

MATH UNIT

Keeping a record you can trust

Grade 1

6 lessons

6 × 30 minutes

3 source books

180 minutes in all

THE QUESTION THIS UNIT FOLLOWS

What does this record actually settle?

ABOUT THIS UNIT

Tally marks are usually taught as a way of writing numbers down. This unit teaches them as a way of being trustworthy. The mark is made while the person is still standing there. One mark stands for one thing. And the record can be counted back into the same numbers it was built from, or it is not a record.

The unit ends somewhere most Grade 1 data work never goes: a tally that counted every single piece honestly and still cannot answer the question that was asked. Children build the honest-but-useless record themselves and then say the rule that would fix it.

THE MATHEMATICAL ARC

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

- 1 One mark for one vote, made as the vote lands
- 2 Run the procedure live: ask, mark, and cross the fifth
- 3 The word each: eight marks or one, from the same eight people
- 4 Read the record back: fives to the end of the groups, then ones
- 5 Two tallies at once, kept apart while the things arrive
- 6 A record that counts honestly and still cannot settle the question

SOURCE BOOKS

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



Sir Cumference and the Off-the-Charts Dessert

1 lesson in this unit



Let's Make a Tally Chart

2 lessons in this unit



Tally Cat Keeps Track

3 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

Any term after the class counts reliably to twenty. It runs well as a short unit before a science investigation that needs data collected.

What students need first

Children can count to twenty, can count on from a number, and can make a mark on a ruled strip.

What this unit develops

One-to-one recording; the grouping-by-five convention; reading a record by fives and then by ones; keeping two categories apart in real time; judging what a record does and does not settle.

What it prepares them for

Grade 2 bar graphs, where a category has to be labelled and a scale stated before anything is counted.

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	One mark for one vote: the mark is made as the vote lands, and it stands for a person	Sir Cumference and the Off-the-Charts Dessert lesson 1, One Mark, One Vote: Building the Towers	Four towers on one base line, each built one cube per vote, with a flat hand checked across the tops.
2	Run the procedure live on classmates: ask, mark while they stand there, cross the fifth	Let's Make a Tally Chart lesson 1, One person, one mark: building a tally chart from a class survey	A marking sheet with one mark per person asked, crossed in fives, and the number of people asked written beside it.
3	The word each: the same eight classmates recorded twice, eight marks or one <i>Checkpoint after this lesson</i>	Let's Make a Tally Chart lesson 4, The word that makes one person one mark	One shared sheet with two rows made from one set of answers, holding eight marks and one.
4	Read a record back by fives to the end of the groups, then by ones, and prove the total a second way	Tally Cat Keeps Track lesson 2, Five, Ten, Fifteen, Sixteen	Each card's total said aloud, with the switch announced at the right place.
5	Two tallies at once — the record has two places before the counting starts <i>Checkpoint after this lesson</i>	Tally Cat Keeps Track lesson 3, Two Names, Two Tallies	A two-column sheet with both columns read back and checked against their own boxes.
6	A record that counts every piece honestly and still cannot settle the question that was asked	Tally Cat Keeps Track lesson 5, One Can, One Mark	A rigged pair of towers with an honest tally, where the larger count sits under the shorter tower.

UNIT VOCABULARY

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

tally The record itself, made one mark at a time.

each Lesson 3: the word that makes one mark stand for one person.

leftover The marks after the last crossed group, counted by ones.

fair Lesson 6: whether the record answers the question that was asked.

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 two-column recording sheet, a pot of about twenty objects of two kinds, and a pencil, per pair
- Performance task page, one per child

ASSESSMENT PLAN

Daily evidence

Keep the marking sheet from lesson 2, the two rows from lesson 3, and the two-column sheet from lesson 5. Each one can be counted back against the thing it recorded.

Checkpoint 1, after lesson 3: One mark, one thing

Twelve objects are handed over one at a time. The child makes the record as they arrive, then counts the record and counts the objects, and says whether the two numbers agree.

Book-free. Plain objects, no book.

Look for. Twelve marks in two crossed groups and two singles, and the two counts agreeing. A child who marks afterwards from memory has not met the rule.

Checkpoint 2, after lesson 5: Read it back

A finished tally card holding three crossed groups and four singles. The child reads it by fives and then by ones and says the total.

