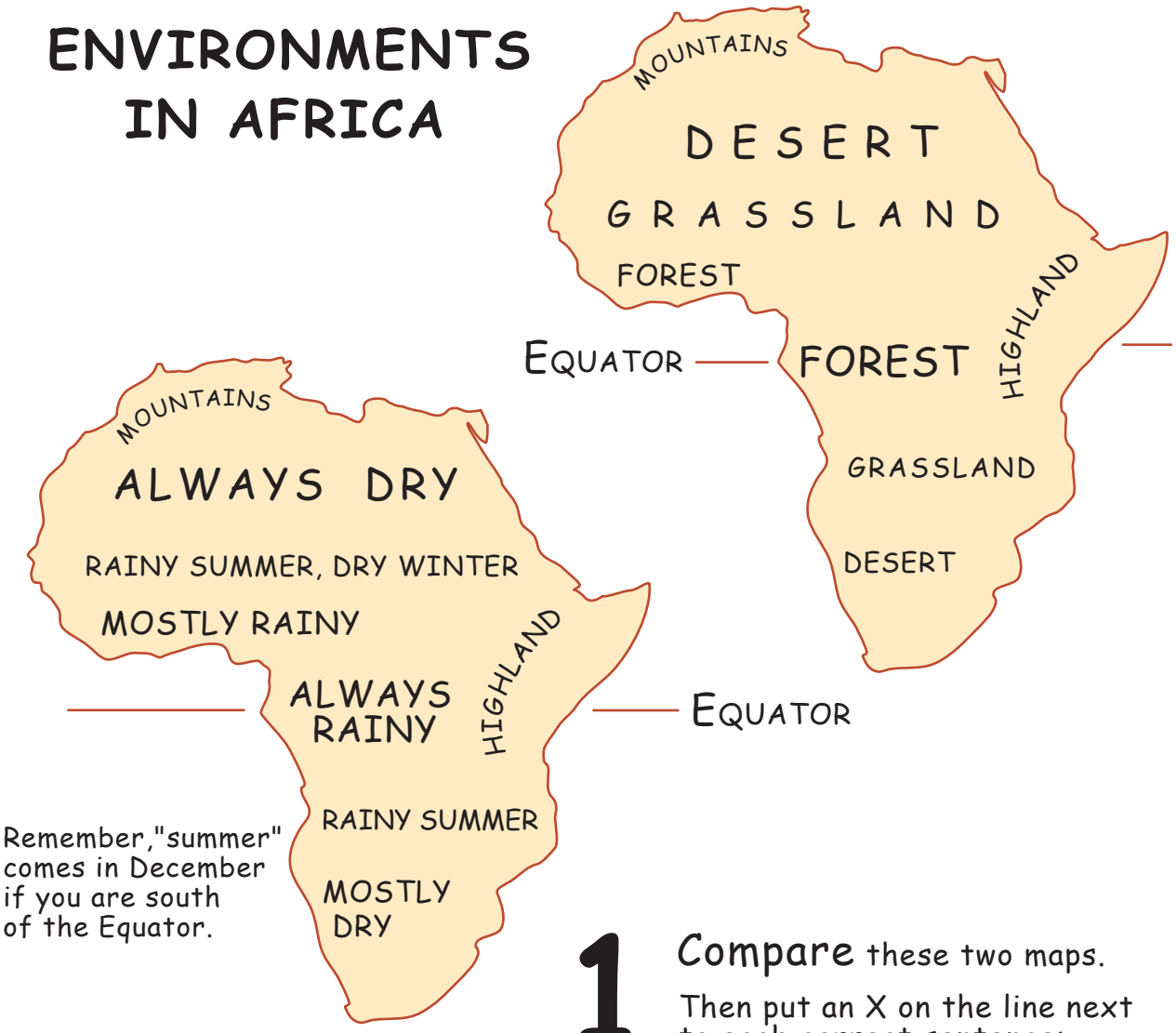
ENVIRONMENTS IN AFRICA



Remember,"summer" comes in December if you are south of the Equator.

1 **Compare** these two maps.

