Title: Integers

Brief Overview:

This unit will allow students the opportunity to explore and develop an understanding of integers and absolute value and how to add and subtract with integers. They will order integers on vertical and horizontal number lines. Eventually leading to setting up the "*x*" and "*y*" axis on the coordinate grid. Students will also explore the operations of addition and subtraction using manipulatives and or a number line. The students will identify patterns during their explorations of the two operations that will eventually lead the students to the rule for the operations with integers. Students will need to communicate the rules for addition and subtraction of integers in written and verbal formats.

NCTM Content Standard/National Science Education Standard:

- Standard 1: Knowledge of Algebra, Patterns, or Functions;
  - Identify and extend patterns and create numerical patterns
  - Write and evaluate expressions
  - Locate points on a number line and in a coordinate grid
  - Identify, write, solve, and apply equations and inequalities

- Standard 6: Knowledge of number Relationships or Computation
  - Analyze number relations and compute
  - Apply knowledge of rational numbers and place value

- Standard 7: Processes of Mathematics
  - Problem solving
  - Communication
  - Connections
  - Reasoning

Grade/Level:

Sixth through seventh grades

Duration/Length:

Six 45-minute lessons or three 90-minute lessons

Student Outcomes:

- The learner will be able to define integers and absolute.
- The learner will be able to order integers on a number line.
- The learner will be able to identify integers as less than or greater than another integer.

- The learner will be able to translate phrases into expressions/equations with integers.
- The learner will be able to represent addition of integers on a number line and/or using integer tiles.
- The learner will be able to identify the absolute value of an integer.

Materials and Resources:

- Integer tiles (kidney beans and lima beans or corn kernels are plentiful and cheap substitute for the tiles)
- Tag board number line strips
- Picture cards
- Number cards
- Yellow highlighters and red pens

Development/Procedures:

Lesson 1:

Pre-assessment: Have students in Think-Pair-Share groups to address the following questions. Is it possible to have an amount less then zero? Can we name amounts less than zero? Can you come up with an example of a situation that uses amounts less than zero? After a couple of minutes discuss their thoughts as a class.

Launch: Hand out pictures of different events in ancient and modern history from Student Resource Sheet 1A. Direct students to order themselves/the pictures according to when the events happened in history. Discuss what approximate years the events happened. Ask where the AD/BC switch over would fit. Explain to students that they have just created a system that can represent integers.

Teacher Facilitation: Explain that the point we switched from BC to AD is the origin or beginning point; on a number line it would be zero. From this point we begin to count/mark amounts greater than zero to the right and we begin to count/mark amounts less than zero to the left of the origin. Direct the students to look at the events that happened furthest away from zero and to note the dates. Compare these to the dates of the events that occurred closest to zero. The students should notice that the events furthest from zero use higher numbers and the events closest to zero use the lowest numbers. Model how this matches to an integer number line and how to plot individually points on the number line.

Student Application: Students can then set up their own integer number line. Have students brainstorm in small groups for other situations that may use

positive and negative numbers (values greater than and less than the origin/zero) to represent that situation (i.e. elevation, above/below sea level; temperature, above/below zero; banking deposits/withdrawals; golf scoring, buildings, floors/basement/parking garage; eyesight?). Have students share responses. Ask groups to identify the words used in each situation that represent the positive and negative values. Classify these words in a class chart titled positive/negative. Compare the students suggestions to the list compiled in Teacher Resource Sheet 1B.

Embedded Assessment: Hold up cards teacher resource sheet 1C (integers and phrases representing integers) one at time with one integer on each card. Have students extend their right or left arm to indicate which side of zero that integer/expression would be placed on a number line.

Re-teaching/Extension:

- Teacher should give individual instruction to those students having trouble numbering their number lines and/or pair students with another student who understand how to number the line. Stress that zero is the origin where we beginning counting from whether we move to the right or to the left to count.
  - Show how two of these number lines can be used to set up the coordinate grid. A horizontal number line represents the x-axis and a vertical number line represents the y-axis. Demonstrate how to write and plot ordered pairs.

Lesson 2

Pre-assessment: Review the number lines they made in lesson one/have students make a new integer number line. Have them highlight the positive values in yellow and write over the negative values in red.

Launch: Introduce integer tiles as representing positive (yellow) and negative (red) numbers. Model the representation of a couple of integers. Then ask students to model each number on the number line by stacking the tiles above each integer. Challenge them to model zero also. Ask students what is the same and what is different about the same number on both sides of zero.

Teacher Facilitation: This discussion should lead into an introduction/definition of absolute value. Re-enforce that absolute value is the distance from zero not the positive of the integer. Write the symbol and demonstrate how to read the symbol. Ask students to represent/prove the absolute value of several integers.

Student Application: Present worksheet Student Resource Sheet 2A. Review the worksheet as a class emphasizing the numbering and how to graph the

numbers with a point /solid dot on the correct position on the number line. Also show how the number line can be used to count the number's distance from zero in order to calculate the absolute value of integers

Embedded Assessment: Use integer and absolute value cards and <, > to compare integers and absolute value amounts. To assess this skill, present worksheet Student Resource Sheet 2B.

Re-teaching/Extension:

- Allow students who are still having difficulty to use the tiles and the number line to represent each absolute value they need to solve.
- Teach how to read and solve absolute value with negatives inside and outside the absolute value symbol. Show how to read and solve absolute value problems that have addition or subtraction expressions within the absolute value symbol.

Lesson 3

Pre-assessment: Ask what are we doing when we add? (You want students to describe the concept of addition.) We are putting things together into one group. Ask how they think addition would be modeled using the tiles and/or **using the number line.**

Launch: Hand out integer tiles. Ask students how they would model various addition problems. The problems should be numerical expressions and simple word problems.

Teacher Facilitation: Start with easy problems positive + positive and negative + negative and progress to more complex negative + positive. Demonstrate these same problems on the number line. Proving to students that either method if used correctly will give the same sum. Emphasize to the students that the negative symbol looks just like the subtraction symbol. When we subtract we move in the opposite direction from addition. The negative symbol causes us to do the same thing, move in the opposite direction on the number line. Introduce the idea that the negative/subtraction symbol can also be read as "the opposite of". So when we are modeling on the number line whenever we see the negative symbol we switch directions.

