

Shapes and Shares

Unit 11 Overview: 11 lessons

Students learn what makes a shape that shape: they count sides and corners, find out that color, size and turn do not change a triangle, draw shapes from clues and find square corners. Then they name solid shapes, test which ones roll and stack, and build new shapes from solid and flat ones. The last four lessons cut circles and rectangles into equal shares, halves and fourths (quarters), and use them in sharing stories. Thirds wait for 2nd grade, so the plans say which shapes on each sheet to skip.

THE UNIT, DAY BY DAY

Day 1	Pre-Check	What students already know, before the first lesson.
Day 2	11.1 Flat shapes: sides and corners	I can count the sides and corners of a shape.
Day 3	11.2 What makes a triangle a triangle	I can tell if a shape is a triangle.
Day 4	11.3 Draw shapes from clues	I can draw shapes from clues.
Day 5	11.4 Square corners	I can find square corners.
Day 6	11.5 Solid shapes: faces, roll or stack	I can tell which solid shapes roll and stack.
Day 7	11.6 Build with solid shapes	I can build with solid shapes.
Day 8	11.7 Put flat shapes together	I can put flat shapes together.
Day 9	11.8 Equal or not equal shares	I can tell if shares are equal.
Day 10	11.9 Halves	I can cut a shape into halves.
Day 11	11.10 Fourths, quarters and smaller shares	I can cut fourths and tell which share is bigger.
Day 12	11.11 Sharing stories	I can solve sharing stories.
Day 13	Unit Review	The review, to go over together.
Day 14	Unit Test	Form A; Form B (other numbers) is for a retest.

GET READY FOR THE UNIT

- Pattern blocks, and solid shapes (cube, rectangular prism, cylinder, cone, sphere, pyramid) or real boxes, cans and balls
- Geoboards and rubber bands if you have them, and square dot paper
- An index card for each student, to check square corners
- Paper circles, squares and rectangles to fold and cut, scissors and crayons

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



Shapes and Shares

Lesson 11.1: Flat shapes: sides and corners

GOAL Students count the straight sides and the corners of flat shapes (triangle, square, rectangle, trapezoid, hexagon), name each shape from what they count, and see that a circle has no sides and no corners.

About 45 minutes

I can count the sides and corners of a shape.

THE LESSON

- 1 Warm up** (5 min) Shape hunt: students point to a shape in the room (a door, a clock, a window) and name it.
- 2 Teach** (10 min) Hold up a paper trapezoid. Run a finger along each side and count: 1, 2, 3, 4. Put a dot on each corner and count: 4. Do the same with a hexagon (6 and 6), then trace a circle: it is curved all the way, so no sides and no corners.
Say: "I put a dot where I start, so I know when I am back and I don't count a corner twice."
- 3 Try it together** (10 min) Partners trace a pattern block each, dot its corners and count. Record each block on a class chart: name, sides, corners. Include the hexagon (6), the trapezoid (4 sides that are not the same length) and the thin tan rhombus (4).
- 4 Practice** (15 min) Students count the sides and corners and write each name on sheet 1 of Flat Shapes: Sides and Corners, using the word bank. Early finishers draw a shape with 5 sides on dot paper and count its corners.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 11.1** and circle a face beside the "I can" line. A student who circles the house shape (5 corners) as the one with 6 lost track of the first corner.

Need help? Start with the triangle, square and rectangle, tracing each side with a finger as it is counted.

Ready for more? Draw two shapes that both have 4 sides but look different, or a shape with 5 sides, and name them.

GET READY

- A bag of pattern blocks for each pair
- Large paper shapes: triangle, square, rectangle, trapezoid, hexagon, circle
- Crayons to mark the corners

WORDS TO USE

side: a straight line on the edge of a shape

corner: the point where two sides meet

flat shape: a shape you can draw on paper

ASK

- How did you keep track of the corners?
- Why does a circle have no corners?
- Can a shape have 4 sides and 3 corners? Why not?

WATCH FOR

Counts a corner twice or skips one. Dot the first corner and go around one way until you are back at the dot.

Writes 1 side for a circle. Trace it with a finger: it is curved all the way, so 0 straight sides and 0 corners.