Then put an X on the line next to each correct sentence:

___ Deserts are places that are always dry.

___ Rainy forests occur near the Equator,

___ Deserts occur between forests and grasslands.

___ Deserts are farther from the equator than forests.

___ Grasslands are places with rainy summers,

___ Grasslands occur between forests and deserts.

2

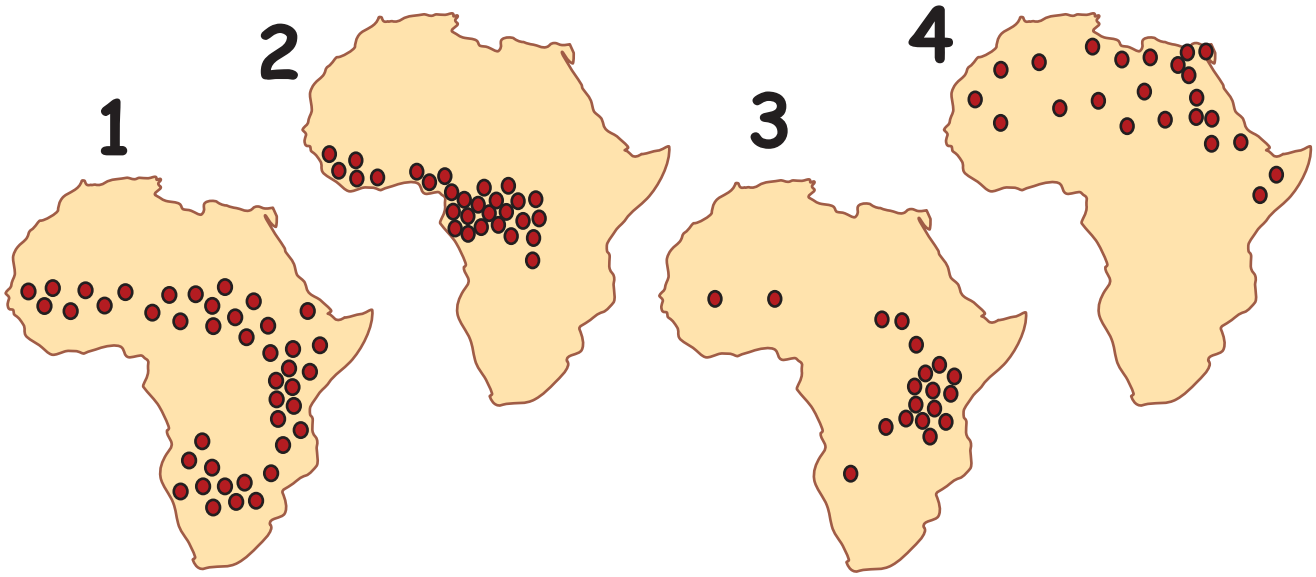
Research question: what kinds of animals do you think like to live in each kind of environment in Africa:

deserts _____

grasslands _____

forests _____

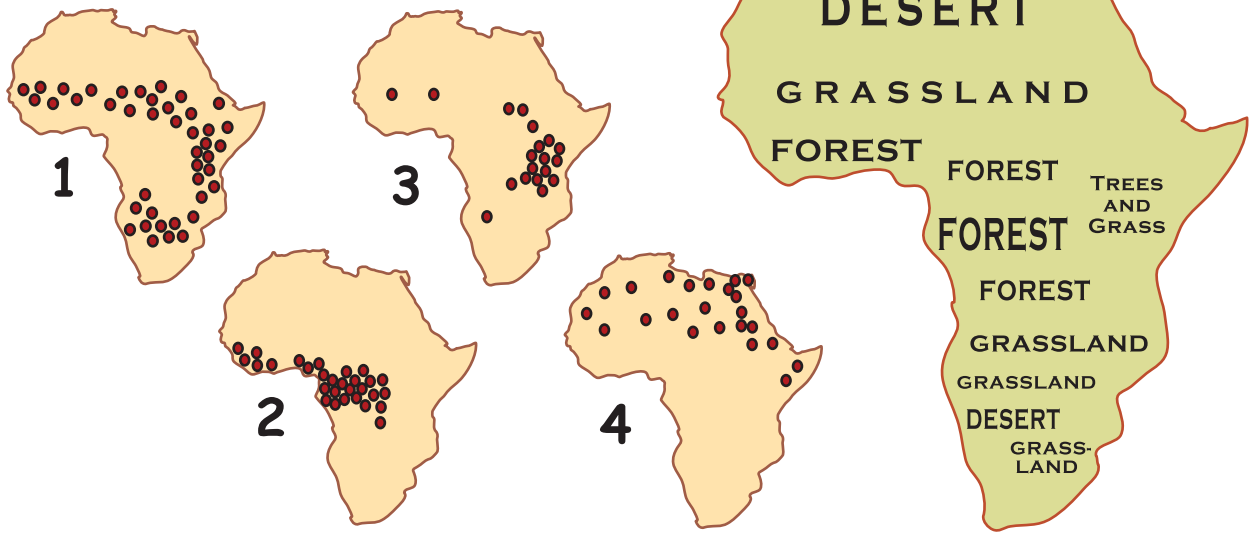
Animals of Africa



The dots on these four maps show places where these animals live: Camel, Cheetah, Giraffe, and Chimpanzee. Write the correct name and map number on the lines next to each description below.

Name	Map	Description
giraffe	3	I have a really long neck. This helps me eat leaves from medium-sized trees that grow in grassy areas. I don't like forests that have really big trees. I don't like grasslands that don't have any trees.
_____	____	I look like a monkey with long arms but no tail. I can climb trees as well as walk on the ground. I like to live in forests that have really big trees. I am afraid of places where lions and cheetahs live.
_____	____	I have big feet. They help me walk on dry sand. I also have a hump on my back. My body stores fat and water in the hump. That helps me survive a long time in places that do not have much water.
_____	____	I am a big cat. I can run really fast (about 70 mph). That helps me chase antelopes and other animals that eat grass. I don't like forests where other animals live up in trees and I can't run easily.

Animals of Africa



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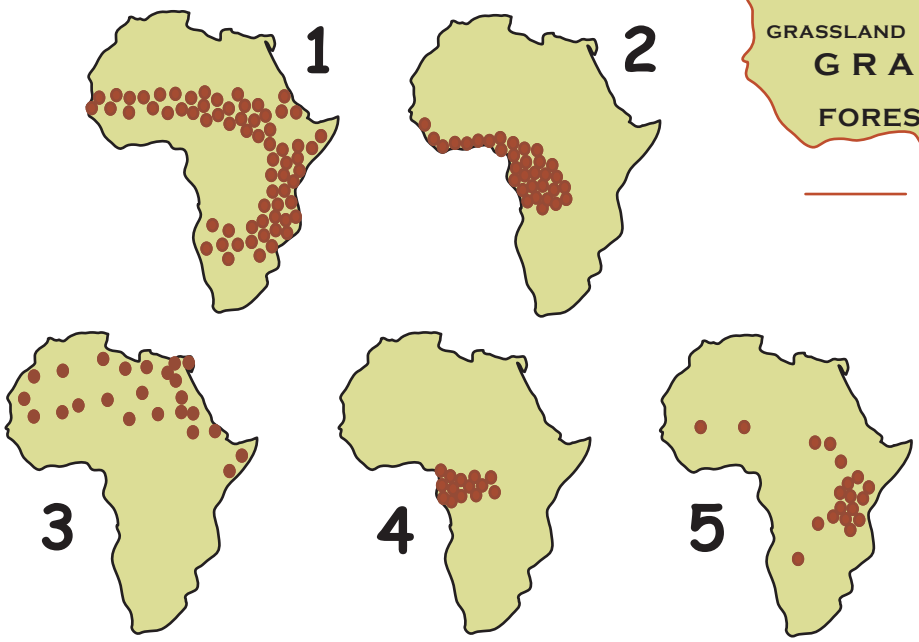
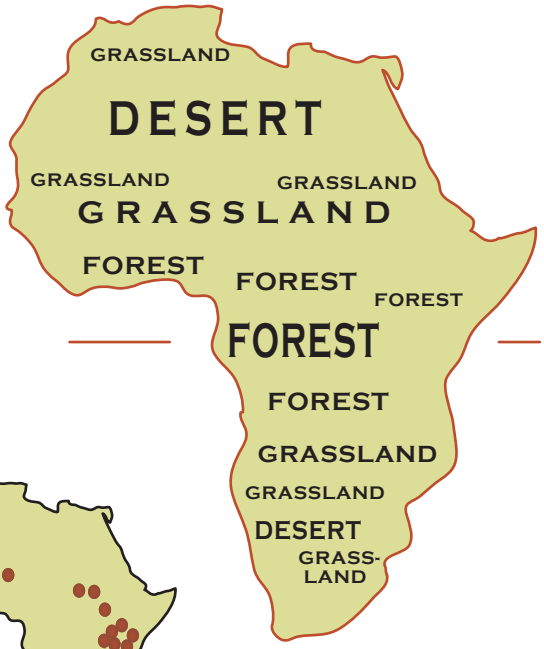
Animals of Africa





Do you know about Camels, Cheetahs, Crocodiles, Giraffes, and Gorillas? These maps show where they live. Write the correct name and map number on the lines next to each description. Be ready to explain your choices.

