Teacher's guide

Thank you for your interest in Future Happiness Challenge! The game is based on the report Low Carbon Gothenburg:

Could wellbeing be a central incentive to build a sustainable society?

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Short info

Were do I find the game?
The game Future Happiness Challenge is available for free on App Store, for ipad, and can also be downloaded for Mac and Windows. You'll find it here:

www.pedagogisktcentrum.se/fhc

Who is this game for?
This guide was written for upper secondary school students (15-19), but the game can be played by both younger and older students. 3-4 players can play on the same ipad or computer, but you can also play on your own.

Time requirements
90-120 minutes, either in one session or slit into two.

Purpose
The game is designed with the purpose of:

- Encourage a political dialogue based on science of sustainable development
- Increase the level of understanding for the changes needed on both individual level and as a society to live sustainably
- Increase young people's interest for political debate, participation in public elections as well as other democratic organizations
- Encourage sound lifestyle choices for better health and environment

Contact
Please let us know if you are experiencing technical problems with the game or webpage. Or perhaps you want to share your experience of the game with us? We'd love to hear from you, regardless!

Send us an email!

info@pedagogisktcentrum.se

About us

Future Happiness Challenge is a collaboration between scientists, pubic sector and game designers.

The development of the game is funded by Region Västra Götaland and the City of Gothenburg.

Mistra Urban Futures is an international centre striving for a sustainable urban development. It's main office is situated in Gothenburg. The centre has platforms in five cities around the globe: Gothenburg, Cape town, Kisumu, Manchester and Shanghai.
www.mistraurbanfutures.se

Region Västra Götaland is tasked with providing a good life for the people of Västra Götaland – that is the overall goal. There are three main areas: Health-care, growth and development and public transport.
http://www.vgregion.se/en/Vastra-Gotalandsre-gionen/Home/Environment/

The City of Gothenburg are responsible for the main part of Gothenburg's public service functions. The City is continuously working to become greener, more sustainable and a good place to live for all inhabitants.
http://international.goteborg.se/

Pedagogical Centre is part of GR Education and the association of local authorities of the Gothen-burg Region. They have long experience of creating learning experiences such as pedagogical games and interactive methods. The goal is to provide a meaningful and engaging experience that enables reflection and learning.
www.pedagogisktcentrum.se

IUS innovation is a company in Gothenburg and Skövde whose expertise lies within gamification. IUS uses game mechanisms and applies these in contexts which are normally not associated with gaming. IUS have with a number of high-profile business partners within education, heath care and public transport.
www.iusinnovation.se

Background

About the game

The game Future Happiness Challenge aims at communicating the results of the report Low Carbon Gothenburg. The game is easily accessible game and can be used in schools, at workplaces, for workshops and other places where you need a platform to discuss changes for a sustainable future.

The development of the game, which is funded by the City of Gothenburg and Region Västra Götaland, is a collaboration between several organizations:

- The City of Gothenburg
- Region Västra Götaland
- Mistra Urban Futures
- Pedagogical Centre
- IUS Innovation

The game is made in close collaboration between game designers, project management, students and scientists. 200 students were involved in workshops and play testing the game to make sure it suited our target group.

We wanted to game to be accessible to as many as possible, and therefore decided to make it entirely in English.

About the Low Carbon Gothenburg-report

Looking at statistics and information about lifestyle, income level, consumption, food choices – and much much more, scientists have been able to pin point the kind of lifestyle changes required for us to live in a sustainable society. The report's timeframe is 2010-2050.

The report's results don't end with just a list of changes needed and a time schedule, however. There's also an also analyzes how these changes will likely affect the overall happiness and well-being of people. The results are clear: A sustainable lifestyle is also a happy and healthy one. While some of the necessary changes might lower the experienced well-being, other changes will increase it.

The expressed fears, that a sustainable "low carbon" life will mean – for people of the western world –

becoming unhappy, seems unfounded. Read the full report in english here.

The Low Carbon Gothenburg report is a product of the WISE project, a part of Mistra Urban Futures, an international centre for promoting sustainable urban futures, with its base in Gothenburg, Sweden. Mistra Urban Futures believes that the coproduction of knowledge is a winning concept for achieving sustainable urban futures and creating fair, green and dense cities.

