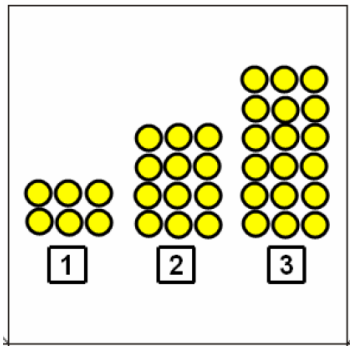
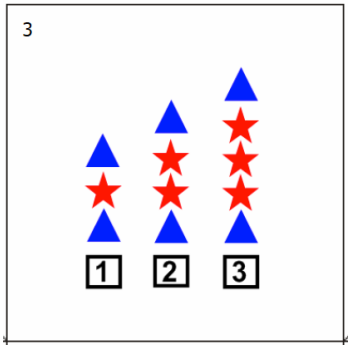
Cube Games – Linear Growing Patterns Representation Match

This document includes a collection of cube games.

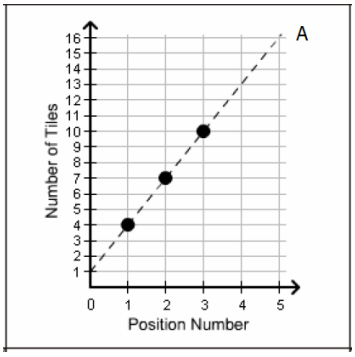
1. **Who's With Whom? Part 1**:
Match the graphical, pictorial and pattern rule representations of a simple linear growing pattern in the fewest number of rolls. These patterns all have a constant value of zero.



2. **Who's With Whom? Part 2**:
Match the graphical, pictorial and pattern rule representations of a linear growing pattern in the fewest number of rolls.



3. **Zero 'n' Five**:
Match the graphical representation of a pattern with the number of tiles in Positions 0 and 5 in the fewest number of rolls.



Cube Game
Who's With Whom? - Part 1

Objective:

Match three representations of a linear growing pattern in the fewest number of rolls.

Directions:

1. Print the net for each cube onto card stock then assemble the three cubes.
2. Player A rolls all three cubes. If the top faces of the cubes represent the same linear growing pattern, Player A wins. Otherwise, Player A selects one of the three cubes and puts it to the side. The top face of this cube is the targeted pattern.
3. Player B selects one of the two remaining cubes and rolls it until its top face has a representation of the targeted pattern. The number of rolls it takes to do this is Player B's score.
4. Player A rolls the remaining cube until its top face has a representation of the targeted pattern. If Player A takes fewer rolls than Player B (from step 3) then Player A wins.

The "Linear Growing Patterns Representations" page can be used as an answer sheet.

