

Learning pack #3

Teaching materials for schools and educational institutions
For students aged 12 to 16 years old



Urban Green Spaces



Imprint

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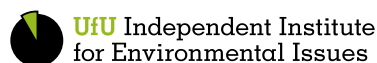
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Content

- Editorial 1
- Introduction..... 2
- Overview of the modules..... 4
- Module I – Problem and background..... 8
- Module II – Individual dimensions 13
- Module III – Structural element..... 17
- Module IV – Possible solutions..... 26
- Playing Films..... 34

Editorial

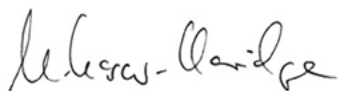
Green oasis as opposed to a concrete desert

Back in the days when Berlin's Tempelhof airport was still operating as such, my balcony offered a view of the kilometer-long runways and the travelers who used to flock in and out of the vast terminal building. It was there, in the 1920s, that the Zeppelin landed, it was also from there that first Nazi and then Allied aircraft took to the skies, and where civilians boarded scheduled flights. In 2008, the airport in the center of the capital shut down. I was disappointed. Living directly opposite Tempelhof, I sometimes just watched the planes coming in to land. The noise had been distant enough not to bother me, and back then, I wasn't thinking about the environment.

These days, the site is my oasis. The skies above the old airport are now filled with birds and kites. My children picnic on the former airfield; others use the space to go walking, to play, to garden, or just to sit back and relax. We are among thousands of Berliners who make daily use of what has become a sprawling inner-city park characterized by trees, huge swathes of open space and former runways that accommodate roller skaters and cyclists. A green oasis in the middle of the German capital, as big as Central Park in New York; a space that gives city dwellers a chance to breathe and which creates habitat for local animals.

City residents need the kind of oasis that has risen on the site of this defunct airport. Places like this make urban areas liveable, which is why we have devoted this learning pack to nature in the city. I hope you enjoy exploring the green possibilities of the concrete desert.

Best wishes



Manuela Kasper-Claridge

*Project leadership Global Ideas
Deputy editor-in-chief, Deutsche Welle*



Introduction

This brochure is part of the learning pack “Urban Green Spaces,” published by Deutsche Welle (DW) and is compiled by the editorial team from the environmental series Global Ideas. It is aimed at children between the ages of 12 and 16 and their teachers, as well as environmentally minded young people and eco groups working toward increasing the amount of green urban space.

The pack includes **worksheets** for students and explanatory **handouts** for teachers and educators that will help in preparing and implementing lessons. The learning pack consists of four modules, which include educational material in the form of articles, photos, films and a quiz.

The print version of the learning pack includes a DVD containing all the educational material. Alternatively, the content is also available for free download on the Deutsche Welle website. Click here for previous learning packs on other interesting environmental issues: dw.com/learning-environment



Icon for worksheets



Icon for handouts

Structure

Module I

In the first module, “Problem and background,” a quiz provides project participants with a comprehensive insight into the issue. The quiz is comprised of questions on the importance and development of towns and cities, as well as climate change and biodiversity in the city. Two introductory films show why nature is so important in ever-expanding urban areas.

Module II

In the second module, the focus is on personal use of open and green space. Two units requiring personal reflection, give participants the chance to think about what they expect from a green oasis and to get creative in designing their own “ideal” green space. To conclude, a film introduces the concept of urban gardening as a neighborhood re-naturing project.

Module III

The third module looks at the structural dimension: What measures can politicians and urban planners take to support urban green spaces? A film from Mexico City shows how rooftop gardens can improve air quality; two articles offer a more critical analysis of green urban spaces with regard to biodiversity and the consequences of climate change.

Module IV

In the fourth module, we offer potential solutions. In a film about a renatured ravine in Bogota and an article about a green schoolyard in Berlin, young people see how they can become part of initiatives to create urban green spaces. To conclude, participants can draw up a project plan with a view to implementing their ideas.

The following table offers an overview of the modules, including how long each takes, a short description of the content and learning objectives, and the necessary material. The modules build on each other, but can also be shortened or used in isolation.

