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Urban
Garden

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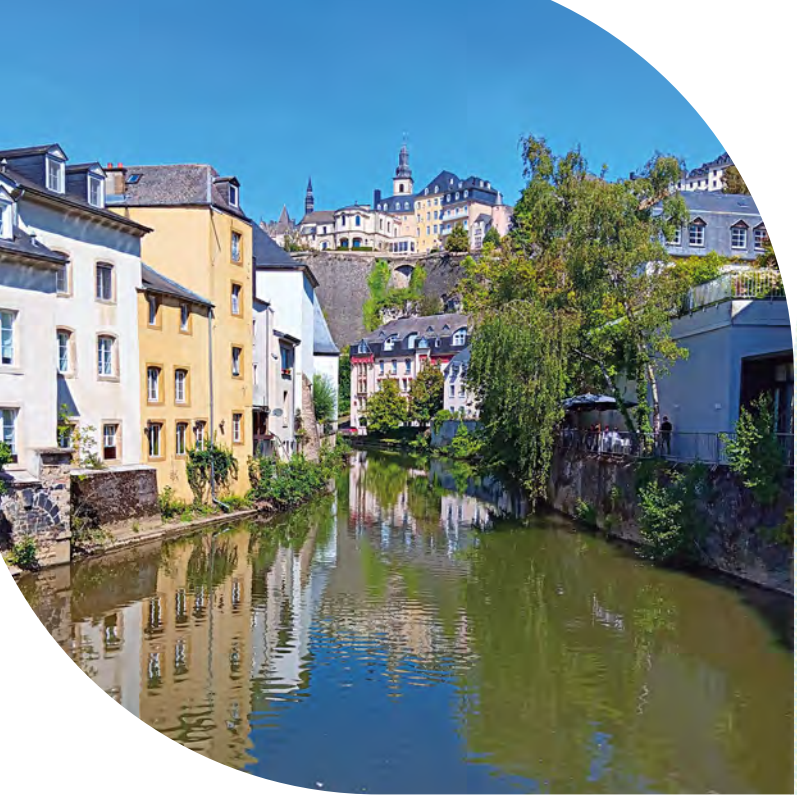

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Welcome to the FuDo trail!

A characteristic feature of the city of Luxembourg is the sandstone on which it was built. This sandstone stores groundwater, which emerges in the form of numerous springs where it comes into contact with impermeable layers of soil. People have always found clean drinking water under the sandstone. These springs feed two rivers, the Alzette and the Pétrusse. Over time, they have cut their way through the urban area, creating pronounced rocky valleys.

As the upper town was situated on higher ground, it was ideal for urban development, and the pronounced rocky gorges formed a natural barrier. However, the supply of drinking water was problematic, as it had to be laboriously carried up from the lower town.
With easier access to water, the lower districts of Grund, Clausen and Pfaffenthal continued to develop. Many water-dependent trades such as breweries, laundries and a mustard factory settled here.

On this walk along the Alzette and Pétrusse rivers, you will learn that water is the basis of all life, but that it can also be a destructive force. Discover interesting quiz questions, exciting phenomena and tricky research tasks that you can solve with others.

Quiz

&

Stations

Question 1

Which river are we on now?

- ◯ Alzette
- ◯ Moselle
- ◯ Pétrusse

Station 1

What floats and what doesn't?

We often see it at the swimming pool or in the bathtub: small toy figures sink immediately, while the much larger rubber duck floats easily on the surface of the water. But why do some things float easily on the surface of the water, while others sink?

Find 4 or 5 different natural materials near water. Which ones do you think will float on water and which ones won't?

Arrange the materials according to your guesses and take a photo.

Now carefully throw the materials into the water one by one and see what happens. Which floats and which doesn't?

Note: Throw only natural materials into the water, not plastic bottles or cans.

Now look at the photo once again. What do you notice? Why do you think some materials float while others do not?

Materials that are lighter than an equal volume of water will float (e.g. wood, plastic). Materials that are heavier than an equal volume of water will not float (e.g. metals, stones, glass). Objects that are not completely full, such as a nutshell or a shot glass, float in the same way as boats.

Boats displace water by their weight (or more accurately, their mass). Because the air in the boat displaces a mass of water greater than its own mass, it floats on the water. Some objects, such as a sponge, cloth or paper, have many small cavities filled with air. When the object is placed in water, these cavities fill with water, the object becomes heavier and sinks. There are also certain types of wood (tropical wood) that sink and certain types of stone (lava stone) that float: because of their composition, they have a higher or lower density than water. (Science.lu, 2019).

→ Based on the text by Véronique Kohnen (FuDo-Fro Was schwimmt? Was schwimmt nicht?) on *www.fudo.lu*

