Introduction

Curriculum Overview

Congratulations on choosing an outstanding third-grade curriculum. Using this curriculum, you and your student will be engaged in problem-solving, learning new mathematical concepts, practical skills, technology, and reading literature to reinforce mathematical concepts. One of the advantages in selecting Texas Tech University K-12 curriculum is that you have an all-encompassing curriculum similar to what you would find in some of the most outstanding teacher's classrooms in our nation.

This course is completed entirely online in Blackboard using the PDF **Unit Lessons** and **Worksheets** documents, along with the digital textbook.

3rd Grade Mathematics

Math is a hands-on subject that builds on itself with each new lesson. The textbook for this course, ***Texas Go Math!***, is designed to provide the student with a balanced approach to mathematics learning through the opportunity to investigate concepts by using hands-on activities to help develop conceptual understanding. This allows the student to review, learn, and practice basic computational and procedural skills, build an understanding of number sense, and apply mathematics to problem-solving in real-world situations.

Before beginning the curriculum, please take a few minutes and look through the textbook, ***Texas Go Math!*** at www-k6.thinkcentral.com. Your student will use this digital text for all assignments and independent practice. Information on logging into this website is available in the **Online Resources** section of this Introduction. Take time to become familiar with the various sections of *ThinkCentral*.

The lessons in this course follow a similar format each day, so that your student can get into a rhythm, which makes math easier to understand. Each day will begin with a math challenge which is intended to build number sense, number concepts, and problem solving skills. Next, the student will have the opportunity for a quick review of previously taught vocabulary and math concepts. The student will then be introduced to any new vocabulary which will be followed by suggested literature that will connect to the concept of the day. Once the concept has been introduced in the Explore section, the student will be given the chance to practice the newly presented materials.

The student will keep a math journal, in which the above-mentioned skills will be recorded. This journal will serve as a reference in which the student can keep notes on math skills and vocabulary. The student can refer back to the journal when studying for tests, or when he or she needs examples of how to work problems.

Your student will be using manipulatives and worksheets throughout the curriculum. You will find patterns needed for several of the activities from the lessons in the Worksheets document in the Resources section of this course. After you print out these worksheets, **it is strongly recommended that you attach them to cardstock and have them laminated, as they will be used often.** You may choose to purchase manipulatives, or you can use the alternative manipulatives listed with the other materials in the introduction. Make sure you have all the manipulatives and other materials needed before beginning each lesson.

Problem-solving is a big part of third-grade math curriculum. At various points in this course, the student will be given a step-by-step problem solving plan. Encourage your student to use this plan whenever solving word problems; it is a tool to make more difficult problems easier to solve.

About This Course

In Semester A of this course, your student will be introduced to third-grade math concepts through methods which have been proven highly effective for learning in multiple types of settings. This curriculum will specifically target the math skills and topics that the student will need to know to master third-grade mathematics. Lessons offer fun, hands-on activities to introduce and reinforce concepts and to provide students with effective problem-solving skills.

This curriculum offers many problem-solving opportunities throughout each Module which allow your student to apply the math skills learned to solve problems using visual thinking, logical reasoning, and number sense. Problem-solving strategy lessons give your student different methods to effectively solve word problems. The word problems in this curriculum are not simple computations, but involve multiple steps to solve, allowing a student the opportunity to analyze what the problem is asking and decide how to use the information given.

New skills build on those previously learned and ensure that the student will master each skill before moving ahead to new ones. This method will help instill confidence, a willingness to learn, and success for the student.

Course Objectives

The mathematics curriculum covers all of the Texas Essential Knowledge and Skills (TEKS) for third grade. At the end of this course, the student should be able to do the following:

- **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:
  - ◊ apply mathematics to problems arising in everyday life, society, and the workplace;
  - ◊ use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;
  - ◊ select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;

- ◊ create and use representations to organize, record, and communicate mathematical ideas;
- ◊ analyze mathematical relationships to connect and communicate mathematical ideas; and
- ◊ display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

- **Number and operations.** The student applies mathematical process standards to represent and compare whole numbers and understand relationships related to place value. The student is expected to:
  - ◊ compose and decompose numbers up to 100,000 as a sum of so many ten thousands, so many thousands, so many hundreds, so many tens, and so many ones using objects, pictorial models, and numbers, including expanded notation as appropriate;
  - ◊ describe the mathematical relationships found in the base-10 place value system through the hundred thousands place;
  - ◊ represent a number on a number line as being between two consecutive multiples of 10; 100; 1,000; or 10,000 and use words to describe relative size of numbers in order to round whole numbers; and
  - ◊ compare and order whole numbers up to 100,000 and represent comparisons using the symbols >, <, or =.

