Lesson Plan Guide

ThinkUp!™ MATH

to support instruction for

TEKS

Mentoring Minds®

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Contents

How to Use ThinkUp! Math for Core Content

Updated June 2020

If you plan to implement **ThinkUp! Math as core content** to support TEKS instruction, the following resources are a valuable starting point. Here you will find sample lesson plans as well as ideas for integrating ThinkUp! Math into your school's instructional plan.

Find more resources and downloadables to help with your implementation plan.

Our Approach

ThinkUp! Math provides rigorous content that is both research-based and fully aligned to the TEKS. Research tells us that student outcomes improve when students learn to think critically, and then learn how to connect that thinking to learning. Each unit in ThinkUp! Math closely follows this research, equipping teachers to facilitate critical thinking development using the 9 Traits of Critical Thinking™ to master learning targets.

As former classroom teachers, we share your goal to equip students to think critically and master the content so they are prepared for high-stakes testing, the next grade level, and a career beyond high school. Thank you for allowing Mentoring Minds to partner with you on this educational journey. You are the reason we do what we do!

Math Lesson Plans for Core Content

Use these lesson plan guides as a starting point if you plan to use ThinkUp! Math as core content in your classroom. The plans are designed to provide fully aligned, standards-based instruction as students master a new concept over the course of five lessons.

The location for each suggested ThinkUp! Math unit component is noted as either **Student Edition (SE)** or **Teacher Edition (TE)**.

Before You Begin

1. Use the Table of Contents (TE) to determine which unit aligns to the desired TEKS.
2. Read Clarifying the TEKS (TE) for background information and instructional context.
3. Read the Focus for the 9 Traits of Critical Thinking (TE) to familiarize yourself with the two critical thinking traits for the unit. This will empower you as a teacher to push students to think critically. Administer the Pre-Assessment found on our website.
4. The Pre-Assessment will give you valuable information on what pre-requisite skills your students need to strengthen. It will also help you gauge the level of support students will need during the unit.
5. Display the TEKS Learning Targets (TE) in your classroom. This will give students a chance to focus on what they are trying to accomplish in this unit.
6. View Home Connection (TE) activities at the end of the unit. These are activities that parents can do with their children to support the concepts they are learning in your classroom. Many teachers choose to put these activities in a newsletter or post them on their website.

Lesson 1

Focus: Introduce the Concept(s)

Time: 60 mins

1. Introduce the TEKS Learning Targets (SE) to students. (5 minutes)
2. Have students complete the Focus for the 9 Traits of Critical Thinking (SE) to become familiar with the focus critical thinking traits for the unit and debrief. (10 minutes)
3. Use the Concept Exploration (TE) for an interactive, hands-on scaffolding activity to introduce the concept(s). Have students complete the corresponding Concept Exploration page (SE). (15 minutes)
4. Introduce unit vocabulary in Vocabulary Mastery (TE) using the whole group activity. (10 minutes)
5. Assess student learning using the Formative Assessment (TE) for the Concept Exploration activity. Monitor student responses/discussions and adjust the next day's instruction as needed. (10 minutes)
6. Have students complete an exit ticket as a closure activity: Share one true statement as it relates to the lesson objective. Based on today's lesson, students will probably share a vocabulary term or a conclusion they made from the Concept Exploration. (10 minutes)

Lesson 2

Focus: Build Vocabulary and Reinforce Learning

Time: 60 mins

1. Choose one of the titles from the Literature Connection and do a read aloud to make explicit connections to the TEKS Learning Targets (SE). (10 minutes)
2. Revisit vocabulary terms using the Vocabulary Mastery (SE) and have students complete the page. Building academic vocabulary is crucial to achieve concept mastery. (15 minutes)
3. Choose a hands-on instructional activity from Concept Development (TE) for your students to complete. Most instructional activities require manipulates or preparation, so make sure to review the materials you might need. Monitor students during activity to formulate the next instructional steps. (25 minutes)
4. Have students complete Concept Development (SE) using the two provided examples. If students need more time, they can take this page home to complete. This is a great homework assignment because it provides an explanation for parents and guardians. (10 minutes)

