

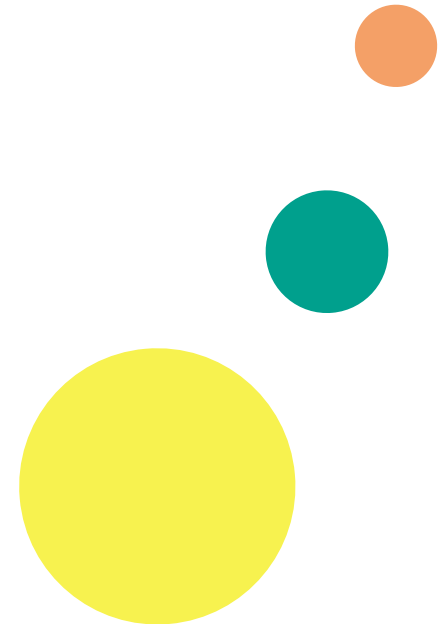


**Teacher Academy Project**  
TEACHING SUSTAINABILITY

*Active Learning Event 1*

# Welcome to online session 2

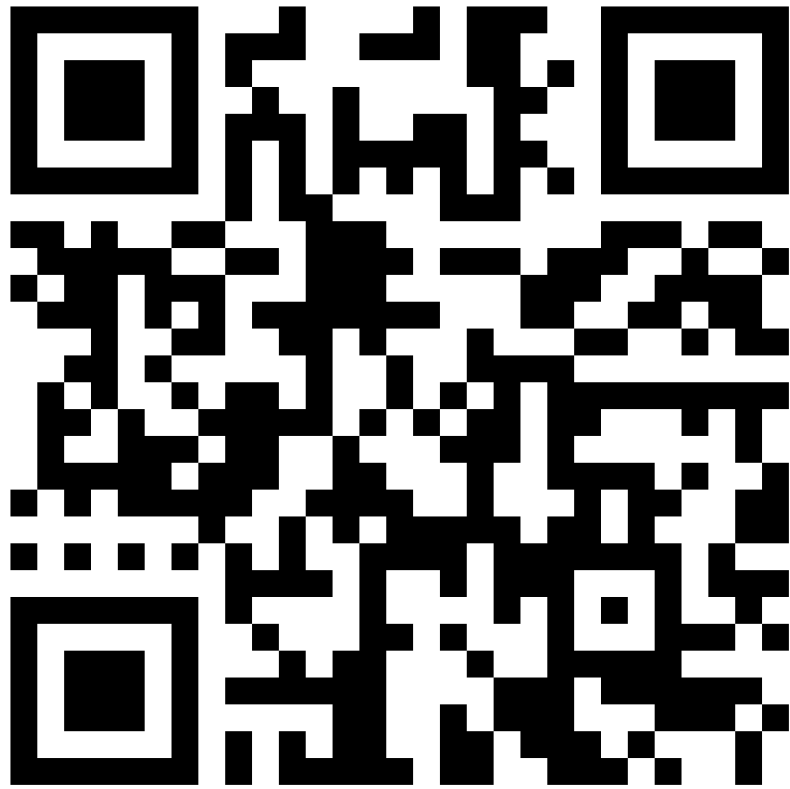
19 April 2023





# Teacher Academy Project

## TEACHING SUSTAINABILITY



:Padlet

Projeto TAP IPSantarém + 8 • 40m



### Who is who?

Please add a short post to this Padlet board. Add your (first) name and country, as well as a short description. Pictures can be added as well, if you want.



Hi, my name is Anna and I'm a student at the Dresden University of Technology, studying education for the subjects german and geography to become a high school teacher. I am very happy to be a participant in this amazing project and can't wait to learn more about sustainability!



Hello, my name is Marta Anselmo, I'm a student at the Polytechnic of Santarém, specifically at the School of Education, in Portugal. I'm attending my master's degree in teaching in the 1st cycle of basic education and mathematics and science in the 2nd cycle of basic education. Thus, my areas of preference are mathematics and natural sciences.



Hello, my name is Joana and I am 22 years old. I am a student at the Polytechnic of Santarém, specifically at the School of Education, in Portugal. I am in initial teacher training because I really want to be a primary or secondary school teacher but in the area of mathematics or natural sciences. However, I prefer mathematics. Given my interests, participating in this European program about sustainability is a huge privilege. This area is transversal to all cycles of the teaching.



