The environmental impact of digitals, hybrid version

Material

- ☐ 1 dice
- ☐ 10 pieces
- ☐ 1 physical board to print
- ☐ *100 Kaplas or paper bricks*
- ☐ 1 laptop or computer, with the tools open (Mural, Kahoot, Wheel, Quizlet)
- ☐ *Paper sheets A4*
- ☐ Pens, pencils…

Educational objectives

- ➢ To attempt **to materialize the environmental impact** of everyday digital practices
- ➢ **To become familiar with and understand certain technical processes** of digital technology and their ecological impact (*searching the Internet, the components of a smartphone, manufacturing a smartphone and journey around the world...*)

Preparation

You can find here an **example** of the tools used by the Connexion·s project.
Please make sure not to modify these tools, because otherwise it will modify it for everyone.
You can do copies and register them on your own tools account.

The global tool is on Mural : sample here & correction here

The Kahoot quiz

The Quizlet

The Wheel of debate page

- ➔ **Keep all 4 pages open on your computer at all time**

Timing, 2h duration

Duration	Goal
10'	Introducing the game
1h30	Game time
20'	Debriefing

Rules of the game

Maximum number of players : 10	Activity leaders : 2 minimum

The game :

The board represents a year: the objective is **to end the year with the lowest possible environmental impact (EI)** linked to digital technology. The environmental impact will be materialized by Kaplas or pieces of paper. The higher your impact is, the more Kaplas/pieces you will get.

To move forward, participants roll the dice and move the number of squares indicated on the dice. The color/ indication of the square determines what the players must do.

There are **5 categories** of subgames on the board :

Category	Goal	Impact on the game
HOW MANY ?	On Quizlet : The player : - Gets a card in which a daily-life digital practice is written. - Guesses what is the EI of this practice between 1 to 4 (1 being the lowest, 4 the highest)	**Nb of bricks to collect** The difference between : - The nb of bricks guessed by the player - The nb of bricks allocated to this practice.
ACTION	The participants play mini-games in teams competing against each other. One laptop per team is required. (*MURAL*)	The losing team gets **as many bricks as indicated** by the game leader.
QUIZ	On Kahoot : **Step 1** : The participant answers a quiz question with no clue. **Step 2** : The participant get three choices to answer the question	For step 1 : - Right answer : **- 1 brick** - Wrong answer : **go to Step 2** For Step 2 : - Right answer : **no brick** - Wrong answer : **+1 brick**
TELL US	The player shares an experience linked to digitals and its environmental impact. *Example : a good/bad practices, interrogations they have…*	No impact on the game
DEBATE	The player spins the wheel (online). The group gets 5 to 10 minutes to discuss the picked topic. *Each player needs to have the opportunity to share something.*	No impact on the game

Before starting the game, divide the players into 2 or 3 teams.

1. Beginning of the game: Participants roll the dice → the person with the highest number starts (then clockwise)
2. Participants roll the dice and move forward the number of squares indicated on the dice
3. They execute an action according to the color of the square they fell on and then collect (or not) the environmental impact bricks.
4. End of the game: When 1 participant finishes a turn **OR** after a given time

The participants count the number of Kaplas/bricks they have: **the winner is the person who has the least**.

TO KEEP IN MIND : lots of information → can take notes during the game

ANNEX of the game

HOW MANY ? - Digital practices cards

→ In general, to assess/measure the environmental impact of a practice, **the following environmental indicators** are used (as selected by Green IT, *a French collective working on building an alternative digital future with digital sobriety, slowtech and lowtech*):