Student Application: Allow students to practice more problems using both methods. Use Student Resource Sheet 3A.

Embedded Assessment: Teacher should circulate through the class observing how students are using the manipulatives and how they are completing Student Resource Sheet 3A addressing any misconceptions with students directly.

Re-teaching/Extension:

- Peer discussion and support should be encouraged, pairing those who grasp the concept with those who are struggling with the concept. This will allow those who understand to develop their skills in communicating ideas and those who are struggling to develop clearer communication in expressing what their difficulty is and how to ask for specific help.
- Ask students if the order of the addends is switched would it change the sum? In small groups have students do several different problems in which they change the order of the addends. Have the groups come back together as a class to discuss their results. Let them know they have just proved the commutative property.

Lesson 4

Pre-assessment: Review how to use each manipulative form, number line and integer tiles. Have students explain at least one method to a partner. Partners should let each other know if the explanation is unclear.

Launch: Direct student groups to come up with a list of all possible different signage combinations that could be added together. The signage combination categories are positive + positive, negative + negative, and positive + negative.

Teacher Facilitation: Students should work in small groups. Each group should make up 5 to 10 problems for each category. After students complete their problems for each category, explain to them that often times if you can identify a pattern you have found the rule/procedure for solving the problem.

Student Application: Direct students to work in their groups to try to identify a pattern for each category. Encourage them to test their pattern with the problems of another group. Come back and discuss the patterns as a class.

Embedded Assessment: Students should then complete Student Resource Sheet 4A. When completing the tri-foldable worksheet, students will write the rule and an example for each combination. Use Student Resource Sheet 4B as a guide for correcting the students' work.

Re-teaching/Extension

- For students who are not seeing the patterns use Student Resource Sheet 4C. Allow students to model various types of problems (on the number line or with tiles) and read over the addition rule that applies to the specific problem. Show the students how the rule directly relates to the problem.

- Ask students to make a small poster describing how to model the addition of a positive and negative integer using the algebra tiles. Each step should include a written description and a diagram of the step.

Lesson 5

Pre-assessment: Ask students what we are doing when we subtract? You want them to describe the concept of subtraction, removing items from a group/set. Have students model with the algebra tiles some samples of whole number subtraction to reinforce the subtraction concept.

Launch: Present the problem "6 – 9" . Ask students to predict how we can accomplish this if we only have six tiles. How do we get the other three positive tiles we need to take-away? If needed remind them about how zero is represented (zero pair, one positive and one negative tile).

Teacher Facilitation: Model several more subtraction problems (with the tiles) using various combinations of signs. Model these same problems on the number line also. Remind students that the negative/minus symbol means move in the opposite direction on the number line each time it appears in the problem.

Student Application: Allow them to practice several more problems. Ask if they can identify a pattern in getting the answer. Relate the rule to the idea of subtraction symbol meaning "do the opposite." The rule for subtraction is to change subtraction to addition of the opposite number.

Embedded Assessment: Bring the class back as a group to identify and discuss the pattern. Have students complete the Student Resource Sheet 5A.

Re-teaching/Extension:

- Students who are having difficulty seeing the relationship should be allowed more time to continue modeling subtraction (with tiles and/or on the number line) and then model same problem as addition of the opposite number to help them see the connection between the two operations.
- Ask students to make a poster describing how to model a subtraction problem (that will require zero pairs to solve). Each step of the process should include a written description and a diagram of the step.

Lesson 6

Pre-assessment: String together several addition problems into one equation. Have students explain ways they could solve the equation.

Launch: Challenge students to find two ways to solve an equation, which includes a few addition and a few subtraction problems within it. If necessary, remind students about the commutative and associative properties.

Teacher Facilitation: Discuss the methods they came up with. First direct students to convert all subtraction problems into addition of the opposite number. Then explain rearranging the problem so you have the addition of all the positive integers in one pair of parentheses and the addition of all the negative integers in another pair of parentheses. Simplify within the two parentheses separately, and then add the positive and negative integers that remain. Demonstrate how this is easier/less confusing than adding the integers in the order they are presented in the original equation. Relate this to word problems. Remind students of their list of words that mean positive or negative. Review words that signal addition and subtraction. Allow students to circle or highlight words that indicate the operation and then to circle the important data that they will use to set up the equation they will use to solve the problem.

Student Application: Have students complete Student Resource Sheet 6A. Students should write the equation they will need to solve the word problem and their work to solve the problem.

Embedded Assessment: Circulate around assisting students as needed. Encourage peer support.

Re-teaching/Extension:

- Introduce strategies for handling word problems, suggesting to students an approach for translating verbal math phrases to mathematical operations, solving the problem, and evaluating their solution in the context of the original problem.
- Ask students to write two word problems that will require at least two to four operations and will use at least two integers with different signs. Students will also need to complete an answer key for their problems showing the equation used to solve their word problem and how they applied the use of the commutative property. Have students swap problems and solve each other's problems.

Summative Assessment:

At the conclusion of this unit on Integers, students mastery of the concepts will be assessed with a unit test (Student Resource Sheet 7A).

