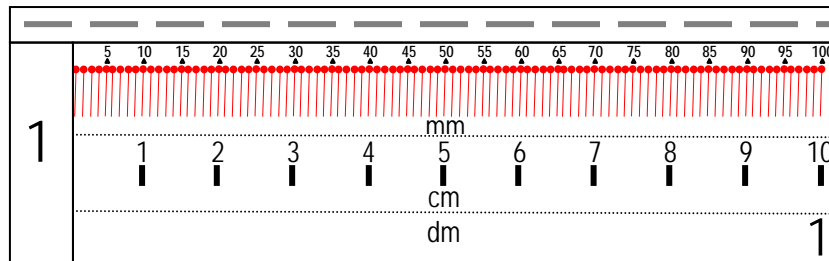


# The Dragon Game: A Competitive Race Across a Decimal Landscape

(Moss, 1997)



**Materials:** These materials are needed to play the Dragon Game:

- Dragon Game board (attached)
- Number Cards (attached)
- Dragon Game: Student Score Sheet
- Wild Cards (attached)
- +/- cube (cube with equal number of plus and minus signs appearing on sides)  
NOTE: As a substitute for a +/- cube, the teacher can use a die: odd numbers denote a negative sign while even numbers denote a positive sign.
- Game pieces (small pieces of paper cut into pointer triangles)

**Directions:** The Dragon Game can be played by up to 3 players.

Players take turns drawing a number card, tossing the +/- cube, and moving their game piece. The purpose of the game is to be the first to advance one's game piece from the start line to the finish line.

For each move, a player:

1. draws a 2-digit number card.-- and draws an additional wild card if the number card directs the player to do so.
2. tosses the +/- cube to determine the sign of the number.
3. generates a 'number solution' by taking the drawn number and adding a zero and a decimal in places of his or her choosing. NOTE: Within the 2-digit number drawn, the **decimal** can be placed in front of the first digit, between first and second digit, or immediately after the second digit. The **zero** must go immediately before or after the 2-digit number.
4. moves the player's game piece on the Dragon Game board the correct number of spaces to match the number just generated. The game piece is moved forward toward the finish line for a positive number and moved back toward the starting line for a negative number. Also, if a wild card was drawn, the player makes sure to carry out its instructions.

Here are two more rules governing play:

1. A player does not toss the +/- cube on the first move. Instead, the initial number drawn is assumed to be positive-- to get the player on the board.
2. A player can cross the finish line to win the game only with a number solution that has the 2 digits from the number card appearing **after the decimal** in the **tenths** and **hundredths** places.

The Dragon Game is perfect as an opportunity for player collaboration. Consider:

- having students play in pairs.
- playing the game as a large-group activity, with the board displayed on an overhead and up to 3 groups participating. In this scenario, 2 students from a team can go to the overhead to play their turn and can request help from the team if desired.
- having an adult monitoring the game who can give hints or use open-ended questions to guide students toward appropriate strategies to construct the most strategic numbers and add and subtract decimal values.

## References

Moss, J. (1997). *Developing children's rational number sense: A new approach and an experimental program*. (Unpublished doctoral dissertation). University of Toronto, Canada. Retrieved from <https://tspace.library.utoronto.ca/bitstream/1807/13522/1/MQ51566.pdf>

Moss, J., & Case, R. (1999). Developing children's understanding of the rational numbers: A new model and an experimental curriculum. *Journal for Research in Mathematics Education*, 30(2), 122-147.



# Dragon Game: Student Score Sheet

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Start Time: \_\_\_\_\_ End Time: \_\_\_\_\_

**Directions:** (1) Draw your 2-digit number card and toss the +/- cube to determine the sign for your move. (2) Write your 2 digits and a zero into the 'Next Move' space in the right column and circle the sign (+ or -) for your move. (3) Make your move on the game board. (4) Then copy your new 'Current Position' into the next space in the left column.

1	Current Position	+	Next Move	<u>Work Space</u>
	+ <u>0</u> <u>0</u> . <u>0</u> <u>0</u>		-	
2	Current Position	+	Next Move	
	+ _____ . _____		-	
3	Current Position	+	Next Move	
	+ _____ . _____		-	
4	Current Position	+	Next Move	
	+ _____ . _____		-	
5	Current Position	+	Next Move	
	+ _____ . _____		-	
6	Current Position	+	Next Move	
	+ _____ . _____		-	_____ . _____
7	Current Position	+	Next Move	
	+ _____ . _____		-	_____ . _____
8	Current Position	+	Next Move	
	+ _____ . _____		-	_____ . _____
9	Current Position	+	Next Move	
	+ _____ . _____		-	_____ . _____
10	Current Position	+	Next Move	
	+ _____ . _____		-	_____ . _____

