

MATH UNIT

Equal groups, and what is left over

GRADE 2

7 LESSONS

7 x 30 MINUTES

3 SOURCE BOOKS

THE QUESTION THIS UNIT FOLLOWS How many groups, how many in each group, and how many altogether?

ABOUT THIS UNIT

The commonest error in early equal-group work is not arithmetic. It is confusing the three quantities in one arrangement: the number of groups, the number in each group, and the total number of items. This unit keeps all three visible and makes children answer with a number and a label, never a bare number.

The sequence then changes one quantity at a time so children can see what stays fixed and what must change. It puts weight on the word each, counts on by a whole group, and ends where equal grouping does not land exactly.

A remainder is kept visible as information. When the groups are pairs, zero left over names an even number and one left over names an odd number.

THE MATHEMATICAL ARC

1	Name the three quantities in one equal-group arrangement.
2	Hold the number of groups steady; change the group size and watch the total change.
3	Use the word each to make one amount repeat in every group.
4	Count on by one whole group without starting again.
5	Make equal groups that fit and name what is left over.
6	Pair a collection; zero or one left over identifies even or odd.
7	Add one and explain why parity flips in both directions.

SOURCE BOOKS	
Count on Pablo	3 lessons in this unit
Where's Albert?	2 lessons in this unit
Ocean Counting Odd Numbers	2 lessons in this unit

HOW TO USE THIS GUIDE

Open the source lesson before you teach.

Each day names a published lesson under Math lessons. This guide explains its place in the sequence and what evidence to collect. The source lesson carries the original book-linked steps and answers; revised materials created for this unit are printed at the end of this guide.

Thirty minutes a day.

Use five minutes to connect to yesterday, twenty minutes for the source core and five minutes to close on something observable. If time is short, shorten the close; protect the core.

Teach a lesson on its own if you need to.

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

Stop after a checkpoint.

The unit holds together if you pause after Lesson 3 or Lesson 5. Those checkpoints capture the evidence needed for the next part of the sequence.

WHERE THIS FITS IN YOUR YEAR

When to teach it

Second half of Grade 2, after children can make and count collections accurately and skip-count by twos, fives and tens.

What students need first

Stable one-to-one counting, cardinality, and reliable skip-counting by twos, fives and tens. Two-digit written addition is not a prerequisite.

What this unit develops

Distinguishing group count, group size and total; varying one quantity at a time; reading each precisely; counting on by a group; identifying a remainder; and using pairing to explain odd and even.

What it prepares them for Multiplication as equal groups and division as sharing or grouping in Grade 3.

STRONGEST CURRICULUM CONNECTIONS - OUR SUMMARY

Pennsylvania

This edition keeps the curriculum claim deliberately narrow. The instructional placement below is based on what students explicitly do in the unit; no jurisdiction-specific code is printed unless it was independently verified for this edition.

INSTRUCTIONAL PLACEMENT

Use in Grade 2 after students can count collections reliably and skip-count by 2s, 5s and 10s. Students build equal groups, distinguish group count from group size and total, regroup the same collection, keep remainders visible, and justify odd/even classifications by pairing. The unit prepares students for later multiplication and division work without claiming that every regional expectation is taught.

Verification note: no local code is shown on this page because a code-level match was not verified from an official curriculum source in this production pass.

This is intentional; no code has been inferred or borrowed from another jurisdiction.

UNIT AT A GLANCE

#	MATHEMATICAL MOVE	SOURCE LESSON	COLLECT
1	Name groups, number in each, and total.	Count on Pablo - L2	Labelled 4 / 5 / 20 record.
2	Keep group count fixed; vary group size.	Where's Albert? - L3	Two labelled triplets.
3	Read each as the word that repeats an amount.	Count on Pablo - L6	Two records + explanation.
4	Count on by one whole group.	Where's Albert? - L4	45 then 50.
5	Make full groups; record the remainder.	Count on Pablo - L3	Grouping/remainder table.
6	Pair a collection; name parity from remainder.	Ocean Counting Odd Numbers - L2	Four parity records.

