Unit 1

1.1 Proportional Reasoning

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Objective

10.10:Apply proportional reasoning to solve problems involving unit pricing and currency exchange. [CN, ME, PS, R, T] (leading up to this)

Definitions

Ratio: two numbers that have the same units are compared to each other

Rate: two numbers that that different unites compared to each other

Proportion: a fraction that describes the equality between two ratios or rates.

Start

Intro

Ratios are an integral part of our world, and you probably already use them everyday!

Driving

Q: What does it mean to be going 100 km an hour? What does this represent.

Q:What does going 30 km an hour in a school zone mean?

What we're really saying is this: for every hour (bottom) we have, we go 100 kilometers (top)

$$\frac{100 kilometers}{1 hour}$$

Since 1 hour = 60 minutes, we could simplify this further

$$\frac{100 kilometers}{60 minutes}$$

Can anyone tell me what
$$\frac{100}{60}$$
simplifies to?

Thats right:
$$\frac{10}{6}$$

And this is how:
$$\frac{\frac{100}{10}}{\frac{60}{10}}$$

> Q: Is this exactly the same equation that we started out with? (why or why not?)
>
> Q: What does this simplified equation tell us?
>
> Q: How can we use this information when we want to find out how long it will take us to travel somewhere?

We could also write this as km 10:6 minutes (we're just rearranging)

We are comparing two things that normally can't work with each other.

Time and distance don't usually talk to each other. Think of ratios and rates as the interpreter, that little line between then, that allows them to talk to each other.

The big idea is this: we are rearranging things to make things equal. We use math to make equations equal to each other to find new things.

Example

Boys to girls in the room.

Count boys and girls, make a ratio: simplify, and calculate how many boys we had if we had an increase of 15 girls.

Example 2

Work as a team to solve activity 1.2 (pg. 16)

Team 1: Recipe 1 Team 2: Recipe 2

How many cups of concentrate are required to feed Harvest city, assuming that one person drinks 2 cups of water

Assignment (27.3 minutes)

From the Textbook pg. 21

1 - 4

- 1 (4 minutes)
- 2 (5 minutes)
- 3 (4 minutes)
- 4 (4 minutes)

Do as many until you feel you understand

If you are having trouble, you are free to ask others for help, but not to socialize

End activity

Puzzle it out game (pg. 22)