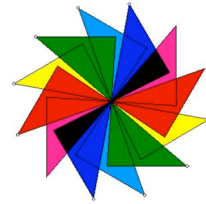



# Animated Spinwheels 4.0




## Start with a new sketch.

Go to the “File” menu and choose “New Sketch”.

## Draw a triangle.

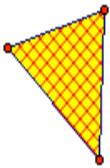
Use the “line segment” tool  to draw a triangle.

## Highlight the vertices of the triangle.

Choose the “arrow”  button. Click on and highlight one of the vertices. Now highlight the other two vertices the same way.

## Make a triangle interior.

With the three points highlighted, go to the “Construct” menu and choose “Polygon Interior” or “Triangle Interior”.




## Add color to your triangle.

At this time your triangle should be shimmering or crosshatched. That means that it is highlighted. Right click your mouse and choose a color. Click in any white area to turn off the highlighting. You should see a colorful triangle.

## Make a point of rotation.

Double click on one of the vertices of the triangle. You should see an exploding doughnut effect or bull’s eye effect. This means your vertex is now a point of rotation.

## Highlight the triangle interior.

With the “arrow” button , click on the colored region inside your triangle. It should now be shimmering.

## Rotate the triangle interior.

Go to the “Transform” menu and choose “Rotate”. Enter \_\_\_\_ degrees (ask your teacher for the number to put in the blank, should be either 30,45,60 or 120). Click “Rotate”.

## Rotate the triangle interior again.

Go back and choose “Rotate” again. Continue until you have completed the spinwheel. Change the colors of your triangles so that they are all different.


## Test your spinwheel.


Click on any vertex and drag it around. You should notice that all the shapes change.



### **Animate the spinwheel.**

Deselect all objects by clicking in any white area.

Using the “circle” tool  draw a circle anywhere on your sketch.

Using the line segment tool , choose (highlight) a vertex of one of your triangles.

Next, highlight the edge of the circle (not the point marked on the circle or the center of the circle). You should now have a point and a path highlighted. Next go to the “Edit” menu and select “merge point to circle”.

### **Make an animation button.**

Go to the “Edit” menu and choose the “Action” button followed by “Animation”. Click on “OK” and you will see an animate button appear.

### **Do the animation.**

Double click on the button and your animation should begin. Just click anywhere on the screen to stop it. Move the circle to another place. Make it smaller. Animate it again.

Observe different spinwheels with different angles of rotation like 90, 120, 45, and 30.

### ***Questions (for you to answer and hand in to your teacher.)***

1. How many triangles does it take to complete the pinwheel if the angle is 90? Why?
2. How many triangles does it take to complete the pinwheel if the angle is 120? Why?
3. How many triangles does it take to complete the pinwheel if the angle is 30? Why?
4. How many triangles does it take to complete the pinwheel if the angle is 45? Why?
5. What is the relationship between the number of degrees of rotation and the total number of rotations? In other words, when you rotate the triangle more degrees do you make more triangles in your spinwheel or less?