

TASK 3: ASSESSMENT COMMENTARY

Respond to the prompts below (**no more than 12 single-spaced pages, including prompts**) by typing your responses within the brackets following each prompt. Do not delete or alter the prompts. Commentary pages exceeding the maximum will not be scored. Attach the assessment you used to evaluate student performance (**no more than 5 additional pages**) to the end of this file. If you submit a video or audio clip of feedback or a work sample and you or the focus students are occasionally inaudible, attach a transcription (**no more than 2 additional pages**) to the end of this file. These pages do not count toward your page total.

1. Analyzing Student Learning

- a. Identify the specific learning targets and standards measured by the assessment you chose for analysis.

[The specific learning targets I chose to be measured by the assessments are:

1. The students will understand that factor pairs create a whole number multiple.]

- b. Provide a graphic (table or chart) or narrative that summarizes student learning for your whole class. Be sure to summarize student learning for all evaluation criteria submitted in Task 3, Part D.

	Factor Accuracy	Least to Greatest	Completion	Neatness	Total Points
Advanced Student 1 (Sample Student 1)	5	5	5	4	19
Advanced Student 2	5	5	5	5	20
Advanced Student 3	5	5	5	5	20
Advanced Student 4	5	5	5	5	20
Math Struggler 1 (Sample Student 3)	5	5	2	5	17
Math Struggler 2	1	5	1	5	12
Math Struggler 3	5	5	1	4	15
Math Struggler 4	5	5	1	5	16
Math Struggler 5	1	1	3	4	9
Math Struggler 6	4	1	1	5	11

	Factor Accuracy	Least to Greatest	Completion	Neatness	Total Points
Math Struggler 7	4	5	2	5	16
Average Student 1 (Sample Student 2)	4	5	5	4	18
Average Student 2	4	5	5	4	19
Average Student 3	5	5	1	5	16
Average Student 4	4	5	5	4	18
Average Student 5	5	5	1	4	15
Average Student 6	4	5	2	5	16
Average Student 7	5	5	3	5	18
Average Student 8	5	5	3	4	17
Average Student 9	5	4	5	5	19
Average Student 10	5	5	1	4	15
Average Student 11	4	5	2	5	16
Average Student 12	4	5	5	3	17
Average Student 13	5	5	4	5	19
Average Student 14	3	4	5	5	17
Average Student 15	4	4	5	4	17
Average Student 16	5	4	5	5	19
Total for Each Criteria	116/135 (85.9%)	123/135 (91.1%)	88/135 (65.2%)	123/135 (91.1%)	

	Factor Accuracy	Least to Greatest	Completion	Neatness	Total Points
Class Average for Total Points	16.6				
Summary	<ol style="list-style-type: none"> 40.7% of students got 18-20/20 on their assignment (90% or higher) 37% of students got 16-17/20 on their assignment (80-89%) 11.1% of students got 14-15/20 on their assignment (70-79%) 11.1% of students got 11-13/20 on their assignment (55-69%) 				

[The students' work was evaluated based on the accuracy of the factors that they wrote, numbering the factors from least to greatest, the amount of problems that they completed, and the neatness of their work.]

- c. Provide a graphic (table or chart) or narrative that summarizes student understanding of their own learning progress (student voice).

[During the lesson, the students were given the opportunity to tell the teacher what the learning target was. This was done with the collective group so that several students had the opportunity to share what the learning target was and the other students could listen to the different explanations of it as well. While working on figuring out the factors with the students, I gave examples and modeled one, and then had the students help me solve the answers to the next problem. I set up the multiple and I had the students answer verbally what the next factors would be. I also asked them to put them in the right order. I not only asked them what the factors were, but I asked them why those factors were the correct ones. The students answered that it was because "those are the numbers that multiply together to get the answer", thus in their own words sharing that factors when multiplied together make a certain multiple. I also asked them why, or if, it was important to put the factors in order from least to greatest. Students gave answers such as, "it's easier to read" and "if you put them in order you can see which ones multiply together easier". I wish that I would've had the students work on the assignment more together and discuss the answers with each other to give more of a chance for them to think about why the answers were the factors that they found as well as what those factors have to do with the multiple that they go with. The advanced students had a better concept of understanding that the factors were just the numbers that multiply together to get a factor, which is common with "multiplication sets." The advanced and average students were able to see the connection between multiplication and factors and multiples, while the struggling math students saw it more as a list of numbers that were merely related to the bigger number. Although not all of the students had a solid grasp on the relationship between factors and multiples, through this lesson they were able to begin to understand that these numbers are related through multiplication and division and that they are able to find the numbers that are related. At the end of the lesson, I wish that I would've set aside more time to go over what they had covered on their worksheets and to connect the beginning of the lesson and the learning target with their understanding of how to find the connection between multiples and factors to solidify their concept of factors and multiples.]