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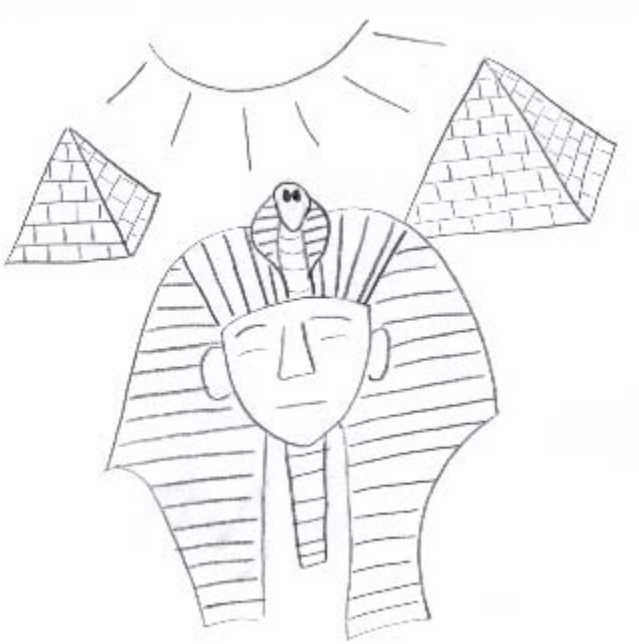
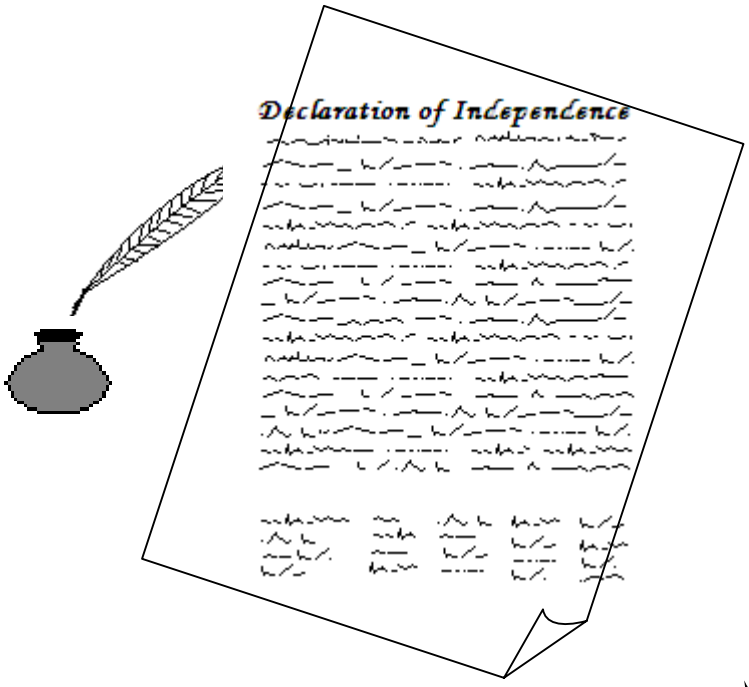
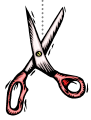
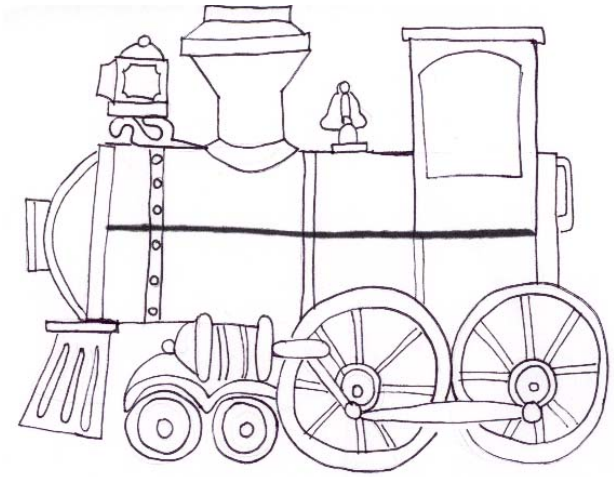
Student Resource Sheet 1A

