USER MANUAL

INTEGRATING THE GAME MIGRATORY BIRDS IN CLASSROOM

IN A FEW WORDS

The Sustainable Development Goals (SDGs) are a set of 17 global goals created by the United Nations to make the world a better place by 2030. These goals focus on important topics like protecting the environment, making sure everyone has enough food, good health, and quality education, and ensuring that we live in peace and fairness.
In this browser game, young players will learn about these goals by completing fun challenges. You can explore the world with the birds and get to know interesting facts and knowledge about sustainable topics.

Understanding how our planet works is a prerequisite for becoming to becoming enterprising and responsible players.

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E42
DISCOVER THE WORLD
IN FAVOR OF
SUSTAINABLE
DEVELOPMENT

1 GENERAL OVERVIEW «MIGRATORY BIRDS »

The game «Migratory Birds» is a browser-based educational tool designed to teach children about topics related to the SDGs. The game can be accessed via the following link: Play Migratory Birds.

It offers interactive gameplay where users take on the role of migratory birds, navigating challenges linked to climate change, energy consumption, and conservation. The game is user-friendly, requiring only a stable internet connection and a device to play (Smartphone or Tablet use is technically not possible in this development stage). No installation is needed, making it easy to integrate into any classroom setting.

One special feature: Every teaching person can create his/her own paths with own quiz questions, which has to be solved by the pupils during class.

GAME MODES

When the game is started, you can choose between two modes:

- **PLAY** mode: by selecting «Play», you can select the level and start getting the pupils to play on a Sustainable Development Goal.
- **EDITOR** mode: This mode allows teachers to create their own paths with new quiz questions. **Note:** to get access to the editor you need a password. If you are interested don't hesitate to contact us (marius.wohlfahrtstaetter@hs-duesseldorf.de; pierre-antoine@choisistaplanete.com)
- You can choose the language of the game and the subtitle.

2 PLAY MODE

Information for teachers: From our experience it is a lot of fun to play the game together with the whole class on a big screen or beamer in the front. Pupils can choose who will play the next interactive scene and then watch the video and answer the questions collectively.

Here you can find a short visualized video how to play the game.

CHOOSE A LEVEL

At the moment there are three levels available:

- **Level 6** – clean water and sanitation (only in French, but with German and English subtitles)
- **Level 7** – affordable and clean energy
- **Level 13** – climate acion

CHOOSE YOUR BIRD

The Children are invited to choose their migratory bird. To date, two birds are available: Hugo and Mory. The birds have different characteristics in terms of speed, manoeuvrability and endurance: it's up to the player to use the one they prefer, or the one they feel is best suited to the mission in hand. As the bird flies, it collects seeds to unlock accessories (cap, scarf, etc.). The faster the flight, the more seeds the player collects.

HUGO,
THE PIGEON
FRANCE
(MALE)

SPEED ★★★★
HANDLING ★★
ENDURANCE ★★★

His story: a typical city bird, Hugo is a real consumer, especially when it comes to food. It's impossible for him to resist. Like any good consumer, he likes his comforts and doesn't have time to think about where things come from. He likes to play the fool, to the point w h e r e you sometimes wonder if he really is one. Not being a migrant at the outset, he'll have to find his place in the team. His clumsy nature doesn't help, but his friendly, good-humoured nature makes up for it. All in all, he finds himself embroiled in a n adventure he didn't choose, but which may well open his eyes and change him.

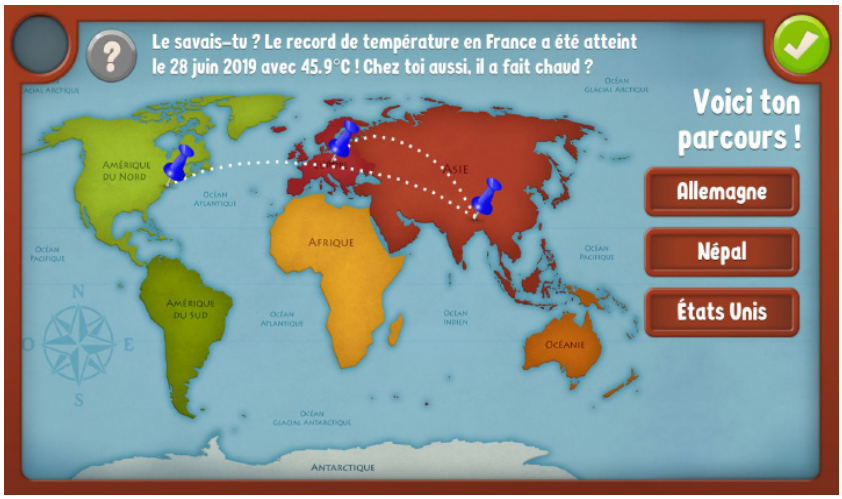
MORY,
THE GREEN TOURACO
WEST AFRICA (FEMALE)

