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GREEN PLANET

WORKBOOK

KÉK·BOLYGÓ
ALAPÍTVÁNY

Alapértékek
Nonprofit Kft.

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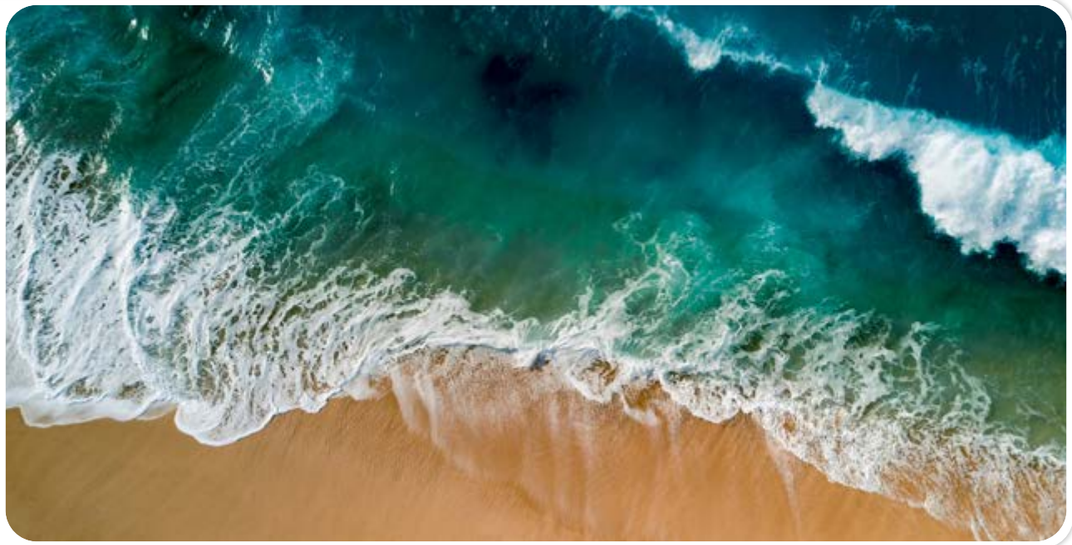
PREFACE

This workbook accompanies the Green Planet textbook. The exercises are designed to help you understand the material. You can figure the activities out on your own, but you can also work in pairs or small groups. The really exciting thing would be for you to try, apply and expand what you have learned outside school.

We hope this work will give you many happy hours!

The authors



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Sustainable development?

1. What do the Sustainable Development Goals (SDGs) mean for us here and now?
In this part you can read about the Sustainable Development Goals (SDGs) adopted by the United Nations (UN) in 2015.

Read them, and think about what they mean to you.

a) According to your experience and information, is there a situation or problem in the place you live, in the region where your school is located, or even in the country that needs to be addressed in the area identified by one of the goals?

b) Which is the goal that you think you can contribute to?

Write these down in the table after the goals, and check back after the last lesson to see if your opinion has changed during your studies.

SUSTAINABLE DEVELOPMENT GOALS (SDGs)

- End poverty in all its forms everywhere.
- End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
- Ensure healthy lives and promote well-being for all at all ages.
- Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
- Achieve gender equality and empower all women and girls.
- Ensure availability and sustainable management of water and sanitation for all.
- Ensure access to affordable, reliable, sustainable and modern energy for all.
- Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
- Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation.
- Reduce inequality within and among countries.
- Make cities and human settlements inclusive, safe, resilient and sustainable.
- Ensure sustainable consumption and production patterns.
- Take urgent action to combat climate change and its impacts.
- Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
- Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.
- Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.
- Strengthen the means of implementation and revitalise the Global Partnership for Sustainable Development.

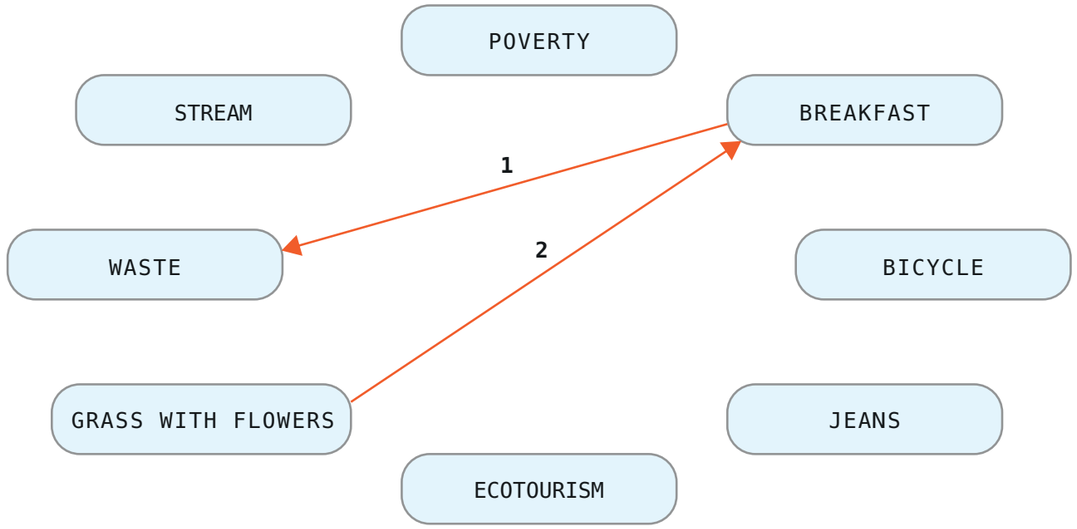
2. Try to write something for as many goals as possible, but it is fine if you can't fill in the entire table.

Sustainable development goal	What tasks do I see in my environment?	What can I do to achieve this goal?
1 NO POVERTY		
2 ZERO HUNGER		
3 GOOD HEALTH AND WELL-BEING		
4 QUALITY EDUCATION		
5 GENDER EQUALITY		
6 CLEAN WATER AND SANITATION		
7 AFFORDABLE AND CLEAN ENERGY		

Sustainable development goal	What tasks do I see in my environment?	What can I do to achieve this goal?
8 DECENT WORK AND ECONOMIC GROWTH		
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE		
10 REDUCED INEQUALITIES		
11 SUSTAINABLE CITIES AND COMMUNITIES		
12 RESPONSIBLE CONSUMPTION AND PRODUCTION		
13 CLIMATE ACTION		
14 LIFE BELOW WATER		
15 LIFE ON LAND		
16 PEACE, JUSTICE AND STRONG INSTITUTIONS		
17 PARTNERSHIPS FOR THE GOALS		

3. Web of connections

a) From the following two diagrams, choose the one you find most interesting at first glance.
b) Find as many connections as possible between the concepts you see on it. Connect with an arrow the ones that have an effect on each other, and write the nature of the relationship on the arrow, as shown in the example.
c) If you have time, check out the other diagram too. What kind of connections do you see there?
d) Return to the diagram during the school year and indicate in a different colour where you have changed your opinion or discovered additional links.



I can buy most things for breakfast at the market, which creates less waste.

Bees collected the honey for my breakfast on a flowery meadow.

CLIMATE CHANGE

WATER QUALITY

WELL-BEING

CIRCULAR ECONOMY

CLIMATE CHANGE

BIODIVERSITY

CONSCIOUS SHOPPING

FAIR TRADE

- *Fair trade contributes to the income of producers, and thus to well-being too.*
- *Our well-being depends on the quality of nature, i.e. on the level of biodiversity.*
- *Areas with high biodiversity capture more carbon-dioxide, and hence reduce climate change.*

c) Ask your classmates to brainstorm various concepts, then write them randomly in the boxes. Look for connections between them.

d) Look for stories from your own experiences, from talking to adults and from newspaper articles in which solving one problem led to another unexpected problem. Would it have been possible to prevent it? If yes, how? Read the articles entitled *Ask your doctor or pharmacist* or *If it's got a hole, fix it!* as examples. What was the problem?
- What was the solution?
- What unexpected consequences did the solution have?
- What was done to remedy this?
- Could it have been foreseen?

Naturally is best!

1. Building a bottle garden: how to model a self-sustaining ecosystem?
Create your own self-sustaining ecosystem!

The goal is to build a bottle garden which is self-sustaining with appropriate humidity, light, oxygen and water.

Ingredients: transparent glass container (e.g. bellied wine bottle, flip-top bottle, indoor greenhouse, jam jar), small gravel, activated charcoal, peat-based potting soil, sticks, small ornamental plant which prefers a moist, humid environment, watering can or funnel (depending on the size of the bottle).

Steps:
- Disinfect the container (if possible with environmentally friendly disinfectant, such as 10% vinegar) to ensure that no bacteria or fungi remain in it. Mix the gravel with the activated charcoal and put it at the bottom of the container in a roughly 2-3 cm layer.
- Add peat-based potting soil on top, 5-10 cm depending on the size of the container. Form small holes for the plants then place them in, use sticks to help if needed.
- Water them through the funnel with as much water as needed to make the soil wet. Then close the bottle with a cork, or cover the top with a plastic plate. Place it in a spot where it is out of the direct sunshine.

Observe the bottle garden over the next few days.
Vapour condensing on the wall of the bottle waters the plants, which use the light to photosynthesise, in other words they generate oxygen from the carbon dioxide in the bottle. They use up some of the generated oxygen at night. From the amount of vapour condensing on the side of the bottle you can conclude whether the plants are receiving too much or too little water. If the side of the bottle is too moist, let some air in. If the vapour has not yet started to form, add a few drops of water. Once a balance has been achieved, you won't need to intervene again.

2. Preparing a municipal action plan
- Split into groups of 4-5 people, with those living in the same place put in the same group if possible.
- Prepare an action plan for the place you live, then explain it to the others. Use the table below to prepare the action plan.

Choose from these topics (if possible, each group should work on a different topic):
- Promoting gentle tourism
- Designing a more liveable municipality
- Developing a green waste management plan for your municipality
- Planning green spaces in residential parts of your municipality that lack them (e.g. newly built areas)
- Developing a plan to conserve the natural values of your municipality.
- Developing an action plan to protect wild animals

Steps to making the action plan

a) Goalsetting
Formulate a goal which is realistically achievable and improves the sustainability of your environment.

To define goals accurately, consider the following:
- formulate the problem,
- give a detailed description of the goal,
- set a deadline.

For example, an achievable goal is if you want to have solar panels installed on top of a large consumer, the travel agency, within the next five years. As a result, the agency will be able to cover 80% of its electricity needs. On the other hand, if you want to build a hydroelectric power plant in the middle of the Great Plain for energy-saving purposes, this is an unachievable goal.

b) Situational analysis
As part of the goalsetting, you need to analyse the environment and the existing features.
Consider the opportunities and obstacles in relation to achieving your goal.

Opportunities	Obstacles

c) Actions, tasks
Based on the situational analysis you can define actions and tasks to achieve your goal. For the execution though it is important to plan every task thoroughly.

d) Action plan
Main elements of the action plan: define the task, detail the activities within the task, set a deadline, appoint a responsible person, collect the tools needed to execute it, formulate the expected results.

An action plan is effective if the given tasks build on each other, and help you achieve the final goal in several smaller steps.

ACTION PLAN (SAMPLE 1) **Name of municipality: Salota**
Goal: finding an alternative solution for the electricity needs of Vágás Tourinform, a travel agency located in the centre of the town.

