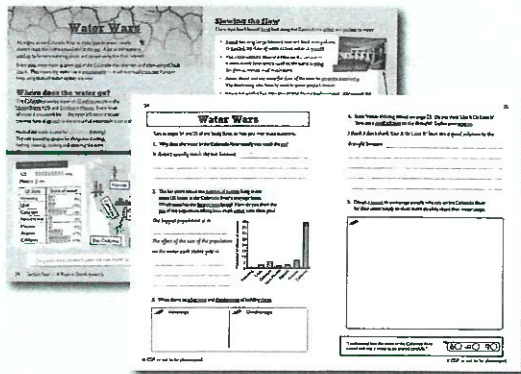


# Water Wars

## Study Book (pages 24-25)



## Activity Book (pages 24-25)

## National Curriculum Aims

- Describe and understand key aspects of physical geography, including rivers.
- Describe and understand key aspects of human geography, including the distribution of natural resources such as water.
- Describe and understand key aspects of human geography, including land use.

## Introduction

Until now, pupils may have assumed that the water cycle ensured that rivers had an endless supply of water. However, this topic introduces pupils to a river that cannot support the demand on its water supply.

The Colorado River gets most of its water from melting snow in the Rocky Mountains, but there has been a drought in the southwest of the USA since 1999, which has led to less snow. Coupled with the massive demand for water for agricultural and domestic use, water supplies in the reservoirs along the Colorado are depleting. The Colorado River has reached the sea only a few times since the 1960s. This has led to strict policies on water use, although some of these may not improve the situation. The 'use it or lose it' laws are based on those written over 100 years ago, and in total allocate more water than the river can provide.

## Answers to Activity Book Questions

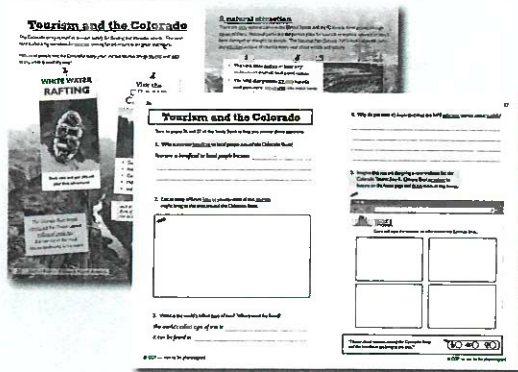
1. E.g. *It doesn't usually reach the sea because almost all of the water is used up by agriculture and by people.*
2. *The biggest population is in California. E.g. The effect of the size of the population on the water each state gets is that the more people live in each state, the more water the state gets.*
3. Advantages: e.g. Dams create reservoirs which supply drinking water. / Dams can be used to generate electricity. / Dams can be used to control the flow of water so less is wasted.  
Disadvantages: e.g. Dams change the way the water flows, which can change or destroy animals' habitats.
4. Any appropriate answer. Pupils should draw on information from the Study Book.
5. Any appropriate answer. Pupils may include reasons why using too much water could cause problems, and suggestions for how to save water.

## Extra Activities

- Ask pupils to present the data from the 'Share of Water' pictogram on page 24 of the Study Book in a different way, e.g. bar chart, pie chart, bar line graph, etc.
- Get pupils to look at a UK dam or reservoir and research the impact it has had on the local area. This could include looking at before and after pictures (e.g. of West End in North Yorkshire and Derwent in Derbyshire — settlements that were levelled and submerged to make way for the Thruscross and Kielder Water reservoirs respectively) and thinking about the positive and negative impacts for people and wildlife. Ask pupils to imagine that they are attending a town hall meeting where members of the community are debating whether or not to build a dam nearby. Pupils could play the roles of scientists, farmers and homeowners and give their opinions on the dam.
- As a class, discuss and share ideas about how your school could save water.

# Tourism and the Colorado

## Study Book (pages 26-27)



## Activity Book (pages 26-27)

## National Curriculum Aims

- Use maps to locate North America, concentrating on key physical and human characteristics.
- Describe and understand key aspects of human geography, including economic activity.
- Use maps, atlases and digital mapping to locate states in the USA and describe features studied.

## Introduction

The Grand Canyon is the most popular attraction on the Colorado. It attracts over 6 million visitors every year. They come to enjoy the views, tour the area and take part in water sports on the river. Tourism in the Grand Canyon National Park generates over \$500 million annually and supports nearly 10,000 jobs in the surrounding areas. However, the volume of visitors brings its share of negative impacts. Helicopter tours of the Canyon create noise pollution and disturb native animals. Millions of visitors following the same trails leads to erosion of the land and destruction of plants and ecosystems. Traffic congestion and littering are also significant issues.