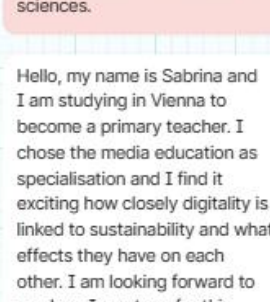
Hi, my name is Susana and I am a teacher trainer in initial and in-service training programmes at Polytechnic University of Santarém, Portugal. It is a privilege to participate in this course because education for sustainability is transversal to all areas with the purpose of making the world a sustainable environment.



Hello, my name is Florian and I work at the University College of Teacher Education in Vienna. At TAP-TS I'm working on the topics of **digitality and sustainability**, two topics that I feel very much affected by in my daily life.



Hi, my name is Elisabete. I'm a science education teacher at Polytechnic University of Santarém - Portugal. My areas of interest and research are education for environmental citizenship and science education. I am very excited about this European project and wish you all an excellent



Hello, my name is Sabrina and I am studying in Vienna to become a primary teacher. I chose the media education as specialisation and I find it exciting how closely digitality is linked to sustainability and what effects they have on each other. I am looking forward to see how I can transfer this important topic in primary school to my students.

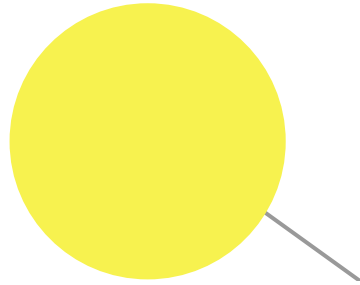


Hi! My name is Bento and I am a science education teacher on Polytechnic University of Santarém, Portugal. Sustainability is a key issue of my teaching and I am very happy to collaborate with other European colleagues with the same interest! Have a nice



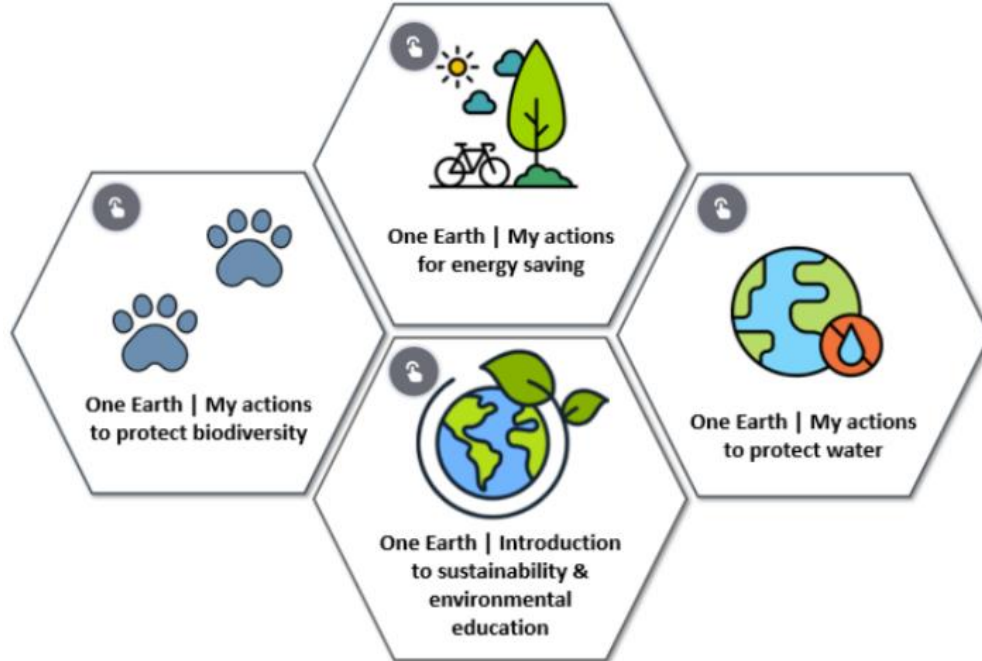
Hello! My name is Neusa. I'm a math education teacher at Polytechnic University of Santarém, Portugal. I'm glad to be part of the collaboration

# 1st session



## One Earth!

Many problems. My actions!



