Activity 1: What is Migration?

The aim of this game is to introduce the idea of migration in birds (Osprey).

Have you ever gone away in winter to a hot, sunny country? Lots of types of birds do the same thing! They fly a very long way to reach warmer places where there is more chance of finding food. This journey is called **migration**.

Summer

Winter

Sadly, migrating birds like the Osprey now face many threats. You will find out about some of them playing this game. One of the worst problems is habitat destruction, where humans do things like cutting down trees. This is bad because it makes it harder for the birds to find good stopping places to eat and rest on the way. So watch out for that danger when you play!

Migration Board Game

How to play

Coins or counters can be used as playing pieces. Alternatively, you could print out pictures of migratory birds and use those. The game is designed to be played by rolling dice, however if no dice are available then a simple spinner could be used instead.

The winner is the first player to successfully migrate to the finish line (Gambia). To extend the game time, the game can also be played in reverse (from the finish to the start) to see how the return journey would go.

Migration Board Game

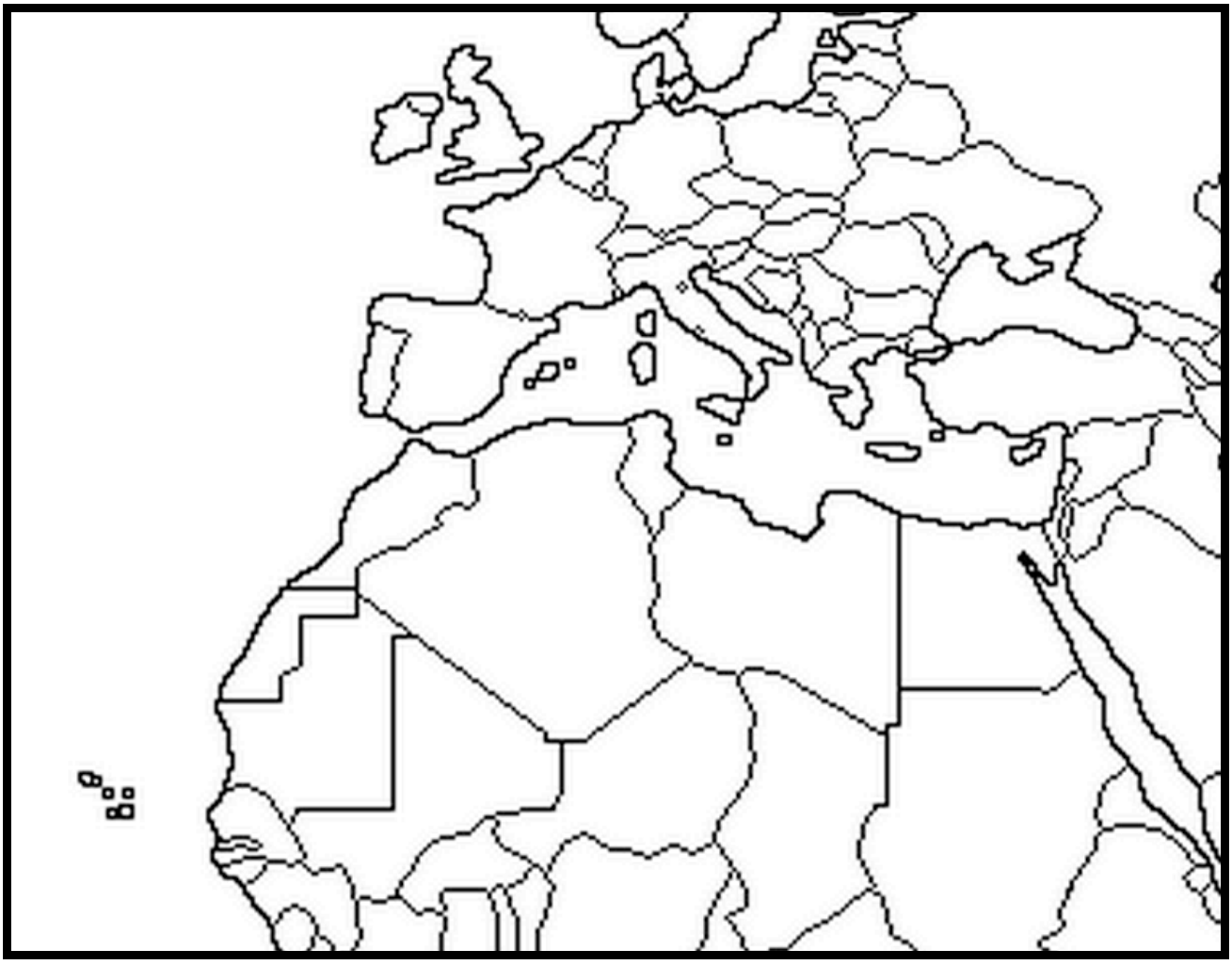
Activity 2: Where does the Osprey Fly?

