

Odd, Even and Arrays

Unit 7 Overview: 10 lessons

Students pair things up to tell odd from even, find that every even number is a double, count by 2s, and use the ones digit to tell odd from even to 100. Then they add equal groups, add arrays by their rows and by their columns, draw arrays up to 5 by 5 and cut rectangles into rows and columns of squares. Everything is written as repeated addition, such as $4 + 4 + 4 = 12$. Lessons 7.4 and 7.5 (repeating and growing patterns) and 7.10 (sharing equally) are for the states that teach them in 2nd grade.

THE UNIT, DAY BY DAY

Day 1	Pre-Check	What students already know (page 1 of the test pack).
Day 2	7.1 Odd and even: pair them up	I can pair things up to tell odd from even.
Day 3	7.2 Even numbers are doubles; count by 2s	I can write a double and count by 2s.
Day 4	7.3 Odd or even to 100	I can use the ones digit to tell odd from even.
Day 5	7.4 Repeating patterns ★	I can find the core of a pattern and show it another way.
Day 6	7.5 Growing patterns ★	I can keep a growing pattern going.
Day 7	7.6 Equal groups	I can add equal groups to find how many in all.
Day 8	7.7 Arrays: rows and columns	I can add an array two ways.
Day 9	7.8 Build and draw arrays	I can draw an array.
Day 10	7.9 Squares in a rectangle	I can cut a rectangle into squares and count them.
Day 11	7.10 Share equally ★	I can share things equally and tell how many each gets.
Day 12	Unit Review	The review pages, to go over together.
Day 13	Unit Test	Form A; Form B (other numbers) is for a retest.

★ Taught in 2nd 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 or snap cubes, about 30 for each pair, and two ten frames for each student
- A hundreds chart for each student, crayons, and number cards 1 to 99
- Pattern blocks, and square tiles or grid paper for building arrays
- Paper plates or cups for equal groups and sharing, and whiteboards with dry erase markers

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

EXIT TICKET	2nd Grade Odd, Even and Arrays Exit Tickets: one for every lesson, four to a page
PRINTABLE	2nd Grade Odd, Even and Arrays Test: the Pre-Check, the Unit Review and the Unit Test (Forms A and B), with keys



Odd, Even and Arrays

Lesson 7.1: Odd and even: pair them up

GOAL Students pair up a group of up to 20 things, two by two, and call the number even when every one has a partner and odd when one is left over.

About 45 minutes

I can pair things up to tell odd from even.

THE LESSON

- 1 Warm up** (5 min) Ask 7 students to stand and hold hands with a partner. Is anyone left out? Try again with 8 students.
- 2 Teach** (10 min) Count out 18 cubes and snap them into pairs: 9 pairs and none left over, so 18 is even. Then 7 cubes: 3 pairs and 1 left over, so 7 is odd. Put the 7 counters in a ten frame, filling each column of two from the left: the one alone at the end shows odd.
Say: "If every one has a partner, the number is even. If one is left over, it is odd."
- 3 Try it together** (10 min) Pull number cards 5 to 20. Partners build each number in pairs of cubes, say "even" or "odd" and record it in a two-column chart. Include numbers one more than an even number: they are odd.
- 4 Practice** (15 min) Students circle the pairs and circle odd or even on sheet 1 of Odd and Even Numbers to 100, then solve the stories on sheet 5 by drawing a dot for each one and pairing them up. Early finishers sort numbers on sheets 1 and 2 of Odd & Even: Sort into Columns.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 7.1** and circle a face beside the "I can" line. 12 butterflies is even; 9 dots is odd. Look for loops of two in the drawing: a student who circles odd without pairing the dots may be guessing.

Need help? Pair up numbers to 10 with cubes before drawing, one pair at a time.

Ready for more? Find the odd and even numbers from 1 to 20 and tell what pattern they make.

GET READY

- 20 counters or cubes for each pair
- Two ten frames for each student
- Number cards 5 to 20

WORDS TO USE

pair: two things that go together

even: every one has a partner

odd: one is left over with no partner

ASK

- Does every one have a partner?
- Is 5 odd or even? Show me with cubes.
- What happens when you add one more to an even number?

WATCH FOR

Pairs things that are far apart and loses track. Push each pair together, or cross off two at a time.

Calls a number odd because it is big or small. Build it: is one left over?

