# Mathematics, Grade 4 (MATH) 4B
# Syllabus

## Course Name

MATH 4B

Mathematics, Grade 4 – Semester B

## Course Information

MATH 4B is the second semester of this two-semester course.

Welcome to Math 4B! This semester will help you master fractions and some basic concepts in geometry. You may already be familiar with fractions, but the first part of this semester will help you review and build on your skills. The second part of the semester will help you start thinking about number patterns and rules, ideas that can help you understand ideas in geometry. At the very end, we'll take some time to learn a little bit about money and budgeting.

## Course Delivery Method

Online

## Contacting Your Instructor

You may contact your instructor through the Blackboard messaging system. Technical support is available 24/7 at www.k12.ttu.edu.

## Course Objectives

After completing this course, you should be able to:

1. use mathematical processes to acquire and demonstrate mathematical understanding:
    a. apply mathematics to problems arising in everyday life, society, and the workplace;
    b. 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;

   c. 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;

   d. communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

   e. create and use representations to organize, record, and communicate mathematical ideas;

   f. analyze mathematical relationships to connect and communicate mathematical ideas; and

   g. display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication;

2. apply mathematical process standards to represent and explain fractional units:

   a. represent a fraction $\frac{a}{b}$ as a sum of fraction $\frac{1}{b}$, where $a$ and $b$ are whole numbers and $b > 0$, including when $a > b$;

   b. decompose a fraction in more than one way into a sum of fractions with the same denominator using concrete and pictorial models and recording results with symbolic representations;

   c. determine if two given fractions are equivalent using a variety of methods;

   d. compare two fractions with different numerators and different denominators and represent the comparison using the symbols >, =, or <;

   e. represent and solve addition and subtraction of fractions with equal denominators using objects and pictorial models that build to the number line and properties of operations;

   f. evaluate the reasonableness of sums and differences of fractions using benchmark fractions $0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4}$, and 1, referring to the same whole; and

   g. represent fractions and decimals to the tenths or hundredths as distances from zero on a number line;

3. apply mathematical process standards to analyze and create patterns and relationships:

   a. represent multi-step problems involving the four operations with whole numbers using strip diagrams and equations with a letter standing for the unknown quantity;

   b. represent problems using an input-output table and numerical expressions to generate a number pattern that follows a given rule representing the relationship of the values in the resulting sequence and their position in the sequence;

      c.  use models to determine the formulas for the perimeter of a rectangle ($l + w + l + w$ or $2l + 2w$), including the special form for perimeter of a square ($4s$) and the area of a rectangle ($l \times w$); and

      d.  solve problems related to perimeter and area of rectangles where dimensions are whole numbers;

4.  apply mathematical process standards to analyze attributes of two-dimensional geometric figures to develop generalizations about their properties:

      a.  identify points, lines, line segments, rays, angles, and perpendicular and parallel lines;

      b.  identify and draw one or more lines of symmetry, if they exist, for a two-dimensional figure;

      c.  apply knowledge of right angles to identify acute, right, and obtuse triangles; and

      d.  classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size;

5.  apply mathematical process standards to select appropriate units, strategies, and tools to solve problems involving customary and metric measurement:

      a.  illustrate the measure of an angle as the part of a circle whose center is at the vertex of the angle that is "cut out" by the rays of the angle. Angle measures are limited to whole numbers;

      b.  illustrate degrees as the units used to measure an angle, where $\dfrac{1}{360}$ of any circle is one degree and an angle that "cuts" $\dfrac{n}{360}$ out of any circle whose center is at the angle's vertex has a measure of $n$ degrees. Angle measures are limited to whole numbers;

      c.  determine the approximate measures of angles in degrees to the nearest whole number using a protractor;

      d.  draw an angle with a given measure; and

      e.  determine the measure of an unknown angle formed by two non-overlapping adjacent angles given one or both angle measures;

6.  apply tools to solve problems involving measurement:

      a.  identify relative sizes of measurement units within the customary and metric systems;

      b.  convert measurements within the same measurement system, customary or metric, from a smaller unit into a larger unit or a larger unit into a smaller unit when given other equivalent measures represented in a table; and

      c.  solve problems that deal with measurements of length, intervals of time, liquid volumes, mass, and money using addition, subtraction, multiplication, or division as appropriate;

