



OUR CITY 2030

We are well on the way towards
a sustainable society

To teachers

*"There is no Plan B, because there is no Planet B.
Sustainability must be built into everything we do, and education is the starting point."*

UN Secretary General Ban Ki-moon at the World Congress on Education for Sustainable Development in Japan in November 2014.

Today, over half the world population lives in cities. Within a few decades it is estimated that 70 per cent will be urban dwellers. Cities account for an ever-increasing environmental impact, but they also hold out great possibilities. *Our City 2030* is all about learning—and at the same time about how to contribute to greater social and ecological sustainability.

If we are to cope with major global challenges, if the Earth is to fulfil everyone's basic needs, more decisions, more investment, more innovation, more building plans and more purchases must underwrite sustainable development. It's a question of puzzling out the errors and finding smarter solutions.

The changes may show up at home or in a place far away, in a lush playground with cultivation plots in a residential area or in the human condition in a cotton factory in India.

Our City 2030 is an interdisciplinary teaching programme intended for older primary and secondary school students. *Our City 2030* is part of WWF's global efforts to reduce the ecological footprint and encourage biodiversity. Problem solving and extended dialogue between students and concerned social actors and stakeholders are key components in the programme. *Our City 2030* strives to arm students with knowledge and provide them with experience through action and immersion in initiatives designed to promote sustainable development.

Urban planning and consumption patterns are complex issues that must be approached on multiple fronts. As teacher, you can make an important contribution by giving young people the opportunity to help people all over this amazing planet attain a good life.

Thank you for your dedication and good luck!



Midsummer 2015

Håkan Wirtén
Secretary General
WWF Sweden

About this guide

Feel free to use material from the guide but please attribute WWF as follows:

WWF Sweden's Teacher's Guide to Our City 2030

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Additional teaching materials: www.wwf.se/varstad

This guide printed by **Gävle Offset** on FSC certified paper.

Our City 2030

The following is a teacher's guide to the *Our City 2030* project, developed by

WWF Sweden. The project is multidisciplinary and designed to prepare students for the transition to a sustainable society. The outward oriented approach adopted throughout is of paramount importance. The project culminates with the students presenting their vision of the way in which their city has been able to reach sustainability by 2030 in a meeting with representatives from the local municipality and business community. The project targets secondary school and higher grade primary school students.

The guide is divided into three sections. An initial introduction to the *Our City 2030* project is followed by the presentation of key concepts and expressions related to sustainable development. The closing chapter deals with how project work can best be organized and outlines eight exercises that will help you see the project through from start to finish.

The *Our City 2030* handbook is accompanied by an annex that sets forth guidelines for a roundtable seminar, a meeting between students and key actors from local government and industry. The Climate Council Guide and other materials that complement *Our City 2030* are available at wwf.se/varstad.

The project in brief

"Make projects visible outside the classroom!"

Bert Eriksson, teacher,
Rosendal High School

"GREAT! Has far greater impact than traditional teaching in the classroom"

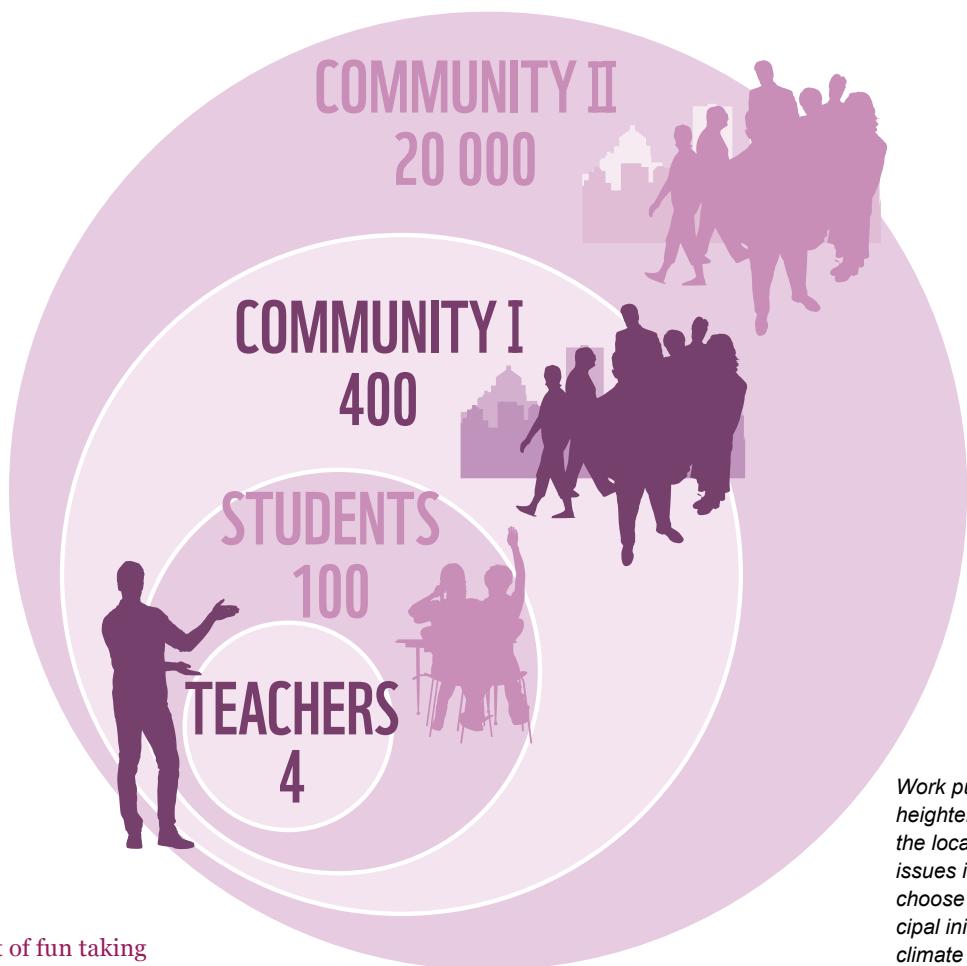
Mikael Wingård, teacher,
Celsiuskolan

Our City 2030 is part of WWF's efforts to endorse sustainable cities, support learning and participation and reduce the ecological footprint we are leaving on our planet. The project focuses on climate and energy work in the local municipality. The approach challenges and motivates students to become involved in community development.

In the project the students take a virtual leap to 2030, when climate goals have been achieved, or are well on the way to being achieved. The Earth's temperature increase is expected to stay below the two-degree target and the ecological footprint is steadily decreasing. The city the students live in has reached several of the energy and climate goals set by politicians more than 15 years ago. The task before the students is as far as possible to come up with a concrete proposal for a sustainable future for the city.

What does the city look like now? How and where do we live in 2030?