- **Number and operations.** The student applies mathematical process standards to represent and explain fractional units. The student is expected to:
  - ◊ represent fractions greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 using concrete objects and pictorial models, including strip diagrams and number lines;
  - ◊ determine the corresponding fraction greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 given a specified point on a number line;
  - ◊ explain that the unit fraction $\frac{1}{b}$ represents the quantity formed by one part of a whole that has been partitioned into b equal parts where b is a non-zero whole number;
  - ◊ compose and decompose a fraction $\frac{a}{b}$ with a numerator greater than zero and less than or equal to b as a sum of parts $\frac{1}{b}$;
  - ◊ solve problems involving partitioning an object or a set of objects among two or more recipients using pictorial representations of fractions with denominators of 2, 3, 4, 6, and 8;
  - ◊ represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines;

- ◊ explain that two fractions are equivalent if and only if they are both represented by the same point on the number line or represent the same portion of a same size whole for an area model; and
- ◊ compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models.

- **Number and operations.** The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve problems with efficiency and accuracy. The student is expected to:
  - ◊ solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction;
  - ◊ round to the nearest 10 or 100 or use compatible numbers to estimate solutions to addition and subtraction problems;
  - ◊ determine the value of a collection of coins and bills;
  - ◊ determine the total number of objects when equally-sized groups of objects are combined or arranged in arrays up to 10 by 10;
  - ◊ represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line, and skip counting;
  - ◊ recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts;
  - ◊ use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties;
  - ◊ determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally;
  - ◊ determine if a number is even or odd using divisibility rules;
  - ◊ determine a quotient using the relationship between multiplication and division; and
  - ◊ solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts.

- **Algebraic reasoning.** The student applies mathematical process standards to analyze and create patterns and relationships. The student is expected to:
  - ◊ represent one- and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations;
  - ◊ represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations;

- ◊ describe a multiplication expression as a comparison such as 3 × 24 represents 3 times as much as 24;
- ◊ determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product; and
- ◊ represent real-world relationships using number pairs in a table and verbal descriptions.

- **Geometry and measurement.** The student applies mathematical process standards to analyze attributes of two-dimensional geometric figures to develop generalizations about their properties. The student is expected to:
  - ◊ decompose two congruent two-dimensional figures into parts with equal areas and express the area of each part as a unit fraction of the whole and recognize that equal shares of identical wholes need not have the same shape.

