EDUCATE STATION

FOURTH GRADE MATH

ADD AND SUBTRACT MULTI-DIGIT NUMBERS

Students begin fourth-grade math with a toolbox full of addition and subtraction strategies. Then, they polish their skills by practicing the standard algorithm to achieve greater efficiency when solving. In this learning plan, students will solve a variety of addition and subtraction problems using the standard algorithm.

STANDARDS

CCSS.MATH.CONTENT.4.NBT.B.4
Fluently add and subtract multi-digit whole numbers using the standard algorithm.

OBJECTIVES

✓ Students will be able to add and subtract multi-digit whole numbers using the standard algorithm.

GUIDING QUESTIONS

What strategies have you learned in the past that help you add and subtract multi-digit numbers?

What does it look like to regroup numbers when using the standard algorithm?

How are addition and subtraction related?

MATERIALS

- ☐ Race Day worksheet
- ☐ Three in a Row worksheet
- ☐ Garden Game worksheet
- ☐ Greatest and Least Sum worksheet
- ☐ Ice Cream Time worksheet
- ☐ Scrap paper or whiteboards and markers
- ☐ Die
- ☐ Game markers
- ☐ Paper clip
- ☐ Scissors
- ☐ Glue (optional)
- ☐ Construction paper (optional)

LEARNING PLAN TITLE

ASSESSMENTS

Formative assessments and checks for understanding occur throughout the lesson:

- Observe students' ability to solve addition and subtraction problems using the standard algorithm.
- Watch for accuracy as students practice regrouping or borrowing numbers while solving multi-digit number operations.
- Check students' work during guided and independent practice.

Summative Assessment:
Ice Cream Time

DIFFERENTIATION STRATEGIES

- Some of these worksheets require students to think deeply about addition and subtraction. If they are beginning to learn the standard algorithm, consider practicing warm-up problems before diving into the activities. Write a few problems on the board (starting with those that do not require regrouping or borrowing) and work through the algorithm together.
- If needed, model addition and subtraction problems by drawing base-ten blocks next to the standard algorithm. Help students connect a concrete strategy to a more abstract method.

EXTENSION ACTIVITIES

- In Activity 3, decide whether the students will add or subtract the numbers on the spinner. Then, extend this activity by playing a second time with the other operation. (For example, use addition in Round 1 and subtraction in Round 2).
- In Activity 5, challenge students to rearrange their ice cream scoops multiple times. For one round, have them subtract one scoop from another scoop. In a second round, have the students try adding three multi-digit numbers together on a three-scoop cone.

ACTIVITY OVERVIEW

Activity 1

Race Day

Students will solve addition problems and arrange numbers from greatest to least.

Activity 2

Guided Practice

Students will add and subtract multi-digit numbers, seeking to find three answers in a row.

Activity 3

Independent Practice

Students will add or subtract numbers as they play a board game.

Activity 4

Greatest and Least Sum

Students will create and add numbers to make the greatest and least sum.

Activity 5

Ice Cream Time

Students will add or subtract scoops of ice cream on top of ice cream cones.

ACTIVITY 1: RACE DAY

- Write a warm-up problem on the board where students add three-digit numbers such as 347 + 128. Observe what strategies students use and how they account for re-grouping in the ones column.
- Emphasize the importance of practicing the standard algorithm for solving addition problems because it is more efficient than other place value strategies.
- Consider teaching students this poem to help them make remember how to regroup numbers.

Adds up to 9,
everything is fine.

$$\begin{array}{r} 23 \\ +45 \\ \hline 68 \end{array}$$

10 or more...
Take 10 next door;
leave the extra
on the floor.

$$\begin{array}{r} {\scriptstyle +1} \\ 28 \\ +45 \\ \hline 63 \end{array}$$

- Give each student a copy of the Race Day worksheet.
- Read the directions. "Solve each problem. Then, arrange the numbers in order from greatest to least to show which animal came in first, second, third, fourth, and fifth place."
- Students will cut apart the animal cards and glue them in place. Check their answers when finished.

ACTIVITY 2: GUIDED PRACTICE

- Write the following problems on the board: 2,351 + 4,087 and 5,163 - 3,907. Review with students how to add and subtract using the standard algorithm. Point out how to carry a ten to the next column in addition and how to borrow from a neighboring number in subtraction.
- Give each student a copy of the Three in a Row worksheet.
- Instruct students to choose one problem to solve at a time. After solving, they can cross off the answer in the grid at the bottom of the page. Students are trying to see how many problems it takes before they find three answers in a row.
- Looking for the answer can help students check their work. If the answer doesn't exist, they have likely made a mistake somewhere in the algorithm.
- You may choose to have students complete all of the problems even after they have found three answers in a row. Challenge them to "black out" their entire board!

