Rounding on the Hundreds Chart

Strand: Number and Number Sense

Topic: Rounding to the nearest ten

Primary SOL: 2.1 The student will

> d) round two-digit numbers to the nearest ten.

Related SOL: 2.2a, 2.5a

Materials
- Rounding on the Hundreds Chart activity sheet (attached)
- Transparent counters
- Two-color counters (red/yellow)
- Red and yellow colored pencils or crayons

Vocabulary
column, digit, estimate, nearest, one-digit, ones, place value, rounding, rows, skip count, tens, two-digit, value

Student/Teacher Actions: What should students be doing? What should teachers be doing?

1. Distribute the Rounding on the Hundreds Chart activity sheet and the transparent counters. Starting at zero, have students count by tens to 100 and place a transparent counter on each number as they say it aloud. Because zero does not appear on the chart, talk to the students about where the zero should be and, if necessary, have students write a zero on their charts.

2. Select a number that is rather close to a ten, such as 29. Tell the students to find the number on their hundreds charts and place a finger on the number. Ask, *"What two tens does the number 29 fall between?"* (20 and 30) *"Which ten is 29 closest to?"* (30) *"How do you know that number is the closest ten?"* (When counting, 29 is one number away from 30 and nine numbers away from 20.)

3. Distribute the two-color counters. Call out the number 30, and direct students to place the red side up if the number rounds up to the larger ten and the yellow side up if the number rounds down to the smaller ten. Ask a student to tell which color counter he/she placed on the number 30 and why.

4. Choose a few more numbers, such as 52, 14, 97, and 3. Discuss which ten each number rounds to. Each time, be sure to ask the students to explain their reasoning, and place the appropriate color counter on their hundreds charts.

5. Choose a number, such as 75, to discuss how to round to a number that has a 5 in the ones place. Students will learn that if the digit in the ones place is 5 or greater, they should round the number to the higher ten. Again, ask students to explain their reasoning and place the appropriate-color counter on their hundreds charts.

6. Allow students to work in pairs to continue to fill in the hundreds chart and look for a rounding pattern. Distribute red and yellow pencils or crayons, and once students have

found a rounding pattern, have them record their findings permanently on their hundreds charts.

7. When student pairs have been given time to explore and record, regroup as a whole class and discuss the patterns they observed on the hundreds chart. (On a large laminated hundreds chart record their discovery and post as a mathematics tool). Invite students to share their observations with the class. (All numbers with a 1, 2, 3, or 4 in the ones place round to the smaller ten, and all numbers with a 5, 6, 7, 8, or 9 round to the larger ten.)

Assessment

- **Questions**
  - Why do some numbers round to the larger ten and other numbers round to the smaller ten?
  - What does the phrase "round to the nearest ten" mean?
  - Do any numerals, zero through 9, present challenges when rounding? If so, what makes those numerals challenging?
  - How does rounding on a hundreds chart compare to rounding on a number line?

- **Journal/writing prompts**
  - John's class has not yet learned anything about rounding. Create a rounding rule with pictures or words that can help John learn to round to the nearest ten.
  - Create a poem or a rhyme that can help you remember the rounding pattern you discovered on the hundreds chart.
  - Darnella has 75 jellybeans. Round 75 to the nearest ten, and explain in writing your reasoning.

- **Other Assessments**
  - Monitor students as they work with their partner. Be sure that students record their information on their hundreds charts.
  - Have students complete the following statements: "Today I learned … . Tomorrow I need to learn … ."

Extensions and Connections (for all students)

- Show how rounding can be used in practical situations.
- Tell students that rounding is often used as a way to estimate something. Describe how rounding can help them estimate solutions for addition and subtraction problems.
- Discuss with students that in life, knowing when an estimate is appropriate or whether an exact answer is necessary is an important skill. Compare situations where estimation is acceptable and where exact answers are required. (For example, a doctor prescribing medication must use an exact amount, but a person planning food for a party could use an estimate of the amount needed.)

- Challenge students to think about rounding larger numbers to the nearest tens. Ask whether the pattern observed with two-digit numbers will continue with three-digit numbers and with four-digit numbers. Have students explain why or why not.

Strategies for Differentiation

- Students having trouble using the hundreds chart may find it helpful to cut the chart into rows and tape the rows together to create a number line.
- Students having trouble understanding the location of the smaller ten because it appears on the previous row may find it helpful to write in the smaller ten outside the border of the chart, as shown on the next page.

0	1	2	3	4	5	6	7	8	9	10
10	11	12	13	14	15	16	17	18	19	20
20	21	22	23	24	25	26	27	28	29	30
30	31	32	33	34	35	36	37	38	39	40
40	41	42	43	44	45	46	47	48	49	50

- Students may need to use base-10 blocks to create a visual representation of the number to be rounded. First, students will build the number to be rounded. Then, using the hundreds chart, they will identify the ten that comes before and the ten that comes after.
- Display a hundreds chart on an interactive whiteboard. Create a visual highlight for the two appropriate tens for the number being discussed.
- Use a number line or a section of a number line for developing concepts of rounding.
- Redirection and corrective feedback should be given throughout lesson.

Note: The following pages are intended for classroom use for students as a visual aid to learning.

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Rounding on the Hundreds Chart
Directions: Shade in the hundreds chart below. If the number rounds to the larger ten, shade it red. If the number rounds to the smaller ten, shade it yellow.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

On the lines below, describe any patterns you see on the chart.

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