Lesson 3

Focus: Build Vocabulary and Reinforce Learning

Time: 60 mins

1. Review the Concept Development (SE). (10 minutes)
2. Have students highlight Learning Targets (SE) that they feel they have mastered. This will give them a chance to reflect and track their own progress through the unit. (5 minutes)
3. Choose an instructional activity from Concept Development (TE) to complete with students. (25 minutes)
4. Assess student learning using the Formative Assessment (TE) for the Concept Development activity. (10 minutes)
5. Have students independently complete Concept Application (SE). They can take it home for homework if not finished, then bring back the next day to debrief. (10 minutes)

Lesson 4

Focus: Master the Concepts

Time: 60 mins

1. Debrief the Concept Application (SE) that students completed the day before by using the Concept Application/Concept Practice (TE). As teachers, we should move beyond just handing students the correct answer, but instead walk them through the process we use to get there. Concept Application/ Concept Practice (TE) provides a script of questions you can use to debrief the items which will make this a reflective activity for your students. (10 minutes)
2. Have students complete the Concept Practice (SE). Get data from this immediately so you know who to monitor, by grading in class together. (20 minutes)
3. Assign Motivation Station (SE). This is a culminating activity that tests students' skills and gives them an opportunity to process what they have learned. (20 minutes) While students work to complete Motivation Station (SE), this would be a great time to work with small groups that need intervention support. Find activities to use for intervention in Concept Development (TE) or Intervention (TE).
4. Close the session by asking your students to reflect on their thinking. Go to Focus for the 9 Traits of Critical Thinking (TE) and choose some of the questioning prompts for students to reflect on. Have students answer the question prompts with a Think-Pair-Share, in their math journals, on an exit ticket, or as a whole class discussion. Choose the system that works best for your class. (10 minutes)

Lesson 5

Focus: Differentiate and Review

Time: 60 mins

1. Have students complete the Concept Check (SE). (20 minutes)
2. Once students have completed the assessment, have them begin the Math Challenge (SE). (5 minutes)
3. Lead the entire class in the Reflect on My Learning (SE) activity. (10 minutes)
4. Identify students in need of further concept instruction. Use an Intervention Activity (TE) to scaffold instruction of the standard(s). For the rest of the class, assign Extending Student Thinking (TE) to differentiate further learning. (15 minutes)
5. Use observations made during re-teaching or extensions to assess student progress. Option: Assess student learning using the Formative Assessment (TE) for the Intervention activities. (5 minutes)
6. Reflecting is one of the 9 Critical Thinking Traits™. It is important to show value to this trait by making it important throughout the entire learning experience. Model reflection with your students by using Reflection on My Learning (SE) and Reflection on Critical Thinking (SE). While students are reflecting, it is important for you to complete the Teacher Reflection (TE). Debrief with other teachers and ask for their input on your reflections. (5 minutes)

How to Use ThinkUp! Math for Intervention

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If you plan to implement **ThinkUp! Math as intervention content** to support TEKS instruction, the following resources are a valuable starting point. Here you will find sample lesson plans that are designed to guide intervention instruction for a small group of students or whole class that have not mastered a previously covered concept.

Find more resources and downloadables to help with your implementation plan.

Our Approach

ThinkUp! Math provides rigorous content that is both research-based and fully aligned to the TEKS. Research tells us that student outcomes improve when students learn to think critically, and then learn how to connect that thinking to learning. Each unit in ThinkUp! Math closely follows this research, equipping teachers to facilitate critical thinking development using the 9 Traits of Critical ThinkingTM to master learning targets.

As former classroom teachers, we share your goal to equip students to think critically and master the content so they are prepared for high-stakes testing, the next grade level, and a career beyond high school. Thank you for allowing Mentoring Minds to partner with you on this educational journey. You are the reason we do what we do!

