

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 B 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;

- ◇ communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
 - ◇ 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 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;
 - ◇ 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 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:
 - ◇ classify and sort two- and three-dimensional figures, including cones, cylinders, spheres, triangular and rectangular prisms, and cubes, based on attributes using formal geometric language;
 - ◇ use attributes to recognize rhombuses, parallelograms, trapezoids, rectangles, and squares as examples of quadrilaterals and draw examples of quadrilaterals that do not belong to any of these subcategories;
 - ◇ determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row;
 - ◇ decompose composite figures formed by rectangles into non-overlapping rectangles to determine the area of the original figure using the additive property of area; and
 - ◇ 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;
 - ◇ determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems;
 - ◇ determine the solutions to problems involving addition and subtraction of time intervals in minutes using pictorial models or tools such as a 15-minute event plus a 30-minute event equals 45 minutes;
 - ◇ determine when it is appropriate to use measurements of liquid volume (capacity) or weight; and
 - ◇ determine liquid volume (capacity) or weight using appropriate units and tools.

- **Data analysis.** The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected to:
 - ◇ summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals; and
 - ◇ solve one- and two-step problems using categorical data represented with a frequency table, dot plot, pictograph, or bar graph with scaled intervals.

- **Personal financial literacy.** The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. The student is expected to:
 - ◇ explain the connection between human capital/labor and income;
 - ◇ describe the relationship between the availability or scarcity of resources and how that impacts cost;
 - ◇ identify the costs and benefits of planned and unplanned spending decisions;
 - ◇ explain that credit is used when wants or needs exceed the ability to pay and that it is the borrower's responsibility to pay it back to the lender, usually with interest;
 - ◇ list reasons to save and explain the benefit of a savings plan, including for college; and
 - ◇ identify decisions involving income, spending, saving, credit, and charitable giving.

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

Aa Bb Cc Dd Ee Ff

Gg Hh Ii Jj Kk Ll

Mm Nn Oo Pp Qq

Rr Ss Tt Uu Vv Ww

Xx Yy Zz

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 4

Lesson	Title
• Day 77	<i>365 Penguins</i> , by Jean-Luc Fromental
• Day 80	<i>The Action of Subtraction</i> , by Brian P. Cleary
• Day 84	<i>Math Curse</i> , by Jon Scieszka
• Day 85	<i>There Was a Coyote Who Swallowed a Flea</i> , by Jennifer Ward
• Day 89	<i>The Amazing Pop-up Multiplication Book</i> , by Katy Petty

Unit 5

Lesson	Title
• Day 102	<i>Grandfather Tang's Story</i> , by Ann Tompert
• Day 103	<i>The Greedy Triangle</i> , by Marilyn Burns
• Day 105	<i>If You Were a Quadrilateral</i> , by Molly Blaisdell
• Day 112	<i>Spaghetti and Meatballs for All</i> , by Marilyn Burns
• Day 116	<i>Perimeter, Area, and Volume: A Monster Book of Dimensions</i> , by David A. Adler
• Day 119	<i>Pigs on a Blanket</i> , by Amy Axelrod

Unit 6

Lesson	Title
• Day 127	<i>Tally Cat Keeps Track</i> , by Trudy Harris
• Day 128	<i>Tally O'Malley</i> , by Stuart Murphy & Cynthia Jabar
• Day 129	<i>Tiger Math: Learning to Graph from a Baby Tiger</i> , by Ann Whitehead Nagda
• Day 130	<i>Family Reunion</i> , by Bonnie Bader

- Day 131 *The Great Graph Contest*, by Loreen Leedy
- Day 139 *The Day I Was Rich*, by Bill Cosby
- Day 140 *If You Made a Million*, by David M. Schwartz
- Day 141 *Alexander, Who Used to Be Rich Last Sunday*, by Judith Viorst
- Day 145 *Pigs Will Be Pigs*, by Amy Axelrod
- Day 148 *Where the Sidewalk Ends*, by Shel Silverstein

Manipulatives and Materials

Required:

- \$20 (if you want your student to actually make the Day 143 linguine recipe)
- balance with gram pieces
- base ten blocks
- beach ball, inflatable
- bottle cap
- bottle, 1-liter (measurement labels should be removed)
- bowl, small
- calculator
- cards, 1 deck
- clock manipulative
- clock or timer
- coin with heads and tails
- color pencils
- color tiles, 25, random colors
- colored candies, small bag
- containers or measuring cups: 1 cup, 1 pint, 1 quart, 1 gallon (empty water or milk jug)
- containers, clear, 2
- crayons
- dice, 6
- dominoes, double-nine
- dropper, 1-milliliter (eye dropper or pipette)
- dry erase board and markers
- flash cards: subtraction, multiplication
- food coloring of your choice