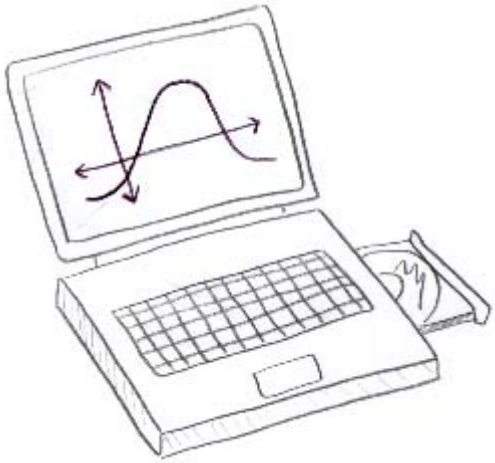






Student Resource Sheet 1A

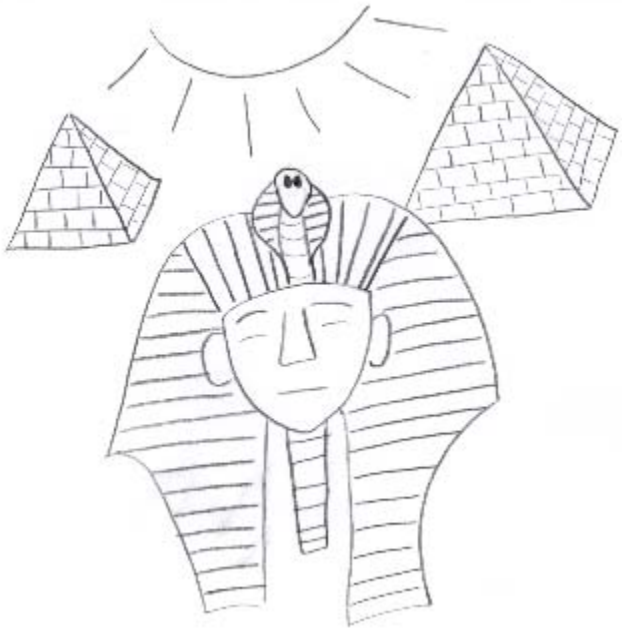




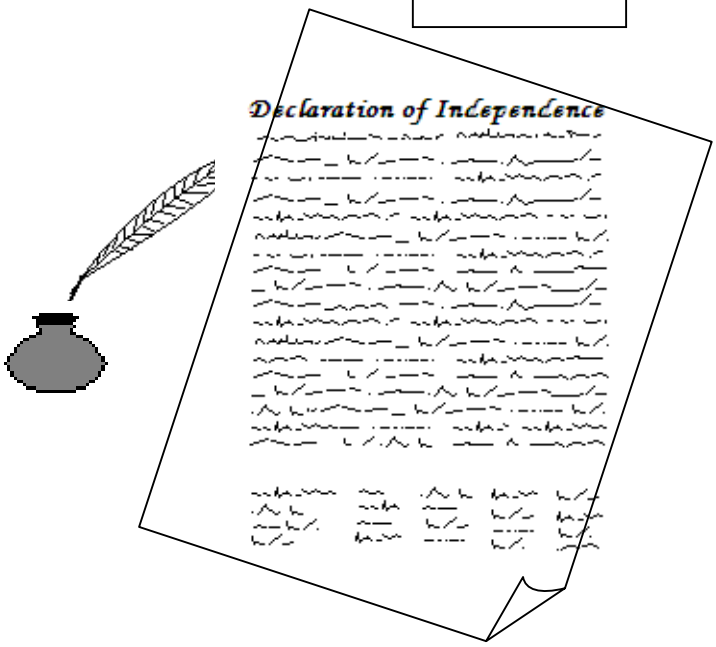
Teacher Resource Sheet 1A

~500 AD

~2500 BC



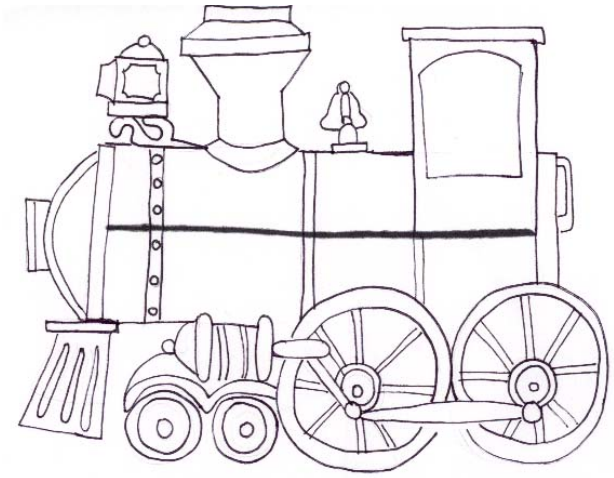
1776 AD



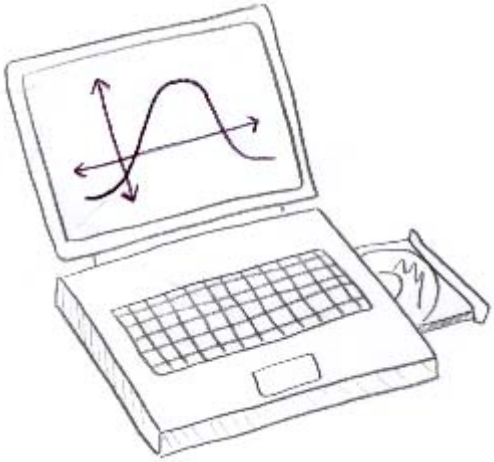
200 million years ago

Teacher Resource Sheet 1A

First built in 1804 AD



Present day



Teacher Resource Sheet 1B

WORDS AND PHRASES THAT SUGGEST DIRECTION

Positive	Negative
Above sea level	Below sea level
Deposit	Withdraw
Earn	Spend
Ascend	Descend
Over par	Under par
Rise	Fall
Invest	Borrow
Up	Down
Forward	Backward
A.D.	B.C.
Above freezing	Below Freezing
Over	Under
Gain	Lose
Increase	Decrease

Teacher Resource Sheet 1C

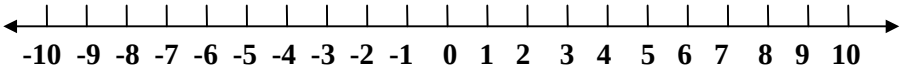
-6	2	-4	5
16	-3	7	-1
0	1	8	-9
10	-15	-11	18

Student Resource Sheet 2A

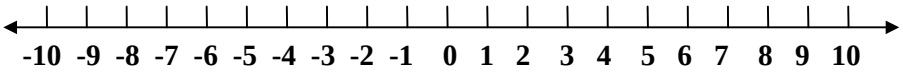
LESSON TWO WORKSHEET
GRAPHING INTEGERS AND ABSOLUTE VALUE

Graph the point on the number line. Label the number line before graphing in problems 4-7.

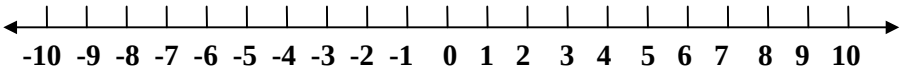
1.) 3



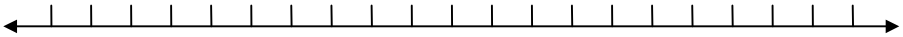
2.) -2



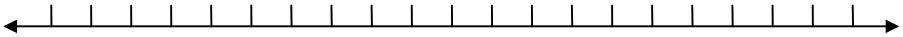
3.) -10



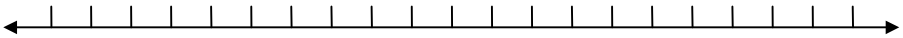
4.) 6



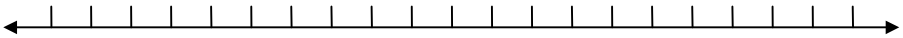
5.) -4



6.) 9



7.) -6



Find the absolute value of the integer.

8.) | 2 | = _____

9.) | -4 | = _____

10.) | -3 | = _____

11.) | -2 | = _____

12.) | 6 | = _____

13.) | -8 | = _____

LESSON TWO WORKSHEET
COMPARING NUMBERS

Write < or > in the box to make the statement true.

1.) 4 ☐ 5

2.) 16 ☐ -2

3.) 0 ☐ -3

4.) -4 ☐ 6

5.) -15 ☐ 0

6.) 18 ☐ -18

7.) -2 ☐ - 3

8.) -19 ☐ -3

9.) 2 ☐ 0

10.) | 4 | ☐ | 3 |

11.) | -3 | ☐ | -6 |

12.) | 1 | ☐ | 13 |

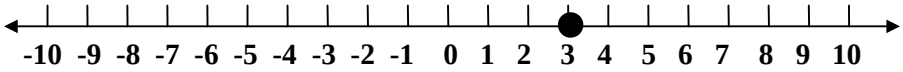
13.) 8 ☐ | -10 |

14.) | -7 | ☐ | 4

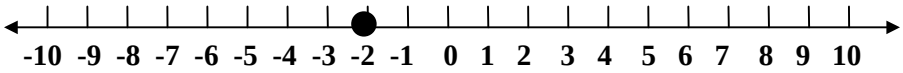
LESSON TWO WORKSHEET: ANSWER KEY
GRAPHING INTEGERS AND ABSOLUTE VALUE

Graph the point on the number line. Label the number line before graphing in problems 4-7.

