*Note: This game will need to be played in a large open space, like a gymnasium or open outdoor space.*

* Title
  + Predator/Prey Game
* Objectives
  + Students will learn about the relationship between predator animals and prey animals and play a game demonstrating the relationship
* Standards
  + K.LS.3 Use observations to describe patterns of what plants and animals (including humans) need to survive
  + 2.LS.1 Determine patterns and behavior (adaptations) of parents and offspring which help offspring survive
  + 4.LS.1 Observe, analyze, and interpret how offspring are very much, but not exactly, like their parents or one another. Describe how these differences in physical characteristics among individuals in population may be advantageous for survival and reproduction
  + 5.LS.2 Observe and classify common Indiana organisms as producers, consumers, decomposers, or predator and prey based on their relationships and interactions with other organisms in their ecosystem
  + 6.LS.3 Describe specific relationships (predator/prey, consumer/decomposer, parasite/host) and symbiotic relationships between organisms. Construct an explanation that predicts why patterns of interactions develop between
* Vocabulary
  + Predator
  + Prey
  + Evolve
  + Ecology
  + Adaptation
* Materials
  + Ropes or cones (optional- for defining game boundaries)
* Introduction
  + The predator/prey relationship is one that is crucial to understanding ecology (the study of the way organisms interact with each other and with their surroundings). A predator eats another organism, while prey is the organism being eaten by the predator; predator eats prey.
    - Some examples: Fox eats rabbit, bear eats fish, lion eats zebra
  + Predators and prey evolve together:
    - The predator will die if it does not get the food it needs (prey), so the predator evolves in ways needed to get their prey: Speed, strength, stealth, camouflage, heightened senses, etc. These evolutionary changes are called adaptations.
      * Ex. Polar bears are white in order to camouflage with their snowy environment while hunting prey
    - Prey will die if it is caught and eaten by a predator, so, similar to predators, prey evolve in ways needed to stay hidden from or otherwise avoid predators: speed, camouflage, heightened senses, intimidating colors, poison, etc.
      * Ex. Poison dart frogs are brightly colored to warn would-be predators of their toxicity in order to avoid being eaten
  + What other predator/prey relationships can you think of? What types of adaptations do those organisms have?
  + Explain to students that they will be playing a game to model the predator/prey relationship
* Procedure
  + Mark out a large rectangular gameplay space (think large enough to play a game of tag). One end of the rectangle will be the starting line and the other will be the finishing line.
  + Choose a handful (about a quarter or fewer) of students to be predators. The remaining students will be prey.
  + Send the predators into the game space and have them spread out away from each other. Line the prey up at the starting line side by side.
  + The goal of the game for the predators is to tag as many prey as possible as the prey run across the game space and to the finish line. The goal for the prey is to make it to the finish line without getting tagged.
    - Choose a predator/prey relationship to focus on. Have students brainstorm ideas.
    - Prey will run across the game space while predators move around the space, tagging as many prey as possible.
    - If a prey is tagged, they are frozen in the spot they were tagged in until the round is over.
    - Prey that make it to the finish line are safe. Predators that tagged at least one prey are safe. Prey that were tagged have been eaten. Predators that did not tag any prey did not get enough food and have died this round.
  + Round 1 (about 1/4 of students are predators):
    - Send the prey down the game space toward the finish line.
      * How many prey were tagged? Was there enough food for the predators? Is there still prey left over? Did any predators starve?
        + This is a good balance of predator to prey; the predators have enough food and there are enough prey left over to reproduce new prey animals
  + Round 2 (about 1/2 of students are predators)
    - * How many prey were tagged? Was there enough food for the predators? Is there still prey left over? Did any predators starve?
        + This isn’t as good a balance as before. The predators might not have enough food, and there may not be enough prey leftover to reproduce new prey animals.
  + Round 3 (about 3/4 of students are predators)
    - * How many prey were tagged? Was there enough food for the predators? Is there still prey left over? Did any predators starve?
        + This isn’t a good balance. There are too many predators and not enough prey to go around. Some predators will starve and there won’t be enough prey leftover to reproduce new pray animals.
  + Round 4 (only a few students- less than 1/4- are predators)
    - * How many prey were tagged? Was there enough food for the predators? Is there still prey left over? Did any predators starve?
        + This is actually ok. As prey numbers increase, so do predator numbers: There is plenty of food around for predators to feed more of their young, so more predators will make it to adulthood.
* Closure
  + After the final round, have students discuss some of their observations about how the population changes impacted each other. What sorts of impacts do you think the population changes might have on the environment where they live, if any? What do you think would happen to the predators if the prey’s food was taken away or reduced?