7	Add one and explain the parity flip.	Ocean Counting Odd Numbers - L3	Before/after + rule.
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UNIT VOCABULARY

group One collection containing the same number of items as every other group; a bag, plate or cup can hold or represent a group.

group size	The number of items in each group.
each	The word that puts the same amount in every group.
in all / altogether	The total number of items, including any left over.

left over / remainder Items that cannot enter another full group of the chosen size.

odd / even	When the chosen group size is two: one left over means odd; zero left over means even.
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MATERIALS

Source-lesson materials. Each day's book-linked materials are listed on that lesson page and on the source lesson itself. The list below contains only revised or additional materials created for this unit.

New for this unit.

- Lesson 3 each/one sentence strips, one set for display or per pair - Lesson 5 grouping-and-remainder table, one per pair - Lesson 7 two-part parity sentence strips, one set per pair - Checkpoint 1 page, one per child - Checkpoint 2 page, one per child - Culminating-task card, one per pair - Fifty counters and ten paper plates or cups per pair - Twenty-five-box pairing mat, one per pair; used in Lesson 6 and the culminating task - Culminating-task recording page, one per child

ASSESSMENT PLAN

Daily evidence. Keep the labelled three-quantity record from Lesson 1, the two triplets from Lesson 2, and the full-group/remainder table from Lesson 5.

Checkpoint 1 - Three quantities, one arrangement. Six cups with three counters in each. The child records six groups, three in each and eighteen in all. A bare eighteen is incomplete evidence.

Checkpoint 2 - Which grouping fits exactly?

Thirty-five counters. Groups of ten make three full groups with five left over. Groups of five make seven full groups with zero left over.

Culminating task - Build it, count it, and say what is left.

Each pair receives one supplied task card. Children build full groups, record grouped and leftover counters, regroup the same pile by twos, fives and tens, and use pairing to explain whether the total is odd or even.

LESSON 1 Three quantities live in one equal-group arrangement

SKILL LESSON Count on Pablo (</math-library/377.html>) - lesson 2, Five in Each Bag - Grade 2 - 20 minutes Equal groups: number of groups, group size and total

I CAN

I can say how many groups, how many are in each group and how many there are in all.

BIG IDEA

One equal-group arrangement carries three connected quantities. Confusing them is the error this unit is designed to prevent.

SUCCESS

The child says: four groups, five in each group, twenty counters in all. Every number has a label.

CONNECT	5 MIN
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Fill four cups with five counters each. Ask three separate questions: How many cups? How many in each cup? How many counters altogether? Record all three answers.

TAUGHT ON ITS OWN

Abuela's instruction is precise: put five peppers in each plastic bag, then determine how many bags, how many in each and how many peppers in all.

SOURCE CORE	20 MIN
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Pairs fill four cups with exactly five counters each. Ask alternating questions about groups, group size and total. Children answer with the number and what it counts every time.

COLLECT

A labelled record: 4 groups; 5 in each group; 20 counters in all.

CLOSE	5 MIN
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Add a fifth cup and fill it. Before counting, predict all three quantities. The number of groups increases by one, the group size stays five and the total increases by five.

Materials:	Printed source passage; 20 counters and 4 cups per pair; 5 extra counters and 1 extra cup per pair; word cards: group, group size, each, in all.
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Watch for: A bare number. Point to the cups and ask each of the three questions again; require the number and its label.

LESSON 2

Hold the number of groups steady; change the group size and total

SKILL LESSON Where's Albert? (/math-library/436.html) - lesson 3, Nine Plates, Ninety Sticks
- Grade 2 - 20 minutes Varying one quantity in an equal-group arrangement

I CAN

I can keep the number of groups the same and explain what changes.

BIG IDEA

When the number of groups stays fixed and the group size changes, the total must change too.

SUCCESS

The child records 9 groups / 10 in each / 90 in all and 9 groups / 5 in each / 45 in all, then marks the group count as unchanged.

