

Mathematics

Tips and Activities for Parents

- Tell your child that you will be ready to go at 2:10 p.m. Have your child show you or describe the position of the hands for the time on a dial clock. Have your child write down the time he or she started a chore or activity and the time finished. Ask your child to determine the amount of time needed to complete the chore.
- Create a set of cards to help your child practice basic addition, subtraction and multiplication. For example, write a "fact" such as 5×7 on one side of the card. On the other side draw a picture of 5×7 by drawing 5 rows of circles with 7 circles in each row. Under the drawing write 35.
- Have your child practice counting money and making change. Using prices in ads or catalogs, ask your child to show you different combinations of coins or bills equal to the price or the amount of change from a \$5 or \$10 bill. Count the change with your child.
- Use a trip to the grocery store to help your child try out estimation and measurement skills. Show your child the scale and explain the markings (pounds and ounces). Ask your child to estimate the weight of the produce and then weigh it for you.
- Ask your child to point out different kinds of angles — angles greater than 90°, less than 90° and exactly 90° — on everyday objects.
- Give your child the coordinates on two edges of a simple state map (such as a letter and number). Name a city shown within that area. Have your child identify other key locations on a map with coordinates.

Internet Resources for Third Grade Math

This is a portal to free, online learning games and activities for Pre-School through Grade 6.
www.gamequarium.com

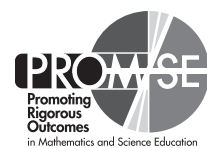
This site contains free math games for first grade, second grade & third grade elementary students.
Math: Comparing Number Values · Math: Multiplication with 2 and 3.
www.toonuniversity.com/free/math-games-1st-3rd.asp

This site is the location of free interactive lessons, exercises and worksheets, educational games. The site provides K - 6 grade activities, printable math worksheets and activities.
www.fcit.usf.edu/math/websites/math35.html

Visit "Mathematics Counts & Science Matters" at www.promse.msu.edu

Local Partner: SMART Consortium www.smartconsortium.org

MICHIGAN STATE
UNIVERSITY



"Mathematics Counts & Science Matters" provides parents of children in grades K-8 with helpful resources they can use to support their child's math learning. The content of this guide is based on grade-level recommendations from the National Council of Teachers of Mathematics, the National Mathematics Panel, and PROM/SE: Promoting Rigorous Outcomes in Mathematics and Science Education.

These recommendations may be more advanced than state guidelines. Mathematics Counts & Science Matters is developed by Michigan State University's PROM/SE (Promoting Rigorous Outcomes in Mathematics and Science Education).

Funded by Michigan State University and the National Science Foundation.

■ The important math in 3rd grade includes bringing to closure addition and subtraction of whole numbers, expanding understanding of multiplication and its relationship to division, and developing understanding of fractions and equivalent fractions. Based on national curriculum recommendations and reflecting Ohio Academic Content Standards, the following describes some of the central mathematical skills and understandings that students should acquire by the end of third grade.

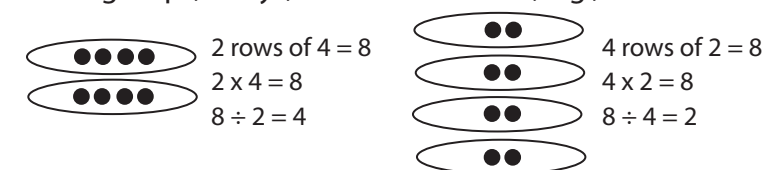
■ Number and Operations

Addition, Subtraction, and Place Value

1. Read and write numbers to 10,000 in both numbers and words, and match them to the quantities they represent (e.g., 2,056 written in words is two thousand fifty-six)
2. Identify the place value of a digit in a number (e.g., in 3,241, 2 is in the hundreds place); recognize and use expanded notation for numbers using place value through 9,999 (e.g., 2,517 is $2000 + 500 + 10 + 7$ or 402 is 4 hundreds and 2 ones)
3. Use mental strategies to add and subtract two-digit numbers
Example: $25 + 46 = 71$ can be calculated mentally by breaking 25 and 46 apart
 $20 + 5 + 40 + 6 \rightarrow 20 + 40 = 60$ and $5 + 6 = 11 \rightarrow 60 + 11 = 71$
4. Add and subtract two numbers through 999 with regrouping and through 9,999 without regrouping (e.g., with regrouping $476 + 394 = 870$, $423 - 315 = 108$; without regrouping $6472 - 1221 = 5251$)

Multiplication and Division of Whole Numbers

5. Recognize, represent, and model multiplication and division problems using equal-sized groups, arrays, and number lines; e.g.,



6. Use multiplication and division fact families to understand their inverse relationship and solve open sentences (e.g., $3 \times 8 = 24$, $24 \div 8 = 3$, $24 \div \square = 8$, $8 \times \square = 24$)
7. Multiply numbers up to 10×10 and use the inverse relationship between multiplication and division to solve division problems (e.g., $20 \div 5 = 4$ and $20 \div 4 = 5$, since $4 \times 5 = 20$)
8. Solve problems that use any one of the four operations (with appropriate numbers); represent solutions using objects, words, and mathematical statements
9. Solve division problems and interpret remainders (e.g., 25 children with 4 children per group creates 6 groups with 1 child left over)

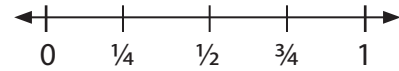
(continued on inside)

Mathematics — Grade 3 (cont.)