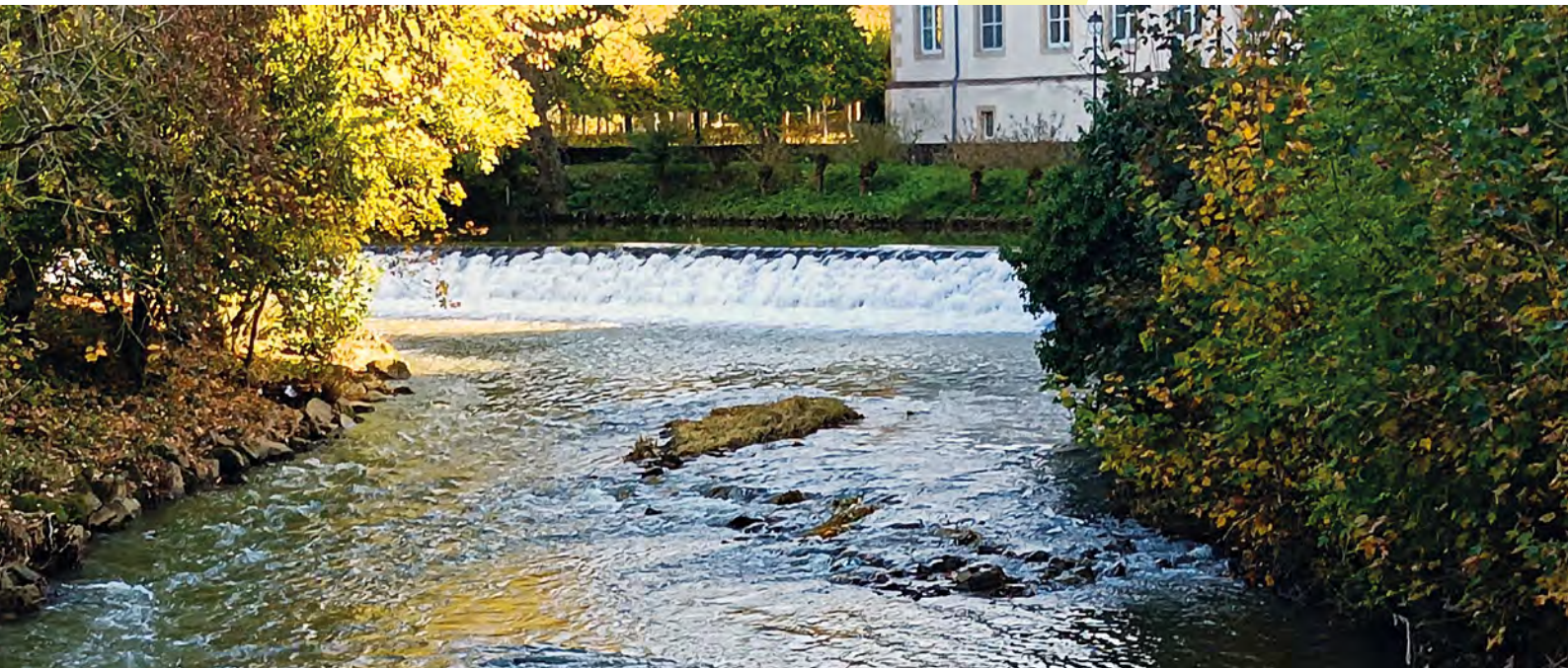
→ Science.lu. (2019, 24 June). Welche Materialien schwimmen auf Wasser? *https://www.science.lu/de/technologie-schwimmende-materialien/welche-materialien-schwimmen-auf-wasser*

Station 2

Where does water flow the fastest?

Water in rivers and streams is never still, it is always moving. This is why we say it flows. For thousands of years, people have lived near rivers and streams, adapting them to their needs over time. Because they needed the water for transport, they altered the banks and used water power to drive machines such as mill wheels. These structural interventions have not only changed the course of the water, but also affected its flow rate.

→ **The flow rate of a watercourse is not always the same: sometimes the water moves so slowly that it almost seems like a lake, and sometimes it flows extremely fast. But why is this? Why, for example, does the water of the Alzette flow faster in some places than in others?**