CONNECT	5 MIN
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Yesterday one arrangement held three quantities. Today the number of plates stays nine while the number on each plate changes.

TAUGHT ON ITS OWN

Agnes hands the same number of items to every scout. The number of scouts stays fixed while the amount each scout receives changes.

SOURCE CORE	20 MIN
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Pairs build nine plates of ten sticks and record all three quantities. They clear the plates, rebuild nine plates with five counters each, and record all three again. Children circle the unchanged group count and underline the group size and total that changed.

COLLECT

Two labelled triplets with the unchanged and changed quantities marked.

CLOSE	5 MIN
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Use five plates with ten counters on each. After both partners name 5 groups / 10 in each / 50 in all, one partner closes their eyes and the other removes one full plate. The first partner names what is visible and what is missing.

Materials:	12 paper plates; 100 craft sticks; 50 counters per pair; recording paper and pencil; printed source passage; word cards: group, group size, in all, equal.
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Watch for: A child changes the number of plates as well. Count the plates before and after each build and record that stable quantity first.

LESSON 3 The word each makes one amount repeat in every group

MATH THROUGH THE READING Count on Pablo (</math-library/377.html>) - lesson 6, The Little Word That Moves the Peppers - Grade 2 - 20 minutes Reading quantity language precisely

I CAN

I can explain what the word each makes me do.

BIG IDEA

Each repeats the same group size in every group. Without that word, the same amount is placed only once.

SUCCESS

Two labelled records stand side by side: 4 groups / 5 in each / 20 in all, and 1 group / 5 in the group / 5 in all. The child names the word that caused the difference.

CONNECT	5 MIN
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You changed a group size on purpose yesterday. Today the materials stay the same and one word changes the build.

TAUGHT ON ITS OWN

Abuela's instructions are working orders. Their quantities come out correctly only when the small words are read precisely.

SOURCE CORE	20 MIN
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Keep the same four bag markers visible for both instructions. Pairs follow Put five peppers in each bag and build 4 groups / 5 in each / 20 in all. They record it, clear only the counters, then follow Put

five peppers in one bag with all four bags still available. The second build has 1 filled group / 5 in that group / 5 in all. Keep the records side by side.

COLLECT

Both labelled records and one sentence: Each made five repeat in all four groups.

CLOSE	5 MIN
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Each child creates a small equal-group build and states all three quantities in a true sentence containing each.

Materials:	20 counters and 4 cups per pair; printed source sentence; printable each/one sentence strips at the end of this guide; word card: each.
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Watch for: A child fills all four bags after reading one. Keep all four bag markers visible, point to one, and reread the sentence. The available bags have not changed; the instruction has.

Checkpoint after this lesson: Three quantities, one arrangement. The printable page is at the end of this guide.

LESSON 4 Count on by one whole group from where the count stopped

SKILL LESSON Where's Albert? (</math-library/436.html>) - lesson 4, Forty-Five, and Five in Her Hand - Grade 2 - 20 minutes Counting on by one equal group

I CAN

I can add one whole group without starting the count again.

BIG IDEA

If the group size is known, one more group increases the total by exactly that amount.

SUCCESS

The child states 9 groups / 5 in each / 45 in all, then predicts that one more group produces 10 groups / 5 in each / 50 in all.

CONNECT	5 MIN
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Yesterday each filled every group. Today nine groups are filled and one complete group is still in a hand.

TAUGHT ON ITS OWN

Agnes's count stops one group early. The group in her hand makes it possible to continue without recounting what is already arranged.

SOURCE CORE	20 MIN
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Pairs set nine plates of five and count by fives to forty-five. They keep five more counters in one hand, state the next total before laying them down, then add a tenth plate and confirm fifty.

COLLECT

A before-and-after record showing 9 groups of 5 = 45 and 10 groups of 5 = 50.

CLOSE	5 MIN
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Build five plates with ten counters on each and name the three quantities. Remove one full plate while a partner looks away. The partner identifies 4 groups / 10 in each / 40 visible and 1 group / 10 counters missing.