70 Draw a WILD card!	89	28
80	16 Draw a WILD card!	86
71	37	28 Draw a WILD card!
49	23	17
87 Draw a WILD card!	22	32
43	35 Draw a WILD card!	90 Draw a WILD card!
66	68	86

Number Card 	Number Card 	Number Card 
Number Card 	Number Card 	Number Card 
Number Card 	Number Card 	Number Card 
Number Card 	Number Card 	Number Card 
Number Card 	Number Card 	Number Card 
Number Card 	Number Card 	Number Card 
Number Card 	Number Card 	Number Card 

# Wild Cards

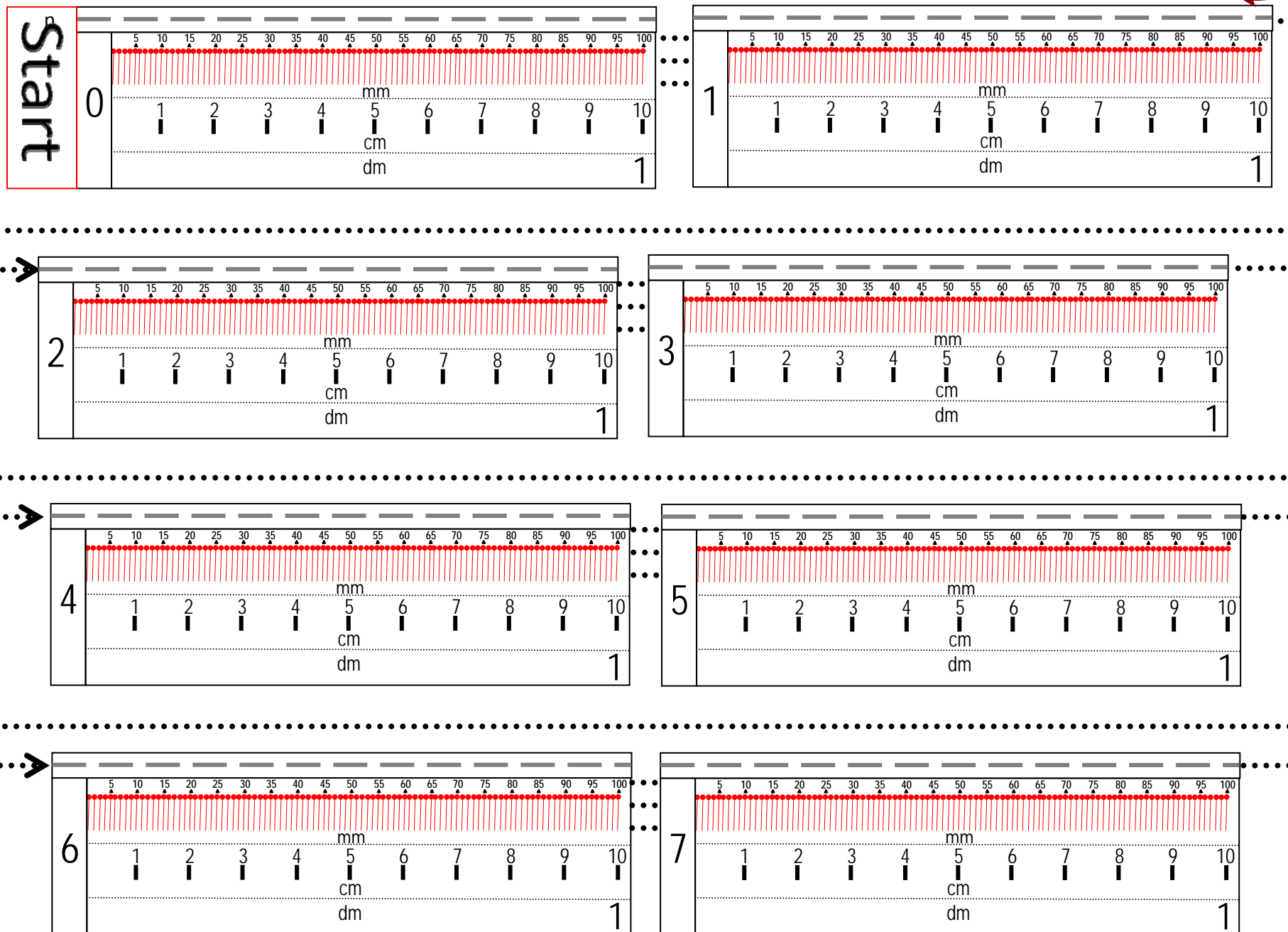
Go back 1 decimeter (dm) on the game board.	Multiply your original drawn number by 2.	Discard number card & draw a new one.
Go forward 8 centimeters (cm).	Go back 1 decimeter (dm) on the game board.	Go back 30 millimeters (mm) on the game board.
Create the smallest number solution possible.	Number solution: place the decimal between your 2 digits.	Round your drawn number down to the nearest decade.
When you finish your turn, take another immediately!	Discard your number card & use last 2 digits of birth year.	If drawn number ends in '2', divide it by 2 and proceed.
Round your drawn number up to the nearest decade.	Number solution: place the decimal before your first digit.	Round your drawn number up to the nearest decade.
Add '3' to your drawn number.	Go back 5 centimeters (cm).	Move game piece to 10.00 on board. Then compute solution.
Move game piece to 12.00 on board. Then compute solution.	If your drawn number is greater than 40, discard & draw again.	If your drawn number is less than 40, discard & draw again.

