General Information

Lesson Parts & Duration

Total Duration: 1 hour

- Game: "Spin and Round"

Subject(s)

- Place Value: Rounding Whole Numbers to the Hundred-Thousands Place, Vertical Number Lines (4.NBT.3)

Objective

- Students will use place value understanding to round whole numbers to the nearest 1,000, 10,000, and 100,000.
- Students will round to the nearest 1,000, 10,000, and 100,000 on a vertical number line.

Materials

- blank paper (a few per student) -OR- student dry erase board -OR- place value mat
- pencil or dry erase marker
- paper clip (to be used as the spinner) (1 per group)
- document camera or whiteboard
- **Required:** printable "Digit Spinner" page (page 7) (1 page per group) –or- use a die that has 10 or more sides (they will only use digits 1-9)
- **Optional Printable Teacher Resources:** "Break Up Your Day" brain/movement break ideas (page 8)

Instructional Setting

- Students should be seated so that they can easily work with a partner.

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: 60 minutes

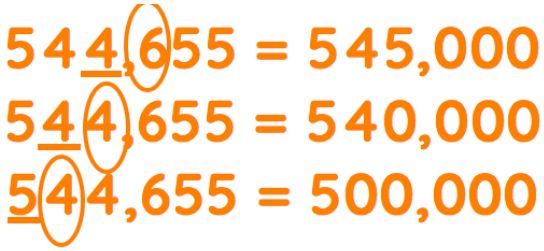
If you are unable to print out the game spinners: Students can use dice to determine the digits in their number. This game requires students to build 6 digit numbers by spinning a spinner to determine each digit. Instead they can roll a 10-sided dice. If they rolled a 10, that would count as 0. Then they will also need a 6-sided die to determine what place to round to. They would need to assign a number to each place to round, for example if they roll a 1 or 2 they would round to the nearest thousands place, if they roll a 3 or 4 they would round to the nearest ten-thousands place, and if they rolled a 5 or 6 they would round to the nearest hundred-thousands place.

Introduction Rounding Review

- ***T*** *We are going to practice rounding to the nearest 1,000s, 10,000s, and 100,000s places by playing a game.*
- ***T*** *This game is called "Spin and Round!"*
- ***T*** *Before we play I would like to review 2 ways to determine how to round a number to the nearest thousands, ten-thousands, or hundred-thousands place.*
- ***T*** *I would like us to start by reviewing these two methods on the board.*
- ***T*** *We will start with the traditional method.*
- ***T*** *Our first "Rounding Rule" is: "Look at the place to the right of what you are rounding."*
- ***T*** *For the nearest thousand, look in the hundreds place.*
- ***T*** *For the nearest ten-thousand, look in the thousands place.*
- ***T*** *And last, for the nearest hundred-thousand, look in the ten-thousands place.*
- ***T*** *Our second "Rounding Rule" is: if a digit is 5 or above (5, 6, 7, 8, 9), give it a shove – push the digit in the place you are rounding up 1 and everything to the right of that place becomes a 0.*
- ***T*** *Who can tell me what digits would be 5 or above?* Answer: 5, 6, 7, 8, 9
- ***T*** *The third and final "Rounding Rule" is: if it is 4 or below (4, 3, 2, 1, 0), let it go – leave the digit in the place you are rounding the same and everything to the right of that place becomes a 0.*
- ***T*** *Which digits fall into the category of 4 or below?* Call on students. Answer: 4, 3, 2, 1, 0
- ***T*** *Now let's try out these rules.*
- ***T*** *On your piece of scratch paper, please round 544,655 to the nearest thousands, ten-thousands, and hundred-thousands places.*

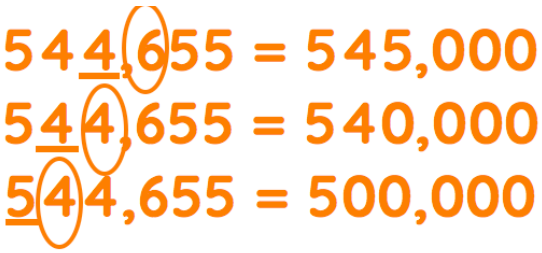
Provide a few minutes for students to solve these 3 problems. Monitor and provide assistance as needed.

