

# Unit 1 Integers and Algebraic Expressions

Grade 8

## Lesson Outline

### BIG PICTURE

Students will:

- review adding and subtracting of integers in context;
- develop estimation skills for solving everyday problems;-
- develop an understanding of multiplication and division by and of integers (making use of both manipulatives and algorithms);
- solve problems requiring an understanding of integers and their arithmetic manipulation;
- evaluate arithmetic and algebraic expressions involving integers and including brackets and exponents, emphasizing the need for knowing and following the order of operations.

Day	Lesson Title	Math Learning Goals	Expectations
1	A Positive Attitude Toward Negative Numbers <i>(lesson not included)</i>	<ul style="list-style-type: none"> <li>• Re-establish necessary conceptual understanding and skills required for this unit.</li> <li>• Mastery of adding and subtracting integers and contextualizing these operations in real life.</li> <li>• Show that addition and subtraction are inverse operations.</li> </ul>	8m18, 8m22 CGE 2b, 7b
2	Living with Negatives <i>(lesson not included)</i>	<ul style="list-style-type: none"> <li>• Solve a variety of application questions requiring the choosing of operations and the applying of skills (adding/subtracting) with integers.</li> </ul>	8m18, 8m22 CGE 3c
3	Unfamiliar Territory <i>(lesson not included)</i>	<ul style="list-style-type: none"> <li>• Explore and investigate multiplication of integers with opposite signs using a variety of approaches, e.g., patterns in a multiplication table; multiplication as repeated addition of sets.</li> <li>• Investigate multiplication of integers within everyday contexts to deepen understanding.</li> </ul>	8m18, 8m22 CGE 3c, 7b
4	Getting Used to the Territory <i>(lesson not included)</i>	<ul style="list-style-type: none"> <li>• Solve simple problems requiring the multiplication of integers with opposite signs.</li> <li>• Explore multiplication of integers with the same sign, utilizing the approaches from the previous day.</li> </ul>	8m21, 8m22 CGE 5b
5	Writing Letters in Math Class <i>(lesson not included)</i>	<ul style="list-style-type: none"> <li>• Review the use of algebra in real life and evaluate algebraic expressions with integers.</li> </ul>	8m59, 8m62 CGE 3c, 7b
6	It's the Inverse <i>(lesson not included)</i>	<ul style="list-style-type: none"> <li>• Investigate division of integers.</li> <li>• Connect the operation of division as the inverse of the operation of multiplication. Provide examples where division is either partative or quotative, i.e., How big is one share? How many equal shares?</li> </ul>	8m21 CGE 4b, 4f, 5a
7	Dividing It Up <i>(lesson not included)</i>	<ul style="list-style-type: none"> <li>• Solve simple problems requiring the division of integers.</li> </ul>	8m21, 8m22 CGE 5b, 7b
8	But Is It Useful? <i>(lesson not included)</i>	<ul style="list-style-type: none"> <li>• Solve problems requiring multiplication and division of integers, utilizing estimation as well as calculation.</li> </ul>	8m18, 8m21, 8m22 CGE 3c, 5b
9	Now, What Did BEDMAS Stand For? <i>(lesson not included)</i>	<ul style="list-style-type: none"> <li>• Operate with integers by evaluating arithmetic expressions requiring the application of Order of Operations.</li> </ul>	8m20, 8m23 CGE 3c, 5b

Day	Lesson Title	Math Learning Goals	Expectations
10	Putting It Together <i>(lesson not included)</i>	<ul style="list-style-type: none"> <li>Evaluate algebraic expressions requiring the multiplication and division of integers.</li> </ul>	8m62 CGE 4b, 4f
11	Life's Full of Numbers <i>(lesson not included)</i>	<ul style="list-style-type: none"> <li>Solve problems requiring operating with integers and explaining the thinking behind the solutions.</li> </ul>	8m18, 8m21, 8m22, 8m23 CGE 2b, 2c
12	Summative Assessment		