PLACE VALUE: ROUNDING NUMBERS

Rounding whole numbers helps students estimate quantities and check their work. After solving a math problem, students can quickly estimate to see if their answer is reasonable. In this lesson, students will be able to round numbers to different places and deepen their sense of our number system.

STANDARDS

CCSS.MATH.CONTENT.3.NBT.A.1
Use place value understanding to round whole numbers to the nearest 10 or 100.

OBJECTIVES

- ✓ Students will be able to identify the ones, tens, and hundreds places in a place value chart.
- ✓ Students will be able to round numbers to the nearest 10 or 100.

GUIDING QUESTIONS

What patterns do you see in a place value chart?

How can you use rounding to make a math problem easier to solve?

What strategies do you use to round numbers?

MATERIALS

- ☐ Which is Closer? worksheet
- ☐ Rounding Work Mat worksheets
- ☐ Round Up and Down worksheet
- ☐ Rounding Match Up worksheet
- ☐ Round and Round We Go worksheet
- ☐ Crayons
- ☐ Scissors
- ☐ Glue
- ☐ Page Protector
- ☐ Dry Erase Marker & Eraser
- ☐ (optional) Picture books or cards that show large amounts of items - such as a street with many houses, a jar holding many pencils

ASSESSMENTS

Formative assessments and checks for understanding occur throughout the lesson:

- Observe students' ability to identify the ones, tens, and hundreds places in a number.
- Watch for accuracy as students practice rounding numbers to different places.
- Check students' work during guided and independent practice.

Summative Assessment:
Round and Round We Go

DIFFERENTIATION STRATEGIES

- When using the Rounding Work Mats, begin with the tens place. Place two number cards in the center section until students are ready to attempt rounding three-digit numbers. Model this activity extensively.
- Encourage students to talk about the math as they work. Provide prompts such as, "The first thing I did was..." or "Something I noticed is..."
- Connect the concept of rounding numbers to other math lessons. For example, if students solve a word problem, invite them to check their work by estimating if their answer is reasonable.

EXTENSION ACTIVITIES

- Help students identify times when we use rounded numbers. For example, you could look at pictures in books and estimate how many items you see. You may notice, "There are about 20 houses on this street" or "There may be about 30 pencils in that jar." Ask them to estimate amounts and add them together. Invite them to compare this experience to adding the exact amounts.
- Challenge students to apply their understanding of rounding to other place values. For example, ask them to round 1,438 to the nearest thousand.

ACTIVITY OVERVIEW

Activity 1

Which is Closer?

Students will color the ten that is closer to a given number on a number line.

Activity 2

Guided Practice

Students will round numbers up and down using a reusable work mat.

Activity 3

Independent Practice

Students will practice rounding numbers to different place values.

Activity 4

Rounding Match Up

Students will cut apart estimated values and match them to given numbers by rounding

Activity 5

Round and Round We Go

Students will assess their skills by rounding a set of numbers to given place values.

ACTIVITY 1: WHICH IS CLOSER?

- Invite three students to stand in the front of the room. Tell them to spread out. Ask the students to tell you who is closer to the student in the middle. You may also substitute children for objects by placing three objects in a line. Which object is closer to the one in the middle?
- Tell the students, "We know which person (or object) is closer when we look and compare. We can also line up numbers and find which ones are close to each other."
- Draw a line on the board and write 10 and 20 on each end. Ask students to fill in the missing numbers as they count up by ones.
- Circle one number. Ask the students to identify if this number is closer to 10 or 20. Erase the circle and repeat with different numbers.
- Tell the students, "We are rounding numbers. This means we find a number that is close to our original number. Rounded numbers are easy to use when adding and subtracting because they end in 0. Rounding numbers give us an estimate close to the actual amount."
- Give each student a copy of the Which is Closer? worksheet and read the directions. "Look at the number in each box. Round it to the nearest ten using the number line. Which ten is closer? Color the ten that is closest to the boxed number."
- Help students identify the correct ten as needed.

