# Content Area: Math Grade Level: 7th Grade

**Reporting Measure:** Circles

| Level | Description |
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| **Above & Beyond (4.0)** | The student will:<br>• Use the measurements of a circle to calculate the surface area of cylinders (for example, when given the height of a cylinder and the radius of its base, reason that the side of the cylinder is a rectangle with a width equal to the circumference of the cylinder's base and calculate the surface area of the cylinder as the sum of the areas of its bases and the area of its side). |
| **3.5** | In addition to score 3.0 performance, partial success at score 4.0 content |
| **Proficient (3.0)** | The student will:<br>**C1—Approximate the value of the constant pi (π) using the relationship between the diameter and circumference of a circle** (for example, when given circles of varying size, calculate the ratio of the circumference to the diameter for each circle and compare the ratios to verify that the value of π is constant for all circles).<br>**C2—Solve problems using the formula for the circumference of a circle** (for example, when given the radius or diameter of a circle, calculate its circumference).<br>**C3—Solve problems using the formula for the area of a circle** (for example, when given the radius or diameter of a circle, calculate its area). |
| **2.5** | No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content |
| **Getting There (2.0)** | **C1—**The student will recognize or recall specific vocabulary (for example, *pi*) and perform basic processes such as:<br>• Identify the parts of a circle (center, circumference, radius, and diameter).<br>• Define π as the circumference of a circle that has a diameter of 1.<br>• Explain that the ratio of a circle's circumference to its diameter is constant for all circles.<br>• Explain that the ratio of a circle's circumference to its diameter is represented by the constant π.<br>**C2—**The student will recognize or recall specific vocabulary (for example, *center, circumference, diameter, radius*) and perform basic processes such as:<br>• Explain that the diameter of a circle is equal to two times its radius.<br>• State that the value of π is approximately equal to $3.14$.<br>• State the formula for the circumference of a circle ($C = 2\pi r$).<br>**C3—**The student will recognize or recall specific vocabulary (for example, *area*) and perform basic processes such as:<br>• Explain the relationships between circumference, diameter, radius, and π.<br>• Estimate the area of a circle using various strategies. For example, estimate the area of a circle from gridlines on a diagram, as being between the areas of its inscribed and circumscribed squares, or as being a little over three (or exactly π) times the area of a square with side lengths equal to the radius of the circle.<br>• State the formula for the area of a circle ($A = \pi r^2$). |
| **1.5** | Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content |

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| **Beginning (1.0)** | With help, partial success at score 2.0 content and score 3.0 content |