Overview of the modules

Module I – Problem and background

Duration	Content and learning objectives	Materials and implementation
30 minutes	A quiz to offer a playful introduction to the topic	Handout 1 Quiz cards
30 minutes	Analysis of urbanization as a means of understanding the growing importance of green spaces	Film 1 "Green cities, better climate" <i>dw.com/p/36lPW</i> Handout 2 Worksheet 2
30 minutes	Importance of green spaces for animals	Film 2 "Germany's wildlife hotspot: Berlin" <i>dw.com/p/33f4x</i> Handout 3 Worksheet 3

Module II – Individual dimensions

Personal use of urban green spaces

Duration	Content and learning objectives	Materials and implementation
45 minutes	Reflection A Students discuss their thoughts on the use of green spaces	Group brainstorming around the central question Material (optional): Paper, three colored pencils, sticky tape Handout 4
90 minutes	Reflection B Discussion about what different people expect from green spaces	Small groups describe and draw an “ideal” green space Material: Large-format paper and colored pencils (per group) Additional craft and natural materials (optional) Handout 5
30 minutes	Urban gardening as a form of neighborhood green space	Film 3 “Urban gardening in Berlin” <i>dw.com/p/387Ra</i> Handout 6 Worksheet 6

Module III – Structural element

Strategy for improved use of urban green spaces

Duration	Content and learning objectives	Materials and implementation
30 minutes	Town planning measures for climate improvement and the creation of a new green space in Mexico City	Film 4 "Mexico moves to fight smog" dw.com/p/1CdCt Handout 7 Worksheet 7
45 minutes	Critical analysis of the "restoration" of green spaces in Moscow	Article 1 "Nature under siege in one of Europe's biggest cities" dw.com/p/2h5kW Handout 8
30 minutes	Measures to improve urban adaptability to the impacts of climate change	Article 2 "To keep cities cool, we need to green them right" dw.com/p/2dbln Handout 9 Worksheet 9


Module IV – Possible solutions

How can we make urban spaces greener?

Duration	Content and learning objectives	Material and implementation
30 minutes	Examples for collective action: Neighborhood renaturing project in Bogota	Film 5 "Graffiti artists help turn landfill into eco haven" <i>dw.com/p/1JVcW</i> Handout 10 Worksheet 10
30 minutes	A school that's taking action: Making use of a green schoolyard in Berlin	Article 3 "Going to school with goats in Berlin" <i>dw.com/p/34FnC</i> Handout 11 Worksheet 11
60 minutes	Collecting ideas and planning a project	Handout 12 Worksheet 12



Introducing the topic with a quiz

 **Duration: 30 minutes**

Guidelines for project leader

The **quiz cards** fall into three categories and are marked with different symbols on the reverse side.

» **Quiz Cards**



General knowledge
city



Biodiversity
in the city



Climate change
in the city

Getting ready to play

Shuffle the cards in each of the three categories. Put the cards face down in three piles on the table.

Form two teams with the same number of participants on each. The team with the youngest player starts by answering the first question.

Rules

The team whose turn it is may select one of the three categories. Someone from the opposite team, reads out the first question.

Each team has 60 seconds to confer. The player who answers correctly, receives a point and is allowed to try and answer the question on another card from any of the three categories.

If the answer is wrong, it is the other team's turn to play.

End of the game

The game is over when the questions on all the cards have been answered correctly. The team with the most points wins.



Background of urbanization and value of urban green spaces

Duration: 30 minutes

Guidelines for project leader

Use **film 1** "Green cities, better climate," which you will find online at dw.com/p/36IPW, or on DVD.

» **Film 1**

If required, you will find instructions on how to play the films on the last page of this learning pack.

Before you show the film, distribute the questionnaire in **worksheet 2** to the participants. Allow the participants time to read the questions before playing the film.

» **Worksheet 2**

(Duration including introduction of the film, distribution of the questionnaire and film time: 15 minutes)

Task for project participants

Please fill out the questionnaire while watching the film. At the end, you will be given a further 5 minutes to complete it.

After filling out the worksheet, you should take turns presenting your answers to the group and subsequently discussing them. You will have 10 minutes for this.



Film questionnaire “Green cities, better climate”

1. How many people will be living in urban areas by 2050?

.....

2. Why are so many people drawn to live in urban areas?

.....

.....

3. Why do we need green spaces in cities? What examples appear in the film?

A

B

C

D

E

4. Can you name the disadvantages of urbanization mentioned in the film?

.....

.....

5. Do you know any green areas near where you live? Do you use them, and if so, how?

.....

.....



Importance of green spaces for animals

Duration: 30 minutes

Guidelines for project leader

Use **film 2** "Germany's wildlife hotspot: Berlin," which you will find online at dw.com/p/33f4x, or on DVD.

» **Film 2**

If required, you will find instructions on how to play the films on the last page of this learning pack.

Distribute **worksheet 3** to the participants before showing them the film. Allow them to read the questions before playing the film.

» **Worksheet 3**

(Duration for the introduction of the film, distribution of the questionnaire and film time: 10 minutes)

Task for project participants

Please fill out worksheet 3 while watching the film. At the end, you'll be given a further 5 minutes to finish answering the questions.

Take turns to present your answers to the group and subsequently discuss the arguments for and against. You will have 15 minutes for this.



Film questionnaire “Germany’s wildlife hotspot: Berlin”

1. Why are wild animals drawn to towns and cities?

.....
.....
.....

2. What are the advantages and disadvantages of an increasing number of animals settling in towns and cities?

.....
.....
.....
.....

