

General Information

Lesson Parts & Duration

Total Duration: 2 to 2 ½ hours

- Segment 1: Addition and Subtraction Within 1000 Using Partial Sums and Decomposing (60 Minutes)
- Segment 2: Addition and Subtraction Within 1000 Using Open Number Lines and Counting Up (60 Minutes)
- Segment 3: Game: “Number Line Hop Face Off” (30-45 Minutes)

Subject(s)

- Adding and Subtracting Within 1000; Expanded Form, Value of Digits, Partial Sums, Decomposing, Counting Up and Open Number Lines (3.NBT.2).

Objective

- Students will use expanded form to decompose a number and identify the value of the digits.
- Students will add within 1000 by using partial sums.
- Students will subtract within 1000 by using decomposing.
- Students will add within 1000 using open number lines.
- Students will subtract within 1000 using open number lines.

Materials

- blank paper (6 pieces per student)
- pencils & crayons/colored pencils
- class dry erase board (large enough for 2 people to work at a time) -or- personal dry erase boards (1 per team)
- dry erase markers
- addition or subtraction problems within 1000 (use any sheet of problems)
- document camera or whiteboard
- **Optional Printable Student Resources:** “Exit Slips” (page 20) (1 copy per student), “Partial Sums and Decomposing Practice” (page 21) (1 copy per student), “Adding and Subtracting Within 1000: Partial Sums and Decomposing” (page 22) (1 copy per student), “Adding and Subtracting: Open Number Lines Practice” (page 23) (1 copy per student), “Adding and Subtracting Within 1000: Open Number Lines” (page 24) (1 copy per student), “Adding and Subtracting: Open Number Lines” notes (page 25) (1 copy to project for class to see), “Number Line Hops Face Off” game directions (page 26) (1 copy to display for the class -or- 1 copy per student)
- **Optional Printable Teacher Resources:** “Break Up Your Day” brain/movement break ideas (page 27)

Throughout these lessons, you will find:

- ☀ **Scripted Text** indicates things that need to be said directly. Bullets starting with a “T” followed by *italicized* type indicate scripted text
- ☀ **Clarifiers** within scripted text are in orange
- ☀ **Teacher Directions** indicate things you should be doing
- ☀ **Side notes** provide helpful hints, ELL strategies, differentiation and information
- ☀ **Break Up Your Day** (Brain/Movement Breaks) are in green boxes (at the end)

Remember!

Quality over quantity. All components do not have to be accomplished; lessons may be ended at any time and resumed later.

Instructional Plan: Segment 1: 60 minutes

Subject

- Addition and Subtraction Within 1000 Using Partial Sums and Decomposing

Objective

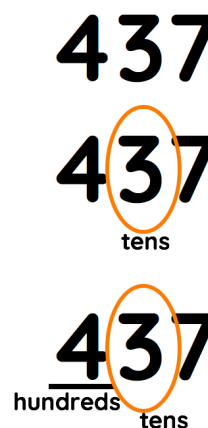
- Students will use expanded form to decompose a number and identify the value of the digits.
- Students will add within 1000 by using partial sums.
- Students will subtract within 1000 by using decomposing.

Materials

- blank paper
- pencil & crayons/colored pencils
- document camera or whiteboard
- Optional Printable Student Resources:** “Exit Slips” (page 20) (1 copy per student), “Partial Sums and Decomposing Practice” (page 21) (1 copy per student), “Adding and Subtracting Within 1000: Partial Sums and Decomposing” (page 22) (1 copy per student)

Introduction

- T* All good athletes warm up before they start to play a sport.
- T* Right now you are not an athlete, you are a mathlete and you need to warm up your brain!
- T* Let's start by adding and subtracting some numbers by 1s or 100s.
- T* When we are adding or subtracting by 10's the only digit we will change in our number is the digit in the tens place. **Write 437 on the board.**
- T* Who can come up and circle the digit in the tens place for us? **Call on a student to come up.**
- T* Great job, in the number 437, the 3 is the digit in the tens place.
- T* Now who would like to come up and underline the digit in the hundreds place for us? **Call on a student to come up.**
- T* Excellent, the 4 is the digit in the hundreds place.
- T* Now that we know which place is which I think we are ready to start our warm up!
- T* If I said + 10, you would increase the digit in the tens place by 1, because you are adding 1 more ten to it.
- T* So instead of my number being 437, it would now be 447.
- T* But what if I said minus 10.
- T* Then we would have needed to decrease our digit in the tens place by 1 ten.
- T* That would make my number 427.
- T* You will do the same thing if I say plus 100 or minus a hundred, however you will be moving the digit in the hundreds place up or down by 1-hundred.
- T* Ok, let's try a few.
- T* I will give the command to either add or subtract 10 or 100.
- T* Your job is to shout out what the new number would be.
- T* So, our starting number is 437. **Point to the number you have written on the board.**
- T* Plus 10. **Students yell 447.**
- T* Good 447. Minus 10. **Students yell 437.**
- T* Correct 437. Minus 10. **Students yell 427.**
- T* Minus 10. **Students yell 417.**
- T* Great, 417. Plus 10. **Students yell 427.**



- T** Now let's try some mental math changing the digit in the hundreds place.
- T** What was the digit in the hundreds place everyone? **Answer: 4**
- T** That means when I say plus 100 you will be increase the number by 1-hundred, so 1-hundred more than 400 would be 500.
- T** What would be 100 less than 400 everyone? **Answer: 300.**
- T** Ok, sounds like you're ready!
- T** Our starting number is 437. **Point to the number you have written on the board.**
- T** Plus 100. **Students yell 537.**
- T** Good, 537. Plus 100. **Students yell 637.**
- T** Excellent, 637. Plus 100. **Students yell 737.**
- T** Correct 737. Minus 100. **Students yell 637.**
- T** Minus 100 **Students yell 537.**
- T** Minus 100. **Students yell 437.**
- T** Great work, we are back at 437.
- T** I think are brains are nice and warmed up and ready for some more math.

Whole Group Setting up the Paper

Pass out a piece of paper to each student for notes.

Name: _____

Adding and Subtracting Within 1000

I can add within 1000 by using partial sums.
I can subtract within 1000 by using decomposing.

Decompose: To separate numbers into parts.

Expanded Form: To decompose or break apart a number by each digit's value.

	Hundreds place	+	Tens place	+	Ones Place
695		+		+	
237		+		+	

- T** Please write your name and date in the top right-hand corner.
- T** Then we will title our notes "Adding and Subtracting Within 1000."
- T** Below your title you will write, your learning target which is "I can add within 1000 by using partial sums." and "I can subtract within 1000 by using decomposing." **See example and model for students to copy.**
- T** We will include important words and examples in our notes.
- T** Notes are great because you can look back at them later as you try to solve problems, so that you can remember the steps in the process of what you are doing.
- T** Today I am going to show you how understanding the value of a digit will help us to write a number in expanded form and then use either the partial sums strategy for addition or the decomposing strategy for subtraction to more easily solve addition and subtraction equations.
- T** Let's start by defining two key words/phrases, that you might not already know.
- T** In your notes please write the word "Decompose."
- T** To decompose simply means to separate numbers into parts. **See example and model for students to copy.**
- T** That brings us to our next words, "Expanded Form," simply put, expanded form means to decompose or break apart a number by each digit's value.
- T** We will use a place value chart to help us to identify the value of two numbers.
- T** I will start by drawing myself a chart with 3 rows and 6 columns. **See example and model for students to copy.**
- T** Starting on the right side I will write my places.
- T** The first place on the right is the ones place, then I will move one box to the left and put a plus sign. **See example and model for students to copy.**
- T** The next place on my chart is the tens places, then I will move one box to the left and put another plus sign. **See example and model for students to copy.**
- T** Finally, I will put the last place on my chart which is the hundreds place.