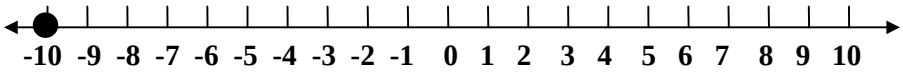
1.) 3



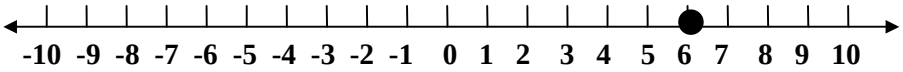
2.) -2



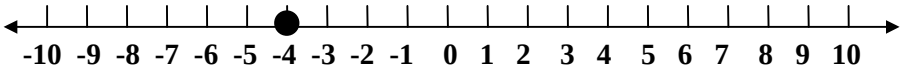
3.) -10



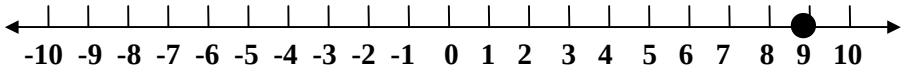
4.) 6



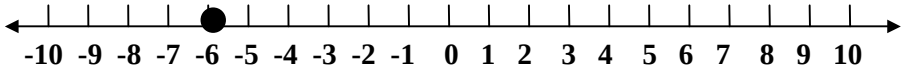
5.) -4



6.) 9



7.) -6



Find the absolute value of the integer.

8.) | 2 | = 2

9.) | -4 | = 4

10.) | -3 | = 3

11.) | -2 | = 2

12.) | 6 | = 6

13.) | -8 | = 8

LESSON TWO WORKSHEET
COMPARING NUMBERS

Write < or > in the box to make the statement true.

1.) 4 [>] 5

2.) 16 [>] -2

3.) 0 [>] -3

4.) -4 [<] 6

5.) -15 [<] 0

6.) 18 [>] -18

7.) -2 [>] -3

8.) -19 [>] -3

9.) 2 [>] 0

10.) | 4 | [>] | 3 |

11.) | -3 | [<] | -6 |

12.) | 1 | [<] | 13 |

13.) 8 [<] | -10 |

14.) | -7 | [>] | 4

Student Resource Sheet 3A

LESSON THREE WORKSHEET
ADDING INTEGERS

Use integers to describe the addition problem modeled with the tiles below. Then, find the sum.

Example

[+] [+] [+] [+] + [+] [+]

4 + 2 = 6

1.) [+] [+] [+] [+] [+] [+]

_____ + _____ = _____

2.) [+] [+] [+] [+] [+] [—] [—]

_____ + _____ = _____

3.) [+] [+] [—] [—]

_____ + _____ = _____

4.) [+] [+] [+] [+] [+] [+] [—] [—] [—] [—]

_____ + _____ = _____

Demonstrate how you would use integer tiles to represent the following addition problems. Draw your own integer tiles. [+] [—]

5.) 6 + -3

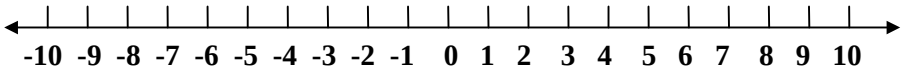
6.) 3 + -5

7.) -1 + 7

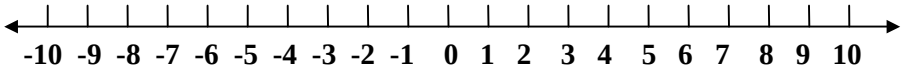
8.) -2 + 1

Demonstrate how you would use a number line to represent the following addition problems.

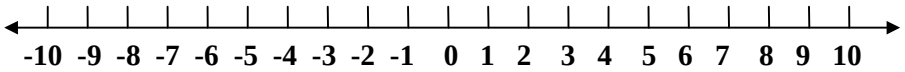
9.) 0 + 8



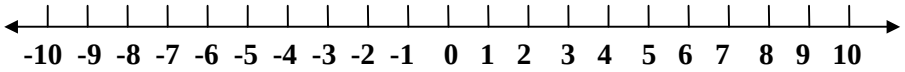
10.) -3 + 9



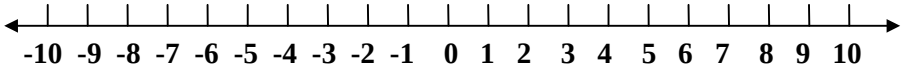
11.) 6 + -5



12.) 2 + -8



13.) -5 + -2



Teacher Resource Sheet 3A

LESSON THREE WORKSHEET ANSWER KEY
ADDING INTEGERS

Use integers to describe the addition problem modeled with the tiles below. Then, find the sum.

Example

[+] [+] [+] [+] + [+] [+]

4 + 2 = 6

1.) [+] [+] [+] [+] [+] [+]

3 + 3 = 6

2.) [+] [+] [+] [+] [+] [—] [—]

5 + -2 = 7

3.) [+] [+] [—] [—]

2 + -2 = 0

4.) [+] [+] [+] [+] [+] [+] [—] [—] [—] [—]

6 + -4 = 2

Teacher RESOURCE SHEET 3A

Demonstrate how you would use integer tiles to represent the following addition problems. Draw your own integer tiles. [+] [—]

5.) 6 + -3 [+] [+] [+] [+] [+] [+] + [—] [—] [—] = 3

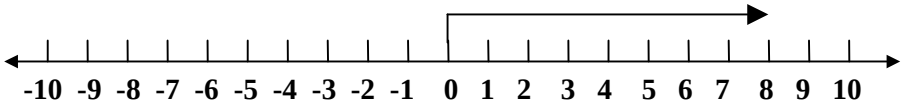
6.) 3 + -5 [+] [+] [+] + [—] [—] [—] [—] [—] = -2

7.) -1 + 7 [—] + [+] [+] [+] [+] [+] [+] [+] = 6

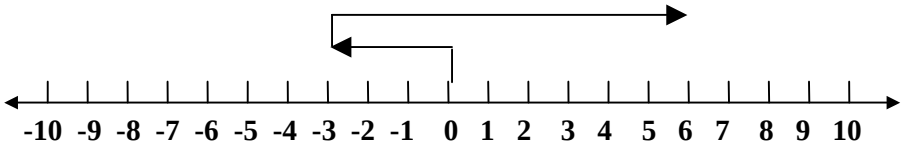
8.) -2 + 1 [—] [—] + [+] = -1

Demonstrate how you would use a number line to represent the following addition problems.

