The Revised Math TEKS (2012): Achieving Fluency and Proficiency

This is the last of four modules to introduce the Revised TEKS for grades K-8. The goals for participation are to define computational fluency, automaticity, mathematical proficiency, and conceptual understanding, examine the learning progressions for computational fluency, make connections between computational fluency, mathematical proficiency, and the process standards, and explore computational fluency and mathematical proficiency activities. CPE credit is 3.

Introduction

This lesson presents a brief overview and organizational framework of the course.
(Estimated time: 10 min.)

Definitions

Create your own definitions for computational fluency, mathematical proficiency, and automaticity.
(Estimated time: 15 min.)

Research Activity

Read the research article and consider how it relates to your understanding of computational fluency, mathematical proficiency, and automaticity.
(Estimated time: 20 min.)

Conceptual Understanding

Create your own definition of conceptual understanding and compare and contrast your definition to the National Research Council definition.
(Estimated time: 15 min.)

Vertical Learning Progression Activity (Grade Band Specific)

Review student expectations for your grade band to find evidence of conceptual understanding, computational fluency, mathematical proficiency, and automaticity. Complete the Vertical Learning Progression Recording Sheet in your journal.
(Estimated time: 30 min.)

Developing Mathematical Proficiency

Reflect on the role the mathematical process standards and student expectations play in mathematical proficiency.
(Estimated time: 2 min.)

Student Activities (Grade Band Specific)

Explore the student activities for your grade band in your journal, then look at the Fluency Activities Focusing on Addition Kindergarten – Grade 7 document to see where these ideas build from or build to as students progress to grade 8.
(Estimated time: 20 min.)

Make-a-Ten Methods

Explore the Make-a-Ten methods and consider how ideas build vertically and connect to computational fluency.
(Estimated time: 5 min.)

Developing Fluency and Extending Beyond Whole Numbers

Consider how to take the strategies from the Make-a-Ten methods and extend them beyond whole numbers.
(Estimated time: 5 min.)

Drill or Practice?

Explore the potential benefits and applications of drill and practice.
(Estimated time: 10 min.)

Case Studies

Review the student work samples for two students and record your observations in your journal.
(Estimated time: 20 min.)

Reflection

Reflect on the relationship between computational fluency and mathematical proficiency.
(Estimated time: 10 min.)

Conclusion

Reflect on what you have learned in this module and review the other modules available in the Introduction to the Revised Mathematics series.
(Estimated time: 5 min.)

List of Course Activities – The Revised Math TEKS (2012): Achieving Fluency and Proficiency

Use this checklist to track the completion of activities in the course.

Introduction

☐ View the Introduction and Welcome video and download your grade-band-specific journal.	Video: 00:42 min. Activity: 10:00 min.

Definitions

☐ View the video and use the dictionary definitions to create your own definitions.	Videos: 01:12 min. Activity: 10:00 min.

Research Activity

☐ View the video and read the Research Article.	Videos: 00:43 min. Activity: 20:00 min.

Conceptual Understanding

☐ View the videos and create your own definition of conceptual understanding.	Videos: 02:00 min. Activity: 15:00 min.

Vertical Learning Progression Activity (Grade Bands)

☐ View the video for your grade band and use the Texas Response to Curriculum Focal Points to complete the Vertical Learning Progression Recording Sheet in your journal.	Videos: 03:48 min. Activity: 30:00 min.

Developing Mathematical Proficiency

☐ View the videos and respond to the reflection questions in your journal. Watch the Possible Responses video when you have finished.	Videos: 01:33 min. Activity: 10:00 min.

Student Activities (Grade Bands)

☐ View the video and explore the student activities in your journal.	Videos: 01:13 min. Activity: 20:00 min.

Make-a-Ten Methods

☐ Explore the images in the slider to see an example of the make-a-ten method.	Activity: 05:00 min.

Developing Fluency and Extending Beyond Whole Numbers

☐ View the video and reflect on the focus question.	Video: 01:35 min. Activity: 05:00 min.

Drill or Practice?

☐ Explore the activity examples for your grade band and watch the videos. Record your thoughts in your journal. Check your learning with the interactive activity.	Videos: 01:37 min. Activity: 10:00 min.

Case Studies

☐ View the appropriate grade band video instructions and review the case study student work samples in your journal. When you have finished, watch the Possible Responses video for your grade band.	Videos: 01:45 min. Activity: 20:00 min.

Reflection

☐ Summarize your observations of the relationship between computational fluency and mathematical proficiency by completing the Venn diagram in your journal.	Activity: 10:00 min.

Conclusion

☐ View the video and review the other modules available in the Introduction to the Revised Mathematics series.	Video: 00:59 min.