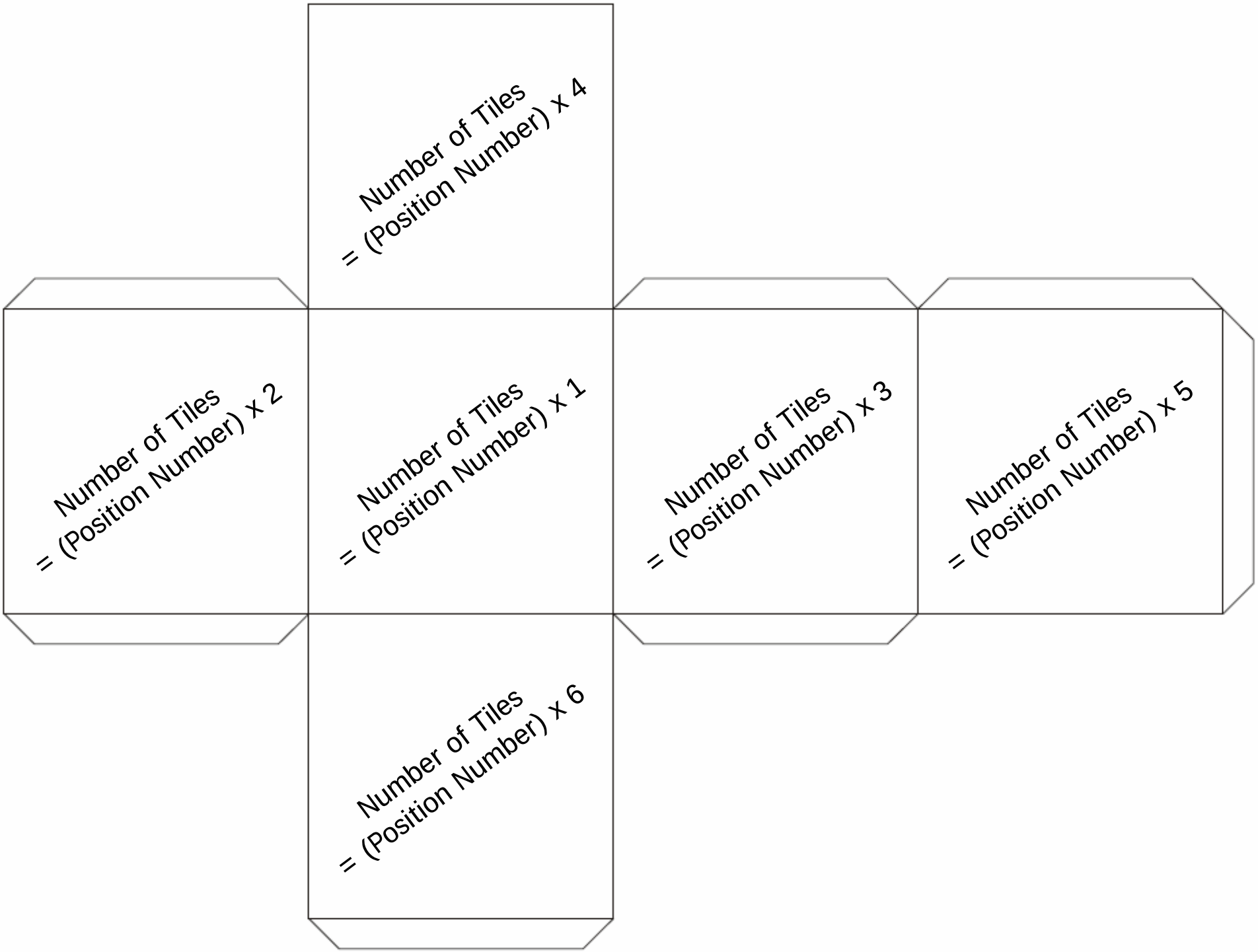
Additional Suggestions

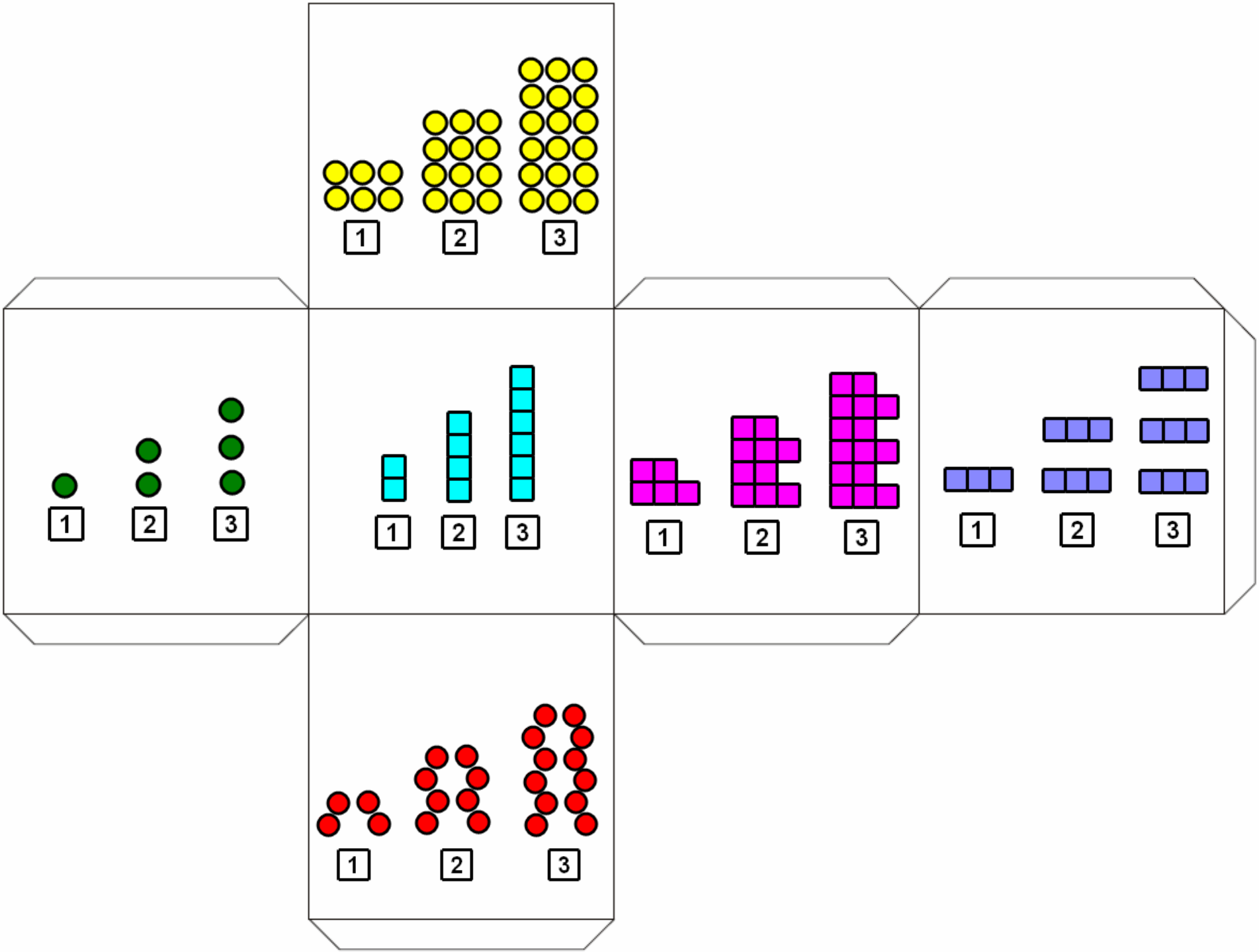
1) Roll the Picture and Rule cubes. If they represent the same linear growing pattern, find its graphical representation on the Graph cube. If they do not represent the same pattern, reason which one will have the steepest trend line when graphed. Confirm or deny your answer by looking at the graphs on the answer sheet.