Names a shape by what it looks like ("a roof"). Count the sides together, then find the name with that many sides in the word bank.

ON ANIMAL MATH

PRINTABLE

Flat Shapes: Sides and Corners: sheet 1

PRINTABLE

Dot Paper and Isometric Paper: sheet 1 (dot paper), for early finishers

TOOL

Pattern Blocks: drag out each block and count its sides and corners

QUIZ

Shapes Quiz: the Flat Shapes level

EXIT TICKET

1st Grade Shapes and Equal Shares Exit Tickets: Exit Ticket 11.1

Shapes and Shares

Lesson 11.2: What makes a triangle a triangle

GOAL Students decide if a shape is a triangle by what makes it one: closed, with 3 straight sides and 3 corners. Color, size and turn do not matter; a gap, a curved side or a fourth side does.

About 45 minutes

I can tell if a shape is a triangle.

THE LESSON

- 1 Warm up** (5 min) Show a triangle, turn it upside down, then show a tiny one and a big blue one. Thumbs up if it is still a triangle.
- 2 Teach** (10 min) Write the triangle rules on the board: closed, 3 straight sides, 3 corners. Hold up each look-alike and check the rules: one has a gap, one a curved side, the arrow has 4 sides. Then hold up a long thin triangle and a turned one: they pass every rule.
Say: "A triangle is closed and has 3 straight sides. Its color, size and turn don't matter."
- 3 Try it together** (10 min) Pairs sort paper shapes into two loops, triangle and not a triangle, and name the rule each look-alike breaks. Include a long thin triangle, a turned one and a triangle with one rounded corner (not a triangle: it has a curve).
- 4 Practice** (15 min) Students circle every triangle and every rectangle on sheet 2 of Flat Shapes: Sides and Corners, then answer the yes or no and true or false questions on sheet 3.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 11.2** and circle a face beside the "I can" line. The gray upside-down triangle is a triangle; the one with a rounded corner is not. Both show who checks the rules, not the look.

Need help? Give a card with the three rules (closed, 3 straight sides, 3 corners) to tick for each shape.

Ready for more? Draw three triangles that look very different, or make a look-alike for a partner to catch.

GET READY

- Paper triangles of many sizes and colors, some long and thin
- Look-alikes: one with a gap, one with a curved side, an arrow with 4 sides
- Two yarn loops for sorting

WORDS TO USE

closed: no gaps: the sides all join up

straight: no curves and no bends

triangle: a closed shape with 3 straight sides and 3 corners

ASK

- Is it still a triangle if I turn it? How do you know?
- Which rule does this shape break?
- Can a triangle be long and thin?

WATCH FOR

Says a turned or long thin triangle is not a triangle. Count the sides and corners with them: closed, 3 and 3, so it is a triangle in any turn.

Circles a shape with a gap or a curved side. Trace the outline with a finger and stop at the gap or the curve: it breaks a rule.

Calls the arrow a triangle. Count its sides: 4 sides, so not a triangle.

ON ANIMAL MATH

PRINTABLE

Flat Shapes: Sides and Corners: sheets 2-3

PRINTABLE

Dot Paper and Isometric Paper: sheet 6 (geoboard dots), to draw triangles

QUIZ

Shapes Quiz: the Flat Shapes level

EXIT TICKET

1st Grade Shapes and Equal Shares Exit Tickets: Exit Ticket 11.2

Shapes and Shares

Lesson 11.3: Draw shapes from clues

GOAL Students read a clue (how many sides and corners, square corners, sides the same length), draw a shape that fits it on dot paper with straight lines, check it against the clue and name it.

About 45 minutes

I can draw shapes from clues.

