Board Games for Early Mathematics © 2020 by Kathleen Hansen. Revised June 2021. This work is licensed under the Creative Commons Attribution 4.0 International License. To view a copy of this license, visit http://creativecommons.org/licenses/by/4.0/ or send a letter to Creative Commons, P0 Box 1866, Mountain View, CA 94042, USA.

Board Games for Early Mathematics: Rounding

Start at the beginning, and stick to the order given. Skipping is OK if a learner can use the concepts to solve problems. For tips, background info, and an assessment to show if a different section would help, visit reckonmath.com.

This packet includes these rounding games and activities:

Think about rounding and why it is useful The answer has to be either ____ or ____, tens place The answer has to be either ____ or ____, hundreds place Up or down? Up or down? Tens place Up or down? Tens place Up or down? Tens place, 3-digit Round to the tens place Round to the hundreds place Round to the tens place, 3-digit numbers

CCSS.MATH.CONTENT.3.NBT.A.1

Think about rounding and why it is useful

Rounding is a way to take a complicated number and switch it for a simpler number.

How many buildings are in the town where you live? In a tiny town, there might be 15 or 20 buildings. In a larger town, there might be 2000 buildings. In a city, there are many more than 2000 buildings. Suppose you ask how many buildings are in your town. And suppose that number is 31,862 buildings. What are you really hoping to find out? You might just want the approximate number. Knowing there are about 30,000 buildings could be fine. Does it really matter whether there are 31,862 or 31,863? Probably not.

Rounding is a way to take a complicated number like 31,862 and switch it for a simpler number like 30,000.

Numbers with lots of zeros are simpler to use. Numbers with lots of non-zero digits are harder to use. So rounding helps you take a number that doesn't have many zeros, and switch it for a number with more zeros.

The only thing is, you can't use just any number with zeros. You need to find a number that has zeros and makes sense. Rounding is a reliable way to find numbers that have zeros and make sense. Questions? reckonmath.com

An adult helper can walk learners through this discussion activity, or learners who are comfortable reading can work on their own or with a partner. Learners who aren't used to talking about a text with a partner can use this method: Put a check mark next to any line that makes sense right away. Now look at one of the other lines. Talk about the line with each other. Can the two of you figure out why it makes sense? If you can, put a check mark by it. If you can't, move on to another line. Keep doing this until you have tried to figure out every line. If any lines still don't have a check mark. ask someone else to help you understand why those lines make sense.

The answer has to be either ____ or ___, tens place The number is ____, so the answer is either ____ or ___.

70	20	60	10	0
30	90	100	80	40
50	70	FREE SPACE	20	0
90	50	30	60	80
10	40	100	80	70

Questions? reckonmath.com



Two ten-sided dice, and counters in two colors.

The first step in rounding is to figure out what answers are possible. There are always two possible answers. In later games you will learn how to choose one of them. Right now, focus on finding both of them. How to play: On your turn, roll the dice to make a 2-digit number. Say two numbers that end with a zero, are ten apart, and have the number you rolled between them. Example: If you roll a 2 and a 4 you could make the number 24. Say "The answer has to be either 20 or 30." Cover both 20 and 30. If no answers are available, it is the other player's turn. The first player to get five in a row wins. If the board fills and no one has five in a row, the player with more counters wins.

Board Games for Early Mathematics © 2020 by Kathleen Hansen. Revised June 2021. This work is licensed under the Creative Commons Attribution 4.0 International License. To view a copy of this license, visit http://creativecommons.org/licenses/by/4.0/ or send a letter to Creative Commons, P0 Box 1866, Mountain View, CA 94042, USA.

The answer has to be either or, hundreds place										
The number is, so the answer is either or										
		,				Three ten-sided dice, and counters in two colors.				
	700	200	600	100	0	The first step in rounding is to figure out what answers are possible. There are always two possible answers. In later games you				
	300	900	1000	800	400	will learn how to choose one of them. Right now, focus on finding both of them. How to play: On your turn, roll the dice to make a				
	500	700	FREE SPACE	200	0	3-digit number. Say two numbers that end with two zeros, are one hundred apart, and have your				
	900	500	300	600	800	number between them. Example: If you roll 5, 1, 7, you could make the number 517. Say "The answer has to be either 500				
	100	400	1000	800	700	or 600." Cover both 500 and 600. If no answers are available, it is the other player's turn. The first player				

Board Games for Early Mathematics © 2020 by Kathleen Hansen. Revised June 2021. This work is licensed under the Creative Commons Attribution 4.0 International License. To view a copy of this license, visit http://creativecommons.org/licenses/by/4.0/ or send a letter to Creative Commons, P0 Box 1866, Mountain View, CA 94042, USA.

