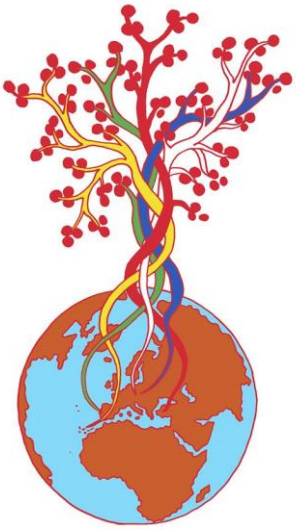
Erasmus+

Touching Hearts For Environmental International Awareness



FOOD KILOMETRES

Taking THEIA into the class

Co-funded by the Erasmus+ Programme of the European Union

Gymnázium a Jazyková škola
s právem státní jazykové zkoušky
Zlín

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INTRODUCTION

INTRODUCTION

The “FOOD KILOMETRES” activity is meant to make pupils and students aware of the people`s influence on the environment through examples from our daily lives and behaviour of each individual. Global market issues are discussed very often nowadays but the influence of transport is not pointed out enough while thousands of vehicles convey goods, often senselessly, all over the world. While counting “Food kilometres” and discussing all possible consequences we can draw our pupils attention to the “footprints” each individual leaves unwittingly in the air, water or on land. The topic “Water” was added to the “Food kilometres” to supplement the topic of food transport with a part focused on household water consumption in general and consumption of bottled water. There are also activities focused on “Water” in general - its quality, the content of water in different types of food to complete the tasks of our project.

The issue of local or regional food production and its advantages and disadvantages were included into the general topic of destroying the environment. Water quality, water consumption and the use of bottled water, its quality and the problem of its transport can be discussed thoroughly within the topic of “Water”. Besides transport reduction the support of small local businesses and further development of the region can be discussed with older pupils.

All the activities will enable each pupil to find out their own influence on the environment in local as well as in global scale. Using simple observation methods pupils will get basic information, which they will work with further with respect to their age and possibilities. In consideration of the fact that pupils will work with food and situation of their families, the transfer of the information about the importance of using and consuming local, regional, or national products to other family members can be expected.

FOOD KILOMETRES

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The use of the activities in school subjects

The whole topic of “FOOD KILOMETRES” in various modifications can be used in many school subjects and activities emphasizing steadily the topic of the environment, sustainable development and responsible approach of each individual.

The simplest activities can be used in the first or second years of primary schools – name food, place of its origin, healthy diet, food transport. In higher grades the activities can be used in Geography lessons – locating countries in the map, measuring distances, determining different types of transport and their influence on the environment; in Maths lessons – distance calculation, fuel consumption calculation, statistics and graphs; in Social Science lessons – awareness of sustainable development, the importance of recycling and support of small local businesses and employment; in Chemistry lessons – the use of water, content of water in different types of food, determining water quality and composition, determining mineral water and bottled water composition; in IT lessons – creating power-point presentations, graphs and diagrams; in English language lessons – questionnaires, the topics in general for discussion and vocabulary work. All the activities support the sense of local or regional belongings.

Competence

The project activities can be used for both group or individual work. Working on different tasks enhances independence, team work, the ability to cooperate as well as lead the others, the ability to search for, choose and sort information. Processing the results and their interpretation improves communication skills and critical thinking.

Using the activities of the same theme in different subjects and discussing the theme from different points of view improves interdepartmental relations and helps students create general view of global trade and local production with all relations, causes and consequences.



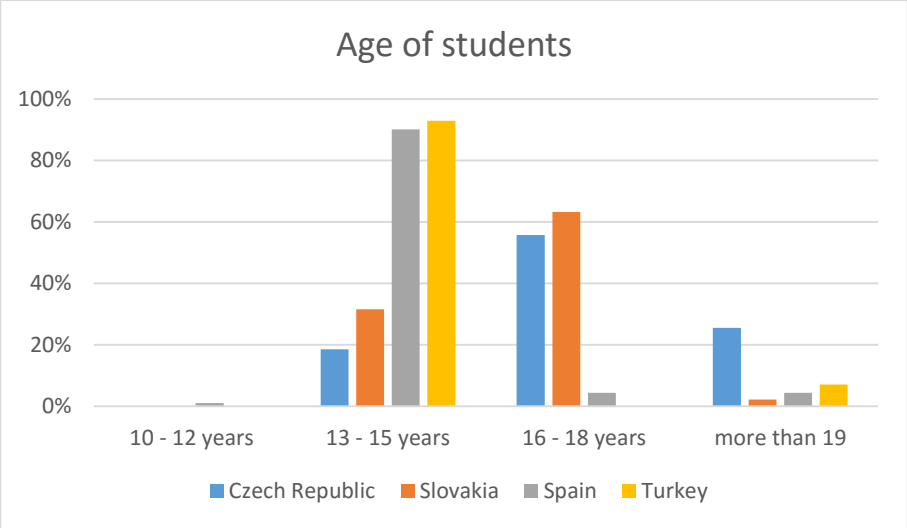
PROJECT REPORTS AND RESULTS

SURVEY OF ENVIRONMENTAL AWARENESS

Are you eco-friendly? – the report of the results

The survey on environmental awareness of the students taking part in THEIA project was conducted at the beginning of our work. A questionnaire was chosen as the main medium. It was completely created by participating students and displayed on the THEIA project Facebook page.

As can be seen from the first graph, there were four partner schools taking part in the survey. The age of the students varied from 12 to more than 19, but majority of the respondents were of the age group declared by the THEIA project to be involved.



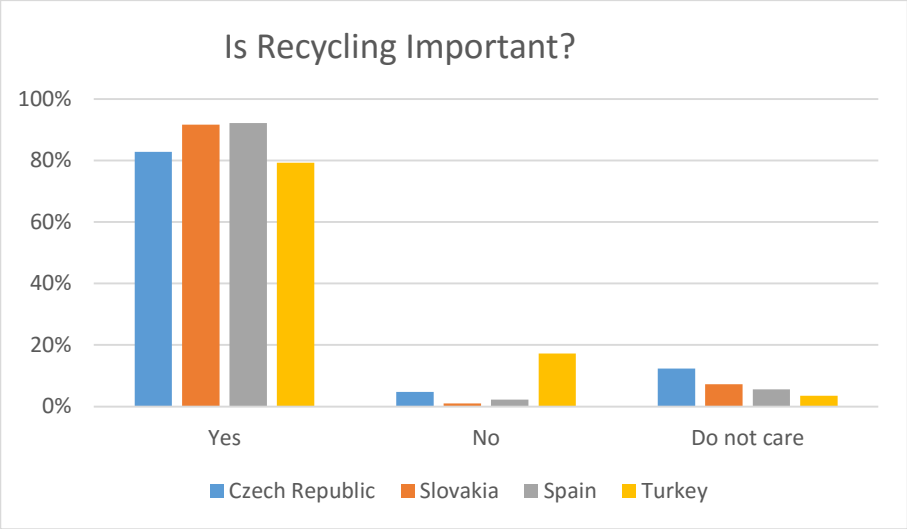
The questions of the questionnaire can be divided into several areas, all of which are linked to environmental awareness of the students. The areas are: general knowledge, recycling, protecting nature and wildlife, saving energy, environment-friendly behaviour.

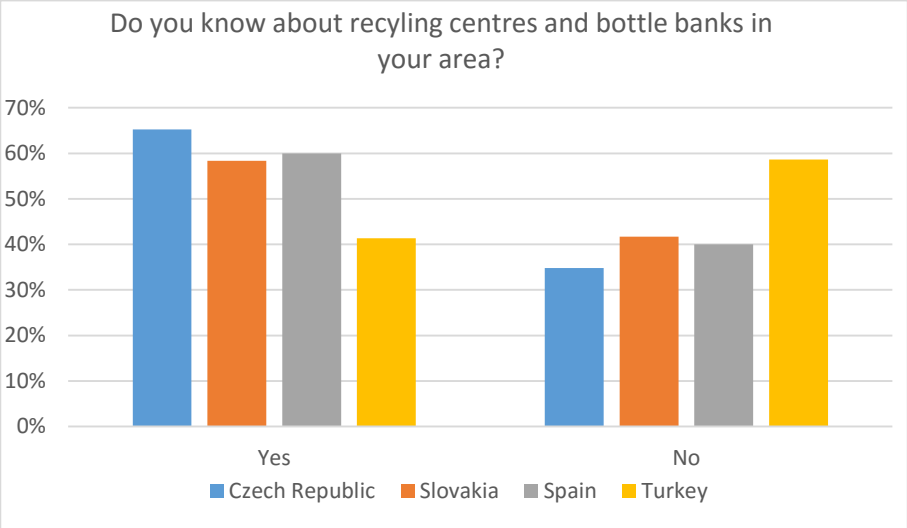
The results are presented on the following pages and graphs.

GENERAL ATTITUDE TO RECYCLING

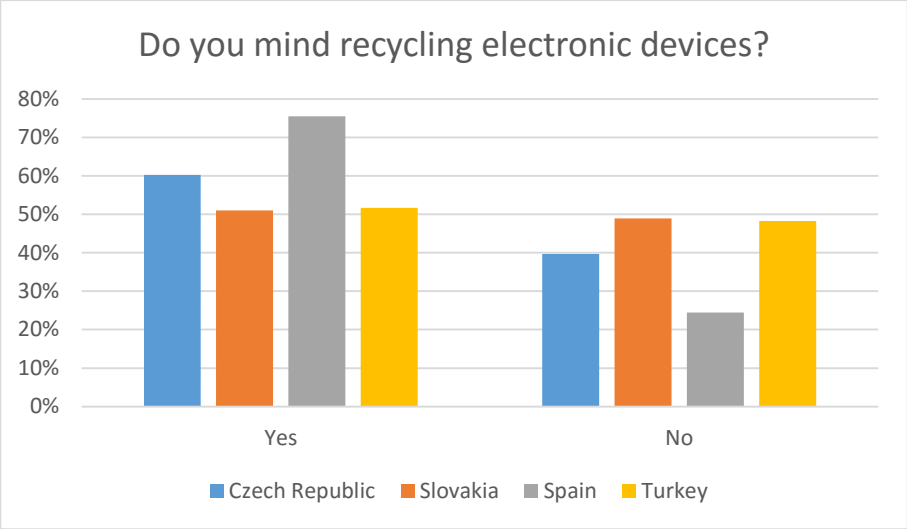
The first question asked concerned the very basic attitude towards recycling and the first graph shows promising results. Majority of our respondents feels recycling is important.

Still there is some work to be done with a small group of young people who do not care.





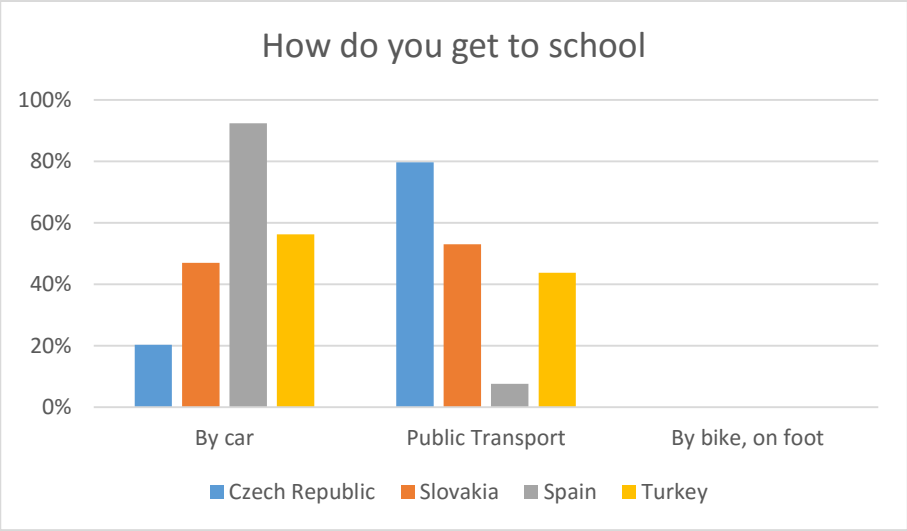
As seen from the second graph, a lot of young people in all partner schools know about recycling centres and bottle banks in their areas. On the other hand, there is a worrying number of them who do not know about them. In this case the THEIA project can help to learn the students about the topic more.



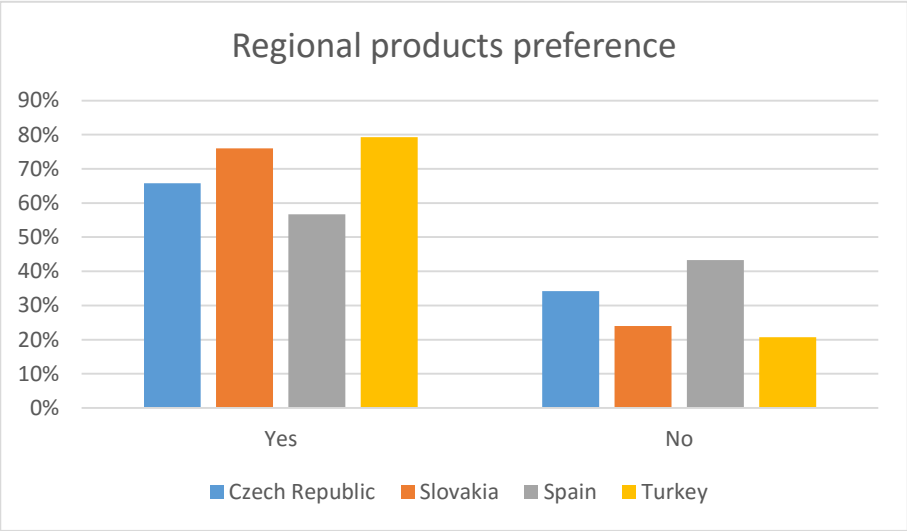
Recycling electronic devices is another area where the THEIA project can help. There is approximately the same number of students who mind and do not mind recycling these in Slovakia and Turkey. In the Czech Republic and Spain, the situation should be improved.

