Unit 1: Topic #1 **Name**_____
Conversions **Date**_____

N.Q.1- Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

N.Q.2- Define appropriate quantities for the purpose of descriptive modeling.

Introduction:

On a road trip in California, Lisa saw a sign which made her laugh and take a picture:

What is mathematically strange about this sign, eliciting Lisa's laughter?

There is no reason to add these different measures. It makes no sense!

Making pizza situation (discuss conversions in general):

Whenever Ms. Price decides to make pizza dough from scratch (whether making homemade pizza or calzones) she runs into a problem. The recipe calls for one package of active dry yeast. Ms. Price only has a large bulk-size bag of yeast and does not have any measuring utensils besides cups, tablespoons, and teaspoons. How can she solve her problem?

how many ounces are in a packet?
how many ounces are in a teaspoon?

Vocabulary:

Ratio: comparison of 2 #s using division $\frac{a}{b}$, a:b, a to b	Unit: form of measurement Ex: in, yds, cm, ft, $, lbs
Rate: comparing 2 different quantities Ex: mi/hr	Unit Conversion: change one unit into an equivalent unit Ex: 12 in = 1 ft

Tasks #1: Traffic Jam

There was a traffic jam 12 miles long on a straight stretch of a two-lane highway. How many vehicles do you think were in the traffic jam? Explain your thinking and show all calculations.

Task #2: Comparing two different Rates

Two students ran the 50-yard dash in gym class. One ran the 50-yard dash in 5.8 seconds and their other was clocked at 17.8 miles/hour. Who won?

$$\frac{50\ \text{yd}}{5.8\ \text{sec}} \cdot \frac{3\ \text{ft}}{1\ \text{yd}} \cdot \frac{1\ \text{mi}}{5280\ \text{ft}} \cdot \frac{60\ \text{sec}}{1\ \text{min}} \cdot \frac{60\ \text{min}}{1\ \text{hr}}$$

$$= \frac{540{,}000\ \text{mi}}{30{,}624\ \text{hr}} \approx 17.63\ \text{mi/hr}$$

Runner at 17.8 mi/hr won

Task #3: Darryl's Movement (Graphing)

Darryl lives on the third floor of his apartment building. His bike is locked up outside on the ground floor. At 3:00 p.m., he leaves to go run errands, but as he is walking down the stairs, he realizes he forgot his wallet. He goes back up the stairs to get it and then leaves again. As he tries to unlock his bike, he realizes that he forgot his keys. One last time, he goes back up the stairs to get his keys. He then unlocks his bike, and he is on his way at 3:10 p.m.

Sketch a graph that depicts Darryl's change in elevation over time.

Exit slip Unit 1Topic 1:

1.) 7 days to hours

2) 152.4 cm to feet

3) 9 mi/hr to ft/sec

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Conversion Examples

1) 7 days to hours

$24 \cdot 7 = \boxed{168 \text{ hours}}$ OR $\frac{7 \text{ days}}{1} \cdot \frac{24 \text{ hr}}{1 \text{ days}}$ (rate)

$= \boxed{168 \text{ hrs}}$

2) 40 m/sec → km/hr

$$\frac{40 \text{ m}}{1 \text{ sec}} \cdot \frac{1 \text{ km}}{1000 \text{ m}} \cdot \frac{60 \text{ sec}}{1 \text{ min}} \cdot \frac{60 \text{ min}}{1 \text{ hr}}$$

$$= \frac{144000 \text{ km}}{1000 \text{ hr}} = \boxed{144 \text{ km/hr}}$$

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#s 10, 12–18 evens, 23, 28, 30