beauty&truth MATH

Mathematics in a Charlotte Mason Education

ARITHMETIC

SAMPLE

YEAR 3 BUNDLE

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Beauty & Truth Math

- Mathematics in a Charlotte Mason Education -

ARITHMETIC

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Used in conjunction with

STRAYER-UPTON PRACTICAL ARITHMETICS, FIRST BOOK

by George Drayton Strayer and Clifford Brewster Upton

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"Never are the operations of Reason more perfect and more delightful than in mathematics. Here, men do not begin to reason with a notion that causes them to lean to this side or to that. By degrees, absolute truth unfolds itself. We are so made that truth, absolute and certain truth, is a perfect joy to us; and that is the joy that mathematics affords."
(Charlotte Mason, Vol. 4, pp. 62-63)

"How sad that this subject, ethereal as faery and powerful beyond telling, should find no other adjective than 'useful' to justify us in imparting it to our children. Number to the philosophers of old was a touchstone of learning; it was worthy of their greatest respect and deepest thought. Let us take this gift with the others they have given us; this thought of Number as worthy of our best, aesthetically satisfying as an art, beckoning onward as a science, and luring us ever forward towards increasingly enchanting prospects ahead."
(Stephens, Number: A Figure and a Step Onward, p. 4)

"And if our boys and girls can be brought to feel that arithmetic is a game—a noble game—one of the noblest though not one of the most spectacular that the human race has played—and that it is an honour and a privilege to play at it; and if we can keep that feeling alive by the right exercise and the apt stimulus, cunningly applied with a smile and a jest, as becomes so noble a game, the arithmetic lesson will cease to be a dismal grind and become a grand pursuit full of glamour and excitement."
(Ballard, Teaching the Essentials of Arithmetic, p. 34)

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WELCOME

Thank you for purchasing this full-year guide! We are humbled and honored by your support. Please read through this introduction carefully. Understanding our approach is vital to maximizing the benefits of each guide.

THE VISION

Beauty & Truth Math exists to assist students AND teachers in the realm of mathematics in a Charlotte Mason education. Reading the scripted lessons and checking your students' answers is possible. However, this keeps the teacher from being an engaged and involved partner in the learning process.

These lessons are written with the idea that the teacher will work *with* the students, ask questions, have discussions, and monitor progress. Each lesson is an opportunity for building relationships between you, your students, and the Lord. Please make the most of this time together, walking beside your students in exploring and understanding mathematical ideas.

We thoroughly believe that math done completely in isolation misses opportunities to make deep connections. Just like a foreign language needs to be communicated and spoken to make connections, math is its own language with its own big ideas that are best learned through discussion.

You are working with *living* born persons, and our goal is to provide a *living* education. *Living* involves changes and adaptations. These lessons are guides and servants, not masters you must follow. Please use the Spirit's wisdom when discerning what you should modify, skip altogether, push forward on, or slow down on as you and your students are on this journey.

CONTACTING US

We welcome feedback and questions! For general inquiries, please email us at contact@beautyandtruthmath.com.

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WEBSITE LINKS DISCLAIMER

PLEASE PREVIEW LINKS BEFORE USING! While we have done our best to ensure all sites we link to are appropriate, we do not have any control over changes made to them.

We are thankful for the free resources other sites make available and want to support them whenever possible. We link directly to their pages as they generate revenue through traffic on their sites.

In many cases, multiple worksheets will be provided on the linked pages. Most of the time, we will specify which worksheet is needed in the guide. Sometimes, you will need to choose the worksheet. This will be stated in the guide as well.

It is the teacher's final responsibility to ensure the content is age-appropriate for the lessons. Please email us at contact@beautyandtruthmath.com to report broken links.

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READY, SET, GO!

"Putting in the work up front to make the school days run easy."

We have created three folders to easily access the entire year of teacher help documents and printables included in this guide. Their unique QR codes and links are included in multiple places in this introduction and are shown here for easy identification.

We will walk you through how to use these linked folders in the following few pages, so please don't worry about viewing them now. This page is simply an introduction to them.