In order to realize what a future sustainable city might look like, students need to understand how the lifestyles and decisions of today impact ecosystems, economies and peoples around the world. *Our City 2030* guides students toward a deeper understanding of future challenges and the role of cities, and strengthens preparedness at the local level.



"It was a lot of fun taking part in something 'real'.

I hope schools can be invited to contribute to local activities more often!

It was wonderful that municipal officers were able to walk students through things and make them feel that they were involved in the community!"

Gunilla Nehlin, teacher,
Ekebygymnasiet

Work put into Our City 2030 heightens awareness in the local community of the issues involved, and many choose to commit to municipal initiatives to achieve climate goals.

Content and pedagogical approach

Our City 2030 is a visionary project firmly rooted in reality and targeting secondary school students. Plan and implement Our City 2030 together with your team or put together components selected from the project to make up a single subject.

At the start of the project students survey a neighbourhood, a city block, street or a square. Using municipal plans, maps and statistics and with the help of interviews and personal observations their mission is to find out how things stand on the ground and to suggest social and ecological improvements.

Before the students are ready to take on the core task they need to build a suitable knowledge base and perfect a set of relevant skills. Choose exercises for the students that will expand their understanding of the issues involved and help them promote social and ecological sustainable development in a creative way.

The amount of time required for students to complete the project is estimated to a minimum of 13 hours, and is divided into the following major areas:

- About The ecological footprint, climate and energy.
- The socio-ecological matrix.
- International, national and local goals for climate and energy work.
- The year is 2030. What does the city look like now? How and where do we live?
- Climate Council meeting with key actors.
- Evaluation, monitoring, grading.

The methodology utilized develops the students' entrepreneurial skills, encourages a holistic and creative approach and fosters the ability to solve problems. Our City 2030 is a theme and work package and can be adapted to suit objectives in the subjects and courses involved. The programme has been designed by teachers familiar with the student body.

Our City 2030 in the classroom

- Work in the project is adapted to the school's ESD goals.
- The approach embraced by the project promotes entrepreneurship and entrepreneurial skills.
- The project takes as starting point the challenges facing today's society.
- The project is outward oriented and firmly rooted in the real world, this heightens student motivation.
- Students contribute to ongoing efforts by the municipality to promote sustainable development.
- The project report introduces climate work carried out by the municipality to a wider audience.
- Students acquire experience and knowledge that boost their ability to act for sustainable development.

Students, teachers, the wider community and the general public, everyone wins!

About Education for Sustainable Development

Sustainable development is all about shared responsibility. It is about solidarity between generations, between men and women and between ethnic groups and different nations. Countries everywhere are interwoven and interdependent as never before. Our lifestyle choices and policies affect, and are affected by, people across the entire planet. Sweden has not only an obligation to contribute to a just and sustainable world, but also a vested interest in doing so.

The education sector has a clear directive to contribute to sustainable development. This undertaking is formulated in national policy documents, in our curricula and syllabi. Sweden has also concluded a number of international agreements that more precisely elucidate the steps to be taken in this regard. For ten years, the UN has been committed to raising the mission of the education sector in respect to Education for Sustainable Development (ESD). Sustainable development is reflected in the new curricula, but much remains to be done to implement the spirit of the curricula in the classroom.

In November 2014 the UNESCO **Global Action Programme** (GAP) was launched in Nagoya, Japan. GAP is all very well as far as it goes, but must be fleshed out with structured development initiatives so that it reaches students of all ages.

How the project can be linked to the curriculum

Our City 2030 targets upper level primary school and upper secondary school teachers.

Our City 1930 or 1830, it's a good idea to add a historical component.

Sustainable development is mentioned in ten of the subjects taught in the nine-year compulsory school; biology, physics, geography, home economics, history, chemistry, religion, civics, crafts and technology. Sustainable development is included in the examination objectives of subjects mandatory for all secondary schools. In addition a freestanding subject, Sustainably Society, offers three courses at this level, and Our City 2030 is eminently suitable for inclusion here.

The thematic programme's starting point in energy, climate and the ecological footprint is well within the remit of biology, science, geography and civics. Home language, language studies, as well as aesthetic and practical subjects can with great advantage be linked to the project. Subject plans for the above-mentioned touch upon knowledge, abilities and skills that are intrinsic to the theme. The historical perspective also brings added value and shows the students that solutions calculated to satisfy the need for food, transport and energy have always been sought after.

Key concepts and expressions

The positive and negative effects of urbanization

"Is it possible for everyone to contribute to achieving climate goals? Of course it is, but a single individual cannot do much—well, a little, maybe. Everyone thinks that what he or she does doesn't really matter, but if we all think like that nothing will ever change. You have to do something."

Student, Kitas Gymnasium

More and more people now live in cities. It is estimated that within a few decades 70 per cent of the world's population will dwell in urban centres. It will be necessary to cater to the needs of a growing number of urban dwellers and to build cities that make it possible for the swelling population of the planet to lead a good life, at the same time as the environmental and climate impact is reduced. Today, cities account for 75 per cent of world's energy consumption and more than 70 per cent of global carbon emissions.

The growing need of cities for raw materials and energy impacts ecosystems near and far. Mounting consumption patterns give rise to an increasing ecological footprint. This ecological footprint and above all those aspects affecting the climate must be radically reduced—especially in the part of the planet we live in. We must utilize technology to the fullest extent possible and plan our cities intelligently to enable urban dwellers to make climate-smart and sustainable lifestyle choices.

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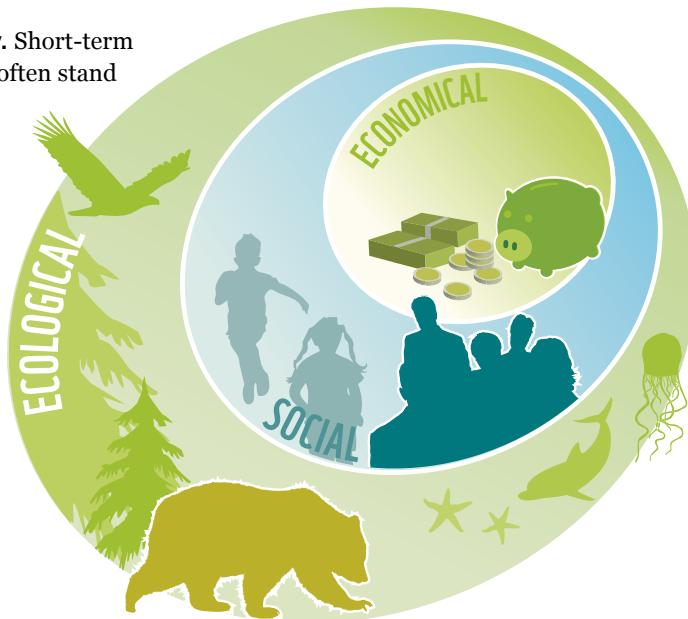
The three pillars of sustainability

Ecological sustainability. Ecosystems provide the basis for human security and the economy, not vice versa. Despite the fact that man is a product of nature, she has become an implacable force, reshaping and impoverishing life-giving ecosystems. The negative impact we have on these systems threatens our health and wellbeing, both now and in the future. We must ensure that the choices we make and the decisions we take will allow the planet to continue nourishing us.

