GeT

**Gamification, Education and Training
to activate youth for sustainable choices:**

**Toolkit on gamification
for sustainable consumption**

EETTi SÜDWIND neo sapiens Servizio di pace LVIA

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Welcome to GeT!

The project "GeT - Gamification, Education and Training to activate youth for sustainable choices" was a 21-months transnational cooperation funded by the Erasmus+ programme of the European Commission. It was developed to respond to the need for innovative methods to discuss sustainable consumption and links between local actions and global impacts in youth work and Global Citizenship Education. In addition, it offered youth workers concrete tools for innovative and engaging activities to encourage sustainable consumption and active citizenship amongst youth. During the project, its partner organisations involved in youth work in Finland, Austria, Spain and Italy collected, analysed and disseminated best practices in using games and gamifying in tackling complex issues related to sustainability in youth work. Besides developing this toolkit as a final result and output of the project, partners also use their expertise to develop a board game that enables young people to learn about sustainable consumption in a fun, engaging way as a simple tool for youth workers and teachers to tackle this complex issue. Who was behind this initiative?

Pro Ethical Trade Finland (PETF; Eetti) (Get project coordinator) is a non-profit from Finland working with youth to promote fair trade, sustainable production, and responsible consumption. PETF offers Global Citizenship Education, both formal and non-formal in the form of workshops, teacher training, seminars and engaging communication work and campaigns. PETF has a staff of 5, over 800 individual members and has a network of activists and volunteers across Finland. It is funded as a youth organization by the Finnish Ministry of Education and also implements projects funded by other ministries and foundations.

Südwind is an Austrian non-profit non-gonvernmental organisation with over 40 years of experience that focusses on human rights, fair living wages and sustainable global development. Through communication campaigns, the compilation of studies on global issues and public affairs work Südwind advocates for policies and practices that enable a Good Life For All within planetary boundaries. Südwind promotes Global Citizenship Education through workshops at schools and extracurricular educational work. The renowned Südwind Magazine, a bi-monthly print and online magazine published by Südwind, shines a light on international development issues, international politics and global civil society initiatives.

Neo Sapiens is a European mobility and training social entity located in Spain which main aim is the design, management and implementation of educational, training, culture and transnational mobility projects and local initiatives to promote training opportunities on non-formal education and interculturality. It offers supporting services to professionals, schools and non-profit organisations in relation to this kind of activities and the development of pedagogic and learning materials on issues related to Global Citizenship Education and active citizenship activities.

LVIA is an international cooperation association, founded in 1966 with the aim of contributing to the achievement of human rights and combating world inequalities. It is engaged in 10 African countries where it has been working for over 50 years to ensure water and health, agro-pastoral development, strengthen professional skills and small businesses, improve the quality of the environment and the dynamics of participation of civil society for the benefit of millions of people. In Italy LVIA offers opportunities for active citizenship for individual and community development. It works in networks with public institutions and civil society, through non- formal education methods, structured dialogue, promoting volunteering and launching campaigns for human rights and common goods. Among the various areas of intervention, LVIA's decades-long commitment to the protection of the environment and natural resources deserves particular attention, to mitigate the effects of climate change that makes already fragile societies even more vulnerable. LVIA promotes green entrepreneurship and jobs, showing the possibility of matching economic development with environmental sustainability.

PART 1:

Introduction
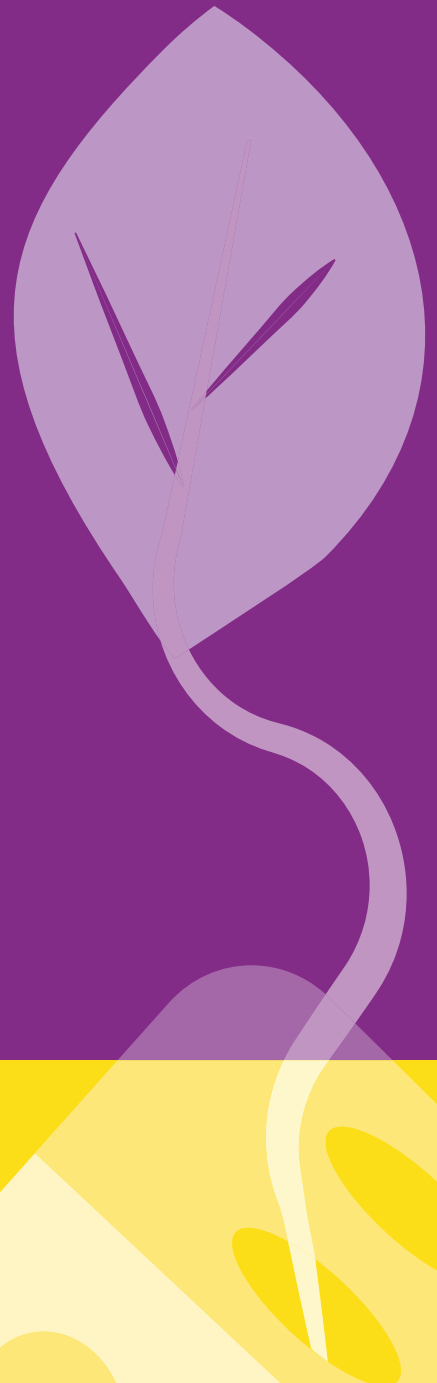
Why a toolkit to promote Global Citizenship Education?

> "Global Education is education that opens people's eyes and minds to the realities of the world, and awakens them to bring about a world of greater justice, equity and human rights for all."

Maastricht Global Education Declaration

The climate crisis is no longer just a future scenario, the extreme weather events it causes, such as floods, droughts, storms, fires or extremely high temperatures are already occurring and will increase in intensity and frequency in the future. The corona pandemic due to supply shortages has shown us how dependent we in Europe are on global supply chains. At the same time the pandemic in many cases interrupted the course of collaboration between national states and led to the re-emergence of selfish manifestations. The gap between rich and poor is widening, revealing inequalities at regional, national and global levels. Here again it shows that the pandemic affected poorer countries and its people to a much greater extent than rich states which sooner had access to vaccinations and were able to absorb part of the financial losses caused by the lockdown. Today, current crises, ecological threats and social inequalities can neither be understood nor sustainably changed without their global dimensions. To meet the ecological but also social challenges at the global level, it is necessary to collaborate more strongly at international level instead of continuing the path of separation. This does not preclude the realisation that some product cycles are more ecologically and socially compatible to be realised at local rather than international level.

In the midst of these environmental, economic and social challenges, young people face their very own challenge of finding their way in this increasingly complex world.

It is becoming increasingly necessary for people to perceive themselves as part of a larger society that goes beyond the borders of their own state. We are therefore called upon to see ourselves as citizens of this one world and to assume joint responsibility for developments in this global society. The task of education is to support people in orienting themselves in a complex, globally networked and confusing world and to be

able to act responsibly. Young people should not only understand global connections, but they should be encouraged to help shape the world in terms of social justice and sustainability. In doing so, it is important to avoid the feeling of being overwhelmed by the many problems, instead pointing out possibilities for action.

All of this generates the need of promoting Global Citizenship Education as an educational concept to impart knowledge and skills that contribute to a fulfilled life in our globalised world. To contribute to this aim, this toolkit will support you as a teacher or youth worker in using the game-based approach in Global Citizenship Education in the field of ethical consumption and production and circular economy. While the guidelines and tips in this toolkit can be used to develop a game for a group of young people, it can also be used to create the game cooperatively with young people too. The process of developing a game is not only fun but the young people engage with the issues even more intensively this way.

The best practices also included on this material offer a collection of games in the field of Global Citizenship Education related to sustainability. They can be used in class or in open youth work or serve as inspiration for your own game development process.

In order to create this toolkit, GeT has promoted a users' active role in its development as it does gamification with players. Project partners explored previous activities on gamification in GCE for youth in order to elaborate the content of this output (especially on sustainable consumption and circular economy). The collection of the most relevant initiatives and materials was not only used for this document creation, but also put together in its final part to offer to educators and youth workers alternatives for the modernisation of their educative and awareness programmes.

Besides an online research, this collection was done thanks to focus groups and interviews involving innovators in the education and gamification field, with experience on the development and use of gamified products and activities. This made possible a sharing of information and promoted an exchange of good practices among them, contributing at the same time to the public recognition of these professionals as well as to the dissemination of their practices at local, national and European level.

Moreover, partners carried out an analysis of these practices to detect and set the basic principles of gamification with a double aim. First, to create the guidelines and tips towards gamification that will allow those reading this toolkit to create their own initiatives using this approach. Secondly, to form a base for the creation of the project's second output and ensure its efficiency: <u>a board game to act for sustainability.</u>

Thanks to all of this, this toolkit appears as a support and reference for educators and youth workers towards the creation of their own learning materials based on gamification techniques. Its goal is to promote the creation of new interactive and discussion channels and frameworks for youth to deal with topics related to sustainable and consumption issues from a personal point of view, but also understanding the relation existing between their habits and other global issues and communities: Think locally, act globally.

However, before diving into gamification techniques, it is important to contextualize the political and social framework that generated the current movements from countries, authorities, and population in general towards a more sustainable global society. Let´s start from the beginning

> " Also today we are making a decision of great historical importance.
> We are deciding to build a better future for all people, including the millions who have been denied the opportunity to lead decent, dignified and rewarding lives and reach their full human potential.
> We may be the first generation to succeed in ending poverty; just as we may be the last to have a chance to save the planet.
> The world will be a better place in 2030 if we can achieve our goals. "

Item 50 - 'Introduction to the Declaration Transforming our world: the 2030 Agenda for Sustainable Development.

In September 2015, more than 150 Heads of State and Government met at the historic Sustainable Development Summit, where they adopted the Agenda 2030 for Sustainable Development, defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The United Nations Agenda is a programme of action in 17 Goals articulated in 169 targets for combating poverty and exclusion, based on 5Ps - People, Prosperity, Peace, Partnership, Planet - to be considered at local and global levels.

These goals are the heirs to the Millennium Development Goals (MDGs) and seek to expand on the successes achieved with them as well as completing the remaining outstanding goals. The new ones are unique in calling on all countries, rich, poor or middle-income, to take steps to promote prosperity while protecting the planet.

Since then, for years we have been hearing about the Agenda 2030 in many contexts and under different dimensions: in this section of the toolkit we would like to talk about circular economy starting from the holistic approach and marked by concrete initiatives (participatory and multi-level) of the Agenda, which aims to end extreme poverty, ensuring rights such as quality education, universal health, social protection, gender equality, decent job opportunities. Particular attention is given to strategies to support the economy (understood as "housekeeping" in the literal sense of the term) following a new path: that of sustainable development. Widespread well-being, preservation of biodiversity and ecosystems, reduction of climate-changing gas emissions against the climate crisis, are essential fixed points that must necessarily condition governance and

business choices (see SDG 12). Ensuring a decent life to present and future generations go through an ecological and equitable transition, supported by a plan of reforms and public funding that could be aligned with life cycle and circular models. According to this, a Green New Deal was promoted to involve and guide all citizens through processes of education, training and communication considering the life cycle of goods.

The Life Cycle and the European Green Deal

Life cycle thinking is an important part of new sustainable consumption and production models. It considers not only the environmental and socio-economic impacts of the product during its use phase, but also the resource consumption and pollution associated with all the product life cycle stages from resource extraction to end-to-life management. A key objective of sustainable consumption is to enhance resource efficiency throughout products' life cycle. Resource efficiency refers to using less resource inputs to achieve same or improved output.

Based on this idea, on March 11, 2020, the European Commission launched "A New Action Plan for the Circular Economy - For a Cleaner and More Competitive Europe." The plan is a key element of the European Green Deal and is closely linked to the European Industrial Strategy. It sets out a comprehensive framework for actions to accelerate the transition to a "regenerative growth model" that will contribute significantly to exiting the crisis caused by the COVID-19 pandemic, achieving climate neutrality by 2050 and decoupling economic growth from resource use, while ensuring the EU's long-term competitiveness and leaving no one behind. While we are welcoming the fact that at European level with the Green Deal there is a strategy that will put us on a more sustainable path, we are missing reflections on how prosperity is possible without further growth, since a decoupling of growth from resource consumption will not be possible in the long term and in all areas. Nevertheless, it can be emphasized positively that the transition, strongly advocated by the European Commission, has several dimensions that see the environmental pillar of sustainability at the centre of interactions with the economy and the social pillar: the transition towards decarbonization (SDG 13 of the 2030 Agenda), towards the circular economy (SDG 12), the food transition (SDG2), the transition towards a different relationship with nature and more resilient ecosystems (SDG 14 and 15), towards a zero pollution economic, productive and housing system (SDG 8 and SDG 11), the energy and infrastructure transition oriented towards renewability and sustainability (SDG 7 and SDG 9). This transition has social and economic impacts involving all the other goals of the 2030 Agenda.

But wait a minute, what do we really mean with circular economy?

From linearity to circularity: what changes in the economic-productive model?

In order to better understand the circular economy, which is one of the key elements of the Green Deal, it is necessary to start from the concept of linear economy, which still represents the dominant economic model, which has also become a cultural model over time. The verbs that most characterize the linear economy are TAKE/EXTRACT, PRODUCE, CONSUME, THROW, whose most obvious consequences are the excessive and indiscriminate use of natural resources and a massive production of waste, certainly physical and material but also, unfortunately, human.

To today, there is no single definition of circular economy; it is sufficient to consider that a study published in 2017 identified 114. In most cases, the definitions refer to the model of the three (or more) R's (Reduce, Reuse, Recycle), but there are few that also include the social dimension, without considering the circular economy only as a real strategy to increase economic prosperity.

The authors of the study in object tried to elaborate one as inclusive as possible of economic, social and environmental aspects, leading to this result: "the circular economy is an economic system based on business models that replace the concept of end-of-life with reduction, creative reuse, recycling and recuperation of materials in the phases of production/distribution and consumption, operating at the micro (companies, products, consumption), meso (industrial parks) and macro (cities, regions, nations and beyond) levels, with the aim of achieving sustainable development that implies creating environmental quality, economic prosperity and social equity for the benefit of present and future generations."