THE LESSON

- 1 Warm up** (5 min) Shape riddles: "I have 3 sides and 3 corners. What am I?" Then "I have no sides and no corners," and "I have 6 sides."
- 2 Teach** (10 min) Show the clue "4 sides and 4 corners. The top is shorter than the bottom." On dot paper, draw a long bottom side, then a shorter top, and join the ends: a trapezoid. Check it against each part of the clue. Then draw the hexagon clue, counting sides as you go.
Say: "I read the clue, I join dots with straight lines, then I check my shape against the clue."
- 3 Try it together** (10 min) Read a clue; pairs make the shape on a geoboard or dot paper and hold it up. Compare: many shapes fit "4 sides and 4 corners". Include "4 square corners, all sides the same length" (a square) and the hexagon.
- 4 Practice** (15 min) Students draw the shapes from the clues on sheet 4 of Flat Shapes: Sides and Corners and write each name. Early finishers draw a shape on a geoboard grid and write its clue for a partner.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 11.3** and circle a face beside the "I can" line. Count the sides of the hexagon drawing with them: 5 or 7 shows a student who did not check the clue. The diamond is the only shape with 4 sides and no square corners.

Need help? Make the shape on a geoboard first, then copy it dot for dot onto the paper.

Ready for more? Find two shapes that fit "4 sides and 4 corners" but are not rectangles, or write a clue with two parts.

GET READY

- Dot paper for each student
- Geoboards and rubber bands
- Clue cards for the shapes of this unit

WORDS TO USE

clue: a hint about the shape

dot paper: paper with dots to join

square corner: a corner like a page corner

ASK

- Does your shape fit every part of the clue?
- Can two different shapes fit the same clue?
- What clue would make someone draw your shape?

WATCH FOR

Draws curved or wobbly lines. Go straight from dot to dot along the edge of an index card.

Draws 5 sides for a 6 side clue. Count each side out loud while drawing, and look for the sixth before closing it.

Leaves a gap where the last side goes. Shapes are closed: join the last corner back to the first dot.

ON ANIMAL MATH

PRINTABLE

Flat Shapes: Sides and Corners: sheet 4

PRINTABLE

Dot Paper and Isometric Paper: sheet 1 (dot paper) or sheet 6 (geoboard dots)

MAKER

Graph Paper: Paper Type Square Dots, Square Size 1/2 Inch

QUIZ

Shapes Quiz: the Flat Shapes level

EXIT TICKET

1st Grade Shapes and Equal Shares Exit Tickets: Exit Ticket 11.3

Shapes and Shares

Lesson 11.4: Square corners

GOAL

Students find square corners by fitting the corner of an index card into them, mark them with a small square and count them, and see that a rectangle has 4 square corners in any turn.

About 45 minutes

I can find square corners.

THE LESSON

- 1 Warm up** (5 min) Square corner hunt: students find corners in the room (a book, a desk, a door) and test them with a card.
- 2 Teach** (10 min) Fit the card into each corner of a rectangle: it fits, so mark each with a small square. Try the red pattern block trapezoid: no corner fits; two are too sharp and two too open. Turn the rectangle: the corners still fit. Test a paper plate: a round edge has no corners.
Say: "If the corner of my card fits just right, it is a square corner. Turning the shape doesn't change its corners."
- 3 Try it together** (10 min) Partners test paper shapes with their cards and sort them: 4 square corners, some, none. Include a turned square (it looks like a diamond but has 4), a diamond that is not a square (none) and a house shape (3).
- 4 Practice** (15 min) Students count square corners on sheet 1 of Right Angles in Squares and Rectangles, circle the shapes with 4 on sheet 2, then mark corners of everyday things on sheet 3. Early finishers draw on sheet 4 and sort on sheet 5.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 11.4** and circle a face beside the "I can" line. The house shape has 3 square corners, not 5; the turned rectangle is the one with 4.

Need help? Check corners with the card on large paper shapes, one corner at a time, before the sheet.

Ready for more? Is a square a rectangle? Check its corners with the card and explain. Or draw a shape with exactly 2 square corners.

GET READY

- An index card for each student
- Paper shapes, some turned: squares, rectangles, a diamond, a trapezoid, a house
- A book, a sticky note and a paper plate

WORDS TO USE

square corner: a corner that fits the corner of a card

mark: draw a small square in the corner

ASK

- How do you know this corner is square?
- Does a big square have bigger corners than a small square?
- Is this diamond a square? How can you check?

WATCH FOR

Says a turned square has no square corners.