GETTING TO SCHOOL AND REGIONAL PRODUCTS PREFERENCE

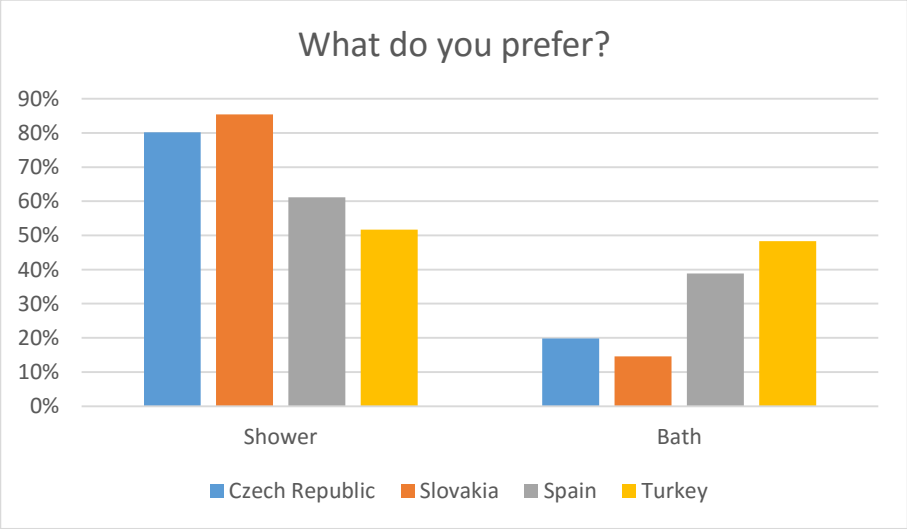
In this part we focused on the issues connected with transport and thus air pollution. When being asked about how they get to school, students choose among “by car”, “public transport” and “on foot or by bike”. Most students in the Czech Republic use public transport while most Spanish students go to school by car. This may be caused by a good public transport network in Zlin and maybe different situation of Spanish parents who take their children to school on their way to work. What is interesting is the fact that only Turkish students go to school on foot or by bike.

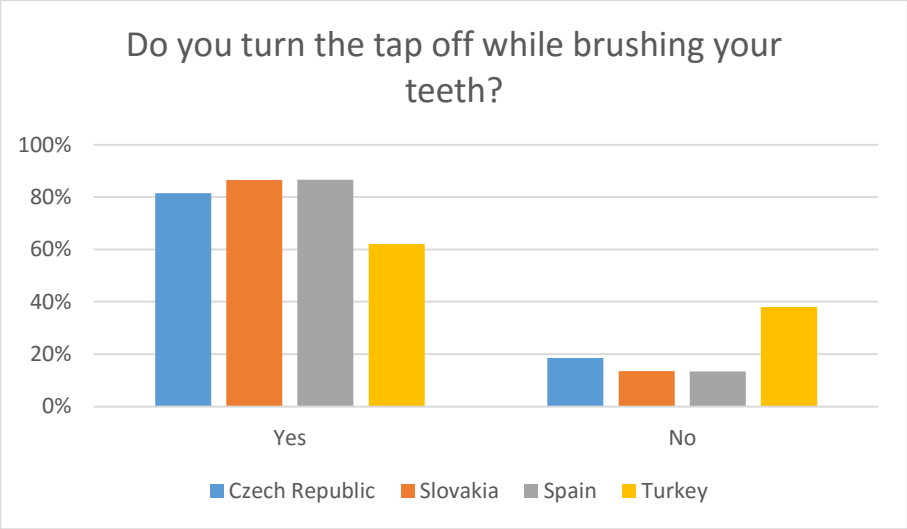


As for the local products preference, we can see that the best situation is found in Turkey, Slovakia and the Czech Republic. It may be thanks to traditions or modern trends that have appeared in the Czech Republic recently. On the other hand, Spanish students prefer products from further places which may be caused by the situation of their hometown on an island.



SAVING ENERGY AND WATER

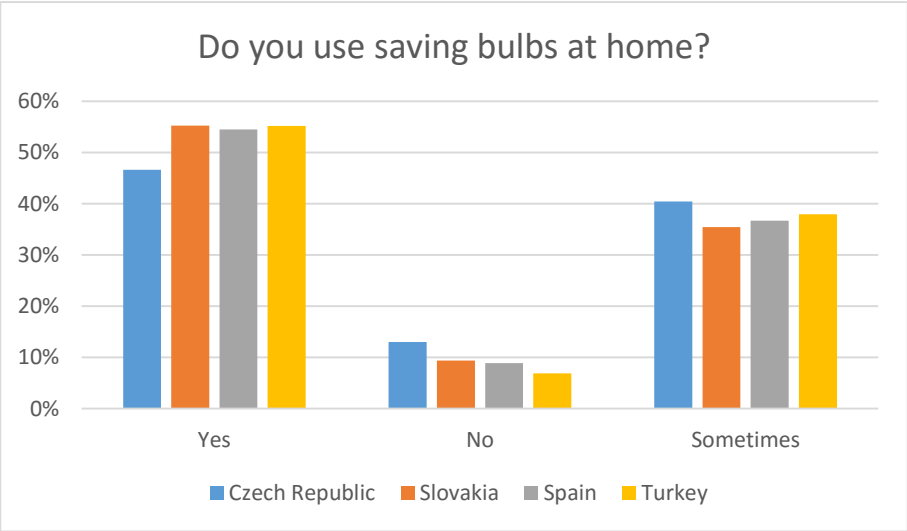


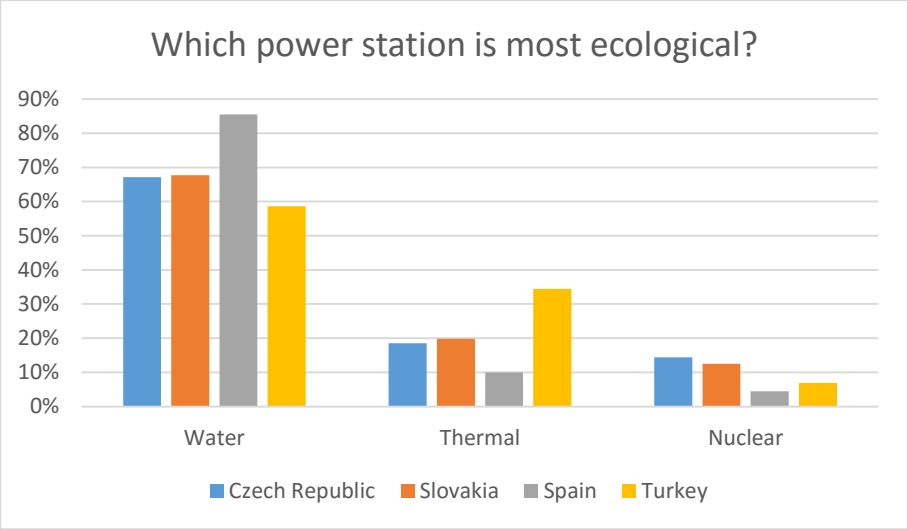


When discussing energy and water matters we can say that the students of all schools are aware of the importance of being responsible. Majority of them prefer taking a shower to having a bath and also they turn off the taps when brushing their teeth.

Household situation is clearly seen from the following graph showing data for "using saving bulbs at home". This may be because topics like these are solved and decided mainly by parents and not students themselves.

Concerning ecological energy students mostly voted for water power stations, thermal power station comes second and the nuclear one third.





PERSONAL MATTERS

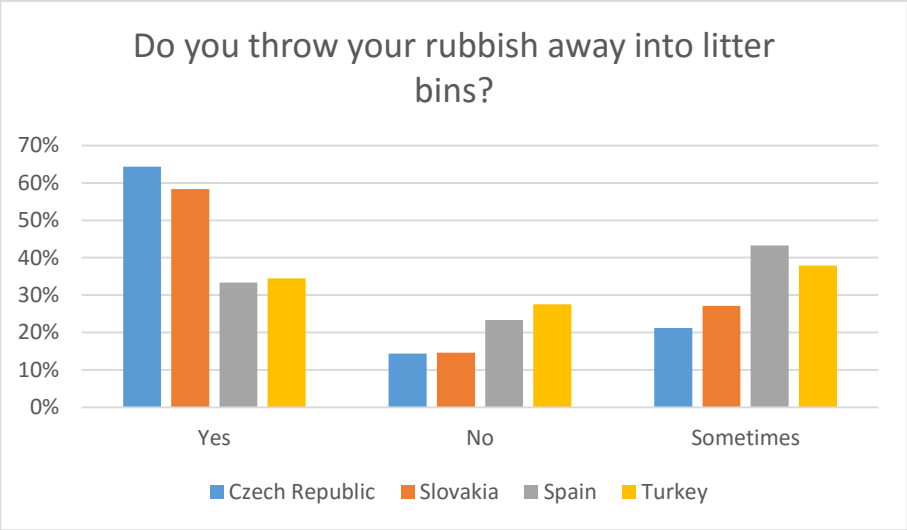
In this chapter students were asked mainly about their attitudes to their closest surroundings and towns.

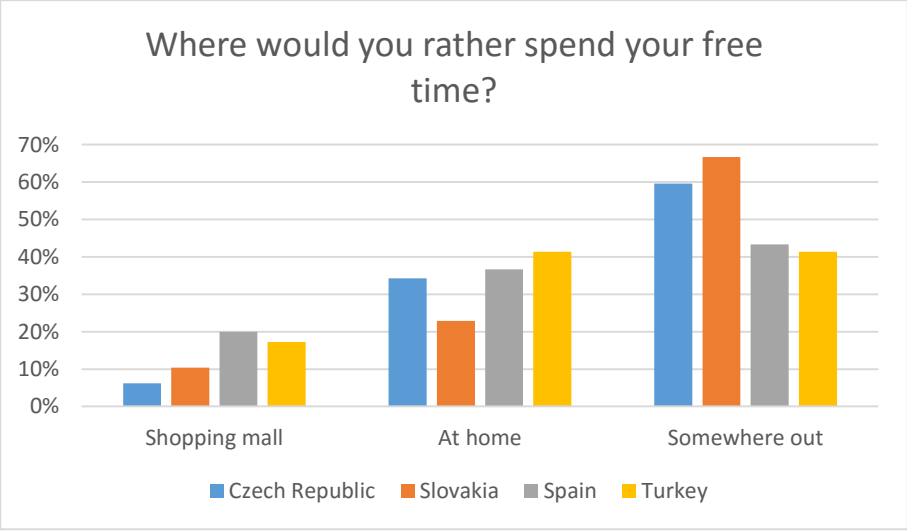
As seen from the first graph, our respondents are not really convinced about voluntary clean-ups of their neighbourhoods and towns. Although quite a lot of them could be convinced by somebody, maybe friends or schoolmates, to take part in such an activity, there is still a significant group that would not do this. And it is where the THEIA project activities could help.



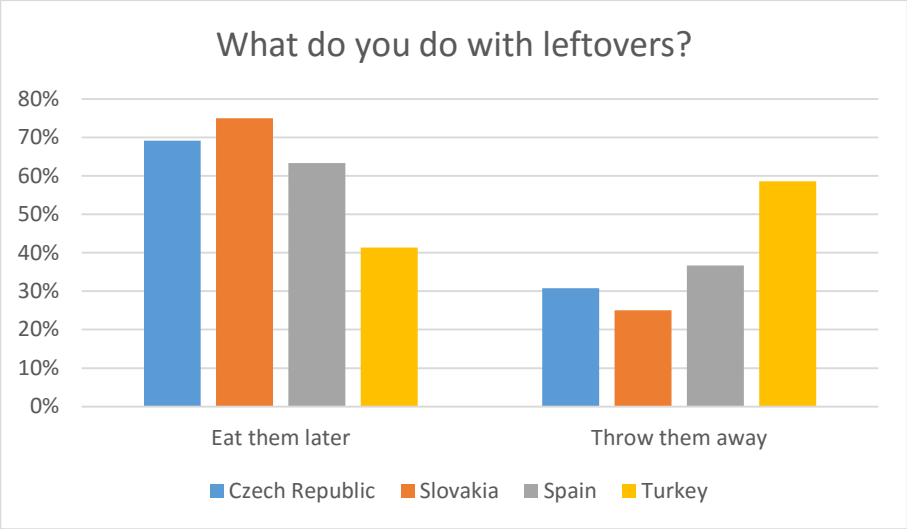
In the following field, throwing rubbish away, there is also some space for improvement as the group of students who throw their rubbish away sometimes seems to be larger than we would like to see. Hopefully, we will succeed in explaining the significance of small steps in improving our

environment. Mainly when quite a lot of students like to spend their free time somewhere out instead of staying at home. What is even more pleasing is the fact that not many young people like spending their free time in shopping malls.