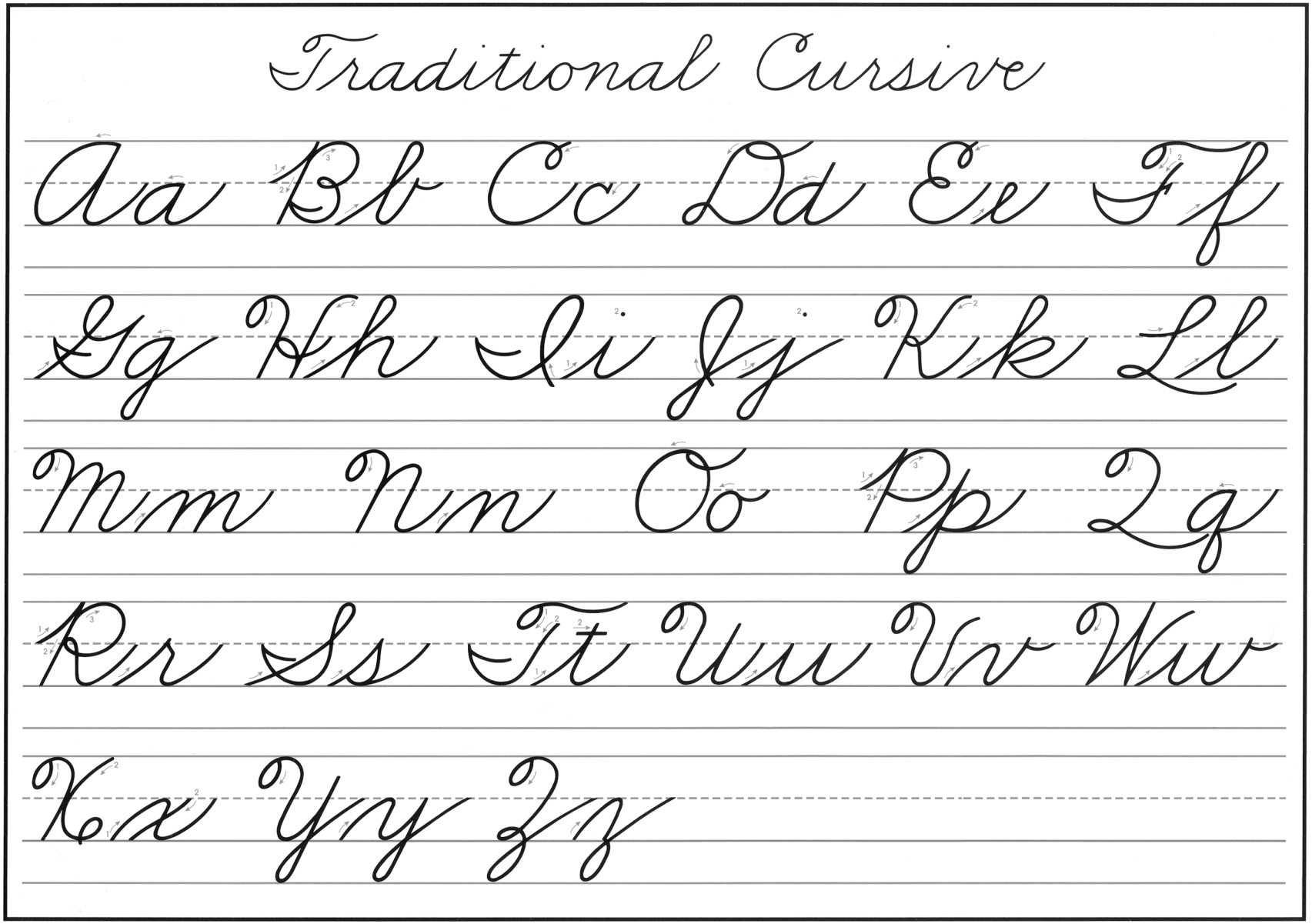
- **Geometry and measurement.** The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving customary and metric measurement. The student is expected to:
  - ◊ represent fractions of halves, fourths, and eighths as distances from zero on a number line.

Source: The provisions of this §111.5 adopted to be effective September 10, 2012, 37 TexReg 7109; amended to be effective October 15, 2013, 38 TexReg 7112.

Handwriting

Handwriting is taught in the Language Arts course. However, good handwriting skills are necessary in all subjects including math. In Kindergarten, Grade 1, and Grade 2, manuscript is the preferred technique; in Grades 3, 4, and 5, cursive is preferred. When teaching your child handwriting, please consider the appropriate letter and number formation and spacing. Please refer to the cursive chart included on the next page to assist you in appropriately teaching your child handwriting. Please reinforce the importance of good handwriting in all subject areas.

Traditional Cursive



Books and Materials for MATH 3 this Semester

Textbook

You are required to purchase the digital textbook in order to access all lesson materials. Purchase of the print textbook is strongly suggested, as well.

- Digital: *Texas Go Math! Grade 3* (Houghton Mifflin Harcourt, 2015), ISBN 978-0-544-36499-8
- Print: *Texas Go Math! Grade 3* (Houghton Mifflin Harcourt, 2015), ISBN 978-0-544-14252-7 (2-volume set)

Optional Suggested Literature

Unit 1

Lesson	***Title***
• Day 2	*How Much Is a Million?,* by David M. Schwartz
• Day 5	*Zero, Is It Something? Is It Nothing?,* by Claudia Zaslavsky
• Day 6	*Is a Blue Whale the Biggest Thing There Is?* by Robert Wells
• Day 8	*Full House: An Invitation to Fractions,* by Dayle Ann Dodds
• Day 9	*Whole-y Cow! Fractions Are,* by Taryn Souders
• Day 11	*Fraction Fun,* by David A. Adler
• Day 14	*Counting on Frank,* by Rod Clement
• Day 19	*Follow the Money!,* by Loreen Leedy
• Day 20	*Hershey's Kisses Subtraction Book,* by Jerry Pallotta
• Day 21	*Ten Fat Turkeys,* by Tony Johnston

