

Operations Involving Integers

Overall Expectation

Students will:

- Represent, compare, and order numbers, including integers (7m8)
- Demonstrate an understanding of addition and subtraction of fractions and integers, and apply a variety of computational strategies to solve problems involving whole numbers and decimal numbers (7m9)

Specific Expectations

Students will:

- Represent and order integers, using a variety of tools (7m14)
- Add and subtract integers, using a variety of tools (7m26)

Lesson	Learning Focus	Specific Expectations
Represent Integers Using Counters	<ul style="list-style-type: none"> • Review representing integers using counters/tiles and number lines including zero pairs 	7m14
Add Integers Using Counters	<ul style="list-style-type: none"> • Combine/add integers using a variety of tools (e.g., two-colour counters, virtual manipulatives, number lines) • Add integers within context • Recognize how zero pairs aid addition 	7m14 7m26
Add Integers Using a Number Line	<ul style="list-style-type: none"> • Combine/add integers using a number line • Add integers within context 	7m14 7m26
Addition of Integers Practice	<ul style="list-style-type: none"> • Add integers with a variety of tools • Investigate patterns within addition 	7m14 7m26
Subtract Integers Using Counters	<ul style="list-style-type: none"> • Subtract integers using a variety of tools (e.g., two-colour counters, virtual manipulatives, number lines) • Subtract integers within context • Recognize how zero pairs aid subtraction 	7m14 7m26
Subtract Integers Using a Number Line	<ul style="list-style-type: none"> • Subtract integers using a number line • Subtract integers within context 	7m14 7m26
Fact Families	<ul style="list-style-type: none"> • Use fact families to see the relationship between the addition and subtraction of integers • Choose when to subtract or add integers 	7m26
Problem Solving Involving Addition and Subtraction of Integers	<ul style="list-style-type: none"> • Solve problems involving real-life contexts and addition and subtraction of integers 	7m14 7m26
Consolidation and Summative Tasks		

Represent Integers Using Counters

Specific Expectations: 7m14

	Learning Focus	Blended Learning	Other Resources
		Teacher Guides <ul style="list-style-type: none"> • Unit 1 Activity 2: Addition of Integers OERB ID: ELO1471850 • Unit 1 Activity 3: Subtraction of Integers 	TIPS4RM Grade 7 Unit 2: Describing Patterns and on into Integers <ul style="list-style-type: none"> • Day 7: What are Integers • Day 8: The Zero Principle • Day 9: All Integers Come to Order mathies <ul style="list-style-type: none"> • Colour Tiles
Minds On	<ul style="list-style-type: none"> • Review the zero principle • Create zero pairs 	Unit 1 Activity 2: Minds On OERB ID: ELO1471090 <ul style="list-style-type: none"> • Representing Integers and the Zero Principle OERB ID: ELO1414350 <ul style="list-style-type: none"> o two colour counters zero principle • Anchor Chart <ul style="list-style-type: none"> o zero principle o representing integers <p><i>Note: supplementation required for hands-on practice with counters</i></p>	
Action	<ul style="list-style-type: none"> • Review representing integers using counters/tiles and number lines including zero pairs 		
Consolidation			

Add Integers Using Counters

Specific Expectations: 7m14, 7m26

	Learning Focus	Blended Learning	Other Resources
		Teacher Guide Unit 1 Activity 2: Addition of Integers OERB ID: ELO1471850	TIPS4RM Grade 7 Unit 2 <ul style="list-style-type: none"> Day 6: Patterning to Integers Day 10: Add Some Colour Day 13: Carousel
Minds On	<ul style="list-style-type: none"> Represent integers using counters and write with integer notation (e.g., positive/negative, brackets) 		mathies <ul style="list-style-type: none"> Colour Tiles
Action	<ul style="list-style-type: none"> Combine/add integers using a variety of tools (e.g., two-colour counters, virtual manipulatives, number lines) Add integers within context Recognize how zero pairs aid addition 	Unit 1 Activity 2: Action OERB ID: ELO1471090 <ul style="list-style-type: none"> Representing the Addition of Bingo Chips with Integers OERB ID: ELO1414360 <ul style="list-style-type: none"> addition with coloured counters Adding with Chips <ul style="list-style-type: none"> chips and zero principle Anchor Chart <p><i>Note: supplementation required to provide more hands-on experiences</i></p>	Geometer's Sketchpad <ul style="list-style-type: none"> Adding Integers with Counters Gap Closing I/S Student Book: Integers pp 10 – 14 Gap Closing I/S Facilitator's Guide: Integers pp 14 – 20
Consolidation			