Leftovers is another frequently discussed topic. Leftovers are mostly eaten later, however, the situation in Turkey could be improved.

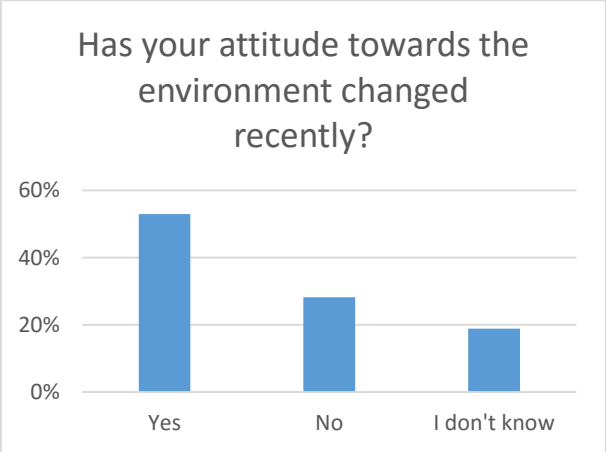

What do you do with leftovers?
80%
70%
60%
50%
40%
30%
20%
10%
0%
Eat them later
Throw them away
Czech Republic
Slovakia
Spain
Turkey

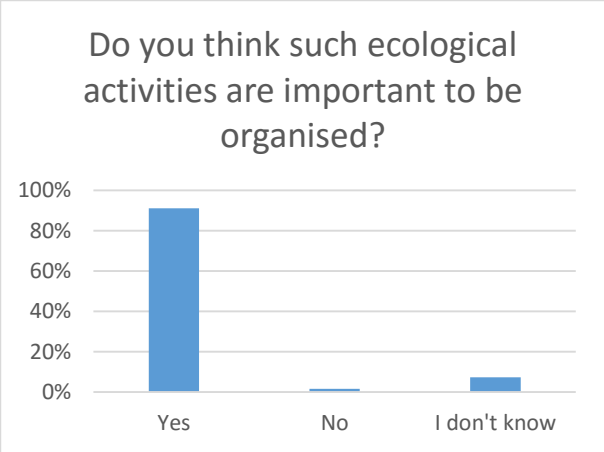
SURVEY OF ENVIRONMENTAL AWARENESS II

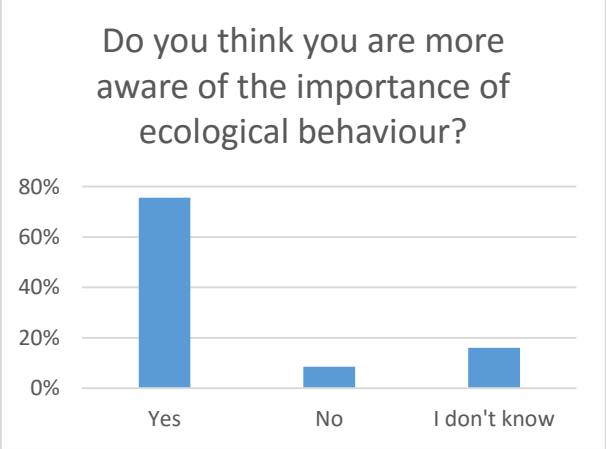
According the activities plan the other questionnaire focusing on ecological topics was prepared for the end of the THEIA ERASMUS+ project, all students from partner schools took part in it. The main aim of this questionnaire was to find out whether our students` awareness and ecological behaviour changed in relation with taking the part in the THEIA project activities.

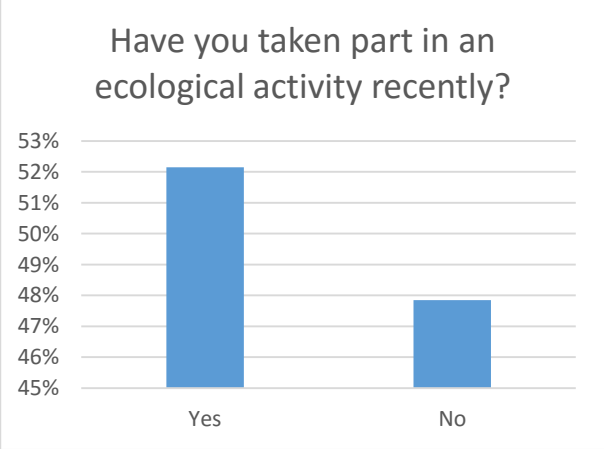
The questions in the questionnaire concerned ecological awareness and were focused mainly on new experience, changes in both behaviour and attitudes and on our students` willingness to take part in new ecological activities or get involved more. Students taking part in this questionnaire were those who had taken part in THEIA ERASMUS+ project activities.

Ecological behaviour and taking part in ecological activities



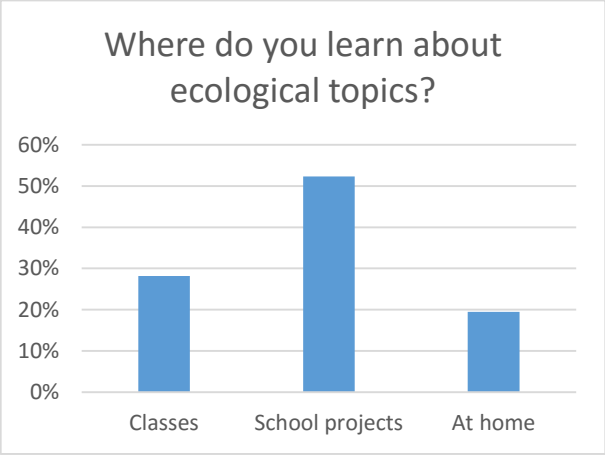


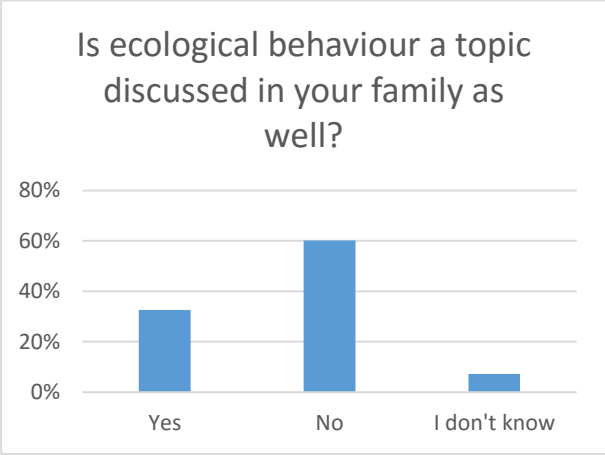




The first part of the questionnaire was aimed at general awareness of ecological behaviour after one and a half years of the THEIA ERASMUS+ project. The results show that more than 50 % of respondents changed their attitude towards the environment and almost 80 % of them are more aware of the importance of this topic and of the ecological behaviour. More than a half of those responding to our questionnaire had taken part in some ecological activity and 90 % of them think that such activities are important and should be organised. These results are promising and encouraging.

The area where there is still some space for changes and more work is the place where students learn about ecology and its topics and also if the topic of ecology is discussed within families. Only about 20% of students learn about ecological topics at home from their parents, the rest at school and mainly from ecologically focused projects (more than 50 % of responding students). Here the influence of the THEIA ERASMUS+ project is clearly visible. More than a half of the respondents also admitted that they do not speak about ecology with their parents, only about 30 % of the students taking part in the questionnaire do so. We reckon this situation is possible to change only by a long-term work with students and through them to influence their parents as well.

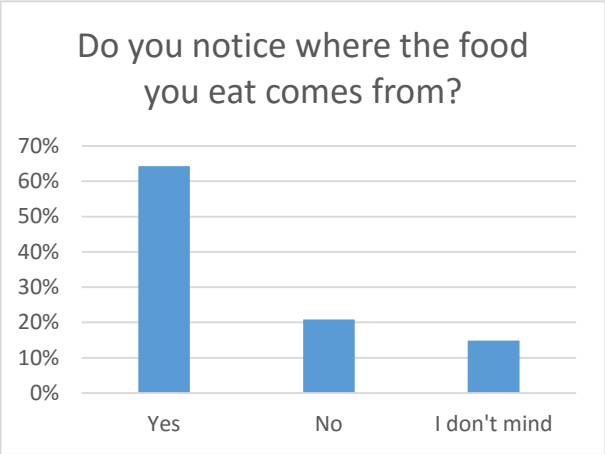


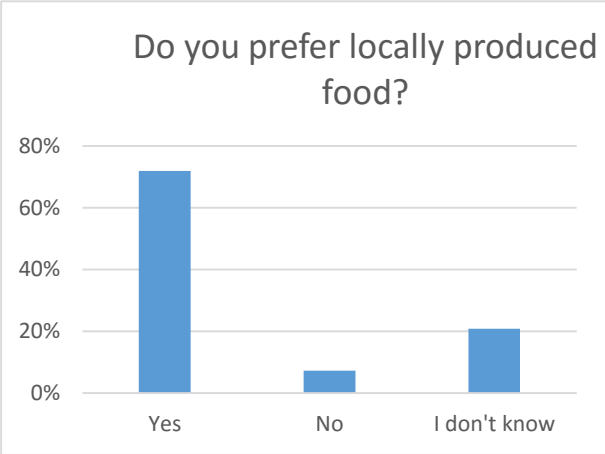


Food and its origin

Another part of the questionnaire was aimed at the food the students consume and in which type of shop they buy it. We also asked if they notice where the food they buy comes from and what distance it has to travel before it reaches their table. Other questions asked if the respondents

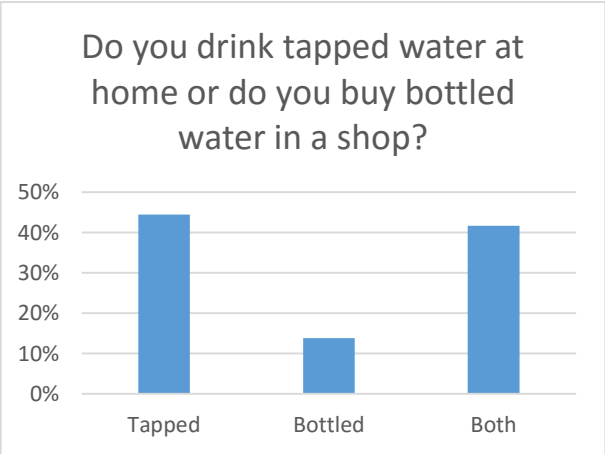
favour locally and regionally produced food and whether they use tapped or bottled water for drinking.





Obvious that all respondents are well aware of the origin of the food they eat and that they try to prefer locally or regionally produced food. 70 % of such students is a pleasing number. Concerning drinking water, approximately the same number of students use both tapped water and bottled water or only tapped water for drinking. They are about 43 % of them. Only about 15 % of our respondents use just bottled water.

The food consumed at households is bought mainly in supermarkets, more that 50 % respondents, about one fifth buys food in local shops and almost one third does not mind the place where they buy their food. In this case it has to be said, that buying food in supermarkets is not bad news as the supermarkets offer locally and regionally produced food much more nowadays which makes the local food more accessible and more visible to the public.

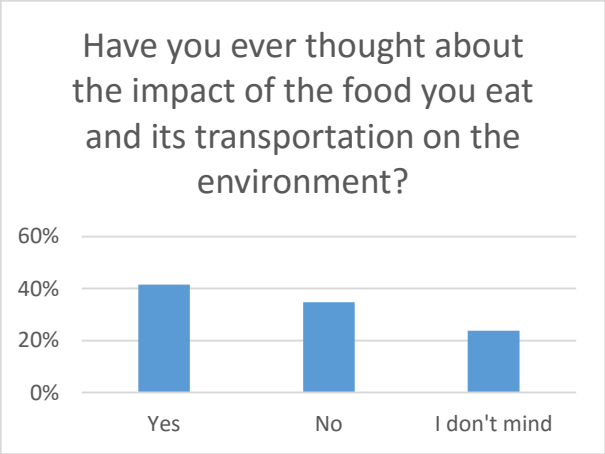


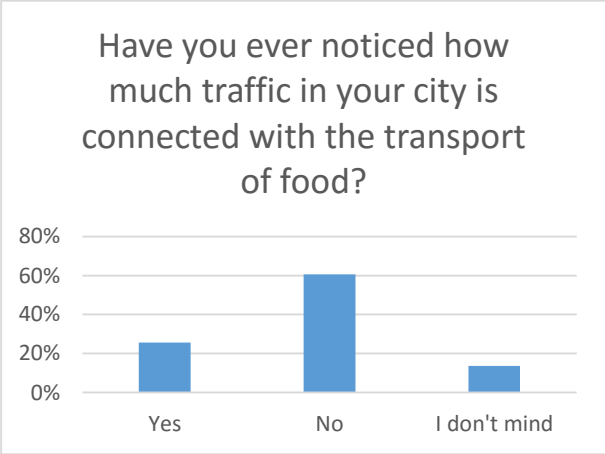


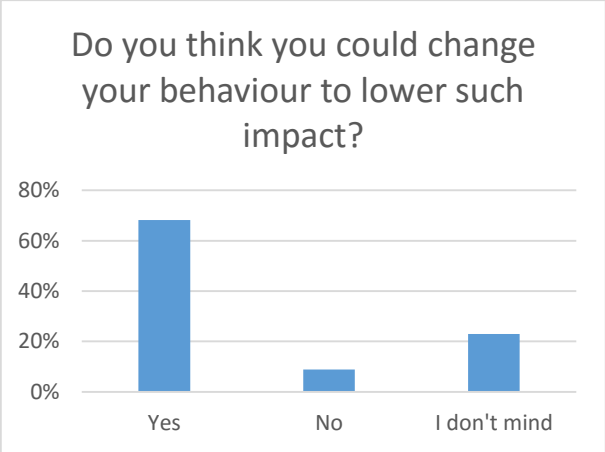
The impact of my diet on the environment

The last part of our questionnaire concerned the awareness of the impact of each individual and the diet they eat on the environment. We wanted to know if the students participating in some of the THEIA ERASMUS+ project activities, mainly in the "Food kilometres" part, started to notice the food`s place of origin and if they are aware enough of to what extent the transport of food from exotic countries influences the environment. Last but not least we wanted to find out whether the students are willing to change their behaviour on the basis of what they have learnt during the activities of the THEIA ERASMUS+ PROJECT.