ACTIVITY 2: GUIDED PRACTICE

- Write a three-digit number on the board. Draw a target above the ones place. Ask students to tell you the "target" place. Then, erase the target and draw a new one above the tens place. Continue with the hundreds place.
- After identifying each place, tell students that we can round numbers to different target places. Sometimes, we round up, and sometimes we round down. We know where to round by looking at the place that comes before the target.
- Give each student a Rounding Work Mat worksheet. They can slide it inside a page protector and use a dry-erase marker. Flip over three cards for the center section.
- Students will rewrite the target number (let it rest on the bottom). Then, they will add one to the target number (bump it up on the top).
- When they look back at the place before the target, they can say this phrase, "5 or more, add 1 to the target. 4 or less... let it rest."
- Model how to circle the final answer. Complete several problems together and see the example for additional help.

ACTIVITY 3: INDEPENDENT PRACTICE

- Reinforce the guided practice activity (Rounding Work Mat) by providing students with more prompts to begin this activity. If working with multiple students, try using the same number cards so everyone can model the same problem.
- Pass out the Round Up and Down worksheet to each student.
- Read the directions. "Look at the target. Round each number to the target place. Begin by filling in the estimates for rounding up and rounding down."
- If students need help, try solving the first problem together. Invite students to share their answers and thinking patterns when finished. Consider using the prompt, "I rounded my number by..."

ACTIVITY 4: ROUNDING MATCH UP

- As students become more familiar with rounding numbers, they will be ready to match given numbers to estimates.
- Provide each student with a copy of the Rounding Match Up worksheet, scissors, and glue.
- Explain the steps to the students. "Cut apart the number cards. Then, round the numbers in the first column to the nearest tens place. Round the numbers in the second column to the nearest hundreds place. Match the number cards and glue them down."
- Emphasize the value of sorting the cards and gluing them at the end so students can make changes to their answers if needed.

ACTIVITY 5: ROUND AND ROUND WE GO

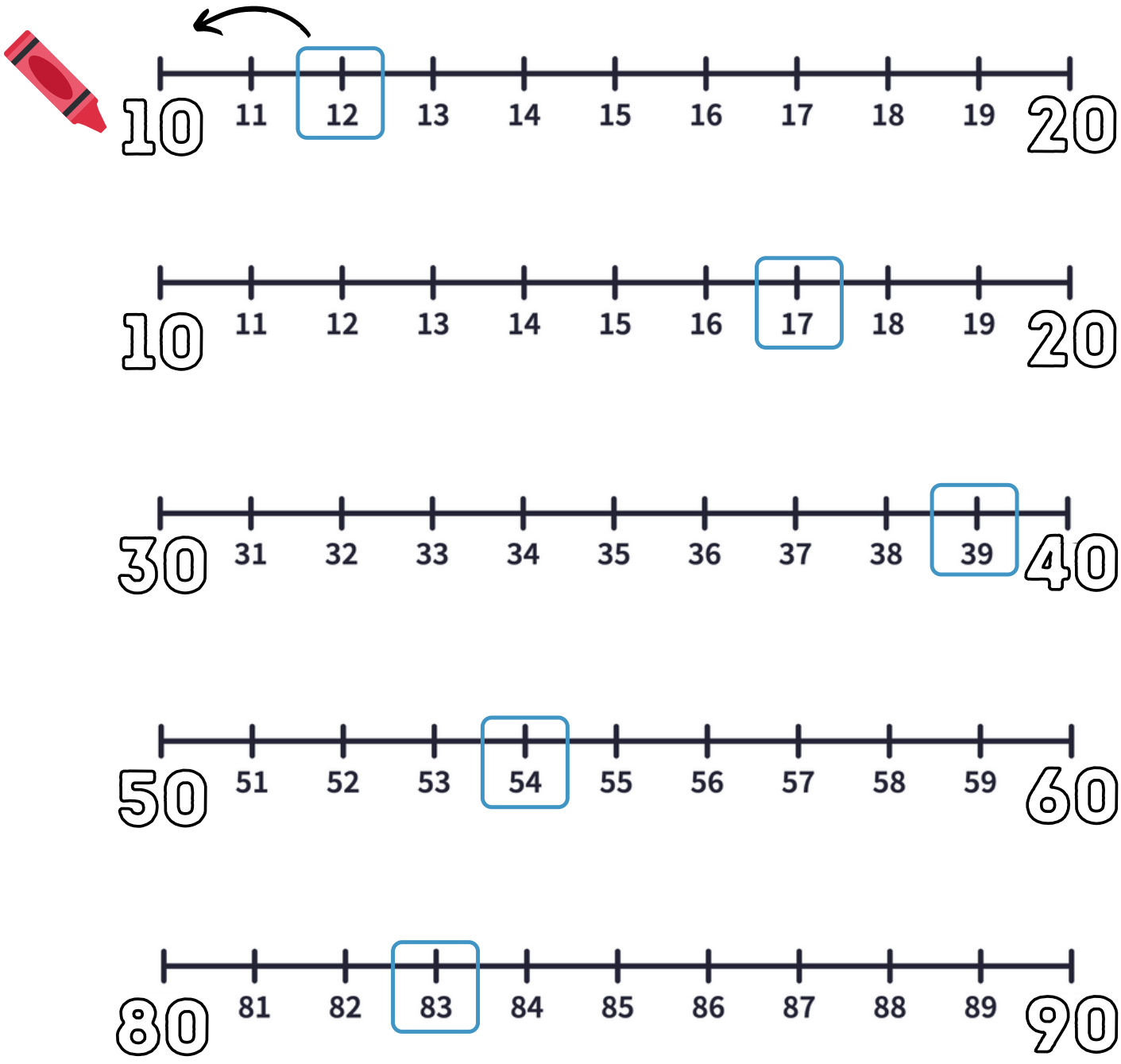
- Assess students' understanding of this lesson using the Round and Round We Go worksheet.
- Instruct them to round each number to the given place. They may use the Rounding Work Mat template if needed or additional scrap paper to show their work.
- Close the activity by asking students to share why rounding numbers can make math problems easier. Reiterate the value of checking their work after solving. Using rounded numbers can make adding and subtracting easier - especially when checking work.