Important Teacher Helps – This folder contains helpful resources to assist and support you as you implement math in a Charlotte Mason education. It includes the following documents:

- A CHARLOTTE MASON MATH EDUCATION lays out a vision for a Charlotte Mason math education.
- THE ARITHMETIC PROGRESSION provides an overview of arithmetic in the Beauty & Truth Math Guides using Charlotte Mason's philosophy. Sources include PR articles & books recommended in the PUS Programmes.
- ALL ABOUT THE GUIDES is everything you need to know about the guide's setup.
- FORMS 1&2 REVIEW ACTIVITIES is a treasure trove of various review activities organized by topic. Use these to keep review time lively and engaging.
- FAQs is a list of questions we frequently answer from our customers. This document is a living document and will be updated occasionally.
- SUPPORT VIDEOS LIST is a compiled, linked list of support videos in this guide.
- ADDITIONAL SUPPLEMENTAL RESOURCES provide extra teacher support.

Cardstock Printables – This folder contains all resources that need to be printed on cardstock, as these will be used with your students multiple times throughout the lessons. As part of the Year 3 Bundle, ALL CARDSTOCK PRINTABLES includes all printables in one PDF, allowing for easy printing.

Printables – This folder contains all of the consumable printables for your students. Sometimes, you will need several copies. As part of the Year 3 Bundle, ALL PRINTABLES includes all printables in one PDF, allowing for easy printing.

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GET READY!

- **SEE** the **Materials Needed** section in this guide to determine what materials you have and still need to purchase.

- **CHECK OUT Our Favorites** on our website. This is a list of recommendations we have compiled to help you prepare and organize your materials.

- **PRINT** the FORMS 1&2 REVIEW ACTIVITIES document in the **Important Teacher Helps** folder.
    - We recommend printing it on colored paper to make it easy to find. *You only need to print this document once for all your Form 1&2 students.*

- **PRINT ALL OF THE DOCUMENTS** in the **Cardstock Printables** folder. You will use these documents multiple times, so we recommend using cardstock. Any Cards will need to be cut apart as well.

- **PRINT AT LEAST THE FIRST TWO WEEKS** of materials in the **Printables** folder. In the **Materials Needed**, we list how many copies you need for the entire year. Feel free to print all of them ahead of time or print them only a week or two in advance. You can find these documents listed under the Special Materials Needed section of the Weekly Resources Pages for Weeks 1 and 2.

- **DECIDE** if you will print the guide or use it on a screen.

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GET SET!

- **READ THROUGH THE FOLLOWING <u>IMPORTANT TEACHER HELPS</u>:**
  - A CHARLOTTE MASON MATH EDUCATION
  - THE ARITHMETIC PROGRESSION
  - ALL ABOUT THE GUIDES

- **Learn how to implement the guides in daily life.** Read through the **<u>Putting It Altogether</u>** section of this guide.
- **Prepare your materials.** There is no one right way to do this! The following list is simply a compilation of ideas Beauty & Truth Math users have found helpful.
  - **Create a student math notebook for each student.**
    - Fill it with grid paper. In general, we recommend ½" squares. Some students may need larger squares based on their writing ability.
    - Create sections in the notebook for daily assignments, a math vocabulary page, and a reference section. It is up to you and your student how to order these. If applicable, create different sections for the different streams of math.
    - Decide if you will have your student write headings for each assignment. Information such as the date and page number are great things to include. Writing the problem number and showing the final answer, either with a box or circle around it, are also strongly encouraged. We recommend starting this in Year 2 or 3.
  - **Put together a teacher math notebook for yourself.**
    - Create sections for your personal calendar, the lessons from the guides, printable & supplementary resources, exams, notes, etc.
  - **Find a place for the Cardstock Printables.**
    - These could be stored in a folder in your teacher notebook or an accordion file folder. The goal is to keep them accessible and in good condition since you will use them often.
  - **Use tabs to label and easily find what you need!**
    - Tab each topic in the FORMS 1&2 REVIEW ACTIVITIES document (from the Important Teacher Helps folder).
    - In the Strayer-Upton books, tab the following:
      - Where you are at for the current lesson, and the corresponding answer key section in the back
      - Review & mental math pages
  - **Have individual containers for each of your student's supplies.**
  - **Decide how to store card sets**.
    - We recommend placing them in plastic bags and storing them in an index card holder or binder pouch.