# 1. Asynchronous tasks

In this asynchronous session about the Learning and Teaching Package (LTP) - Sustainability & Environmental Education we propose the following tasks:



Please watch the following videos and choose the one that you consider the best to engage primary school students on the energy theme. We propose some topics to guide your choice:

- Content (relevance, scientific accuracy);
- Suitability for primary school students;
- Duration of the video (short, long?)

Please add your answer in the Forum.



## Re: Opinion about the video to engage primary school student on the energy topic.

by Florian Danhel - Monday, 17 April 2023, 11:56 AM

Hello everyone!

What I really liked about the second video was the wide range of subtopics mentioned in this video (saving energy at home, using public transport and alternatives to motorised private transport).

There are some other positive aspects that work well:

- ) the video works without any off-text.
- ) the presentation as a "superhero family" is very similar to popular children-animation movies like "The Incredibles".
- ) the video addresses the global consequences of our individual behaviour concerning energy consumption.
- ) the video is funny and offers many opportunities to speak about the topic.

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## Re: Opinion about the video to engage primary school student on the energy topic.

by Ana Filipa Antunes - Monday, 17 April 2023, 12:17 PM

Looking at the three videos, I think they are all good for elementary school as they show some energy saving measures. All are well framed in the theme but I consider the second video more complete as it shows concrete measures of what we can do at home to save energy. On the other hand, it shows what we do in our homes and what we should not do highlighting the excessive energy costs.

This second video also has the advantage of being silent, as it allows its viewing to reach more people.

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## Re: Opinion about the video to engage primary school student on the energy topic.

by Joana Vicente dos Santos - Monday, 17 April 2023, 12:18 PM

When viewing the videos we realize that all three are for the first cycle and address the issue of environmental preservation, more specifically energy saving. Although all three videos are well framed on the topic, I would choose the second one as I find it more complete. It has several examples of what is normally done at home (such as leaving appliances on standby or brushing your teeth with the tap running), showing the excessive costs that these behaviors entail. As well as highlighting individual bad behavior, the second video shows how we should behave to save energy through small actions (such as unplugging equipment when not in use). I also add the fact that the video has no text, so it can be covered in any language, and it is animated, so it captivates the students.

Joana Vicente

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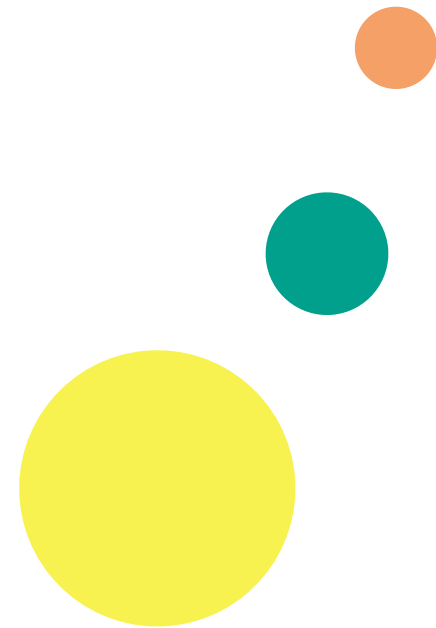
*Active Learning Event 1*

# Climate crisis resilience

19-21 April 2023

## Team:

Bart Verswijvel,  
Arjana Blazic,  
Conor Galvin.

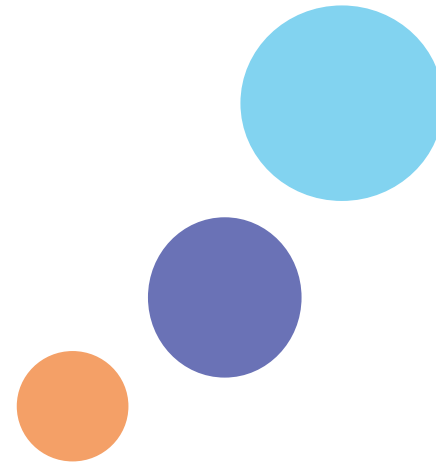






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**Name a board or role-play game you played recently and tell us a little about it.**