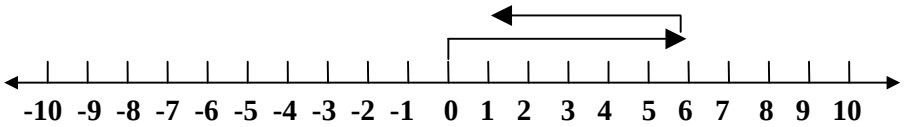
9.) 0 + 8



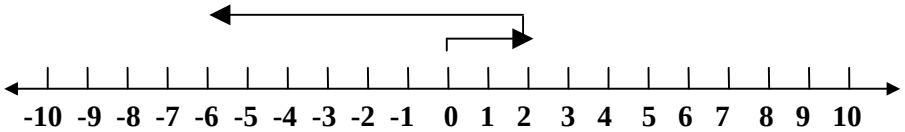
10.) -3 + 9



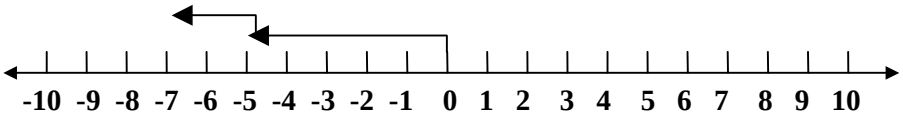
11.) 6 + -5



12.) 2 + -8



13.) -5 + -2



Student Resource Sheet 4A

Fold along dashed line

Add Positive Integers

Add Negative Integers

Add Integers with Different Signs

Teacher Resource Sheet 4A

The sum of two positive integers is a positive integer.

The sum of two negative integers is a negative integer.

To find the sum of a positive and a negative integer, find the absolute value of each integer and then subtract those values. The result takes the sign of the integer with the greatest absolute value.

+ + = +	– + – = –	+ + – = depends
Example:	Example:	Example:
3 + 6 = 9	-3 + -6 = -9	3 + -6 = -3 -3 + 6 = 3

LESSON FOUR WORKSHEET
ADDING INTEGERS WITH LIKE AND UNLIKE SIGNS

Part A: Adding Integers with Like Signs

Find the sum.

1) -6 + -6

2) 4 + 5

3) -2 + -5

4) 16 + 44

5) -10 + -4

6) -13 + -22

7) 0 + -3

Part B: Adding Integers with Unlike Signs

Find the sum.

8) 9 + -1

9) -7 + 6

10) 12 + -7

11) –5 + 21

12) –8 + 0

13) 29 + -4

14) 34 + -40

15) -17 + 2

Part C: Mixed Review

16) 4 + -17

17) -21 + -3

18) 50 + -2

19) 41 + -41

20) -1 + -13

21) -7 + 25

22) 18 + 5

23) -29 + -16

24) -23 + 15

25) 12 + -18

LESSON FOUR WORKSHEET ANSWER KEY
ADDING INTEGERS WITH LIKE AND UNLIKE SIGNS

Part A: Adding Integers with Like Signs

Find the sum.

1) -6 + -6 = 0

2) 4 + 5 = 9

3) -2 + -5 = -7

4) 16 + 44 = 60

5) -10 + -4 = -14

6) -13 + -22 = -35

7) 0 + -3 = -3

Part B: Adding Integers with Unlike Signs

Find the sum.

8) 9 + -1 = 8

9) -7 + 6 = -1

10) 12 + -7 = 5

11) -5 + 21 = 16

12) -8 + 0 = -8

13) 29 + -4 = 25

14) 34 + -40 = -6

15) -17 + 2 = -15

Part C: Mixed Review

16) 4 + -17 = -13

17) -21 + -3 = -24

18) 50 + -2 = 48

19) 41 + -41 = 0

20) -1 + -13 = -14

21) -7 + 25 = 18

22) 18 + 5 = 23

23) -29 + -16 = -45

24) -23 + 15 = -8

25) 12 + -18 = -6

RULES FOR OPERATIONS WITH INTEGERS

Addition

- If the signs of the addends are the same (either both negative or both positive), add as usual and keep the same sign for the sum.

  Examples: 6 + 4 = 10
  -7 + (-8) = -15

- If the signs of the addends are different (one negative, one positive). Calculate the difference between the two absolute values. The answer keeps the sign of the number with the higher absolute value.

  Examples: -10 + 12 = 2
  9 + (-14) = -5

Subtraction

- Change the operation to addition and change the sign of the number being subtracted to its opposite. Follow the rules for adding integers.

  Examples: -3 - (-7) = becomes -3 + 7 = 4
  5 - 8 = becomes 5 + (- 8) = -3
  11 - (-8) = becomes 11 + 8 = 19

Multiplication and Division

- When two integers have like signs, the product or quotient will be positive.
- When two integers have unlike signs, the product or quotient will be negative.

  Examples: 3 x (-5) = -15
  (-36) ÷ 9 = - 4
  (-7) x (-3) = 21
  (-64) ÷ (-8) = 8

Absolute Value

- The distance of a number from zero on the number line; always expressed as a positive number.

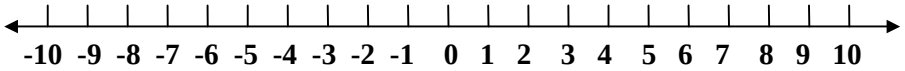
  Examples: | -4 | = 4
  | 5 | = 5

LESSON FIVE WORKSHEET
SUBTRACTING INTEGERS

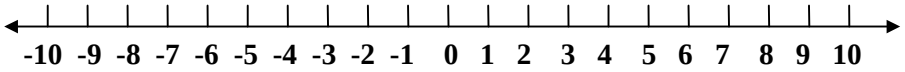
Part A: Subtracting Integers using a Number Line

Demonstrate how you would use a number line to represent the following subtraction problems.