- d. Use evidence found in the **3 student work samples, student self-reflections, and the whole class summary** to analyze the patterns of learning **for the whole class** and differences for groups or individual learners relative to
- conceptual understanding
 - procedural fluency **AND**
 - mathematical reasoning or problem-solving skills

Consider what students understand and do well, and where they continue to struggle (e.g., common errors, confusions, need for greater challenge).

[The patterns of learning for the whole class and differences for groups or individual learners are:

- Conceptual Understanding

The three sample students collectively achieved a 93% in their understanding of the concept of finding the factors for the different listed multiples. In the students' self-reflections, the students expressed that they all felt that they had a pretty good handle on the concepts presented. They felt that they did well in the lesson, and student 2 said that if I were to give another worksheet, she'd be able to do it. Overall, the entire class showed that they achieved a 85.9% on the concept of finding the correct factors for different multiples. This shows to me that overall, they had a solid understanding of the concept of factors and their relationship to multiples. There is room for improvement, as the students who missed some of the factors could learn the factors of multiples better and their relationship to the multiples.

- Procedural Fluency

I gave the class about 15 minutes to complete the worksheet that I used for this assessment. The the advanced and average student were able to complete the worksheet, while the struggling math student completed 9 out of the 14 problems. In their self-reflection, all of the sample students expressed that they felt strong about understanding the concept, but the struggling student mentioned that practice multiplication flash cards would be beneficial, which would aid in the retention and speed of finding the matching factors for the multiples. Overall, the class achieved a 65.2% of completing the worksheet. I realize that the struggling math students had a very hard time trying to complete all of the problems, although they did fairly well in finding the correct answers. The advanced students had no problem in finishing the assignment, and the average students varied on the completion of the assignments. I believe that the assignment was too long for the struggling math students, and I wish I would've paired them up with the advanced students so that they could've helped the strugglers after they had finished. I think for the average students, some of them were motivated to finish, and others were not. I wish I would've done a better job in reminding the students to stay on task and finish the assignment as they knew how to solve the problems, but just had a difficult time sticking to it and finishing up the work.

- Problem-Solving Skills

The learning target for Lesson 1, is "Find all factor pairs for a whole number in the range 1-100." On the assessment I gave the students I had 14 different multiples listed where the students were to find all of the factors for each. Some of the questions had many different factors listed, while other problems had a prime number, such as 31, where the only factors were 1 and itself. I demonstrated how to find the answer using a T-chart and the students were encouraged to either use the same method or to find another technique that would allow them to solve for the different factors. The sample students used the problem-solving skill of using the T-chart on a scratch piece of paper to solve for the correct answer, or used their multiplication fact knowledge to solve for the answers. In their self-reflections, the struggling math student mentioned that working harder on the T-chart was needed to find all of the factors. The other students mentioned that continuing to practice solving these kinds of problems would be beneficial in solving for the answers. The group overall used the method of using the T-chart to find the answers, but many of the students also just used their multiplication fact knowledge or multiplication charts to solve for the answers.]

2. Feedback to Guide Further Learning

Refer to specific evidence of submitted feedback to support your explanations.

- a. In what form did you submit your evidence of feedback for the 3 focus students? **(Delete choices that do not apply.)**
- Written directly on work samples or in a separate document;
 - ~~In audio files; or~~
 - ~~In video clip(s) from the instruction task (provide a time stamp reference) or in a separate video clip~~
- b. Describe what you did to help each student understand his/her performance on the assessment.