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GO!

Any author of math textbooks or guides will tell you that we write in order to accommodate as many students as possible, and we provide more than is needed. You have complete freedom not only to modify the lessons, but also to adjust the number of problems assigned to meet the needs of your students.

Each week, you will need to do the following:

- Look over the new lessons to be covered with your student. Understand the big ideas and objectives.
- Choose review assignments to use with your students. These assignments build depth in highlighting and understanding different number relationships. When choosing what to review, consider three things:
    1) What areas do my students require more practice to solidify concepts?
    2) What topics have we not reviewed in a while?
    3) What assignments would give my students a reprieve and easier lesson to build their confidence and enjoyment of math?
- Choose mental math problems to use throughout the week, if needed.
- Take the Beauty & Truth Math Guide Vow – I do solemnly promise that I will remember and implement the following statements:
    - I have permission from Charlotte Mason and the authors of these lessons to adjust or modify any lesson, at any time, to provide a living education to my unique, born persons.
    - I have permission from Charlotte Mason and the authors of these lessons to assign fewer problems than written in the lessons to provide a living education to my unique, born persons.
    - I have permission from Charlotte Mason and the authors of these lessons to assign more problems than written in the lessons to provide a living education to my unique, born persons.

      "...the educator has to deal with a self-acting, self-developing being, and his business is to guide, and assist in, the production of the latent good in that being, the dissipation of the latent evil, the preparation of the child to take his place in the world at his best, with every capacity for good that is in him developed into a power." (Mason, Vol. 1, p. 9)

- Pray for joy and wisdom as you set out each day exploring mathematical truths with your students. Now dive right into using the lessons, confident that the Lord is with you and for you!

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ALL ABOUT THE YEAR

SEEING THE BIG PICTURE

There is NOT a one size fits all way to teach math using the Charlotte Mason method. Our guides are one option for teachers to use. We have created them to be adaptable to each unique student, both in the big picture and in the guides' details.

We have designed our curriculum to imitate the math streams used in Charlotte Mason's schools. Students have several options for the tracks and combinations of these streams. For more information, see our **Scope & Sequence** page on our website.

Additionally, **The Guides' Big Ideas** page on our website shows the main ideas throughout the years.

YEAR OVERVIEW

Year 3 is a deep dive into multiplication and division. Students finish the 6-12 multiplication tables. As in Year 2, students work with the unit fractions of each table, complete larger number multiplication and short division ideas, and look at measurements with each table. Students look at multiplying two 2-digit numbers after completing the multiplication tables in Year 3 and are introduced to the idea of long division.

We want students to get in the habit of clearly labeling their work. We recommend having students write down each problem number and mark each answer by putting a circle or box around it. Students learn to write the date in Term 2, so they are encouraged to include the date in assignments' headings from that point on.

The **maximum** lesson time for students in Year 3 is 20 minutes.

EVERY DAY & SPECIAL MATERIALS

We assume students will always have their pencil, math notebook with grid paper, grid dry erase board, and dry erase marker handy for lesson time. Any additional materials beyond these items are listed in the Special Materials Needed sections.

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CARDSTOCK PRINTABLES VS. PRINTABLES

The teacher must prepare all Cardstock Printables before the term begins. The Cardstock Printables are listed as special materials, but links are not provided. Links for the Printables Folder are always provided in the special materials.

MONEY

Money is one of the primary manipulatives we use in the guides. We highly recommend using real coins if at all possible. However, we have created a cardstock printable of play dollar bills of various denominations.

THINGS TO LOOK FORWARD TO THIS YEAR

This list highlights the special features and noteworthy things throughout the year. These items are expounded on in each term introduction.