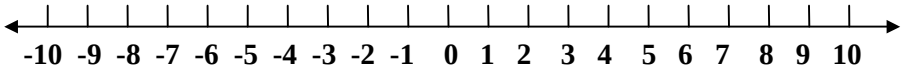
1) 6 – 4



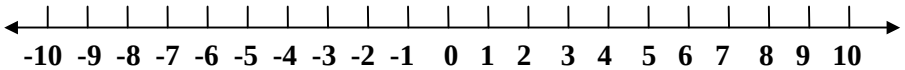
2) 3 – 8



3) 9 – 17



4) 2 + -8



Part B: Subtracting Integers

Simplify.

5) 20 – 6 =

6) 3 – 8 =

7) 5 – 7 =

8) 3 – 10 =

9) 16 – 25 =

10) –8 – 2 =

11) -4 – 11 =

12) 63 – 72 =

13) 20 – 35 =

14) 100 – 200 =

Part C: Subtracting Positive and Negative Integers
Simplify.

15) 8 – (-4) =

16) 2 – (-6) =

17) -12 – (-12) =

18) 7 – -9 =

19) 12 – (-55)=

20) -18 – (-12) =

21) -9 – (-16) =

22) -46 – (-18) =

Part D: Mixed Review

23) -6 + -8 =

24) -10 – 3 =

25) -14 + 20 =

26) 31 – (-9) =

27) -8 – (-27) =

28) -33 – 36 =

29) 19 + -32 =

30) -231 – (-231) =

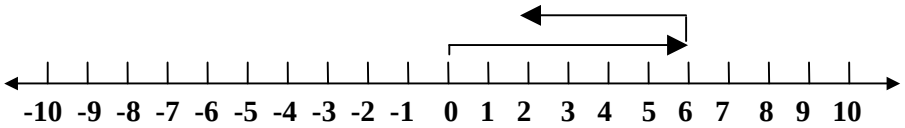
Part E: Problem Solving with Negative Numbers

31) One winter afternoon, the temperature was 10°F. By midnight that evening, the temperature dropped 15 degrees. What integer describes the temperature at midnight?

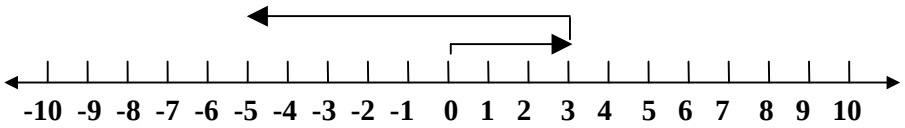
LESSON FIVE WORKSHEET ANSWER SHEET
SUBTRACTING INTEGERS

Part A: Subtracting Integers using a Number Line
Demonstrate how you would use a number line to represent the following subtraction problems.

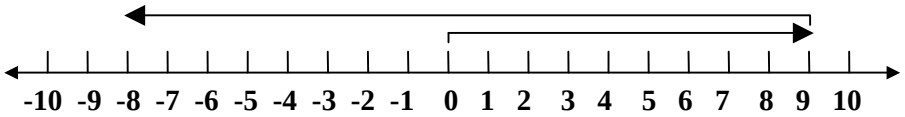
1) 6 – 4



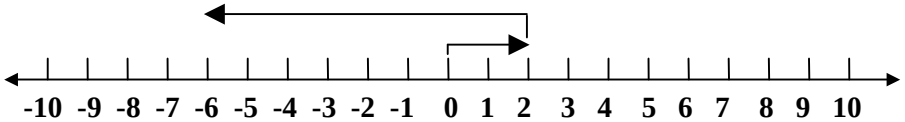
2) 3 – 8



3) 9 – 17



4) 2 + -8



Part B: Subtracting Integers
Simplify.

5) 20 – 6 = 14

6) 3 – 8 = -5

7) 5 – 7 = -2

8) 3 – 10 = -7

9) 16 – 25 = -9

10) -8 – 2 = -10

11) -4 – 11 = -15

12) 63 – 72 = -9

13) 20 – 35 = -15

14) 100 – 200 = -100

Part C: Subtracting Positive and Negative Integers
Simplify.

15) 8 – (-4) = 12

16) 2 – (-6) = 8

17) -12 – (-12) = 0

18) 7 – -9 = 16

19) 12 – -55 = 67

20) -18 – (-12) = -6

21) -9 – (-16) = 7

22) -46 – (-18) = -28

Part D: Mixed Review

23) -6 + -8 = -14

24) -10 – 3 = -13

25) -14 + 20 = 6

26) 31 – (-9) = 22

27) -8 – (-27) = 19

28) -33 – 36 = -69

29) 19 + -32 = -13

30) -231 – (-231) = 0

Part E: Problem Solving with Negative Numbers

31) One winter afternoon, the temperature was 10°F. By midnight that evening, the temperature dropped 15 degrees. What integer describes the temperature at midnight?

-5°F

LESSON SIX WORKSHEET
ADDITION AND SUBTRACTION OF INTEGERS

Part A: Adding Strings of Integers

Simplify.

1) 6 + 8 + (-4) + (-1) =

2) 1 + (-10) + (-6) + 13 =

3) -4 + 20 + -8 =

4) 1 + 10 + 6 – 3 – 2 =

5) -3 + -17 + 30 – 3 =

6) 2 + -1 + -4 + 7 + 13 + -5 =

7) 14 – 18 + 2 – 5 – 1 =

8) -22 + -14 + -1 + 41 =

Part B: Problem Solving

9) On a winter day, the temperate dropped from 13C to -11C. Find the change in temperate.

10) Jan Miller purchased 140 shares of stock in the B.E.T. Company at a price of $17.25 per share. During the next four days the value of the stock gained $1.13, lost $.65, lost $2.87 and gained $.55. What was the value of a share of B.E.T. Company stock at the end of the fourth day?