Gives the number of pairs as the answer. Ask how many in all, then whether one is left over.

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PRINTABLE

Odd and Even Numbers to 100: sheets 1 and 5

PRINTABLE

Odd & Even: Sort into Columns: sheets 1-2, for early finishers

MAKER

Odd & Even Numbers: Mode Sort Into Columns, Number Range Within 20

TOOL

Ten Frames: two rows of five show the pairs

QUIZ

Odd, Even and Arrays Quiz: the Odd or Even level

EXIT TICKET

2nd Grade Odd, Even and Arrays Exit Tickets: Exit Ticket 7.1

Odd, Even and Arrays

Lesson 7.2: Even numbers are doubles; count by 2s

GOAL Students see that an even number makes two equal rows, so it is a double ($4 + 4 = 8$), while an odd number has one row one longer ($5 + 4 = 9$), and they count by 2s from even and from odd numbers.

About 45 minutes

I can write a double and count by 2s.

THE LESSON

- 1 Warm up** (5 min) Quick doubles: $3 + 3$, $4 + 4$, $11 + 11$, $20 + 20$. Students write the sums on whiteboards and hold them up.
- 2 Teach** (10 min) Lay 8 counters in two rows of 4. Write $4 + 4 = 8$: two equal rows make a double, so 8 is even. Add one counter to the top row: $5 + 4 = 9$, one row is one longer, so 9 is odd. Then color 2, 4, 6 up to 30 on a hundreds chart: each even number is 2 more than the one before.
| Say: "An even number can make two equal rows. That is a double."
- 3 Try it together** (10 min) Partners take a handful of counters, make two rows and write the number sentence ($3 + 3 = 6$ or $4 + 3 = 7$), then say odd or even. Then count by 2s around the room from 2 to 40, and again from 1 to 41.
- 4 Practice** (15 min) Students add the two rows and circle odd or even on sheet 2 of Odd and Even Numbers to 100, then count by 2s on its rows. Then they fill in the even numbers on Hundreds Chart - Even Numbers.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 7.2** and circle a face beside the "I can" line. $10 + 10 = 20$, even. The missing numbers are 16, 20, 22 and 83, 85, 89. A student who writes 15 after 14 counted by 1s.

Need help? Build small doubles with cubes in two colors, one color a row.

Ready for more? Write every even number from 20 to 40 as a double, or count back by 2s from 100.

GET READY

- 20 counters for each pair
- A hundreds chart for each student and crayons
- Whiteboards and markers

WORDS TO USE

double: a number added to itself, like $3 + 3$

equal rows: rows with the same number in each

count by 2s: say every other number: 2, 4, 6, 8

ASK

- Can you make two equal rows with 6? With 7?
- What double makes 22?
- What comes after 31 when you count by 2s?

WATCH FOR

Counts by 2s on even numbers only, so 35, 37 goes on to 38. Start at an odd number on the hundreds chart and skip one box each time.

Calls $4 + 5 = 9$ a double. Build both rows side by side: a double has equal rows.

Calls a number even because its rows look long. Look for one that sticks out at the end of a row.

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PRINTABLE

Odd and Even Numbers to 100: sheet 2

PRINTABLE

Hundreds Chart - Even Numbers: sheet 1

MAKER

Hundreds Chart: Mode Even Numbers, Chart Size 1 to 100

TOOL

Hundreds Chart: Skip Count Highlight 2s

QUIZ

Odd, Even and Arrays Quiz: the Doubles level

EXIT TICKET

2nd Grade Odd, Even and Arrays Exit Tickets: Exit Ticket 7.2

Odd, Even and Arrays

Lesson 7.3: Odd or even to 100

GOAL Students tell whether any number to 100 is odd or even by its ones digit: numbers that end in 0, 2, 4, 6 or 8 are even and numbers that end in 1, 3, 5, 7 or 9 are odd, whatever the tens digit is.

About 45 minutes

I can use the ones digit to tell odd from even.