3. What do you think of this development?

.....
.....
.....


4. Which wild animals live in your city?

.....
.....
.....



REFLECTION A

Discussion on what individuals expect from green spaces

 **Duration: 45 minutes**

Guidelines for project leader

Please give each participant three small pieces of paper in different colors, or with a different colored dot on them. Each participant should use the same color to answer the same question. For example: Blue paper (or paper with blue dot) for question one. And so on.

Please ask participants to write clearly.

Question 1 What is my interpretation of a green space?

Ask participants to use one piece of paper to describe their understanding of a green space using no more than three words. Examples might be: "sports field," "place to relax," "park with trees," "meadow with bushes," "flower beds with benches."

Question 2 What green spaces do I know and how do I use them?

Ask participants to use one piece of paper to write brief notes about whether and how they use green spaces themselves. Examples might be: "jogging," "playing with a ball," "reading," "relaxing," "bike riding," etc.

Question 3 What would I like from a green space?

Participants conclude by writing on the last piece of paper, what they expect from a green space. Examples might be: "cleaner," "more benches," "less garbage," "separate areas for sport and relaxation," etc.

Following a short work period, each participant can come to the front to briefly present their three papers and place them on a wall. If two or more participants have written the same or similar answers, these can be placed next to each other as a cluster.

(10 minutes for answering the questions, 15 minutes for the presentation of the answers)

To wrap up, the group discusses the different interpretations of green areas, how participants have largely used them until now, how interests differ and what people hope to get from them.

(Duration: 20 minutes)



REFLECTION B

Exploring different expectations of green space

 **Duration: 90 minutes**

Guidelines for project leader

Divide the whole group up into four to six similarly sized teams. Each team should include people looking to get different things out of green spaces.

Each group should have a large piece of paper or a poster (e.g. DIN A2) and different colored pencils. They can also have natural materials such as straw, moss, leaves or old newspaper to make a collage.

Ask each group to design their ideal green space on the poster in such a way that everyone's wishes and interests are taken into account and are visible in the overall planning. It's important that members of the group discuss what they're doing. The group should also think about how the green space can be managed and maintained.

Allow 15 minutes for the introduction.

After a period of 30 minutes, each group can present their design and discuss it in the group.

Allow 45 minutes for the presentation, questions and discussion.

At the end, all participants have the chance to reveal their favorite design, by putting a dot (with a pen, for example) on the poster they like the most.



Urban gardening as a form of neighborhood green space

Duration: 30 minutes

Guidelines for project leader

Use **film 3** "Urban gardening in Berlin," which you will find online at dw.com/p/387Ra, or on DVD.

» **Film 3**

If required, you will find instructions on how to play the films on the last page of this learning pack.

After the film, distribute **worksheet 6** to the participants.

» **Worksheet 6**

(Duration: 10 minutes for the introduction of the film, distribution of the questionnaire and film running time)

Task for project participants

Please fill out the questionnaire after the film. (Duration: Around 10 minutes)

Take turns to present your answers in the larger group. You will have 10 minutes for this.



Film questionnaire “Urban gardening in Berlin”

1. What are the advantages of residents getting together to clear abandoned land to make a garden or grow food?

.....
.....
.....

2. What is your opinion of such activities?

.....
.....
.....

3. Could such activities be applied to your town or city?

.....
.....
.....



Mexico City as an example of urban planning with a view to climate improvement

Duration: 30 minutes

Guidelines for project leader

Use **film 4** "Mexico moves to fight smog," which you will find online at dw.com/p/1CdCt, or on DVD.

» **Film 4**

If required, you will find instructions on how to play the films on the last page of this learning pack.

After the film, distribute **worksheet 7** to the participants.

» **Worksheet 7**

(Duration: 10 minutes for the introduction of the film, distribution of the questionnaire and film running time)

Task for project participants

Please fill out the questionnaire after the film. (Duration: Around 10 minutes)

Take turns to present your answers in the larger group. You will have 10 minutes for this.



Film questionnaire “Mexico moves to fight smog”

1. What is the main reason for smog in Mexico City?

.....
.....

2. Which strategies are being adopted by the government in Mexico City to improve air quality?

.....
.....

3. What are the results of these measures?

.....
.....

4. How does Mexico City benefit from rooftop gardens?

.....
.....
.....

5. Why are succulents planted in the rooftop gardens?

.....
.....

6. Why is it so important that only indigenous plant species are planted on the rooftops?

.....
.....
.....

7. What other advantages do rooftop gardens have for residents and wildlife in Mexico City?


.....
.....
.....

8. What is your opinion of the rooftop gardens, and do you think they could be created in your town or city?

.....
.....



