

## ***Course Description***

### ***Institute for Teaching Excellence in Middle School Mathematics***

The COVID-19 pandemic has required that we, as educators, explore new teaching methods, embrace new skills, and reevaluate how we cultivate the minds of our young learners as we engage with them virtually. This summer, TCU's Institute for Teaching Excellence for Middle School Math is embracing this opportunity for growth and professional development. Join us for a four-day, interactive, online experience focused on developing our craft as we inspire mathematical thinking and problem-solving in our students. Led by master teachers (and life-long learners), participants will experience new technologies, activities, and strategies that will enhance and differentiate student learning and support strong vertical team practice throughout the middle school mathematics curriculum. Additionally, participants will work with master teachers in science and social studies to develop activities that will challenge our students to consider timely and relevant scenarios through multiple content lenses to develop a more complex and more complete understanding of the world around them.

This will not be an online webinar - our presenters will engage with participants in large groups and small groups. Participants will "move" from room to room with time for working with small groups and independently, sharing experiences, networking with other teachers, and developing activities for classroom use (both content-specific activities and cross-curricular projects). Each day will end with a time of reflection with your FUN (Friends Uncovering New Ideas) group. Our presenters are committed to cultivating a virtual learning environment that will be fun and stress-free! Together we will share our experiences, celebrate our successes, and problem-solve for the future.

From Christie Fish:

Teachers have the desire to grow and learn as much as they have the desire to help their students reach their full potential. During this Institute, participants will be exposed to some strategies to help their students become mathematical thinkers by investigating problem solving, reasoning, communication, connections and representations. We want to engage our students in activities, such as 3-act math, to allow them to explore and relate material to gain a deeper understanding. In addition, partaking in a digital breakout room will lend to a fun experience as well. Once participants are familiar with these perspectives, they will have the time and support in planning for the upcoming school year. The institute will promote a growth mindset and differentiation for the diverse population in the classroom so that students can demonstrate mathematical success.

From Laura Grimwade:

Science, Technology, Engineering, and Math (STEM) is an essential component of 21<sup>st</sup> century learning. STEM promotes logical thinking which enables students to answer complex questions and develop solutions for problems. By integrating STEM in the curriculum, we will provide students with the opportunity to explore

real-world scientific problems and give them hands-on experiences through a digital format. Working together, we will focus on ensuring high-quality, relevant, college and career ready learning experiences for students.

From Stacy Hughes

Students entering middle school mathematics come to us with varying degrees of mathematical thinking development. While it is necessary for students to be able to think multiplicatively in 6th grade, many students are still developing their additive thinking. Pushing students toward their next development level requires them to use their skills in real-world settings. Using the Design Thinking process allows students to use their creativity, while still producing something useful. While using the design process, students learn to embrace struggle, analyze mistakes, and realize the importance of multiple iterations, which develops patient problem-solving so these concepts transfer to their mathematical development in a natural way. Teachers will learn how to draw on these skills and design lessons that will allow students to naturally develop their mathematical thinking.

From Laura Montgomery:

Excellence in teaching middle school mathematics requires teachers to meet students at their level of conceptual understanding and build up a firm foundation in preparation for upper-level mathematics courses. Strategies that focus on content-specific activities include the use of formative feedback in the classroom, the study of patterns as a way to connect previous knowledge to current topics, the application of mathematics to real-world scenarios, and the use of different activities to challenge and expand mathematical reasoning and discourse. Teachers will also be able to investigate how to implement these strategies both with and without technology in the classroom.

# Tentative Schedule

## Institute for Teaching Excellence – Middle School Math

**Whole Group**

**Grade Level**

**Cross-curricular**

<b>Monday</b>	9:00-10:15	<b>Welcome (Introductions, Agenda, Norms)</b>		
	10:15-10:30	<i>Break</i>		
	10:30-11:45	<b>Project-Based JAM Activity</b>		
	11:45-12:45	<i>Lunch Break</i>		
	12:45-1:45	<b>Vertical Teaming</b>		
	1:45-2:00	<i>Break</i>		
	2:00-3:00	<b>How Do We Catch Up?</b>		
	3:00-3:30	<b>Reflection on Learning with "FUN" Groups</b>		
<b>Tuesday</b>	9:00-10:15	<b>Content Session A, part 1</b> <i>(Participants rotate through sessions)</i>	<b>Content Session B, part 1</b> <i>(Participants rotate through sessions)</i>	<b>Content Session C, part 1</b> <i>(Participants rotate through sessions)</i>
	10:15-10:30	<i>Break</i>		
	10:30-11:45	<b>Content Session A, part 2</b>	<b>Content Session B, part 2</b>	<b>Content Session C, part 2</b>
	11:45-12:45	<i>Lunch Break</i>		
	12:45-2:00	<b>PB&amp;JAM Teams - Develop Activity</b>		
	2:00-2:15	<i>Break</i>		
	2:15-3:00	<b>Creative Skills Practice</b>		
	3:00-3:30	<b>Reflection on Learning with "FUN" Groups</b>		
<b>Wednesday</b>	9:00-10:15	<b>Content Session A, part 1</b>	<b>Content Session B, part 1</b>	<b>Content Session C, part 1</b>
	10:15-10:30	<i>Break</i>		
	10:30-11:45	<b>Content Session A, part 2</b>	<b>Content Session B, part 2</b>	<b>Content Session C, part 2</b>
	11:45-12:45	<i>Lunch Break</i>		
	12:45-1:45	<b>PB&amp;JAM Teams - Develop Activity</b>		
	1:45-2:00	<i>Break</i>		
	2:00-3:00	<b>Participants share activities</b>		
	3:00-3:30	<b>Reflection on Learning with "FUN" Groups</b>		
<b>Thursday</b>	9:00-10:15	<b>Content Session A, part 1</b>	<b>Content Session B, part 1</b>	<b>Content Session C, part 1</b>
	10:15-10:30	<i>Break</i>		
	10:30-11:45	<b>Content Session A, part 2</b>	<b>Content Session B, part 2</b>	<b>Content Session C, part 2</b>
	11:45-12:45	<i>Lunch Break</i>		
	12:45-2:00	<b>PB&amp;JAM Teams Share Activities</b>		
	2:00-2:15	<i>Break</i>		
	2:15-3:00	<b>Reflection on Learning with "FUN" Groups</b>		
	3:00-3:30	<b>Feedback for the Institute</b>		