[I wrote specific feedback on each of the students worksheet that they handed in for this assessment. I made sure to go over their work carefully, noting what they did well, and what they could've worked on more. I made sure to make notes about what they did well and to praise them for that, and I also gently pointed out what could be changed or what needed to be worked on, as well as giving an example of how they might be able to continue to grow in the understanding of the concept or in the quality of their work. During the lesson itself, I made sure to walk around and observe each student for a bit while they were working. I made sure to affirm the students in their work by praising them on their efficiency and focus while they were working, commenting on success in finding the different answers, or in verbalizing the productivity they had in understanding and applying the concept of the lesson. I also pointed out to different students how to improve on what they were working on. Mainly for the average or struggling students, I would redirect them if they had a hard time in understanding how to solve the problem. For instance, one of the problems asked for the factors of 31. This was challenging for some students as they thought that the answer would contain more than just 1, 31 as the factors. I redirected several students by having them check their T-chart, as well as checking their multiplication chart if they didn't have their facts memorized. Also, when I asked questions of the students in the large class setting, I made sure to affirm their answers as valid in their thought processes, even if they didn't necessarily come to the correct conclusion. If the student got the answer right, I praised them for their work, but if they got it incorrect, I would redirect their answer to find the correct one. I wanted to make sure that each student felt safe trying to find the answers, even if they didn't get it right the first time. I worked to make sure that the students felt comfortable trying and that they had enough success to see this concept as something they could understand and hopefully master.]

- c. Explain how feedback provided to the 3 focus students addresses their individual strengths and needs relative to the learning targets measured.

[For the first sample student, I specifically addressed what I noticed in the work in fixing their own mistakes. I noticed that the student had written one answer and erased it, and then gave the correct answer. I commented on that saying, "excellent job finding the correct factors and on fixing your mistakes!" The first student really didn't have any trouble in working towards the learning target, but I did mention that it is good to "write your answers neatly so that you can read them and so can I." I also later verbalized that it is important to write your answers neatly so that you can get credit for all the hard work you did so that whoever is grading your work won't mark it off if they couldn't read it correctly. For the second student, I gave the specific feedback of "nice work on finding all of the factors" since this student completed the assignment and found the majority of the factors. Yet, this student missed a couple of the problems, so I also gave the feedback to "check letters d & i." I redirected the student by writing "make sure to double check that the factors multiply to make the multiple." I also showed how one might solve one of the problems. For student 3, I gave the specific feedback of saying "great job on writing out all of the factors that you know in a neat way!" This affirms the student in working hard on solving the problems that they were able to, and that the problems they did do, they did correctly. To help the student continue on

in this learning sequence to and master this concept more and become more fluent in solving it, I wrote “I’d love to have you go over a multiplication chart to find the factors for those final questions.” This tells the student that they have a bit more to work on, but that the questions that they did accomplish they did well.]

- d. How will you support students to apply the feedback to guide improvement, either within the learning segment or at a later time?

[For the students who were not able to finish the assignment, I gave the feedback of working on practicing their multiplication facts to aid in being able to more quickly solve the different multiple questions that are presented before them. This is definitely a long term guide that will be implemented as the year goes on. By having the students remember their multiplication facts, it will not only help them in being able to solve questions about factors and multiples more quickly and accurately, it will help them in many different facets of mathematical problems where remembering multiplication facts is helpful. I will support the students who did not answer the questions correctly by giving the correct factors by having them practice using T-charts to solve for different multiple and factor problems. I will have students work on this in pairs so that they can check each others’ work and explain the answers to each other if a student doesn’t understand or misses a step. With students working together, they will be better able to catch each other on steps they may miss, and it will aid them in understanding the concept better as they will explain it to each other as they solve for the problems.]

3. Evidence of Language Understanding and Use

You may provide evidence of students’ language use **from ONE, TWO, OR ALL THREE of the following sources:**

1. Use video clip(s) from Task 2 and provide time-stamp references for language use.
2. Submit an additional video file named “Language Use” of no more than 5 minutes in length and provide time-stamp references for student language use (this can be footage of one or more students’ language use). Submit the clip in Task 3, Part B.
3. Use the student work samples analyzed in Task 3 and cite language use.

When responding to the prompt below, use concrete examples from the video clip(s) (using time-stamp references) and/or student work samples as evidence. Evidence from the clip(s) may focus on one or more students.

