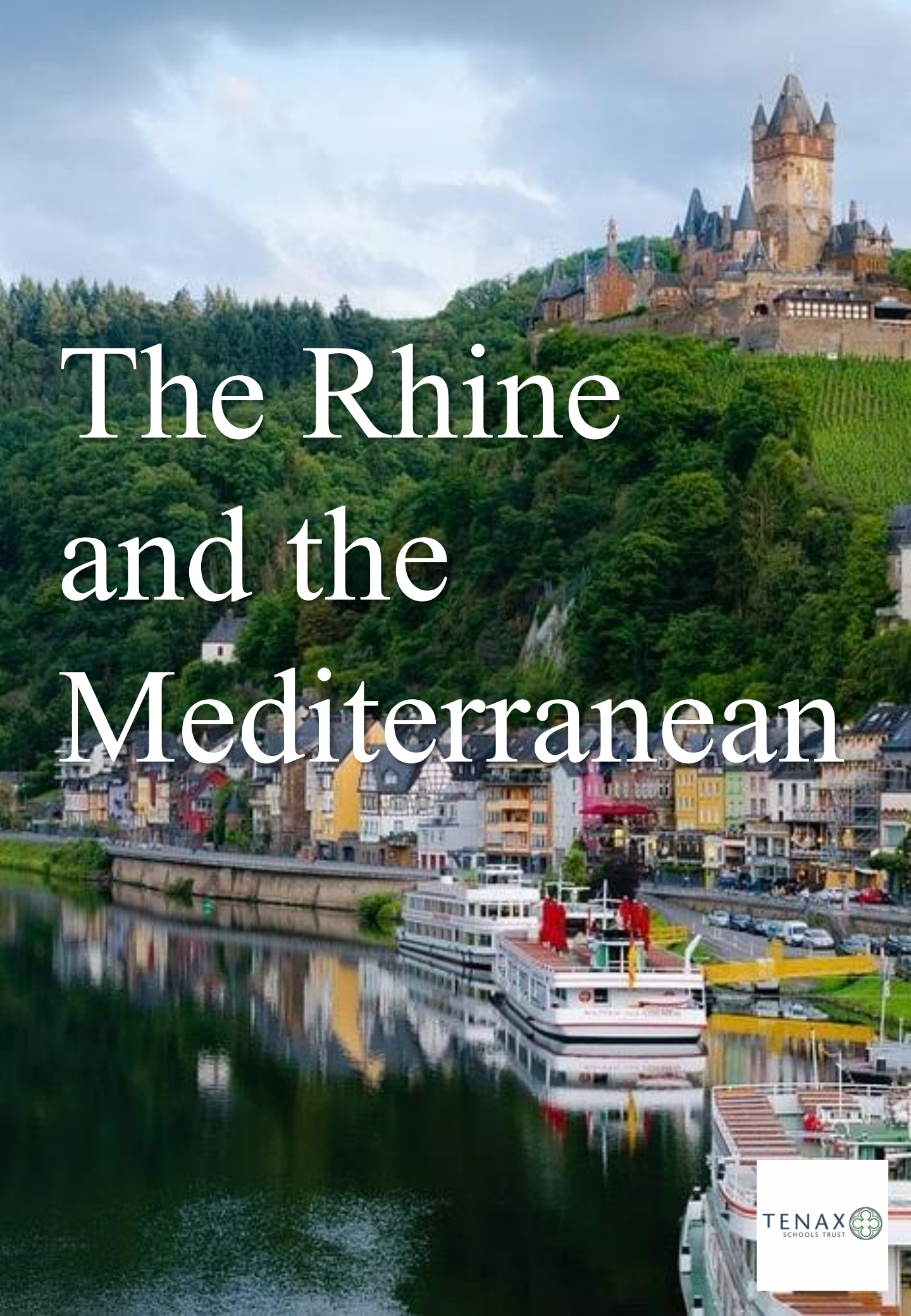




The Rhine and the Mediterranean



The Rhine and the Mediterranean

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1. The River Rhine

You know that the longest river in Britain is the River Severn. The Severn is 220 miles long. The river that flows through London, the Thames, is 215 miles long. The River Rhine (*ryne*) is much, much, much longer! In fact, if we could put the rivers Severn and Thames together, the Rhine would be even longer! The Rhine (*ryne*) is one of the longest rivers in Europe. The Rhine is 764 miles long!

we call this the source of the river. The source of the Rhine is high up in a mountain range called the **Alps** in Switzerland. You could even wade across there Rhine here!