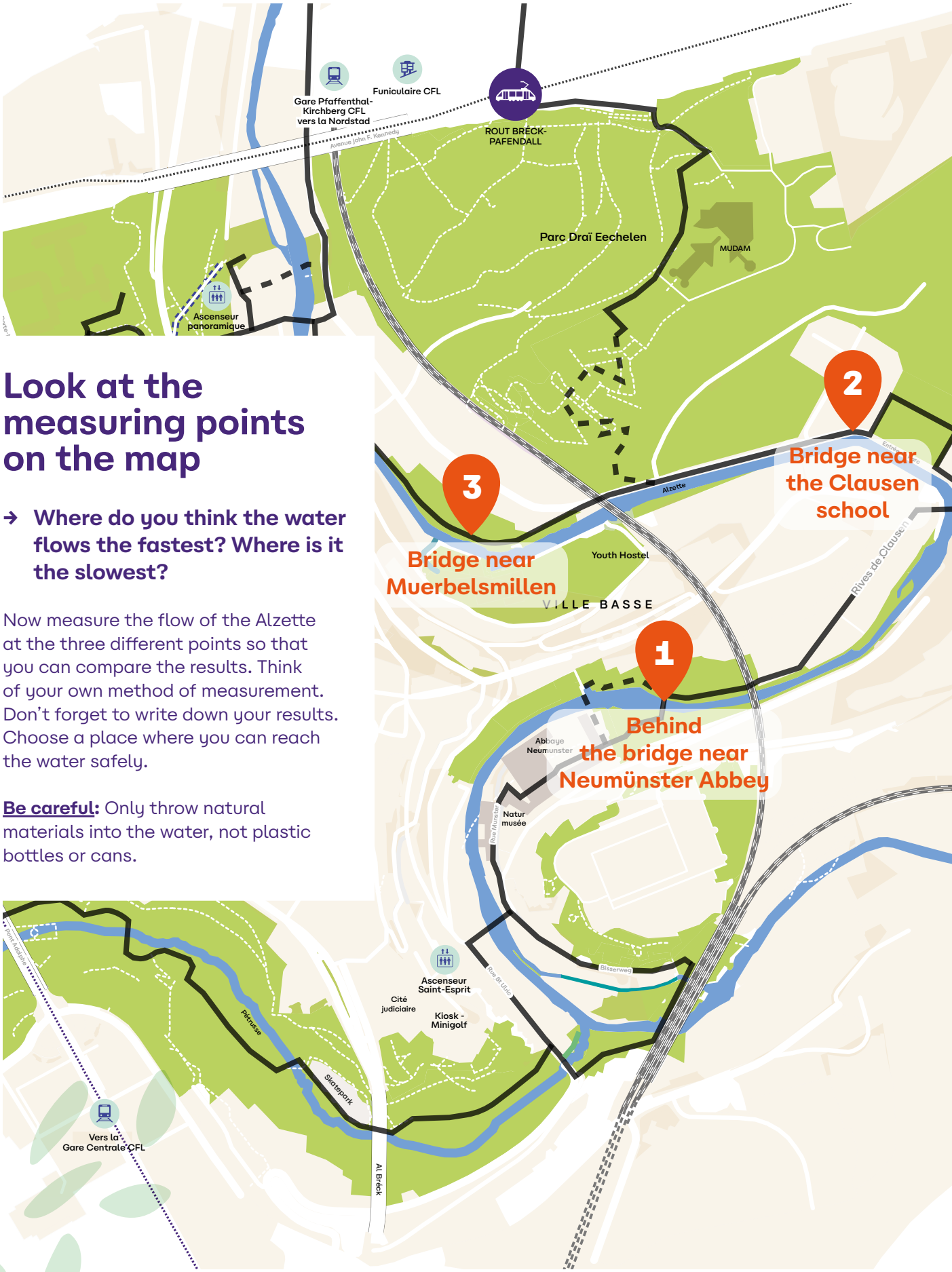


Look at the measuring points on the map

→ **Where do you think the water flows the fastest? Where is it the slowest?**

Now measure the flow of the Alzette at the three different points so that you can compare the results. Think of your own method of measurement. Don't forget to write down your results. Choose a place where you can reach the water safely.

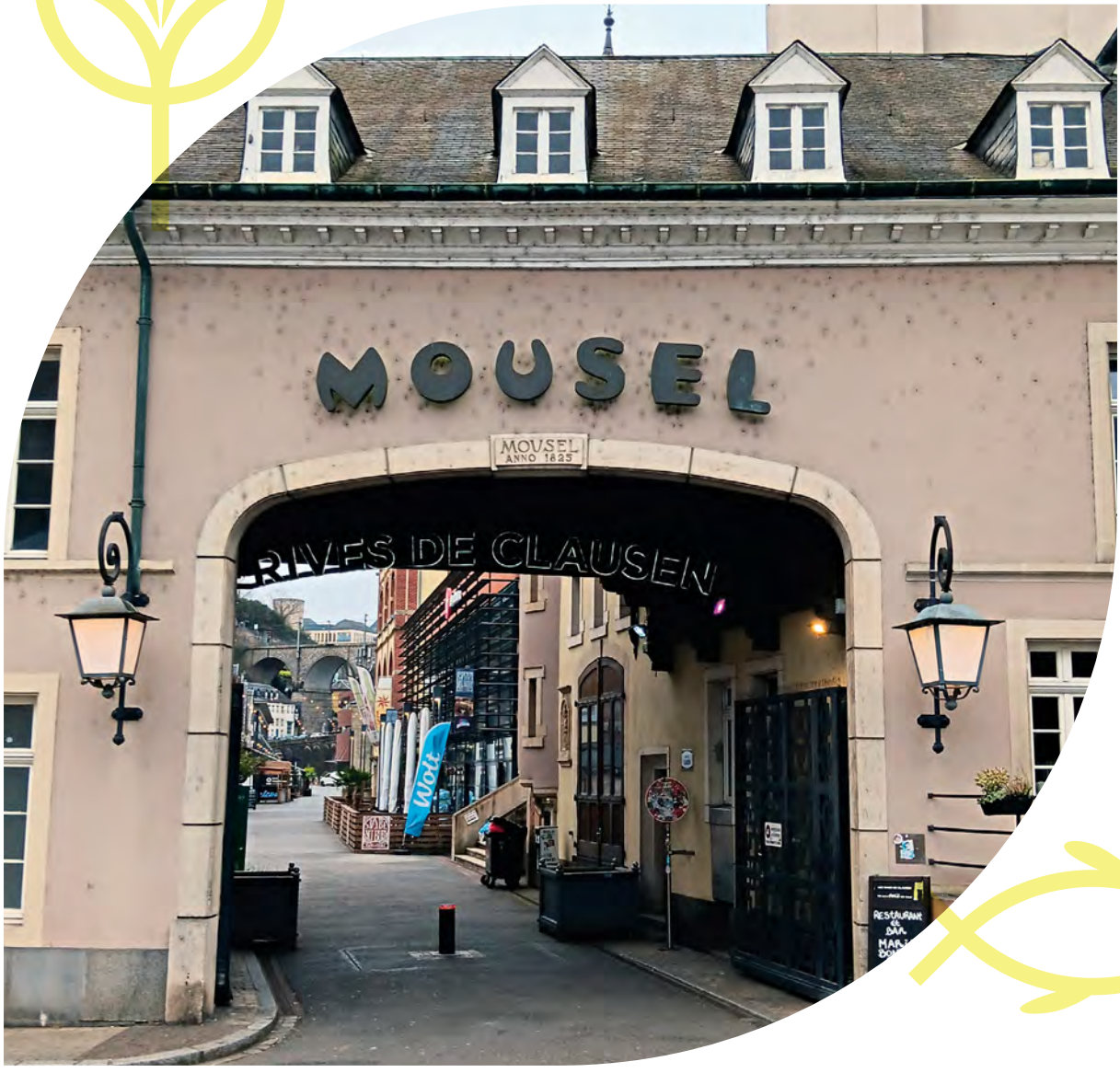
Be careful: Only throw natural materials into the water, not plastic bottles or cans.



Question 2

We are on the banks of the Alzette. But why is the word Mousel written above the building? There are several possible answers.

- ◯ Beer with the same name was brewed here.
- ◯ This is where the Alzette flows into the Moselle.
- ◯ This was the name of the previous owners of the brewery.



→ Brasserie - Brasserie Mousel, Luxembourg - Industrie.lu (undated). https://www.industrie.lu/brasseriemousel.html

Question 3

There is a very old house at the entrance to Odendahl Park. Which year was it built?

- ◯ 1912
- ◯ 1797
- ◯ 1191

Compare the different values

- → **Where does the water flow the fastest? Where does it flow the slowest? Do the values match your assumptions?**
- → **What could be the reason?**

The flow rate of a watercourse is influenced by several factors. It depends on whether the terrain is flat or steep. Water flows more slowly in front of a waterfall than behind it. The amount of water and the width of the waterway also play an important role: where the water can spread out, it will flow more slowly. But if the same amount of water has to flow through a narrow river bed, the flow rate increases.

Question 4

What elements affect the speed of the water? There are several possible answers.