7.  apply mathematical process standards to manage one's financial resources effectively for lifetime financial security:
    a.  distinguish between fixed and variable expenses;
    b.  calculate profit in a given situation;
    c.  compare the advantages and disadvantages of various savings options;
    d.  describe how to allocate a weekly allowance among spending; saving, including for college; and sharing; and
    e.  describe the basic purpose of financial institutions, including keeping money safe, borrowing money, and lending.

MATH 4 addresses the required Texas Essential Knowledge and Skills (TEKS). These can be found at the Texas Education Agency website.

## Textbook and Materials

### Textbook(s)

The required **digital** textbook for this course is:

- Burger, Dixon, Kanold, Larson, Leinwand, & Sandoval-Martinez. (2019). *Texas GoMath!, Grade 4* (Interactive Online). Boston, MA: Houghton Mifflin Harcourt. ISBN: 978-0-5443-6499-8.
- Learn more and preview online: https://www.hmhco.com/programs/go-math

The **print** textbook is optional:

- Burger, Dixon, Kanold, Larson, Leinwand, & Sandoval-Martinez. (2015). *Texas GoMath!, Grade 4, Student Edition Bundle* (Vol. 1 & 2, Print edition). Boston, MA: Houghton Mifflin Harcourt. ISBN: 978-0-544-14242-8.

While the electronic version of this book is available on the publisher's website, we *strongly recommend* that you purchase a paper textbook.

### About the Digital Textbook

The digital textbook can only be purchased through the TTU K-12 partner bookstore. You can find the link to the bookstore on the TTU K-12 website. We strongly recommend that you purchase the digital version *and* a paper textbook. Once you have purchased the digital textbook, you will receive a username and password via email. You will log in at the ThinkCentral website to access your textbook.

In addition to your username and password, you will need the following information to login:

- State: Texas
- District: College
- School: Texas Tech University, Lubbock 79409

Please note that you will not be able to access any of the digital resources if you purchase only the printed textbook.

All **Math on the Spot** videos in this course are provided by Houghton Mifflin Harcourt Publishers.

### *Materials*

Other required materials:

- a scanner and software to create PDFs (see **Requirements for Creating PDFs** on the course home page for information on PDF-creation options)
- 180° protractor
- dice, 3
- envelopes, 2
- glue or tape
- index cards
- lined notebook paper
- pencils and erasers
- scissors
- spiral notebook or three-ring binder for a math journal
- straight edge or ruler

### *PDF Assignments*

You will submit all lessons for this course electronically. Your work for each lesson will need to be saved as a PDF in order to submit the lesson for grading. See **Requirements for Creating PDFs** on the course home page for information on PDF-creation options. The options include the choice of scanning your notebook pages or taking pictures of each page, so you can decide what works best for you.

Be sure your pencil marks, handwriting, and answers are clear for your instructor.

## Technical Requirements

- Internet access – preferably high speed (for accessing Blackboard)
- Email
- Word processing software such as Microsoft Word
- Adobe Reader (download from [Adobe.com](Adobe.com))
- Audio and video capabilities (for watching/listening to course content)
- PDF app (to scan hand-written documentation for graded assignments)

## Technical Skill Requirements

Be comfortable with the following:

- using a word processor
- Internet search engines and browsers
- creating PDFs (see **Requirements for Creating PDFs** in the Syllabus section of your course)

## Course Organization

This course consists of nine modules and a final examination. Each module is itself divided into lessons. Each lesson contains the following:

- Introduction and Instructions
- Learning Objectives and Curriculum Standards
- Learning Activities
- Assignments

Each module includes several activities that present content knowledge. Each module also includes multiple graded assignments to ensure that you learn the content that has been presented in the activities. Some of the assignments are automatically-graded quizzes, and some are written assignments or activities that your instructor will grade. Be sure you read all instructions carefully and ask your instructor for help if something is not clear.

