Unit 7 – Solids

Graded Learning Targets	Supporting Learning Targets	Book
LT 7.1 – *I can calculate surface area and volume of pyramids, cones, and spheres.*	I can identify and use parts of solids to solve problems. I can model solids. I can find the surface area of a cone and pyramid and justify the formulae. I can find the volume of a cone and pyramid and justify the formulae. I can find the volume of a sphere. I can solve and justify problems using the relationship of volume, height, area of base, and radius algebraically. I can find the surface area of a sphere.	Section 1.8, 8.7, 10.1, 10.2, 10.3, 10.4, 10.5, 10.6, 10.7
LT 7.2 – *I can compose and decompose 3-dimensional figures to determine surface area and volume of various figures.*	I can find the volume or surface area of a solid when a section is removed. I can find the volume or surface area of solids that are combined. I can find the volume and surface area of complex solids.	Section 8.7, 10.6
LT 7.3 – *I can explain and demonstrate the effect of scale factor on length, area, and volume.*	I can describe the pattern between the length, area, and volume of a 2-D shape or 3-D solid. I can solve problems using the pattern of length, area, and volume of a 2-D shape or 3-D solid and justify my results.	Section 11.5

Unit 7 Conjectures

LT 7.1 – *I can calculate surface area and volume of pyramids, cones, and spheres.*

Prism-Cylinder Surface Area Conjecture:
If B is the area of the base, P is the perimeter of the base, and H is the height of the solid, then the formula for the surface area of a prism or cylinder is SA = _____.

Pyramid-Cone Surface Area Conjecture:
If B is the area of the base, P is the perimeter of the base, and *l* is the slant height of the solid, then the formula for the surface area of a pyramid or cone is SA = _____.

Conjecture A:
If B is the area of the base of a right rectangular prism and H is the height of the solid, then the formula for the volume is V = _____.

Conjecture B:
If B is the area of the base of a right prism (or cylinder) and H is the height of the solid, then the formula for the volume is V = _____.

Conjecture C:
The volume of an oblique prism (or cylinder) is the same as the volume of a right prism (or cylinder) that has the same _____ and the same _____.

Prism-Cylinder Volume Conjecture:
The volume of a prism or a cylinder is the _____ multiplied by the _____. V = _____.

Pyramid-Cone Volume Conjecture:
If B is the area of the base of a pyramid or a cone and H is the height of the solid, then the formula for the volume is V = _____.

Sphere Volume Conjecture:
The volume of a sphere with radius r is given by the formula _____.

Sphere Surface Area Conjecture:
The surface area, SA, of a sphere with radius r is given by the formula _____.

LT 7.3 – *I can explain and demonstrate the effect of scale factor on length, area, and volume.*

Proportional Areas Conjecture:
If corresponding sides of two similar polygons, the radii of two circles, or side lengths of two similar solids compare in the ratio $\frac{m}{n}$, then their areas compare in the ratio _____.

Proportional Volumes Conjecture:
If corresponding edges (or radii, or heights) of two similar solids compare in the ratio $\frac{m}{n}$, then their volumes compare in the ratio _____.