Using the migratory route of the Osprey provides a good opportunity to improve geography knowledge by learning the countries that the Osprey flies through.

Use the following website complete the following tasks on blank map:

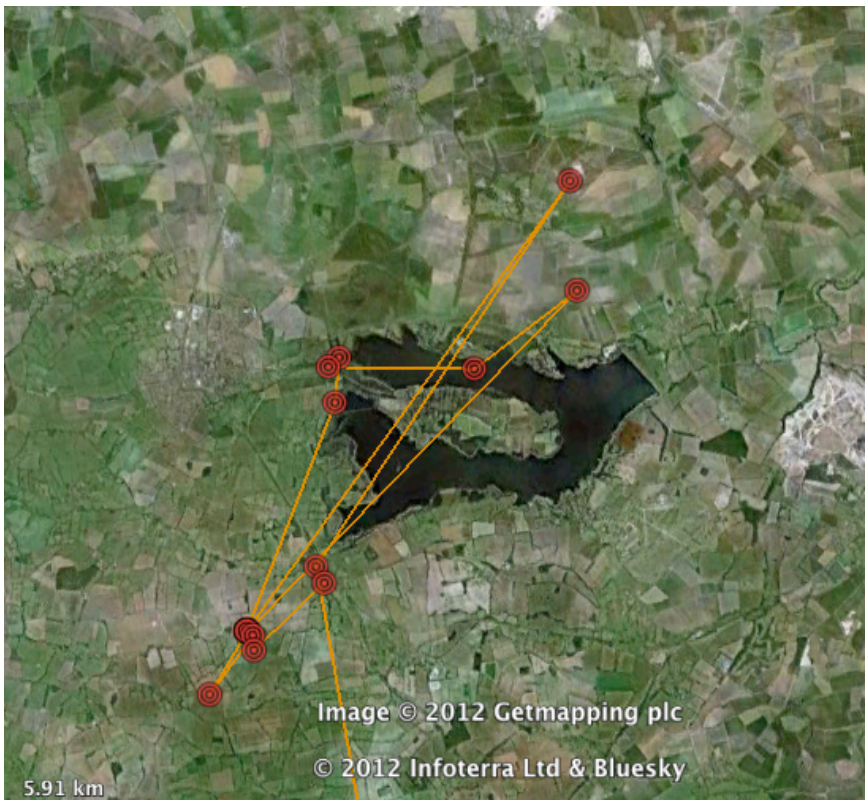
http://www.lrwt.org.uk/rutland-ospreys

1. Mark the where the Osprey spends the summer months.
2. Mark where the Osprey spends the winter.
3. What date and time did the bird arrive? How long did it take?
4. Label all the countries the Osprey flies through.
5. Label the capital cities or each country.
6. Sketch and label any major rivers or mountain ranges within these countries.



Activity 3: Ecosystems Spot the Difference.

Picture 1



Picture 2

In geography it is important to look at different types of maps and photographs. To study different habitats and ecosystems the two photos can be used to identify key differences. Use the two satellite images below to study the similarities and differences by answering the following questions.

Questions to Answer.

1. Which picture is the UK? How do we know this?
2. Which picture is Gambia? How do we know this?
3. Which picture shows greater vegetation?
4. Why does the Osprey like to live in both of these locations?
5. Which picture shows a hotter climate? How can you tell this?

Activity 4: Extreme Environments: Why does the Osprey fly through the desert so quickly?

On the GPS track of the Osprey is possible to see the speed at which it travels over certain areas. Use this task and satellite image to introduce the extreme environment of the Sahara Desert.

This then allows you to begin to talk about and discuss adaption to the desert of different creatures such as Camels.

Animals have to **adapt** to living in the desert. **Camels** do this in the following ways:

- Long eyelashes keep out dust
- Tough mouth for eating thorny plants
- Large padded feet to stop sinking into the sand
- Stores water in stomach
- Tail scares flies away
- Light colour to reflect heat

Animals and Plants in Desert environments both have to think about the following:

- Protection from predators.