1 You know that where a river meets the sea, we call this the mouth of the
2 river. The mouth of the Rhine is the **North Sea**. If you were to sail the
3 764 miles of the river, you would travel through six countries:
4 Switzerland, Liechtenstein, Austria, Germany, France, and the
5 Netherlands. The Rhine is spelled 'Rein' when it is in Germany, 'Rhin' in
6 France, and 'Rijn' in the Netherlands.





Most of the Rhine flows
through Germany. Can you
see that the Rhine helps to
form part of the border
between France and
Germany and between
Germany and Switzerland.
You often find that
landforms like

rivers or mountains are used to form borders between countries. Even
the Roman Empire used the Rhine as its frontier.

Can you see the other rivers that flow off from the Rhine? The rivers
Main (*mine*) and Moselle (*moe-zel*) and Neckar are smaller rivers. We call
a smaller river that flows off a much larger river, a **tributary**. The Main
and Moselle and Neckar are tributaries of the Rhine.

The **Upper Rhine** is close to the source of the river, the Alps. As the
Rhine flows down and into the valleys, it gets lower towards the sea
level. The Rhine eventually flows out into the North Sea. We call this
part the **Lower Rhine**.



The source of the Rhine is high up in the Alps in Switzerland.



The mouth of the Rhine is in the Netherlands. This is the city of Rotterdam.



The river Main is a tributary of the Rhine.

This is the confluence of the rivers Main and the Rhine.

Can you see the point where the tributary river, the Main, meets the much larger river Rhine? We call this point where the two rivers separate the **confluence**. Look at the map on page 4. Find the confluence of the Main and the Rhine. At the confluence of the rivers Rhine and Main there is a city called Mainz (*Mine-z*). This photograph shows the city of Mainz. You can see the river Main as well.

