Ecology Game

Ecosystems are subject to change. What happens if predator populations increase? What if habitat is destroyed? This game of tag gives students a fun way to find out!

Rules of the game

Set up a start and finish line 50+ ft. apart in a field. Designate a scientist to record observations and two "kestrels." Line the rest of the class up behind the start line; these are "mice." Place specified number of habitat tokens in a bowl behind the finish line.

For each round:

- At the blow of a whistle, the mice must try to race from the start to finish line without getting tagged by a kestrel. If they are tagged, or "eaten," they are out.
- After crossing the finish line, each mouse must grab a habitat token. If they are too late and there aren't any left, they are out.
- Each kestrel must tag one mouse. If they don't tag a mouse, they "starve" and become a mouse in the next round.
- Each kestrel that tags a mouse gets to "reproduce" one offspring. Take one mouse from the "out" line and make it a kestrel in the next round.

Subject: Natural Sciences; ecology; physical education

Grades: 3-6

Materials: habitat tokens (page 3)

Concepts:

- Predator and prey populations balance each other out; neither can grow too large for long.
- Habitat destruction hurts both predators and prey.
- Predators are less abundant than prey, so their populations are often more vulnerable to habitat loss.

Mice may only be tagged by one kestrel per round. Kestrels may only tag one mouse per round.

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Instructions

Test #1: Predator vs. Prey

1. Place one habitat token per player behind the finish line; in this test there should be enough for everyone.
2. At the beginning of each round, the scientist should write down the number of mice and kestrels in play. The scientist is also responsible for stopping the game once enough data has been collected (should be enough to see the kestrel population go up and down a few times).
3. Gather briefly and review the numbers: what was the highest number of kestrels? Lowest? Did the population become stable or did it fluctuate? What are some benefits that predators give to the ecosystem? (e.g. weeding out weak prey, keeping mice from devastating crops, etc.)

Test #2: Habitat Trouble! *(optional. If not playing, do not use tokens in Test #1.)*

4. Fields are being converted into subdivisions, and there isn't enough food, water or shelter to go around! Halve the number of available food tokens.
5. Run the game again until the kestrel population crashes or [roughly] evens out.
6. Gather briefly and discuss: what happened to the mice when there wasn't enough habitat to go around? Did the lack of habitat affect kestrels?
7. **Optional extension:** if the kestrel population didn't crash, keep decreasing the number of habitat tokens until it does.

Optional extension: analyze your numbers! Take the scientists' records and chart them using line graphs. What do the graphs tell us that we missed during the game?

Discussion Questions

Under normal circumstances, can predators eat their food source into extinction?

What would happen if there were no predators to keep prey populations in check?

Kestrel populations are declining in real life. What could this mean in terms of overall habitat health?