Although the students often try to favour locally and regionally produced food, only about half of them have realized what influence the food transportation has on the environment and only about a quarter of them have noticed what is the share of the food transport in the traffic in their town. In this case the contribution of the traffic statistics activity was seminal. What is really very pleasing is the fact that almost 70 % of the responding students think that they can change their behaviour in the way they would lessen their impact on the environment by changing their diet and favouring locally produced food.







Conclusion

To conclude it can be stated that the THEIA ERASMUS+ project and the activities organised have had a great influence on the participating students. They started to perceive the importance of ecological behaviour, the importance of preferring locally produced food and the influence of such choice on the improvement of the traffic situation in their cities and on the environment as a whole. More than half of them would take part in another ecological project when being asked.

The only area where there is still quite a lot to improve is parents and their awareness of the importance of ecological behaviour. This is, unfortunately, something which needs much more time.

TRAFFIC SURVEY

Since traffic is closely connected with the topic of "Food kilometres" we decided to do a simple traffic survey in the town of Zlin. This survey will be used mainly to make our students think about the traffic in their hometown and about their own share.

The activity was divided into two parts, theoretical and practical. The theory was discussed at school during a whole class discussion and basic terminology such as transport modes, transport nodes, transport links, rush hours was revised at the same time. After that appropriate places to do the practical part of our survey were chosen and then class was divided into teams. All the participants were also informed about the safety rules during their work.

The regional city of Zlin is an extremely busy town when speaking about transport. It serves as a connection link between eastern Moravia and Slovakia and all main transport links lead through the city centre. They are the main roads to Vsetin and farther to Slovakia, roads to Uherske Hradiste, Luhacovice, Holesov. For this reason all the places chosen for our survey were chosen within the city centre and included transit roads through the city as well as the road from and to the Zlin`s largest housing estate of Jizni Svahy which represents one of the busiest road in the city.

Concerning the time period morning was chosen to include the morning rush hours and the quietest time around noon.

The materials studied before the survey we see that the backbone of the Drevnice River valley is created by the road I/49, which joins the road I/55 in Otrokovice and leads through Zlin to Vizovice and to the east towards the border with Slovakia. The traffic there is organised in four traffic lanes and in the centre of Zlin reaches about 24 thousand vehicles within 24 hours on average.

The results from the traffic survey conducted in the past show an increase in the rate of the traffic. Between the years 1990 to 2010. Taking the central square Namesti Práce as an example, there were 20 919 vehicles per 24 hours going through in 1990, in 2005 they were 32 067 vehicles/24 hours in Zlin / Prstne.

Almost 30 000 people uses public transport in Zlin every day. And how do they travel?

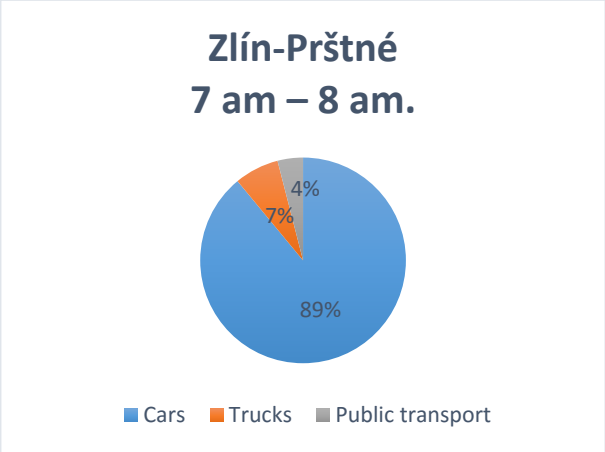
Majority of people travels along Tomas Bata Avenue. About 21 000 people travels between the stops of Zahradnicka and Poliklinika every day and almost 30 000 people via Namesti Práce. Similarly, about 16 000 people travel from or to the housing estate of Jizni Svahy every day.

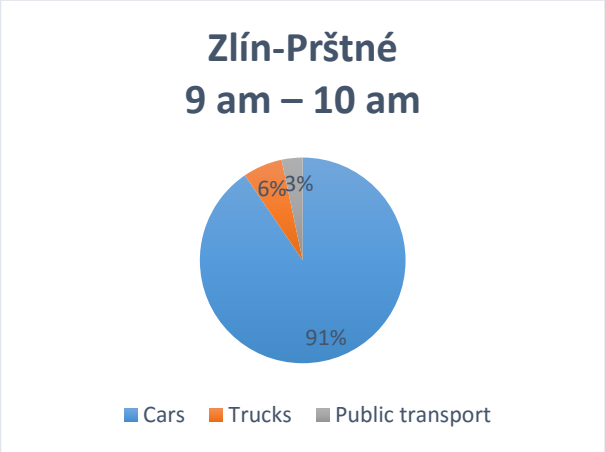
Places on the roads to Uherske Hradiste, in Zlin – Prstne towards Otrokovice and on the street leading to Jizni Svahy housing estate were chosen to be included in our small survey. Car, lorries and buses and trolley-buses were to be counted.

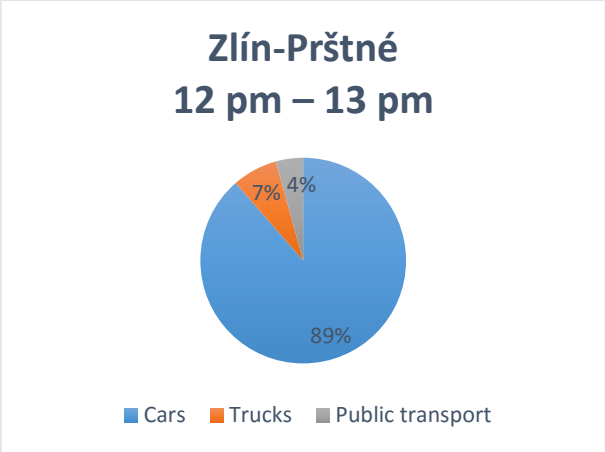
The results

Tomas Bata Avenue, stand Zlin-Prstne

2 622 vehicles passed through this stand from 7 am to 13 pm in the direction to Otrokovice. Majority of the vehicles was cars, they created about 90 % of the total. Lorries and vans created about 7% and buses and trolley-buses 4 %. Trains that transport people in the same direction as well were not included into the survey.



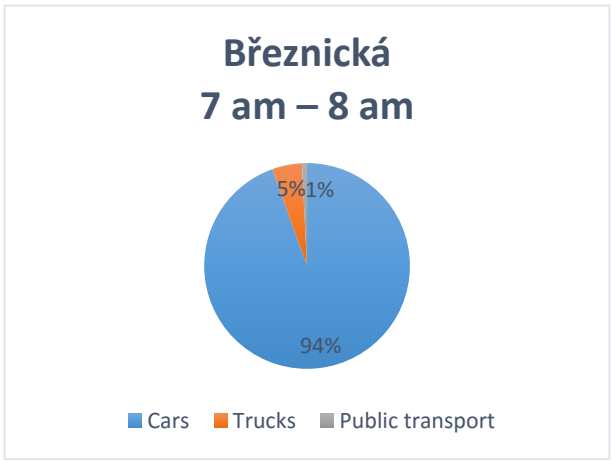


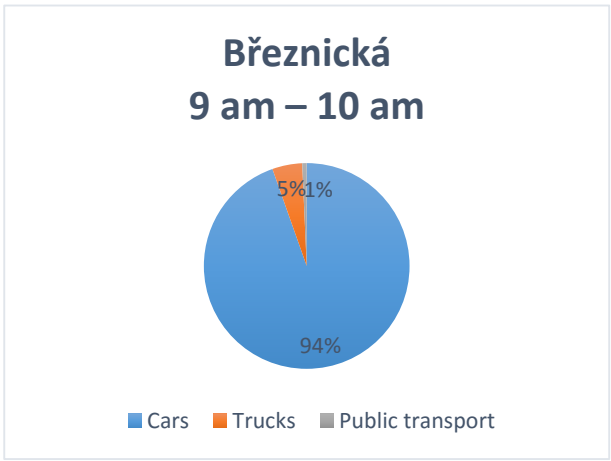


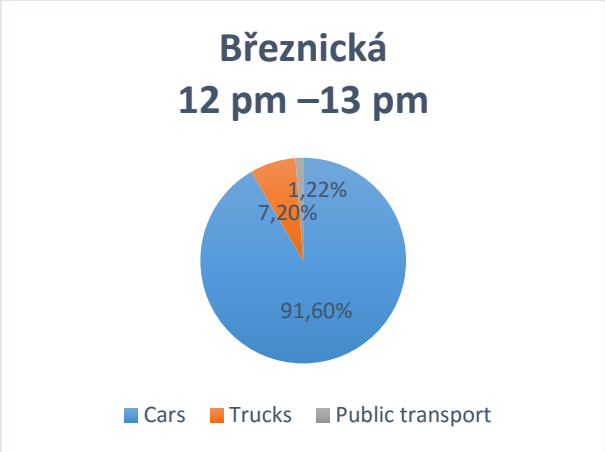
All the graphs show that the traffic at this place is huge and more or less stable and thus rush hours are not that clearly defined.

Breznicka Street stand, directions from and to Zlin

Breznicka Street is the main road from Zlin to Uherske Hradiste and farther to Hodonin and Breclav, which means towards the border with Slovakia or with Austria via Breclav. It also connects smaller villages in the surroundings with Zlin. Being the main road it is also extremely busy which can be seen in the figure of 4 799 vehicles during the measured time period in both directions



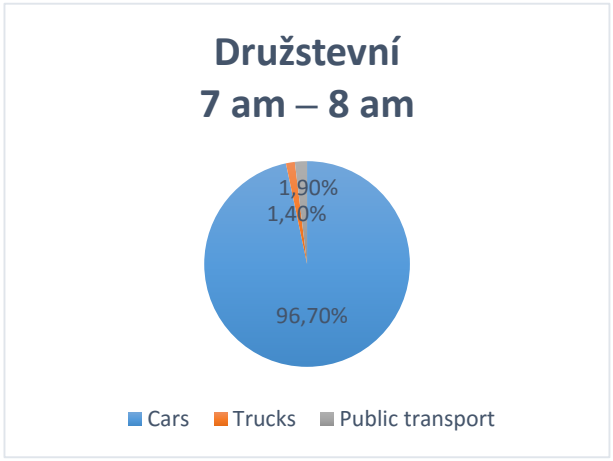


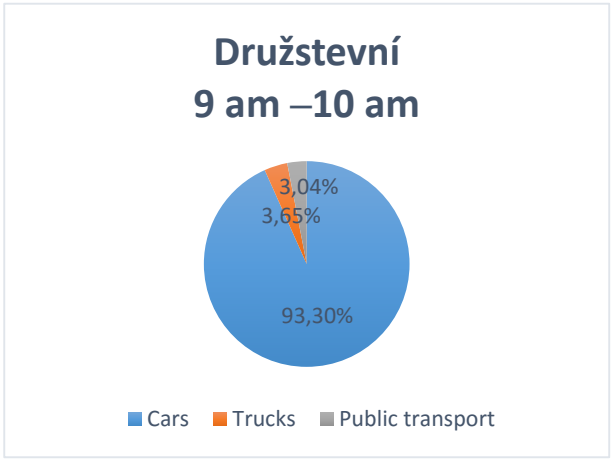


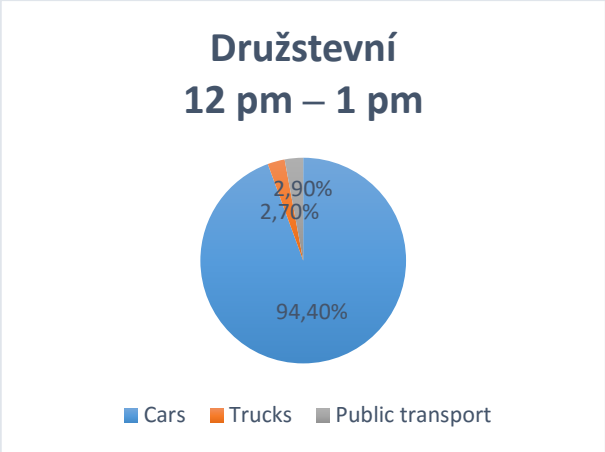
Much less public transport but many more cars are seen in Breznicka Street. This is due to the fact that this street does not lead to any big Zllin`s housing estate but to villages around from which people usually travel by their cars. Around noon there are more trucks, vans and lorries (from 4,7% to 7,2%) as there may be more transport to or from smaller firms in the surroundings and deliveries of different types to shops and shopping centres and it takes some time to load up the goods.