- geoboard
- geometric solids
- gum, 1 package
- hole punch
- index cards, 20
- Jenga® game
- LEGO® bricks or other building blocks
- marker, permanent black
- marshmallows, small, 1 bag
- math journal from MATH 3A or wide-ruled spiral notebook or three-ring binder and lined notebook paper
- mechanical pencils (or something that is of interest to your student), 1 box
- mobile device (smartphone, tablet, etc.)
- newspaper ads or a computer with Internet access
- number tiles
- objects that weigh:
 - ◊ about an ounce (e.g., a slice of bread)
 - ◊ about a pound (e.g., a loaf of bread)
- object with a mass of about one gram (e.g., a small paper clip)
- pan balance with gram pieces, or a scale that can switch between metric and customary units of measurement
- paper clips, 2
- paper plates, 4
- paper: 1 centimeter grid (2 sheets), construction (9" × 12", a lighter color works best), lined notebook
- pattern blocks
- pencils
- picture of student's favorite video game or picture of a pair of shoes that would interest the student
- real or play money: 5 half dollars, 5 quarters, 10 dimes, 15 nickels, 50 or more pennies, 3 ten-dollar bills, 5 five-dollar bills, 10 one-dollar bills
- rubber bands
- ruler with both inches and centimeters
- scissors
- sticky notes, small, 15

- student's favorite candy, 1 bag
- tangrams
- tape, transparent
- toothpicks, 1 box
- variety of small objects to weigh (ping pong ball, pencil, scissors, eraser, etc.)
- water
- yarn or ribbon

Optional:

- card stock
- glue
- markers, color
- objects shaped like:
 - ◊ a cube (e.g., a die)
 - ◊ a sphere (e.g., a ball)
 - ◊ a rectangular prism (e.g., a domino)
 - ◊ a cone (e.g., a party hat or an ice cream cone)
 - ◊ a cylinder (e.g., a can of food)
 - ◊ a square pyramid (e.g., a pyramid-shaped paper weight)
 - ◊ a triangular prism (e.g., a Toblerone candy bar)