ACTIVITY 3: INDEPENDENT PRACTICE

- Pass out the Garden Game worksheet to pairs of students. Each player will also need a marking piece and a die.
- Read the directions. "Play this game with a partner. Roll a die and move your marker that number of spaces. Then, spin the spinner using a pencil and a paper clip. Add or subtract the number you spin with the number on which you land. If you solve correctly, you can stay on the space. If not, return to your previous space. Your goal is to be the first player to help the gardener water the sunflowers."
- Encourage students to solve their problems on scrap paper or on a whiteboard.
- Additionally, the player who is waiting to take a turn can also solve the problem to check their opponent's work.

ACTIVITY 4: GREATEST AND LEAST SUM

- Model a problem similar to what students will see on their worksheet by writing the following digits on the board: 2, 3, 4, and 5.
- Ask the class, "How can we arrange these digits into two, two-digit numbers to create the greatest sum?" Solve students' suggestions together.
- Then, provide each student with a copy of the Greatest and Least Sum worksheet.
- Invite students to rearrange the cards on the worksheet to make the least and greatest possible sums. They can cross off the cards so they make sure to use each one only once per equation.
- If students are struggling to solve these problems, ask them to cut apart the cards and use them like number tiles on the table. They can also practice problems on scrap paper.
- Furthermore, students can share the numbers they created with the group. This will help them determine collectively which sums are less and can be eliminated. By comparing answers, they will be able to find the arrangement that creates the greatest sum.

ACTIVITY 5: ICE CREAM TIME

- Assess students' understanding of this lesson using the Ice Cream Time worksheet.
- Instruct students to cut apart the ice cream scoops and cones. Then, they can rearrange the scoops in any way to create two-scoop orders. Finally, they can add the numbers and write the sums on the cones. (Alternatively, students can subtract the scoops to practice this skill instead).
- Students may glue their pieces on to a piece of construction paper when finished. Encourage them to use scrap paper or a whiteboard to show their work for each problem.

NAME _____ DATE _____

RACE DAY

Solve each problem. Then, arrange the numbers in order from greatest to least to show which animal came in first, second, third, fourth, and fifth place.

1st	2nd	3rd	4th	5th

$$\begin{array}{r} 25,176 \\ +\ 17,098 \\ \hline \end{array}$$

$$\begin{array}{r} 72,443 \\ +\ 10,536 \\ \hline \end{array}$$

$$\begin{array}{r} 45,167 \\ +\ 29,133 \\ \hline \end{array}$$

$$\begin{array}{r} 24,357 \\ +\ 32,076 \\ \hline \end{array}$$

$$\begin{array}{r} 68,156 \\ +\ 20,164 \\ \hline \end{array}$$

ANSWER KEY

NAME _____ DATE _____

RACE DAY

Solve each problem. Then, arrange the numbers in order from greatest to least to show which animal came in first, second, third, fourth, and fifth place.

1st	2nd	3rd	4th	5th
88,320	82,979	74,300	56,433	42,274
				

25,176
+ 17,098
42,274

72,443
+ 10,536
82,979

45,167
+ 29,133
74,300

24,357
+ 32,076
56,433

68,156
+ 20,164
88,320

NAME _____ DATE _____

THREE IN A ROW

Choose one problem to solve. Then, cross off the answer in the grid below. How many problems does it take before you find three answers in a row?

14,357 + 35,176	8,147 + 5,205	7,219 + 3,427
9,154 - 6,538	75,917 - 31,763	45,256 - 14,978
25,946 + 34,265	5,425 + 1,876	8,350 - 3,724

44,154	10,646	7,301
13,352	30,278	4,626
2,616	60,211	49,533

ANSWER KEY

NAME _____ DATE _____

THREE IN A ROW

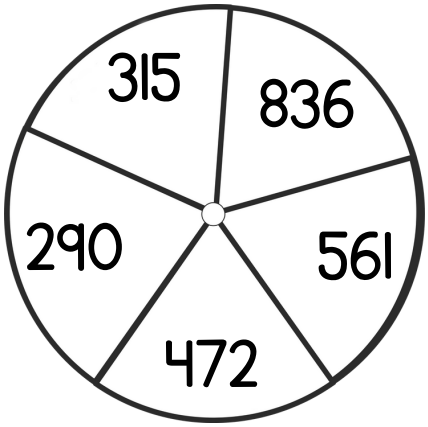
Choose one problem to solve. Then, cross off the answer in the grid below. How many problems does it take before you find three answers in a row?

