Mount St. Joseph University Lesson Planning Template

Name Annie Dean

Lesson Title Applying Scale Factor

Grade level(s)/Course/Content Area 7th and 8th grade Mathematics

Time Frame (# of class periods/___minutes each) 30-40 minutes

CONTEXT FOR LEARNING

What do I know about my students that will inform this lesson?

Alex has learning disability in the area of mathematics. Very low skills both due to content gaps and difficulty comprehending new math content. Has solid basic calculation skills though. He will often hide during lessons and during work he finds challenging. He has to be prompted in order for him to ask for help. He Often says, "I'm not really sure" in response to a math prompt. He has to be pushed to engage and requires frequent teacher check-ins to assess his understanding and make sure he is doing so accurately. He struggles connecting concepts and remembering concepts.

TJ really struggles to focus. He is often off-task and wants to please teachers because he likes to please teachers, he likes task participation. even though he likes pleasing teachers, he often has to be checked-in on to insure he is staying on task. If he is not being checked on, he will not get his work done. He needs support with reading comprehension and writing skills. but, math is his greatest area of concern.

How does this lesson connect with and build on my previous lesson(s)?

Both Alex and TJ recently learned about scale factor. This lesson is an extension of scale factor, now they are applying it. Before they move into a packet to practice their skills to insure they fully understand the concept of scale factor. This is also something a little different than what they have been doing, it is more hands on and will engage them more than just another worksheet because of its real-world application.

How do I expect to build on this lesson in subsequent lessons?

This is project will carry them into the next day. Depending on how well they do with this project, will determine whether they need a reteach of this lesson or if they are ready to move forward. After this lesson, they will be applying scale factor to more complex factors, maps, and other real-world problems.

What evidence-based practice or education research will guide my teaching?

Goal 1: Creating a Supportive Math Instructional Environment. The math classroom that offers explicit instruction, accommodations, and strong core math instruction can reach the widest range of struggling learners. "LDs in Mathematics: Evidence-Based Interventions, Strategies, and Resources." *LD@School* , 19 May 2017, www.ldatschool.ca/evidence-based-interventions-for-math/.

What other special features of my school or classroom will affect the teaching of this lesson? Alex and TJ are in an inclusion classroom with co-teaching. Because of this, it allows minimal resource room instruction that is only provided once per week. This provides them with support so they can grow in their general education classroom. Another feature that could affect this lesson is if they struggle with scale factor and if they do not understand how to do the packet.

INFORMATION ABOUT STUDENTS AND THEIR LEARNING NEEDS

Total students____3_____ **Males**_____2_____ **Females**_____1_____

Diverse Student Needs Category	Number of Students	Accommodations and/or pertinent IEP Objectives
Students with IEPs	3	The math will be alternated to fit their learning needs. Minimal resource room instruction is provided once a week. This helps support student growth in the general education classroom, not stand in place of it.
English Language Learners		
Gifted		
504		
Other special needs		

PLANNING FOR INSTRUCTION AND ASSESSMENT

INSTRUCTION
Central Focus: Enlarging or reducing figure by scale factor
College and Career-Ready Content Standards 8.G.A.1 Understand congruence and similarity using physical models, transparencies, or geometry software. 7.G.A.1 Draw construct, and describe geometrical figures and describe the relationships between them
Objectives Alex and TJ will be able to use scale factor to enlarge or reduce figures
Academic Language Objectives

CCR.Math.Content.8.G.A.4 Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

Prior Learning/Prior Thinking
This is a continuation of scale factor. Alex and TJ both recently learned scale factor. This lesson is for them to apply their knowledge of scale factor in order to enlarge or reduce figures

Material: Whiteboard for note modeling, packet handout for scale factor

ASSESSMENT

Before the lesson
Oral Questioning- If they can recall their previous knowledge on Scale Factor

During the lesson
Oral Questioning, Examples: observation of success on task

At the end of the lesson
packet hand out

LESSON IMPLEMENTATION

Anticipatory Set/Elicit Prior Knowledge
Scale factor was a tricky concept for Alex and TJ to understand. I expect the packet they will be doing to be challenging but not impossible**.** With the use of grid paper for unit calculation, simple figures, pre-constructed table to organize steps of the process, no fractions or decimals beyond 0.5, opportunity for peer support and teacher feedback and correction, are all used to help scaffold them to success.