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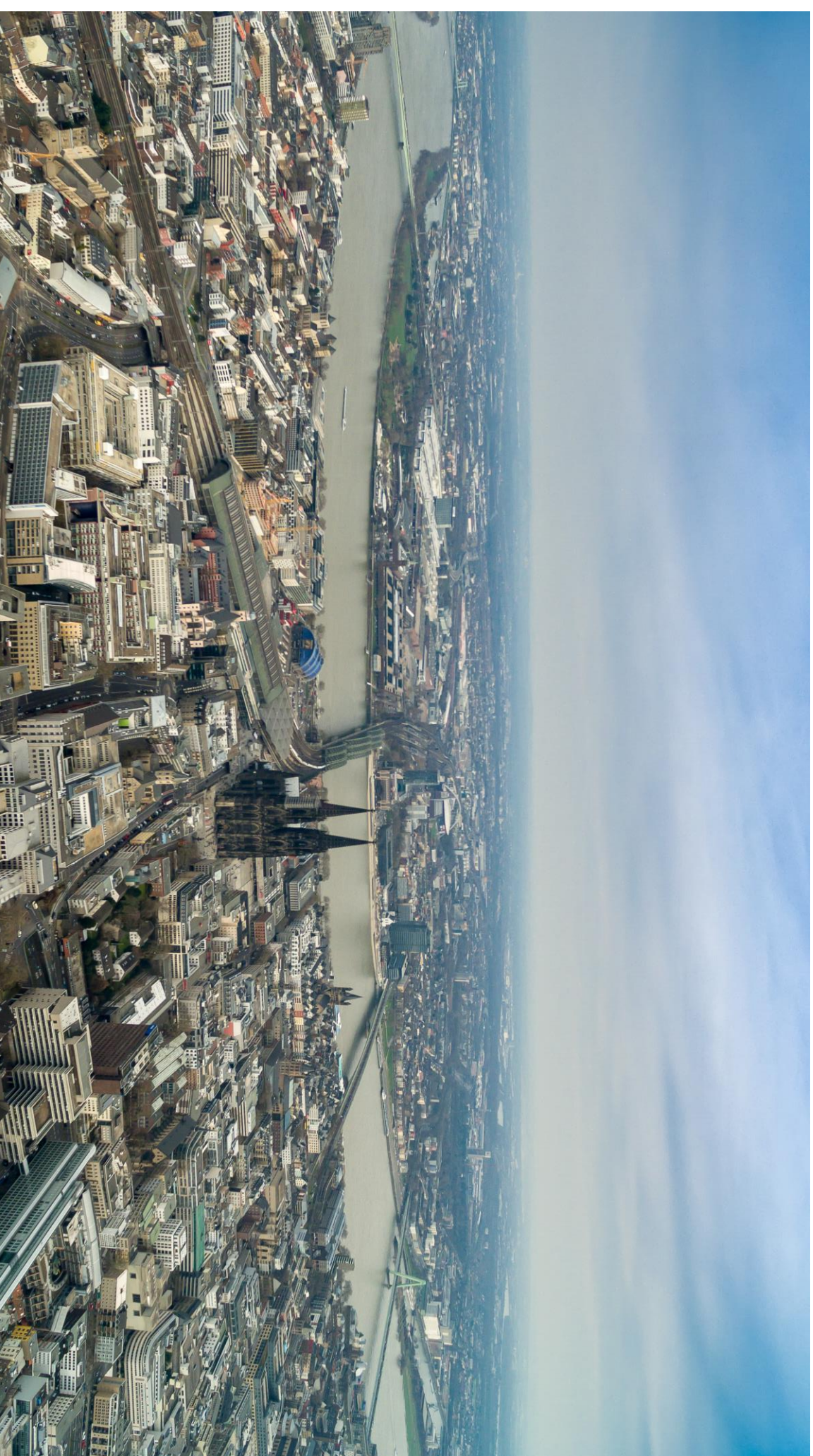


2. Cologne: city on the Rhine

On the map on page 4, you will find lots of cities built along the river Rhine. As you know, humans have built settlements by rivers for many thousands of years. The German city of **Cologne** (*coll-ohne*) is one city on the Rhine. If you go back two thousand years in history, the ancient Romans first built a village on the bank of the river Rhine. This Roman town grew into one of the most important trade centres north of the Alps. Over time, this village became a town and then a city. Over many years, Cologne built an enormous cathedral which now dominates the city. Cologne has lots of bridges. Why do we build bridges?



Find the cathedral in Cologne and the bridge behind it. How many bridges can you see that have been built across the river Rhine?



1 The Rhine is an important part of
2 city life. People live on both **banks**
3 of the Rhine. Ann lives in on the
4 right bank. She loves to sit with her
5 family by the Rhine in the summer.
6 Ann's mother lives on the left **bank**
7 of the Rhine near the cathedral.
8 Ann's children like to visit their
9 grandmother because they have to
10 cross over the Rhine, over a bridge
11 by train. In December, there are
12 Christmas markets. Tourists visit
13 Cologne just to see the Christmas
14 markets. Cologne gets very busy!



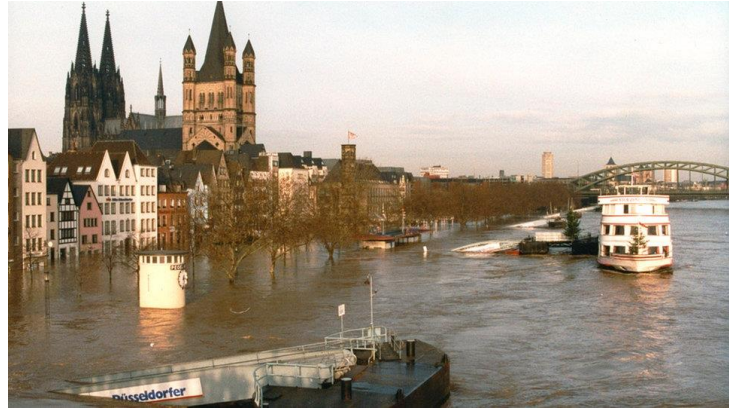
18 You can see barges every day carrying goods from the North Sea up the
19 river. But if there is too much rain, the Rhine can get very high and flow
20 very fast. Sometimes, the Rhine can become so high that the city of
21 Cologne is at risk of **flooding**. In the whole of Europe, Cologne is the
22 city most likely to flood! To protect the city, **flood walls** have been built
23 on either side of the Rhine.