Number	Activity	Related activities	Deadline	Person in charge	Tools needed	Anticipated outcome
1.	Assessing the annual electricity consumption of the agency	a) Collect the bills of the last three years. b) Record the monthly consumption in an Excel table. c) Analyse the collected data (e.g. by creating graphs).	15 October 2021	Office manager Energy expert	Electricity bills Internet Laptop	Accurate statement on the electricity consumption of the office supported with figures
2.	Planning solar panel capacity	The solar panel capacity for satisfying the average consumption must be planned based on the electricity consumption.	15 December 2021	Energy specialist	Statement on electricity consumption	Plan for solar panel capacity with alternatives
3.	Planning the installation and commissioning of solar panels.	The installation and commissioning of the solar panels must be planned according to the agreed and finalised solar panel capacity plan.	15 January 2022	Energy specialist	Plan for solar panel capacity	Construction plan for solar panels
4.	Administration related to the installation of the solar panels	The supply of the electricity generated with the solar panels must be negotiated with and authorised by the electricity service provider.	15 February 2022	Office owner	Construction plan for solar panels	Authorisation issued by the service provider
5.	Installation and commissioning of solar panels	The installation and commissioning of the solar panels based on a construction plan and authorisation.	1 March 2023	Energy specialist	Solar panels	This way the demand for fossil-fuelled energy is reduced, and less greenhouse gas is emitted into the air.

ACTION PLAN (SAMPLE 2) **Name of municipality: Terekon**
Goal: planting new trees to replace old ones cut down on the Danube bank of the municipality

Number	Activity	Related activities	Deadline	Person in charge	Tools needed	Anticipated outcome
1.	Field trip	Field trip with relevant personnel of the area (e.g. landscape architect, forester, national park specialist)	30 August 2021	Environment officer of the municipality	Notebook, map of the area	Assessment of the area's natural ecosystem
2.	Planning	Selecting species, number and location of the trees to be planted in the area	15 September 2021	Planting organiser	Map, list of tree species	Tree planting plan (map of area, marking places where the trees will be planted)
3.	Organising the planting	Mapping the places to buy the saplings from, recruiting people to do the planting, informing the residents	20 September 2021	Planting organiser Municipal clerk	Contact lists (gardeners, foresters), posters	Action plan for planting
4.	Purchasing saplings and tools, preparing the tree planting	Purchasing saplings and transporting them to the site. Digging holes, preparing the tools necessary for the planting	30 September 2021	Head gardener and municipal warden	Tools (spade, rake), van (for transporting the saplings)	Preparation of ground for tree planting
5.	Tree planting, taking care of the saplings	Planting the saplings	10 October 2021	Planting organiser	Tools (spade, watering can, stakes)	The saplings have been planted

ACTION PLAN

Name of municipality: .....

Goal: .....

Number	Activity	Related activities	Deadline	Person in charge	Tools needed	Anticipated outcome
1.						
2.						
3.						
4.						
5.						

3. Food without microplastics

Write down useful tips to reduce the microplastics in food.

4. Planning an ecotourism programme

a) Find good hiking practices that not only help you learn about nature, but also help you preserve it.

b) Based on these good practices, plan an ecotourism programme for the place where you live. Make a poster to raise awareness about it.

c) Write suggestions for your homeroom teacher or the teacher organising outdoor activities about what green commitments the class could take for your next trip to have the smallest possible footprint.

d) Play with the idea of opening an ecotourism agency. Which good practices would you include when organising holidays?

02

5. Surveying a natural habitat – field exploration exercise

With the class, choose an easily accessible natural habitat near the school, and a conservationist who knows the area well; carry out field observations there with the involvement of the area manager. Choose an area where the natural vegetation and animals have become endangered in the last 5-10 years due to human disruption, and the balance of nature has been visibly upset (e.g. a lot of trees cut down, illegal waste dump).

a) Fill in the following form during the field observations and document with photos of the area.

b) Summarise and evaluate the data then prepare a brief summary and presentation about how to restore the natural balance of the habitat.

Summary and evaluation of data

The following aspects can help you evaluate the data.

- Which plants and animals are the most vulnerable in this area?
- How can natural order be restored in the area?
- What urgent intervention is needed to stop the area from deteriorating further?
- Who are responsible for preserving the natural values of the area?
- What information should be given to residents in the interests of protecting nature?

c) If possible, send the summary and presentation to the managers of the area, and where possible, help with voluntary work to restore the natural state of the area.

DATA SHEET DATA SHEET FOR OBSERVATION OF A NATURAL HABITAT

1. BASIC INFORMATION

1.1. Name of natural habitat: _____

_____

1.2. Type of natural habitat: _____

_____

1.3. Geographical location: ☐ forest ☐ meadow, wetland ☐ other: _____

_____

1.4. Name of observation group: _____

_____

1.5. Exact date and time of data capture: _____

_____

2. NATURAL HABITAT

2.1. Describe the current state of the habitat ☐ totally degraded state ☐ heavily degraded state ☐ moderately degraded state ☐ semi-natural state ☐ natural state, or a state that can be considered as natural

_____

2.2. What is the soil type? _____ ☐ rocky ☐ stony ☐ gravelly ☐ sandy ☐ muddy ☐ clay ☐ other:

_____

3. VEGETATION

3.1. Vegetation cover typical of the habitat: ☐ trees ☐ shrubs ☐ herbaceous plants

_____

3.2. Vegetation in the area: _____

_____

_____

_____

4. ANIMALS

4.1. Animals living in the soil and water in the area: _____

_____

_____

_____

4.2. Insects observed during the field exercise: _____

_____

_____

_____

4.3. Birds observed during the field exercise: _____

_____

_____

_____

4.4. Signs of animals observed during the field exercise (e.g. bird houses, footprints): _____

_____

_____

_____

_____

_____

How much do you like this place? **0** **1** **2** **3** **4** **5**

not at all ..... very much

6. Draw a map of the area and mark on it any places where intervention is necessary to improve the natural state of the area. Prepare a legend for the map.
For instance, if you find an illegal dump, where the rubbish must be transported away, mark it with a red X.

1. Hang the map and the study on your bulletin board.
2. Talk about it with as many students and teachers as you can. You can even organise a public presentation in the school too.
3. List all the changes which had a harmful impact on the area, which damaged the natural condition and self-sustainability of the area. (Mark the appropriate row with an X.)

Features of the natural habitat	Have there been any harmful impacts?
More plants and animals used to live here.	
Fewer people used to visit the area.	
There used to be fewer cars around here.	
It used to be less noisy.	
There used to be less rubbish.	
The air used to be cleaner.	
The water of the river/lake used to be cleaner.	
There used to be more opportunities to observe nature.	
The area used to be safer.	
The benches, tables and rubbish bins used to be in a better condition.	
Other changes: _____ _____	_____ _____

5. Prepare a list of voluntary activities with which you can contribute to restoring the natural state of the area.

7. Prepare a summary roughly 1-1.5 pages long and a PowerPoint presentation of 4-5 slides, containing the following:
- data collected from the visited area,
- photos of the area,
- results of the field observation.

Then present this to the class and send it to the manager of the area (e.g. local government, forestry, national park directorate).

8. Nature is counting on you!

a) Choose one of the nature conservation topics listed below:
- Declare a species near where you live protected, or raise awareness of an already protected species
- Preserve a natural habitat near your home, declare it protected

Think about how you could make a case for your chosen cause in the form of a poster (or video clip). Make your poster (or video clip) eye-catching, but easy to understand. To ensure that the message of your poster (or video clip) is credible and well-founded, look up information about the chosen animal species or natural habitat.
If you can, explore outdoors in nature.

Sample posters:

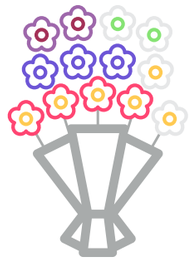
b) When your poster (or video clip) is ready, show it to the class and explain the reasons for choosing your topic and why you decided to depict it in the way you did. You can even organise an exhibition together.

9. The monetary value of nature

a) Do you know what conservation value our protected plants have? Calculate how much the bouquet of flowers below costs.
- Match the flowers with their names.
- Find out the monetary conservation value of each plant.








Poet's daffodil | Viola collina | Dogtooth violet | Snowdrop | Pasqueflower

b) Conservation value of our protected animals
- Match the animals with their names.
- Find out the monetary conservation value of each animal.


EUR


EUR


EUR

Saker falcon | Brown bear | Common European viper | Great egret | Ferruginous duck | Lesser mole-rat


EUR


EUR


EUR

10. Nature conservation in action! – Act together to protect nature!

a) Place stickers on large glass surfaces to stop birds flying into the glass in spring.
b) Build a birdfeeder or birdhouse. Put it on the window sill, patio or in the garden. Birds feeding from your birdfeeder are more likely to nest in your garden, this way you can promote biological protection against pests in your garden.
c) With the help of a bird identification key, determine:
- which birds nest in the birdhouse, and
- which species use the birdfeeder?


Birdhouse


Birdfeeder

d) Make a bee hotel in your garden for pollinating insects to move into. To feed the insects, plant melliferous wild flowers in the garden.

There are two simple ways to build a bee hotel:

Drill holes in a log
Drill holes in a wooden log of roughly 10-20 cm in diameter, with a drill of 3-10 mm in diameter. The easiest way is to drill holes into the logs of a pile of wood.

A bundle of cane
Bundle some cane together, then cut off a piece of about 30-40 cm with a saw or pruning shears. Then use a small branch or nail to enlarge the holes at the ends of the canes.

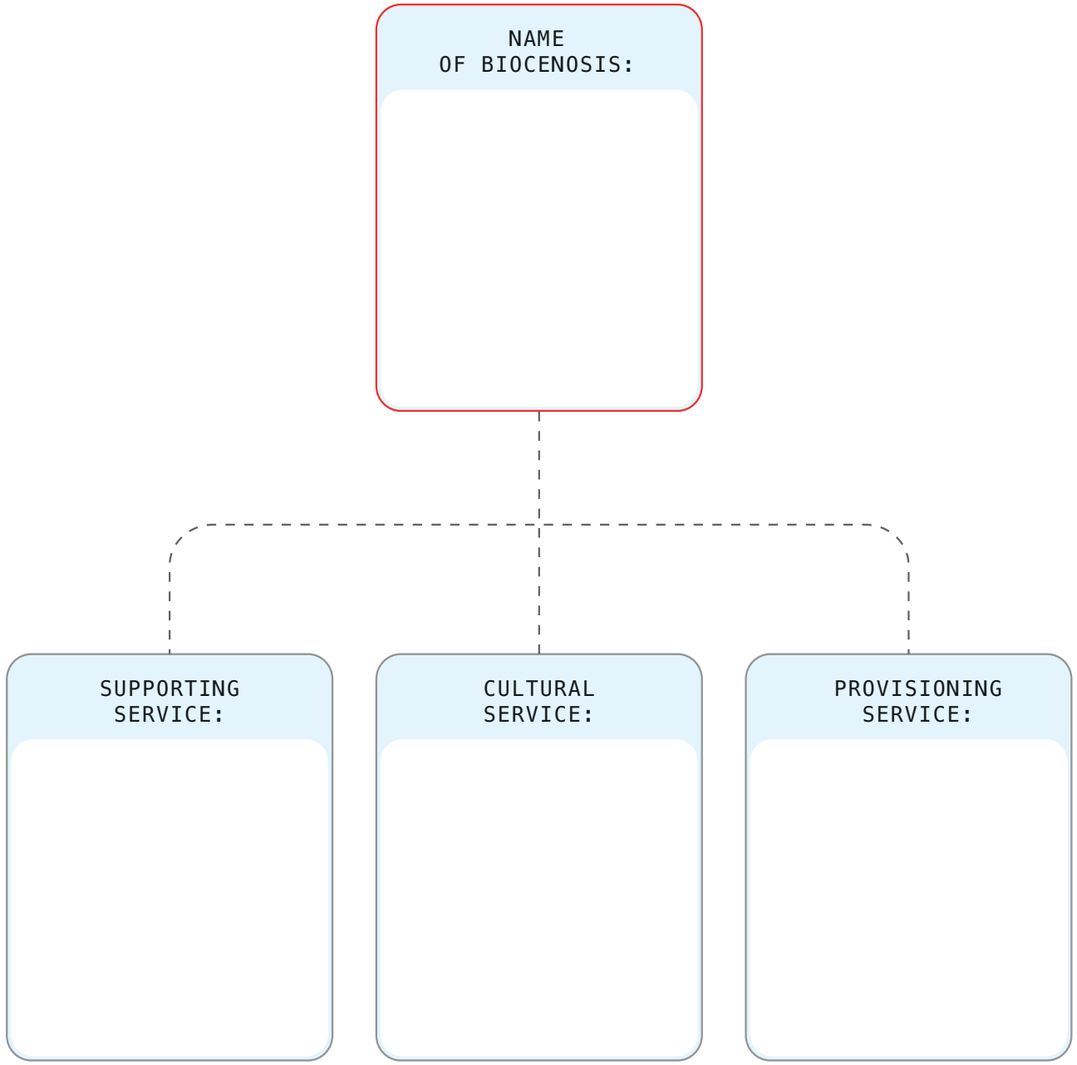
c) With the help of an insect identification key, determine:
- what insects move in, and
- what insects visit the wild flowers?

