

**LESSON
11.4****Interdisciplinary Application***For use with the lesson "Find Probabilities of Disjoint and Overlapping Events"***Zoology**

Biology Animals have always captured the minds of people. The famous Greek philosopher Aristotle, sometimes called the father of zoology, described characteristics and behavior of animals in Greece as far back as the 300s B.C. Early efforts to name and classify animals were largely based on the animal's appearance and behavior or habits.

Zoology is a branch of biology that deals with the study of animal life. Zoologists study things such as the relationships between different species, the development of particular animals, and their characteristics. Zoology can be broken up into numerous categories. Because there are thousands of species of animals throughout the world, a zoologist will usually specialize in one area of research. The table below shows just a few of the branches of zoology and its area of interest.

Branch of Zoology	Area of Interest
Ichthyology	Fish
Ornithology	Birds
Cetology	Whales and Dolphins
Primatology	Primates
Entomology	Insects

Some other areas of zoology include taxonomy, which is the study of naming and classifying animals, physiology, which is the study of the functions of animals, and ecology, which is the study of the relationship between animals and their environments. The benefits of zoological research can be invaluable in the way we understand and live with animals.

Use the following information to answer Exercises 1 and 2.

Suppose a team of zoologists is doing a field study in Africa on a pride of lions. One of the zoologists notices that one of the lions is walking with a severe limp. The team tranquilizes the lion and treats it. It is determined that there is a 90% probability that the lion's leg has ligament damage or a fracture, a 55% probability it has ligament damage, and a 40% probability it has a fracture.

1. What is the probability that the lion's leg has ligament damage and a fracture?
2. Suppose it is determined that there is an 85% probability that the lion's leg has ligament damage or a fracture, a 50% probability it has ligament damage, and a 45% probability it has a fracture. What is the probability that the lion's leg has ligament damage and a fracture?