NAME _____ DATE _____

WHICH IS CLOSER?

Look at the number in each box. Round it to the nearest ten using the number line. Which ten is closer? Color the ten that is closest to the boxed number.

H	T	O
Hundreds	Tens	Ones



ANSWER KEY

NAME _____ DATE _____

WHICH IS CLOSER?

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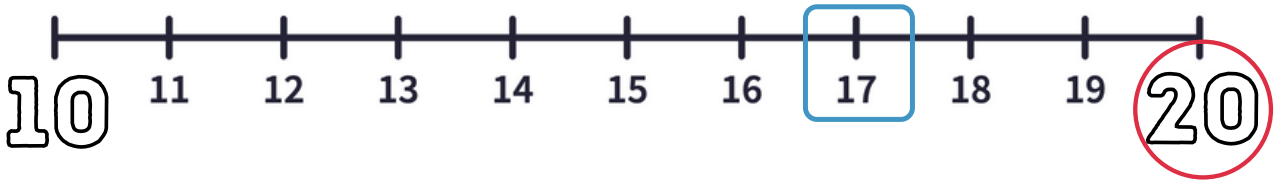
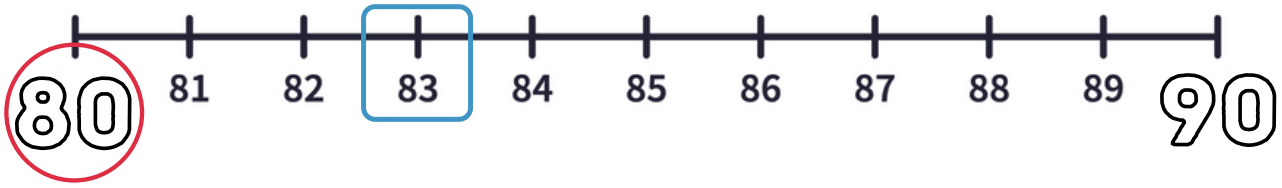
H	T	O
Hundreds	Tens	Ones