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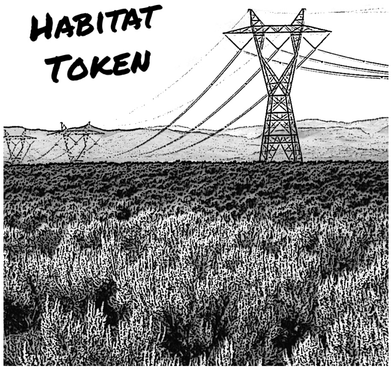
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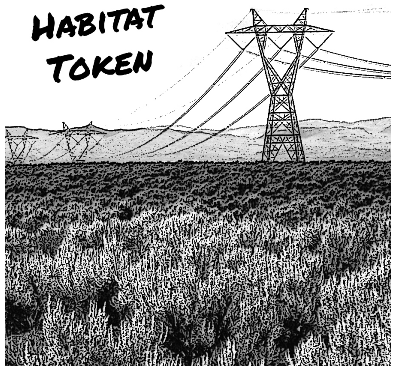
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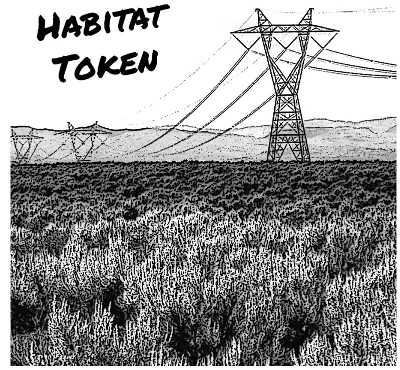
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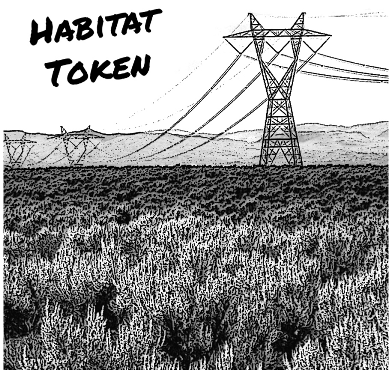
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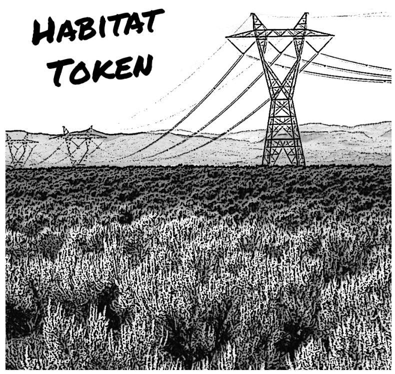
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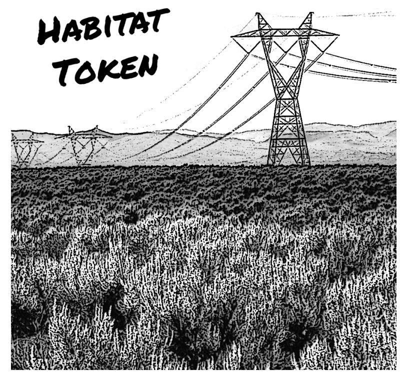
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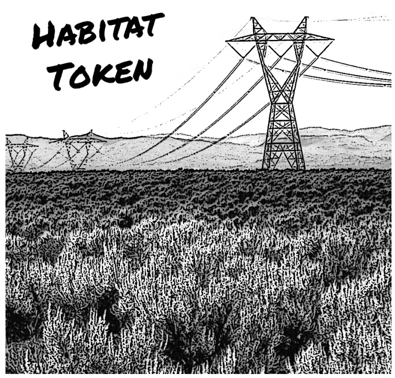
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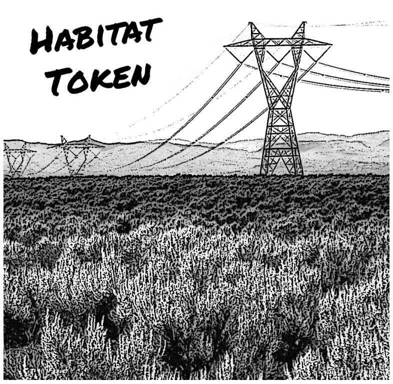
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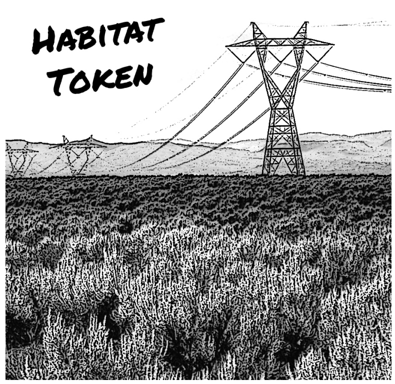
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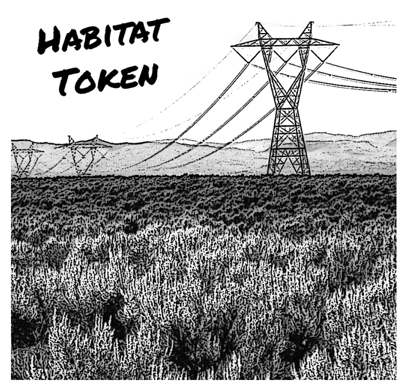
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