

GLOSSARY:

Calcium: A silvery-white, moderately hard metallic element of the alkaline-earth group that occurs in limestone and gypsum. It is a basic component of leaves, bones, teeth, and shells, and is essential for the normal growth and development of most animals and plants.

Currents: A large portion of air or large body of water moving in a certain direction.

Mammals: Any vertebrate of the class Mammalia, having the body more or less covered with hair, nourishing the young with milk from the mammary glands, and, with the exception of the egg-laying monotremes, giving birth to live young.

Masai Mara: A large park reserve in south-western Kenya, which is effectively the northern continuation of the Serengeti National Park game reserve in Tanzania. Named for the Maasai people (the traditional inhabitants of the area) and the Mara River.

Migrate: To change location periodically, especially by moving seasonally from one region to another.

Phosphorus: A nonmetallic multivalent element that occurs widely in combined form especially as inorganic phosphates in minerals, soils, natural waters, bones, and teeth and as organic phosphates in all living cells, and that exists in several allotropic forms.

Plains: An extensive, level, usually treeless area of land.

Predators: An organism that lives by preying on other organisms.

Protein: The plant or animal tissue rich in such molecules, considered as a food source supplying essential amino acids to the body.

Synchronize: To occur at the same time; be simultaneous.



TMW MEDIA GROUP

2321 Abbot Kinney Blvd., Venice, CA 90291

(310) 577-8581 Fax: (310) 574-0886

Email: sale@tmwmedia.com Web: www.tmwmedia.com

"Producers & Distributors of Quality Educational Media"

© 2012 TMW MEDIA GROUP, Inc.

© 2012 Allegro Productions, Inc. and TMW Media Group, Inc.

Show Me Science Advanced

Environment: Wildebeest Migration Patterns

K4574DVD

Advanced Teachers Guide

SYNOPSIS:

In East Africa, the Serengeti comes alive when wildebeests journey across treacherous terrain to find the best grazing locations. Every year, approximately 1.5 million wildebeests migrate over 1,800 miles or nearly 3,000 kilometers searching for rain ripened grass. Prior to their journey toward Kenya, they graze on the grasses of the Serengeti in Tanzania before the rainy season comes. As they search for food and water, they endure crocodile-filled river crossings and open range lion attacks in what is considered the largest wildlife migration on earth. In this program, students will learn about the lifecycle of this dynamic migratory mammal.

CURRICULUM UNITS:

- Biology
 - Ecology
 - Environmental science
 - Zoology
-

CAREER OPPORTUNITIES:

- Animal behavior specialist
- Biologist
- Ecologist
- Environmental scientist
- Veterinarian
- Zoologist

PROGRAM OVERVIEW:

The Masai Mara park reserve in Southwest Kenya is nestled in the Great Rift Valley where the terrain is mostly open grassland or savannah. These plains are the perfect grazing locations for wildebeests. It is famous not only for its lions, but for one particular event involving the wildebeest. It is referred to as the Great Migration. Considered one of the greatest wildlife spectacles on Earth, approximately 1.5 million wildebeests migrate in a clockwise fashion nearly 3,000 kilometers from Tanzania up to Kenya searching for rain ripened grass to graze.

The wildebeests feed off of the lush lands of Tanzania from January to March. Approximately 400,000 calves are born around this time. Wildebeest cows have just one calf and synchronize their births within a herd within two or three weeks of each other. This is probably so there is a huge number of calves at any one time, so when predators come in to take their calves, there are enough of them to survive. As another survival tactic, they give birth right in the center of the herd for safety in numbers. Calves can usually stand and walk within minutes after birth. Within a week, they can run fast enough to keep up with the adult herd. Despite all the adversity, the wildebeests complete the migration every year. Approximately 250,000 wildebeests will die during the journey. For many of them, their final steps are taken at the Mara River crossing.

ISSUES & CRITICAL THINKING:

1. Have students research a map of Africa, highlighting the course of the wildebeest Great Migration. Use the scale to have students estimate distance. Then, to further practice math applications, using the formula of $\text{Distance} = \text{Rate} \times \text{Time}$, try plugging in different amounts of time, and ask the students, "What is their speed (rate) if the migration takes 1 month? Two months? Discuss factors that would affect how much distance the animals would cover in a day or a week.

2. Discuss the climate of Tanzania and the Masai Mara in Kenya. How is the wildebeest dependent upon rain for existence?

3. Ask students to describe the animal and plant diversity they might see if they were to plan a trip to Kenya. For a fun exercise, plan and make a travel brochure for Kenya. Have students create sections for animals and plants they will see, climate, and what a traveller should bring. Describe ecotourism activities such as safari, climbing Kilimanjaro, and native foods they might encounter.

4. Discuss with students the food web and the importance of wildebeests among the inhabitants of the Serengeti region. Have students construct a food web with as many links as possible. Compare the stability of a web with many connections, versus a food chain which can be more easily disrupted. Apply the "10% rule of efficiency" in a food web, which shows that as you travel up a food chain or web, the available energy decreases by roughly 90% at each step.