- Water access or storage.

- Surviving extreme temperatures.

Worksheet

Once students have understood how creatures adapt to the desert environment you can then allow the students to be creative by creating their own bird or animal that can survive these extreme conditions. Shown below:

All [Level 3]	Create your own **animal** or **plant** that has adapted to the Sahara Desert. Label at least **one** feature of the animal or plant that has **helped it survive**.
Most [level 4]	Create your own **animal** or **plant** that has adapted to the Sahara Desert. Label at least **two features** of the animal or plant and explain how this has helped it survive.
Some [level 5]	Create your own **animal** or **plant** that has adapted to the Sahara Desert. Label at least three features of the animal or plant and explain in detail how this has helped it survive.

Adaptions to the Desert

Adaption 1:

This helps the plant survive because...

_____

_____

_____

_____

Adaption 2:

This helps the plant survive because...

_____

_____

_____

_____

Adaption 3:

This helps the plant survive because...

_____

_____

_____

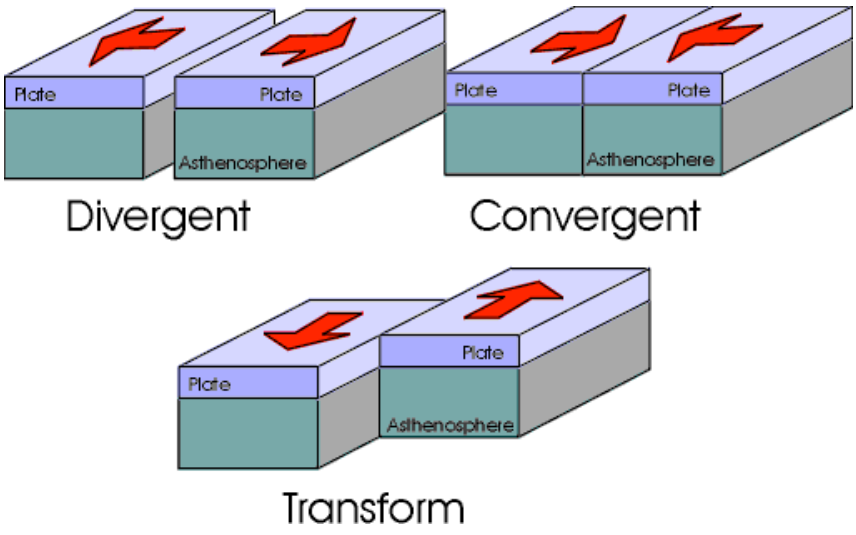
_____

Activity 5:
Extreme Environments: How were the Atlas Mountains formed?

The Osprey flew overnight through the Atlas Mountains on March 19th 2012.

As the Osprey takes his route through the Atlas Mountains it is a good opportunity to introduce how mountains are formed.

Task 1: What type of plate boundary do you think creates mountains? Why?

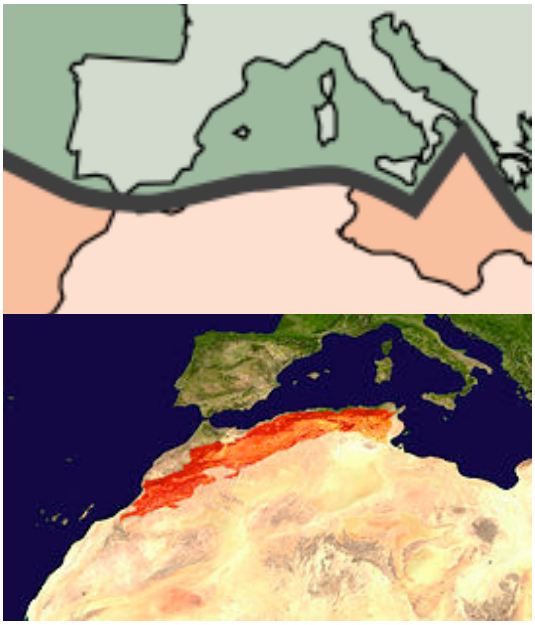


Task 1 Answer: Convergent/ Collision boundary.