Unit 2

Lesson	***Title***
• Day 26	*Amanda Bean's Amazing Dream,* by Cindy Neuschwander
• Day 28	*The Best of Times,* by Greg Tang
• Day 29	*What Comes in 2's, 3's and 4's?,* by Suzanne Aker
• Day 32	*Arctic Fives Arrive,* by Elinor J. Pinczes
• Day 47-48	*One Grain of Rice,* by Demi

Unit 3

Lesson ***Title***

- Day 51 *The Doorbell Rang,* by Pat Hutchins
- Day 52 *Equal Shmequal,* by Virginia Kroll
- Day 56 *One Hundred Hungry Ants*, by Elinor J. Pinczes
- Day 59 *Even Steven and Odd Todd,* by Kathryn Cristaldi
- Day 71 *A Remainder of One,* by Elinor J. Pinczes

Manipulatives and Materials

Required:

- bags, resealable plastic, 5
- base ten blocks
- basketball hoop or wastebasket
- basketball or small ball
- calculator
- card stock
- checkers, 12 red and 12 black (or something that can be used as game pieces in checkers—color tiles, Legos, etc.)
- color pencils
- colored tiles, red and blue, 25
- construction paper: 12” × 18”: black, red, blue, green, yellow, orange, and brown; and 9” × 12”: red, blue, green, yellow, orange, white, pink, purple, light blue, and light green
- counters, 20 (beans, color tiles, jelly beans, or anything else that can be used as counters)
- crayons or color pencils
- cups, 5
- dice, 3
- dry erase board and markers
- glue
- highlighter
- index cards
- markers, black, 1 thick and 1 fine
- masking tape or painters tape
- money, U.S., real or play, several of each: pennies, nickels, dimes, quarters, and half dollars

- multiplication flash cards
- number tiles
- paper clips, 3
- paper plates, 12
- paper: lined notebook, plain white
- pencils
- playing cards, 1 deck
- ruler
- scissors
- Skittles® or other candies, small package
- sticky notes
- transparent tape
- white or silver crayon or marker
- wide-ruled spiral notebook or three-ring binder and lined notebook paper
- yarn or ribbon, 2 pieces

Recipe supplies (Day 13):

- baking powder
- baking sheet
- cookie cutters
- egg
- flour
- ground cinnamon
- ground cloves
- ground nutmeg
- molasses
- parchment paper
- rolling pin
- salt
- unsalted butter

Optional:

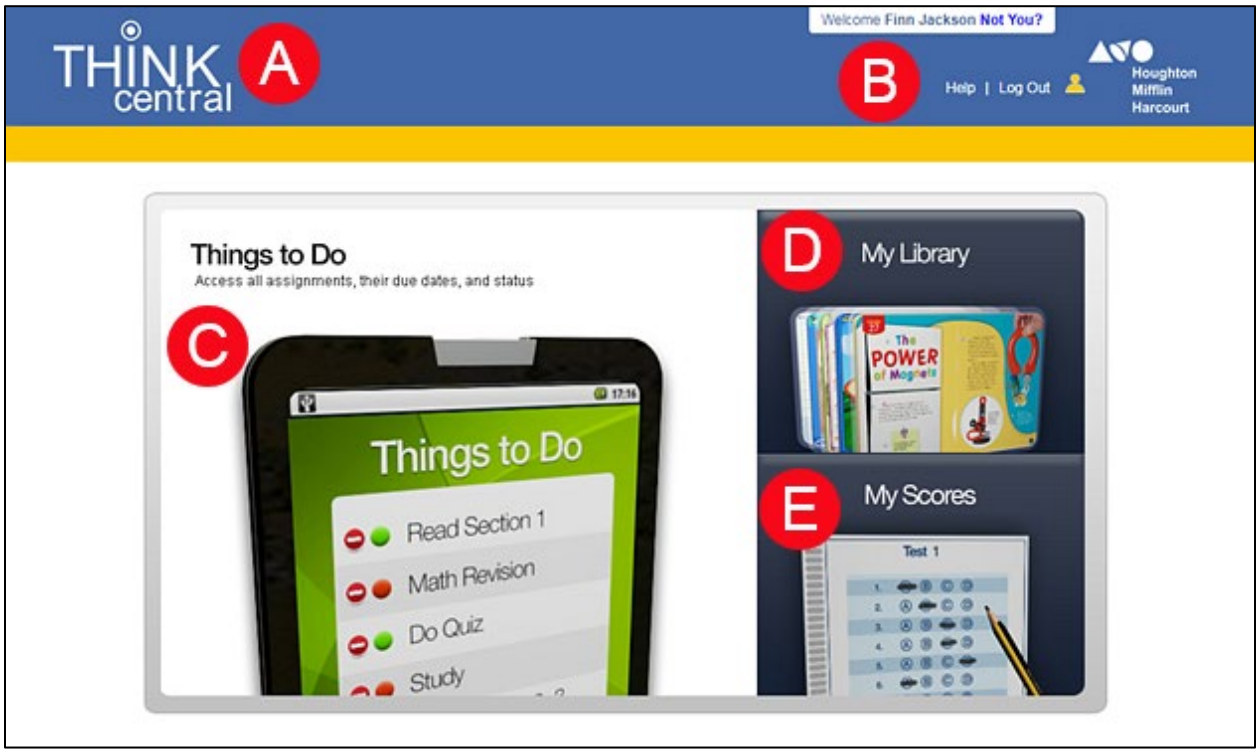
- bags, resealable plastic (2 more)
- base ten blocks
- crayons (red, yellow, green, blue)
- pattern blocks