- a. Explain and provide evidence for the extent to which your students were able to use or struggled to use language (selected function, vocabulary, and additional identified language demands from Task 1) to develop content understandings.

[The function that I included in my first lesson was to have the students demonstrate their knowledge of the terms factors (and that they multiply together to make multiples) and multiples (which are made up of two one-digit factors). The students demonstrated their understanding of the terms factors and multiples in the class discussions we had about solving problems involving multiples and what made them up and what factors multiplied together to make the multiples. Students demonstrated their understanding by explaining steps using the correct vocabulary of “factors” and “multiples” and they also demonstrated their knowledge of the vocabulary and how to use it in their work samples.

In the work sample from lesson one, the students demonstrated their knowledge of the vocabulary of factors and multiples by understanding, as we discussed in the lesson, how to apply that knowledge to solving the problems on the worksheet. The directions of the worksheet say “Find all factors for each number. List them in order from least to greatest.” In

reading these directions, the students then had to be able to solve the questions using the information that they have about factors and multiples and applying it to the directions that the worksheet had for them, as well as addressing the given numbers as either factors or multiples, to know how to work with them. The first problem on the worksheet is “15- __, __, __, __”. The students had to then interpret the given number as a multiple and apply their knowledge that the multiple is made up of factors. They then had to look at the blank spots on the worksheet and understand that the list of different factors was to fill up the blanks.

The students demonstrated their knowledge of factors and multiples in answering the question by writing, in order from least to greatest, the factors that corresponded to the multiple “15”. The students demonstrated their comprehension of the relation of the vocabulary words (factors and multiples) to writing out the appropriate answers. The students answered by writing “1, 3, 5, 15”. In giving these answers (especially in order from least to greatest), the students demonstrated and understood that 1 and 15 were factors that multiplied together to make a multiple of 15, and that the factors 3 and 5 multiplied together to make the multiple 15. In working on the problems of this worksheet, the students were able to demonstrate their knowledge of that factors multiply together with their pairs to create multiples.

I also gave instructions in class for the students to check their problems to make sure that the factors that they have pairing up with each other multiply together to make the given multiple. In the second problem of the worksheet, the students were challenged to solve “25- __, __, __”. In working with this problem the students had to apply their knowledge of factors and their pairs to understand why there were only three spots available. The students demonstrated their knowledge of factors in solving the problem with the written factors as “1, 5, 25” thus showing that 1 and 25 multiply together to create a multiple of 25 and that 5 multiplies by itself to make 25 ($5 \times 5 = 25$). The students struggled with this concept a little bit until we discussed it in class. The students also discussed that 5 did not need to be written twice, even though it is used twice as it multiplies by itself to make 25.

In the thirteenth problem (letter m.), the students had to apply and demonstrate their knowledge of the multiples as they faced the problem “17- _____” where they had to understand that 17 was the multiple, and they didn’t know how many factors were to go with it. The students had to apply their knowledge of 17 having few factors and then demonstrated their knowledge in writing the factors out: “1, 17”. The students struggled with this problem a little bit because they thought at first that 17 should have more factors that just one and itself, yet after having them check their multiplication chart and their T-chart, they realized that the only numbers that went into it were one and itself. In lesson 3, we went over prime numbers, so this assignment was before they had a deeper understanding of prime numbers.]

4. Using Assessment to Inform Instruction

- a. Based on your analysis of student learning presented in prompts 1b–d, describe next steps for instruction to impact student learning
 - for the whole class
 - for the 3 focus students and other individuals/groups with specific needs

Consider the variety of learners in your class who may require different strategies/support (e.g., students with IEPs or 504 plans, English language learners, struggling readers, underperforming students or those with gaps in academic knowledge, and/or gifted students needing greater support or challenge).

[For the whole class, I will continue to focus on understanding the relationship between factors and multiples and how they are very similar to the concept of multiplication facts. The class as a whole achieved 85.9% accuracy in solving for the answers of the facts for the multiples given. This shows that the majority of the students understand how to find the an-

swers, but that some of the students need work on seeing the relationship and understanding the concept. I would like to have students working together in practicing their multiplication facts in fun games, such as playing with math flash cards, multiplication war, multiplication match, or other games where students work together and play together to strengthen their retention of those facts. I would also have the students work with different multiplication apps on the iPads or work with multiplication games on the computer. In working with the facts more and more, students will be able to see the correlation between different facts. I would later on give another assessment quite similar to the one used in lesson 1, and would have the students work together in finding the answers, making sure that students explain to each other how they found the answers.

