**Elementary Leave Your Leaves Lesson 8**

*Elementary Lessons designed and created by Katie Henson*

**Hop Through a Neighborhood**

**Introduction:** Neighborhoods are not just homes to people, but to hundreds of animal species as well. In fact, cities and suburban neighborhoods are complex ecosystems where these hundreds of species interact with each other and humans alike. Decisions that humans make in these neighborhoods can have positive or negative impacts on their animal neighbors. For example, planting native plants can be extremely beneficial to insects and birds. Using harsh chemicals, insecticides, and poisons, on the other hand, can be extremely harmful to urban wildlife. One human activity that is not as obviously harmful is leaf blowing in the fall. Not only does leaf blowing create noise and air pollution, but it also disturbs crucial habitat for overwintering insects and their larvae. Animals like frogs, turtles, and birds rely on these insect-rich microhabitats for food in the winter. In this activity, students will play the role of a bird flying over a neighborhood, with human decisions affecting their ability to make it to the other side.

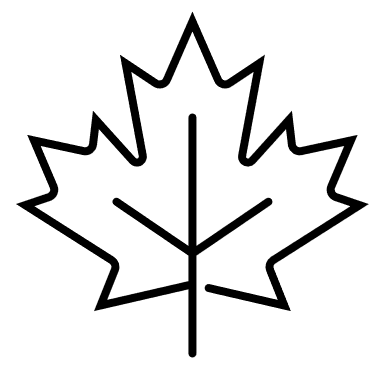
**Procedure:** Create a 5x5 grid on the floor of the classroom with tape or a large piece of paper secured to the ground (this can also be outlined in chalk outdoors on a non-windy day). Each square of the grid should be large enough for a student to stand in. Fill every other square with a small pile of real or fake leaves, except for the bottom row, which should have leaves in every square. Have three students stand in front of the bottom row, spaced one square apart from each other. Explain that the rows in front of them are rows of houses, each deciding what to do with the leaves in their yard. Each student is a hungry bird flying over this neighborhood, and they need to stop at houses with leaves so that they may feed on insects. If they land on two houses with no leaves consecutively, they’ll go hungry and not be able to continue their journey.

They will have to choose a square to jump to, with the goal of making it out of the neighborhood to the other side of the grid. They can jump to a square straight ahead or diagonally ahead, but not next to them or behind them. Two students cannot occupy the same square. The goal is to make it to the other side in 6 turns. At the end of each turn, they must choose the square that they are going to jump to next. After they’ve made their choice, the row in front of them may change. For example, the house directly in front of one student that they planned to jump to may decide to rake their leaves. Or, a big gust of wind might hit, making leaves fall in front of a house that previously had no leaves. Students might develop a strategy to win, but random events make winning a matter of luck. These random events are up to the instructor—they can lead to an entire row having no leaves at all, or suddenly all getting leaves. Games don’t need to have one winner—all students may win, one may win, or none may win. Repeat this game until all students have participated (each game should take no more than 10 minutes)

Questions for the class:

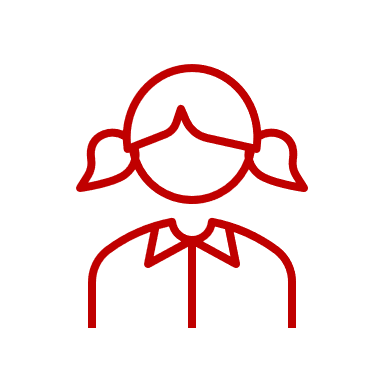
1. Did you have a strategy to get to the other side?
2. Did someone in a house make a choice you didn’t expect?
3. How did the choices of humans help or hurt you as a bird?
4. How did the leaves help you stay fed for your journey?
5. How else might a big pile of leaves help birds as they fly over a neighborhood?