The circular economy represents a sustainable revolution that redefines production processes and services, generating economic opportunities and benefits for the environment and society: an extraordinary opportunity to optimize the use of natural resources and combat waste in favour of competitiveness, innovation and savings.

From this point of view, instead of positioning ourselves on a straight line that goes from the extraction of resources to the production of waste, we are oriented on a line that, curving, indicates how ideally any good/service that has reached a first terminal phase, if properly designed and implemented, can be used as an input for new production processes.

The 4 principles of the circular economy

Trying to further explore some aspects of the circular economy, we can identify 4 key values and principles, two that also have a cultural and symbolic component and two of a more technical nature.

The first principle, which most directly evokes the circular dimension, is generating value from waste. What is waste? What does it mean to generate value? Value from what point of view? Certainly economic, but also environmental, social, aesthetic/artistic, intergenerational. And how can value be generated? Certainly by recycling, reusing and transforming in a creative way (upcycling), but we are already at the end of the production chain. Before that, value can be generated by repairing (enhancing the value of the craftsman who repairs), or by selling in the second-hand market instead of throwing away an object/clothing that still works.

In continuity with what is underlined by the first principle, we come to a second one, of a technical nature, that is to extend the life of products. This is to maintain the value of the good over time. And this can be done in different ways: through the second-hand market, exchange and barter, repair, remanufacturing (especially for electronic devices where only some components are replaced) and, finally, through bulk (extending the life of packages).

A third principle, again of a more technical nature, concerns the choice of production inputs from secondary raw materials (whether they are scrap from the processing of raw materials or materials derived from waste recycling) or from plant and renewable biomass derivatives (biobased), taking care, however, to include the ethical and socially sustainable dimension, recovering food and agricultural waste and not diverting resources intended for food.

Finally, the fourth principle on which the circular economy is based is cultural and philosophical, as well as technical: preferring use to possession. It has been estimated that a car in Europe is parked on average 92% of the time, and that a drill might work for 500 hours but is used on average 15 minutes in 20 years for home use. It begs the question: is it necessary for everyone to own a car, a drill? Or rather, is it necessary for everyone to be able to use a car, a drill when needed?

What is more commonly known as sharing economy has given rise to a number of ICT services and platforms of global importance: couchsurfing, for example, but also BlaBlaCar © and, in an initial, less massive phase, Airbnb ©.

A systemic approach is needed to hold all four principles together. Systemic design is a new emerging discipline aimed at defining and planning the flow of material and energy that flows from one system (and/or product) to another, in a continuous transformation that minimizes environmental impact and generates a virtuous economic flow based on sustainable consumption and production values.

1.3 Sustainable consumption and production (and the impact on climate change)

> " For decades, scientists have been explaining the ways in which humanity is driving the three planetary crises of climate, biodiversity and pollution, all of which are linked to unsustainable production and consumption. Changes in consumption and production patterns can help to promote the decoupling of economic growth and human well-being from resource use and environmental impact. They can also trigger the transformations envisaged in global commitments on biodiversity, the climate, and sustainable development in general "
>
> **United Nations: Goal 12**

There is no single definition of sustainable consumption and production. UN Environment Programme has defined it as "doing more and better with less." According to this, this section will allow you to explore deeper the two main topics we want to deal with through this toolkit and gamification: sustainable consumption and production.

Sustainable consumption and production have different objectives of which the most mentioned are decoupling environmental degradation from economic growth, applying life cycle thinking, promoting sustainable lifestyles, increasing resource efficiency, reducing consumption, and sizing opportunities for developing countries. Currently, we are exploiting our resources beyond our planetary boundaries. Sustainable consumption and production offer a solution for this dilemma, but it needs actions from consumers and in the productions as well as regulation to guide them.

Consumption refers to the buying and using of various services and goods. Consumption does not only refer to individuals, but also to governments, business, and other institutions. Also, consumption refers not only to the consumption of goods, but also to other choices, such as how we travel, what we eat and what services we use. Production refers to the action of turning components or raw materials into finished goods or products in a manufacturing process. It is important to talk about sustainable consumption and production because our actions and choices have an impact on the environment, climate change, and the realisation of human rights. Ensuring sustainable consumption and production patterns is also one of the UN Agenda 2030 goals.

Sustainable consumption and production have multiple dimensions, but typically, it is divided into three dimensions:

- **Environmental sustainability**, which focuses on the environment.
- **Social sustainability,** which focuses on issues such as labour practices, living conditions and impacts on local communities.
- **Economic sustainability**, which focuses on enabling the economies to stay afloat and companies to stay in business.

Let´s take a closer look at these three dimensions of sustainable consumption and production, and the impact that unsustainable consumption and production patterns have on climate change while considering the roles of different actors on them.

Social, environmental, and economic sustainability

Social sustainability is about identifying and managing business impacts, both positive and negative, on people. In the context of business, social sustainability includes minimizing negative effects on different groups of people and communities throughout the value chain and addressing any adverse impact to human rights. Directly or indirectly, companies affect what happens to employees, workers in the value chain, and local communities, and it is important for companies to manage its impacts proactively. At a minimum, we should expect businesses to undertake due diligence to avoid harming human rights and to address any adverse impacts on human rights that may be related to their activities.

Worldwide consumption and production rest on the use of the natural environment and resources in a way that continues to have destructive impacts on the planet. Unsustainable patterns of consumption and production have, for example, accelerated the greenhouse gas emissions into the atmosphere. Environmentally sustainable companies consume natural resources responsibly and aim to minimize the emissions and environmental damage from production.

Economic sustainability refers to the positive and negative impact an organization has on its most important stakeholders, which include employees, families, customers, suppliers, communities, and any other person influencing or being affected by the organization. Good finances and governance help companies to take on social and environmental responsibility. Also, financially responsible companies do not evade taxes.

The role of governments, companies and individuals

For governments, sustainable consumption and production means setting a more conducive regulatory context, which refers to regulation that guides into a more sustainable direction. In addition, sustainable consumption and production for governments means facilitating and inspiring better citizen decision-making, creating market demand through sustainable public procurement and supporting research, development, and innovation.

For companies, sustainable consumption and production means integrating sustainability into core business strategies to develop innovative ways to meet people's needs. Companies must take a public commitment to respecting human rights in their value chains, create policies to achieve this and report on the progress transparently. Also, companies must set targets to minimize their own climate and environmental impacts and report on their progress transparently.

Finally, individuals have a major role to play in sustainable consumption and production. The choices they make, matter. As consumers, sustainable consumption means better understanding of daily decision-making impacts and how to embrace more sustainable lifestyles. Sustainable consumption can be quite tedious, as the production chains of many products are long, and companies do not communicate about the different stages of production. Also, lack of information makes it significantly more difficult to make responsible consumption decisions. Even if the company claims that its products are produced responsibly, the claim may be impossible to verify, and there is a risk of greenwashing.

There are many ways in which individuals can promote sustainable consumption and production. Consumers can ask companies to give precise information about the product conditions. Also, consumers can put pressure on politicians to set the right framework conditions. This can concern, for example, the minimum wage and fair working conditions in the companies and also in the supplier companies or ecological standards such as maximum values for environmentally harmful substances in production. In addition, individuals can change their own consumption habits. Consumers can reduce their consumption and ask themselves before making any purchase decision: Do I need this product? Can I borrow it or rent it? Can I find the same item second-hand? Also, consumers can favour products that are produced nearby or companies that are open about their production.

To promote all these actions and behaviours, this toolkit aims to generate on youth as future societies leaders, new ways of thinking but using interactive methods that could encourage their learning and engagement. It is here while gamification comes into the spotlight. Jump into the part 2 of this toolkit!

PART 2:

Guidelines and tips for gamification towards Global Citizenship Education

2.1 Why Gamification for Global Citizenship Education?

> ❝ Play is the highest form of research ❞
>
> **Albert Einstein**

> ❝ If you play enough while you are little, you carry treasures with you that you can draw on later throughout your life ❞
>
> **Astrid Lindgren**

Playing is not only fun, it is even essential for children and a prerequisite for development and learning. Through play, children and, at a higher level of complexity, later also adolescents develop socially, emotionally, motorically, linguistically and intellectually. And also for adults, playing remains of great importance and is therefore also offered in corporate trainings. The game method as a learning experience is especially suitable in cases where innovation and breaking new ground is required.

Education in general, but especially in Global Citizenship Education, should not only be about imparting knowledge, but young people should expand their competencies and be empowered to act. A characteristic of games is that the players are not passive recipients of prefabricated content as in a lecture or film, but become active and act themselves. In this way, not only knowledge can be acquired, but also behaviour can be trained. Moreover, due to its non-serious character, the game offers the possibility to playfully try out different concepts of action. Players can start experiments, simulate and play through scenarios. It helps to recognize different approaches to problems, to see and try out alternatives.
Well-designed complex games also give the players the opportunity to slip into the evil roles, to act in an ethnically incorrect way, to try out different possibilities of action and to explore the consequences.

A study conducted in Austria by Hofbauer, Putz and Treiblmaier in 2020 confirmed that gamification turned out to have a positive effect on students' knowledge retention.

The steady increase in students' learning performance demonstrates the usefulness of incorporating gamification principles into educational activities.

In another study conducted by Putz and Treiblmaier in 2020 gamification also showed a promising potential to increase individuals' intrinsic motivation and to positively impact attitudes and behaviours. In the gamified context in comparison to a reference group, the findings show a stronger influence of intrinsic motivation, as measured by enjoyment and curiosity, on attitude and behavioural intention, and a greater explanatory power of the used model. Gamification therefore positively moderates the impact of exogenous motivational variables and amplifies the effect of intrinsic motivation.

When designing games, it must not be disregarded that games - in their pure form - are always played voluntarily and of one's own accord. This condition is limited by the application in the school context but also in extracurricular educational work. When designing games for educational purposes, it is important to balance the amount of content to be conveyed with the fun factor, which must not be lost in a game.

According to all of this, this toolkit focuses on taking advantage of gamification to explore the development of games on sustainable consumption and circular economy. The aim of applying this approach to these topics is particularly relevant for young people in Europe as they are entering the stage of life where they are increasingly becoming consumers themselves and are allowed to make their first own purchasing decisions. This creates a field of tension for them, as products they buy themselves have to be affordable as they usually are on a tight budget.

Young people are also in a phase of life in which they are searching for their own identity. The choice of fashion articles or electronic devices of certain brands, but also the choice of foods or the decision for means of transport is, especially in this phase of life, also an expression of belonging to certain social groups and the choice of a certain lifestyle with which young people identify.

At the same time, in a time of increasingly scarce natural resources and the destruction of livelihoods for the production of goods, the question arises of how to consume in a socially just and ecologically sustainable way.

In these complex decision-making processes, the gamification approach can help to show young people possible courses of action. Here, not only the level of individual consumption decisions should be addressed, but also the level of political participation and influence. This is because laws negotiated at the political level, such as the Supply Chain Act in Germany or the demanded Due Diligence Act at European level, can create framework conditions for socially just and ecologically acceptable consumption. The gamification method can also help us thinking outside the box and coming up with innovative ways on how to design and rethink the life cycle of products.

What is "Gamification"?

> Gamification is defined as using game-design elements in any non-game system context to increase users' intrinsic and extrinsic motivation, help them to process information, help them to better achieve goals, and/or help them to change their behaviour

Hamari, Koivisto, & Sarsa, 2014;
Treiblmaier, Putz, & Lowry, 2018, p. 134.

Gamification is an interactive methodology that borrows those mechanisms, dynamics and elements traditionally used in games and brings them into the education context. It promotes learning and fun to provoke thinking and introduce new knowledge or raise awareness on concrete issues through elements such as challenges, competitions, cooperative tasks, problem-solving techniques, recognition and awarding systems, etc.

This approach increases engagement of those who practice gamified activities or materials while generating environments on which participants can develop transversal soft skills and enhance new competences.

Gamification supports such a concept of learning, where the learner explores, observes, reflects, searches for views and meanings and is doing all of this in interaction with others. This allows facilitators to plan new training pathways on which the learning can even happen accidentally. Learners will have fun playing the game and will try their best to win the game, but at the same time they will obtain valuable knowledge.

To resume, gamification become a rich approach as:

ν It generates more interactive and funny ways of providing and enjoying learning.
ν It increases the level of engagement with the activity or topics proposed.
ν It enhances that participants are also responsible for their own learning and see the opportuni y to apply what is learnt to reality.
ν It helps with accessibility in education and offers personalized learning environments on which participants can take part according to their competences while acquiring new ones.

V   It facilitates the acquisition of soft skills and those related to active citizenships such as critical thinking, cooperation, autonomy, leadership, teamwork, etc.

V   And many more!

Before going deeper on this explanation and gamification process, the authors of this material aim to set and define several main terms that will be used from now on for the sake of offering a clear and concise explanation:

V   **Product(s)**: it will be the word used on this toolkit to define the gamified action or material. Gamification can be applied to many types of activities (ex. workshops, training, seminars, etc.) as well as for the creation of different outputs (ex. video games, board games, role plays, card games, etc.).

V   **Player(s):** it will be the word to define those participating in the gamified action or using the gamified material as learners (ex. beneficiaries of an NGO, learners in a course, students in a school, etc.).

V   **Facilitator(s):** it will be the word to define those who design and implement the gamified activity or material (ex. creators, masters of the game, supervisors of the activity, teachers, you!).

V   **Play:** it will define both, the action of playing as well as the interactions between participants and implementation of the learning on a gamified process.

Now that we know what we are talking about, let's create something!

Experts quotes

"Playing a game is an exploratory way of learning. It is a good method of non-formal learning".

2.3 Steps to create a gamification activity or material

We propose to you on this toolkit a pathway that you can follow to create your own gamified product. Even if these steps are set in a logical way, please consider that every creative process tends to be organic and is alive. According to this, the order of the steps can vary according to your creation process, or you can jump among them depending on the ideas coming from your mind and team.

Notice also that this chapter will provide you a FULL and complete process, but some gamified products would not need to go through all these stages, just consider some of them (ex. if you want to dynamize a workshop that you already did in the past, but you want to improve just some parts of it). According to this, take advantage of the tips and guidelines provided here according to your needs and expectations.