Add Integers Using a Number Line

Specific Expectations: 7m14, 7m26

	Learning Focus	Blended Learning	Other Resources
		Teacher Guide Unit 1 Activity 2: Addition of Integers OERB ID: ELO1471850	TIPS4RM Grade 7 Unit 2: Describing Patterns and on into Integers <ul style="list-style-type: none"> Day 11: What's Right About Adding and What's Left to Count? Day 13: Carousel mathies <ul style="list-style-type: none"> Number Line Gizmos <ul style="list-style-type: none"> Adding and Subtracting Integers GeoGebra <ul style="list-style-type: none"> Adding Integers (Vertical Number Line) Adding Integers (Horizontal Number Line) Desmos <ul style="list-style-type: none"> Adding Integers Gap Closing I/S Student Book: Integers pp 10 – 14 Gap Closing I/S Facilitator's Guide: Integers pp 14 – 20
Minds On	<ul style="list-style-type: none"> Place integers on a number line 		
Action	<ul style="list-style-type: none"> Combine/add integers using a number line Add integers within context 	Unit 1 Activity 2: Consolidation <ul style="list-style-type: none"> Assignment 2: How Warm Did It Get? <ul style="list-style-type: none"> Discussion about temperature <p><i>Note: supplementation needed for other contexts</i></p>	
Consolidation			

Addition of Integers Practice

Specific Expectations: 7m14, 7m26

	Learning Focus	Blended Learning	Other Resources
		Teacher Guide Unit 1 Activity 2: Addition of Integers OERB ID: ELO1471850	mathies <ul style="list-style-type: none"> • Number Line • Colour Tiles
Minds On	<ul style="list-style-type: none"> • Discuss multiple ways to model and solve an integer addition sentence • Create a question related to everyday life whose answer could be determined by this addition sentence 	Unit 1 Activity 2: Action OERB ID: ELO1471090 <ul style="list-style-type: none"> • Toolbox – Adding Integers Video [8:38] <ul style="list-style-type: none"> o number lines, tiles and patterns • Practice Adding Integers <ul style="list-style-type: none"> o worksheet o number lines and tiles o real life situations 	
Action	<ul style="list-style-type: none"> • Add integers with a variety of tools • Investigate patterns within addition 	Unit 1 Activity 2: Consolidation <ul style="list-style-type: none"> • Check Your Understanding <ul style="list-style-type: none"> o 25 questions, number lines, tiles, problems 	
Consolidation		Unit 1 Activity 2: Consolidation <ul style="list-style-type: none"> • Assignment 1: Integer Quiz <ul style="list-style-type: none"> o paper pencil o questions and word problems 	