- T** I will leave the box to the left blank. See example and model for students to copy.
- T** In the first box on the second row I will write the number 695 and in the first box in the third row I will write 237.
- T** These will be the two numbers I want to add.
- T** Before adding these numbers let's break them apart to show the value of each digit.
- T** Starting with 695, the digit 6 in the hundreds place has a value of 600, the digit 9 in the tens place has a value of 90, and the digit 5 in the ones place has a value of 5. See example and model for students to copy.
- T** We put plus symbols between each of these values because with expanded form, all of these values added together gets us the whole number, 695.
- T** Now let's examine the second number, 237.
- T** The value of the digit 2 in the hundreds place is 200, the value of the digit 3 in the tens place is 30 and the value of the digit 7 in the ones place is 7. See example and model for students to copy.
- T** Adding the plus symbols in we can now see the expanded form of the number 237.
- T** When I add two numbers using partial sums, I first break the whole numbers into their expanded form or parts.
- T** Next, I will add each of these parts together.
- T** You will add the hundreds with the hundreds, the tens with the tens, and finally the ones with the ones.
- T** The last step is to combine all of these sums by adding the sum of our hundreds, the sum of our tens, and the sum of our ones.
- T** Let's try that with these two numbers.
- T** There are two ways that you can show your work for this.
- T** The first way we will write in our notes, is to write out our equation horizontally.
- T** I will write "600 + 90 + 5" then leaves some space and put a plus sign.
- T** Then I will leave a little space and write "200 + 30 + 7."
- T** Notice I am writing these all in one straight horizontal line. See example and model for students to copy.
- T** Next, I will draw lines to connect my parts and then record the sum of these two parts below.
- T** We will connect 600 and 200. 600 plus 200 equals 800, so I will record 800 below where the two lines meet.
- T** Next, we will find the sum of our two tens, 90 and 30. 90 plus 30 equals 120.
- T** I will record "120" below where these two lines meet.
- T** Last, we will find the sum of our ones, 5 plus 7 equals 12.
- T** We will record this below where the two lines meet.
- T** The final step is to combine or add up all of our sums.
- T** Our equation is "800 + 120 + 12 = 932." See example and model for students to copy.

Name: _____

Adding and Subtracting Within 1000

I can add within 1000 by using partial sums.
I can subtract within 1000 by using decomposing.

Decompose: To separate numbers into parts.
Expanded Form: To decompose or break apart a number by each digit's value.

	Hundreds place	+	Tens place	+	Ones Place
695	600	+	90	+	5
237	200	+	30	+	7

695 + 237 =

Partial Sums

600 + 90 + 5 + 200 + 30 + 7

800 120 12

Hundreds: 600 + 200 = 800
Tens: 90 + 30 = 120
Ones: 5 + 7 = 12
Combine all sums: 800 + 120 + 12 = 932

- T** The second way of showing our work takes the same steps, but I will record each step as an actual equation vertically.
- T** Let me show you what I mean.
- T** I will list either the words or just the first letter for hundreds, tens, and ones each followed by a colon.
- T** Then next to the word hundreds or the letter H, I will write my equation for adding my hundreds.
- T** I will write out “ $600 + 200 = 800$.”
- T** Then on the next line next to the word tens or the letter T, I will write my equation to find the sum of my tens; I will write “ $90 + 30 = 120$.”
- T** And finally, I will write my equation to find the sum of my ones, “ $5 + 7 = 12$.”
- T** Now our last and final step is to combine all of our sums.
- T** Our equation is “ $800 + 120 + 12 = 932$.”

Hundreds: $600 + 200 = 800$

Tens: $90 + 30 = 120$

Ones: $5 + 7 = 12$

Combine all sums: $800 + 120 + 12 = 932$

Subtraction: Decomposing

- T** Now we will flip our paper over so that we can write an example of how to subtract.
- T** When we add the method is called partial sums, because a sum is the answer to an addition problem.
- T** For subtraction, we will use a similar method that we call decomposing.
- T** Can anyone think of why I can't follow the same steps as addition, what problem might I run into when subtracting two numbers? **Give students time to think. Call on a few students to share their ideas. Answer: needing to regroup if the top or left number is less in value than the bottom or right number.**
- T** Sometimes in subtraction problems we need to do what is called regroup.
- T** To do this we visit the place to the left and we borrow some.
- T** For example, what if I had 5 cookies, can I give away 7 cookies?
- T** No that's impossible I can't give away 2 cookies that I don't have.
- T** So, I would first need to go get more cookies.
- T** I would go to the tens place and knock on their door and ask if I can borrow ten cookies.
- T** If the tens have 10 to give, they will give me 10 of their cookies.
- T** The tens now have 10 less, and I have 10 more.
- T** Now I have my 5 cookies, plus the 10 cookies I just borrowed.
- T** That means now I have 15 cookies. Can I give away 7 when I have 15? **Pause and wait for students to say yes.**
- T** Absolutely, so I would take 7 away from my 15, and I would have 8 cookies left over.
- T** Now that we have discussed the reason why we need to follow different steps to solve a subtraction equation, let's take some notes and write an example that we can refer back to later.
- T** At the top of our paper we are going to make another place value chart like we did with addition.
- T** Remember, some of these steps are either the same or similar.
- T** Starting on the right side I will write my places.
- T** The first place on the right is the ones place, then I will move one box to the left and put a plus sign. **See example and model for students to copy.**
- T** The next place on my chart is the tens places, then I will move one box to the left and put another plus sign. **See example and model for students to copy.**
- T** Finally, I will put the last place on my chart which is the hundreds place. I will leave the box to the left blank. **See example and model for students to copy.**

	Hundreds place	+	Tens place	+	Ones Place
472		+		+	
284		+		+	

T In the first box on the second row I will write the number 472 and in the first box in the third row I will write 284.

T These will be the two numbers in our subtraction equation.

T Before subtracting these numbers let's break them apart to show the value of each digit.

T Starting with 472, the digit 4 in the hundreds place has a value of 400, the digit 7 in the tens place has a value of 70, and the digit 2 in the ones place has a value of 2. **See example and model for students to copy.**

T We put plus symbols between each of these values because with expanded form, all of these values added together gets us the whole number, 472.

T Now let's examine the second number, 284.

T The value of the digit 2 in the hundreds place is 200, the value of the digit 8 in the tens place is 80 and the value of the digit 4 in the ones place is 4. **See example and model for students to copy.**

	Hundreds place	+	Tens place	+	Ones Place
472	400	+	70	+	2
284	200	+	80	+	4

Decomposing Method

472 - 284 =

If the number on the bottom is bigger, you need to regroup!

400	70	2
200	80	4

400	70-60	10 + 2 = 12
200	80	4
		12 - 4 = 8

T Adding the plus symbols in we can now see the expanded form of the number 284. Below our chart let's write: "Decomposing Method."

T Then I want to write my equation horizontally, "472 - 284 =."

T And last, before I start, I want to give myself a reminder.

T You probably already know this, but I want to make sure we don't forget.

T Let's write: "If the number on the bottom is bigger, you need to regroup."

T This is referring to a situation like my cookie scenario.

T You can't take away 7 cookies if there are only 5!

T For subtraction, I always like to list my equation vertically, however rather than writing the traditional 472 - 284 and then a line, I will write out my equation using expanded form.

T I will leave some space between each part in case I need to regroup.

T This leaves me room to show my work.

T Let me show you what I mean. **See example of first equation written out in expanded form and model for students to copy.**

T Our very first step is to compare the value of the numbers in the ones place.

T The top value is a 2 and the bottom value is a 4.

T In subtraction, we always take away the bottom number from the top.

T If I have 2 cookies, can someone take 4 from me? No way!

T So, I need to go next door to the tens and ask to borrow 10.

T The tens has 70, so they have 10 to share!

T I will cross out the 70 and make it 60 since 10 less than 70 is 60.

T Then I will draw an arrow from the tens to the ones with a +10 underneath.

T This will show me the step I took.

T The last thing I need to do is to add the 10 I borrowed to my 2.

T So, 10 + 2 = 12.

T Can I take 4 away from 12?

T Absolutely, 12 minus 4 equals 8.

T I will record this below the line.

T Now I am ready to move over and subtract the values in my tens place.

T Just like with the ones the first thing I need to do is to check the values.

T I need to make sure the top value is larger than the bottom value.

T Let's see.