Besides this, if you want to have a long-term effect, be sure that your product is embedded in a broader context and supported by the environment in which the change is to be proposed. This will allow you to avoid short interactions whose impact does not remain in participants.

Experts quotes

- "Game development is just as much fun as playing games!".
- "You shouldn't make a boring game and you must have fun while making the game".

In order to develop a gamified product, the authors of this toolkit have divided this creative process on different stages that you would need to go through:

A) PLANNING

- V Needs gathering
- V Objectives setting
- V Idea and gamification approach

B) IDEATION

- V Dynamics definition
- V Mechanics election
- V Elements creation

C) PROTOTYPING

- V Narrative building
- V Rules writing
- V Aesthetic design
- V valuation and testing

D) EXPLOITATION AND FOLLOW UP
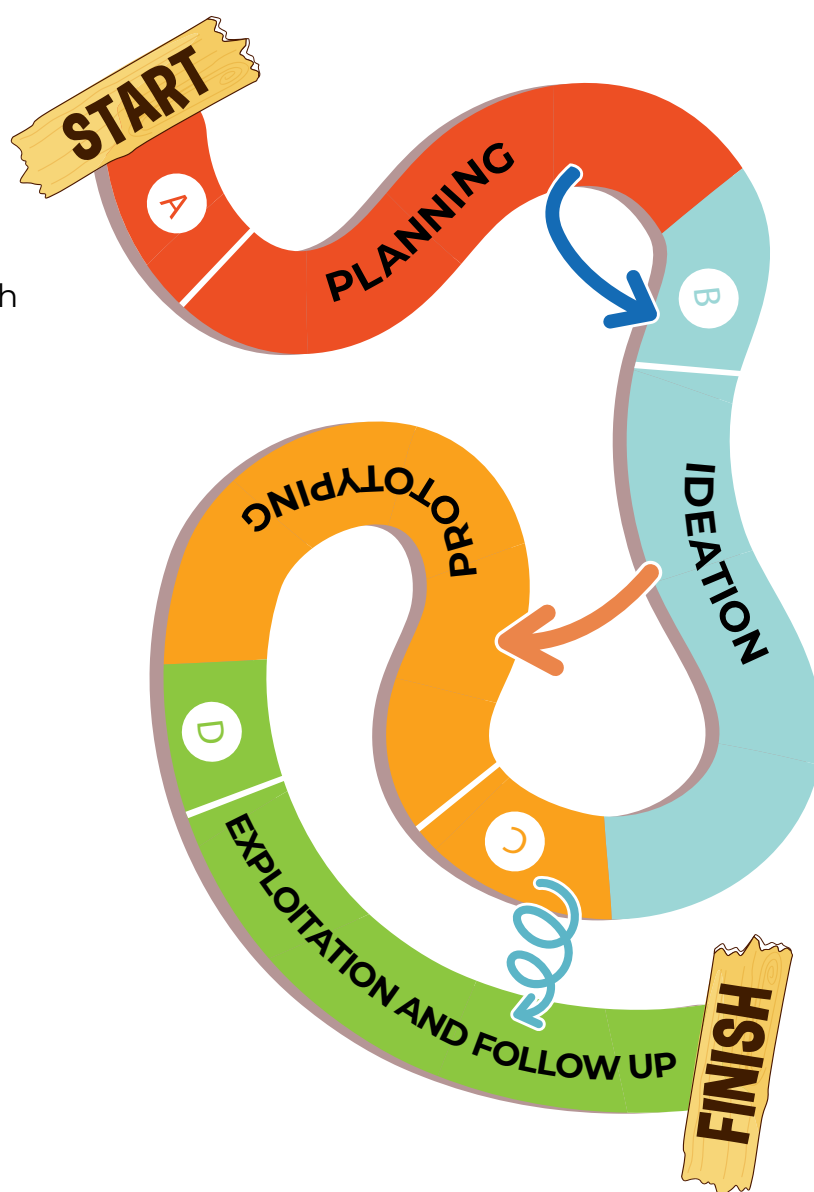
These four stages will cover different issues related to pedagogy, getting to know your players, design, creativity, knowing about concrete topics, etc. According to this, try to compose a multi-professional team to create your product (ex. with young people, trainers, experts on topics, etc.), it will give you the points of view of your players, entity, content to be transferred and techniques to be used.

This is the first stage and the most important one. We would need to explore our potential beneficiaries to see how our gamified product will contribute to tackle their needs or transfer the knowledge that we expect. The suitability of gamification on this stage should be also questioned to ensure that the investment of time and energy that we are going to carry out is suitable according to the potential of the product to be developed and the impact we can achieve thoroughly. According to this, we would need to assess our beneficiaries needs, set our product objectives, and confirm that a gamified approach is the appropriate one. Let's go deeper into these three issues and see what to consider on each of them.

Needs gathering – Why should I do this?

Experts quotes

"You must have a clear vision of the game's target group before you start to develop the game".
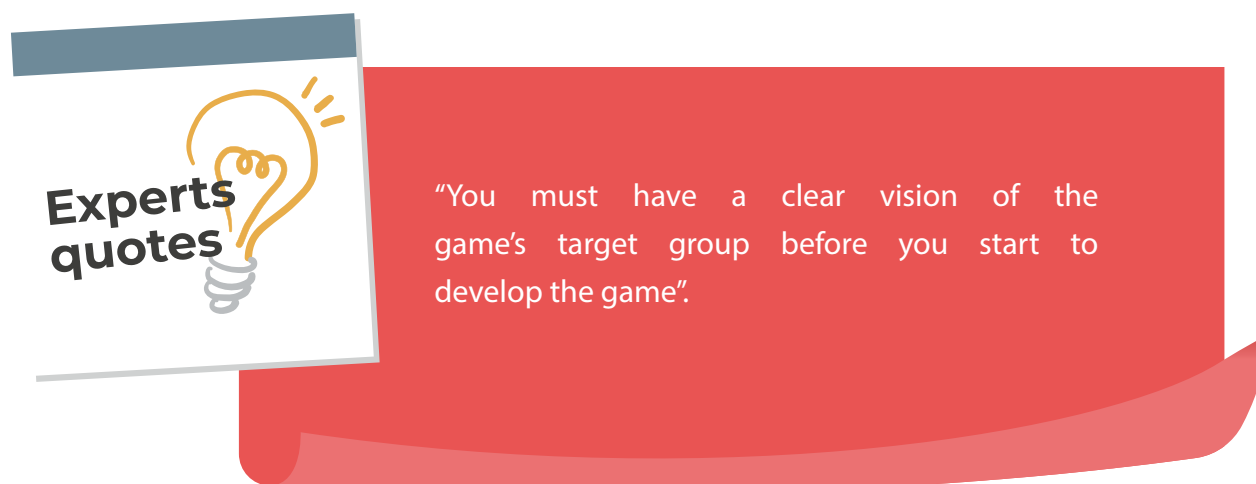
Sometimes our idea of using gamification comes from a personal experience, others' work, a film, etc. It inspires us and brings to us the million-dollar question: What if my beneficiaries could become players too?

Before starting, be sure that you are aware about the needs you want to cover. You can brainstorm with your team or target groups about what you want to teach or raise awareness about and then prioritize which are the most important issues to tackle. Reflect about needs related to:

    ∨   Your beneficiaries lives, professional career, academic background, etc.
    ∨   Your environment and context at local, regional or global level (ex. nature, economy, inclusion, etc.).
    ∨   Your entity or partners you deal with.

Make yourself this question: who will enjoy my product? Reflect about these people and focus on concrete and specific characteristics they could have (ex. age, background, language, belonging to concrete social groups, etc.). Incorporate to this reflection as many people as possible including experts or representatives of your target groups (ex. using online forms or interviews). This will allow you to see also what is interesting and what is not for them.

Once those needs have been identified, reconsider if gamification will really help in covering them or if you need another approach.

PRACTICAL TIPS

Even if it looks attractive, do not gamify your materials for the sake of making it. It is a process that will demand your energy and time, so do it as a useful and fruitful resource with concrete targets.

Objectives setting – What exactly do I want to teach or achieve and for whom?

Experts quotes

"Sometimes when teachers/youth workers etc. are using games or gamification, they forget about concreteness"

According to the needs detected, set your learning goals for your product. You can think here about which information you want to transfer, behaviours you want to promote, awareness raising on concrete topics, etc.

Brainstorm with your team about the idea behind the game. Gamification and playing are an integrative form of learning, but on its own the learning effect fizzles out, what is learned must be made explicit, either in the game itself or in the post-processing in a workshop. According to this, it is important to see the gamified product as a part of the bigger picture. If you think of a learning process, gamification is just a part of it.

Once you have completed the previous reflection write down your product objectives and have them always with you during its development. This will help you to focus on them and not wander out of your goals. Try that your goals are:

- ∨ **Specific:** shortly state what you want to achieve. Use action words and short sentences (ex. promote recycling in schools; raise awareness about climate migrants; promote students critical thinking; etc.).
- ∨ **Relevant:** Focus and prioritize relevant goals that make sense within your context, entity or for your beneficiaries.
- ∨ **Achievable:** Be sure that they are possible to accomplish.
- ∨ **Measurable:** If possible, you or those using your product should try to see if it really works. This can be done just through observation or including assessment tools created for this aim (ex. if you promote a game about responsible consumption in a school, a debriefing can be done after playing to evaluate the learning or questions about this topic could be included in future students exams). This will help to assess the product efficiency and also detect potential improvements.

Take advantage of these writing objectives when you finish your product, as they will help you to explain it to others and they can even be used to compose the future instructions of the product.

PRACTICAL TIPS

Think also on your vision for the product. This means to concrete which emotions, values or soft skills you want to generate or promote by your product (ex. active citizenship, climate justice, cooperation, inclusion, etc.).

Idea and gamification approach – Do I really need a gamified product? Which one?

Experts quotes

"Don't get stuck on a concrete idea too early, collect a few ideas, then choose, otherwise you might not end up where you want to be, allow a creative phase at the beginning where you are open to new ideas"

Once you have your objectives, explore and check again which gamification approach would be suitable for you. Be sure that gamification will make sense in your activities, pedagogical goals, context and subject you want to deal with.

To understand gamification, we recommend you on this stage to play different kinds of games. By playing, you and your team will explore the mechanics and interaction of the games and achieve new perspectives about gamification. Besides this practice, keep in mind that there are many online materials and research about the pedagogy of games, so you can also take a look at these academic works and studies if you also want to have a theoretical base to better understand the gamification framework.

Notice that game development is a process of self-discovery on which one finds out: what essentially makes us? To answer this question and be able to apply its answer to your product, create a climate of collaboration between those involved in the process that could help you go deeper into your product potential approach.

Choose which format would be the most attractive one for your beneficiaries according to their characteristics, interests, motivations, etc. What do they really like? (workshops, video games, book, movie, comic, board games, music, magic, sports, etc.). Remember that some products could also have creation costs, so be sure you can afford them (ex. if you need to print, develop an online or phone app, etc.).

PRACTICAL TIPS

Play, play and play! Try different games or activities and detect what you like the most out of all of them. Innovation is not only about creating from scratch, but also on combining already existing things that work with a new aim or approach

B)   IDEATION

At this stage you and your team would need to dive into gamification and build the bridges between your conclusions on the planning stage and the creation of your product. Here you would need to think which motivations your product will generate (dynamics), how to make players interact to cover these motivations (mechanics) and which materials and stuff you need to generate to make the interaction possible (elements).
Let´s see all these terms one by one.

> **ELEMENTS**

> **MECHANICS**
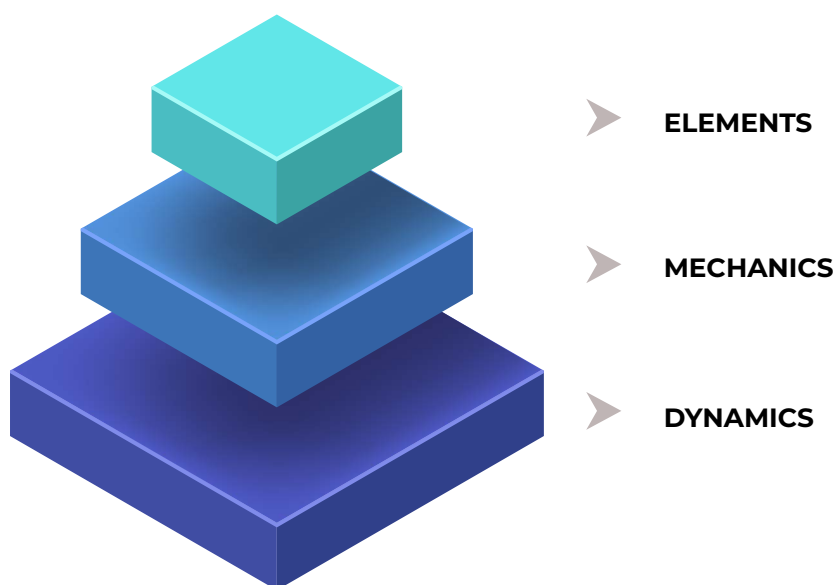
> **DYNAMICS**

How to generate Dynamics – Which feelings or emotions do I want to promote on my players?

Experts quotes

"Do not focus only on extrinsic motivations, combine them with intrinsic ones encouraged by the action or game to promote a long-term impact and learning"

Dynamics represent the translation of mental schemes and models, psychological phenomena and theories of behaviour into a game through the implementation of mechanics. They symbolize the human needs and desires embedded in everyone that can be satisfied in gamification by encouraging our players to participate and motivating them. The better the dynamics are aligned with players' interests and needs detected on the planning stage, the more players will engage with our product.