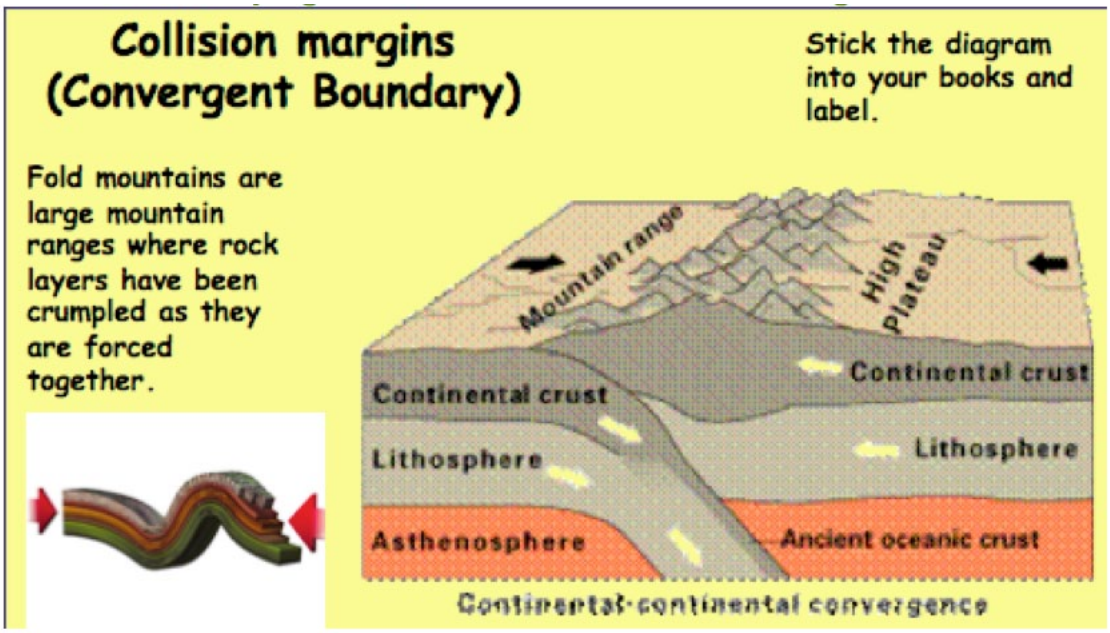
The Africa-Europe Collision

- Convergent tectonic boundaries occur where two plates slide towards each other forming a subduction zone (if one plate moves underneath the other) and/or a continental collision (when two plates contain continental crust).

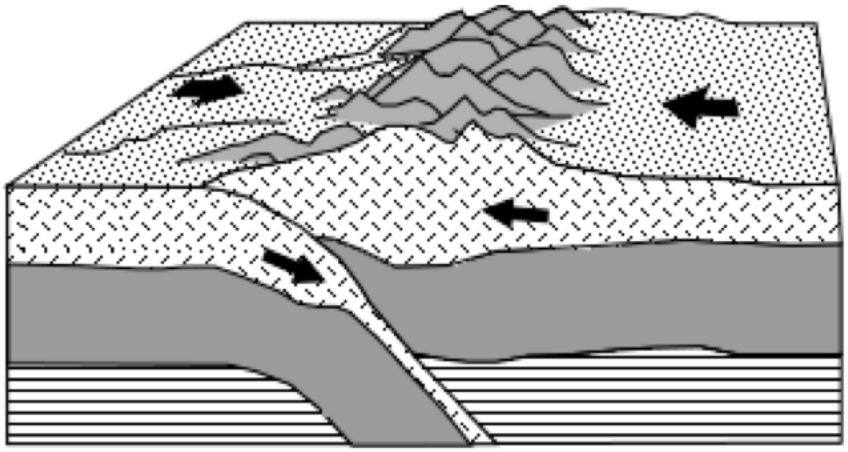
- Tectonic convergence is responsible for the formation of the High Atlas.



Task 2: Indentifying the main features of a Convergent/Collision boundary.