Example game:

= leaves placed at start, = new leaves, =newly empty square, =newly filled square

**Starting condition**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Maple Leaf with solid fill |  | Maple Leaf with solid fill |  |
| Maple Leaf with solid fill |  | Maple Leaf with solid fill |  | Maple Leaf with solid fill |
|  | Maple Leaf with solid fill |  | Maple Leaf with solid fill |  |
| Maple Leaf with solid fill |  | Maple Leaf with solid fill |  | Maple Leaf with solid fill |
| Maple Leaf with solid fill | Maple Leaf with solid fill | Maple Leaf with solid fill | Maple Leaf with solid fill | Maple Leaf with solid fill |

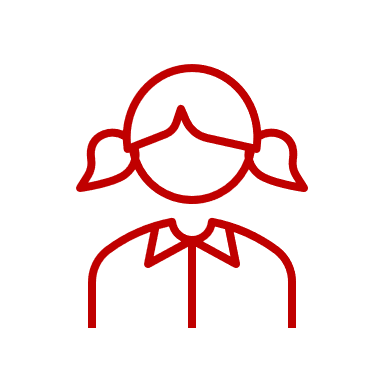
  

Optional challenge: For students willing to face more of a challenge (meaning that they’re out of the game after one lost round instead of two), start the game by saying that there have been a few hawk sightings in the neighborhood. Instead of looking for leaves in search of food, they will look for leaves in search of a place to hide from predators. If they land on a square with no leaves, they’ll instantly be snatched up by a hungry hawk. If you choose to offer prizes to winners, offer a better prize to students who want to take on this challenge.

If you would like to decrease the challenge for your students, offer hints as to what might happen in the next round, such as “the temperature will drop suddenly overnight” (new leaves likely to fall) or “it’s the weekend, which is when the people in the third house like to do yardwork” (leaves likely to be removed)

**Turn 1**) This row of houses all decided to keep their leaves. Students are safe no matter where they choose to jump to. Each student chooses to jump to the square in front of them, then makes their next choice.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Maple Leaf with solid fill |  | Maple Leaf with solid fill |  |
| Maple Leaf with solid fill |  | Maple Leaf with solid fill |  | Maple Leaf with solid fill |
|  | Maple Leaf with solid fill |  | Maple Leaf with solid fill |  |
| Maple Leaf with solid fill | Next choice | Maple Leaf with solid fill |  | Maple Leaf with solid fill |
| Maple Leaf with solid fill | Maple Leaf with solid fill | Maple Leaf with solid fill | Maple Leaf with solid fill | Maple Leaf with solid fill |

Blue, Red, Green all safe. Blue chooses diagonal, Red and Green choose straight ahead.

**Turn 2**) The two houses at the ends of this row decide to blow away their leaves. The leaves from each house blow to the yard of the house next to them, filling it with leaves.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Maple Leaf with solid fill |  | Maple Leaf with solid fill |  |
| Maple Leaf with solid fill |  | Maple Leaf with solid fill |  | Maple Leaf with solid fill |
|  | Maple Leaf with solid fill |  | Maple Leaf with solid fill | Next choice |
|  | School girl outline | School girl outline | Maple Leaf outline | School boy outline |
| Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill |

Blue and Red are safe, Green loses this round. Blue and Green choose directly ahead, Red chooses diagonal.

**Turn 3**) There’s a big storm overnight, causing leaves to fall to the ground at each house. Students are safe no matter what square they chose.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Maple Leaf with solid fill |  | Maple Leaf with solid fill |  |
| Maple Leaf with solid fill |  | Maple Leaf with solid fill |  | Maple Leaf with solid fill |
| Maple Leaf outline | School girl outline | Maple Leaf outline | School girl outline | School boy outline |
| Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill |
| Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill |

Blue, Red, and Green are safe. Blue and Red choose diagonal, Green chooses straight ahead.

**Turn 4**) The first and third houses in this row decide to rake up their leaves. The second house, not wanting to waste valuable leaves, takes the bags of raked leaves and covers their own yard with them.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Maple Leaf with solid fill | Next choice | Maple Leaf with solid fill |  |
| School girl outline | Maple Leaf outline | School girl outline |  | School boy outline |
| Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill |
| Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill |
| Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill |

Green is safe, Blue and Red lose this round. Blue and Green choose diagonal, Red chooses straight ahead.

**Turn 5**) It’s the day of Thanksgiving, and everyone in this row decides that they don’t want to invite family over with a lawn full of fallen leaves. The second and fourth houses in this row blow their leaves away, and no new leaves fall in the other squares.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | School girl outline | School girl outline | School boy outline |  |
| Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill |
| Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill |
| Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill |
| Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill |

Blue, Red, and Green all lose this round. Since this is the second round in a row lost by Blue and Red, neither of them make it out of the neighborhood.

**Turn 6**) Green successfully makes it out!



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill |
| Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill |
| Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill |
| Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill |
| Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill | Close with solid fill |