Fit the card into each corner: it still fits. Turn the paper back to show it.

Counts every corner, not just the square ones.

Test each corner with the card, mark the ones that fit, then count only the marks.

Marks a sharp corner (the yield sign) as square.

Fit the card in: a square corner touches both edges of the card, with no gap.

ON ANIMAL MATH

PRINTABLE

Right Angles in Squares and Rectangles: sheets 1-3, then 4-5 for early finishers

PRINTABLE

Dot Paper and Isometric Paper: sheet 6 (geoboard dots)

QUIZ

Shapes Quiz: the Flat Shapes level

EXIT TICKET

1st Grade Shapes and Equal Shares Exit Tickets: Exit Ticket 11.4

Shapes and Shares

Lesson 11.5: Solid shapes: faces, roll or stack

GOAL Students name the solid shapes (cube, rectangular prism, cylinder, cone, sphere, pyramid), find their flat faces, and use the faces and curved parts to tell which ones roll, which stack and which do both.

About 45 minutes

I can tell which solid shapes roll and stack.

THE LESSON

- 1 Warm up** (5 min) Mystery bag: a student feels a solid in a bag and tells about it (flat, curved, pointed); the class guesses.
- 2 Teach** (10 min) Hold up each solid and trace a face: a cube face is a square, a cylinder face a circle. Roll each one down the ramp and try a block on top. Show the rule: a curved part rolls, flat faces on the top and bottom stack. A cylinder does both; nothing stays on a cone's point.
Say: "A curved part lets it roll. Flat faces on the top and bottom let it stack."
- 3 Try it together** (10 min) Pairs test each solid on the ramp and with a block on top, then mark roll, stack or both on a class chart. Ask about the cone and the pyramid: they stand up, but can they hold a block?
- 4 Practice** (15 min) Students match solids to their names on sheet 1 of 3D Shapes, circle the shape of the shaded face on sheet 4 and fill in the roll and stack chart on sheet 5. Early finishers match real things on sheet 2.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 11.5** and circle a face beside the "I can" line. The cone rolls but does not stack; the cube and the cylinder stack, the sphere and the pyramid do not.

Need help? Test real things first (a ball, a can, a box) before the pictures of shapes.

Ready for more? Find a thing in the room that rolls, one that stacks and one that does both, or count the faces of a cube.

GET READY

- A set of solid shapes, or real things: a ball, a can, a box, a party hat, a number cube
- A ramp (a book on a block)
- Paper and crayons to trace faces

WORDS TO USE

solid shape: a shape you can hold, not flat like a drawing

face: a flat side of a solid shape

roll: turn over and over on a curved part

stack: hold a block on top without it falling off

ASK

- Which shapes can roll? What do they have that lets them?
- Why can't a block stay on top of a cone?
- What flat shape is a face of a cube?

WATCH FOR

Says a cylinder can only roll. Stand it on a flat face and put a block on top: it stacks too.

Calls a cube a square. A square is flat like a drawing; a cube is solid. Trace one face to show the square on it.

Says a cone stacks because it can stand up. Put a block on its point: it falls, so it does not stack.

ON ANIMAL MATH

PRINTABLE **3D Shapes:** sheets 1, 4 and 5, then sheet 2 for early finishers

PRINTABLE **Building with 3D Shapes:** sheet 3

QUIZ **Shapes Quiz:** the Solid Shapes level

EXIT TICKET **1st Grade Shapes and Equal Shares Exit Tickets:** Exit Ticket 11.5

Shapes and Shares

Lesson 11.6: Build with solid shapes

GOAL Students build with solid shapes, putting the shapes that stack at the bottom and pointed ones on top, and tell which blocks and how many of each made a build.
I can build with solid shapes.