14,357 + 35,176 = 49,533	8,147 + 5,205 = 13,352	7,219 + 3,427 = 10,646
9,154 - 6,538 = 2,616	75,917 - 31,763 = 44,154	45,256 - 14,978 = 30,278
25,946 + 34,265 = 60,211	5,425 + 1,876 = 7,301	8,350 - 3,724 = 4,626

44,154	10,646	7,301
13,352	30,278	4,626
2,616	60,211	49,533

GARDEN GAME

Play this game with a partner. Roll a die and move your marker that number of spaces. Then, spin the spinner using a pencil and a paper clip. Add or subtract the number you spin with the number on the space you land. If you solve correctly, you can stay on the space. If not, return to your previous space. Your goal is to be the first player to help the gardener water the sunflowers.



Start Here | 3,127 | 5,168 | 4,732 | 6,091 | 8,531

Move Ahead One Space

4,678 | Lose a Turn | 2,945 | 1,458 | 5,127 | 8,497

Spin Again!

3,581 | 9,315 | 4,167 | 6,798 | 5,456

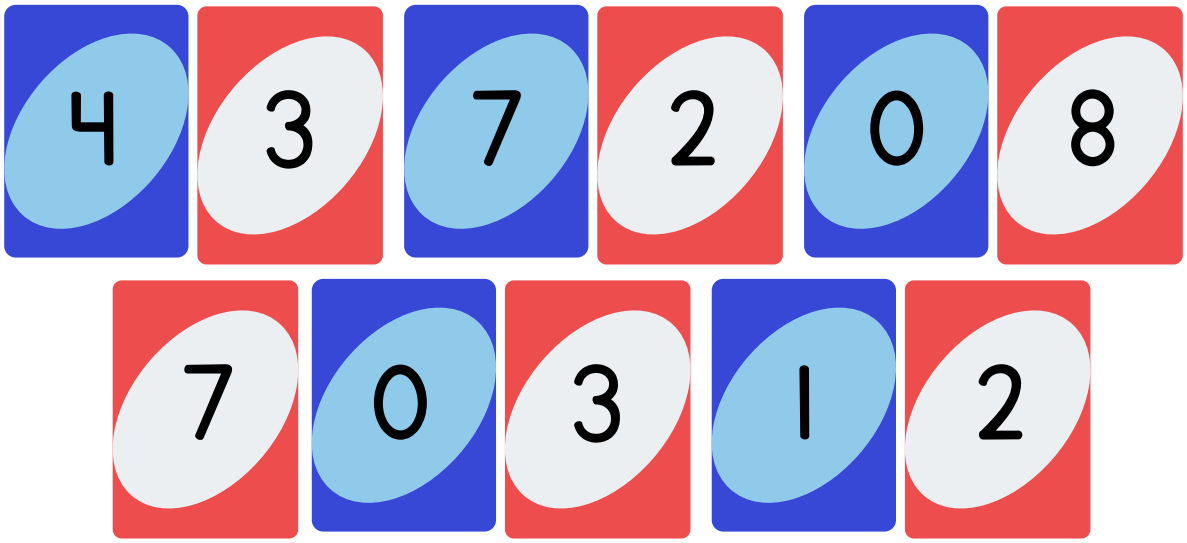
Finish

Solve these problems on scrap paper or a whiteboard!

