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? Hundreds 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

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.

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

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.

The answer has to be either ___ or ___, hundreds place

The number is _____, so the answer is either _____ or _____.

700	200	600	100	0
300	900	1000	800	400
500	700	**FREE SPACE**	200	0
900	500	300	600	800
100	400	1000	800	700

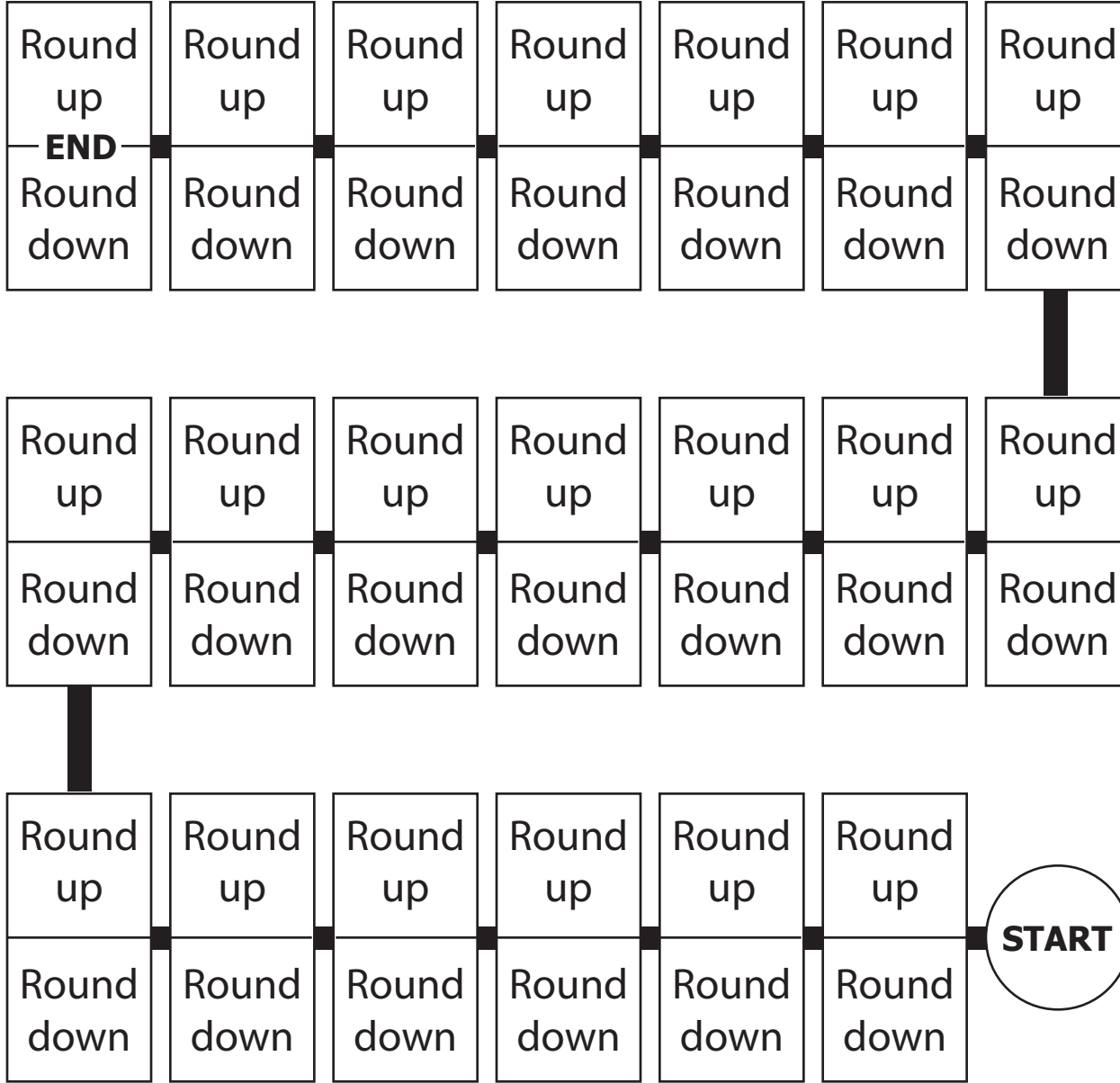Three ten-sided dice, and counters in two colors.

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 3-digit number. Say two numbers that end with two zeros, are one hundred apart, and have your number between them. **Example:** If you roll 5, 1, 7, you could make the number 517. Say "The answer has to be either 500 or 600." Cover both 500 and 600. 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.

Up or down?