Name	Map	Description
giraffe	5	I have a really long neck. This helps me eat leaves from medium-sized trees that grow in grassy areas. I don't like deserts or forests with big trees.
_____	____	I look like a big monkey with no tail. I can climb trees as well as walk on the ground. I like to live in forests that have big trees and very few people.
_____	____	I have a long snout, big teeth, and a long tail. My tail helps me swim. I live in rainy places that have big rivers and lots of muddy ponds.
_____	____	I have big feet. They help me walk on sand. I also have a hump on my back. It stores fat, so I can survive a long time without food or water.
_____	____	I am a big cat. I can run really fast (about 70 mph). That helps me chase antelopes and other animals that eat grass. I don't like forests where other animals live in trees and I can't run easily.

Teacher's Notes – Spatial Association of Animals and Natural Vegetation in Africa

Big idea: Most animals live in particular kinds of places. They "choose" these locations because each animal species has a number of habitat requirements – temperature conditions, kinds of food, nesting areas, relationships with predators or parasites, and so forth. Plants also live where environmental conditions such as temperature, rainfall, and soil are suitable. As a result, specific animals and plants often occur together in what we call *geographic associations*.

Subordinate objectives:

- to improve their mental maps of general conditions in different parts of Africa
- to speculate how global warming might cause plants and animals to "move"

Possible setup information: Many young children find animals inherently interesting. This activity can build on an engaging story or video by channeling that interest toward learning about the geography of natural environments in Africa.

Possible additional or alternative setup: A "teachable moment" often occurs when a nearby zoo acquires a new and interesting animal. Where do animals like that live in the wild?

Vocabulary: animal environment habitat plant predator range spatial association

Procedure: The worksheet is the core of the activity. We provide several versions with different levels of difficulty. This activity can be done as an individual worksheet, small-group activity, whole-class discussion (with or without a projector), or takehome project, with or without the matrix extension or card activity. It works better when a larger task (e.g. learning about natural environments or global warming) justifies doing an activity like this to master the skill involved.

Answers (to the most complicated version):

1. Giraffes are shown on Map 5. They occur mainly in the highland savannas of East Africa (areas with tall grasses, scattered short trees, and temperatures lowered by elevation).
2. Gorillas are shown on map 4. They occur in the hot, dense rainforests near the equator.
3. Crocodiles are shown on map 2. They occur together with gorillas in equatorial rainforests. They also co-exist with people in the forest-and-cropland areas along the Guinea Coast.
4. Camels are shown on map 3. Most of the time they live in oases and river valleys around the Sahara, but people also ride them in caravans across the desert.
5. Cheetahs are shown on map 1. They live in the grasslands between rainforests and deserts.

Supplements and extensions: Have students mentally "march" across the map of Africa from north to south: "grassland, big desert, grassland, small trees, big forest, small trees, grassland, small desert." Many zoos have websites with animal photos and habitat descriptions.

Complication: Many books, websites, and GIS datasets about birds and other animals have maps that show the geographic ranges of individual species. These maps can be difficult to explain, because the range of an individual species depends on more than just the locations of places with acceptable environmental conditions. At least four other factors should be considered:

1. *Competitors* are plants or animals that might like the same conditions but are more fast-growing or efficient and therefore do better in those places,
2. *Predators* or *parasites* can keep animals out of otherwise acceptable environments.
3. *Extreme conditions*, such as a rare frost, can make otherwise suitable places unacceptable.
4. *Barriers* can block a species from moving into areas where environmental conditions might be suitable. The most important barriers include oceans, seas, mountain ranges, large river valleys, and areas of dense human settlement.

Recommendation: In early grades, focus on broad groups of animals or individual species (like the ones in this activity) where the link between geographic range and environmental condition is clear. This provides a solid base on which students can build a more sophisticated understanding later, perhaps with field experiments or activities like the malaria one included in this chapter.