

Multiplication

Unit 1 Overview: 9 lessons

Students learn what multiplying means: equal groups, a multiplication sentence (the first number tells how many groups, the second how many in each), arrays in rows, skip counting and equal jumps, and turn-around facts. Then they learn the facts for 2, 5 and 10 by their patterns and the rules for 0 and 1, and they solve equal groups and array stories. Ask “how many groups, and how many in each?” every day: the whole unit rests on it. Lesson 1.9 (one fact shown many ways) is for the states that teach it in this unit.

THE UNIT, DAY BY DAY

Day 1	Pre-Check	What students already know, before the first lesson.
Day 2	1.1 Equal groups	I can find how many in all in equal groups.
Day 3	1.2 Multiplication sentences	I can write equal groups as a multiplication sentence.
Day 4	1.3 Arrays: rows and columns	I can write a multiplication sentence for an array.
Day 5	1.4 Skip count and equal jumps	I can skip count and make equal jumps to multiply.
Day 6	1.5 Turn-around facts	I can turn a fact around and get the same product.
Day 7	1.6 Multiply by 2, 5 and 10	I can multiply by 2, 5 and 10.
Day 8	1.7 Multiply by 0 and 1	I can multiply by 0 and by 1.
Day 9	1.8 Multiplication stories	I can solve equal groups and array stories.
Day 10	1.9 One fact many ways ★	I can show one fact in four ways.
Day 11	Unit Review	The review, to go over together.
Day 12	Unit Test	Form A; Form B (other numbers) is for a retest.

★ Taught in 3rd grade in some states. Skip these lessons if yours teaches them in another grade; animalmath.com/standards shows your state's list.

GET READY FOR THE UNIT

- Counters, cups or paper plates, and square tiles for each pair
- Grid paper, crayons and scissors, and whiteboards with dry erase markers
- A floor number line from 0 to 30 made with masking tape, a number line for each student, and number cubes
- Multiplication charts, fact cards for the 0s, 1s, 2s, 5s and 10s, and nickels and dimes

HOW EACH LESSON GOES

- 1. Warm up** (5 min)
- 2. Teach** (10 min)
- 3. Try it together** (10 min)
- 4. Practice** (15 min)
- 5. Exit ticket** (5 min): a quick check on the lesson.

Each lesson page ends with the Animal Math sheets, makers, tools and quizzes for it. “Sheet 3” is the third worksheet of a pack; a color pack prints each sheet again in black and white.

CHECKING AS YOU GO

PRINTABLE	Pre-Check: Day 1, with a key	EXIT TICKET	Exit Tickets: one a lesson, four to a page
PRINTABLE	Unit Review: the day before the test	PRINTABLE	Unit Test: Forms A and B, with keys



Multiplication

Lesson 1.1: Equal groups

GOAL Students make and draw equal groups and tell how many groups there are, how many are in each group, and how many there are in all, counting on by the size of a group.

About 45 minutes

I can find how many in all in equal groups.

THE LESSON

- 1 Warm up** (5 min) Put 2 counters in each of 4 cups and 3 counters in a fifth cup. Are these equal groups? Students tell how to fix them so every cup has the same number.
- 2 Teach** (10 min) Show 4 plates with 3 apples drawn on each. Count the plates: 4 groups. Count one plate: 3 in each group. Count on by 3s to find how many in all: 3, 6, 9, 12. Write “4 groups of 3” and “12 in all”. Then show 2 plates of 7: 2 groups of 7 is 14 in all.
Say: “First count the groups. Then count how many are in one group. Count on by that number to find how many in all.”
- 3 Try it together** (10 min) Call out 6 groups of 2, 4 groups of 4 and 2 groups of 8. Partners build each with cups and counters, say “___ groups of ___” and count on to find how many in all. Then show a set that is not equal and ask why.
- 4 Practice** (15 min) Students count the groups and how many are in each group on sheets 1 and 2 of Multiplication as Equal Groups. Early finishers add equal groups on sheet 1 of Arrays and Repeated Addition as a review.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 1.1** and circle a face beside the “I can” line. Look for 6 groups of 3 = 18 in all, then 24 fish. A student who writes 9 in all or 11 fish added the two numbers; 3 groups of 6 swaps the groups and the number in each.