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

Round up	Round up	Round up	Round up	Round up	Round up	Round up
END						
Round down	Round down	Round down	Round down	Round down	Round down	Round down

| Round up | Round up | Round up | Round up | Round up | Round up | Round up |
| Round down | Round down | Round down | Round down | Round down | Round down | Round down |

| Round up | Round up | Round up | Round up | Round up | Round up | **START** |
| Round down | Round down | Round down | Round down | Round down | Round down | |

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.**

Up or down? Tens place

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

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

Round up	Round up	Round up	Round up	Round up	Round up	Round up
Round down	Round down	Round down	Round down	Round down	Round down	Round down

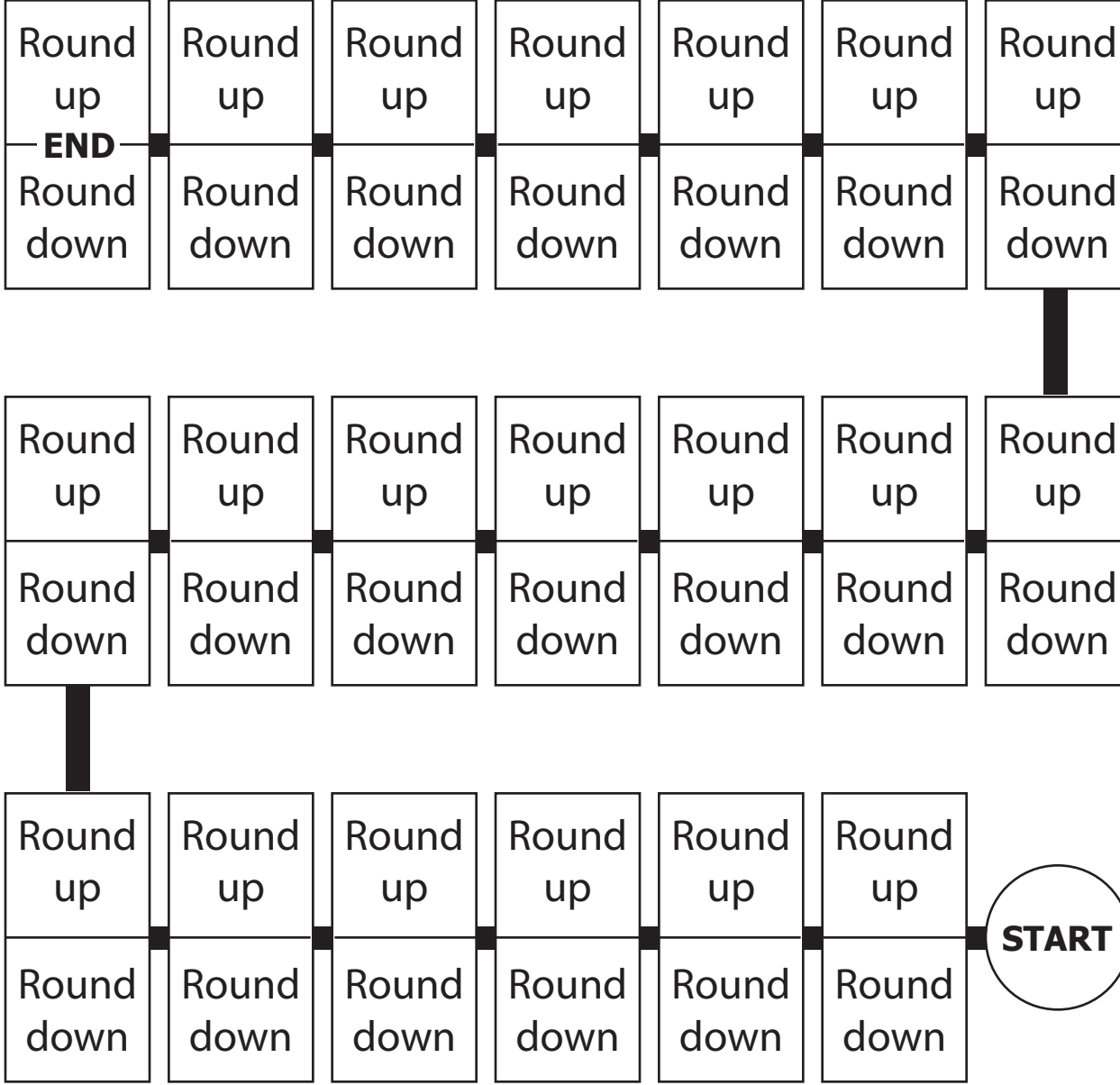|						
Round up	Round up	Round up	Round up	Round up	Round up	**START**
Round down	Round down	Round down	Round down	Round down	Round down	

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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.**

Up or down? Hundreds place

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

| Round up END | Round up | Round up | Round up | Round up | Round up | Round up |
| Round down | Round down | Round down | Round down | Round down | Round down | Round down |

| Round up | Round up | Round up | Round up | Round up | Round up | Round up |
| Round down | Round down | Round down | Round down | Round down | Round down | Round down |

| Round up | Round up | Round up | Round up | Round up | Round up | **START** |
| Round down | Round down | Round down | Round down | Round down | Round down | |

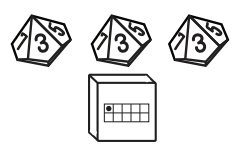Three ten-sided dice, one 0-5 frame die, and two counters.