The centre is funded by the Mistra Foundation for Strategic Development, the Swedish International Development Agency (SIDA), and seven consortium members.

About WISE

Can a low carbon society be achieved with maintained or increasing levels of human well-being? The societal discussion on the transition towards ecological sustainability is dominated by the view that technological improvements will have to do the job in order to avoid lifestyle changes that would imply sacrifices. But what if a stronger focus on well-being could even be a driver for sustainable development? Results from the emerging field of well-being research suggest, for example, that the link between the level of private consumption and well-being is weak in affluent societies, whereas factors such as time pressure and certain practices like commuting may have negative effects. This may open for new opportunities for pathways that combine a high level of well-being with decreasing emissions.

The overall aim of the Well-being in Sustainable Cities (WISE) project is to facilitate joint knowledge production between scientists and expert civil servants in order to support the transition towards sustainable cities. WISE is carried out in cooperation between Chalmers University of Technology, City of Gothenburg, The Swedish Transport Administration and Region Västra Götaland.

Play in the classroom

Som inspiration för hur du kan planera ett lektionspass har vi här tre förslag som du kan välja mellan, eller skapa en egen planering utifrån.

Preparations

You need the following:

- One competer or ipad / 4 students. They are going to play in groups of 3 or 4.
- Each computer/ipad must have the game installed.
- The game have no system requirements that a regular school computer cannot handle. The game can be played on Mac and Windows, and you download it from the webpage: **www.pedagogisktcentrum.se/fhc**

Play in one session

Time required: At least 90 minutes

Split the students into groups of 3-4 with each group positioned around a table with an ipad or computer to play on.

Introduce the students to the task at hand:

- They are going to play a game about sustainable urban development. The game is based on a scientific report – Low Carbon Gothenburg. The report is about shaping a society that creates both happiness and a sustainable, low carbon, lifestyle.
- The game has several different characters who all live and work in the city. The winner is the player who gets the happiest characters in the end. The characters can achieve happiness in different ways; during the course of the game they'll have to experiment and see what works and not.
- Their actions in the game might get consequences for the emissions of greenhouse gases, simplified as CO_2, which might create problems for the city.
- When the game is finished they shouldn't close it, but save the result screen as an image (there is a button that does this).
- They have 45 minutes to play. If some students finishes earlier than this, they can spend some time discussing and answering some questions regarding the game.*

After they have played, you will discuss the game together.

When everyone has finished, or when 45 minutes have passed, move to post game discussion. (Go to next page)

After the discussion, there are some different options:

- Play the game again – perhaps the students would like to take on the challenge once more, but with a new strategy?
- Read the summary of the report on which the game is based.
- Another task based on the specific course, exploring the themes and discoveries you've done by playing and talking about the game.

Split into 2 sessions

Time required: Two sessions of at least 45 minutes each.

It is also possible to split the game and post game discussion into two shorter sessions. To help the students remember the events of the game, you can ask them to take notes on the reflection questions, and also save the game result.

Flipped classroom

A third alternative is the so called flipped classroom, where the students are given the task to play the game, save the result and answer the questions, as homework.

When you meet in the classroom next time you have the post game discussion.

*Questions for the game
- Who do you think won the game?
- What did the situation for the characters look like in the end?
- How do you think the city was doing as a whole, at the end?
- Did you collaborate in the game? If so, how? If not, why?

If the students find the game too challenging

Sometimes students find it difficult to comprehend how to "win" the game, what works and what doesn't. This is not a problem, actually.

After the post game discussion you can instead let them play once more and try to apply the new knowledge they've gained.

Post game discussion

To reflect and talk about the game events is important in order for the students to gain some perspective that is useful in the real world. Both in their studies, careers and private life. Depending on what curriculum or course they are studying at the moment, you can choose to focus on certain aspects of the game and sustainable development.

Arrange the classroom so that everyone can see and hear each other. A circle is usually a good idea, or you can ask the students in the front row to turn around and rearrange the classroom so that everyone is focused on it's centre.