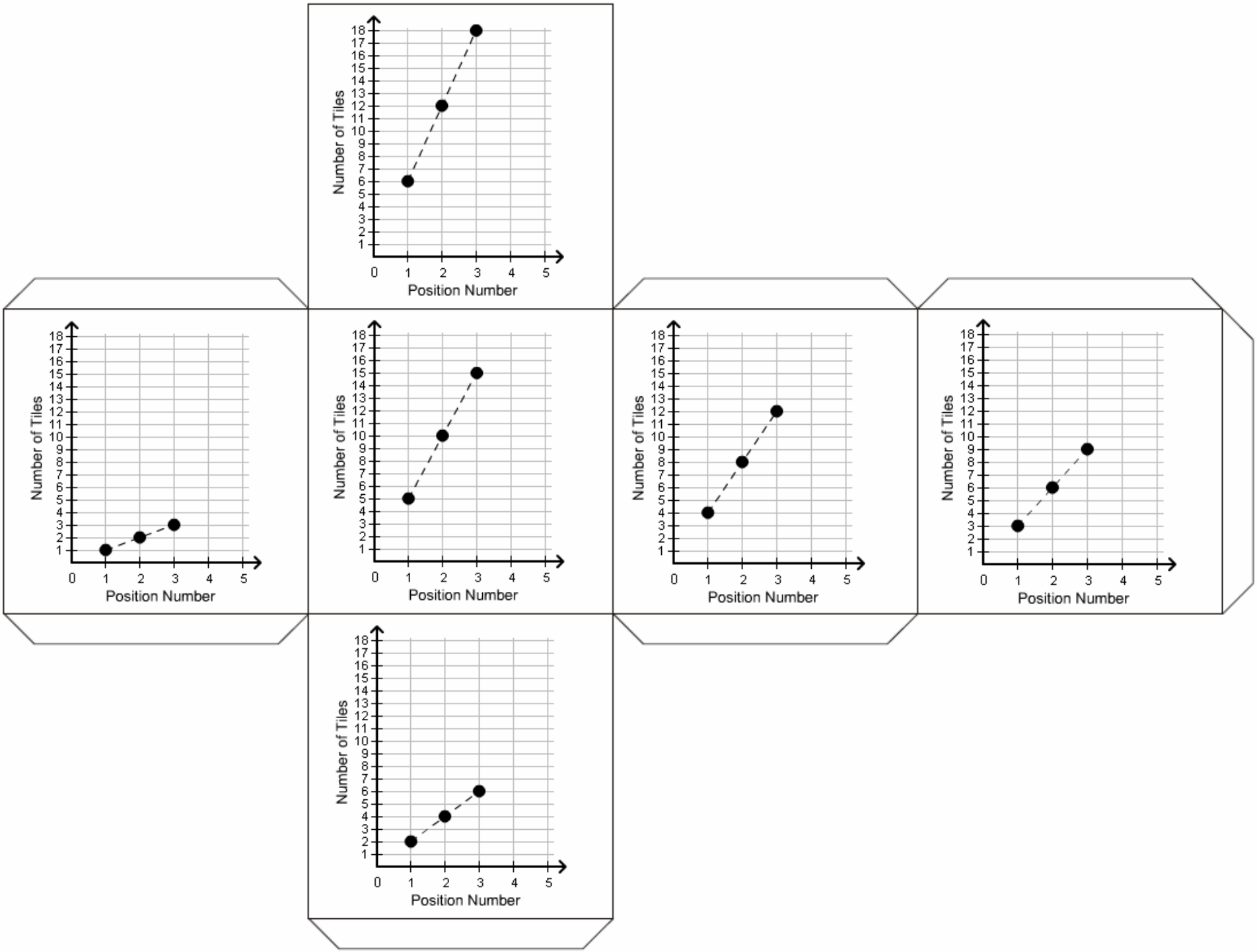
2) Roll one of the cubes. Find the other two representations of the pattern on the remaining cubes.

3) Print the answer sheet on card stock. Cut this into 18 cards then mix up the cards. Now, rearrange the cards into groups of three so that each group has three different representations of the same linear growing pattern.