THE LESSON

- 1 Warm up** (5 min) Show a hundreds chart colored by 2s. What do you notice about the colored columns? What do their numbers end in?
- 2 Teach** (10 min) Write 64 and 39. Build 64 as 6 tens and 4 ones: the tens always pair up, so only the 4 ones decide, and 64 is even. 39 has 9 ones, one left over, so it is odd. Circle the ones digit each time. Then show 16 and 25: the 1 in 16 is odd, but 16 is even, because the tens pair up.
| Say: "Look at the ones digit. The tens always make pairs."
- 3 Try it together** (10 min) Hand out number cards 21 to 99. Students cover the tens digit with a finger, put the card on the odd or even mat and tell why. Include cards like 18 and 43, where the tens digit and the ones digit do not match.
- 4 Practice** (15 min) Students write the ones digit and circle odd or even on sheet 3 of Odd and Even Numbers to 100, then sort the numbers and find the next even or odd number on sheet 4.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 7.3** and circle a face beside the "I can" line. The even numbers are 34, 56, 98 and 72. A student who circles 83, 61, 45 and 27 is reading the tens digit. Then 70 is even and 89 is odd.

Need help? Use the colored hundreds chart: find the number and see whether its box is colored.

Ready for more? Tell whether 100 and 101 are odd or even, and explain how you know without building them.

GET READY

- The hundreds charts colored in lesson 7.2
- Number cards 21 to 99
- Two sorting mats labeled odd and even

WORDS TO USE

ones digit: the last digit, like the 9 in 39

tens digit: the first digit, like the 3 in 39

even: ends in 0, 2, 4, 6 or 8

ASK

- Which digit tells odd or even? Why not the other one?
- Is 94 odd or even? What about 25?
- What is the next even number after 35?

WATCH FOR

Reads the tens digit and calls 43 even. Cover the tens digit with a finger and read only the ones.

Thinks 0 is not even, so calls 50 odd. Build 50 with tens: they pair up with nothing left over.

Gives 37 as the next even number after 35. Count on by 1s from 35 and stop at the first number that ends in 0, 2, 4, 6 or 8.

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PRINTABLE

Odd and Even Numbers to 100: sheets 3-4

MAKER

Odd & Even Numbers: Mode Write Odd or Even, Number Range Within 100

TOOL

Hundreds Chart: Skip Count Highlight 2s

QUIZ

Odd, Even and Arrays Quiz: the Odd or Even level

EXIT TICKET

2nd Grade Odd, Even and Arrays Exit Tickets: Exit Ticket 7.3

Odd, Even and Arrays

Lesson 7.4: Repeating patterns

GOAL Students find the core of a repeating pattern, the part that repeats, name it with letters (A A B) and show the same pattern another way: with numbers, other shapes, or claps and snaps.

About 45 minutes

★ Taught in 2nd grade in some states

I can find the core of a pattern and show it another way.

THE LESSON

- 1 Warm up** (5 min) Clap, clap, snap; clap, clap, snap. Students join in, then tell what comes next and how many claps come before each snap.
- 2 Teach** (10 min) Draw triangle, triangle, square, triangle, triangle, square. Find the core by circling the first part that repeats: triangle, triangle, square. Name it A A B. Show it again with numbers, 1 1 2 1 1 2, and with cubes, red red blue. Then show red blue blue red blue blue and ask whether it is the same pattern. Its letters are A B B, so it is not.
Say: "Find the part that repeats. Its letters tell the pattern, whatever the shapes are."
- 3 Try it together** (10 min) Partners build a pattern with a core of three or four, swap it with another pair, find the core, name it with letters and build the same pattern with other blocks. Include a core longer than three, like A B B C.
- 4 Practice** (15 min) Students circle the core and write it with letters on sheet 1 of Repeating Patterns for 2nd Grade, then circle every pattern that matches the animals on sheet 3. Early finishers draw what goes in the far spots on sheet 2.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 7.4** and circle a face beside the "I can" line. The next two shapes are stars and the core is A A B. With 1 for a circle and 2 for a square, the pattern is 1 2 2 1 2 2. Watch for a core that names each shape once (A B) instead of the part that repeats.

Need help? Work with cores of two (A B) first, built with two colors of cubes.

Ready for more? Make a pattern with a core of four for a partner, then write it with letters and with numbers.

GET READY

- Pattern blocks or snap cubes in three colors
- Paper strips for building patterns on
- Whiteboards and markers

WORDS TO USE

pattern: something that repeats in the same order

core: the part that repeats

same pattern: a pattern with the same letters, even with other shapes or numbers

ASK

- Where does the pattern start over?
- What letters name this pattern?
- How can you show the same pattern with numbers?