## Answers to Activity Book Questions

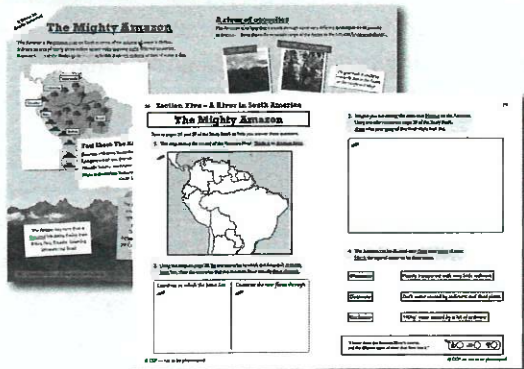
1. *Tourism is beneficial to local people because it brings money and jobs to the area.*
2. Any appropriate suggestions. E.g. Tour guide, hotel porter/cleaner/manager, restaurant owner, chef, server, rafting instructor, park ranger, gift shop owner, taxi driver.
3. *The world's tallest type of tree is the California Redwood. It can be found in Redwood National Park, California.*
4. Any appropriate answer. Pupils should draw on information from the Study Book. E.g. educating people about wildlife may encourage them to think about their impact on the environment or get involved in helping to protect it.
5. Any appropriate drawings. Pupils should draw on information from the Study Book. E.g. people rafting, helicopter rides, canoeing, watching wildlife, hiking, etc.

## Extra Activities

- Ask pupils to research one of the National Parks that the Colorado River passes through. They should then imagine that they are on holiday in the park and create a postcard to send home, describing what they have seen and done.
- After reading pages 26 and 27 of the Study Book, ask pupils to work as a class to list positive and negative effects that tourism can have. Hold a class debate about the benefits and drawbacks of tourism around the Colorado River.
- Pupils could plan a trip to the following places: Grand Canyon, Rocky Mountains National Park, Glenwood Springs, Las Vegas, San Francisco, Redwood National Park. Ask them to first locate these places on a map, then consider how they would travel between locations, where they might stay and what route they might take. More advanced pupils could use the scale of the map and an average travel speed (e.g. 70 mph by car) to work out how long it would take to travel between places.

# The Mighty Amazon

## Study Book (pages 28-29)



## Activity Book (pages 28-29)

## National Curriculum Aims

- Use maps to locate South America, concentrating on environmental regions and key physical characteristics.
- Describe and understand key aspects of physical geography, including rivers.
- Describe and understand key aspects of human geography, including the distribution of natural resources such as water.

## Introduction

This topic introduces pupils to the Amazon River. The Amazon River basin has an area of around 7 million square kilometres (2.7 million square miles)— so large that the UK could fit inside it more than 28 times. The basin contains a number of biomes, from alpine tundras to savannahs, but the largest of all is the tropical rainforest biome.

Due to extensive debate over the location of the source and mouth of the river, it has been suggested that the Amazon may in fact be the longest river in the world. However, the Nile is currently still widely considered to hold that title. Once pupils have read pages 28 and 29 of the Study Book, ask pupils if they know anything about the Amazon River. What do they think the weather is like? Would it be the same in the Andes as in the rainforest? What kinds of plants and animals do they think might live in or along the river?

## Answers to Activity Book Questions

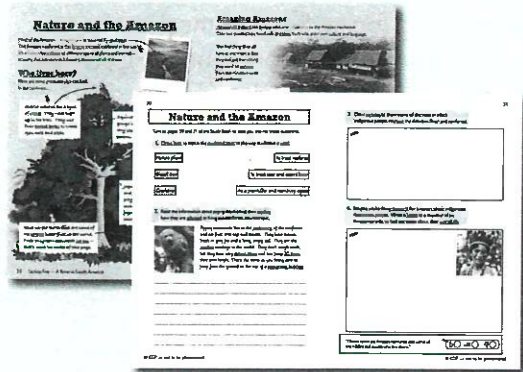
1. Pupils' drawings should match the map on page 28 of the Study Book.
2. Countries in which the basin lies: Venezuela, Colombia, Ecuador, Peru, Bolivia, Brazil.  
Countries the river flows through: Peru, Brazil.
3. Any appropriate drawing. Pupils' drawings could represent the Meeting of Waters or the rainforest setting.
4. Whitewater — 'Milky' water caused by a lot of sediment.  
Clearwater — Mostly transparent with very little sediment.  
Blackwater — Dark water caused by sediment and dead plants.

## Extra Activities

- Provide pupils with photographs of either the Andes or the Amazon rainforest. Pupils could develop their descriptive writing skills by writing a detailed description of one of the places in the pictures.
- Give pupils a printed map of South America. Ask them to use the information in the Study Book alongside an atlas to add various labels to their map. For example, you could ask them to label countries, capital cities, rivers, mountain ranges etc. The number and type of labels could be adapted to suit the ability of the pupils.
- Pupils could read further information about the Meeting of Waters or watch an online video explaining the phenomenon. Pupils can then explore mixtures using a variety of different liquids e.g. milk, water, cooking oil, coffee, honey, liquid soap. Pupils could explore what happens when different liquids are mixed. Do they become one liquid or stay separate? Do they look different once mixed?

# Nature and the Amazon

## Study Book (pages 30-31)



## Activity Book (pages 30-31)

## National Curriculum Aims

- Use maps to locate South America, concentrating on environmental regions and key physical characteristics.
- Describe and understand key aspects of physical geography, including biomes and rivers.
- Describe and understand key aspects of human geography, including types of settlement and land use.