Druzstevni Street stand

Druzstevni Street is the only street to connect the housing estate of Jizni Svahy with the city centre and it is why the street is mainly used by cars and public transport with people commuting to and from work. Lorries are less frequent and come mainly to supply shopping centres and supermarkets or construction sites of newly built houses. This street was the busiest one in our survey as 6 757 vehicles passed along during the measured time period. Majority is created by cars, trucks create the smallest part of all.







To conclude the transport situation in the regional city of Zlin is not good in the long term and with the increasing number of cars and trucks it will not improve in the future. The most important problem is that the traffic is led through the city centre. As the city is situated in the river valley there are not many possibilities to choose some alternative routes. For these reasons a completely new by-pass built on the outskirts of the city.

FOOD KILOMETRES

The report of the results

The activity called “Food kilometres” was introduced during Geography in English lessons by the Czech partner and after that it was conducted by other students taking part in THEIA project. The activity was focused on the problem of globalisation and its influence on our lives and the importance of thinking about all possible consequences of each individual`s behaviour.

The activity included introductory explanation, three worksheets and additional questions that were meant to stress the importance of consuming local food as they made students think about what they eat and how the food they eat can influence the environment.

Students were asked to choose three meals – breakfast, Sunday lunch prepared at home, and a festive dinner prepared at home. For each of these meals, they were asked to write down a list of food their meal consisted of and find out where the food comes from. After doing so, students used the ERASMUS+ online distance calculator to calculate the amount of kilometres their meal had to “travel” to their table.

The final part of this activity was aimed at raising the students` awareness of possible impact of their diet on the environment by asking questions connected with the topic. The questions were following:

1. What means of transport is/are probably used to deliver the food from the country of production to our local shop or supermarket?
2. How do/does the means of transport used influence the environment? Do they pollute the air, water, soil?
3. Do I eat locally produced food or food coming from the other side of the world?
4. What can I do to reduce the “impact of my diet” on the environment of my region, country and the planet Earth?

The questions were and may be used for a class discussion about the problems of globalisation, transport, the environment, and the importance of using local products which can not only reduce transport but also support local farmers.

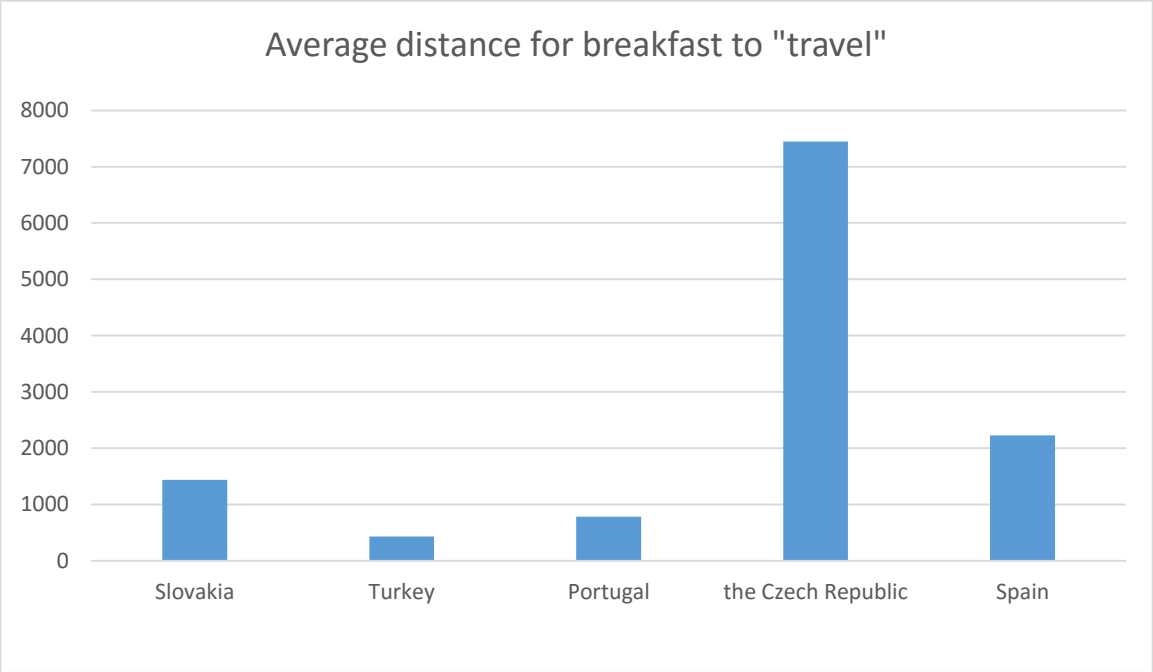
The results were worked out into graphs to illustrate and find out about the situation in different countries.

BREAKFAST

The most frequent food appearing on the table for breakfast for individual countries. For some of them the country of origin is added as well.

Country	Most frequent food	Most frequent country of origin
Slovakia	1. Yoghurt 2. Bread 3. Milk 4. Cheese 5. Ham 6. Eggs 7. Cereals 8. Butter 9. Fruit 10. Tea	
Turkey	1. Olives 2. Honey 3. Tomatoes 4. Apple 5. Cheese 6. Butter 7. Bread 8. Milk 9. Jam	1. Izmir, TR 2. Rize, TR 3. Çanakkale, TR 4. Amasya, TR 5. Ankara, TR 6. Trabzon, TR 7. Konya, TR 8. Bursa, TR
Portugal	1. Milk 2. Cereals 3. Bread 4. Fruit 5. Cookies 6. Butter 7. Toast 8. Cheese 9. Yogurt 10. Tea	1. Portugal 2. Local 3. Spain 4. Homemade 5. Germany 6. Switzerland 7. Africa 8. South America 9. USA 10. Brazil
Spain	1. Bread 2. Milk 3. Cheese 4. Ham 5. Eggs 6. Cereals 7. Fruits 8. Cookies and pastries	1. Tenerife 2. Spain 3. Spain 4. Spain 5. Tenerife 6. Spain 7. Spain 8. Spain

	9. Yogurt 10. Coffee 11. Juice	9. Tenerife 10. Spain 11. Spain
the Czech Republic	1. Cereals 2. Milk 3. Bread 4. Fruit 5. Yoghurt 6. Cheese 7. Butter 8. Jam 9. Eggs 10. Roll	1. Czech Republic 2. Zlín Region (CZ) 3. Germany 4. Poland 5. Spain 6. Italy 7. USA 8. Sri Lanka



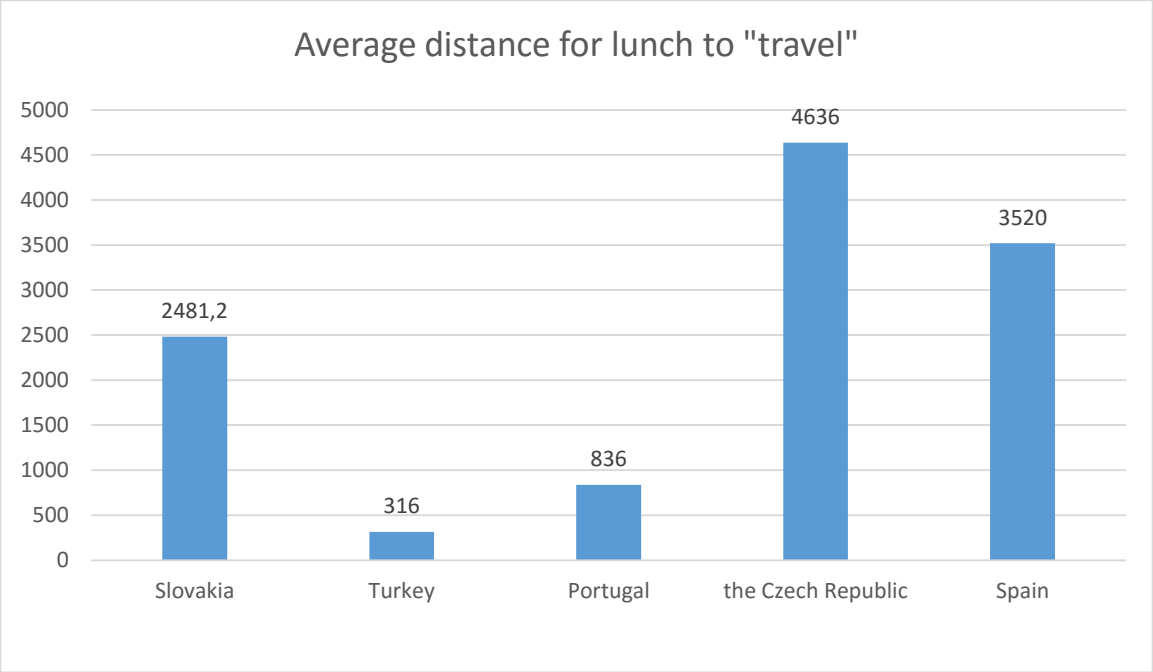
As shown in the graph above, the longest distance that the food eaten for breakfast has to cover is in the Czech Republic and the shortest in Turkey. In Turkey mainly local, regional or national products are used. This can be also said about Spain although the distance is much longer. This is caused by the fact that our Spanish partner school is located on the Canary Islands that belong to Spain and the mainland, from where some of the food comes, is far away.

LUNCH

Again the most frequent food used to prepare a Sunday lunch at home and the country of origin is first shown in the tables. Then there is a graph comparing the average distances travelled in individual countries.

Country	Most frequent food	Most frequent country of origin
Slovakia	1. Chicken 2. Vegetables 3. Rice 4. Potatoes 5. Pasta 6. Tomatoes 7. Meat 8. Cheese 9. Water 10. Pancake	
Turkey	1. Ayran 2. Noodle soup 3. Haricot bean 4. Pasta 5. Pickle 6. Fish 7. Lentil soup 8. Meatball 9. Baklava 10. Rice 11. Chickpea	1. Boğazköy, TR 2. Ankara, TR 3. Bursa, TR 4. Balikesir, TR 5. Samsun, TR 6. Gaziantep, TR 7. Çorum, TR 8. Afyon, TR
Portugal	1. Rice 2. Meat 3. Fish 4. Pasta 5. Potatoes 6. Eggs 7. Water 8. Soup 9. Juice 10. Chicken	1. Portugal 2. Local 3. Homemade 4. China 5. Spain 6. Norway 7. Italy 8. Brazil 9. USA 10. Germany
Spain	1. Potatoes 2. Pasta 3. Rice 4. Chicken 5. Vegetables 6. Pork 7. Fish 8. Beef 9. Bread 10. Sodas	1. France 2. Spain 3. Spain 4. Brazil 5. Tenerife 6. Spain 7. Tenerife 8. Spain 9. Tenerife 10. Spain
the Czech Republic	1. Chicken 2. Potatoes 3. Tomato 4. Rice 5. Cucumber 6. Carrot 7. Onion	1. Czech Republic 2. Germany 3. Poland 4. Italy 5. Spain 6. Hungary 7. Thailand

	8. Spices 9. Pepper 10. Cheese	8. China 9. Netherlands 10. Norway



As seen above Turkey comes first in the consumption of local, regional and national products. On the other hand in the Czech Republic mainly food from other and often far away countries is used.