WATCH FOR

Circles a core that is too short, like triangle, square. Say the pattern aloud and point to where it starts over.

Gives every shape a new letter: A B C D E F. Use the same letter each time the same shape comes back.

Thinks a pattern with new shapes is a new pattern. Write the letters under both; if they match, it is the same pattern.

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PRINTABLE

Repeating Patterns for 2nd Grade: sheets 1 and 3, then 2

TOOL

Pattern Blocks: build the pattern in a row

EXIT TICKET

2nd Grade Odd, Even and Arrays Exit Tickets: Exit Ticket 7.4

Odd, Even and Arrays

Lesson 7.5: Growing patterns

GOAL Students tell how a growing pattern grows from one step to the next, draw the next step and count it, and keep a number pattern going that grows by the same amount each time.

I can keep a growing pattern going.

About 45 minutes

★ Taught in 2nd grade in some states

THE LESSON

- 1 Warm up** (5 min) Count by 2s from 6 to 20, then by 3s from 2 to 20. What do you add each time?
- 2 Teach** (10 min) Build step 1 with 4 cubes: a row of 3 with 1 cube under the middle. Step 2 has 6: the row grows to 5. Step 3 has 8. Ask what changed: one more cube at each end of the row, so it grows by 2. Build step 4 together and count: 10. Write 4, 6, 8, 10 and show that the numbers grow by 2 too.
Say: "Look at what changes from one step to the next. That is how it grows."
- 3 Try it together** (10 min) Pairs build steps 1 to 3 of a cube pattern you give them (a tower that grows by 1, a row that grows by 3), then build step 4 and write the counts. Then they make their own growing pattern for another pair to continue.
- 4 Practice** (15 min) Students draw step 4 and write how many in steps 4, 5 and 6 on sheet 4 of My First Growing Patterns, then write the rule for each pattern on sheet 5.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 7.5** and circle a face beside the "I can" line. Step 4 has 9 cubes (5 on the bottom, 4 on top), and the numbers go on 13, 16. A student who writes 11, 12 grew by 1 instead of 3.

Need help? Start with patterns that grow by 1, building each step from the one before.

Ready for more? Find how many cubes step 10 has, or make a pattern that grows by 3 for a partner.

GET READY

- Snap cubes, about 30 for each pair
- Pattern blocks
- Whiteboards and markers

WORDS TO USE

step: one picture of the pattern: step 1, step 2, step 3

grows by: how many more each step has than the step before

rule: what happens each time, like add 2

ASK

- What changes from step 2 to step 3?
- How many cubes will step 5 have? How do you know?
- How is this different from a repeating pattern?

WATCH FOR

Draws step 4 the same as step 3. Point to what was added between steps 2 and 3 and add the same again.

Adds a different amount each step. Write the counts in a row and the difference between each pair under them.

Counts only the new cubes as the step. A step is the whole picture: count every cube in it.

ON ANIMAL MATH

PRINTABLE

My First Growing Patterns: sheets 4-5 (sheets 1-2 for students who need help)

TOOL

Pattern Blocks: build each step with blocks

EXIT TICKET

2nd Grade Odd, Even and Arrays Exit Tickets: Exit Ticket 7.5

Odd, Even and Arrays

Lesson 7.6: Equal groups

GOAL Students find how many in all in equal groups by adding the same number again, write it as a repeated addition sentence ($2 + 2 + 2 + 2 + 2 = 10$) and say it as “5 groups of 2.”

About 45 minutes

I can add equal groups to find how many in all.

THE LESSON

- 1 Warm up** (5 min) Count by 5s to 30 and by 2s to 20. How many fingers are on 5 hands?
- 2 Teach** (10 min) Put 2 counters on each of 5 plates. How many groups? 5. How many in each? 2. Write 5 groups of 2, then $2 + 2 + 2 + 2 + 2 = 10$, adding one plate at a time: 2, 4, 6, 8, 10. Then put 4, 3 and 5 on three plates and ask whether these are equal groups. They are not, so there is no “groups of” sentence.
Say: “Equal groups have the same number in each. I add that number once for each group.”
- 3 Try it together** (10 min) Partners build equal groups on plates from cards (3 groups of 2, 2 groups of 3, 2 groups of 4), write the “groups of” sentence and the addition sentence, and check by counting. Talk about why 3 groups of 2 and 2 groups of 3 have different sentences but the same total.
- 4 Practice** (15 min) Students write how many groups, how many in each and the addition on sheet 1 of Arrays and Repeated Addition, then write the legs as addition on sheet 4 of How Many Legs? Early finishers count legs by 2s and 4s on its sheets 2 and 3, or work back from the legs on sheet 6.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 7.6** and circle a face beside the “I can” line. 4 groups of 4 is $4 + 4 + 4 + 4 = 16$, and 4 bags of 5 pears is $5 + 5 + 5 + 5 = 20$. Watch for $4 + 5 = 9$, which adds the numbers in the story instead of the groups.