Critical examination of the “restoration” of green spaces in Moscow

 **Duration: 30 minutes**

Guidelines for project leader

Please use **article 1** “Nature under siege in one of Europe’s biggest cities”.

» **Article 1**

You will find a copy of the article here, or online under dw.com/p/2h5kW.

Ask one participant to read the article out loud, or several participants to take turns doing so.

We suggest a “fishbowl” discussion to talk about the article.

The group should create an inner circle using six to eight chairs, and put the other chairs around them to form an outer circle. The students in the inner circle should discuss what they have read, while those in the outer circle, sit and listen.

You moderate the discussion, and ask individual participants to take their seats in the inner circle. One chair should remain vacant so that each participant from the outer circle can move to the inner circle to share their thoughts.

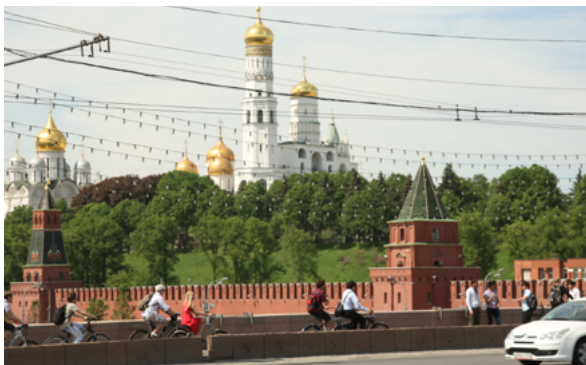
After one question, participants in the inner circle can provide their answers. Once a participant has finished saying what they want to say, they can leave the inner circle to make space for someone from the outer circle to play an active role in the discussion.

Put the following questions to the group in the inner circle. You can add to the questions, or change them.

- What does the mayor of Moscow, Sergei Sobyenin, mean when he says he wants to “return Moscow’s parks, squares and streets to Muscovites?”
- Why will the planned and already completed “restoration” of the park lead to a significant loss of biodiversity?
- Which concrete examples of biodiversity loss are listed in the article?
- What is the mayor’s vision of green space, and a “real” European city? Do you share his vision?
- Are there similar visions for green spaces where you live?
- Do you think the demands on natural spaces for species protection can be united with the needs of residents?

Nature under siege in one of Europe's biggest cities

Moscow authorities have pledged to “renovate” this city of 12 million, and give it a “European” look. But biologists warn that Moscow’s natural habitats are disappearing at an alarming speed, with biodiversity at stake.



Green oasis in Moscow

A seemingly endless sea of drab, concrete apartment blocks; fuming factory pipes; congested traffic arteries with the thundering noise of cars; and a population of 12 million – hardly impressions for a city of natural riches. Yet Moscow boasts remarkable and perhaps unexpected ecological diversity.

Seen from the sky, the Russian capital reveals substantial green spaces between buildings, as well as a smattering of smaller and larger parks – often remnants of forests eaten into by 20th century expansion – which accommodate rare animal and plant species.

But this diversity is now under threat. Though it might sound like a contradiction, Mayor Sergei Sobyanin's pledge to “return Moscow’s parks, squares and streets to Muscovites” could be the death knell for the city’s natural abundance.

A major overhaul of many green spaces is now underway, the ultimate idea being to give them a more “civilized” look and make them more attractive for recreation.

And because Muscovites love their parks, which offer an escape from the noise and fumes of the big city, many are happy with the planned renovation.

But biologists have been asking why these parks need to be “returned,” not least because city measures often prove disastrous for biodiversity. The topsoil of colorful meadows – boasting an array of sometimes rare plant species – is often completely stripped out in favor of sterile lawns where insect life struggles to thrive.

Pollinators hit hard

One of the best examples of this is the Tsaritsyno Park in the south of Moscow, which has been rigorously “renovated.”

“It has a direct effect on bumblebees, butterflies, insects that are important for pollination - in some places, they have disappeared over the course of one season,” biologist Ksenia Avilova told DW.

She added that a lack of food means many species once common to the Krylatskoye Hills, such as yellow wagtail birds, have become rare or have even disappeared altogether. Thrush nightingales have also clearly suffered from the mass removal of undergrowth.

“Even if some scattered plots with the necessary plants remain, they are often situated far apart, and insects or birds cannot cover such large distances in their search for food,” Avilova continued.



Bees and butterflies rely on real nature to survive

Narcissistic gardens

Scientists feel their warnings amount to a cry in the desert. “The dogs bark and the caravan goes by, Mayor Sobyanin once said about our criticism,” recalled Boris Samoilov, editor of Moscow’s Red Data Book, which lists endangered animal and plant species in the Russian capital.

A key problem is the difference in perception between experts and those who implement the renovation programs, he says.

“They have their own ideas of what nature should be like. For them, the main thing is to spend the money that has been allocated, and then to show everybody how much work has been done,” says Samoilov.