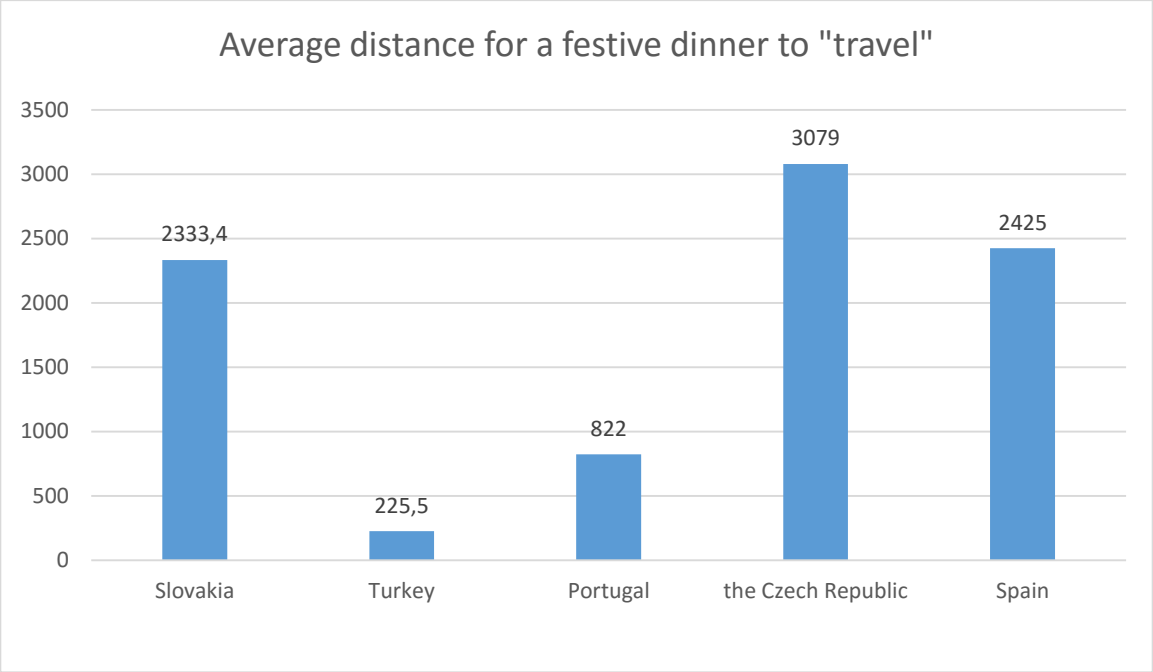
FESTIVE DINNER

As festive dinner a Christmas or other important festival dinner was mainly chosen by the students. In the tables most frequent food and the country of its origin appears first and the average distance is then shown in the graph.

Country	Most frequent food	Most frequent country of origin
Slovakia	1. Fish 2. Potatoes 3. Cabbage 4. Apples 5. Honey 6. Wafers 7. Mushrooms 8. Garlic 9. Chicken 10. Vegetables	

Turkey	1. Chicken 2. Yoghurt 3. Rice 4. Semolina dessert 5. Tea 6. Potatoes 7. Cola 8. Meat 9. Lamb 10. Turkey 11. Manti	1. Bolu, TR 2. Suluova, TR 3. Çorum, TR 4. Konya, TR 5. Rize, TR 6. Niğde, TR 7. Istambul, TR 8. Kayseri, TR
Portugal	1. Potatoes 2. Codfish 3. Cabbages 4. Rice 5. Eggs 6. Octopus 7. Fish 8. Soup 9. Turkey 10. Juice	1. Portugal 2. Norway 3. Homemade 4. Local 5. China 6. Spain 7. Italy 8. Germany 9. USA 10. France
Spain	1. Pork 2. Potatoes 3. Fish 4. Seafood 5. Beef 6. Rice 7. Bread 8. Pastries 9. Soda 10. Wine	1. Spain 2. France 3. Tenerife 4. Spain 5. Spain 6. Spain 7. Tenerife 8. Spain 9. Spain 10. Tenerife
the Czech Republic	1. Potatoes 2. Carp 3. Carrot 4. Mushrooms 5. Mayo 6. Peas 7. Vegetable 8. Fish 9. Salmon 10. Eggs	1. Czech Republic 2. Zlín Region (CZ) 3. Norway 4. Italy 5. Homemade 6. France 7. Poland 8. Germany 9. Austria 10. Spain

As for a festive dinner, the situation appears to be very similar. The shortest distance travelled is in Turkey and the longest one in the Czech Republic



Concerning answers to our final questions, students seem to be really aware of the problem with food transportation and its impact on the environment. They are also aware of the consequences of this activity.

As for the food students mostly eat, the most frequent answer was they eat, or at least try to eat, mainly locally produced food or food coming from their own or neighbouring countries. Some students also use the food grown on their own or their grandparents` gardens.

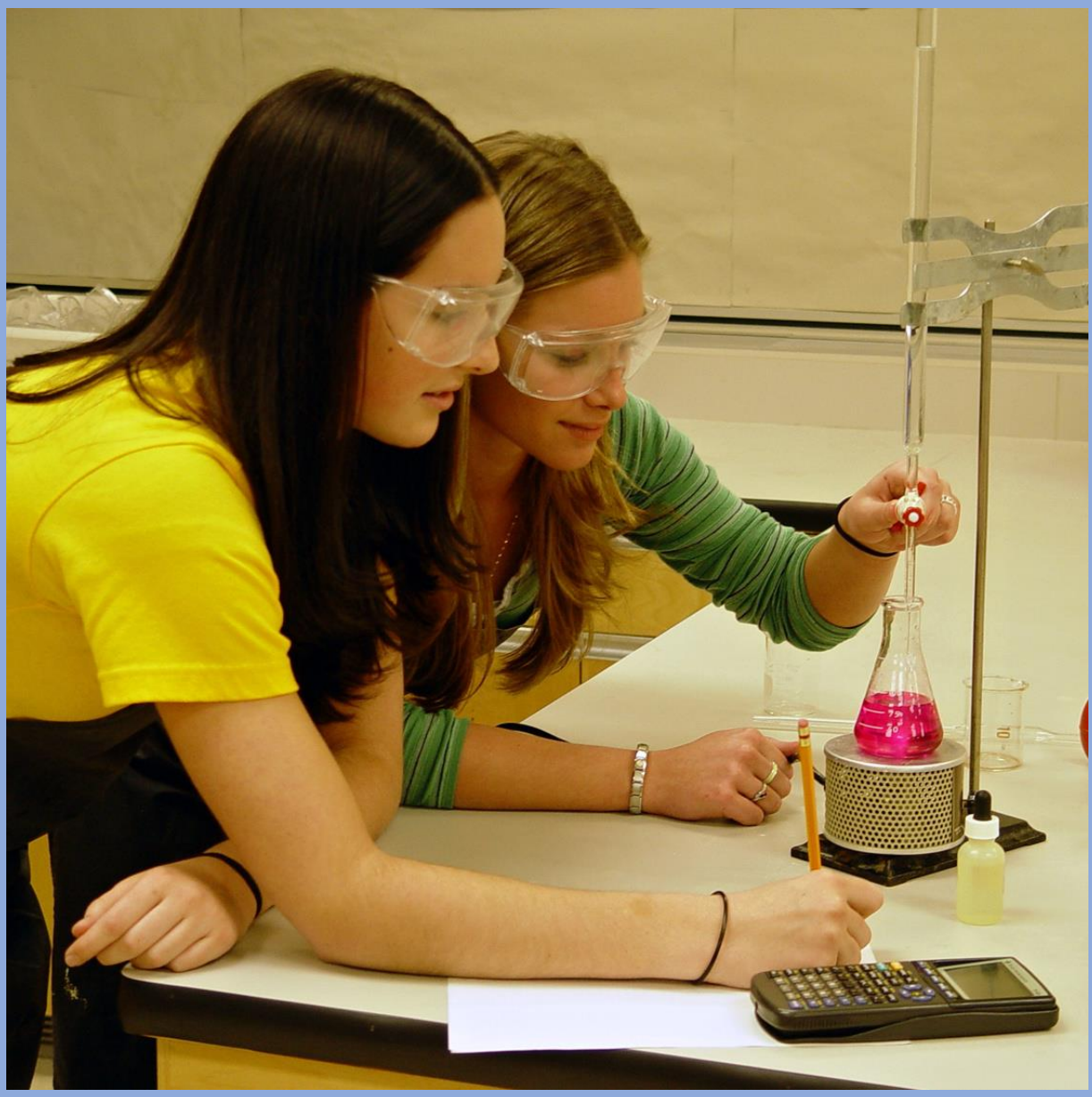
On the other hand students often confess that they like exotic food as well, mainly fruit. Some students stated that they feel food from their country is not of high quality and that food from other countries tastes better. Apart from exotic fruit, there are also other products from far away countries our students like or eat quite often. They are rice, fish, meat, tea, or chocolate. Students know that not all the food can be produced in the country of their origin.

The response to the final question was almost one hundred percent trying to prefer locally produced food, trying to prefer food of bio quality to lower the use of chemicals in agriculture, or even trying to grow their own fruit and vegetables in their garden.

Comparing the average distances for each meal in the graphs and answers of the students, we can see that these do not correspond fully. While students claim to prefer locally produced food, the average distance shows long distances the food comes from. There may be several reasons. At

first, it may be due to our students` parents` preferences and decisions as they are the ones who decide about shopping. Another reason is definitely the popularity of exotic fruit such as bananas, oranges, mangoes and others among all young people. As for Spain, the longer distance for food to travel is caused by the location of the country. Last but not least, a festive dinner was chosen as one of the examined meals. And in almost all families all around the world people prefer something special, something they do not eat every day.

To conclude, we have found out that our students are aware of the problems and possible consequences of preferring food imported from long distances and try to prefer locally or at least regionally produced food. There also have been students who confessed that they became aware of the huge distances their food has to "travel" just after completing the worksheets. And this is good news. On the other hand, there is always something to be improved and the willingness of our students to improve their habits when choosing what to eat is promising.



ACTIVITIES

OUR REGION

Activity name	Our region – basic differentiation of local or imported food
Subject	Man and the Environment, Man and Society
Topic	Types of food and its origin
Target group	2nd year primary

Introductory information

The aim of this activity is to give pupils the basic overview of origin of different types of food and introduce the food produced locally or the exotic one.

The work itself is preceded by introducing the map of the country of the pupils` origin as well as the map of the world and by revision of all possible fruit and vegetables pupils know.

This introduction and revision are carried out in the form of the whole class discussion, for the tasks themselves the class is divided into smaller groups.

Tasks

The tasks are divided into two different areas. The first one concerns the food of the Czech origin the other one the food imported from abroad.

THE CZECH REPUBLIC

1. Whereabouts in the region a dairy can be found?
2. What is produced in a dairy?
3. Give an example of at least one producer of dairy products in our country.
4. Do you know any farm in our region? If yes, give us its name. If not, try to find some for our next lesson.
5. Name at least 5 kinds of regional fruit and vegetables. Where can we buy them?

6. Circle or underline the food grown in our country: an apple, a pineapple, a mango, cabbage, a gooseberry, a kaki.

IMPORT FROM ABROAD, EXOTIC FOOD

1. What is the colour of a ripe rambutan? What does it look like? Find out where it is grown and how it is used.
2. From which European country oranges are imported?
3. In which country kiwi originates?
4. What plant/crop is this?
   It has got a hard shell and it is hollow. It contains liquid that can be drank after the shell is opened. It grows mainly in the tropics.
5. Name at least 5 different plants/crops that are imported into the Czech Republic from abroad.

Outputs

Pupils should prepare a notice board with drawings or photographs of different fruit and vegetables, samples of products packaging all divided into two groups according to the place of origin – the Czech Republic, foreign countries and placed in the school corridor.

HEALTHY SNACK

Activity name	Healthy snack
Subject	Man and the Environment, Man and Society, Geography, Mathematics
Topic	Healthy diet, food transport
Target group	5th year, Primary school

Introductory information

The aim of this activity is to teach pupils to think not only about what they eat but also about the place the food for their meals comes from and in what way the transport of food can influence the environment. After finishing this activity, pupils should be aware of the influence they can have on the global environment by the type of food they eat and they should be able to find similar food in their region.

The aim is to make pupils think about if their snack is healthy not only for them but also for our planet.

Tasks

1. Divide pupils into groups.
2. Each group prepare a draft snack and a list of food they will need. They bring the food they need for their snack to school.
3. At school pupils prepare their snack together and find out where the food they use for their snack comes from.
4. Pupils find and locate countries of origin of their food on the map and try to find out the distance from their home country (revision or practicing of measuring scale).
5. Pupils try to count the oil consumption to transport the food into their town.
6. For the food imported from long distances, pupils try to find the same or similar food that is produced in their surroundings or region, which would mean lower fuel consumption and less polluted environment.

Outputs

A notice board is created with the map of the world, the country and region accompanied by samples of food packaging or their drawings showing the food`s place of origin. The „healthy“ ones coloured in green and the „unhealthy“ ones coloured in red viewed from the point of polluting the environment by transport as well.

The best place display the work is the school corridor so that everybody is informed.

FOOD KILOMETRES

Activity name	Food kilometres
Subject	Geography
Topic	The Environment, Transport, Globalization
Target group	8th and 9th years primary; 1st year secondary

Introductory information

The aim of this activity is to deepen the pupils` awareness of the footprints we can leave on the environment by the choice of food we eat. And also to teach them to think about what they eat not only from the point of view of healthy diet but also from the point of view of the environment which is being polluted by transporting the food from different parts of the world. A side aim, which is also very important, is to strengthen the pupils` knowledge of regional products that are always the better choice from the point of view of the environment.

Tasks

1. The task for homework and class discussion: "In what way can my diet influence the pollution of the atmosphere?"
2. Pupils work individually, the task is the same for all – choose three different meals, e.g.: breakfast, a Sunday lunch, festive (Christmas) diner.
3. Breakfast – during a week write down all food you eat, then choose 6 items you eat most often and write them into the worksheet.
4. Find out where each item of food comes from.
5. Using the following distance calculator http://ec.europa.eu/programmes/erasmus-plus/tools/distance_en.htm count how many kilometres each item in your breakfast has to travel to your table. Count how many kilometres your breakfast has to travel and write the result into your worksheet.
6. Do this similarly for your Sunday lunch and festive dinner.

a. Which food are they prepared from?

b. Where the food comes from?

c. How far did they have to travel?

