

Maths Sheets for Parents and Teachers

Year 1 Fractions (*scroll down for year 2*)

Lesson 1: Making Halves

To begin this lesson, provide each pupil with a piece of square paper. Tell them a story about needing to share the paper equally with a friend. Ask them how many ways they can find to share the piece of paper equally. Prompt them to find more than one way of splitting the paper by folding it. Ask pupils to share their examples with each other. Continue to emphasize that they need to share the paper 'equally' and introduce the term 'half'.

In Focus

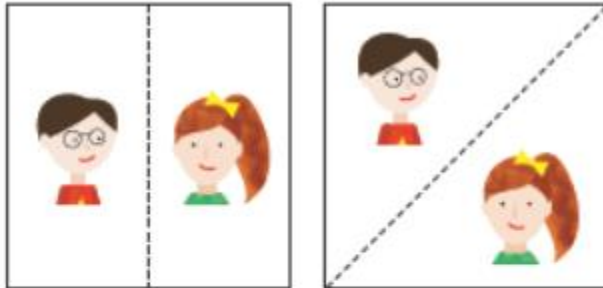
Holly and Charles share
a piece of art paper equally.
In what ways can they do this?



This is how they may have completed it.

Let's Learn

1



Are there other ways to do this?



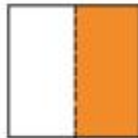
gets



This is half.



gets



This is also half.

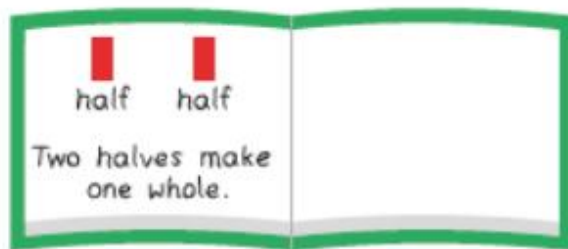
2 halves make the whole piece of art paper.

**Activity
Time**

Work in pairs.

- ① Name the shapes.
- ② Cut each shape into 2 halves.
- ③ Paste them in your journal.

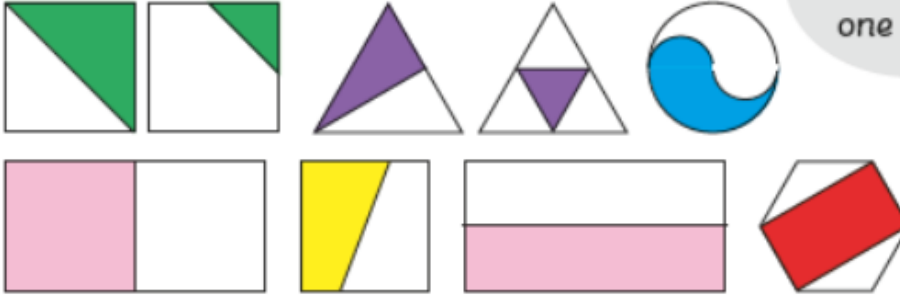
What you need:



During Guided Practice, pupils are reinforcing their understanding of half, i.e. each person gets exactly the same amount. It is important to keep this both very active and visual for pupils, so having concrete cut-outs of the shapes and pictures is important for them to see and touch. In the second question, they need to see that each person will get 4 squares. At this point, you can also ask pupils how they know the pieces are equal (perhaps provide them with paper divided as in the picture; cut out the pieces and place one on top of the other).

Guided Practice

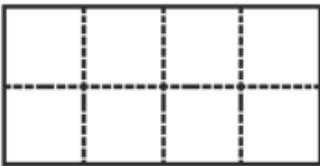
- 1 Which of these show halves?



Each shape shows one whole.



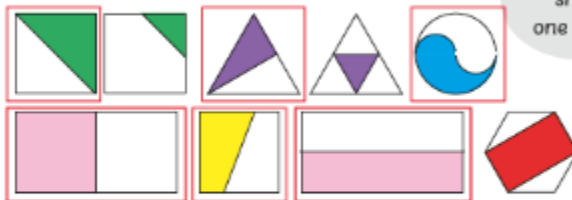
- 2 Shade to show half of the rectangle.



Answers

Guided Practice

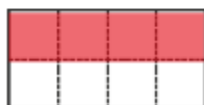
- 1 Which of these show halves?



Each shape shows one whole.

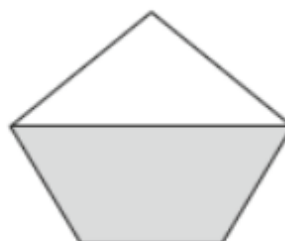
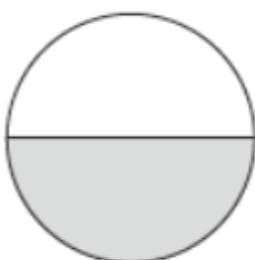
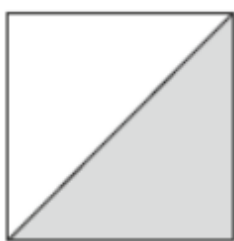


- 2 Shade to show half of the rectangle.



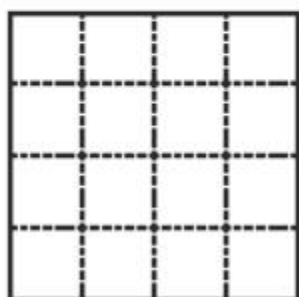
Answers may vary. Any shading of 4 parts is half of the rectangle.

