

<b>Title:</b>	Painting Circles	
<b>Grade(s):</b>	5	
<b>Subject(s):</b>	Mathematics	
<b>Author:</b>	iCAC Team	
<b>Overview:</b>	<p>The teacher will review with the students the definition of the center, radius, and diameter of a circle. Students will use <b>Microsoft Paint</b> to draw a circle, mark the center, and draw the lines representing the radius and diameter. Students will then add labels identifying the key parts of the circle.</p>	
<b>Content Standards:</b>	<p>MA (5) 10. Identify the center, radius, and diameter of a circle.</p> <p>TC (3-5) 1. Use input and output devices of technology systems.</p> <p>TC (3-5) 2. Use various technology applications, including word processing and multimedia software.</p> <p>TC (3-5) 5. Practice safe use of technology systems and applications.</p> <p>TC (3-5) 12. Create a product using digital tools.</p>	
<b>Local/National Standards:</b>		
<b>Primary Learning Objectives:</b>	<p>The student will:</p> <p>Use <b>Microsoft Paint</b> to create a circle and label the center, radius, diameter, chord, and central angle.</p>	
<b>Additional Learning Objectives:</b>		
<b>Approximate Duration of Lesson:</b>	60 to 90 minutes	
<b>Materials and Equipment:</b>		
<b>Technology</b>		
<b>Resources Needed:</b>	<b>Microsoft Paint</b>	
<b>Background/Preparation:</b>	<p>Knowledge of the center, radius, and diameter of a circle.</p> <p>Knowledge of the <b>Microsoft Paint</b> activity.</p>	
<b>Procedures/Activities:</b>	<p>Step 1 Write on the board the following vocabulary terms related to a circle and ask the students to define each:</p> <ul style="list-style-type: none"> <li>• <b>circle</b> = a closed plane figure made up of all the points the same distance from the <b>center</b> point</li> <li>• <b>radius</b> = any line segment that connects the center of the circle to any point on the circle</li> <li>• <b>diameter</b> = any line segment through the center that connects any two points on the circle</li> </ul>	

- **chord** = any line segment that connects any two points on the circle
- **central angle** = an angle whose vertex is the center of the circle.

Step 2 Draw a diagram of a circle on the board. Call on different students to illustrate each of the above key terms on the circle diagram.

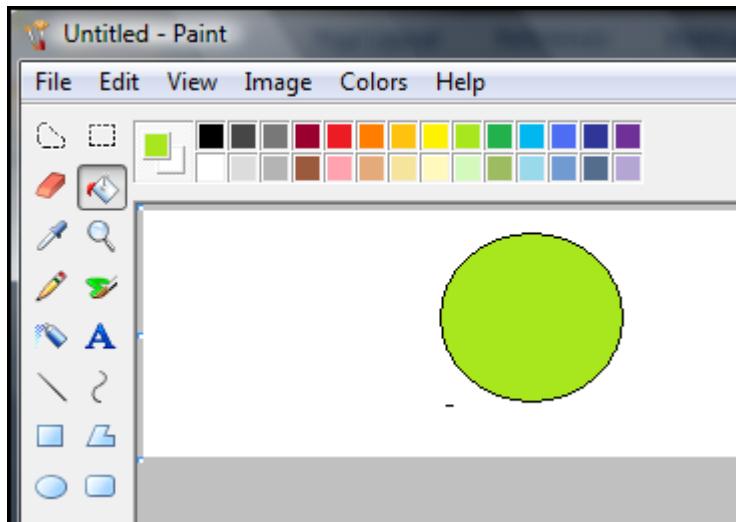
Step 3 Divide students into groups of 3 or 4.

Have them open **All Programs** and **Accessories** and launch the **Paint** activity by clicking the **Paint** icon.

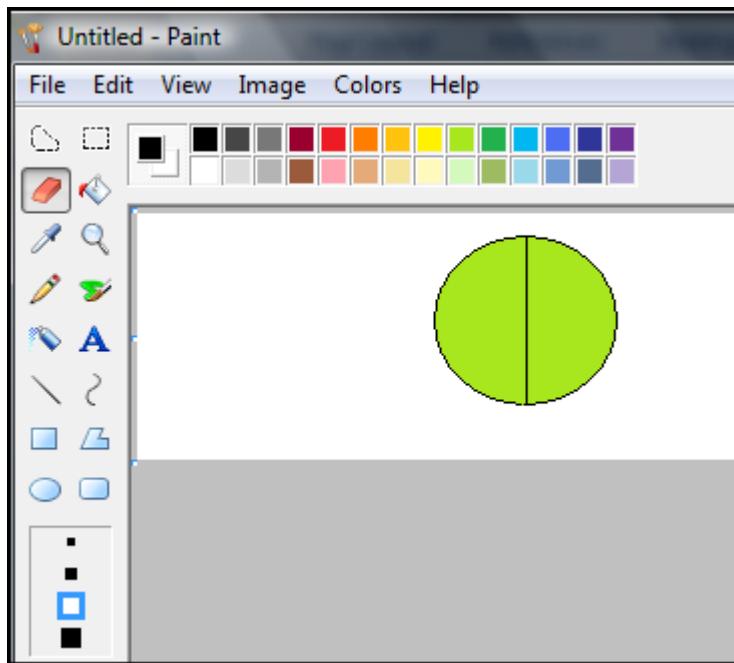


Step 4 Have one student in the group draw a circle by clicking on the *ellipse* tool. Just click and pull the cursor across the screen to create a circle.