Indicators	Expressed in :
Abiotic Resource Depletion (ADP): The contribution to abiotic resource depletion (*non-renewable natural resources*) assesses the impact of digital in depleting mineral stocks.	In kg antimony equivalent (kg eq. SB)
Global Warming (GHG): Emissions of various greenhouse gases into the atmosphere contribute to the Global Warming Potential (GWP) of water, air and soil. This global warming results in a disruption of local climates.	In kg CO2 equivalent (kg eq. CO2)
Water Consumption (WATER): Fresh drinking water is the second most important basic physiological resource for humans and millions of other life forms, second only to breathable air. **Blue water** is water that is easily mobilized by humans (as opposed to green water that can only be captured by plants). The more blue water is consumed by digital technology, the less it is available for other uses at a given time. Like agriculture, the digital industry is responsible for periods of water stress during which humanity must arbitrate between several uses of available fresh water because there is not enough available.	In liters of blue water (L or m3 of water)
Primary Energy (PE): Primary Energy is the energy needed to produce Final Energy. In the digital domain, depending on the stage in the life cycle of a piece of equipment, different primary energies are used to produce different final energies. *For example*, to extract minerals, we use diesel fuel that is transformed into a driving force to power an excavator. When used, electricity is made from different primary energy sources: solar radiation, nuclear reaction, coal combustion, etc.	In Megajoules (MJ) per functional unit or time OR In kiloWatt hours (kWh) per unit of time
(Electricity consumption (Final Energy)): The production of electricity consumed by digital equipment is the source of some of the environmental impacts listed above.	In kiloWatt hours (kWh) per unit time

Important to keep in mind :

- ➔ The impact of these practices that we chose are not an absolute truth. It is an interpretation to give the players a better idea of the scale/importance of the impact of these practices.
- ➔ We aren't professionals on the matter : they can look further into it if they are interested in the topic.

The cards will be on Quizlet

	Pratiques	Impact	Impact
1	Buy your album on CD (rather than listening to it on a loop in streaming)	++	2
2	Buy a device with a good reparability index	+	1
3	Buy a connected device	++++	4
4	Buy a reconditioned device	+	1
5	Buy a new smartphone	++++	4
6	Buy a new smartphone every year	++++	4
7	Activate automatic viewing on streaming platforms	+++	3
8	Activate location on your devices	+++	3
9	Buy connected devices for your house	++++	4
10	Have several large high definition screens	++++	4
11	Bingewatch a series / a TV show	++++	4
12	Change the battery of your smartphone	+	1
13	Turn off location on your phone	+	1
14	Deactivate the automatic saving of files on a cloud (e.g. iCloud on iPhone)	++	2
15	Deactivate automatic playback on streaming platforms	++	2
16	Listen to music on Youtube (with video) rather than on a streaming platform	+++	3
17	Send an attachment by email	++	2
18	Turn off the wifi router	+	1
19	Charge your smartphone all night long	+++	3
20	Make long video calls in 4G	+++	3
21	Close search tabs when not in use	+	1
22	Keeping unused/active tabs open	+++	3

23	Keeping your devices between 20% and 80% of charge	+	**1**
24	Throwing away your phone (without recycling it)	++++	**4**
25	Playing online video games	++++	**4**
26	Limit time spent on social networks	++	**2**
27	Leave your TV on (in the background)	++++	**4**
28	Putting your computer on standby	+	**1**
29	Put your devices in "energy saving" mode	++	**2**
30	Bookmark your favorite websites	+	**1**
31	Never turn off your devices	+++	**3**
32	Have more than 10 devices	++++	**4**
33	*Post videos/photos online (in high definition?)*	+++	**3**
34	Recycle your phone	++	**2**
35	Reduce the quality of videos/photos posted online	++	**2**
36	Reduce the resolution of a video you are watching	++	**2**
37	Watching a video online in 4G	+++	**3**
38	Watching a video on a streaming platform	+++	**3**
39	Repair a device	+	**1**
40	Subscribe to a multitude of newsletters sent by email	+++	**3**
41	Unsubscribe from newsletters you don't read	+	**1**
42	Store your data on a Cloud	+++	**3**
43	Store your data on an external hard drive	+	**1**
44	Delete unused applications	++	**2**
45	Delete spam from your mailbox	++	**2**
46	Download an application that you never use	+++	**3**
47	Transfer photos/videos from your phone to an external hard drive	++	**2**
48	Use instant messaging instead of email	+	**1**
49	Use an alternative eco-friendly search engine (such as Ecosia)	+	**1**
50	Empty your email box regularly	++	**2**

