

Just in Time Quick Check

Standard of Learning 1.NS.3

Strand: Number and Number Sense

Standard of Learning 1.NS.3

The student will use mathematical reasoning and justification to solve contextual problems that involve partitioning models into two and four equal-sized parts.

Students will demonstrate the following Knowledge and Skills:

- a) Represent equal shares of a whole with two or four sharers, when given a contextual problem.
- b) Represent and name halves and fourths of a whole, using a region/area model (e.g., pie pieces, pattern blocks, paper folding, drawings) and a set model (e.g., eggs, marbles, counters) limited to two or four items.
- c) Describe and justify how shares are equal pieces or equal parts of the whole (limited to halves, fourths) when given a contextual problem.

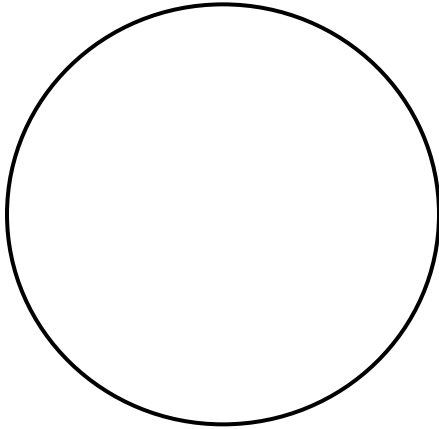
Just in Time Quick Check

Just in Time Quick Check Teacher Notes

Supporting and Prerequisite SOL: N/A

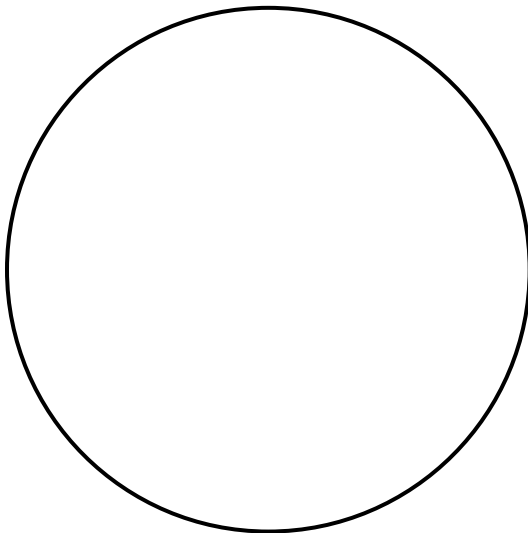
Just in Time Quick Check 1.NS.3

1. Two friends share 1 cookie. Draw on the cookie below to show how they share equally.



I cut the cookie into _____.

2. Four friends share this pizza. Draw on the pizza to show much of the pizza each friend gets.

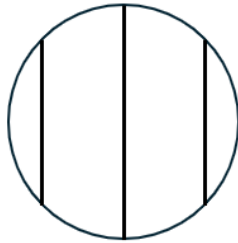
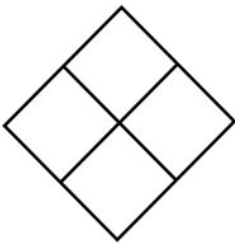


I cut the pizza into _____.

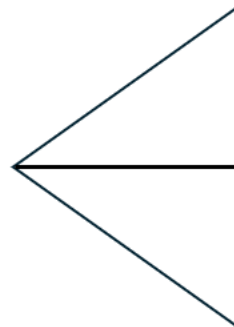
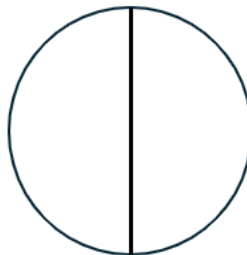
3. Two friends share 8 pieces of candy. Draw a picture to show fair shares.

4. Four friends share 2 brownies. Draw a picture to show how much brownie each friend gets.

5. Circle all the pictures that show fourths.



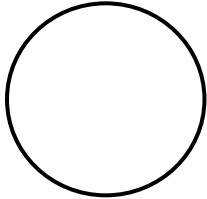
6. Circle all the pictures that show halves.



1.NS.3 Just in Time Quick Check Teacher Notes

Common Errors/Misconceptions and their Possible Indications

1. Two friends share 1 cookie. Draw on the cookie below to show how they share equally.

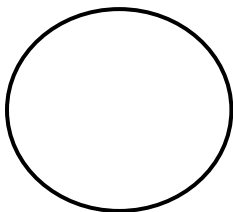


I cut the cookie into _____.