- The Details Matter
- Math Jeopardy
- Review Activities
- Manipulatives
- Measuring
- Number Line Activities
- Connections among Multiple Multiplication Tables
- Multiplication Table Charts
- Multiplication Guidelines
- All About Pages
- Refresh Activities

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MATERIALS NEEDED FOR THE ENTIRE YEAR

Our Favorites

Check out our recommendations to see if any of them would be helpful to you in preparing and organizing your materials.

Everyday Materials

- Dry-Erase Marker
- Grid Dry-Erase Board
- Notebook with ½" Grid Paper
- Pencil

Textbook

Strayer-Upton, Book 1

Cardstock Printables

- All About Division
- All About Multiplication
- All About Unit Fractions
- Dry Measures Cards
- Liquid Measures Cards
- Mastering My Multiplication Tables
- Measuring Length Cards
- Measuring Time Cards
- Month Cards
- Multiplication Table Chart I
- Multiplication Table Chart II
- Number Cards
- Pretend Money - 24 $1 Bills, 24 $10 Bills, 12 $100 Bills, 12 $1,000 Bills
- Roman Numerals Cards
- Roman Numerals Chart
- Unit Fraction Cards

Printables

- 12s Pattern Puzzles
- Blank Clock Faces
- Clocks
- Half-Inch Practice
- Multiplication Table Capstone Worksheet
- Multiplication Table Puzzles (6-12)
- Number Chart (x8)
- Roman Numeral Puzzles
- The Clock
- Thermometer

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- 1 Dice
- 12 Books
- 14 Beads
- 16 Square Inches (cut apart)
- 168 Cranberries (or another small food item)
- 18 Beans
- 2 1" Blocks
- 2 Highlighters (different colors)
- 2 Pieces of Colored Paper
- 20 Chocolate Chips (or other small candy)
- 21 Buttons
- 33 3x3" Sticky Notes
- 3 Mugs
- 72 Two-Color Counters
- 8 Sheets of Construction Paper (all the same size but different colors)
- Actual Thermometer (alcohol or digital)
- Analog Clock
- Bible
- Black Marker
- Black Pen
- Calendar
- Chocolate Bar (divided into seven pieces or anything in a bar shape that cuts easily)
- Circles (print and cut out)
- Clock (with a second hand) or Stopwatch
- Colored pencils or Markers (14 different colors)
- Flower Multiplication Template
- Glue
- Handout or Grid Paper (with a 10x10 outline)
- Internet access
- Knife (if needed)
- Large Dry-Erase Board (or space where a square foot can be marked)
- Markers
- Masking or Painters' Tape
- Money - 100 Pennies, 25 Nickels, 50 Dimes
- Notebook Paper
- Ounce, Cup, Pint, Quart, and Gallon Containers
- Pint, Quart, Peck and Bushel Containers
- Plain Paper
- Premade Number Line
  - Black Marker
  - Eight 8½" by 11" Cardstock Sheets
  - Painter or Masking Tape
  - Straight Edge (Ruler, Yardstick, etc.)
- Ruler
- Scale
- Scissors
- Several Pieces of 1" Grid Paper
- String
- Tape Measure
- Two Types of Dry Ingredients (a small one, i.e. flour, berries, rice, beans, etc. and a large one i.e. apples, oranges, etc.)
- Variety of Objects to Weigh (flour, markers, books, etc.)
- Water
- Yardstick

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Mathematics in a Charlotte Mason Education

ARITHMETIC

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YEAR 3 • TERM 1

• WEEK 4 RESOURCES •

YEAR 3. TERM 1. WEEK 4

OVERVIEW

This week, the students will build the first multiplication table of the year, the 6s. They will also create a number line to practice the 6s.

Make sure to read Number Line Instructions before beginning this week. Due to the student's age and for the sake of time, the number line should be made beforehand by the parent.