NAME _____ DATE _____

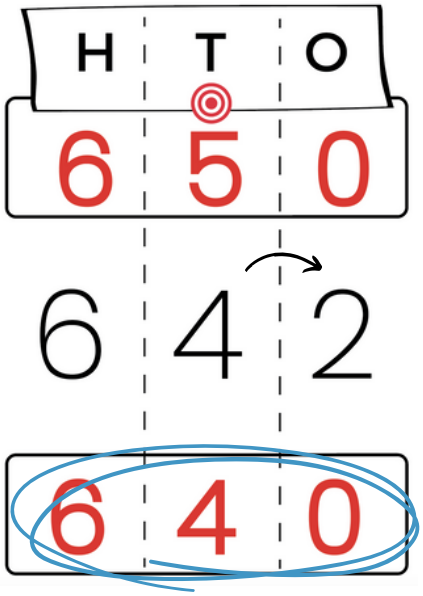
ROUNDING WORK MAT - TENS

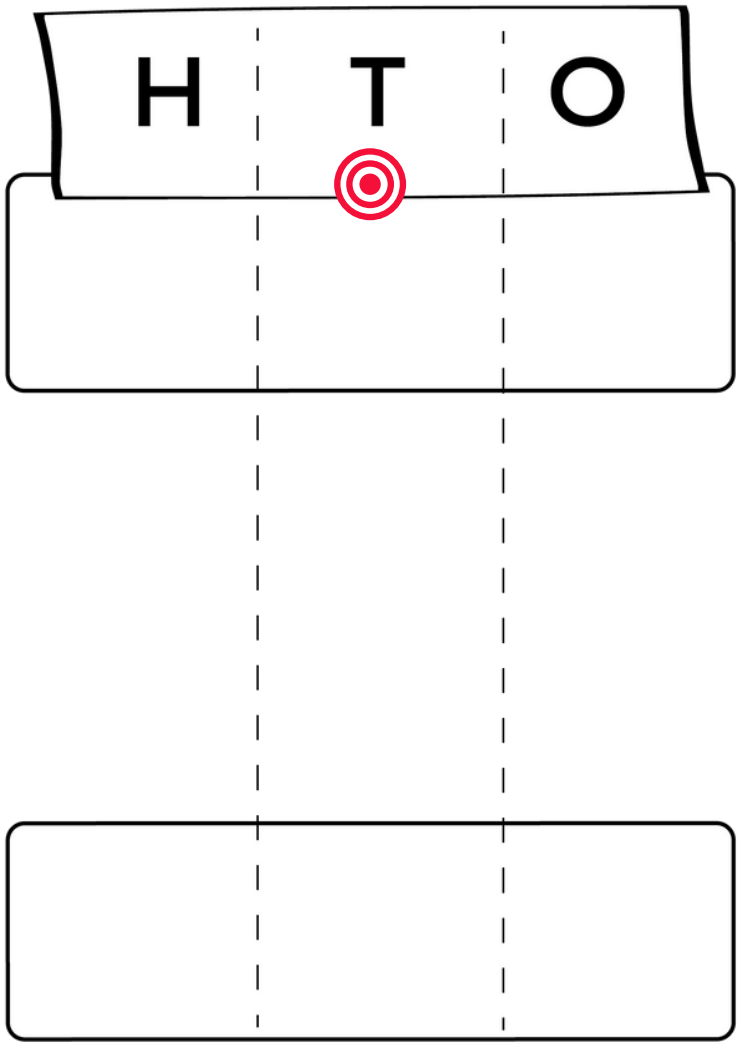
Put this work mat inside a page protector and use a dry-erase marker to practice rounding numbers.

1. Place three number cards in the middle of the mat.
2. Rewrite the target number (let it rest on the bottom).
3. Add one to the target number (bump it up on the top).
4. Look back at the place before the target. "5 or more, add 1 to the target. 4 or less... let it rest."
5. Circle your final answer.

Example:
642 rounds to 640.

1. Place the cards 642 in the middle.
2. Rewrite the target number (tens place) as 40.
3. Bump up the target number to 50.
4. Look back at the ones place. It is "4 or less, so let it rest."
5. Circle 640 as the final answer.