T The top value was 70, but I borrowed and regrouped 10.

T Now the top value is 60.

T The bottom value is 80.

T Can I take away 80 if I only have 60? No way!

T Now, just like we did when subtracting our ones, we will go next door.

T But the next-door neighbor of the tens is the hundreds.

T When you borrow from the 100s you are regrouping 100 more, not 10.

T When we look at the hundreds place the value of the top number is 400, they have enough for me to borrow some.

T Remember the hundreds give away 100 at a time, not 10.

T I will cross out the 400, then I will subtract 100, leaving the hundreds with 300.

T Then I will draw an arrow to show that I am regrouping 100 to the tens place.

T Now we must add the 100 we just borrowed to the 60 we already had, $100 + 60 = 160$.

T If there is 160 can we take 80 away? Yes, we sure can!

T Below the line let's write this equation: " $160 - 80 = 80$."

T Ok we are finally ready to subtract the hundreds.

T The value of the top number was 400, but we regrouped 100 to the tens place, so the value is 300 now and the value of the bottom number is 200.

T Can you take away 200 from 300? Absolutely!

T Let's write this equation below the line. " $300 - 200 = 100$."

T Do you think we are done now? **Pause for students to think and respond.**

T Nope, we still don't have an answer to $472 - 284$.

T We have only found an answer to each of our parts separately.

T The last step, just like with partial sums is to combine all of our difference.

T So, we will add: " $100 + 80 + 8 = 188$."

T Now we are done. $472 - 284 = 188$.

T Although these two strategies of partial sums and decomposing have several steps, breaking apart our numbers into parts helps us to more easily add and subtract.

T Using your notes, let's practice using these two methods together.


	Hundreds place	+	Tens place	+	Ones Place
472	400	+	70	+	2
284	200	+	80	+	4

Decomposing Method


$472 - 284 =$

If the number on the bottom is bigger, you need to regroup!

400	70	2
200	80	4



400	70-60	10 + 2 = 12
200	80	4
		12 - 4 = 8



400-300	70-100 + 60 = 160	10 + 2 = 12
200	80	4
300 - 200 = 100	160 - 80 = 80	12 - 4 = 8

Combine all differences: $100 + 80 + 8 = 188$

Depending on time, solve at least a few (#2 and #4 on both the top and the bottom portion of the practice page) problems as a whole class and then let students finish either independently or with a partner.

Walk through each problem in the same way that you did for the notes, but call on students to tell you what to write for each step, rather than telling them.

If/when they finish this first practice sheet they can continue to practice using “Adding and Subtracting Within 1000: Partial Sums.”

Partner Practice

If time allows bring the class back together to review their answers. You can have one student come up and be the teacher and walk the class through how they solved the problem. Or you can simply share with them the answers using the document camera.

Name: **ANSWER KEY**

Adding and Subtracting Within 1000: Partial Sums and Decomposing

Directions: Show your work using partial sums or decomposing.

<p>1. $733 + 266 =$</p> <p>H: $700 + 200 = 900$ T: $30 + 60 = 90$ O: $3 + 6 = 9$ Combine: $900 + 90 + 9 = 999$</p>	<p>2. $112 + 131 + 363 =$</p> <p>H: $100 + 100 + 300 = 500$ T: $10 + 20 + 60 = 90$ O: $2 + 1 + 3 = 6$ Combine: $500 + 90 + 6 = 596$</p>
<p>3. $745 - 437 =$</p> <p>$700 \quad 40 \quad 30 \quad 5 + 10 = 15$ $-400 \quad 30 \quad 7$ $15 - 7 = 8$ $30 - 30 = 0$ $700 - 400 = 300$ Combine: $300 + 0 + 8 = 308$</p>	<p>4. $631 - 327 =$</p> <p>$600 \quad 30 \quad 20 \quad 1 + 10 = 11$ $-300 \quad 20 \quad 7$ $11 - 7 = 4$ $20 - 20 = 0$ $600 - 300 = 300$ Combine: $300 + 0 + 4 = 304$</p>
<p>1. Jimmy was selling candy to raise money for his soccer team. He sold 559 chocolate bars, 281 gummy candies, and 123 chocolate covered peanuts. How much candy did Jimmy sell in all?</p> <p>$559 + 281 + 123 =$</p> <p>H: $500 + 200 + 100 = 800$ T: $50 + 80 + 20 = 150$ O: $9 + 1 + 3 = 13$ Combine: $800 + 150 + 13 = 963$ pieces of candy</p>	<p>2. Marco was building a model house out of popsicle sticks. He used 456 sticks for the front and back of the house, 192 for the roof of the house and 420 for the two sides. How many popsicle sticks did he use altogether?</p> <p>$456 + 192 + 420 =$</p> <p>H: $400 + 100 + 400 = 900$ T: $50 + 90 + 20 = 160$ O: $6 + 2 + 0 = 8$ Combine: $900 + 160 + 8 = 1,068$ popsicle sticks</p>
<p>3. Carla had a large coin collection containing 824 coins. 236 of her coins were quarters. How many coins were not quarters?</p> <p>$800 \quad 700 \quad 20 \quad 10 + 100 = 110 \quad 4 + 10 = 14$ $-200 \quad 30 \quad 6$ $14 - 6 = 8$ $110 - 30 = 80$ $700 - 200 = 500$ Combine: $500 + 80 + 8 = 588$ coins were not quarters</p>	<p>4. Both Joe and Miguel had large dogs. Joe's dog weighed 119 pounds. Miguel's dog weighed 145 pounds. How much more did Miguel's dog weigh?</p> <p>$100 \quad 40 \quad 30 \quad 5 + 10 = 15$ $-100 \quad 10 \quad 9$ $15 - 9 = 6$ $30 - 10 = 20$ $100 - 100 = 0$ Combine: $0 + 20 + 6 = 26$ pounds more</p>

<p>1. $489 + 247 =$</p> <p>H: $400 + 200 = 600$ T: $80 + 40 = 120$ O: $9 + 7 = 16$ Combine: $800 + 150 + 13 = 963$</p>	<p>2. $701 - 561 =$</p> <p>$700 \quad 600 \quad 0 + 100 = 100 \quad 1$ $-500 \quad 60 \quad 1$ $1 - 1 = 0$ $100 - 60 = 40$ $600 - 500 = 100$ Combine: $100 + 40 + 0 = 140$</p>
<p>3. Mr. Farmer had 852 vegetables in his garden. He went to the farmer's market to sell them and sold 658 vegetables. How many vegetables did he have left over?</p> <p>$852 - 658 =$</p> <p>$800 \quad 700 \quad 50 \quad 40 + 100 = 140 \quad 2 + 10 = 12$ $-600 \quad 50 \quad 12$ $12 - 8 = 4$ $140 - 50 = 90$ $700 - 600 = 100$ Combine: $100 + 90 + 4 = 194$</p>	<p>4. Michaels class had 643 pencils left at the end of the year. Carl's class had 323 pencils left at the end of the year. How many pencils did Michael and Carl's classes have altogether?</p> <p>$643 + 323 =$</p> <p>H: $600 + 300 = 900$ T: $40 + 20 = 60$ O: $3 + 3 = 6$ Combine: $900 + 60 + 6 = 966$ pencils</p>
<p>5. $243 + 112 + 396 =$</p> <p>H: $200 + 100 + 300 = 600$ T: $40 + 10 + 90 = 140$ O: $3 + 2 + 6 = 11$ Combine: $600 + 140 + 11 = 751$</p>	<p>6. $319 - 190 =$</p> <p>$300 \quad 200 \quad 10 + 100 = 110 \quad 9$ $-100 \quad 20 \quad 0$ $9 - 0 = 9$ $110 - 90 = 20$ $200 - 100 = 100$ Combine: $100 + 20 + 9 = 129$</p>

Part A: There are 257 third graders, 315 fourth graders, and 298 fifth graders at Michelle's school. How many students are in all three grades?

$257 + 315 + 298 = 993$
Hundreds: $200 + 300 + 200 = 700$
Tens: $50 + 10 + 90 = 150$
Ones: $7 + 5 + 8 = 20$
Combine sums: $700 + 150 + 20 = 870$ students in all three grades

Part B: Of all the students 423 of them are boys and the rest are girls. How many girls are in those three grades?