How do our decisions and consumption impact ecosystems and economies in other countries and the livelihoods of the people that live there?

Social sustainability. An adequate welfare system is crucial if people are to enjoy a sense of security and justice and is in turn a prerequisite for a functioning democracy. Social sustainability is about building a society that is stable over the long term, but which is simultaneously dynamic and meets all basic human needs. An inclusive society that fosters an attractive living environment and promotes health and wellness, where people have the opportunity to find gainful and meaningful employment and are easily able to make their voices heard.

Economic sustainability. Short-term economic considerations often stand in the way of sustainable development. Economic sustainability is a prerequisite for economic development that does not have a negative impact on ecological and social sustainability.



Ecosystems are prerequisites for human society and its economic viability.

A good life for all on ONE planet

The goal is given: A good life for all on ONE planet. By 2050 there will be 10 billion living on our planet, three billion more than today. We know that today's consumption and the way the Earth's resources are distributed is unsustainable. But we also know that these resources are in actual fact sufficient to meet everyone's basic needs, but only if we use them wisely. Sustainable development means reorganizing society so that production and consumption stay within the boundaries the planet can tolerate.

Our City 2030 enables students to acquire wide-ranging knowledge and expertise, and encourages them to act for sustainable development.

Now is the time to focus and speed up this transformation, to reduce the ecological footprint and distribute resources more equitably. The boundaries the environment can tolerate are not negotiable, but if action for change is to be effective this makeover must embrace the social dimension as well. The social dimension of sustainability is largely about justice, rights, power, prosperity and wellbeing. How these elements are defined and what they mean in practice will vary depending on the prevailing circumstances. It is vital attention is paid to the global perspective so that the impact of consumption does not adversely affect humans and ecosystems far, far afield.

Social and socio-economic perspectives are touched upon in several of the exercises that follow. However global, national and local economic considerations are not addressed directly in the assignments proposed here, but we encourage teachers and students to take socio-economic aspects into account, and always to be guided by global concerns.

The Planetary Boundary framework was first introduced in 2009, when a group of internationally renowned scientists identified and quantified a set of *nine planetary boundaries* within which humanity can continue to develop and thrive for generations to come. Exceeding any one of these boundaries can generate incalculable environmental change. Climate is one of the areas in which we are now crossing a critical boundary.

To find out more about planetary boundaries, visit Planetary Boundaries, www.stockholmresilience.org

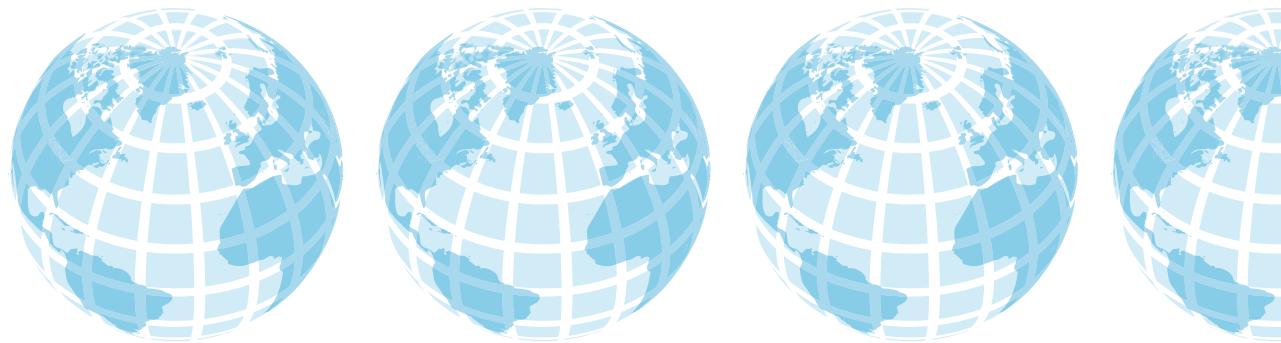


The ecological footprint and ecosystem services

The ecological footprint illustrates how much of the Earth's biologically productive area we lay claim to through our consumption.

The ecological footprint and ecosystem services are linked. These concepts enable us to visualize, quantify and communicate our dependence on nature. The ecological footprint concept lets us compare the size of the biologically productive area the inhabitants of any particular country lay claim to through consumption. In this way we can put things in a global perspective. It is also easy to compare the ecological footprints of individuals, schools, cities, the meals we eat and the clothes we wear.

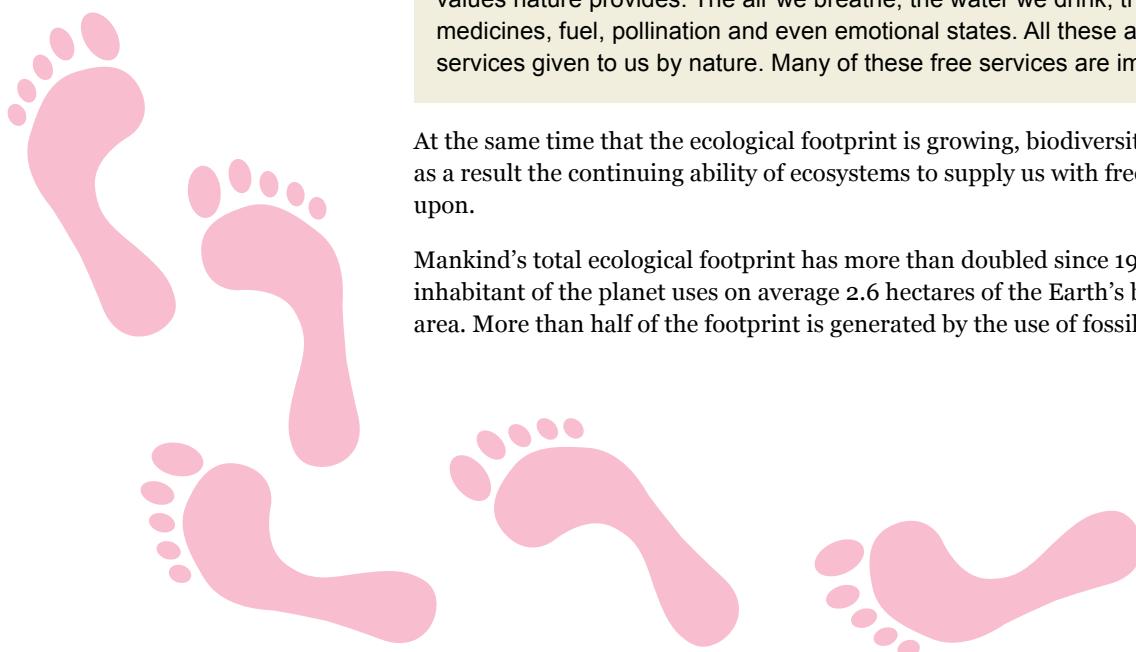
The ecological footprint is the biologically productive area required to produce all the goods and services we consume and to absorb the waste this production generates. Humanity's total ecological footprint includes all the land and water areas on earth necessary to meet our needs for food, building materials and energy, and to accommodate our buildings and roads. Much of the ecological footprint, including that part of it due to carbon emissions can be traced back to cities. Humanity is becoming increasingly urban, and many of the major sustainability challenges are to be encountered in urban areas.