## Introduction

The Amazon rainforest is the largest tropical rainforest in the world and produces over 20% of the world's oxygen. It also contains about 10% of all the world's known species. It's estimated that a new species is discovered in the Amazon rainforest every three days.

As well as looking at the huge biodiversity in the Amazon rainforest, this topic also provides pupils with an opportunity to consider different lifestyles by thinking about indigenous cultures and how they use the natural resources of the rainforest to survive. Once pupils have read pages 30 and 31 of the Study Book, ask them if they think they could survive in a forest in the UK like the indigenous people do in the Amazon rainforest. If not, why not? What differences are there between a forest in the UK and the Amazon rainforest?

## Answers to Activity Book Questions

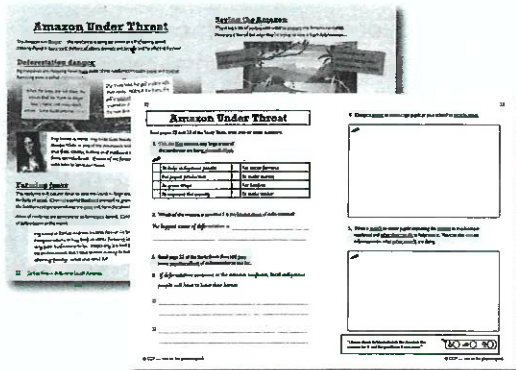
1. Matico plant — As a painkiller and numbing agent. Diesel tree — To treat cuts and insect bites. Cinchona — To treat malaria.
2. E.g. Pygmy marmosets can jump very high which helps them jump through trees. Their strong claws stop them falling out of trees. Their dark fur helps them blend in to the dark, shady rainforest. They eat food that is readily available in the trees where they live. They are light so they can climb on very thin branches to reach their food.
3. Any appropriate drawings. Uses of the river could include: transport, fishing and washing clothes. Uses of the rainforest could include chopping down trees in order to build wooden boats, bridges and houses, making clothing, picking or growing food and collecting plants for medicines.
4. Any appropriate answer.

## Extra Activities

- Pupils can explore artwork focused on the Amazon rainforest. They could look at the 'Spirit of the Rainforest' art project created by the Eden Project (a virtual tour of the artwork is available online). Pupils could use the artwork from this project as inspiration to create their own rainforest image.
- Provide pupils with further information about the animals of the Amazon rainforest through books and websites. Ask pupils to choose an animal and create a fact file for a class book on Amazonian animals.
- Ask pupils to produce a flyer informing people about the uses of some of the plants growing in the Amazon rainforest, e.g. the Matico plant, Diesel Trees, rubber trees, cacao, banana trees, etc.

# Amazon Under Threat

## Study Book (pages 32-33)



## Activity Book (pages 32-33)

## National Curriculum Aims

- Use maps to locate South America, concentrating on environmental regions and key physical characteristics.
- Describe and understand key aspects of human geography, including land use, economic activity and the distribution of natural resources.

## Introduction

We rely on farming in the Amazon River basin for many of the foods we consume daily. Palm oil (which is present in around half of all supermarket products), fruits, nuts, vegetables, chocolate and coffee are all grown in this area. However, this often comes at the expense of the rainforest. This topic gives pupils the opportunity to consider the positive and negative effects of farming in the Amazon rainforest, as well as considering the ways in which small actions like recycling can have a positive impact on the future of the rainforest.

## Answers to Activity Book Questions

1. Pupils should have ticked: For paper production, To grow crops, For cattle farming, To make money, To make timber.
2. *The biggest cause of deforestation is cattle farming.*
3. Any two from: Fertilisers get washed into the river when it rains, which can be harmful to plants and animals. / Cutting or burning down trees destroys habitats for many plants and animals. Some could go extinct. / Soil gets washed into the river without the trees to hold it in place. This can cause the river bed to rise and the land to flood.
4. Any appropriate drawing. Pupils should draw on information from the Study Book.
5. Any appropriate answer. Pupils should draw on information from the Study Book.

## Extra Activities

- Hold a class debate about farming in the Amazon rainforest. Half of the pupils represent the local indigenous people like Mahí. The other half represent Brazilian farmers like Carlos.
- Provide pupils with data regarding deforestation in the Amazon rainforest over time, such as the percentage of the Amazon rainforest remaining in Brazil (this data can be found online). Pupils can create graphs using these figures.
- Get pupils to make their own recycled paper. Pupils will require: scrap paper, a piece of very fine wire or plastic mesh, a shallow basin and hot water. Soak torn up pieces of scrap paper in hot water for a few hours, then place in a blender. Blend the paper until it turns to pulp. Add more water to the blender if the pulp doesn't reach pouring consistency. Pour a few centimetres of water into a shallow basin and place the screen into the basin. Pour the pulp into the water, spreading it out evenly. Lift the screen out of the water, leaving a thin layer of pulp across the screen. Allow to drip dry. After a few minutes, turn the mesh upside down on top of a towel and peel off the paper. Once the paper has fully dried, it is ready to use.