Fair Halves and Fourths

Teacher		**Class**	Grade 1
Subject	Math	**Topic**	Halves and fourths
Date		**Room**	
Lesson length	60 minutes	**Country**	United Kingdom

Students learn to split circles and rectangles into two and four fair shares. They fold paper shapes and use half of, fourth of, and quarter of.

Curriculum links

- Partition circles and rectangles into two and four equal shares
- Describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of
- Describe the whole as two of, or four of the shares and understand more equal shares creates smaller shares

Learning objectives

- Students will split circles and rectangles into 2 and 4 equal shares.
- Students will name shares with halves, fourths, quarters, half of, fourth of.
- Students will show the whole as two or four shares and compare sizes.

Success criteria

- I can make 2 fair shares called halves and 4 called fourths.
- I can say half of, fourth of, and quarter of for my shares.
- I can show 2 halves or 4 fourths make the whole.

What students already know

Hold up one paper circle cut into 2 very unequal pieces. Ask: Is this fair for 2 friends? Why not? Listen for same size and fair.

Key words

halves	two fair parts of one shape that are the same size [1]
fourths	four fair parts of one shape that are the same size [1]
quarters	another name for four fair parts that are the same size [1]
whole	all the parts together as one shape [1]
equal shares	fair parts that are all the same size [1]

Materials

- Slides 1-11 with projector or board
- Video clip 1 (0:00-3:16) on Slide 5 and Video clip 2 (0:00-3:11) on Slide 7
- paper plates for paper circles, one per student plus teacher demo

Before the lesson

- Test Video clip 1 (0:00-3:16) on Slide 5 and Video clip 2 (0:00-3:11) on Slide 7 for sound and picture
- Set out one paper plate circle and two index card rectangles plus crayons per student
- Pre-fold one circle and one rectangle demo set and keep two same-size circles cut into 2 halves and 4

- index cards for paper rectangles, two per student plus teacher demo
- crayons

fourths for comparing
- Have Slides 1-11 ready and board space to show folded shapes

Lesson outline

0–8 min **Starter** 8 min · Whole class

Hook students and review that fair shares must be the same size.

YOU DO

1. Say the hook with energy: No computers, no screens — just our hands and paper. Who can make perfect fair shares?
2. Show Slide 1: Halves and Fourths [title]: Two and four fair shares and Slide 2: Fair means same size.
3. Hold up a circle cut into 2 unequal pieces and a circle folded into 2 same-size pieces for Fair or not fair?
4. Show Slide 4 question: Fair or not fair? Why? and take 3-4 answers.

STUDENTS DO

1. Look at both circles and give thumbs up for fair and thumbs down for not fair.
2. Turn to a partner and say why it is fair or not fair using same size.
3. Chant with class: fair means same size.

Say: Today we make fair shares with paper. Fair means same size. Two fair shares make halves. Four fair shares make fourths. You will fold, count, and say half of and fourth of.

Worked example: Look at my circle. This cut has one big piece and one small piece. They are not the same size, so it is not fair and not halves. This fold has two pieces that match exactly, so they are the same size. Two equal shares are called halves [1].

Ask: How do we know shares are fair and equal? (Every part is the same size [1].) · Two same-size shares of a circle are called what? (Halves [1].)

Check understanding: All show thumbs up or down on two more quick cards. If many miss, overlay pieces to show same size before moving on.

Support: Seat student near board and let them match pieces by laying one on top of the other to see same size. **Stretch:** Ask student to explain how to fix the not-fair circle to make 2 fair halves.

Use: Slides 1-2, 4

8–20 min **Teaching** 12 min · Whole class

Model how to fold and name two equal halves of circles and rectangles.

YOU DO

1. Play Video clip 1 (0:00-3:16) on Slide 5: Watch circles split in half.
2. Show Slide 6 steps: Pick a circle or rectangle, Fold to make same size, Count parts: 2 or 4?
3. Model with a paper plate: fold edge to edge, press, open, trace fold, point and count 2 same-size parts.
4. Model saying: This is half of the circle. The whole is two of the halves, since 2 halves make one whole [1].

