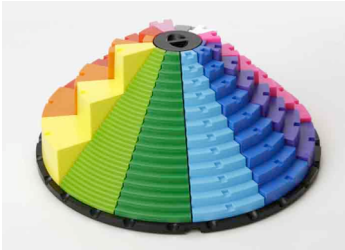
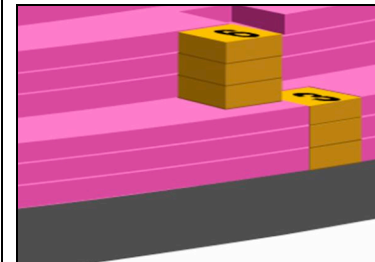


Activity A.3a: Getting Acquainted With Zillio (Grades 1 & 2)		
<p>Special Note: In this getting acquainted exercise for the early grades, Zillio is used as a vertical number line. The unit of measure is the height of a token. Each staircase represents a different number and its multiples. Students will stack tokens on top of each other to understand the number each step represents.</p>		
<p>Learning Objectives:</p> <ol style="list-style-type: none"> 1) Practice counting from 1 to 36. 2) Represent equivalent forms of the same number. 3) Develop algebraic reasoning skills about rates of change (why it takes more steps to get to the top of some staircases than others). 4) Use a non-standard unit of measure (token). <p>Examples of Skills Accomplished:</p> <ol style="list-style-type: none"> 1) 1, 2, 3, 4 and so on 2) $2 + 2 + 2 + 2 + 2 + 2 = 12$ 3) Six groups of 2 = 12 4) $2 + 2 + 2 + 2 + 2 + 2 = 3 + 3 + 3 + 3$ 	<p>Setup:</p> <ol style="list-style-type: none"> 1) Zillio with staircases in order from 1x-12x either clockwise. 2) Three foam cards, any color. 	<p>Recommended Number of Players for Small Group Activities: 4</p> <p>Players Positions: Standing or seated</p> 
<p>Activities:</p> <ol style="list-style-type: none"> 1) Just using his/her fingers, have one learner count the steps on the 12x staircase. Have the next learner count the steps on the 11x staircase. Continue taking turns until you get to the 1x staircase. Have the group count the steps on the 1x staircase in unison while you move your finger up the steps as they say the number out loud so that you can ensure the finger movement coincides with the recitation. 2) Ask why it only took three steps to get to the top on the 12x staircase but 36 steps to get to the top of the 1x staircase. Lead group to understand that more steps are needed if the steps are smaller and fewer steps if the steps are larger. 		

- 3) Begin by examining the 2x staircase:
 - a. First place the token numbered 1 and then the token numbered 2 in the bottom notch of the 2x staircase. Explain that each step on the 2x staircase represents 2 tokens. Ask one student to stack two tokens (place one on top of the other) in sequence on each step: 3, 4 on the second step, 5, 6 on the third step, and so on until they have tokens on six steps ending on the number 12. Explain that $2 + 2 + 2 + 2 + 2 + 2 = 12$.
 - b. Restate the problem and ask them how many groups of two's (represented by steps on the 2x staircase) does it take to get to 12. Let them count the steps to find the answer six.
 - c. Restate the problem again: "How many groups of 2 are in 12?" Answer: 6
- 4) Now examine the 3x staircase in the same manner and ask the same questions. This time students will stack three tokens on top of each other in the bottom notch and on each step. They will use four steps to get to the elevation (or level) 12.
- 5) Put your finger on the 6th step of the 2x and move it across to the same level on the 3x staircase. Help students understand that $2 + 2 + 2 + 2 + 2 + 2 = 12$ and so does $3 + 3 + 3 + 3$.
- 6) Without using tokens, ask them to find a step at the same level on the 4x staircase. Ask them how high each step is on that staircase (Answer: 4) Ask them for the number sentence is represented by the 4x staircase (Answer: $4 + 4 + 4 = 12$)
- 7) Now ask them to use everything they know about Zillio to answer this question: what do they think $12 + 12 + 12 = ?$ Answer: 36. Move your finger up each step on the 12x staircase as you add. Do not be surprised if all students are not yet capable of the reasoning and problem solving required to arrive at the correct answer, because this is a fairly big leap in understanding. If necessary remind them there were 36 steps on the 1x staircase and that because the top of each staircase is equal in height, the value of $12 + 12 + 12$ must also equal 36.
- 8) Wrap up the lesson by discussing some of the Zillio vocabulary.

Example on 3x staircase stacking tokens to measure steps heights:



Note: This is pictured on the mega mountain. On the mini mountain the tokens will be stacked in front of the first step.

Observe and Assess:

- 1) Ease with which learners recite numbers in sequence.
- 2) Ability of learners to coordinate their finger movement with speaking the number.

Group Discussion:

- 1) Discuss how there are many equivalent forms of the same number (12 in our example) and that they will be able to use Zillio to explore many of them.