Need help? Build the groups with cups and counters before drawing, and count on along a number line.

Ready for more? Put 12 into equal groups in as many ways as you can, and write each one as “___ groups of ___”.

GET READY

- 30 counters and 6 cups or paper plates for each pair
- Whiteboards and dry erase markers

WORDS TO USE

equal groups: groups with the same number in each

groups of: “4 groups of 3” means 4 groups with 3 in each

in all: every group put together

ASK

- How many groups are there? How many are in each?
- Are these groups equal? How do you know?
- What number do you count on by to find how many in all?

WATCH FOR

Counts every dot one by one and loses track.

Count on by the size of a group, touching each group once.

Swaps the numbers and writes 3 groups of 4 for 4 plates of 3. Point to the plates first: that is the number of groups.

Calls groups equal when they are not. Count each group out loud and compare.

ON ANIMAL MATH

- PRINTABLE** **Multiplication as Equal Groups:** sheets 1-2
- PRINTABLE** **Arrays and Repeated Addition:** sheet 1, a review for early finishers
- QUIZ** **Multiplication Quiz:** the Equal Groups level
- EXIT TICKET** **3rd Grade Multiplication Exit Tickets:** Exit Ticket 1.1

Multiplication

Lesson 1.2: Multiplication sentences

GOAL Students write equal groups as a multiplication sentence and read 4×2 as “4 groups of 2”: the first factor is the number of groups, the second is how many are in each, and the product is how many in all.

About 45 minutes

I can write equal groups as a multiplication sentence.

THE LESSON

- 1 Warm up** (5 min) Show 4 cups with 2 counters in each. Students write “4 groups of 2” and $2 + 2 + 2 + 2 = 8$ on whiteboards.
- 2 Teach** (10 min) Under $2 + 2 + 2 + 2 = 8$, write $4 \times 2 = 8$. Point: 4 is the number of groups, 2 is how many in each, 8 is the product. Draw 2 groups of 7 and write $2 \times 7 = 14$. Then write 4×7 and draw it together: 4 circles with 7 dots in each.
| Say: “The times sign means groups of. 4×2 means 4 groups of 2.”
- 3 Try it together** (10 min) Partners take turns: one builds equal groups with cups and counters, the other writes the multiplication sentence. Then one writes a sentence like 6×2 and the other draws the groups. Check that the first number is always the number of groups.
- 4 Practice** (15 min) Students write the “groups of” sentence and the multiplication fact on sheets 3 and 4 of Multiplication as Equal Groups, then write a fact for each picture on sheet 5. Early finishers write the legs as groups on sheet 4 of How Many Legs?
- 5 Exit ticket** (5 min) Students do **Exit Ticket 1.2** and circle a face beside the “I can” line. Look for $5 \times 6 = 30$, then 7 groups of $8 = 7 \times 8$, and 6×8 means 6 groups of 8. A student who writes $6 \times 5 = 30$ swapped the groups and the number in each: the product is right, so ask which number is the groups.

Need help? Write the adding sentence first, count the addends to find the number of groups, then write the times sentence under it.

Ready for more? Write a story for 7×3 , then draw it.

GET READY

- Counters and cups for each pair
- Whiteboards and markers
- Pictures of equal groups: egg cartons, packs of juice boxes, bags of apples

WORDS TO USE

factor: a number you multiply

product: the answer when you multiply

times: the $\times$ sign; 4×2 is “4 times 2” or “4 groups of 2”

ASK

- Which number tells how many groups?
- What does 6×4 mean? Draw it.
- How is $2 + 2 + 2 + 2$ the same as 4×2 ?

WATCH FOR

Writes $4 + 2 = 6$ for 4 groups of 2. Build it and count: 4 groups of 2 is 8, the same as $2 + 2 + 2 + 2$.

Puts the number in each first and writes 2×4 for 4 groups of 2. Point to the groups and say “4 groups of”; write that number first.

Draws groups that are not equal. Draw the circles first, then put the same number of dots in each.