1 Tick (✓) those that show halves.



2 Shade each of the following.

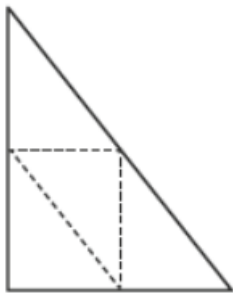
(a) Half of the square



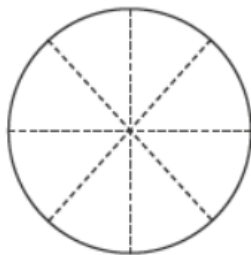
(b) Half of the rectangle



(c) Half of the triangle

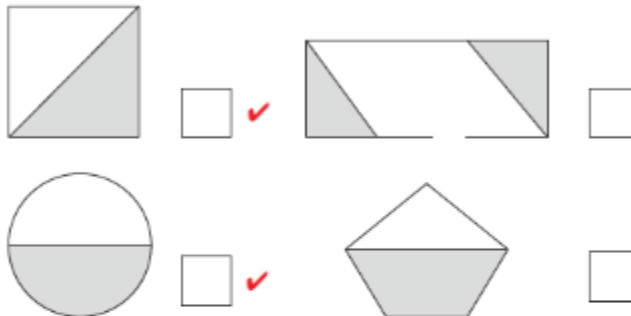


(d) Half of the circle



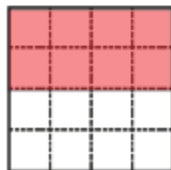
Answers

- 1 Tick (✓) those that show halves.



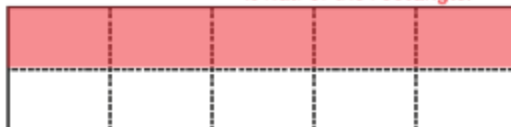
- 2 Shade each of the following.

- (a) Half of the square



Answers may vary. Any shading of 8 parts is half of the square.

- (b) Half of the rectangle



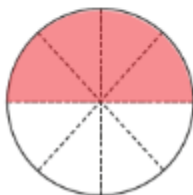
Answers may vary. Any shading of 5 parts is half of the rectangle.

- (c) Half of the triangle



Answers may vary. Any shading of 2 parts is half of the triangle.

- (d) Half of the circle



Answers may vary. Any shading of 4 parts is half of the circle.

Lesson 2 Making Quarters

To begin this lesson, provide pupils with a rectangular piece of paper and tell them to pretend that it is a delicious birthday cake. Ask them to fold the paper so that they have 4 equal pieces of birthday cake to share with their friends. Remind them that the pieces need to be exactly equal so everyone gets the same amount. Let them work on this for a good amount of time. Prompt them every so often with the different folds shown in Let's Learn and question whether or not they are equal. Ask them how they can prove you right or wrong. Introduce the language of 'fourth' and 'quarter' to them as well, by asking how many 'fourths' or 'quarters' make up one whole. As 4 'fourths' or 'quarters' make up the whole, each person will get 1 of the 4, which is a 'fourth' or a 'quarter'.

In Focus



How can the cake be cut into four equal pieces?

That means each person gets the same amount of cake.



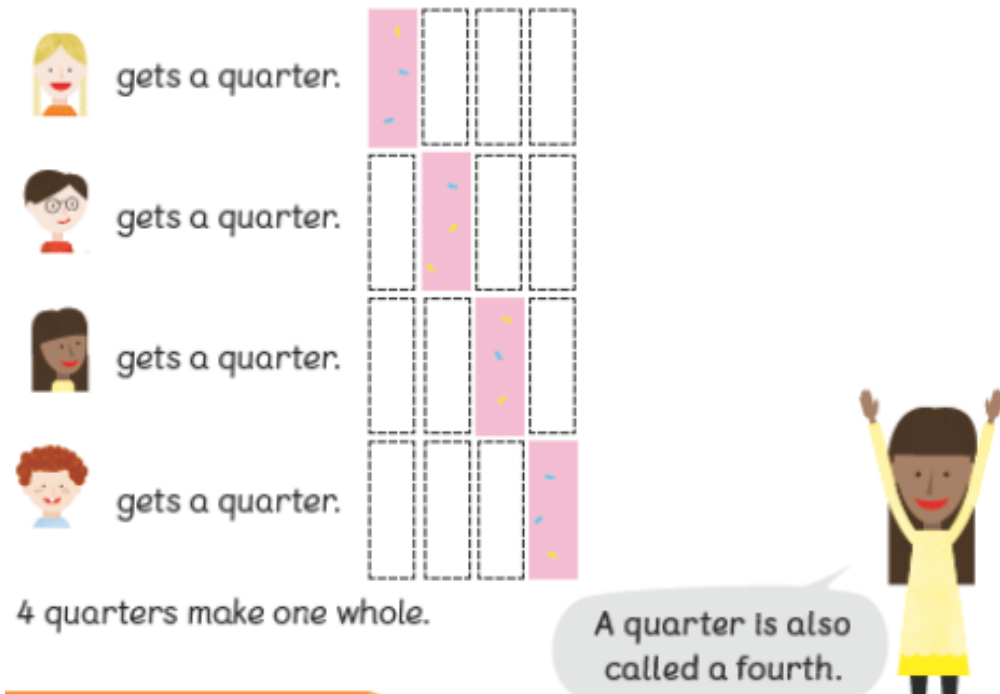
This is how it could be done.

Let's Learn



Are these equal?

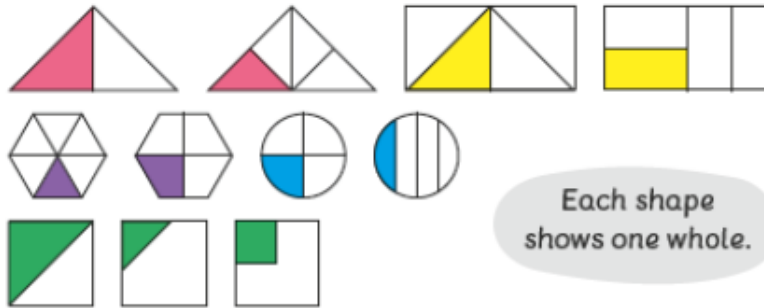
Are there other ways?