ACTION CARDS - Mini games

N°	Mini-game	Impact	Page number
1	The life cycle of a computer	3 / pers	
2	The different materials of a smartphone	2 / pers	
3	World map : Manufacturing a smartphone	3 / pers	
4	Top 4 of the most impactful little digital habits	2 / pers	
5	The process of making an online search	-1 / if correct	
6	Programmed obsolescence	2 / pers	
7	Drawing	- 1 / winner	
8	TBD		

1. The life cycle of a computer

Impact on the game: **3 bricks per person**

Materials: *(or computers on Mural)*

- ☐ 3 A3 sheets
- ☐ Pictogram" papers
- ☐ Pens/pencils
- ☐ Patafix

Objective:

1. From the pictograms, reconstruct the entire life cycle of a computer (from its manufacture to its end of life).

   ANSWER : If you need to know the names of the stages:
   - *design*
   - *extraction of raw materials*
   - *manufacture of components*
   - *assembling*
   - *transportation*
   - *use*
   - *end of life*
   - *recovery / recycling*

2. **Questions**:
   In your opinion, which stage:
   - ➔ Consumes the greatest amount of primary energy: *manufacturing (35%),* ***use (65%)***
   - ➔ Depletes/Drains/Consumes the most abiotic resources (= non-renewable natural resources): **manufacturing (100%) → extraction and transformation of natural resources**
   - ➔ Impacts available freshwater stocks the most: **manufacturing (79%)**
   - ➔ Emits the most greenhouse gasses (GHG): **manufacturing (40%)**, use (26%)

   Why do you think the end-of-life/recycling phases are not included in the questions (+the study we based this game on?)?
   No reliable impact factor exists at the international level to measure the impact of the end of life of equipment. Indeed, 70% of the world's WEEE is trafficked. So it is impossible to know the logistical impacts (transport of waste) as well as those associated with their "recycling".

Par exemple, pour 2019 sur les indicateurs **Énergie Primaire (EP)** et **Réchauffement Global (GES)** :

Bilan EP	Fabrication	Utilisation	Total
Utilisateurs	30%	30%	60%
Réseau	3%	20%	23%
Centres informatiques	2%	15%	17%
	35%	65%	

Bilan énergie primaire 2019

La consommation d'énergie primaire est principalement due à **la production de l'électricité, puis des équipements utilisateurs.**

Bilan GES	Fabrication	Utilisation	Total
Utilisateurs	40%	26%	66%
Réseau	3%	16%	19%
Centres informatiques	1%	14%	15%
	44%	56%	

Bilan émissions de gaz à effet de serre 2019

Les émissions sont principalement dues à **la fabrication des équipements, puis à la production de l'électricité.**

2.4.1 CONTRIBUTION À L'ÉPUISEMENT DES RESSOURCES ABIOTIQUES (HORS ÉNERGIE FOSSILE)

Bilan Ressources	Fabrication	Utilisation	Total
Utilisateurs	76%	0%	76%
Réseau	16%	0%	16%
Centres informatiques	8%	0%	8%
	100%	0%	

Bilan ressources abiotiques 2019

L'épuisement des stocks de ressources abiotiques (minerais notamment) hors énergies fossiles est, en toute logique, concentrée dans **la fabrication des équipements, notamment des utilisateurs, à cause de leur nombre.**

2.4.2 TENSION SUR LES STOCKS D'EAU DOUCE DISPONIBLE

Bilan Eau	Fabrication	Utilisation	Total
Utilisateurs	75%	9%	84%
Réseau	2%	6%	8%
Centres informatiques	2%	6%	7%
	79%	21%	

