The FUTURES Channel®

MOVIE GUIDE

MOVIE NUMBER 2002

Healing Injured Wild Animals

The Movie:

Veterinarian Mark Pokras assesses, treats and nurses injured wild animals on their road back to health. Featured: Mark Pokras, veterinarian. *(Movie length: 2:07)*

Background:

Few people would argue that humankind would be better off if it were the only form of animal life on Earth; the threat that our species' growth is posing to the planet's wildlife is not intentional, though it is, perhaps, careless. Nonetheless that threat is real, and fortunately there are countless men and women who are devoting their lives to its mitigation. Many of these people work towards policies and initiatives aimed at preserving habitats and species. Some of them devote themselves to the care of one animal at a time. These are wildlife veterinarians.

The range of knowledge that must be mastered by any veterinarian is immense, spanning as it does so many fundamentally unlike anatomies and physiologies. But for a wildlife veterinarian, treating animals whose instincts are to fight their perceived captors, the challenges are redoubled. But so too are the rewards of setting a healthy animal free to follow its independent nature.

Curriculum Connections:

Ratios, Measurement (weight) 1

This table shows recommended doses of antibiotics for turtles. Each dosage is described in terms of amount of the antibiotic per kilogram of body weight of the animal. Use the information in the table to answer the questions below.

Ampicillin	10 mg/kg per day for 7 days
Baytril (enrofloxacin)	5 mg/kg per day for 10 days
Gentamicin	2.5 mg/kg every 72 hours
Tetracycline	50 mg/kg per day for 7 days

a) What daily dosage of Ampicillin would be appropriate for a turtle weighing 3 kilograms?

b) How much Tetracycline total would be given to a turtle that weights 800 grams?

c) What total amount of Gentamicin would be given to a turtle weighing 3 pounds over a 9-day period?

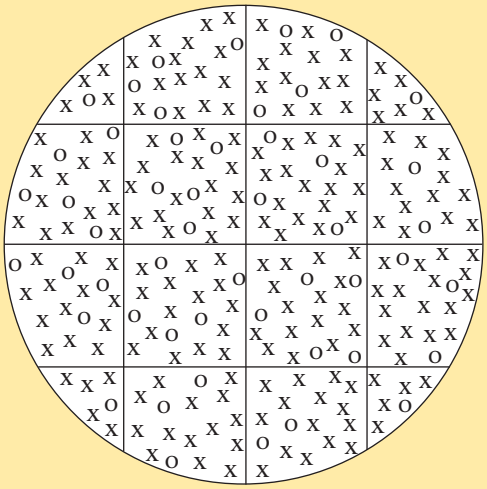
Statistics (mean), Ratios, Percents 2

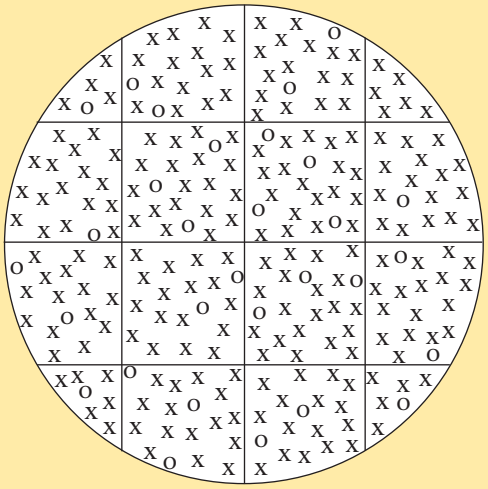
You are taking care of an injured fox, and you want to find out if its white blood cell count is normal. You don't have time to send its blood to a lab, so you decide to compare the blood of your fox to a standard sample that you have on a slide.

On the left is the standard sample, with white blood cells indicated by o's and other components of blood shown as x's. On the right is the slide you have prepared for your injured fox.

Find the mean number of white blood cells in the grid squares of the standard sample slide and compare it to the average for your fox.

If your fox has between 50% and 150% of the white blood cells of the standard sample, then the count is considered normal. Is it?





Scientific Notation, Percents 3

Suppose that you need to anesthetize a wolf, which weighs 40 kilograms, and you want the wolf to be unconscious for 2 hours. The wolf's bloodstream must have at least 45×10^{-6} grams of anesthetic per kilogram of body weight to keep the wolf from regaining consciousness. If 10% of whatever anesthetic is present at the beginning of an hour is eliminated from the wolf's body by the end of that hour, how much anesthetic should you inject?

Geometry (angles) 4

Compare these two images of a bat's wings. Which bone is in the wrong position in the injured bat's wings, and by how many degrees is it bent?

normal

injured

Statistics (scatter-plot) 5

This table gives the head and body lengths and weights for 12 coyotes who were trapped in the wild and then released. Create a scatter plot with this information and state whether or not you believe there is a strong correlation between head-and-body length and weight, and why.

Suppose an injured coyote is brought in which has a head-and-body length of 92 cm and a weight of 10 kg. Would you consider that normal? Why or why not?

Head-and-body length (cm)	Weight (kg)
75	10
94	15.2
83	11.3
81	12.1
90	14.1
81	10.3
72	9.4
96	16.7
85	13.1
91	13.9
72	10.1
89	12.8

Algebra (solving equations) 6

A mink needs roughly 140 Calories per kilogram of body weight a day. The food should include a balance of carbohydrates, fat, and proteins, which varies depending on the time of year.

The total amount of Calories provided by food supplied is given by this equation:

Total Cal = 4.5P + 9.2F + 4.2C

P = number of grams of digestible protein
F = number of grams of digestible fat
C = number of grams of digestible carbohydrate

a) Suppose a 2 kilogram mink is fed 24 grams of digestible protein, 16 grams of digestible fat, and 20 grams of digestible carbohydrate in a day. Does that supply sufficient calories?

b) If a 3 kilogram mink is given 42 grams of digestible carbohydrate and 18 grams of digestible fat, how much protein should be given to supply its basic Calorie requirement?

c) In situation (b), what percent of the mink's Calories is in the form of protein? (Note: This is not the same as the percent of the total grams of food that is protein.)

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Bats, #2007	Bats are an essential and fascinating part of the ecology of many environments.