Book-free. A printed card, no book.

Look for. Nineteen, reached as five, ten, fifteen, then sixteen to nineteen, with a flat finger on each crossed group and one touch per leftover.

Culminating task: Two columns, and what they can tell you

Each pair rules a sheet into two columns and labels them. One partner drops objects of two kinds into two boxes in no fixed order; the other marks each one in the matching column as it lands. They then read each column back by fives and ones, empty the boxes, and count each box against its column. Finally each child says one thing their record settles and one thing it does not.

Collect. The two-column sheet with both totals, and each child's two spoken sentences.

What it assesses. One-to-one recording, the grouping convention, reading back, and judging what a record settles — exactly the unit's four moves, with no number above twenty.

DAILY LESSON PAGES

Lesson 1

One mark for one vote: the mark is made as the vote lands, and it stands for a person

SKILL LESSON

Sir Cumference and the Off-the-Charts Dessert (/math-library/101.html) · lesson 1,

One Mark, One Vote: Building the Towers · Grade 1 · 20 minutes

Building a count picture with one mark for one vote

I CAN

I can make one mark for one vote.

BIG IDEA

A mark stands for a person, so a cube in a tower is a count of people and not a picture of a treat.

SUCCESS

The child can point at any single cube and say what it stands for.

CONNECT | 5 MIN

First lesson. Ask the class how they would find out which of four treats is most popular, and take the suggestions without settling anything.

TAUGHT ON ITS OWN

The book invents two recording methods on the page and both rest on one rule, said aloud twice: one mark for one vote.

SOURCE CORE | 20 MIN

Each child drops one bean into the bowl of the treat they like best while the recorder draws one short line under that treat, then groups of four snap one cube per vote into a tower and stand all four towers on the same floor line.

COLLECT

Four towers on one base line, each built one cube per vote, with a flat hand checked across the tops.

CLOSE | 5 MIN

Each child points at a single cube and says what it stands for, then points at the whole tower and says the number and the treat; a partner counts it back.

From the source lesson: A bowl for each of four treat pictures; One dried bean per child; A wide strip of paper for the recorder; A thick marker; Snap cubes in four colours; The four treat pictures from the first step; A length of floor tape as a shared base line; Word cards: vote, tally, each, tallest

Watch for: A tower propped up so it looks taller. Check every base against the tape before any tower is read.

Lesson 2**Run the procedure live on classmates: ask, mark while they stand there, cross the fifth****SKILL LESSON****Let's Make a Tally Chart** (/math-library/518.html) · lesson 1, One person, one mark:

building a tally chart from a class survey · Grade 1 · 20 minutes

Recording data with tally marks, one mark per response

I CAN

I can make the record while the person is still there.

BIG IDEA

The marks are not a picture of the answers, they are the answers, so the mark is made before you walk away.

SUCCESS

Every classmate asked has exactly one mark, and the sheet counts back to the number of people asked.

CONNECT | 5 MIN

Yesterday the recorder marked while the beans landed. Today you are the recorder and the votes walk up to you.

TAUGHT ON ITS OWN

The book hands over its own procedure in plain words: ask each person, make a mark after the food they name, cross every fifth mark.

SOURCE CORE | 20 MIN

Each child carries a food list to five classmates, asks the question and makes one straight mark beside the answer while that person is still standing there, laying the fifth mark slantwise across the four before it.

COLLECT

A marking sheet with one mark per person asked, crossed in fives, and the number of people asked written beside it.

CLOSE | 5 MIN

Each child touches every mark beside one food, says the number, and a partner touches them again to see whether they land on the same word.

From the source lesson: A food list of three choices, written by the table; A pencil for each student; A partner's marking sheet for the check; Counters, one per mark, for the recount; The finished marking sheet; Word cards: tally, data

Watch for: A child collects three answers and marks them afterwards. Say the rule again while they are walking, not after they sit down.

Lesson 3

The word each: the same eight classmates recorded twice, eight marks or one

MATH THROUGH THE READING

Let's Make a Tally Chart (/math-library/518.html) · lesson 4, The word

that makes one person one mark · Grade 1 · 20 minutes

Students act out the book's marking sentence with and without the word each, produce two different counts from the same classmates, and say which word forced which number.