Bilan eau 2019

La tendance est identique pour les tensions sur les stocks d'eau douce. Elle est cependant légèrement modulée par la production électrique qui en requiert de grande quantité à l'échelle du numérique mondiale, de l'ordre de **1 614 millions de m³ (contre 3 fois plus pour la fabrication des équipements).**

2. The different materials of a smartphone

Impact on the game: **2 bricks per person**

Materials: *(or computers on Mural)*

- ☐ 3 Smartphone sheets
- ☐ Materials" papers
- ☐ Patafix

Objective : Match the materials with their percentage in the composition of the smartphone.

The team with the least number of correct answers loses and each team member gets 2 brics (see answer sheet).

The extraction and transformation of these ores (=minéraux) leave important traces on the environment, by polluting the surroundings of the mining sites and by producing numerous greenhouse gas emissions.

- *Plastic (20%): cases*
- *Glass and ceramics (20%): mainly used for screens and sensors, housings, lenses*
- *Metals: used for electronic parts*
  - *Ferrous: iron (10%), cobalt (5%)*
  - *Non-ferrous: aluminum (20%), copper (= cuivre) (10%)*
  - *Precious : gold, platinum, palladium…*
  - *Rare (also called "rare-earth elements"): used for alloys/blends (=alliages)*
- *Other substances: carbon (5%), lithium (used for batteries)...*

Problems :

- ➔ *The more smartphones improve, the more manufacturers use new materials and new combinations, making it more and more difficult to replace the pieces*
- ➔ *For a 2kg device, 400 times more raw materials have to be extracted. It is easy to understand why the manufacturing phase is the most polluting.*

3. World Map : Manufacturing a smartphone

Impact on the game: **3 bricks per person**

Materials:

- ☐ 3 maps of the world (A3 size)
- ☐ Numbers" papers
- ☐ Data centers" papers
- ☐ Patafix

Objective:

A. Try to place on the world map the different stages of manufacturing an iPhone :

1. **Design**:
   - *United States : California*

2. **Extraction and transformation of raw materials** :
   - *Southeast Asia: China (Iron, Tungsten, Rare Earths), Malaysia (Tin)*
   - *Australia: Silver*
   - *Central Africa: DRC (Tantalum, Cassiterite, Cobalt), Zambia (Cobalt)*
   - *South America: Brazil (Gold), Chile (Lithium, Copper)*

3. **Manufacturing of main components** :
   - *Asia:*
     - *Japan (Bluetooth, Battery),*
     - *South Korea (Memory, Processor),*
     - *Taiwan (Microelectronic components, Printed circuit boards, Connectors),*
     - *China (Hull, Microelectronic components, Printed circuits, Connectors),*
     - *Singapore (Microelectronic components)*
   - *United States: Display, Touch Screen Controller, Flash Memory*
   - *Europe: Germany (Accelerometer), Italy (Gyroscope)*

4. **Assembling** :
   - *Asia: China*

5. **Distribution**: *all continents*

The location of the steps can obviously vary depending on the brands, models…

B. **Questions**

- Any reactions? Any surprises?
- In your opinion, how many times does a smartphone travel around the world during its manufacture? 4 world tours

C. Place 4 points on the map, where you think the majority of data centers in the world are → See map (FNSP-Sciences Po, 2018)

D. Questions

- Why in these locations?
- What do you think this implies?

Correlation with number of internet users in countries:

➔ *When number is higher than 48% (world average): many data centers*

➔ *When number is lower: few data centers (except South/Southeast Asia)*

The further a data center is from your company, the more Internet performance and data transfer will be slowed down.

➔ *Often located near cities*

There are nearly 4,800 data centers in the world, including 1,800 in the United States and about 200 in France. Their location takes into account access facilities (roads, airports, networks) but also costs (taxes, energy costs) and weather conditions.

