

# learning focus:

- ✓ represent integer operations with concrete models
- ✓ connect integer operation models with algorithms
- ✓ understand and apply integer operations to real-world situations

# INTEGER OPERATIONS UNIT

9 DAY TEKS-ALIGNED UNIT



**INTEGER OPERATIONS UNIT**  
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**INTEGER OPERATIONS PACING GUIDE**

**ADDING INTEGERS WITH MODELS**

Integers can be represented with

**NEGATIVE**  $-$  **ZERO**  $0$  **POSITIVE**  $+$

3. Use 7 counters to show the number -1.

DAY 1 Adding Integers with Models

DAY 2 Subtracting Integers with Models

DAY 3 Adding Integers with the Algorithm

DAY 4 Subtracting Integers with the Algorithm

DAY 5 Adding and Subtracting Integers with Models

DAY 6 Multiplying and Dividing Integers with Models

DAY 7 Multiplying and Dividing Integers with the Algorithm

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**A MANEUVERING THE MIDDLE® RESOURCE**

# INTEGER OPERATIONS



a 9 day TEKS-aligned unit  
TEKS: 6.3C, 6.3D

ready-to-go, scaffolded  
student materials

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# INTEGER OPERATIONS



a 9 day TEKS-aligned unit  
TEKS: 6.3C, 6.3D

## student friendly + real-world application

problem solving strategies

Unit: Integer Operations  
Student Handout 3

Name \_\_\_\_\_  
Date \_\_\_\_\_ Pd \_\_\_\_\_

### ADDING INTEGERS WITH THE ALGORITHM

Integers can also be added and subtracted using an \_\_\_\_\_, or a set of rules.

**ADDING INTEGERS**

- If the two values have the same sign, then \_\_\_\_\_ and use the same sign.
- If the signs are \_\_\_\_\_, then \_\_\_\_\_.

Ex:  $6 + (-5) = 1$

Practice adding integers using the algorithm with the provided sum.

A	B
$-9 + 6 =$	$7 + (-3) =$
$4 + 7 =$	$1 + (-9) =$
$-7 + 12 =$	$2 + (-6) =$
$-9 + 9 =$	$12 + (-3) =$
SUM: 13	SUM: 1

As you apply integer operations to real-world situations, consider asking yourself the following questions to guide your thinking and determine reasonableness for your solutions.

What value are you \_\_\_\_\_ with?

What value do you also know and what does it \_\_\_\_\_?

Does your solution make sense in the context of the \_\_\_\_\_?

Practice adding integers in the situations below.

- A submarine is traveling 200 feet below the surface. What is the position of the submarine? Write and solve.

**I KNOW:**

---

**PLAN AND WORK:**

---

- A scuba diver dove 40 feet below the surface. What is the depth of the scuba diver now?

**I KNOW:**

---

**PLAN AND WORK:**

---

Use your understanding of adding integers to answer the question below.

- Three friends are playing a card game. The player with the largest sum goes first. Which player goes first?

DEENA  
6, -9, 7, -5

Summarize today's lesson:

Unit: Integer Operations  
Homework 3

Name \_\_\_\_\_  
Date \_\_\_\_\_ Pd \_\_\_\_\_

### ADDING INTEGERS WITH THE ALGORITHM

1. Sonja and Lee are playing a game to determine who has the greatest hashtag sum. To determine the winner, find the sum of each grid square, then the total sum of the hashtag. Circle the winning sum or write "tie" if the sums are equal.

8 + 9	-6 + 7	3 + 10	10 + (-5)	-6 + (-9)	-1 + 12
10 + (-6)	11 + (-3)	-7 + 5	-9 + 13	-2 + (-7)	11 + (-3)
-3 + (-9)	-1 + 8	-4 + (-4)	-5 + 25	-4 + (-4)	21 + (-9)

SONJA'S SUM: \_\_\_\_\_      LEE'S SUM: \_\_\_\_\_

2. Jonathan's checking account balance is -\$45. After receiving his allowance, he deposits \$7 into the account. What is the balance of the account after Jonathan's deposit?

**I KNOW:**

---

**PLAN AND WORK:**

---

**I NEED TO KNOW:**

---

**SOLUTION:**

---

Use your understanding of adding integers to answer the question below.

3. Marcella solved three different questions on a math quiz. One of the answers is incorrect. Determine which solution is incorrect and explain your reasoning.

QUESTION #1	QUESTION #2	QUESTION #3
$-11 + (-7) = -4$	$29 + (-18) = 11$	$-16 + 35 = 19$

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error analysis

# INTEGER OPERATIONS



a 9 day TEKS-aligned unit  
TEKS: 6.3C, 6.3D

streamline your planning  
process with unit overviews

### INTEGER OPERATIONS OVERVIEW



READINESS STANDARDS	SUPPORTING STANDARDS
<b>6.3D</b> Add, subtract, multiply, and divide integers fluently.	<b>6.3C</b> Represent integer operations with concrete models and connect the actions with the models to standardized algorithms.