$800 \quad 700 \quad 60 \quad 0 + 10 = 10$
 $-400 \quad 20 \quad 3$
 $10 - 3 = 7$
 $60 - 20 = 40$
 $800 - 400 = 400$
Combine: $400 + 40 + 7 = 447$ students were girls

Optional Assessment Component Exit Slips

*You may use the exit slip at the end of this lesson as a quick assessment of student understanding. Either print them out (page 20), or simply have students copy the problems on a half sheet of paper.



Make sure to “Break Up Your Day!”



Now is a great time to take a break and get students re-energized. See our list of engaging movement and brain break ideas to get your students moving and ready to refocus! (see page 27)

Name: **ANSWER KEY** Date: _____

Exit Slip: Segment 1

Addition and Subtraction Using Partial Sums and Decomposing

Directions: Show your work using partial sums or decomposing.

Part A: There are 346 third graders, 452 fourth graders, and 415 fifth graders at Michelle's school. How many students are in all three grades?

$$316 + 352 + 325 = 993$$

$$316 = 300 + 10 + 6$$

$$352 = 300 + 50 + 2$$

$$325 = 300 + 20 + 5$$

Hundreds: $300 + 300 + 300 = 900$

Tens: $10 + 50 + 20 = 80$

Ones: $6 + 2 + 5 = 13$

Combine sums: $900 + 80 + 13 = 993$ students in all three grades

Part B: Of all the students 497 of them are girls and the rest are boys. How many boys are in those three grades?

$$900 - 800 = 100 \quad 90 - 80 + 100 = 180 \quad 3 + 10 = 13$$

$$\begin{array}{r} 900 \\ -400 \\ \hline 500 \end{array}$$

$$13 - 7 = 6$$

$$180 - 90 = 90$$

$$800 - 400 = 400$$

Combine: $400 + 90 + 6 = 496$ students were boys

Instructional Plan: Segment 2: 60 minutes

Subject

- Addition and Subtraction Within 1000 Using Open Number Lines and Counting Up

Objective

- Students will add within 1000 using open number lines.
- Students will subtract within 1000 using open number lines.

Materials

- blank paper
- pencil & crayons/colored pencils
- document camera or whiteboard
- Optional Printable Student Resources:** “Exit Slips” (page 20) (1 copy per student), “Adding and Subtracting: Open Number Lines Practice” (page 23) (1 copy per student), “Adding and Subtracting Within 1000: Open Number Lines” (page 24) (1 copy per student)
- Optional Printable Teacher Resources:** “Adding and Subtracting: Open Number Lines” notes (page 25) (1 copy to project for class to see)

Introduction

- T* When I say “Go!” I would like everyone to please stand up and stand on one side of the room, but not until I say, “Go!” please listen first.
- T* I would like each of you to get to the other side of the room by hopping.
- T* Just like a frog or a bunny hops.
- T* Here is the catch.
- T* I want you to count in your head how many “hops” it takes you to get from one side of the room to the other.
- T* Please do not count out loud because it will be hard for everyone to count correctly if everyone is saying different numbers.
- T* Ok, “Go!” Please walk quickly and quietly. Then stand on one side of the room.

Provide time for students to all be standing on one side of the room.

- T* When I say, “hop” you will begin hopping and counting in your head until you reach the other side of the room.
- T* Give me a thumbs up if you understand what to do. Clarify the process again if anyone seems confused.
- T* Ready, “HOP!”

Provide time for students to hop to the other side of the room. Monitor and remind students to hop safely and count in their heads.

- T* Don’t forget your final number of hops!
- T* Great work little hoppers!
- T* If you could please walk back to your seats quickly and quietly.
- T* Let’s record the class data you just collected.
- T* I will title my data sample as: “Hops Across the Room.”
- T* I will go around the room and collect how many hops it took each of you to get across the classroom.
- T* If someone else has the same number of hops as someone who has already shared, I will put a checkmark next to that number so we know how many of you had each number.
- T* If the number has no checkmarks next to it, we will know only one of you had that number. Call on each student to share their number of hops. Record it on a chart or the board. Use checkmarks for duplicate answers.
- T* Wow some of you took a lot of hops! Take a moment to look at the data I have just recorded. What are some things you notice? Call on students to share. Possible Answers: identify the maximum number of hops, identify the minimum number of hops, identify what numbers were most common or least common.

- T* Did you all hop across the same room?
T Did you all take the same path or route to get from one side to the other?
T But did you all get from one side to the other?
T You all had the same task or problems, but you got there in a different way.

Whole Group Setting up the Paper

- T* Today we will be using an Open Number Line to help us solve addition and subtraction problems.
T We will start by taking some notes so that we have examples and steps to refer back to later if we get confused.

Pass out preprinted notes -or- project the notes for students to copy. Project the notes on the board for students to see as you read them.

Name & Date

Adding and Subtracting: Open Number Lines

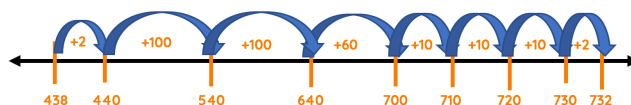
I can add and subtract within 1000 using open number lines.

ADDING

1. Draw out an open number line.
2. On the left side, draw a tick mark and write the first number, 438.
3. Then you need to "hop" down the number line the second number of times, 294.
4. You can choose what increments or sizes to hop. **Example:** 1s, 2s, 5s, 10s, or 100s
5. Start by getting to a landmark number, like the nearest 10. **Example:** 440 is the nearest 10.
6. Record underneath your hops "+2" or whatever size your hop is.
7. Keep hopping until the number of hops adds up to the second number in your equation. **Example:** 294

Keep Track of hops: $2 + 100 = 102 + 100 = 202 + 60 = 262 + 10 = 272 + 10 = 282 + 10 = 292 + 2 = 294$

$$438 + 294 = 732$$



- T* Please write your name and date in the top right hand corner. See example and model this step for students to copy.
- T* We will title these notes: "Adding and Subtracting: Open Number Lines." See example and model this step for students to copy.
- T* Then we will write our learning target, which is: "I can add and subtract within 1000 using open number lines." See example and model this step for students to copy.
- T* The first thing we will do is to draw out an open number line. See example and model this step at the bottom of the page for students to copy.
- T* On the left side, draw a tick mark and write the first number, 438. See example and model this step at the bottom of the page for students to copy.
- T* Then you need to "hop" down the number line the second number of times, 294.
- T* You can choose what increments or sizes to hop. **Example:** 1s, 2s, 5s, 10s, or 100s.
- T* Start by getting to a landmark number, like the nearest 10. **Example:** 440 is the nearest. See example and model this step at the bottom of the page for students to copy.
- T* Record underneath your hops "+2" or whatever size your hop is. See example and model this step at the bottom of the page for students to copy.
- T* It is helpful to hop first to a landmark number so that your hops after it are easier to add.
- T* Each time I hop, I will make a new tick mark and below it record what number I hopped to.
- T* Keep hopping until the number of hops adds up to the second number in your equation. **Example:** 294. See example and model this step at the bottom of the page for students to copy.
- T* First, I hopped 2, I still have to hop 292 more.
- T* Since there are 2 hundreds in the number 294 I will hop by hundreds next.
- T* I will make 1-hundred hop.
- T* Then write a new tick mark with the number 540 because $440 + 100 = 540$.
- T* Now I still need to hop 192 more.
- T* I will make another 1-hundred hop.
- T* Then record a tick mark with 640 because $540 + 100 = 640$.
- T* Now I have 92 hops to go.

Name & Date

T You may be thinking, just hop 92 and we are done.

T We could, however, it would be hard for me to add $640 + 92$ in my head.

T So I am going to think of what big landmark number I might hop to.

T I know that $40 + 60 = 100$, so what if I hop 60 and go from 640 to 700?

T That would mean I have hopped 262 times. I need to hop 294 times.

T Let's try hopping by 10's I don't want to hop too big and then pass my target number of hops.

