

# Desert Climates



# What Is a Desert Climate?

Areas which are said to have a desert climate are those which have very little precipitation. Precipitation can be rain, snow, sleet or hail.

Most experts agree that a desert is an area of land that receives no more than 25cm (10 inches) of precipitation a year. In some deserts, such as the Atacama desert in Chile, average annual precipitation is only about 10mm. Some deserts may even receive no precipitation at all over the course of a year.



Atacama desert, Chile



# What Are Deserts Like?

When people think of a desert, they usually think of a hot, dry and sandy place. In fact, desert environments can be very different to each other.

Deserts may be hot or cold.

They may have sand dunes, mountains, bare rock, ice or salt flats.

Sand dunes actually only make up around 10% of the world's deserts.

Deserts are found on every continent of the world. They cover approximately 20% of the Earth's land surface.

# Where Are Deserts Climates Found?





# Desert Climates

There are two main variations of the desert climate; a hot desert climate and a cold desert climate. One way of determining which category a desert fits into is by using its average annual temperature. If the average annual temperature of an area is above 18°C (64°F), it is classified as a hot desert. If it falls below this number, it is classified as a cold desert.



## Hot Desert Climate

Most hot deserts are located in the tropics (the area between the equator and the Tropic of Cancer). The Sahara Desert in Africa is the largest hot desert in the world. The highest temperature ever recorded in a hot desert was 136°F in 1922.



Sahara

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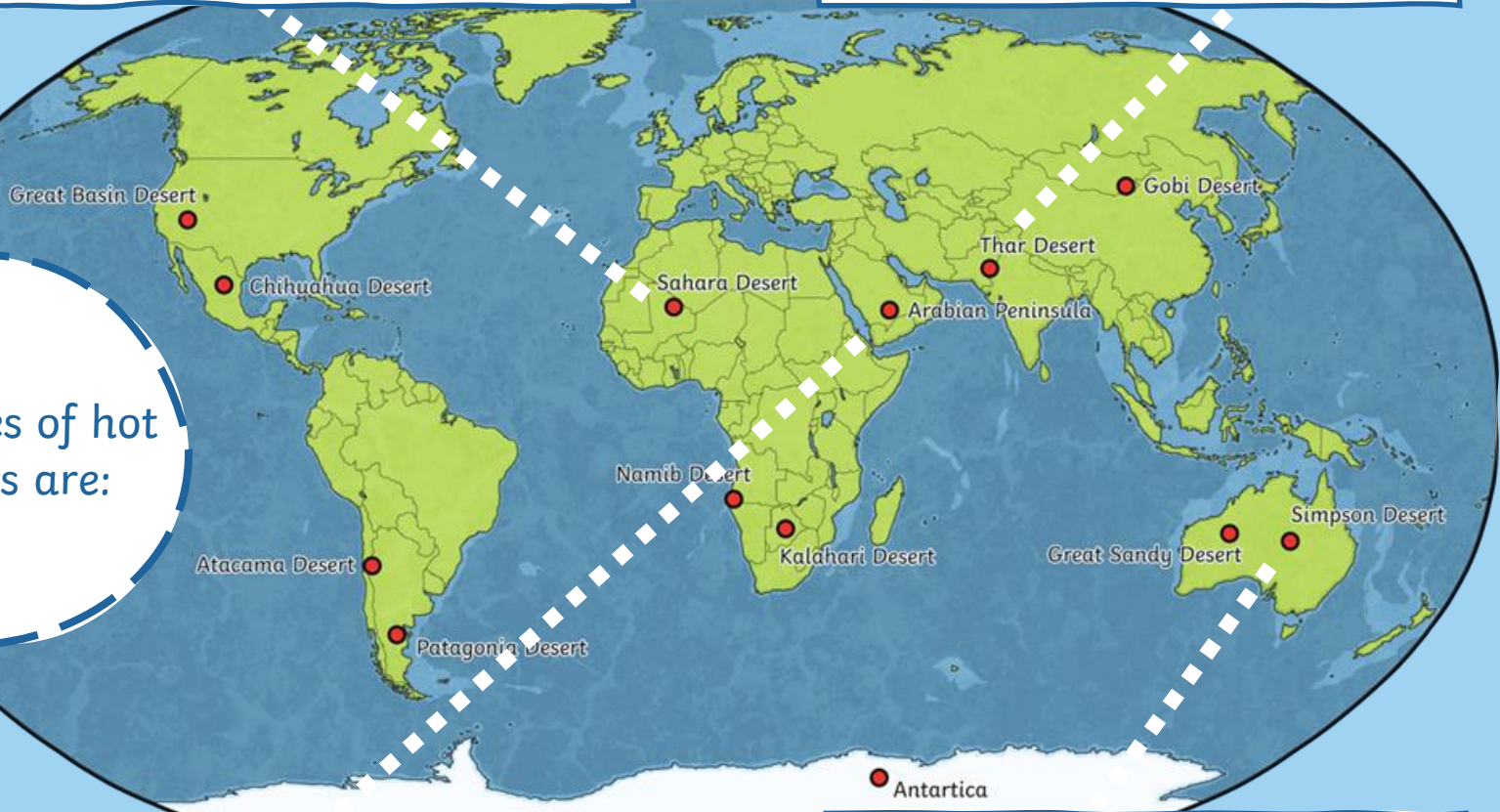
Atacama Desert, Chile