- ◯ The slope
- ◯ The colour of the water
- ◯ The volume of the water
- ◯ The width of the river bed
- ◯ The presence of fish

Station 4

We follow the path of the water

Water plays a vital role in our lives. We use it for sustenance, personal hygiene, as a source of energy and for leisure activities. On a tour through the districts of Pfaffenthal, Clausen and Grund, you will discover some evidence of how important water has been in the past and still is today. We do not follow the watercourse itself, but the traces of the water.

Sculpture: De midde Waasserdréier (The weary water carrier)

Today we rarely think about how our clean drinking water gets to us - it just flows reliably from the tap. But it wasn't always like this: there was a time when drinking water was a very precious commodity. Before there were wells in the upper city, water was scarce. People either collected rainwater or had to carry it up from the lower town: from the Alzette, from springs or from the wells that existed there at the time.

At that time, there were water carriers in the Pfaffenthal district. Mostly children or young people, they filled buckets and jugs at the Théiwesbuer and took the water to those who could afford to pay.

This badly paid and arduous job only disappeared when the city of Luxembourg got its first spring water supply in 1866. From then on, the water was pumped up with the help of a steam engine.

→ De midde Waasserdréier. (o. D.). *https://play.rtl.lu/shows/lb/pisa-de-wessensmagazin/episodes/r/3332915*

→ De midden Wasserdréier. (2024, 12 April). Luxemburger Wort, volume 176. *https://www.wort.lu/luxemburg/wie-der-kuenstler-menny-olinger-einen-muehsamen-beruf-wuerdigt/10450003.html*

Question 5

What animal is sitting on the water bucket?

- ○ 
- ○ 
- ○ 

Station 3

Where does the water in the wash fountain come from?

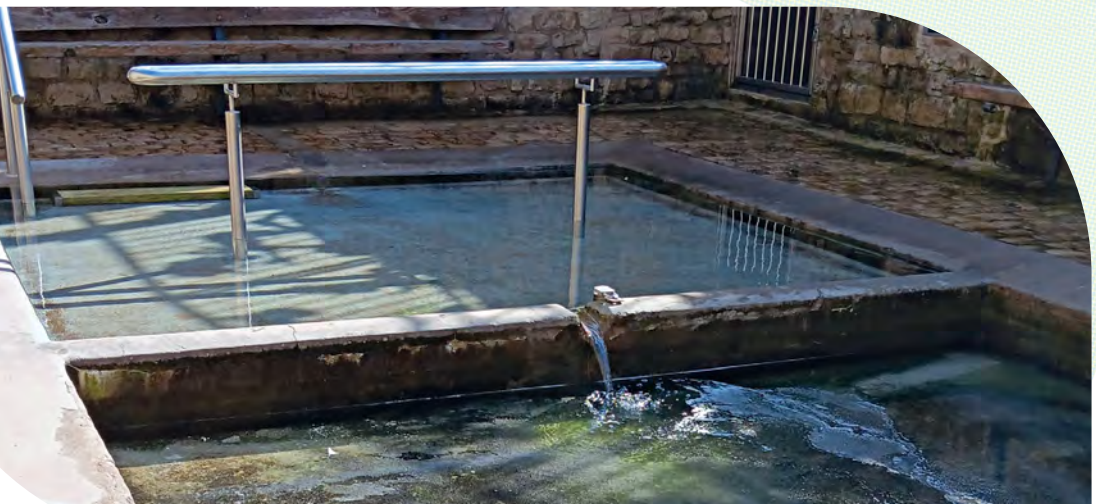
Nowadays we do our washing in a washing machine. But things used to be very different: people used to meet at the wash fountain to do their laundry and exchange the latest news. Not all said things were nice, hence the expression ‘washing dirty linen in public’.

Nowadays, public washing places are no longer used because we do our laundry at home. In 2016, these two basins of the fountain were restored and one of them was converted into a water treading pool.

In the past, these basins were used for washing clothes. They are constantly filled with fresh water and the excess flows into the Alzette.

- **But how does the fountain get fresh water all the time? And why was it built here? What do you think?**
- **Think about it and go to the water treading pool. You need at least two people to do this. What happens if one of you puts a hand or foot in front of the inlet pipe next to the stairs while the other person looks at the glass window?**

Follow the course of the pipe.
This will help you solve the riddle!



Question 6

What is on the other side of the street?

- ◯ A waterfall
- ◯ A tap
- ◯ A spring

Return to the water treading pool and discuss your observations

The source of the Théiwesbuer is on the other side of the road, next to the church. The spring water flows under the road into the washing fountain. In the past, it was not only used for washing but also as drinking water.

→ Théiwesbuer. (n.d.). Visit Luxembourg City. *https://www.luxembourg-city.com/de/ansicht/monument/theiwesbuer*

Question 7

On the railing of the wash fountain you can see many animals.
Which of them cannot fly?