Authorities replace natural grasslands with artificial lawns and tile natural pathways, urbanizing the area, according to the environmentalist. “You end up with an ‘ideal’ park which everyone admires, including themselves [in it].”

How do you define ‘green’?

Biologists also warn that removing whatever remains of natural habitats in Moscow will seriously affect the microclimate of the city, and have dire consequences on the health of millions of Muscovites.

The city authorities do not share this view. They claim the net surface of “green” areas in Moscow is actually increasing, and see the number of new trees planted as a key indicator that things are only getting better.

According to Mayor Sobyanin, more than 4 million shrubs and trees have been planted in the city in recent years.

“Moscow is one of the greenest metropolises in the world. Nevertheless, its green areas need constant attention and renewal,” he said at a city government meeting last December.

Moving backward



Radical park “restoration measures”

The way the city of Moscow is dealing with its existing natural habitats runs counter to the current trend in various European cities, where if possible, natural areas are expanded rather than reduced.

Paradoxically, however, Moscow authorities claim they want to turn the Russian capital into a “real” European city.

“The Moscow mayor does not understand that in Europe, the attitude toward natural areas changed a long time ago,” said biologist Galina Morozova, who once headed the city’s department of natural resources management.

“If such ‘renovation’ as is now taking place in Moscow would be tried in a European city, and at such high cost, it would be met with severe criticism and seen as a demonstration of the backwardness of the city’s leadership.”

*25.07.2017, Geert Groot Koerkamp (text and images)
dw.com/p/2h5kW*



Measures to improve urban adaptability to the impacts of climate change

 **Duration: 45 minutes**

Guidelines for project leader

Please use **article 2** "To keep cities cool, we need to green them right". You will find a copy of the article here, or online at [dw.com/p/2dbl/n](https://www.dw.com/p/2dbl/n).

» **Article 2**

Ask one participant to read the article out loud, or several participants to take turns doing so.

Distribute the questionnaire from **worksheet 9** and ask participants to answer the questions.

» **Worksheet 9**

Participants then take turns reading out the answers to the questions. This serves as the basis for a discussion.

Tasks for participants

Please read the questions on worksheet 9. After reading the article, answer the questions.

To keep cities cool, we need to green them right

With temperatures rising due to climate change, making our cities greener might seem to be an obvious solution. But without knowing what, where and how to plant, we risk unexpected health impacts and reduced resilience.



Deciduous trees provide shade on hot days

When the summer sun starts baking city sidewalks, people gravitate toward green oases in a quest that hasn't changed much since our ancestors migrated from one watering hole to the next.

We know instinctually that areas shaded by greenery are much cooler than the concrete canyons of the city, and with climate change, urban trees are becoming more important than ever.

Cities are heating up much faster than surrounding countryside because of heat-trapping asphalt and concrete that creates urban heat islands that can't cool off, even at night. By 2050, the heat-stress index for European cities will double compared to adjacent rural areas.

A recent study even indicated that some of the world's cities may become 8 degrees Celsius (14.4 degrees Fahrenheit) warmer by 2100 – a prospect with dire health consequences.

Although greening urban landscapes is one possible solution, it could have a downside. From blocking air currents so cities actually heat up to increasing chemicals harmful to human health, city greening needs to be done correctly in order to prevent negative effects and maximize a city's resilience to climate change.

Choking on isoprene

Trees can emit a volatile chemical that combines with car fumes to form deadly smog. In Berlin, a recent study shows, trees contributed up to 60 percent of the ozone formation during an intense 2006 heatwave – during what was at the time Germany's hottest year in more than a century.

Some trees produce a lot of isoprene – an organic molecule with natural rubber compounds that vaporizes easily, especially when it's hot. The chemical combines with nitrogen oxides from car and factory fumes to form ozone – one of the most direct threats to human health in cities during heatwaves, particularly to infants and elderly people, explained author Galina Churkina, a researcher with the Institute for Advanced Sustainability Studies in Potsdam.

Taken together with other studies on global warming impacts to cities, the findings suggest efforts to green up cities could be misguided – unless such greening efforts are combined with cuts to emissions from traffic and industry, Churkina said.

“Greening up cities is not really a straightforward measure. If one is not careful enough with the plants, you can get other effects that you do not expect.” Some of Berlin's oldest and most impressive trees are plane trees – which release a lot of isoprene – as do poplars. Birch and linden trees, on the other hand, produce less.



Plants on buildings can play an important role in cooling urban landscapes

Thinking holistically

Urban planners should choose species carefully for a holistic approach to urban resilience, Churkina said. That means city departments must work together, said Seb Maire, the chief resilience officer of Paris.

Speaking at a NextGen cities symposium at a recent European Geosciences Union assembly in Vienna, Maire said he's focusing on getting engineers, social scientists, traffic experts and climate scientists to cooperate and take a long-term view of urban development.