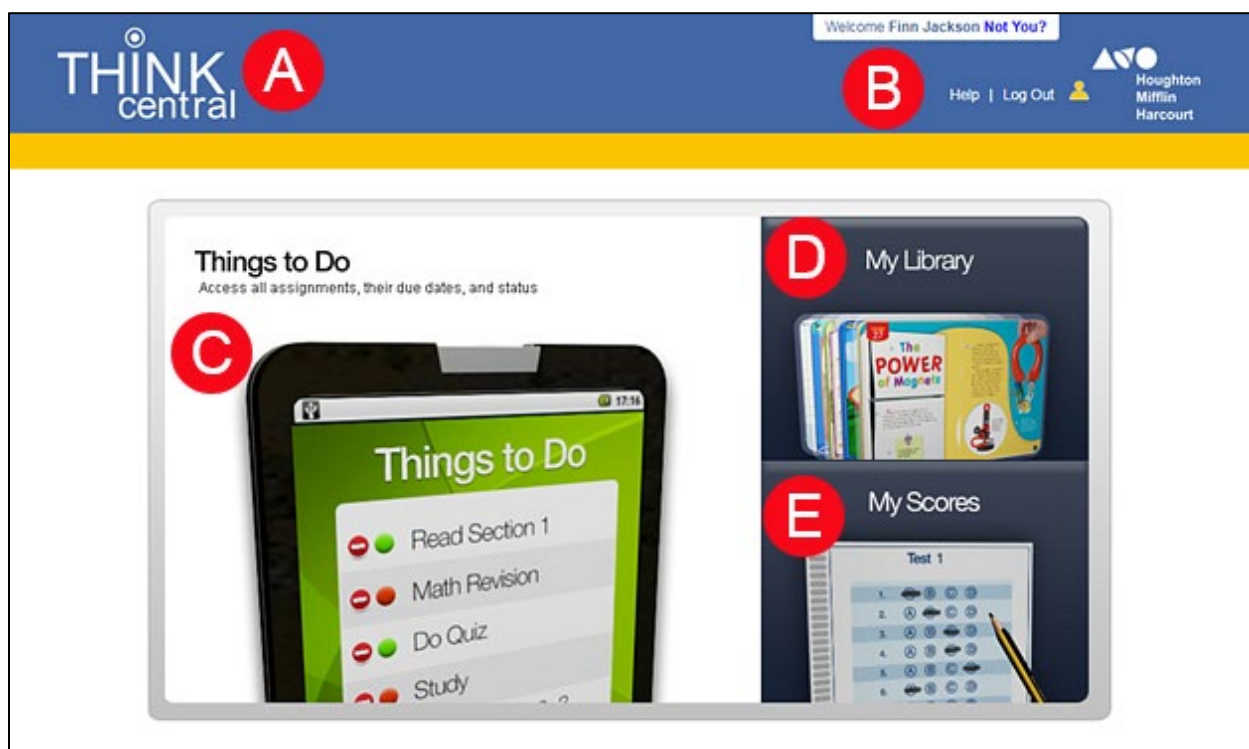
Online Resources

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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**.

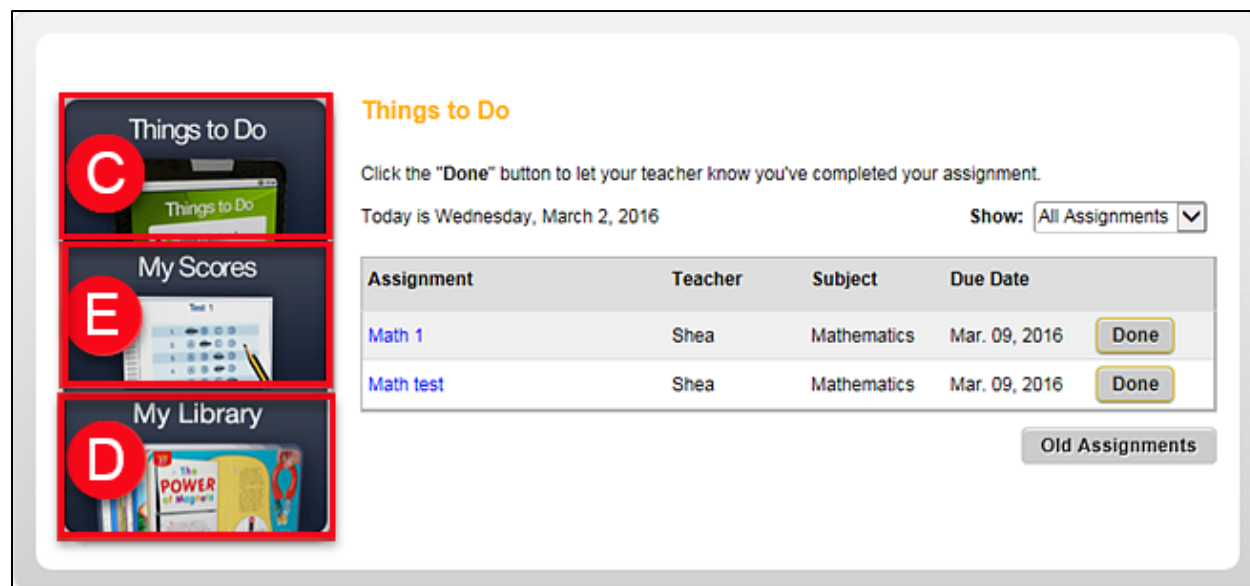


Descriptions of each area is provided in the following table.

Area	Area Name	Description
A	ThinkCentral logo	Returns you to the <i>ThinkCentral</i> home page.
B	Banner Links	<ul style="list-style-type: none">• Help – Opens an online help system that provides detailed instructions for ThinkCentral tasks.• Log Out – Logs you out of ThinkCentral.

Area	Area Name	Description
		<ul style="list-style-type: none">  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.
	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.
	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.
	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.