- ***T*** *Now let's check your answers.*
- ***T*** *We start by identifying the place we are rounding to; when rounding to the nearest thousands place we will underline the digit 4 in the thousands place and circle the digit 6 to the right in the hundreds place.*



- ***T*** *The rounding rule tells me 5 or above give it a shove, 4 or below, let it go.*
- ***T*** *It fits into the 5 or above category so we will shove the 4 in the thousands place up to a 5, and turn all the digits to the right into 0s.*
- ***T*** *544,655 rounded to the nearest thousands place is 545,000.*
- ***T*** *Next, when rounding to the nearest ten-thousands place we will underline the digit 4 in the thousands place and circle the digit 4 to the right in the thousands place.*
- ***T*** *The rounding rule tells me 5 or above give it a shove, 4 or below, let it go.*
- ***T*** *It fits into the 4 or below category so we will let 4 go, meaning it will stay a 4 and turn all the digits to the right into 0s.*
- ***T*** *544,655 rounded to the nearest ten-thousands place is 540,000.*

- ***T*** *Finally, when rounding to the nearest hundred-thousands place we will underline the digit 5 in the hundred-thousands place and circle the digit 4 to the right in the ten-thousands place.*
- ***T*** *The rounding rule tells me 5 or above give it a shove, 4 or below, let it go.*
- ***T*** *It fits into the 4 or below category so we will let 5 go, meaning it will stay a 5 and turn all the digits to the right into 0s.*
- ***T*** *544,655 rounded to the nearest thousand is 500,000.*



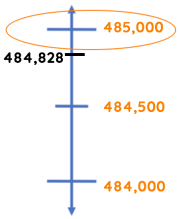
Using a Vertical Number to Round

- ***T*** *Now, I am going to show you how we can use a vertical number line to help us to visually see numbers and help us to round them to the nearest thousands place, ten-thousands place, and hundred-thousands place.*
- ***T*** *We will start by listing out the steps of rounding using a vertical number line.*
- ***T*** *Step 1: "Create landmark numbers."*
- ***T*** *Landmark numbers are ones that will help you decide where the number you are rounding will fit.*
- ***T*** *Below this first step, we will make three bullet points.*
- ***T*** *The first we will write: "Nearest 1,000: 1,000 more and current number of 1,000s."*
- ***T*** *The second we will write: "Nearest 10,000: 10,000 more and current number of 1,000s*
- ***T*** *And the third we will write: "Nearest 100,000: 100,000 more and current number of 1,000s."*
- ***T*** *These bullet points will help us remember our top and bottom landmarks on the vertical number lines depending on which place we are rounding our number.*
- ***T*** *The second step is: "Put both landmark numbers on a vertical number line."*
- ***T*** *One will be our top landmark, which will be the answer if our number is rounded up.*
- ***T*** *The bottom landmark will be the answer if our number is rounded down.*
- ***T*** *The third step is to: "Find the number that is directly in-between those two numbers."*
- ***T*** *This is always going to be a number that has a 5 after the place we are rounding.*
- ***T*** *So, for example if rounding to the nearest thousands place, there will be a 5 in the hundreds place because 500 is half way to 1,000.*
- ***T*** *When rounding to the nearest ten-thousands place, there will be a 5 in the thousands place because 5,000 is half way to 10,000.*
- ***T*** *Last, when rounding to the nearest hundred-thousands place, there will be a 5 in the ten-thousands place because 50,000 is half way to 100,000.*
- ***T*** *The fourth step is to find where the number you are trying to round fits into regards to those 3 landmarks you set.*
- ***T*** *Just like with our rounding rules, if your digit to the right of the place you are rounding is 5 or above, it will be above the center landmark.*
- ***T*** *If your digit to the right of the place you are rounding is 4 or below, the number will fall below the center landmark.*
- ***T*** *Steps five and six help us to decide if our number is rounded up to the top landmark number or down to the bottom landmark number.*
- ***T*** *Step five is: "If it is above the middle landmark, you round up to the top landmark number."*
- ***T*** *Step six is: "If it is below the middle landmark, you round down to the bottom landmark number."*
- ***T*** *Now we need to solve one problem using the vertical number line method.*
- ***T*** *Please round 484,828 to the nearest thousands, ten-thousands, and hundred-thousands places.*

Provide a few minutes for students to solve these 3 problems. Monitor and provide assistance as needed.