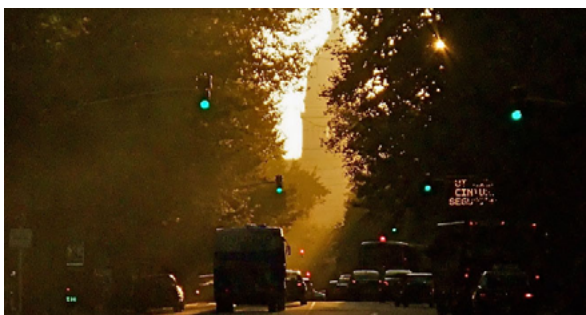
He believes cities have a real opportunity to make improvements with long-lasting benefits for residents. That's because 80 percent of the infrastructure that will exist in 50 to 60 years hasn't been built yet.

Like many cities, Paris is counting on more greenery to guard against the impacts of climate change. "We're spending tens of millions to adapt, to have water everywhere in the city. We're tearing up pavement, encouraging people to plant veggies on their balcony," Maire said.

Plants without pests

But with forecasted warmth also comes the increased risk of insect-transmitted disease, such as dengue fever or malaria. "If we have a mosquito with a deadly disease in 10 years, we won't care about being hot," Maire said.

The city encourages citizens to become balcony gardeners. But Maire says it should also train them in the best ways to avoid mosquitoes - for example by ensuring plant pots aren't hiding pools of water that make a prime location for mosquitoes to breed.



Trees along busy roads can actually trap heat and smog

The configuration of urban greenery is also critical. On narrow streets, tall trees tend to have a negative impact on air quality because they block breezes needed to cool the air, and dissipate noxious fumes. In these settings, long, low hedges and porous "living walls" covered with greenery are more effective than trees, said Prashant Kumar, an air-quality expert at

the University of Surrey, who has studied the combined effects of traffic, wind patterns and vegetation along four busy commuter routes in London.

Building resilience

Such site-specific data can be used with detailed new urban climate models that show impacts down to the level of individual city blocks, and help develop ways to mitigate them.



Climate modeler Maja Zuvella-Aloise says the right urban planning can make cities liveable as temperatures soar

In central Vienna, urban climate scientists have shown that if all suitable roofs were covered in plants or material that reflects at least 70 percent of incoming solar radiation, the number of days exceeding 30 degrees Celsius (86 degrees Fahrenheit) could be cut by 29 percent.

In 2014, its hottest summer on record, Vienna topped that temperature reading 42 times, with emergency medical calls spiking by 20 percent during the most extreme heat.

Research also shows that it's important to connect city centers to larger greenbelts outside the urban core. In the Austrian capital, blocking the flow of winds from the Vienna Woods to the city with new urban development would intensify the heat buildup.

"There's a lot of potential for mitigation," said Maja Zuvella-Aloise, with Austria's Central Institution for Meteorology and Geodynamics. By adopting the right measures now, quality of life in cities can be maintained - and even improved - in the face of global warming, she concluded.

14.06.2017, Bob Berwyn (text and images)
dw.com/p/2dbl



Article questionnaire

“To keep cities cool, we need to green them right”

- 1. Why is climate change causing the average temperature in cities to rise higher than that in rural regions?

.....
.....
.....

- 2. What negative impacts can specific trees have?

.....
.....

- 3. What are the impacts of isoprene emissions from trees?

.....
.....
.....

- 4. What alternatives are necessary and what should be taken into account when using trees to “green” towns and cities?

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.....
.....

- 5. Why is it important to educate town and city residents about urban green spaces?


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.....

- 6. Is planting trees enough to adapt towns and cities to the impacts of climate change? Which other measures could be useful?

.....
.....
.....
.....



Examples for collective action: Neighborhood renaturing project in Bogota

 **Duration: 30 minutes**

Guidelines for project leader

Use **film 5** "Graffiti artists help turn landfill into eco haven," which is on DVD, or online at dw.com/p/1JvCW.

» **Film 5**

If required, you will find instructions on how to play the films on the last page of this learning pack.

Distribute **worksheet 10** to the participants before the film.

» **Worksheet 10**

(Duration: Around 10 minutes for distribution of the worksheet and film running time)

Task for participants

Please fill out the questionnaire while watching the film. At the end, you will be given a further 5 minutes to complete your answers.

Take turns to present your answers in the larger group. You will have 15 minutes for this.



Film questionnaire

“Graffiti artists help turn landfill into eco haven”

- 1. How does Sofia López describe the way things used to be in the ravine of Bosque Calderón Tejada, the small settlement on the eastern edge of Bogota?

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- 2. How have Conservation International, Octavio Rodríguez, Sofia López and many others changed the situation?

