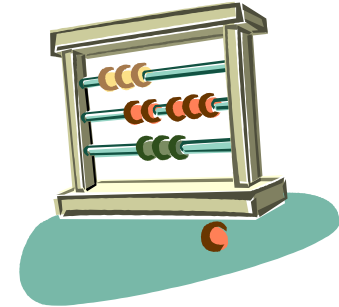


Work with Patterns and Relationships

- *recognize and create* number patterns
- extend patterns
- *identify the rule* that generates the pattern
- use models, tables, and graphs to show mathematical relationships
- express a rule with words or algebraic terms
- develop an understanding of change over time (growth in animals or plants)
- develop an understanding of a constant rate of change

Work with Data

- use simple situations involving median, mode and range
- record data using pictures, bar graphs, or line graphs
- recognize line graphs are used to represent change over time while bar graphs and pictographs are used to represent categorical data
- solve problems involving combinations or simple permutations
- determine theoretical probability of an event
- describe probability of an event as part to whole or in fractional form
- design surveys for the purpose of collecting data.



PARENT RESOURCE

Grade 4 Mathematics

▶ Hartford School District

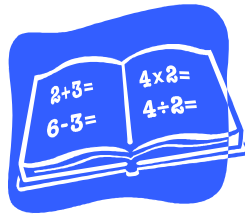
Hartford School District
73 Highland Ave
White River Junction, VT 05001

Phone: 802-295-8600
Fax: 802-295-8602

▶ Grade 4 Mathematics

The goal of fourth grade mathematics instruction is for all students to achieve mathematical proficiency.

The end result is the ability to think and reason mathematically and use mathematics to solve problems. The following outline provides an overview of what students should know and be able to do by the end of fourth grade.



Work with Numbers

- develop understanding of numbers and place value to 1,000,000
- develop understanding of multiplication
- learn about factors and multiples, prime and composite numbers
- develop understanding of fractions (halves, thirds, and fourths, fifths, sixths, eighths, and tenths)
- develop understanding of money as it relates to fractions
- relate decimals to money and metric measurement
- add and subtract up to 4 digit numbers with or without regrouping
- multiply 2 digit numbers by 2 digit multipliers
- divide up to 3 digit numbers by single digit divisors with or without remainders
- memorize multiplication and division facts through 12 ($12 \times 12 = 144$)

Work with Geometry and Measurement

- identify plane shapes by number of angles, number of sides, length of sides, parallelism, or perpendicularity
- estimate the size of an angle relative to 90°
- recognize segments, lines, rays, parallel and intersecting lines
- use attributes to compare or describe three dimensional shapes (rectangular prisms, triangular prisms, cylinders, or spheres)
- develop understanding of congruency using flips, slides or turns, and size or shape of polygons
- develop understanding of similarity
- develop understanding of perimeter of polygons
- develop understanding of area of polygons or irregular shapes on grids
- learn formulas for calculating area and perimeter of rectangles
- $12 \text{ in.} = 1 \text{ foot}$, $100 \text{ cm} = 1 \text{ m}$, $3 \text{ ft.} = 1 \text{ yard}$, and $36 \text{ in.} = 1 \text{ yard}$
- $24 \text{ hours in } 1 \text{ day}$, $7 \text{ days in } 1 \text{ week}$, $365 \text{ days in } 1 \text{ year}$, $60 \text{ seconds in } 1 \text{ minute}$, and $60 \text{ minutes in } 1 \text{ hour}$
- measure length using inches, feet, yards, centimeters, and meters
- tell time to the nearest five minutes
- use degrees ($^\circ\text{C}$ and $^\circ\text{F}$) to tell temperature
- use coordinates to locate points on a grid
- label grids with x and y axes