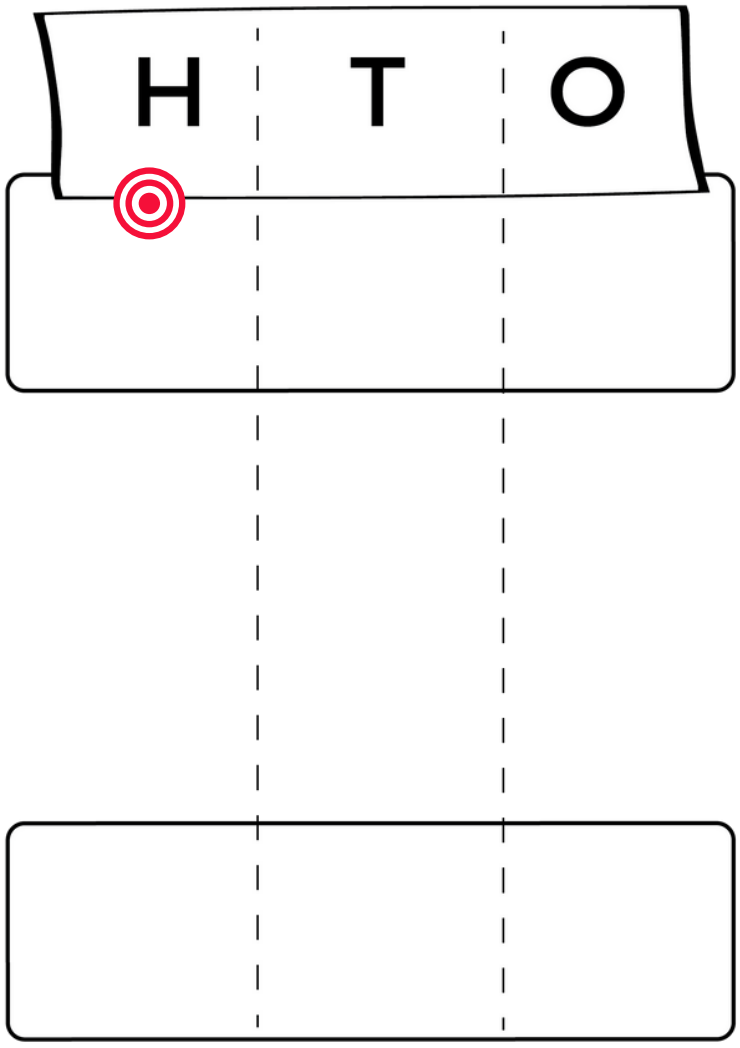
EDUCATE STATION

NAME _____ DATE _____

ROUNDING WORK MAT - HUNDREDS

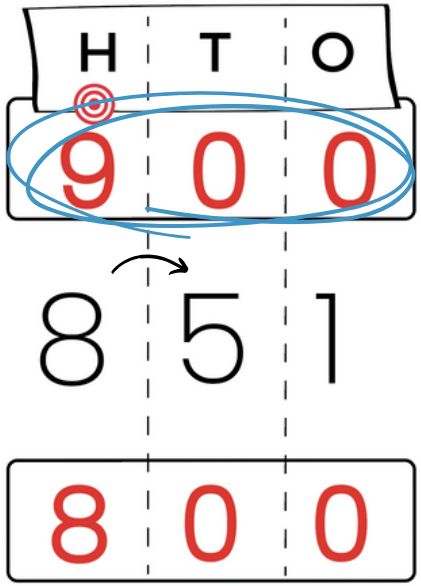
Put this work mat inside a page protector and use a dry-erase marker to practice rounding numbers.

1. Place three number cards in the middle of the mat.
2. Rewrite the target number (let it rest on the bottom).
3. Add one to the target number (bump it up on the top).
4. Look back at the place before the target. "5 or more, add 1 to the target. 4 or less... let it rest."
5. Circle your final answer.



Example:
851 rounds to 900.

1. Place the cards 851 in the middle.
2. Rewrite the target number (hundreds place) as 800.
3. Bump up the target number to 900.
4. Look back at the tens place. It is "5 or more" so it rounds up.
5. Circle 900 as the final answer.



EDUCATE STATION

ROUNDING WORK MAT CARDS

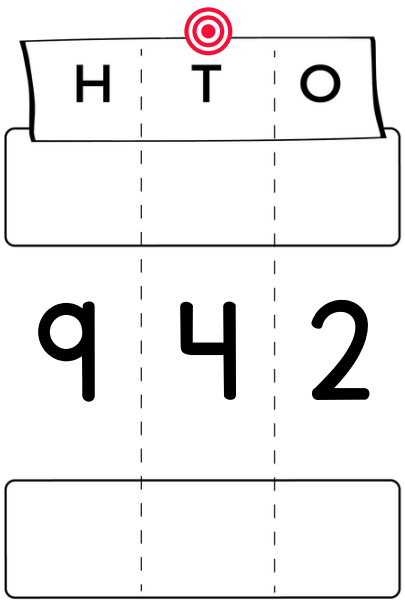
Cut apart the cards to use with the Rounding Work Mat.