11. Nature served on a plate

a) Consider which ecosystem services are contributed to your everyday lives by the biocenosis you selected.

b) Use the texts and diagrams in the textbook for help (see the section entitled SERVICES OF THE ECOSYSTEM).

c) Make a list of what supporting, cultural and provisioning services are provided by the biocenosis you selected. Fill in the related diagram.



d) Based on the above, prepare an infographic about the ecosystem services of the biocenosis you chose.

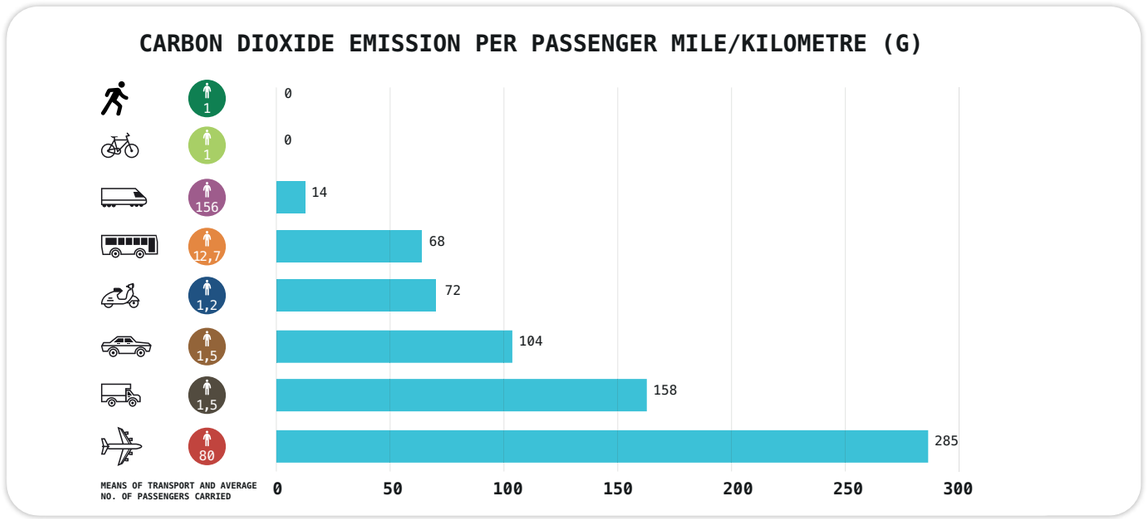
An infographic is a series of visual diagrams presenting a topic with images and short explanations in a creative and understandable way. You can make the infographic on drawing paper, or digitally. You can find good examples of different types of infographics in textbooks, or on the internet, but you can also use your imagination and prepare a unique infographic too.

On the road?

1. How "gassy" are we?

a) Split into groups of 4-5 people. Discuss and make a note of who uses what to travel between home and school every day.

b) Estimate your own and your group's CO_2 emissions from transport using the graph below.



This amount of CO_2 is released when I go from home to school every day:

This amount of CO_2 is released when the whole group goes from home to school every day:

c) Compare the CO_2 emissions of getting to school with other groups.

Calculate the daily CO_2 emission of the whole class.

Calculate the monthly CO_2 emission of the whole class.

Calculate the annual CO_2 emission of the whole class.

d) In groups, develop a plan for how you could reduce your carbon emissions. When you are ready, compare your ideas with the other groups.

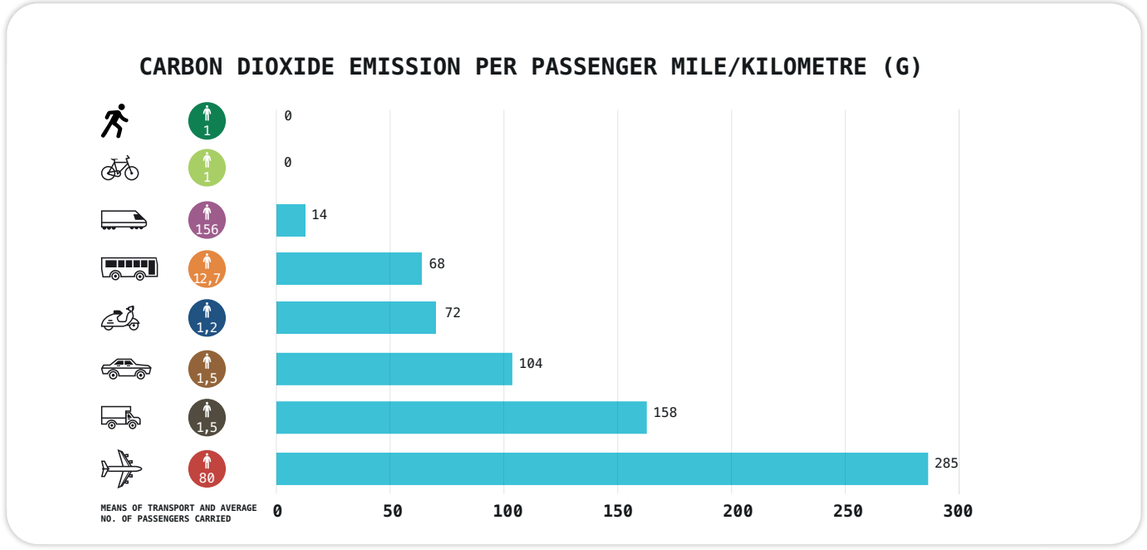
e) My commitment to reducing CO_2 emissions:

f) Try out the plan you have discussed with the group and the class for a week or a month. At the end of the trial period, check your CO_2 emissions and discuss whether the plan worked.

2. Sustainable transport

a) Calculate your carbon footprint.

Count how much your family travels by different means of transport (e.g. daily bus commute or car commute to work). Compare the results with your groupmates. You can use the Eurostat survey below to help you calculate:



Means of transport	Passenger mile/kilometre	Carbon footprint
Pedestrian		
Bicycle		
Tram/train		
Bus		
Motorbike		
Car		
Airplane		

b) After discussing the result, brainstorm ideas on how and by how much you could reduce your carbon footprint. For example, cycling to school, using public transport more, making sure the car is full when you start a journey, etc.

c) Brainstorm ideas on the benefits of a smaller carbon footprint besides lower carbon-dioxide emissions. For example, if I cycle to school, I get fitter.

3. The price of transport

a) Calculate how much it would cost to go shopping at the weekend by carsharing, taxi, carpooling, or with your own vehicle.

Gather information on the direct costs (fuel, tolls, fares, rental fees) and hidden costs (e.g. servicing, insurance, etc.) of each means of transport. (For your own vehicle, calculate with 15,000 km per year.) Calculate your results for 1 km, and collect them in the table below.

Time to destination: 30 minutes (or 10 km)			**Time there:** 60 minutes		**Time to return home:** 30 minutes (or 10 km)	
	Carsharing	**Taxi**	**Carsharing**	**Own vehicle**	**Shopping delivered to your home**	**Public transport**
Fuel cost/km						
Toll/km						
Total indirect cost/km						
Total cost/km						

b) Split into groups of five and discuss the advantages and disadvantages of each means of transport.

c) Discuss which solution is the most sustainable and at the same time the most comfortable for you, and realistically the most feasible.
Share your chosen solution with your classmates.

03

4. Design a sustainable street.

Imagine a sustainable street view of traffic for the future in your own municipality or in a big city. Draw a visual plan or an overview sketch.
Consider the following:
- Where would you place a cycle path?
- Should a trolleybus or conventional bus stop be planned?
- How many lanes should the road have?
- Would you set up a taxi rank or carsharing station?

5. Shared electricity

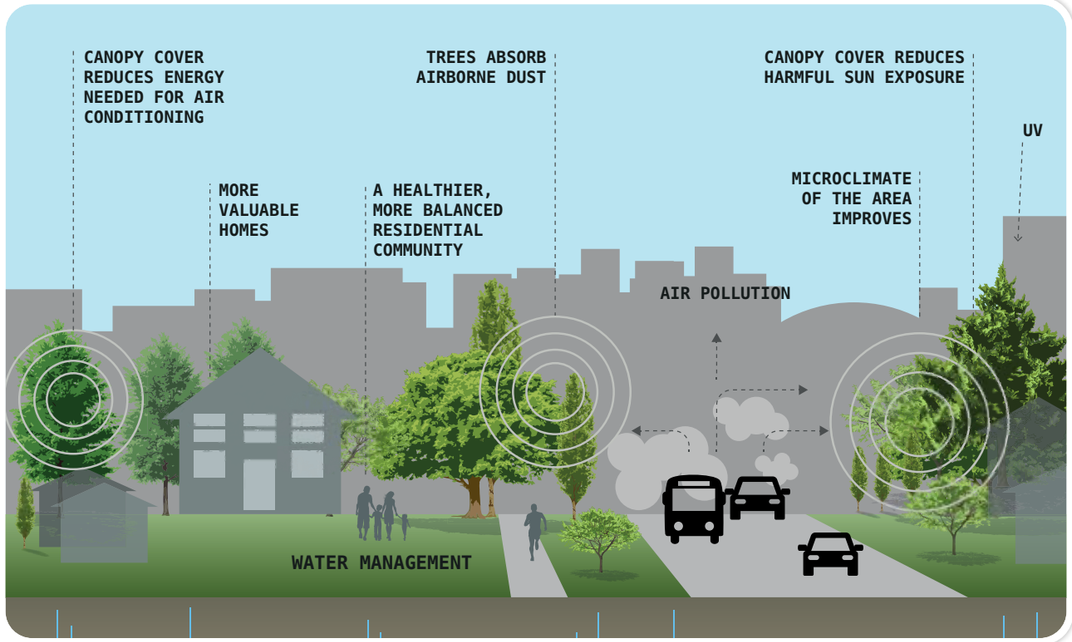
- Would you install an electric car charging station, e-bike docking station or an e-scooter station?
- Would there be green space between the footpath and the road?

Design a poster to promote an electric car sharing app. Highlight the following aspects with an image or logo, emphasising why you should join the e-car community.

Aspects:
- our alternative powertrain vehicles are fuelled with green energy for a guaranteed 0 g/km of CO_2 emissions;
- it is quiet like a tram, yet there is no crowd;
- it is cheaper than a taxi, and it waits until you've done all your shopping;
- you drive, you decide when to leave;
- you don't have to service your own car and worry about storing it in the city;
- you are tired of public transport and want something more comfortable;
- you stay dry while the bikers and scooters get soaked in the rain;
- you drive, but you don't pay for the upkeep of the car.