### *About This Course*

As you saw in the first semester, Math 4 doesn't follow the sequence of the textbook. Hopefully the first semester gave you plenty of time to learn about decimals, multiplication, and division. As you work through Semester B, you can keep practicing those Semester A skills on your own if necessary.

The course is designed to remind you of things you already know and help you build on that knowledge. Each section starts with a **Lesson Check** quiz from the textbook. Be sure to complete the quiz to help you review those skills. You can find the answers to these quizzes in the **Resources** section of the course.

Next, look at the textbook page numbers and become familiar with the concepts will we cover. The course will help you pick out the key ideas you need to learn. You'll have a chance to work on practice exercises and watch **Math on the Spot** videos to help you check your understanding.

When you're ready, you can complete the assignment problems on your own notebook paper. Your instructor will be excited to see your work, so you'll scan or take a picture of it and upload it for grading (see **Requirements for Creating PDFs** on the course home

page for more information). Your instructor will be able to check all of your work and help you if you have any problems.

***Math on the Spot Videos***

To watch the videos, log into the [Houghton Mifflin Harcourt ThinkCentral website](). Follow the links to find the module and lesson number you are studying. The videos will walk you through concepts associated with problems in your textbook.

## Course Outline

Please note that some assignments will be hidden from you when you start the course. As you move through the lessons and complete assignments, more will unlock for you.

| Lesson | Topic | Approximate Time for Completion |
|---|---|---|
| **Module 3** | Fraction Concepts | One week |
| **Module 4** | Compare Fractions | One week |
| **Module 5** | Add and Subtract Fractions | Two weeks |
| **Module 11** | Algebra: Multi-Step Problems | Two weeks |
| **Module 12** | Number Patterns, Perimeter, and Area | Two weeks |
| **Module 13** | Geometry Concepts | Two weeks |
| **Module 14** | Measure Angles | Two weeks |
| **Module 15** | Customary and Metric Measures | Two weeks |
| **Module 18** | Financial Literacy | Two weeks |
| **Final Exam** | | |

## Assignment Schedule

Each of the following must be completed to complete the course. Items with an asterisk (*) indicate that these are summative assessments for the course.

| Lesson | Weeks | Assignments |
|---|---|---|
| **Mod.3** | 1 | Checkpoint 1 (Non-graded) |
| | | Assignment 3.1 Quiz: Daily Assessment Task |
| | | Assignment 3.1 Upload: Homework and Practice |
| | | Assignment 3.1 Activity: Equivalent Fractions |
| | | Assignment 3.2 Activity: Problem Solving |
| | | Assignment 3.2 Quiz: Daily Assessment Task |
| | | Assignment 3.2 Upload: Homework and Practice |

| Lesson | Weeks | Assignments |
|---|---|---|
| | | Assignment 3.3 Quiz: Daily Assessment Task |
| | | Assignment 3.3 Upload: Homework and Practice |
| | | Assignment 3.3 Upload: Problem Solving |
| | | Assignment 3.4 Upload: Problem Solving |
| | | Assignment 3.4 Quiz: Daily Assessment Task |
| | | Assignment 3.5 Quiz: Daily Assessment Task |
| | | Assignment 3.5 Upload: Homework and Practice |
| | | Assignment 3.5 Upload: Problem Solving |
| | | Assignment 3.6 Upload: Problem Solving |
| | | Assignment 3.6 Quiz: Daily Assessment Task |
| | | Assignment 3.6 Upload: Homework and Practice |
| | | *Module 3 Upload: Review and Summative Assessment |
| **Mod.4** | 2 | Assignment 4.1 Quiz: Daily Assessment Task |
| | | Assignment 4.1 Upload: Homework and Practice |
| | | Assignment 4.1 Upload: Problem Solving |
| | | Assignment 4.2 Quiz: Comparing Fractions 1 |
| | | Assignment 4.2 Upload: Comparing Fractions 2 |
| | | Assignment 4.2 Upload: Homework and Practice |
| | | Assignment 4.3 Quiz: Daily Assessment Task |
| | | Assignment 4.3 Upload: Homework and Practice |
| | | *Module 4 Upload: Review and Summative Assessment |
| **Mod.5** | 3-4 | Assignment 5.1 Quiz: Daily Assessment Task |
| | | Assignment 5.1 Upload: Homework and Practice |
| | | Assignment 5.2 Upload: Problem Solving |
| | | Assignment 5.2 Quiz: Daily Assessment Task |
| | | Assignment 5.2 Upload: Homework and Practice |
| | | Assignment 5.3 Quiz: Daily Assessment Task |
| | | Assignment 5.3 Upload: Homework and Practice |
| | | Assignment 5.4 Quiz: Daily Assessment Task |
| | | Assignment 5.4 Upload: Homework and Practice |
| | | Assignment 5.4 Upload: Problem Solving |
| | | Assignment 5.5 Quiz: Daily Assessment Task |
| | | Assignment 5.5 Upload: Homework and Practice |
| | | Assignment 5.5 Upload: Problem Solving |
| | | Assignment 5.6 Upload: Problem Solving |
| | | Assignment 5.6 Quiz: Daily Assessment Task |
| | | Assignment 5.6 Upload: Homework and Practice |
| | | *Module 5 Upload: Review and Summative Assessment |
| | | Checkpoint 2 (Non-graded) |