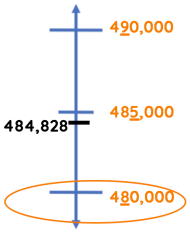
1,000s Place

- ***T*** *Now let's check your answers.*
- ***T*** *We will start with rounding 484,828 to the nearest thousands place.*
- ***T*** *We start by drawing a vertical number line with 3 tick marks for our 3 landmark numbers.*
- ***T*** *The top will be 1,000 more than our current thousand, the bottom will be our current thousand.*
- ***T*** *The center tick mark will be half way between the top and bottom landmark numbers.*
- ***T*** *So, in this case the top is 485,000, the bottom is 484,000, and the middle is 484,500.*
- ***T*** *The last step is to put my actual number on this number line.*
- ***T*** *If it falls above the middle landmark I will round up and if it falls below the middle landmark I will round down.*
- ***T*** *484,828 is larger than 484,500 so I will round up to the top landmark.*
- ***T*** *484,828 rounded to the nearest thousands place is 485,000.*



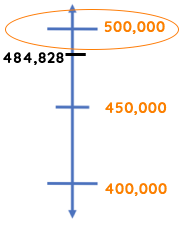
10,000s Place

- ***T*** *Now we will try rounding 484,828 to the nearest ten-thousands place.*
- ***T*** *We start by drawing a vertical number line with 3 tick marks for our 3 landmark numbers.*
- ***T*** *The top will be 10,000 more than our current ten-thousand, the bottom will be our current ten-thousand.*
- ***T*** *The center tick mark will be half way between the top and bottom landmark numbers.*
- ***T*** *So, in this case the top is 490,000, the bottom is 480,000, and the middle is 485,000.*
- ***T*** *The last step is to put my actual number on this number line.*
- ***T*** *If it falls above the middle landmark I will round up and if it falls below the middle landmark I will round down.*
- ***T*** *484,828 is smaller than 485,000 so I will round down to the bottom landmark.*
- ***T*** *484,828 rounded to the nearest ten-thousands place is 480,000.*



100,000s Place

- ***T*** *Last, we will try rounding 484,828 to the nearest hundred-thousands place.*
- ***T*** *We start by drawing a vertical number line with 3 tick marks for our 3 landmark numbers.*
- ***T*** *The top will be 100,000 more than our current hundred-thousand, the bottom will be our current hundred-thousand.*
- ***T*** *The center tick mark will be half way between the top and bottom landmark numbers.*
- ***T*** *So, in this case the top is 500,000, the bottom is 400,000, and the middle is 450,000.*
- ***T*** *The last step is to put my actual number on this number line.*
- ***T*** *If it falls above the middle landmark I will round up and if it falls below the middle landmark I will round down.*
- ***T*** *484,828 is larger than 450,000 so I will round up to the top landmark.*
- ***T*** *484,828 rounded to the nearest hundred-thousand is 500,000.*



Gauge how well students have mastered at least one of these two methods. You may need to work with a small group to solve some more problems before they are ready to work independently.

Game Introduction

- ***T*** *I think we are now ready to practice rounding to the nearest 1,000s, 10,000s, and 100,000s places by playing a game.*
- ***T*** *This game is called "Highest Value Race."*
- ***T*** *Each time your rounded number is the highest in value, you get a point.*
- ***T*** *The player or team with the most points at the end wins.*
- ***T*** *You will play against a partner or another small group.* Assign partners or teams of up to 3.
- ***T*** *You will need: a spinner sheet and scratch paper to help solve your problems.*
- ***T*** *Each round you and your partner will take turns being the "Digit Spinner."*
- ***T*** *The "Digit Spinner" of the round will spin the spinner 6 times to create a 6-digit number.*
- ***T*** *Whichever digit the paper clip lands on is the digit in your number.*
- ***T*** *You first spin will be the digit in the ones place.*
- ***T*** *The second spin will be the digit in the tens place and so on making your sixth and final spin the digit in the hundred-thousands place.*
- ***T*** *Next, you and your partner will spin to determine what place you individually will be rounding to.*
- ***T*** *Once each of you have determined what place to round to, both you and your partner will round your own numbers to the place you specifically spun.*
- ***T*** *Finally, once you and your partner have rounded your numbers, you will compare to see whose rounded number is larger or greater.*
- ***T*** *The player who has the larger number wins a point.*
- ***T*** *If you end up with the same number, no one earns a point that round.*
- ***T*** *You will play as many rounds as you can before time is up.*
- ***T*** *Be sure to keep track of your points by using a Tally Chart as you play.*
- ***T*** *If you have time you will go back to Round 1 and continue playing.*

Scoresheet

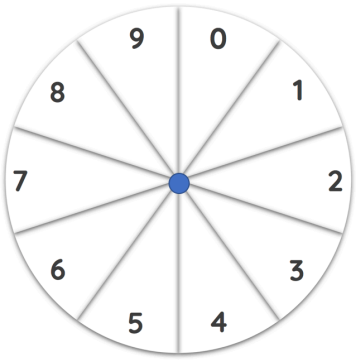
Player 1	Player 2

Practice Round

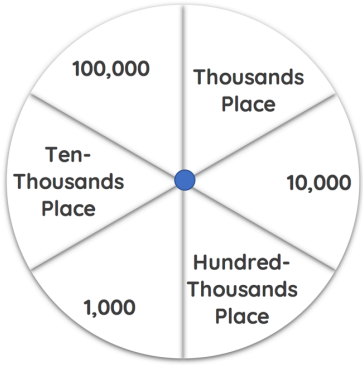
Pass out a piece of scratch paper for the students to use during the practice round.