Going broad on the definition of these human desires, Steven Reiss developed a 16 categories model that defines them:

POWER Influence others, Create	**CURIOSITY** Understanding
ORDER Structure, Orderliness	**HONOR** Upright character
SOCIAL CONTACT Peer companionship	**STATUS** Respect based on Social standing
ROMANCE Beauty & Sex (libido) Art & Music	**PHYSICAL ACTIVITY** Muscle exercise
INDEPENDENCE Self-reliance	**ACCEPTANCE** Avoid failure/criticism
SAVING Collect things	**IDEALISM** Social Justice
FAMILY Raise a family	**VENGEANCE** Confront those who offend, frustrate & annoy
EATING Food & Appetite	**TRANQUILITY** Safety. Free or anxiety & pain

- V **POWER:** the need to have a certain capacity to influence people or actions.
- V **INDEPENDENCE:** the need to ensure and enjoy individuality.
- V **CURIOSITY:** the need to learn, to find new paths, to discover the unknown.
- V **ACCEPTANCE:** the need to feel accepted and appreciated by the group.
- V **ORDER:** the need for stable, structured and organized environments.
- V **SAVING:** the need to accumulate or collect money, properties, things, etc.
- V **HONOUR:** the need to be loyal to the values of a community, culture, group, etc.
- V **IDEALISM:** the need for social justice, equity, and equality.
- V **SOCIAL CONTACT:** the need to be with other people and interact with them.
- V **FAMILY:** the need of belonging to a family, family environments or raising children.
- V **STATUS:** the need to be socially significant and respected.
- V **VENGEANCE:** the need to strike back against offenders.
- V **ROMANCE:** the need for relationships or beauty (including arts).
- V **EATING:** the need to eat or search for food.
- V **PHYSICAL ACTIVITY:** the need to practice physical exercise.
- V **TRANQUILITY:** the need to feel safe and stressless in quiet environments.

This scheme can help us in the realisation of a gamified project. Making a check list of the motivations to be aroused in our "player" can help us to create game dynamics able to intercept the widest possible target audience. The more we are able to satisfy certain needs, the more chances we have to involve the people for whom we are thinking of a gamified product.

All these desires are the ones who govern in an undercover way all the games that you could know. They (or the ones you choose) must be transformed on motivations for your players and introduced in your product. They must provide players both, intrinsic and extrinsic motivations to continue playing and learning:

∨ **Intrinsic motivations:** are those actions that satisfy our players just completing them with no other external stimulus (ex. carry out a challenge for fun, mastery, autonomy, etc.)

∨ **Extrinsic motivations:** they appear when the player is not attracted by the action itself, but by the reward or what he or she gets when it is completed (ex. points when answering questions, goods when completing a task, level ups, awards, etc.).

Try always to provide a first attractive impression and initial impact to engage and hook the player on the game or activity ("onboarding"). As it happens when meeting people, a first good impression makes a lot, so work deep on what happens in the first minute of your product. This can come from an extrinsic motivation from the action or game itself being useful to attract players, but its impact could be limited and cannot be maintained for a long time, so find a suitable balance with intrinsic desires to obtain a good gamified product that ensures players' constant motivation.

PRACTICAL TIPS

• **Gamified workshops or activities tend to be closed by a debriefing process. This becomes in many cases the most important part of the educational part of the product, as it allows participants to reflect and be aware about what the product has brought to them.**

• **The stage of defining dynamics could be a good moment to start to think on the number of players of our gamified product (ex. multiplayer, individual, teams, etc.) as depending on this election different desires or motivations would be satisfied.**

Mechanics election – What players need to do to get what I want to share with them?

Mechanics are those procedures or routines that we take from the games world and that allow players and facilitators to interact and participate in the experience offered by the product. Remember that gamification does not mean playing, but to be trained and learn using the previous ludic issues mentioned.

Mechanics make it possible to generate experiences on the players that enrich and make them more attractive or motivating the activity. Their target should be to achieve and generate the dynamics previously set for our product.

Normally, gamified products tend to have one main mechanic and other secondary ones that complement it and extend the possible ways of interaction and playing. Despite this, we must try to avoid an excess of mechanics as this could distract players or make it complicated to play.

If we use our gaming thinking, a mechanic would be what goes between the action and the reaction. If I make A, B happens; If A and B are combined, C happens; I cannot do C without having A and B; etc.

The mechanics of your product must be directly related to the dynamics chosen and your objectives. For example, to encourage "Saving" give points or virtual goods, to promote "Status" generate levels and badges, to call "Curiosity" challenge players with a puzzle or quiz, or to

appeal to "Honour" invite players to organize natural goods to save the planet against pollution. In order to choose the best mechanics for your product, ask yourself: Which games do you enjoy playing? Which ones do my players like? What do we do with them?

Some of the most common mechanics in gamification are:

∨ **Turns**: having turns for players or teams.

∨ **Action points**: in role games, players receive points or movements that they can use on each shift.

∨ **Luck or chance:** it provides an aleatory element that provides our product uncertainty and generates unexpected situations or decisions to be taken (ex. throwing dice).

∨ **Hunting:** the idea is to capture other players or their belongings (ex. chess or "Cluedo").

∨ **Personification:** players choose an avatar or character to play in his/her shoes. This allows them to live other lives and enjoy the abilities of these characters (ex. "League of Legends").

∨ **Hide, mystery:** playing with elements that other players cannot see but can conditionate the game (ex. "The werewolves of Miller's Hollow").

∨ **Questioning:** you need to talk with other avatars or characters to get information from them or other players (ex. "Who is Who?" or "Zelda").

∨ **Occupation:** the idea is to take as much space as possible or concrete spaces to achieve the victory (ex. "Risk").

∨ **Remembering:** games on which you need to use your memory to know where the elements are (ex. "Memory").

∨ **Point and click:** it is a basic mechanic on which the player takes something or activates something to continue playing (ex. to push a button on an escape room).

∨ **Resources management:** players need to manage the goods in the most efficient and strategic way so they can increase its production or stand out over other players (ex. "Monopoly" or "Age of Empires").

∨ **Ask or guess**: puzzles or cards with questions are used to challenge players, who would need to solve them correctly to continue playing or get a reward (ex. "Trivial" or "Dixit").

∨ **Destroy and build:** to complete a construction or creation using elements of the game could be a mechanic, as well as challenging players to avoid that others do it and destroy their achievements.

There are many more mechanics. In order to discover them, play, play and play as many games as you can to identify them towards the benefit of your product. Despite the multiple combinations that they offer, remember that the game must be easy from the user point of view, so adapt its complexity according to your players profiles. You can also take a look at the best practices cards proposed on this toolkit.

If you want to explore deeper which other mechanics exits, here we share with you also Jon Radoff's classification that offer a singular approach about this issue:

Jon Radoff 42 things that are fun

#1: Recognizing Patterns
#2: Collecting
#3: Finding Unexpected Treasure
#4: Achieving a Sense of Completion
#5: Gaining Recognition for Achievements
#6: Creating Order Out of Chaos
#7: Customizing Virtual Worlds
#8: Gathering Knowledge
#9 Organizing Groups of People
#10: Noting Insider References
#11: Being the Center of Attention
#12: Experiencing Beauty and Culture
#13: Romance
#14: Exchanging Gifts
#15: Being a Hero
#16: Being a Villain
#17: Being a Wise Old Being
#18: Being a rebel
#19: Being the ruler
#20: Pretending to Live in a Magical Place
#21: Listening to a Story

#22: Telling Stories
#23: Predicting the Future
#24: Competition
#25: Psychoanalyzing
#26: Mystery
#27: Mastering a Skill
#28: Exacting Justice and Revenge
#29: Nurturing
#30: Excitement
#31: Triumph Over Conflict
#32: Relaxing
#33: Experiencing the Freakish or Bizarre
#34: Being Silly
#35: Laughing
#36: Being Scared
#37: Strengthening a Family Relationship
#38: Improving One's Health
#39: Imagining a Connection with the Past
#40: Exploring a World
#41: Improving Society
#42: Enlightenment

As we have seen, dynamics and mechanics should be related and combined according to your expectations and your product characteristics. If you are planning to incorporate some gamification to an activity, maybe an easy mechanic and dynamic would be enough. If you plan to design a computer game, then you would need to combine many more.

In case you are interested on this combination from the theoretical and academic points of view, we recommend you take a look to these external frameworks:

Besides all of this, if your product will become a complex game (ex. video game or board game), probably you would need to also understand two other elements that are present on these types of products: tactic and strategy.
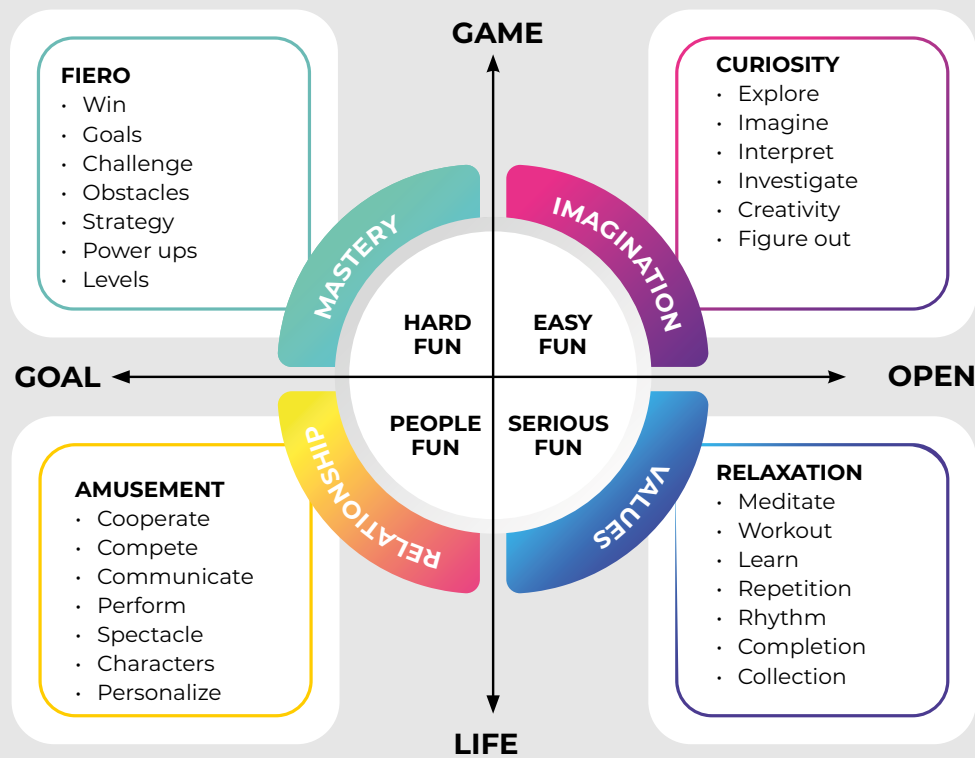
Video of Nicole Lazzaro's 4 Kinds of Fun)

The diagram shows:

- **FIERO**
  - Win
  - Goals
  - Challenge
  - Obstacles
  - Strategy
  - Power ups
  - Levels

- **CURIOSITY**
  - Explore
  - Imagine
  - Interpret
  - Investigate
  - Creativity
  - Figure out

- **AMUSEMENT**
  - Cooperate
  - Compete
  - Communicate
  - Perform
  - Spectacle
  - Characters
  - Personalize

- **RELAXATION**
  - Meditate
  - Workout
  - Learn
  - Repetition
  - Rhythm
  - Completion
  - Collection

Axis labels: GAME, GOAL, OPEN, LIFE. Inner ring labels: MASTERY, IMAGINATION, RELATIONSHIP, VALUES. Center quadrants: HARD FUN, EASY FUN, PEOPLE FUN, SERIOUS FUN.

V **Tactic:** they are the short-term goals that players set to improve their position, points or have advantage over other players in the game (ex. in "Tic tac toe", to occupy the central position).

V **Strategy:** it is the long-term plan that we want to carry out combining all our tactics and movements. It guides the decisions that could allow us to win the game (ex. in "Party&Co" you need to combine different tactics depending on each challenge or category to have a strategy that allows you to decide where to move your chip and win).

Some games (as your products) are only focused on tactics while others offer a more complex approach based also on strategy. You can combine both elements according to your needs and what you want to promote on your participants thanks to your product.

PRACTICAL TIPS

- **The game should not be too complex, simplification is important and not every aspect can be fitted into the game.**

- **If gamification becomes "too serious", players can quickly feel overwhelmed or lectured. Humour and satire help to appeal to the heart and brain of the players and to stimulate a critical debate without becoming "preachy". Consciously taking questionable positions can be a good way to distance oneself from a role "imposed" by the game in real life and thus achieve a self-determined learning effect.**

Elements creation – Which elements do I need for my mechanics?

Experts quotes

"In general, descriptive and summarising pictures or symbols on the game elements help to get a quicker overview of it"

Think about those elements that will make possible your mechanics and allow your players to interact to achieve your dynamics. Depending on the format of your product, the elements would change and the way of combining them would be different. Some questions to consider on this point would be:

∨ Is there any board, road or map to follow? (Physical or digital)
∨ How is the game stage, counters, dice, etc. and elements to play?
∨ Will you use chips, characters, avatars, squads, etc.? how they would look like?
∨ How can players monitor the evolution of the game and players progress?
∨ Do you need extra physical elements cards, badges, tokens, boxes, etc.?
∨ How would players handle points? (ex. using an app, a paper, a classification, collecting chips, etc.).