4. Top 4 little digital habits that have the biggest impact

Impact on the game: **1 brick per person**

Materials:

- ☐ "Small digital habits" papers x3

Goal: Rank the 4 small digital habits that have the biggest impact, from the one with the biggest environmental impact to the one with the smallest impact.

Answer:

1. **Watching videos: "Videos use 80% of the web's data":**
   Videos use 80% of the web's data, 60% of which is online video (all this data is hosted in data centers that run 24 hours a day and are sometimes powered by polluting energy such as coal):

   GHGs:
   - Video on demand platforms (like Netflix) = 7% of **GHGs** due to digital technology
   - Porn videos = 5% of GHGs due to digital technology
   - Public videos (Youtube, Dailymotion type) = 4% of GHGs due to digital technology
   - Videos hosted on social networks = 4% of digital GHGs

2. **All our little activities on social networks:**
   Social networks = 5% of global internet traffic
   - What Internet users share → every day, 8 billion videos on Facebook, 1.6 billion photos sent on Whatsapp... → the more data there is, the more data centers will be needed
   - What is recorded "discreetly" = metadata (geolocation, connection times and durations, activity... → stored in data centers
   - What "comes" to users, not really of their own free will = ads, newsletters
     ⅓ of the most viewed stories on Instagram come from brands.

   ⇒ If digital uses are growing, so are the number of internet users and data

3. **Everything that flows through our email inbox:**
   An email travels an average of 15,000 km to reach the email provider's servers and then the recipient of the message.
   The heavier the email (attachment..), the more CO2 it emits.
   293 billion emails are sent every day in the world
   75% of emails received are spam, they are useless → 60% of emails would not be opened.

4. **Our searches on search engines :** *see in the next mini-game*
   A bit like for emails, a lot of data centers come into play

5. The process of making an online search

Impact on the game: - **1 brick for winning team if correct**

Materials:

- ☐ 3 A3 sheets
- ☐ Step" papers
- ☐ Patafix
- ☐ Pens/pencils

Objective: Reconstruct the whole process of doing an **online search** on your computer, from the moment you click on the search engine icon to the opening of the page you were looking for.

Example: You go on Google Chrome to look at your train schedule on a company's website.

- ➔ What are the different steps ? see visual answer
- ➔ How many round-trips between your computer and the data center? see visual answer
- ➔ Cut out the elements you need and reconstruct the whole process.

If too complicated, you can read all the steps one by one to guide them + if needed, no impact on the game.

6. Programmed obsolescence

Impact on the game : **2 bricks per person**

Equipment: none

Objective:

1. Read a statement.
2. Teams have a few seconds to discuss the solution (true or false)
3. At the signal, one person from each team gives the group's answer:
   - Thumb up = true statement
   - Thumbs down = false statement
4. One of the facilitators records the points of each team on the score sheet.

5. The team (or teams) that loses is the one with the lowest score: each member receives 2 bricks.

1	The makers weld the pieces together.	**True**
2	Some new accessories are not compatible with old equipment.	**True**
3	Manufacturers dampen computer parts before assembling them.	**False**
4	Manufacturers overcharge smartphone batteries before transporting them.	**False**
5	Manufacturers place a part where it will heat up the fastest.	**True**
6	Batteries are exposed to extreme temperatures: there is no legislation in place.	**False**
7	Manufacturers include misleading notifications that push consumers to replace their devices.	**True**
8	Manufacturers encourage consumers to replace their working items with others that use less power or are more environmentally friendly.	**True**
9	Manufacturers play on the hype.	**True**
10	Manufacturers embed viruses in their software to make devices unusable some time after purchase.	**False**

7. Drawing: material/immaterial ambivalence of digital

Impact on the game: **- 1 brick for the winning team**

Material:

- ☐ White A4 sheets of paper
- ☐ Pencils, markers, pens
- ☐ Mural

Objective:

1. Each team has 5 minutes to draw/represent the material/immaterial ambivalence of digital. It can be done on paper or on Mural.
2. Each team has 30s to explain their drawing.
3. The game leaders pick the winner.