ON ANIMAL MATH

PRINTABLE

Multiplication as Equal Groups: sheets 3–5

PRINTABLE

How Many Legs? sheet 4, for early finishers

MAKER

Multiplication Arrays: Equation Type Multiplication, Maximum Factor Up to 5

QUIZ

Multiplication Quiz: the Equal Groups level

EXIT TICKET

3rd Grade Multiplication Exit Tickets: Exit Ticket 1.2

Multiplication

Lesson 1.3: Arrays: rows and columns

GOAL Students see an array as equal rows, count the rows and how many are in each row, and write the multiplication sentence: 3 rows of 5 is 3×5 .

About 45 minutes

I can write a multiplication sentence for an array.

THE LESSON

- 1 Warm up** (5 min) Show an egg carton with 2 rows of 6. How many rows? How many in each row? How many eggs?
- 2 Teach** (10 min) Build 3 rows of 5 tiles. Sweep a finger along each row: 3 rows, 5 in each row. Write 3 rows of 5 and $3 \times 5 = 15$. Then build 4 rows of 2 and write $4 \times 2 = 8$. An array is equal groups in lines, so the rows are the groups.
Say: "Count the rows first. Then count how many are in one row. Rows times how many in each row is how many in all."
- 3 Try it together** (10 min) Partners build arrays from cards like "5 rows of 4" and "2 rows of 6", write the multiplication sentence, and check the product by skip counting the rows. Then each draws one array on grid paper and colors every row a new color.
- 4 Practice** (15 min) Students write the multiplication equation for each array on sheets 1 and 2 of Multiplication Arrays to 10. Early finishers add the rows and the columns on sheet 2 of Arrays and Repeated Addition.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 1.3** and circle a face beside the "I can" line. Look for 5 rows of 7 and $5 \times 7 = 35$, then 2 rows of 8 dots and $2 \times 8 = 16$. A student who draws 8 rows of 2 mixed up rows and columns; 10 means the numbers were added.

Need help? Build the array one row at a time with tiles, saying "1 row of 5, 2 rows of 5" as each row goes down.

Ready for more? Find every array you can make with 24 tiles and write a multiplication sentence for each one.

GET READY

- Square tiles or counters, 30 for each pair
- Grid paper and crayons
- Pictures of arrays: an egg carton, a muffin pan, a window with panes

WORDS TO USE

array: things in equal rows

row: a line of things going across

column: a line of things going up and down

ASK

- How many rows? How many are in each row?
- Which way do rows go?
- How could you check the product?

WATCH FOR

Counts the columns as rows. Rows go across, like rows of seats: sweep a finger across.

Draws rows that are not equal. Line the dots up in columns too, one under another.

Adds the rows and the number in each row. Read it as rows of: 3 rows of 5 is $5 + 5 + 5$.

ON ANIMAL MATH

PRINTABLE

Multiplication Arrays to 10: sheets 1-2

PRINTABLE

Arrays and Repeated Addition: sheet 2, for early finishers

MAKER

Multiplication Arrays: Equation Type Multiplication, Maximum Factor Up to 10

QUIZ

Multiplication Quiz: the Arrays level

EXIT TICKET

3rd Grade Multiplication Exit Tickets: Exit Ticket 1.3

Multiplication

Lesson 1.4: Skip count and equal jumps

GOAL Students skip count by the size of a group to find a product, and show a product as equal jumps from 0 on a number line: 3×8 is 3 jumps of 8.

About 45 minutes

I can skip count and make equal jumps to multiply.