2

to get five in a row wins. If the board fills and no one has five in a row, the player with more counters wins.

Up or down?

The number is _____. That is [5 or more / less than 5], so we round [up / down].

down

down

Round Round Round Round Round Round Round up up up up up up up **END** Round Round Round Round Round Round Round down down down down down down down Round Round Round Round Round Round Round up up up up up up up Round Round Round Round Round Round Round down down down down down down down Round Round Round Round Round Round up up up up up up **START** Round Round Round Round Round Round

down

down

down

Questions? reckonmath.com



One ten-sided die, one 0-5 frame die, and two counters.

In this game, you practice a rule you will use later. How to play: On your turn, roll the ten-sided die and the frame die. The frame die tells you how many spaces to move forward. If it is showing zero, roll it again. The ten-sided die tells you whether "round down" or "round up" is the right option. If the ten-sided die shows a 0, 1, 2, 3, or 4, put your counter on "Round down". If the ten-sided die shows a 5, 6, 7, 8, or 9, put your counter on "Round up". Example: If you roll a 5 on the ten-sided die, choose "Round up." The first player to land on END wins.

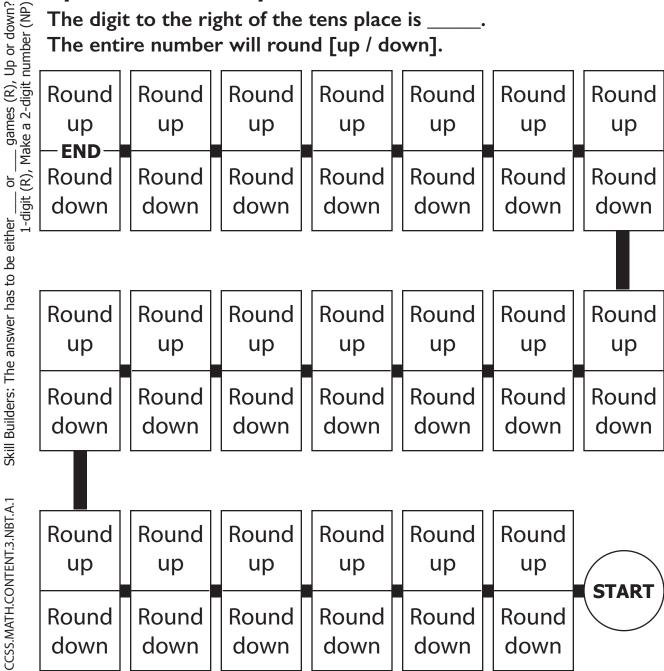
down

2

Board Games for Early Mathematics © 2020 by Kathleen Hansen. Revised June 2021. This work is licensed under the Creative Commons Attribution 4.0 International License. To view a copy of this license, visit http://creativecommons.org/licenses/by/4.0/ or send a letter to Creative Commons, P0 Box 1866, Mountain View, CA 94042, USA.

Up or down? Tens place

The digit to the right of the tens place is . The entire number will round [up / down].



