

Ages:

8 & up

Kermit's Friends

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Main idea: This is a fast-paced game that provides a simple representation of how populations of animals change depending on how much food, water and shelter is available to them.

Objectives:

- q Identify essential components of habitat – food, water, shelter and space.
- q See how shortages of food, water and shelter can limit the number of animals in a place.
- q Recognize that changes in the number of animals are natural, even in healthy environment.

Materials:

- q Indoor or outdoor activity, but requires plenty of room for students to run or hop (large room or gym).
- q Chalkboard or large flip chart and writing materials. Large graph can be laid out with number of Frogs on one axis and number of seasons on the other.

Motivator: A fun game the students can use to better understand population dynamics

Activity:

Before starting the game, discuss the requirements that all animals need to survive: food, water, shelter and space. These are “habitat components” – necessities supplied by the place where the animals live. For the purposes of this simplified game, just food, water and shelter will be used.

One-fourth of the students assume the roles of Frogs. The rest assume the role of one of the three or "habitat components" or Necessities – food, water or shelter. Students will graph how the number of Frogs changes depending on the availability of Necessities, as well as act out the changes in a game.

Have students count off by four. The “ones” start the game as Frogs. The rest start as Necessities. Have the Frogs line up on one side of the play area and Necessities on the other.

During the game, each Frog needs to find food, water and shelter to survive:

- q When looking for **food**, a Frog will hold hands over its **stomach**.
- q When looking for **water**, a Frog will hold hands over its **mouth**.
- q When looking for **shelter**, a Frog will hold hands over its **head**.

During each round, a Frog chooses to search for one of the Necessities, and may select the same or

different Necessity for each round. But once a Frog selects which Necessity they are going to search for, they must stay with their choice for that round.

The Necessities (Groups # 2, 3, and 4) represent food, water and shelter. At the beginning of each round, each student in these groups picks which Necessity they will represent. They show which Necessity they represent using the same signs as the Frogs (above).

1. The game begins with all players lined up in their respective lines (Frogs on one side and Necessities on the other), with their backs to each other.
2. The facilitator begins the first round by asking all Necessity students to choose their component, then asks the Frogs to choose what they are going to look for. All must declare their choice using the hand signals outlined.
3. Once students have made their choices and placed hands in appropriate places (mouth, stomach, above head) they're not to change their choice until the next round. First, have the Necessities group turn and face the Frogs and then have the Frogs face the Necessities group.
4. Tell the Frogs they may now find the Necessity they've indicated they're searching for. The Frogs run to the Necessity they need and must keep their signal in place until they make contact. (Instead of running, you can have the students squat and hop like frogs while maintaining their signal.)
5. Once contact is made, the Frog may take that Necessity back to the Frog line. This represents the Frog's successfully meeting its needs and successfully reproducing.
6. Each Necessity taken by a Frog now becomes a Frog too. Any Frogs that fail to find the

Necessity they need, becomes part of the habitat and stays with the Necessity group. In other words, the Frogs that died are habitat components and are available as Necessities -- food, water, or shelter -- to the Frogs that are still alive.

Note: If more than one Frog reaches a Necessity, the Frog who gets there first survives. Necessities always stay in place on their line until a Frog picks them. If no Frog chooses a particular Necessity during a round, that Necessity just stays there until the next round. The Necessities can change their selection from one round to the next.

The facilitator keeps track of how many Frogs there are at the beginning of the game, and records the number at the end of each round on the graph. Continue the game for approximately 15 rounds, moving at a brisk pace.

At the end of the rounds, gather the students together to discuss what has been happening. Encourage them to share what they've experienced. For example, they saw a small number of Frogs begin by finding adequate food, water, and shelter. As the population grew, over a couple of rounds, there were not enough Necessities to support the larger population. At that point, Frogs died and became part of the habitat, just like it happens in nature.

Now take a look at the data that you recorded on the graph and connect the dots. It will be very obvious how the population of Frogs varies over time – rising to peaks and then falling again. This is a natural cycle that affects populations as long as the limits do not become excessive to the point where animals cannot successfully reproduce. Wildlife populations tend to peak, decline, and rebuild, peak, decline, and rebuild as long as good habitat is available and a sufficient number of animals to successfully reproduce.

Questions:

q Do you think animal populations change over time? If yes, do you think it's natural? (A: Animal and plant populations are constantly changing. Yes, it's natural for this to happen.)

q Can we keep frog numbers high in a particular area if enough frogs have babies? (A: No, not naturally. Eventually some limiting factor will affect the frogs and reduce their population.)

q Can you think of some things you could do to increase frog populations? (A: You could feed the frogs or reduce their predators.)

q What do you think might happen to frog predators when frogs are scarce? (A: The predators will have reached their own limiting factor and their populations will fall.)