

## Spinning Tops

Curriculum: Science, Math

Topic: Secondary colors, fractions of a circle

Materials: Markers in primary colors, white paper, scissors, round cocktail toothpicks, pencils

1. Print and cut out this circle.
2. Color the white segments with a yellow marker and the gray segments with a blue marker.
3. Make additional circles for the other primary colors: red/blue and red/orange.
4. Poke a large toothpick (round) about 1/4 inch through the center of each circle.

### Science – Color

1. Discuss what might happen to the colors when the tops spin. Write a prediction about each of the three tops (The secondary colors should appear during the spin.).
2. Make additional circles with fewer segments such as 8, 6, 4, and 2 segments. (Circles can be folded into even numbers of segments, ironed, and colored with marker or crayon.)
3. Test circles with larger segments to see if the eye blends the two colors. Find the specific number of segments where the eye no longer blends the colors to make a secondary color?
4. Option: Make and test circles with concentric rings instead of radii. Try a 2-color design to see if colors will blend.

### Math – The Spin

1. Use a stopwatch to determine the length of time the circle remains spinning. Record the time.
2. Make another prediction: Does the spinning time change if the length of toothpick tip poked through the paper changes?
3. Use a different variable and make the circle smaller by changing its diameter. Use scissors to trim the circle. Does the size of the circle make a difference to the amount of spinning time? Try several different diameters by trimming a little more off the edge each time. Record the times of all the spins.
4. Poke a pencil through the center. Does using a pencil as an axis change the amount of spinning time?
5. Graph the results