Some examples of elements to use in your product could be:

∨ **Moving:** elements that allow players to move and progress on the board or setting that you have created (ex. chips, miniatures, dice, etc.).
∨ **Setting:** elements that can simulate the world, environment, or pathway on which the players interact (ex. boards, maps, pathways with squares). When designing them, have in mind players' position in the room too (ex. if you do a board game, check how you will print it as some players could see it upside-down if they sit around it).
∨ **Rewarding:** elements that players get after completing tasks, by chance, to recognize achievements or after defeating other players (ex. coins, goods, physical awards, abilities for players, equipment for the characters, etc.).
∨ **Collecting:** elements that can be also for rewarding but that the players need to collect as they are different and combined could give advantage to them or just make them win. Players can find them, collect them or even trade with them as part of the mechanics (ex. equipment for characters, badges, catalogue for collectors, trading systems, etc.).

v **Controlling progress:** elements to show players status progress (ex. progress bars, classifications of points, characters categories depending on skills and possibilities of levelling up, etc.).

v **Information:** elements that provide players information about learning content, their characters or what they need to know to continue (ex. cards with characters descriptions or clues, handouts, audios, videos, etc.). Find a balance between information/learning aspect and fun factor so players do not get lost. If you want to use cards, try to not provide too much content of them and use relevant symbols (ex. for skills), players often just skim over them or leave them out altogether. The central content should be conveyed more through the mechanics of the game than through the text. Avoid text deserts; texts must make sense for the game; additional information is not read.

v **Transmedia:** you can create an analogic experience, a digital one or combine them by incorporating transmedia elements to a face-to-face action (ex. showing videos, including QR codes on the board to allow phones use, using a lantern, audio recordings, etc.). Younger players interact better with technologies so they can be a good excuse to attract them or generate intergenerational products on which players should cooperate. If you choose a digital product, try to generate an experiential part between your product and the player's reality.

v **Number of players**: each player is an element of the action too. Think if you want them to play individually, in teams or as a whole group (ex. creating characters for players, squads to join them together, etc.). If you want players to cooperate you can use elements to promote their interaction (ex. debating cards, spaces in the room to socialize or discuss, chats online, etc.). If the game is played in groups, every person in the group should have the possibility to play and learn.

v **Avatars:** elements that provide players with abilities or skills that can influence their behaviour or what they can do (ex. the wizard, the searcher, the soldier, the pathfinder, the mayor, the citizens, etc.). Think also if you need other characters that are part of the game but who are not the players (ex. they are part of the game narrative, players need to interact with them, etc.). If your product is role-playing, find elements with a self-efficacy potential: How can a game situation be designed in such a way that players find themselves in a dilemma based on reality? How can such opposites be balanced in the game design and also be presented so players can take these roles? How do players experience themselves in the assigned? (ex. a simulation of economic support lobbies vs. environmental researchers preventing environmental collapse).

v **Timing:** Think about your product time. This does not only mean to think about how much time your product will take to play, but also how time could be an extra element too (ex. using countdowns to complete a task and promote excitement and rush, creating shifts or using time as an accumulative element to complete challenges, etc.). To incorporate time you can use clocks, chronometers, limited number of

actions/movements, etc. Consider also your target when making these decisions as participants of younger age have a lower level of abstraction and would demand faster and more reactive products, while adults can play hours if the motivation is maintained. In any case, try that your game is not too long so players do not get bored, and professionals can use it too (ex. teachers in a subject or time of class).

Besides all these examples, think also on elements that are suitable for the players that you want to involve. Out of generating an attractive aesthetic as we will see on the next sections of this toolkit, try to make your materials suitable for everyone and take into account other accessibility measures that you could need (ex. accessible playing rooms for people on wheelchair, chips or boards with braille for blind players, elements easy to use for left and right handed players, put colours in combination with forms so people with visual problems or colour-blind can see the difference between elements, etc.). You can even do it the other way round and remove participants' senses as part of the learning experience (ex. they cannot talk).

 PRACTICAL TIPS

When introducing a topic in the game, take advantage of elements or materials already existing and generated by others such as NGOs, schools, professionals, etc. (ex. infographics, studies, cards, drawings, videos, pictures, etc.). If you do so, remember to respect the copyright of these elements or be sure that you can reproduce them.

C) PROTOTYPING

On this stage you will give its final form to your product. You can prototype from scratch, try to incorporate your gamification ideas to activities or materials that you already have or even use a given game as a template to evolve.

Invest the suitable time on prototyping but be quick. Don't design your product completely but try it out in its raw form! Sketch and then get more detailed. This way you can change things easily and fast, otherwise the process would be too much overhead. Notice that a prototype should not be nice at the beginning, because you must change it again and again. The initial layout should only serve the product as an overview to allow testing, do not waste unnecessary time designing it nice until you have ensured that it works properly.

Your prototype should merge all its elements and mechanics to achieve the dynamics and objectives that you have set for it. This will be possible thanks to a good narrative, clear rules, an attractive aesthetic and a fine-tuning process. Let's see all these elements one by one.

Narrative building – What is the story behind my product?

Experts quotes

"Use a narrative. A story to get into the game makes it exciting"

A good product always has a good story behind, either it is a game or a workshop illustrated with some storytelling. Think about:

A. **Topic:** what is your product about? (ex. climate change protection, reducing pollution, responsible consumption, etc.). Assess that the topic chosen is suitable for your target groups according to its complexity and their capacities or interests. It is recommended to avoid length and superficiality on topics, choose a theme that is as specific as possible to explore. The product should make the players enthusiastic about this topic. Try to link your product to your beneficiaries' own world and their own experiences.

B. Setting: where does it take place? It can be in your reality (ex. a simulation about a challenge in your city) or an invented world (ex. a futuristic city, fantasy world, a medieval village, etc.). If you need to create an imaginary environment, think about the interests of your players or what they like to inspire you (ex. movies they see, books or comics they read, hobbies they have, etc.). Think here on the setting on which your players will physically play to see if this can influence the product or you can take advantage of it: outdoor, indoor, online, offline, etc. (ex. if you do a game about nature respect to be played outdoor, use as elements for the game the natural resources, plants and animals around). Generate worlds that could allow you to set analogies or metaphors with the real world and those topics you want to address, so players will understand better their learning.

C. Story: what happens? As you have noticed in your favourite book, film or TV series, there is always a starting point, a challenge to overcome and a resolution of the problem. Use narrative and story to get into the game experience and engage your players: your product must generate curiosity! It could be just a short one to introduce your workshop and put in place your players or a very complex story that assembles all your product (ex. a role game about a superhero who needs to save the world). Generate this structure for your product and be sure that your players will go through all its episodes properly (either because they are given by the product or players build them through an activity). Call and catch the attention of players! This will ensure that they are motivated and will facilitate the learning acquisition at the end. If you want to generate a complex story, take a look to the different models and approaches proposed here and that are the traditional ones that articulates literature works:

D. Characters: if you decide to create a story or setting with characters on it, be sure that players are able to empathize with them, they feel attraction to put themselves in their shoes or are related to the topic they like. This will encourage their motivation and make the game more interactive and interesting. Some elaborated products and games propose players different characters that they can win with and that offers at any time a different gaming experience. Think about which characters work with the chosen storyline. Besides this, you can just choose that "players are themselves" and play according to their own profiles even if this can generate situations of inequality.

To choose how complete or simple your narrative will be and how it will look like, give attention to your players interests: what do they like? Which kind of movies do they see or books they read? Which characters would they like to be or be in their shoes? etc. You do not need to generate a too complex storyline for the game as players will also tend to create the framework around this storyline by themselves.

PRACTICAL TIPS

- **When translating facts into "game logic" to promote learning on a topic, try to consciously create blanks. Think how can scientific or empiric "facts" be broken down and translated into the game so that they lead to a critical debate in players. Consider that you could need to show figures, data, etc. but they can be outdated in a short period of time, so include them if necessary but find ways to easily update your product or that the game delegate this collection of information on players shoulders**

- **When creating your story, you can give players the possibility to be able to be the "bad guy" (ex. Wiener Linien (Public Transport Vienna) created a game of fare evasion, get fined). To have the liberty to do bad things can be fun in an unreal world. However, being able to choose evil should be punished. According to this, the game mechanics show that at some point there will be consequences; consider sanctions, limits should be allowed to be experienced.**

Rules and instructions writing – What should players do?

Experts quotes

"The basic idea of the game should be conveyed very quickly without having to tell a novel"

We need to share our idea or product to others, how it works, how to use it and how they can enjoy it. To guide players along the experience and allow their interaction, you would need rules and instructions.

A. **Rules:** are the guidelines that players need to follow. We need to consider what are the borders they cannot cross, how they should behave, which targets they need to achieve, etc. They must be short, concise, and clear. Think also on your players language or register to create rules that they can easily understand. The complexity of the game should result from the actions of the players and not from the rules, so set a few rules and be sure that the ones that exist make sense and are extremely well interlocked.

B. **Instructions:** once rules are ready, they must be explained to players. If we are in a gamified activity, it could be enough if the facilitator orally explains them to players. For more complex materials or those that could be used by players without facilitators (ex. a board game), it is better to generate written instructions or a booklet to guide players. This written material should cover all the FAQs that could appear during the gamified process but be simple enough so players can understand what to do in a fast way. If the product is a game or activity that needs to be supervised by a facilitator, include also on these materials the procedures that this person would need to carry out (ex. If there is a master of the game, she/he needs extra instructions).

Rules and instructions must be always concrete and short to define the game mechanics. Revise them deeply before the game to see the easiest way to present and resume them. If they are too complicated, they will become an obstacle to allow playing. The simpler they are, the better the core comes out, then it is also more accessible, less explanation is needed, one is less overwhelmed.

Writing rules and instructions gets very complex very quickly; you can't pack everything in, you must focus. Think about what you really want to convey, what is essential:

V Who are the players? Are they able to read my instructions? (ex. small children will not).

V Do they play individually or in teams?

V Is there any time limit or limited number of attempts to succeed?

V Do participants get points or badges? How? Are there extra points or awards elements?

V What can players do with points or how do they feel progress during the game?

V Are there different levels or stages in the game? How do you go to the next ones?

V What would be nice and what is negligible?

V What do you need to do to win?, etc.

PRACTICAL TIPS

Less is usually more: how can I achieve what I want with as little as possible? The leaner the better, a game is good when players are no longer thinking about the rules but about the product when they are inside the game.

Aesthetic design – How do I make it attractive?

Experts quotes

"You shouldn't focus too much at the beginning on the visual design, because the main thing is that the game is easy to understand and easy to play"

Aesthetic is what our players will see and the external appearance that we need to apply to our product if it contains tangible or visual elements (ex. a computer simulation, cards game, board game, etc.).

Think about illustrations, drawings, graphic approach (more informal, formal, funny, irreverent, etc.), graphic elements, etc. Consider that even if your narrative is perfect, we always understand and are more impacted by visual elements, so do not discard them

so easily. A good aesthetic and visual attractiveness will always increase participant engagement. Here maybe you need to consider the support of professionals or people with good skills on design, programming and/or illustration.

As it happens with the narrative, think to create an aesthetic related to things that participants are interested in and inspire yourself to promote their motivation (ex. superheroes, monsters, archaeology, historical characters, crimes investigations, science fiction, horror, etc.). Match your design with these topics or your narrative too (ex. if your product is a strategy game set in the medieval times, choose fonts and illustrations related to that historic period and that you can find in old books).

Besides all these issues, think also on the game accessibility when planning its design. If you aim that it is used by concrete target groups with concrete characteristics, adapt the design of the game for them (ex. using big fonts, combining forms and colours for people who cannot read or are colour blind, using shapes instead of complex drawings to identify them better, etc.). Texts must be visible, short and clear. With playing cards that you hold in your hand, it is always good to make numbers and/or symbols in the corners that identify the card. This gives you a quick overview of what you have in a fanned-out hand of cards. Most of the time it is also useful to put them in all four corners so that it works when you have the card upside down in your hand. For the numbers 6 and 9, work with dots so that you can also read them upside down.

If you need some inspiration on this point, check the gamification practices section of this toolkit to see some examples of what others have already done.

PRACTICAL TIPS

- **Many successful games are characterised by elegance or a minimalist game design. The idea is not to generate an excessively ornate product, but an attractive one.**

- **Different kinds of examples of the final gaming product could be proposed to a group of testers so you can see according to their reactions which one will fit better.**

Evaluation and test – What else I need for my final product?

"When designing a game with players, they should be allowed to try things out; there is nothing absurd (don't embarrass them)"

"I finished my product!" Are you sure? In order to have an optimal material or activity, it must be played and tested again and again. Be ready to do many tests and several rounds with your team and invest time on this stage. Think with them, play along by yourself, watch others play and see if it works without you as the developer (after all, you know how it works).

Besides this, it is important that you open it as a draft to pilot focus groups that could provide you feedback (your team, your beneficiaries, experts on gamification, stakeholders related to the product topics, etc.). Create a climate of collaboration between those involved in the process and invite them to become players. Observe them when playing to see if your game is effective or not. The more you evaluate your players performance, the easier it would be for you to find amendments to your game, improve it and improve your skills as gamificator towards future initiatives.

If you decide to make this opening to testers out of the development team, be clear what you are testing or if you want that they just test a certain part. Consider tester comments but know how to process them because maybe there are other ways to solve a problem they don't think about or the alternatives they give were already discarded by your team in advance. The main issue would be: is it fun (or does it frustrate)?
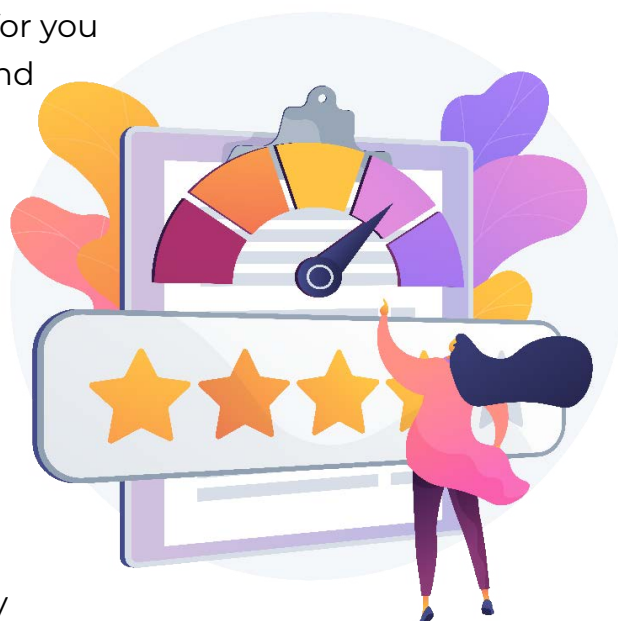
As a product developer you must try explaining the idea to others, then let them play and do not intervene or help, only observe (ex. no explanations, because if they are necessary then the game was not explained well enough, then reflect: what was misunderstood? Why? What needs to be changed so that it is understood correctly? Or do new ideas arise from the wrong interpretation? Misunderstood things can often also lead to improvement).