- ○ 
- ○ 
- ○ 

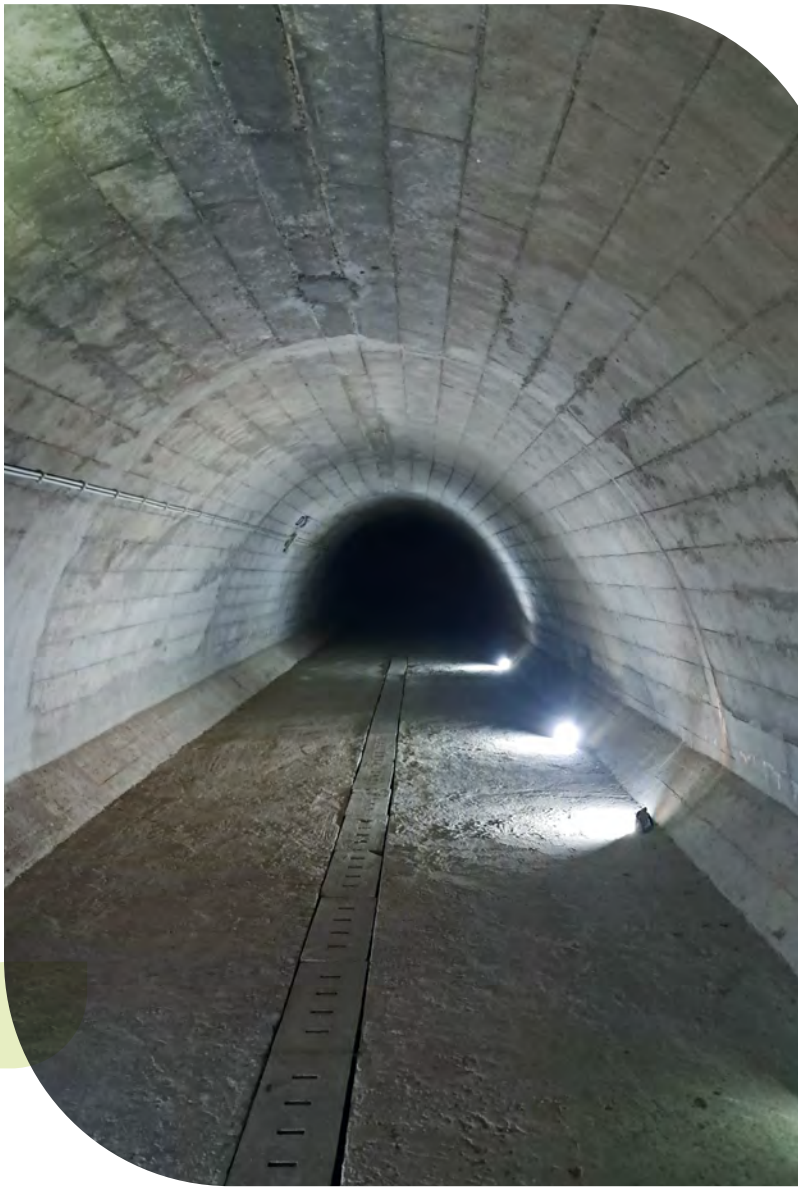
Aquatunnel

The Aquatunnel runs for one kilometre under the city centre. The entrance is near the Gëlle Fra and the exit is here in Rue Laurent Ménager in Pfaffenthal.

Completed in 1963, this tunnel is not used to carry drinking water, but as a maintenance tunnel for the sewer below. It collects wastewater and transports it to the nearest treatment plant.

The Aquatunnel was also built to be used as a bomb shelter. It is about 3 metres high and 4 metres wide, and the temperature inside is between 12 and 14 degrees Celsius all year round.

© LUGA

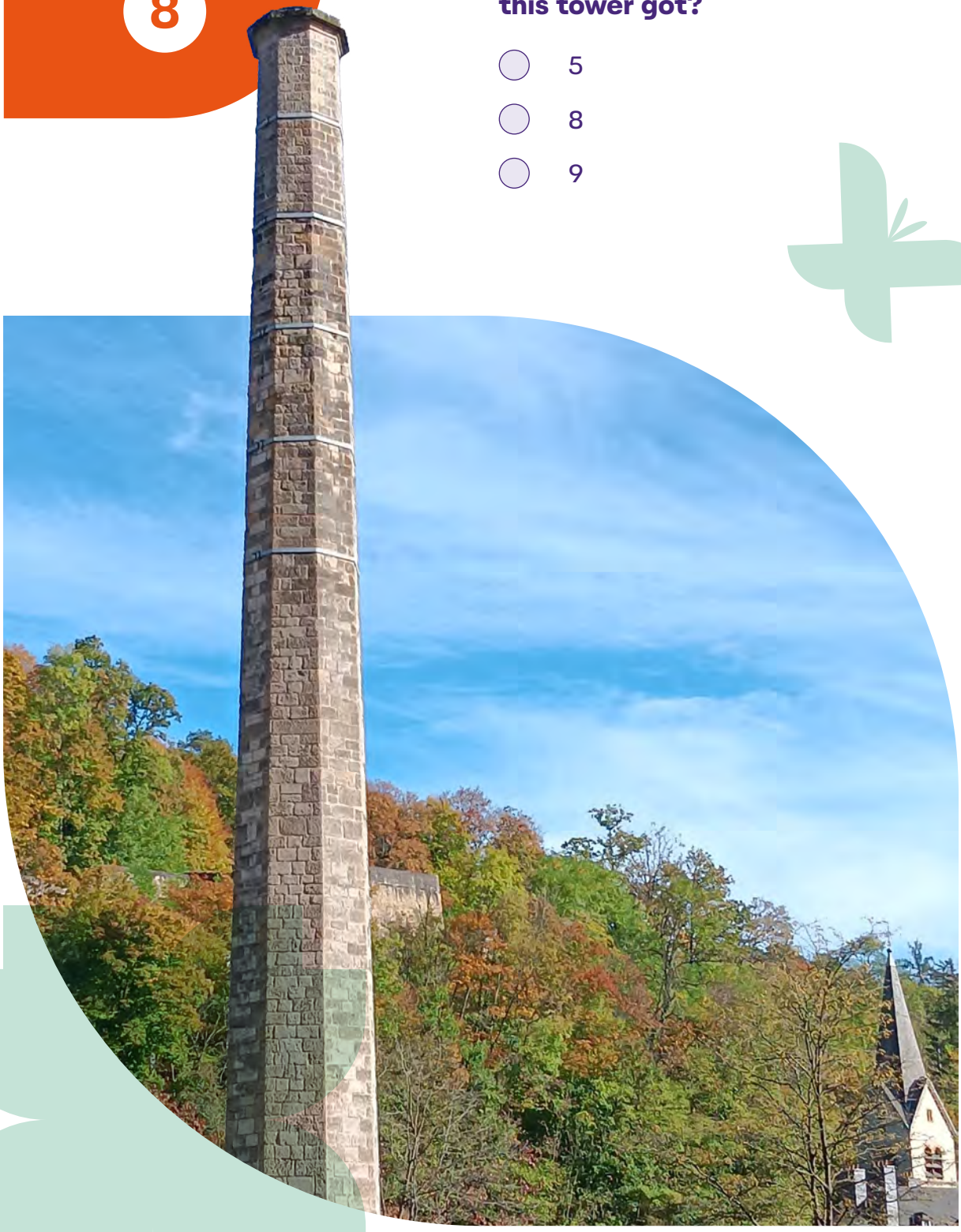


→ De midde Waasserdréier. (undated). *https://play.rtl.lu/shows/lb/pisa-de-wessensmagazin/episodes/r/3332915*
→ "Aqua Tunnel" öffnet erneut. (undated). Luxemburger Wort. *https://www.wort.lu/luxemburg/aqua-tunnel-oeffnet-erneut/543658.html*

