**Seeds on the Run Rule Sheet**

**Number of Players:** 3-4

**Materials:** Game board, fate cards (3 decks, one for each zone), assorted color tiddlywinks, dice

**Overview:**

 In this game players take on the role of seeds trying to disperse from their parent plants. Over the course of the game each player will control multiple seeds as they face the challenges of dispersal and growing at different distances from the parent plant. Existing ecological hypotheses predict that dispersing far is hard and that the level of competition and risk of disease increases in areas of higher population density. In this game players will generate and graph data to test these predictions.

**General Rules:**

*Game board:* The game board consists of three different zones representing how far a seed has dispersed from the parent plant. Zone 1 is the closest to the parent plant, zone 2 is at a medium distance, and zone 3 is the farthest from the parent plant.

*Game pieces:* This game uses tiddlywinks to represent seeds and plants. A single tiddlywink represents a seed, while stacks of tiddlywinks represent larger plants.

*Dispersing:* How far a seed disperses is determined by rolling a die, depending on what is rolled the seed will move into zone 1, 2 or 3.

|  |  |
| --- | --- |
| **Die Roll** | **Zone** |
| 1-3 | 1 |
| 4, 5 | 2 |
| 6 | 3 |

*Growing:* During the course of the game seeds will have the opportunity to grow into larger plants. This is accomplished by stacking additional tiddlywinks on top of the seed.

*Fate cards:* Each turn every plant/seed under a player’s control must draw a fate card from the appropriate deck (a plant in zone 2 draws a card from the zone 2 deck). These cards will determine whether the plant will grow, sustain damage, or die through the addition or subtraction of tiddlywinks. After drawing a fate card return it to the deck and shuffle at the end of the player’s turn.

**Procedure:**

1. Before beginning the game determine a turn order and have each player select a color of tiddlywink to represent their seeds/plants.
2. At the beginning of a player’s turn, the player takes control of a new seed. Roll a die to determine how far the seed disperses and place the tiddlywink (seed) in the appropriate zone.
3. Draw a fate card for the seed and follow the instructions on the card. IMPORTANT NOTE: After drawing a fate card immediately place it back in the deck and reshuffle at the end of your turn.
4. If the player has any other plants on the board they must draw a fate card for each from the appropriate deck.
5. After all of a player’s plants have drawn a fate card his/her turn is over and the next player begins their turn (repeating steps 2-4).
6. The game is played until each player has finished their 10th turn.
7. Count up the total number of seeds/plants in each of the three zones and create a graph of this data using the attached worksheet.
8. Calculate the average height (number of tiddlywinks) for plants in each zone and create a graph of this data using the attached worksheet.
9. Discuss whether your data supports existing ecological hypotheses about dispersal.
10. Optional: Pool your group’s data with the rest of the class and create graphs for the pooled data.