These are some of the main issues you can focus in when doing the revision and testing of your product and that you can ask your testers for:

Knowledge/ pedagogical efficiency	Raising awareness capacity	Competencies acquisition by players	Fun!	Complexity for players
Capacity to encourage the expected dynamics	Mechanics efficiency	Elements' suitability	Aesthetic attractiveness	Narrative quality
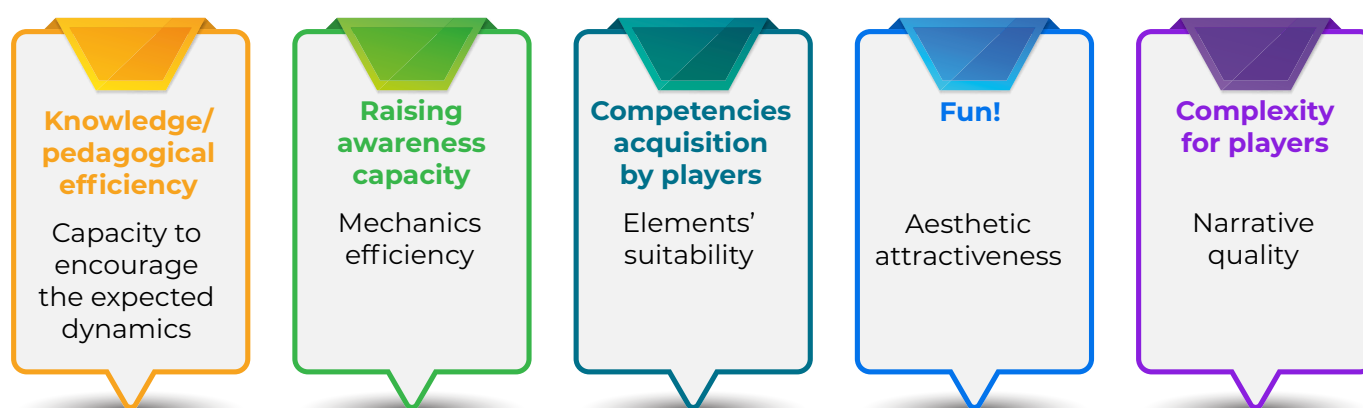
Besides this process and even if you consider your product finished, it is always interesting to try to evaluate your players experience along the time if you have the chance to do it. This will provide you regular feedback and the possibility of including improvements or evolving the game if you plan future editions of the material or activity.

PRACTICAL TIPS

Let people have their own experiences in game development; this is how creative ideas emerge.

D) EXPLOITATION AND FOLLOW-UP

When developing a material or game and it is finished, you would wonder to yourself: How do I plan to make the whole thing available?

Think that if your product is fully available and everyone has access to it, the bigger and wider will be its impact (ex. a board game in PDF in your entity website that users can download or an activity easy to replicate using recyclable materials). If your product is easy to create from the material point of view, it will be easier for everyone to play it.

Besides this, you could also think about developing a product that could be exploited towards the benefit of your entity or that needs to be produced in a more industrial or potential way. This is an issue that will arise and that many of the experts involved in the creation of the toolkit have experience and carried out. If you want to take this step, here we leave you some extra tips and reflections from their side that could be useful for you:

V   Pursue what is interesting, ask yourself who plays the game and who buys it (ex. Adults buy the game, children play it). Think on how to make it attractive for both targets.

V   Be patient with publishers. It sometimes takes a long time to find a publisher; when you find one, they give you feedback; you then have to find the motivation and time to revise the game again, you have to think about it all over again, that's why it's such a long process. Until the game comes out, it can take another 1 to 2 years (because other games are already in the pipeline).

V   Reflect if your material should be produced in series or not. Think about the costs, how would you find the funding, set reasonable prices and efficiency-cost materials, etc.

V   Do a research on common game box formats: what is often in game boxes? This should be considered because it makes production more attractive, easier and cheaper.

V   Do not underestimate the cost of updating if you intend to do future editions (ex. for statistics or data in the product that quickly become outdated).

V   Attention with rights and data protection if you want to sell your game! Check the legislation in your country for these cases.

TO RESUME....

We have arrived at the end of the creative way that this toolkit invites you to go through. Remember that this process is always cyclical, so it is not a real end, just a pathway you can go through as many times as you need. Be always open to exploring new ideas from others to inspire yourself as the ones exposed on the next pages of this material. Experience, interact, encourage your participants learning, test but the most important thing: May the fun be with you!

PART 3:

Best practices and additional materials
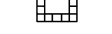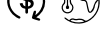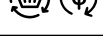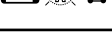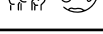
The Best Practices Cards collected on this section offer a variety of games in the field of Global Citizenship Education related to sustainability. Get partners have focused on selecting games that are open source, free of charge or easily affordable, designed mainly by non-profit institutions and organisations.

The next table will allow you to better identify them according to different criteria set to organize practices:

Language:	
ES / EN / DE / IT / FI	🇪🇸 🇬🇧 🇩🇪 🇮🇹 🇫🇮
Available in all languages. ALL	🌐
Duration:	
Low (5 - 15)	⏱
Medium (15 - 45)	⏱
High (more than 45 min)	⏱
Number of players:	
Single player	👤
Small group (2 to 5)	👥
Big group (more than 5)	👥
Format:	
Board game	▦
Cards	🃏
Phone app	📱
Online	🌐
Physical	🧍
Transmedia	⬡
Main topic:	
ODS	◉
Consumption	🛒
Climate change	🌡
Active Citizenship	✋
Sustainable transport	🚗
Circular economy	($)
Cost:	
Open Source	⬇
Cost	€

	Language	Duration	N°. Players	Format	Main topic	Cost
1. Kyoto						
2. Challenge accepted						
3. Du wandelst Klima						
4. The Synchromodality Game						
5. Ubongo SDG Match Version						
6. Rockhopper						
7. Role play about circular economy						
8. Escape Room						
9. InterconAction						
10. Sostenipoly						
11. ESCAPE4CHANGE!						
12. PACHAMAMA						
13. Photosynthesis						
14. CO2 – Second chance						
15. Mariposas						
16. (Not so) Smartphone						
17. My2050						
18. Project: Earth-game						
19. Mystery of waters						
20. Climate game						

Kyoto – money makes the world go down

Deep print games
GAME DESIGN: Johannes Krenner, Sabine Harrer
ARTWORK: Christian Opperer

DURATION	⏱ Medium (15 - 45)	
N°. OF PLAYERS	👥 Big group (more than 5)	
FORMAT	🔲 Board game	🃏 Cards
MAIN TOPIC	🌡 Climate change	✋ Active Citizenship
COST	€ Cost	

ℹ GAME DESCRIPTION

At the Climate Change Conference in Kyoto representatives of major countries discuss some very unsettling studies which claim that the world is on the brink of environmental collapse.
Surely they will do all that they can to save the planet? Well, as long as they can ensure that their country's wealth is preserved…, and that of the lobbies pulling the strings in the background…
Once all studies have been reviewed, the country that best maintained its wealth wins. Players should beware though, if the impending damage to the planet becomes too severe, the conference fails immediately and the greediest country automatically loses.

Deep Print Games (deep-print-games.com)

Challenge accepted

Heidi Huber, Melanie Salzl
Forum Umweltbildung

DURATION	⏱ High (more than 45 min)
N°. OF PLAYERS	👥 Big group (more than 5)
FORMAT	▦ Board game ♧ Cards
MAIN TOPIC	✋ Active Citizenship
COST	€ Cost

ⓘ GAME DESCRIPTION

In the card game CHALLENGE accepted, players meet their personal challenges by using their talents and skills to develop creative ideas for everyday problems and questions. Together, they come up with ingenious, whimsical, crazy, but also with realistic and pragmatic solutions for all 17 sustainability goals.

The players can save national parks, draw attention to unfair situations, organise international partnerships and help their best friend. How is all this possible? Let your teammates surprise you - whether it's a flash mob, a bicycle highway or simply being there for each other, anything is possible! Find the best answers to today's challenges and contribute your ideas to solving the 17 sustainability goals!

CHALLENGE accepted – Forum Umweltbildung

Du wandelst Klima (You change climate)

The game was designed by students of Kreuzschwestern Linz a public school in Upper Austria website: Willkommen (kslinz.at)

DURATION	⏱ High (more than 45 min)
N°. OF PLAYERS	👥 Big group (more than 5)
FORMAT	⬡ Transmedia
MAIN TOPIC	🌡 Climate change
COST	⬇ Open Source

ⓘ GAME DESCRIPTION

Through guessing, estimating, answering questions and many other fun and exciting activities,players get on the track of climate change.

Whether in threes, fours or tens, you can play this game with all your friends. During the development, great importance was attached to the fact that the game can be played in an envronementally friendly way in a paper-friendly and therefore environmentally friendly way (using links or QR codes).
With this game players have fun with expanding knowledge about climate change.

DU WANDELST KLIMA (kslinz.at)

The Synchromodality Game
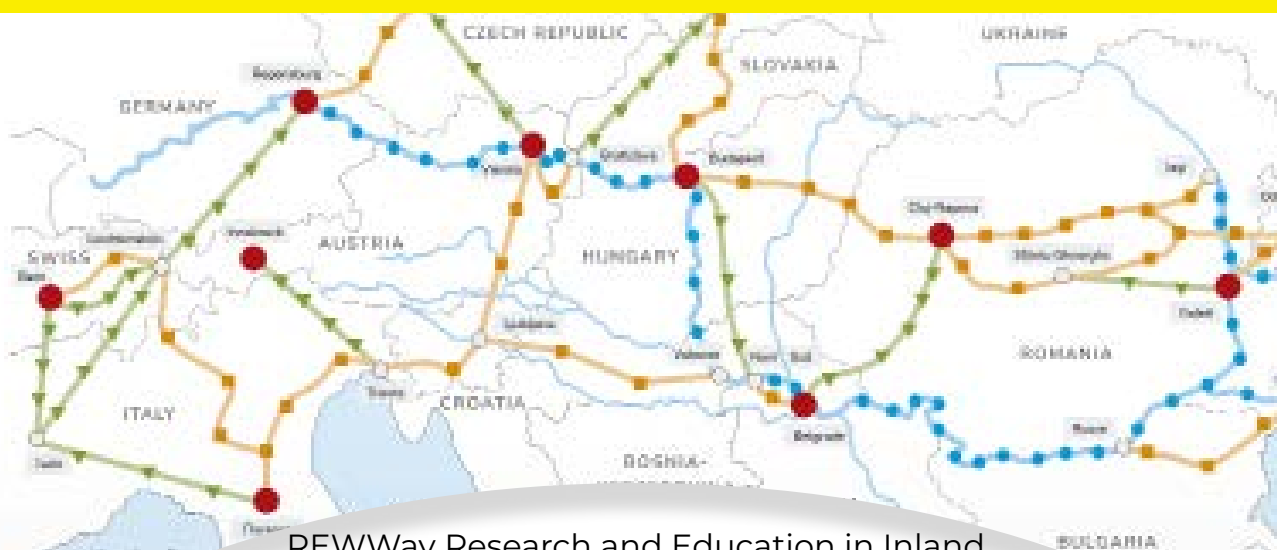
REWWay Research and Education in Inland Waterway Logistics, a cooperation between Logistikum Steyr and viadonau
Startpage - REWWay

DURATION	⏱ Medium (15 - 45)	⏱ High (more than 45 min)
N°. OF PLAYERS	👥 Big group (more than 5)	
FORMAT	▦ Board game	🂠 Cards
MAIN TOPIC	♻ Consumption	🚗 Sustainable transport
COST	⬇ Open Source	

ⓘ GAME DESCRIPTION

Logistics is gaining more and more importance in today's economy. Trends like Physical Internet, synchromodality and Blockchain are revolutionizing the way how goods are being transported, stored and handled. This game focuses on synchromodality and its related changes and possibilities. The geographical setting of this game is the Danube Corridor and all the Danube countries as due to globalization transnational transports are increasing. The players, acting as logistics providers, have to fulfil transport orders of their customers by using the three transport modes road, rail and inland waterway. Who will cause the least CO2 and who the most? Who will be most cost efficient? And what is synchromodality? Play the game and find out all the answers to these questions.

Brettspiel - Synchromodalität - REWWay

Ubongo SDG Match Version

Original game Ubongo by Kosmos Verlag
SDG Match Edition by Südwind

DURATION	⏱ Low (5 - 15)
Nº. OF PLAYERS	👥 Big group (more than 5)
FORMAT	▦ Board game ▥ Cards
MAIN TOPIC	✹ ODS
COST	⤓ Open Source

ⓘ GAME DESCRIPTION

Many people have the vision of a better world, in which all people in all countries are able to live a good life and care is taken of an intact nature. But how can we make this dream come true? The 193 member states of the United Nations have thought about this: they entered a partnership for peace and prosperity for all people and for the protection of the environment and the climate on planet Earth. They have agreed on 17 global sustainability goals, the so-called SDGs (Sustainable Development Goals), which should be achieved by 2030.
In order to bring the SDGs closer to young people, Südwind has developed a special edition of the game Ubongo. The Ubongo SDGs Match Edition.
For the Ubongo SDGs Match Edition, the shapes of the boards have to be filled with a selection of building blocks within a certain time. Spatial imagination, dexterity and imagination are required. If you manage to fill in the shapes within the hourglass time without any gaps, you get a quiz question on the global sustainability goal and, if you answer correctly, you can collect points and level up to Global Hero.