Materials:	12 paper plates; 50 counters per pair; recording paper and pencil; printed source passage; word cards: group, missing, more, reach.
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Watch for: A child lays down the last group and recounts from one. Ask for the predicted total while the final five counters remain in the hand.

LESSON 5 Make equal groups that fit, and name what is left over

SKILL LESSON Count on Pablo (</math-library/377.html>) - lesson 3, Is Tens Always Fastest - Grade 2 - 20 minutes Full groups, grouped amount and remainder

I CAN

I can make full equal groups and record what is left over.

BIG IDEA

A collection fits a chosen group size exactly only when every item enters a full group. Items that cannot make another full group are the remainder.

SUCCESS

For each group size, the child records the number of full groups, the amount in those groups and the number left over.

CONNECT	5 MIN
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You counted on by one full group yesterday. Today the same collection is regrouped by twos, fives and tens to see which group sizes fit exactly.

TAUGHT ON ITS OWN

Pablo calls twos fast, fives faster and tens very fast. The lesson tests efficiency without hiding a remainder.

SOURCE CORE	20 MIN
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Pairs make full groups of two, five and ten from forty counters, one group size at a time. They record groups, grouped amount and remainder. Then they repeat with forty-five counters. For 45: twos make 22 full groups with 1 left; fives make 9 with 0 left; tens make 4 with 5 left.

COLLECT

A six-row table for 40 and 45 showing group size, full groups, grouped amount and remainder.

CLOSE	5 MIN
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Complete and justify: A collection fits a group size exactly when... and When it does not fit, the leftover tells...

Materials:	40 counters and 5 extra counters per pair; printable grouping-and-remainder table at the end of this guide; printed source passage; word cards: full group, fits exactly, left over, remainder.
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Watch for: A child ignores stranded counters and says the grouping worked exactly. Keep the remainder physically separate and include it in the total check.

Checkpoint after this lesson: Which grouping fits exactly? The printable page is at the end of this guide.

LESSON 6 Pair them up: zero or one left over names even or odd

SKILL LESSON Ocean Counting Odd Numbers (</math-library/87.html>) lesson 2, Pair Them Up to Tell Odd from Even - Grade 2 - 20 minutes Explaining parity by pairing

I CAN

I can make pairs and use the leftover to tell odd from even.

BIG IDEA

With groups of two, the remainder can only be zero or one. Zero left over means even; one left over means odd.

SUCCESS

The child records the number of pairs, the remainder and the odd/even label for each collection.

CONNECT	5 MIN
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Yesterday different group sizes produced different remainders. Today the group size is always two, and its remainder gives the number a name.

TAUGHT ON ITS OWN

The book asks how to tell an even number from an odd one, then provides collections that can be tested by pairing.

SOURCE CORE	20 MIN
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Pairs build nine and move counters two at a time into pairing boxes. They record four pairs and one left over, then identify nine as odd. Add one counter, pair ten and record five pairs with zero left over. Repeat the contrast with twenty-one and twenty-two. Always name the remainder before the parity label.

COLLECT

Four records - 9, 10, 21 and 22 - containing total, number of pairs, remainder and odd/even label.

CLOSE	5 MIN
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Use four printable number cards: 3, 10, 21 and 22. Turn one at a time. Children place each on an odd or even pile only after stating whether pairing leaves zero or one counter left over.

Materials:	50 two-color counters per pair; printable 25-box pairing mat and number cards guide; word cards: even, odd, pair, left over.
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at the end of this

Watch for: A child names odd or even from the last digit without pairing. That shortcut comes later; here the pairs and remainder are the evidence.

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LESSON 7 Add one more and watch parity flip in both directions

SKILL LESSON Ocean Counting Odd Numbers (</math-library/87.html>) - lesson 3, Add One More and Watch It Flip - Grade 2 - 20 minutes Reasoning about one more than an odd or even number within 50

I CAN

I can explain why adding one changes odd to even or even to odd.

