCCESS

The child writes the half share two ways: as a half of the whole and as two of the quarter parts.

CONNECT | 5 MIN

You have divided to find a unit price. Today an amount is divided into parts of different sizes and all three have to be visible at once.

TAUGHT ON ITS OWN

The team's written budget divides its goal into a half and two fourths, and the book computes only one of those fourths.

SOURCE CORE | 20 MIN

Each student folds a strip standing for four hundred dollars in half and in half again, counts the parts, labels each with its amount by dividing, then colours the three budget shares onto the strip and writes the dollar amount inside each region.

COLLECT

A coloured strip with every part labelled and no part covered twice.

CLOSE | 5 MIN

Students lay a second strip beside the coloured one folded once into halves, line them up, say how many fourths lie against one half, and write the half share both ways.

From the source lesson: A paper strip about thirty centimetres long, one per student; Pencils; Three coloured pencils per student; Word cards: budget, fourth, share

Watch for: Parts folded unevenly and then labelled anyway. Nothing is written until every part is the same width.

Checkpoint after this lesson: Which is the better buy?. The page is at the end of this guide.

Lesson 7

A percentage is a rate of something: why fifteen percent loses to ten

SKILL LESSON

Shopping Trip Math (/math-library/525.html) · lesson 4, Why fifteen percent loses to ten · Grade 4 · 20 minutes

Applying two percentage discounts of different scope and choosing the cheaper

I CAN	I can say what a percentage is acting on.
BIG IDEA	Changing what a rate acts on changes the answer more than changing the rate does.
SUCCESS	Both bills are computed in full before either is judged.
CONNECT 5 MIN	You can take a part of an amount. Today two coupons compete and the bigger percentage loses.
TAUGHT ON ITS OWN	Fifteen is the larger rate and it produces the larger bill, because the fine print aims it at one item and at the cheaper of the two.
SOURCE CORE 20 MIN	Pairs add the two kit prices and circle the cart total, take a tenth of it by dividing into ten equal parts and subtract, then take fifteen hundredths of the cheaper item alone, round, subtract from that item and add the other kit back at full price.
COLLECT	Two computed bills side by side, each reached by its own method.
CLOSE 5 MIN	Pairs circle the smaller bill, say aloud why the bigger percentage did not win, and subtract what Nicole pays from the thirty dollars on her gift card.

From the source lesson: Two coupon cards; Pencils; A ten-part strip; A calculator; A two-row itemised sheet; A choice strip with two boxes; Word cards: coupon, discount, gift card

Watch for: A pair judges after computing only one coupon. Both bills go on the page before either is circled.

CULMINATING PERFORMANCE TASK

Cost it out

Each pair fills a ledger for a small purchase: they write the price on the top line, list the costs, write the operation word themselves, and work the ledger to what is left. They then take two priced items with different pack sizes and find a unit price for each so they can say which is the better buy. They apply the coupon on the card, reading the fine print to see what it acts on, and finally test the whole total against the budget card and say whether it fits, with both numbers in the sentence.

Collect. The completed ledger with its operation word, the two unit prices with the comparison, the coupon working, and the budget verdict.

What it assesses. Reading the operation, adding decimals, unit price, and the scope of a rate — every move the unit built, all inside amounts a class shop could really use.

TEACHER KEY AND RUBRIC

Key

- Checkpoint 1: total \$15.60, left \$4.40.
- Checkpoint 2: \$1.20 and \$1.10 each; the second is cheaper by ten cents an item.
- Task: work every number yourself first. Write the coupon's fine print so that it acts on one item rather than the whole cart, because that is the case the unit taught.

Rubric

STRAND	SECURE LOOKS LIKE	DEVELOPING	NOT YET
Representation	Decimal points are aligned in every column and the unit price is written per item.	Does it with the arrangement in front of them.	Produces an answer without the arrangement or the reason.
Calculation	The ledger balances and the two unit prices are correct.	Does it with the arrangement in front of them.	Produces an answer without the arrangement or the reason.
Meaning	The child names the operation the sentence asked for, and says what the percentage acted on.	Does it with the arrangement in front of them.	Produces an answer without the arrangement or the reason.
Explanation	The budget verdict carries both numbers, and the better-buy claim names the common unit.	Does it with the arrangement in front of them.	Produces an answer without the arrangement or the reason.

PRINT-READY STUDENT PAGES

CHECKPOINT 1 · GRADE 4

Does it balance?

Name

Date

A price of \$20.00 and four costs: \$3.45, \$6.20, \$1.85, \$4.10. Add the cost column. Take it off the price. What is left?

CHECKPOINT 2 • GRADE 4

Which is the better buy?

Name

Date

One brand: \$4.80 for four. Another: \$6.60 for six. Find what one costs in each. Which is cheaper, and by how much each?

CULMINATING TASK · GRADE 4

Cost it out

Name

Date

TEACHER PLANNING AND HANDOFF

• Children whose ledger did not balance and who could not find the dropped line need lesson 1 again before anything larger.

• Lesson 7 is the one that catches out adults as well; it is worth a second session if the class has time.

• Follow Your Money's markdown lesson is not used here; it makes a strong extension for a class ready to meet a negative leftover.

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