

Mathematics Essentials 10

Foundational Outcomes

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Prepared by the Department of Education and Early Childhood Development

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Outcomes Framework Mathematics Essentials 10 (2020-2021)

In September 2020, teachers will be working hard to create a space that is safe and welcoming for all learners no matter the location of their “classroom”. The first weeks will still be a time to establish a sense of community, engage learners in rich interactive experiences to promote critical thinking and create opportunities for collaboration and discussion. This is an opportune time to develop a culture and a climate for mathematics learning, conducive to collaboration, risk taking and inquiry.

The **Foundational Outcomes** identified in this document represent outcomes determined to be relevant for future learning in mathematics. Decisions about foundational outcomes were made in consultation with teachers, provincial mathematics team, Board and Regional Centre staff. The foundational outcomes are meant to guide teachers in making decisions about creating learning experiences that will prepare and engage their learners in a responsive way. However, a teacher’s professional judgment remains the most important guide to effectively responding to the needs of their learners.

Colour coding has been used to identify outcomes as foundational (**green**), optional (**orange**) or non-foundational (**red**) for the 2020-2021 school year.

A1 understand purchasing power
A2 explain the difference between gross pay and net pay, and describe possible payroll deductions
A3 explain indirect and direct forms of taxation
A4 identify and explain the advantages and disadvantages of various plans to make purchases
A5 understand transactions such as depositing, transferring and withdrawing money, writing cheques and withdrawing money
A6 understand what interest is and how interest is calculated by a bank
A7 recognize and find equivalencies among common fractions and percent
A8 compare and order common fractions and percentages
A9 rename common fractions
A10 round rational numbers and percentages in contexts
A11 describe the procedures and costs involved in obtaining a driver’s license
A12 describe the costs if failing to operate a vehicle responsibly
A13 compare the procedures, costs, advantages, and disadvantages involved in buying a

new versus a used vehicle
A14 explain the factors and costs involved in insuring a vehicle
B1 determine the remuneration for chosen occupations, including salary and benefits, and evaluate it in terms of purchasing power and living standards
B2 solve problems involving various ways that an employee can be paid using calculators or appropriate software
B3 calculate gross pay and net pay for given situations
B4 estimate and calculate the unit prices of comparable items to determine the best buy
B5 solve problems involving the estimation and calculation of provincial and federal sales taxes
B6 estimate and calculate selling price, discounts, and taxes
B7 provide the correct change for an amount offered and minimize the number of coins/bills
B8 select amounts to offer for a given charge to minimize the number of coins/bills received in the change
B9 identify, calculate, and compare the interest costs involved in making purchases under various plans
B10 estimate and calculate the price in Canadian funds of items bought in or ordered from another country
B11 calculate simple and compound interest
B12 calculate the fixed and variable costs involved in owning and operating a vehicle
B13 compare the costs involved in buying versus leasing the same new vehicle
B14 compare the costs of owning or leasing and maintaining vehicle with the costs of other forms of transportation
B15 complete a project involving the purchase or lease of a new vehicle or the purchase of a used vehicle, including the cost of insurance
B16 know the double facts in additions; their extension to two, three, and four digits; their connections to subtraction, multiplication by 2 and by $\frac{1}{2}$, division by 2 and multiplication by 50 percent
B17 know the addition and subtraction facts and extend them to two, three, and four digit numbers
B18 estimate appropriate sums, differences, products, and quotients

B19 mentally calculate 1%, 10%, 15%, and 50% quantities that are compatible with these percentage
B20 estimate and calculate percentage of quantities as performing operations with decimals, fractions, and percent
C1 recognize patterns in tables where simple and compound interest has been calculated
C2 recognize and apply the patterns in the metric system
C3 recognize and apply the common fraction patterns found on an Imperial ruler
D1 demonstrate a working knowledge of the metric system and imperial system
D2 measure lengths accurately, using metric system and the imperial system
D3 estimate distances in metric units and in imperial units by applying personal referents
D4 estimate capacities in metric units by applying personal referents
D5 estimate, with reasonable accuracy, large numbers that are illustrated visually and explain the strategies used
E1 identify the first five regular polygons and understand basic properties (number of sides, lines of symmetry, and definitions of geometric terms)
E2 describe and apply translations, reflections, rotations, and dilatations as they relate to symmetry and design, with the aid of technology
E3 determine (through investigations, using concrete materials and technology) the characteristics of shapes that will tile the plane with a reflecting pattern
E4 create designs involving tiling patterns (e.g., Escher-type designs, wallpaper or fabric designs), using technology (e.g., dynamic geometry software, design or drawing software)
E5 analyze the geometric aspects of logos and design
E6 create a personal logo, using the mathematics of symmetry, translations, reflections, rotations, or dilatations, with the aid of technology
F1 read and apply payroll deduction tables
F2 (optional) identify the information and documents required for filing a personal income tax return, and explain why they are required
F3 describe the effects on personal spending habits of the frequency of pay period
F4 make decisions regarding the purchase of costly items by identifying and ranking criteria for the comparison of possible choices

F5 make decisions regarding the payment options for purchases

F6 identify various incentives to make purchases

F7 make personal decisions regarding the best form of transportation

G1 express probabilities of simple events as the number of favourable outcomes divided by the total number of outcomes

G2 express probabilities as fractions, decimals, and percentages and interpret probabilities expressed in each of these forms

G3 predict and describe the results obtained in carrying out probability experiments related to familiar situations involving chance

G4 compare predicted and experimental results for familiar situations involving chance, using technology to extend the number of experimental trials

G5 simulate familiar situations involving chance and explain the choice of simulation

G6 interpret information about probabilities to assist in making informed decisions in a variety of situations

G7 interpret and assess probabilistic information used in the media and in common conversation