7. Answer the following questions:

a. Which type of transport was used to transport the food from your list into your shop?

b. How does each type of transport pollute/influence the environment (air, water, soil)?

c. Do I eat more local or regional food or the one that comes from far away?

d. What can I do to lower the influence of the food I eat on the environment?

Outputs

The activity is concluded by a class/group discussion and pupils` findings comparison. Pupils discuss their influence on the environment and learn about locally produced food, about local producers. They also discuss the possible changes pupils would be able or willing to make to lower their influence on the environment. This discussion follows the topics of Ecosystems, the Environment, Transport and enrich them by a personal point of view

Worksheet

The worksheet for this activity is found on the page 33 of this brochure.

RESEARCH ON THE LOCAL/REGIONAL FOOD OFFER IN SHOPS

Activity name	Research on the local or regional food offer in shops
Subject	Geography, Social Science, Man and Society, Arts
Topic	The Environment, Transport, Globalization, Our Region, Marketing and Advertisement
Target group	8th and 9th year primary; 1st and 2nd year secondary

Introductory information

The aim of this activity is to compare the width of local products offer in shops and to compare the share of global, foreign, national and regional food products on the offer in different shops. Another aim is to make pupils be aware of the extent of the global food trade and of the volume of transport linked to this trade as well as the pupils's own share on these activities.

Tasks

1. As it is necessary to go to different shops, pupils divide themselves into groups and decide which part of their city they will inspect.
2. Pupils decide which shops they are going to visit. If it is possible, pupils will include different types of shops – smaller local shops, supermarkets, hypermarkets.
3. Which concrete products will be examined is decided together. They should be products used in households daily, e. g.:
4. The following food is chosen to be included:
    a. Bottled water
    b. Milk
    c. Bread or something similar
    d. Eggs
    e. Cheese

f. Apples

g. Ham, salami or something similar

5. In each shop pupils find out (always for 5 items in each category) the place of production and write dawn the place or the country of origin and the distance from the place of where it is sold in kilometres (the data is written down in the worksheet)

6. Pupils work together to process the data into an overview.

Outputs

Pupils prepare an overview of the local food offer in the shops in their town and assess the situation. While working in groups, pupils try to suggest possible improvements to the situation and try to find similar products of local or regional production, which could replace the imported ones. They also find regional and local food producers and in their art lessons pupils create an advertisement on some local product.

Worksheet

The worksheet for this activity is found on the page 35 of this brochure.

RESEARCH ON TRANSPORT

Activity name	Research on Transport
Subject	Geography, Mathematics
Topic	Transport, Statistics, the Environment
Target group	9th year primary; 1st and 2nd year secondary

Introductory information

The aim of this activity is to map transport rate in the town they live. At the same time pupils try to create the transport statistics in some chosen areas. During the work we also want pupils to be aware of the extent of the transport as well as the share of goods or food transport. One adult for each group of pupil sis required while working on this activity.

Tasks

1. Pupils are divided into groups of 4 or 5 and determine places in the town they are going to work on.
2. For each of these places they make a list of reasons why they have chosen just this place to observe, e. g.: main route of the town, the route from the biggest housing estate, transit route, …
3. In the class discussion pupils determine the times when they will look at the traffic at the chosen places. Try to include the morning and evening rush hours as well as quite time periods so that pupils can compare them. I fit is possible, pupils chose two different days in a week to get more data.
4. Pupils set clearly which means of transport and which direction each pupil is going to count, e. g.: cars, vans, lorries, or trucks to or from the town.
5. Before the research itself pupils must be instructed in safety rules.
6. Pupils work further on the collected data in their Maths lessons, learn how to interpret them and suggest possible improvements of negative features. They write “A Report on the

Transport in Our Town" together. In the final discussion pupils asses their work and possible influence of transport of food on the overall situation.

Outputs

A clearly organised report on the traffic situation in the town mentioning the share of different means of transport in different places.

Worksheet

The worksheet for this activity is found on the page 37 of this brochure.

WATER (WATER CONSUMPTION, WATER CONTENT IN FRUIT AND VEGETABLES, WATER QUALITY DETERMINATION)

Activity name	Water – its consumption in households, content of water in fruit and vegetables, water quality and its determination
Subject	Chemistry, Chemistry Labs, Mathematics
Topic	Water
Target group	7th, 8th, 9th year primary; 1st and 2nd year secondary

Introductory information

The aim is to draw pupils attention to the importance of water as an essential natural resource. The observation of behaviour within a family enables pupils to find out the water consumption, laboratory experiments are used to determine the content of water in different kinds of fruit and vegetables. The experiments in a laboratory help to find out the quality of tapped water in our homes or bottled water on the offer in shops.

Tasks

1. Pupils work in groups at first as they carry out sample graphs analyses and discuss them. Getting and processing the data is done individually. The final discussion, results and findings as well as conclusion presentations are planned for the whole class.

Task 1 (6th – 9th years primary): household water consumption

An average household in Prague consumed about 106 litres of water a day in 2014. According some other sources, the average water consumption per one Czech citizen is about 140 litres (see the graph).



Flushing the toilet ..... 46 l
Having a shower ..... 44 l
Washing ..... 17 l
Watering the garden..... 11 l
Washing the dishes..... 9 l
Other hygiene ..... 9 l
Washing a car..... 3 l
Drinking and cooking ..... 3 l
Further consumption ..... 8 l

1. Find out your family water consumption.
2. Which type of water you use in your family can be substituted by rainwater?
3. Find out how much your family pays for an average water consumption per one month.

The price we pay for water includes water rates and sewer rates. Water rates mean the price for water we use and its distribution (supply). Sewer rates include the payments for draining the used water away and cleaning it. The average price for 1m3 of water was about 81 Czech crowns in 2015.

Task 2 (6th – 9th years primary): Water in fruit and vegetables

The ration of water in any fruit is varies and can reach up to 90% and more (the highest portion of water is found in peaches, apricots and similar types). On the other hand, nuts contain the smallest portion of water, only about 5 – 10%. The portion of water in fruits gets smaller when being stored for some time.

1. Name 5 different types of fruit or vegetables which you eat most often and find the portion of water they contain.
2. Work out their weight in case they lose all the water they contain.

Task 3 (secondary school): Drinking tapped water

Clean water is the best to be used for drinking.

1. Find out the quality of water (how hard it is) which is used in your household.
2. Explain the following terms:
    a. temporarily hard water
    b. permanently hard water
3. Name the compounds that make water temporarily or permanently hard.
4. Explain why the distilled water is not convenient for drinking.

Task 4 (secondary school): Bottled water

1. What bottled or mineral water do you buy most often? Give its composition according to its package.
2. Explain why it is not convenient to drink mineral water daily and why it is important to change the type of mineral water we drink.
3. Find out where the bottled water is imported from to your town, give the distance in kilometres and calculate the consumption of fuel needed to transport the water into the shops. Try to estimate the influence of this transport on the environment of your town.

Outputs

All the activities are noted down in the notebook for each subject, where there is the task, the process of working the task out and the conclusion made in the final discussion.

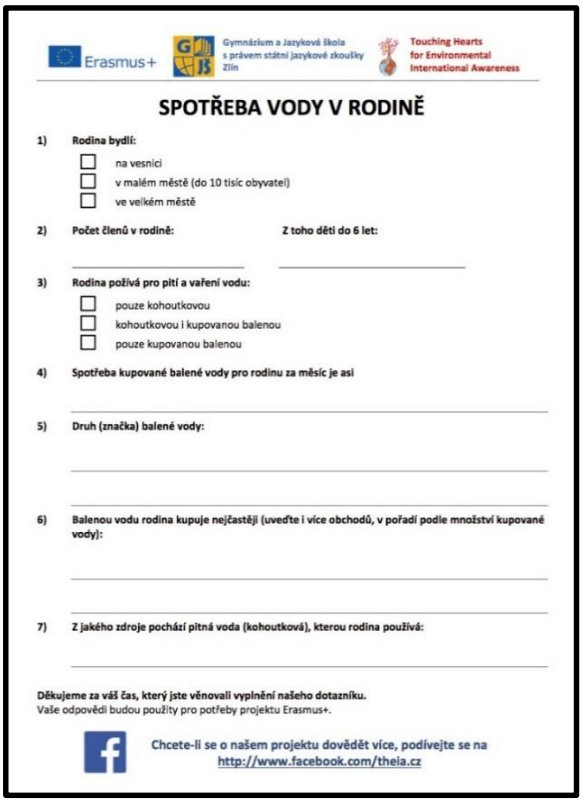
FAMILY WATER CONSUMPTION – WORKING OUT THE STATISTICS

Activity name	Family water consumption – working out the statistics
Subject	Mathematics
Topic	Statistics
Target group	4th year secondary

Introductory information

The aim of this activity is to find out the consumption of water in a family, mainly what type of water is drank more often either bottled water ort he tapped one.

The information obtained during this activity may be used in the Food kilometres activity or for the tasks regarding water quality.



Erasmus+ Gymnázium a Jazyková škola s právem státní jazykové zkoušky Zlín Touching Hearts for Environmental International Awareness

SPOTŘEBA VODY V RODINĚ

1) **Rodina bydlí:**
- ☐ na vesnici
- ☐ v malém městě (do 10 tisíc obyvatel)
- ☐ ve velkém městě

2) **Počet členů v rodině:** _____ **Z toho dětí do 6 let:** _____

3) **Rodina požívá pro pití a vaření vodu:**
- ☐ pouze kohoutkovou
- ☐ kohoutkovou i kupovanou balenou
- ☐ pouze kupovanou balenou

4) **Spotřeba kupované balené vody pro rodinu za měsíc je asi** _____

5) **Druh (značka) balené vody:** _____

6) **Balenou vodu rodina kupuje nejčastěji (uveďte i více obchodů, v pořadí podle množství kupované vody):** _____

7) **Z jakého zdroje pochází pitná voda (kohoutková), kterou rodina používá:** _____

Děkujeme za váš čas, který jste věnovali vyplnění našeho dotazníku.
Vaše odpovědi budou použity pro potřeby projektu Erasmus+.

Chcete-li se o našem projektu dovědět více, podívejte se na http://www.facebook.com/theia.cz

Questionnaire

Before we start, it is necessary to create a suitable questionnaire. For our purposes the questionnaire shown in the picture bellow was created.

Basic terminology

Statistical file – a file of persons, things, phenomena, and events collected during some statistical research (in our case it is a file of questionnaires).

Statistical units – individual components of a statistical file (individual questionnaires).

Statistical population – the number of statistical units (the number of questionnaires handed in).

Statistical variable – the value we want to find out or measure (in our case – one question in the questionnaire).

Statistical variables can be further divide into quantitative and qualitative ones.

Quantitative variable is a variable for which the answer can be expressed by a numerical symbol. The example of a quantitative variable in our questionnaire is e. g. the number of family members or the water consumption.

Qualitative variable is a variable for which the answer comes in the form of words or description. In the case of our questionnaire, they are the questions about where the family lives, or about the brand of the bottled water.

Frequency distribution and its graphical representation

The absolute value of the value of the statistical characteristic x expresses the number of occurrences of a given value of a statistical characteristic within a statistical file S. The absolute frequency is often depicted in the form of a table and it can simply be said that we state how often the given answer appeared in our research.

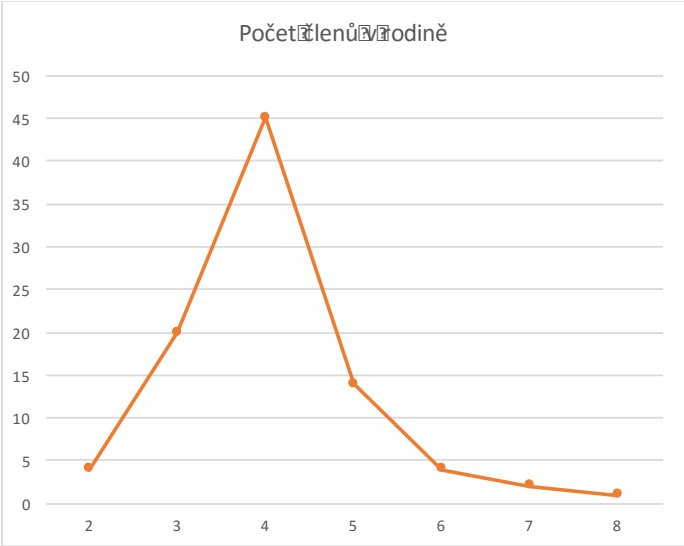
The relative frequency expresses the ration of the absolute value to the extent of a statistical file. It is often expressed in percent.