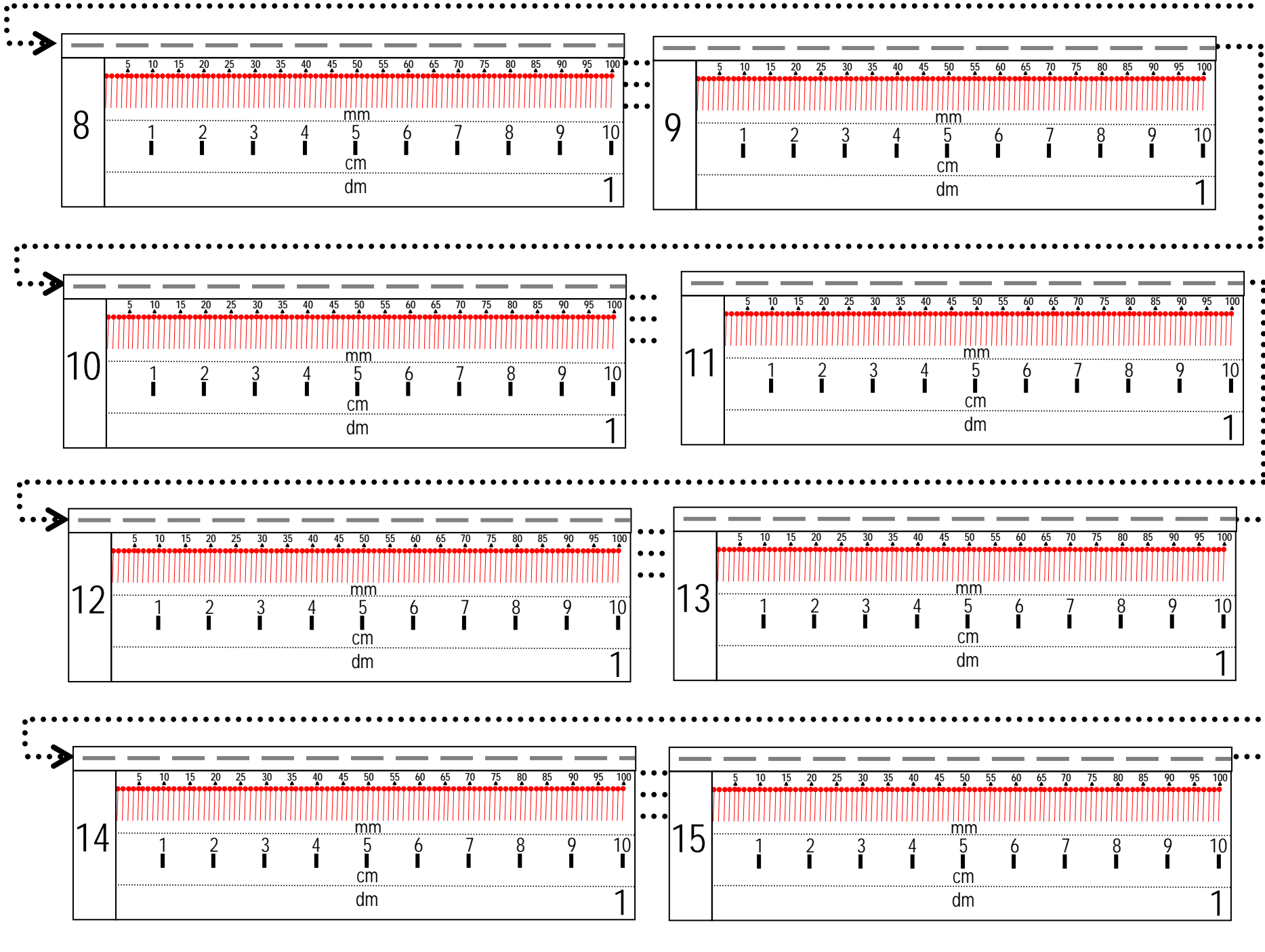
Wild Card 	Wild Card 	Wild Card 
Wild Card 	Wild Card 	Wild Card 
Wild Card 	Wild Card 	Wild Card 
Wild Card 	Wild Card 	Wild Card 
Wild Card 	Wild Card 	Wild Card 
Wild Card 	Wild Card 	Wild Card 
Wild Card 	Wild Card 	Wild Card 





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16

17

18

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Finish