- ***T*** *Let's play a practice round.*
- ***T*** *It will be the class vs. me!*
- ***T*** *I will be the "Digit Spinner" this round.*
- ***T*** *I will model for you how to spin the spinner.*
- ***T*** *Here are my two spinners.*
- ***T*** *To use your spinner all you need to do is put a paper clip in the center of your spinner circle.*
- ***T*** *Then using a pencil, place the point of the pencil in the center and do not move the pencil.*
- ***T*** *This will allow you to flick or spin the paper clip around your pencil like a spinner.*
- ***T*** *Each time I spin, we will record 1 digit of our number starting in the ones place.*
- ***T*** *Is everybody ready?*
- ***T*** *Ok!*

Digit Spinner



Rounding Spinner



Model spinning the wheel 6 times. Each time you will add a digit to your place value chart.

- ***T*** *Spin number 1 gives us a ___ in the ones place.* Model writing out the digit similar to the chart on the right.
- ***T*** *Spin number 2 gives us a ___ in the tens place.* Model writing out the digit similar to the chart on the right.
- ***T*** *Spin number 3 gives us a ___ in the hundreds place.* Model writing out the digit similar to the chart on the right.
- ***T*** *Spin number 4 gives us a ___ in the thousands place.* Model writing out the digit similar to the chart on the right.
- ***T*** *Spin number 5 gives us a ___ in the ten-thousands place.* Model writing out the digit similar to the chart on the right.
- ***T*** *Spin number 6 gives us a ___ in the hundred-thousands place.* Model writing out the digit similar to the chart on the right.

Example:

Spins	Hundred-Thousands	Ten-Thousands	Thousands	,	Hundreds	Tens	Ones
Spin 1							4
Spin 2						8	4
Spin 3					3	8	4
Spin 4			7	,	3	8	4
Spin 5		9	7	,	3	8	4
Spin 6	2	9	7	,	3	8	4

- ***T*** *Now that I have spun the spinner 6 times, I will spin the "Rounding Spinner" to determine which place I will round the number we just created.* Spin the "Rounding Spinner."
- ***T*** *I will be rounding this number to the ___ place.*
- ***T*** *Now I will need a volunteer to spin the spinner for the student team.* Call on a student to come up and spin.
- ***T*** *You will be rounding this number to the ___ place.*
- ***T*** *Let's all take a moment and round our number to the correct place.*
- ***T*** *Then we will compare our two rounded numbers and see which one is greater.*

Round your number and provide time for students to round their number too. Monitor and provide assistance as needed.

Compare your rounded answer with the students rounded answer.

Use the sentence frame: _____ number rounded to the _____ place is _____.

Have a student use the same sentence frame to share the student rounded answer.

Compare: _____ is greater than/less than _____.

Whoever has the larger number gets the point.

- ***T*** *Now it is time for you to play with a partner.*
- ***T*** *You will play as many rounds as you can until you run out of time.*
- ***T*** *At the end, each pair will let me know who won!*
- ***T*** *Let's play "Spin and Round!"*

Put students into pairs or small groups. Each pair needs a spinner sheet, paper clip, and scratch paper. OR a 10-sided die, a 6-sided die and scratch paper.

