

The Turning Teapot

Companion Text: The Jakry Kids: Curiosity Shop, by Lin Jakary & illustrated by Ryan Olson
Subject Area & Grade Level: Mathematics, 5th Grade

Objectives

After this lesson, students will be able to:

- Describe how an object's position changes when rotated
- Demonstrate understanding of "clockwise" and "counterclockwise"

Activity

Read the story once through without stopping. Then, open up to page 19, and hold it up for all students to see. Ask students to focus on the positions of Marlita, Brother, the duck standing on the table, and the large mouse. Now, help students to locate the teapot in the center of the characters. Ask them, "Can you tell who the spout of the teapot is pointing at?" (Brother)

Now, draw a circle on the board and explain that a circle is split into 360 degrees. Draw (the best you can) the teapot in the middle of your circle, and the four featured characters around the outside of your circle in the same positions they are in the book. Then, bisect your circle with two, perpendicular lines, crossing over the teapot, and aligned with the characters. (Be sure your teapot is oriented with its spout pointing at Brother, just like in the book.)

Explain that when you split a circle into four equal parts like that, each section is called a "quadrant." Ask, "If the whole circle is 360 degrees, how many degrees do you think are in each quadrant? ($360/4=90$ degrees) So, if you want to move the teapot, without lifting it off the table, so that the spout is pointing at the standing duck instead of Brother, how many degrees will you have to rotate it? (90) And, will you be rotating it clockwise or counterclockwise? (Clockwise)" Go through a few more examples if necessary, and then move onto the reflection.

Reflection

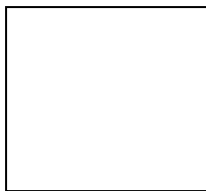
Ask students to work with a partner to complete the attached worksheet, and then check it as a class. Invite volunteers to share their drawings from #6 on the board, and challenge students to complete #7 using the new objects on the back of their worksheet.



The Turning Teapot

Directions: Using the picture on page 19 as a guide, please answer the following questions. Be sure that each answer contains the degrees and the direction (clockwise or counterclockwise).

1. From the teapot's starting position on page 19, with the spout pointing at Brother, how would you need to rotate it so the spout points at Marlita?
2. If the teapot's spout was pointing at the mouse, how would you need to rotate it so that it was pointing at Marlita?
3. If the teapot's spout was pointing at Marlita, how would you need to rotate it so that it was pointing at the standing duck?
4. If the teapot's spout is pointing at the standing duck and you rotate it 270 degrees clockwise, at whom is it pointing?
5. If you want to rotate the teapot all the way around so that the spout points at the same person it started at, how many degrees will you need to turn it? In which direction?
6. In the box below, draw a simple picture of a two-dimensional object:



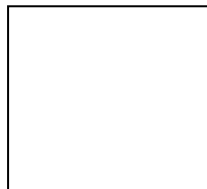
7. Now, re-draw your object in each box below, in the position indicated. (CW=clockwise, CCW=counterclockwise)



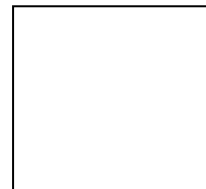
90 degrees CW



180 degrees CCW



90 degrees CCW



270 degrees CCW



The Turning Teapot—Answer Key

Directions: Using the picture on page 19 as a guide, please answer the following questions. Be sure that each answer contains the degrees and the direction (clockwise or counterclockwise).

1. From the teapot's starting position on page 19, with the spout pointing at Brother, how would you need to rotate it so the spout points at Marlita?

90 degrees counterclockwise

2. If the teapot's spout was pointing at the mouse, how would you need to rotate it so that it was pointing at Marlita?

90 degrees clockwise

3. If the teapot's spout was pointing at Marlita, how would you need to rotate it so that it was pointing at the standing duck?

180 degrees, either clockwise or counterclockwise

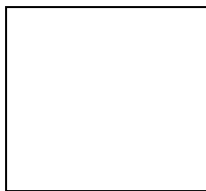
4. If the teapot's spout is pointing at the standing duck and you rotate it 270 degrees clockwise, at whom is it pointing?

Brother

5. If you want to rotate the teapot all the way around so that the spout points at the same person it started at, how many degrees will you need to turn it? In which direction?

360 degrees, either clockwise or counterclockwise

6. In the box below, draw a simple picture of a two-dimensional object:



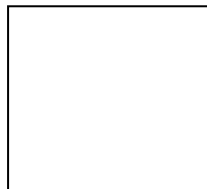
7. Now, re-draw your object in each box below, in the position indicated. (CW=clockwise, CCW=counterclockwise)



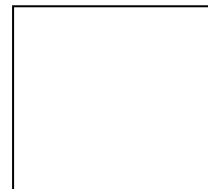
90 degrees CW



180 degrees CCW



90 degrees CCW



270 degrees CCW