Online Resources

Navigate ThinkCentral

To move around in *ThinkCentral*:

➔ Click one of the areas on the *ThinkCentral* home page to open that page: **Things to Do**, **My Library**, or **My Scores**.

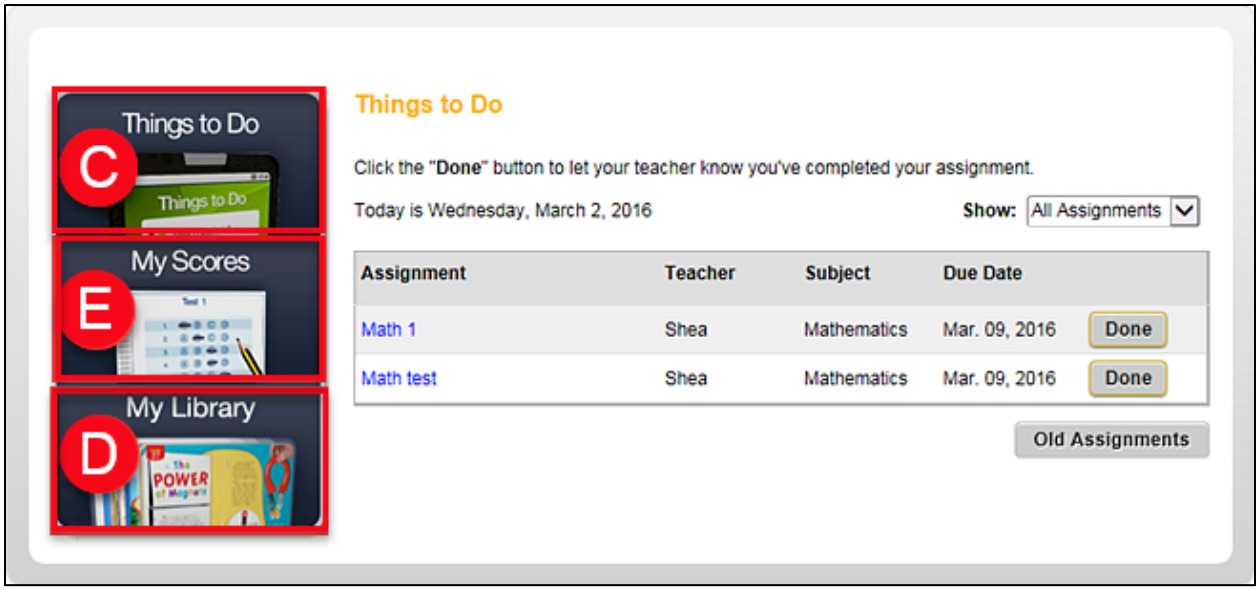


Descriptions of each area is provided in the following table.

Area	Area Name	Description
A	***ThinkCentral* logo**	Returns you to the *ThinkCentral* home page.
B	**Banner Links**	• **Help** – Opens an online help system that provides detailed instructions for ThinkCentral tasks. • **Log Out** – Logs you out of ThinkCentral.

Area	Area Name	Description
		• Account linking icon – If you have more than one account (accounts in more than one school or more than one class), this allows you to select and open another account.
C	**Things to Do**	Opens the **Things to Do** page, which lists all of the tests and assignments your teacher has assigned to you. You can even find your old assignments after you are done with them.
D	**My Library**	Opens the **My Library** page, where you can find all of your online classroom resources, such as books, movies, sound files, worksheets, and more.
E	**My Scores**	Opens the **My Scores** page, which lists the scores that you received on tests and assignments that you have taken. If your teacher has written a comment on your assignment, you can find it here. You can even look at your old tests to see how well you did on each question.