BIG IDEA

One extra counter either completes the unmatched counter's pair or begins a new pair and leaves it incomplete. That is why parity flips every time.

SUCCESS

The child states and tests both rules: one more than an odd number is even; one more than an even number is odd.

CONNECT	5 MIN
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Yesterday zero or one left over named each number. Today one counter is added and the remainder changes.

TAUGHT ON ITS OWN

The odd run ends at forty-nine. One more animal makes fifty, which pairs exactly and is even.

SOURCE CORE	20 MIN
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Pairs build and pair 9, then add one and pair again. Repeat from 21, 23 and 27, keeping all four odd-to-even results visible. For each, state what happened to the unmatched counter.

COLLECT

Four labelled before-and-after results and the odd-to-even rule.

CLOSE	5 MIN
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Test the other direction with 0 to 1 and 10 to 11. Write the two-part rule: odd + 1 is even; even + 1 is odd. Explain each half using the unmatched counter.

Materials:	50 two-color counters per pair; five ten-frames; printable two-part parity sentence strips at the end of this guide; word cards: even, odd, one more.
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Watch for: A child uses the zero example to test only the odd-to-even sentence. Zero is even; it tests the second direction of the complete rule.

CULMINATING PERFORMANCE TASK

Build it, count it, and say what is left

Each pair receives one task card, fifty counters, ten plates or cups and the 25-box pairing mat. Every pair uses the mat for the parity step; Card C also uses it for the initial build. The card fixes both the pile size and the group size, so the evidence and answer key are comparable across the class.

- Count out the pile named on the card.
- Build as many full groups as possible using the card's group size. Record full groups, group size, grouped amount and remainder. Check: grouped amount + remainder = starting pile.
- Regroup the same pile by twos, fives and tens. For each, record full groups, grouped amount and remainder.
- Pair the full pile. State whether the total is odd or even and justify the answer from the remainder.

What it assesses. The relationship among group count, group size, grouped amount, remainder and total; exact versus inexact grouping; and parity explained by pairing.

PRINTABLE TASK CARDS - CUT APART

CARD A

Starting pile: 35 counters Build groups of: 10

CARD B

Starting pile: 42 counters Build groups of: 5

CARD C

Starting pile: 47 counters Build groups of: 2 Use the pairing mat

CARD D

Starting pile: 48 counters Build groups of: 5

TEACHER KEY Culminating performance task		
CARD CARD BUILD BY 2 BY 5	BY 10	PARITY
A 3 groups x 10 = 30; 5 left 17 groups; 1 left 7 groups; 0 left	3 groups; 5 left	Odd: 1 left after pairing
B 8 groups x 5 = 40; 2 left 21 groups; 0 left 8 groups; 2 left	4 groups; 2 left	Even: 0 left after pairing
C 23 groups x 2 = 46; 1 left 23 groups; 1 left 9 groups; 2 left	4 groups; 7 left	Odd: 1 left after pairing
D 9 groups x 5 = 45; 3 left 24 groups; 0 left 9 groups; 3 left	4 groups; 8 left	Even: 0 left after pairing

RUBRIC			
STRAND	SECURE	DEVELOPING	NOT YET
Representation	Builds equal groups, leaves the remainder separate and records all quantities.	Builds equal groups with a prompt or loses track of the remainder once.	Makes unequal groups or hides/discards leftover items.
Calculation	Full groups x group size equals the grouped amount; grouped amount + remainder equals the total.	Method is sound but one count or check is incorrect.	Recorded totals do not correspond to the physical build.
Meaning	Labels group count, group size, grouped amount, remainder and total correctly.	Identifies the quantities but swaps or omits one label.	Gives bare numbers or confuses groups with items repeatedly.
Parity explanation	Uses pairs and a remainder of zero or one to justify even or odd.	Classifies correctly but gives incomplete pairing evidence.	Guesses odd/even or gives evidence that does not match the build.

