

Activity C.10: Merry's Gecko Roundup

Special Note: This uses the commutative property ($a \times b = b \times a$) to help develop fluency in multiplication.

Learning Objectives:

- 1) Continue to develop fluency with multiples.
- 2) Practice commutative property of multiplication.

Examples of Skills Accomplished:

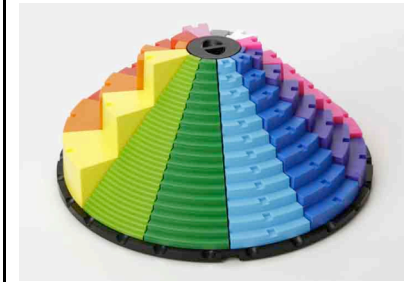
- 1) $3 \times 5 = 15$ and $5 \times 3 = 15$
- 2) $6 \times 7 = 7 \times 6 = 42$

Setup:

- 1) Put staircases in counterclockwise sequence $1x \rightarrow 12x$.
- 2) Students will put multiples on Zillio as part of setup.
- 3) In this game the tokens represent the numbered collars.

Maximum Number of Players for Small Group Activities: 4

Players Positions: Standing or seated



Review:

- 1) Explain the commutative property in advance of the game, but not necessarily immediately before play. You will be able to judge how well players are incorporating the principle in their problem solving techniques.

Game Objective: Merry has more than 50 pet geckos. During the day she lets them roam all over the house, but at night, the geckos need to return to their cage (Treasure Trove). These geckos are pretty fussy. They will go into the cage only if they can do so with their best friend at the exact same time. But beware, some geckos look alike but they aren't best friends. Five geckos are a little unusual. Their best friends do not have the same number collar. Any of these geckos may be paired with any other "single". Using the commutative property try to find at least 15 pairs of geckos (out of the 28 possible pairs) and put them to bed.

- 1) Players place the multiples on Zillio blank side up (on all steps $2 \leq \text{step} \leq 12$) on staircases $2x \rightarrow 12x$. Always check the multiples first before they are turned blank side up.
- 2) You point to any step (except the special cases described to the right) on a staircase with a token blank side up and ask the players to tell you the collar number (the multiplication equation) and then find the gecko's best friend with the same number on the collar.
- 3) Luckily the players have a clue about where the best friend is likely to be (using the commutative property). For the gecko on the 3rd step on the 5x staircase, the team will find the gecko's best friend on the 5th step of the 3x staircase, with the same numbered collar (15).
- 4) When they have found the best friends (with the same numbered collar) they have to say where they found them (3rd step on the 5x and 5th step on 3x) as they put them to bed.
- 5) Continue play by pointing to a new step. Gradually introduce those special cases and see if the students can figure out which other geckos do not have a matching pair.
- 6) Try to find at least 15 pairs before nightfall.

Hint: Gecko's on the 2nd step of the 2x staircase, the 3rd step of the 3x staircase, the 4th step of the 4x staircase, etc. do not have best friends with the same collar number. Students can match any of these as best friends.

You may remind them during play or just let them discover this for themselves.

In this game we want to emphasize the commutative property but accept any pair of numbers that are equal. For example, the sixth step on 4x and the 3rd step on 8x are also best friends.

Observe and Assess:

- 1) Players' multiplication skills during Setup.
- 2) Players' commutative property skills during play.

Group Discussion: 1) N/A	
Transition to Paper: 1) Assign the reproducible as either class work or homework.	



Name: _____ Date: _____

For each problem state the commutative property and then the product. For example: $12 \times 2 = \underline{2 \times 12} = \underline{24}$
answer

a) $12 \times 3 = 3 \times 12 = 36$

b) $7 \times 3 = 3 \times 7 = 21$

c) $8 \times 4 = 4 \times 8 = 32$

d) $8 \times 7 = 7 \times 8 = 56$

e) $9 \times 5 = 5 \times 9 = 45$

f) $8 \times 9 = 9 \times 8 = 72$

g) $9 \times 3 = 3 \times 9 = 27$

h) $6 \times 9 = 9 \times 6 = 54$