Lesson 3 of this week, "1-6 Table Practice," is a great activity to practice multiplication tables. Students can enjoy it multiple times throughout the year. If you need additional catch-up or review time, you may skip it for now, but don't forget to incorporate it into future review lessons.

Be sure to have students working on the Fraction Papers this week if they did not finish them last week. They will need to be completed by Week 5.

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IDEAS NEEDED BEFORE BEGINNING

- Multiplication

SUGGESTED PACE

Day 1: Building the 6s Table
Day 2: Number Line, Ls. 1
Day 3: 1-6 Table Practice
Day 4: Review/Catch-Up
Day 5: Review/Catch-Up

ONGOING REFERENCE PAGES

- Roman Numerals Chart

MENTAL MATH IDEAS

- 174

SPECIAL MATERIALS NEEDED

- Two-Color Counters
- 6s Multiplication Puzzle (printable)
- 11 Sticky Notes (3”x3”)
- Marker
- Premade Number Line
    - Eight 8½” by 11” Cardstock Sheets
    - Painter or Masking Tape
    - Straight Edge (Ruler, Yardstick, etc.)
    - Black Marker
- Handout or Grid Paper (with a 10 x 10 square outline drawn)
- Marker or Colored Pencil

SUGGESTED REVIEW

- Comparing Numbers (Y3.T1.W3): Comparing 3-Digit Numbers Using Number Lines: Worksheet 1
- 4s Table (Y2.T3.W4): 128, 129
- Problem Solving: 166

SAMPLE

• Building the 6s Table •

Y3. T1. W4. L1

SUBJECT

Arithmetic

RESOURCES USED

The Teaching of Mathematics to Young Children (Stephens), *Teaching the Essentials of Arithmetic* (Ballard)

OBJECTIVES

Students will be able to describe and model multiplication as equal groups and build the 6s multiplication table.

SPECIAL MATERIALS NEEDED

Two-Color Counters

THE PLAN

1. Today we are going to create a table showing groups of 6s. You completed some of these tables last year.
    a. What do you remember about multiplication? *Draw out the idea of repeated addition and groups of.*
    b. What do you remember about division? *Draw out the idea of repeated subtraction and equal sharing or piles.*
2. Because this is our first table of the year, we will build it slightly differently. As I write the numbers on the board, build the groups with counters. I will walk you through how to build the groups as we go. Let's get started! *The final table you are writing is shown on the next page.*
    a. *Have the pile of counters off to the side but within easy reach.*
        i. How many 6s do you see on the table right now? (0) *Lay the grid dry-erase board in the landscape position. Two spaces from the left side of the board along the top, write a 0 in smaller print, then a larger print 6 directly underneath.*
        ii. And how many are zero 6s? (0) *Draw an equal line below the 6 and write 0 below.*

SAMPLE

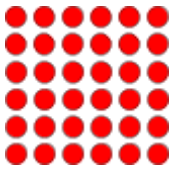
b. Place 6 counters in a neat row, leaving plenty of space between the counters and the edge of the table. *Be sure that the counters are as neat and evenly spaced as possible.*

   i. How many groups of 6 do you see? (1) *Count over three spaces to the right from the 0 and write a 1 in a smaller print, then a larger print 6 directly underneath.*
   ii. And what is one group of 6? (6) *Draw an equal line below the 6 and write 6 below.*

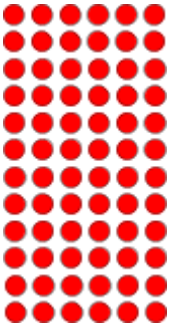
c. Place 6 more counters in a neat row directly underneath the original row. *Ensure the counters are neat and evenly spaced, both horizontally and vertically.*

   i. What shape do the counters make? (A rectangle)
   ii. How many groups of 6 do you see now? (2) *Write a 2 in smaller print, then a larger print 6 directly underneath.*
   iii. And how many are two 6s? (12) *Draw an equal line below the 6 and write 12 below.*