THE LESSON

- 1 Warm up** (5 min) Skip count around the room by 100s to 1,000, then by 50s to 500. Each student says the next number.
- 2 Teach** (10 min) Write 5×5 . Skip count by 5s, a finger for each: 5, 10, 15, 20, 25. On the floor line, a student makes 5 jumps of 5 from 0, landing on 25. Then 3×8 : count 8, 16, 24 and draw 3 jumps of 8.
Say: "The number of jumps is the number of groups. The size of each jump is how many in each group."
- 3 Try it together** (10 min) Partners roll a number cube for the number of jumps and pick a card from 1 to 5 for their size, draw the jumps on a number line to 30, write the multiplication sentence and check it by skip counting.
- 4 Practice** (15 min) Students write how much each jump adds and finish the facts on sheet 4 of Multiplication Fact Drills, then count legs by 2s and by 4s on sheets 2 and 3 of How Many Legs?
- 5 Exit ticket** (5 min) Students do **Exit Ticket 1.4** and circle a face beside the "I can" line. Look for 18, 24, 30, 36 and $6 \times 6 = 36$, then jumps landing on 3, 6, 9 and 12, and $4 \times 3 = 12$. Stopping at 30 means a skip was lost; jumps from 1 or of different sizes are not yet equal jumps.

Need help? Step along the floor number line, saying each number you land on, before drawing the jumps.

Ready for more? Make 2 jumps of 9, then 3 jumps of 6. Do you land on the same number?

GET READY

- A masking tape number line from 0 to 30 on the floor
- A number line to 30 for each student
- A number cube and cards 1 to 5 for each pair

WORDS TO USE

skip count: count on by the same number: 5, 10, 15, 20

jump: a hop on the number line, the same size each time

multiple: a number you say when you skip count

ASK

- How many jumps? How big is each jump?
- Where do you land after 3 jumps of 9?
- What multiplication sentence do the jumps show?

WATCH FOR

Starts the first jump at 1 instead of 0. Put a finger on 0 before the first jump.

Loses count of the skips. Hold up a finger for each number you say.

Draws jumps of different sizes. Count the spaces in each jump: they must all be the same.

ON ANIMAL MATH

PRINTABLE Multiplication Fact Drills: sheet 4

PRINTABLE How Many Legs? sheets 2-3

MAKER Skip Counting: Skip Count By 4s, Starting Number 0, Style Boxes

TOOL Number Line: Mode Jump

QUIZ Multiplication Quiz: the 2s, 5s and 10s level

EXIT TICKET 3rd Grade Multiplication Exit Tickets: Exit Ticket 1.4

Multiplication

Lesson 1.5: Turn-around facts

GOAL Students turn an array a quarter turn to see that changing the order of the factors does not change the product, $2 \times 7 = 7 \times 2$, and use a fact they know to find its turn-around fact.

About 45 minutes

I can turn a fact around and get the same product.

THE LESSON

- 1 Warm up** (5 min) Quick facts on whiteboards: 2×6 , 5×2 and 10×3 . Then ask: is 6×2 the same as 2×6 ? How could we find out?
- 2 Teach** (10 min) Cut a 2 by 7 array from grid paper. Read it by rows: 2 rows of 7, $2 \times 7 = 14$. Turn it a quarter turn: now 7 rows of 2, $7 \times 2 = 14$. The same squares, so the same product. Write $2 \times 7 = 7 \times 2$. Then show 3 bags of 8 and 8 bags of 3: different groups, the same total.
Say: "Turn the array and the product stays the same. If you know 2×7 , you know 7×2 ."
- 3 Try it together** (10 min) Partners cut arrays from grid paper (2 by 9, 5 by 6, 3 by 10), write the fact for the rows, turn the array and write the turn-around fact. Then fill in boxes like $5 \times 8 = 8 \times \square$ together.
- 4 Practice** (15 min) Students write a fact for each array and for the array turned around on sheet 1 of Properties of Operations. Early finishers find turn-around facts on the Multiplication Chart: the same product sits on both sides of the diagonal.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 1.5** and circle a face beside the "I can" line. Look for $6 \times 7 = 42$ for the rows and $7 \times 6 = 42$ for the columns, then 7 and 9 in the boxes. A student who writes 6×7 twice has not turned the array; 9 in the first box or 8 in the second copied the number beside the box without thinking which factor is missing.

Need help? Build the array with tiles on a tray, turn the whole tray, and count again.

Ready for more? Find all the turn-around pairs with a product of 24, and then 30.