T To get to the 90's how many times do I need to hop by 10s from 60.

T Let's count 60, 70, 80, 90. So I need 3 hops by 10.

T So my tick marks will be 710, 720, 730.

T Now I have hopped 292 times.

T How many more hops do I need to reach 294? **Answer: 2 hops**

T Correct, I need to hop by 2.

T Now I can go back and add up all of my hops to make sure that I hopped 294 times.

T If my number of hops is correct, then my answer is 732!

T While I was hopping, you may have been thinking of different amounts that I could have hopped.

T Just like when we hopped across the room.

T There is not one right solution.

T You will see later when we start to practice, we will all get the same answer to our addition or subtraction equations, but we may all get there in different ways!

Adding and Subtracting: Open Number Lines

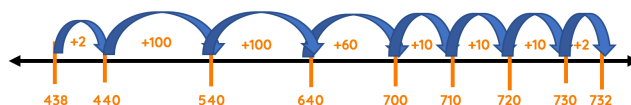
I can add and subtract within 1000 using open number lines.

ADDING

1. Draw out an open number line.
2. On the left side, draw a tick mark and write the first number, 438.
3. Then you need to "hop" down the number line the second number of times, 294.
4. You can choose what increments or sizes to hop. **Example:** 1s, 2s, 5s, 10s, or 100s
5. Start by getting to a landmark number, like the nearest 10. **Example:** 440 is the nearest 10.
6. Record underneath your hops "+2" or whatever size your hop is.
7. Keep hopping until the number of hops adds up to the second number in your equation. **Example:**

294
Keep Track of hops: $2 + 100 = 102 + 100 = 202 + 60 = 262 + 10 = 272 + 10 = 282 + 10 = 292 + 2 = 294$

$$438 + 294 = 732$$



Provide time for students to complete this example. Monitor and provide assistance as needed.

Subtraction on an Open Number Line

T Let's flip our papers over to the backside and write the steps for subtraction and write an example problem.

T Many people like to use what is called, the "Counting Up" strategy when showing subtraction on a number line.

T You could hop backwards and count back.

T But for today we will all practice counting up. **Project the notes on the board for students to see as you read them.**

T Just like addition we will start by drawing out an open number line.

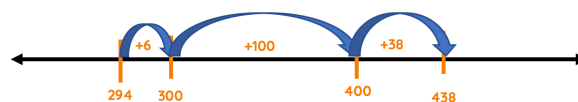
T When subtracting, we will put the first number, in our equation, the larger number, 438 on the right side of the line. **See example and model this step at the bottom of the page for students to copy.**

SUBTRACTING: Counting Up Method

1. Draw out an open number line.
2. When subtracting, we will put the first number, in our equation, the larger number, 438 on the right side of the line.
3. Then we put second number in our equation, the smaller number, 294 on the left.
4. In subtraction, we want to find the difference. How many numbers are between these two numbers on a number line.
5. You need to "hop" down the number line to the larger number, 438.
6. You can choose what increments or sizes to hop. **Example:** 1s, 2s, 5s, 10s, or 100s
7. Start by getting to a landmark number, like the nearest 10. **Example:** 300 is the nearest 10.
8. Record underneath your hops "+6" or whatever size your hop is.
9. Keep hopping until you reach your final number, 438.
10. Finally, add up all of your hops.
11. All of your hops added together is the distance between the two numbers and your answer!

Keep Track of Hops: $6 + 100 + 38 = 144$

$$438 - 294 = 144$$



T Then we put second number in our equation, the smaller number, 294 on the left. **See example and model this step at the bottom of the page for students to copy.**

T In subtraction, we want to find the difference.

T How many numbers are between these two numbers on a number line? **Motion on the number line between those two numbers to help them see there is space between the two numbers.**

T Starting at the smaller number, you need to “hop” down the number line to the larger number, 438.

T You can choose what increments or sizes to hop. Example: 1s, 2s, 5s, 10s, or 100s.

T We will start by getting to a landmark number, like the nearest 10. Example: 300 is the nearest 10.

T So, on our number line let’s hop and put a tick mark and underneath it write 300. **See example and model this step at the bottom of the page for students to copy.**

T Record underneath your hops “+6” or whatever size your hop is.

T Now we need to keep hopping until we reach our final number, 438.

T Finally, add up all of your hops.

T All of your hops added together is the distance between the two numbers and your answer!

T My first hop was 6 and that brought me to 300.

T I still need to hop to 438. 400 is 100 more than 300.

T I will do a big hop 100.

T My new tick mark is 400.

T Now I need to get 38 more, to get to 438.

T So, I will just make one big hop to 38.

T I could also hop 3 tens and then 8 more.

T Finally, I need to add up all of my hops!

T I hopped 6 and then 100 and then 38 more. So, “ $6 + 100 + 38 = 144$.”

T Then that is the answer to our subtraction problem, “ $438 - 294 = 144$.”

T Just like with our addition problem you may have thought of other ways to hop.

T Now we will try a few more together.

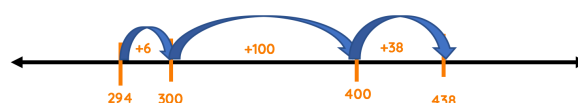
T Then we will do a few where each of you will solve equations and then we will compare all of the different solutions you come up with to solve the same equations.

SUBTRACTING: Counting Up Method

1. Draw out an open number line.
2. When subtracting, we will put the first number, in our equation, the larger number, 438 on the right side of the line.
3. Then we put second number in our equation, the smaller number, 294 on the left.
4. In subtraction, we want to find the difference. How many numbers are between these two numbers on a number line.
5. You need to “hop” down the number line to the larger number, 438.
6. You can choose what increments or sizes to hop. **Example:** 1s, 2s, 5s, 10s, or 100s
7. Start by getting to a landmark number, like the nearest 10. **Example:** 300 is the nearest 10.
8. Record underneath your hops “+6” or whatever size your hop is.
9. Keep hopping until you reach your final number, 438.
10. Finally, add up all of your hops.
11. All of your hops added together is the distance between the two numbers and your answer!

Keep Track of Hops: $6 + 100 + 38 = 144$

$$438 - 294 = 144$$



Pass out “Adding and Subtracting: Open Number Lines Practice” -or- project for students to copy on blank paper.

Complete #1 & #5 as a whole group example.

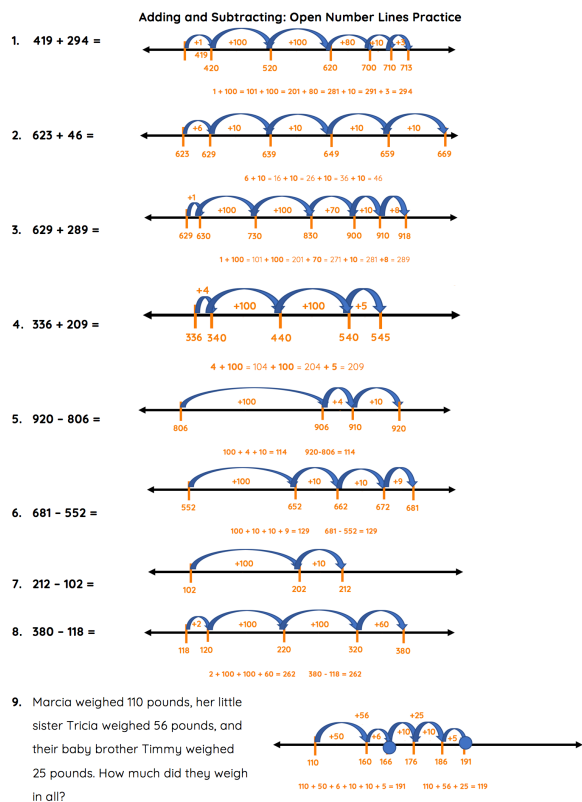
Answer Key on next page.

