

UNITS DESIGN FRAMEWORK

PART I: UNIT OVERVIEW

Content	Mathematics-Integer operations.
Grade Level	9-12
Power Standard/CCSS Power Standard	N-RN3, N-Q1, N-Q2, N-Q3, MP1, MP3, MP4, MP8.
Suggested Length of Unit	4 Separate Lessons of lengths of 20 min – 60 min depending on student understanding and class participation. MP standards will be taught, modeled, and assessed throughout.

Reference Deconstruction Document and Power Standard/CCSS Power Standard	<p>N-RN3: The sum or product of rational numbers is rational. The set we use is closed under addition and multiplication.</p> <p>N-Q1: Use units as a way of understanding problems. Choose and use units consistently in problems.</p> <p>N-Q2: Use quantities and units that make sense in the context of the problem.</p> <p>N-Q3: Choose a level accuracy that is appropriate for the measurement tools used.</p> <p>MP1: Make Sense of problems and persevere in solving them. TRY BEFORE YOU CRY!</p> <p>MP3: Construct viable arguments and critique the reasoning of others. Have intelligent reasons and logic behind your classroom opinions.</p> <p>MP4: Model with mathematics.</p> <p>MP8: Look for and express regularity in repeated reasoning. Notice that math procedures are often reused and use that fact to speed your decision-making.</p>
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Unwrapped Concept: Pull “the what” from deconstruction documents, should represent what students need to know.	Key Vocabulary: Pull academic vocabulary from deconstruction documents, should represent what students need to be able to do.	Depth of Knowledge (DOK)
Add, subtract, multiply, and divide numbers, positive or negative. Use percent to find discounts, tax, net cost, etc.	Integer, negative, sum, product	Solve, use, represent DOK 2

Supporting Standards (current and CCSS): Standards that build to the power standard.	Other Vocabulary Terms: Terms worth covering in the unit.
	Sales tax, sale price, tax rate, overtime, time and a half,

Reference to Power Standard Assessment: Integers	
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Directions:		
<ol style="list-style-type: none"> Copy the unwrapped power standard concepts, vocabulary, and DOK into the frames provided below. Brainstorm three to five possible performance tasks that incorporate these concepts, skills, and levels of rigor. Write a synopsis for each selected task and list the tasks in a “learning progressions” sequence. Bold those concepts and skills that are directly represented in the tasks. 		
Concepts: N-Q1: Use units as a way of understanding problems. Choose and use units consistently in	Vocabulary: Integer, negative, sum, product, Sales tax, sale price, tax rate,	DOK: 2

<p>problems.</p> <p>N-Q2: Use quantities and units that make sense in the context of the problem.</p> <p>N-Q3: Choose a level accuracy that is appropriate for the measurement tools used.</p>	<p>overtime, time and a half,</p>	
<p>Learning Progressions:</p> <p>Task 1: Students will be provided with a list of cost for doing ½ of a job and will be asked to calculate the total cost. The point is to demonstrate a use for the order of operations rules.</p> <p>Auto: Repairing two window fuses, parts and labor, diagnostic cost (1 per car), clean car, plus tax. Collision: Repair two dents, parts and labor, paint and clear, but only 1 booth charge, tax, clean car. Construction: Wallboard, mud, tape for 5 surfaces, extra ceiling charge only once, trim 1 door. Weld: Materials and labor for two handrails but charge for only 1 gate, tax, ... Marine/Motorcycle: charge for chain inspection plus two sprockets cleaned, or 1 prop changed, but 6 plugs replaced, 6 wires but 1 ignition wire, tax, etc.</p> <p>Task 2: The students will receive wage information for a few employees. It will include an employee that gets paid an hourly wage, another that should get overtime, another that gets commission, and another that has a total and needs taxes removed.</p> <p>Task 3: Flat-rate activity. Students will get flat-rate info for their content and compare wage when one works quickly versus slowly.</p> <p>Task 4: Students will track their own work orders and compare their productivity to the published rate.</p>		
<p>Directions:</p> <ol style="list-style-type: none"> 1. Copy the unwrapped power standard concepts, vocabulary, and DOK into the frames provided below. 2. Brainstorm three to five possible performance tasks that incorporate these concepts, skills, and levels of rigor. 3. Write a synopsis for each selected task and list the tasks in a “learning progressions” sequence. Bold those concepts and skills that are directly represented in the tasks. 		
<p>Concepts:</p>	<p>Vocabulary:</p>	<p>DOK:</p>

Learning Progressions:

Task 1:

Task 2:

Task 3:

Task 4:

Directions:

1. Copy the unwrapped power standard concepts, vocabulary, and DOK into the frames provided below.
2. Brainstorm three to five possible performance tasks that incorporate these concepts, skills, and levels of rigor.
3. Write a synopsis for each selected task and list the tasks in a “learning progressions” sequence. Bold those concepts and skills that are directly represented in the tasks.

Concepts:

7.RP.2.c – Represent proportional relationships by equations

Vocabulary:

Proportion, ratio

DOK:

2

Learning Progressions:

Task 1: Write ratios and proportions

Task 2: Solve proportions using means and extremes

Task 3: Write ratios and proportions with unknown quantities

Task 4: Represent proportional relationships by equations