SPEED ★
HANDLING ★★★
ENDURANCE ★★★

Her story: she's the scientist of the bunch. If birds could wear lab coats, that's all she'd wear. A true inventor at heart, she's always tinkering with new inventions. Passionate about the complex interactions and links that make nature work, she has a hard time living in a cage, which curbs her thirst for discovery. That's why, if there's a way to escape, this brain on wheels is bound to find it. Like any good scientist, she tries to stand back from what she sees and not react emotionally.

SEE THE TRAVELLED COUNTRIES

The route planned to answer the question asked is displayed on the map. For each theme, the route will be different and the birds will travel through 3 countries to discover the causes, consequences and solutions.



3 EDITOR MODE

If you select the EDITOR mode, you can create your own path for every level/SDG. After selecting the level, please click on the **green +** as marked in the picture below:

SET THE ROUTE

You will see the world map. To create your path, you have to do the following steps:

1. Click on 3 locations to set the route of the birds flight.

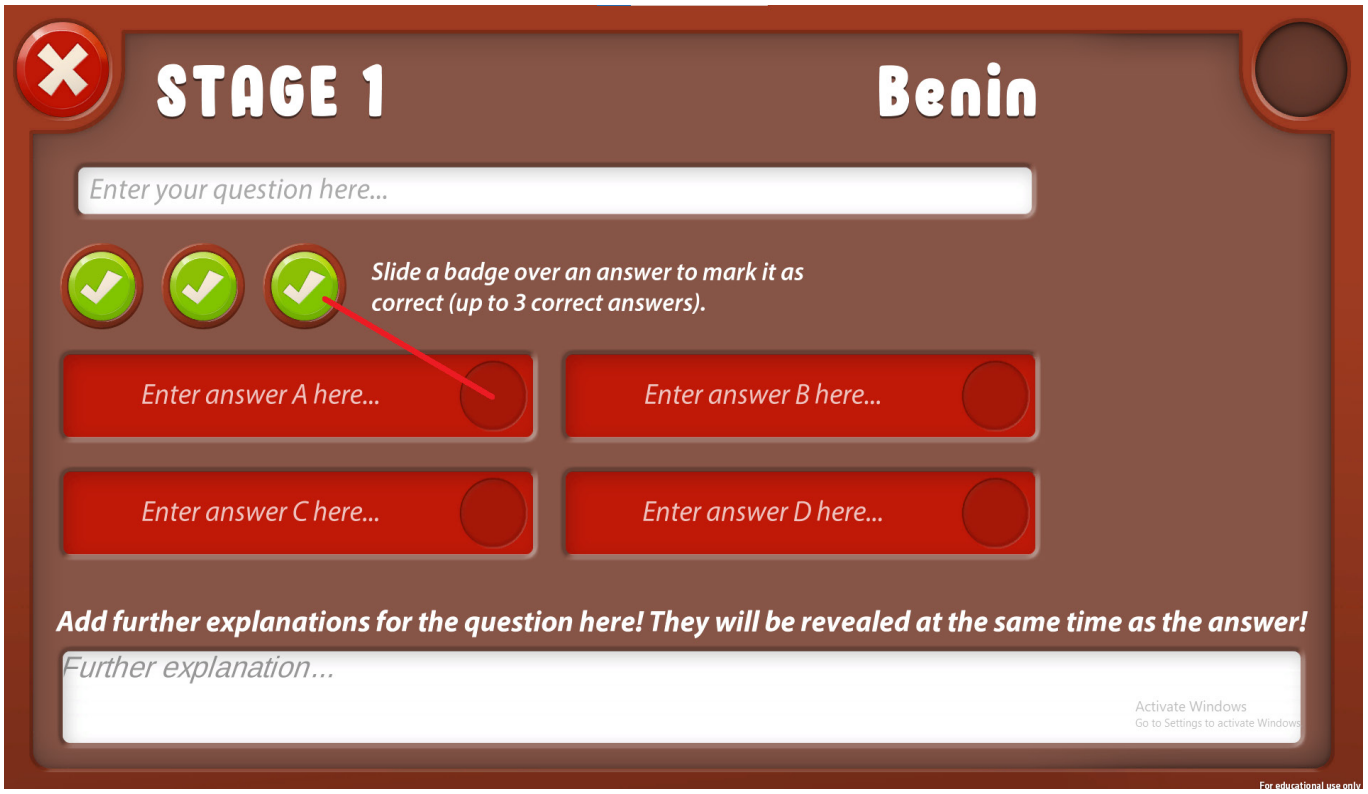
2. Choose the countries of your travel.