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- 3. Why is the participation of former and potential criminals in the project so important, and what positive “side effects” does the project have for the district besides renaturing?

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- 4. In this context, what role does street artist Danilo Ochoa play?

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- 5. What impacts does the renaturing project have on other conservation areas in the city?

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- 6. What other ideas does Edwin Tapasco Parra have for his future?

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- 7. What are your thoughts on the project and do you have ideas about how it could be implemented in your town or city?

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Example of a school taking action: Berlin with a green schoolyard

 **Duration: 30 minutes**

Guidelines for project leader

Please use **article 3** "Going to school with goats".

» **Article 3**

You will find a copy of the article here, or online at: dw.com/p/34FnC

Ask one participant to read the article out loud, or several participants to take turns doing so.

Distribute the questionnaire from **worksheet 11** so participants can answer the questions while they are listening.

» **Worksheet 11**

(Duration: Around 15 minutes for the distribution of worksheets and reading article aloud)

Tasks for participants

Please fill out the questionnaire while listening to the article. At the end, you will be given a further 5 minutes to complete your answers.

Take turns to present your answers in the larger group and discuss them. You will have 15 minutes for this.

Going to school with goats in Berlin

The Hagenbeck school in Berlin offers a unique formula for learning. In an effort to teach students the importance of species and ecosystems, every subject has a connection to biodiversity.

It's eight in the morning and a bunch of adolescents are leaning on a gate observing the comical antics of Oreo, Agro and Wilma on the other side. Somehow, the three goats have caught the kids' attention so completely that they momentarily have no interest in the usual teenage trappings, such as cell phones.



Students feed animals on the school grounds

The scene is playing out in front of a school farm, which – besides accommodating the goats – is home to ducks, chickens, pigs and a whole range of other animals. The farm, like the garden next to it, belongs to the Hagenbeck high school in Berlin's north-eastern district of Pankow.

Every day some 400 kids pass through the door of the unspectacular mid-rise prefab that looks much like many other schools in the city. Only it's not. This one has a special draw.

"I chose this place because I'm really interested in animals and gardens," 12-year-old Yara said. She and her fellow students, Lina and Elodie are chopping fruit plucked from the school's own apple tree, to feed the goats.

"You have to take care to feed them one at a time," Elodie explains. "Otherwise one ends up not getting enough and they lock horns."

When asked whether learning in harmony with nature is more fun than sitting in the classroom, she doesn't miss a beat.

"Yes, absolutely."

More than animals

Which is not to say there's no classroom learning at the school. Students at Hagenbeck have lessons in math, German, sport, physics and languages, just like their contemporaries at more mainstream schools across the city. It's just that here, biodiversity is omnipresent.

"Staff teaching all subjects sat down together and discussed how best to integrate biodiversity," deputy head Claudia Krötenheerdt tells DW.

The upshot was a rounded, inclusive and hands-on curriculum in which math lessons include such activities as measuring the garden beds, technology classes see students learn to make frames for bean plants, and in which "Animal Farm" is standard reading.

"As far as I know, we're the only school in Germany that does this," Krötenheerdt says.

The project started in earnest in 2007, when the German government introduced a national strategy to counter the loss of habitat and biodiversity.

When Krötenheerdt and her colleagues put their heads together to come up with a way of getting the school involved, they hit upon the immersive idea of making biological diversity the key theme of the school. That was eight years ago, and they haven't looked back since.

Learning with spades and forks

In the school garden, which adjoins the farm, students have been given the task of cutting back certain plants. When 12-year-old Kolja asks if they're meant to take their secateurs to everything in sight, he gets a blunt response from Elke Mahrenholz, who helps run the garden.

"It wouldn't do you any harm to listen," she tells him. "Only cut the ones that have dried out."



Anyone attending the Hagenbeck school has to be prepared to get their hands dirty

Reprimanded, he fiddles shyly with his secateurs, but later reveals just how much he does listen, by talking with confidence about photosynthesis and the other things he has learnt at school, such as “sustainability, reusing things you no longer need, upcycling old things to make something new.”

The raised beds in the school garden, made from repurposed vaulting horses once used in sports class, are an example of just that.

“You could add a bit more horse manure here,” Mahrenholz tells the students who have removed the dried up plants and are now planting new ones.

In the winter, when there’s less practical work to do in the garden, she teaches them about the ground in which they grow their crops, about using natural fertilizers to improve the quality of soil, and about the biodiversity within it.

Three sisters

Behind the raised beds, a few students are tending the so-called three sisters.

“Every year, we plant a mixture of crops, this year our focus is on the three sisters,” explains 13-year-old Eric. “That means corn, pumpkin and beans.”

“The corn is so tall that it towers above the smaller sisters and provides them with some shade,” Charlotte adds. “The middle sister, the beans, grow up the corn plants and give them stability.”