6. Diagram analysis

a) Use the diagram to identify the benefits of having lush vegetation along the roads in the city.



The impact of lush vegetation on	
the microclimate:	
the amount of airborne dust:	
the UV radiation reaching the ground:	
water management:	
the cooling of houses:	
the value of property:	

b) Find out what options are available for traffic calming.
How does traffic calming support the benefits identified in point a)?

03

7. Design a social media campaign for your planned city.

The city council has voted in favour of your proposals for urban greening. You have been asked to plan a communication campaign for the project. The aim is to make people aware of what is happening around them and why these changes are good.

Split into groups of 4-5 people and plan a month-long communication campaign to raise awareness about urban greening.

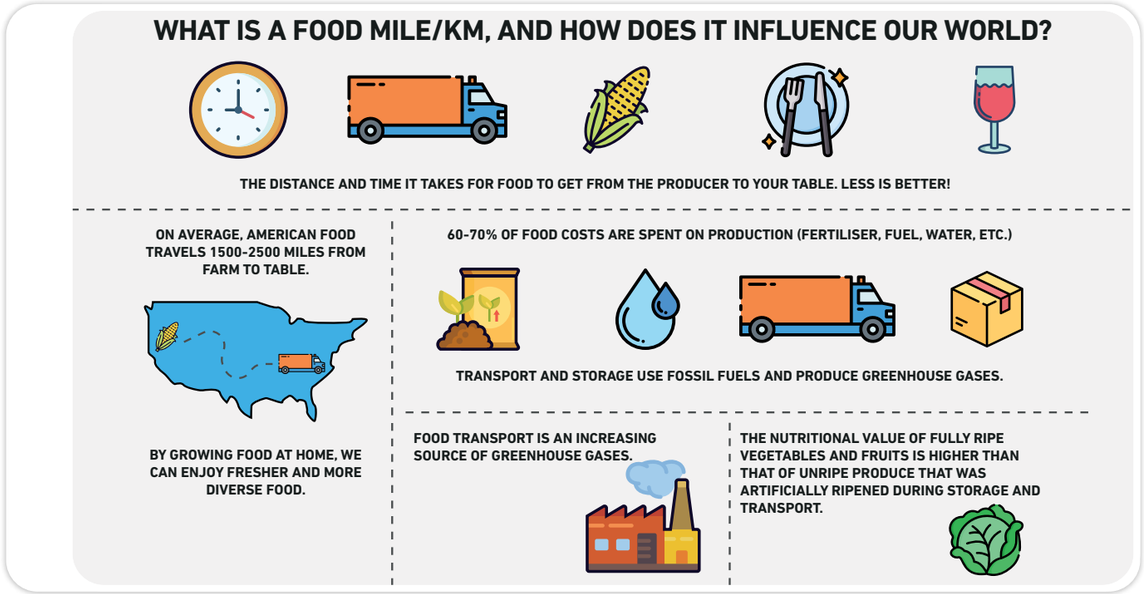
Step 1: Decide who you want to aim your campaign at, who your target audience is.
Step 2: Think about which communication platform(s) and channel(s) are best suited to reach your target audience.
Step 3: What is your message? How can you get it across to your audience most effectively? Make three schematic previews of your ad (post, tweet, video).
Step 4: Draw up a timeline for the campaign. Use the table below to help you plan, and add more rows, if needed.

Title of post, advertisement	Date of publication	Content of post	Publication platform	Period of availability

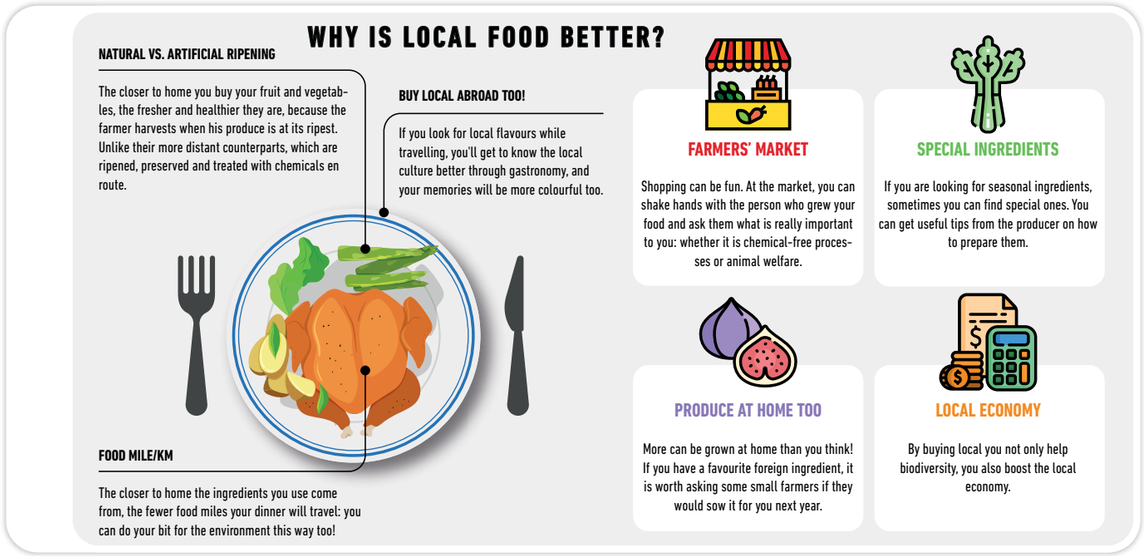
Step 5: Think about which part of your campaign you could implement in your own town or city. Implement the campaign in your schools to achieve the chosen objectives.

8. Buy local!

a) Based on the pictures, think about why it is beneficial to buy local produce.



Collect at least six statements about the benefits of buying local products.



Collect some statements about why local food comes out on top.

b) Find a farmers' market or local farmers in your area.

9. My geocache

a) Design and compile your own geocache.

b) Register at the www.geocaching.com website and search for a geocache near your school or home. Remember the main rules!

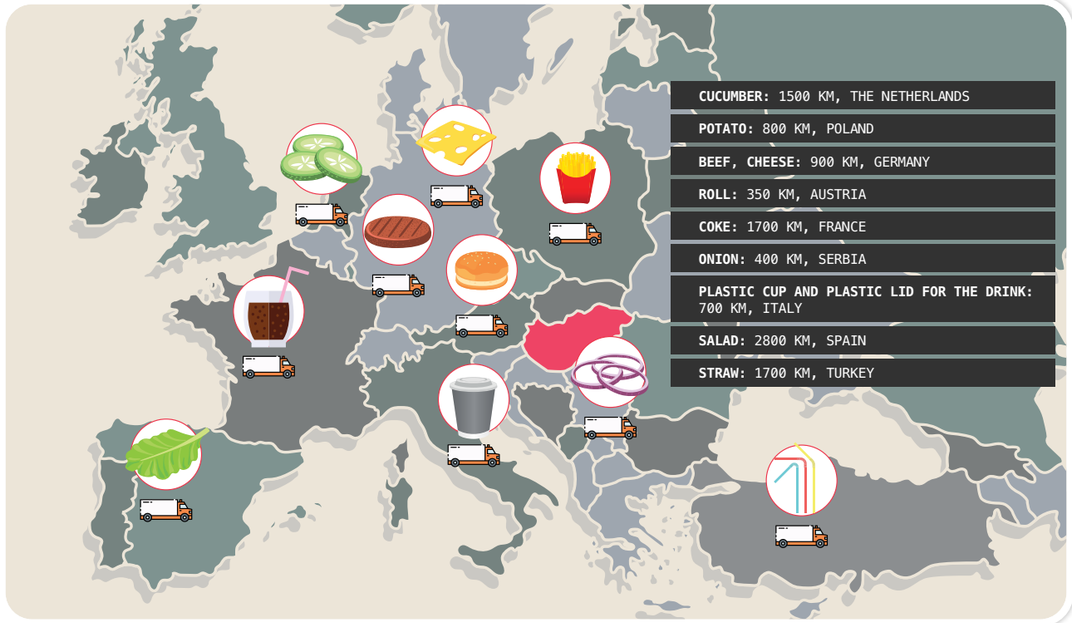
- Where would you hide it, and why?
- Once you have your geocache ready, place it in your chosen location.
- Share with your classmates the information needed to find your geocache, and search for your classmates' geocaches. Don't forget: take a small gift with you to replace the gift you take out of the geocache you find!

Content of my geocache:

Location of my geocache, and other information needed to find it:

10. Who has seen more of Europe? You or your hamburger?

Travelling is good. We can gain new experiences, learn about other peoples and cultures, and broaden our horizons. But what does a burger travel for?
If you buy a fast-food burger menu in Hungary, the chances are the ingredients come from all over Europe. A "cosmopolitan burger" might sound exotic at first, but it is easy to become disillusioned when you think about the consequences of transporting the ingredients. A lot of greenhouse gases are released during transport, and the food has to be preserved with chemicals or refrigeration before the long journey, even though they could be produced in Hungary.



a) Use the map to calculate the total distance travelled by the ingredients of a hamburger menu in Hungary.

b) If an average truck travelling at an average speed of 80 km/h consumes 25 litres of diesel per 100 km, how many litres of diesel are consumed during the journey of all the ingredients?

03

c) Burning 1 litre of diesel produces approximately 2600 g of carbon dioxide. In total, how many grams of carbon dioxide are released into the air during the transportation of all the ingredients?

d) Check the textbook for the potential consequences of emissions of this magnitude.

e) Brainstorm ideas on how far you could get the ingredients for a burger from if you were to open a fast food restaurant in your own town.

11. What is a responsible tourist like?

Think with the mind of a responsible tourist. Fill in the gaps with the words that you think reflect the attitude of a responsible tourist.

to get their attention, for the price listed on the website we get double portions, by train, most economical, we can use as much as we want, by taxi, we could afford, get home, ceramics workshop, heated with renewable energy, we can drop it anywhere, eco-farms, by car, could be collected separately, irresponsible and wasteful, they are made with local ingredients, we hung out, this way we didn't pollute the environment, we talked, casinos, herd their animals home, on foot, remained intact, from a shopping mall, responsible and sustainable, more environmentally friendly

In winter, my friends and I went to the Mátra mountains. We went _____,

because there were five of us, and this is the _____

_____ form of transport for this distance. We booked our

accommodation while at home, because we felt it was important to spend the week in a place where hot water was

_____ and the rubbish _____.

We ordered breakfast and dinner in advance, because the hosts informed us that _____

_____. The hosts lead a(n) _____

lifestyle. _____ with them a lot, and went

to see one of their _____ together.

In the evenings we helped them _____.

We went to the attractions _____ because _____.

Once there we made sure that our environment _____. We returned home with

unforgettable experiences. And for our families we brought a gift from the nearby _____.

12. Become an ecotourist yourself!

a) Split into groups of 4-5 people.

b) Your local tourism development office has asked you to prepare an ecotourism proposal for your town. To help you prepare your proposal, here are some of the aspects that should be included.

The ecotourism offer should include:
- options for at least a three-night stay in local accommodation,
- responsible travel suggestions,
- events promoting local products,
- cultural, gastronomy and leisure (sports, hiking, etc.) programmes, with budgets.

c) Make a brochure or poster about your drafted proposal.

Sample brochure:

13. This is what our smart city will look like!

a) Split into groups of 4-5 people.

b) Plan smart transport in your own town or city, and between there and the surrounding places, in a way that promotes sustainability. You can find information on planning in the textbook.

c) Make a short presentation about the smart transport you have created and show it to your classmates.

14. Invasive or native?

a) Choose which of the plant species listed below are invasive and which are native, and write the answer in the circle after the species name. (I = invasive, N= native)

b) Match the letter of the plant species with the corresponding image.




a) tree of heaven

b) iris pumila

c) European frogbit

d) black locust

e) nodding sage

f) silverberry

g) common lilac

h) spring pheasant's eye




c) Take a look around your garden or your home to see what invasive species you can find. You can use a mobile phone app to identify plants, or track them down online.