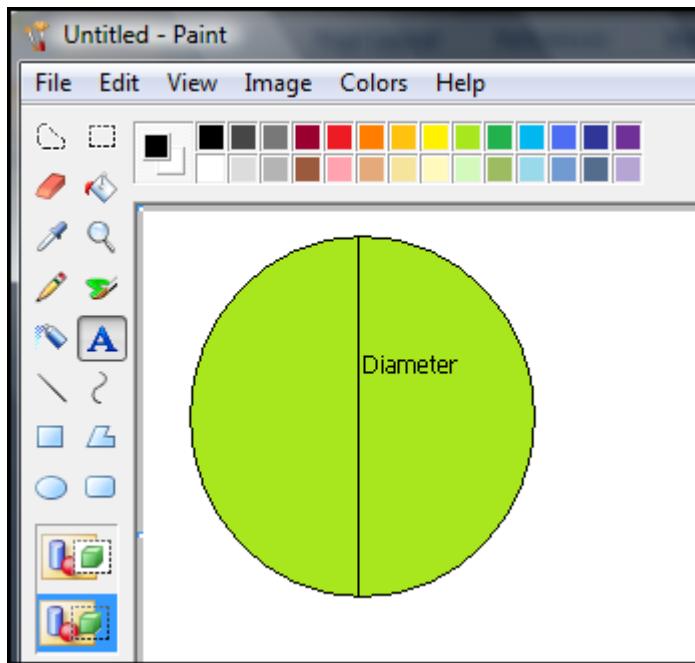
You can change the color of the circle by clicking on a color square at the bottom of the screen and then using the paint bucket tool.



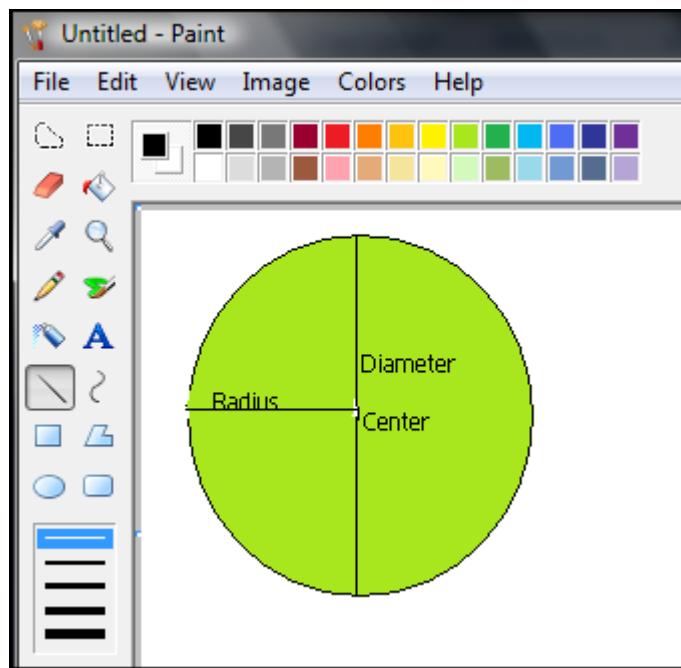
Step 5 Ask the next student in the group to use the *line* tool to draw and label the diameter of the circle. Select the Line tool under the shapes tab and click and drag a line across the center of the circle. If you make a mistake use the *Undo* option under the *Edit* tab.



To add text, use the *Text* tool (the A). Click on the circle next to the line to label it as the **diameter**.



Step 6 Have the other two students in the group repeat step 5 to add and label the **radius** and the **center** of the circle.



Complete the circle diagram by adding a **chord** and a **central angle**.

Next you will ask the students to save or keep the image by typing in the file name “Diameter” under “File” and “Save As.” This will save the file.

**Attachments:****Assessment**

See rubric.

**Strategies:****Extension:**

Have students repeat the process in their group but have them change roles. If they drew the diameter before, now have them draw the radius, etc.

**Remediation:**

Provide the students with a circle diagram containing the diameter and radius already drawn and ask them to label the parts correctly.

### Assessment Rubric for Painting Circles

Score	1	2	3	4
<b>Participation (if students worked in groups)</b>	No participation in the activity.	Some participation, but did not work well with the group.	Participated throughout activity, contributed to successful outcome.	Worked well with everyone in group, offered ideas, contributed to successful outcome.
<b>Mathematics Comprehension</b>	Did not create a circle and/or did not correctly place or label the elements.	Accurately drew a circle, but correctly placed and labeled only 2 or 3 of the three elements.	Accurately drew a circle and correctly placed and labeled 4 of the 5 elements of a circle.	Accurately drew a circle and correctly placed and labeled the diameter, radius, center, chord, and central angle.
<b>Technology</b>	Did not complete the assignment using the available technology.	Did not use the appropriate Shape, Line, or Text tools to create a labeled circle.	Correctly used the appropriate tools to create the images, but did not create a complete game.	Correctly used appropriate tools in Paint and created a circle and labeled the elements.