The screenshot shows the 'Things to Do' page. On the left, there is a vertical navigation panel with three icons: 'Things to Do' (labeled with a red 'C'), 'My Scores' (labeled with a red 'E'), and 'My Library' (labeled with a red 'D'). The main content area is titled 'Things to Do' and includes instructions to click the 'Done' button to let the teacher know an assignment is completed. It shows the current date as Wednesday, March 2, 2016, and a 'Show:' dropdown menu set to 'All Assignments'. Below this is a table of assignments:

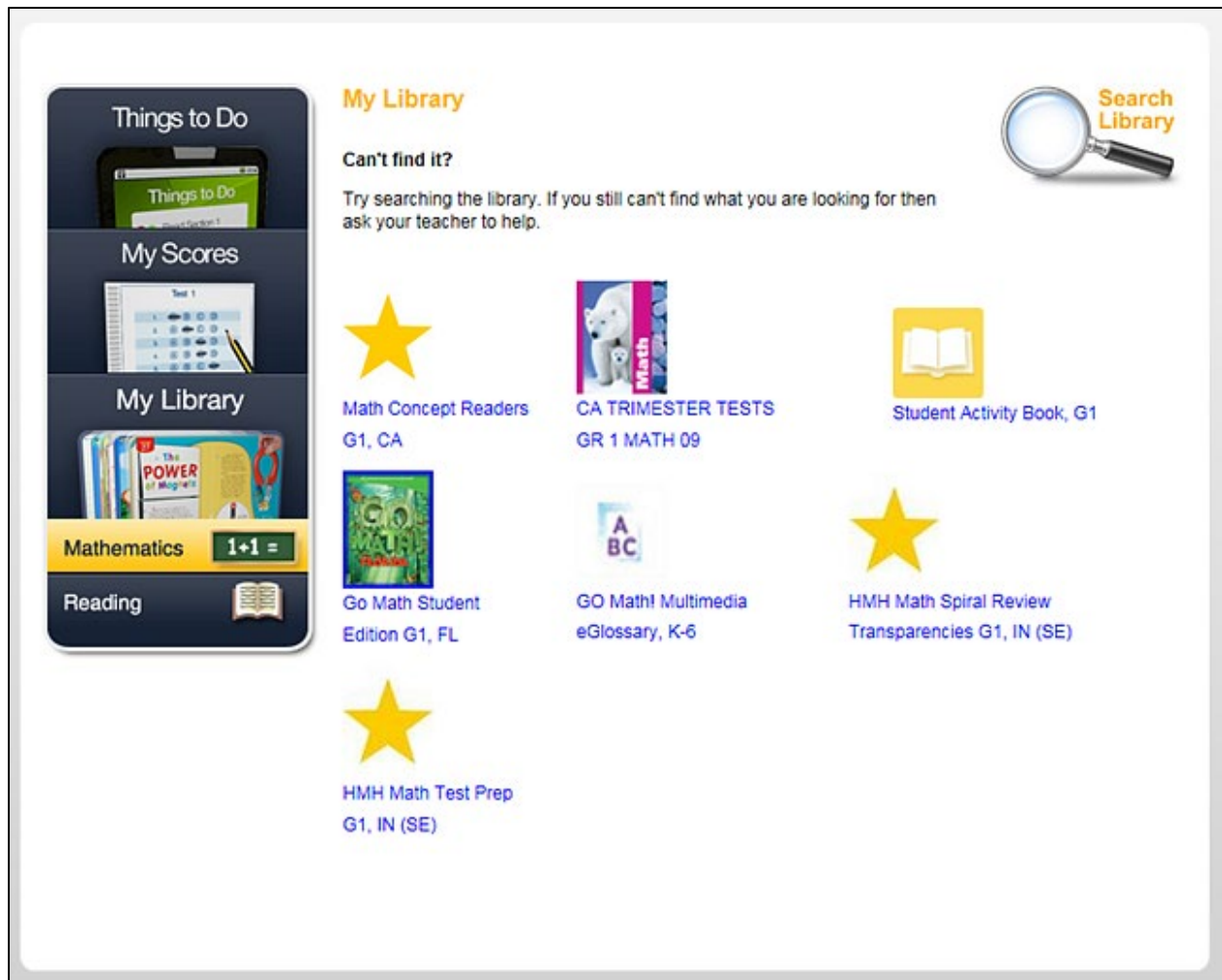
Assignment	Teacher	Subject	Due Date	
Math 1	Shea	Mathematics	Mar. 09, 2016	<button>Done</button>
Math test	Shea	Mathematics	Mar. 09, 2016	<button>Done</button>

At the bottom right of the table, there is a button labeled 'Old Assignments'.

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.