I found these invasive species:

15. Animal trails where I live

a) See what animals are moving around your area or house. Identify as many species as possible.

b) Record the paths of the species you observe, and display them on a map of your town, or create your own map.

c) Show the results of your observations in a short presentation to your classmates.

16. Rubbish map...

a) Observe what kind of rubbish you find littered on your normal transport routes, and how much there is.

b) Make a map of your observations showing the amount and type of rubbish you find. You can get the exact location of the rubbish dump you find by reading the coordinates of the location from the GPS on your phone.

c) Check whether the rubbish is located within the territory controlled by the local authority, government agency or road management company.

d) Compare each other's maps, or make a joint rubbish map!

e) Take action! Using your rubbish map report this to the relevant authority or road management company. Strength in numbers! You can submit your reports together too.

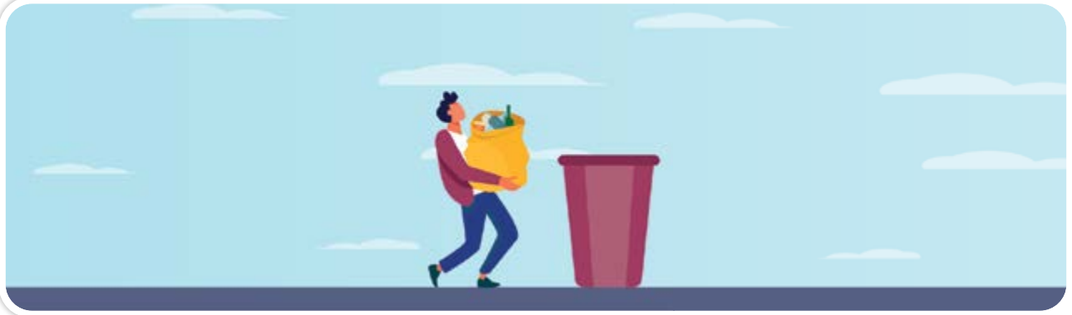
Looking good!

1. Combating overconsumption

a) Look into the civilisation processes that bring the date of Earth Overshoot Day closer and closer each year.

Continue the following examples.

expansion of fast fashion chains, food waste,



b) Find examples from your own life on what you can do to not waste the Earth's energy reserves. For example, buying second-hand clothes instead of new ones, or choosing local products over products that are imported from far away.

2. Wardrobe

a) Make an inventory of your clothes below.

T-shirt: _____ **pcs** **Jeans:** _____ **pcs** **Trainers:** _____ **pcs**

b) Based on the data below, calculate how much water was needed to make your clothes.

T-shirt: 2,700 litres **Jeans:** 10,000 litres **Trainers:** 12,750 litres

c) Create a list of things you can do to help you build a wardrobe that uses less water than the value calculated in the previous task.

3. Hunting clothing labels...

a) Collect clothing labels! What do the symbols printed on them tell us? Draw a few of them and find out what they mean.

Icon	Meaning
	The rules on ironing are symbolised by a small iron. The dots refer to the information on temperature: · 110°C ·· 150°C ··· 200°C

b) Draw symbols which indicate products made with eco-friendly processes.

4. Advertising pattern

a) Think and count how many advertisements on how many different channels bombard you with advertisements on an average day.

How many channels did the advertisements come from?	How many advertisements did you come across a day?	How many of these really impacted on you?

Which of these products would you be happy to buy?

Which advertising trick made you buy them?

How do you protect yourself from unsolicited advertisements?

b) Be a conscious customer and don't let advertisements influence you! So make a list of all the things you will actually need in the near future, and only buy these.

5. Draw inspiration from your own life!

You can read about a few purchase and consumption habits in the table.

a) Think about whether there is a more sustainable solution than these. Colour the cell of the middle column wherever you feel there is nothing else or more you could do.

b) Put the habits in order according to which alternative solution is the easiest and which is the hardest to implement.

Activity, habit	More sustainable activity, habit	Order
Separate collection of jam jars		
Frequent consumption of sugary drinks		
Purchasing a new T-shirt from a well-known chain		
Bringing a canvas bag for shopping		
Using public transport		
Separate collection of used one-sided printing paper		
Ordering gadgets online		
Buying pastries in separate plastic bags		
Buying water in plastic bottles		
Wearing fast fashion clothes		
Shopping in hypermarkets		

6. Take a look in the mirror!

a) Based on the tests found in the textbook, give a description of yourself that tells us your habits. What type of customer are you? Put an X in the right place.
(Read the text *What type of customer are you?* in the textbook.)

Habit	Typical of me
Often when I feel bad, I go shopping and console myself with one or two small things.	
I believe in "love at first sight". I see it, and I immediately feel that I have to have it.	
I have always bought from this brand. I don't really know why I should change now.	
I usually go to the store with the intention of buying something specific.	

b) Based on the test in the textbook, determine what kind of customer you are. Underline the statement that is most like you.

EMOTIONAL CUSTOMER **IMPULSIVE CUSTOMER** **BRAND-LOYAL CUSTOMER** **CONSCIOUS CUSTOMER**

c) Which of the six points of conscious shopping do you apply? Put an X where appropriate.
(Read the text *How can you be a conscious customer?* in the textbook.)

Habit	Typical of me
1. I avoid products with excessive packaging.	
2. If possible, I buy local products.	
3. I prefer products made from natural ingredients.	
4. I prefer to buy more expensive but quality products.	
5. I don't buy clothes according to the latest trends.	
6. I didn't buy anything on "Buy Nothing Day".	

d) What activities make you feel really good? Put an X where appropriate.
(Read the text *When do we really feel good about ourselves?* in the textbook.)

Activity	Typical of me
Connect Strengthen social relationships: I invest energy in loved ones, I build my relationships.	
Be active Go for a walk, listen to music, anything that relaxes and recharges.	
Take notice I pay attention to what's happening in the world, the people around me, the seasons changing, the evolution of nature.	
Keep learning I'm open-minded and interested in changes.	
Give Our generosity, our altruism are hard-wired to the reward mechanism in our brain. This is why I feel good when I can give.	
Other _____ _____	

7. Zero-waste solutions

The easiest way to decrease waste is to stop using disposable products, or to try and replace them with long-lasting products that have similar functions.

a) Find eco-friendly alternatives to the products on the pictures.
There are multiple correct answers. Write the solutions in the boxes next to the pictures.

Environmentally harmful products	Eco-friendly alternative	Environmentally harmful products	Eco-friendly alternative
 Paper napkin		 Plastic cutlery	
 Plastic cup		 Plastic straws	
 Plastic (polystyrene) food delivery box		 Plastic bag	

b) Organize a zero-waste event with your classmates in your school. List the zero-waste solutions that you would apply when organising the event (e.g. everyone has to bring their own mug to drink from).

8. Charity shops

a) Charity shops not only have environmental benefits, but also social ones. List them!

Environmental benefits	Social benefits

b) Find out if there is a charity shop in your town or neighbourhood. If yes, write down where it is.

9. Global ecological footprint – research work

a) Look up the ecological footprint of individual countries online.

- Which country has the biggest ecological footprint (how many global hectares per person)?
- How many Earths would we need if everyone lived with the same size of ecological footprint as the people in this country?
- Which country has the smallest ecological footprint (how many global hectares per person)?
- How many Earths would we need if everyone lived with the same size of ecological footprint as the people in this country?

b) Brainstorm how we could reduce the ecological footprint of each country by changing the population's consumption habits.

10. Are you up for it? Practices and individual commitments to reduce the ecological footprint

How would you limit your own ecological footprint?
Write in the table below what you can do to achieve this. Write a commitment for every period.

Period	Commitment
One-day challenge	E.g. I will clean my room with environmentally friendly cleaning equipment.
One-week challenge	E.g. I will pack my morning snack in a textile bag instead of a plastic bag, every day of the week.
One-month challenge	E.g. I will take a shower instead of a bath for a month.

11. The story of our objects – full life-cycle analysis

In a full life-cycle analysis we assess the life-cycle of products from manufacturing to their transport and marketing, and delivery to the end-customer, also during their use. We also follow the journey of products that are broken and have became waste. This way we obtain an accurate picture of the full life-cycle of a product.

a) Analyse the texts from the textbook, and look up the details of a T-shirt and a product you like on the internet. Summarise what you find in the table.

	T-shirt	A favourite item
Material		
Material's place of production		
Product's place of manufacture		
Product's point-of-sale		
Transport (km)		
Water footprint		
Retail price		
Waste treatment		

b) Make a flow diagram or an infographic which present the full life cycle of one of the items.

c) To reduce the waste of the clothing industry, even the biggest fashion companies are slowly switching to upcycling clothes. In Budapest and in other big European cities you can now find shops which repurchase the clothes you are bored with or that have worn out. This is known as the circular economy model, when your used, torn or outgrown clothes don't land in the bin, but are returned to the fashion industry and reused as material.

Examine the life cycle of the objects below, and explain how their materials are returned to processes in the economy.

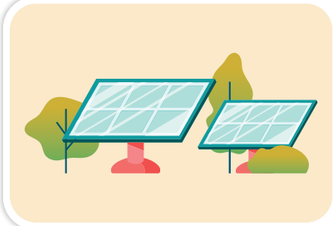
Mobile phone:

Jeans:

Refrigerator:

d) Look up the *Zero waste in the forest* article in the textbook, and supported by specific examples explain the difference between waste management processes in nature and the processing of waste stemming from human activities.

I feel at home in my home



1. Can we steal the sun?

Split into groups of 4-5 people.
You are the Molnár family living in a detached home. The monthly electricity bill is EUR 60. The family has EUR 8,500 in savings, which they plan to use to install solar panels to supply their own electricity. The expected installation costs for the solar panels are as follows:

Work to be done, tools needed	Expected cost
Assessment, consultancy	EUR 60
Installation of three-phase receiver authorised by the electricity company	EUR 700
Inverter*	EUR 1,300
Solar panels and other installation materials	EUR 4,400
Installation fee for solar panels	EUR 1,150
Total:	EUR 7,610

* An inverter is an electronic device that helps convert direct current into alternating current.

Based on the criteria below and the calculations, decide whether or not to install the solar panels.

a) In how many years could the family recoup its investment?

b) Find out if there is currently any state aid or soft loans available.
If the Molnár family didn't have any savings, would it be advisable for them to take out a soft loan?

c) Collect arguments and counterarguments, and decide whether you'd opt to install the solar panels.

2. Building materials in nature

a) Determine if the statement is true or false. Mark the correct letter at the statements, then create a meaningful word from the letters you have.

Statement	True	False
Houses can only be insulated with plastic boards.	O	E
Adobe bricks are 100% recyclable as raw material.	N	K
Rock wool is made from basalt.	L	Z
A straw house is more flammable than ones made of brick and wood.	B	A
The gravel used in construction comes from underground mines.	E	M
Poplar is a good timber for building.	A	E
Limestone is a sedimentary rock.	P	D

Solution: _____

b) What can you use the tool for that you got as the solution?

c) Find out which metals are used to make it.

3. Animal builders

Split into groups of 4-5 people.

a) Observe what kind of animal structures you can find in your immediate area (in the garden, in the town park, in a nearby field, in the forest).

Metropol Parasol, Seville, Spain

b) Show one of the observed animal structures in a short video/photo montage/presentation (2-3 minutes), taking the following criteria into account.
- Which animal is it?
- What materials does it use?
- Where does this material come from?
- How is the structure connected to the animal's lifestyle?

c) Find examples of where people use similar solutions.