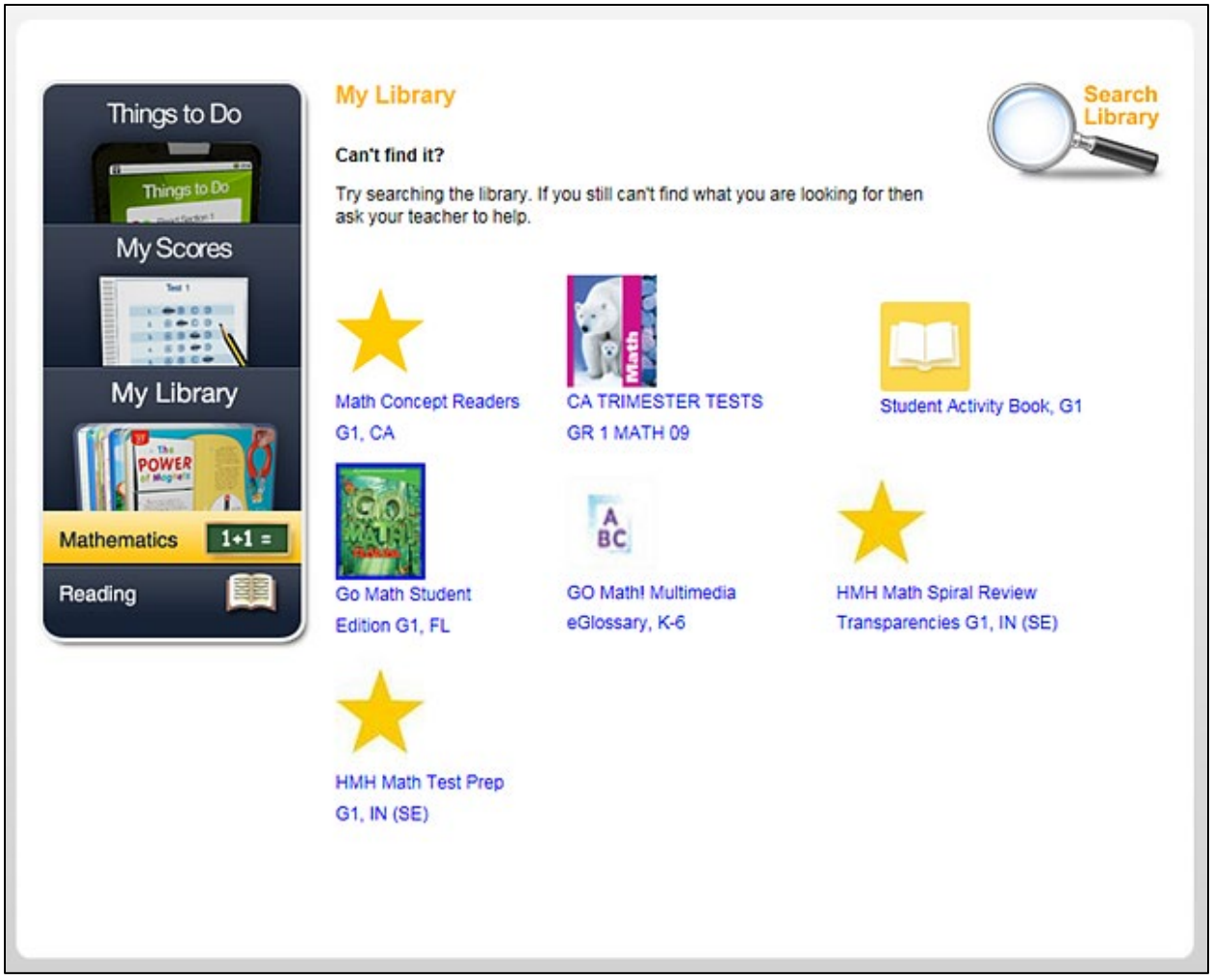
➔ Once you open a page, you can move to a different page by clicking the area with the page name on the left panel.



Using My Library

The **My Library** page lists all of the library items available to you, including online classroom books, movies, sound files, worksheets, and more.

➔ To open the **My Library** page, click **My Library** on the left panel.