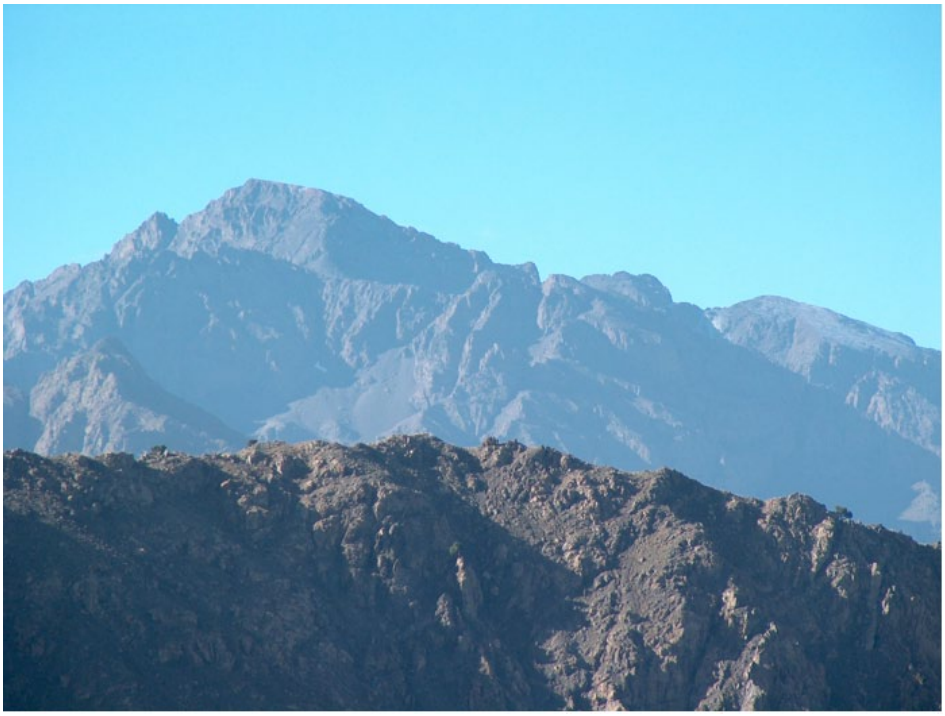


On the diagram below use the information above to help you label it and explain how the Atlas Mountains were formed.



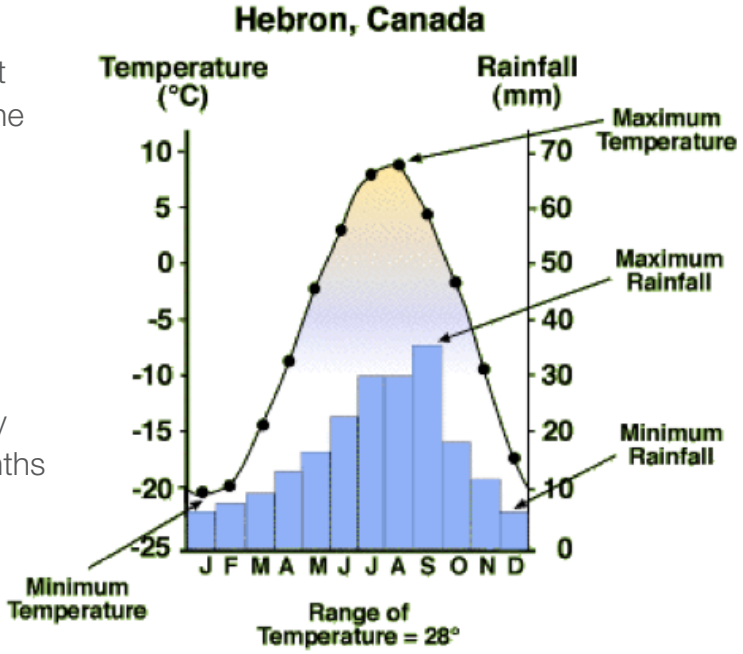
Task 3: Review Questions

All [Level 3/4]	At what plate boundary are the Atlas mountains formed? What type of plate boundary is it?
Most [level 5]	Describe how the Atlas Mountains were created.
Some [level 6]	What is the pattern between plate boundaries and mountain ranges across the world?



Activity 6: Follow the Osprey: Climate Graphs

During this lesson students follow the Osprey's migration to understand the climate of the different countries it travels through. This also helps learn the skill of climate graph reading.