4. Rubbish question!

While you're taking photos to officially report an illegal dump you've discovered, you conduct a field inspection. As a precaution you're best not to touch anything, but it's clear even from far away that there are particularly hazardous items there, or ones that can be utilised in other ways.
Find out where they would be the least harmful to the environment. Pair the waste with the correct collection point. Sometimes there is more than one good answer, and it also depends on your town's waste management options where these could be taken to.

5. City of the future – your city

In agreement with the people, the local authority of a Hungarian town of thirty thousand inhabitants would like to make the town's operations more green and sustainable, and reduce the ecological footprint of the residents. The residents would like to achieve greater harmony between them and the surrounding nature.

The goal is to improve their quality of life in a way that also protects the environment.
The local authority has entrusted you with the planning.

Split into sustainability action groups of 3-5 people. The members of the group will be experts in multiple areas. Fill every position below.

a) Within your action groups, redesign the town's transportation, water management, energy use and waste management, etc. according to the local authority's requirements. You can even change the structure of the city (e.g. by building new parks). Use your imagination! You can also think of solutions which are still considered sci-fi today. For example, motorways that utilise the energy of braking vehicles, completely degradable, environmentally friendly packaging materials that become fertiliser.

During the design process, try to consider and harmonise as many aspects as you can. It's important that your suggestions make every resident feel better: both children and adults, the young and the elderly, able-bodied and disabled as well as plants and animals living in the cities, from insects through birds all the way to pets.

b) Show each other the finished designs. Decide in a collective vote which plan best fits the objectives of the request.

6. Family diary on water usage

a) Monitor your water usage habits at home for a week.

Start a diary in which you keep track of every family member: who used water and for what, and if possible, how much did they use. Expand the diary table as much as you need. Include every member of your family in the task.

Date	Water consumer 1	Water consumer 2	Water consumer 3	Water consumer 4	Total water consumption
Total daily water consumption					
Total daily water consumption					
Total daily water consumption					
Total daily water consumption					
Total daily water consumption					
Total daily water consumption					

b) Do you think you use a lot of water or a little? Why do you think so?

c) If you think you use too much water, how could you be more efficient?

7. Water efficiency guide

a) Split into groups of 4-5 people.

b) Create a water efficiency guide with at least 20 points. Collect ideas which you think could help minimise your everyday water use.

c) Keep in mind that every drop of water and idea counts! You can create a poster or an infographic to depict your ideas.

8. Urbanisation

Choose whether you want to complete task 8.1 or 8.2.

8.1. Design an ecovillage of 300 homes and its energy supply.

To complete the task, look into what a circular economy means. You can find an interview for this in the textbook.

a) Find an example for an ecovillage; draw inspiration from existing settlements.

b) In addition to the monthly average electricity consumption of 150 kWh mentioned in the articles of the textbook, calculate the energy demands of winter too. How many cubic metres of gas and/or MJ of energy do you consume during winter?
The data received determines the consumption for the houses in the model settlement. For the sake of the summary, convert the gas consumption to kWh as well. You can find help for the conversion online.

CONSUMPTION SUMMARY

Electricity consumption per home:	_____ kWh/month	_____ kWh/year
Gas consumption per home:	_____ m^3/month	_____ m^3/year
	_____ MJ/month	_____ MJ/year
	_____ kWh/month	_____ kWh/year
Total electricity consumption per home:	_____ kWh/month	_____ kWh/year
Total energy consumption of a village with 300 homes:	_____ kWh/month	_____ kWh/year

c) What performance and what kind of system would you install to cover the energy demands of the settlement? (Solar panels, heat pumps, wind power plant, small local hydroelectric power plant, other possible solutions.) Since both energy production and consumption entail losses, the performance required can be planned at 120% of the annual consumption. What are the advantages of your chosen system?

d) What transportation solutions would you apply?

e) Which local ecoservices would you prefer?

8.2. Design a passive or a carbon neutral house.

Consider the following aspects during the design:
- building materials, insulation
- energy consumption, production of the necessary energy
- hot water production and the heating-cooling of the building
- shading, air conditioning, keeping the building's temperature within an optimal range,
- drinking water, wastewater management, recycling
- waste management.

There are countless opportunities. Design a system you think works best.

9. Our common space project

Choose whether you want to complete task 9.1 or 9.2.

9.1. Design a community house or a school building.

a) Split into 5 groups.

b) Have the groups decide which areas to plan by drawing lots.
- Plan how the structure and design of the house will fulfil the functions of the individual areas.
- Design the waste management of the building.
- Design the energy supply of the building.
- Design the surrounding area of the house/school. For example, what kind of garden should surround it?
- Design the water management of the building. For example, how can you prolong the use of 1 litre of water?

The groups may make drawings, descriptions and presentations to elaborate on their ideas.

c) Show your finished ideas to the other groups. Discuss whether the ideas of the groups align with each other.

d) When you are finished with the building designs, start brainstorming what programmes and activities would give life to the building.

9.2. Make an eco-map of your town or school.

a) Split into 5 groups.

b) Make an eco-map of your school or your neighbourhood based on the textbook article *Eco-mapping through the eyes of a high-school student*.

Gather information on the school or your town for the eco-map. You can find the criteria in the articles of the textbook. You can use a large sheet of paper or a shared online platform to work together and make an eco-map.

10. How good is a building?

a) Work in groups of five.

Create your own building classification system. To do this, use the textbook articles below:
- Doctor Mole and the engineer termite
- Smart city
- What is the solution to the challenges of urbanisation?
- Water-saving comic strip
- Building materials in nature: what a carpenter sees in the forest...
- Building materials from the future

Talk about the building materials, energy and water use of the building, as well as the well-being of the people living and working in it.

b) Plan how you would evaluate each of the areas examined in the building.

c) Design the badge/seal/certificate you can obtain with the certification.

11. DIY: breathe new life into clothes and furniture

a) Make suggestions on how you could use clothes you are bored with or have outgrown, etc. so they don't end up in a bin. Collect and compare each other's ideas.

Implement your ideas and show them to the others.

b) If you prefer DIY, imagine giving new life to old furniture!

What kind of a life would you imagine for an old chair, shelf or wardrobe? If you also carry out your idea, show it to the others.

12. Sustainable enterprise

Choose whether you want to complete task 12.1 or 12.2.

12.1. Find and collect together local or nearby enterprises which practise a circular economy model.

Decide which business models they use from the ones below:
- selling products as a service,
- collaborative consumption,
- transformation, or
- recycling.

If you can, pay a visit to a local enterprise that implements a circular economy model.

12.2. Our sustainable enterprise

a) Split into groups of 4-5 people.

b) Find out what circular economy models there are. Plan an enterprise that follows some circular economy business model:
- selling products as a service,
- collaborative consumption,
- transformation, or
- recycling.

What advantages made you choose this economic model?

c) If you are finished with the plans for your enterprise, show your ideas to your classmates.

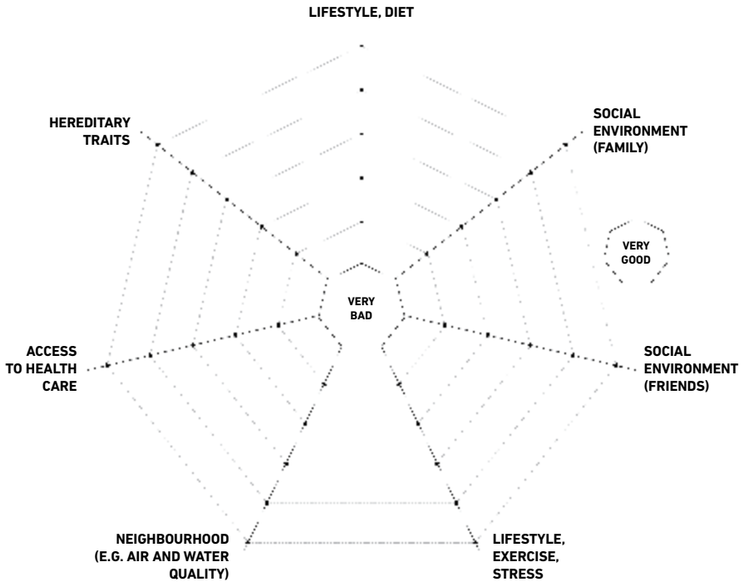
In top form

1. Based on the information in the To our Health editorial, create a mind map (e.g. www.mindmeister.com), which shows the factors influencing health and the effect these have on each other.

Work in groups of 2-3 people.

2. How is your state of health?

Using dots, mark the factors influencing your own state of health on the spider web chart below.
Keep in mind that the closer you get to the middle of the spider web, the worse the values of the factors become.

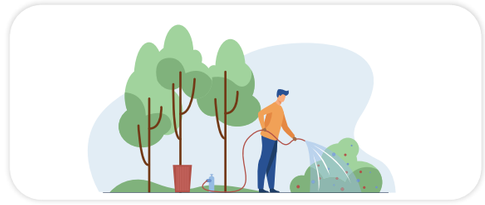


Connect the dots!

a) If you are finished with the drawing, evaluate your state of health.

b) How can you improve each of the factors?

3. Design a small garden that combines 3-5 plants.



Try your best to consider as many factors as you can when choosing the plants (e.g. when do they bloom and grow, what is their shade tolerance, how much sunlight do they need).
Justify the chosen factors.
You could even illustrate your plan with a drawing.

4. Take a look at the food you have at home, and check which of them contains palm oil. Find alternatives to replace the specific foods with.
Analyse which is more expensive.
Which solution do you think is the most eco-friendly?

5. One of your friends eats at fast food restaurants more than three times a week. What arguments can you put forward to change this habit of theirs? And what arguments can they raise for their way of eating?

Arguments for eating at fast food restaurants:

Arguments against eating at fast food restaurants:

06

6. Design a logo for a palm oil free product.

Make sure that the logo displays the positive effects on the environment of rainforests without plantations.

7. At markets we usually buy directly from producers. However, the products available at the shops often reach the shelves after going through many market players.

Choose two products that you often buy in a shop (e.g. chocolate, apples).
Look into what "stages" these products go through before they reach you.

8. Collect at least 5 food certification marks.

Take a photo of these with your phone, and describe what each of them means.

9. Which is the odd one out?

Circle the word that does not fit in the list, and explain why.

trimmings	lego figure	coffee grounds	wood shavings
feathers	hair	wood ash	sawdust
cooked food leftovers	apple core	potato peel	eggshells
willow bark	fruit of an apple tree	cherry blossom flower	walnut tree leaves
egg box	flower pot	newspaper with potato peel	paper teabag

10. True or false?

Write **T** or **F** in the boxes next to the statements. Justify your answer.

It is healthy to eat vegetables, herbs and spices that we grow ourselves.	
Wood ash can be composted because my plants like acidic soil.	
Our compost is ready in about a year.	
90% of residential waste is compostable.	
I can make a composter anywhere, even on the balcony.	
I can compost dead house, balcony or garden plants.	
Burning dry leaves is a useful outdoor activity.	

11. Visually examine your general household rubbish bin. Which of the waste could have been composted and why?

12. Find a hot spring in your town's neighbourhood. Make a brochure (or a website design) about the mineral content and health benefits of medicinal water.

- Create an exhibition from the brochure, e.g. on the school health day or during sustainability week.

13. Guess the water footprint size of the food below. Number the products in ascending order according to their water demand. Which products waste the most water?

Product	Water footprint in litres	Order
1 kg beef		
1 l (approx. 1 kg) milk		
1 kg bread		
1 kg apples		
1 kg hamburgers		
1 kg chicken breast		
1 kg coffee		
1 kg tea leaves		
1 kg potatoes		
1 kg rice		
1 kg salad		

14. With the help of a paper and pencil, interview your friends on how often and what they use digital tools for.

Organise an exhibition with the finished works, and view it together with the class.

