

Teacher's manual introduction

This teacher's manual in green entrepreneurship is part of the GREENT project, funded by the European Union through the Erasmus+ Programme. It should be used in conjunction with the blended learning methodology and the syllabus available at the GREENT website.

The GREENT project is a partnership between five organizations from the Junior Achievement network:

- JA Bulgaria
- SEN/JA Greece
- JA-YE Latvia
- Ungt Entreprenørskap Sogn og Fjordane (Norway)
- JA Romania

One of the unique things about the GREENT manual is that it was co-created by a team of 25 teachers from Bulgaria, Greece, Latvia, Norway and Romania with the support of sustainability experts and educational content design experts from the teams of the 5 partner organizations in the project.

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GREENT Mission

The mission of the GREENT project is to create educational tools that will support teachers in fostering a “sustainability-conscious entrepreneurial mindset” in their high school students. That mindset includes all the features of the entrepreneurial mindset (tolerance to risk and uncertainty, ability to accept failure and learn from it, self-directed learning, bias toward action, intentional curiosity and creative confidence¹), but viewed through the prism of a sustainability mindset characterized by holistic thinking, an environmental and social ethic that respects the value of all living things, responsible consumption, cooperation and teamwork, full-cost accounting, democracy, adherence to the precautionary principle.

There are several issues defining the world today and they are likely to define the life of future generations too. Among these are climate change, the depletion of natural resources, air pollution, loss of biodiversity, deforestation, degrading of soils and others. All of them are related to an eroding base of the quality of ecosystem services that nature can offer, which can have dire consequences for humanity.

Exploring the reasons for this and the possible solutions from the point of view of business is at the heart of the GREENT course. What can be observed is that since the Industrial Revolution the levels of all key indicators that show the underlying condition of the planet have been deteriorating at the face of increasing economic activity, production, GDP levels and sales.

Without underestimating the contribution of business to a rising quality of life in many parts of the world, we would have to be blind not to see business’ key role in bringing about many of these challenges. But business can be a force for positive change too through the creativity and onrush of the entrepreneurial spirit.

GREENT course objectives

- To allow students to experience and become imbued with the principles of nature as a source of life and inspiration in order to develop their green mindset as future entrepreneurs.
- To develop new skills and competencies required for green jobs and green entrepreneurship.
- To improve young people’s understanding of the new realities of the world of work and business.
- To improve teachers’ performance in delivering high-quality education that combines face-to-face and online teaching strategies.
- To provide a balanced mixture of knowledge and activities both within the “green” and the “entrepreneurial” domain so that in the end students have a desire of launching a green entrepreneurial venture (not necessarily their own company, they can apply the principles of green entrepreneurship in a large company or even public administration they work for) and feel prepared to do it.

¹ <http://www.gettingsmart.com/2016/01/thiel-fellows-reflect-entrepreneurial-mindset/>

The understanding of green entrepreneurship we have adopted as a basis for the GREENT syllabus

For us at the GREENT project, the shortest definition of green entrepreneurship which encompasses its essential traits is:

Green entrepreneurship is the activity of consciously addressing an environmental/social problem/need through the realization of entrepreneurial ideas with a high level of risk, which has a net positive effect on the natural environment and at the same time is financially sustainable.”

Green entrepreneur is someone who starts and runs an entrepreneurial venture that is designed to be green in its products and processes from the very moment it is set up.“

Delivering the GREENT course

The GREENT course is envisaged to be a flexible tool that would allow teachers to experiment and integrate parts of it in different subjects (like biology, chemistry, geography, physics, philosophy, foreign languages, etc.) or deliver a full-fledged course (as an extracurricular activity, for instance) that would provide students with a very profound understanding of the values and principles of green entrepreneurship and its practical application.