# Where Are Hot Deserts Found?

Sahara Desert in northern Africa

Thar Desert in southern Asia

Examples of hot deserts are:

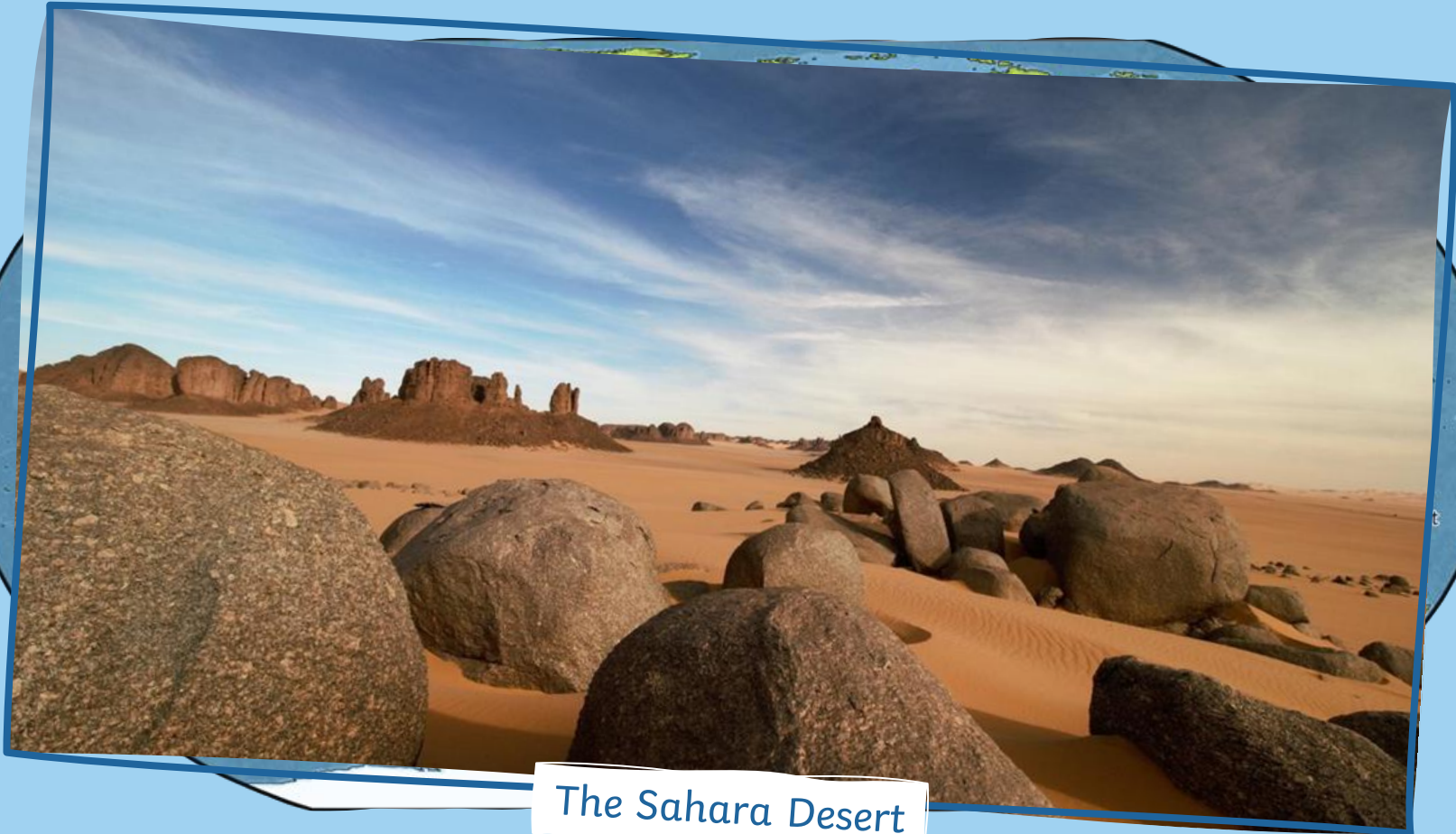


Arabian Desert in the Middle East

Simpson Desert in Australia



# The Sahara Desert- Northern Africa



The Sahara Desert



# Simpson Desert - Australia



Simpson Desert



# Cold Desert Climates

Areas with a cold desert climate are found further from the equator. The average annual temperature of these areas is below 18°C (64F). This does not mean the area has to be cold all of the time.

Summers in cold desert climate areas can be hot and dry while winters are cold and dry.

Areas with a cold desert climate are often found at higher altitudes than those with a hot desert climate.

Many scientists consider Antarctica to be a cold desert as it gets very little rain or snow.



Antarctica

# Where Are Cold Deserts Found?

Great Basin Desert in the United States of America

Gobi Desert in China and Mongolia

Examples of cold deserts are:

Great Basin Desert

Chihuahu Desert

Atacama Desert

Patagonia Desert

Sahara Desert

Namib Desert

Kalahari Desert

Antartica

Great Sandy Desert

Simpson Desert

Thar Desert

Arabian Peninsula

Gobi Desert

Patagonia Desert in Argentina

Antarctica



# Gobi Desert - China and Mongolia



Gobi Desert



# Antarctica



Antarctica



# Causes of a Desert Climate

Deserts can be further divided into different types, based on what causes their lack of precipitation. Some examples of classifications include:

## Coastal Deserts

This type of desert is found in areas near to the sea. Desert conditions are caused when cold ocean currents chill the air blowing towards a shore, producing fog. The fog drifts onto the land and can make these areas damp but without any precipitation present. An example is the Atacama Desert on the coast of Chile.