3.7 planets would be needed if the whole world lives as we do in Sweden.

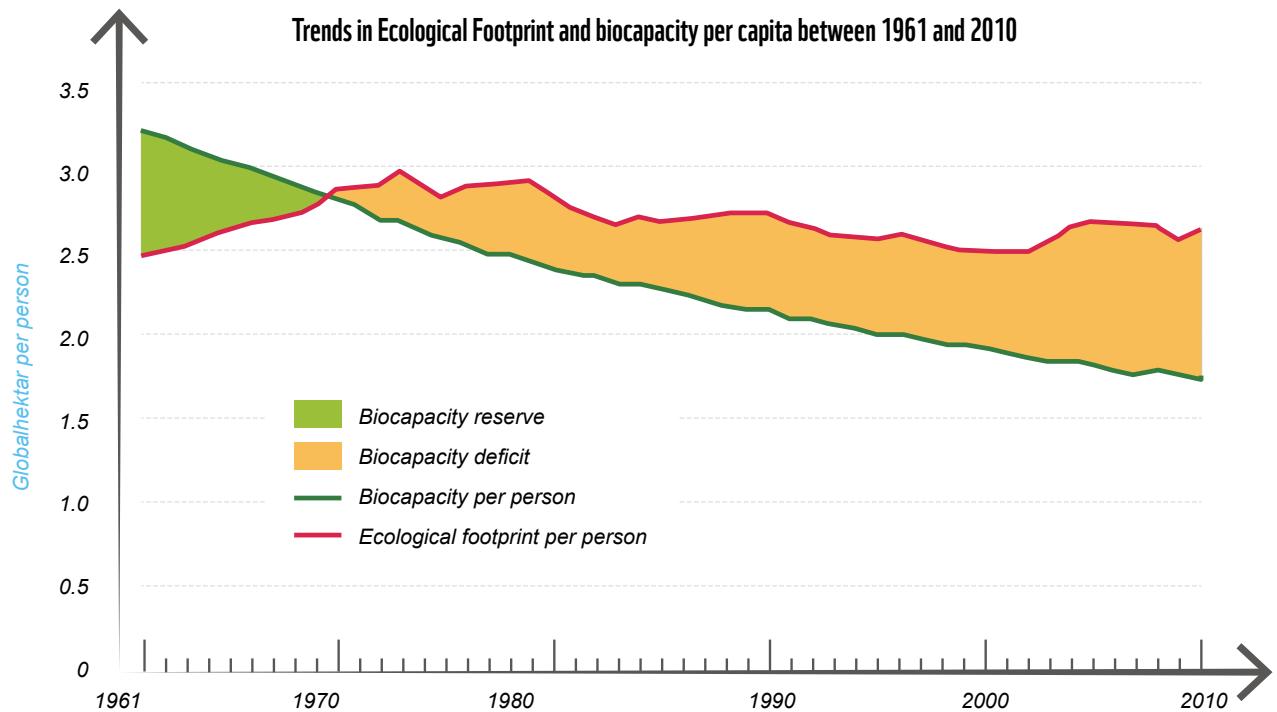
The ecological footprint is an excellent metaphor that allows us to come to grips with complex global arguments. The mindset can be applied to major global challenges such as the self-evident goal of providing "a good life for all on ONE planet." 3.7 planets would be needed if the whole world were to live as we do in Sweden today.

Ecosystem services is a concept that embraces all the products, services and values nature provides. The air we breathe, the water we drink, the food we eat, medicines, fuel, pollination and even emotional states. All these are ecosystem services given to us by nature. Many of these free services are impossible to replace.



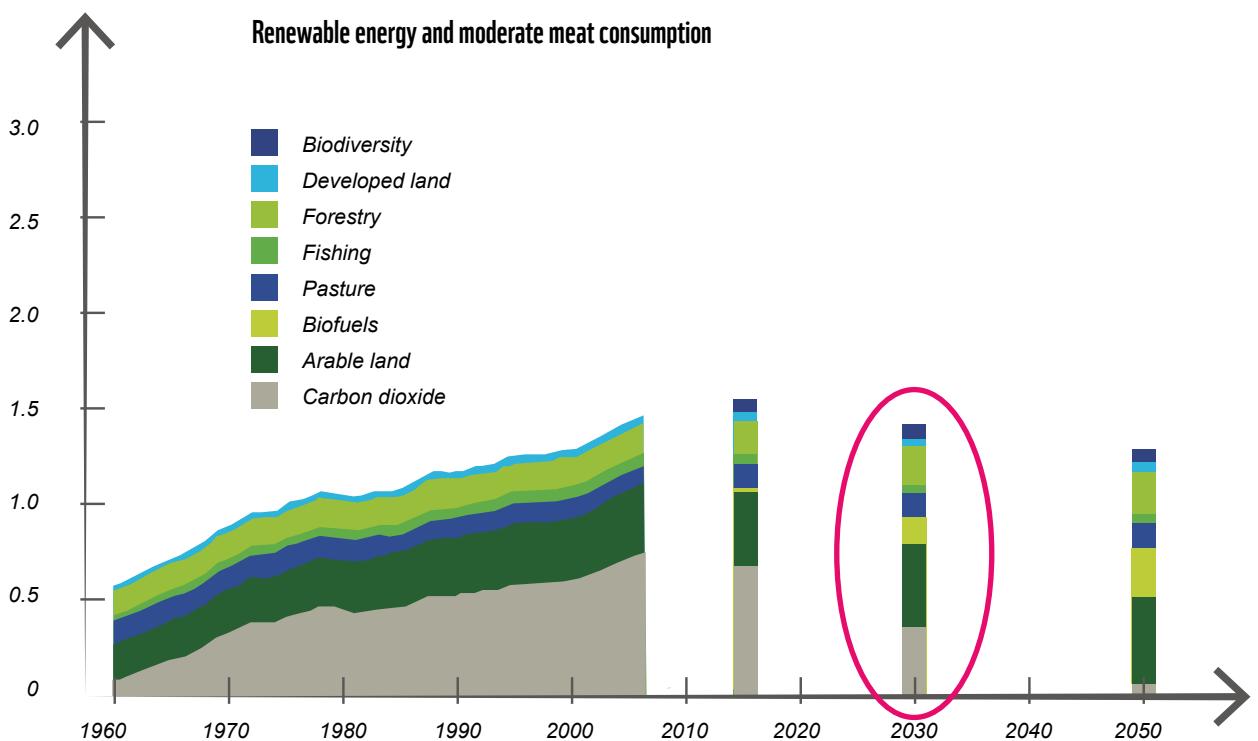
At the same time that the ecological footprint is growing, biodiversity is diminishing, and as a result the continuing ability of ecosystems to supply us with free services we rely upon.