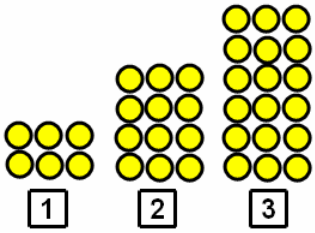
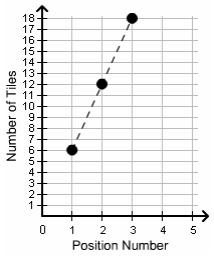
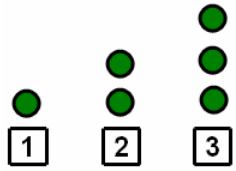
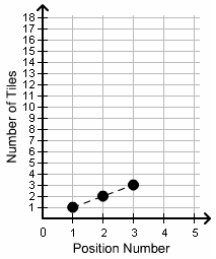
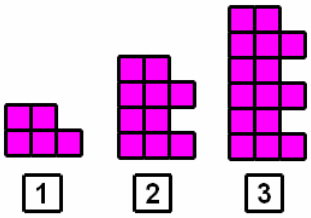
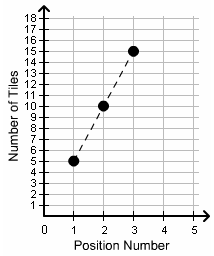
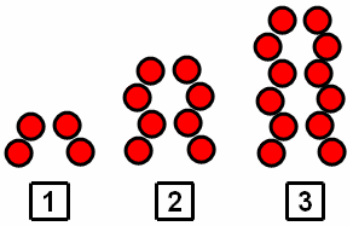
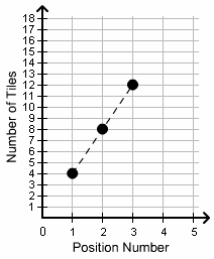
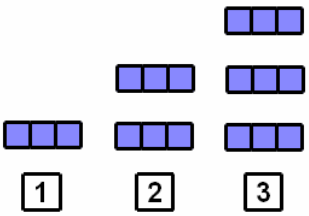
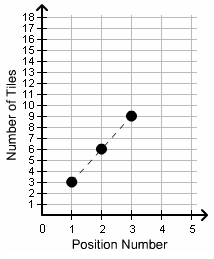
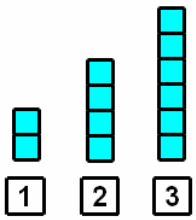
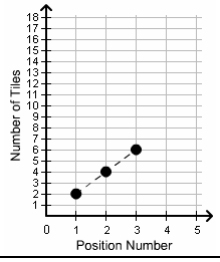
4) Use the cards for any two of the representations (e.g., use all the Rule and Graph cards). Turn the cards face down on a table. Player A turns over two cards. If the cards have representations for the same pattern, Player A keeps the cards and plays again. Otherwise, Player A turns the cards over and Player B takes a turn. Play continues until all matches are found.


Number of Tiles
= (Position Number) x 4
Number of Tiles
= (Position Number) x 2
Number of Tiles
= (Position Number) x 1
Number of Tiles
= (Position Number) x 3
Number of Tiles
= (Position Number) x 5
Number of Tiles
= (Position Number) x 6


1
2
3
1
2
3
1
2
3
1
2
3
1
2
3
1
2
3


Number of Tiles
Position Number
0 1 2 3 4 5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

Linear Growing Patterns Representations

	Pictorial Representation	Pattern Rule Representation	Graphical Representation
A		Number of Tiles = (Position Number) x 6	
B		Number of Tiles = (Position Number) x 1	
C		Number of Tiles = (Position Number) x 5	
D		Number of Tiles = (Position Number) x 4	
E		Number of Tiles = (Position Number) x 3	
F		Number of Tiles = (Position Number) x 2	

Cube Game
Who's With Whom? - Part 2

Objective:

Match three representations of a linear growing pattern in the fewest number of rolls.

Directions:

1. Print the net for each of the cubes onto card stock then assemble the three cubes.
2. Player A rolls all three cubes. If the top faces of the cubes represent the same linear growing pattern, Player A wins. Otherwise, Player A selects one of the three cubes and puts it to the side. The top face of this cube is the targeted pattern.
3. Player B selects one of the two remaining cubes and rolls it until its top face has a representation of the targeted pattern. The number of rolls it takes to do this is Player B's score.
4. Player A rolls the remaining cube until its top face has a representation of the targeted pattern. If Player A takes fewer rolls than Player B (from step 3) then Player A wins.

An answer key is on the next page.

Additional Suggestions

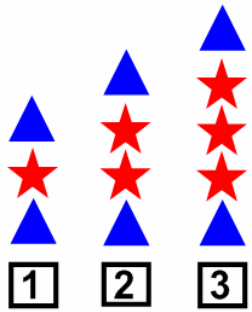
1) Roll one of the cubes. Find the other two representations of the pattern on the remaining cubes.

2) Print a copy of the nets for each cube onto card stock. Cut the 18 cube faces to create a set of cards. Mix up the cards and sort into groups where each group has three different representations of the same linear growing pattern.

Answer Key:

Pictorial Representation	Graphical Representation	Pattern Rule Representation
1	F	y
2	E	u
3	D	v
4	A	x
5	B	w
6	A	z

3



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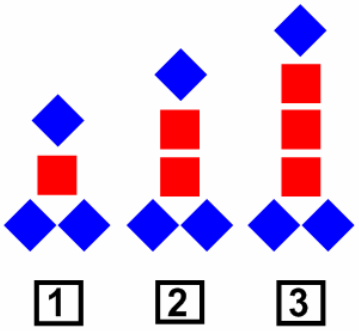

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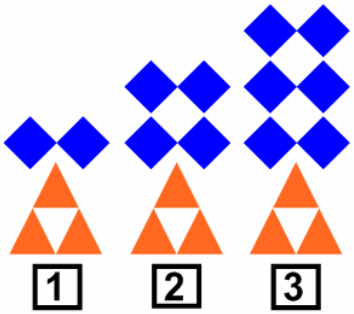