Average rainfall in Cologne

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
mm	62.1	54.2	64.6	53.9	72.2	90.7	85.8	75.0	74.9	67.1	67.0	71.1



*The Rhine flooded in 1930.
This is a street in Cologne.*



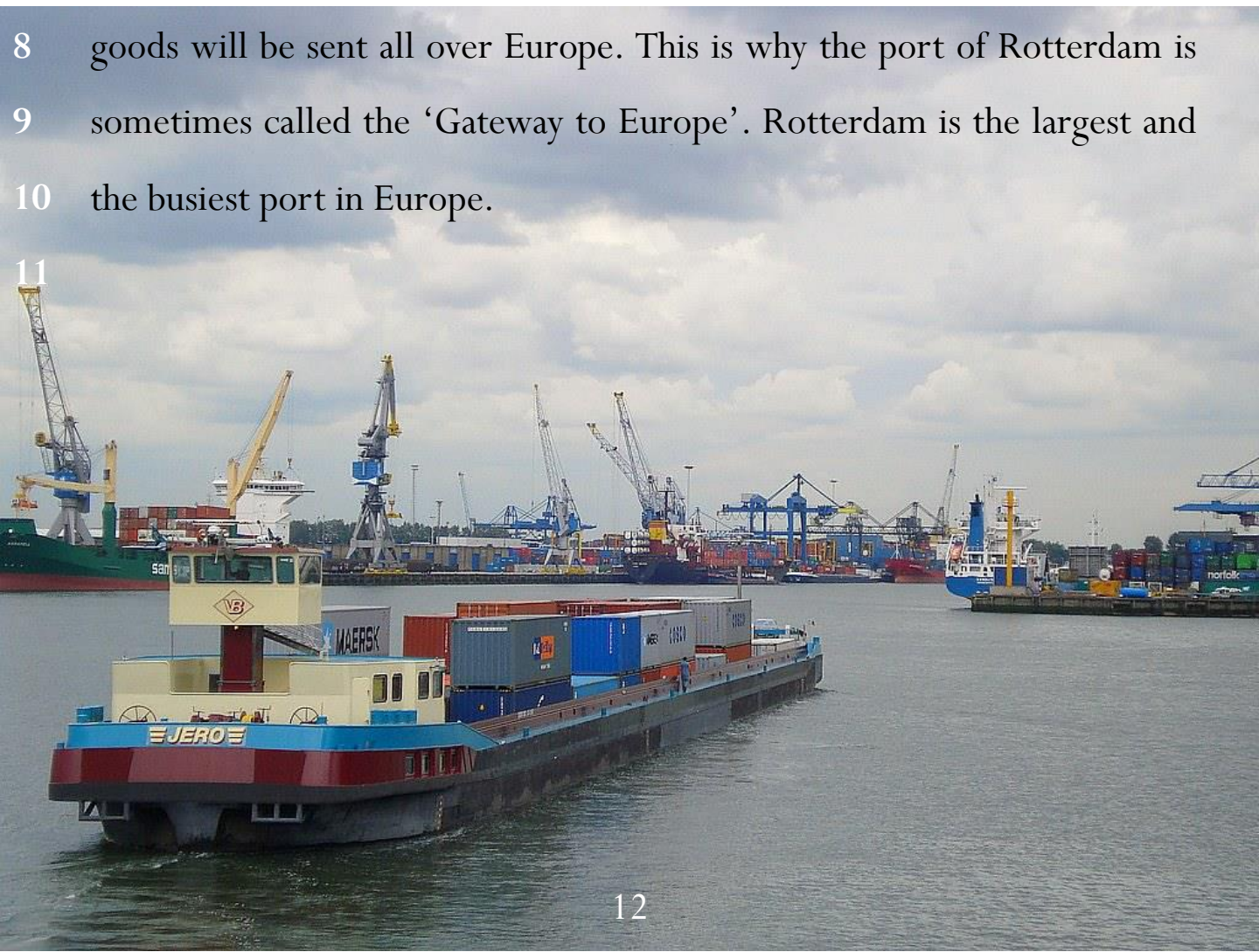
Every day for ten days in January 1995, there was over 100mm of rainfall. Can you see the cathedral?