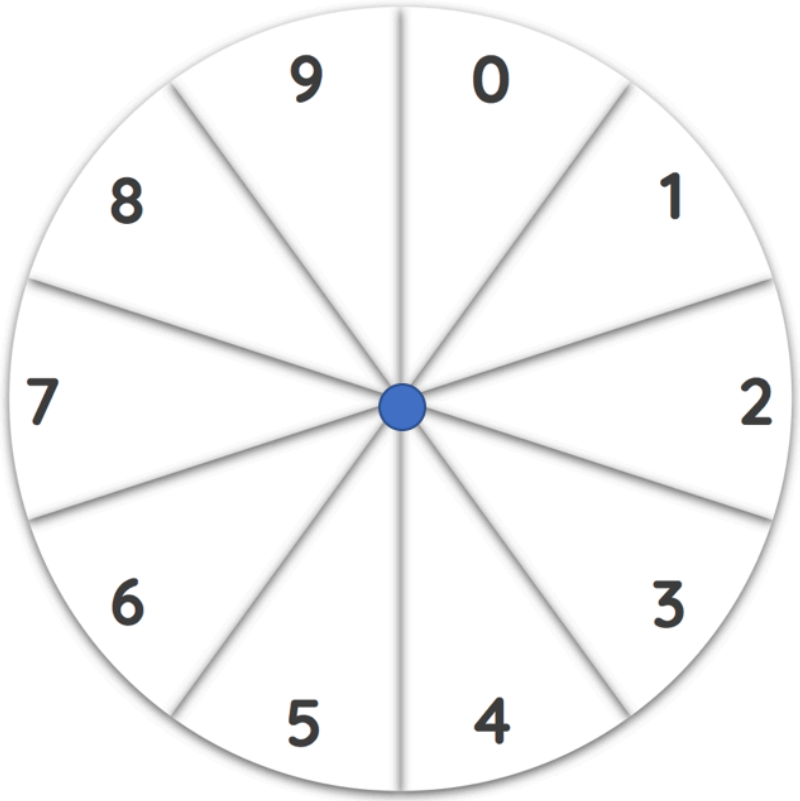
Circulate and assist as needed. Monitor to ensure students are on task and playing respectfully.

Note:
Allow at least 15-20 minutes for students to play.

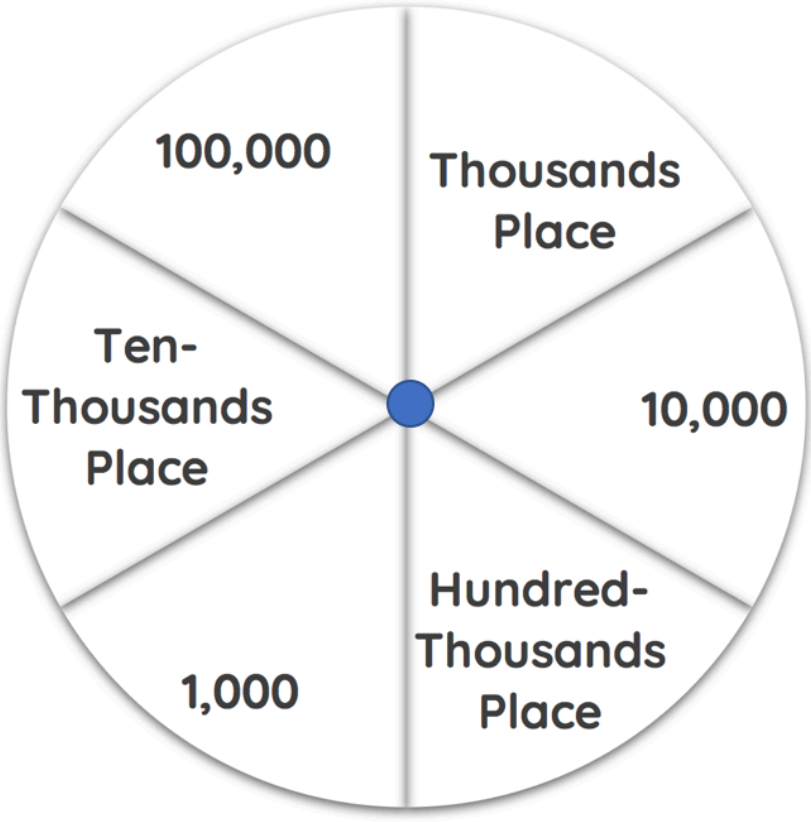
Differentiation:

Support: Put students who struggle in a group with higher students, or modify their spinning wheel to rounding to the nearest one, ten, or hundred. (They would only need to spin for 3 digits)
Enrichment: Allow them to create numbers that are greater than 6 digits, as well as modify their spinner to round into the millions, ten-millions, and hundred-millions places.

Digit Spinner



Rounding Spinner



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: Thumbs Up!

- Student is called on (use name cards or equity cards if available) to state a rounding observation from within the classroom using numbers from 1 to 500.
- Other students signify whether they understand and agree with the observation. (Example: "There are approximately 100 pencils in the classroom because each student has 3 pencils and there are 32 students. 3 times 32 is 96 and 96 rounds to 100.)
- Tally how many students agree with the rounding statements.
- The statement with the most votes or Thumbs Up is the "Round Up Captain"!

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!
- And sit back down quietly please…Thank you!

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.