Subtract Integers Using Counters

Specific Expectations: 7m14, 7m26

	Learning Focus	Blended Learning	Other Resources
		Teacher Guide Unit 1 Activity 3: Subtraction of Integers OERB ID: ELO1471850	TIPS4RM Grade 7 Unit 2: Describing Patterns and on into Integers <ul style="list-style-type: none"> Day 6: Patterning to Integers Day 14: What's the Difference?
Minds On	<ul style="list-style-type: none"> Review fact families Connect addition to subtraction. 	Unit 1 Activity 3: Minds On OERB ID: ELO1471110 <ul style="list-style-type: none"> Review of Fact Families Discussion <ul style="list-style-type: none"> Can fact families involve integers? What does the fact family for this addition sentence look like? $10 + (-2) = +8$ 	mathies <ul style="list-style-type: none"> Colour Tiles Geometer's Sketchpad <ul style="list-style-type: none"> Subtracting Integers with Two-Colour Counters
Action	<ul style="list-style-type: none"> Subtract integers using a variety of tools (e.g., two-colour counters, virtual manipulatives, number lines) Subtract integers within context Recognize how zero pairs aid subtraction 	Unit 1 Activity 3: Action <ul style="list-style-type: none"> Subtraction Integers Video [9:47] <ul style="list-style-type: none"> a decrease or difference number lines, counters and patterns Anchor Chart on subtracting integers Adding and Subtracting with Chips <ul style="list-style-type: none"> chips and zero principle Practice Exercise <ul style="list-style-type: none"> paper pencil number lines, tiles, real-life context Anchor Chart 	Gap Closing I/S Student Book: Integers pp 10 – 14 Gap Closing I/S Facilitator's Guide: Integers pp 14 – 20
Consolidation		Unit 1 Activity 3: Consolidation <ul style="list-style-type: none"> Check Your Understanding <ul style="list-style-type: none"> answers provided 19 questions number lines, counters, problems Assignment 1: Integer Quiz <ul style="list-style-type: none"> paper pencil Assignment 2: Integer Equations 	

Subtract Integers Using a Number Line

Specific Expectations: 7m14, 7m26

	Learning Focus	Blended Learning	Other Resources
		Teacher Guide Unit 1 Activity 3: Subtraction of Integers OERB ID: ELO1471850	TIPS4RM Grade 7 Unit 2: Describing Patterns and on into Integers <ul style="list-style-type: none"> Day 6: Patterning to Integers
Minds On	<ul style="list-style-type: none"> Discuss everyday examples of integer subtraction (e.g., banking withdrawal, the removal of a debt, football yard losses, temperature changes, golf scores) 		Homework Help <ul style="list-style-type: none"> Integers - Adding and Subtracting mathies <ul style="list-style-type: none"> Number Line
Action	<ul style="list-style-type: none"> Subtract integers using a number line Subtract integers within context 		Gizmos <ul style="list-style-type: none"> Adding and Subtracting Integers
Consolidation			GeoGebra <ul style="list-style-type: none"> Subtracting integers Adding and Subtracting Integers Gap Closing I/S Student Book: Integers pp 10 – 14 Gap Closing I/S Facilitator's Guide: Integers pp 14 – 20

Fact Families

Specific Expectations: 7m26

	Learning Focus	Blended Learning	Other Resources
Minds On	<ul style="list-style-type: none"> Review fact families 		
Action	<ul style="list-style-type: none"> Use fact families to see the relationship between the addition and subtraction of integers Choose when to subtract or add integers 		
Consolidation			

Problem Solving Involving Addition and Subtraction of Integers

Specific Expectations: 7m14, 7m26

	Learning Focus	Blended Learning	Other Resources
		Teacher Guides OERB ID: ELO1471850 <ul style="list-style-type: none"> Unit 1 Activity 2: Addition of Integers Unit 1 Activity 3: Subtraction of Integers 	TIPS4RM Grade 7 Unit 2: Describing Patterns and on into Integers <ul style="list-style-type: none"> Day 12: Adding On! Day 15: Integer Fun
Minds On	<ul style="list-style-type: none"> Discuss multiple ways to model and solve an integer addition or subtraction sentence Create a question related to everyday life whose answer could be determined by this addition or subtraction sentence 		Continuum and Connections - Integers pp 9, 13, 22 mathies <ul style="list-style-type: none"> Number Line Colour Tiles
Action	<ul style="list-style-type: none"> Solve problems involving real-life contexts and addition and subtraction of integers 		Gap Closing I/S Student Book: Integers pp 10 – 14 Gap Closing I/S Facilitator's Guide: Integers pp 14 – 20
Consolidation			