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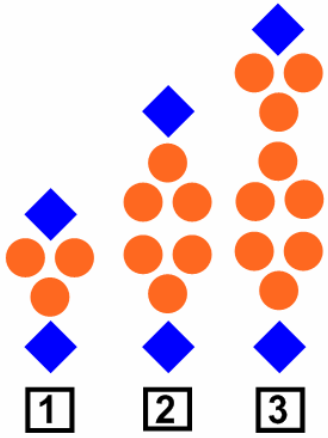
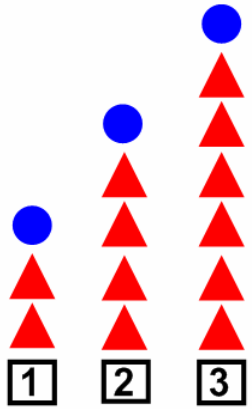
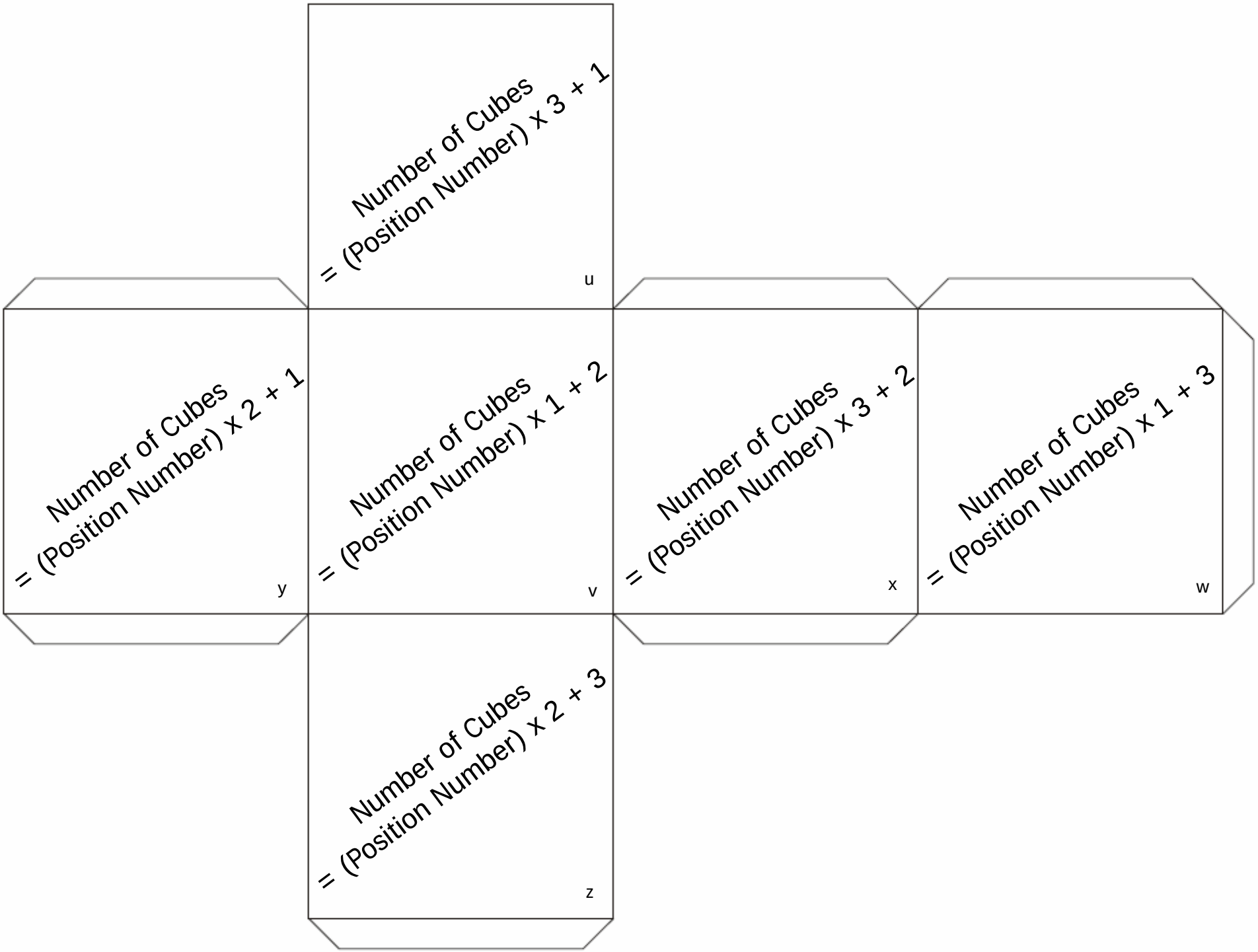
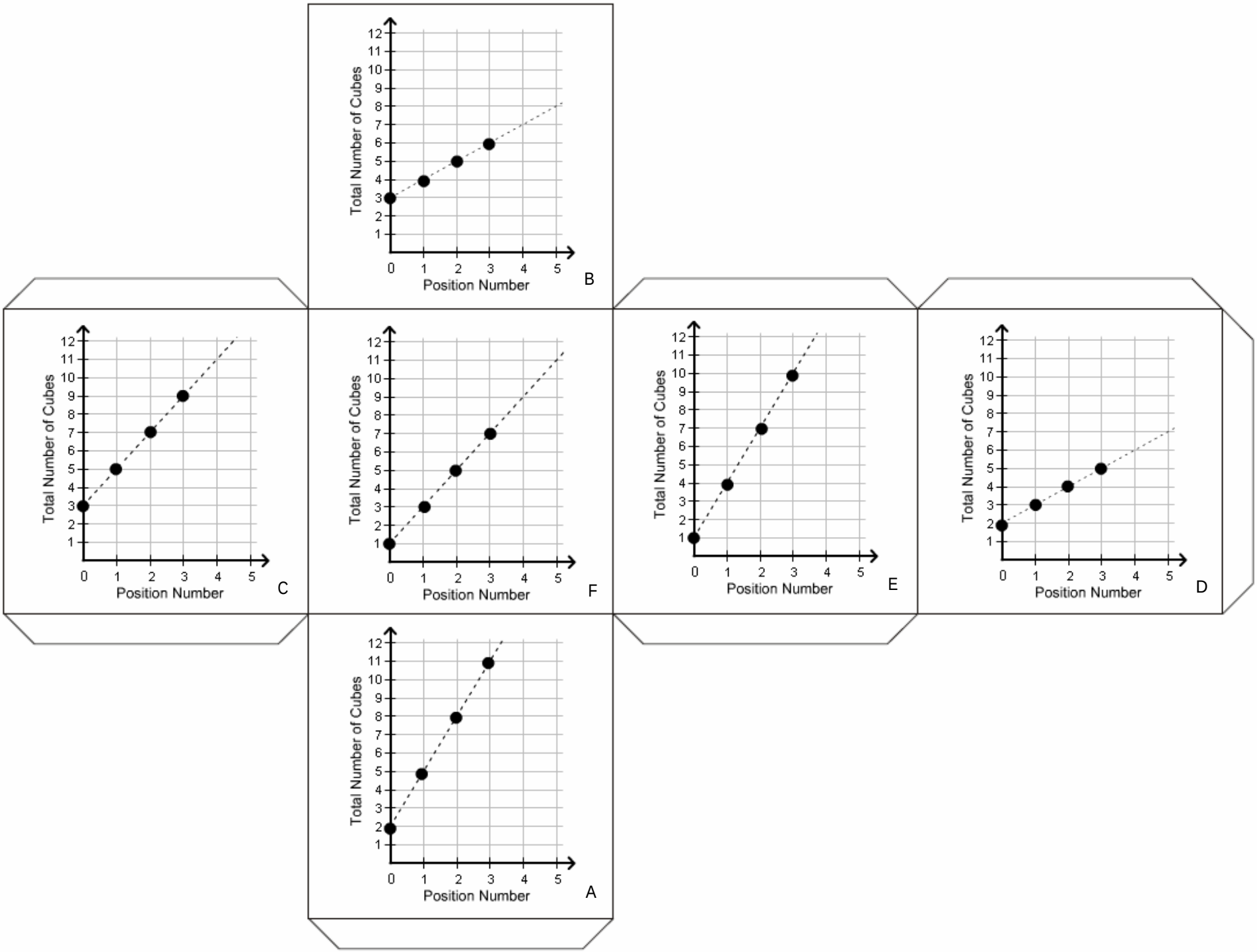