During Guided Practice, pupils are reinforcing their understanding of quarters, i.e. each person gets exactly the same amount. It is important to keep this both very active and visual for the pupils, so having concrete cut-outs of the shapes and pictures is important for them to see and touch. In the second question, they are reviewing how many quarter and half pieces make a whole and how many quarters make up a half. It is important to have concrete cut-outs that pupils can put on top of one another to answer the questions with you, followed by clear pictures on the board.

Guided Practice

1 Which of these show quarters?



Each shape shows one whole.



2 ☐ quarters make 1 whole.

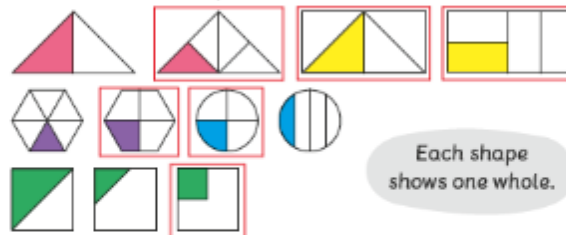
☐ halves make 1 whole.

☐ quarters make 1 half.

answers

Guided Practice

1 Which of these show quarters?



Each shape shows one whole.



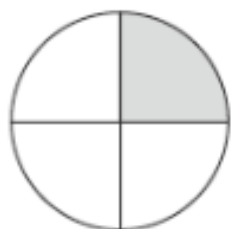
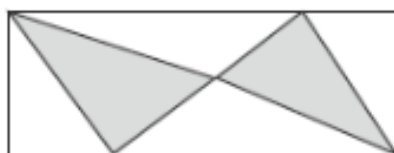
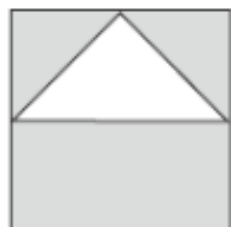
2 ☒ 4 quarters make 1 whole.

☒ 2 halves make 1 whole.

☒ 2 quarters make 1 half.

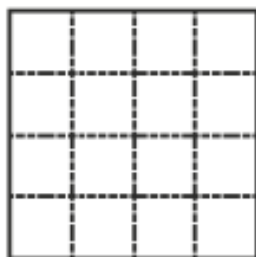
Making Quarters

1 Tick (✓) those that show quarters.



2 Shade each of the following.

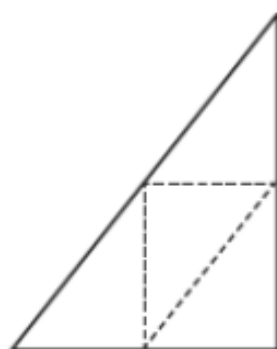
(a) A quarter of the square



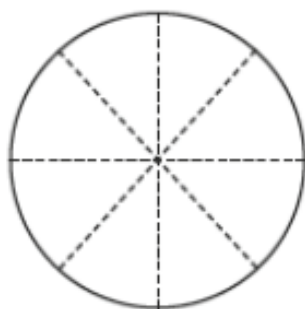
(b) A quarter of the rectangle



(c) A quarter of the triangle



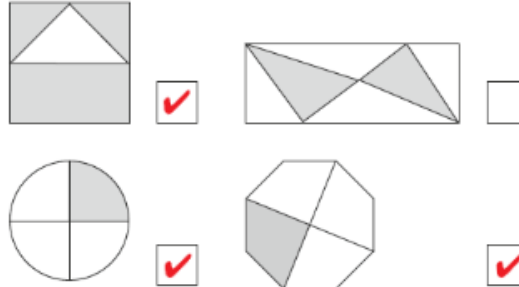
(d) A quarter of the circle



Answers

Making Quarters

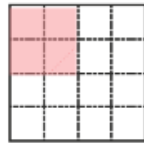
- 1 Tick (✓) those that show quarters.



- 2 Shade each of the following.

- (a) A quarter of the square

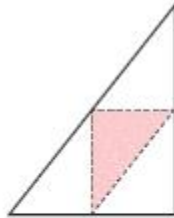
Answers may vary. Any shading of 4 parts is a quarter of the triangle.



- b) 2 of the 8 shaded.

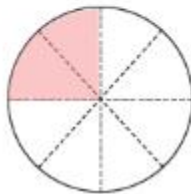
- (c) A quarter of the triangle

Answers may vary. Any shading of 1 part is a quarter of the triangle.



- (d) A quarter of the circle

Answers may vary. Any shading of 2 parts is a quarter of the circle.

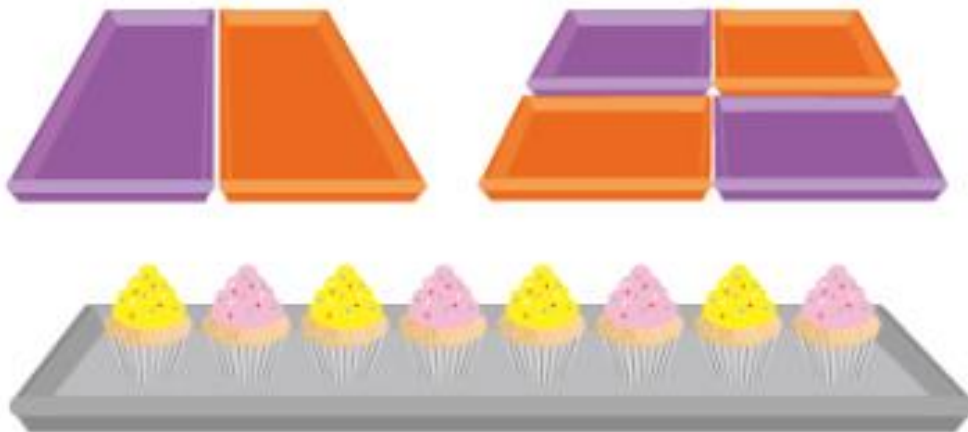


Lesson 3: **Sharing and Grouping**

To begin the lesson, provide pupils with paper trays or plates: some that have been cut in halves for the first part of the activity and some cut into quarters for the second part. Ask them to divide 8 counters (representing cupcakes) equally among the plates, reminding them that a plate cut equally into two is made up of halves and a plate cut into 4 is made up of quarters.

