


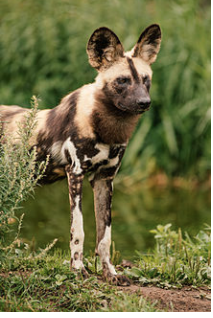



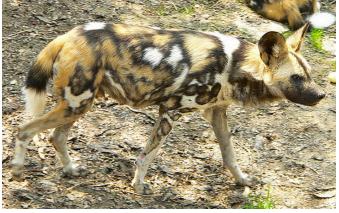


Which wolf-like species are most closely related and which are most distantly related to one another?

			
			
<i>Gray wolf</i>	<i>Maned wolf</i>	<i>Coyote</i>	<i>African wild dog</i>

The Gray wolf, Maned wolf, Coyote, and African wild dog, are different species. But they all share a common ancestor 7.4 million years ago. The descendants of that ancestor evolved over those millions of years to form the four species they are today.

Compare the individuals of the Gray wolf species to the individuals from these 3 species:

- The Maned wolf
- The Coyote
- The African wild dog

	Make a Prediction
Which of these three species is most closely related to Gray wolves (<i>Canis lupus</i>)? In other words, they shared a common ancestor more recently than with the other species shown.	
Which of these three species is the most distantly related to Gray wolves (<i>Canis lupus</i>)? In other words, they shared a common ancestor further in the distant past than with the other species shown.	

Procedure – Part 1

1. Circle which two pieces of data you think will provide the strongest evidence to help you decide if your predictions were correct?
 - Physical traits (weight, height, length, fur color, etc...)
 - Food sources and Hunting behaviors
 - Chromosome number and Reproductive behaviors
 - Habitats and Geographical distribution

2. Your teacher will assign you to one of these four research topic areas. Which topic area will you be researching? _____

3. Each member should compare one of the species below to the gray wolf (*Canis lupus*). Write your summary in the corresponding row below. Share your comparison with the other group members and write each person’s findings in this table.

Species	Summarize similarities and differences in your topic area data for this species compared to the gray wolf (<i>Canis lupus</i>)
Maned wolf	
Coyote	
African wild dog	

Making Sense of Your Data with Your Group

For the topic area you investigated, which species had the greatest similarities compared to the gray wolves (*Canis lupus*)? _____

For the topic area you investigated, which species had the greatest differences compared to the gray wolves (*Canis lupus*)? _____

Procedure – Part 2

- Your teacher will assign you to a new group, where you will be the expert on your group’s research topic area. In your new group, you will share your findings with the other group members and summarize each member’s topic area findings in the chart below.

Rank order each species for each research topic. Evidence for being: 1 = most closely related to wolves 3 = most distantly related to wolves 2 = the remaining species				
Species	Physical traits	Food sources and Hunting behaviors	Chromosome number and Reproductive behaviors	Habitats and geographical distribution
Maned wolf				
Coyote				
African wild dog				

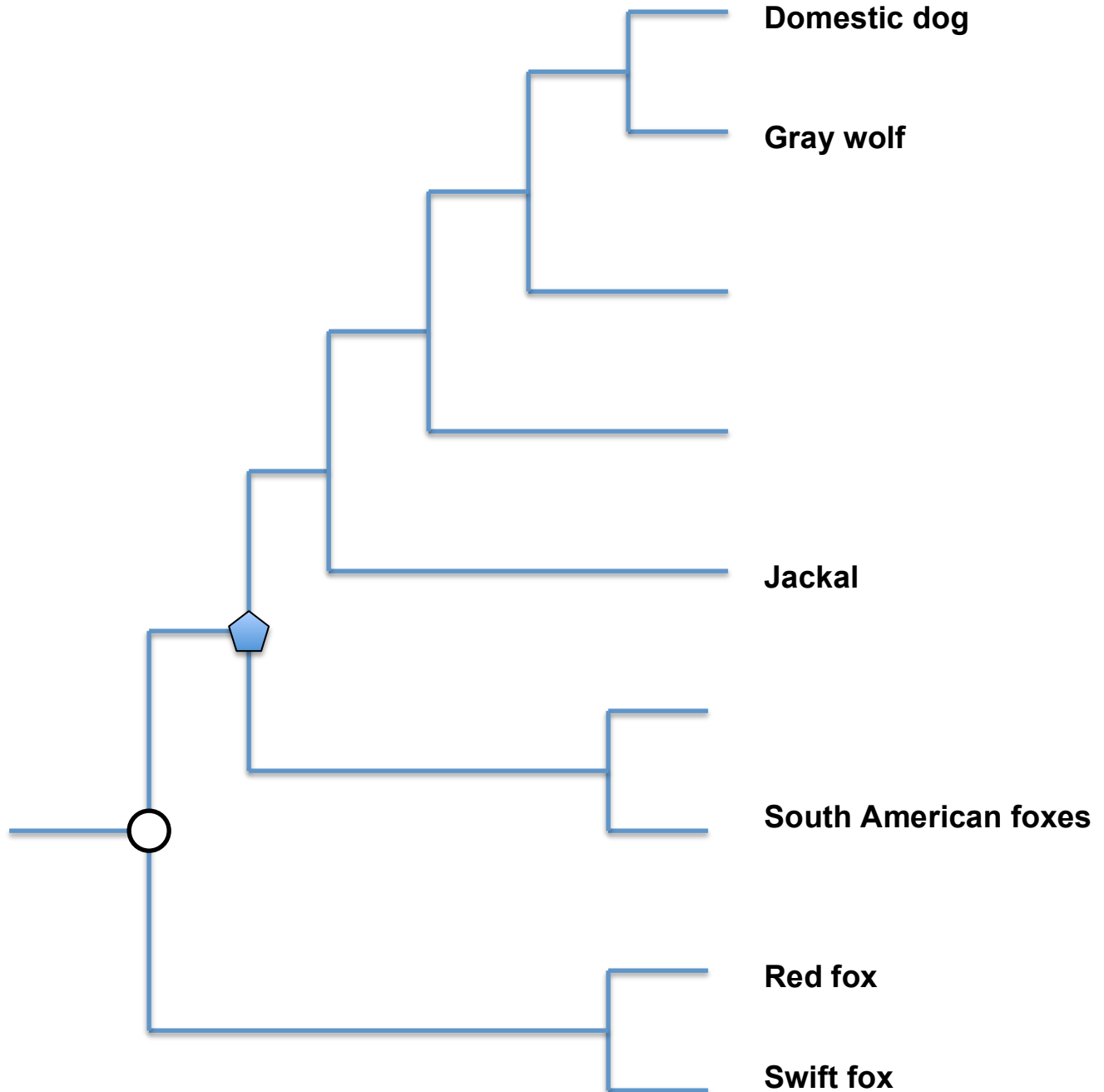
In your group, use the rankings for every topic to decide on your answer to this question: **Which species is most closely related to gray wolves (*Canis lupus*) and is the most distantly related to gray wolves (*Canis lupus*)?** Write your claim here:

Claim: _____

Name: _____

Final Explanation

The chart below shows other species related to the wild gray wolf, and how closely or distantly related they are. Domestic dogs and gray wolves are the most closely related. Fill in the chart below with your findings for your other 3 species.



Based on fossil and DNA evidence, scientists have determined that all of the species shown on this chart shared a common ancestor over 10 million years ago (shown by the white circle). And, they have determined that the first seven species listed in this chart (which includes the four species you explored in this case study) shared a common ancestor around 7.4 millions years ago (shown by the pentagon).