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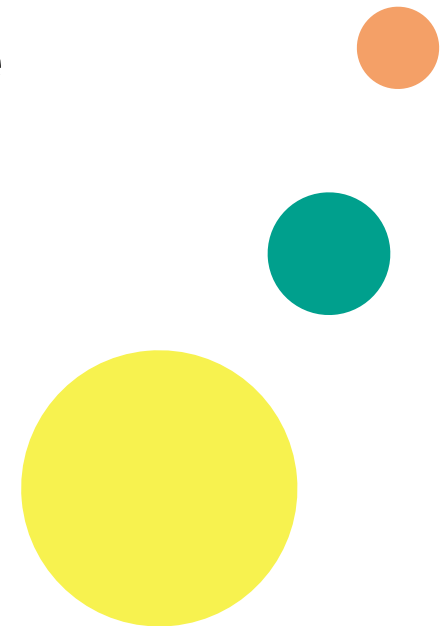
# USING SERIOUS GAMES TO TEACH SERIOUS THINGS IN A FUN WAY

## LTP 4.2 [T2.10] Climate Crisis Resilience

Arjana BLAZIC, Bart VERSWIJVEL, Conor GALVIN



This project has received funding from the European Union's  
ERASMUS+ Teacher Academies Action  
under grant agreement No 101056248





# Major Focus – Development of LTPs...

D2.1 A Sustainable Europe; Content, Competencies & Approaches for Secondary Teachers (TUD, UCD)

D2.2 Sustainability & Digitality: Content, Competencies & Approaches for Primary Teachers (PHW, Santarem)

D2.3 Sustainability & Environmental Education (Santarem, PHW)

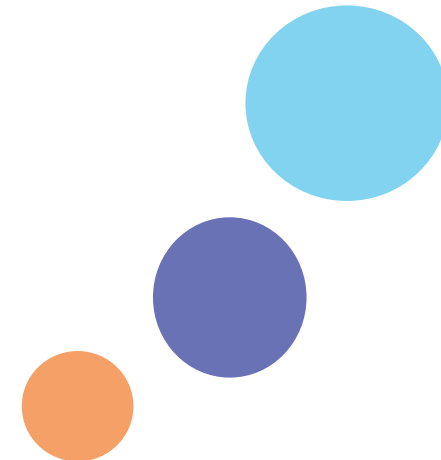
D2.4 Climate Crisis Resilience: Content, Competencies & Approaches for Secondary Teachers (UCD, EUMENNA)



D2.5 Dealing with Climate Disinformation (KHS, SGPirna)

D2.6 Green Citizenship in/for Europe (SGPirna, KHS)

D2.7 Sustainable Entrepreneurship Education (CORedu, all partners)

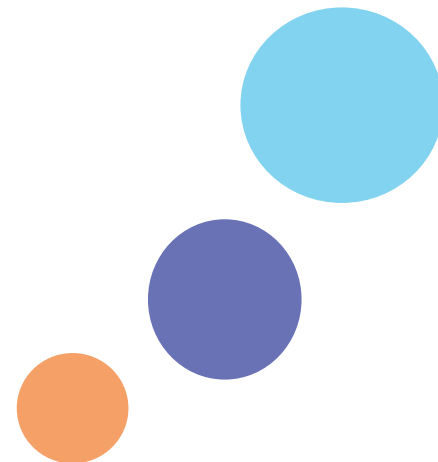


# Starting Points...

**Gamification**, concerns applying different game formats to the learning environment. **Serious games** or *games for learning* are those that focus on education, information delivery, and the practice of skills (Arias-Calderón et al., 2022).






Research suggests that using games in education **promotes social interaction** (Waytz & Gray, 2018), improves mental health (Cruea, 2020), and reduces isolation (Valkenburg & Peter, 2009). These results suggest that using games promotes a state of well-being that **facilitates meaningful learning**.

Developing effective learning through student-centred strategies implemented in online teaching develops several **characteristics, such as self-discipline, motivation, and autonomy** (Goulão & Menedez, 2015; Kirmizi, 2015; Roddy et al., 2017; Duchatelet & Donche, 2019).