✓ key vocabulary

✓ vertical alignment



sample  
pacing  
calendar

### INTEGER OPERATIONS PACING GUIDE



DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Adding Integers with Models  Student Handout 1 Homework 1	Subtracting Integers with Models  Student Handout 2 Homework 2	Adding Integers with the Algorithm	Subtracting Integers with the Algorithm	Adding and Subtracting Integers
DAY 6	DAY 7			
Multiplying and Dividing Integers with Models  Student Handout 5 Homework 5	Multiplying and Dividing Integers  Student Handout 6 Homework 6			

#### BIG IDEAS

- Integers can be used to p
- Integers represent real-lif

#### ESSENTIAL QUESTIONS

- What is the relationship b
- What does a "zero pair" re
- How do I know which ma
- What pattern do you notic

### INTEGER OPERATIONS OVERVIEW



TOPIC	TEACHING TIPS
Adding Integers	<ul style="list-style-type: none"><li>Modeling addition of integers can be a hands-on experience. If your school does not have counters, then consider using white and black beans or colored pieces of cardstock. A clear bag with 15 positive and 15 negative counters per student should be sufficient!</li><li>Students seem to be able to conceptually understand money in a bank account and can then make a better connection to integers.</li><li>For additional practice, consider incorporating the Desmos activity, "Adding Integers."</li></ul>
Subtracting Integers	<ul style="list-style-type: none"><li>To help with conceptual understanding, consider incorporating the GeoGebra activity "Hot Air Balloon" as an introduction.</li><li>Consider using a vertical number line if students struggle. Sometimes, that changes the perception of what is happening, especially with real-life examples.</li><li>A large number line where students "walk out" the problem can also provide fun reinforcement and practice.</li></ul>
Multiplying and Dividing Integers	<ul style="list-style-type: none"><li>Students tend to pick up multiplication and division of integers much quicker than addition and subtraction. Consider extending learning to include patterns for more than two terms in the expression. Ask students to determine the pattern and allow them to come up with the rule that when multiplying or dividing by an even number the result is positive, and when multiplying or dividing by an odd number, the result is negative.</li></ul>

teaching  
ideas



# INTEGER OPERATIONS



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## unit study guide + assessments

✓ quizzes

✓ editable unit test

Unit: Integer Operations  
Quiz 1

Name \_\_\_\_\_  
Date \_\_\_\_\_ Pd \_\_\_\_\_

### QUIZ: ADDING AND SUBTRACTING INTEGERS

Use the table below to answer questions 1-2.

CHILD	BANK BALANCE
Sam	-\$15

1. How much more money does Elsa have than Jesse?

2. How much do Sam and Ellis have com

Answers

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

Answer the questions below. Be sure to

3. In a card game, the winner must have  
What is the sum of the four cards below?

7   -4

4. \_\_\_\_\_ A scuba diver dove to 20 feet below sea level. He then dove an additional 32 feet. What is his depth?

5. \_\_\_\_\_ Alejandro has \$18 dollars in his wallet. He spent \$26. What is the balance of Alejandro's wallet?

6. \_\_\_\_\_ A quarterback dropped back and passed the ball 26 yards. How far past the line of scrimmage did he pass?

7. \_\_\_\_\_ Alexis owed her brother \$30. She earned \$35. How much money did she have left?

8. \_\_\_\_\_ At the beginning of the day, the temperature was 15°F. What is the difference in temperature if it drops to 32°F?

Unit: Integer Operations  
Review

Name \_\_\_\_\_  
Date \_\_\_\_\_ Pd \_\_\_\_\_

### INTEGER OPERATIONS UNIT STUDY GUIDE

Solve each of the problems below. These represent the types of questions on your test. Be sure to ask questions if you need more help with a topic.

**I CAN MODEL ADDITION, SUBTRACTION, MULTIPLICATION, & DIVISION OF INTEGERS. 6.3C**

1. Write an equation for the model below.

3. Write an equation for the model below.

5. Sketch a model to represent  $-6 + 4$ .

7. Sketch a model to represent  $5 - 2$ .

9. Bri sketched the model below. Write the expression that Bri modeled.

a.  $2 - (-5)$   
b.  $-5 - 2$   
c.  $2 + (-5)$   
d.  $2 \cdot (-5)$

SIXTH GRADE CURRICULUM

# INTEGER OPERATIONS

UNIT THREE: ANSWER KEYS

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answer keys included