Teacher planning and handoff. Revisit Lesson 1 with children who still answer using bare numbers. Revisit Lesson 5 with children who hide the remainder. Lessons 6 and 7 provide the pairing evidence that should travel forward into later work with odd and even numbers.

LESSON 3 SUPPORT - CUT APART

The word that changes the build

Read one strip, build it, record it and clear only the counters, then read the other.

Each printed page supplies two identical sets.

Put five peppers in each bag.

Put five peppers in one bag.

Put five peppers in each bag.

Put five peppers in one bag.

Teacher move: Keep all four bag markers visible for both strips. After the first build is recorded, clear only the counters. The bags stay constant so each versus one is the only change.

LESSON 5 SUPPORT - ONE PER PAIR

Full groups and what is left over

Name

Date Make full groups of the stated size. Keep any remainder separate. Complete the check for every row.

Starting

total

Group size

Full groups

Counters in full groups

Left over

Check

40	2	grouped + left = total
40	5	grouped + left = total
40	10	grouped + left = total
45	2	grouped + left = total
45	5	grouped + left = total
45	10	grouped + left = total

Say after every row: The group size ____ made ____ full groups, put ____ counters into those groups, and left ____ over.

LESSON 7 SUPPORT - CUT APART

One more flips parity

Complete both sentences, test each one with counters, then explain what happened to the unpaired counter. Each printed page supplies two identical sets.

One more than an odd number is

_____.

One more than an even number is

_____.

One more than an odd number is

_____.

One more than an even number is

_____.

Required evidence: Test odd to even and even to odd. One direction alone is not the complete rule.

LESSON 6 NUMBER CARDS - CUT APART

3

10	21	22
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27

28	37	50
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PAIRING MAT - ONE PER PAIR

Twenty-five boxes for fifty counters

Place no more than one counter in each circle. Full boxes are pairs. A counter with no partner is the remainder.





Use this mat in Lesson 6 and in Step 3 of the culminating task. Card C also uses it in Step 1.

CHECKPOINT 1 - GRADE 2

Three quantities, one arrangement

Name

Date

Build six cups with three counters in each cup. Record all three quantities. Say every number with what it counts.

Number of groups

Number in each group

Number in all

Draw or explain how your three numbers belong to the same arrangement.

CHECKPOINT 2 - GRADE 2 Which grouping fits exactly?	
Name	Date

Use thirty-five counters. First make full groups of ten. Then remake the same pile in full groups of five. Keep every leftover visible.

Group size

Full groups

Counters in full groups

Left over

Fits exactly?

10

5

Which group size fit exactly? How do you know?

CULMINATING TASK - GRADE 2

Build it, count it, and say what is left

Name

Date Use the starting pile and group size on your task card. Keep leftover counters separate and complete every check.

Task card

Starting pile	Group size
1. Build the groups on your card.	
Full groups In each group Counters in full groups	Left over Check
	grouped + left over = pile
2. Regroup the same pile three ways.	
Group size Full groups Counters in full groups	Left over Fits exactly?
2	
5	
10	
3. Pair the entire pile.	
Number of pairs Left over after pairing	Odd or even?

Explain how the pairs and the leftover prove your odd-or-even answer.

TEACHER PLANNING AND HANDOFF

What to do with the evidence

If a child gives a bare

number

Return to Lesson 1. Ask the three questions separately and require a label with every number.

If a child makes unequal groups	Return to the physical meaning of each in Lesson 3 before introducing multiplication notation.
If a child hides the remainder	Return to Lesson 5. Keep leftovers physically outside the full groups and use the total check.
If a child guesses odd or even	Return to Lesson 6. Pair the entire collection and report zero or one left over before naming parity.
If a child states only half the parity rule	Use the two tests from Lesson 7: odd to even and even to odd. Both directions are required.

Forward link. Children ready to move on can translate a physical build into equations such as 4 groups of 5 make 20, then compare grouping and sharing questions in Grade 3.

TumbleTA - Tumbleweed Press Inc. - Revised unit built from lessons published under Math lessons.