Consolidation & Summative Tasks

Specific Expectations: 7m14, 7m26

Blended Learning	Other Resources

Represent Integers Using Counters

Resource	URL
Teacher Guide: Unit 1 Activity 2: Addition of Integers	https://download.elearningontario.ca/repository/14/1471850000/Gr%207%20Math%20U1%20TG/Combined%20Teacher%20Notes%20for%20Activities%201%20-%2010/content_2.html
Teacher Guide: Unit 1 Activity 3: Subtraction of Integers	https://download.elearningontario.ca/repository/14/1471850000/Gr%207%20Math%20U1%20TG/Combined%20Teacher%20Notes%20for%20Activities%201%20-%2010/content_3.html
Representing Integers and the Zero Principle	https://download.elearningontario.ca/repository/14/1471200000/GRD7MTHEU01/GRD-7MTHEU01A02/mme/Gr7_Math_Num_RepresentingIntegerswithBingoChips/Object%20Files/Pare_Gr7IntegersPart1.html
Unit 1 Activity 2: Minds On	https://download.elearningontario.ca/repository/14/1471200000/GRD7MTHEU01/GRD-7MTHEU01A02/content.html
TIPS4RM Grade 7 Unit 2: Describing Patterns and on into Integers	http://www.edugains.ca/resourcesMath/CE/LessonsSupports/TIPS4RM/Grade7English/Unit2_DescribingPatterns_Integers.pdf
mathies: Colour Tiles	http://mathies.ca/learningTools.php

Add Integers Using Counters

Resource	URL
Teacher Guide: Unit 1 Activity 2: Addition of Integers	https://download.elearningontario.ca/repository/14/1471850000/Gr%207%20Math%20U1%20TG/Combined%20Teacher%20Notes%20for%20Activities%201%20-%2010/content_2.html
Unit 1 Activity 2: Action	https://download.elearningontario.ca/repository/14/1471200000/GRD7MTHEU01/GRD-7MTHEU01A02/content_2.html
Representing the Addition of Bingo Chips with Integers	https://download.elearningontario.ca/repository/14/1471200000/GRD7MTHEU01/GRD-7MTHEU01A02/mme/Gr7_Math_Num_AdditionIntegers/Object%20Files/Pare_Gr7IntegersPart2.html
Adding with Chips	https://www.explorelearning.com/index.cfm?method=cResource.dspView&ResourceID=599
TIPS4RM Grade 7 Unit 2: Describing Patterns and on into Integers	http://www.edugains.ca/resources/LearningMaterials/TIPS/tips4rm/grade7/Unit2_PatternsIntegers.pdf
Homework Help: Integers - Adding and Subtracting	https://homeworkhelp.ilc.org/tools/listen_learn/details.php?t_id=302
mathies: Colour Tiles	http://mathies.ca/learningTools.php
Geometer's Sketchpad : Adding Integers with Counters	http://www.edugains.ca/resourcesMath/CE/LessonsSupports/GSP/Integers/IntegerAddition2ColourCounters.gsp
Gap Closing I/S Student Book: Integers	http://www.edugains.ca/resources/LearningMaterials/GapClosing/Grade9/3-Integers_SB_IS.pdf
Gap Closing I/S Facilitator's Guide: Integers	http://www.edugains.ca/resources/LearningMaterials/GapClosing/Grade9/3-Integers_FG_IS.pdf