I CAN	I can say which word made my number.
BIG IDEA	Each is what makes a tally a count rather than a list of things that were mentioned.
SUCCESS	Two rows on one sheet, made from the same eight classmates, holding eight marks and one.
CONNECT 5 MIN	Yesterday one person got one mark because you were told to do it that way. Today half the class will be told something slightly different.
TAUGHT ON ITS OWN	None of this book's four small words is unfamiliar, and that is exactly the hazard: a child who misses the force of each will build a chart that says one where it should say eight.
SOURCE CORE 20 MIN	Pairs ask eight classmates the same question; one partner marks by the book's sentence, one mark for each person, and the other marks by the swapped sentence, one mark for the food the person wants, both working from the same eight answers.
COLLECT	One shared sheet with two rows made from one set of answers, holding eight marks and one.
CLOSE 5 MIN	Each child says one sentence naming the word and the number it produced, and says what the other word would have made instead.

From the source lesson: A shared marking sheet ruled into two rows; A pencil; The food question, agreed by the pair before they start asking; The book's marking sentence, written out large; The same sentence with each replaced by the, written directly beneath it

Watch for: The two partners ask different classmates and the comparison is lost. Both work from the same eight answers, together.

Checkpoint after this lesson: One mark, one thing. The page is at the end of this guide.

Lesson 4**Read a record back by fives to the end of the groups, then by ones, and prove the total a second way****SKILL LESSON****Tally Cat Keeps Track** (/math-library/541.html) · lesson 2, Five, Ten, Fifteen, Sixteen ·

Grade 1 · 20 minutes

Counting a tally record by fives and then by ones

I CAN

I can read a record back.

BIG IDEA

Crossed groups are counted by five and whatever is left over is counted by one, and the switch is where the count is won or lost.

SUCCESS

The child says switch out loud at the moment the crossed groups run out.

CONNECT | 5 MIN

You have been making records all week. Today somebody else's record arrives finished and has to be turned back into a number.

TAUGHT ON ITS OWN

The book states the counting rule outright and then prints a record that ends on a part group of three, so the rule has to be used rather than admired.

SOURCE CORE | 20 MIN

Pairs read tally cards of crossed groups by fives with a flat finger, then meet cards ending in a part group, count the crossed groups by five, say switch, and count the leftover marks on by ones.

COLLECT

Each card's total said aloud, with the switch announced at the right place.

CLOSE | 5 MIN

One partner reads a card by fives and ones and says the total; the other proves it a second way by touching every single mark, and any disagreement is found by recounting only the group where the fingers parted.

From the source lesson: Tally cards, a set of ten cards printed with crossed groups and leftover marks; Counting cubes, twenty per child; Word cards: group, leftover, total**Watch for:** A child counts the marks inside a crossed group. The flat finger covers the whole group; nothing inside it is touched.

Lesson 5**Two tallies at once — the record has two places before the counting starts****SKILL LESSON** **Tally Cat Keeps Track** (/math-library/541.html) · lesson 3, Two Names, Two Tallies ·

Grade 1 · 20 minutes

Keeping two tallies at once and reading each one separately

I CAN

I can keep two tallies at once.

BIG IDEA

The record has to have two places before the counting starts, so no mark ever needs moving later.

SUCCESS

Each column counts back to its own box with nothing left over.

CONNECT | 5 MIN

Yesterday you read one record. Today two things arrive at the same time and both have to be recorded as they land.

TAUGHT ON ITS OWN

The book says plainly that a tally can track more than one thing at a time, and then describes exactly how.

SOURCE CORE | 20 MIN

Pairs rule a sheet into two labelled columns before anything is counted, then one partner drops cubes into two boxes in no fixed order while the other marks each in the matching column as it lands, crossing every fifth.

COLLECT

A two-column sheet with both columns read back and checked against their own boxes.

CLOSE | 5 MIN

Pairs swap jobs and run it again faster, then check both columns against both boxes and say which column ended larger.

