CURRICULUM SERIES

Mathematics

Student Course / Volume 1

WORKBOOK / WRITE, PRACTICE, EXPLAIN

Scripture-centered learning with academically sound instruction, clear student work, and independent practice. An original supplementary course, not a certified full-year standards program.

LEARNING LEVELS Foundations (5-7) | Builders (9-10) | Advancing (around 12)

How to use: read each lesson in order. Copy answers into a notebook or use the writing lines provided. Parent guides should be kept separate from students.

Mathematics: Number Sense to Algebra, Student Course

DOWNLOAD OR COPY: Download Mathematics Lessons 1-10: Student PDF. The complete selectable, copyable text remains below on this page. Open the PDF to save or print it. Keep parent answers separate from student work.

A ten-lesson instructional course with worked examples and three activity levels. Ages 5-7, 9-10 and 12 are approximate; select tasks based on placement and prerequisite knowledge. These are original student problems, not official Alabama test items. This is an initial course, not a complete grade-by-grade school year.

Read the explanation and work through the example before solving the new questions on paper. Complete at least one level independently, explain two answers and correct errors. For students needing an intermediate step, revisit the prior lesson. Keep written work private.

Lesson 1: Counting and place value

Learn: A digit’s value depends on its position. In 347, 3 represents 300, 4 represents 40 and 7 represents 7. Regrouping ten ones makes one ten; ten tens make one hundred.

Discuss and check: Write 347 in expanded form and compare 409 with 490.

Student exercises, copy and solve:

" Foundations: Count 17 objects, show a group of ten and seven ones, and compare 12 and 16.

" Builders: Write 2,406 in expanded form. Order 709, 790 and 907. Round 583 to the nearest ten.

" Advancing: Write 6,052,013 in expanded form. Compare -4 with -9 and explain why place value and number lines matter.

Write your calculation or drawing, then explain why the answer makes sense. Parent marks independently completed skills and uses the separate answer guide.

Lesson 2: Addition and subtraction

Learn: Combine quantities to add; remove or compare to subtract. Check an addition by subtracting. Example: 46+27: 6+7=13, write 3 and regroup one ten; 4+2+1=7 tens, so 73. Check 73-27=46.

Discuss and check: Solve 58+37 and explain regrouping.

Student exercises, copy and solve:

" Foundations: Use counters: 7+5, 10-6, and 9+8. Draw one model.

" Builders: Solve 368+475, 904-587 and a word problem: 35 books, 18 lent, how many remain?

" Advancing: Evaluate -7+12, -3-8, 204.75+39.68 and 1,002-478. Explain checking by inverse operation.

Write your calculation or drawing, then explain why the answer makes sense. Parent marks independently completed skills and uses the separate answer guide.

Lesson 3: Multiplication and division

Learn: Multiplication can represent equal groups. 6 groups of 4 give 24. Division finds equal group size or number of groups: 24/6=4. Use the distributive property: 13x6=(10x6)+(3x6)=78.

Discuss and check: Model 4 groups of 6, then find 24/4.

Student exercises, copy and solve:

" Foundations: Draw 3 groups of 4. Count all; share 12 counters equally into three groups.

" Builders: Calculate 26x8, 144/12, 375/5. Explain why 26x8=(20x8)+(6x8).

" Advancing: Evaluate -12x7, 2.4x0.6, 315/0.9, and 3(2x+5); explain order of operations.

Write your calculation or drawing, then explain why the answer makes sense. Parent marks independently completed skills and uses the separate answer guide.

Lesson 4: Fractions and equivalent quantities

Learn: A fraction a/b describes a parts out of b equal parts, with b not zero. Multiply numerator and denominator by the same nonzero number for an equivalent fraction. Example: 1/2=3/6; 1/4+2/4=3/4.

Discuss and check: Explain why 2/4 and 1/2 cover the same amount.

Student exercises, copy and solve:

" Foundations: Shade one of four equal sections; then two of four. Which is greater?

" Builders: Simplify 6/8; compute 3/8+2/8, 3/4 of 28 and 5/6-1/3.

" Advancing: Compute 2/3+5/8, 7/9/2/3 and -3/4x8/5; justify a common denominator.

Write your calculation or drawing, then explain why the answer makes sense. Parent marks independently completed skills and uses the separate answer guide.

Lesson 5: Decimals, percents and money

Learn: Decimals extend the place-value system: 0.37 means 3 tenths and 7 hundredths. Percent means per hundred. Example: 15% of 80=0.15x80=12. Keep units when dealing with money.

Discuss and check: Convert 0.5 to a fraction and a percent.

Student exercises, copy and solve:

" Foundations: Identify four coins of equal value with a caregiver; compare $1 and 50 cents; 5+5+10.