| Lesson | Weeks | Assignments |
|--------|-------|-------------|
| **Mod.11** | 5-6 | Assignment 11.1 Upload: Problem Solving<br>Assignment 11.1 Quiz: Daily Assessment Task<br>Assignment 11.1 Upload: Homework and Practice<br>Assignment 11.2 Upload: Problem Solving 1<br>Assignment 11.2 Quiz: Daily Assessment Task<br>Assignment 11.2 Upload: Homework and Practice<br>Assignment 11.2 Upload: Problem Solving 2<br>Assignment 11.3 Upload: Problem Solving<br>Assignment 11.3 Quiz: Daily Assessment Task<br>Assignment 11.3 Upload: Homework and Practice<br>Assignment 11.4 Quiz: Daily Assessment Task<br>Assignment 11.4 Upload: Homework and Practice<br>Assignment 11.4 Quiz: Lesson Check 2, page 406<br>Assignment 11.4 Upload: Problem Solving<br>*Module 11 Upload: Review and Summative Assessment |
| **Mod.12** | 7-8 | Assignment 12.1 Quiz: Daily Assessment Task<br>Assignment 12.1 Upload: Homework and Practice<br>Assignment 12.2 Upload: Problem Solving 1<br>Assignment 12.2 Quiz: Daily Assessment Task<br>Assignment 12.2 Upload: Homework and Practice<br>Assignment 12.2 Upload: Problem Solving 2<br>Assignment 12.3 Quiz: Daily Assessment Task<br>Assignment 12.3 Upload: Homework and Practice<br>Assignment 12.4 Quiz: Problem Solving 1<br>Assignment 12.4 Quiz: Daily Assessment Task 1<br>Assignment 12.4 Upload: Homework and Practice<br>Assignment 12.4 Upload: Problem Solving 2<br>Assignment 12.4 Upload: Daily Assessment Task 2<br>Assignment 12.5 Upload: Problem Solving<br>Assignment 12.5 Quiz: Daily Assessment Task 1<br>Assignment 12.5 Upload: Homework and Practice<br>Assignment 12.5 Upload: Daily Assessment Task 2<br>*Module 12 Upload: Review and Summative Assessment |
| **Mod.13** | 9-10 | Assignment 13.1 Quiz: Daily Assessment Task<br>Assignment 13.1 Upload: Homework and Practice<br>Assignment 13.1 Upload: Problem Solving<br>Assignment 13.2 Quiz: Daily Assessment Task<br>Assignment 13.2 Upload: Homework and Practice<br>Assignment 13.3 Quiz: Daily Assessment Task |