ON ANIMAL MATH

PRINTABLE

Properties of Operations: sheet 1

MAKER

Multiplication Arrays: Equation Type Multiplication, Maximum Factor Up to 10

TOOL

Multiplication Chart

QUIZ

Multiplication Quiz: the Arrays level

EXIT TICKET

3rd Grade Multiplication Exit Tickets: Exit Ticket 1.5

GET READY

- Square tiles, 30 for each pair
- Grid paper and scissors
- Whiteboards and markers

WORDS TO USE

turn-around fact: the same factors in the other order, like 2×7 and 7×2

order property: changing the order of the factors does not change the product

factor: a number you multiply

ASK

- What happens to the rows and columns when you turn the array?
- If $5 \times 9 = 45$, what is 9×5 ?
- Why is the product the same?

WATCH FOR

Thinks a turned array has a new product and multiplies again. Count the squares: turning moves none of them.

Writes the same fact twice. After the turn, read the old columns as rows.

Mixes up the order property with adding. Build both: 2×7 and $2 + 7$ are not the same.

Multiplication

Lesson 1.6: Multiply by 2, 5 and 10

GOAL Students learn the 2s, 5s and 10s facts by their patterns: a 2s fact is a double, a 5s fact ends in 5 or 0 and is half of the 10s fact, and a 10s fact is that many tens.

About 45 minutes

I can multiply by 2, 5 and 10.

THE LESSON

- 1 Warm up** (5 min) Count by 5s on fingers: one hand is 5, two hands are 10, up to ten hands. Then count dimes by 10s and nickels by 5s.
- 2 Teach** (10 min) Color the 2s, 5s and 10s rows of a multiplication chart. The 2s: $2 \times 3 = 3 + 3 = 6$, a double. The 5s end in 5 or 0, like $5 \times 1 = 5$ and $5 \times 4 = 20$. The 10s: 10×4 is 4 tens, 40. Put the 5s row over the 10s row: every 5s product is half of the 10s product under it.
Say: "Times 2 is a double. Times 5 ends in 5 or 0. Times 10 is that many tens."
- 3 Try it together** (10 min) Play fact flip with the 2s, 5s and 10s cards: one partner flips a card, the other says the product and the pattern that helps ("a double", "ends in 5 or 0", "that many tens"). Sort the cards into facts I know and facts to practice.
- 4 Practice** (15 min) Students write each 2s fact as a double on sheet 1 of Facts With 0, 1, 2, 5 and 10, then count by 5s and 10s and circle the multiples on sheet 2.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 1.6** and circle a face beside the "I can" line. Look for 20, 14, 45, 40, 60 and 90, then $2 \times 4 = 4 + 4 = 8$ and $10 \times 7 = 7$ tens = 70. A student who writes 12 for 10×2 added instead of multiplying; $2 + 4$ in the first blanks means the double is not yet clear.

Need help? Use nickels and dimes to count by 5s and 10s, one coin for each group.

Ready for more? Use the 5s facts to find the 50s: if $5 \times 4 = 20$, what is 50×4 ?

GET READY

- Multiplication charts and crayons
- Nickels and dimes, or pictures of them
- Fact cards for the 2s, 5s and 10s

WORDS TO USE

double: a number added to itself: 2×3 is $3 + 3$

multiple of 5: a number you say counting by 5s; it ends in 5 or 0

tens: a 10s fact is that many tens

ASK

- How does a double help with a 2s fact?
- Can a 5s fact end in 4? Why not?
- How many tens are in 10×4 ?

WATCH FOR

Adds instead of multiplying: $2 \times 3 = 5$. Say "2 groups of 3" and build it as $3 + 3$.

Counts by 5s but loses track of how many times. Count on fingers, one finger for each 5.

Writes a 10s fact without its zero. Count dimes: each one is 10 cents.

ON ANIMAL MATH

PRINTABLE

Facts With 0, 1, 2, 5 and 10: sheets 1-2

MAKER

Multiplication Fact Drills: Times Tables: 2s, 5s and 10s

TOOL

Multiplication Chart: color the 2s, 5s and 10s rows

QUIZ

Multiplication Quiz: the 2s, 5s and 10s level

EXIT TICKET

3rd Grade Multiplication Exit Tickets: Exit Ticket 1.6

Multiplication

Lesson 1.7: Multiply by 0 and 1

GOAL Students learn the rules for 0 and 1: any number times 0 is 0, and any number times 1 is that number. Groups of nothing make 0, and 1 group of a number is that number.

