Overview

<table>
<tr><th colspan="2">Curriculum Level</th><th>Unit Level</th></tr>
<tr><td colspan="2">Curriculum Selected: What is the name of the specific curriculum you selected (i.e. curriculum provider, program name, etc.)? Who created it, and what guided you to choose this curriculum?

I chose Eureka Math. Great Minds, a nonprofit organization, is the creator of Eureka Math. I chose this curriculum because I had experience with it during my student teaching. A lot of teachers at my school weren't big fans of it, but I saw some good benefits from using it. I only used it for one semester, so I would like to use this assignment to deep dive into the details of it.</td><td rowspan="2">Unit Selected: What is the title of the unit you selected? Provide an overview of the scope and how this instructional segment fits into what was learned before this unit. Why did you select this unit?

The Unit is titled Addition and Subtraction of Length Units. In this unit there are 4 topics.
Topic A: Understand Concepts About the Ruler
Topic B: Measure and Estimate Length Using Different Measurement Tools
Topic C: Measure and Compare Lengths Using Different Length Units
Topic D: Relate Addition and Subtraction Length

The overview of this lesson is to deepen students' conceptual understanding of measurement and to learn how to relate addition and subtraction to length. This lesson links from students learning Ordering and Comparing Length Measurements as Numbers in first grade, module 3.</td></tr>
<tr><td>Curriculum Goals: What are the stated goals of the curriculum?

On their website, Eureka states their goal as follows, "Numbers should add up to more than the right answer. They should inspire aha moments and joyful connections. Eureka Math set a new standard for rigor, coherence, and focus in the classroom so students gain a deeper understanding of the why behind the numbers, all while making math more enjoyable to learn and teach."
I personally resonate with this goal. I think that students need to learn math in</td><td>For what age students was this curriculum made?

Eureka Math offers elementary to middle school math. More specifically, this program is intended for kindergarten to fifth Grade.</td></tr>
<tr><td colspan="2"></td><td>Unit Assessment Outcomes: What are the specific assessment outcomes (not individual lesson objectives) of the unit? What will students achieve by the end of this unit? How will they demonstrate this knowledge?

By the end of this unit the students will be able to apply understanding in order to choose appropriate tools and strategies, benchmarks for estimation, and tape diagrams for comparison to solve word problems. In this module problems progress from concrete problems to abstract. Students will be given an end of module assessment to assess each skill.

At the end of the module Eureka gives the teachers "A Progression Towards Mastery'' guide. This allows the teacher to use this while looking at students' End-of-Module</td></tr>
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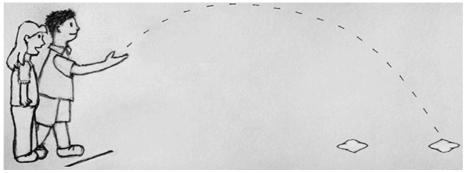
a way that is meaningful in their day to day lives. If students can create personal connections with what they are learning, it's more likely that they will form a deeper understanding and mastery of the topic.		**Assessments. This gives the teacher a way to evaluate the student's assessments, but also see where they are in terms of master in each standard.** **I chose this unit because I personally really like measurement. I also really liked the organization and progression of this unit. I feel like each topic builds well on the last. Each topic incorporates just enough from the previous topic, while also introducing something new.**
Stakeholders: *Who has a stake in the creation of this curriculum? Who are the decision makers? Who will be impacted by the enactment of this curriculum? Think broadly and comprehensively (school officials, students, curriculum authors, parents, etc.)* **Great Minds is the creator of this curriculum. The decision makers are the teachers and experts who have worked together to create this curriculum. Great Minds prides themselves on being a company that works alongside teachers to better the curriculums implemented in schools today. I believe that they are the ones that have the largest stake in this curriculum creation.** **I believe that districts, students and teachers were most likely to be impacted by the enactment of this curriculum. By implementing this curriculum districts will surely see change, whether it be good or bad. Teachers have to adapt to a new way of teaching and students must adapt to a new way of learning. It changes things for everyone in the schools.**		**21st Century Classroom:** *What are a few ways this curriculum already upholds Twenty-First Century Classrooms ideals (Kaufman article)? In what ways can you adapt this curriculum to address more indicators?* One way that I feel that this curriculum upholds Twenty-First Century Classroom ideals is through personal responsibility and self-direction, and innovative capability. The curriculum is dependent on students completing homework and problem sets to get in ample practice and approach mastery of each topic. I know in CSISD teachers aren't allowed to take grades on homework, so students must be responsible and complete these pages for their own benefit. The curriculum promotes innovative capability by connecting students' thinking to past lessons and asking critical thinking questions in each lesson. I think it would be interesting to try and incorporate critical thinking within this curriculum. Maybe give students the opportunity to 'teach' struggling peers a topic that they need assistance with.