Need help? Use 2 or 3 groups of 2 to 5 on real plates, counting all, then counting on.

Ready for more? Find 5 groups of 5 and tell a story for it, or find two different equal groups that make 12.

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PRINTABLE **Arrays and Repeated Addition:** sheet 1

PRINTABLE **How Many Legs?** sheet 4, then 2–3 and 6 for early finishers

PRINTABLE **Multiplication as Equal Groups:** sheets 1–2, for more practice (its later sheets are 3rd grade)

EXIT TICKET **2nd Grade Odd, Even and Arrays Exit Tickets:** Exit Ticket 7.6

GET READY

- Paper plates or cups, 5 for each pair
- 30 counters for each pair
- Whiteboards and markers

WORDS TO USE

equal groups: groups with the same number in each

groups of: how many groups and how many in each: 5 groups of 2

repeated addition: adding the same number again and again

ASK

- How many groups? How many in each?
- Why does the sentence have five 2s?
- Are these groups equal? How can you tell?

WATCH FOR

Adds the number of groups and the number in each: $5 + 2 = 7$. Draw the groups, write the number inside each one, then add those numbers.

Writes one addend too many or too few. Touch each group as you write its number.

Mixes up 5 groups of 2 and 2 groups of 5. Say the groups first: 5 plates, 2 on each plate.

Odd, Even and Arrays

Lesson 7.7: Arrays: rows and columns

GOAL Students see an array as rows (across) and columns (up and down), add it by its rows and by its columns, and find that both ways give the same total.

About 45 minutes

I can add an array two ways.

THE LESSON

- 1 Warm up** (5 min) Show an egg carton. How many rows? How many in each row? How many eggs? Take answers, and how students found them.
- 2 Teach** (10 min) Build 5 rows of 2 tiles. Run a finger across each row: $2 + 2 + 2 + 2 + 2 = 10$. Then run a finger down each column: $5 + 5 = 10$. Both ways give 10, because they are the same tiles. Turn the array a quarter turn: the rows become columns, and the rows sentence is now $5 + 5$.
Say: "Rows go across. Columns go up and down. Adding either way gives the same total."
- 3 Try it together** (10 min) Partners build arrays from cards (5 rows of 3, 2 rows of 2, 5 rows of 5), write a rows sentence and a columns sentence, and check that the totals match. Have them lay a pencil across a row, then up and down a column.
- 4 Practice** (15 min) Students add the rows and then the columns on sheet 2 of Arrays and Repeated Addition, then write the star arrays as rows and as addition on sheet 2 of Veterans Day Math. A Multiplication Arrays maker sheet set to Repeated Addition gives more practice.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 7.7** and circle a face beside the "I can" line. Rows: $2 + 2 + 2 = 6$; columns: $3 + 3 = 6$. The dots are 5 rows and 4 columns. Look for rows and columns swapped.

Need help? Build arrays with tiles up to 3 by 3 and say each row's number as you add it.

Ready for more? Build an array of 5 rows of 5, write both sentences, and tell why they are the same.

GET READY

- Square tiles or counters, 25 for each pair
- An egg carton or muffin pan to show
- Whiteboards and markers

WORDS TO USE

array: things in equal rows and equal columns

row: a line of things going across

column: a line of things going up and down

ASK

- Show me a row. Now show me a column.
- Why do the rows and the columns give the same total?
- What would the rows sentence be if you turned the array?

WATCH FOR

Mixes up rows and columns. Rows go across, like rows of seats. Trace one with a finger first.

Adds the number of rows and columns:
 $5 + 2 = 7$. Ask how many are in one row, and add that for every row.

Writes the number of rows as each addend.
Count one row out loud, then write that number once for each row.