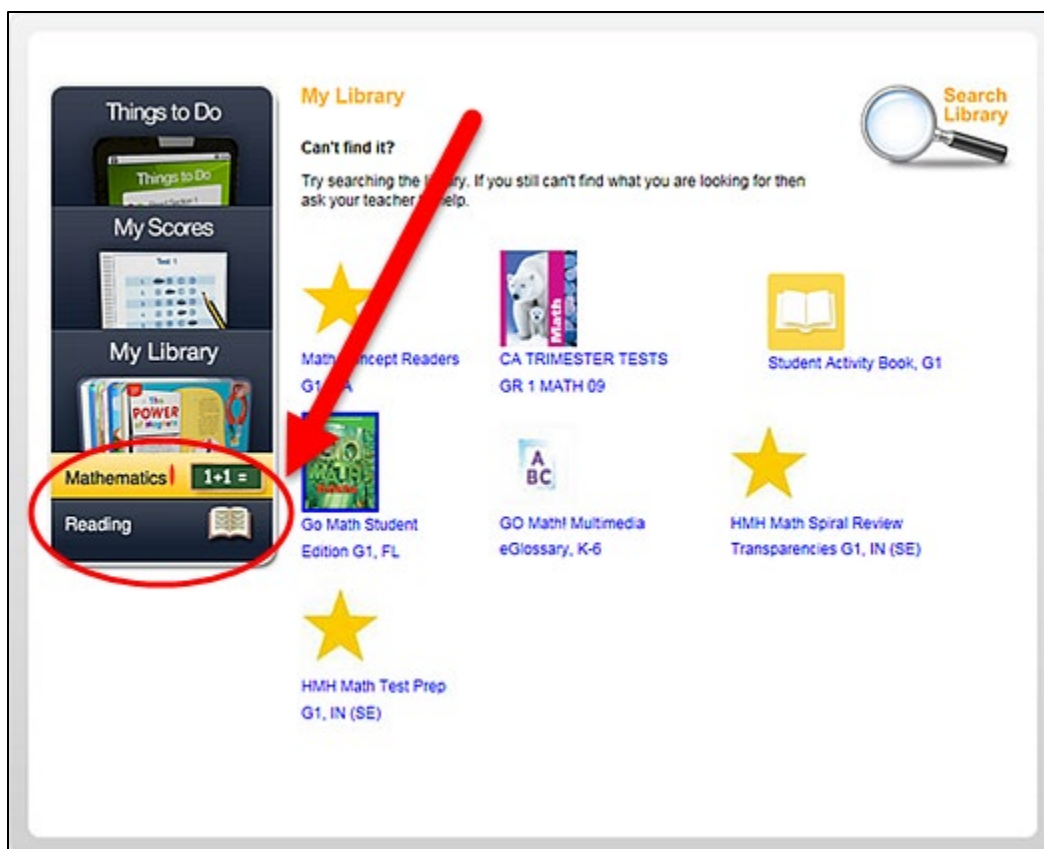
On the My Library page, you can do any of the following:

→ 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**.

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

The screenshot displays a web interface for a digital library. On the left is a vertical sidebar with three sections: 'Things to Do' (showing a smartphone icon), 'My Scores' (showing a document icon), and 'My Library' (showing a stack of books). The main area is titled 'Search Library' in orange. It contains a 'Search Criteria' section with a 'Subject' dropdown menu set to 'Mathematics' and a 'Text Search' input field containing 'test prep'. Below the input field are two radio buttons: 'Exact Match' (unselected) and 'Any Word' (selected). 'Find' and 'Clear' buttons are to the right. Below this is the 'Search Results' section, which features a table with a single column titled 'Title'. The table lists nine items, each starting with 'Indiana Test Prep SE -' followed by a specific topic. A vertical scrollbar is on the right side of the table.

Title
Indiana Test Prep SE - Introduction
Indiana Test Prep SE - Contents
Indiana Test Prep SE - Tips for Success
Indiana Test Prep SE - Problem Solving on Location
Indiana Test Prep SE - Skills Practice
Indiana Test Prep SE - Practice B
Indiana Test Prep SE - Practice A
Indiana Test Prep SE - Standards Practice
Indiana Test Prep SE - Practice C

- To open an item in the list, click the name of the item. The item opens in a separate window.
- 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 4, Unit 5, and Unit 6. The semester grade is an average of the three unit grades. The unit grades will include a test for each unit. Unit Tests 4 and 5 are located in their respective Unit folders in this online course; the Unit 6 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 digital photographs 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 tests

Unit 4, Day 100

- Unit 4 Test

Unit 5, Day 125

- Unit 5 Test

Unit 6, Day 150

- Unit 6 Test (Final Exam)