" Builders: Calculate 6.75+3.80, 12.4-5.95, 0.25 of 60, and a 10% discount on $40.

" Advancing: Calculate 18% of 250, sales price after a 12% discount on $85, 3.75/0.15, and explain percent change from 40 to 50.

Write your calculation or drawing, then explain why the answer makes sense. Parent marks independently completed skills and uses the separate answer guide.

Lesson 6: Measurement and geometry

Learn: Use appropriate units. Perimeter is the distance around a shape; area measures its surface. A rectangle of length 8 cm and width 5 cm has perimeter 26 cm and area 40 cm2.

Discuss and check: Why do perimeter and area use different units?

Student exercises, copy and solve:

" Foundations: Compare two pencils; measure in blocks or centimeters; name square, triangle and rectangle.

" Builders: Find perimeter and area for 9 cm by 4 cm rectangle; convert 3 ft to inches; find the area of triangle base 10, height 6.

" Advancing: Find area of a circle with radius 3 cm using pi-3.14, volume of box 4x5x6 cm, and solve angle supplement of 127 degrees.

Write your calculation or drawing, then explain why the answer makes sense. Parent marks independently completed skills and uses the separate answer guide.

Lesson 7: Ratios and proportions

Learn: A ratio compares quantities, such as 3 red blocks for 2 blue blocks, written 3:2. A proportion says two ratios are equivalent. Example: 3/5=x/20 implies x=12.

Discuss and check: If 2 notebooks cost $6, what is the unit cost?

Student exercises, copy and solve:

" Foundations: Match 2 red counters to 1 blue counter. Repeat three times; count each color.

" Builders: Simplify 12:18 and solve 4/7=x/28. Determine unit price of 5 pencils costing $3.75.

" Advancing: Solve 5/8=x/40, a map scale of 1 cm:12 km for 7 cm, and a speed of 180 miles in 3 hours.

Write your calculation or drawing, then explain why the answer makes sense. Parent marks independently completed skills and uses the separate answer guide.

Lesson 8: Expressions and equations

Learn: An expression names a value, while an equation states equality. To solve 3x+5=20, subtract 5 from both sides to get 3x=15; divide by 3, x=5. Check by substitution.

Discuss and check: Solve 2x+7=19 and check.

Student exercises, copy and solve:

" Foundations: Use a balance story: 3 counters plus 2 counters equals how many? Draw 5.

" Builders: Solve x+18=47, 5x=65 and 3x-7=20.

" Advancing: Simplify 4(2x-3)+5x; solve 2(x+4)=3x-1; evaluate -2(32)+5.

Write your calculation or drawing, then explain why the answer makes sense. Parent marks independently completed skills and uses the separate answer guide.

Lesson 9: Data and probability

Learn: A data table organizes observations. Mean equals sum divided by number of values; median is middle after ordering; range is maximum minus minimum. An event’s probability ranges from 0 to 1. Example: 2,4,4,6 have mean 4 and median 4.

Discuss and check: For 3,5,7,9 find mean, median and range.

Student exercises, copy and solve:

" Foundations: Count 3 red, 2 blue and 1 green block; draw a tally chart.

" Builders: For 5,7,7,9,12 find mean, median, mode, range. Make a bar graph with axis labels.

" Advancing: For 2,5,5,8,10 find mean, median, mode and range. A fair die has what probability of an even number? Explain sample size limitations.

Write your calculation or drawing, then explain why the answer makes sense. Parent marks independently completed skills and uses the separate answer guide.

Lesson 10: Mixed review and transfer

Learn: Mastery means solving a new problem independently, choosing an appropriate method and explaining your reasoning. Correct one error, then attempt a different problem that uses the same skill.

Discuss and check: Explain why a wrong answer is useful feedback, not a fixed judgment about ability.

Student exercises, copy and solve:

" Foundations: Solve 8+7, 14-6, draw four groups of two, and count 16 objects.

" Builders: Solve 245+376, 72/9, 3/4 of 36, and area of rectangle 8x7. Write one explanation.

" Advancing: Solve 4x-9=23, 5/6+3/4, 22% of 150, and mean of 4,8,10,14. Show complete work.

Write your calculation or drawing, then explain why the answer makes sense. Parent marks independently completed skills and uses the separate answer guide.

Course Completion Check

Choose the appropriate level, solve five unfamiliar problems from Lessons 6-10 without seeing the answers, explain two methods, and revise errors. No single short course proves readiness for every grade-level standard. Continue with the Academy’s weekly assignments and grade-level mathematics sequence.

Return to the Academy. For Scripture reading, consider Deuteronomy 25:13-16 about honest weights in its own context; it supplies ethical instruction, not mathematical procedures.