Cologne has built flood walls to protect the city for when the Rhine floods

3. Rotterdam: city at the mouth of the Rhine

Rotterdam sits at the mouth of the river Rhine. As you know, the Rhine flows through six countries. Every day, large container ships sail from the North Sea to arrive at the **port** of Rotterdam. A port is made by humans to allow ships to dock and be loaded or unloaded. The huge containers on board this ship arriving at the port of Rotterdam are filled with all sorts of things. These containers might have food or clothes, televisions or games, shoes or even cars! The containers will be unloaded and the goods will be sent all over Europe. This is why the port of Rotterdam is sometimes called the ‘Gateway to Europe’. Rotterdam is the largest and the busiest port in Europe.



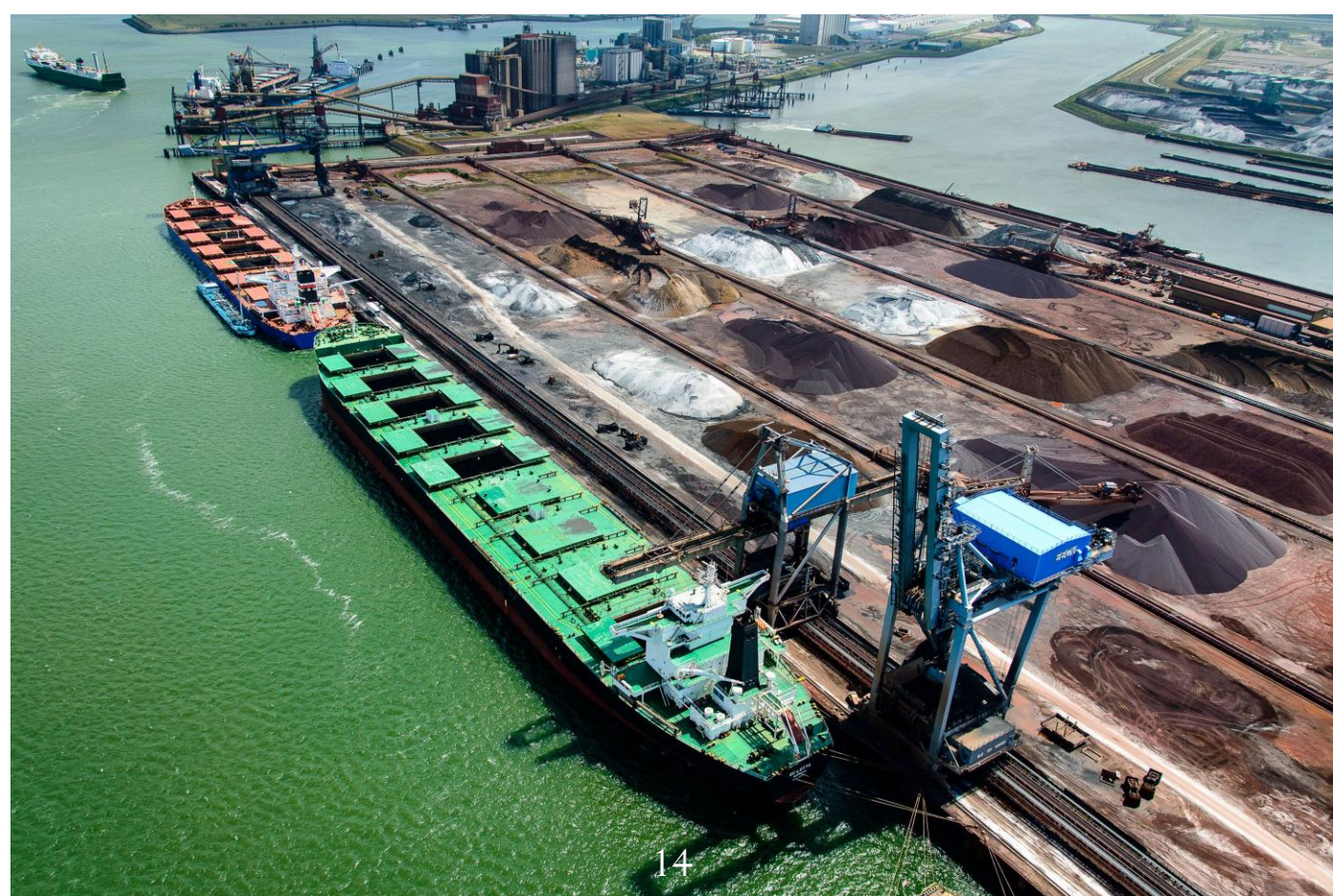
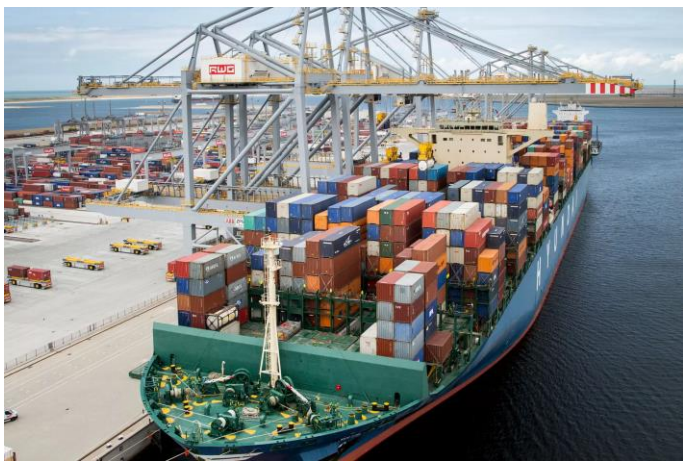


