

00:00 All right. We all here? We're all paying attention?

00:15 O.K. We've been working on rate for quite awhile now. We did our "Rate-palooza."

00:24 We did a very deep "Problem of the Month" on rate and we've done a lot of practice, a lot of work, in between all those steps on rate.

00:38 So today we are going to continue with that and we are going to talk a little bit more specifically about ways to represent rate.

00:45 So let's start out. So let's start out with a clear definition of rate. So I'm going to read what we got up here.

00:57 A comparison between two different measurements. So I want you to talk with your group members about examples of a rate.

01:08 A comparison of two different measurements. Share with your group members different rates. Go ahead. Real quick.

01:19 Ten inches in like three hours. How much it increases in one hour.

01:24 And then it's like, isn't it like...

01:41 Amanda, give me one.

01:42 Per miles.

01:46 Say it again.

01:47 Per miles.

01:48 Now two different measurements. I hear mile. What per mile?

02:00 Somebody in her group help her out. What per mile. Anything. Do you want to pick someone to help you?

02:10 Gallons?

02:11 Gallons per mile.

02:19 Molly.

02:21 Miles per hour.

02:30 Drew.

02:31 per pound.

02:37 Great examples.

02:40 per hour

02:49 Jessica.

02:50 Seconds per minute?

02:58 Yes.

02:59 Feet per second.

03:08 Days per year.

03:17 Light years per second.

03:20 I don't know the abbreviation for light years. I'm just going to write "Light years per second."

03:29 Brenda?

03:30 Feet per second.

03:31 Say it again.

03:32 Feet per second.

03:42 Yeah.

03:44 Hours per days.

03:47 So these are fantastic and I know you guys could keep on going. These are great. I mean, the first time we did this there were two or three up there.

03:57 So that's really amazing. You recognized that all of these are a comparison of two different measurements.

04:05 So we are going to go back a little bit. Just refresh your memory. We are going to go back to one of our experiments.

04:15 This experiment was part of the "Rate-palooza" and it said that in twenty seconds, Joe counted thirty beans.

04:26 Sarah counted twenty-five beans and Alex counted forty beans. O.K.?

04:33 What I'd like you to do, on the paper in front of you, I'd like each of you to represent Joe's rate, Sarah's rate and Alex's rate as ratios.

04:47 Write them as ratios on your paper. Three different ratios for each person, one for each person. Three different ratios.

04:56 So go ahead and write Joe's rate of counting beans.

05:12 Write Sarah's rate for counting beans. And Alex's rate for counting beans.

05:31 Give me a thumbs up when you have all three of those rates written down.

05:38 Just privately against your chest so that I can see it.

05:46 This is the only thing I wanted you to do.

05:51 So I see some great stuff here. I see this information being written as ratios. I see sentences over here. Both totally acceptable.

06:09 What I'd like you to do individually now is to prove to me, convince me, and you can write it down, or you can prove or convince me mathematically.

06:19 Who's the fastest bean counter? Who's the fastest bean counter? Go ahead and prove it on your paper. You can write it as a sentence if you want.

06:36 It's not enough to pick a winner. I need you to prove it to me.

07:00 Yeah. I like that. It's a great sentence.

07:02 So I want to ask you a specific question. Hold on. In twenty seconds would your opinion, would your results change. Let me ask that a different way.

07:22 Would your winner be different? If they were all working for twenty seconds? Could you write that down? Tell me why.

07:35 I like your sixty seconds thing. Leave it alone. Tell me something about twenty seconds.

07:41 Quiet hand if you'd like a minute more to just prove. O.K.

07:47 Some body help me out. Who is the fastest? Who is the fastest?

07:54 Brenda?

07:56 Alex because he can count more beans than anybody else in the same amount of time.

08:06 Counts more beans than anyone else...

08:17 In the same amount of time.

08:19 In the same amount of time. Very clear. Thank you.

08:34 Anybody prove it or can convince me in another way?

08:43 He also has the fastest beans per second.

08:47 So you...O.K....How do you know this?

08:56 So, Alex has the fastest beans per second.

09:12 What was that last sentence you just said?

09:16 I did it as a rate.

09:17 You did it as a rate. O.K. Thank you. Any other proof? Yep.

09:28 Alex is the fastest bean counter because he counted two beans in one second while the others counted only one point five

09:41 and one point two five beans in one second. So he is more efficient. That's kind of adding onto what Kameen said it's just using the numbers instead of just...

09:50 So without the numbers, how did you prove it? You...

09:55 I said he's fastest because he had the fastest rate which is more or less what Pete said.

10:05 And I like the numbers you used, those are very cool. Great. Any differences? Let's look at a another one.