QUIZ CARDS

They will be on a Kahoot.

N°	Questions	Answer 1	Answer 2	Answer 3
1	Videos, what percentage of global data traffic?	30%	50%	**80%**
2	If the Internet were a country (in terms of electricity consumption), where would it rank in the world?	**in 3rd place worldwide (behind the USA and China)**	in 7th place worldwide	in 11th place worldwide
3	How many people use the Internet in the world?	4 billion	4.5 billion	**5 billion**
4	Average number of devices per user in France?	9	**11**	13
5	Average number of digital devices per user in the world?	6	7	**8**
6	Average time before changing phone?	**2 years old**	3 years old	4 years old
7	If we look at the global ecological impact of digital technology, what percentage is linked to the use of equipment?	**20%**	50%	80%
8	What percentage of the world's total greenhouse gas emissions is generated by the digital industry?	**3,80%**	4.7%	5,60%
9	The digital industry emits as much GHG as the paper industry:	pharmaceutical	**of civil aviation**	of textile
10	From how many books read per year, the use of an e-reader is less polluting than the purchase of paper books?	10 books	**20 books**	30 books
11	How many different materials on average are used in a smartphone? About 50 / 70 (70 materials and 50 different metals)	about 30	**about 70**	about 150
12	What percentage of end-of-life smartphones are recycled in France?	**5%**	15%	25%
13	How many times do you have to listen to a CD before it becomes less polluting than using a streaming platform?	**27 times**	53 times	119 times
14	Sustainable phones : Fairphone, Shiftphone	Fairphone	Shiftphone	**Greenphone**
15	What is the average time spent on the Internet per user in the world in 2022 (on any equipment)	1h58	4h23	**6h37**

16	"4.6 billion listens to the song "Despacito" is equivalent to the annual electricity consumption of : (today, the song is at more than 8 billion listens)"	**5 African countries (Guinea-Bissau, Central African Republic, Somalia, Sierra Leone and Chad)**	the city of London	the biggest data center in the world
17	Which is more polluting between telecommuting and face-to-face work?	Working remotely / from home	face-to-face work	**that's debatable!**
18	Is the repairability index of smartphones:	**Mandatory**	Recommended	Optional
19	To manufacture a 2 kg computer, what is the weight of raw materials needed?	150 kg	475 kg	**800 kg**
20	To manufacture an 11 kg television set, what is the weight of raw materials needed?	1.5 tons	**2.5 tons**	3.5 tons
21	How much electrical and electronic equipment waste is thrown away every second?	570 kg	**1.58 tons**	2.43 tons
22	What alternative green search engine does not exist?	Ecosia Tree plant.	**Ecoterre Reverses funds to various environmental associations (Ecogine).**	Ekoru Ocean protection actions.
23	Give a reason why 5G is a problem	Replacement or modification of antennas	Need to replace thousands of smartphones	Pushes data consumption (because faster)
24	One hour of viewing on Netflix equals :	1 hour of fan	3h of fan	**6h of fan (of 75 W)**
25	One hour of viewing on Netflix equals :	20 min of air conditioner	**40 min of 1000W air conditioner**	1h of air conditioner
26	For the same amount of time spent, which social network is the most polluting between :	**Tiktok**	Instagram	Facebook
27	1 hour spent on Tiktok is equivalent to :	100g Eq CO2	**300g Eq CO2**	500g Eq CO2
28	Using the bookmark list / favorite bar allows you to use … times less energy.	2 times less energy	3 times less energy	**4 times less energy**