Mankind's total ecological footprint has more than doubled since 1961. Today each inhabitant of the planet uses on average 2.6 hectares of the Earth's biologically productive area. More than half of the footprint is generated by the use of fossil fuels.



Biocapacity is a measure of the renewable resources available to meet human needs. The ecological footprint indicates the volume of the resources that humanity lays claim to. Both ecological footprint and biocapacity are measured in global hectares (gha). (Living Planet Report 2014 p. 57.)

- What can impact the development of the ecological footprint and biocapacity?
- What does a debt to nature mean?
- Why do we have a global debt to nature? Exemplify how this debt can be seen in the environment and society.



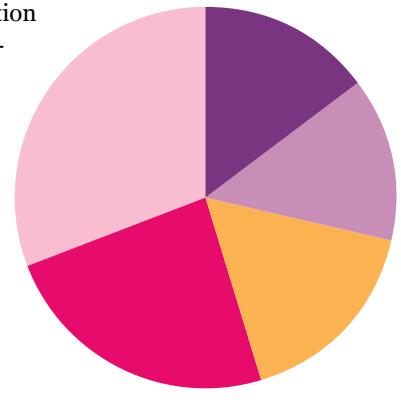
The way forward to a good life for all on ONE planet demands that we switch to renewable energy and that the diet of everybody on the planet includes a substantially increased proportion of vegetables.
(See Living Planet Report 2010, page 20 and 21)

- What is the 2030 target in your municipality?
- What does this imply for urban planning?
- How can the preconditions for an ecofriendly lifestyle and consumption be optimized?

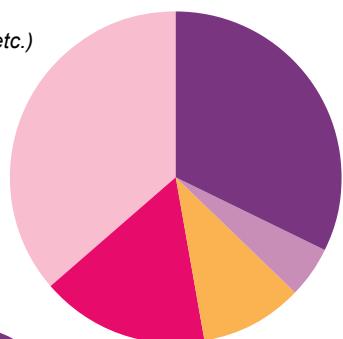
It all comes down to fuel and food

Help, Earth is too small!
Today the human species
consumes the equivalent of
1.7 planets.

Help, Earth is too small! Today, 2013 the average Swede lives as if there were three planets at our disposal. Our resources must suffice for 10 billion people, distribution must be made more equitable and we must avoid any further climate change. Circa 25% of our carbon footprint is due to production and to the consumption of foodstuffs. Sustainable development means bringing production and fuel and food consumption into line with the boundaries of the planet. We must reduce the use of fossil fuels to near zero and the proportion of plant foods in our daily fare must increase and that of animal products decrease correspondingly. In addition, food wastage must drop dramatically. The opportunities are there, it's just a question of focus and accelerating the tempo of the shift from non-sustainable to sustainable development. Knowledge, creativity and enterprise are the engines driving this gigantic transition that is already well underway.



Category	Description
Food	
Housing (heating, electricity, water, waste etc.)	
Travel	
Consumer goods (furniture, clothes, electronics etc.)	
Services (Hairdressers, craftsmen, dentists etc.)	

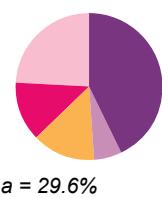


Russia = 62.2%

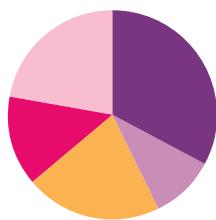
India = 12%



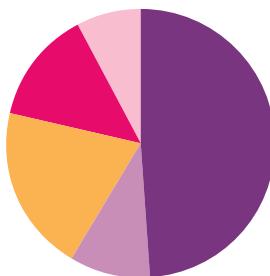
Indonesia = 15.7%



China = 29.6%



South Africa = 36%



Brazil = 40.8%

The above graph shows the household per person ecological footprint distributed by use. The size of the circles reveals how the footprint per person varies between countries.

(Living Planet Report 2012. pp. 50-51) Reflect upon the size of the circles and the proportion of the household footprint used for food in various countries.

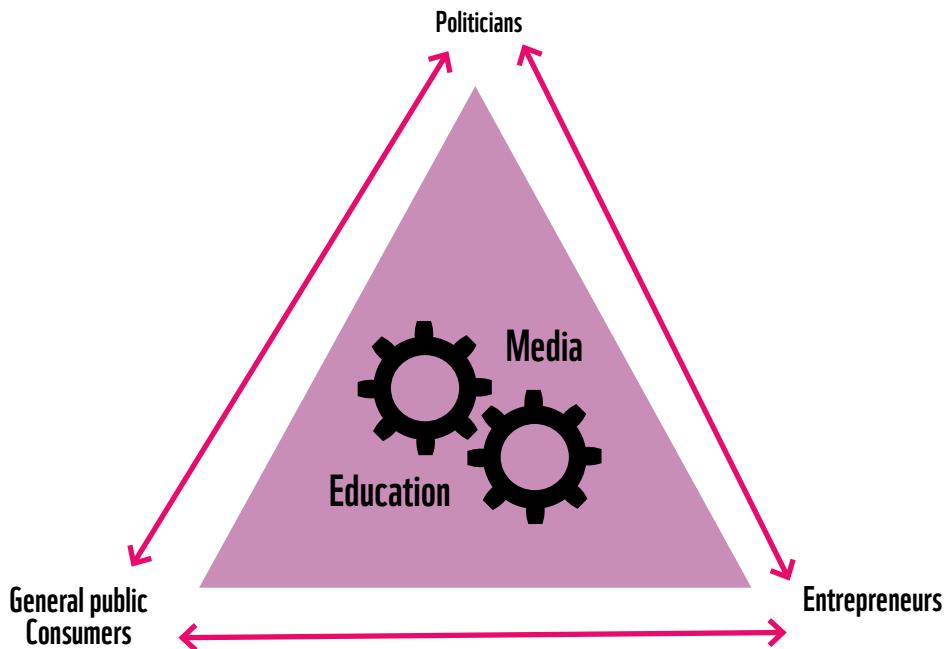
Change through empowerment and participation

Round off work with Our City 2030 by arranging a Climate Council, an open exchange of views between students, politicians, entrepreneurs and NGOs. This meeting can give rise to unexpected synergies.