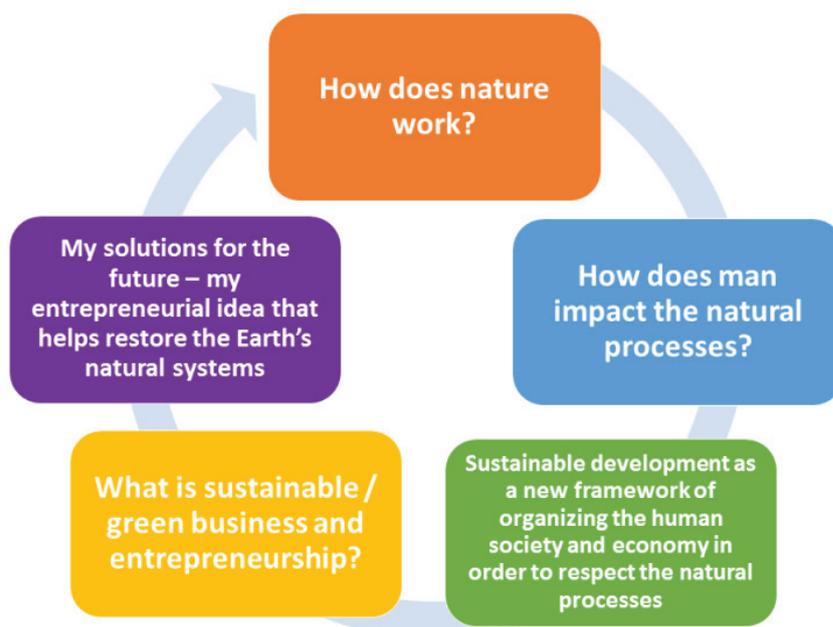
The GREENT course is recommended for delivery in the 10th and/or 11th grades.

Cross-curricular links

A whole array of cross-curricular links can be made between GREENT and almost any high-school subject. Each of the five countries has developed a matrix with cross-curricular links that is specific to the respective educational system and can be used by teachers. These matrices are available as separate documents called “Cross-curricular links”. In addition to that, each lesson begins with a summary section where teachers are able to quickly find out which subjects this particular lesson can be linked to, as well as what are the expected learning outcomes from the lesson.

Structure of the GREENT course

The GREENT syllabus is divided into two major parts. Part I is intended to give the knowledge about natural systems, sustainability and green entrepreneurship by providing theoretical fundamentals, case studies, examples and opportunities for practical work and experiences suitable for a blended learning environment. Part II is very important for every student participating in the GREENT course. Otherwise the project would not be entrepreneurial. It is intended to encourage students to jump into an entrepreneurial journey and experience green entrepreneurship first-hand through practical activities. Even if you skip some of the lessons from Part I due to lack of time, we do recommend that you go through Part II since this is the entrepreneurial experience where the students will go through the process of generating their own sustainable business idea and finding partners to help them in the initial stages of shaping a viable product/service.



This manual contains 36 lessons. Each lesson is planned to be delivered within the duration of 1 school hour. You can find an overview of all the topics and lessons below.

Lesson No.	Chapter	Name of lesson
1	Introductory lesson. Pre-test and collection of expectations	
2	Chapter #1: Natural systems	What is a system?
3	Chapter #1: Natural systems	System boundaries, social systems, ecosystems
4	Chapter #1: Natural systems	Natural cycles and flows – material and energy
5	Chapter #1: Natural systems	Biodiversity and natural systems
6	Chapter #1: Natural systems	Self-regulating mechanism of Earth
7	Chapter #1: Natural systems	Climate change
8	Chapter #1: Natural systems	Waste
9	Chapter #1: Natural systems	Pollution
10	Chapter #1: Natural systems	Biodiversity loss
11	Chapter #1: Natural systems	Soil degradation
12	Chapter #2: Sustainability	History of sustainable development