The example of what a **frequency distribution table** may look like:

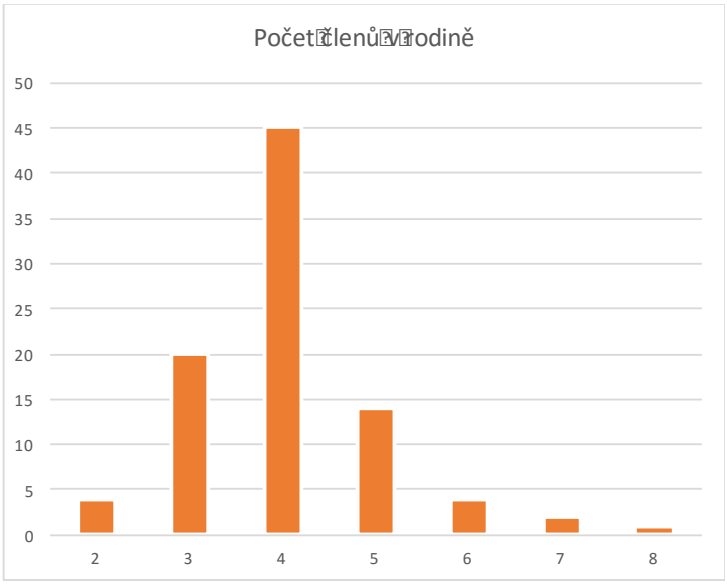
The number of family members	2	3	4	5	6	7	8
Frequency	4	20	45	14	4	2	1
Relative frequency	$\frac{2}{45}$	$\frac{2}{45}$	$\frac{1}{2}$	$\frac{7}{45}$	$\frac{2}{45}$	$\frac{1}{45}$	$\frac{1}{90}$

The extent of the statistical file: 90

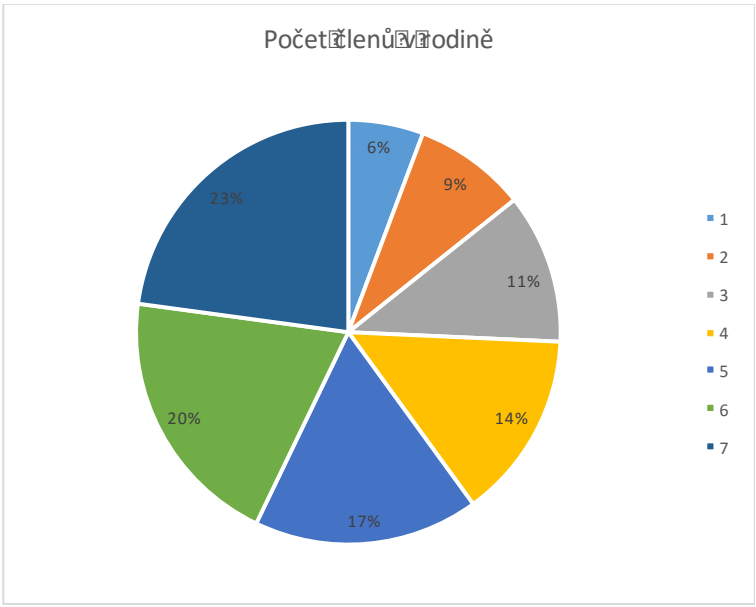
Polygon of frequencies (connecting line diagram) – we get the diagram by drawing individual points with the first coordinate of the value of the statistical characteristic and the other coordinate of frequency. The individual points are then connected by a line.



Histogram of frequencies (bar chart) – the individual columns of the bar chart express the values (or intervals of values) and the heights of the columns express frequencies.



Pie chart – a circle is divided into sectors of circle where the central angles of these sectors are equal to the given values.



Attributes of a position

Attributes of a position are the numbers determining the position of a symbol on a numerical axis. They help us determine which value was the most frequent one or an average value.

The attributes of position are:

1. arithmetic mean (average),

2. mode,
3. median.

Geometric and harmonic means are also included into the attributes but they will not be used for our questionnaire. That is why they will not be described in the following text.

Examples of individual attributes will be calculated from the following table of frequencies for the number of members of a family:

Number of family members	2	3	4	5	6	7	8
Frequency	4	20	45	14	4	2	1

The extent of the statistic file: 90

Arithmetic mean

The arithmetic mean is calculated as a ratio of the sum of values to the number of values. A disadvantage can be if extremely large or small values occur in a statistical attribute/symbol.

If the statistical symbol/attribute is determined by individual values, the arithmetic mean is calculated as per the following formula:

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i = \frac{x_1 + x_2 + \cdots + x_n}{n}$$

where n is the extent of a statistical file and x_i is the value of a statistical symbol/attribute.

If the statistical symbol/attribute is determined by a table of frequencies, the following formula will be used:

$$\bar{x} = \frac{1}{n}\sum_{j=1}^{k} x_j^* \cdot n_j = \frac{x_1^* \cdot n_1 + x_2^* \cdot n_2 + \cdots x_k^* \cdot n_k}{n_1 + n_2 + \cdots + n_k}$$

where n is the extent of a statistical file, x_k^* is a value and n_k is its frequency.

For our table of the number of a family members, the calculation will be as follows:

$$\bar{x} = \frac{4 \cdot 2 + 20 \cdot 3 + 45 \cdot 4 + 14 \cdot 5 + 4 \cdot 6 + 2 \cdot 7 + 1 \cdot 8}{4 + 20 + 45 + 14 + 4 + 2 + 1} = \frac{364}{90} = 4{,}04 \doteq 4$$

Mode

Mode is the value with the highest frequency. If more such values occur among the frequencies. all of them are marked as a mode.

In our case, the mode is 4 (it means 4 members of a family). We write:

$$mod(x) = 4$$

Median

Median is a value that occurs exactly in the middle of all the aligned values of a statistical symbol/attribute. This value enables to characterize a statistical symbol/attribute better as it is not vulnerable to the occurrence of extremely big or extremely small values as the arithmetic mean is.

Determining the median for an odd number of elements:

$$med(x) = x_{\frac{n+1}{2}}$$

Determining the median for an even number of elements:

$$med(x) = \frac{1}{2}\left(x_{\frac{n}{2}} + x_{\frac{n}{2}+1}\right)$$

There is an even number of elements in the above mentioned table and the situation will be as follows:

$$med(x) = \frac{1}{2}\left(x_{\frac{90}{2}} + x_{\frac{90}{2}+1}\right) = \frac{1}{2}(x_{45} + x_{46}) = \frac{1}{2}(4+4) = 4$$

Based on the calculation we know that we need 45th and 46th elements of the statistical file. From the table we find out that the first four elements (1st - 4th) have the value 2, the other 20 (5th – 24th) have the value 3, the other 45 (25th – 69th) have the value 4, and so on.

By doing this we have determined that the 45th element has the value 4 and the 46th element as well. The arithmetic mean of these two values is 4.

Attributes of variability

The attributes of variability determine how much individual values range around the attribute of position. In other words we can say how different they are from the mean value.

The attributes of variability are:

1. variance of the population
2. standard deviation of the population
3. coefficient of variation.

Variance of the population

Variance of the population is defined as a mean of squares of deviations from the arithmetic mean. Dispersion is calculated as per the following formula:

$$s_x^2 = \frac{1}{n}\sum_{i=1}^{n}(x_i - \bar{x})^2$$

In case we have already set a table of frequencies, we use the following formula:

$$s_x^2 = \frac{1}{n}\sum_{j=1}^{k} n_j\left(x_j^* - \bar{x}\right)^2$$

The example of calculation for the table with the number of members in a family:

$$s_x^2 = \frac{4(2-4)^2 + 20(3-4)^2 + 45(4-4)^2 + 14(5-4)^2 + 4(6-4)^2 + 2(7-4)^2 + 1(8-4)^2}{90}$$
$$= \frac{4\cdot 4 + 20\cdot 1 + 45\cdot 0 + 14\cdot 1 + 4\cdot 4 + 2\cdot 9 + 1\cdot 16}{90} = \frac{16 + 20 + 14 + 16 + 18 + 16}{90}$$
$$= \frac{100}{90} = 1{,}11$$

Standard deviation of the population

Standard deviation of the population is calculated as a square of variance of the population. When being used in e.g. physics, it is of the same unit of measurement as the measured quantity and the arithmetic mean.

The calculation is as follows:

$$s_x = \sqrt{s_x^2} = \sqrt{\frac{1}{n}\sum_{i=1}^{n}(x_i - \bar{x})^2}$$

For the table of frequencies:

$$s_x = \sqrt{s_x^2} = \sqrt{\frac{1}{n}\sum_{j=1}^{k} n_j \left(x_j^* - \bar{x}\right)^2}$$

An example of the calculation for the table with the number of members of a family:

$$s_x = \sqrt{1{,}11} = 1{,}05$$

Coefficient of variation

Coefficient of variation is a ratio of determinative variation to arithmetic mean. It is expresses in percent.

$$v_x = \frac{s_x}{\bar{x}} \cdot 100\%$$

The example of calculation for the table with the number of family members:

$$v_x = \frac{1{,}05}{4} \cdot 100\% = 26{,}25\ \%$$

Methods of operation with quantitative symbols

It is not possible to determine the attributes of position and variability. These symbols are usually expressed by a table of frequencies and a suitable graph.

A question with an open answer (in the case of our questionnaire it is e. g. „The brand of bottled water“) we determine the most frequent answers and calculate for them only. The other answers are included into ”other” category.

Tasks

1. Print the questionnaire for pupils.
2. Have a look at the images in the questionnaire and decide which of them relate to quantitative and which to qualitative characteristics.
3. Carry out the survey in your class.

4. Assess the results:
    a. Process the answers from the questionnaires
    b. Create a table of frequencies and suitable graphs for each characteristic.
    c. Work out attributes of position and variability for the quantitative characteristics.
5. Convey conclusions of the survey.

Outputs

All the activities are noted down in the notebook for each subject, where there is the task, the process of working the task out and the conclusion made in the final discussion.

If the data is stored electronically (for IT lessons), the outcome may be prepared electronically (MS Excel or MS Word).

Worksheet

The worksheet for this activity is found on the page 39 of this brochure



WORKSHEETS

FOOD KILOMETRES

BREAKFAST



Choose 6 most frequent food you eat for breakfast, find out in which country the food is produced and using the distance calculator count the kilometres your food has to travel before getting to your table.

WHAT	PRODUCED IN	KM TO MY TABLE

TOTAL KILOMETRES FOR YOUR ORDINARY BREAKFAST

LUNCH



Take one lunch you have had with your family on Sunday, find out in which country the food used for making the lunch was produced and using the distance calculator count the kilometres your food has to travel before getting to your table.

WHAT	PRODUCED IN	KM TO MY TABLE

TOTAL KILOMETRES FOR YOUR SUNDAY LUNCH

DINNER



Think about your festive Christmas dinner you have with your family on Christmas Eve, find out in which country the food used for preparing the dinner was produced and using the distance calculator count the kilometres your food has to travel before getting to your table.

WHAT	PRODUCED IN	KM TO MY TABLE
TOTAL KILOMETRES FOR YOUR FESTIVE CHRISTMAS DINNER		

SHOPS SURVEY

THE SURVEY ON LOCAL PRODUCTS ON OFFER IN SHOPS

Food:

- ☐ Bottled water
- ☐ Milk
- ☐ Bread or similar product
- ☐ Eggs
- ☐ Cheese
- ☐ Apples
- ☐ Ham, sausages or other similar product

The name of the shop: **The name of the shop (address):**

The size of the shop:

- ☐ Smaller shop (up to 400 m^2)
- ☐ Supermarket (400–2500 m^2)
- ☐ Hypermarket (nad 2500 m^2)

Food on offer:

	The name of the food	Producer (name, country, city)	The price for 1 item (litre, kg, …)	Type	The number of kilometres into the shop
1				☐ Regional product ☐ Produced in the country ☐ Imported from abroad	
2				☐ Regional product ☐ Produced in the country ☐ Imported from abroad	
3				☐ Regional product ☐ Produced in the country ☐ Imported from abroad	
4				☐ Regional product ☐ Produced in the country ☐ Imported from abroad	
5				☐ Regional product ☐ Produced in the country ☐ Imported from abroad	
6				☐ Regional product ☐ Produced in the country ☐ Imported from abroad	
7				☐ Regional product ☐ Produced in the country ☐ Imported from abroad	
8				☐ Regional product ☐ Produced in the country ☐ Imported from abroad	

TRAFFIC STATISTICS

Working group: _____

Date: _____ **Place:** _____

CARS

Time	7:00 – 8:00	8:00 – 9:00	9:00 – 10:00	10:00 – 11:00	11:00 – 12:00	12:00 – 13:00
Number						

TRUCKS AND LORRIES

Time	7:00 – 8:00	8:00 – 9:00	9:00 – 10:00	10:00 – 11:00	11:00 – 12:00	12:00 – 13:00
Number						

PUBLIC TRANSPORT

Time	7:00 – 8:00	8:00 – 9:00	9:00 – 10:00	10:00 – 11:00	11:00 – 12:00	12:00 – 13:00
Number						

FAMILY WATER CONSUMPTION

1) The family lives:

- ☐ In a village
- ☐ In a small town (up to 10.000 inhabitants)
- ☐ In a large city

2) The number of members in a family: _____ **Children up to 6:** _____

3) Water used for drinking and cooking in a family:

- ☐ Only taped water
- ☐ Both tapped and bottled water
- ☐ Only bottled water

4) The family consumption of bottled water per month is approximately

_____

5) The brand of bottled water used:

_____

_____

6) The bottled water is mainly bought in (list all shops ordered according to the amount of water bought in them):

_____

_____

7) What is the source of the tapped water the family uses:

_____

This project has been funded with support from the European Commission. This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.