STUDENTS DO

1. Watch the video and the teacher fold.
2. Count aloud 1, 2 and check with fingers that both parts match.
3. Say with teacher: This is half of the whole. The whole is two of the halves.

Say: Watch how I fold. I match the edges so both parts are the same size. I open it and count 2. Two equal shares are called halves [1]. This is half of the circle, and the whole is two of the halves.

Worked example: Step 1: Pick the paper plate circle. Step 2: Fold top edge to bottom edge and press. Step 3: Open and trace the line. Step 4: Point to each part and count: 1, 2. They are the same size, so each is half of the circle [1]. Together 2 halves make the whole [1]. Repeat with index card rectangle side to side.

Ask: How many same-size parts do you see after one fair fold? (2 parts, called halves [1].) · How many halves make the whole circle? (2 halves make one whole [1].)

Check understanding: Students hold up 2 fingers and say halves. Re-fold slowly if edges do not match or count is wrong.

Support: Give shapes with the fold line already lightly drawn so students just fold and trace. **Stretch:** Ask students to fold the same shape a different way to make halves and check both ways are still equal.

Use: Video clip 1 (0:00–3:16); Slides 5-6

20–42 min **Main activity** 22 min · Pairs

Partition paper circles and rectangles into halves and fourths and name the shares.

YOU DO

1. Show Slide 8 task and give out one paper plate, two index cards, and crayons.
2. Model each fold slowly at the front and have students copy one fold at a time.
3. Guide first fold into 2, then fold again to make 4 equal shares, since four equal shares are called fourths, also called quarters [1].
4. Guide labeling and counting: half of on 2-part shapes and fourth of, quarter of on 4-part shapes, then count 2 halves make the whole, 4 fourths make the whole [1].

STUDENTS DO

1. Fold paper plate circle into 2, open, trace, color half of the circle and say half of with partner.
2. Fold index card rectangle into 4, open, trace, color each fourth a different color and say fourth of and quarter of.
3. Count with partner: 2 halves make the whole and 4 fourths make the whole and hold up shapes.

Say: Pick your circle. Fold to make same size and count parts. Two equal shares are called halves [1]. Now fold again to make 4 same-size parts. Four equal shares are called fourths, also called quarters [1]. Color and say half of and fourth of.

Worked example: Circle: Fold in half, open, then fold in half again. Open: count 1, 2, 3, 4. All 4 are the same size, so each is a fourth of the circle, also called a quarter of the circle [1]. The whole is four of the fourths [1]. Rectangle: Fold short edge to short edge, then fold again. Count 4 same-size parts, color each a different color, point and say: This is a fourth of the rectangle.

Ask: How do you know your 4 parts are fourths? (There are 4 parts and every part is the same size [1].) · How many fourths make the whole rectangle? (4 fourths make one whole [1].) · What do you say to point to one share? (Half of the circle, fourth of the rectangle, quarter of the rectangle.)

Check understanding: Teacher walks with checklist for same-size parts, correct count 2 and 4, and correct say. Pause and re-model a fold if parts are unequal.

Support: Model each fold slowly under the camera or at the front, and have students copy one fold at a time.
Stretch: Ask students to show with their folded papers that a half is bigger than a fourth from the same whole.

Use: Slide 8

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42–52 min **Compare** 10 min · Whole class

Show that more equal shares of the same whole makes smaller shares.

YOU DO

1. Place two same-size paper circles side by side, one cut into 2 halves and one cut into 4 fourths.
2. Play Video clip 2 (0:00-3:11) on Slide 7: Watch four same small parts, then show Slide 3: More fair shares make smaller pieces.
3. Lay out pieces to show a fourth is smaller than a half, since the more equal shares you make, the smaller each share becomes [1].
4. Show Slide 10 vote: Which would you pick for snack? Half of a cracker or Quarter of a cracker and take votes.

STUDENTS DO

1. Compare pieces and say which is bigger and which is smaller.
2. Vote half of a cracker or quarter of a cracker and turn and talk with sentence frame.
3. Hold one half-piece and one fourth-piece to see size difference.