Differentiation:

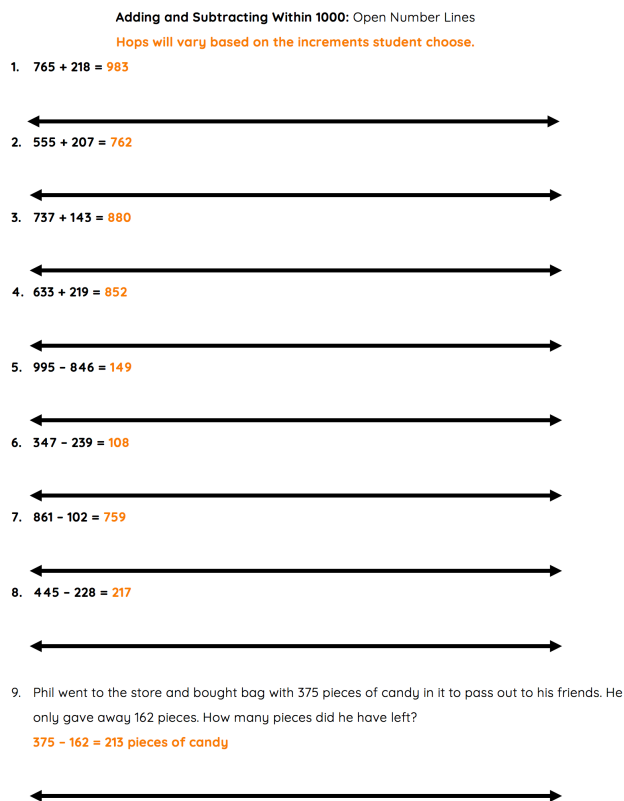
Support: work problem by problem giving students a chance to offer suggestions of how to hop to solve the problems and complete as a whole group

Enrichment: if they all seem to be understanding, give them all time to solve one problem. Then bring the class back together to share and compare solutions.

Name: **ANSWER KEY**



Name: **ANSWER KEY**



Partner Practice

Pass out “Adding and Subtracting Within 1000: Open Number Lines” -or- project for students to copy on blank paper.

- T* Now you will finally have the chance to solve some more with a partner!
- T* It is ok if you and your partner want to write down different solutions.
- T* The goal is getting the correct answer.

If time bring the class back together and call students up to fill in their answers to each problem. Correct and clarify as needed if a student has the wrong answer and they are sharing it with the class.

Optional Assessment Component Exit Slip

*You may use the exit slip at the end of this lesson as a quick assessment of student understanding. Either print them out (page 20), or simply have students copy the problems on a half sheet of paper.



Now is a great time to take a break and get students re-energized. See our list of engaging movement and brain break ideas to get your students moving and ready to refocus! (see page 27)

Name: **ANSWER KEY** Date: _____

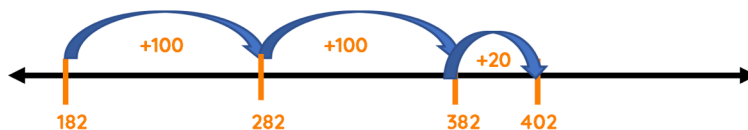
Exit Slip: Segment 2

Addition and Subtraction Using Open number lines

Directions: Solve the addition and subtraction problems using hops on a number line.

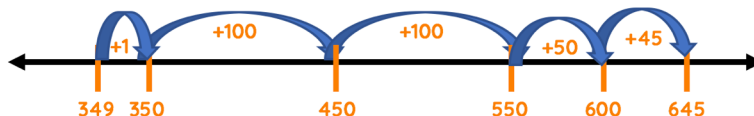
The answers below are one possible answer showing the format students should follow. Answers will vary based on the solutions students choose.

1. $182 + 220 = 402$



$182 + 100 = 282 + 100 = 382 + 20 = 402$

2. $645 - 349 = 296$



$1 + 100 + 100 + 50 + 45 = 296$

$645 - 349 = 296$

Instructional Plan: Segment 3: 30-45 minutes

Subject

- Game: "Number Line Hop Face Off"

Objective

- Students will add within 1000 using open number lines.
- Students will subtract within 1000 using open number lines.

Materials

- blank paper
- pencil & crayons/colored pencils
- class dry erase board (large enough for 2 people to work at a time) -or- personal dry erase boards (1 per team)
- dry erase markers
- addition or subtraction problems within 1000 (use any sheet of problems)
- document camera or whiteboard
- Optional Printable Teacher Resources:** "Adding and Subtracting: Open Number Lines" notes (page 25) (1 copy to project for class to see), "Number Line Hops Face Off" game directions (page 26) (1 copy to display for the class -or- 1 copy per student)

Introduction and Review

- T** Today we will play a game called, Number Line Hop Face Off.
- T** Who can tell us what a "Face Off" is? **Call on students to answer.**
- T** A face off is when two players or teams compete against each other.
- T** You will be using the mathematical skills you have learned for solving addition and subtraction problems using open number lines.
- T** Before I put you into teams to begin our math face off, let's review how to solve addition and subtraction problems using an open number line.

Pass out a piece of blank paper for students to practice solving two problems.

- T** We will start with the process of adding.
- T** Please write the addition problem: "438 + 294" on your paper.
- T** This is the same problem that we previously solved together, but there is not just one correct answer.
- T** You will have the chance to practice solving it now in your own way.
- T** Let's quickly go over the steps to using an Open Number Line for addition. **Project the notes on the board for students to see as you read them.**
- T** 1. Draw out an open number line.
- T** 2. On the left side, draw a tick mark and write the first number, 438.
- T** 3. Then you need to "hop" down the number line the second number of times, 294.
- T** 4. You can choose what increments or sizes to hop. Example: 1s, 2s, 5s, 10s, or 100s
- T** 5. Start by getting to a landmark number, like the nearest 10. Example: 440 is the nearest
- T** 6. Record underneath your hops "+2" or whatever size your hop is.

Adding and Subtracting: Open Number Lines

Name & Date

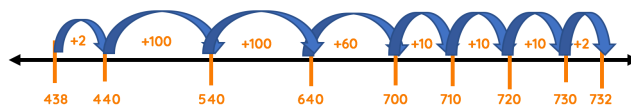
I can add and subtract within 1000 using open number lines.

ADDING

1. Draw out an open number line.
2. On the left side, draw a tick mark and write the first number, 438.
3. Then you need to "hop" down the number line the second number of times, 294.
4. You can choose what increments or sizes to hop. **Example:** 1s, 2s, 5s, 10s, or 100s
5. Start by getting to a landmark number, like the nearest 10. **Example:** 440 is the nearest 10.
6. Record underneath your hops "+2" or whatever size your hop is.
7. Keep hopping until the number of hops adds up to the second number in your equation. **Example:** 294

Keep Track of hops: $2 + 100 = 102 + 100 = 202 + 60 = 262 + 10 = 272 + 10 = 282 + 10 = 292 + 2 = 294$

$$438 + 294 = 732$$



T 7. Keep hopping until the number of hops adds up to the second number in your equation. Example: 294 (Project the notes on the board for students to see as you read them.)

T Now, it is your time to try.

T Can you think of and draw different amounts of hops than I did to solve this problem?

Provide time for students to complete this example. Monitor and provide assistance as needed.

T Ok, I would like 3 volunteers to come up and show the class how you solved this equation using hops.

T If you have the same answer as someone who has already shared, please do not re-share that same solution. **Call on students to come up and share with the class. Monitor that they are sharing a different solution.**

T Great work everyone!

T So, as you can see there is not just 1 correct solution.

T As long as you get the right answer, you can choose the hops you take to get there.

T Now let's try a subtraction equation on an open number line.

T Many people like to use what is called, the "Counting Up" strategy when showing subtraction on a number line.

T We will review the steps quickly and then you will try to solve it in a different way than my example.

Project the notes on the board for students to see as you read them.

T 1. Draw out an open number line.

T 2. When subtracting, we will put the first number, in our equation, the larger number, 438 on the right side of the line.

T 3. Then we put second number in our equation, the smaller number, 294 on the left.

T 4. In subtraction, we want to find the difference. How many numbers are between these two numbers on a number line?

T 5. You need to "hop" down the number line to the larger number, 438.