15. You were able to read about the five healthiest cuisines in the world in the textbook. Check in the table below what the life expectancy at birth was in each of the ranked countries in the list in 2019.

The world's healthiest cuisines	Life expectancy at birth in the country in 2019
1. Chad	54 years
2. Greece	82 years
3. Japan	84.5 years
4. India	69.5 years
5. Lebanon	79 years

a) If each country in the list has a healthy cuisine, what might explain the differences in life expectancy?

b) What are the basic hygiene rules to be followed when preparing and consuming food? Why is that difficult in some cases?

16. Is Hungarian cuisine healthy?

a) What are the healthiest dishes of Hungarian cuisine based on the ingredients and the preparation method? Collect at least two examples, and give reasons for your choices.

b) What do you think is the most unhealthy or environmentally harmful dish in Hungarian cuisine? Justify your choice.

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17. What is your favourite food?

a) Find its recipe, and think about the ways you could make it healthier and more sustainable.

b) Write down your suggestions for the recipe.

18. There are so-called "superfoods" in Hungary too, which can keep up with their trendy, overhyped foreign equivalents like chia seeds or acai berries, and are often even better than them. Find out what these Hungarian superfoods are.

a) List at least 5 Hungarian superfoods. Write next to them which foreign food they can replace.

19. Split into groups of five. Each group should plan the menu of a sustainable restaurant. Make sure it is not too long, but it should include all types of food (starter, main dish, dessert) as well as the drinks list.

a) Present the menu to the other groups. After the presentation, vote on which is the best menu.

b) Discuss which supposed customer needs you had to comply with. Which of these are the most important?

20. Work in pairs, and put together a health-conscious Sunday lunch menu for a family of five. The budget for the main ingredients is EUR 15 – you have salt, sugar, oil, sweet paprika and pepper at home.

Make a presentation of the finished menu based on the following aspects:
- introduction of each dish,
- health-conscious aspects of the raw materials and the food preparation techniques,
- the exact budget (what you buy, how much of it, and at what price from the EUR 15),
- the exact place of purchase (near the school if possible),
- the waste generated and its utilisation.

21. Work in groups of five and make a poster or a video promoting the goals of the "No leftovers" programme.

22. Work in groups and prepare a news interview about what resulted in the following sentence in a future weather forecast in the textbook: "the heatwave that has been going on for 22 days will unfortunately not be receding any time soon"?

What did people do, or not do, that caused this weather?

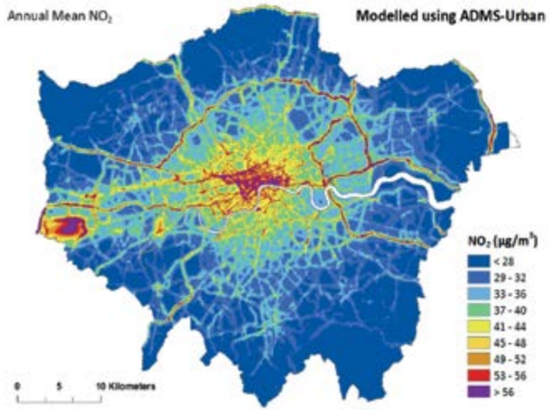
What can be done to prevent this weather forecast from becoming reality?

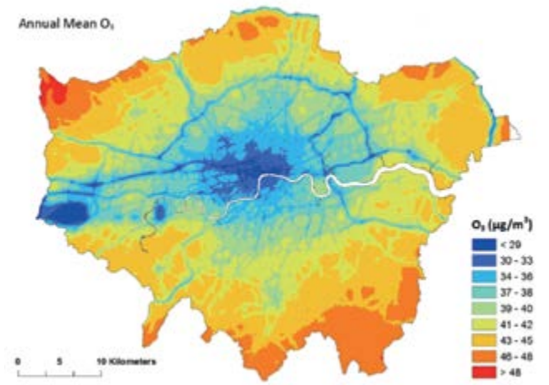
23. Find out what the primary air pollutant is where you live during the summer.

a) What is the rate of airborne dust, PM10 and PM2 in the air?

b) What could the health effects of air pollution be?

25. Analyse the air pollution map of the following city (London), and answer the questions.





a) What is the major cause of air pollution in each of the displayed seasons?

b) Can you separate the polluted and less polluted areas? If yes, what could the reason be for the difference?

25. Prepare an action plan to reduce air pollution and the number of related diseases in your own town. Work in groups if necessary.

ACTION PLAN TO REDUCE AIR POLLUTION AND THE NUMBER OF RELATED DISEASES

NAME OF TOWN/CITY: _____

06

Building a vision

1. Working from home – from the employer's perspective

In this magazine you were able to read interviews about the advantages and disadvantages of home officing from an employee's point of view. Now look at it from the employer's point of view.

Gather together at least three advantages and disadvantages for each.
For example: not having to rent an office reduces the cost to the employer, which is an advantage. However, not being able to monitor employees directly is a disadvantage.

Advantages:

Disadvantages:

If you were the boss, would you prefer to work from home or would you prefer to employ your people in the office? Why?

2. Challenges of the future

Let's travel far away to your adulthood: we're in 2050. What do you think will be the greatest challenges by then in the world? How can we prepare for them?

No one knows the exact answer to these questions – and neither should you. It is enough just to guess, drawing inspiration from your previous studies and using your creativity. The important thing is to have ideas about what we need to do. If we have plans, we know what we want to do, and we can only hope this will be enough.

a) First read the problems listed in the table. Rank them according to the importance they will have in 2050.

(1 – not important at all; 2 – slightly important; 3 – moderately important; 4 – quite important; 5 – highly important)	1	2	3	4	5
Population growth					
Shortage of drinking water, deteriorating water quality					
Deteriorating biodiversity					
Environmental crisis					
Increasing social tensions					
Lack of political will to make changes					
Climate change – warming climate					
Poverty, social inequality					
Food shortages (quality and quantity)					
Lack of human cohesion					
Increasing amount of waste					
Air pollution					
Climate change – extreme weather events					
Irresponsible consumer behaviour					
Soil degradation					
Other:					

b) Which three do you think will pose the greatest challenge?
Write them down:

1	
2	
3	

c) What do you think is changing or could change in the right direction? Write down at least three such areas. (such as women's rights, general education, forestation in Europe)

1	
2	
3	

d) How and by what means can we tackle the problems or even fight for the goals on a global level?
From points b) and c), choose the problem you are interested in the most, and fill in the table about it.
What are the most appropriate solutions and tools for tackling the problem? Provide specific examples too.

Selected problem:

Area	Solutions and tools
Scientific research, development and innovation	
Active citizens, democracy	
Up-to-date education	
Responsible consumer behaviour	
Spreading knowledge and science communication	
Solidarity, social justice and cohesion	
Establishing short and safe food supply chains	
Promoting sustainable lifestyles	
Corporate social responsibility	
Promoting sustainable modes of travel	
Building an environmentally friendly economic system, circular economy	
Other:	

3. Climate scare

a) Take out your textbook and carefully read the article entitled *Where is the world going?*.

b) What is changing? What is increasing and what is decreasing?
While reading the article, underline the factors which are changing in some way in the process of climate change. Collect at least 10 such factors, and write down how they are changing.
You can also write down factors that do not appear in the article, but you have read/heard about them in the previous chapters of the textbook or elsewhere.
For example:
- Annual average temperatures have been rising for years.
- The ice cover in Greenland is shrinking.
- The dark water surface is growing.
- Forests are shrinking.

c) What impacts on what?
In the next step, examine how the factors (variables) above affect each other (if they do). First look at direct connections. Look for at least 10 correlations among the 10 (+ the 4 given) factors collected above. For example:
- Annual average temperatures are rising, which leads to the ice melting and therefore shrinks the ice cover.
- The melting of the ice cover increases the dark water surface.
- The dark water surface absorbs the sun's rays (as opposed to the ice cover reflecting them back), therefore the temperature rises.

d) Draw the correlations.
- Write down the factors (variables) found in the previous section on pieces of paper, and place them on a large piece of paper. Do not write "increase" or "decrease" on them, just the variable.

For example:

- Connect the factors that are directly related.
- Mark the direction of the effect between the slips of paper with an arrow:

(Due to the change in average temperatures, the size of the ice cover changes as the ice melts because of the warming temperature.)
(As the dark water surface grows, the amount of absorbed sun rays increases, which results in a temperature rise.)

e) Mark beside the arrows how the above variables affect each other.

- **Add a plus sign (+)** if the change occurs in the same direction, i.e. if one increases, the other increases too, and if one decreases the other decreases.
- **Add a minus sign (–)** when the changes occur in the opposite direction: i.e. when one increases the other decreases, or when one decreases the other increases.

(With increasing average temperatures, the size of the ice cover decreases – the change occurs in the opposite direction, therefore we use the minus sign.)

(As the dark water surface grows the average temperature increases too – the change occurs in the same direction, therefore we use the plus sign.)

It can happen that two factors affect each other from both directions. For example, with rising average temperatures the ice cover shrinks. The ice cover reflects the sun rays, but with the ice cover shrinking the temperature starts to rise. Here the effect is opposite in both directions (if one increases the other decreases, and vice versa), so we use a minus sign in both directions.

f) Once you have drawn the arrows for all the variables, examine whether you can find any vicious cycles (traps). Let's look at an example:

It is a vicious cycle because the average temperature is rising, so the ice cover shrinks. This increases the dark water surface and thus contributes to increasing temperatures.

Draw three vicious cycles which contribute to climate change.

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4. Water disaster?

a) How much water do you consume as a family?

If you have a water meter, check the number on it to see how much water you consumed in the last month (2 months). The water meter generally shows data in cubic metres, so convert your consumption into litres. (1 m^3 = 1000 l)

b) Observe for a week how much water you use and for what. Make some estimates. Check if your estimates were correct. If not, what could be the reason for the difference?

Water meter reading at start of week: _____

Estimated consumption (in litres): _____

CONSUMPTION SUMMARY

Type of consumption	Level of consumption							
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Total
Meals, drinks, cooking								
Bath, shower								
Washing, washing-up, cleaning								
Other, specify:								
Total:								

Water meter reading at start of week + estimated total consumption: _____

Water meter reading at end of week: _____

Difference between estimated and actual water meter reading: _____

If there is a substantial difference, what do you think is the reason? _____

c) Calculate how much the residential water consumption in your village/town/city might be if people, on average, consume the same amount of water as your family does.

Average consumption per person in your family per month: _____

Population size where you live: _____

Residential water consumption based on own consumption: _____

d) Which sectors of industry do you think consume particularly large amounts of water? What is the water used for? How do you think water consumption could be reduced? Write down at least three such sectors.

Industry	What is water used for?	How to reduce water consumption?
Hospitality (running a hotel)		

e) List at least ten activities, which you as individuals or as a class can do in relation to the problems of too much water, too little water and water pollution.

For example, an individual activity could be conserving water in your households, while a class activity could be designing a poster raising awareness about the issue.

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Choose one from the list above. What steps need to be taken to implement this activity?

Preparation:

Implementation:

Follow-up (activities which need to be carried out after the event, such as selecting photographs, tidying up the event venue or sending follow-up information to participants):

f) Look for news on the internet about situations where the lack of water leads to a disaster. Write a short description about the ones that shock you most.

g) Also search for examples where the water shortage was successfully tackled. Choose the most inspiring one for you, and give a brief description.