Southern Africa.



Atacama Desert, Chile



Atacama Desert, Chile

# Causes of a Desert Climate

## Polar Deserts

## Deserts

Areas of the Arctic and most of the continent of Antarctica can be classified as deserts. Although there is lots of water present in these areas, it is contained within ice and there is actually very little precipitation.

incoming winds. As air is forced up and over the mountains, it cools, dropping its moisture as it goes. By the time the air gets over the mountains, there is little precipitation left. An example of a rain shadow desert is Death Valley in the USA. This is in the rain shadow of the Sierra Nevada mountain range.



Death Valley

Antarctica



# Plants in the Desert

Very few plants and animals live in desert areas. The arid climate is the main reason for this.

Desert plants tend to grow far apart from each other. This means there is less competition with other plants for water.

They usually have smaller leaves to reduce the amount of water lost.

One common desert plant is the cactus. Cacti have no leaves. They produce food in their green stems. They have spines which trap air and produce some shade for the plant, helping it to control its temperature. They also have a wide spreading system of roots to help them soak up as much water as possible which they then store in their cells.

Other desert plants have very deep roots. The mesquite tree has roots which can reach water more than 30 metres (100ft) underground.

# Animals in the Desert

Animals that have adapted to desert living are called xerocoles and can include creatures, such as insects, reptiles, birds and mammals.