About 45 minutes

THE LESSON

- 1 Warm up** (5 min) Show a cube, a cylinder and a cone. Students vote: which can go at the bottom of a tower, and which only on top?
- 2 Teach** (10 min) Build a small castle: 2 cubes side by side, a rectangular prism across them and a cone on top. Count each kind and write it down: 2 cubes, 1 prism, 1 cone, 4 blocks in all. Then cover one block with the cloth and ask which is gone.
Say: "The blocks that stack go at the bottom. A cone goes on top, because nothing can stay on its point."
- 3 Try it together** (10 min) Groups build from a card, then trade builds with another group, who checks the blocks and counts them. Include a card with 2 cones (both must go on top) and one with a sphere.
- 4 Practice** (15 min) Students count the shapes in the castle on sheet 1 of Building with 3D Shapes, circle the set of blocks that made each build on sheet 2 and find the missing block on sheet 4. Early finishers do sheet 5.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 11.6** and circle a face beside the "I can" line. Watch for a block counted twice. The build of 2 cubes and 1 cone is not the one with 1 cube and 2 cones: same blocks, other counts.

Need help? Copy the build from the picture with real blocks, then count the blocks they used.

Ready for more? Build the tallest tower that stands with 5 blocks and tell why the order matters, or draw a build for a partner to count.

GET READY

- A bin of solid blocks for each group: cubes, rectangular prisms, cylinders, cones
- Build cards that name the blocks to use ("2 cubes and 1 cone")
- A cloth to hide a block

WORDS TO USE

build: something made by putting blocks together

rectangular prism: a box shape, like a cereal box

how many in all: every block counted together

ASK

- Which block can't go at the bottom? Why?
- How many blocks did you use in all?
- Could you build it with other blocks?

WATCH FOR

Counts the same block twice in a picture.

Count one kind at a time and put a small dot on each block as it is counted.

Mixes up a cube and a rectangular prism. Look at the faces: a cube has only squares, a box shape has longer rectangles too.

Picks a set with the right blocks but the wrong number of each. Count each kind in the build and in the set, and check that the numbers match.

ON ANIMAL MATH

PRINTABLE **Building with 3D Shapes:** sheets 1, 2 and 4, then sheet 5 for early finishers

PRINTABLE **3D Shapes:** sheet 3 (count the shapes in a castle)

QUIZ **Shapes Quiz:** the Solid Shapes level

EXIT TICKET **1st Grade Shapes and Equal Shares Exit Tickets:** Exit Ticket 11.6

Shapes and Shares

Lesson 11.7: Put flat shapes together

GOAL Students put flat shapes together to make a new shape (two triangles make a square, two trapezoids make a hexagon, six triangles make a hexagon) and find the pieces in a shape made of shapes.

About 45 minutes

I can put flat shapes together.

THE LESSON

- 1 Warm up** (5 min) Hold up a yellow hexagon: how many green triangles will cover it? Students guess, then one checks with blocks: 6.
- 2 Teach** (10 min) On the board, set the tool's Shape to Fill to Hexagon and fill it with 2 trapezoids, then clear it and fill it with 3 blue rhombuses. Then put 2 green triangles together to make a blue rhombus. Show that the pieces cover the whole outline with no gaps and no overlaps.
Say: "Shapes can make new shapes. Two trapezoids make a hexagon."
- 3 Try it together** (10 min) Pairs fill a hexagon outline, then a big triangle, with pattern blocks as many ways as they can and record each way: 6 triangles, 2 trapezoids, 3 blue rhombuses, or 1 trapezoid and 3 triangles.
- 4 Practice** (15 min) Students circle the pairs that make each big shape and count the shapes in the robot on sheet 5 of Flat Shapes: Sides and Corners, then cut and glue the pieces on sheets 1 and 2 of Shape Puzzles.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 11.7** and circle a face beside the "I can" line. Two half squares (triangles) make the big triangle, not two squares or two half-circles; six triangles make the hexagon.

Need help? Start with outlines that show where each piece goes (Show Lines Inside the Shape in the tool), then take the lines away.

Ready for more? Fill the Fish or the Rocket in the tool with the fewest blocks, then the most, or fit the pieces on sheet 3 of Shape Puzzles.