Question 8

Near the Aqua Tunnel you can see a tall tower. This is the chimney of the steam engine that used to drive the pumping station for the water supply. **How many corners has this tower got?**

- ◯ 5
- ◯ 8
- ◯ 9



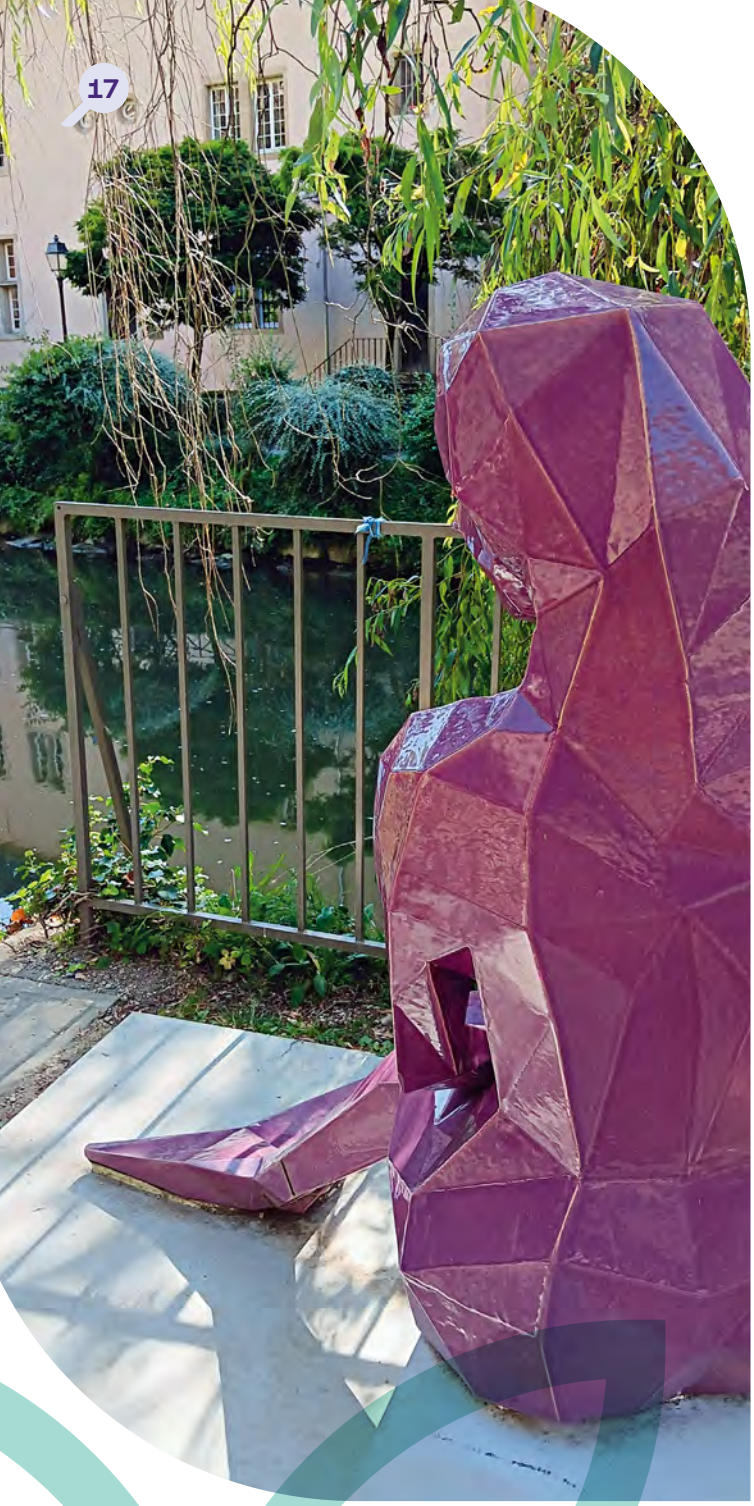
Question 9

The Castle Bridge (Schlassbréck) near the Bock Rock was built in 1735 of red Luxembourgish sandstone to replace a wooden bridge at the same place. In the early 1990s it was extensively restored according to the original plans. **How many arches are there on the bridge? Count from the side with the most arches.**

- ◯ 4
- ◯ 5
- ◯ 6

→ 10 must-see bridges in the city of Luxembourg. (n.d.-a). Visit Luxembourg City. *https://www.luxembourg-city.com/de/erleben/stadterlebnisse/stadterlebnisse-von-einheimischen/10-ponts-a-luxembourg-ville-a-ne-pas-manquer*

→ Schlossbrücke. (n.d.-b). Visit Luxembourg City. *https://www.luxembourg-city.com/de/ansicht/fortification/schlossbrucke*



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Melusina

Legend has it that Count Siegfried, who founded the city of Luxembourg on the Bock promontory in 963, was walking along the banks of the Alzette one evening when he saw a beautiful maiden sitting on a rock. She was the mermaid Melusina.

He fell in love with her and asked her to marry him. Melusina agreed, but on one condition: she wanted to spend every Saturday undisturbed in her chamber, and under no circumstances was Siegfried allowed to see her.

But one day, as he was passing by her room, he heard a strange noise. Breaking his promise, he looked through the keyhole and saw his wife sitting in a large tub, with a fish's tail instead of legs, bathing in water.

When Melusina realised that Siegfried was watching her, she disappeared into the waters of the Alzette with a terrible scream. Siegfried never saw her again. However, it is said that Melusina has appeared at the Bock Rock every seven years since then.