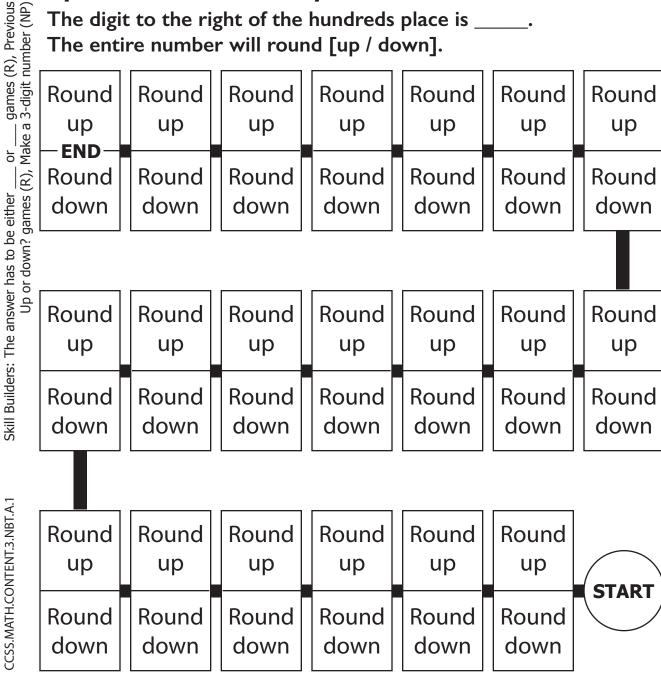
reckonmath.com **Ouestions?**



Two ten-sided dice, one 0-5 frame die, and two counters.

In this game, you practice a rule you will use later. How to play: On your turn, roll the ten-sided dice and the frame die. The frame die tells you how many spaces to move forward. If it is showing zero, roll it again. With the two ten-sided dice, make a 2-digit number. This game is about the tens place", so look at the digit TO THE RIGHT OF the tens place: the digit in the ones place. If it is 0, 1, 2, 3, or 4, put your counter on "Round down". If it is 5, 6, 7, 8, or 9, put your younter on "Round up". Example: If the ten-sided dice show a 2 and a 5, you could make 25. The digit to the right of the tens place is 5, so choose "Round up." The first player to land on END wins.

The digit to the right of the hundreds place is . The entire number will round [up / down].



reckonmath.com **Ouestions?**

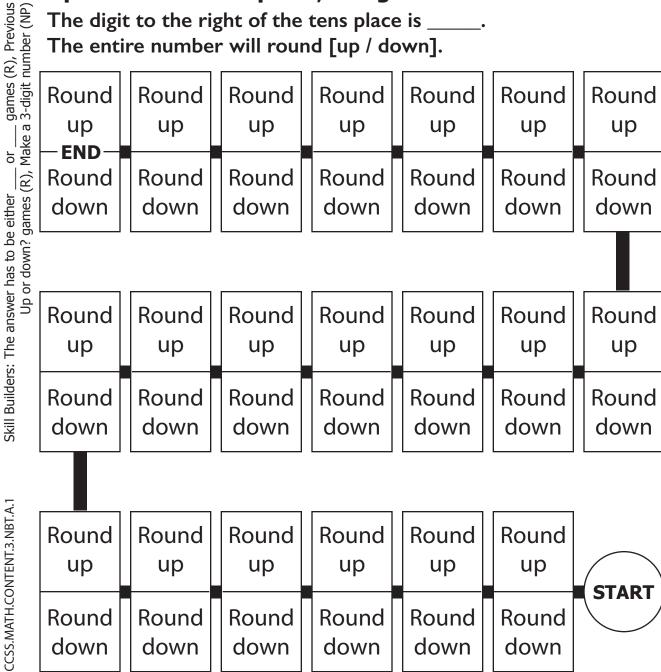


Three ten-sided dice, one 0-5 frame die, and two counters.

2

In this game, you practice a rule you will use later. How to play: On your turn, roll the ten-sided dice and the frame die. The frame die tells you how many spaces to move forward. If it is showing zero, roll it again. With the three ten-sided dice, make a 3-digit number. This game is about the hundreds place", so look at the digit TO THE **RIGHT OF the hundreds** place: the digit in the tens place. If it is 0, 1, 2, 3, or 4, put your counter on "Round down". If it is 5, 6, 7, 8, or 9, put your counter on "Round up". Example: If the ten-sided dice show a 3, a 5 and a 1, you could make 351. The digit to the right of the hundreds place is 5, so choose "Round up." The first player to land on END wins.

