**SCENARIO**

**Cities on the Vistula**

T - teacher

U - student

T: In the previous classes, you learned about the longest rivers in Poland. List and point out on the map the rivers you remember.

S: The longest river in Poland is the Vistula, and other rivers are the Odra, Warta, San, Bug, Narew, Noteć, Dunajec, Pilica, Wieprz.

T: The Vistula is the longest river in Poland, flowing into the Baltic Sea, with a length of 1047 km. Its sources are located on Barania Góra (at an altitude of 1107 meters above sea level), and it flows into the Gulf of Gdańsk. The Vistula River is 20 thousand years old; at its widest point, it reaches 1.5 kilometers. The first mentions of this river date back to the period of the Roman Empire from 7-5 thousand years BC.

Look at the map of Poland and list several tributaries of the Vistula, right-bank and left-bank.

S: The right-bank tributaries of the Vistula are the Biała, Soła, Raba, Dunajec, Wisłoka, San, Wieprz, Struga, Osa, Liwa rivers. The left-bank tributaries of the Vistula are the Przemsza, Prądnik, Nida, Kamienna, Pilica, Brda, Wda, Motława, Radunia rivers.

T: Now, remind us what a river, a lake, and an artificial reservoir are.

S: A river is a natural, surface watercourse flowing in a channel eroded by river erosion. A lake is a natural inland body of water filled with water (a lake basin).

T: And an artificial reservoir?

S: An artificial reservoir is formed by damming river waters with a dam. Artificial reservoirs are built by humans.

T: Yes, artificial reservoirs are human creations. By building dams on rivers, people utilize the power of water and produce electricity.

You will perform an experiment – you will build a riverbed from plastic bottles.

Prepare 3 plastic bottles, scissors, a stapler, and a pitcher of water.

S: I have everything ready; we can start.

T: Good. Cut off the bottom and the top of the plastic bottles, where there is a narrowing for the cap. Then, cut the bottles lengthwise, creating 2 channels from each bottle. Remember to maintain safety while cutting the packaging.

1. Lay the bottle halves in a line, creating a riverbed – staple all the elements together sequentially – you will get a river valley;

2. Place one end of the riverbed about 40 cm above the ground – this is the source of the river, and the other end lies on the ground – this is the mouth of the river;

3. Pour water from the pitcher into our source; repeat this process several times while observing how the water behaves.

4. Based on your observations, tell us where the riverbed water flows quickly and where it flows slowly?

S: The water flows fastest from the source and slower at the mouth of the river.

T: You observed well.

S: Does it mean that water flows at different speeds in the river?

T: Exactly. We can divide the river into 3 sections:

- upper course of the river, where the river flows fastest,

- middle course of the river – the water flows a bit slower,

- lower course of the river – the terrain is flat, and the water flows very slowly.

S: I think different animal species must live along the rivers.

T: River valleys are inhabited by birds, which have their habitats in plant communities. An example is the grey-headed woodpecker.

[description of the grey-headed woodpecker, as well as the description of the bird's structure.]

Birds are a class of warm-blooded vertebrate animals. There are over 10 thousand species of birds inhabiting ecosystems worldwide. Their size ranges from 5 centimeters in the Hawaiian hummingbird to 2.7 meters in the ostrich.

S: Are plant cells and animal cells the same?

T: An animal cell differs from a plant cell; look at the illustration.

Mammals also inhabit river valleys, such as beavers and otters.

T: Do you know any city located on the Vistula River?

S: It's Warsaw, the capital of Poland.

T: What city was the first capital of Poland?

S: The first capital of Poland was Gniezno.

T: Yes, Gniezno is considered the first legendary capital of the Polans. In the 10th century, Mieszko I built a church there, where currently – in the Gniezno Cathedral – the remains of St. Adalbert, the patron saint of Poland, are located. In the 11th century, raids by the Czech prince Bretislav devastated Greater Poland, and for this reason, Casimir the Restorer moved the capital to Kraków in 1039. The royal residence became the Royal Castle on Wawel Hill. After the incorporation of Mazovia into Poland, the general sejm in 1569 decided to hold sejms permanently in Warsaw. For this reason, King Sigismund III Vasa moved his court there, and in 1611, Warsaw became the capital city. The rulers resided in the Royal Castle. During World War II, about 80 percent of the city's buildings were destroyed. Today, the rebuilt capital is vibrant, modern, and the largest city in Poland.