5. The past, present and future of a landscape

a) Choose an area near your home (or school) which has a traceable history.
For example, find out how the forest was managed, what was on the field before it was turned into pasture. Ask the elderly, do research in the local museum or archive if there is one.

b) Prepare a timeline on wrapping paper or an A3 sheet, which describes the changes of the area in words or drawings.

c) Think through how the landscape could change depending on the management and use of the area, what vegetation might cover it in 30 years. Think of at least three alternatives.

d) Choose the alternative most appealing to you, and prepare a detailed drawing (possibly with the others) or a 3D model about how the area could potentially look in the future.

e) What can you do to make this alternative come true?

6. Green map

As the end of the schoolyear approaches, you have familiarised yourselves with so many areas of sustainability that it is time to test yourselves.
Split into groups of 4-5 people and design a "green map" of the area surrounding your school.

With the following steps, plan a "green path" that lay-people can walk on to learn about various aspects of sustainability with your guidance.

a) Look for places in the area that can help people live a more environmentally conscious life. Mark these on your map.

Some ideas for this: park, green space, dog park, running track, outdoor sport facilities, bike-sharing station, sustainable restaurant, fair trade coffee/tea/chocolate store, bag-free shop, office building with green certification, passive house, charity shop, composting station, community space, second-hand clothes shop, farmers' market, repair shop, community garden, drinking fountain, organic shop, vegetarian/vegan restaurant, eco-design shop, etc.

b) Choose at least three locations and prepare a short description (1-2 lines) about why it is a good place from the perspective of sustainable development.

For instance, a drinking fountain can provide opportunities for the residents and visitors to drink, thereby avoiding the need to buy bottled water and create plastic waste.

c) Rank the selected locations based on which is the most comfortable to pass through on foot.

Prepare a walking map with information signs on it.

7. What would you invest in?

a) Imagine you have significant capital (e.g. EUR 1,500,000), which you would like to invest in an area that makes a return on your money but is also ecologically useful.

Which investment areas are these?

Luckily there are green investments and savings possible for people who have little money. And you can also carry out green investments in your own home, such as installing solar panels and choosing energy-efficient tools.

b) The energy industry is one of the industries that pollutes the environment the most. There are several ways to generate energy in a less polluting manner, but a full consensus has not been reached on any of them.

Below we highlight three main solutions said to be the most environmentally friendly. What are the arguments for or against each of the solutions? Find out more about them.

	Arguments for:	Arguments against:
Nuclear power plant		
Solar power plant		
Wind power plant		

Based on the above, which sector would you invest your money in?

8. Apply to be a volunteer now!

Imagine that as a young adult you want to have a gap year to learn more about the world. You see two advertisements on the school bulletin board.

DO YOU LIKE HELPING OTHERS?
ARE YOU LOOKING FOR EXCITING CHALLENGES?
WOULD YOU LIKE TO SEE THE WORLD?
IF YOUR ANSWER TO THESE QUESTIONS IS YES, THEN JOIN US!

Our organisation is looking for volunteers for our projects in Africa and Asia.

Project 1
Protecting the biocenosis of a mangrove swamp or forest
Destination: Madagascar

Project 2
Establishing a youth centre and its programmes
Destination: Nepal

Tasks:
- promoting the project, informing local residents,
- helping organise the programmes.

Contact us, join us as a volunteer! Please send your application with a motivational letter to the organisation's email address.

DO YOU FEEL YOUTH RIGHTS ARE IMPORTANT?
DO YOU AGREE THAT ACTION SHOULD BE TAKEN TO ENSURE THE VOICES OF CHILDREN AND YOUNG PEOPLE ARE HEARD IN SOLVING THE PROBLEMS THAT AFFECT THEM?

Please apply, if:
- you would like to take part in exciting project work;
- you consider it important that the rights of children and young people are respected;
- you like thinking about solutions to problems;
- you like formulating constructive opinions.

What we offer:
- you can learn about the work our organisation does;
- you can shape our services with your opinions;
- you can write articles and produce content, and we publish them;
- you can take part in community programmes;
- **we give you a certificate about your voluntary work, which can help you find a job later on.**

Contact us, join us as a volunteer! Please send your application with a motivational letter to the organisation's email address.

One of the advertisements appeals to you, and you decide to try your hand at volunteering. After confirming from several official sources that it is a reliable and legitimate organisation, you decide to submit your application. Applicants are selected based on their motivational letters.

Choose an ad and a task, and write a motivational letter to convince the decision-makers at the organisation that you are the best candidate.

Don't worry about being personal, this is not a CV! Make sure the letter contains the following:
– your skills and qualities necessary for the position (e.g. language knowledge, communication skills, ability to make contact with others, etc.);
– why you are interested in volunteering;
– why you are interested in the task;
– how you think you could help implement the project.

Write 10-12 sentences. Before you start writing, find out about the location of your chosen programme.

MOTIVATIONAL LETTER

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9. Volunteering – how can I help?

People who would like to volunteer within an organisational framework typically look for NGOs, state-run institutions, other organisations or tasks matching their interests.
Eight friends of yours decide to try themselves out as volunteers. All of them submitted their application to different organisations that perform activities matching their interests.

Unfortunately, the application forms got mixed up. Help the postman work out which person applied to which organisation. Some of your friends' interests could be useful in several organisations, so there might be more than one correct solution. Match the interests on the left with the fields of activity in the middle and the tasks on the right.

Interests	Field of activity	Task
Nimród: animal protection	Caring for homeless people	Marking a nature trail
Lili: supporting the underprivileged	Running a theatre	Food distribution
András: caring for plants	Managing a wildlife reserve	Content creation
Imola: history	Archaeology	Foreign language lessons
Zoli: education	Language teaching	Animal care
Márta: communication	Nature conservation	Excavation
Bence: finance, children	Child protection	Organising donations
Sára: IT, drama	Running a local radio station	Website development

10. Green jobs

Choose one of the jobs on the sheet and find someone around you who works in the same or a similar job.
Make an interview with this person. The following questions will help you:
- Why did you choose this profession? Did it have anything to do with commitment to environmental protection/sustainability?
- What do you like in your profession?
- What difficulties or obstacles do you face in your profession?
- What has been your greatest success so far?
- What skills, qualities and knowledge do you think are necessary in your profession? What do you need to study for that?

INTERVIEW

Based on the interview, would you like to work in this field?
What are the arguments for and against it? Come up with at least three arguments on both sides.

Arguments for	Arguments against

You should listen to the other interviews too. Which profession appeals to you the most?

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11. Have you heard of them?

In an article with the same title in the last magazine of the textbook we highlighted a few lesser-known organisations that work in the field of sustainability worldwide. Now it is your turn, in a few sentences, to introduce an organisation which works in similar fields in your surrounding area.
You can look for NGOs or state-run organisations.

ENERGIAKLUB SZAKPOLITIKAI INTÉZET MÓDSZERTANI KÖZPONT

Magyar Természetvédők Szövetsége
Föld Barátai Magyarország

MAGYAR KÖRNYEZETI NEVELÉSI EGYESÜLET www.mkne.hu

HUMUSZ szövetség

Organisation's name:

Description:

Organisation's name:

Description:

Organisation's name:

Description:

12. A day in the future

It's 2050. It's Monday morning, the start of another busy day. When the alarm on your phone goes off, the shutter rolls up and the coffee machine turns on in the kitchen. The robot servant brings in your slippers and prepares your clothes for the day. With a voice command you order a self-driving car to in front of your house. Self-driving cars are in high demand at the beginning of the week, so you expect to wait a little longer than usual, about 15 minutes.

Think more about your day in the eco-city of the future, and continue the description.
What does the city look like? What services does it offer for you? What don't you like about it?

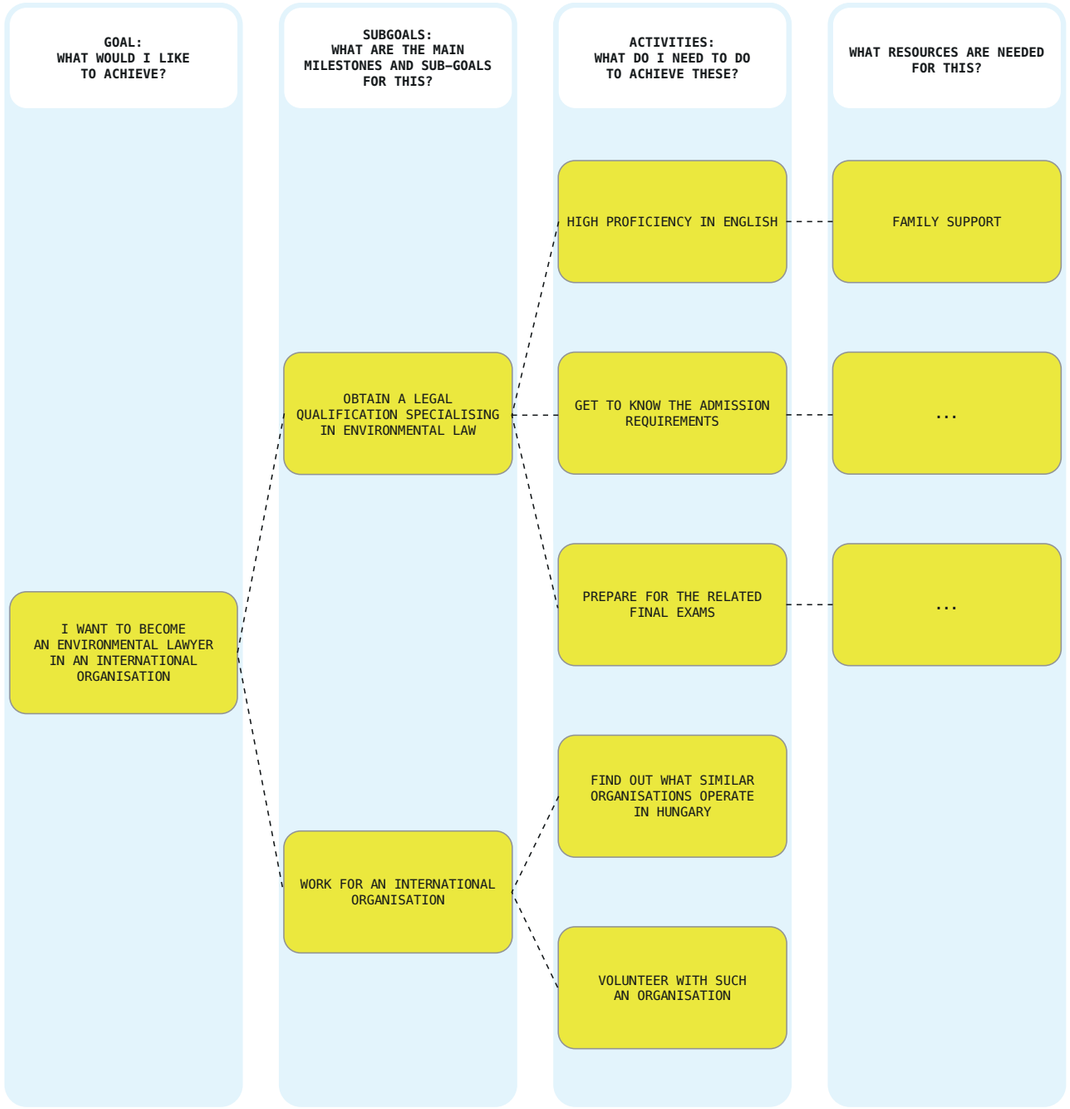
13. Future times

By summarising the results of the previous tasks, plan the cover page of your own newspaper from 2050.
What issues will people be concerned with then? Just give a title and subtitle for each topic.
Search the internet for pictures to illustrate them.
You can prepare your plan in a Word document or a PowerPoint presentation.

07

14. Become a future activist!

Choose one of the sustainability goals formulated in the tasks above.
The following flow chart will help you think through what you need to do to achieve your goal.



In the last column above, underline the resources that are not available. First, you need to acquire those.

LIST OF IMAGES

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