See the Climate Council at wwf.se/varstad.

Sustainable development calls for participating and active citizens and consumers, as well as responsible and competent politicians and entrepreneurs. Research provides new knowledge, education propagates this knowledge and develops a wide variety of skills, and the media broadcasts information and builds public opinion.

Give students a direct role in community planning and innovation! Round off Our City 2030 with a Climate Council, a meeting between key actors in which student proposals and recommendations take centre stage.



We are all stakeholders in sustainable development. If we are to achieve the goals we have set we must engage in collaborative efforts that move things in the right direction and bring about substantial change.



Eskilstuna 2030. Students gather at City Hall for a briefing prior to a Climate Council with exhibitions, panel debates and roundtable discussions.

Our City 2030 - Work process

Plan together with the team

Work with Our City 2030 will differ, depending on the subjects you have picked and the amount of time at your disposal. Key student field trips and assignments in the city and the Climate Council, a conference-cum-seminar where students meet up with strategic community players should always be included. Feel free to add your own exercises or customize your approach based on teaching goals and available time. Include briefings when you notice that students need to sort out and process the facts before proceeding. Use links and videos to explain and deepen understanding.

Guide to the exercises

The times specified below give an approximation of the time students will need to spend on the project.

Evaluation and follow-up

When students start working with Our City 2030 it is important that they are informed about the subjects and course modules that will be included in the project, and how teachers intend to evaluate and grade their efforts. Specify how assessments are to be carried out and emphasize that you will assess the project together.

WWF will greatly appreciate hearing about your experience of working with Our City 2030. Please send us project plans, student work, press clippings, photographs, films, and project evaluations, etc. This feedback is extremely valuable to us and may be used on WWF's website or elsewhere to inspire and help others. Contact details can be found at www.wwf.se/varstad

Content	Choose exercise	Materials, etc.	Duration (students)
From idea to project			
<ul style="list-style-type: none">• Ground the project with pupils, school management, colleagues and parents.• Identify relevant curriculum objectives.• Contact the environmental or climate strategist at the municipality and other key actors for help with links, external lecturers, and the concluding conference.• Familiarize yourself with local energy and climate initiatives.• Determine follow-ups and grading criteria.• Anchor the work plan with students.			
Opening remarks, concept training Ecological footprint and ONE living planet. Climate change. Socially and ecologically sustainable development.	1, 2, 4	In the classroom Living Planet Report, can be ordered free of charge from WWF. Also available online. Socio-ecological impact matrix. Review of the work plans.	3-4 hours Do not dedicate too much time to this. Students may become demotivated, better to complement later on.
Status What is being done internationally? In your community? What must change?	3, 5, 7	In classroom and community Climate goals, international, national and local work via municipal climate change and environmental plan. Allocate groups to districts. Visit districts in small groups. Carry out interviews and evaluate ecological and social sustainability.	4-8 hours
2030 – On track towards a sustainable society. What has been done, what has changed to enable targets to be reached or well underway. Students describe and concretize solutions and processes of change. Students prepare recommendations to politicians and business representatives.	6, 7, 8	In classroom and community Consider both social and ecological sustainability. Encourage creative thinking and report presentation. Prepare report.	3-8 hours
Climate Council. Structured dialogue between students and key actors.	See Climate Council Guide.	Suitable venue Invite key actors in good time. Marketing and media contacts.	3-8 hours

1

Ecological footprint on your dinner plate

Duration: 40 minutes

The first part of this assignment introduces students to important issues and perspectives. The knowledge students acquire is developed as it is applied in a variety of contexts.

The purpose of the first exercise is to clarify the impact of the ecological footprint in everyday life. The concept should be explained in connection with the exercise and this explanation reiterated afterwards.

Start with the whole class. Show the students a picture of a meal on a dinner plate. What do they see? What resources have been consumed on the journey from producer to table? Is the footprint made by the meal small or large? Ask them to indicate this on a sliding scale and to motivate their decision (see illustration).

What would be the result if the scale instead were to stretch from unhealthy to healthy?

The opinions expressed by the students end in a lively discussion. Finally the class agrees that having both shrimp and steak on the plate together means that the ecological footprint of the dish is substantial.

Small ecological footprint

Large ecological footprint



What is the proportion of protein to carbohydrates? The runner beans come from this summer's crop in the garden. Where was the rice harvested, and where do the steak and the shrimps come from? Is the footprint made by the meal large or small? Where do you think the slider should be placed? Suggest how the meal could be changed to reduce the footprint without lessening the nutritional content!

Now distribute a set of images and ask the students to evaluate these in a similar fashion, this time working in pairs or in groups of three. The import of these images is not immediately apparent. The group as a whole should make the final decision about how they are to be interpreted.

The images show different meals or represent different scenes, a football game, a cityscape, a group of women in a rice field, grazing cows or perhaps a clothing store. Ask the students to put these images in an appropriate position along a line drawn on the floor, or to hang them with clothes pegs on a string or rope. Ask some of the groups to tell you what they see in the image and to motivate why they have placed them where they have. Challenge their minds!

- Does the dish or other image give rise to a large alternative small footprint?
- What must be changed for the image to be moved further to the left along the line? (to develop a smaller ecological footprint)?

Round off with a discussion about what the concept of ecological footprint stands for.

Energy in the city

Duration: 1 hour

The exercise demonstrates our energy needs and how these are met by renewable or non-renewable resources.

Begin with the whole class. When everyone understands what is to be done divide the students into smaller groups. Finish off by collecting feedback from the whole class.

What must a city provide to meet the needs of those living there? Make a list. Prioritize!

What are the 3-5 most important requirements?

Assemble the needs lists the groups have compiled. Working together, identify the needs that have something to do with energy. Which of today's needs are met with renewable alternative non-renewable energy sources? Is there any possibility of cutting down on energy consumption? How will changes in consumption or lifestyle impact energy consumption?

Where is innovation necessary in both the social and technical realms?

Where do conflicts arise?

With the help of the exercises the students test their knowledge and the abilities they command to comment energy issues. The areas where you as teacher will need to support students in their endeavours will become evident.

Our needs list			
Emma, Denny, Peter, Tess, Tiny			
Need	Renewable, non- renewable	Ranking	Improvement suggestions
Housing	Woodchip-fired heating in major urban districts. Depends on whether green or conventional electricity is used.	1	Better utilization of indoor premises.
Food	Food produced under the sun. Cultivation and transport non-renewable.	1	Small allotments. Cultivation in flowerpots.
Culture or dance venues	District heating.	2	Shared use with schools to for better utilization of premises.
Indoor riding arena		2	Rooftop solar heating.
Park	Solar energy.	2	Parks should not be overly maintained or trimmed.
Illuminated ski track	Green or conventional electricity?	2	Automatic lighting system with robotic lamps or timer? Is it possible to utilize energy generated by physical activity?