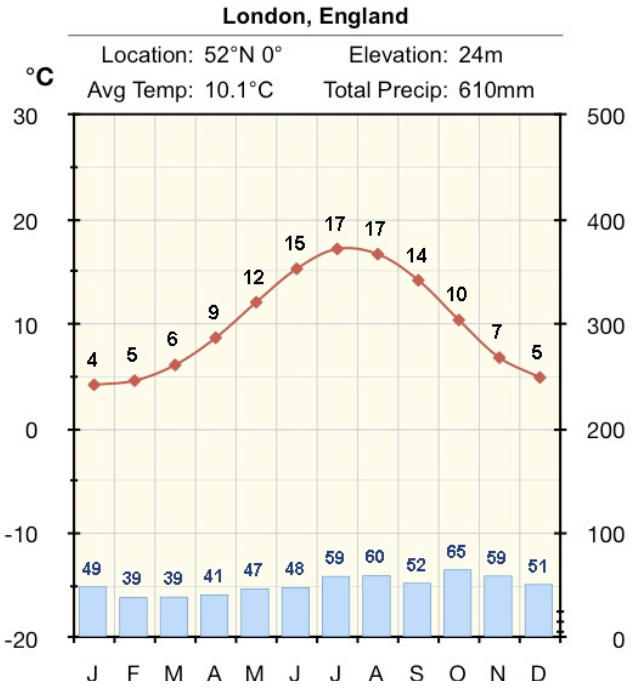
Climate Graphs

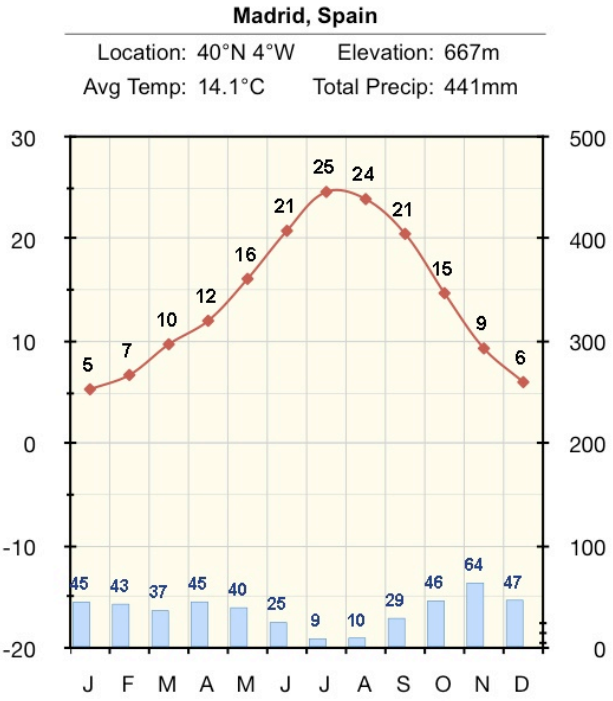
Climate graphs show average rainfall and temperatures usually experienced in a particular location. The temperature is shown on a line graph. The rainfall on a bar graph. They are usually represented on the same set of axes with the months of the year along the base. An example of this is shown by Hebron, Canada.

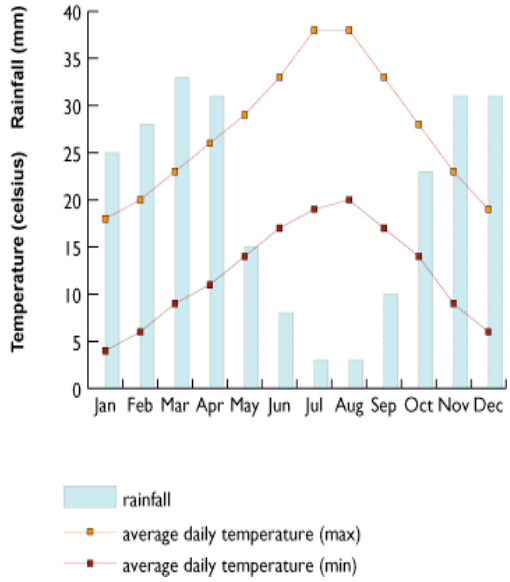
Graph analysis

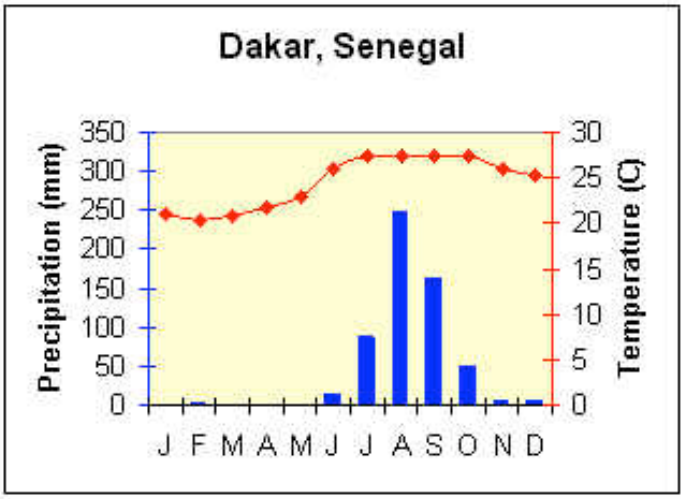
In pairs/groups analyse the graphs below by answering the questions shown within the grid.