The digit to the right of the tens place is . The entire number will round [up / down].



two counters. In this game, you practice a rule you will use later. How to play: On your turn, roll the ten-sided dice and the frame die. The frame die tells you how many spaces to move forward. If it is showing zero, roll it again. With the three ten-sided dice, make a 3-digit number. This game is about the tens place", so look at the digit TO THE RIGHT OF the tens place: the digit in the ones place. If it is 0, 1, 2, 3, or 4, put your counter on "Round down". If it is 5, 6, 7, 8, or 9, put your counter on "Round up". Example: If the ten-sided dice show a 4, a 2 and a 5, you could make 425. The digit to the right of the tens place is 5, so choose "Round up." The first player to land on END

Three ten-sided dice, one 0-5 frame die, and

reckonmath.com

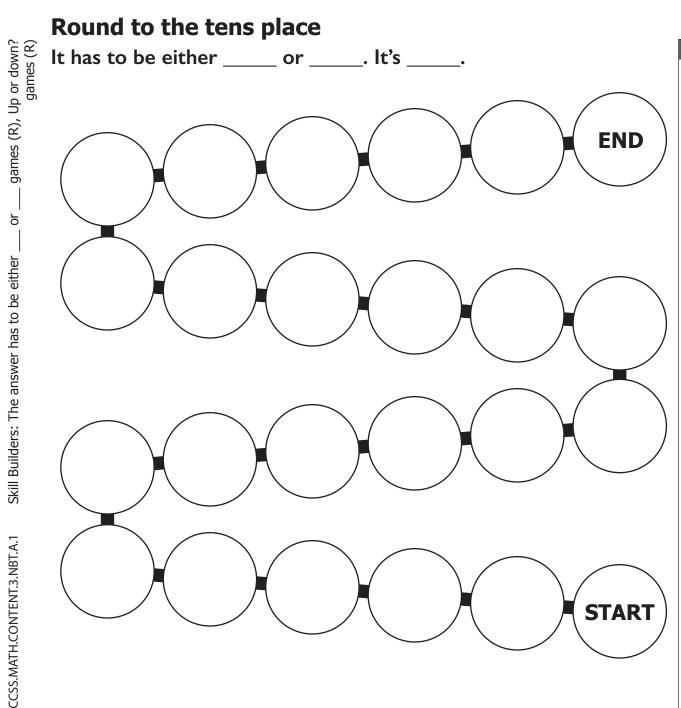
133

Ouestions?

(13)

(13)

wins.



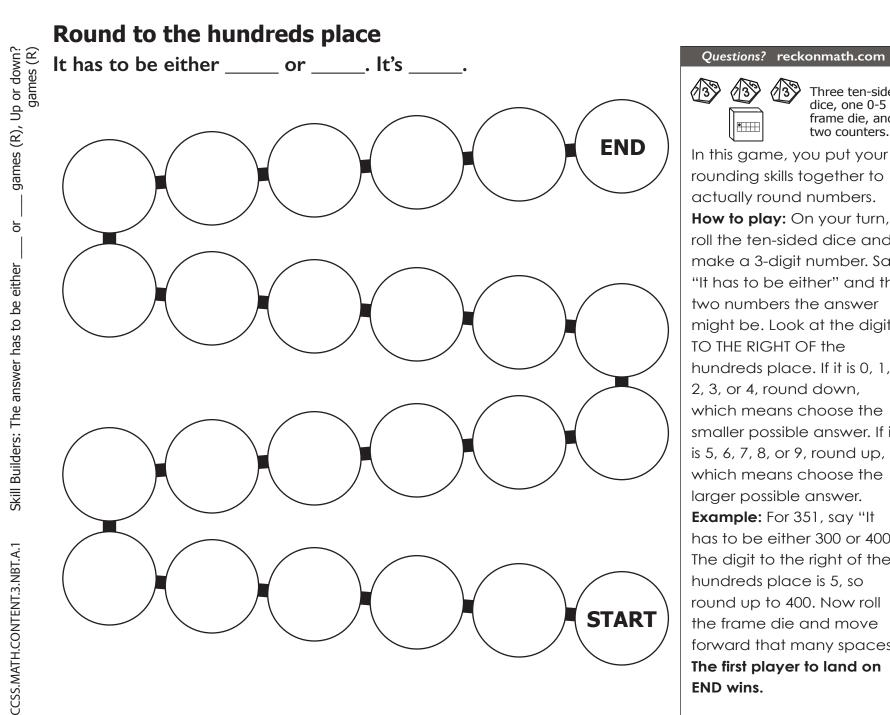
Questions? reckonmath.com



Two ten-sided dice, one 0-5 frame die, and two counters.