Prompt pupils to see that half of the 8 counters means grouping them into 2 equal groups of 4; a quarter means grouping them into 4 equal groups of 2. If they put their plates back together they will have all 8 counters, but when they split them apart, each plate has either 4 or 2. It is important they develop the language patterns during this activity, i.e. 'half of the counters is 4' and 'a quarter of the counters is 2.' Continue using the plates and counters to tell different number stories, changing the story about the counters from cupcakes to sweets, and so on. All of this is to reinforce the idea that a number of objects can be divided into halves and quarters.

In Focus



How do we group the cupcakes equally?

This is how it could be done.

Let's Learn

1



Half of the box of cupcakes
= 4 cupcakes



A quarter of the box of cupcakes
= 2 cupcakes

Discuss the examples in numbers 2 and 3

2



and



share the doughnuts.

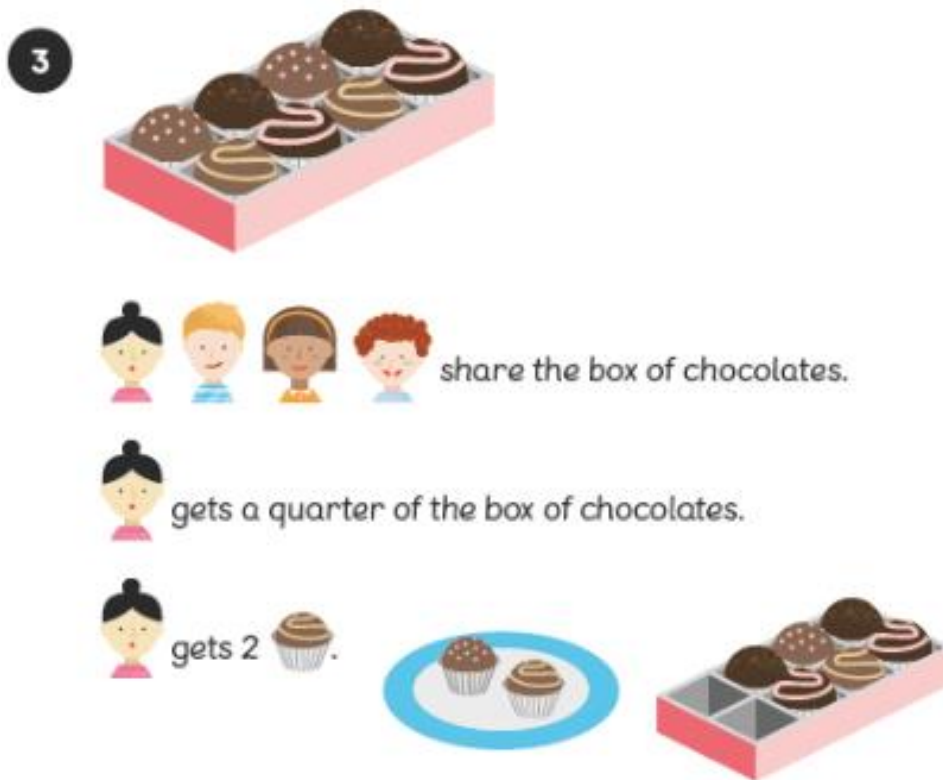


gets half of the box.



gets 4





Work in pairs.

- ① Show your partner some counters. Use fewer than 20.
- ② Try to share the counters so each of you gets half of them.

What you need:



Is this possible?



Activity
Time

During Guided Practice, pupils are splitting a given number of objects into quarters and halves, remembering that when we split something into halves, we are splitting them into 2 equal groups and when we split something into quarters, we are splitting them into 4 equal groups.

Guided Practice

half			
quarter			

Use  to help you.

1



gets a quarter of 12 coins.

How many coins does he get?

2



gets half of 10 books.

How many books does she get?



Answers:

Guided Practice



- 1  gets a quarter of 12 coins.
How many coins does he get? **3**

- 2  gets half of 10 books.
How many books does she get? **5**

Sharing and Grouping

1

Circle.

Write the missing numbers.

- (a) There are 8 marbles.
Elliott gets half of them.
How many marbles does he get?



He gets marbles.

- (b) There are 14 rubbers.
Lulu gives half of them to her sister.
How many rubbers does Lulu get?

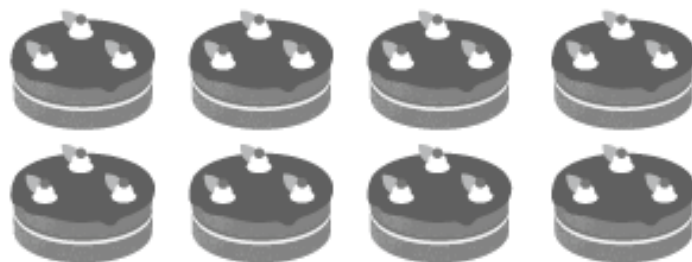


Lulu gets rubbers.