A common student error is to create parts that are not equivalent. Students who lack understanding of fair shares may not divide the cookie equally into two (or possibly more) equal parts so that it can be shared fairly between the two friends. Students may believe that any line that separates the cookie into two sections creates two halves while not paying any attention to whether the parts are equal. Students who struggle with creating equal parts need additional opportunities to use concrete models, including paper cookies (of different sizes and shapes) that can be cut and tested to be sure they are equal.

A common misconception exhibited by some students is to say that each person gets one piece. Emphasize that the question asks how much of the cookie each friend gets. Students who are unable to use the vocabulary for halves to describe the parts will need additional opportunities to describe the parts in this way.

2. Four friends share this pizza. Draw on the pizza to show much of the pizza each friend gets.



I cut the pizza into _____.

In addition to the misconceptions stated in the previous question, students may have difficulty representing equal shares for more than two sharers. A common misconception is for students to

draw only horizontal or only vertical lines to divide the circle. This indicates that they do not understand the concept of “fair shares.” Students who are not yet able to represent equal shares will benefit from opportunities to divide area models (both circle and rectangle models), and length models (such as a length of paper or string) for four sharers. They will benefit from reinforcing the idea of fair shares (equal shares) ensuring that each sharer is getting the same amount. Opportunities to describe the fair share parts as fourths should be included in ongoing lessons addressing this content.

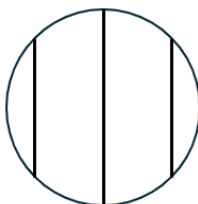
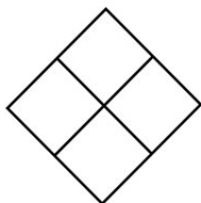
3. Two friends share 8 pieces of candy. Draw a picture to show fair shares.

Some students may only divide up the pieces of candy with each friend receiving one or two or three pieces of candy, leaving some pieces of candy leftover. There are several ways to divide a set, and it may be helpful to observe students as they work. It may also be helpful to provide 8 counters or cubes to represent the 8 pieces of candy. Some students may use their knowledge of doubles and will solve the task easily by splitting the 8 pieces into two groups of 4. Other students may share the pieces of candy one by one until all pieces are shared. It is important to focus on the idea of equality and to ask students how they know that the pieces of candy have been shared fairly.

4. Four friends share 2 brownies. Draw a picture to show how much brownie each friend gets.

As with the previous question, students may have different ways to attempt to share the brownies fairly. A common misconception is that since there are only two brownies, there is not enough to share with four friends. Students who answer in this way have not yet developed an understanding of parts and wholes and may lack experience in decomposing shapes. Some students may cut one brownie into fourths and give one piece to each friend, but say that there is one brownie left over. Emphasize the practical situation of sharing the brownies. “If you and your friends have these two brownies, how could you share them fairly so that there is no brownie leftover?” This problem presents the ideas of both splitting a whole into equal parts and distributing the resulting pieces fairly.

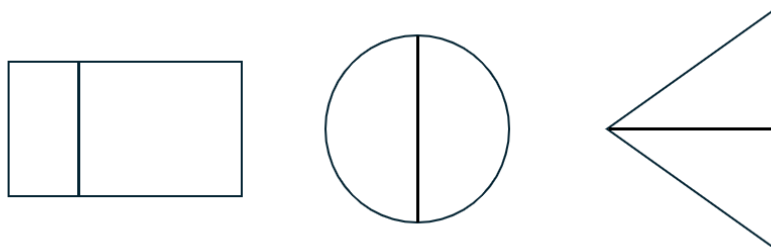
5. Circle all the pictures that show fourths.



Students may not recognize that fourths mean there are four equal parts. Students may gravitate towards the rectangle and circle that are divided into four parts with vertical lines and do not realize that the four parts of the circle have varying sizes. Students may benefit from fraction

problems presented in the form of real life situations and using concrete representations (rather than pictures and drawings) to strengthen their fractional understanding of equal parts.

6. Circle all the pictures that show halves.



Most children are intuitive about sharing something equally between two people. However, there are some who may not recognize that the two parts must be equal or the same amount. For example, students may say that the rectangle shows halves because there are two parts. This indicates that students do not recognize that the two parts must be equivalent. These students will benefit from fraction problems presented in context (word problems) and using concrete representations to strengthen their fractional understanding. Students are intuitive about fair shares but may have difficulty articulating that idea and will benefit from an emphasis on mathematical vocabulary used to describe the pieces (half, halves, equal, the same).