As the container ships and barges approach the port of Rotterdam, they sail past wind turbines. It can get very windy in the North Sea. People

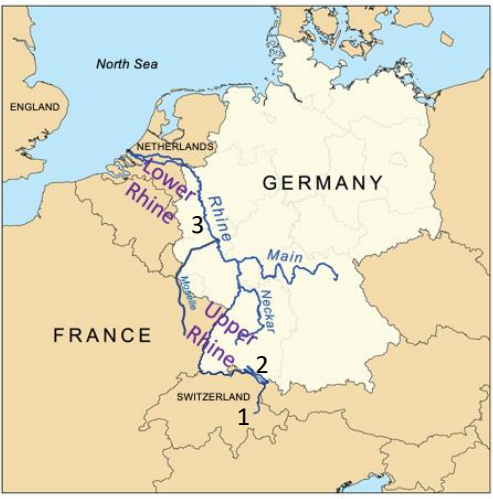
have learned how to **harness** the power of the wind to create energy and electricity. As the barges enter the port with their cargo, they have to know where they will dock. Since Rotterdam is so busy, it is important to dock at the right place!



1 When we bring goods into our country, we call this **importing**.
2 When we send good to another country, we call this **exporting**.
3 Every day, the port of Rotterdam imports and exports all sorts of
4 goods. Coal and iron ore are imported from all over world. The
5 black piles of coal and have been imported from South America and
6 Africa. The brown piles of iron ore have been imported from Asia.
7 Ports are very exciting
8 places! Everything is going
9 somewhere. Many things are
10 exported to other cities along
11 the river Rhine, like Cologne
12 and Main.