2

1




Number of Cubes
= (Position Number) x 3 + 1
u
Number of Cubes
= (Position Number) x 2 + 1
y
Number of Cubes
= (Position Number) x 1 + 2
v
Number of Cubes
= (Position Number) x 3 + 2
x
Number of Cubes
= (Position Number) x 1 + 3
w
Number of Cubes
= (Position Number) x 2 + 3
z


Total Number of Cubes
Position Number
B
C
F
E
D
A

Cube Game
Zero ‘n’ Five

Objective:

Match the graphical representation of a pattern with the number of tiles in Positions 0 and 5.

Directions:

1. Print the net for each of the cubes onto card stock then assemble the three cubes.
   Cube 1 is the Graph cube.
   Cube 2 has the number of tiles in Position 0.
   Cube 3 has the number of tiles in Position 5.

2. Player A rolls all three cubes. Look at the top face of the Graph cube. If the top faces of the other two cubes have the correct information for the graph (i.e., number of tiles for Positions 0 and 5) then Player A wins. Otherwise, continue with step 3.

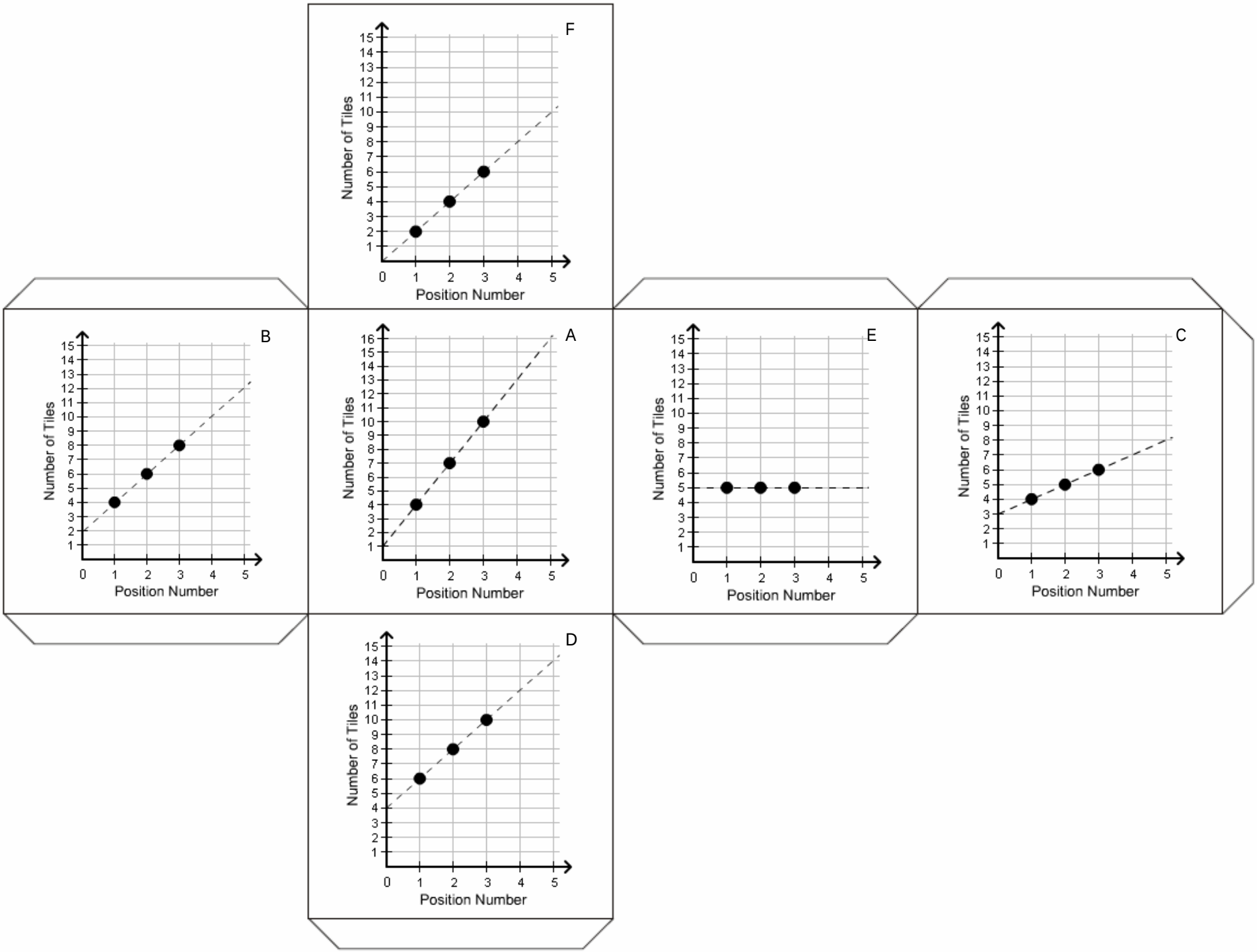
3. Player B rolls the Position 0 cube until its top face shows the number of tiles in Position 0 for the graph. The number of rolls it takes to do this is Player B’s score.

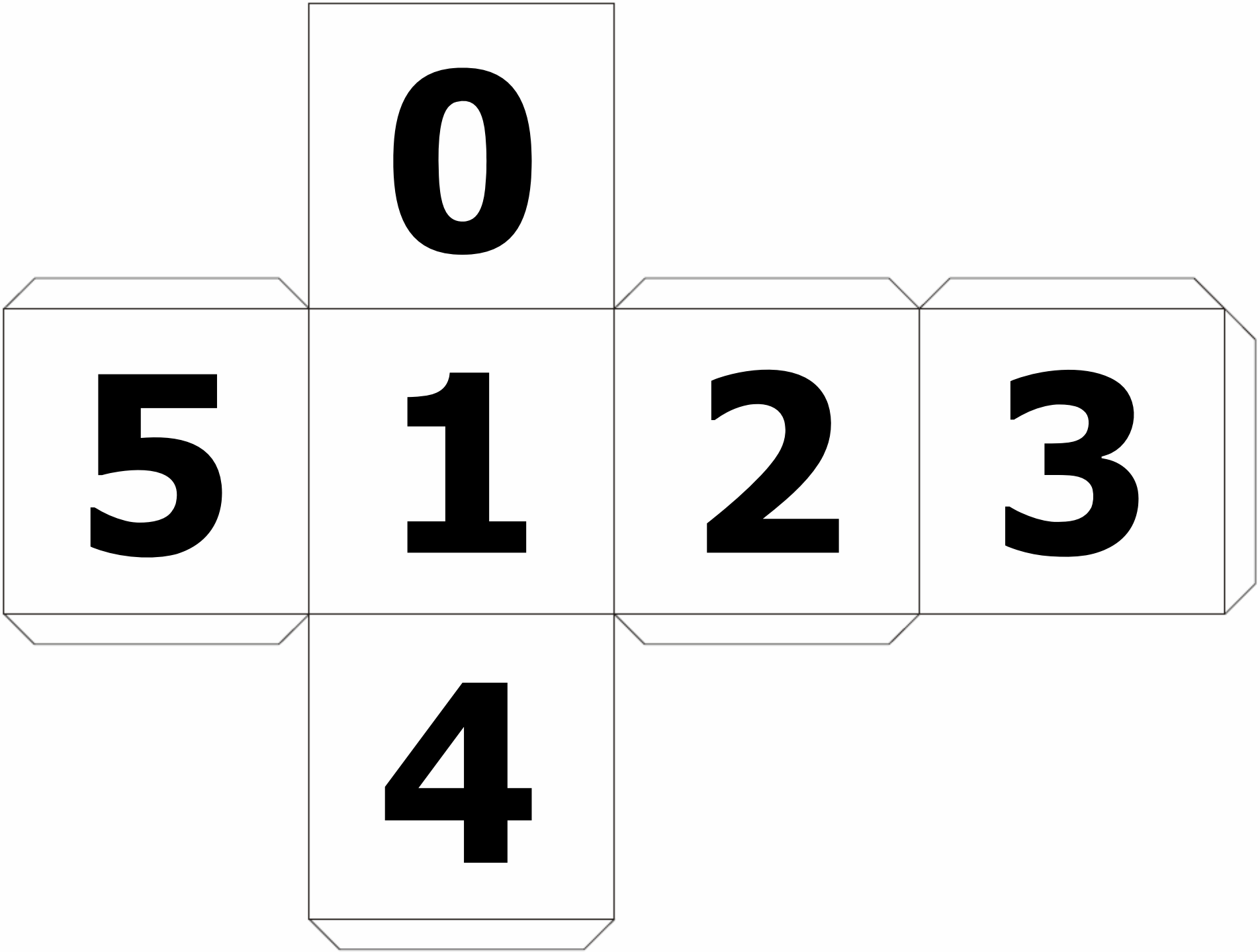
4. Player A rolls the Position 5 cube until its top face shows the number of tiles in Position 5 for the graph. If Player A takes fewer rolls than Player B (from step 3) then Player A wins.