Math Lesson Plans for Intervention

Use these example lesson plans as a starting point if you plan to use ThinkUp! Math as intervention content in your classroom. The plans are designed to provide fully-aligned, standards-based instruction to guide students to mastery of each concept over the course of five lessons.

For each suggested ThinkUp! Math unit component, its location is noted as either **Student Edition (SE)** or **Teacher Edition (TE)**

Before You Begin

1. Use the Table of Contents (TE) to determine which unit aligns to the desired TEKS.
2. Read Clarifying the TEKS (TE) for background information and instructional context.

Lesson 1

Focus: Introduce the Concept(s)

Time: 60 mins

1. Have students complete the Concept Exploration (SE). This will allow students the opportunity to think through and explore a concept.
2. While students are exploring, facilitate academic conversation using questions and instructional examples from the Concept Exploration (TE).
3. Assess student learning using the Formative Assessment (TE) for the Concept Exploration activity.

Lesson 2

Focus: Build Vocabulary

Time: 30 mins

1. Sometimes students understand the arithmetic involved in solving a problem, but they do not understand the vocabulary associated with the mathematical concept. Students that do not grasp the mathematical vocabulary may struggle with solving word problems or answering questions. By reinforcing the students' academic vocabulary, you are helping them strengthen their math skills. Discuss the unit/standard vocabulary found both in the (TE) and (SE).
2. Complete the Vocabulary Mastery (TE) to build further understanding of unit vocabulary.
3. Have students complete Vocabulary Mastery (SE) for additional practice and to demonstrate their comprehension of the vocabulary.
4. End with the Formative Assessment (TE) for the Vocabulary Mastery activity.

Lesson 3

Focus: Intervention Activities

Time: 45 mins

1. Support the unit concept with an instructional activity from the Concept Development (TE) or Intervention (TE) activity. Monitor students during the activity to observe, identify, and correct any misconceptions of concept.
2. Assign the Concept Development (SE), which gives the students a worked-out example on the page, so students will have a model to follow when they try it on their own.
3. Have students examine the Concept Application and Concept Practice (SE) problems and cross out an answer choice that is incorrect. Then have them justify why they crossed it out. This is a great exercise that challenges students to think deeply about the concept while reinforcing a great test-taking strategy.
4. Have students complete the Concept Application (SE) and Concept Practice (SE).
5. Review data from the Concept Application (SE) and Concept Practice (SE) to identify areas that need reinforcement or extension.

Lesson 4

Focus: Master the Concepts

Time: 45 mins

1. Support learning with an instructional activity from the Concept Development (TE) that has not yet been utilized.
2. Monitor students during the activity to observe, identify, and correct any misconceptions of concept.
3. Assign the Concept Check (SE) in print edition or online to take advantage of progress monitoring feature.
4. Use data from the Concept Check to determine students in need of further concept instruction. Identify students who can benefit from extension of the concept.
5. Promote mastery by assigning an error analysis activity. Post a representative problem from the unit with an incorrect solution or process. Have students determine, discuss, and correct the error. Share results

Lesson 5

Focus: Review and Reinforce

Time: 30 mins

1. Identify students that have mastered the concept and have them complete the Math Challenge (SE).
2. Identify students in need of further concept instruction. Use an additional Intervention (TE) activity to further scaffold instruction of the standard(s).
3. Use observations made during re-teaching or extensions to assess student progress. Option: Assess student learning using the Formative Assessment (TE) for the Intervention activity.
4. Have students complete Reflection on My Learning (SE) and Reflection on Critical Thinking (SE).

How to Use ThinkUp! Math for Supplemental Content

Suggestions for Integrating ThinkUp!

Matching instructional materials is simple if you are using ThinkUp! Math to supplement other classroom resources. Many components can easily be combined to create *'zero additional minutes'* time during your instructional day. These components are shown with an (*).

Steps:

1. Use the **Table of Contents** in your ThinkUp! Math Teacher Edition to match each unit's Focus TEKS with your district Year at a Glance or Scope and Sequence documents.
2. Use the table below to help you locate matching routines between ThinkUp! Math and other resources used for mathematics instruction.