13	Chapter #2: Sustainability	Different approaches to sustainability
14	Chapter #2: Sustainability	Sustainability and natural resources
15	Chapter #2: Sustainability	The four system conditions and the four sustainability principles
16	Chapter #2: Sustainability	Sustainable solutions in everyday life – climate, energy and waste handling
17	Chapter #2: Sustainability	Sustainable solutions and innovations – global and local impact
18	Chapter #2: Sustainability	Sustainable businesses
19	Chapter #3: Green entrepreneurship	What is entrepreneurship?
20	Chapter #3: Green entrepreneurship	Green entrepreneurship
21	Chapter #3: Green entrepreneurship	Green economy
22	Chapter #3: Green entrepreneurship	Circular economy
23	Chapter #3: Green entrepreneurship	How to start up a green business
24	Chapter #3: Green entrepreneurship	Sustainable business model canvas
25	Chapter #3: Green entrepreneurship	Business plan
26	Chapter #3: Green entrepreneurship	Essentials of running a green business
27	Chapter #3: Green entrepreneurship	Mapping of local opportunities to start a green business
28	Preparation for public event on green entrepreneurship	One class period for preparation
29	The class organizes a public event on green entrepreneurship	One class period for the event itself
30	Chapter #4: My solution(s) for the future	Entrepreneurial project stage 1 - Idea generation
31	Chapter #4: My solution(s) for the future	Entrepreneurial project stage 2 - Team formation
32	Chapter #4: My solution(s) for the future	Entrepreneurial project stage 3 - Looking for partners
33	Chapter #4: My solution(s) for the future	Entrepreneurial project stage 4 - Developing a business model canvas
34	Chapter #4: My solution(s) for the future	Entrepreneurial project stage 5 – Customer interviews
35	Chapter #4: My solution(s) for the future	Entrepreneurial project stage 6 - Reworking the business model canvas
36	Chapter #4: My solution(s) for the future	Entrepreneurial project stage 7 - Final public presentations and post test



How is each lesson organized? Core and optional activities

In this manual, teachers can find lesson plans for all 36 lessons. The lessons are structured along similar lines – they all start with a theoretical introduction which is followed up on with case studies, entrepreneur profiles, practical activities, reflection questions, homework tasks and additional links. In the manual, some of the parts of the lessons are labeled as core activities while others are labeled as optional. These are guidelines for the teacher if the lesson contains too many resources that cannot fit into 1 school hour – if the teacher has 1 only school hour for the respective lesson, they could choose the core activities, and if more hours are available they can do the optional ones as well. You do not have to make an effort to do all the activities or to fit them in a single school hour. In today's fast-paced world, information piles up in enormous quantities and a ton of incredible resources on green entrepreneurship exists in the Internet. We have made our best to select for you those resources which we find most meaningful and informative. However, we realize that they might still be too numerous and often the time you will have during one class hour would not be enough. So our advice is to treat the ideas for activities we have provided as a starting point, to question the usefulness of the resources we have chosen, and to build your own approach to selecting and modifying the present content. We have also made an effort to create the content in a way that knowledge in the lessons is repeated and reinforced – this means that even if you skip some activities (and even lessons) due to lack of time, you will be able to get the main message across because it is embedded in most of the resources.

Flipping the classroom

As mentioned, each lesson begins with a theoretical introduction. You do not have to deliver the theory in the classroom. Instead, you can flip the classroom and assign the theoretical sections for your students to do at home. You can use your online communication channel (Facebook group, Google Classroom, school's own platform, etc.) to pose the questions related to the theory videos online and get the students' answers there. This way, you can free up time for the more interactive activities and games in the classroom.

Hi-tech and low-tech options

The GREENT course is a blended-learning course. This means that by definition it is expected to contain and encourage the usage of online resources. Teachers will quickly see that the GREENT lessons contain a number of videos – especially used to illustrate the theory. These are great resources available on the Internet that deserve to be promoted so that more young people can handle and get familiar with complicated concepts in an accessible format.

However, since we are aware that not every school has a wi-fi Internet connection and multimedia projector in each classroom, we have made efforts to offer opportunities to those teachers who are interested in the topic of green entrepreneurship but do not have all these technical resources. That is why in some parts of the lessons you will be able to find the label “low-tech option” which will give you alternatives to transmit the same educational content through “low-tech” tools. Many of the practical activities are organized as “low-tech” activities by default – that is the face-to-face part in the blended learning equation.

The English language in the videos

The online videos that the GREENT course links to are in most of the cases in English. For some of them subtitles are available, for others only automatically-generated English subtitles are available

which are not always accurate. For some of the videos there would be translations in other languages and you would have to check whether your native language is there.

But even if the videos are in English, many of the students today grow up with English and are very fluent so it would not represent an insurmountable challenge. You can rather view this as an opportunity for your students to improve their English. However, be prepared that the videos included in the course are very diverse in terms of the level of English, pace of speaking, type of language used (more formal or more informal), there are even some videos in which the speakers are not native speakers. We have preferred to keep the course that way – with links to real-life, un-adapted sources so that students can learn from the real world, which is extremely diverse. Having the videos in English could also be a good prerequisite for interdisciplinary activity – if the geography teacher wants to implement the GREENT course but doesn't know English, he/she could team up with the English teacher and work together.