All [Level 3 and 4]	Look at the overall shape of the graph. Is the temperature line steep or gentle? Does it change throughout the year and/or look almost flat?
Most [level 5/6]	Look for **extremes** – quote the highest and lowest temperature and rainfall and the month in which it occurs. Remember to quote units, eg. Celsius or millimetres. Can you identify the **seasons** when most rain or least rain falls? Or when the highest and lowest temperatures are experienced?
Some [level 7]	Work out the **temperature range** by subtracting the lowest figure from the highest figure. Add the **rainfall totals** for each month together to work out the total annual rainfall.









Has migration happened because of the climate?

At the end of the lesson plot out the key information found within the graphs on a world map to explain the osprey migration. If you plot out average temperatures during the winter months on the map, reasons for migration can clearly be shown.

Activity 7: A Birds Eye View on Development

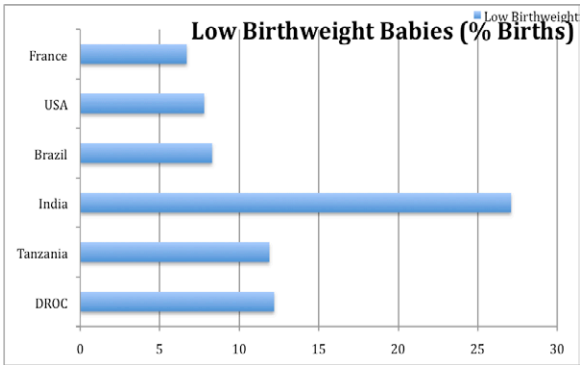
The Osprey flies through many different countries that have a variety of differences in global development. The migration of the Osprey can be used as an opportunity to contrast and compare the development of the countries the Osprey passes through.

Discovering the Development Indicators

During this task each group/pair in the classroom will be looking at a different development indicator: People per doctor, GDP (Gross Domestic Product), Life Expectancy, Literacy Rate and Infant Mortality.

Each group/pair will be given the development data of six different countries the Osprey passes through: UK, France, Spain, Morocco, Western Sahara, Mauritania and Senegal.

The task is to be able to create a bar graph to show how your development indicator changes from country to country.



Your graph must include:

- Title
- Labelled axes
- A paragraph explaining what it shows about **development**
- It must be neat and accurate – use a pencil and a ruler

Development Indicator	Definition	UK	France	Spain	Morocco	Mauritania	Senegal	What can we tell from the figures?
People per doctor	The average number of people each doctor has to look after	333	333	250	1000	No doctors	No doctors	
Gross Domestic Product per capita (GDP)	The amount of wealth a country has divided by the number of people in the country.	$36,186	$39,170	$30,026	$2795	$1045	$1034	
Life expectancy (years)	The average age at which a person dies	80	81	82	72	58	59	
Literacy rate	The percentage of people over the age of 15 who can read and write	99%	99%	98%	56%	57%	50%	
Infant mortality rate (number of deaths per 1,000 live berths	The number of babies who die before the age of 1, born alive.	5	4	4	29	76	48	

Worksheet

Answer these questions in your neat books when you've finished your graph:

All [Level 4]	1) What does your indicator show us about the development of a country? 2) Which country has the highest indicator? 3) Which country has the lowest indicator?
Most [level 5/6]	4) Explain why the country with the highest indicator may have that figure? 5) Explain why the country with the lowest indicator may have that figure? 6) Overall what does the graph show you or explain?
Some [level 7]	7) Using your highest and lowest indicators compare the two countries. What might be different? 8) Using the flight path of the Osprey describe and explain how development changes throughout the different countries. Use figures to support your answer. **Extension:** Produce a scatter graph using another development indicator on a scatter graph to compare the indices.

World Osprey Week is organised by the Leicestershire and Rutland Wildlife Trust as part of the Osprey Flyways Project.