11) Last year in Baltimore over a five day period it snowed 7.5 inches. The following day no snow melted or fell. The day after, it was warm enough to melt 1.75 inches of the snow. The following day it remained warm enough to melt 2 more inches of the snow. The next day it fell below freezing, stopping the melting. It then snowed again dropping 4 inches of fresh snow. What is the total amount of snow left on the ground after the second snowfall?

LESSON SIX WORKSHEET ANSWER SHEET
ADDITION AND SUBTRACTION OF INTEGERS

Part A: Adding Strings of Integers

Simplify.

1) 6 + 8 + (-4) + (-1) = 9

2) 1 + (-10) + (-6) + 13 = -2

3) -4 + 20 + -8 = 8

4) 1 + 10 + 6 – 3 – 2 = 12

5) -3 + -17 + 30 – 3 = 7

6) 2 + -1 + -4 + 7 + 13 + -5 = 12

7) 14 – 18 + 2 – 5 – 1 = -8

8) -22 + -14 + -1 + 41 = 4

Part B: Problem Solving

9) On a winter day, the temperate dropped from 13°C to -11°C. Find the change in temperate. 24°C

10) Jan Miller purchased 140 shares of stock in the B.E.T. Company at a price of $17.25 per share. During the next four days the value of the stock gained $1.13, lost $.65, lost $2.87 and gained $.55. What was the value of a share of B.E.T. Company stock at the end of the fourth day?
    17.25 + 1.13 – 0.65 – 2.87 + 0.55 = $15.41

11) Last year in Baltimore over a five day period it snowed 7.5 inches. The following day no snow melted or fell. The day after, it was warm enough to melt 1.75 inches of the snow. The following day it remained warm enough to melt 2 more inches of the snow. The next day it fell below freezing, stopping the melting. It then snowed again dropping 4 inches of fresh snow. What is the total amount of snow left on the ground after the second snowfall?
    7.5 + 0 – 1.75 – 2 + 0 + 4 = 7.75 inches

INTEGERS UNIT - ASSESSMENT

Part A: Addition and Subtraction of Integers

Simplify.

1) 4 + 27 =

2) –2 + -2 =

3) 7 + -5 =

4) -8 + 8 =

5) –1 – 38 =

6) –7 + 25 =

7) 14 + -57 =

8) 22 – 38 =

9) -14 + 7 + -33 + 12 =

10) -18 – 24 – 5 + 16 =

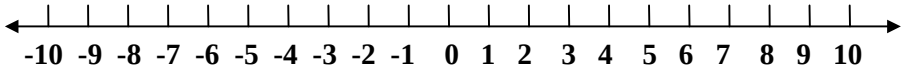
Part B: Number Line and Integer Tiles

11) *Demonstrate how you would use integer tiles to represent the following addition problem. Draw your own integer tiles.*

2 + -5

12) *Demonstrate how you would use a number line to represent the following subtraction problem.*

8 – 12



Part C: Absolute Value

Find the absolute value of the integer.

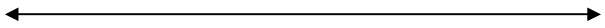
13) | 5 | = _____

14) | -14 | = _____

Part D: Number Lines

Label the number line and graph the number.

15) 7



16) -5

Part E: Problem Solving

17) Find the difference in ages of two people if one was born in 21 B.C. and the other was born in 11 A.D.?

18) Michael had started with $50.00 in his bank account. He withdrew $10.00 to pay for basketball registration. His uncle then gave him $15.00 for his birthday. Michael deposited his birthday money and $7.00 dollars he earned pet sitting for his neighbor's cats. He spent $75.00 at the store for sneakers, socks and shorts for basketball. Is Michael overdrawn and by how much or does he have money in his account and how much?

INTEGERS UNIT – ASSESSMENT ANSWER SHEET

Part A: Addition and Subtraction of Integers

Simplify.

1) 4 + 27 = 31

2) –2 + -2 = -4

3) 7 + -5 = 2

4) -8 + 8 = 0

5) –1 – 38 = -39

6) –7 + 25 = 18

7) 14 + -57 = -43

8) 22 – 38 = -16

9) -14 + 7 + -33 + 12 = -28

10) -18 – 24 – 5 + 16 = -31

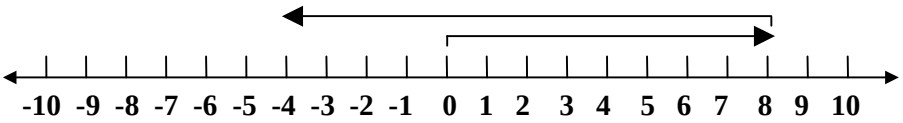
Part B: Number Line and Integer Tiles

11) *Demonstrate how you would use integer tiles to represent the following addition problem. Draw your own integer tiles.*

2 + -5

12) *Demonstrate how you would use a number line to represent the following subtraction problem.*

8 – 12



Part C: Absolute Value

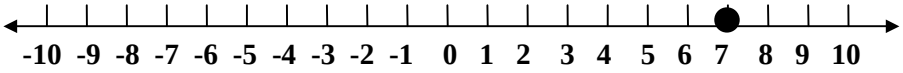
Find the absolute value of the integer

13) | 5 | = ___5____ 14) | -14 | = ___14____

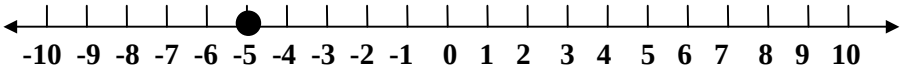
Part D: Number Lines

Label the number line and graph the number.

15) 7



16) -5



Part E: Problem Solving

17) Find the difference in ages of two people if one was born in 21 B.C. and the other was born in 11 A.D.?

32 years old

18) Michael had started with $50.00 in his bank account. He withdrew $10.00 to pay for basketball registration. His uncle then gave him $15.00 for his birthday. Michael deposited his birthday money and $7.00 dollars he earned pet sitting for his neighbor's cats. He spent $75.00 at the store for sneakers, socks and shorts for basketball. Is Michael overdrawn and by how much or does he have money in his account and how much?

He is overdrawn by $13 (-13)