



Activity C.3: Land Grab for Number Sentences II

Learning Objectives:

- 1) Develop fluency in simple addition and subtraction.
- 2) Practice repetitive addition, skip counting and/or multiplication.

Examples of Skills Accomplished:

- 1) $40 - 36 = 4$
- 2) $27 + 5 = 32$

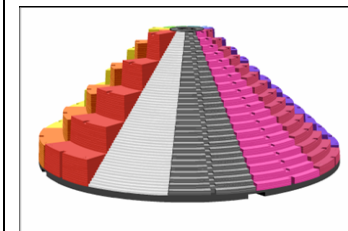
Setup:

- 1) Staircases may be setup in any order.
- 2) Students will put multiples on Zillio.
- 3) Place a surprise in the treasure trove.

Maximum Number of Players for Small Group Activities: 6

Players Positions: Standing

Grey foam logs: In



Game Objective: Say "Using some trickery, I ended up owning all of the land in the country. I feel a little guilty about my actions, but only a little. All the citizens may claim some of my territory if and only if they prove themselves worthy, by being able to tell me a number sentence associated with two tokens at a time. Citizens should play together as a team and try to claim as much of my territory as possible."

- 1) Players place tokens representing the multiples in each notch on Zillio (all staircases except 1x), number side up.
- 2) Players point to any two tokens and say any appropriate number sentence that explains

Hint: Place the staircases in a different sequence each time you play.

their relationship to each other. If they are correct, they get to turn the tokens over blank side up to claim the steps.

- a. For example, for tokens on the fifth step of the 10x staircase, labeled 50, and the 4th step on the 4x staircase, labeled 16, the player could say "16 + 34 = 50" or "50 - 34 = 16", or "50 + 16 = 66".

- 3) At the end of the play, players count up all the steps with tokens blank side up to determine the final score. If they have captured all possible steps (or some pre-determined number), they get to look at the surprise in the treasure trove.
- 4) Players do not need to take turns. Allow them to pose a solution any time they are ready. They must have your attention and you must say "yes" before they are allowed to turn the tokens over.

Advanced play: Rather than using the value of the tokens students use the underlying multiplication problems in their number sentences. For example: $(4 \times 4) + (5 \times 10) = 66$

Variations:

- 1) Have two opposing teams. For each turn, each team poses the problem the other team has to solve by pointing to two tokens. If the opposing team produces a correct number sentence, that team captures and removes the two tokens. If the opposing team is incorrect, the team posing the problem captures the tokens. The number of token pairs determines the final score. Alternatively, the sum of the face value of the tokens each team has captured may determine the final score.

Hint: If you are using the face value of the tokens to determine the final score, allow the players to circle the tokens they captured on the 2D worksheet to help them organize their work.

2) Optional: Before you hand over the title to the land you introduce one extra requirement – you tell them you know it is not particularly fair to change the rules at this point – but what can they do? You still have title to everything and how you acquired the land should have given them a good idea of the type of person you are.

Choose one of the following rules (or make up one of your own):

- a. They have 7 - 10 minutes to add up the value of the land they acquired (represented by tokens turned blank side up. Add the face value of all tokens blank side up. If it is worth more than \$2,000 you will cry.
- b. They can keep the land on 3 staircases only. They have 7-10 minutes to decide which staircases are worth more.

Tell them to take care – if they tell you an incorrect value you will think they are trying to cheat you and some “cheats” have never seen the light of day again.

Answer: All the multiples are worth \$3,980. See chart below for 2 methods to calculate the value for each staircase. One method is simply adding all the values of the tokens. The other method uses advanced understanding of averages and algebraic thinking. A large part of this task is how to divide the work up and then summarize the results.

Hint: You may have some students who need to play Land Grab at a basic level but you can introduce this requirement to make it more interesting for those with more advanced skills. Decide whether to allow the use of calculators.

Observe and Assess:

- 1) Skills students use to put multiples on Zillio.
- 2) Skills used in finding the solution.

3) Difficulty in the problems posed.

4) Students' comfort with subtraction.

Group Discussion:

1) N/A

Transition to Paper:

1) Assign the reproducible as either class work or homework. Let them use a 2D worksheet to help them organize the interim partial solutions, if desired.



Name: _____ Date: _____

a) $36 - 33 = 3$

b) $38 + 18 = 56$

c) $40 + 27 = 67$

d) $60 - 2 = 58$

e) $24 + 35 = 59$

f) $32 - 13 = 19$

g) $30 - 6 = 24$

h) $14 + 36 = 50$

Value of Multiples on the Staircases	2X	3X	4X	5X	6X	7X	8X	9X	10X	11X	12X	Entire Mountain
	2	3	4	5	6	7	8	9	10	11	12	
	4	6	8	10	12	14	16	18	20	22	24	
	6	9	12	15	18	21	24	27	30	33	36	
	8	12	16	20	24	28	32	36	40	44	48	
	10	15	20	25	30	35	40	45	50	55	60	
	12	18	24	30	36	42	48	54	60			
	14	21	28	35	42	49	56					
	16	24	32	40	48	56						
	18	27	36	45	54							
	20	30	40	50	60							
	22	33	44	55								
	24	36	48	60								
	26	39	52									
	28	42	56									
	30	45	60									
	32	48										
	34	51										
	36	54										
	38	57										
	40	60										
	42											
	44											
	46											
	48											
	50											
	52											
	54											
	56											
	58											
	60											
Total (sum of all multiples)	930	630	480	390	330	252	224	189	210	165	180	3980
Algebraic Solution												
High value	60	60	60	60	60	56	56	54	60	55	60	
+Low Value	2	3	4	5	6	7	8	9	10	11	12	
Total of high & low value	62	63	64	65	66	63	64	63	70	66	72	
# of pairs of high & low values (# of multiples / 2)	15	10	7.5	6	5	4	3.5	3	3	2.5	2.5	
Calculated total	930	630	480	390	330	252	224	189	210	165	180	3980