2 Circle.

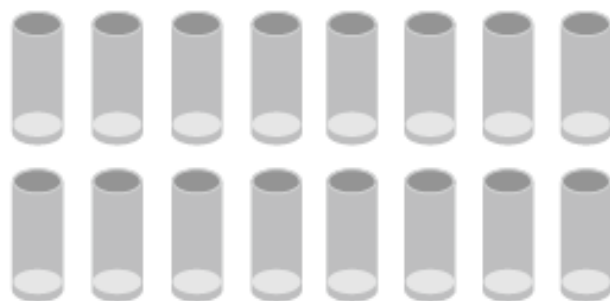
Write the missing numbers.

- (a) Emma bakes 8 cakes.
She gives a quarter of them away.
How many cakes does she give away?



She gives away cakes.

- (b) There are 16 empty glasses.
Ruby fills a quarter of them with water.
How many empty glasses are filled with water?



empty glasses are filled with water.

Feel free to complete the year 1 tasks too – it wouldn't do any harm.

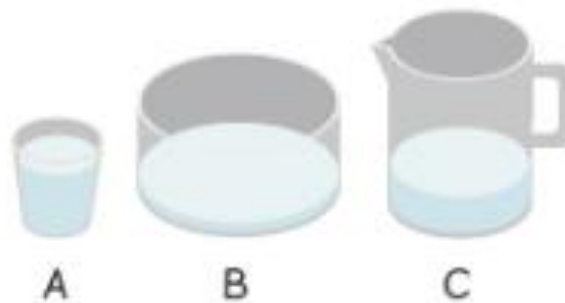
Year 2: **Volume**

Lesson1: **Comparing Volume**

To begin this lesson, show pupils different volumes of water in three containers. Introduce the term 'volume' and ask them if they can tell which container has the most volume of water. Let them discuss this and explain their answers. Ask pupils if they know a good way to check the volume of water in the containers.

Pour the water from the containers into three identical measuring jugs. Is it possible to tell the difference in the volume of water now? Why or why not? Allow pupils to consider their thoughts again, then lead a discussion on the identical containers by saying your friend said the water level in container B is greater than the water levels in the other containers, therefore, container B has the greatest volume of water. Ask pupils if they know which container has the least volume of water. Then proceed to compare two containers at a time and use $>$ and $<$ to record the results.

In Focus



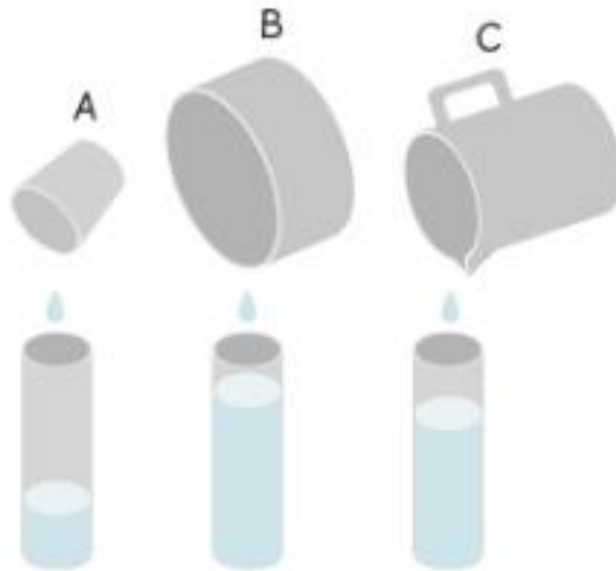
Compare the volume of water in the three containers.
Which container has the most water?

This is how you may have done it.

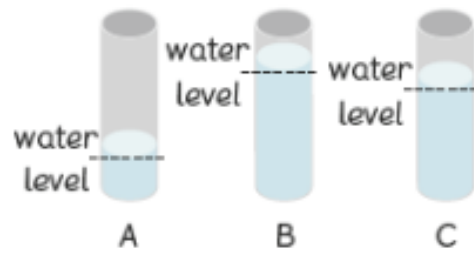
Discuss the information on the next two pages

Let's Learn

Pour the water into identical containers.



Look at the water levels and compare.



The volume of water in Container A is less than the volume of water in Container B.

The volume of water in Container B is greater than the volume of water in Container C.

Container A has the least amount of water.



Container A has less water than Container B.



Container B has the greatest amount of water.



Container B has more water than Container C.



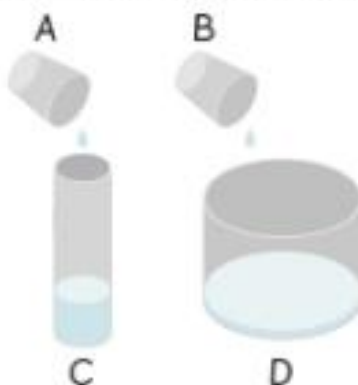
Container B has the most water.



During Guided Practice, pupils are using $>$, $<$ and $=$ to compare volumes of water. The focus is on understanding that the height of water in different containers is not indicative of volume.

Guided Practice

- 1 Cup A and Cup B have the same amount of water.
The water is poured into Container C and Container D.



The volume of water in Container C is less than the volume of water in Container D. (true / false)

Use $<$, $>$ or $=$.

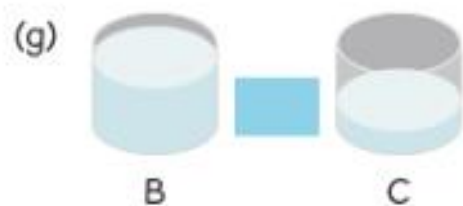


- 2 Compare the volume of water in the containers using less, more, greatest or least.

