

**NUMBER AND OPERATIONS**

**15% of CRCT**

**M6N1. Students will understand the meaning of the four arithmetic operations as related to positive rational numbers and will use these concepts to solve problems.**

- Apply factors and multiples.
- Decompose numbers into their prime factorization (Fundamental Theorem of Arithmetic).
- Determine the greatest common factor (GCF) and the least common multiple (LCM) for a set of numbers.
- Add and subtract fractions and mixed numbers with unlike denominators.
- Multiply and divide fractions and mixed numbers.
- Use fractions, decimals, and percents interchangeably.
- Solve problems involving fractions, decimals, and percents.

**MEASUREMENT**

**20% of CRCT**

**M6M1. Students will convert from one unit to another within one system of measurement (customary or metric) by using proportional relationships.**

**M6M2. Students will use appropriate units of measure for finding length, perimeter, area and volume and will express each quantity using the appropriate unit.**

- Measure length to the nearest half, fourth, eighth and sixteenth of an inch.
- Select and use units of appropriate size and type to measure length, perimeter, area and volume.
- Compare and contrast units of measure for perimeter, area, and volume.

**M6M3. Students will determine the volume of fundamental solid figures (right rectangular prisms, cylinders, pyramids and cones).**

- Determine the formula for finding the volume of fundamental solid figures.
- Compute the volumes of fundamental solid figures, using appropriate units of measure.
- Estimate the volumes of simple geometric solids.
- Solve application problems involving the volume of fundamental solid figures.

**M6M4. Students will determine the surface area of solid figures (right rectangular prisms and cylinders).**

- Find the surface area of right rectangular prisms and cylinders using manipulatives and constructing nets.
- Compute the surface area of right rectangular prisms and cylinders using formulae.
- Estimate the surface areas of simple geometric solids.
- Solve application problems involving surface area of right rectangular prisms and cylinders.

**GEOMETRY**

**20% of CRCT**

**M6G1. Students will further develop their understanding of plane figures.**

- Determine and use lines of symmetry.
- Investigate rotational symmetry, including degree of rotation.
- Use the concepts of ratio, proportion and scale factor to demonstrate the relationships between similar plane figures.
- Interpret and sketch simple scale drawings.
- Solve problems involving scale drawings.

**M6G2. Students will further develop their understanding of solid figures.**

- Compare and contrast right prisms and pyramids.
- Compare and contrast cylinders and cones.
- Interpret and sketch front, back, top, bottom and side views of solid figures.
- Construct nets for prisms, cylinders, pyramids, and cones.

**ALGEBRA**

**30% of CRCT**

**M6A2. Students will consider relationships between varying quantities.**

- Analyze and describe patterns arising from mathematical rules, tables, and graphs.
- Use manipulatives or draw pictures to solve problems involving proportional relationships.

- Use proportions ( $a/b=c/d$ ) to describe relationships and solve problems, including percent problems.
- Describe proportional relationships mathematically using  $y = kx$ , where  $k$  is the constant of proportionality.
- Graph proportional relationships in the form  $y = kx$  and describe characteristics of the graphs.
- In a proportional relationship expressed as  $y = kx$ , solve for one quantity given values of the other two. Given quantities may be whole numbers, decimals, or fractions. Solve problems using the relationship  $y = kx$ .
- Use proportional reasoning ( $a/b=c/d$  and  $y = kx$ ) to solve problems.

**M6A3. Students will evaluate algebraic expressions, including those with exponents, and solve simple one-step equations using each of the four basic operations.**

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**DATA ANALYSIS AND PROBABILITY**

**15% of CRCT**

**M6D1. Students will pose questions, collect data, represent and analyze the data, and interpret results.**

- Formulate questions that can be answered by data. Students should collect data by using samples from a larger population (surveys), or by conducting experiments.
- Using data, construct frequency distributions, frequency tables, and graphs.
- Choose appropriate graphs to be consistent with the nature of the data (categorical or numerical). Graphs should include pictographs, histograms, bar graphs, line graphs, circle graphs, and line plots.
- Use tables and graphs to examine variation that occurs within a group and variation that occurs between groups.
- Relate the data analysis to the context of the questions posed.

**M6D2. Students will use experimental and simple theoretical probability and understand the nature of sampling. They will also make predictions from investigations.**

- Predict the probability of a given event through trials/simulations (experimental probability), and represent the probability as a ratio.
  - Determine, and use a ratio to represent, the theoretical probability of a given event.
  - Discover that experimental probability approaches theoretical probability when the number of trials is large.
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**TERMS AND SYMBOLS**

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| <input type="checkbox"/> positive rational numbers         | <input type="checkbox"/> prism                  | <input type="checkbox"/> frequency distributions   |
| <input type="checkbox"/> factors                           | <input type="checkbox"/> cylinder               | <input type="checkbox"/> pictographs               |
| <input type="checkbox"/> multiples                         | <input type="checkbox"/> pyramid                | <input type="checkbox"/> histograms                |
| <input type="checkbox"/> decompose                         | <input type="checkbox"/> cone                   | <input type="checkbox"/> bar graphs                |
| <input type="checkbox"/> prime numbers                     | <input type="checkbox"/> geometric              | <input type="checkbox"/> line graphs               |
| <input type="checkbox"/> prime factorization               | <input type="checkbox"/> solid                  | <input type="checkbox"/> circle graphs             |
| <input type="checkbox"/> Fundamental Theorem of Arithmetic | <input type="checkbox"/> net                    | <input type="checkbox"/> line plot                 |
| <input type="checkbox"/> GCF                               | <input type="checkbox"/> geometric figures      | <input type="checkbox"/> frequency table           |
| <input type="checkbox"/> LCM                               | <input type="checkbox"/> line symmetry          | <input type="checkbox"/> experimental probability  |
| <input type="checkbox"/> Evaluate                          | <input type="checkbox"/> rotational symmetry    | <input type="checkbox"/> theoretical probability   |
| <input type="checkbox"/> surface area                      | <input type="checkbox"/> similar plane figures  | <input type="checkbox"/> sampling                  |
| <input type="checkbox"/> metric system of measurement      | <input type="checkbox"/> scale factor           | <input type="checkbox"/> event                     |
| <input type="checkbox"/> customary system of measurement   | <input type="checkbox"/> scale drawings         | <input type="checkbox"/> random sample population  |
| <input type="checkbox"/> proportional relationships        | <input type="checkbox"/> relations              | <input type="checkbox"/> non-routine word problems |
| <input type="checkbox"/> right rectangular                 | <input type="checkbox"/> varying quantities     |  |
|  | <input type="checkbox"/> ratio                  |  |
|  | <input type="checkbox"/> direct proportion      |  |
|  | <input type="checkbox"/> proportions            |  |
|  | <input type="checkbox"/> proportional reasoning |  |