ON ANIMAL MATH

PRINTABLE

Flat Shapes: Sides and Corners: sheet 5

PRINTABLE

Shape Puzzles: Composing Shapes: sheets 1-2, and sheet 3 for early finishers

TOOL

Pattern Blocks: Shape to Fill Hexagon, Big Triangle or Fish

QUIZ

Shapes Quiz: the Flat Shapes level

EXIT TICKET

1st Grade Shapes and Equal Shares Exit Tickets: Exit Ticket 11.7

GET READY

- Pattern blocks for each pair
- The Pattern Blocks tool on the board
- Shape outlines to fill: a hexagon and a big triangle

WORDS TO USE

put together: push shapes edge to edge to make a new shape

gap: an empty space between shapes

overlap: one shape on top of another

ASK

- What shapes did you use to make the hexagon? Is there another way?
- Are there any gaps? How do you know?
- Which two shapes make a square?

WATCH FOR

Leaves gaps or lets blocks overlap. Run a finger along the outline: every part covered, no block on top of another.

Circles a pair because the pieces look like the big shape. Try it with blocks or paper pieces before circling.

Counts 5 triangles in the hexagon. Put a dot on each piece as it is counted.

Shapes and Shares

Lesson 11.8: Equal or not equal shares

GOAL Students tell whether a circle or rectangle is cut into equal shares, all the same size, or not, and say why shares that are not equal are not fair.

About 45 minutes

I can tell if shares are equal.

THE LESSON

- 1 Warm up** (5 min) Cut the paper sandwich into two pieces, one much bigger, and hand them to two students. Is it fair? Then cut another one down the middle.
- 2 Teach** (10 min) Cut a paper rectangle down the middle and another near one end. Lay each pair of pieces one on top of the other: equal shares match exactly. Then show a circle cut into 4 by lines that do not cross in the middle: 4 pieces, but not the same size.
Say: "Equal shares are all the same size. Lots of pieces doesn't mean equal pieces."
- 3 Try it together** (10 min) Pairs fold paper rectangles and circles into 2 or 4 shares, cut them out and stack them to check. Then show shapes cut on purpose (a cut off the middle, four slices not the same size) and vote equal or not with thumbs.
- 4 Practice** (15 min) Students circle equal or not equal on sheet 1 of Thanksgiving Pie Fractions (one pie is cut in 3 equal shares: still equal), then do a Basic Fractions maker sheet of equal and not equal shares.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 11.8** and circle a face beside the "I can" line. The rectangle cut into four thin strips has equal shares; some students think long strips can't be equal.

Need help? Fold and cut real paper shapes and stack the pieces before judging pictures.

Ready for more? Cut a square into 4 equal shares three ways (a plus, four strips, corner to corner).

GET READY

- Paper circles and rectangles to fold and cut
- Scissors
- A paper "sandwich" to cut in front of the class

WORDS TO USE

share: one of the pieces when a whole thing is cut

equal: the same size

whole: the whole thing, before it is cut

ASK

- Are these shares equal? How can you check?
- Is it fair if one share is bigger? Why not?
- Does having more pieces make them equal?

WATCH FOR

Says the shares are equal because there are 2 (or 4). Cut them out and stack them: the sizes must match, not just the count.

Says thin strips can't be equal shares. Stack the strips: same size means equal, whatever their shape.

Calls a cut close to the middle equal. Fold the shape on the cut: if the edges don't meet, the shares are not equal.

ON ANIMAL MATH

PRINTABLE **Thanksgiving Pie Fractions:** sheet 1

MAKER **Basic Fractions:** Denominator Range Halves and Fourths Only, Shape Type Mixed, Problem Type Equal or Not Equal Shares

TOOL **Pattern Blocks:** Shape to Fill Hexagon, filled with 2 trapezoids (equal), then a trapezoid and 3 triangles (not equal)

QUIZ **Equal Shares Quiz:** the Equal or Not level

EXIT TICKET **1st Grade Shapes and Equal Shares Exit Tickets:** Exit Ticket 11.8

Shapes and Shares

Lesson 11.9: Halves

GOAL Students cut circles, squares and rectangles into 2 equal shares, call each one a half (half of the shape), and see that 2 halves make the whole.

About 45 minutes

I can cut a shape into halves.