For students that have gaps in academic knowledge and struggle more with math and with the concepts of multiplication and how factors and multiples relate, I will work with them on understanding the basics of multiplication and how factors multiply together to create multiplication facts. I will break down how factors are groups of numbers that work together to create multiple. I will have the students practice with manipulatives on grouping factors to create multiples. For the students who are struggling readers, I will have them work on recognizing the key words of factors, multiples, prime and composite numbers. I will have them practice discussing those words with their peers and using them correctly in discussion as well as to correctly write the words and label the numbers on an assignment they will work on. For the students needing a greater challenge, I will have them expand their knowledge of factors and multiples by looking at larger numbers that go beyond multiples of 12, as well as understanding the multiples that are square roots.

For the 3 focus students, I would have them continue to practice their multiplication knowledge with the rest of the students to solidify their understanding of factors and multiples, as well as having them work with the rest of the class in completing another similar assessment while working with a partner. I will also have student 1 work on writing clearly so that they are given credit for their hard work. For student 2, I will have them work on multiplication and the use of the T-chart to help them master the use of each to strengthen their work with factors and multiples. For student 3, I will have them work with student 1 to not only solidify student 1's understanding of the concepts, but to help student 3 in understanding the concepts of factors and multiples and in how to solve the problems fluently. Having the students work together helps all of the students involved as the students who don't understand as well get new perspectives (besides the teacher's) on how to solve the work and the student who understands it will get to strengthen their understanding as they have to explain things in different ways. I will apply this concept by having students who are struggling work with the advanced and average students who have a better grasp on the concepts.]

- b. Explain how these next steps follow from your analysis of student learning and student self-reflections. Support your explanation with principles from research and/or theory.

[These steps follow from my analysis of student learning and student self-reflection by focusing on what the students struggled with. Statistically, the students did pretty well in finding the factors (85.9% accuracy) which shows that the students understand the concept decently well. I would have them practice the multiplication facts to work on scaffolding (Vygotsky, 1978; Koch, 2013) to have them connect with what they know about multiplication and apply it to the more advanced concept of factors and multiples. The concept of factors and multiples builds off of the concept of multiplication facts.

The students had a harder time in completing the worksheet, as overall the class received a 65.2% of finishing their assignment, which means that the students overall, finished a bit over half of the problems. This means that the students had trouble in staying focused to complete the assignment, needed help with some of the problems and couldn't finish them, or just simply weren't able to complete all of the problems in the given time. For this problem, I would have the students work together in cooperative learning (Johnson & Johnson,

1978; 1990). This would aid the students in being able to hold each other accountable for finishing the assignment and staying focused. It would also help the students who might need help with some of the questions and by working together, they might be able to answer each other's questions and thereby finish up the assignment. If the students simply weren't able to finish the assignment in the given time, the students could work together to solve the answers more quickly and work together to solve the harder questions that may take more time. In working cooperatively on assignments, the students would be able to finish the assignments and help each other if needed.]

Assessment used
in Task 3C

Name: _____

Finding Factors

Factors are the numbers you multiply to get another number.

$2 \times 3 = 6$ 2 and 3 are factors of 6.


$1 \times 6 = 6$ 1 and 6 are also factors of 6.

What are the factors of 6? 1, 2, 3, and 6.

What are the factors of 21? - 1, 3, 7, and 21

What are the factors of 31? - 1 and 31

What are the factors of 24? - 1, 2, 3, 4, 6, 8, 12, and 24



Find all of the factors for each number. List them in order from least to greatest.

a. 15 - _____ b. 25 - _____

c. 3 - _____ d. 27 - _____

e. 18 - _____ f. 12 - _____

Now try these.

g. 21 - _____ h. 31 - _____

i. 49 - _____ j. 14 - _____

k. 33 - _____ l. 20 - _____

m. 17 - _____ n. 4 - _____

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