ThinkUp! Component	May Match With:	Possible Solution to Create '*Zero Additional Minutes*' Time
***Pre-Assessment**	Pre-Assessment	Use the ThinkUp! Math **Pre-Assessment** or consider selecting a bank of questions from other available instructional materials.
***TEKS Learning Target**	Key Concept, Essential Question, Target Skill, Introduce the Concept, Student Learning Goals	Use the **TEKS Learning Target** component during the introduction of the TEKS focus alongside other instructional materials.
Critical Thinking Traits Formative Assessment	none	This time should be added after the introduction of the **TEKS Learning Target** to help students connect their learning to the **9 Traits of Critical Thinking**.
***Concept Exploration**	Introduction Activity, Warm-up	Use **Concept Exploration** as an introductory activity before jumping into other instructional materials. Use this activity to give students the opportunity to be inquisitive and to discover mathematical concepts through exploration.
***Vocabulary Mastery**	Expand Vocabulary, Academic Vocabulary, Vocabulary List	Mastering academic vocabulary is essential for students to be able to read and understand word problems. The **Vocabulary Mastery** in each unit identifies words that are associated with the focus TEKS and instructional activities to support their instruction. Compare the list from ThinkUp! Math with other instructional materials to create one list. Choose an activity from your available options.
Literature Connection	none	Use the **Literature Connection** to reinforce the concept vocabulary. Most of these books can be found in your school library.
***Concept Development**	Examples, Classwork, Homework, "I Try, You Try"	**Concept Development** can be used as homework because it provides examples of the process and then asks students to complete similar problems. The page is perforated, so it can be torn out and combined with homework assignments from other instructional materials.

ThinkUp! Component	May Match With:	Possible Solution to Create '*Zero Additional Minutes*' Time
***Concept Development**	Instructional Activities, Whole Class Instruction, Small Group Instruction	The **Concept Development** provides a menu of instructional activities that are teacher-facilitated to help students develop the concept. Compare this list of activities with those provided in your core curriculum and see how you can supplement with ThinkUp! activities to build a stronger lesson. You do not need to do all these activities or to follow them in a specific order. Remember that this is a menu, so choose the activities that will help create a well-balanced lesson.
***Concept Application & Concept Practice**	Test-Prep, Homework, Classwork,	**Concept Application** and **Concept Practice** are formatted like a STAAR Assessment for student practice. **Concept Application/Concept Practice** provides a script on how to debrief the items with students for deeper understanding. This page can be combined with other instructional materials that are formatted like a standardized test.
***Motivation Station**	Centers, Partner Work	The **Motivation Station** activity is hands-on and typically requires manipulatives to complete. This can be added to a math center or used as partner practice. Use in conjunction with center ideas that are provided in other instructional materials.
***Concept Check**	Quiz, Assessment, Unit Test, Chapter Test, Benchmark	**Concept Check** can be used as a quiz after covering the content in your core curriculum or it can be combined with another assessment to create a unit test.
***Intervention**	Small Group Instruction, Reteach, RTI, Tier 2 or Tier 3 Instruction	Choose either the **Intervention** activities from ThinkUp! Math or from other instructional resources, if provided.
***Math Challenge**	Math Challenge, Warm-up, Exit Ticket, Reflection	Use the **Math Challenge** in addition to other instructional materials that challenge students to extend their critical thinking skills to enhance their problem solving. This section ends with reflection questions, which would make for a great exit ticket.
***Extending Student Thinking**	Extension, Project-Based Learning	The **Extending Student Thinking** section provides a project-based activity that will allow students to apply what they have learned to create something new, which is the highest level of Bloom's Taxonomy. This is a great way to end any unit.
***Home Connection**	Parent Involvement, Family Connection	Use the ideas from **Home Connection** with suggestions from other instructional materials to share with parents and caregivers through classroom newsletters or digital communication apps.