Questions about game events

Start of asking a few questions about the game events, in general:

- What was the game like to play?
- What did you think about your character?
- Did anything happen that you thought was particularly interesting?
- Did you find the game to challenging? How?
- How did you like the choices available in the 'life style shop' in the game? Where there any alternatives that seemed strange to you?
- What was it like to make political decisions? How did it affect the city and the characters?
- How did it go for the city?
- How much did you compete vs. collaborate?

Social sustainability

- What made the characters happy in the game? Why was this, do you think? *(In the game, characters become happy from relationships, helping out with disasters, free time and exercise.)*
- Why are people happier when they have more free time? How was it possible to get more free time?
- Research shows that people who live in societies that have a high level of equality and small economic disparities are happier and healthier. Why?
- What can individuals do by themselves to change their lifestyle and situation? What is easy to change, and what is more difficult?
- How can political decisions make people choose a more healthy lifestyle?
- What parts of society have a high influence on people's lifestyle choices? (School? Media? Celebrities? Doctors? Family and friends? Companies?
- **Why do people get engaged in no profit volunteer activates, associations and politics? What can increase peoples willingness to do so?**

Economic sustainability

- What role did level of income have in this game? Did it affect what choices you made? How?
- One way of reducing emissions is to buy services instead of things. What businesses in the real world would profit from such a change? (For example: healthcare, restaurants and tourism.)
- Another way of reducing emissions is to reuse, repair and borrow things form each other, instead of buying new stuff. In what way could this be organized? (For example: associations, public sector and volunteer work.)
- Research shows that people who work less hours a week and have high income cause higher CO2 emissions than those who work less and have less income. Why?
- How do we measure success and progress today, for individuals, companies and countries?
- What is economic sustainability?
- **What economic instruments can create sustainable development? What instruments are most effective?**

Ecological sutainability

- What activities in the game caused high emissions? (Meat, car driving, air travel, factories, consumption)
- What kind of changes reduced the emissions?
- In the game so called disasters show up. What do you think these disasters represent, in the real world? (For example: flooding, storms, wild fires, poverty, landslides, draught.)
- Whose responsibility are the emissions caused by imported goods? The country where the goods are bought and consumed, or the country that's producing them?
- What is the difference between green house effect and global warming?
- What part does solidarity and moral when it comes to sustainable development?
- People who live in places that are today not so affected by global warming – what reasons do they have to engage and change their lifestyle to prevent continuous global warming?
- **How can people's motivation to live sustainably increase?**

Game events

It is an advantage but not a necessity that you play the game by yourself once before your students do. Regardless what you choose to do, here's an overview of the game events:

The game takes 30-45 minutes to play for an inexperienced group. The game has dialogue boxes that will help new players get the hang of things.

Every player controls a character on the game board. **The goal of the game is to make the character as happy as possible.**

The game is played in 5 rounds, where every player gets one turn each round. During the turn, the player can make changes in the character's lifestyle, housing, career and transportation. The player can also engage in political decisions and look for new jobs.

Living close to an industry has a negative impact on the character's happiness. But if the character lives close to nature and green areas, they will get a positive effect.
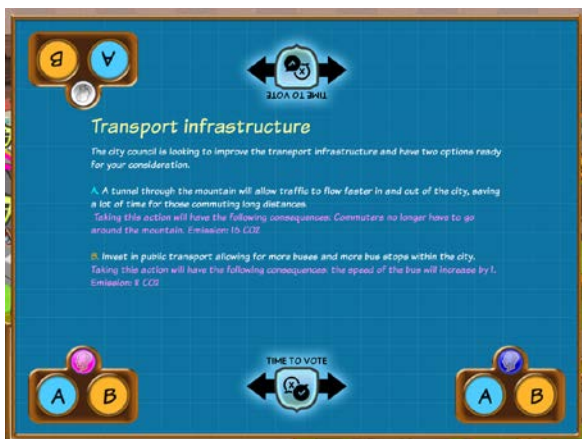
Every round the players will find out how much CO2 they emit, and disasters will show up on the game board if their emissions are too high. They don't disappear before the players have invested enough time into resolving them

The lifestyle 'shop' in ghe game has alternatives for diet, transport and free time activities.

The green icon indicates a vacant position.

Its possible to vote on political decisions. Every player has a vote.

Some parts of the game board will reduce the happiness of characters living nearby. Others will increase the happiness, instead.