About 45 minutes

I can multiply by 0 and by 1.

THE LESSON

- 1 Warm up** (5 min) Put out 12 empty plates. How many counters are on them in all? Now put 12 counters on just 1 plate. How many counters now?
- 2 Teach** (10 min) Write $12 \times 0 = 0$: 12 plates with nothing on them is nothing. Write $0 \times 12 = 0$: no plates at all is nothing too. Then $1 \times 12 = 12$: 1 group of 12 is 12. And $12 \times 1 = 12$: 12 groups with 1 in each is 12. Try big numbers: $0 \times 50 = 0$ and $1 \times 50 = 50$. The rules work for every number.
| Say: "Times 0 is always 0. Times 1 is always the same number."
- 3 Try it together** (10 min) Hold up fact cards like 0×25 , 1×18 , 30×1 and 0×0 . Students show the product on whiteboards and say the rule. Then fill in boxes together: $\square \times 1 = 12$ and $15 \times \square = 0$.
- 4 Practice** (15 min) Students solve the 0 and 1 facts and the missing numbers on sheet 3 of Facts With 0, 1, 2, 5 and 10. Early finishers write a fact for each picture on sheet 3 of Properties of Operations.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 1.7** and circle a face beside the "I can" line. Look for 7, 0, 6 and 0, then 8 in the first box and 0 in the second. A student who writes 5 for 0×5 or 8 for 8×0 used the times 1 rule; 1 for 1×7 means times 1 was read as "makes 1".

Need help? Act out each fact with plates and counters before writing it.

Ready for more? Write a story for 1×45 and one for 0×45 .

GET READY

- Paper plates and counters
- Whiteboards and markers
- Fact cards with 0 and 1, and a few with big numbers

WORDS TO USE

zero: nothing: no groups, or groups with nothing in them

times 1: one group, or one in each group

rule: something that is true for every number

ASK

- What is 0 groups of 40? Why?
- How many is 1 group of 30?
- Which rule helps with 1×63 ?

WATCH FOR

Thinks times 0 gives the number back, as adding 0 does. Act it out with empty plates: nothing on any plate is nothing in all.

Thinks times 1 makes 1. One group of a number is that number: one bag of 30 marbles holds 30.

Gets stuck on 0×0 or 1×1 . Use the rules: times 0 is 0, times 1 is the same number.

ON ANIMAL MATH

PRINTABLE

Facts With 0, 1, 2, 5 and 10: sheet 3

PRINTABLE

Properties of Operations: sheet 3, for early finishers

MAKER

Multiplication Fact Drills: Times Tables: 0s and 1s

QUIZ

Multiplication Quiz: the 2s, 5s and 10s level

EXIT TICKET

3rd Grade Multiplication Exit Tickets: Exit Ticket 1.7

Multiplication

Lesson 1.8: Multiplication stories

GOAL Students solve equal groups and array stories: they find the groups (or rows) and how many are in each, write a multiplication sentence and answer with the unit.

About 45 minutes

I can solve equal groups and array stories.

THE LESSON

- 1 Warm up** (5 min) Read: "There are 3 spiders. Each spider has 8 legs." Students draw it and write the adding sentence and the multiplication sentence.
- 2 Teach** (10 min) Read: "Mia has 3 packs of stickers. Each pack has 9 stickers. How many stickers?" Underline the groups (3 packs) and how many in each (9). Draw 3 boxes with 9 in each, write $3 \times 9 = 27$ and answer: 27 stickers. Then an array story: "A garden has 4 rows of 6 plants." Write $4 \times 6 = 24$ plants.
Say: "Find the groups and how many are in each. Write the multiplication sentence. Answer with the unit."
- 3 Try it together** (10 min) Partners solve story cards, one equal groups story and one array story: one reads and draws, the other writes the sentence and the answer with its unit. Include a story that gives the groups second.
- 4 Practice** (15 min) Students solve the equal groups stories on sheet 1 and the array stories on sheet 2 of Multiplication and Division Word Problems. Early finishers write an equal groups story of their own for a partner to solve.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 1.8** and circle a face beside the "I can" line. Look for $9 \times 2 = 18$ marbles and $10 \times 5 = 50$ seats. A student who writes 11 or 15 added the numbers; an answer with no unit, or with "rows", is not finished.