29	The annual electricity consumption of your box is equivalent to that of … (a kitchen appliance).	**of the refrigerator**	of the microwave	of a kettle
30	Increasing the longevity of an appliance improves its ecological balance by :	30%	40%	**50%**
31	Sending a general standard email emits 4g of CO2, an email with an attachment emits :	8g of	24g	**50g of CO2**
32	One of the world's largest data centers (south of Beijing) is as large as → the area of 110 soccer fields	30 soccer fields	80 soccer fields	**110 soccer fields**
33	How many emails are sent every day in the world?	153 billion	206 billion	**281 billion**
34	Doing a search on Google consumes as much electricity as turning on a light bulb for …. ? (Electricity consumption)	A 60W light bulb on for 2s	**A 60W light bulb on for 17s**	A 60W light bulb on for 31s
35	What does the app Cleanfox do ?	**Cleans mailboxes**	Cleans up unused applications	Cleans up unused cookies
36	What is the yearly carbon impact of a smartphone social media user ?	35kg Eq CO2	**60kg Eq CO2**	110kg Eq CO2
37	The carbon impact of a social network user on mobile is equivalent to: (Electricity consumption)	76 km driven by light vehicle	**535 km driven by light vehicle**	1641 km driven by light vehicle
38	38. The carbon impact of Tiktok's newsfeed is ... times Youtube's. (Youtube's news feed videos animate after 2s, not immediately unlike Tiktok)	2,3 times	**7,3 times**	13,3 times
39	Watching one hour of HD video daily on Youtube would be equivalent to emitting as much CO2 as a car driving for :	5 600 km	13 800 km	**29 000 km**

TESTIMONY - Tell us

Share an experience or a feeling related to digital technology and the environment.

Example:

- what you consider to be a good practice,
- a bad habit,
- an interrogation

DEBATE

The player can either choose a topic related to the game or spin the wheel (online).
The group gets 5 to 10 minutes to discuss the picked topic.
Each player needs to have the opportunity to share something

The wheel of debate

N°	TOPICS
1	Digitals : a world of materialization or dematerialization ?
2	Is the environmental impact of digitals the same worldwide ?
3	Which is more polluting between working from home or face-to-face work?
4	What is digital sobriety ?
5	Are digitals and ecology compatible ?
6	

Debriefing (20')

Per board: 10 minutes

1. **Put away what is on the table**

2. **Results**: Participants count the number of Kaplas/bricks they have
   Who has the most? the least ?
   Is it a lot?

3. **Feelings**: Each person writes their feelings in one word on a piece of paper and throws it in the middle of the table. Each participant in turn picks a piece of paper and reads it out loud.

As a whole group (if several boards): 10 minutes

4. **Deconstruct the game system**:
   If the game leaders were marked by certain reactions or comments, they remind the group of these.
   According to the participants: What were the objectives of the game?

5. **Links with reality:**
   Was the game realistic? Differences (materialization of the impact)
   What links can you make between the game and reality?

6. **What alternatives?**
   Can we totally remove digital from our lives today?
   What alternatives can we adopt: have you retained any "good" practices? are you already doing them?

Sources :

- Is the Internet bad for the environment?

