

Are You Smarter Than a Cicada?

Materials:

- A deck of 'Game Cards' with numbers ranging from 1 to 17 (to represent years).
- A 'Cicada Emergence Game Board' with numbers 1-17 marked in a circular 'clock' formation.
- Tokens or small figurines to represent cicadas and predators. (*Cicada predators include birds, small mammals, insects (e.g. wasps), spiders and amphibians).

Instructions:

1. Students play in pairs or groups of 3.
2. Each player begins with their own game board
3. Each player chooses a token to be their cicada and places it at number 1 on the cicada emergence chart.
4. Each player selects a predator and assigns a cycle (e.g. birds may be 2 years, insects 3 years, and small mammals 4 years).
5. Placed the selected predator on their respective starting points.

Gameplay:

1. Players draw a card to determine the number of years that pass in a turn.
2. Move the cicada token forward by the drawn number on the chart using modular arithmetic (e.g., if you draw a 10 and the cicada is on 7, it moves to $(7+10)$ year 17 on the board, which means it has emerged).
3. Predators move automatically every 2, 3, or 4 spaces each turn, simulating their own cycles.

Objective:

- The goal is to complete as many cycles of 17 years without landing on the same number as a predator.
- If a cicada lands on the same number as a predator, it gets 'eaten' and has to start over.
- The cicada that completes the most cycles before getting 'eaten' wins the game.

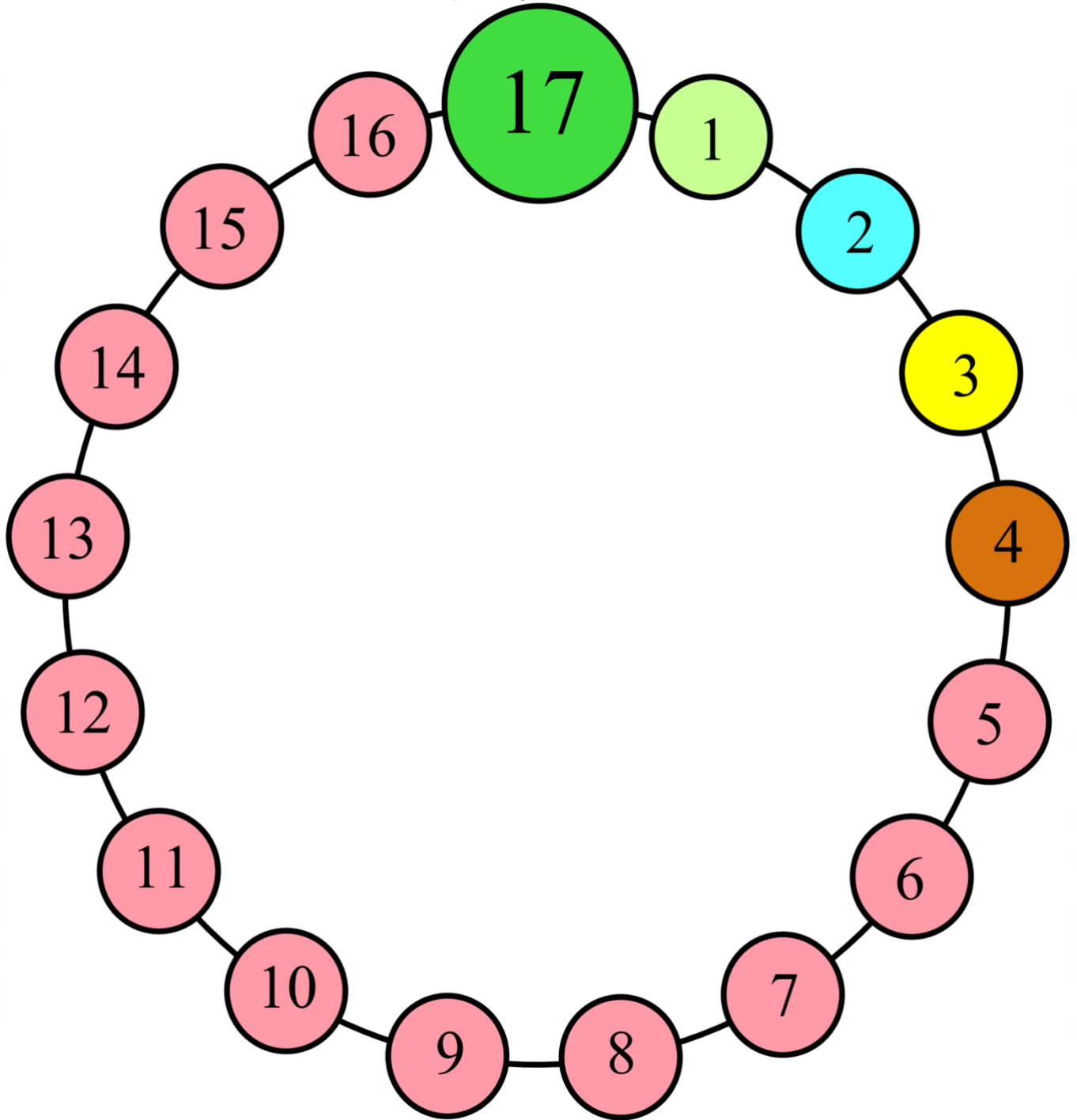
Suggestions for learning:

- Begin with one predator and see how adding more predators affects game play.
- Before beginning the game ask students to make predictions about how long it will take for the cicada to get eaten.
- Use game boards with different emerging cycles (7 or 13).
- Use game boards with all three emerging cycles and determine which cycle poses the greatest likelihood of the cicada getting eaten.

Learning Outcome:

- Students will learn how the prime number 17 ensures cicadas rarely meet predators.
- They'll practice adding numbers and applying modular arithmetic in a fun way.

Game board



Game Cards

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17			