Xerocoles all have different ways of coping with the lack of water and potential heat of the desert climate. Many animals, such as foxes, rabbits and rats are nocturnal. They sleep in the day and hunt for food in the cooler night-time temperatures. Others dig deep burrows to find respite from the sun, such as the fennec fox. The bodies of many xerocoles have specific adaptations, including:

## Camels

These animals store fat in their humps. Camels can use their fat stores as source of nourishment when food is scarce.



Camels



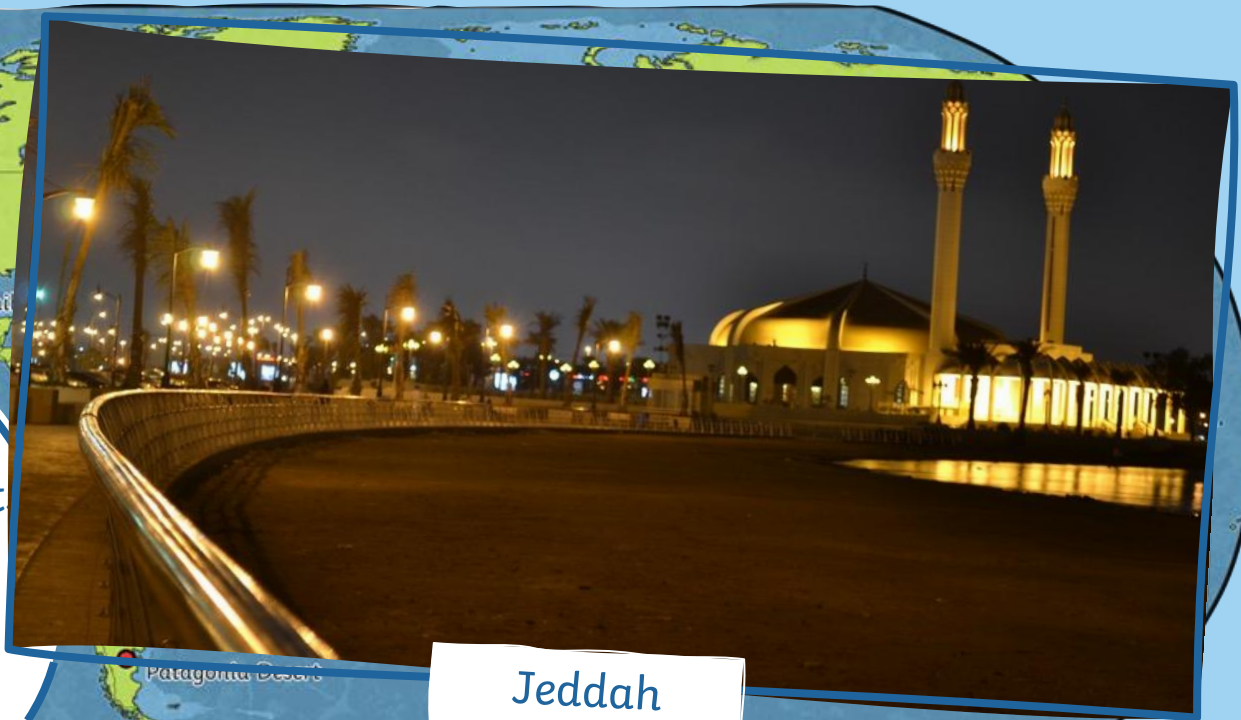
# People in the Desert

About 1 billion people across the world live in deserts. This is around one-eighth of the human population on Earth.

Great Basin Desert

Chi

Urban areas  
can be located in deserts.  
The city of Jeddah in  
Saudi Arabia  
is in the  
Arabian Desert.



Jeddah

Antartica

# People in the Desert

Some desert communities are nomadic. This means they travel frequently and do not have a permanent residence. They do this so that they can keep finding new sources of food and water for themselves.

In the Middle East and Asia, there are many nomadic communities who live in tents. The tents are made of cloth, meaning they can be rolled up and transported on the back of horses, donkeys or camels.