# Complex concepts & conditions of choice...

Table 1: Land use matrix and carrying capacities

	Transformation cost		Maximum # HH for surplus production	Carrying capacity (maximum # HH before emigration)
Forest	0		0	1
Staple crop	1 		1	2
Coffee/cocoa	3 		2	3

Title	Cost	Text description	Impact when played	Whom Valley/ Mountains
<b>Prevent loss of improvement</b>				
Trees against landslide risk	2	Trees stabilize the slope and reduce the loss of crops	Land improvement not lost	M
Trees against landslide risk	2	Trees stabilize the slope and reduce the loss of crops	Land improvement not lost	M
Channels against flood risk	2	Channels and dikes reduce the loss of crops	Land improvement not lost	V
Channels against flood risk	2	Channels and dikes reduce the loss of crops	Land improvement not lost	V
<b>Prevent migration</b>				
Fast response plan (any disaster)	2	Quickly help those affected	No migration due to disaster	M V
Fast response plan (any disaster)	2	Quickly help those affected	No migration due to disaster	M V
<b>Prevent loss of satisfaction</b>				
Training about landslides	2	Disaster training on landslides to improve preparedness	Landslide have no impact on satisfaction	M

# Free access & straightforward to play..



<https://www.rtpi.org.uk/news/2022/march/climate-change-board-game-could-be-a-game-changer/>

**QUESTION 19:** An R-value (measuring thermal resistance) cannot be determined for the assembly of materials, only for a single material.

**TRUE or FALSE?** ▲ If correct, choose a retrofit component.

**ANSWER: FALSE.** An R-value can be given for a material (e.g., for an assembly of materials (e.g., a wall or wood wool or sheep wool), or for a window).

**QUESTION 20:** Air source heat pumps do not work in cooler countries such as the U.K.

**TRUE or FALSE?** ▲ If correct, choose a retrofit component.

**ANSWER: FALSE.** Air source heat pumps can operate effectively, even in Scotland. The better insulated the house is, the more effective the system will be.

**QUESTION 21:** Today, in northwest Europe, only 1% of building products are reused beyond the first building they are used to build.

**TRUE or FALSE?** ▲ If correct, choose a retrofit component.


**ANSWER: TRUE.** Source: EU FORBE Project, 2021

Simeon Shtebunaeu and Claudia Carter

The 'Are you game for Climate Action?' project was funded by the Arts and Humanities Research Council

**Retrofit**  
 Retrofitting means 'providing something with a component or feature not fitted during manufacture or adding something that it did not have when first constructed'. It is often used in relation to the installation of new building systems, such as heating systems, but it might also refer to the fabric of a building, for example, retrofitting insulation or double glazing. (Designing Buildings Wiki)

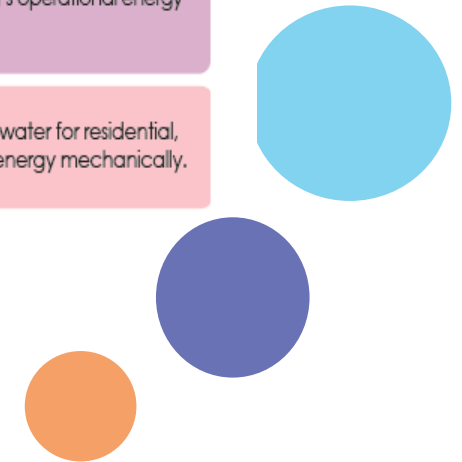
**Building Stock**  
 is a term that is used to describe the total number of buildings in a country, region, municipal area or estate. It can include dwellings, offices, factories, shops, educational establishments, agricultural buildings and so on. (Designing Buildings Wiki)



**Circular Economy**  
 A circular economy is an industrial system that is restorative or regenerative by intention and design. It replaces the linear economy and its 'end of life' concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals and aims for the elimination of waste through the design of materials, products, systems that can be repaired and reused. (LEI Climate Emergency Design Guide)

**Net Zero Building**  
 A building's construction is net zero when the amount of carbon emissions associated with a building's product and construction stages up to practical completion is zero or negative, through the use of offsets or the net export of on-site renewable energy. For a building's operational energy, it is when the amount of carbon emissions associated with the building's operational energy on an annual basis is zero or negative. (UK Green Building Council)

**Heat Pump**  
 is a device that can provide heating, cooling and hot water for residential, commercial and industrial applications by transferring energy mechanically. (European Heat Pump Association)



