Rigorous Curriculum Design Unit Updates for TK-6th Grade

TUSD Homework Policy

Homework serves many important purposes. The administration and certificated staff shall design homework plans and assignments so that through their homework students can reinforce academic skills taught in school and learn how to conduct research effectively, develop ideas creatively, and become life-long learners. Board Policy 6154

The RCD units do not dictate what homework is to be assigned, as teachers need the flexibility to assign homework that is appropriate for the students in their classroom and to align their assignments to the site homework policy. Because assignments should be done independently by students, teachers must ensure that the assigned homework is appropriate to the students and falls under the guidelines set forth by the TUSD School Board:

**Homework for Grades K-5**
- Students should expect to spend an average of one-half hour at the primary level and one hour at the intermediate level four or five days per week.
- Primary homework assignments should stimulate students to talk often with their parents and encourage parents to read to their children.
- Homework should include reading, reinforce skill development and encourage family participation. Think math games. Assignments should help develop good personal study habits and may include occasional special projects. Teachers should instruct students on how to develop good study techniques and habits.
- Homework assignments should not require use of specialized materials at home unless the school lends such materials to the students.

**Homework for Grades 6-8**
- Students should expect to spend an average of one and one and a half hours on homework four or five days per week.
- Teachers of academic subjects should provide regular homework activities which include reading, promote the development of skills and provide students with the opportunity to grow academically.
- The teaching staff should coordinate assignments so that students do not receive an overload of homework assignments one day and very little the next.

Future District ERMs

Days you don’t want to miss!

Come delve into RCD units, discover new strategies, and discuss our practices. We will unpack the following units on these ERM days. Our Design Teams will be leading the discussion.

<table>
<thead>
<tr>
<th>Nov. 14th</th>
<th>Tk-K</th>
<th>Unit 4 or 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st</td>
<td>Unit 4</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>Unit 5</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>Unit 4</td>
</tr>
<tr>
<td></td>
<td>4th</td>
<td>Unit 4</td>
</tr>
<tr>
<td></td>
<td>5th</td>
<td>Unit 4A</td>
</tr>
<tr>
<td></td>
<td>6th</td>
<td>Unit 4</td>
</tr>
</tbody>
</table>

Common Core Math

The Staff Portal Link

Here you will find:
- our RCD Units
- Vocabulary Resources
- Instructional Resource Bank

Use the feedback link below to send your feedback and/or resources to the design teams! We want to further refine our units and build our shared Resource Bank.
What Does it Really Mean to Be Fluent in Mathematics, Supporting Students in the three Phases of Learning Basic Facts?

The *Overview for the Mathematics Framework* explains, “Progress toward fluency should be woven into instructional grade-appropriate ways, along with developing conceptual understanding of the four operations.” But what does this mean for our teaching? Do we simply stop teaching and basic facts? Developing fluency means students still need to be efficient. They also need to be flexible in applying their calculation skills. Fluency can involve a mixture of understanding patterns, knowing some answers and using strategies. Students will gradually move away from using visual models as they go through the phases of learning basic facts.

We are not shifting away from teaching procedurally; we must work to build fluency in our students. Research has shown students who *discover* the procedure *retain* it more and are able to think outside of the box. The procedures alone do not provide students with the needed number sense and flexibility. Our traditional methods of having students’ model and count or count on to find the answers and then memorizing basic facts for mastery skips an essential step to building fluency.

Doctor Art Baroody, Professor of Curriculum & Instruction at the University of Illinois at Urbana-Champaign, explains that there is a second phase to building real fluency in our students: Deriving answers using reasoning strategies based on known facts, such as solving $5 + 7$ by thinking, “Five plus five equals ten, and two more will make twelve.” Student must move through all three phases ensure students won’t ‘forget’ what they have memorized. It is essential that teachers not only teach multiple strategies, but allow students to choose strategies to help them get to the solution.

For TUSD this means an investment in building our teachers skills in Number Talks and in ending the use of fluency programs that force our students into mastery without the first two steps of modeling and deriving answers. Additionally, teaching students math games they can play for homework will build the kind of fluency our students need to become college and career ready. Playing games encourages strategic mathematical thinking as students find different strategies for solving problems and deepen their understanding of numbers.