Say: Look at the same-size wholes. This half is big. This fourth is small. The more equal shares you make, the smaller each share becomes, so a fourth is smaller than a half [1]. Four equal shares are called fourths, also called quarters [1].

Worked example: Same pancake size: One pancake cut into 2 halves gives 2 big pieces. The other same pancake cut into 4 fourths gives 4 small pieces. Hold one half in one hand and one fourth in the other. The half is bigger. Sentence: A fourth of the pancake is smaller than half of the pancake because we cut it into more shares [1].

Ask: Which is smaller, half or fourth of the same cracker? (A fourth, or quarter, is smaller [1].) · Why is a fourth smaller than a half? (Because we cut the same whole into more equal shares [1].)

Check understanding: Partners say: A fourth is smaller than half because we cut into more shares. Listen and fix mixing up big and small.

Support: Let students hold one half-piece in one hand and one fourth-piece in the other to feel and see the size difference. **Stretch:** Ask what they think would happen if the same pancake was cut into even more equal shares.

Use: Video clip 2 (0:00–3:11); Slides 3, 7, 10

52–60 min **Plenary** 8 min · Whole class

Review key words and check halves, fourths, and whole.

YOU DO

1. Show Slide 9 words: halves, fourths, quarters, whole and have class read and point to folded shapes.
2. Show Slide 11 quiz and ask: Two same shares are called? Four same shares are called? Another word for fourths?
3. Have students hold up circle and say: This is half of the whole. The whole is two of the halves.
4. Have students hold up rectangle and say: This is a quarter of the whole. Four quarters make the whole.

STUDENTS DO

1. Read key words, hold up shapes, and say half of, fourth of, quarter of.
2. Answer Slide 11 quiz together: halves, fourths, quarters, fourth is smaller.
3. Answer exit questions on mini whiteboards or by voice.

Say: Let's say our words. Halves are two same shares. Fourths are four same shares, also called quarters. The whole is all shares together. Show me two of the halves make the whole. Show me four of the fourths make the whole.

Ask: How many halves make one whole? (2 halves [1].) · Another word for fourths is what? (Quarters [1].)

Check understanding: Use Slide 11 quiz answers and exit cards. Re-show folded 2-part and 4-part shapes if halves and fourths are mixed up.

Support: Point to numbered parts 1, 2, 3, 4 on a demo rectangle and count aloud together. **Stretch:** Ask student to explain why two small halves cannot make a big whole circle.

Use: Slides 9, 11

Common mistakes

Mistake	How to spot it	How to fix it
Calls unequal parts halves or fourths	Student names 2 or 4 pieces halves or fourths when pieces do not match	Overlay pieces and ask if every part is the same size, since equal shares must be the same size to be fair [1]. Refold to match edges.
Thinks a fourth is bigger than a half of the same whole	Student picks quarter of a cracker as bigger than half	Place half and fourth from same-size wholes side by side and show the more equal shares you make, the smaller each share becomes [1].
Says the whole is one share instead of all shares	Student points to one half or one fourth and calls it the whole	Push 2 halves together and 4 fourths together to rebuild, counting 2 halves make the whole and 4 fourths make the whole [1].

Support

- Give shapes with lightly drawn fold lines and number parts 1-4 to color in order
- Model one fold at a time and let students check same size by stacking pieces

Stretch

- Fold same shape different ways to make halves and compare, and show half is bigger than fourth
- Explain how to fix not-fair shares and what more shares would do to size

For the LSE or teaching assistant

Sit with focus pair during folding. Help match edges, press folds, check same size, and prompt say frames: half of, fourth of, whole is two of, whole is four of.

Check for understanding

Question	Answer
A circle is split into 2 same-size shares. What is each share called?	A half; two halves make the whole.
A rectangle is split into 4 same-size shares. What is each share called? Give the other name.	A fourth; also called a quarter. Four fourths make the whole.
Which is smaller, half of a cracker or quarter of the same cracker? Why?	A quarter is smaller because more equal shares make smaller shares.

Sources

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