Ubongo-SDGs | Südwind (suedwind.at)

Objective: Rockhopper

ASDE – Scouts Spain
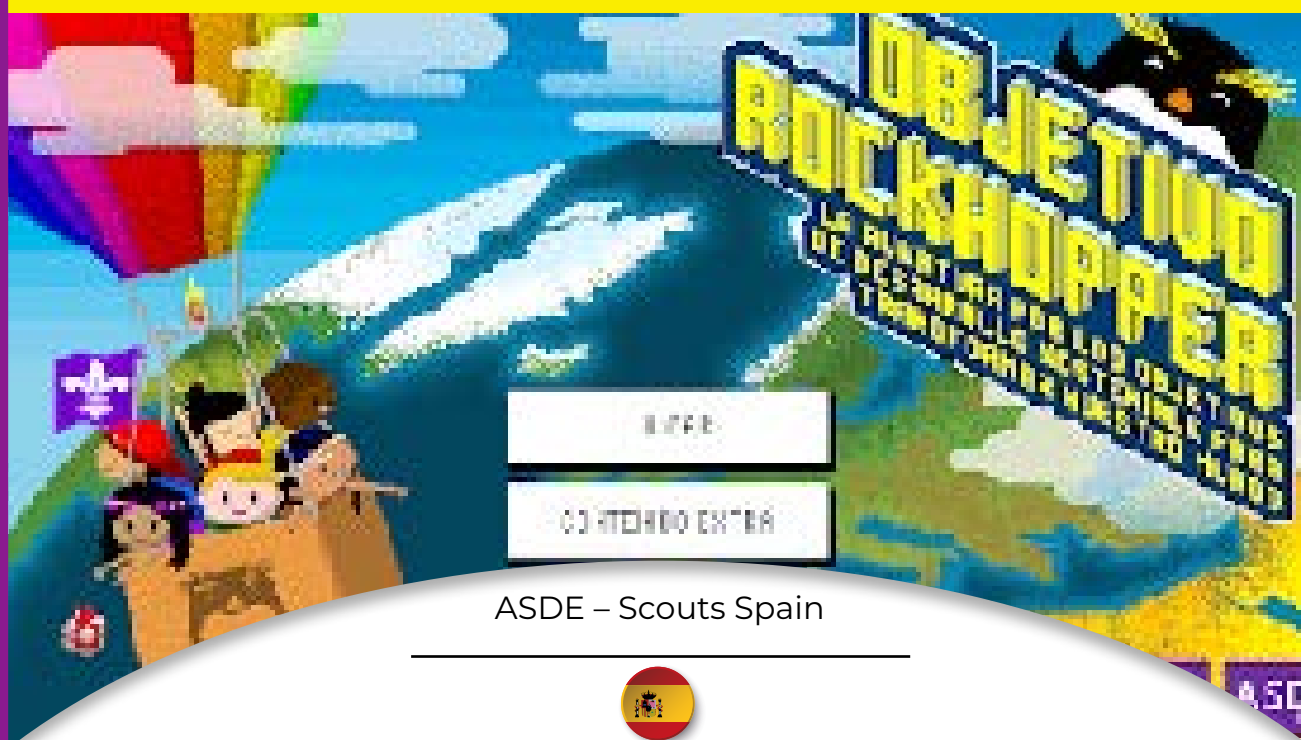
DURATION	⏱ High (more than 45 min)
Nº. OF PLAYERS	👤 Single player
FORMAT	🎮 Phone app ⊚ Online
MAIN TOPIC	🌍 Climate change ⊛ ODS
COST	⬇ Open Source

ⓘ GAME DESCRIPTION

The world has lost its balance: The greatest future threat to Antarctica is climate change. The melting ice in Antarctica has left the colony of endangered Rockhopper penguins isolated on a huge iceberg. To save the penguins players need to achieve the 17 Sustainable Development Goals by 2030. These goals will take them to the last leg of the game: Antarctica, which is vital to many global processes such as water circulation and the absorption of carbon dioxide by the world's oceans. Environmental changes in Antarctica therefore affect the entire planet. This app game introduces you to different characters that are the main protagonists on this digital an interactive adventure. Jumping from continent to continent, players will need to complete different challenges to complete all the Sustainable Development Goals badges and save the world!

https://www.scout.es/objetivo-rockhopper-que-nos-jugamos/

Role play about circular economy

Juego de rol sobre
economía circular:
el caso de la gestión
de residuos

Dinámica de grupo
para localizar el
Objetivo de Desarrollo
Sostenible 12

Juego de rol sobre
economía circular: el caso
de la gestión de residuos

UCLGLearning

DURATION	◐ Medium (15 - 45)	⏱ High (more than 45 min)
N°. OF PLAYERS	👥 Big group (more than 5)	
FORMAT	🧍 Physical	⬡ Transmedia
MAIN TOPIC	⚙ ODS	⟳$ Circular economy
COST	⬇ Open Source	

ⓘ GAME DESCRIPTION

The aim of the game is to understand the concept of circular economy, the variables that influence decision-making on waste management, the positioning and behaviour of the different actors, as well as the ability to argue and seek joint solutions. It is a contribution to the localisation of the SDGs, in particular Goal 12: responsible production and consumption.

It contains detailed instructions for facilitators in order to carry out a group simulation based on a problematic situation that players will need to solve together. To do this, each of them will take one of the roles proposed as well as study the information about their needs, interests, characteristics, etc. proposed to be in their shoes. A game based on discussion, meeting agreements, active listening and to practice conflict management and resolution while learning about environment, its relationship with economic models and the connection between nature and human actions.

https://issuu.com/uclgcglu/docs/esp-juego_de_roles_agrup

Escape room

¿EXTINCIÓN?
La cuenta atrás ya ha comenzado...

InteRed

DURATION	⏱ High (more than 45 min)		
Nº. OF PLAYERS	👥 Small group (2 to 5)	👥 Big group (more than 5)	
FORMAT	🧍 Physical	⬡ Transmedia	◎ Online
MAIN TOPIC	🌍 Climate Change		
COST	⬇ Open Source		

ⓘ GAME DESCRIPTION

This interactive digital and face-to-face game requires a facilitator who will assume the role of Grand Watcher to prepare and guide the activity according to the instructions given. He/she is the only person who can read the Grand Watcher's Book. Guiding players, they will need to complete several challenges proposed on cards with clues and information to overcome them. Each challenge is related to several Sustainable Development Goals and tasks to be done in order to complete it successfully.

Little by little and in a cooperative way, players divided in teams will collect the data needed and interact to guess the code that needs to be introduced at the end of the game to save the earth. The game also proposes a final debriefing and reflection stage on which learners will assess what they have learnt along the game and think about how their perception have changed along the activity.
You can also watch this video to get to know more about this game:
https://www.youtube.com/watch?v=D7vlxgPQNBs

Link to the game / Link to the instructions

InterconAction

InterconAction" was developed by
Angela Gabriela Lasarte, Gabriele Codazzi,
Laora Soulet, Nicolas Delrieu and Sarah Aguilar,
during "EduGaming", Youth in Action training course organised
by the Youth Dialogue Programme.

DURATION	⏱ Medium (15 - 45) ⏱ High (more than 45 min)
N°. OF PLAYERS	👥 Small group (2 to 5)
FORMAT	▦ Board game 🃏 Cards
MAIN TOPIC	◯ ODS
COST	⬇ Open Source

ⓘ GAME DESCRIPTION

It is a boardgame to raise awareness of the global challenges and necessity of collaborative actions to build a sustainable society. Its unique trait is that it requires teamwork of the players in order to defeat the board. Its main objective is to get more familiar with the global challenges while understanding the threats to the human population and explore the possibilities of building sustainable society.

Players will represent different countries that need to face several problematics related to pollution, social exclusion, economic inequality, etc. and other global issues. Interacting with action cards and a board, players will go through all these issues thanks to a point system that will conditionate their behaviour along the game and the decisions to be taken to win.

https://www.salto-youth.net/tools/toolbox/tool/boardgame-interconaction.1456/

Sostenipoly

Consum

DURATION	⏱ Medium (15 - 45)
Nº. OF PLAYERS	👥 Small group (2 to 5)
FORMAT	▦ Board game 🃏 Cards
MAIN TOPIC	✲ ODS 🛒 Consumption ⑤ Circular economy
COST	⬇ Open Source

ⓘ GAME DESCRIPTION

In Sostenipoly there are consumers who do not care the Sustainable Development Goals (SDGs), consumers who care and consumers who commit and which actions and decisions are aligned with these SDGs. You may not share some actions or consumption decisions that are represented in the game, but you can reflect as a team while having fun learning. Download the materials and the whiteboard board ... and let's play!

The objectives of the game are to link our actions with the SDGs and get to know sustainable alternatives; reflect about the importance of our role as consumers on the sustainable development; quantify in a symbolic way our actions and measure how sustainable they are; and learn and reflect in teams while playing. It combines a board with different cards that players used in five teams. It has special squares related to consumers behaviors that have an impact on players movements (Ex. if you fall on the not engages consumers square, you lose one turn). During the game players will also interact with cards that connect SDGs with everyday actions that they can do and that could contribute to the achievement of these objectives and giving them points.

https://teamconsum.consum.es/sostenipoly/

ESCAPE4CHANGE!

Eufemia

DURATION	⏱ High (more than 45 min)	
Nº. OF PLAYERS	👥 Small group (2 to 5)	👥 Big group (more than 5)
FORMAT	🧍 Physical	
MAIN TOPIC	✋ Active Citizenship	
COST	⬇ Open Source	

ⓘ GAME DESCRIPTION

Escape4Change is an immersive experience that allows players to experience at first hand a situation related to a real context and issue. The game experience takes place in a prepared environment in which the group of participants must solve the proposed challenges within a time limit.The goal is for participants to identify strategies during the experience to promote change in the society in which they live.

Three main themes: circular economy, climate change and urban green.

https://www.eufemia.eu/serious-games/

PACHAMAMA

ZEROCO2

No text in the game, independent of language

DURATION	⏱ Medium (15 - 45)
N°. OF PLAYERS	👥 Small group (2 to 5) 👥 Big group (more than 5)
FORMAT	▦ Board game 🃏 Cards
MAIN TOPIC	🌡🌍 Climate change ✋ Active Citizenship
COST	⬇ Open Source

ⓘ GAME DESCRIPTION

The game is played in 10 turns, which are equivalent to 50 years on Earth.
Each player is responsible for a geographical area and has several actions, in the form of cards, that can be activated at each turn. All actions have both economic and environmental effects on the planet, the sum of the actions of each player will decide the course of the game.
Each turn will have an environmental impact that will generate a proportional increase in temperature. Only if you manage to keep the average temperature of the planet below 18°C for the whole game, you will have won.

https://zeroco2.eco/it/pachamama/?gclid=Cj0KCQjwyN-DBhCDARIsAFOELTldnPYk2Y14CYX-2QG84kx99vhaUyFPvcCxLBEGBJEa7CDucErCukjwaApbwEALw_wcB

Photosynthesis
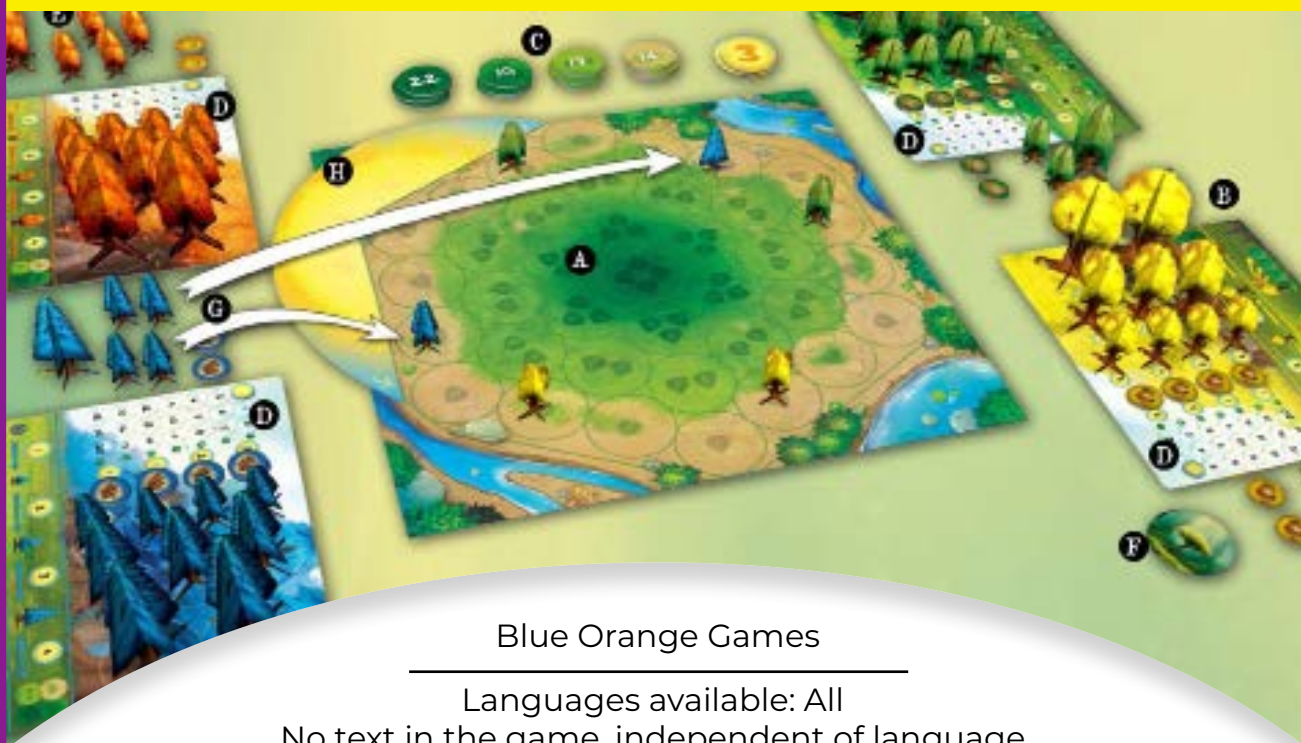
Blue Orange Games

Languages available: All
No text in the game, independent of language

DURATION	⏱ Medium (15 - 45)	
N°. OF PLAYERS	👥 Small group (2 to 5)	
FORMAT	▦ Board game	
MAIN TOPIC	♻ Consumption	✋ Active Citizenship
COST	⬇ Open Source	

ⓘ GAME DESCRIPTION

Choose a type of tree to grow in the forest and plant your seedlings where the vital sunlight can reach their leaves. Thanks to the sunlight, your trees will grow, producing new seedlings and allowing you to collect valuable victory points if they reach the end of their life cycle. In this way they will leave space in the forest, precious ground on which you can plant new sprouts and continue the circle of life. The points that the various trees allow you to collect depend on the ground on which they have grown, so you will struggle to sprout in the richest parts of the forest, which will however be easier to shade, making it difficult to grow your saplings.
It can be played at different levels of difficulty, depending on the approach to the game and by including expert rules, found in the manual.

https://www.blueorangegames.com/index.php/games/photosynthesis

CO2 - Second Chance

Vital Lacerda - Giochix

Languages available: All
No text in the game, independent of language

DURATION	⏱ High (more than 45 min)
Nº. OF PLAYERS	👥 Small group (2 to 5)
FORMAT	▦ Board game
MAIN TOPIC	🌡 Climate change ($) Circular economy
COST	⬇ Open Source

ⓘ GAME DESCRIPTION

The world's growing demand for energy during the 1970s has led nations to invest more and more in the energy sector, especially with the exploitation of fossil fuels, resulting in a dramatic increase in pollution across the planet.