4. The changing Rhine



As you know, the source of the Rhine is in the Alps in Switzerland. In the mountains, the river begins as a very small stream. As the Rhine begins to fall down the mountains, the flow of the river gets faster. There are even waterfalls where the river crashes over rocks. The Upper Rhine and Middle Rhine have some of the widest stretches of the river. At its widest, the Rhine is 1km from side to side. At its narrowest, in the Alps, the Rhine is only 100m from side to side and is so shallow that no ships could sail on it.

1 The mountains and rocks are natural features of the landscape. Natural
2 features can change how wide the river is and how fast the river flows.
3 For the past 250 years, people have also changed how the Rhine flows.
4 For example, this photograph is taken from the air. At bottom of the
5 picture is the natural river Rhine.



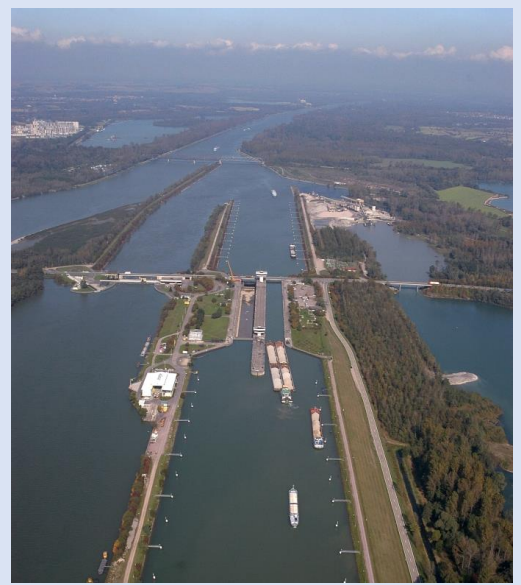
6 The water at the top of the photograph has been made by people.
7 Sometimes people try to control the flow of water by digging to lead
8 the water to where they want it to go. This is called a **canal**. The
9 Upper Rhine was too difficult for ships to sail down, so... people dug
10 canals! Now ships could sail further, from the mouth of the river all the
11 way to the Upper Rhine.

People even straightened the river! Have a look at this very old painting 1
of the Rhine. Can you see all of little islands in the middle? When it 2
rained, the Rhine would flood the islands. So when the Rhine flooded, 3
boats could sail, and when it did not flood, boats could not sail. These 4
little wet islands are called **wetlands**. In the wetlands of the Rhine, 5
there were more than 2000 small islands! Wading birds nested on these 6
islands. But the wetlands also allowed water-based diseases to spread. 7
So people **drained** the water in the river to make it dry. This meant 8
that people could build villages and houses. 9

It also meant that the birds no longer had places in the wetlands to build 10
their nests. The water was drained to where the people actually wanted 11
the river Rhine to flow! The people had changed the course of the 12
river! 13