Add Integers Using a Number Line

Resource	URL
Teacher Guide: Unit 1 Activity 2: Addition of Integers	https://download.elearningontario.ca/repository/14/1471850000/Gr%207%20Math%20U1%20TG/Combined%20Teacher%20Notes%20for%20Activities%201%20-%2010/content_2.html
Unit 1 Activity 2: Consolidation	https://download.elearningontario.ca/repository/14/1471200000/GRD7MTHEU01/GRD-7MTHEU01A02/content_3.html
Assignment 2: How Warm Did It Get?	https://download.elearningontario.ca/repository/14/1471200000/GRD7MTHEU01/GRD-7MTHEU01A02/assignment.html
TIPS4RM Grade 7 Unit 2: Describing Patterns and on into Integers	http://www.edugains.ca/resources/LearningMaterials/TIPS/tips4rm/grade7/Unit2_PatternsIntegers.pdf
mathies: Number Line	http://mathies.ca/learningTools.php#Nn0
Gizmos: Adding and Subtracting Integers	https://www.explorelearning.com/index.cfm?method=cResource.dspDetail&ResourceID=291
GeoGebra: Adding Integers (Vertical Number Line)	https://www.geogebra.org/material/simple/id/2930251
GeoGebra: Adding Integers (Horizontal Number Line)	https://www.geogebra.org/material/simple/id/50050
Desmos: Adding Integers	https://www.desmos.com/calculator/ovj1fizo7m
Gap Closing I/S Student Book: Integers	http://www.edugains.ca/resources/LearningMaterials/GapClosing/Grade9/3-Integers_SB_IS.pdf
Gap Closing I/S Facilitator's Guide: Integers	http://www.edugains.ca/resources/LearningMaterials/GapClosing/Grade9/3-Integers_FG_IS.pdf

Addition of Integers Practice

Resource	URL
Teacher Guide: Unit 1 Activity 2: Addition of Integers	https://download.elearningontario.ca/repository/14/1471850000/Gr%207%20Math%20U1%20TG/Combined%20Teacher%20Notes%20for%20Activities%201%20-%2010/content_2.html
Unit 1 Activity 2: Action	https://download.elearningontario.ca/repository/14/1471200000/GRD7MTHEU01/GRD-7MTHEU01A02/content_2.html
Adding Integers Video	https://youtu.be/0kjjWErHNSg
Unit 1 Activity 2: Consolidation	https://download.elearningontario.ca/repository/14/1471200000/GRD7MTHEU01/GRD-7MTHEU01A02/content_3.html
Assignment 1: Integer Quiz	https://download.elearningontario.ca/repository/14/1471200000/GRD7MTHEU01/GRD-7MTHEU01A02/assignment.html
mathies: Number Line	http://mathies.ca/learningTools.php#Nn0
mathies: Colour Tiles	http://mathies.ca/learningTools.php

Subtract Integers Using Counters

Resource	URL
Teacher Guide: Unit 1 Activity 3: Subtraction of Integers	https://download.elearningontario.ca/repository/14/1471850000/Gr%207%20Math%20U1%20TG/Combined%20Teacher%20Notes%20for%20Activities%201%20-%2010/content_3.html
Adding and Subtracting Integers with Chips	https://www.explorelearning.com/index.cfm?method=cResource.dspView&ResourceID=599
Unit 1 Activity 3: Minds On	https://download.elearningontario.ca/repository/14/1471200000/GRD7MTHEU01/GRD-7MTHEU01A03/content.html
Unit 1 Activity 3: Action	https://download.elearningontario.ca/repository/14/1471200000/GRD7MTHEU01/GRD-7MTHEU01A03/content_2.html
Subtraction Integers Video	https://youtu.be/4q5awHvZgMw
Adding and Subtracting with Chips	https://www.explorelearning.com/index.cfm?method=cResource.dspView&ResourceID=599
Unit 1 Activity 3: Consolidation	https://download.elearningontario.ca/repository/14/1471200000/GRD7MTHEU01/GRD-7MTHEU01A03/content_3.html
Assignment 1: Integer Quiz	https://download.elearningontario.ca/repository/14/1471200000/GRD7MTHEU01/GRD-7MTHEU01A03/assignment.html
Assignment 2: Integer Equations	https://download.elearningontario.ca/repository/14/1471200000/GRD7MTHEU01/GRD-7MTHEU01A03/assignment.html
TIPS4RM Grade 7 Unit 2: Describing Patterns and on into Integers	http://www.edugains.ca/resources/LearningMaterials/TIPS/tips4rm/grade7/Unit2_PatternsIntegers.pdf
mathies : Colour Tiles	http://mathies.ca/learningTools.php
Geometer's Sketchpad : Subtracting Integers with Two-Colour Counters	http://www.edugains.ca/resourcesMath/CE/LessonsSupports/GSP/Integers/IntegerSubtraction-Counters.gsp
Gap Closing I/S Student Book: Integers	http://www.edugains.ca/resources/LearningMaterials/GapClosing/Grade9/3-Integers_SB_IS.pdf
Gap Closing I/S Facilitator's Guide: Integers	http://www.edugains.ca/resources/LearningMaterials/GapClosing/Grade9/3-Integers_FG_IS.pdf