# Fun...!!!



via Carnegie Mellon University



**CATAN SCENARIOS OIL SPRINGS**  
By Erik Anderson & Ty Hansen  
Based on the Board Game by Klaus Teuber

**THE STORY**  
Barbaric oil has been discovered on the island of Catan. The great engineers of Catan have learned ways to improve production using this valuable new resource. With by converting it into other materials and enabling the transport of cities into new regions. But oil is scarce and its use does not come without cost. Using oil produces pollution, as well as these changing conditions, which bring with them the threat of coastal flooding—*and absolute disaster*. With the discovery of oil on Catan, the Settlers face a new challenge: deciding whether the common good is worth limiting oil usage or whether the pursuit of riches is worth the risk of ruin.

**NEW COMPONENTS**  
You will need the components included in the letters of Catan™ DUKO game. These components are included in Catan: Oil Spills™. Not all of the letters are not used in a 4-player game.

- 21 Oil tokens (one 15 for 3-4 players)
- 122 Supplemental oil tokens on back of oil tokens
- 12 Mersopoli tokens (one 1 for 3-4 players)
- 1 Oil Well token (one 3 for 3-4 players)
- 1 Disaster Track marker
- 1 VP token

Some of these components can be photocopied and cut out from the final page of these rules.

**SETUP**  
Set up the board as shown below. This is the base setup from 30C with oil wells placed on the desert hex, the 11 forest hex, and the 10 pasture hex. (The number areas off board.)  
For a variable setup see page 5. However, a variable setup can lead to a very variable game.  
Place disaster track marker on the '0' on the Disaster Track.

**SPECIAL RULES**  
Every when used here use the Settlers of Catan Rules.

**Resource Production**  
Buildings on oil wells produce oil one unit for a settlement, one for a city, and from that settlement. Unlike resource cards, oil is distributed one at a time.

**Oil Production**  
Oil is taken on forest or pasture hexes with all players. When a player is taken first, the person adding can choose to take one oil specifically instead of a resource card at all. If it is not taken, count each out as 1 oil. If you lose to discard due to a 7, you may choose to discard all getting it back into the supply.

**Note: At any one time, you may only hold a maximum of 1 oil. When you produce oil, you may not take an oil that would give you more than 1 oil. Similarly, you may not take an oil that would give you more than 1 oil, or one development card if it would result in you holding more than 1 oil.**

**Oil Well hexes**

**VP tokens**

**Disaster Track**

**Mersopoli token**

**Champion of the Environment token**

<https://www.catan.com/oil-springs>

# STOP DISASTERS!

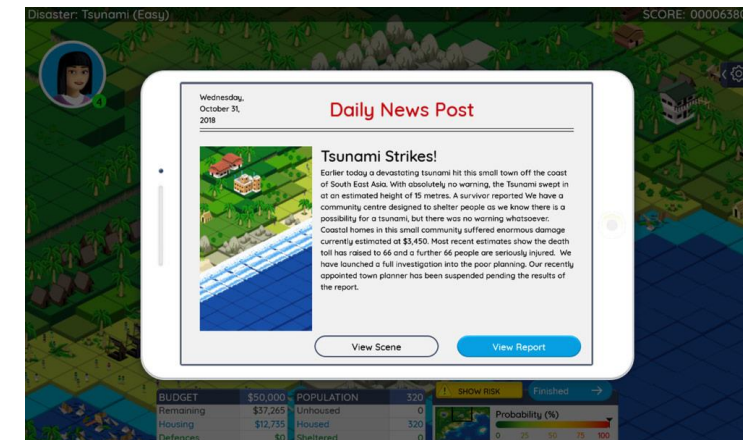
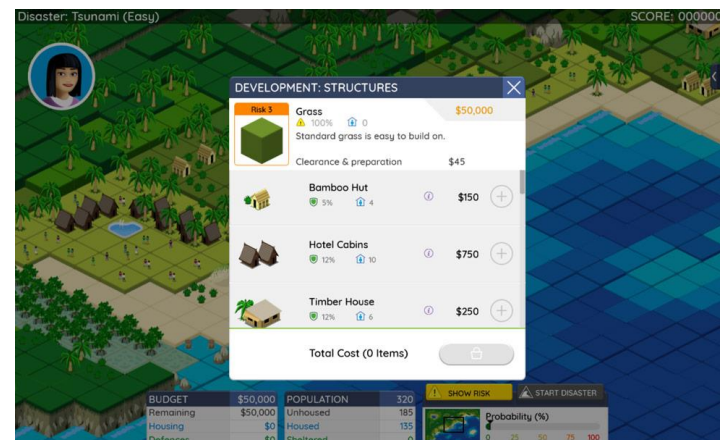
“Play multiple realistic disaster scenarios including tsunami, wildfire and earthquakes.”

