General Information

Lesson Parts & Duration

Total Duration: 45 minutes to 1 hour

- Game: "Number Line Hop Face Off"

Subject(s)

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

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 6) (1 copy to project for class to see), "Number Line Hops Face Off" game directions (page 7) (1 copy to display for the class -or- 1 copy per student), "Break Up Your Day" brain/movement break ideas (page 8)

Throughout this lesson, 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: 45-60 minutes

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*** *There is not one correct way of solving this equation using an open number line.*
- ***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.*

Name & Date

Adding and Subtracting: Open Number Lines

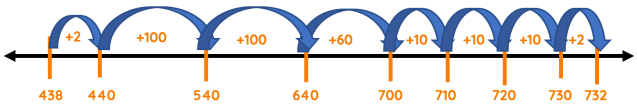
I can add and subtract within 1000 using open number lines.

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*** *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.*
- ***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 they 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!*

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.
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8. Record underneath your hops "+6" or whatever size your hop is.
9. Keep hopping until you reach your final number, 438.
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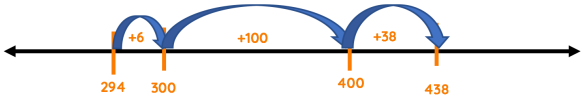
Keep Track of Hops: 6 + 100 + 38 = 144

438 - 294 = 144



- ***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.*

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.*
- ***T*** *Now who is ready for a "Face Off?"*

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!"
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- 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.

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.**

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

- **No put downs or unkind words. If they are being disrespectful they will not get to continue to play.**

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 8)

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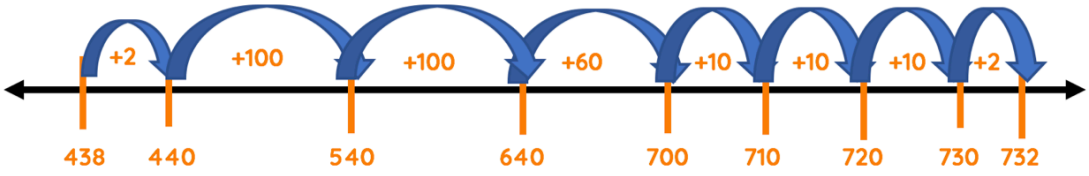

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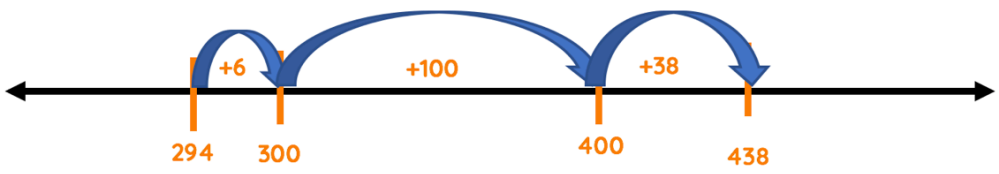

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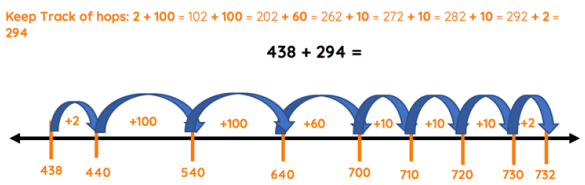

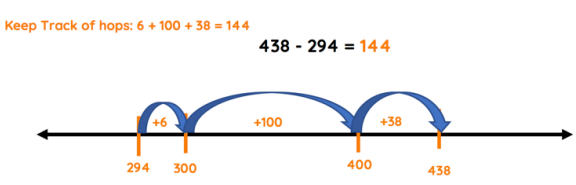

Make sure to "Break Up Your Day!"

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.