Emma Denny, Peter Tess and Tiny have difficulty agreeing. How do you deal with conflicting interests in a group/community?

3

Municipal climate change and energy strategies

Duration: 30 minutes– 2 hours

The Intergovernmental Panel on Climate Change (IPCC) is a scientific body under the auspices of the United Nations (UN). It reviews and assesses the most recent scientific, technical and socio-economic information produced worldwide relevant to the understanding of climate change.

IPCC is tasked with analyzing information in an objective, open and transparent way and all its findings are policy-neutral.

A plethora of international summits attended by numerous politicians and scientists clearly show the need for rapid change in the energy field and for a more sustainable development model. Society establishes goals; internationally, nationally, regionally and locally, and here students are given the opportunity of deepening their knowledge of these goals and how to achieve them. The exercise consists of filling in the table's rightmost column. This will enable students to ground their work in important and motivating real-world challenges.

Is there relevant information available on the municipal website? Can someone from the municipality run through local climate and energy planning initiatives and ongoing work? Prepare the exercise by contacting the municipality's energy adviser, climate strategist or the like.

What do the figures in the table tell us? Do they all point in the same direction? Which targets are the easiest / hardest to realize? Are existing goals sufficient or are more ambitious goals necessary? Fill in the municipal goals in the right column. Are there any other goals you think should be included?

This goal matrix is a mainstay for work with Our City 2030.

Area	EU goal	Sweden	WWF	Municipal/city targets ¹
Greenhouse gas emissions	<ul style="list-style-type: none"> • 20% carbon dioxide emissions reduction by 2020 (base year 1990) • 40% by 2030 • 80–95% by 2050 	<ul style="list-style-type: none"> • 40% carbon dioxide emissions reduction by 2020 (base year 1990) • Net-zero emissions by 2050 	<ul style="list-style-type: none"> • 60% carbon dioxide emissions reduction by 2030 (base year 1990) • Net-zero emissions by 2050 (EU) 	
Reduced energy needs	<ul style="list-style-type: none"> • 20% reduction by 2020 • 27% reduction by 2030 (not binding) 	<ul style="list-style-type: none"> • 20% more energy efficient by 2020 (base year 2008) 	<ul style="list-style-type: none"> • Energy demand reduced by 40% by 2030 compared to today (EU) 	
Proportion renewable energy	<ul style="list-style-type: none"> • 20% by 2020 • 27% by 2030 	<ul style="list-style-type: none"> • 50% by 2020 	<ul style="list-style-type: none"> • 80% renewable in Sweden by 2030 • 45% renewable in EU by 2030 • 100% renewable worldwide by 2050 	
Renewable energy in transport sector	<ul style="list-style-type: none"> • 10% by 2020 	<ul style="list-style-type: none"> • 10% by 2020 • Fossil independent by 2030 (government vision) 	<ul style="list-style-type: none"> • Fossil independent by 2030 	
Food			<ul style="list-style-type: none"> • 40% reduced climate impact from food in Sweden by 2020 • 90% vegetarian diet worldwide by 2050 	
Consumption		<ul style="list-style-type: none"> • Gothenburg: Max 3.5 tCO2 per capita by 2035 	<ul style="list-style-type: none"> • 80% reduction by 2050 (base year 2008) 	

1) Fill in the right column with goals set up by your municipality. Data should be available in the local climate and energy plan. Contact your Municipal Energy Advisor for help.

4

Social and ecological sustainability at home

Duration: 1 hour

The purpose of this exercise is to train students to spot instances of social and ecological sustainability. Students are also able reflect on and discuss the initiatives reducing climate impact at the same time as they get to improve their people skills. It has been shown that students come up with a greater number of thought-provoking proposals if they understand the precepts of social and ecological sustainability.

Here the concept ecological sustainability is a collective name for a small ecological footprint, reduced climate impact, preserved ecosystem services and biodiversity.

The task of the students is to go out into the community and scrutinize it from an ecological and social point of view. To prepare for the tasks ahead you should begin by training together in the classroom. Show a photo of a cityscape. Can you see anything that has to do with nature, energy or the ecological footprint? How does the image speak to social sustainability? Structure the conversation so that students become aware of the issues involved. Provide concrete examples of social and ecological sustainability. The table below can help kick-start a dialogue. After that begin using the socio-ecological matrix. The exercise is designed to broaden the perception of sustainable development.

Where would you place the urban landscape in the matrix on page 17? Which criteria should accompany it? What can the general public / consumers, politicians, industry do to increase social and ecological sustainability?



The social sustainability dimension is largely about justice, rights, power, prosperity and wellbeing. Two examples of widely used and concrete initiatives that illustrate what social sustainability actually means are the Millennium Development Goals and the Human Development Index.

Ecological perspective		Social perspective
Cars	How are they fuelled? Are there any alternatives?	How many passengers are there in each car and where are they going?
Housing	How do we cool or heat our houses? What fuel do we use?	Costs? Socio-economic distribution?
Water	Water quality? Biodiversity?	How many can access the area surrounding the watercourse?
Shops	What goods are on sale? Impact on nature /ecosystems in distant countries?	What goods and to whom? Are social conditions in distant countries impacted?
People	Ecological footprint?	Prosperity, wellbeing?

Table to help a structured dialogue on issues of social and ecological sustainability get off the ground.

What more do you need to know to better assess social and ecological sustainability?

Introduce the socio-ecological matrix. Where would you place the image on the basis of what you can find out by just looking at it?

The purpose of using the socio-ecological matrix is to highlight how social and ecological sustainability interact and to kick-start a discussion of what will be the most salient features of society in 2030. Further information on the socio-ecological matrix is available at www.wwf.se/varstad

*The socio-ecological matrix.
Ranara et al. (2011). Where would you place your target area on this graph? What criteria should be included? What can the general public, consumers, politicians and industry do to increase social and ecological sustainability?*



5

The quest for sustainability

Duration: 1,5 – 2,5 hours

In this exercise, students pay a first visit their urban study field areas. The purpose of the exercise is to practice using the socio-ecological matrix and to discover concrete examples of social and ecological sustainability. Work should be carried out in groups of about five students. Each group is given a target neighbourhood or city block to survey. Each area should be clearly marked on the map. If you like, you can let the groups select their target areas by drawing lots.

Out in the real world! Students should adopt a similar mindset as in exercise four, and walk around in their target neighbourhood or city block “looking for” instances of social and ecological sustainability. Encourage the students to take photos and list interesting examples.

They will not be immediately apparent! Ask the students to make contact with those living or working in the area to get hold of more information. It’s okay to enter shops and knock on doors. Let the students wander around in their urban field areas for about an hour. Each group should set down five to ten observations on paper.

Go back to the classroom. How did things go? Ask the groups to share their spontaneous reactions.

