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Living Oceans  
Foundation

## STANDARDS

- **CCSS:** RST.9-10.1, 2, 4, 5, 6, 8, 10; RST.11-12.1, 2, 4, 6
- **NGSS:** HS-LS1-1, HS-LS1-4, HS-LS3-2
- **OLP:** 5.C.44, 5.C.47, 5.C.48, 5.C.53, 5.C.55, 5.C.56

## ONLINE CONTENTS

- [Life Cycle Quiz](#)

# LIFE CYCLE

This lesson is a part of the *Life Cycle* unit, which explains the cell cycle and the life cycle of corals. Below is a summary of what is included in the entire unit.

## UNIT CONTENTS

### A. [Background Information](#)

- Coral Life Cycle
- Cell Cycle
- Mitosis
- Meiosis
- Coral Cycles

### B. Lessons

#### [Coming Full Circle](#)

- An activity to make a story wheel of the coral life cycle

#### [Dividing the Parts](#)

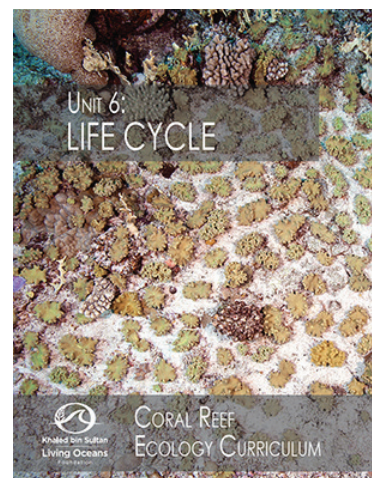
- A crossword puzzle to match the mitosis cell structures to their function

#### [Label It!](#)

- A worksheet to label the structures of a chromosome and a cell undergoing mitosis

#### [Read it! Coral Recruitment](#)

- A worksheet to accompany the [Coral Recruitment in the Garden of Good and Evil: How Baby Corals Get Started on Coral Reefs](#) field blog



# LESSON 1

# COMING FULL CIRCLE

**INTRODUCTION:** You will be constructing a story wheel that represents each of the different stages of a broadcast spawner's life cycle. Below, there are directions for building your model. After you complete your story wheel, answer the questions.

## MATERIALS:

- Scissors
- Colored pencils and/or markers
- 2 story wheel templates
- 1 paper fastener
- Protractors (optional)

## INSTRUCTIONS:

1. Use two pieces of paper or cardstock to create your story wheel.

### Circle 1:

2. Cut out the circle from the Story Wheel Template 1 - Circle 1.
3. For each of the 8 sections, draw and describe the stages of a coral's life cycle. Refer to the *Unit 6: Reproduction - Background Information* for more details. It doesn't matter which section you begin with on the circle, as long as you place each stage of the coral's life cycle in chronological order.