3. I will continue to ask you questions about each of the groups of sixes as you go. We will stop at a special group, but for now, continue building one row at a time. *Continue asking the question: "How many groups of 6 do we have now?"*
4. *Stop your student after he builds six groups of 6.* Let's look at this special group. What do you notice about it? *Draw out the idea that it is a square.*



5. Until now, all of the numbers we have looked at: 6, 12, 18, etc., have been rectangle numbers because we can build a rectangle with that many counters. This one is a square. Do you remember what a number like 36 is called? (A square number) Each table has a square number that we will pay special attention to. What do you notice about the two factors of 36? (They are the same.)
6. *Continue until the table is complete. Ensure you correctly line up the place values as the numbers get bigger. You may need two rows to fit the complete table on the dry-erase board. See the diagram below for the final array and table.*



0	1	2	3	4	5	6	7	8	9	10	11	12
6	6	6	6	6	6	6	6	6	6	6	6	6
0	6	12	18	24	30	36	42	48	54	60	66	72

SAMPLE

7. Look at the table for a few moments, trying to see all the numbers and where they go in your mind's eye.
8. Let's read it together. *We can read the table in three different ways. 0 x 6 = 6 can be read as zero 6s are 0, 0 groups of 6 are 0, or as 0 times 6. The goal at this point is conceptual understanding so use whatever wording your student prefers.*
9. Can you keep up with my pencil? I will point at different ones, and we will read each one together. *Point at each one in random order. You can be silly with this. Go back and forth between two for a while, then suddenly jump to another. Mix it up and make it fun.*
10. Study the table again. Read it backward to me.

STUDENT RESPONSE

1. Find a clean sheet of paper in the reference section of your math notebook. When you are ready, write your table on paper, doing your best not to look back at the dry-erase board. As you write each problem, say what you are writing out loud.
2. Count by 6s to 72. Excellent work today!

SAMPLE

• Number Line, Ls. 1 •

Y3. T1. W4. L2

SUBJECT

Arithmetic

RESOURCES USED

None

OBJECTIVES

Students will be able to create a number line from 0-60 and solve math problems using it.

SPECIAL MATERIALS NEEDED

6s Multiplication Puzzle, 11 3x3" Sticky Notes, Marker, Premade Number Line: Eight 8½" by 11" Cardstock Sheets, Painter or Masking Tape, Straight Edge (Ruler, Yardstick, etc.), Black Marker

SPECIAL NOTE

Due to the student's age and for the sake of time, the number line should be made beforehand by the parent. See the Number Line Instructions.

The biggest thing that confuses students is that when you are counting on a number line you count the spaces between each number/tick mark.

THE PLAN

1. In the last lesson, you created your 6s Multiplication Table. Let's review a little bit.
    a. Can you count by 6s as quickly as you can up to 72? (6, 12, 18, etc.)
    b. How fast can you do it backward? (72, 66, 60, etc.)
    c. Complete a 6s Multiplication Puzzle.
    d. Highlight the square number on your 6s table. (6 x 6 = 36)
    e. Can you tell me why 36 is a square number? (Because it makes a square.)
2. Today we will look at those numbers with a special line called a number line. We use a number line to organize numbers and tell us information. The number line we will create today will go from 0 to 60.
3. Grab the sticky notes, and on the first one, write zero. Now I want you to count up by 6s aloud, writing each number as you go on a different sticky note until you get to sixty. (6, 12, 18...) *You may have the student practice writing each number or have them draw each number in the air before you write them.*

