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Curriculum Design

**Sequencing Rationale**

My seventh grade math curriculum is taught in a concept-related sequential order. This best fits my curriculum and the needs of my students. I feel that it’s important that concepts are taught in a way that they build off one another. Although this may not be the most interesting way for my students, starting with a review and basics will help them understand more complex concepts as we move on. I think it’s important for them to understand and master the basics before moving on to difficult concepts. The way I have taught things this year seemed to work verywell. Different things work for different students and I’m anxious to see how it pays off once testing scores come back. Problem Solving is very important so I try to incorporate problem solving activities and worksheets in my weekly plans along with the other material. I typically relate them to the concept that is currently being taught or reviewed.

I like to kick off the school year in math by reviewing number sense. Place value is something students should know without a doubt in their mind, but a review is always necessary at the beginning of the year to get students back on track. I typically like to teach scientific notation around the time I’m teaching place value since they are closely related. We discuss integers and do several small lessons over them since it should also be a review. Next we move on to order of operations. This typically takes a good week to two weeks because students easily confuse the steps and order. I use PEMDAS which helps some student’s immensely, while others don’t care to remember it that way. Once I feel that my students have a good understanding of place value, integers, scientific notation, and order of operations I move on to analyzing data.

When it comes to analyzing data I start with mean, median, mode, and range. Students have been taught these concepts in earlier grades but don’t always remember how to find these things in a set of data. After several days of review they are usually comfortable with it and we move on to graphing the data. We do a variety of graphs from box and whiskers, stem and leaf plots, bar graphs, line graphs, and histograms. Once we discuss how to properly make each type of graph we work on looking at premade graphs and tables and analyzing the information in them. I find that most students have a really hard time looking at a graph and figuring out what it says. I try to incorporate problem solving with graphs at this point. Some students get frustrated but reading graphs and charts won’t only help them in math, but it other subjects as well.

The third big section we cover is fractions, decimals, and percentages. This is always a tough concept for the majority of my students. Seeing that a number can be represented in more than one way is often confusing. We start out with fractions, move on to decimals, and finish with percents. I like to teach probability after fractions, decimals, and percents because probability relates to fractions and percents. When teaching probability I start with experimental so that students can do hands on activities and get the results on their own. I then do theoretical probability, which is often more difficult for students to have to think about what really should happen rather than what did happen. Probability is another great concept to do problem solving and story problems with. Having students find the information in a problem and solve like it asks them to is often hard, but once they figure it out they have a good feeling of accomplishment.

Once we have covered fractions, decimals, and percentages as well as probability, I typically move on to measurement. In measurement we work on learning the formulas to solve for perimeter, volume, area, and surface area. I like to start with perimeter first since it only deals with adding. Area is next and then surface area and volume. I’ve found that surface area and volume are the most difficult concepts to grasp. I use a lot of hands on shapes/figures so that students can visually see what they’re supposed to be finding. It takes a long time to get through measurement. I find that students usually like measurement once they get a good understanding of it. They enjoy setting up proportions to find missing information and doing hands on activities. By this time in the school year we’re all sick of the weather outside so getting up and moving around helps change some student moods. I like to mix up seat work and worksheets with hands on activities that involve moving around the school and classroom. Students enjoy this part of measurement.

Finally before testing we get to discuss translations, reflections, rotations, dilations, and 2D and 3D figures. I usually start this section with 2D and 3D figures so we can attempt to find the area and surface area of each figure. Graphing is typically difficult for many of my students, especially when trying to translate, reflect, rotate, or dilate a figure on a grid/graph.

Ohio Achievement Assessment time conveniently rolls up around mid spring, just as we think we are going to be able to cover everything, and time is up. I set aside about two weeks to work on practice tests and review key skills that will be important to be successful on the test. Students dread this time of the year, as do many teachers. It’s always a battle to get in a good review and for students to be able to retain all the formulas and information that they will need for the assessment. I do feel reviewing is necessary right before the test. If nothing else, it at least gets the students prepared for what the test will be like.

After the OAA’s are complete we have about a month of school left. By this point students are questioning the point of being in school. They try to get out of doing assignments as well as coming to school. To keep them interested I usually do two things. The first thing I do is give them a project to work on, that from start to finish takes a little over a week. The project conveniently combines several skills. Students have to think of a question they can ask their classmates, along with four possible answers for their classmates to choose. They need to survey 100 people and make a rough draft frequency table of the data. Once that is completed they are to make a frequency table on the computer that correctly represents the data collected in the survey. After their table is approved, they are to find the theoretical probability of each of the answer options being chosen, and also the percentage of it happening. Students then make a bar graph displaying their data on graph paper. After the kinks are worked out from there they use excel on the computer to make a final copy of a bar graph. Students then create a set of five questions that can be answered by other students when they are looking at the graph. Students really enjoy this because for the most part they are able to do it on their own. During this time I also work on problem solving so they get to practice the skills regularly. Once projects are finished students are given a list of concepts that were taught previously in the school year. Students then partner up and for the next two weeks they reteach the concepts to the class. This gives students an opportunity to be the leader and feel in control. They really like this and it’s a great way to end the year and fit in the last few things that need to be done!