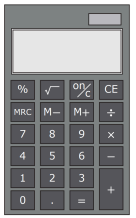
Unit Analysis and Alignment

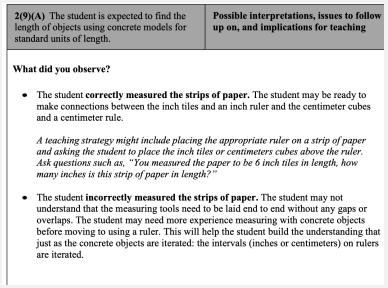
Within this table, please identify all unit objectives posted, where available or derived. Across each unit objective, complete all columns to align the unit to assessments, state standards, published standardized test items, and then evaluate the alignment and suggest modifications (if necessary). Add as many additional rows (or delete) as needed to accommodate your unit.

1	2	3	4	5	6

Unit Objective(s)	**Assessment Tied to Objective** *(ways this objective is measured by student outcomes: project, test, etc ~ include examples.)*	**State Standard Connected to this Specific Objective** *(Write out the TEKS, Common Core, industry standards, etc..)*	**Published Assessment Examples of Questions** *(2 per objective- use STAAR or other state, national, or industry released assessments)*	**Evaluation of Alignment** *(Reflect: Do the unit assessments and objectives align with the state assessment? How/ how not?)*	**Modify Unit** *(How would you modify or add to the unit to increase alignment? Provide examples to show what you mean)*

Topic A: Understand Concepts About the Ruler Lesson 1: Connect measurement with physical units by using multiple copies of the same physical unit to measure. Lesson 2: Use iteration with one physical unit to measure. Lesson 3: Apply concepts to create unit rulers and measure lengths using unit rulers.	Note: Students need a centimeter ruler and 6 small paper clips to complete the assessment. 1. Use your ruler to find the length of the pencil and the crayon.  a. How long is the crayon? _____ centimeters b. How long is the pencil? _____ centimeters c. Which is longer? pencil crayon d. How much longer? _____ centimeters 2. Samantha and Bill are having a beanbag throwing contest and need to measure each of their throws.  a. Circle the most appropriate tool to measure their throws. ruler paper clips meter stick centimeter cubes b. Explain your choice using pictures or words. c. Bill throws his beanbag 5 meters, which is 2 meters farther than Samantha threw her beanbag. How far did Samantha throw her beanbag? Draw a diagram or picture to show the length of their throws. d. Sarah threw her beanbag 3 meters farther than Bill. Who won the contest? How do you know?	(9) The student applies mathematical process standards to select and use units to describe length, area, and time. The student is expected to: a. find the length of objects using concrete models for standard units of length;	**2(9)(A)** The student is expected to find the length of objects using concrete models for standard units of length. | **Possible interpretations, issues to follow up on, and implications for teaching** **What did you observe?** • The student **correctly measured the strips of paper.** The student may be ready to make connections between the inch tiles and an inch ruler and the centimeter cubes and a centimeter rule. *A teaching strategy might include placing the appropriate ruler on a strip of paper and asking the student to place the inch tiles or centimeters cubes above the ruler. Ask questions such as, "You measured the paper to be 6 inch tiles in length, how many inches is this strip of paper in length?"* • The student **incorrectly measured the strips of paper.** The student may not understand that the measuring tools need to be laid end to end without any gaps or overlaps. The student may need more experience measuring with concrete objects before moving to using a ruler. This will help the student build the understanding that just as the concrete objects are iterated: the intervals (inches or centimeters) on rulers are iterated. **TEKS for Mathematics "Rapid" Assessment: Grade 2** **2(9) Geometry and measurement**. The student applies mathematical process standards to select and use units to describe length, area, and time. | **2(9)(A)** The student is expected to find the length of objects using concrete models for standard units of length. **Materials** • Two strips of paper: one strip 6 inches in length and one strip 20 centimeters in length • Concrete models such as one-inch tiles and centimeter cubes **Procedure:** Provide the student with the strips paper and corresponding measurement tools. **If one square tile is one inch, how many inches is this strip of paper?** **If one cube is one centimeter, how many centimeters is this strip of paper?** *Repeat using various lengths.* **Check Student's Responses:** | **Check Student's Strategies:** 1. Inches □ Correctly measures □ Incorrectly measures 2. Centimeters □ Correctly measures □ Incorrectly measures The student: □ Places the tool end on end (iterates) □ Leaves spaces when iterating □ Other:	Yes, the unit assessment asks students to use units to describe the length of different objects.	I would not change this unit. I feel as though it has been well thought out and it has many attributes that make it strong. Each lesson builds on the last in a meaningful and essential way. Lessons get progressively more challenging and deepen the students' thinking.