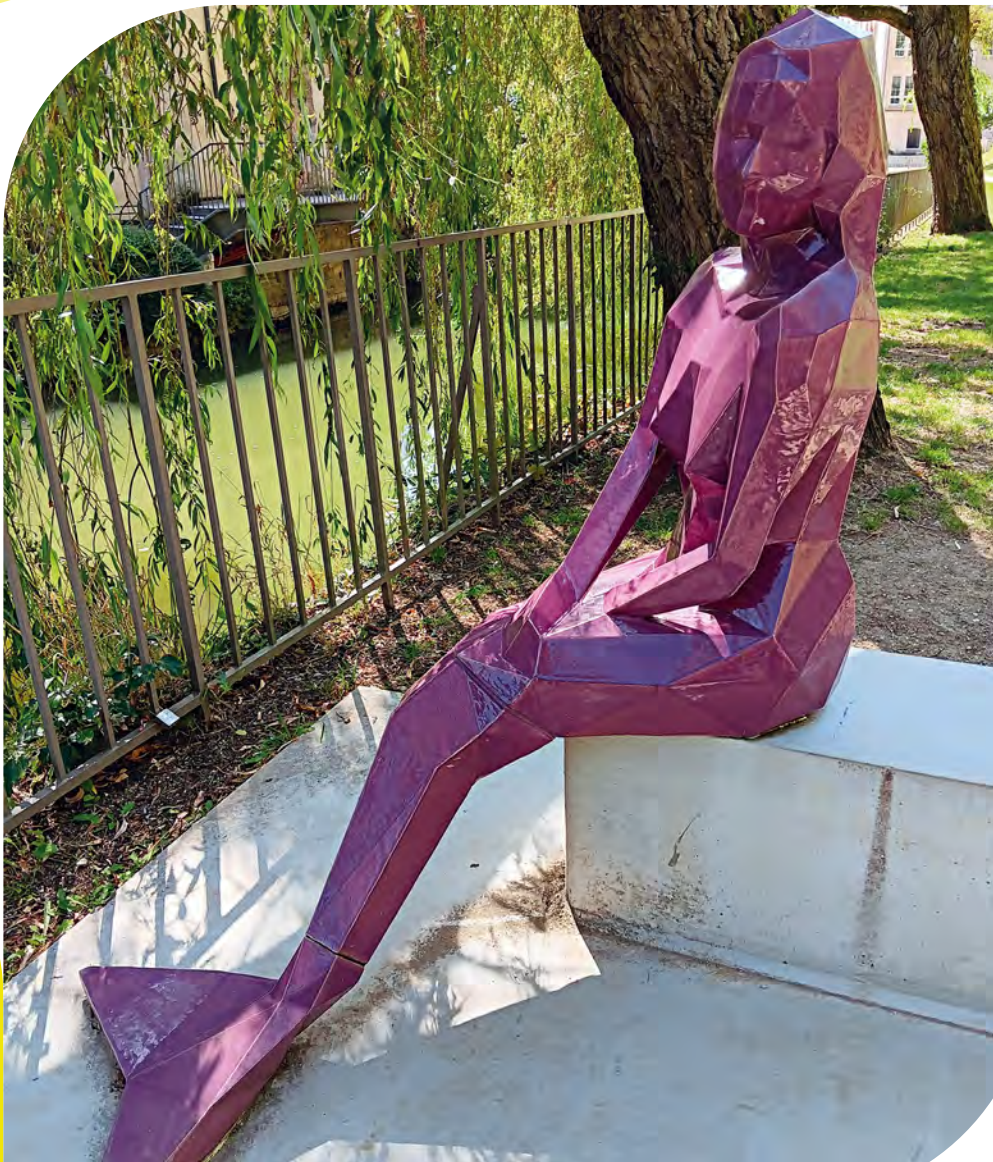
The figure of the legendary mermaid Melusina on the banks of the Alzette is striking not only because of its purple colour. It also differs from conventional sculptures in that it is made of pyrogranite using a 3D printing process.

→ Melusina Statue. (n.d.). Visit Luxembourg. *https://www.visitluxembourg.com/de/attraktion/melusina-statue*

Question 10

The statue of Melusina is looking at the Bock Rock.
In which direction is she looking? The following rhyme can help you find the right direction: The sun rises in the East, is noon in the South, sets in the West and is never seen in the North.