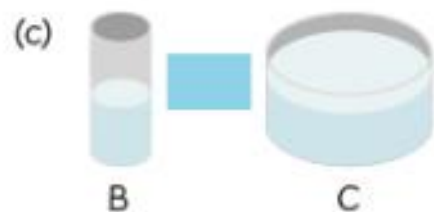
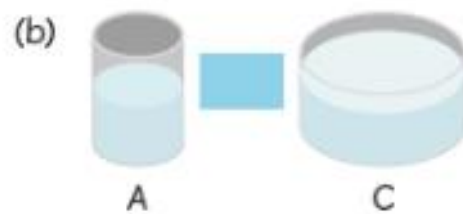
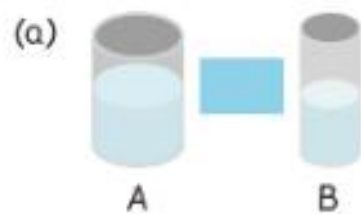
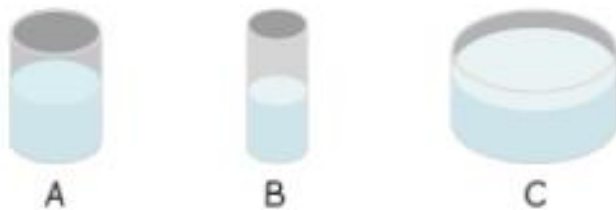


- (a) Container A has water than Container B.
 (b) Container B has water than Container C.
 (c) Container C has the amount of water.
 (d) Container B has the amount of water.

Also compare using $<$, $>$ or $=$.



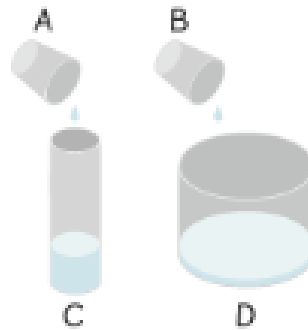
3 Compare the volume of water in the 3 containers. Use $<$, $>$ or $=$.



Answers:

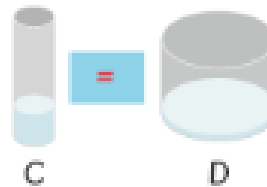
Guided Practice

- 1 Cup A and Cup B have the same amount of water.
The water is poured into Container C and Container D.

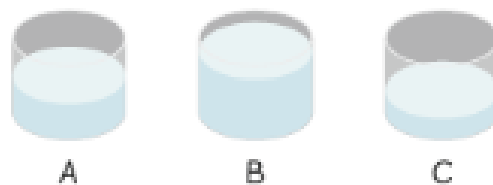


The volume of water in Container C is less than the volume of water in Container D. (true / **false**)

Use $<$, $>$ or $=$.

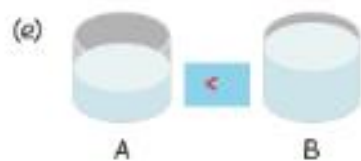


- 2 Compare the volume of water in the containers using less, more, greatest or least.

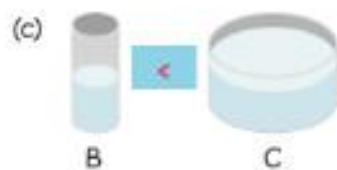
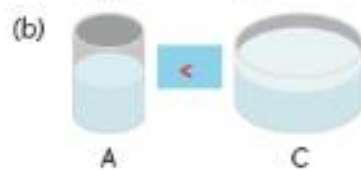
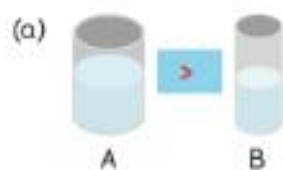
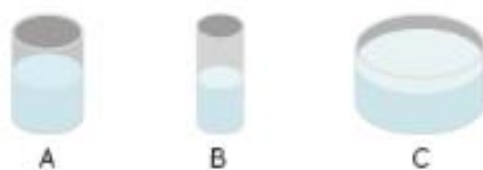


- (a) Container A has **less** water than Container B.
- (b) Container B has **more** water than Container C.
- (c) Container C has the **least** amount of water.
- (d) Container B has the **greatest** amount of water.

Also compare using $<$, $>$ or $=$.



3 Compare the volume of water in the 3 containers. Use $<$, $>$ or $=$.



Comparing Volume

- 1** Compare the volume of water in the two containers.
Fill in the blanks with $<$, $>$ or $=$.

(a)



(b)



(c)



(d)



- 2** Compare the volume of water in the containers.
Fill in the blanks.



container A



container B



container C

- (a) has more water than container A.
- (b) has less water than container A.
- (c) has the least amount of water.
- (d) has the greatest amount of water.
- (e) Arrange the containers in order, from the one with the least amount of water to the one with the greatest amount of water.

, ,

Answers:

Comparing Volume

- 1** Compare the volume of water in the two containers.
Fill in the blanks with $<$, $>$ or $=$.

(a)



(b)



(c)



(d)



- 2 Compare the volume of water in the containers.
Fill in the blanks.



container A



container B



container C

- (a) has more water than container A.
- (b) has less water than container A.
- (c) has the least amount of water.
- (d) has the greatest amount of water.
- (e) Arrange the containers in order, from the one with the least amount of water to the one with the greatest amount of water.

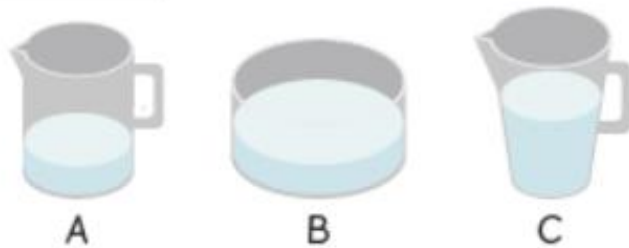
, ,

Lesson 2: Comparing Volume

To begin this lesson, show pupils three different containers of water. Ask them how they could compare the volume of water in these containers and let them predict which one has the greatest volume of water. Ask them if they know of a way to check the volumes of water in each container. Tell them you will use a different method today to measure the volume of water in each container.