T 6. You can choose what increments or sizes to hop. Example: 1s, 2s, 5s, 10s, or 100s

T 7. Start by getting to a landmark number, like the nearest 10. Example: 300 is the nearest 10.

T 8. Record underneath your hops "+6" or whatever size your hop is.

T 9. Keep hopping until you reach your final number, 438.

T 10. Finally, add up all of your hops.

T 11. All of your hops added together is the distance between the two numbers and your answer!

T Now, it is your time to try.

T Can you think of and draw a different number of hops than I did to solve this problem?

Provide time for students to complete this example. Monitor and provide assistance as needed.

T Ok, I would like 3 volunteers to come up and show the class how you solved this equation using hops.

T If you have the same answer as someone who has already shared, please do not re-share the same solution. **Call on students to come up and share with the class. Monitor that they are sharing a different solution.)**

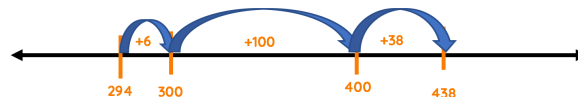
T Great work everyone! So, as you can see there is not just 1 correct solution. As long as you get the right answer, you can choose the hops you take to get there.

SUBTRACTING: Counting Up Method

1. Draw out an open number line.
2. When subtracting, we will put the first number, in our equation, the larger number, 438 on the right side of the line.
3. Then we put second number in our equation, the smaller number, 294 on the left.
4. In subtraction, we want to find the difference. How many numbers are between these two numbers on a number line.
5. You need to "hop" down the number line to the larger number, 438.
6. You can choose what increments or sizes to hop. **Example:** 1s, 2s, 5s, 10s, or 100s
7. Start by getting to a landmark number, like the nearest 10. **Example:** 300 is the nearest 10.
8. Record underneath your hops "+6" or whatever size your hop is.
9. Keep hopping until you reach your final number, 438.
10. Finally, add up all of your hops.
11. All of your hops added together is the distance between the two numbers and your answer!

Keep Track of Hops: $6 + 100 + 38 = 144$

$$438 - 294 = 144$$



Playing the Game

T Give me a thumbs up if you feel ready to play our game, “Number Line Hop Face Off!”

Scan the room to see if there are any students who seem unsure. You will want to split them up into different teams so that the face off is fair when you begin playing.

T In an announcer's voice say: It's time to learn how to play “Number Line Hop Face Off!”

Project or pass out the direction sheets so students can follow along as you explain how to play.

T This game can either be played as a whole group or in pairs against another team of pairs.

T Today we will play as a whole class.

T I will start by splitting you up into two equal teams.

T The object or goal of this game is to earn points by correctly solving addition and subtraction problems correctly using an open number line.

T Your team will earn 1 point for solving the problem correctly, no matter how long it takes to solve it.

T Then your team can win a second point if you are the first team to solve it correctly. Here's how to play.

T Two members of each team go up to the whiteboard.

T Two heads are better than one!

T You get to work through the problem with one other person from your team when it is your turn.

T When it is your turn the other members of team must be SILENT!

T They cannot help you, only the two people whose turns it is may work on the problem.

T If someone from your team shouts out, your team will automatically lose that round!

T I will read the equation out loud, for example I might say: “ $438 + 294 =$.”

T I will wait while both teams write the equation on the board.

T No teams may begin until everyone has correctly written the problem.

T When I say “GO!” both teams will begin to solve the addition or subtraction problem using “hops” on an open number line.

T Remember just like in our practice, there is not just 1 correct answer.

T Teams may hop in whatever increments they would like to correctly solve the equation.

T Teams must make more than 1 hop.

T When a team feels they have correctly solved the equation they say, “DONE!”

T The other team gets to continue until they have solved the problem.

T Once both teams have solved the problem, the class will check the work of both teams.

T Each team can earn 1 point for a correct solution.

T If the team that said “Done” first has a correct solution, they earn a second point.

T If their solution was incorrect and the other team was correct, the team who finished second gets the additional point.

Game: Number Line Hop Face Off

Learning Target: I can add and subtract within 1000 using Open Number Lines.

Breaking Students into Teams:

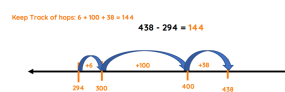
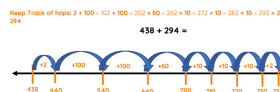
- **Whole Class Game:** split the class into two equal teams
- **Small Group Game:** pair up teams of 2-4 students each to compete against each other

Object of the Game:

- Earn points by solving addition or subtraction problems correctly using an Open Number Line.
- Correct Solution (**1 point**)
- First Team Done (**correctly**) (**1 point**)

How to Play:

- Two members of each team go up to the white board.
- Other members of team must be SILENT! (**They CANNOT help!**)
- Teacher gives an equation. (**Both teams get to write the equation on the board before anyone can begin.**)
- When the teacher says “GO!” both teams will begin to solve the addition or subtraction problem using “hops” on an Open Number Line
- There is not just 1 correct answer.
- Teams may hop in whatever increments they would like to correctly solve the equation. (**Teams must make more than 1 hop.**)
- When a team feels they have correctly solved the equation they say, “DONE!”
- The other team gets to continue until they have solved the problem.
- Once both teams have solved the problem, the class will check the work of both teams.
- Each team can earn 1 point for a correct solution.
- If the team that said “Done” first has a correct solution, they earn a second point.
- If their solution was incorrect and the other team was correct, the team who finished second gets the additional point.



T Now who is ready for a “Face Off?”

Split the class into two teams (make sure to split up students who were struggling so that teams are fair).

Have students on each team pick a partner that they will solve with. Remind them that it is best to pair up students that really feel confident with those who are more unsure, rather than pairing up with their best friend.

- Call one pair of students from each team up to the board each round to solve.
- Read any addition or subtraction problems within 1000 to them to solve.
- Once both teams have solved the problem examine each team’s answer as a whole class to determine if it is correct or not.
- This allows all of the students, even those who aren’t currently taking a turn to engage in the activity and participate.
- Use any incorrect solution as a teachable moment.
- Make sure to look for the mistake that was made and have the class help to determine how they can fix that mistake.
- Make sure to encourage students to be respectful when their teammates solve incorrectly or make a mistake.
- No put downs or unkind words. If they are being disrespectful they will not get to continue to play.

Differentiation:

Support: Give less challenging problems
Enrichment: Give problems with 3 numbers.



Make sure to “Break Up Your Day!”



Now is a great time to take a break and get students re-energized.
See our list of engaging movement and brain break ideas to get your students moving and ready to refocus! (see page 27)

Name: _____ Date: _____

Exit Slip: Segment 1

Addition and Subtraction Using Partial Sums and Decomposing

Directions: Show your work using partial sums or decomposing.

Part A: There are 346 third graders, 452 fourth graders, and 415 fifth graders at Michelle's school. How many students are in all three grades?

Part B: Of all the students 497 of them are girls and the rest are boys. How many boys are in those three grades?

Name: _____ Date: _____

Exit Slip: Segment 2

Addition and Subtraction Using Open number lines

Directions: Solve the addition and subtraction problems using hops on a number line.

1. $182 + 220 =$



2. $645 - 349 =$



Name: _____

Partial Sums and Decomposing Practice

1. $733 + 266 =$	2. $112 + 131 + 363 =$
3. $745 - 437 =$	4. $631 - 327 =$
1. Jimmy was selling candy to raise money for his soccer team. He sold 559 chocolate bars, 281 gummy candies, and 123 chocolate covered peanuts. How much candy did Jimmy sell in all?	2. Marco was building a model house out of popsicle sticks. He used 456 sticks for the front and back of the house, 192 for the roof of the house and 420 for the two sides. How many popsicle sticks did he use altogether?
3. Carla had a large coin collection containing 824 coins. 236 of her coins were quarters. How many coins were not quarters?	4. Both Joe and Miguel had large dogs. Joe's dog weighed 119 pounds. Miguel's dog weighed 145 pounds. How much more did Miguel's dog weigh?

Name: _____

Adding and Subtracting Within 1000: Partial Sums and Decomposing

Directions: Show your work using partial sums or decomposing.