In this game, you put your rounding skills together to actually round numbers. How to play: On your turn, roll the ten-sided dice and make a 2-digit number. Say "It has to be either" and the two numbers the answer might be. Look at the digit TO THE RIGHT OF the tens place. If it is 0, 1, 2, 3, or 4, round down, which means choose the smaller possible answer. If it is 5, 6, 7, 8, or 9, round up, which means choose the larger possible answer. Example: For 25, say "It has to be either 20 or 30." The digit to the right of the tens place is 5, so round up to 30. Now roll the frame die and move forward that many spaces. The first player to land on END wins.

Board Games for Early Mathematics © 2020 by Kathleen Hansen. Revised June 2021. This work is licensed under the Creative Commons Attribution 4.0 International License. To view a copy of this license, visit http://creativecommons.org/licenses/by/4.0/ or send a letter to Creative Commons, P0 Box 1866, Mountain View, CA 94042, USA.



rounding skills together to actually round numbers. How to play: On your turn, roll the ten-sided dice and make a 3-digit number. Say "It has to be either" and the two numbers the answer might be. Look at the digit TO THE RIGHT OF the hundreds place. If it is 0, 1, 2, 3, or 4, round down, which means choose the smaller possible answer. If it is 5, 6, 7, 8, or 9, round up, which means choose the larger possible answer. Example: For 351, say "It has to be either 300 or 400." The digit to the right of the hundreds place is 5, so round up to 400. Now roll the frame die and move forward that many spaces. The first player to land on END wins.

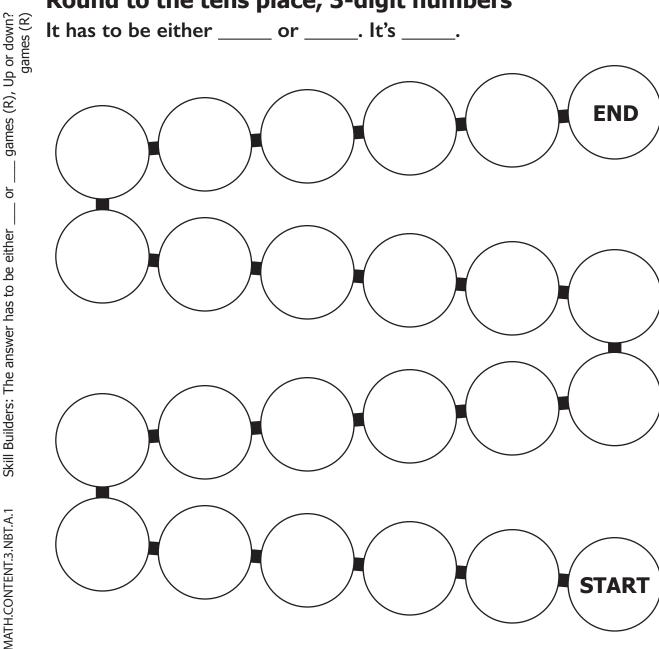
Questions? reckonmath.com

Three ten-sided dice, one 0-5 frame die, and

two counters.

23

•

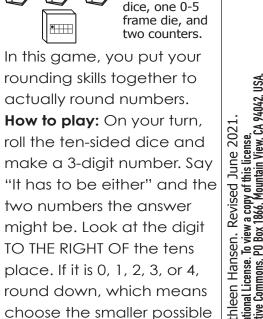


Round to the tens place, 3-digit numbers

Р

Skill Builders: The answer has to be either

CCSS.MATH.CONTENT.3.NBT.A.1



Board Games for Early Mathematics © 2020 by Kathleen Hansen. Revised June 2021. This work is licensed under the Creative Commons Attribution 4.0 International License. To view a copy of this license, visit http://creativecommons.org/licenses/by/4.0/ or send a letter to Creative Commons, P0 Box 1866, Mountain View, CA 94042, USA.

2

Ouestions? reckonmath.com

answer. If it is 5, 6, 7, 8, or 9, round up, which means choose the larger possible answer. Example: For 315, say "It has to be either 310 or 320." The digit to the right

of the tens place is 5, so round up to 320. Now roll the frame die and move

forward that many spaces. The first player to land on

END wins.

Three ten-sided

23

133

(13)