



### Activity C.14: Homing Pigeons IV

Special Note: This version of the game is very powerful. It brings together many of the skills learned to date. Previous versions used color as a clue to find correct staircase, whereas this version requires players to be fairly fluent in multiplication and helps them learn how to use factoring, division, and the commutative and associative properties in problem solving.

#### Learning Objectives:

- 1) Use multiplication skills.
- 2) Learn how to factor.
- 3) Develop reasoning skills.
- 4) Develop problem-solving skills.
- 5) Use commutative and associative properties.

#### Examples of Skills Accomplished:

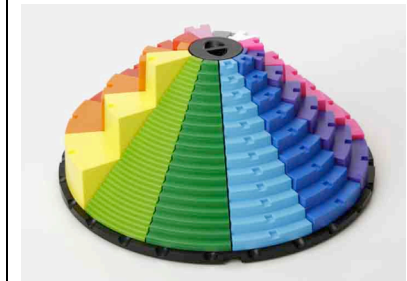
- 1) Factors of 36 are 2, 2, 3, and 3.
- 2)  $9 \times 3 = 3 \times 9 = 27$ .

#### Setup:

- 1) Place an award in the treasure trove, if desired.
- 2) Put staircases in counterclockwise sequence  $1x \rightarrow 12x$ .
- 3) You will need one foam card for every staircase in use.
- 4) The rest of the setup will be during the game.

Maximum Number of Players for Small Group Activities: 6

Players Positions: Standing



Review:

- 1) The elevation equals the product of the height of each individual step on the staircase times the number of steps to reach that point.

Game Objectives: Help all pigeons fly home to any roost on the Zillio at the correct elevation before nightfall. All players work together as a team. Remind players they may not rotate Zillio. They have to fly around to the correct side of Zillio.

- 1) Players put the multiples number side up on all the staircases except 1x, using any color of foam card with any staircase.
- 2) Check to make sure all the multiples have been selected correctly. Examining the patterns on the foam cards is the best way to do this. Correct any mistakes.
- 3) Take all the multiples off the Zillio and mix them all up, so all the colors are combined.
- 4) The tokens are now pigeons.
- 5) The players place one pigeon, blank side up, in each notch in random order. Each staircase should have a variety of colored tokens.
- 6) Explain that players are to help the pigeons fly home. The number on the reverse side of each pigeon indicates at what elevation the pigeon must roost.
- 7) Everyone (including you) picks up a pigeon and says the elevation for which they are looking.
- 8) To maintain interest and a faster pace, allow all players to be moving all at once rather than move only after their neighbor is finished.
- 9) Demonstrate how to find a nest for your pigeon.
- 10) Tell players to find any roost at the correct elevation for their pigeon that is not already occupied by a roosting pigeon (number side up). The player places the pigeon in that nest (notch), number side up and removes the pigeon (blank side up) that was temporarily

If desired, tell the players that pigeons not in their proper roost are susceptible to territorial disputes, food shortages, inadequate shelter, etc. Allow players to add to the list of dire consequences if pigeons are left out in the cold. The pigeons are counting on them.

occupying that spot. Players may not remove a pigeon that is already numbered side up. If the roosting site is already occupied, the player must find another roost on a different staircase that equals the needed elevation.

- 11) Do not allow players to pick & choose which pigeon they find a home for – it must be the one they first selected or the one they removed to make room for a pigeon that has come home to roost. If a pigeon happened to already be in the correct place, instruct the player to pick up any other pigeon that has not found its own roost yet.
- 12) Play continues until nightfall (time is up) or all the pigeons have come home to roost.
- 13) Scoring: first determine whether the pigeons are at the correct elevation. Begin with the 12x staircase, and check the mathematical accuracy of the token placement. Ask “What does  $12 \times 1 = ?$ ” “What does  $12 \times 2 = ?$ ” Then begin to skip most, but not all, correct answers just saying “yes”; focus on the incorrect answers - at least someone on the team did not know the correct answer.
- 14) When you find an incorrect placement, ask what pigeon should roost in that nest. Then take the incorrect pigeon off Zillio and put it in a pile in front of you. Then ask for a possible correct location for the pigeon that was misplaced. The team does not get to count those pigeons.
- 15) When you encounter a pigeon blank side up ask what pigeon belongs in that nest, and then put the pigeon on the table top in front of you. The team does not get to count those pigeons, either.
- 16) Keep the players on their toes by asking about location of a pigeon that is correct but mislead the players by using tone and body language to make them think they were wrong. Make them have conviction in their answers.
- 17) When you have verified the correct placement of all remaining pigeons, count the pigeons on the mountain in their correct roost. Compare the team’s score to the number of pigeons that were not in their correct roosts.

When players are first learning this game, feel free to stop the play after 10 or 15 minutes, and then just count the number of pigeons that are roosting in the correct place. Tell them the goal next time is to help more pigeons roost at the correct elevation.

Transition to Paper:

- 1) Use your routine curriculum to reinforce these skills.