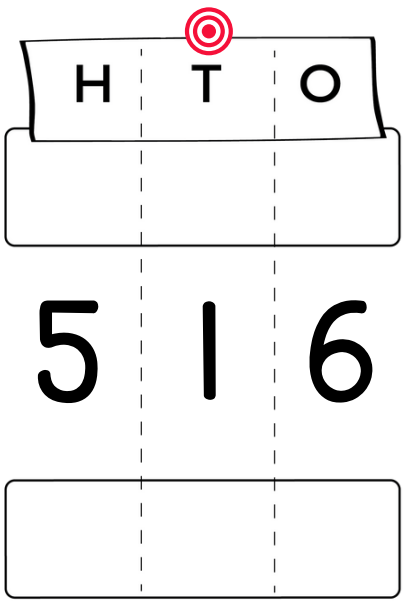
0	1	2	3
4	5	6	7
8	9	0	1
2	3	4	5
6	7	8	9

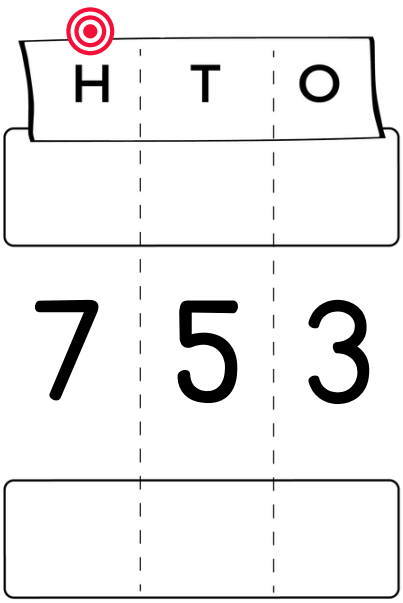
NAME _____ DATE _____

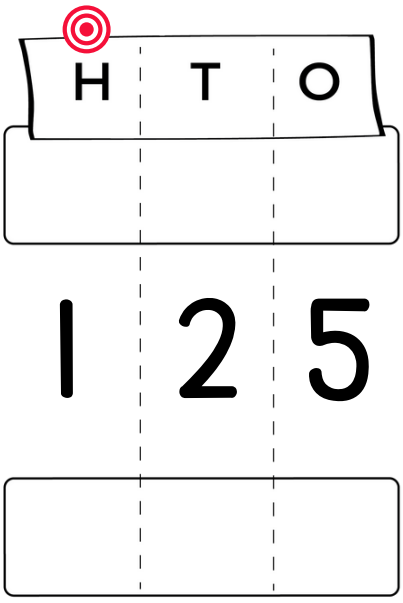
ROUND UP AND DOWN

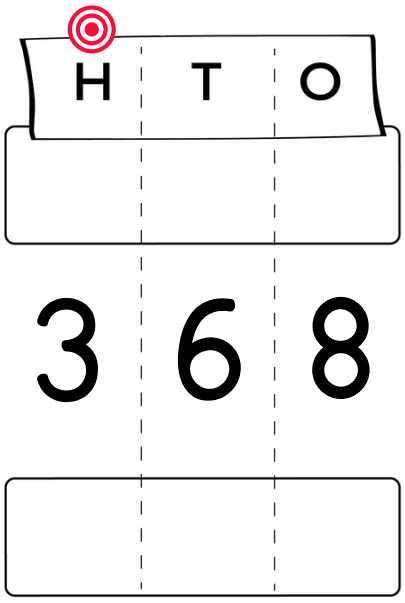
Look at the target. Round each number to the target place. Begin by filling in the estimates for rounding up and rounding down.

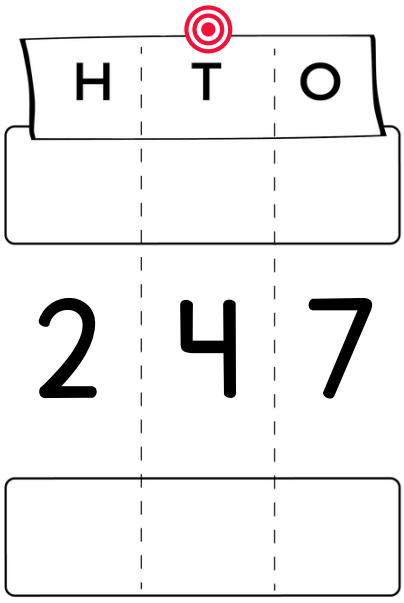












ANSWER KEY

NAME _____ DATE _____

ROUND UP AND DOWN

Look at the target. Round each number to the target place. Begin by filling in the estimates for rounding up and rounding down.

