Mathematics Grade 8
Shape and Space (SS)

Outcome	1 - Beginning The student is having difficulty demonstrating an understanding of the concept.	2 – Approaching The student is developing an understanding of the concept.	3 – Meeting The student consistently demonstrates an understanding of the concept or has achieved the concept.	4- Exemplary The student independently demonstrates an in-depth understanding of the concept, and consistently applies this knowledge to new situations.
SS8.1 **I can demonstrate understanding of the Pythagorean Theorem concretely or pictorially and symbolically and by solving problems. [CN, PS, R, T, V]**	• I can correctly identify and label the parts of a right triangle (legs/sides, hypotenuse, right angle). • **With help**, I can apply the theorem to find an unknown hypotenuse.	• I can identify that $a^2 + b^2 = c^2$ for right triangles concretely, pictorially **OR** symbolically. • I can solve for an unknown hypotenuse using the Pythagorean Theorem.	• I can explain that $a^2 + b^2 = c^2$ concretely, pictorially **AND** symbolically. • I can solve problems with an unknown side length **OR** unknown hypotenuse using the Pythagorean Theorem **AND** I can verify a Pythagorean Triple **AND** the converse using the formula.	• I can create and solve real life problems involving the Pythagorean Theorem, Pythagorean Triples, or the converse of the Pythagorean Theorem. • I can explain the pattern present in Pythagorean Triples.
Comments				

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SS8.2 **I can demonstrate understanding of the surface area of 3-D objects limited to right prisms and cylinders (concretely, pictorially, and symbolically) by:** **1. analyzing views** **2. sketching and constructing 3-D objects, nets, and top, side, and front views** **3. generalizing strategies and formulae** **4. analyzing the effect of orientation** **5. solving problems.** **[C, CN, PS, R, T V]**	• **With help,** I can use the net of a 3D object (cylinder and prism) to calculate the surface area.	• I can use the net of a cylinder **OR** right prism to calculate the surface area. •	• I can use the net of a cylinder **AND** right prism to calculate the surface area.	• I can extend my understanding of surface area of cylinders and right prisms **to composite 3-D objects**.
	• **With help**, I can sketch the top, front **OR** side views of 3D objects.	• I can sketch the top, front **AND** side views of 3D objects.	• I can sketch the top, front **AND** side views of 3D objects **when rotated in increments of 90º.**	• I can **predict** and sketch the top, front and side views of 3D objects when rotated in increments of 90º **and verify concretely and pictorially.**
	• **With help,** I can create a net for a cylinder and prism.	• I can create a net for a cylinder **OR** prism	• I can create a net for a cylinder **AND** prism.	• I can **predict** and create nets for cylinders and prisms and verify the net by constructing the 3D object.
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SS8.3 **I can demonstrate understanding of volume limited to right prisms and cylinders (concretely, pictorially, or symbolically) by:** **1. relating area to volume** **2. generalizing strategies and formulae** **3. analyzing the effect of orientation** **4. solving problems.** **[CN, PS, R, V]**	• I can identify situations in my life where I need to know the volume of a right prism AND a cylinder. • **With help**, I can use a formula to find the volume of rectangular prisms.	• I can describe relationship between area of the base of a right prism **AND** cylinder and the volume of the 3-D object. • I can use a formula to calculate the volume of right prisms.	• **I can use the relationship between the area of the base of a right prism or cylinder and the volume of the 3-D object to determine a formula for the volume of the object, AND apply the formula to determine the right prisms and cylinders.** • **I can generalize the relationship between the area of a base and height in determining volume for various right prisms and right cylinders.**	• I can decompose a given volume and given dimension(s) to find a missing dimension. • I can determine formulas for various right prisms by applying the generalization for determining volume.
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SS8.4 **I can demonstrate an understanding of tessellation by:** **1. explaining the properties of shapes that make tessellating possible** **2. creating tessellations** **3. identifying tessellations in the environment.** **[C, CN, PS, T, V]**	• **With help**, I can identify transformations (translations, reflections and rotations) within a tessellation.	• I can identify **a few** transformations (translations, reflections **OR** rotations) within a tessellation.	• I can **identify transformations (translations, reflections AND rotations) within a tessellation.**	• I can **identify and explain transformations** (translations, reflections and rotations) including **angle measurements**, within a tessellation.
	• **With help**, I can design and create a tessellation involving one 2D shape.	• I can **design and create a tessellation involving one or more 2D shapes**.	• I can **design and create** a tessellation involving **one or more 2D shapes** and **document the mathematics involved** in the tessellation e.g. angles, transformations)	• I can design and create a tessellation involving at **least two** 2D shapes, **document the mathematics involved** in the tessellation e.g. angles, transformations), and explain my creation.
Comments:				