SAMPLE

4. *Show the student the premade number line.* This is the start of a number line that I created. Why are there arrows on each end of it? (To show that numbers continue getting bigger and smaller forever)
5. Take the sticky note numbers and lay them down in order above the line. Make sure the numbers go all the way across the number line, so you use the entire number line. *Let the student try it without help.*
6. Now, let's ensure you've set it up neatly and accurately.
    a. Are all your numbers in between the arrows? *If they're not, have your student correct them.*
    b. How far apart are 0 and 6? *Or how much bigger is 6 than 0?* (6) What about 6 and 12? (6) 12 & 18? (6) So every number is the same distance apart. We call that being equidistant. Does the way you arranged them show that they are all equal distances apart or evenly spaced? *If they're not evenly spaced, have the student correct it.*
    c. Last piece, before we play with the number line. We want all the numbers to be in a line. Are your numbers different heights or in a straight line at the same height? If they're not all even, go ahead and correct that now.
7. Now, let's play with the number line. Find the number eighteen. Find the number forty-two. Which number is larger? (42)
    a. Starting at eighteen, count up to forty-two by sixes to find out how much bigger it is so you can tell me how far apart eighteen and forty-two are. (24) *Make sure the student counts the spaces so they get twenty-four as the answer. So starting on 18, the student points to 24 and counts/says, "Six." Then 24-30 is "Twelve," 30-36 is "Eighteen," and 36-42 is "Twenty-four."* 🚚
8. Let's investigate the number line a little more.
    a. Where is 12? Where is 54? Which number is smaller? (12) How far apart are they? (42)
    b. Where would 20 be on this number line? (Between 18 and 24, closer to 18)
    c. Where would 40 be? (Between 36 and 42, closer to 42)
9. It's your turn. Ask me about a relationship between two numbers. *Answer the student incorrectly with how far apart the numbers are by saying six higher than the answer is, allowing them to correct you and demonstrate how to find the answer.*
10. Now, choose a number not written on the number line for me to find. *Have your answer be partially correct by correctly pointing between the two appropriate numbers but skew your answer incorrectly. So if the number is ten, point closer to six than twelve so the student can correct you.*

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STUDENT RESPONSE

1. You've done a lot of work today with the number line! How would you explain what a number line is to a friend? *Draw out the idea that it represents numbers that are equal distances apart.* Excellent job! *If you're hanging up the number line, just leave the sticky notes on it. Otherwise, collect them in a neat pile for review down the road.*

SAMPLE

• 1-6 Table Practice •

Y3. T1. W4. L3

SUBJECT

Arithmetic

RESOURCES USED

How Close to 100? (Jo Boaler)

OBJECTIVES

Students will be able to practice tables 1-6 by showing areas within rectangles.

SPECIAL MATERIALS NEEDED

Handout or Grid paper (with a 10 x 10 square outline drawn), Marker or Colored Pencil

SPECIAL NOTE

There is no designated Student Response section.

THE PLAN

1. You have done so much work with groups of 6 this week! Give yourself a woo-woo! We will play a game today with the 6s and use all of our tables from last year, except for 1 table. We won't use the 0s today; you will see why as we play.
2. Do you remember placing the counters in rectangles of different sizes earlier this week? Instead of using counters, we will draw the rectangles on grid paper. The game's goal is to fill in as much space on the gameboard as possible with rectangles. The game is over when you can't fit a rectangle on your board. The number of squares that are not in a rectangle is your score. The goal is to get the lowest score possible. Are you ready?
    a. For your first turn, roll the two dice.
        i. What numbers did you roll? *The student will tell you two numbers.*
        ii. Those numbers tell you the size of your first rectangle. *If the student rolled a 2 and 3, the rectangle could be a 2 x 3 or a 3 x 2.* You can draw the rectangle vertically or horizontally anywhere on the gameboard.
        iii. Inside the rectangle, write the equation that tells you the size of the rectangle and how many total boxes are in the rectangle. *For example, the student would write 2 x 3 = 6 in a 2x3 rectangle.*

SAMPLE

b. Roll again to find the dimensions of the next rectangle.
    i. What numbers did you roll?
    ii. Draw your rectangle on the board.
    iii. Write the equation inside the rectangle.
c. Continue to roll the dice and draw rectangles. *Let the student play once without thinking about strategy. For the second game, ask questions before starting, such as: "Does it matter where you draw rectangles on the board? Could you find a better way to fill in the board to lower your score?* 🚚

3. Variation: The student can play against the teacher or another student. Each person uses a different color marker to mark rectangles. This time, the winner is who has the most boxes outlined when the game ends.

SAMPLE