We are aware that another issue is the English language level of the teacher, which may be very diverse as well. There may be English teachers who will not have any problem and other teachers who will understand nothing. We will provide translations of the lessons in the teacher's manual in English language. The videos, however, will remain in English. It is impossible to provide an alternative for each video in the national languages, in most of the cases such alternatives simply don't exist. So we have chosen to keep the videos in English. To make it easier for teachers who have only basic or no understanding of English, in the lessons we have provided viewing comprehension questions for the students before/after each video and after each question in brackets the teachers will find answers that are taken out from the video. This way they will know what the correct answers to each question are even if they can't understand the speaking in the video.

Another possibility is to make translating and subtitling the videos in your national language a fun activity for the students. Nowadays, many people/organizations who upload videos on YouTube allow other users to contribute subtitles in different languages through an online subtitling tool (https://support.google.com/youtube/answer/6052538?hl=en&ref_topic=3014331 and https://support.google.com/youtube/answer/6357271?hl=en&ref_topic=3014331). Since most of the videos used in the GREENT course are not longer than 5 min., teachers can easily divide the class into groups and assign a homework to subtitle some of the videos – for a 5 min. video the relative expected time for creating the subtitles would be about 1 hour. This activity can even be organized as a mini competition and the best or most prolific translators could receive special certificates.

Some of the GREENT lessons also contain links to web news articles or PDFs. For these, the students and teachers can use Google Translate.

Please, share your experience with us!

As a teacher who uses the GREENT lessons in your classroom, you are an extremely valuable counterpart for us. We would highly appreciate it if you share with us your observations and feedback after the first time you deliver the course. This will help us to introduce improvements. We have prepared a feedback survey that you can find and fill in online after you finish working with the course:

- Feedback form after each GREENT lesson that you teach: <https://form.jotform.com/70310841329954>.
- Overall self-assessment after working with the whole course: <https://form.jotform.com/jabulgaria/70311773131950>.



Assessing student performance

As mentioned in the GREENT syllabus, teachers are encouraged to introduce and experiment with their own assessment and grading strategies. The most important point is to try to adopt a holistic approach and avoid piecemeal approaches of mechanically summing up marks for the individual elements in the grading portfolio, because very often students reach important insights and discoveries reflecting a real understanding of the subject matter which cannot be captured by the formal assessment procedures.

Following on from that, a major way of assessing the learning outcomes is the self-assessment by the students themselves before the start of the course and at the end. Guidance on that is provided in Lesson 01.

Furthermore, our team has developed and included several suggested grading rubrics for the most common types of tasks present in the GREENT course in order to facilitate the work of the teachers. They are invited to use and/or adopt these rubrics to fit their own way of teaching and the level of their students. In a separate document “Grading rubrics” you will be able to find a key to the correct answers of the pre/post-test and suggestions for grading:

- written essays
- individual performance in a group classroom work or group online home assignment
- teamwork
- presentation skills

What experience and expertise should I have in order to teach the GREENT course?

You are not required to have any prior experience in teaching sustainability or entrepreneurship. As can be seen from the cross-curricular links, both subject areas have connections to almost any other subject. What you can mostly benefit from is to develop a habit of keeping up-to-date with current issues in this area through following websites, blogs, news, etc. which will strengthen your background knowledge and confidence. The manual and the lesson plans are prepared in such a way that they provide enough information for you as a teacher to be able to conduct all classroom activities. Most of them are constructed in a way that tasks the students with finding the information for themselves rather than the teacher “pouring” it into their heads. Look at yourself more as a facilitator in the classroom rather than as the person who must have all the answers.

A necessary requirement, however, is that you have some experience and interest in using IT tools in the teaching process. You need to be able to freely use the most well-known tools such as Facebook, PowerPoint, YouTube and have at least a moderate level of digital literacy. The course can actually give you a lot in terms of improving your knowledge on how to integrate IT in your teaching.

Further teacher and student engagement

The GREENT course maintains an active Facebook page that you can like and share with your students. You can use that page as a source of carefully selected news and interesting stories from the world of entrepreneurship, sustainable development and sustainable business which you can use to expand your own knowledge and complement your teaching in class.

Like the FB GREENT page here: <https://www.facebook.com/greentproject/>.