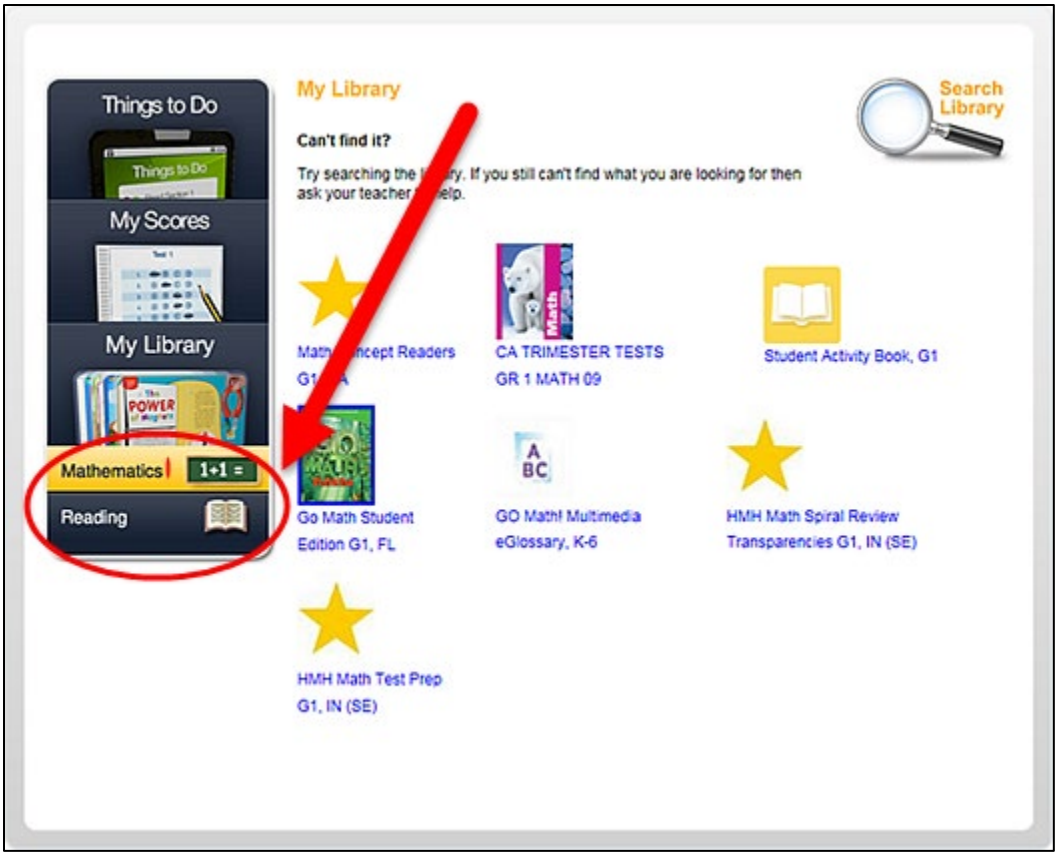
On the My Library page, you can do any of the following:

➔ Open a library item by clicking the item. The item opens in a separate window.

Note: When you close an item, the **My Library** page is still open.

➔ Filter the items that appear by clicking one of the subject buttons (e.g., Mathematics and Reading) located at the bottom of the left panel.

continued →



➔ Click **My Library** to see all of your items again.

➔ Click the **Search Library** magnifying glass. 

Search My Library

My Library lists all of the library items that are available to you. You can search for a specific library item using the **Search Library** option.

To search My Library:

