Math Chapter 4

ORIGINAL STUDENT INSTRUCTION | FIVE LESSONS

Read the lesson first. Complete the separately linked practice workbook, then discuss the advanced extension. Keep student work private.

Grade 3 Mathematics Chapter 4: Measurement, Time, Area and Data

Original Grade 3 student textbook. Five instructional lessons, models, guided examples and extension tasks. Use alongside earlier Chapters 1-3; this is not a full-year textbook.

Daily routine: recall prior facts, read the explanation, model the example with a clock, ruler or graph paper, then complete the matching practice page. Record answers privately.

Lesson 1: Time and Elapsed Time

Elapsed time is how long an event takes. Start at 2:35 p.m. and count 25 minutes to 3:00, then 20 more minutes to 3:20, so elapsed time is 45 minutes. Draw a clock face and use a number line to check. A minute is 60 seconds, and an hour is 60 minutes.

Try Together

Model and solve: 9:10 a.m. to 9:45 a.m. How many minutes? Answer: 35 minutes. Check with the appropriate diagram or units.

Advanced extension: Explain your jumps from 8:47 to 9:23. Be prepared to defend your method.

Lesson 2: Perimeter and Unknown Side Lengths

Perimeter measures distance around a closed shape. Add all side lengths. A rectangle 9 cm long and 4 cm wide has perimeter 9+4+9+4=26 cm. If a rectangle has perimeter 30 cm and one side is 5 cm, both widths total 10 cm and both lengths total 20 cm, so the other side is 10 cm.

Try Together

Model and solve: Rectangle 8 cm by 3 cm. Perimeter? Answer: 22 cm. Check with the appropriate diagram or units.

Advanced extension: Why is perimeter measured in cm rather than square cm? Be prepared to defend your method.

Lesson 3: Area and Multiplication Models

Area counts square units covering a surface. For a rectangle with no overlaps or gaps, area = length times width. A rectangle 7 units long and 6 units wide contains 42 unit squares. Two rectangles can share the same area but have different perimeters. Model 12 x 4 as (10 x 4)+(2 x 4).

Try Together

Model and solve: Rectangle 8 cm by 5 cm. Area? Answer: 40 cm2. Check with the appropriate diagram or units.

Advanced extension: Explain why adding only all side lengths does not calculate area. Be prepared to defend your method.

Lesson 4: Liquid Volume, Mass and Unit Reasoning

Use liters and milliliters for liquid volume; grams and kilograms for mass. 1 liter = 1,000 milliliters. 1 kilogram = 1,000 grams. Choose sensible units: a water bottle might hold 500 mL; a bag of flour might have mass 1 kg. Compare numbers only when units match.

Try Together

Model and solve: 1 liter equals how many milliliters? Answer: 1,000 mL. Check with the appropriate diagram or units.

Advanced extension: Explain why 700 mL plus 2 L cannot be written 702 mL. Be prepared to defend your method.

Lesson 5: Picture Graphs, Bar Graphs and Chapter Review

A bar graph uses a scale to show category totals. Read its labels before comparing heights. In a graph with 4,6,3,7 as totals, the sum is 20; the greatest is 7; the difference between 7 and 3 is 4. For a scaled picture graph, a symbol may represent more than one item. Do not infer causes from a graph alone.

Try Together

Model and solve: Fictional book counts are 4,6,3,7. Total? Answer: 20. Check with the appropriate diagram or units.

Advanced extension: Explain why a graph showing more library visits during rain does not prove rain caused them. Be prepared to defend your method.