Topic B: Measure and Estimate Length Using Different Measurement Tools Lesson 4: Measure various objects using centimeter rulers and meter sticks. Lesson 5: Develop estimation strategies by applying prior knowledge of length and using mental benchmarks.	3. Use the broken centimeter ruler to solve the problem. A grasshopper jumped 7 centimeters forward and 4 centimeters back and then stopped. If the grasshopper started at 18, where did the grasshopper stop? Show your work.  4. **Vanessa's Ribbons**  *Ribbon A* *Ribbon B* a. Measure the length of Ribbon A with your centimeter ruler and your paper clip. Write the measurements on the lines below. _____ centimeters _____ paper clips b. Explain why the number of centimeters is larger than the number of paper clips. Use pictures or words. c. Estimate the length of Ribbon B in paper clips. _____ paper clips d. How much longer is Ribbon A than Ribbon B? Give your answer in centimeters. e. Vanessa is using the ribbons to wrap a gift. If she tapes the ribbons together with no overlap, how many centimeters of ribbon does she have altogether? f. If Vanessa needs 20 centimeters of ribbon, how much more does she need?	(9) The student applies mathematical process standards to select and use units to describe length, area, and time. The student is expected to: a. find the length of objects using concrete models for standard units of length;	25 A model of Mr. Estrada's rectangular calculator is shown. Use the ruler provided to measure the length and width of the calculator to the nearest centimeter.  Which measurement is closest to the perimeter of the calculator in centimeters? **A** 10 cm **B** 32 cm **C** 16 cm **D** 36 cm 13 A rectangular business card is shown. Use the ruler provided to measure the length and width of the business card to the nearest centimeter.  Jerry's Balloon Arrangements 1-512-555-3636 Which measurement is closest to the perimeter of the business card in centimeters? **A** 14 cm **B** 28 cm **C** 45 cm **D** 32 cm	Yes, the assessment tests students on whether or not they are able to identify which method of measurement would be best as well as explain their thinking.	I would not change this unit. I feel as though it has been well thought out and it has many attributes that make it strong. Each lesson builds on the last in a meaningful and essential way. Lessons get progressively more challenging and deepen the students' thinking.
Topic C: Measure and Compare Lengths Using Different Length Units Lesson 6: Measure and compare lengths using centimeters and meters. Lesson 7: Measure and compare length units; relate measurements to unit size.	Above is a copy of the end of module assessment. There are four questions. Each topic from the Module is tested on at least one. These questions are very similar to the homework sheets and	(9) The student applies mathematical process standards to select and use units to describe length, area, and time. The student is expected to: b. describe the inverse relationship between the size of the unit and the number of units needed to equal the length of an object;	**2(9)(A)** The student is expected to find the length of objects using concrete models for standard units of length. | **Possible interpretations, issues to follow up on, and implications for teaching** **What did you observe?** • The student **correctly measured the strips of paper.** The student may be ready to make connections between the inch tiles and an inch ruler and the centimeter cubes and a centimeter rule. *A teaching strategy might include placing the appropriate ruler on a strip of paper and asking the student to place the inch tiles or centimeters cubes above the ruler. Ask questions such as, "You measured the paper to be 6 inch tiles in length, how many inches is this strip of paper in length?"* • The student **incorrectly measured the strips of paper.** The student may not understand that the measuring tools need to be laid end to end without any gaps or overlaps. The student may need more experience measuring with concrete objects before moving to using a ruler. This will help the student build the understanding that just as the concrete objects are iterated: the intervals (inches or centimeters) on rulers are iterated. 8 Use the ruler provided to measure the length and width of each rectangle to the nearest centimeter.  What is the difference between the perimeters of these rectangles in centimeters? **F** 3 cm, because 6 – 3 = 3 **G** 2 cm, because 8 – 6 = 2 **H** 4 cm, because 16 – 12 = 4 **J** 1 cm, because 9 – 8 = 1	Yes, the assessment asks students to demonstrate an understanding of comparing different length units when measuring the same object, but with different measuring tools.	I would not change this unit. I feel as though it has been well thought out and it has many attributes that make it strong. Each lesson builds on the last in a meaningful and essential way. Lessons get progressively more challenging and deepen the students' thinking.