Show the class the identical cups. Tell them your friend says that, to be fair, we must put the same amount of water in the identical cups. Is this true? How can we be sure? Once they understand the same amount of water must be placed in each of the identical cups, tell them that each cup of water will now represent 1 unit. Then pour the water from the three containers into the cups to show which has the most units of water. Ask pupils to compare the units for each container.

In Focus

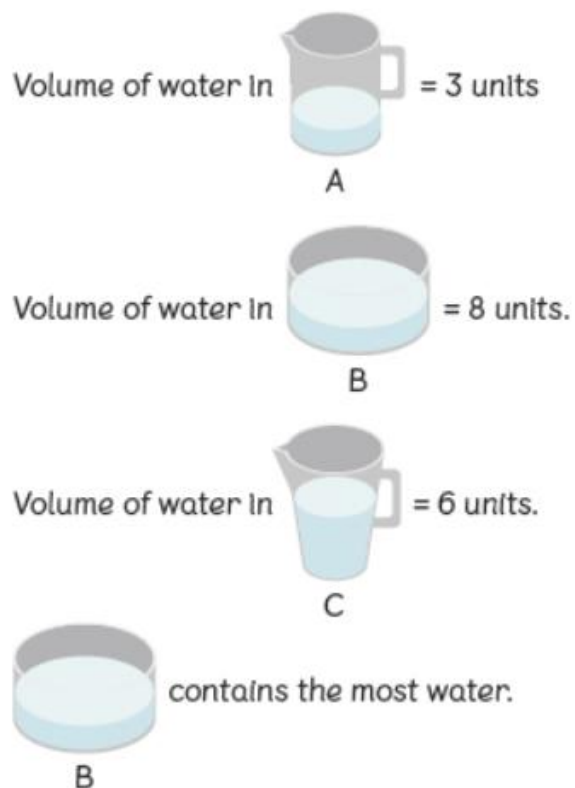
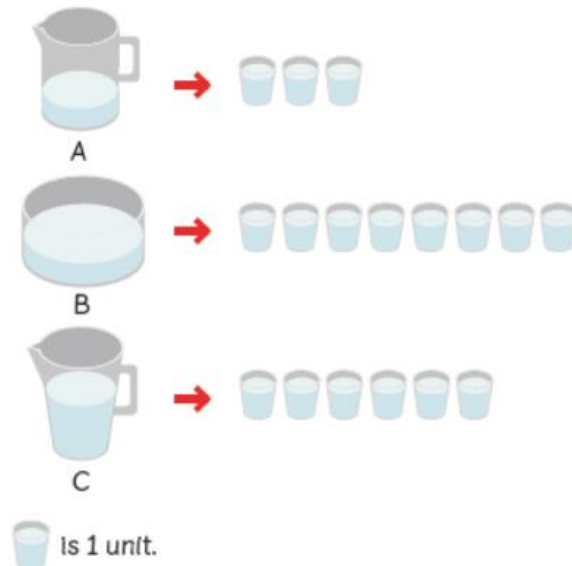


Compare the volume of water in the three containers.
Which container has the most water?

This is what you may have done, and discussed.

Let's Learn

The water in Containers A, B and C is poured into cups of the same size.
Measure the volume of water in each container.



**Activity
Time**

Work in groups of 3 to 4.

What you need:



- ① Fill the  with water.
Some examples of containers are shown.



- ② Which container do you think can hold more water? Why?
- ③ Find the capacity of the containers using .

Let  = 1 unit.

During Guided Practice, pupils are comparing kettles of water by the number of units of water in each.

Guided Practice

All the water in the kettles is used to fill up the cups.



- (a) Kettle has less water than Kettle .
- (b) Which kettle has a greater amount of water? Kettle .
- (c) Use $<$, $>$ or $=$.



Answers

Guided Practice

All the water in the kettles is used to fill up the cups.

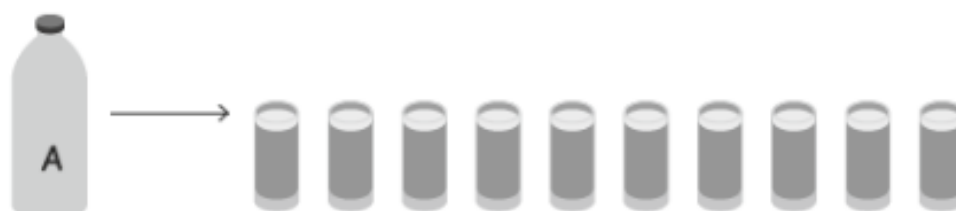


- (a) Kettle **B** has less water than Kettle **A**.
- (b) Which kettle has a greater amount of water? Kettle **A**.
- (c) Use $<$, $>$ or $=$.