Pointing at a pumpkin in the bed, Tabea refers to it as the “little sister, whose large leaves keep the soil moist and prevent weed growth.” And then, with a shy smile, she harvests it.

“By planting things the way we do, the children learn about crop mixtures in contrast to the monocultures of conventional farming,” Mahrenholz explains. “It helps them develop an understanding for the fact that our agriculture has to move away from monocultures towards more mixed crops.”

And the students even get to taste the fruits of their labor when they get together to cook the vegetables and herbs they harvest from their garden.

Creative thinking required

Between classes, the kids come to the school yard to hang out. But it’s no ordinary yard. One part of it has been given over to tall reeds that give the impression of being somewhere else. Only when the wind blows them apart, do the school building and the other part of the yard come into view.

For now, this part is still plain old concrete, but there are plans to change that. Just as soon as there’s enough money in the pot.

But keeping the award-winning school moving forward is not all about financing.

“It takes a lot of initiative,” the deputy head explains. “We need a lot of creative thinking.”

On that, parents, teachers and other staff members will continue to deliver, because they all want to ensure that the three goats and the three sisters remain on the curriculum of Berlin’s Hagenbeck school.

*04.09.2018, Mabel Gundlach
dw.com/p/34FnC*



Article questionnaire “Going to school with goats in Berlin”

1. Why did 12-year-old Yara choose to go to the Hagenbeck school in Berlin?

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2. What is the school’s theme and how is it implemented?

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3. How does 12-year-old Kolja define sustainability?

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4. How are the students introduced to the idea of mixed crops in farming and how are they different to monocultures in conventional agriculture?

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5. How do you feel about this kind of learning?

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Planning a project for the creation of a green urban space

 **Duration: 60 minutes**

Guidelines for project leader

Divide the group into teams of maximum five participants.

Ask the groups to develop initial ideas on the accompanying **project plan**.

» **Worksheet 12**

You can also – though this is optional – provide each group with additional material to inspire them (photos or more concrete project ideas), or let participants conduct their own online research on relevant projects for more green urban spaces.

Each group then has the opportunity to present their project ideas. At the end, participants vote on each idea. The project with the most votes can be implemented by the whole group.

Tasks for participants

Please go through worksheet 12 step-by-step.

To finish off, think about how you can present your project idea to the group in an interesting and motivational way.



Project ideas and project plan: Green urban spaces

Area School or schoolyard Street Abandoned land Other

What is our **idea**? What is our **goal**?

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What **materials** do we need? Where can we get support?

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How many **people** do we need to make it happen? Who do we definitely need to get involved?

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First steps:

1.

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2.

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3.

.....

Time frame: Where and when shall we start? When do we want to achieve our goal by?

.....

.....

.....

Date

Group name



Instructions for playing films

You have a number of options for playing the films accompanying this learning pack:

1. Playing films from DVD

If you have a hard copy of the learning pack, you will find all of the films on an accompanying DVD. You will need a DVD player connected to a TV screen, or a laptop/PC with a DVD drive, as well as software for playing video (media player).

2. Playing films from the internet

If you don't have the learning pack DVD, you can stream all of the films directly online. You will find the film links in the handouts, as well as the right column of the module overview (materials and implementation).

Please test your internet connection to ensure the film plays smoothly. If the picture is choppy, then your internet connection likely isn't stable. In this case, we recommend that you download the films beforehand and save them as mp4 files.

3. Downloading and playing films as mp4 files

To download the films, follow the links in the handouts and module overview.

You can start the download by clicking "Download: Save MP4 file" in the sidebar to the right of the screen. You can save the film as an mp4 file on your computer or external storage device (e.g. USB key, SD card or external hard drive).

Please plan enough time to download the films. Downloading the material can take between a few seconds and a few hours depending on the speed of your internet.

Note: Playing the films on a projector

If you connect your DVD player, PC or laptop to a projector to show the films, we recommend using speakers for the sound.

Please also ensure that the room is dark enough and you have a large and smooth enough white wall for the projection.

Global Ideas



The multimedia environment magazine

Around the world, imaginative people and innovative projects are working to protect our climate and biodiversity. Global Ideas tells their stories on TV and online.

Global Ideas is Deutsche Welle's multiple award-winning, multimedia environment magazine supported by the German Environment Ministry's International Climate Initiative. Established in 2009, it showcases TV reports, background articles, web features and more, as a means of informing people all over the world about solution-based initiatives to protect the planet.

Global Ideas is more than just television. Think interactive specials such as a visit with Africa's wild animals or explainers that answer complex questions like "does global warming really exist?" The magazine also has an educational element in the form of carefully crafted "learning packs" on key environmental topics. Available free of charge in German, English and Spanish, these learning materials include videos, articles, worksheets and teacher handouts, as well as other educational materials such as posters, picture cards and practical experiments.

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