As part of a group of renewable energy companies, you will be tasked with developing a range of new technologies that will ensure the same levels of energy consumption while stopping pollution.

https://www.giochix.it/scheda.php?item=3767&crowd=0&lingua=1

Mariposas

Alderac

Languages available: All
No text in the game, independent of language

DURATION	⏱ High (more than 45 min)
Nº. OF PLAYERS	👥 Small group (2 to 5)
FORMAT	▦ Board game 🃏 Cards
MAIN TOPIC	🌡🌍 Climate change
COST	€ Cost

ℹ GAME DESCRIPTION

This game is set in the world of animals, particularly the monarch butterflies, which migrate from New Mexico to Canada every year to lay their eggs and whose survival is threatened by the gradual disappearance of their habitat by man.

A game of Mariposas consists of three rounds, meaning seasons, of different lengths: in spring each player takes four rounds, in summer five and in autumn six. In each round the player selects a movement card from the two he has in his hand and applies its effects by moving one or more butterflies by the number of spaces indicated on the card. At the beginning of their turn players can decide to change their cards if they have two equal ones.

https://www.alderac.com/mariposas/

(Not so) Smartphone/Äly(tön) puhelinpeli

A group of volunteers from
Pro Ethical Trade Finland/Eetti ry
https://eetti.fi/en/   https://eetti.fi/

DURATION	⏱ High (more than 45 min)
N°. OF PLAYERS	👥 Small group (2 to 5)
FORMAT	▦ Board game ⬡ Transmedia
MAIN TOPIC	🛒 Consumption ⟳$ Circular economy
COST	⬇ Open Source

ⓘ GAME DESCRIPTION

(Not so) smartphone is a board game about the responsibility of global trade and business in the life cycle of electronics. The game is based on the real production chains of electronics from producer to consumer and it introduces important questions about the industry. The game takes about an hour, and it is played in small groups.

In the game, players will take the role of a big smartphone company. The goal is to assemble a smartphone as quickly as possible by collecting needed minerals and transporting them to a factory in the end. Players can buy either fair or unfair metals and factories. Winning is impacted by speed, but also by responsibility and karma. During one turn, players will pick a choice card which has either a situation connected to responsibility or a knowledge question. The answer will define how many steps the player can take and how much karma they will receive or lose. The game is also impacted by chance cards, which are lifted from the red spots on the game board.

The cards can contain for instance quick solutions for working conditions or worker exploitation, environmental disasters, or greenwashing. With the choice cards, players must evaluate the consequences of different answers – generally speaking, the principle is that an irresponsible choice gives players more steps, but bad karma. As the game progresses, players can realise which answers are "correct" or "wrong" in the view of responsibility and how to strategize to gain speed and points.

https://eetti.fi/materiaalit/oppimateriaalit/elektroniikka/alytonpuhelinpeli/
https://eetti.fi/not-sosmartphone/

My2050

In English: https://visia.fi/in-english/
In Finnish: https://visia.fi/gamefactory/

You must in be Finland in order to play this game

DURATION	⏱ High (more than 45 min)
N°. OF PLAYERS	👥 Small group (2 to 5)
FORMAT	🎮 Phone app 🤸 Physical ⬡ Transmedia
MAIN TOPIC	🌡 Climate change ✋ Active Citizenship
COST	⬇ Open Source

ⓘ GAME DESCRIPTION

My2050 is a combination of escape room and geocaching mixed with facts and possible future scenarios. It is open and free to play for anyone. Players can start their adventure anytime; all you need is a phone and 60 minutes of your time. My 2050 can be played in Finland, either in Helsinki (starting from Kasarmitori), Espoo (Espoo Centre), Tampere (starting from Keskustori by the Old Church) or Vantaa (starting from Heureka, in Tikkurila).

Players have 60 minutes to venture out and collect as many points and achievements as possible. The game ends when the 60 minutes have passed. The game is played in a team of 2-3 people. It is designed for youngsters and adults, and the recommended age is over 12.

In the game, players will first see their position on the map and the first checkpoint, the rest of the checkpoints will appear as the game progresses. Players can go to different checkpoints in any order. The faster they move, the more checkpoints they will reach during the game. By successfully opening the checkpoint, players will receive points and achievements. To open a checkpoint, players need to solve a puzzle. There are also a few secret checkpoints in the game. They won't appear on the map, but players will hear a sound when they appear in the game's menu. Players can score points from secret checkpoints by going to the right location by following the given hint.

In English: https://my2050.fi/in-english
In Finnish: https://my2050.fi/

Project: Earth -game/Tehtävä Maa -peli

Youth Aacademy/Nuorten akatemia
in English: https://www.nuortenakatemia.fi/en/
In Finnish: https://www.nuortenakatemia.fi/

DURATION	⏱ High (more than 45 min)
N°. OF PLAYERS	👥 Small group (2 to 5)
FORMAT	🌐 Online
MAIN TOPIC	⚙ ODS
COST	⬇ Open Source

ⓘ GAME DESCRIPTION

Project Earth is a game which explores the Agenda2030 for Sustainable Development Goals and aims to save the world. In the game, players must explore the Agenda2030 and make concrete proposals for what we can do to build a more sustainable planet. By collecting points and cooperating with plants and animals, the world is built to be a better place for us all. The earth is saved by collecting 2030 points.

The game functions on the Seppo platform (https://seppo.io/) and players can play the game on their mobile phones or computers. In the game, players will work in teams and solve different kinds of puzzles and tasks. The tasks include multiple choice questions, connecting pairs and creative tasks that are answered with a text, an image, a voice message or with a video.

A game leader will guide the game and review some of the player's answers – most of them are evaluated automatically. The game lasts 60 minutes and the team with the most points will win.

https://www.nuortenakatemia.fi/kouluvierailu/tehtava-maa-peli/

Mystery of the waters / Suuri vesistömysteeri

WWF Finland / WWF Suomi
In English: https://wwf.fi/en/
In Finnish: https://wwf.fi/

DURATION	⏱ High (more than 45 min)	
N°. OF PLAYERS	👥 Small group (2 to 5)	👥 Big group (more than 5)
FORMAT	🎮 Phone app	🧍 Physical ⬡ Transmedia
MAIN TOPIC	🌡 Climate change	✋ Active Citizenship
COST	⬇ Open Source	

ℹ GAME DESCRIPTION

Mystery of the Waters is a learning game for field trips on lake or river shore. The game functions on the Seppo platform (https://seppo.io/). It guides players to explore the diverse nature of lakes and rivers. There are different kinds of tasks in the game which will help players to study both the organisms on the shore and the chemistry of water. The goal of the game is to make findings and observations on the shore. There are no right or wrong answers, but the idea is to make observations and give well thought answers which will earn players more points. A game leader will guide the game and review the player's answers. The leader will also hand out the instructions and decide whether the players will solve all the puzzles of the game or just some of them. Players are going to need some other equipment in this game. Weather-appropriate clothing, a clear plastic jar, a wash basin, some hand nets, a thermometer, and some pH papers are needed to solve the puzzles. In the game, players will work in teams and solve puzzles. There are different kinds of puzzles and tasks in the game, some of which include videos. Players will also make their own videos as a part of some of the tasks. Players can complete the exercises in the order and at the pace they prefer.

https://wwf.fi/opettajille/opetusmateriaalit/mobiilioppimateriaalit
The game can be downloaded from Seppo-store:
https://play.seppo.io/shop?l=en Activation code is luontoretki.

Climate game / IlmaSTOPeli

Plan International Finland
In English: https://plan.fi/english/
In Finnish: https://plan.fi/

DURATION	⏱ High (more than 45 min)
Nº. OF PLAYERS	👥 Big group (more than 5)
FORMAT	▦ Board game 🃏 Cards 🕴 Physical
MAIN TOPIC	🌡 Climate change
COST	⬇ Open Source

ⓘ GAME DESCRIPTION

Climate game is a board game which illustrates not only climate change but also the unequal distribution of wealth. In the game, players will make decisions which have different kinds of influences. At the beginning of the game, the game materials are evenly divided into three tables. Players will also be divided into these three tables. In every table, there is a different country: Finland, Nigeria, or Peru. There are also different kinds of character cards, and each player must pick a character and empathize with this role.

There are three event cards in each table. Players must read one of the event cards and try to make a decision based on the information on the card. Players will have a discussion and at the end of it, vote for their choice. Each character has a different number of votes, so some characters have more power than others. After the decision is made, players will turn the event card over and see how the decision will affect their character and whether they will raise a positive or a negative future card. The future card will affect the situation of each character. Besides the effect on each character's situation, the decision might also produce carbon dioxide emissions. In each table, there is a common carbon counter, where the possible emissions are exported. There is a possibility that the table's counter will reach a critical level. In that case, the table must raise a catastrophe card, which has its own actions.

After all the actions of a round have been made, players must switch tables. Every player will leave their character and the character's future card in their previous table. In the new table, they will have a new country and a new character. Every player will have three characters in three different countries, as the tables are switched twice.

https://www.globaalikoulu.net/wp-content/uploads/2021/03/Ilmastopelin-kulku.pdf

This section includes extra materials that the authors of this toolkit recommend you to read and check to learn more about gamification and how to apply it to the education and raising awareness field at different levels:

Element / resource	Source language
Arnaudo, M. (2018): Storytelling in the Modern Board Game: Narrative Trends from the Late 1960s to Today. Jefferson, USA: McFarlan & Company, Inc., Publishers	English
Barret, G. (2019): Board Game Design Advice: From the best in the world. Independently published.	English
Borderline board games (2021) (Educational boardgames to transform how we learn, developed by strategic partnership involving educational organisations from ten countries. Retrieved from). URL: *https://bb-games.eu/*	English
CONNEXT for inclusion (2021). Games, seriously? Serious games as a tool for empowerment. URL: *https://gamewise.io/en/handbook-games-seriously*	English
Engelstein, G. (2020): Building Blocks of Tabletop Game Design: An Encyclopedia of Mechanisms. Boca Raton, USA: CRC Press.	English
Gobet F., Retschitzki, J., Voogt, A. (200w4): Moves in Mind: The Psychology of Board Games. New York, USA: Psychology Press.	English
Koster, R. (2013): Theory of Fun for Game Design. O´Reilly.	English
Rush, D. (2017): Making Deep Games: Designing Games with Meaning and Purpose . Boca Raton, USA: CRC Press.	English

Salen Tekinbas K., Zimmerann E. (2003): Rules of Play: Game Design Fundamentals.	English
SALTO YOUTH (2021) (Hundreds of useful tools for learning - for youth work and training activities). URL: https://www.salto-youth.net/tools/toolbox/	English
Schell, J. (2008): The Art of Game Design: A Book of Lenses. USA: Morgan Kaufmann Publishers.	English
Selinker, M. (2012): Kobold guide to boad game design. Kirkland, USA: Open Design LLC.	English
Stegmaier Jamey (youtube channel). URL: https://www.youtube.com/channel/UCowWjmYzhSTC4YZ--ZnaYNw	English
Tossavainen, T. & Meriläinen, M. & Harviainen, J.T. (2015). Game Educator's Handbook. URL: https://pelikasvatus.fi/gameeducatorshandbook.pdf	English
Koiranen, J. (2019). Pedagogiset pakopelit: Opas. Ääres eduEscape: Helsinki.	Finnish
GameLab Didactics of history; GameLab - Didaktik der Geschichte (univie.ac.at); The GameLab of the Institute of History not only researches the historical reference of digital games, it also invites people to try out and experience games themselves.	Austria
White Castla Games Agency; www.whitecastle.at ; Whitcastle puts you in touch with the community of game developers, reviews and communicates your game ideas to publishers	Austria
Ancuta, S., Presinger A. (2021): Analoge Spiele für die politische Bildung. Wien, Austria: Edition Polis. URL: analoge_spiele_pb_web_pdf (politik-lernen.at)	German
Höser, K. (2018): Spiel & Autor. URL: Home (spiel-und-autor.de)	German

Klippert, H. (2008): Planspiel: 10 Spielvorlagen zum sozialen, politischen und methodischen Lernen in Gruppen. Basel, Switzerland: Beltz Verlag.	German
"Escape from marginalisation" (2019) (a Erasmus+ project that aims to enhance the innovative use of digitization and gamification methodology by youth workers in working with marginalized youth in our communities). URL: https://www.bangherang.it/?p=6589	Italian
"Game On: inclusione e game design" (2021). (A Erasmus+ project that aims to develop educational tools for youth workers, educators and teachers through the teaching of game design and the implementation of educational activities in our communities. URL: http://www.assonur.org/sito/GameOn	Italian
Cuartero, N. (2021). Como empezar un proyecto gamificado. URL: https://view.genial.ly/5b643c023fede90ee1a9dc62/interactive-content-como-empezar-un-proyecto-gamificado-copia	Spanish
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V Hofbauer Florian, Lisa-Maria Putz and Horst Treiblmaier (2020): Can gamification help to improve education? Findings from a longitudinal study.

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v Sustainable Development Goals, Goal 12. Retrieved from: https://www.un.org/sustainabledevelopment/sustainable-consumption-production/

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Recognition
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Gamification, Education and Training
to activate youth for sustainable choices:
Toolkit on gamification for sustainable consumption

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