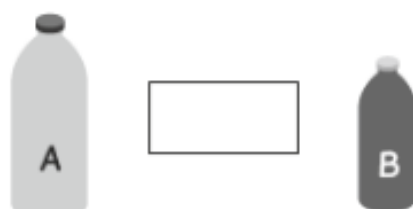


Comparing Volume

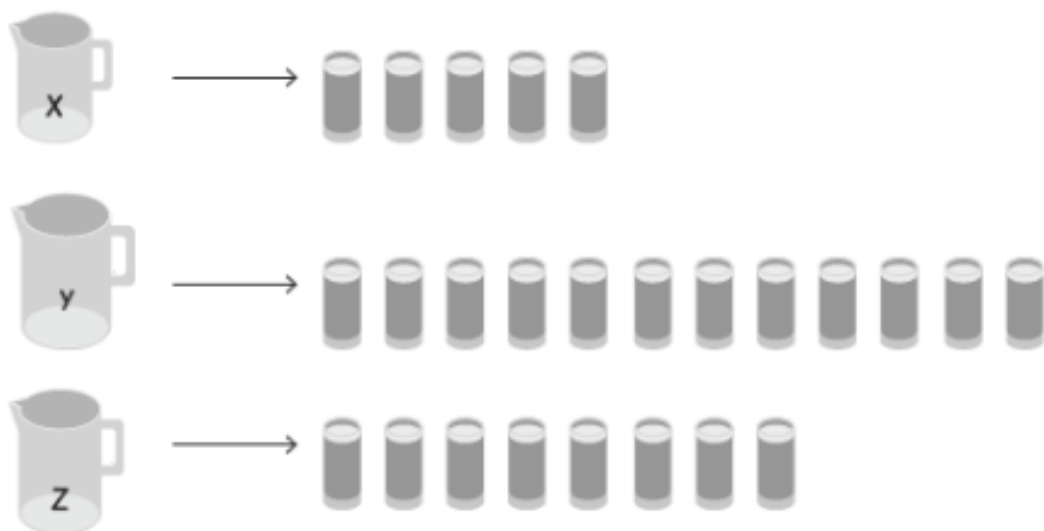
1 Fill in the blanks.



- (a) The water in bottle A can fill up glasses.
- (b) The water in bottle B can fill up glasses.
- (c) Bottle has less water.
- (d) Bottle has more water.
- (e) Fill in the blank with $<$, $>$ or $=$.



2 Fill in the blanks.



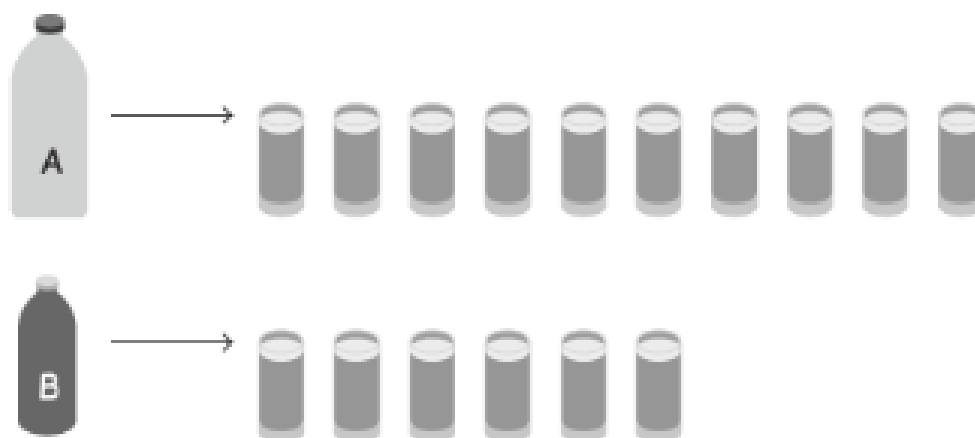
- (a) The water in jug Z can fill up glasses.
- (b) Jug Z has more water than jug .
- (c) Jug has the most amount of water.
- (d) Jug has the least amount of water.
- (e) Arrange the jugs in order, starting with the jug that has the most amount of water.

jug , jug , jug

Answers

Comparing Volume

1 Fill in the blanks.



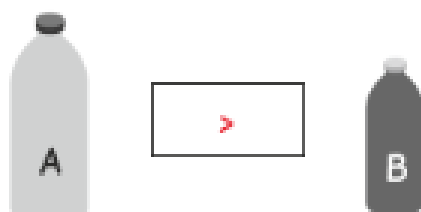
(a) The water in bottle A can fill up glasses.

(b) The water in bottle B can fill up glasses.

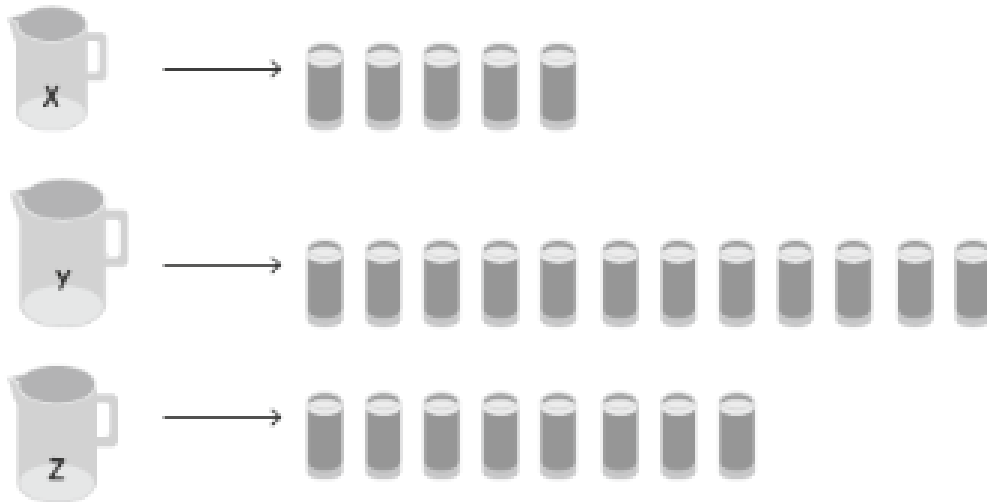
(c) Bottle has less water.

(d) Bottle has more water.

(e) Fill in the blank with $<$, $>$ or $=$.



2 Fill in the blanks.



- (a) The water in jug Z can fill up glasses.
- (b) Jug Z has more water than jug .
- (c) Jug has the most amount of water.
- (d) Jug has the least amount of water.
- (e) Arrange the jugs in order, starting with the jug that has the most amount of water.

jug , jug , jug