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 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.**

Up or down? Tens place, 3-digit

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

Round up END	Round up	Round up	Round up	Round up	Round up	Round up
Round down	Round down	Round down	Round down	Round down	Round down	Round down

Round up	Round up	Round up	Round up	Round up	Round up	Round up
Round down	Round down	Round down	Round down	Round down	Round down	Round down

Round up	Round up	Round up	Round up	Round up	Round up
Round down	Round down	Round down	Round down	Round down	Round down

START

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 wins.**

Round to the tens place

It has to be either _____ or _____. It's _____.
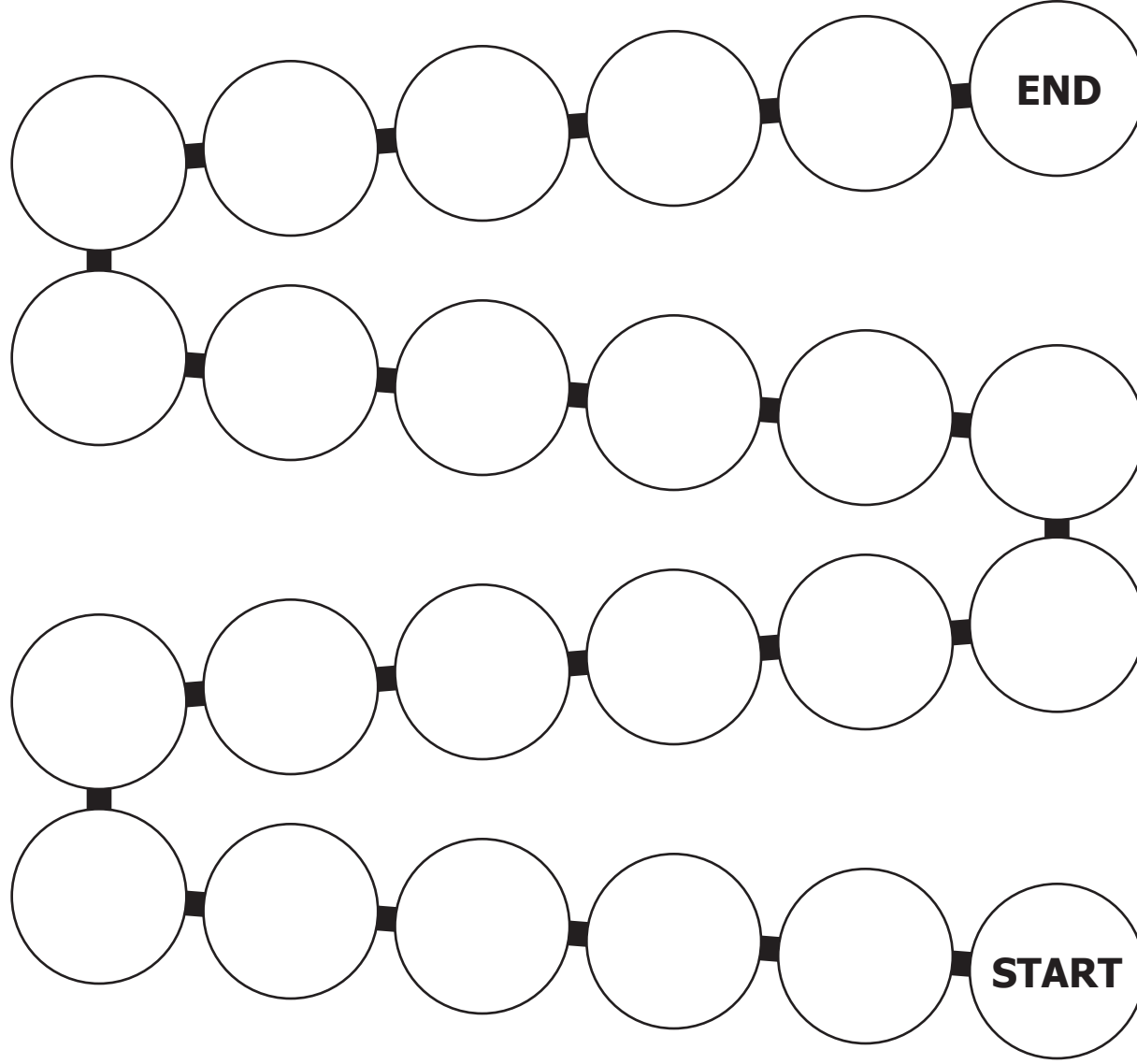
END

