

The Revised Math TEKS (Grades 9-12): Achieving Fluency and Proficiency

This is the last of four modules to introduce the Revised TEKS for grades 9-12. 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 summary and consider how it relates to your understanding of computational fluency, mathematical proficiency, and automaticity. Share your thoughts in the Forums.
(Estimated time: 20 min.)

Conceptual Understanding

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

Vertical Learning Progression Activity

Review student expectations 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

Explore the student activities in your journal, then look at the Fluency Activities for grades 5-7 to see where these ideas build to as students progress to Algebra I.
(Estimated time: 20 min.)

Open Array Method

Explore the open array method and consider how ideas build vertically and connect to computational fluency.
(Estimated time: 5 min.)

Developing Fluency

Consider how to take the strategies from the open array method and extend its application to symbolic manipulation.
(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.)

Helpful Tips

The following are tips to help you navigate this online course:

- Access the "Materials for Download" section for transcripts, handouts, references, and other resources.
- Download the latest version of [Adobe Reader](#) to use the interactive journal PDF documents.
- For videos, use the controller bar to play, pause, fast-forward or rewind, and adjust video volume. Click the full screen button to increase the video size and click it again to return to normal video size.
- Click the "Previous" or "Next" buttons to move from one section of the course to another.
- Interactive activities in this course work best in Firefox, Chrome, or Safari browsers. If you are using an older version of Internet Explorer and the Print button does not work, you may use the Print Screen feature to capture your work.

List of Course Activities – The Revised Math TEKS (Grades 9-12): Achieving Fluency and Proficiency

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

Introduction

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| <input type="checkbox"/> View the Introduction and Welcome video and download the journal. | Video: 01:16 min.
Activity: 10:00 min. |
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Definitions

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| <input type="checkbox"/> View the video and use the dictionary definitions to create your own definitions. | Videos: 00:54 min.
Activity: 10:00 min. |
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Research Activity

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| <input type="checkbox"/> View the video and read the Research Article. Discuss your thoughts about the article in the Forums. | Videos: 00:38 min.
Activity: 20:00 min. |
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Conceptual Understanding

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| <input type="checkbox"/> View the videos and create your own definition of conceptual understanding. Share your thoughts in the Forums. | Videos: 01:47 min.
Activity: 15:00 min. |
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Vertical Learning Progression Activity

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| <input type="checkbox"/> View the videos and use the Vertical Alignment documents to complete the Vertical Learning Progression Recording Sheet in your journal. | Videos: 02:51 min.
Activity: 30:00 min. |
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Developing Mathematical Proficiency

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| <input type="checkbox"/> View the videos and respond to the reflection questions in your journal. Watch the Possible Responses video when you have finished. | Videos: 01:49 min.
Activity: 10:00 min. |
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Student Activities

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| <input type="checkbox"/> View the video and explore the student activities in your journal. | Video: 00:49 min.
Activity: 20:00 min. |
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Open Array Method

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| <input type="checkbox"/> Watch the video and consider the reflection question. | Video: 02:27 min. |
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Developing Fluency

- View the video and reflect on the focus question.

Video: 01:35 min.
Activity: 05:00 min.

Drill or Practice?

- View the videos and activity example. 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 video instructions for the activity and review the case study student work samples in your journal. When you have finished, watch the Possible Responses video.

Videos: 01:54 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: 01:26 min.