ON ANIMAL MATH

PRINTABLE

Arrays and Repeated Addition: sheet 2

PRINTABLE

Veterans Day Math: sheet 2

MAKER

Multiplication Arrays: Equation Type Repeated Addition, Problem Type Rows and Columns

QUIZ

Odd, Even and Arrays Quiz: the Arrays level

EXIT TICKET

2nd Grade Odd, Even and Arrays Exit Tickets: Exit Ticket 7.7

Odd, Even and Arrays

Lesson 7.8: Build and draw arrays

GOAL Students build and draw an array from words (5 rows of 2) or from a sum ($3 + 3 + 3 + 3 + 3$), up to 5 rows and 5 columns, and write its addition sentence and total.

About 45 minutes

I can draw an array.

THE LESSON

- 1 **Warm up** (5 min) Show an array of 5 rows of 3 dots for 3 seconds, then hide it. How many rows? How many in each? How many in all?
- 2 **Teach** (10 min) Draw 5 rows of 2 dots, one row at a time, each dot right under the one above so the columns are straight. Write $2 + 2 + 2 + 2 + 2 = 10$. Then read $3 + 3 + 3 + 3 + 3$ and draw it: each 3 is a row, so 5 rows of 3 dots. Show a messy drawing with the dots out of line and ask why it is hard to count.
Say: "Each addend is one row. Line the dots up so the columns are straight."
- 3 **Try it together** (10 min) Call out arrays in words and as sums (2 rows of 2, $2 + 2 + 2 + 2 + 2$, 5 rows of 3). Students draw each one on whiteboards and hold it up; partners check the rows and columns by tracing them. End with $5 + 5 + 5 + 5 + 5$, the largest array.
- 4 **Practice** (15 min) Students draw a dot for each one and fill in the blanks on sheet 3 of Arrays and Repeated Addition, then draw arrays for the stories on sheet 5 and write a number sentence for each.
- 5 **Exit ticket** (5 min) Students do **Exit Ticket 7.8** and circle a face beside the "I can" line. Question 1 is 4 rows of 4 dots and $4 + 4 + 4 + 4 = 16$. Question 2 asks for rows of 5, so it is 4 rows of 5, 20 in all. Look for rows of different lengths.

Need help? Build each array with tiles on a grid first, then draw it dot by dot.

Ready for more? Make up an array story with up to 5 rows and 5 columns for a partner to draw.

GET READY

- Square tiles or counters, 25 for each pair
- Dot paper or grid paper
- Whiteboards and markers

WORDS TO USE

array: equal rows and equal columns

addend: a number being added; in $3 + 3 + 3 + 3 + 3$ each 3 is an addend

in all: the total

ASK

- How many rows will you draw? How many in each row?
- How does your drawing show $3 + 3 + 3 + 3 + 3$?
- How can you check that your rows are equal?

WATCH FOR

Draws rows of different lengths. Draw the first row, then put each new dot right under one in the row above.

Makes each row as long as the number of addends. Point to each addend and draw one row for it.

Draws all the dots in one long row. Ask for the rows first: one row for each addend.

ON ANIMAL MATH

PRINTABLE

Arrays and Repeated Addition: sheets 3 and 5

QUIZ

Odd, Even and Arrays Quiz: the Arrays level

EXIT TICKET

2nd Grade Odd, Even and Arrays Exit Tickets: Exit Ticket 7.8

Odd, Even and Arrays

Lesson 7.9: Squares in a rectangle

GOAL Students cut a rectangle into rows and columns of same-size squares, by joining the marks on its edges or by drawing the lines themselves, and count the squares by rows.

About 45 minutes

I can cut a rectangle into squares and count them.

THE LESSON

- 1 Warm up** (5 min) Show a picture of a window with panes or a chocolate bar. How many rows? How many columns? How many pieces?
- 2 Teach** (10 min) Cover a paper rectangle with square tiles: 4 rows of 6, no gaps, no overlaps. Lift the tiles and draw lines where their edges were, using the marks on the edges to keep the squares the same size. Count the squares by rows: $6 + 6 + 6 + 6 = 24$. Then cut a rectangle with no marks into 5 rows of 2: one line down the middle, then four lines across.
Say: "Same-size squares, no gaps and no overlaps. Then I count them by rows."
- 3 Try it together** (10 min) Partners cover rectangles with tiles, then draw the lines. Give each pair one rectangle with marks on the edges and one without, and ask how many squares there will be before they start.
- 4 Practice** (15 min) Students count the rows and columns of squares, then cut rectangles into squares along the marks, on sheet 4 of Arrays and Repeated Addition. Early finishers draw rectangles on grid paper for a partner to count.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 7.9** and circle a face beside the "I can" line. The marked rectangle is 3 rows of 6, 18 squares. The second becomes 2 rows of 6, 12 squares; check that the lines make squares about the same size.