Subtract Integers Using a Number Line

Resource	URL
Teacher Guide: Unit 1 Activity 3: Subtraction of Integers	https://download.elearningontario.ca/repository/14/1471850000/Gr%207%20Math%20U1%20TG/Combined%20Teacher%20Notes%20for%20Activities%201%20-%2010/content_3.html
TIPS4RM Grade 7 Unit 2: Describing Patterns and on into Integers	http://www.edugains.ca/resources/LearningMaterials/TIPS/tips4rm/grade7/Unit2_PatternsIntegers.pdf
Homework Help: Integers - Adding and Subtracting	https://homeworkhelp.ilc.org/tools/listen_learn/details.php?t_id=302
mathies: Number Line	http://mathies.ca/learningTools.php#Nn0
Gizmos: Adding and Subtracting Integers	https://www.explorelearning.com/index.cfm?method=cResource.dspDetail&ResourceID=291
GeoGebra: Subtracting integers	https://www.geogebra.org/material/simple/id/2930277
GeoGebra: Adding and Subtracting Integers	https://www.geogebra.org/material/simple/id/59147
Gap Closing I/S Student Book: Integers	http://www.edugains.ca/resources/LearningMaterials/GapClosing/Grade9/3-Integers_SB_IS.pdf
Gap Closing I/S Facilitator's Guide: Integers	http://www.edugains.ca/resources/LearningMaterials/GapClosing/Grade9/3-Integers_FG_IS.pdf

Problem Solving Involving Addition and Subtraction of Integers

Resource	URL
Teacher Guide: Unit 1 Activity 2: Addition of Integers	https://download.elearningontario.ca/repository/14/1471850000/Gr%207%20Math%20U1%20TG/Combined%20Teacher%20Notes%20for%20Activities%201%20-%2010/content_2.html
Teacher Guide: Unit 1 Activity 3: Subtraction of Integers	https://download.elearningontario.ca/repository/14/1471850000/Gr%207%20Math%20U1%20TG/Combined%20Teacher%20Notes%20for%20Activities%201%20-%2010/content_3.html
TIPS4RM Grade 7 Unit 2: Describing Patterns and on into Integers	http://www.edugains.ca/resources/LearningMaterials/TIPS/tips4rm/grade7/Unit2_PatternsIntegers.pdf
Continuum and Connections - Integers	http://www.edugains.ca/resourcesMath/CE/LessonsSupports/TIPS4RM/ContiumAndConnections/Integers_Grades7-9.pdf
mathies: Number Line	http://mathies.ca/learningTools.php#Nn0
mathies : Colour Tiles	http://mathies.ca/learningTools.php
Gap Closing I/S Student Book: Integers	http://www.edugains.ca/resources/LearningMaterials/GapClosing/Grade9/3-Integers_SB_IS.pdf
Gap Closing I/S Facilitator's Guide: Integers	http://www.edugains.ca/resources/LearningMaterials/GapClosing/Grade9/3-Integers_FG_IS.pdf