Result

With every round the players get feedback on how the happiness is distributed, as well as emissions.

At the end of the game they get detailed feedback on the changes of emissions and happiness throughout the game, as well as other game events.

(Even if the players interrupt the game before the 5th round is finished, they will get this info.)

1. Winner. This shoes the result of the game and who was the happiest character, as well as what life style choices provided the highest amount of happiness.

2. Game overview. Shows the changes in happiness and emissions, as well as the points where disasters showed up and when political decisions were made.

3. Game score. Gives an idea of how happiness and emissions relates to each other in a few different categories. The game is given a score depending on how sustainable the city was in the end. The things that give a higher score are:

● The sum of all player's happiness

The things that withdraw points are:

● Unresolved disasters
● High difference in happiness between the players

Different is good

The game can be played in various different styles and with different objectives. The students are never hindered from making whatever decisions they want. Some players play competitively, others want to collaborate.

A more competitive play style generally gives a lower end score, since it creates higher disparities between players and usually a higher environmental impact.

A more collaborative play style usually generates a higher end score, since the differences between players tend to be smaller, and they resolve environmental problems better when working together.

Some players choose only what they believe is best for the environment, while others want to try and emit as much CO2 as they possibly can.

None of these strategies is wrong or right – the students can play in whatever manner they enjoy and find interesting. No matter what choices they make, they will learn something from it. During the post game discussion the different strategies provide valuable perspectives.
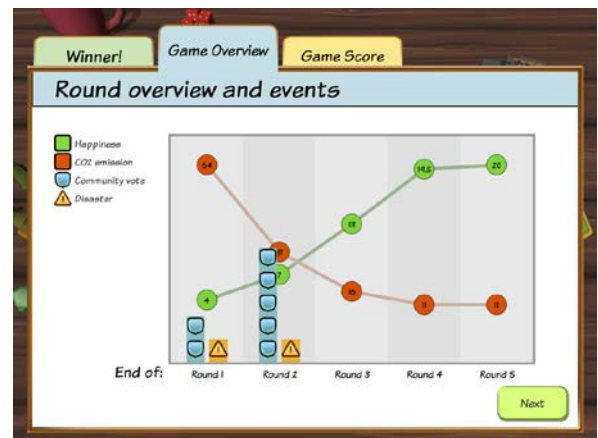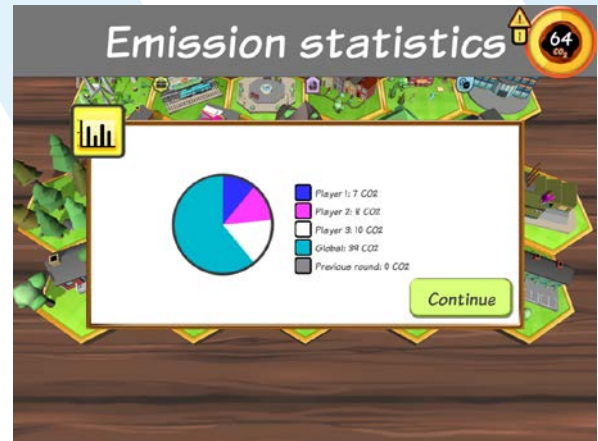
Facts and terms

Global warming

Earth's climate is an incredibly complex mechanism that no computer simulation so far have been able to measure with complete accuracy. What all scientists agree on today is that earth is warming up, and that this is due to human activity.

The greenhouse effect is, in an of it self, not a bad thing. We need it in fact, since it provides Earth with a protective "blanket" that retains some of the heat; otherwise Earth would be too cold to live on. The problem is that the greenhouse effect is regulated by incredibly small margins, so that even a per mille (0,01%) change in the mix of gases in the atmosphere can make the difference between several degrees! The most frequently mentioned greenhouse gas is carbon dioxide (CO_2), but there are others as well, such as methane.

Positive and negative feedback. Dark areas absorb much more heat than light ones. As the polar ice melts due to the increasing temperatures, more dark water is exposed to the sun's energy. The polar areas - that had previously had a significant cooling effect – stats gathering heat instead.