How did the groups get on? Did the students detect any sign of an ecological footprint, ecosystem services, energy patterns or climate issues in the community? Social sustainability is to a certain extent visible out on the street and apparent in conversations with people living and working locally, but perhaps the groups need to delve deeper. Do they need further briefings? Is any data missing? What would things look like if the surveyors were to put on “economic spectacles”? Do they need to return to their study areas again?

6

The targets have been achieved!

Duration: 1–3 hours

Take a virtual trip to the future, to the year 2030. Your city has managed to cut down on its energy consumption, increase the use of fossil-free fuels and shrink its ecological footprint. Well done! And people feel better and enjoy more fulfilling lives.

In this exercise each student group is asked to portray the urban district they have studied, as it will be in 2030, when the transition to a more sustainable society with lesser impact on the environment and a smaller ecological footprint is well under way. Here the students have the opportunity to work out solutions and propose innovations that will benefit both ecological and social sustainability. Groups should target the same districts as they did in exercise 5.

Joint ownership to reduce consumption of goods.

Vegetarian (school) restaurants and close ties between grocery stores.

Electric cars and free bus cards to cut down on car use.

Ideas from students in Eskilstuna

This exercise is wide-ranging and pivotal to the success of the entire project. Ensure that the students fully understand the task facing them, and that they make sure that there is enough time available to complete the whole exercise, from start all the way through to a thoughtful and sophisticated presentation. Pause if you see a need for additional information, knowledge and guidance.

Ask the groups to immerse themselves in one or two concerns in their respective districts. For example: food and eating, work and leisure, building and living, or transport and trade. Encourage them to go out in the neighbourhood and to search the web for practical measures that have succeeded in reducing climate impact. Have the municipality, housing companies or other business interests initiated plans for the district? Ask the students to pay special attention to economic aspects. Students should be aware that in exercise 8 they will be asked to provide proposals for the city's development.

Cast your minds briefly back to how things were 15 years in the past. That wasn't so long ago! What has happened since then?

We have tough targets to live up to! Intensify your narrative of the city in 2030. You should set forth the long-term restructuring initiatives that will be necessary without being unrealistic.

- What plans have the municipality and local businesses already put in place? Student proposals should focus on new ideas!
- Get out onto the streets! Interview people living and working in the district about things as they are now—and ask them how they think it will be living there in 2030.
- Think in terms of innovations now at the experimental stage that may be fully operational by year 2030, but avoid speculating about future technology.
- Consider not only technological solutions, but also spatial planning and social innovation.
- Is it possible to live a good life without infringing the planet's boundaries? Look at things from another perspective—think outside the box!



Everyone benefits from collaborative initiatives targeting sustainable development. Students from Teknikum talking about their project "Our Växjö 2030, better transport solutions and less pollution" with Mayor Bo Frank.

7

In other perspectives

Duration: 1–6 hours

The exercise is a peer review. A group of students critically examine another student group's proposals. One purpose of the exercise is to provide students with experience in defending their own points of view, but this is predominantly an exercise that will encourage students to raise their gaze and embrace a global perspective.

The goal of sustainable development is a good life for all on ONE planet. This is predicated on a substantial reduction in the exploitation of the earth's resources, on global warming not exceeding two degrees and a more equitably distributed consumption both within countries and between them. Our ecological footprint shows that 1.7 planets would be required to meet the demands humanity makes on nature each year. This must be reduced to ONE planet if we are to live sustainably.

How does the group propose to change the importance accorded to nature and people in other countries? What is happening to social and ecological sustainability and what is happening to the climate?

One group presents their work to another group whose students pose as representatives of politicians and officials from assorted countries, such as China, Uganda, Somalia, Brazil, USA and Poland.

How do changes impact these countries? List both positive and negative changes. Discuss the changes seen in the ONE-planet goal perspective. Then switch roles between the groups. This exercise is even more valuable if it is performed with students from a twinned municipality.

8

Conclusion and recommendations

Duration: 45 minutes

The exercise is the lead-up to an actual meeting with representatives from local government and industry. The aim is that the students, who now have a well-informed view of the challenges that have to be faced and the exigencies of the global perspective prepare themselves to present a concluding report and confer with key actors in the field in a Climate Council.

What recommendations would you give representatives of the business community and the municipality?

Each group should summarize these recommendations in approximate 100 words, and propose 3–5 actions, directed at various key actors. Please contact the media, shoot information videos and put them up on the school website.

Please send lesson plans, student work, and links to WWF. You can find contact details at www.wwf.se/varstad. Here you can also find links, presentations and photos from previous Climate Councils.

We strongly suggest that you organize a similar conference where students encounter representatives from the political and business spheres. The Climate Council Guide proposes an event in which 100 students meet 100 adults. Student proposals and recommendations are concretized in exhibitions, panel debates and roundtable discussions.

ENTREPRENEURS

A holistic approach, creativity and problem solving are entrepreneurial skills that shape a sustainable future

PARTICIPATION

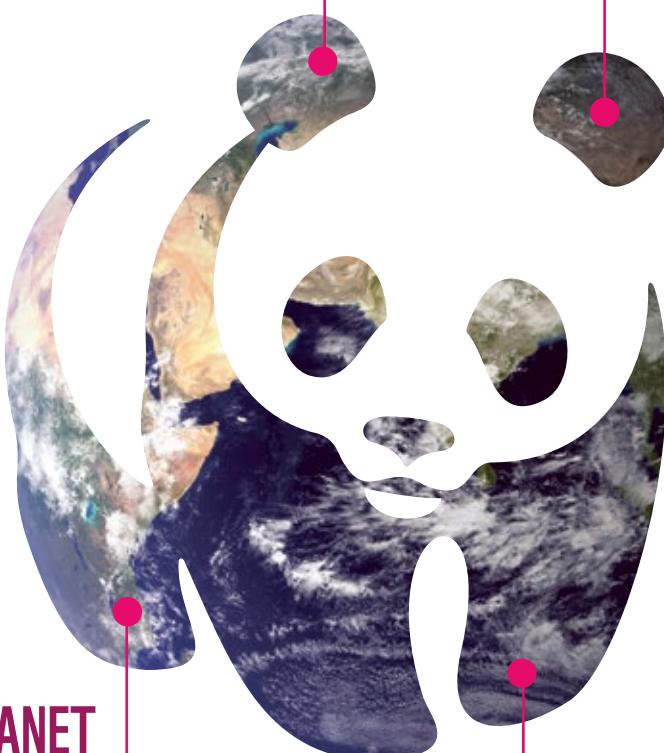
Learning and participation go hand-in-hand when students reach out and influence society

ONE PLANET

In the first world, we live as if we had THREE planets at our disposal

THE CITY

A good life for all as part of a ONE-planet future



Our City 2030 has been produced with support from the Swedish Development Agency, SIDA.
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Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

www.panda.org/earpo