From the source lesson: Two-column tally sheet, one per pair; Two sorting boxes, labeled, one pair of boxes per table; Counting cubes, twenty per child; Word cards: each, more, total, track**Watch for:** A recorder waits and catches up. The mark goes down with the cube; that is what makes it a tally and not a count at the end.**Checkpoint after this lesson: Read it back. The page is at the end of this guide.**

Lesson 6**A record that counts every piece honestly and still cannot settle the question that was asked****SKILL LESSON****Tally Cat Keeps Track** (/math-library/541.html) · lesson 5, One Can, One Mark · Grade

1 · 20 minutes

Deciding whether a count is a fair record of what was counted

I CAN

I can say what my record does and does not settle.

BIG IDEA

A record can count every piece honestly and still answer the wrong question, and only a stated rule can fix it.

SUCCESS

The child names both column totals in a sentence and says what the record cannot decide.

CONNECT | 5 MIN

Your records have all been honest and all been useful. Today you will build one that is honest and useless, on purpose.

TAUGHT ON ITS OWN

The book ends by admitting that its own hero cheated, and says outright what would have saved the record.

SOURCE CORE | 20 MIN

Pairs build two towers one cube at a time, marking one per cube, and check both columns against their towers; then one partner rebuilds their tower with half-height blocks, still marking every block, and the two towers stand side by side.

COLLECT

A rigged pair of towers with an honest tally, where the larger count sits under the shorter tower.

CLOSE | 5 MIN

Groups agree one rule that would make the marks settle the height question, then test it by rebuilding both towers under it and reading the marks again.

From the source lesson: Counting cubes, twenty per child; Two-column tally sheet, one per pair; Half-height blocks, ten per pair; Word cards: each, fair, more**Watch for:** A child says the tally is wrong. It is not wrong; it counted every block. Ask what it counted before the verdict is accepted.

CULMINATING PERFORMANCE TASK

Two columns, and what they can tell you

Each pair rules a sheet into two columns and labels them. One partner drops objects of two kinds into two boxes in no fixed order; the other marks each one in the matching column as it lands. They then read each column back by fives and ones, empty the boxes, and count each box against its column. Finally each child says one thing their record settles and one thing it does not.

Collect. The two-column sheet with both totals, and each child's two spoken sentences.

What it assesses. One-to-one recording, the grouping convention, reading back, and judging what a record settles — exactly the unit's four moves, with no number above twenty.

TEACHER KEY AND RUBRIC

Key

- Checkpoint 1: twelve, and the two counts agree.
- Checkpoint 2: nineteen.
- Task: the two column totals depend on what you put in the pot; they should sum to about twenty and be unequal. A record settles how many of each kind arrived; it does not settle which kind is bigger, heavier or better.

Rubric

STRAND	SECURE LOOKS LIKE	DEVELOPING	NOT YET
Representation	Every mark is made as its object lands, and the fifth of each group is crossed.	Does it with the arrangement in front of them.	Produces an answer without the arrangement or the reason.
Calculation	Each column reads back by fives and then by ones to the number of objects in its box.	Does it with the arrangement in front of them.	Produces an answer without the arrangement or the reason.
Meaning	Each column is labelled with what it counted.	Does it with the arrangement in front of them.	Produces an answer without the arrangement or the reason.
Explanation	The child names one question the record answers and one it cannot.	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 1

One mark, one thing

Name

Date

Things will be handed to you one at a time. Make one mark for each one, as it arrives. Then count your marks, and count the things. Do the two numbers agree?

CHECKPOINT 2 • GRADE 1

Read it back

Name

Date

Read this card. Count the crossed groups by fives first. Then say switch, and count the leftover marks by ones. What is the total?

CULMINATING TASK • GRADE 1

Two columns, and what they can tell you

Name

Date

Rule your sheet into two columns and label them. Your partner will drop things into the two boxes. Mark each one in the right column as it lands. Read both columns back by fives and ones. Then empty the boxes and check each column against its own box. Say one thing your record settles, and one thing it does not.

TEACHER PLANNING AND HANDOFF

- Children who marked from memory rather than as the object landed need lesson 2 again before any data collection.
- Lesson 6 is the judgement lesson; it is the one that carries forward into Grade 2 graphing.
- Tally Cat's opening lesson on building crossed groups is not used here because lesson 2 introduces the crossing line and lesson 4 has children build a card to a named number.

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