Designer Name(s):	Date:

Subject Area: math **Grade Level(s):**7th
Unit Title/Focus: geometry/designing cereal boxes
Estimated Amount of Instructional Time: quarter 4

Stage 1 – (Desired Results)

State Content and Skill Standards:
7G.B, 7.G4, 7.G.5, 7.G.6

Enduring Understandings: (what are the big ideas, what are the specific understandings desired)	*Essential Questions: (what questions will foster inquiry, understanding, and transfer of learning)*
Students will understand that… Students will understand that geometry concepts of volume and surface area are used to determine best value in marketing cereal boxes.	How can I find volume in cylinders and rectangular prisms? How can I find surface area of cylinders and rectangular prisms? How can I find the best value in a cereal carton for profit and packing?

Big Idea(s)

Geometry concepts are used for packaging

What Students will know: (what knowledge will they acquire)	*What Students will be able to do: (what will they eventually be able to do as a result of their skills learned/knowledge)*
The students can explain surface area of rectangular prisms and cylinders	The students can find surface area of rectangular prisms and cylinders
The students can explain volume of rectangular prisms and cylinders	The students can find volume of rectangular prisms and cylinders
The students will know the difference between area and surface area	The students can draw nets of rectangular prisms and cylinders
The students will know the difference between surface area and volume	The students can use unit price to find total cost
The students will know surface area formulas	
The students will know volume formulas The students will know how to use the equation for total cost	

Stage 2 - Assessment Evidence (acceptable assessment evidence that students understand)

Performance Tasks: (what authentic performance task (s) will students demonstrate understanding; by what criteria will it be judged?)	*Other Evidence: (quizzes, tasks, academic prompts, homework, observations)*

	Performance test
The student will be given the dimensions of cereal boxes that are rectangular prisms with length, width and height and will find surface area and volume of the boxes The students will be given the dimensions of cereal boxes that are cylinders and calculate surface area and volume of the cylinders. The students will be given the cost of cardboard and will find total cost of the box. The students will be given the cost per ounce of the cereal and will find total cost of the cereal per package The students will compare the prism and cylinder boxes of cereal and decide which container is the best value siting evidence from their findings.	

Stage 3 - Learning Plan (sequence of teaching and learning activities that will produce desired understandings, engagement and development) Use WHERETO elements to help you:

Learning Activities:

Hook students into understanding that the geometry concepts of volume and surface area are used in cereal products. Equip the students in knowing how to find surface area and volume. Provide the students the opportunity to rethink and revise their results.

The students will find the best value for a cereal box considering the cost of the cardboard and the cost of the cereal using either a cylinder or a rectangular prism cereal carton. The students will find surface area of a rectangular prism and a cylinder and then multiply the surface area by the cost of cardboard. The students will find volume of a rectangular prism and cylinder and then multiply the volume by the cost per ounce of the cereal.

Resources: Saxon Math lessons: 20, 37, 61, 65, 67,82, 95, 105, 114, Investigations 3, 11

W=help the students know WHERE the unit is going and WHAT is expected/Help teacher to know where the students are coming from (prior knowledge, interests)
H=HOOK all students and hold their interest
E=EQUIP students, help them EXPERIENCE the key ideas and EXPLORE the issue
R=Provide opportunities to RETHINK and REVISE their understanding/work
E (2)=Allow students to EVALUATE their work
T=Be TAILORED (personalized) to different needs, interests, and abilities of learners
O=Be ORGANIZED to maximize initial and sustained engagement as well as effective learning

Assessment Tasks that Provide Evidence for Claims including DOK	X Claim #1/DOK <u>1,</u> <u>2,</u> 3, 4 (circle one):
	X Claim #2/DOK 1, 2, 3, 4 (circle one):
	☐ Claim #3/DOK 1, 2, 3, 4 (circle one):
	☐ Claim #4/DOK 1, 2, 3, 4 (circle one):
Achievement Level Descriptors	ALD #1: ALD #2: ALD #3: ALD #4: (circle one):
Materials/Resources	