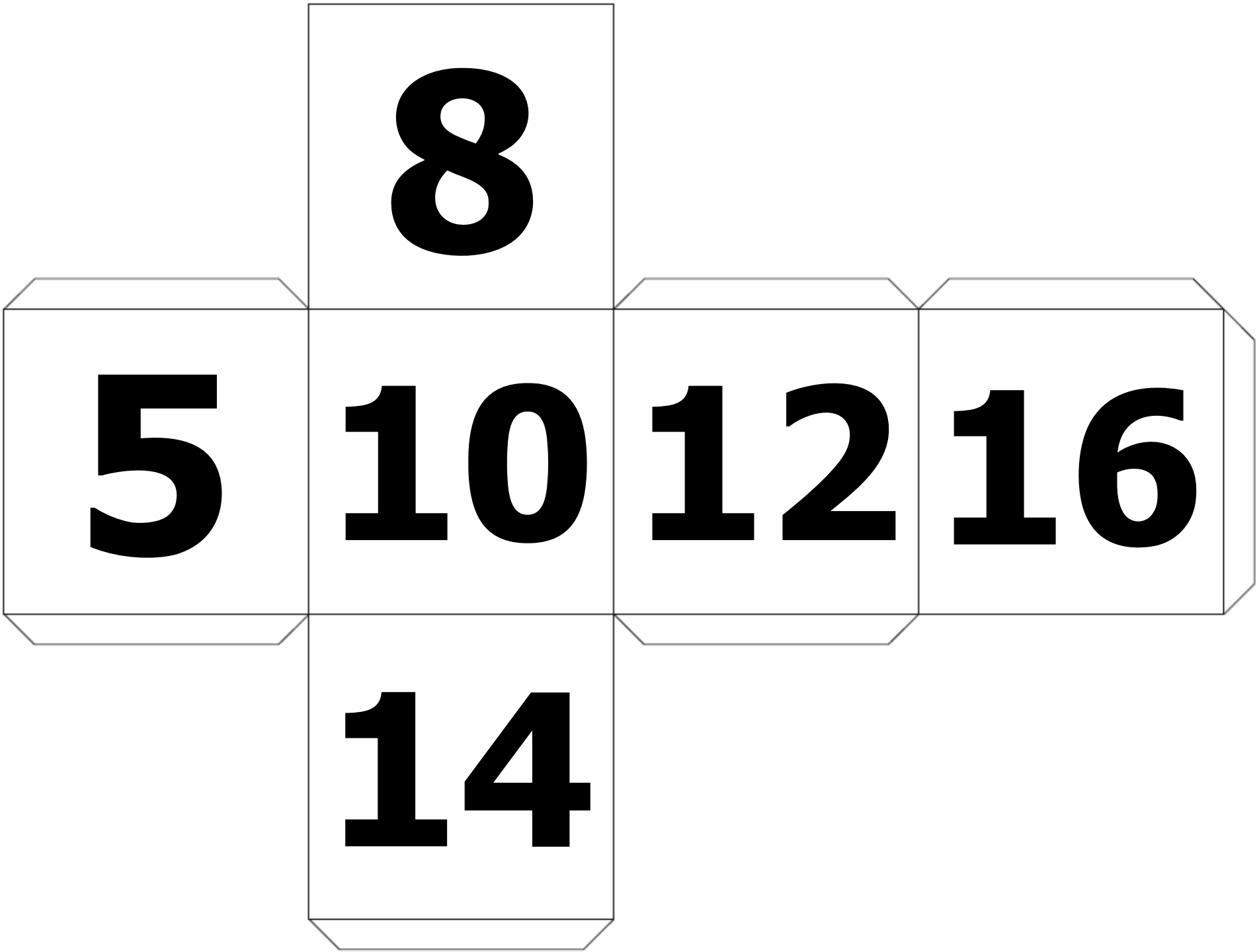
Answer Key:

Graphical Representation	Number of Tiles Position 0	Number of Tiles Position 5
A	1	16
B	2	12
C	3	8
D	4	14
E	5	5
F	0	10

Answer Key:


F
Number of Tiles
Position Number
B
Number of Tiles
Position Number
A
Number of Tiles
Position Number
E
Number of Tiles
Position Number
C
Number of Tiles
Position Number
D
Number of Tiles
Position Number


0
5
1
2
3
4


8
5
10
12
16
14