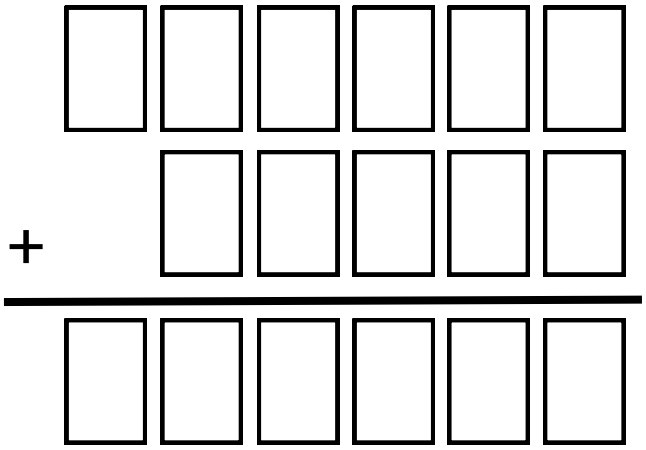
NAME _____ DATE _____

GREATEST AND LEAST SUM

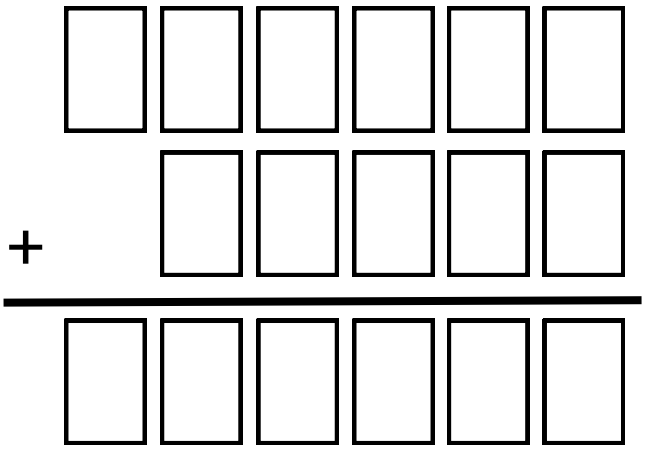
Rearrange the cards below to make the least and greatest possible sums.
Cross off the cards, and make sure to use each one only once per equation.



Greatest Possible Sum:



Least Possible Sum:

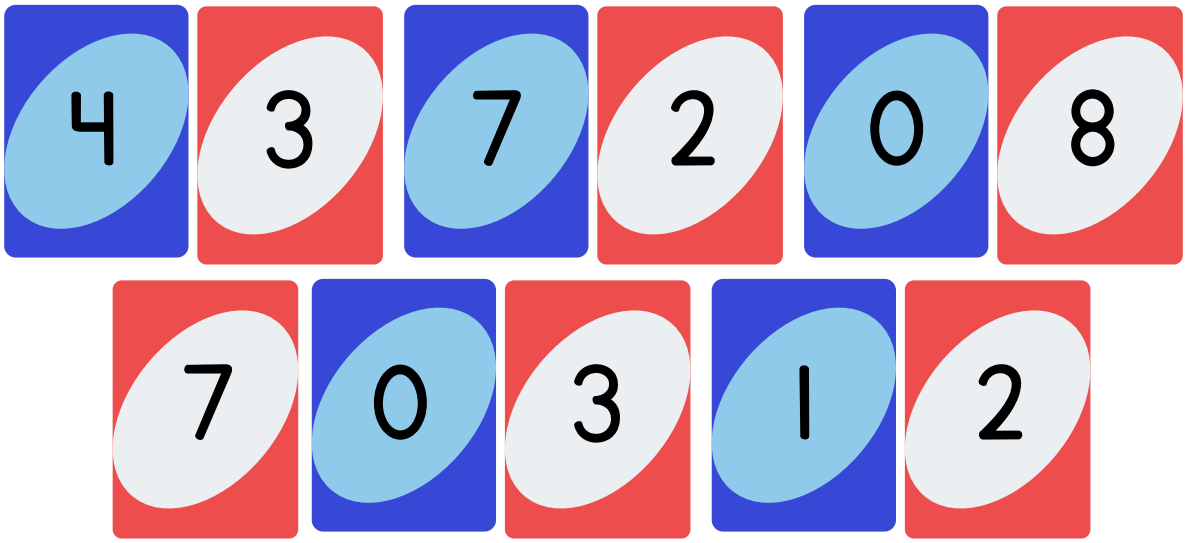


ANSWER KEY

NAME _____ DATE _____

GREATEST AND LEAST SUM

Rearrange the cards below to make the least and greatest possible sums.
Cross off the cards, and make sure to use each one only once per equation.



Greatest Possible Sum:

	8	7	4	3	2	0
+	7	3	2	1	0	
	9	4	7	5	3	0

Digits in the same column can be switched and produce the same sum.

Least Possible Sum:

	0	1	2	3	7	8
+	0	2	3	4	7	
	0	1	4	7	2	5

NAME _____ DATE _____

ICE CREAM TIME

Cut apart the ice cream scoops and cones. Rearrange them in any way to create two-scoop orders. Then, add the numbers and write the sums on the cones.