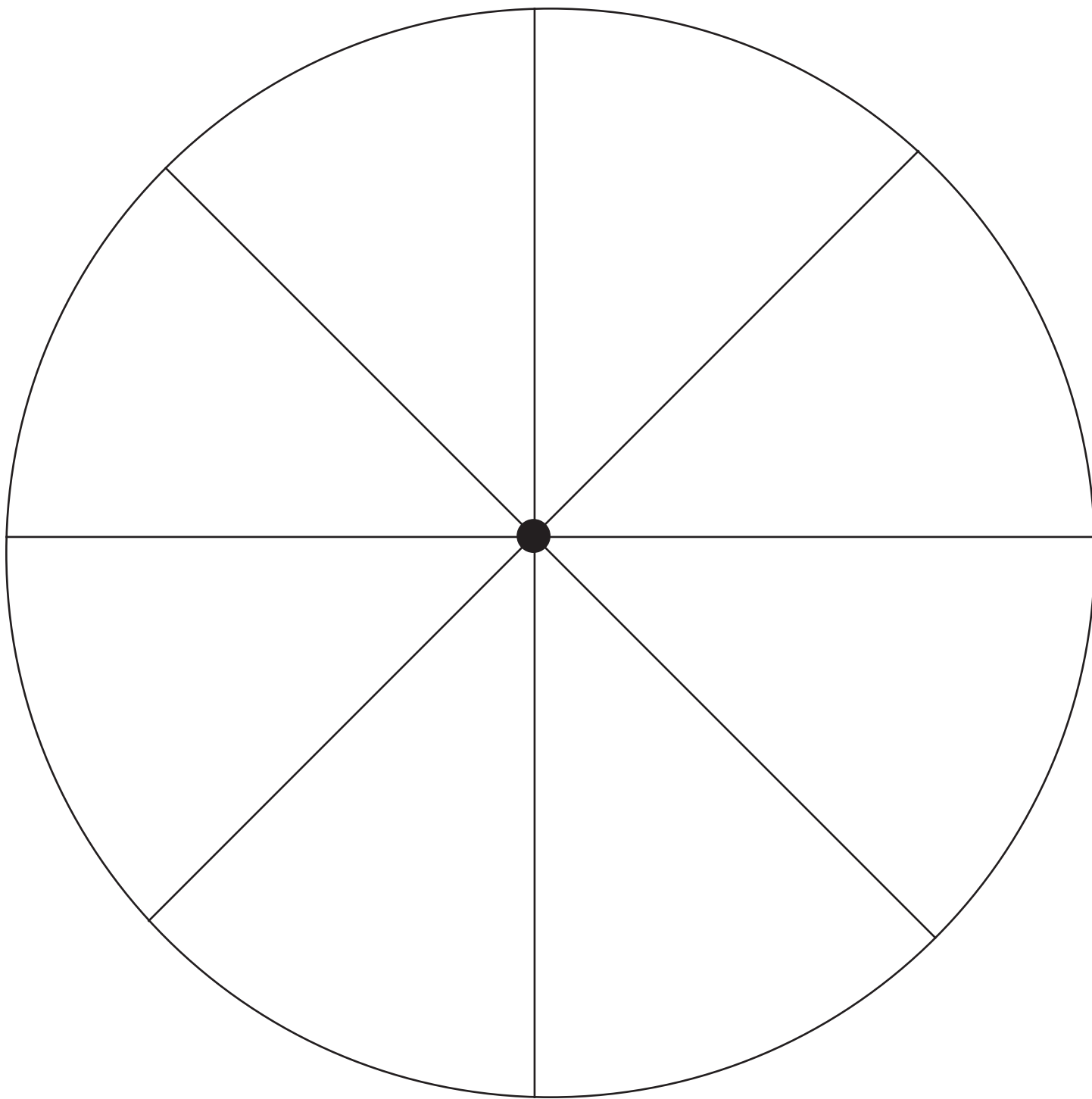
### Circle 2:

4. Cut out the circle from the Story Wheel Template 1 - Circle 2.
5. Cut out one wedge the same size as each section on Circle 1 (dotted lines).
6. Place Circle 2 on top of Circle 1. Make sure that they line up perfectly.
7. Use the fastener to puncture the center of each circle. Bend back the tails of the paper fastener to keep your circles in place.
8. Create a title and write it on your story wheel.
9. Answer questions on your worksheet.