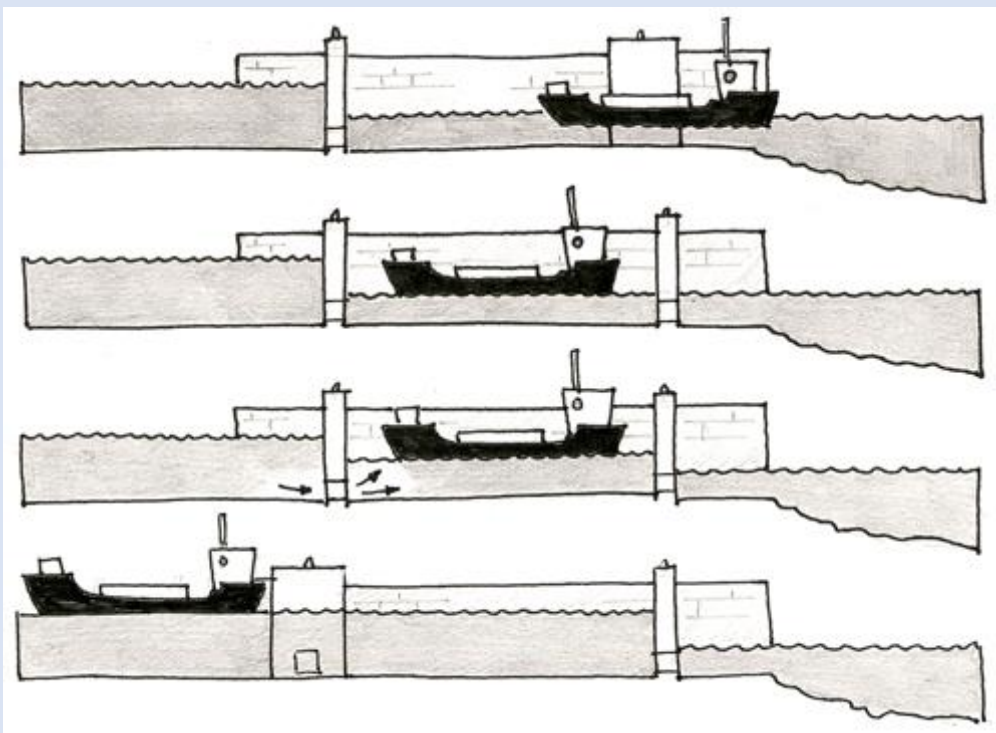


1 Canals allow boats and ships to move
2 from a lower part to a higher part. The
3 way in which this is done is called a **lock**.
4 People have made ten locks on the Rhine
5 to make it easier for ships to sail the
6 trickier parts of the river, transporting
7 goods.



8 The ship is steered into the lock. When the ship is inside the lock, the
9 captain of the ship makes sure that both gates are closed. As the lock fills
10 with water, the ship starts to go up. When the ship reaches the same
11 level as the water on the other side, the lock gate is opened. The ship
12 slowly makes its way out of the lock.





How a canal lock works



The ship sails slowly into the lock.



The lock gate at the other end is closed.



The water in the lock begins to rise.



The ship rises with the water in the lock.

5. The Mediterranean Sea

The Mediterranean Sea touches three continents: Europe, Asia and Africa. If you think about it, the Mediterranean Sea is, in fact, a part of the Atlantic Ocean. A tiny **strait** of water separates the Atlantic from the Mediterranean. This strait is the entry point into 'the Med' and is called the Strait of Gibraltar. The Strait of Gibraltar is only 8.9 miles wide. You can sail across from Europe to Africa in 35 minutes!



seas inside the Med are the Balearic (*bal-ee-ar-ick*) Sea off the coast of Spain and the Aegean (*ah-jee-an*) Sea near Greece.

Can you see that the Mediterranean Sea is almost surrounded? It is almost sealed in except for the tiny Strait of Gibraltar. We call the Mediterranean Sea an **enclosed sea**. An enclosed sea is where the water is almost entirely closed in.

21 countries and two territories (like Gibraltar and Palestine) have the Mediterranean as part of their coastline. These are the light green countries on the map. Can you find Algeria in Africa? Lebanon in Asia? And Italy in Europe? Most of Italy sticks out into the Mediterranean. Italy is a **peninsula**. A peninsula is a piece of land that is almost (but not quite!) surrounded by water. A peninsula is connected to the **mainland**. Can you see that Spain and Portugal are also on a peninsula?



6. The Suez Canal

We have learned what a canal is. There are canals along the river Rhine. Canals are built by people to make it easier to transport goods where there isn't a natural waterway like a river or a sea.

200 years ago, if you wanted to send goods by ship from Singapore to Europe, you would have to sail all the way around the southern tip of Africa. The trip around the Cape of Good Hope was dangerous because of the storms and high winds! There is an enormous canal that was built to connect the Mediterranean Sea with the Indian Ocean. The **Suez Canal** is in Egypt. The ancient Egyptians had even tried to build a canal to link the Red Sea with the Nile River! The ancient Persians did too!





When the Suez Canal was opened in 1869, it cut the journey time from Asia to Europe by half! By shortening the shipping routes, the cost of shipping cargo was also reduced. There are no locks on this canal! This makes the journey very smooth. Around 50 ships sail through the Suez Canal every day. Parts of the canal are so wide that two ships can pass each other. Other parts of the canal are narrow and not very deep. This means that large ships have to sail one at a time. Today, Egypt is working to make the canal deeper and wider. This will mean even more ships can sail from Asia to the Mediterranean Sea!