THE LESSON

- 1 Warm up** (5 min) Show shapes cut into 2 pieces: thumbs up if the shares are equal, thumbs down if not.
- 2 Teach** (10 min) Fold a paper rectangle so the edges meet and open it: 2 equal shares. Color one: one half of the rectangle. Fold another one the other way, and a square corner to corner: halves too. Fold a circle through the middle. Put the 2 halves back together: the whole.
Say: "When I cut a shape into 2 equal shares, each share is a half. Two halves make the whole."
- 3 Try it together** (10 min) Pairs fold each paper shape in half as many ways as they can and color one half. Share the ways: a rectangle across or up and down, a square also corner to corner, a circle any way through the middle. Then cover a hexagon with 2 trapezoids: each is half.
- 4 Practice** (15 min) Students cut the pie and the pan for 2 animals in half on sheet 3 of Thanksgiving Pie Fractions, then color the three "one half" shapes on sheet 4. Keep both sheets for the fourths next lesson; skip the shapes for 3 (thirds are 2nd grade).
- 5 Exit ticket** (5 min) Students do **Exit Ticket 11.9** and circle a face beside the "I can" line. The rectangle cut near one end has 2 shares but not halves; the square cut in 4 is not halves either.

Need help? Fold real paper first, then draw the line on the fold, before cutting pictures.

Ready for more? Find three ways to cut a square in half, or color half of a shape cut into 4 equal shares (2 of the 4).

GET READY

- Paper circles, squares and rectangles to fold
- Crayons
- Pattern blocks: hexagons and trapezoids

WORDS TO USE

half: one of 2 equal shares

halves: the 2 equal shares together

whole: all of it: 2 halves make the whole

ASK

- How do you know these are halves?
- How many halves make the whole?
- Can you cut it in half another way?

WATCH FOR

Cuts a shape in 2 pieces that are not the same size and calls them halves. Fold so the edges meet before drawing the line.

Calls the bigger piece "the big half". Halves are always the same size: if one is bigger, they are not halves.

Folds a long rectangle corner to corner and says the halves do not match. They are halves: cut them apart and turn one around to lay it on the other.

ON ANIMAL MATH

PRINTABLE

Thanksgiving Pie Fractions: sheets 3-4, the halves

TOOL

Pattern Blocks: Shape to Fill Hexagon, filled with 2 trapezoids

QUIZ

Equal Shares Quiz: the Halves and Fourths level

EXIT TICKET

1st Grade Shapes and Equal Shares Exit Tickets: Exit Ticket 11.9



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Shapes and Shares

Lesson 11.10: Fourths, quarters and smaller shares

GOAL Students cut circles and rectangles into 4 equal shares, call each one a fourth or a quarter, and see that cutting the same whole into more equal shares makes each share smaller: a half is bigger than a fourth.

About 45 minutes

I can cut fourths and tell which share is bigger.

THE LESSON

- 1 Warm up** (5 min) Fold a paper square in half, then in half again. How many equal shares now? Open it and count: 4.
- 2 Teach** (10 min) Fold a paper circle in half and in half again, and open it: 4 equal shares. Color one: one fourth, also called one quarter. Count: 4 fourths make the whole. Then lay a half of a same-size circle on the fourth: the half is bigger.
Say: "Four equal shares are fourths, or quarters. The more equal shares I cut, the smaller each share."
- 3 Try it together** (10 min) Pairs fold two same-size rectangles, one into halves and one into fourths, color one share of each and decide which is bigger. Ask: would you rather have half a pizza or a quarter? Fold fourths as a plus and as four strips.
- 4 Practice** (15 min) Students do the fourths on sheets 3 and 4 of Thanksgiving Pie Fractions, then sheet 6: the halves and fourths at the top, and circle the shapes cut into fourths. Then a Basic Fractions maker sheet (read $\frac{1}{4}$ as one fourth).
- 5 Exit ticket** (5 min) Students do **Exit Ticket 11.10** and circle a face beside the "I can" line. The shaded half is the bigger share; a student who circles the fourth thinks 4 is more than 2, so a fourth must be bigger.

Need help? Fold paper and color the shares, then move to pictures that already have the lines.

Ready for more? The pan cut corner to corner on sheet 6: are those fourths? (Yes: not the same shape, but the same size.)