<https://www.stopdisastersgame.org/>

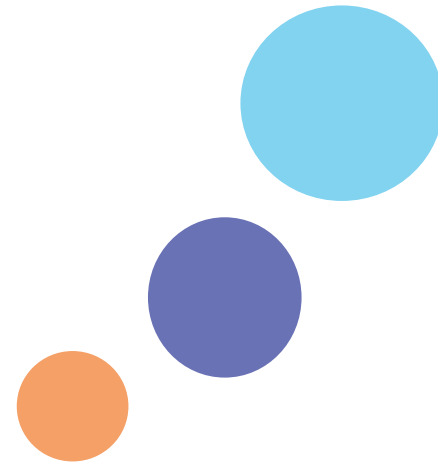
# A basic walk-through...



Cian GALVIN



Any quick clarifications....  
Questions on the technical aspects?

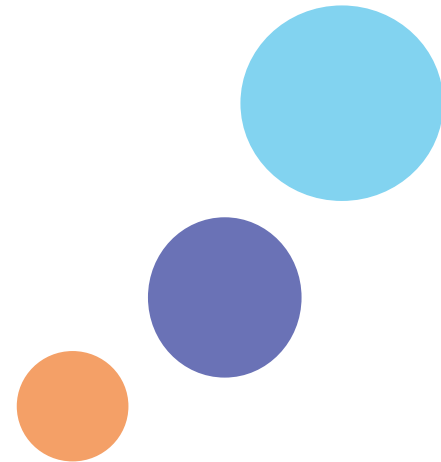






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# Approaches to using *STOP DISASTERS!* in teaching settings & Resources to use

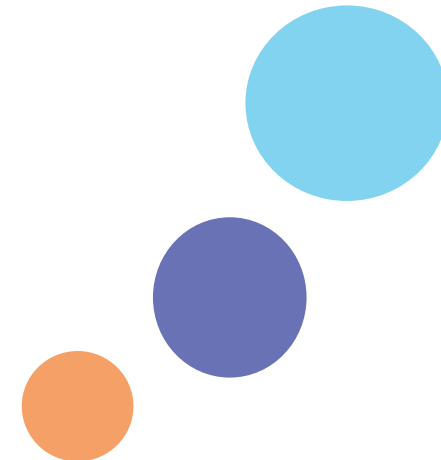
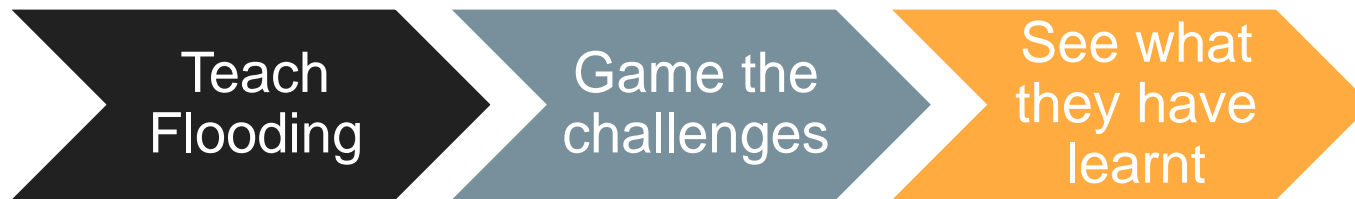