1. $489 + 247 =$	2. $701 - 561 =$
3. Mr. Farmer had 852 vegetables in his garden. He went to the farmer's market to sell them and sold 658 vegetables. How many vegetables did he have left over?	4. Michael's class had 643 pencils left at the end of the year. Carl's class had 323 pencils left at the end of the year. How many pencils did Michael and Carl's classes have altogether?
5. $243 + 112 + 396 =$	6. $319 - 190 =$

7. **Part A:** There are 257 third graders, 315 fourth graders, and 298 fifth graders at Michelle's school. How many students are in all three grades?

Part B: Of all the students 423 of them are boys and the rest are girls. How many girls are in those three grades?

Name: _____

Adding and Subtracting: Open Number Lines Practice

1. $419 + 294 =$



2. $623 + 46 =$



3. $629 + 289 =$



4. $336 + 209 =$



5. $920 - 806 =$



6. $681 - 552 =$



7. $212 - 102 =$



8. $380 - 118 =$



9. Marcia weighed 110 pounds, her little sister Tricia weighed 56 pounds, and their baby brother Timmy weighed 25 pounds. How much did they weigh in all?



Name: _____

Adding and Subtracting Within 1000: Open Number Lines

1. $765 + 218 =$



2. $555 + 207 =$



3. $737 + 143 =$



4. $633 + 219 =$



5. $995 - 846 =$



6. $347 - 239 =$



7. $861 - 102 =$



8. $445 - 228 =$



9. Phil went to the store and bought bag with 375 pieces of candy in it to pass out to his friends. He only gave away 162 pieces. How many pieces did he have left?

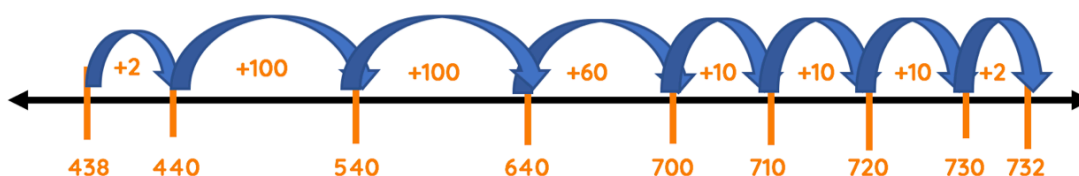


ADDING

1. Draw out an open number line.
2. On the left side, draw a tick mark and write the first number, 438.
3. Then you need to "hop" down the number line the second number of times, 294.
4. You can choose what increments or sizes to hop. **Example:** 1s, 2s, 5s, 10s, or 100s
5. Start by getting to a landmark number, like the nearest 10. **Example:** 440 is the nearest 10.
6. Record underneath your hops "+2" or whatever size your hop is.
7. Keep hopping until the number of hops adds up to the second number in your equation. **Example:**
294

Keep Track of hops: $2 + 100 = 102 + 100 = 202 + 60 = 262 + 10 = 272 + 10 = 282 + 10 = 292 + 2 = 294$

$$438 + 294 = 732$$

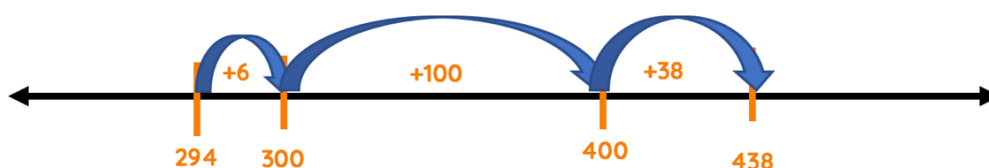


SUBTRACTING: Counting Up Method

1. Draw out an open number line.
2. When subtracting, we will put the first number, in our equation, the larger number, 438 on the right side of the line.
3. Then we put second number in our equation, the smaller number, 294 on the left.
4. In subtraction, we want to find the difference. How many numbers are between these two numbers on a number line.
5. You need to "hop" down the number line to the larger number, 438.
6. You can choose what increments or sizes to hop. **Example:** 1s, 2s, 5s, 10s, or 100s
7. Start by getting to a landmark number, like the nearest 10. **Example:** 300 is the nearest 10.
8. Record underneath your hops "+6" or whatever size your hop is.
9. Keep hopping until you reach your final number, 438.
10. Finally, add up all of your hops.
11. All of your hops added together is the distance between the two numbers and your answer!

Keep Track of Hops: $6 + 100 + 38 = 144$

$$438 - 294 = 144$$



Game: Number Line Hop Face Off

Learning Target: I can add and subtract within 1000 using Open Number Lines.

Breaking Students into Teams:

- **Whole Class Game:** split the class into two equal teams
- **Small Group Game:** pair up teams of 2-4 students each to compete against each other

Object of the Game:

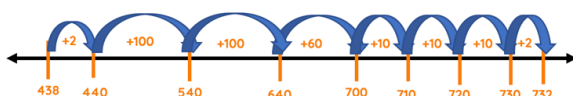
- Earn points by solving addition or subtraction problems correctly using an Open Number Line.
- Correct Solution **(1 point)**
- First Team Done **(correctly) (1 point)**

How to Play:

- Two members of each team go up to the white board.
- Other members of team must be SILENT! **(They CANNOT help!)**
- Teacher gives an equation. **(Both teams get to write the equation on the board before anyone can begin.)**
- When the teacher says “GO!” both teams will begin to solve the addition or subtraction problem using “hops” on an Open Number Line
- There is not just 1 correct answer.
- Teams may hop in whatever increments they would like to correctly solve the equation. **(Teams must make more than 1 hop.)**
- When a team feels they have correctly solved the equation they say, “DONE!”
- The other team gets to continue until they have solved the problem.
- Once both teams have solved the problem, the class will check the work of both teams.
- Each team can earn 1 point for a correct solution.
- If the team that said “Done” first has a correct solution, they earn a second point.
- If their solution was incorrect and the other team was correct, the team who finished second gets the additional point.

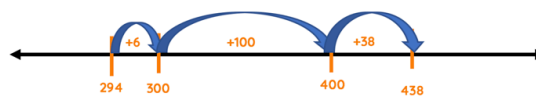
Keep Track of hops: $2 + 100 = 102 + 100 = 202 + 60 = 262 + 10 = 272 + 10 = 282 + 10 = 292 + 2 = 294$

$$438 + 294 =$$



Keep Track of hops: $6 + 100 + 38 = 144$

$$438 - 294 = 144$$



Make sure to “Break Up Your Day!”

These can be used in the middle of a lesson or at the end of your lesson.

Here are a few engaging movement and brain break ideas to get your students moving and ready to refocus!



Break Up Your Day: Guess My Number!



- Begin by showing an example:
- “I am thinking of a number between 1 and 10. Who would like to guess my number” Call on a student.
- When they take a guess, let them know if your number is bigger or smaller than what they guessed (ex: Student guesses 5, your number is 7, so you would say “My number is bigger than 5.” Then call on another student to guess).
- Keep giving clues until students guess the number.
- You could play again with the teacher picking the number if students need reinforcement, or you could have a student come up and pick the number (have them tell you what the number is so you can help them).



Break Up Your Day: The Wiggles!



- Let’s get our wiggles out before we continue!
- Stand up and shake out your arms (4-5 seconds to shake) Remember! No one should get hurt! ...now FREEZE!
- Now shake the wiggles out of your right leg...FREEZE!
- Now shake the wiggles out of your left leg...FREEZE!
- Now shake all the wiggles out of your whole body...FREEZE!



Break Up Your Day: Body Stretches!



10 minutes

FORMATION: Standing at desks

- Have students begin the day with a series of simple activities lasting 30 seconds or more: jumping jacks, knee lifts, flap arms like a bird, hopping, scissors (feet apart then cross in front, feet apart then cross in back)...
- Follow each activity with a basic stretching movement:
- Reach for the sky runner’s stretch
- Butterfly stretch (sit with bottom of feet together)
- Knee to chest, rotate ankles, scratch your back

Hold stretches for 10 - 30 seconds. Repeat a different simple activity followed by a new basic stretch as many times as desired.