H	T	O
9	5	0

9 4 2

9	4	0

H	T	O
5	2	0

5 1 6

5	1	0

H	T	O
8	0	0

7 5 3

7	0	0

H	T	O
2	0	0

1 2 5

1	0	0

H	T	O
4	0	0

3 6 8

3	0	0

H	T	O
2	5	0

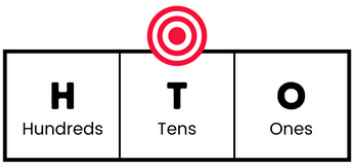
2 4 7

2	4	0

NAME _____ DATE _____

ROUNDING MATCH UP

Cut apart the number cards. Then, round the numbers in the first column to the nearest tens place. Round the numbers in the second column to the nearest hundreds place. Match the number cards and glue down.

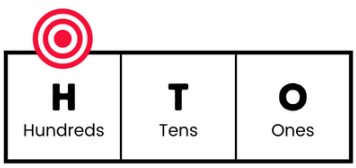


187 _____

416 _____

175 _____

432 _____



187 _____

416 _____

129 _____

463 _____

420

430

100

200

500

400

180

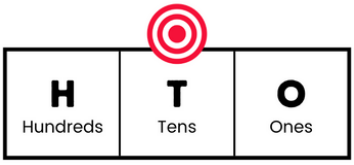
190

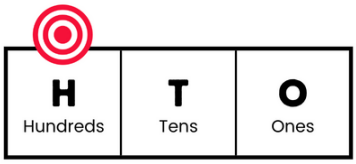
ANSWER KEY

NAME _____ DATE _____

ROUNDING MATCH UP

Cut apart the number cards. Then, round the numbers in the first column to the nearest tens place. Round the numbers in the second column to the nearest hundreds place. Match the number cards and glue down.





187	190	187	200
416	420	416	400
175	180	129	100
432	430	463	500

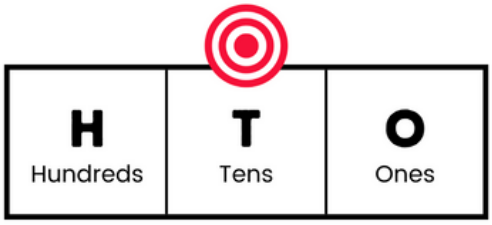
420
430
100
200
500
400
180
190

NAME _____ DATE _____

ROUND AND ROUND WE GO

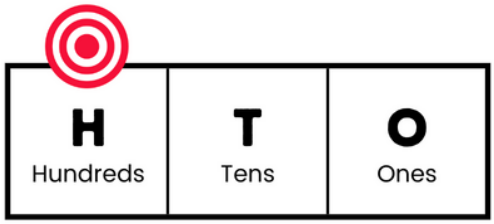
Round each number to the given place.

Round to the Tens Place



- 63 _____
- 74 _____
- 15 _____
- 39 _____
- 52 _____
- 81 _____

Round to the Hundreds Place



- 213 _____
- 423 _____
- 332 _____
- 281 _____
- 533 _____
- 387 _____
- 166 _____
- 142 _____
- 691 _____

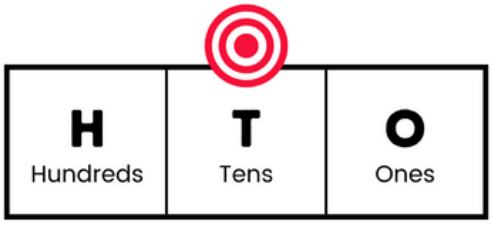
ANSWER KEY

NAME _____ DATE _____

ROUND AND ROUND WE GO

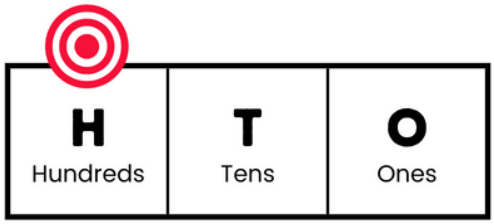
Round each number to the given place.

Round to the Tens Place



- 63 60
- 74 70
- 15 20
- 39 40
- 52 50
- 81 80

Round to the Hundreds Place



- 213 200
- 423 400
- 332 300
- 281 300
- 533 500
- 387 400
- 166 200
- 142 100
- 691 700