Focus/Purpose Statement
The purpose of this lesson is for Alex and TJ to be able to apply scale factor and understand how to enlarge or reduce figures by using the scale factor

Procedures
You will go to the next classroom, tap Alaina, Alex and TJ on the shoulder, only ask Alaina to grab a chromebook. Then, have them come to the classroom next door. Once the students come next door assign their seating. Alex and TJ will be at table 3 and Alaina will be at table 2. Once the students are seated, allow them to finish filling out their checklist before moving on. Then walk to Alaina and hand her a note card with her assignments to work on while you go and teach Alex and TJ. Ask them to pull out their notes on scale factor. Have them also pull out a blank sheet of paper for the notes they will be taking that day. Review what Scale factor (provide an example) is and ask if either of them can tell you how to find scale factor. Have them look through their notes if needed. Then, explain that if the figure is being enlarged it has to have a scale factor greater than 1. Ask them if you are reducing a figure that means the scale factor has to be less than? The answer is 1. Then discuss how they have previously been using two figures to find scale factor, but this time they are going to use the original figure and the scale factor to find the new figure. Then you are going to give an example on the whiteboard that they will write in their notes. For the example write a rectangle with the width of 3 and height of 4. Then you

are going to write that the scale factor is 2. Then explain that in order to find the new figure they will have to apply the scale factor to every measure and re-draw it. Write the steps out for them to copy in their notes. (Model with table) 1.) choose a given scale factor. 2.) apply it to every measure 3.) redraw figure with new measures. Then, look back at the example and ask them to locate the given scale factor and determine whether it is an enlargement or reduction and to write it and the scale down. Then have them find every measure then have them apply the scale factor to it. Model it for them: one measure is 3, so it would be 3x2=?(6) then one measure is 4, 4x2=?(8), another measure is 3, 3x2=?(6), the last measure is 4, 4x2=?(8). Then have them draw the new figure. Make sure they keep their measures in order so they can create the new figure correctly. The new figure would have a width of 6 and height of 8. Ask them if that makes sense and if they have any questions to go back and go over anything they do not understand. If they say they understand ask prompt questions over what you just did and have them answer to insure understanding. Once they are clear on how to do an enlargement. Use the same example to show what a reduction is. Erase everything except the original figure. Write that the scale factor is 0.5. then ask them if it is an enlargement or reduction? Then ask what the first step is? Correct as needed. Then, ask them the second step and what they are going to do with that scale factor. Correct and explain as needed. Then instruct them to go ahead and do the second step and to apply the scale factor to every measure. One measure is 3, 3x0.5=1.5, next measure is 4, 4x0.5=2, then 3 again, 3x0.5=1.5, then 4x0.5=2. Check their work to make sure it is correct. Then have them re-draw to create the new figure using those measurements. The new figures width would be 1.5 and height of 2. Ask if they have any questions and if that makes sense. If they do not have any questions use prompt questions to insure comprehension and understanding. Explain that for the remainder for the block and part of their time tomorrow will be doing this packet project. The packet is exactly like the example problem that we just went through. In the packet the sides will be labeled in order for them to keep each side and measure organized. Tell them they are allowed to use their notes while they work on the packet and there are instructions throughout the packet on what to do. Tell them you are going to work with Alaina and you will be back over in a little to check on their progress and to answer any questions. Ask if they have any other questions before you go work with Alaina. Then hand them their packet and walk over to work with Alaina.

Differentiation

All of Alex and TJs work is differentiated from the general education work when it comes to mathematics. It is used as a scaffold to work along with the IEP goals and objectives to address remediation needs and to assist students in developing skills for better access in the general education curriculum. Includes direct step-by-step instruction with less complex, single step problems and extensive repeated practice. Resource room instruction also allows for increased focus and more frequent teacher feedback. it gives the students slower pacing in order for them to understand the new concepts taught.

Closure

To conclude, by the end of this lesson, Alex and TJ will be able to apply scale factor to either enlarge, reduce or both to figures. I will be able to indicate this by their work through their scale factor project packet.

Reflection on lesson

This lesson went well. Both students grasped this concept more quickly than I expected. If I were teaching it the next day I would add more energy, I felt like I kept the same tone throughout the whole lesson, I think if I change my tone then my delivery will be more engaging for the students. When the students would ask questions I would take a minute and think about how to explain it in a non-confusing way. Next time, I will try to think of questions the students may ask and try to better my understanding to be prepared in those situations. Overall, this lesson went well and the students understood the concept and did well independently.