| Lesson | Weeks | Assignments |
|--------|-------|-------------|
| | | Assignment 13.3 Activity: Homework and Practice<br>Assignment 13.4 Quiz: Daily Assessment Task<br>Assignment 13.4 Upload: Homework and Practice<br>Assignment 13.4 Activity: Problem Solving<br>Assignment 13.5-13.6 Quiz: Lesson Check<br>Assignment 13.5-13.6 Activity: Problem Solving 1<br>Assignment 13.5-13.6 Quiz: Daily Assessment Task<br>Assignment 13.5-13.6 Upload: Homework and Practice<br>Assignment 13.5-13.6 Upload: Problem Solving 2<br>*Module 13 Upload: Review and Summative Assessment |
| **Mod.14** | 11-12 | Assignment 14.2 Quiz: Angles<br>Assignment 14.2 Upload: Angle Measurement<br>Assignment 14.3 Quiz: Daily Assessment Task<br>Assignment 14.3 Quiz: Homework and Practice 1<br>Assignment 14.3 Upload: Problem Solving<br>Assignment 14.3 Upload: Homework and Practice 2<br>Assignment 14.4 Quiz: Daily Assessment Task<br>Assignment 14.4 Upload: Homework and Practice<br>Assignment 14.4 Upload: Unlock the Problem<br>Assignment 14.5 Quiz: Daily Assessment Task<br>Assignment 14.5 Upload: Homework and Practice<br>Assignment 14.5 Upload: Measuring Angles<br>*Module 14 Upload: Review and Summative Assessment |
| **Mod.15** | 13-14 | Assignment 15.1 Quiz: Daily Assessment Task<br>Assignment 15.1 Quiz: Homework and Practice 1<br>Assignment 15.1 Activity: Problem Solving<br>Assignment 15.1 Upload: Homework and Practice 2<br>Assignment 15.2 Quiz: Daily Assessment Task<br>Assignment 15.2 Quiz: Homework and Practice<br>Assignment 15.2 Upload: Problem Solving<br>Assignment 15.3 Quiz: Daily Assessment Task<br>Assignment 15.3 Quiz: Homework and Practice<br>Assignment 15.3 Upload: Problem Solving<br>Assignment 15.4 Upload: Problem Solving 1<br>Assignment 15.4 Quiz: Daily Assessment Task<br>Assignment 15.4 Quiz: Homework and Practice<br>Assignment 15.4 Upload: Problem Solving 2<br>Assignment 15.6 Quiz: Daily Assessment Task<br>Assignment 15.6 Quiz: Homework and Practice |

| Lesson | Weeks | Assignments |
|--------|-------|-------------|
|  |  | Assignment 15.6 Quiz: Problem Solving<br>Assignment 15.7 Quiz: Daily Assessment Task<br>Assignment 15.7 Quiz: Homework and Practice<br>Assignment 15.7 Upload: Unlock the Problem<br>*Module 15 Upload: Review and Summative Assessment |
| **Mod.18** | 15-16 | Assignment 18.1 Quiz: Daily Assessment Task<br>Assignment 18.1 Upload: Homework and Practice<br>Assignment 18.1 Upload: Expenses<br>Assignment 18.2 Quiz: Daily Assessment Task<br>Assignment 18.2 Upload: Homework and Practice<br>Assignment 18.2 Upload: Problem Solving<br>Assignment 18.3 Upload: Problem Solving<br>Assignment 18.3 Quiz: Daily Assessment Task<br>Assignment 18.3 Quiz: Homework and Practice<br>Assignment 18.3 Upload: Savings<br>Assignment 18.4 Upload: Problem Solving<br>Assignment 18.4 Quiz: Daily Assessment Task<br>Assignment 18.4 Upload: Homework and Practice<br>Assignment 18.5 Quiz: Problem Solving<br>Assignment 18.5 Quiz: Daily Assessment Task<br>Assignment 18.5 Upload: Homework and Practice<br>*Module 18 Upload: Review and Summative Assessment<br>Checkpoint 3 (Non-graded) |
|  |  | **Final Exam** |

## Course Credit

The course grade will be calculated as follows:

- 50% coursework average;
- 50% summative assessment average, including the final exam;
- A passing course grade is 70 or higher.

Students must attempt all assignments in the course. The final exam will not be available until all assignments have been accepted and graded by the teacher.