1. In **My Library**, click the **Search Library** magnifying glass.  The **Search Library** page appears.

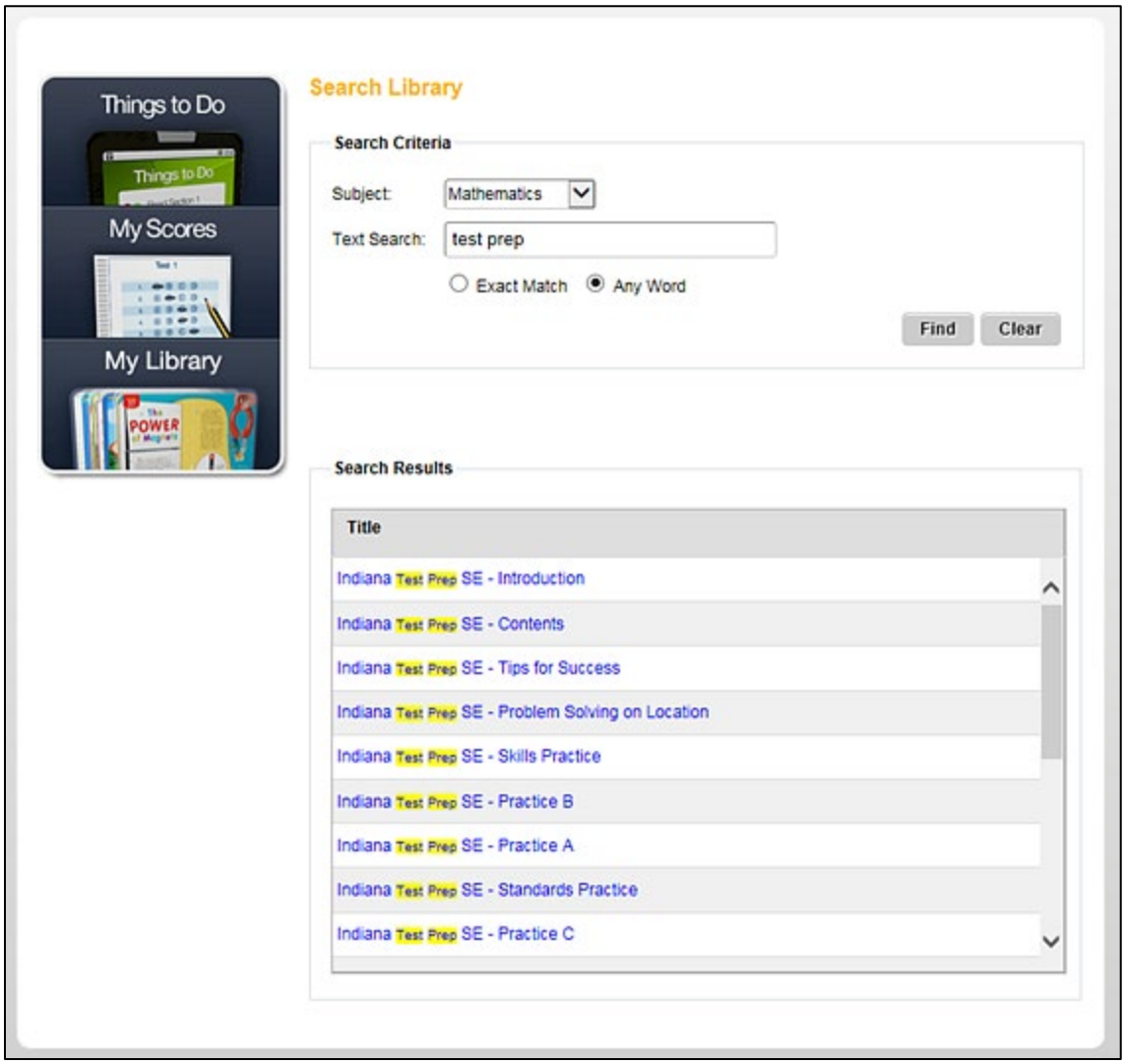
   You can search for a library item by subject, by words, or by both subject and words.

2. In the **Subject** list, select the subject of the item.

3. In the **Text Search** box, type a word or words that identify the item.

Note: To empty the **Search Criteria** area and start a new search, click **Clear**.

4. Click **Find**. The items that match your search filters are listed in the **Search Results** area.



5. To open an item in the list, click the name of the item. The item opens in a separate window.
6. To return to **My Library**, click **My Library** on the left side of the page.

Grading Procedures and Unit Assessment Checklists

Grades are calculated for Unit 1, Unit 2, and Unit 3. The semester grade is an average of the three unit grades. The unit grades will include a test for each unit. Unit Tests 1 and 2 are located in their respective Unit folders in this online course; the Unit 3 Test is in the Final Exam folder.

The Unit assessments will be uploaded to Texas Tech University K-12 to be graded. After the student has finished each test, scan or take a digital photograph of the assigned pages showing his or her work. Combine the images into a ***single*** PDF (see "Requirements for Creating PDFs" on the course home page). When you save the document, use the naming convention given for each Unit Test as the name of your file. Upload the file according to the instructions given in the assignment.

Schedule for Assessments

Unit 1, Day 25

- Unit 1 Test

Unit 2, Day 50

- Unit 2 Test

Unit 3, Day 75

- Unit 3 Test (Final Exam)