# *A basic narrative design... supported by prompts*



Scenario/  
the task

'Product' /  
the learning  
display

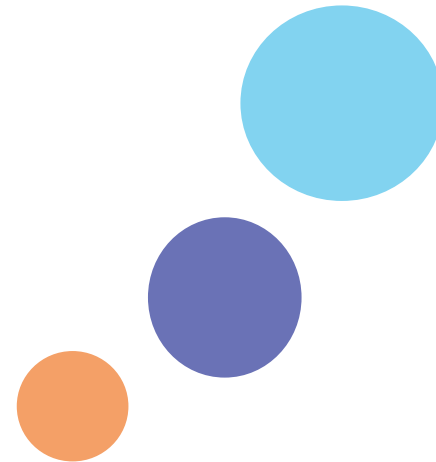






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**How would *YOU* introduce and teach the idea of a flooding disaster and preparing for expected flooding to a class of your choice?**





# Teacher Academy Project

TEACHING SUSTAINABILITY

# OVER TO YOU...! Q&A



via <https://learnenglish.britishcouncil.org>



# Other serious ( but fun) games to try...

## FREE ACCESS, STRAIGHTFORWARD GAMING; 1. CLIMANIA



<https://www.rtpi.org.uk/news/2022/march/climate-change-board-game-could-be-a-game-changer/>

<p><b>QUESTION 17:</b> Are all waste processing systems considered a circular flow (characterised by the possibility of materials, only for a single material)?</p> <p><b>TRUE or FALSE?</b></p> <p><b>TRUE</b> or <b>FALSE?</b></p>	<p><b>QUESTION 20:</b> All source heat pumps do not work in colder climates such as the U.S.</p> <p><b>TRUE or FALSE?</b></p> <p><b>TRUE</b> or <b>FALSE?</b></p>	<p><b>QUESTION 21:</b> Turkey, in southern Europe, uses 18% of building products and services beyond the EU building they are used for.</p> <p><b>TRUE or FALSE?</b></p> <p><b>TRUE</b> or <b>FALSE?</b></p>
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**Sublet**  
Subletting means providing something with a component or feature not fitted during manufacture or adding something that it did not have when first constructed. It is often used in relation to the installation of new building systems, such as heating systems, but it might also refer to the fabric of a building, for example, switching insulation or double glazing. (Designing Buildings Wiki)

**Building Stock**  
A term that is used to describe the total number of buildings in a country, region, municipality or estate. It can include buildings, offices, factories, shops, educational establishments, agricultural buildings and so on. (Designing Buildings Wiki)

**Circular economy**  
A circular economy is an industrial system that is restorative or regenerative by intention and design. It replaces the linear economy and its "end of life" concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals and aims for the elimination of waste through the design of materials, products, systems that can be repaired and reused. (EU Circular Economy Design Guide)

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**Heat Pump**  
A device that can provide heating, cooling and hot water for residential, commercial and industrial applications by transferring energy mechanically. (European Heat Pump Association)

<https://www.rtpi.org.uk/news/2022/march/climate-change-board-game-could-be-a-game-changer/>

## FREE ACCESS, STRAIGHTFORWARD GAMING; 2. DISCOORD



A role-playing game in which each of the five players plays a local leader. Each player manages a Sub-County which is composed of 15 villages.

4 phases: "the District Council Meeting", "the rainy season", "the planting season" and "the population growth and harvest season"

<https://games4sustainability.org/gamepedia/disCOORD/>

<https://climaniathegame.com/play-climania/>

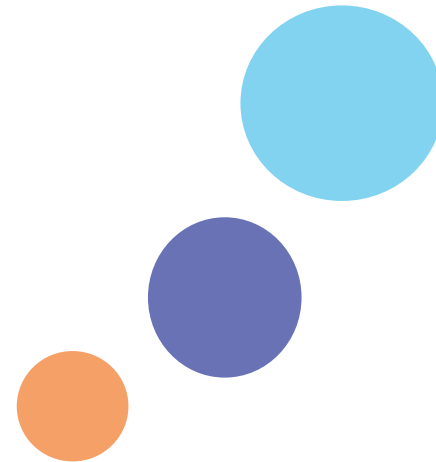
<https://games4sustainability.org/gamepedia/disCOORD/>



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**Design a one-page / two-page resource or worksheet that you would use with *STOP DISASTERS!* in a teaching setting; add it to our PADLET.**





THANK YOU....

Arjana BLAZIC, Bart VERSWIJVEL, Conor GALVIN