START

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.**

Round to the hundreds place

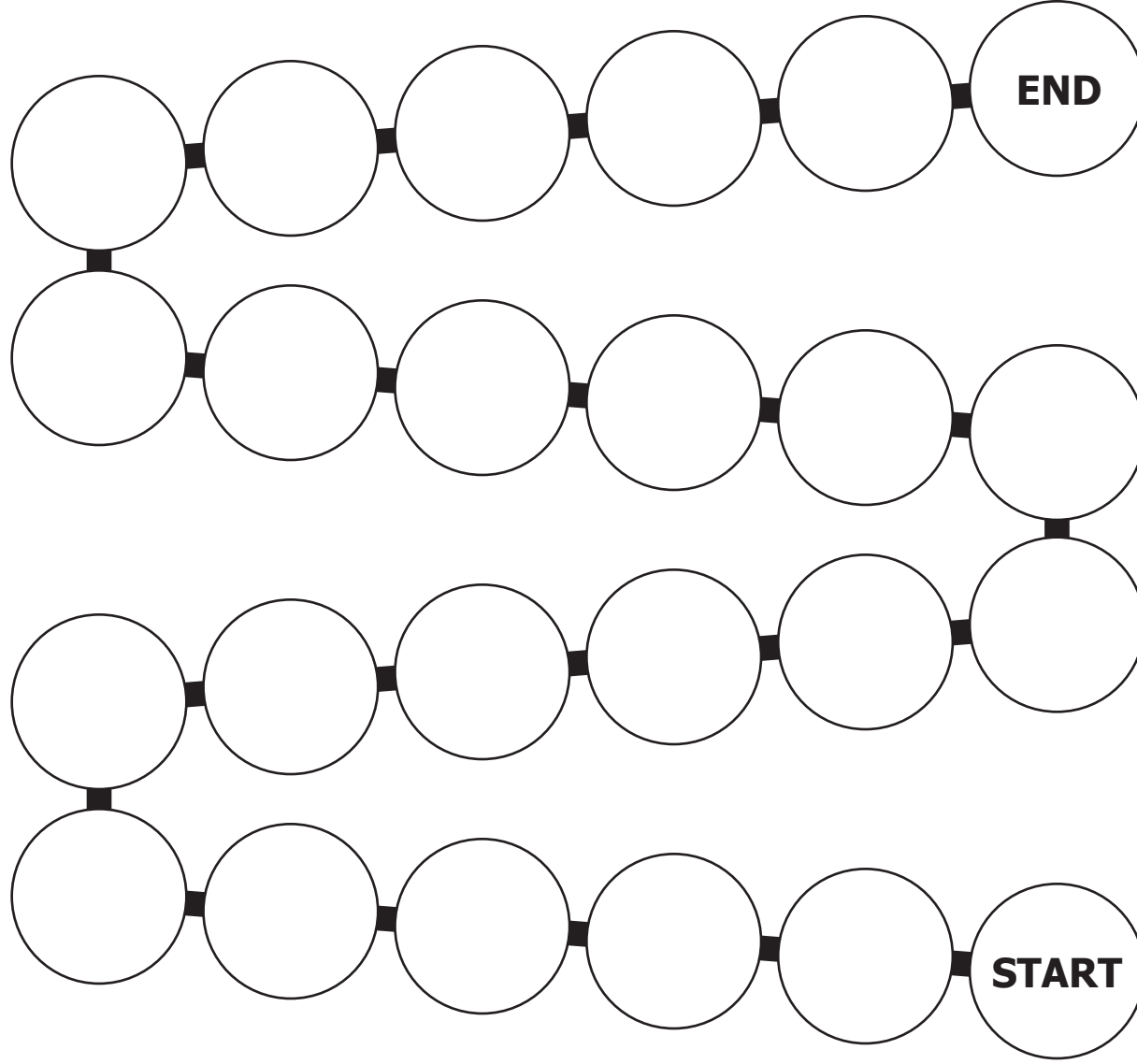It has to be either _____ or _____. It's _____.

START

END

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

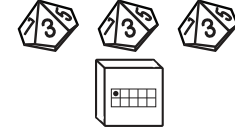In this game, you put your rounding skills together to actually round numbers.

How to play: On your turn, roll the ten-sided dice and make a 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.

Round to the tens place, 3-digit numbers

It has to be either _____ or _____. It's _____.

END

START

Three 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 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 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 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.**