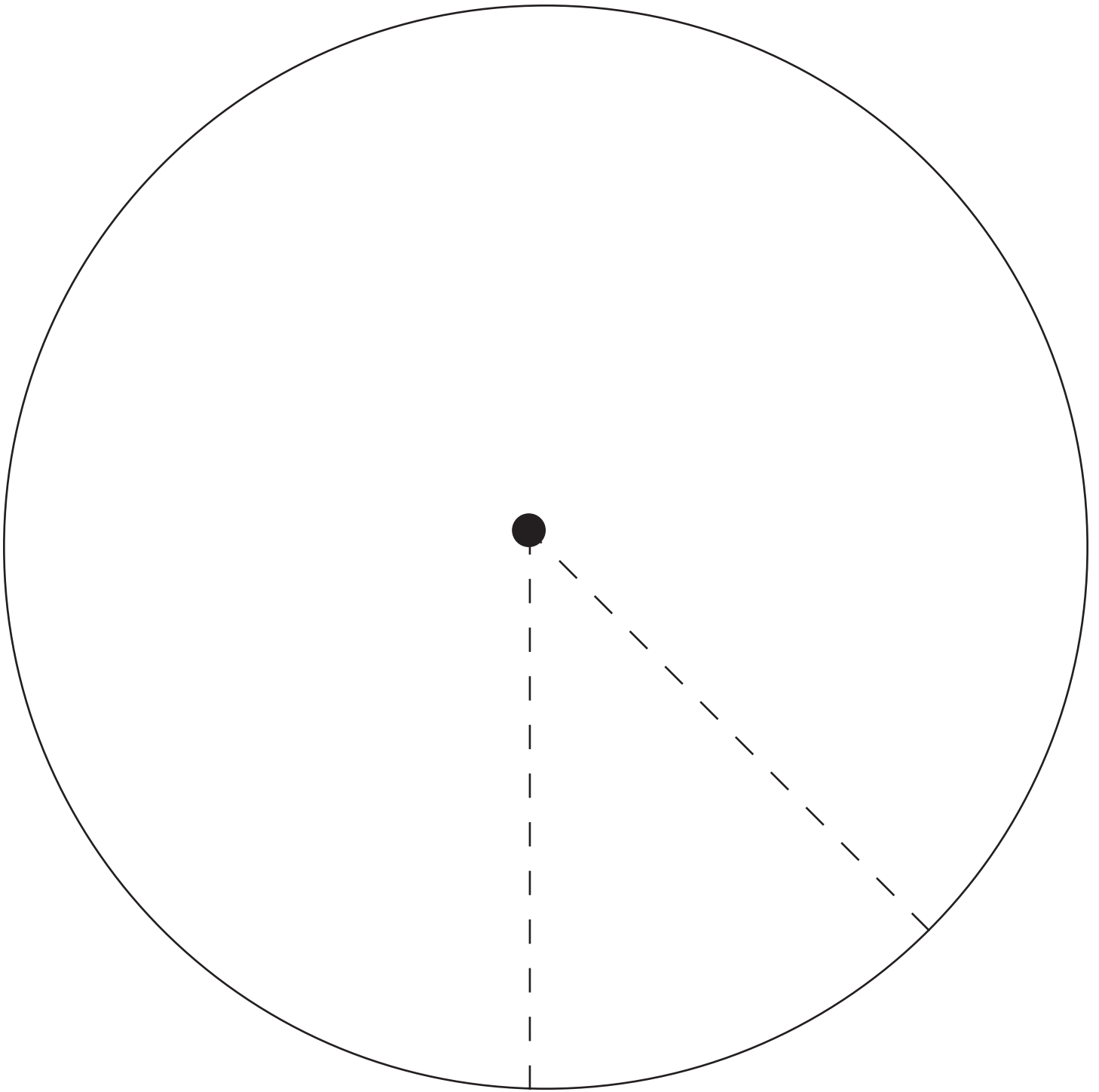
**INSTRUCTIONS:** Answer the following questions.

1. At what stage in the coral's life cycle does DNA from two different individuals mix?
2. What does it mean when a coral is going through metamorphosis?
3. Why is it important that corals can reproduce sexually and asexually? Explain.
4. Can a coral survive without undergoing meiosis?
5. Can a coral survive without undergoing mitosis?
6. What factors could affect a coral's life cycle? List at least three examples.
7. If you are in charge of sexually breeding corals for a fish store, what factors would you have to take into consideration when designing the breeding tanks?