S: What do we call a capital city?

T: The capital city is a city where the seat of government of a country or region is located. In previous classes, we talked about ancient voyages and supplying ships with food and water.

S: I remember! There were no refrigerators on ships, and food and water spoiled very quickly.

T: Yes. One of the ways to store food was by rubbing meat and fish with salt. This method was invented thousands of years ago. Meat, fish, white cheese, and vegetables were covered with salt. Before consumption, it had to be desalted, which means soaking for a long time to remove excess salt.

S: That's interesting!!!

T: Yes, salt is a natural preservative!

S: Was salt ever mined in Poland?

T: Salt has been mined in our country since medieval times to this day. Since the Middle Ages, the Vistula became a very important transportation hub:

- goods (wood, grain, salt) were transported downstream (by water) towards Gdańsk for export to Western Europe;

- on the return journey, industrial and luxury goods, as well as spices, were imported.

[schematic drawing: import – export (directions of these phenomena)]

S: What is table salt?

T: Table salt is a food item, almost pure sodium chloride (NaCl), used as a flavor enhancer and natural preservative.

S: Does that mean that when I salt boiling potatoes, I enhance their flavor?

T: Yes, but excess salt is harmful!

S: At my age, 11 years old, how much salt can I eat?

T: The World Health Organization recommends a maximum salt addition to food for a healthy person at the level of 6 grams per day, which is 1 tablespoon.

At your age, you can consume about 6 grams per day, just like adults.

S: And for small children?

T: Children from 1 to 3 years old can consume 2 grams of table salt,

from 4 to 6 years old - 3 grams of salt,

from 7 to 10 years old, 5 grams of salt.

Excessive salt intake has a huge impact on human health.

The consequences of excessive salt consumption include arterial hypertension, stomach cancer, liver damage, and many other health complications.

S: You really have to be careful with table salt.

Can it be replaced somehow?

T: Yes, but look for information on what to replace salt with.

T: Now I'll take you on a virtual tour of the Wieliczka Salt Mine.

T: We are dealing with cities on the Vistula, where each of the larger population centers has its own coat of arms.

S: What is a coat of arms?

T: The coat of arms is a visual design placed on a shield; since the 12th century, it has been established according to strict rules. The coat of arms serves as a differentiator for an individual, a knightly estate. Coats of arms could also belong to families, church organizations, cities, corporations, schools, universities.

Do you remember what the coat of arms of Warsaw depicts?

S: The coat of arms of Warsaw depicts a mermaid.

T: And it has been in use since 1938.

T: Let's play with puzzles now – we'll put together the coats of arms of cities: Gniezno, Kraków, Toruń, and Warsaw.

The student assembles the coats of arms of the aforementioned cities based on the pattern.

T: Do you know how food was stored and preserved in ancient times?

S: Unfortunately, I don't know.

T: Harvests from fields, orchards, and forests were stored in cellars, root cellars, and pantries. Some vegetables and fruits were made into preserves and pickles, and the remaining vegetables were dried, similar to mushrooms. Grain, herbs, butter, and lard were stored in pantries near the kitchen, as well as garlic, onions, oils, lard, smoked sausage, and legumes.

S: How were grains stored?

T: Wooden sieves, or wooden crates, were used for grains.

Beans and peas were kept in wooden measures, and meat and cold cuts were hung from the ceiling to protect them from rodents. Sauerkraut was stored in wooden barrels, and juices in jars and bottles.

S: I once heard my mom talk about natural preservatives.

What are they?

T: Natural preservatives include the aforementioned salt, horseradish leaves, garlic, oregano, thyme, and vinegar.

S: How do they keep food products in "good condition", meaning they don't spoil?

T: To store meat for a short time, it was wrapped in horseradish leaves and then wrapped in a moist linen cloth.

Adding garlic to meat products or soups helps preserve freshness for longer, as it destroys microorganisms.

S: And vinegar?

T: Acetic acid kills microorganisms and inhibits food spoilage.

Now try to create a mind map based on the lesson information and your own knowledge of food storage.

S: I know how to create a mind map now.

T: Good luck with your work. Use various sources of information. Also, check out the lesson on pickles!

That's all for today.

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Additional information - cities on the Vistula:

• Gdańsk

• Kraków

• Warsaw

• Toruń

• Kazimierz Dolny