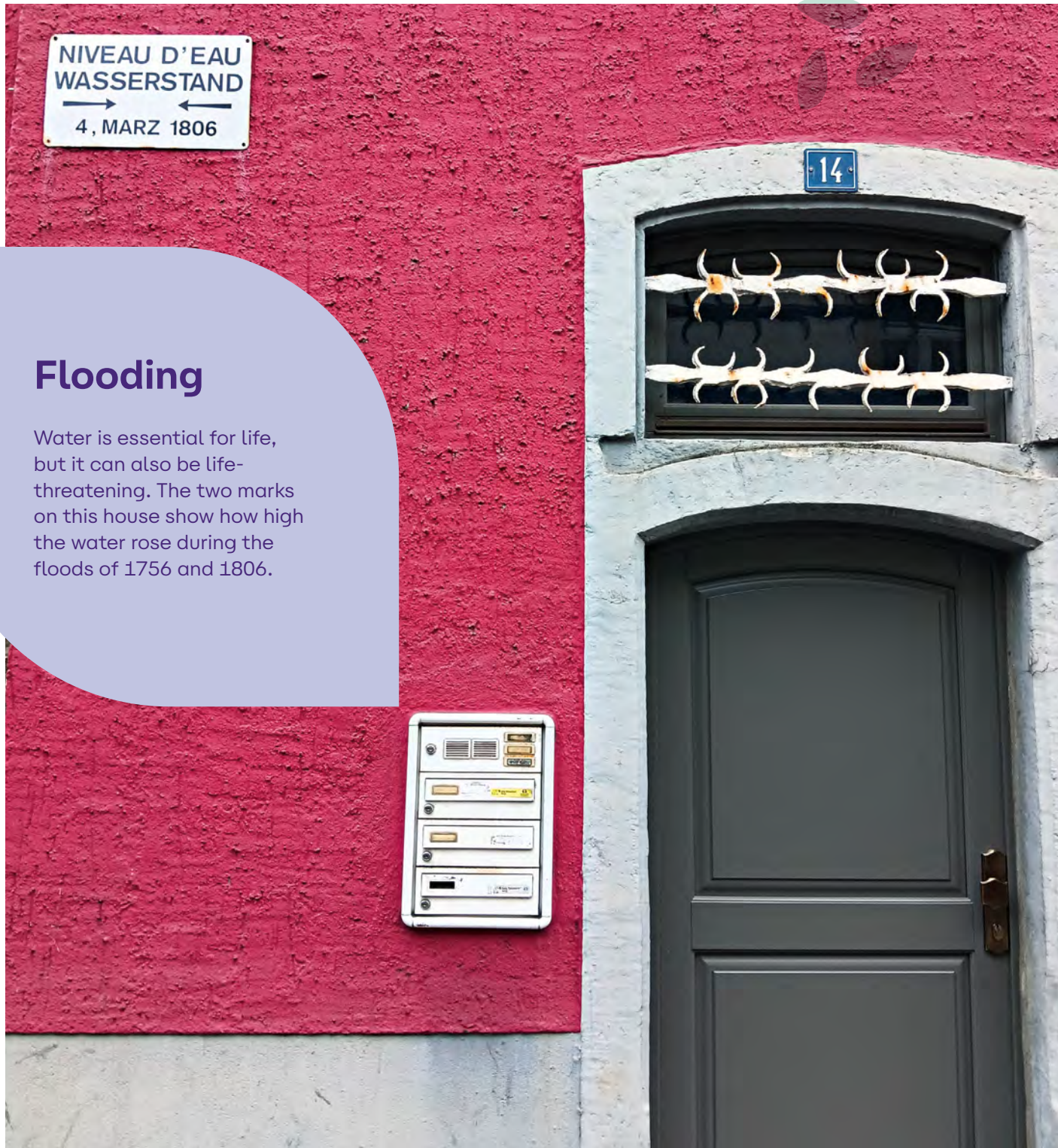
- ◯ to the North
- ◯ to the East
- ◯ to the South
- ◯ towards the West



Question 11

How high was the water here on 9 February 1756?
Estimate the water level from the pavement.

- ○ 3 m
- ○ 3.50 m
- ○ 4 m



Flooding

Water is essential for life, but it can also be life-threatening. The two marks on this house show how high the water rose during the floods of 1756 and 1806.

Station 5

What happens to the water when it hits the ground?

Every day we walk on different surfaces without giving much thought to what the ground beneath us actually looks like. Where can we still find natural soil? Why are some places covered with cobblestones or asphalt and how does this affect our environment? What happens when the ground gets wet, for example from rain?

Note on materials

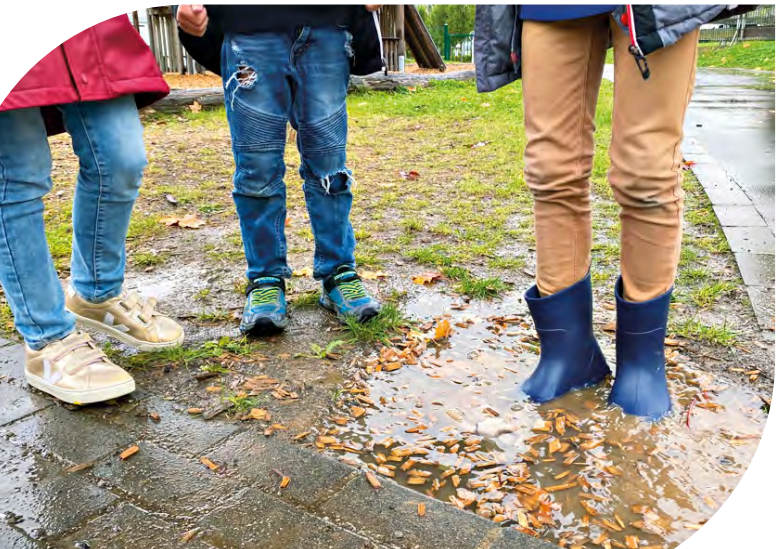
For the following activity, you will need a one-litre bottle of tap water or a container that you can fill with water.

Find three or four different types of soil in your local area and look at them carefully. What does the soil look like? How does it feel? You may want to take a picture.

- **Think: What might happen if this soil gets wet?**
- **Now pour a little water on each surface and observe:**
- **Where does the water go and how long does it take?**
- **Where does the water stay?**
- **How does the surface change?**
- **What do you notice? Where has the water seeped away and where has it not? Why? Do the results match your assumptions?**

Concrete and asphalt surfaces are sealed and do not allow water to pass through. In natural soils, however, water flows down through voids and pores at different rates depending on the type of soil.

The sealing and development of the soil prevents rainwater from seeping into the ground. This can lead to severe flooding during heavy rainfall.



→ Based on the text by Véronique Kohnen (FuDo-Fro Es regnet. Was passiert mit dem Wasser, wenn es auf den Boden trifft?) auf ***www.fudo.lu***

Question 12

Which river are we on now?

- ◯ Alzette
- ◯ Moselle
- ◯ Pétrusse

Not far from here (about 100 m as the crow flies) the Pétrusse flows into the Alzette. Just follow the water.

Thank you for your participation in the FuDo trail.

Feel free to share your experience on social network.

Answers

Answers

Question 1
→ Alzette

Question 2
→ Beer with the same name was brewed here.
→ This was the name of the previous owners of the brewery.

Question 3
→ The slope
→ The volume of the water
→ The width of the river bed

Question 4
→ 1797

Question 5
→ The Frog

Question 6
→ A spring

Question 7
→ The Cat

Question 8
→ 8

Question 9
→ 6

Question 10
→ to the North

Question 11
→ 4 m

Question 12
→ Pétrusse

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