*For more tips and ideas visit* [www.nctm.org](http://www.nctm.org) *and search “math games”*

**Why do I need to teach differently?** The Common Core State Standards for Mathematics build on the best of existing standards and reflect the skills and knowledge students will need to succeed in college, career, and life. Understanding the necessary shift to increase the level of rigor in mathematics classrooms, means supporting our students in developing a deep, authentic command of mathematical concepts, not making math harder or introducing topics at earlier grades. To help students meet the standards, educators will need to pursue, with equal intensity, three aspects of rigor in the major work of each grade (Find more information at [www.corestandards.org](http://www.corestandards.org)):

⇒ **Conceptual understanding:** The Standards call for conceptual understanding of key concepts, such as place value and ratios. Students must be able to access concepts from a number of perspectives so that they are able to see math as more than a set of mnemonics or discrete procedures.

⇒ **Procedural skill and fluency:** The Standards call for efficiency and accuracy in calculation. Students are given opportunities to practice core functions such as single-digit multiplication so that they have access to more complex concepts and procedures.

⇒ **Application:** The Standards call for students to use math flexibly for applications in problem-solving contexts. In content areas outside of math, particularly science, students are given the opportunity to use math to make meaning of and access content.

[See Common Core Math Portal Fluency Folder for more details.](#)
Unit Resources—

Our RCD units provide the foundations of teaching for understanding. The essential questions drive our teaching as students DISCOVER the big ideas through intentionally planned lessons. Units are designed to be a framework for teachers to develop lesson plans that build conceptual understanding for their students.

Are Rubrics Supposed to Be on the Students’ RCD Math Assessments?
Yes, we intentionally provided students rubrics on RCD mathematics assessments. Research has proven that students who self-assess and regulate their learning are the most successful. To be able to do this students need clear expectations -success criteria- to reflect on their learning and work. Students need to become reflective of their learning and regulate their own learning. They are able to provide feedback to themselves by using the rubrics. They also have a clear understanding of what the teachers are expecting them to do.

According to John Hattie, author of Visible Learning, self reported grades comes out at the top of all influences with an effect size of 1.33. When children know the success criteria for the expected learning outcomes, they are the most accurate in predicting how they will perform. Teachers can use this knowledge and support students in exceeding these expectations. Once a student has performed at a level that is beyond their own expectations, he or she gains confidence in his or her learning ability.

Example for self-reported grades: Before an exam, ask each student to write down what mark the student expects to achieve. Use this information to engage the student to try to perform even better.

Engage New York Tips
- Be Strategic with what you use and how you use it.
- Remember, you don’t need to print all parts of each lesson.
- There are helpful instructional components, practice sheets and/or homework.
- Some of these black line masters are called ‘Problem Sets’, ‘Exit Tickets’ and ‘Homework’. Nice, eh?! Choose ones you will use to print.
- Each lesson begins with a scripted Number Talk!
- An interactive Prezi that shares EngageNY math strategies

Adapted from EngageNY’s “How to Implement A Story of Units”
https://prezi.com/bszr0dcqqzvw/math-models-in-engageny/
Mathematics: How can we support all students’ development of mathematical proficiency AND habits of mind?

Which Mindset will you choose?

**GROWTH MINDSET**
- “Failure is an opportunity to grow”
- “I can learn to do anything I want”
- “Challenges help me to grow”
- “My effort and attitude determine my abilities”
- “Feedback is constructive”
- “I am inspired by the success of others”
- “I like to try new things”

**FIXED MINDSET**
- “Failure is the limit of my abilities”
- “I’m either good at it or I’m not”
- “My abilities are unchanging”
- “I don’t like to be challenged”
- “I can either do it or I can’t”
- “My potential is predetermined”
- “When I’m frustrated, I give up”
- “Feedback and criticism are personal”
- “I stick to what I know”

Be Strategic with Instructional Choices

- Post the Essential Questions and use them to drive your instruction
- Use visuals to enhance understanding (illustrative posters, graphic organizers, examples)
- Plan questions to differentiate and engage students in discovery.
- Include Practice with Real World Scenarios, referencing real world connections—make it relevant to the students.
- Give students access to both their white boards and manipulatives on their desks during the unit so that we can **heighten engagement**.
- Use formative informal assessments frequently to check for understanding.

**Staff Development is here to support you!**

Lucia
Secretary

Melissa
Director

Julie
Prgm.

Marji
Assistant Principal & Admin. @ Staff Dev.

Deborah
Mathematics TOSA

Tiffany
Mathematics TOSA

Elisavet
Mathematics TOSA