ACTION
HOW MANY
QUIZ
TELL US
HOW MANY
ACTION
DEBATE
QUIZ
QUIZ
HOW MANY
DEBATE
TELL US
START
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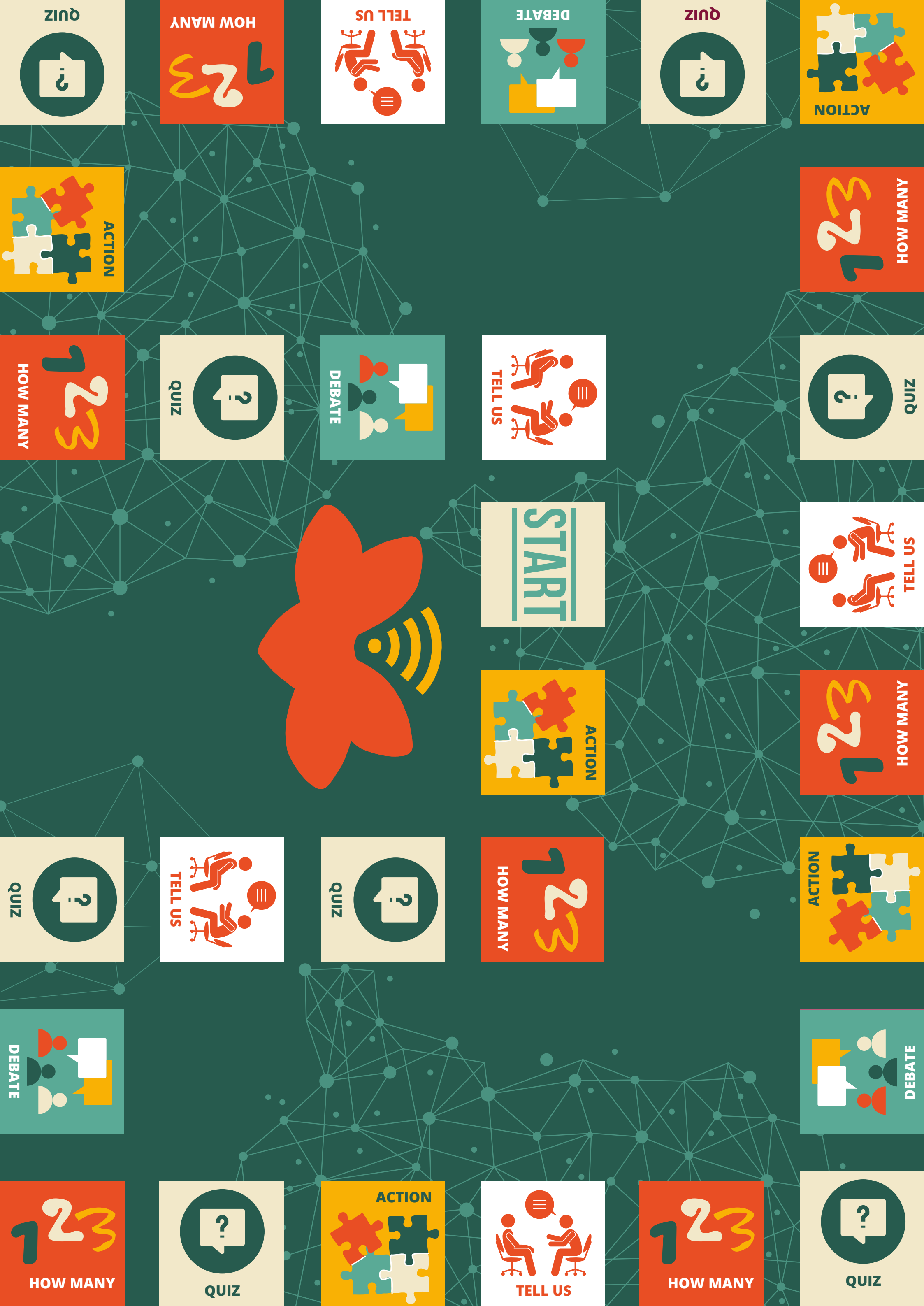
ACTION

START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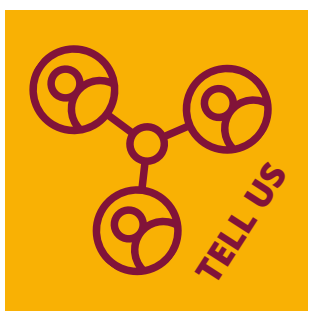
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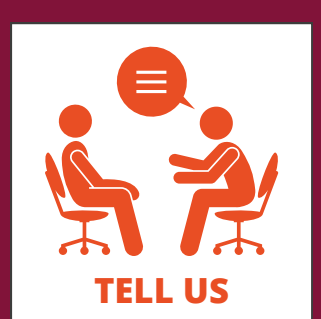
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