Need help? Act the story out with cups and counters, then write the sentence.

Ready for more? Write an equal groups story and an array story for 6×7 , and draw each one.

GET READY

- Story cards with equal groups and arrays
- Counters and cups
- Whiteboards and markers

WORDS TO USE

each: every group has this many

in all: the total

unit: what the answer counts, like stickers or plants

ASK

- How many groups are there? How many in each?
- Is this an equal groups story or an array story?
- What does your answer count?

WATCH FOR

Adds the two numbers in the story. Draw the groups first, then decide.

Writes the answer without its unit. Ask: 27 what? Point back to the question.

Writes the numbers in the order the story gives them. Find the groups first, wherever they are.

ON ANIMAL MATH

PRINTABLE

Multiplication and Division Word Problems: sheets 1-2

MAKER

Word Problems: Multiplication only, Number Range 1-10

QUIZ

Multiplication Quiz: the Equal Groups level

EXIT TICKET

3rd Grade Multiplication Exit Tickets: Exit Ticket 1.8

Multiplication

Lesson 1.9: One fact many ways

GOAL Students show one multiplication fact in four ways (equal groups, an array, an addition sentence and equal jumps on a number line) and see that each way shows the same groups and the same product.

About 45 minutes

★ Taught in 3rd grade in some states

I can show one fact in four ways.

THE LESSON

- 1 Warm up** (5 min) Write $4 + 4 + 4 + 4 + 4 = 20$ on the board. Students write the multiplication sentence and tell what each number means.
- 2 Teach** (10 min) Write 4×6 in the middle of a four box chart. Box 1: draw 4 groups of 6. Box 2: draw 4 rows of 6. Box 3: write $6 + 6 + 6 + 6 = 24$. Box 4: draw 4 jumps of 6 on a number line, landing on 24. Point to the 4 and the 6 in every box.
Say: "Each picture shows 4 groups of 6. They look different, but the product is the same."
- 3 Try it together** (10 min) Partners pick a fact card (2×8 , 3×7 or 5×5), fold a paper into four boxes and each draw two of the ways. Every box must show the same groups and product.
- 4 Practice** (15 min) Students draw each array and write its adding sentence on sheet 3 of Arrays and Repeated Addition, then count the rows and the squares in each row and multiply on sheet 1 of Area of Rectangles.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 1.9** and circle a face beside the "I can" line. Look for 3 groups of 2 and 3 rows of 2, then $2 + 2 + 2 = 6$ and three jumps of 2 landing on 6. Drawing 2 groups of 3 shows the turn-around: the product is right, so ask which number is the groups.

Need help? Build the fact with counters first, then draw what you built in each box.

Ready for more? Show 7×3 a fifth way: as a story with a question.

GET READY

- Counters, cups and square tiles
- A number line from 0 to 30 for each student
- A sheet of paper folded into four boxes for each student

WORDS TO USE

equal groups: groups with the same number in each

array: things in equal rows

repeated addition: adding the same number again and again

ASK

- Where is the 4 in your array? Where is the 6?
- How do the jumps show the same thing as the adding?

WATCH FOR

Draws a different fact in one of the boxes.

Point to the groups and the number in each, box by box.

Adds the number the wrong number of times.

Count the addends: one for each group.

Starts the jumps at 1. Start at 0 and land on each multiple.

ON ANIMAL MATH

PRINTABLE

Arrays and Repeated Addition: sheet 3

PRINTABLE

Area of Rectangles: sheet 1

MAKER

Multiplication Arrays: Equation Type Repeated Addition

QUIZ

Multiplication Quiz: the Equal Groups level

EXIT TICKET

3rd Grade Multiplication Exit Tickets: Exit Ticket 1.9