Natural CO_2 absorption. The oceans have absorbed some of our CO_2 emissions. This is because when CO_2 levels increase in the atmosphere, the ocean will take up some of it. But as you know, CO_2 makes water more acid. This is what causes the acidification of the oceans.

The vast forests of the Earth also absorbs some of the CO_2 we emit, but as deforestation continues at alarming rates in many parts of the world, more land is instead used for intensive agriculture which in itself emits even more greenhouse gases.

Planetary boundaries

In 2009 a group if internationally renowned scientists identified 9 planetary boundaries. These give some indication of how far human activity can push the different systems of the planet.

Today, scientists are seeing more and more proof that even very small changes can get disastrous consequences for several other areas. No one knows for sure how much of a 'beating' earth can take, and still remain a good home for human beings. One thing is clear: Life on earth will manage no matter what happens. Earth has already been through several events of mass extinction. The planetary boundaries aren't first and foremost about saving the Earth, but about keeping it in such a state that human beings can still live here.

The 9 identified boundaries are:
- Climate change
- Ocean acidification
- Stratospheric ozone depletion
- Use of phosphorus and nitrogen
- Freshwater consumption
- Land system change
- Loss of biodiversity
- Atmospheric aerosol loading (air pollution)
- Chemical pollution and the release of novel entities

According to scientists, we are today trespassing across several of these boundaries.

Carbon footprint

A way of measuring the impact of one's lifestyle is a carbon footprint. This roughly gives the "area" that you are using at the moment. It includes everything you are using and consuming – not just local emissions but also use of raw materials and indirect greenhouse gas emissions.

In the western world, many countries have average footprints that is the equivalent of several planets, should everyone live the way they do in those countries.

Since global warming is a global problem, all countries need to act. But the largest changes are likely to have to happen in the western world, where the carbon footprint is the biggest.

Every year there's a date set for when we've used up all the resources that earth can reproduce in a year, using solar energy. This date – Earth overshoot date - is moved earlier each year, symbolizing that human activities are now tapping Earth's spare resources to dangerously low levels. 2014 the date was 19th Aug.

Scientific report

How was life? (OECD, 2015) The world's first global report that measures the development of well-being – covering roughly 80% of Earth's population since 1820.

One of the most controversial findings is that increased GDP doesn't have to mean increased well-being, as is often assumed. Instead the most important factor for a population's well-being was equality and making sure economic differences didn't grow to large.

Climate Change 2014: Impacts, Adaptation, and Vulnerability (International Panel on Climate Change, IPCC, 2014) This report concludes that a) humans are responsible for global warming and the climate change that follows, and b) all continents and countries in the world are vulnerable for the effects of global warming.

It also says that of all possible calculable future temperature trajectories, the only one that gives reasonable odds of a continued normal life on Earth, is the lowest: This is the 2 degree target which is the goal of most international negotiations on climate change.

Better Growth, Better Climate (2014, The New Climate Economy). The New Climate Economy is founded by seven governments: Colombia, Ethiopia, Indonesia, Norway, South Korea, Sweden and Great Britain. The commission has complete freedom to come to its own scientific conclusions, without political interference.

The report Better Growth, Better climate shows that the idea that the economic costs of society acting to prevent global warming is higher than not acting - is wrong. Although single businesses and companies might profit from continuing with business as usual, by burning the rest of the fossil fuel reserves, the total costs for society are significantly higher if we continue in the same manner as before.

The geographical distribution of fossil fuels unused when limiting global warming to 2 °C (Christophe McGlade & Paul Ekins, Nature 517, 2015) This paper published in the journal Nature has generated a great deal of attention, since it shows a calculation of the amount of known sources of fossil fuel that must remain in the ground, if we are to reach the 2 degree target.

The calculations show that if we would use the reserves available, we will emit much more greenhouse gases than the limit determined by scientists in order for us to have a reasonable chance of maintain the 2 degree warm up.

Despite this, drilling continues and exploitation continues by oil business in all the world's oil producing countries.

We show that development of resources in the Arctic and any increase in unconventional oil production are incommensurate with efforts to limit average global warming to 2 °C. Our results show that policy makers' instincts to exploit rapidly and completely their territorial fossil fuels are, in aggregate, inconsistent with their commitments to this temperature limit.