Students who score below 70% on the final exam will be eligible for one re-exam opportunity.

## Coursework

The graded assignments within each lesson are formative in nature. This means that they are designed to assist you in applying and demonstrating the lesson concepts, as well as identifying areas in which you need additional review. You may use all the lesson's learning activities to assist you as you complete the graded assignments.

## Summative Assessments

Summative assessments are those that allow you to demonstrate mastery of the course objectives. For summative assessments, you will NOT be allowed to use the learning materials. These are opportunities for you to show what you have learned by that point in the course. Summative assessments may be proctored using the online proctoring system Proctorio. Information about Proctorio is provided in **Remote Proctoring** in the Syllabus section of your course. The summative assessments for this course are as follows:

- Summative Assessments **(20% of Course Grade)**
  - Module 3 Upload: Review and Summative Assessment (45 points)
  - Module 4 Upload: Review and Summative Assessment (50 points)
  - Module 5 Upload: Review and Summative Assessment (36 points)
  - Module 11 Upload: Review and Summative Assessment (30 points)
  - Module 12 Upload: Review and Summative Assessment (36 points)
  - Module 13 Upload: Review and Summative Assessment (81 points)
  - Module 14 Upload: Review and Summative Assessment (74 points)
  - Module 15 Upload: Review and Summative Assessment (72 points)
  - Module 18 Upload: Review and Summative Assessment (78 points)
- Summative Final Exam **(30% of Course Grade)**

## Course Completion

- Students may not complete the course in less than 30 days.
- All courses expire six months after the enrollment date.

## Academic Integrity

It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and high standard of integrity. The attempt of students to present as their own any work not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offenders liable to serious consequences, possibly suspension.

"Scholastic dishonesty" includes, but is not limited to, cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts, and any act designed to give unfair academic advantage to the student (such as, but not limited to, submission of essentially the same written assignment for two courses without the prior permission of the instructor) or the attempt to commit such an act.

# Student Expectations

You will be expected to log into the Blackboard course regularly to be aware of possible announcements/reminders and to pace your progress in the course.

Students are expected to maintain an online environment conducive to learning, which includes "netiquette" (Internet etiquette). Please review the basic rules for Online Discussion Netiquette. Ensure that your email messages, discussion board postings, and other electronic communications are thoughtful and respectful. Diverse opinions are welcome in this course, and you are expected to demonstrate an open mind and courtesy when responding to the thoughts and ideas of others.

The following are prohibited:

- making offensive remarks in email or the discussion board;
- using inappropriate language or discussing inappropriate topics online;
- spamming;
- hacking;
- using TTU or Blackboard email or discussion boards for commercial purposes;
- using all caps (considered shouting in online communications); and
- cyber-bullying or online harassment of any type.

Inappropriate behavior shall result in consequences ranging from a request to correct the problem, to removal from the course or even the university, depending on the severity of the behavior. Disciplinary actions will be taken according to the TTU K-12 Student Handbook.

# Communication

- You can expect a reply from your instructor within 2 business days.
- Use the Blackboard Course Messages tool for sending messages to your instructor.

# Submitting Assignments

You will submit all assignments through the Blackboard Assignment Tool, rather than by mail or email.

# Technical Difficulties

### Getting Help

For student assistance with Blackboard, visit TTU K-12 Support.

### Computer Problems

A working computer is necessary for online coursework. Computer problems will not be accepted as a valid reason for failure to complete course activities within the allotted

time frame. Identify a second computer, before the course begins, that you can use if you experience computer problems.

### *Server Problems*

When the Blackboard server needs to be taken down for maintenance, the Blackboard administrator will post an announcement in your course informing you of the time and date. If the server experiences unforeseen problems, your course instructor will notify you.

### *Lost or Corrupted Files*

You must keep/save a copy of every project/assignment on an external disk or personal computer. In the event of any kind of technology failure (e.g., Blackboard server crash or virus infection, students' own computer problems, loss of files in cyberspace, etc.) or any disputes, the instructor may request or require you to resubmit the files. In some instances, the instructor may need to open another attempt within Blackboard, so communication with your instructor is critical in these circumstances.