Topic D: Relate Addition and Subtraction to Length Lesson 8: Solve addition and subtraction word problems using the ruler as a number line. Lesson 9: Measure lengths of string using measurement tools, and use tape diagrams to represent and compare lengths. Lesson 10: Apply conceptual understanding of measurement by solving two-step word problems.	problem sets that students have been completing after each lesson.	(1) The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to: e. create and use representations to organize, record, and communicate mathematical ideas; f. analyze mathematical relationships to connect and communicate mathematical ideas; and g. display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication. (9) The student applies mathematical process standards to select and use units to describe length, area, and time. The student is expected to: c. represent whole numbers as distances from	 **2(9)(A)** The student is expected to find the length of objects using concrete models for standard units of length. **Possible interpretations, issues to follow up on, and implications for teaching** **What did you observe?** • The student **correctly measured the strips of paper.** The student may be ready to make connections between the inch tiles and an inch ruler and the centimeter cubes and a centimeter rule. *A teaching strategy might include placing the appropriate ruler on a strip of paper and asking the student to place the inch tiles or centimeters cubes above the ruler. Ask questions such as, "You measured the paper to be 6 inch tiles in length, how many inches is this strip of paper in length?"* • The student **incorrectly measured the strips of paper.** The student may not understand that the measuring tools need to be laid end to end without any gaps or overlaps. The student may need more experience measuring with concrete objects before moving to using a ruler. This will help the student build the understanding that just as the concrete objects are iterated: the intervals (inches or centimeters) on rulers are iterated. 16) Harman is painting a rectangular wall. He has already painted the rectangular shaded section, as shown below. 10 ft 14 ft 6 ft 20 ft What is the area of the shaded section Harman has already painted? F) 80 square feet G) 140 square feet H) 56 square feet J) 280 square feet	Yes, the assessment presents the students with word problems where the students must solve multi-step word problems. The problems are broken into separate parts (a,b,c,d,e,f) but the student must solve the problem before so that they have the measurement for the next problem.	I would not change this unit. I feel as though it has been well thought out and it has many attributes that make it strong. Each lesson builds on the last in a meaningful and essential way. Lessons get progressively more challenging and deepen the students' thinking.

		any given location on a number line; d. determine the length of an object to the nearest marked unit using rulers, yardsticks, meter sticks, or measuring tapes; e. determine a solution to a problem involving length, including estimating lengths;			

Alignment Reflection

Vertical Alignment Reflection: *Does the level of sophistication the state, national or industry standards require align with the amount of rigor evidenced in the unit? Provide two pieces of evidence (screenshots, quoted documentation, etc.) to support your claim. One "paragraph" should suffice, along with your evidence.*

I do believe that the amount of rigor in this unit is evident and lives up to the state standards. The main way I see this is that Eureka doesn't have many multiple choice questions. In this particular unit we are dealing with measurement. It could be easy for students to just guess and choose random answers on a multiple choice assessment. Eureka takes it a step farther and asks students to elaborate on their thinking. For example, on the End-of-Module assessment one question says, " Circle the most appropriate tool to measure their throws." Students have to circle which tool they would use to measure a longer distance. The following question says, "Explain your choice using pictures or words." This forces students to slow down and explain their thinking. Not only do they need to know the correct measurement tool, they need to know the reason behind it. If students can explain their thinking behind an answer, that is a good indicator that they have mastered the topic. The unit progressively gets more and more difficult as it goes on. In lesson two, the problem set begins with students using their rulers to measure objects on the paper, then it progressively moves on to more difficult word problems. The last question on the pages gives the students a scenario of a student measuring something wrong. First they must point out the error the student in the problem made, then in their own words they have to explain why it was wrong and what the student should have done. The progression from easy, or concrete, to harder, or abstract questions adds to the rigor of this curriculum.

Overall Summary: *Provide an overall summary of your findings, including strengths, weaknesses and implementation challenges of the instructional unit; provide possible recommendations for modifications, if appropriate, elaborating on the notes you provided in the rightmost column above. In what ways does the instructional unit best exemplify 21st Century learning skills, particularly with the use of technology, as best you can tell from the information provided.*

As far as I can tell, Eureka math is a strong curriculum. It is rigorous and builds upon itself in a consecutive order from grade to grade. One downfall to this would be that each teacher is depending on the teacher before them to implement the curriculum well. For example, if a second grade teacher were to not follow the curriculum the third grade teacher with the students from that second grade class might struggle getting the students where they need to be and back on track with the curriculum. Something else I noticed about the curriculum is that it is very fast moving. In each unit it has the lessons planned out with how many days they will take. For example the unit that I chose was said to be 12 instructional days long from lesson one to the end of module assessment. The curriculum states that there is one built in day for reteaching if needed, but what if students needed two days? This would throw the entire unit off schedule. I do think that Eureka provides great resources and support for teaching who are implementing this curriculum. The teachers edition booklet is very detailed and includes great ideas for teaching each topic. I also like how students get their own practice booklets with the same questions as the teacher. This would make it easy to display a problem on the board and have students work independently in their books on this question, then go over it as a whole group. Another aspect that I really like is that the questions get more rigorous the more the students practice. They don't start

out with too hard of questions, but they aren't practicing the same questions over and over. They deepen their thinking the more and more they practice. As far as I can tell there isn't very much technology involved with Eureka, but that can be more difficult for a math curriculum. There is the option for assessments to be taken online, as well as many online resources for teachers and parents to help promote students' learning. In my particular unit, there wasn't any technology incorporated, but I did see a few 21st Century learning skills.