Fractions

10. Understand that a fraction is a number that can be represented as a point on a number line; be able to use fractions to name parts of a whole (e.g., 4 people share a cookie, each get $\frac{1}{4}$), parts of a set (e.g., fifty cents is $\frac{1}{2}$ of a dollar) and distance on the number line

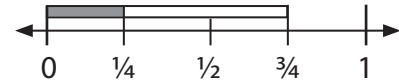
11. Use a number line to locate fractions and to compare and order up to three fractions with denominators of 2, 4, or 8



12. Use a number line or other models (ruler, paper strips) to recognize the same fraction can have many different names ($\frac{1}{4} = \frac{2}{8}$, $\frac{1}{2} = \frac{2}{4} = \frac{4}{8}$)

13. Understand that any fraction can be written as a sum of unit fractions (e.g., $\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$)

14. Add or subtract fractions with common denominators of 2, 4, or 8 on a number line (e.g., $\frac{1}{4} + \frac{1}{2} = \frac{3}{4}$)

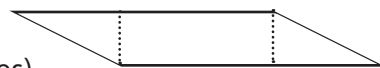


Geometry and Measurement

Analyze Two-Dimensional Shapes

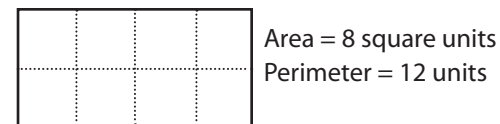
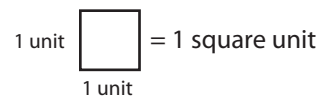
15. Describe and compare two-dimensional shapes (e.g., parallelogram, trapezoid, circle, rectangle, square, and rhombus) using terms such as sides, vertices, and angles (e.g., a triangle has three sides and angles; a square has four sides all the same length and four angles all the same size)

16. Take apart (decompose), put together (compose) shapes to make other shapes (e.g., a parallelogram can be made using a rectangle and two right triangles)



17. Understand the difference between area and perimeter; calculate the perimeter of a square or rectangle with whole number side lengths; use square units that fit inside and cover the interior of the rectangle to determine the area of a rectangle

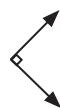
Example: Find the area and perimeter of the rectangle



Glossary — Grade 3

■ **Angle** – a figure formed by two rays that meet at a common endpoint

Example: the corner of a room



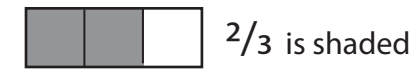
Glossary Grade 3 (cont.)

■ **Area (of Rectangle)** – the number of square units that fit inside and cover the interior of a rectangle

■ **Array** – a group of numbers or objects arranged in rows and columns; can be used to model multiplication or division

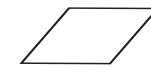
■ **Denominator** – the bottom number of a fraction that may represent the total number of equal parts in a whole

Example: 2 is the numerator $\rightarrow \frac{2}{3} \leftarrow$ 3 is the denominator



■ **Numerator** – the top number of a fraction that tells how many of the equal parts of the whole are being considered

■ **Parallelogram** – a closed figure made of four line segments where the opposite sides are of equal length and parallel

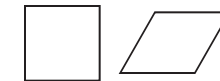


■ **Perimeter** – the distance around a two-dimensional shape found by adding the length of the sides together

■ **Place Value** – the amount represented by the position of a digit in a number (e.g., in 234, 3 is in the tens position and represents 3 tens)

■ **Regroup** – to use part of the value from one place in another place to make addition and subtraction easier (e.g., $43 - 27 = (30 + 13) - (20 + 7)$ and both equal 16)

■ **Rhombus** – a closed figure made of four line segments, equal in length, connected at endpoints



■ **Trapezoid** – a closed figure made of four line segments with one pair of opposite sides parallel



■ **Unit Fraction** – a fraction that can be expressed as $\frac{1}{b}$, where $b \neq 0$ (e.g., $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5} \dots$)

■ **Vertex** – the point where two sides of a figure meet
Example: a triangle has 3 vertices (corners)



■ **Whole Numbers** – numbers belonging to the set (0, 1, 2, 3, 4, 5, ...)