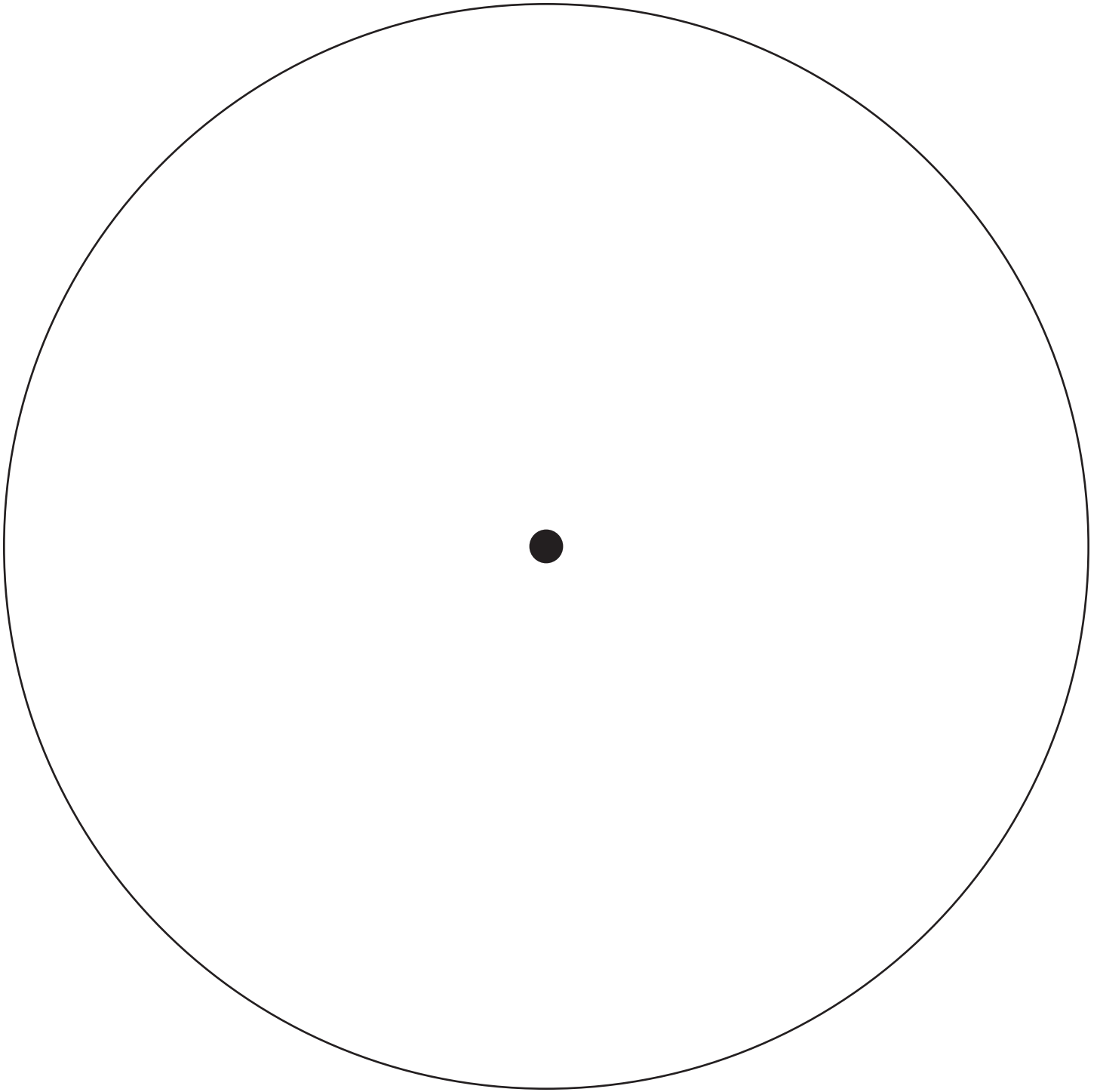
# STORY WHEEL TEMPLATE 1 - CIRCLE 1



## STORY WHEEL TEMPLATE 1 - CIRCLE 2

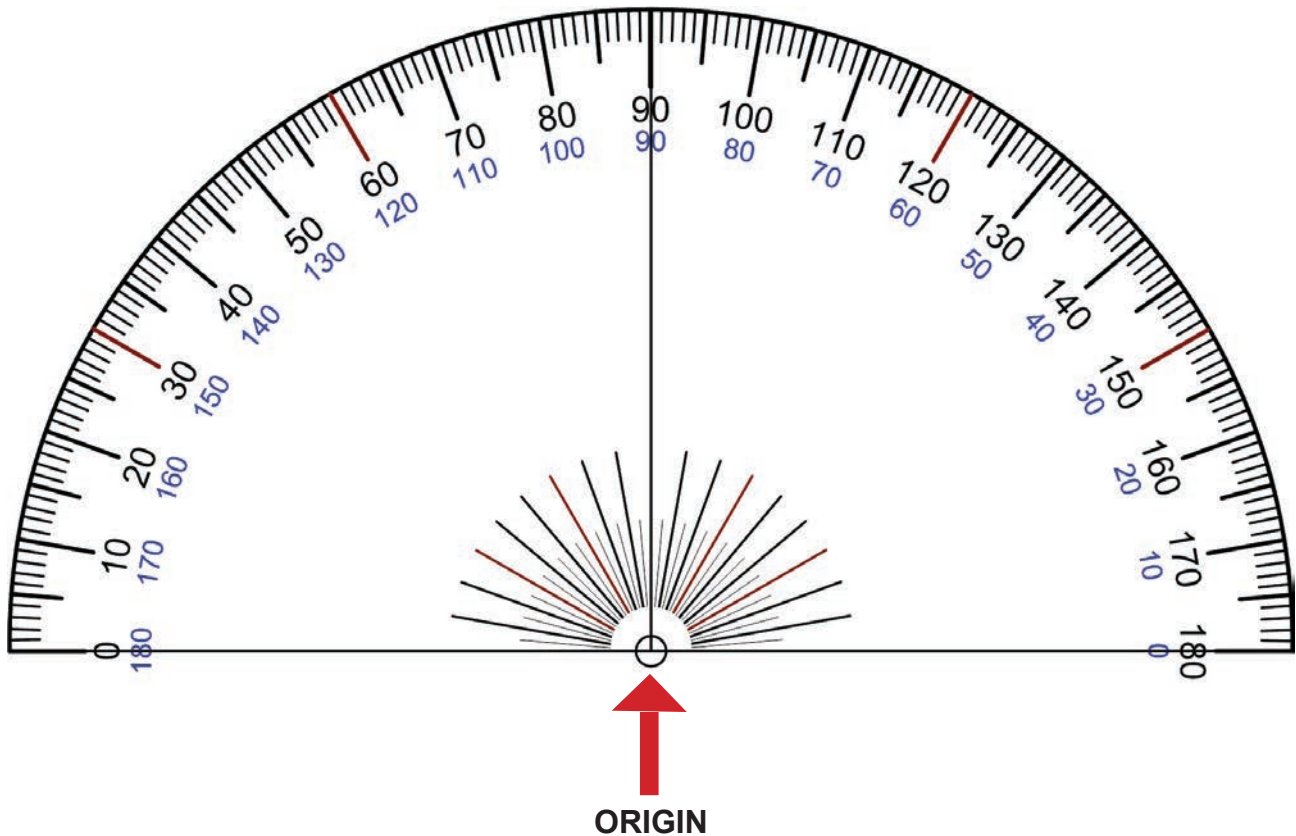


## STORY WHEEL TEMPLATE 2



## INSTRUCTIONS FOR CREATING A STORY WHEEL USING A PROTRACTOR

1. Using the Story Wheel Template 2, line up your protractor with the small dot in the middle of the template. You can do this by lining up the origin (the area that contains either a small circle or a line that is located near the bottom and center of the protractor) with the black dot on the template.
2. Create eight different sections in the circle. A circle has  $360^\circ$ . If you want to create 8 equal sections, then divide  $360^\circ$  by 8. When you do, each section must be  $45^\circ$ .
3. Use the protractor to place a mark on the circle every  $45^\circ$ . It's easiest to begin at  $0^\circ$ . Here are the degree increments that you should come up with: 0, 45, 90, 135, 180, 225, 270, 315, and 360.
4. Draw a line from each mark to the center of the circle. When finished, there will be 8 different sections.
5. For the second circle, mark one  $45^\circ$  sized section and cut it out.



### ATTRIBUTION

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