Name: Christina Paskiet and Kelly Markel
Lesson Plan Title: Ratios and Rates Unit Review

Video Overview and Reflection

Describe audience, context, constraints:

This blended lesson will be presented at the end of our Ratios and Rates Unit to a sixth grade math class in an urban school district. The students are primarily African American and almost evenly split male and female. The class is co-taught with an intervention specialist. So, more than half of the students have an IEP, and the others have demonstrated on previous district and state assessments that they struggle in math. Our school is 1:1 with Chromebooks, so every student should have access to technology each day. We do still need to keep in mind those who may forget their device or have broken their device and have a plan for them to borrow a device, work with another student, or do an alternative assignment.

Objectives/Indicators

Ohio Content Standards:

RATIOS AND PROPORTIONAL RELATIONSHIPS
6.RP Understand ratio concepts and use ratio reasoning to solve problems.

6.RP.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.

6.RP.2 Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship.

6.RP.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

a. Make tables of equivalent ratios relating quantities with whole number measurements; find missing values in the tables; and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
b. Solve unit rate problems including those involving unit pricing and constant speed.

c. Find a percent of a quantity as a rate per 100, e.g., 30% of a quantity means 30/100 times the quantity; solve problems involving finding the whole, given a part and the percent.
d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

(Ohio Learning Standards: Mathematics. (n.d.). Retrieved February 18, 2019, from Ohio Department of Education website:
https://education.ohio.gov/getattachment/Topics/Learning-in-Ohio/Mathematics/Ohio-s-Learning-Standards-in-Mathematics/MATH-Standards-2017.pdf)

ISTE Standards for Students:

Empowered Learner
Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.

1c: Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.

(ISTE Standards for Students. (n.d.). Retrieved February 18, 2019, from ISTE website:
https://www.iste.org/standards/for-students)

Prior Knowledge:

In order to be successful with this unit, students must be able to multiply and divide, understand how to plot points on a coordinate grid, and have the perseverance to solve multi-step problems. To be successful with the technology, students must be able to login to their Chromebook, and access the student portal set up by the district. They must also have a basic understanding of typing, selecting options, and working video controls on the screen.

Identify and Discuss Pedagogical Decisions

Assessment

Pre-Assessment:

I will be using the formative assessments given throughout the Unit as a pre-assessment of this lesson. Although I will still have students do all parts of the lesson, I will use this information to better prepare for those parts of the lesson where students will need more assistance.

Formative and Summative Assessments:

The online portion of this unit is built to formatively assess students, provide them with resources that they can use at their own pace, allow them a chance to assess again, and continue the cycle until they have mastered the material. There are small quizzes on each page of the online learning environment. At the end of the quiz, students will be able to see their score and which questions the missed, but not the correct answers. There are directions (which I also give verbally) to move on to the next task if the score is an 80% or better, or to use the practice links and try again if it was not. Those who are earning scores that demonstrate a need for intervention will be pulled in small groups to practice the skills with a teacher. Those who move through quickly will be assigned an enrichment assignment online, and can participate as peer tutors.

I have chosen this method because my students tend to work best when they are not pushed to work beyond their natural pace or bored because they are forced to wait for others to catch up. They also struggle to focus as a whole group. So, meeting in small groups to give assistance tends to better keep their focus and improve their understanding. I also get a clearer picture of how students are doing individually because I have each students score, and I have worked with them in small groups. It also encourages students to take ownership of their learning by showing them their scores immediately and allowing them some choice in how to proceed from that point.

Models of Instruction/Instructional Strategies

This is an Alternative Teaching co-teaching model because as one of us is pulling students in small groups, the other will still be walking the room addressing behavior and assisting students as necessary. We are also utilizing small group strategies, peer tutoring, and a blended learning environment.

Procedures/Activities:

Day 1:

The students will enter the room and be asked to be prepared with a closed Chromebook, pencil, paper, and calculator on their desk. We will quickly discuss all the topics we have learned about in this unit to get the students thinking about math. Then we will explain the expectations for the activity that day. The students will be working individually to complete the online assessments at their own pace. They will follow the directions within the online learning environment, doing the practice activities if they do not reach the required score, or moving on to the next task if they do. My co-teacher and I will circulate the room, making sure students understand the assignments and assisting as necessary.

Day 2-4:

The students will follow the same procedures. As they are working, I will be calling small groups of students over to work with me on specific skills. I will use the data from the formative assessments the students took the day before to determine who needs to practice which skills. We will use white boards, and worksheets that students can use as notes if they get stuck while working independently. While I do this, my co-teacher will circulate the room assisting students as necessary.

Identify and Discuss Technological Decisions

Resources

The students will need to have their own Chromebooks, paper, and pencils. We have a class set of calculators that the students can use. We will also need to prepare worksheets that the students can take notes on in the small groups, and have the white boards, markers, and erasers ready.

Technology Resources

I have chosen to use Google Sites, Google Forms, Khan Academy, and Google Classroom as the technology resources. Our district uses Google, and already has each student and teacher set up with the Google products, so it is an easy and effective way to create what I need and deliver it to the students.

I will use Google Classroom to give the student the link to the website. Google Sites allows me to make a simple online learning environment that has everything the students need to be successful. We will create all of our formative assessments using Google Forms because it allows us to easily gather student data. That data can also be sent to Google Sheets to analyze more clearly. Khan Academy does an excellent job of explaining math concepts, and providing practice that has access to resources, such as hints or videos, so that students can work at their own pace to master the material.

Reflection

Expected

I think what happened that was the most clearly expected was that I could clearly see, from the data I collected, where students were struggling. This made it so that my co-teacher and I were better able to pull small groups of students to practice the skills they were lacking. There were different students who needed support for each topic, but for each topic, several students didn't need any help at all, several students needed a great amount of support, and the majority of students just needed a little practice to get them through.

Unexpected

The part of this lesson that I least expected was having to teach self direction. The students didn't quite understand that they were supposed to take the assessment one time, and then take some time practicing the skill before trying the assessment again. Looking back this seems obvious, they are only sixth graders, and I will be adjusting my approach the next time I do a lesson like this.

Changes

The first change I will be making is to give explicit instruction on self directed learning before introducing a lesson like this. The students will struggle, no matter their level of knowledge, if they do not have a clear understanding of what they should be doing. In addition to this, I would like to add more activities than just Khan Academy. Although this is a great learning resource, I think students need some fun, such as interactive games. I also think that I might make my own videos to put in here, so they can see the material in a familiar way with the language we use in the classroom.