UVU SCHOOL of EDUCATION
UTAH VALLEY UNIVERSITY

UVU Lesson Planning Guide

Name(s):	**Lesson length: 30-40 minutes**
Grade Level: 5th	**Subject: Math**

I. Standards	
Utah State Core Curriculum Strand(s) and Standard(s):	**Standard 5.MD.4** Measure volumes by counting unit cubes, using cubic cm, cubic in., cubic ft., and improvised units. **Standard 5.MD.5** Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume. a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, *for example, to represent the associative property of multiplication.* b. Apply the formulas *V = l x w x h and V = b x h* for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real-world and mathematical problems. c. Recognize volume as additive. Find volumes of solid figures composed of two nonoverlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real-world problems.
Utah Core Literacy or Math Standard (secondary only):	
Summative (Unit) Assessment:	N/A
Central Focus:	Students will be learning to measure real life objects using imperial units of length (inches, feet, etc), and using these measurements to calculate the volume of space these objects "take up". Along with this, students will be reviewing how to convert units of measurement. This lesson is important because it allows the students to make real, physical connections to the math they have been learning throughout the week (measurement using the imperial system). This allows the students to obtain a deeper understanding of their pre-existing knowledge of measurement and of volume. Students will take these practices into 6th grade where they will be asked to carry out mathematical investigations of objects.

II. Intended Learning Outcomes

Learning Objective/Target/Indicator: (Know and Do)	Know: How to convert units of measurement to another, and how to calculate volume based on the measurements of an object. Do: Students will be solving word problems based on measurement conversion and solving for the volume of real life objects.

III. Academic Language		
Language Function:	Analyze	
Language Demand		
	Vocabulary:	Volume, Inches, Feet, Yards, Measurement,
	Syntax:	N/A
	Discourse:	Students will analyze the measurements of objects around the room.
	Mathematical Precision (secondary math only):	N/A
Language Support:	Think aloud, Modelling language.	

IV. Assessment of Student Progress	
Pre-assessment:	Before the real world measurement activity, students will work on word problems involving converting measurements. Students have also worked on volume in the days leading up to this lesson.
Formative assessments:	I will periodically review students' work as they participate in the activity. I will compare student work to the monitoring chart I have created, providing me with advancing questions to ask students who understand the concept, and guiding questions to ask those who may not have a full grasp on it yet.
Final formative assessment:	I will review students' work once they have finished measuring and finding the volumes of the object assigned to them.

V. Preparation	
Students' prior knowledge, skills and assets:	Prior knowledge: Students have been workin on measurement all week and have previous experience using the formula to find volume. Personal assets: Students have access to measuring tools in class.
Student preparation (if applicable):	N/A
Teacher preparation:	Provide measuring devices. Measuring chart.
Technology integration (as applicable):	N/A

VI. Addressing Learners' Needs	
Differentiation/Individualization:	Allow students to use their own strategies.
Support for ELLs:	There are two ELL's in the class, each at a different level of language proficiency. They are seated close to each other to allow the one who is more proficient to help when applicable. When I am teaching, Ms. Gary, my cooperating teacher will be hovering around these two, assisting with understanding of any words.
Accommodations/Modifications for IEPs/504s:	Extra support with new vocab. Brain breaks before the lesson starts. Extra we do practice.

VII. Instructional Procedures (including models of instruction, strategies, assessments, differentiation, transitions, etc.)

This lesson will be primarily taught using direct instruction.

After getting the class's attention and letting them know math has started the teacher will introduce the lesson.
T: "Ok class, today we are going to do a quick review of converting length/weight into different units of standard measurement. After this quick review we will be doing an activity where all of you will have the chance to measure objects around the room using a standard measurement unit, in this case inches or feet. After you measure the item, you will then have to calculate the volume."
T: "For now let's work on a few of these problems as a class." The teacher will model solving one of the word problems using the cube method. After setting up the problem, call on one or two volunteers to help solve pieces or steps of the problem. Repeat this once or twice before letting the students work on one problem themselves.

Once students have had ample review of the word problems, reintroduce the measuring and volume activity.
T: "Now we are going to move onto the activity I mentioned at the beginning of the lesson." Re-explain what's expected of the activity.
T: As students participate in the activity, walk around the room asking assessing and advancing questions to

students when applicable. These questions could look like: “I see you calculated the volume of this box in inches, is there a way to find out its volume in feet?”.
Make sure to stay active in students' learning as they explore objects around the class.
Students go to specials at 10:20, so as time winds down, collect the class's attention and do a quick wrap up.
T: “Ok class, specials are coming up so we are going to have to wrap up. Finish whatever problem/item you are working on then put this paper into your math folder.”

Strategy/Level	*Questions to Ask*	*Students*
Individually/Using standard algorithm to convert measurements	Based on the question, ask how they knew what numbers they needed to multiply/divide to convert the measurement.	
Individually/No work, but ended up getting the correct answer due to converting using logic and a conversion table (ie. gallon land.	Is there a way you could show how you converted these units using an equation. How did you know 1 pint is equal to 16 ounces?	
Cannot Get Started	Suggest to review their conversion chart or gallon land. How many inches are in 1 foot? If there are twelves inches in 1 foot, and I have 3 feet. How many times more feet do I have?	