A cloth tent



# Water in the Desert

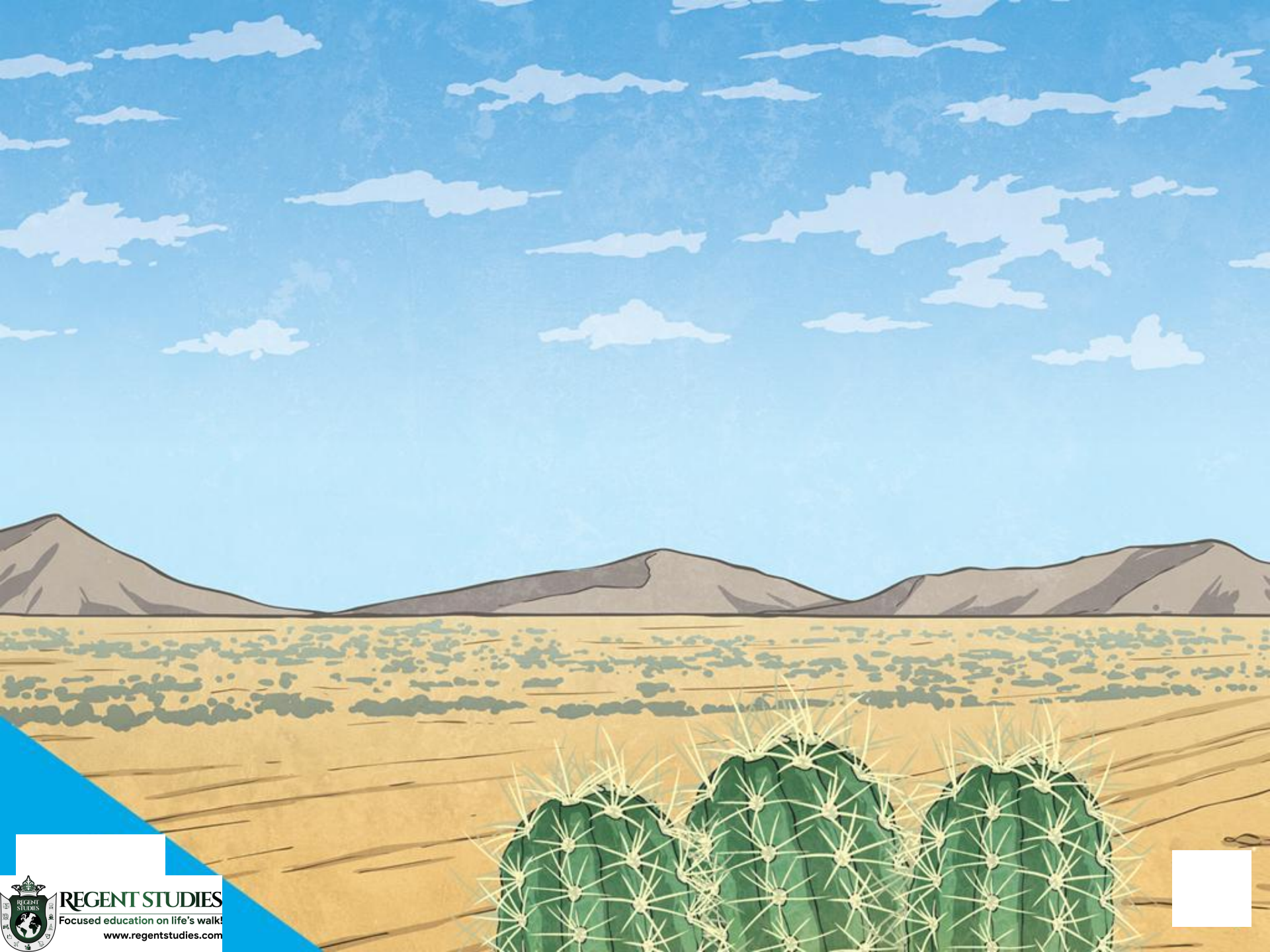
An oasis is a place in a desert where water comes to the surface from underground. Oases can be formed when the wind cuts channels into low lying areas of desert, uncovering groundwater. The water found in some oases may have fallen as rain up to 20,000 years ago.

Oases are an important source of water for animals. Plants and trees can also grow around them. Figs, oranges and olives do well in desert oases.



Oasis

Around 90 oases are dotted across the Sahara.



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