Need help? Cover the rectangle with tiles first, then trace around each tile.

Ready for more? Draw a rectangle 5 squares by 6 squares on grid paper, predict how many squares it holds, then count to check.

GET READY

- Square tiles, 20 for each pair
- Paper rectangles, some with marks on the edges, and rulers
- Grid paper with 1 inch squares

WORDS TO USE

rectangle: a shape with four square corners

same-size squares: squares all as big as each other, with no gaps and no overlaps

rows and columns: squares lined up across and up and down

ASK

- How do the marks help you?
- How many squares are in one row? How many rows?
- Are all your squares the same size? How can you tell?

WATCH FOR

Draws lines that miss the marks, so the squares are different sizes. Lay a ruler from one mark to the mark across from it before drawing.

Counts the lines instead of the squares. Count the spaces between the lines, one square at a time.

Draws lines one way only and makes strips. Ask whether those are squares, then draw the lines the other way too.

ON ANIMAL MATH

PRINTABLE

Arrays and Repeated Addition: sheet 4

MAKER

Graph Paper: Paper Type Square Grid, Square Size 1 Inch

EXIT TICKET

2nd Grade Odd, Even and Arrays Exit Tickets: Exit Ticket 7.9

Odd, Even and Arrays

Lesson 7.10: Share equally

GOAL Students share a group of things equally among 2 to 5 people by dealing them out one at a time, and tell how many each one gets and whether any are left over.

I can share things equally and tell how many each gets.

About 45 minutes

★ Taught in 2nd grade in some states

THE LESSON

- 1 Warm up** (5 min) Hand 3 students 7 pencils. Is it fair if one gets 3 and the others get 2? How could we make it fair?
- 2 Teach** (10 min) Share 18 counters on 3 plates by dealing them out: one for you, one for you, one for you, again and again until none are left. Count each plate: 6, 6 and 6. Say it: 18 shared by 3 is 6 each. Check by adding $6 + 6 + 6 = 18$. Then share 14 on 3 plates: 4 each and 2 left over, so 14 does not share equally among 3.
Say: "Deal them out one at a time. When they are all gone, every plate should have the same."
- 3 Try it together** (10 min) Pairs act out story cards (20 crackers for 4 friends, 14 grapes for 2, 9 stickers for 3), deal counters onto plates and write how many each gets. Include one story with some left over and talk about what to do with them.
- 4 Practice** (15 min) Students share among 3 friends on sheet 3 of Sharing Equally, deal things out on sheet 4 and solve the stories on sheet 5. That pack stops at 15 and never shares among more than 3 friends, so put stories to 20 for 4 or 5 friends on the board for students who are ready.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 7.10** and circle a face beside the "I can" line. 10 strawberries on 2 plates is 5 on each, and 16 stickers for 4 friends is 4 each. A student who writes 12 or 20 took away or added the numbers in the story.

Need help? Share small groups between 2 people first, with real things and two plates.

Ready for more? Share 24 among 2, then 3, then 4, and tell how the share changes as more people share.

GET READY

- Counters or small snacks, 20 for each pair
- Paper plates, 4 for each pair
- Story cards with sharing problems

WORDS TO USE

share equally: give each one the same number

fair share: a share where everyone gets the same

left over: what is left when there is not enough for one more each

ASK

- How do you know each plate has the same?
- How can you check your share by adding?
- If one more friend came, would each get more or fewer?

WATCH FOR

Gives some plates more than others. Deal one at a time around all the plates, then count each plate.

Answers with the total instead of one share. Point to one plate and ask how many are on it.

Adds the numbers in the story: $20 + 4$. Act it out with counters: are we putting together or sharing out?

ON ANIMAL MATH

PRINTABLE

Sharing Equally: sheets 3-5

EXIT TICKET

2nd Grade Odd, Even and Arrays Exit Tickets: Exit Ticket 7.10