GET READY

- Same-size paper circles and rectangles
- Crayons
- Pattern blocks: green triangles

WORDS TO USE

fourth: one of 4 equal shares

quarter: another name for a fourth

whole: all 4 fourths together

ASK

- Which is bigger, a half or a fourth of the same pizza? How do you know?
- How many fourths make the whole?
- Is a quarter the same as a fourth?

WATCH FOR

Thinks a fourth is bigger than a half because 4 is more than 2. Fold two same-size papers, one in halves and one in fourths, and lay one share on the other.

Draws 4 pieces with lines that miss the middle. Fold it in half, then in half again: the lines cross at the middle.

Says 2 lines make 2 shares. Count the pieces, not the lines: 2 lines that cross make 4 shares.

ON ANIMAL MATH

PRINTABLE **Thanksgiving Pie Fractions:** sheets 3-4 (the fourths) and sheet 6

MAKER **Basic Fractions:** Denominator Range Halves and Fourth Only, Shape Type Mixed, Problem Type Shade the Fraction

TOOL **Pattern Blocks:** Shape to Fill Big Triangle, filled with 4 triangles

QUIZ **Equal Shares Quiz:** the Halves and Fourth level

EXIT TICKET **1st Grade Shapes and Equal Shares Exit Tickets:** Exit Ticket 11.10

Shapes and Shares

Lesson 11.11: Sharing stories

GOAL Students solve stories about sharing one whole thing (a cookie, a pie, a pan of cornbread) between 2 or 4 friends: they draw lines to cut it into equal shares and say what each friend gets, one half or one fourth.

About 45 minutes

I can solve sharing stories.

THE LESSON

- 1 Warm up** (5 min) Share 8 cubes between 2 students: each gets 4. Then ask: what if there is just 1 cookie? How can 2 friends share it?
- 2 Teach** (10 min) Read: "2 friends share a cookie equally. What does each friend get?" Draw the cookie, one line through the middle and a face in each share: each gets one half. Then: "4 friends share a pie equally." Draw two lines that cross in the middle: each gets one fourth.
Say: "First I count the friends. That tells me how many equal shares to cut."
- 3 Try it together** (10 min) Act out stories with paper food: 2 friends share a sandwich, 4 friends share a pizza. Students fold, cut and say what each one gets. Add "Bear cuts a pie into 4 equal pieces and eats 1. How many are left?" (3) and 2 friends sharing 2 cookies (1 whole each).
- 4 Practice** (15 min) Students solve the stories on sheet 5 of Thanksgiving Pie Fractions, drawing to help (skip Lion's thirds). Early finishers share groups of things on sheet 5 of Sharing Equally.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 11.11** and circle a face beside the "I can" line. The cookie for 2 needs one line through the middle and the answer half; for 4 friends, only the pie cut into 4 equal shares fits.

Need help? Act the story out with paper food and real classmates before drawing it.

Ready for more? Write a sharing story for a partner, or solve: 2 friends share 3 cookies equally (each gets 1 cookie and one half).

GET READY

- Paper circles (cookies, pies) and rectangles (sandwiches, pans)
- Story cards for 2 and 4 friends
- Crayons and whiteboards

WORDS TO USE

share equally: cut it so everyone gets the same size piece

each: every one of the friends

whole: the full cookie or pie, before it is cut

ASK

- How many friends are there? How many equal shares do you need?
- What does each friend get? Say it with half or fourth.
- Is it fair? How do you know?

WATCH FOR

Cuts as many pieces as there are friends, but not the same size. Fold the paper food to cut it, so each share is the same size.

Writes 2 for "What part does each one get?" Each gets one share: say its name, "one half", not the number of friends.

Cuts 4 shares in a story about 2 friends. Count the friends first and draw one face in each share.

ON ANIMAL MATH

PRINTABLE Thanksgiving Pie Fractions: sheet 5

PRINTABLE Sharing Equally: sheet 5 (sharing groups of things), for early finishers

QUIZ Equal Shares Quiz: the Both level

EXIT TICKET 1st Grade Shapes and Equal Shares Exit Tickets: Exit Ticket 11.11