3. Choose the background theme of the interactive playing sequences.

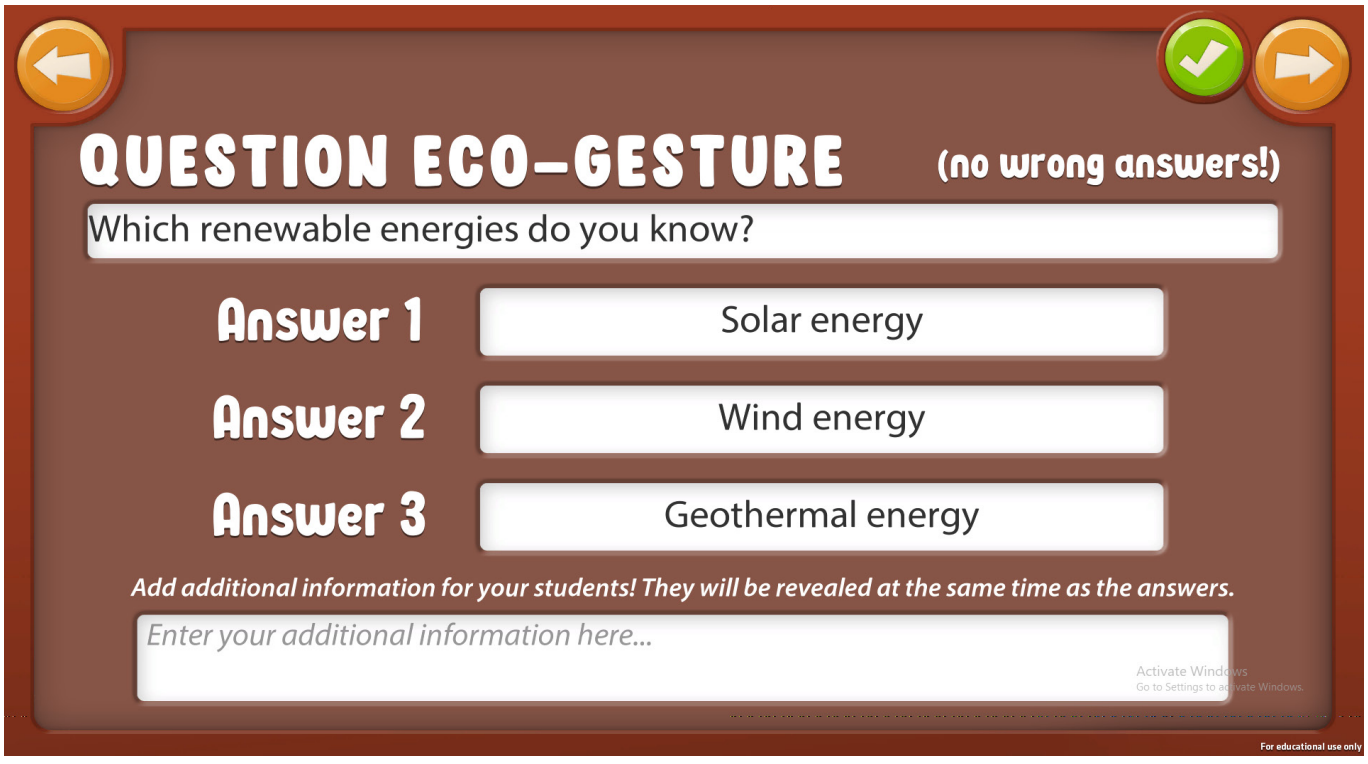
4. Choose the videos, which are played after each gaming sequence. The name of the videos are connected to the respective levels.

INSERT THE QUESTIONS

Afterwards you can insert **three questions** with answers and explanations. Please put the green ticks to the respective correct questions.

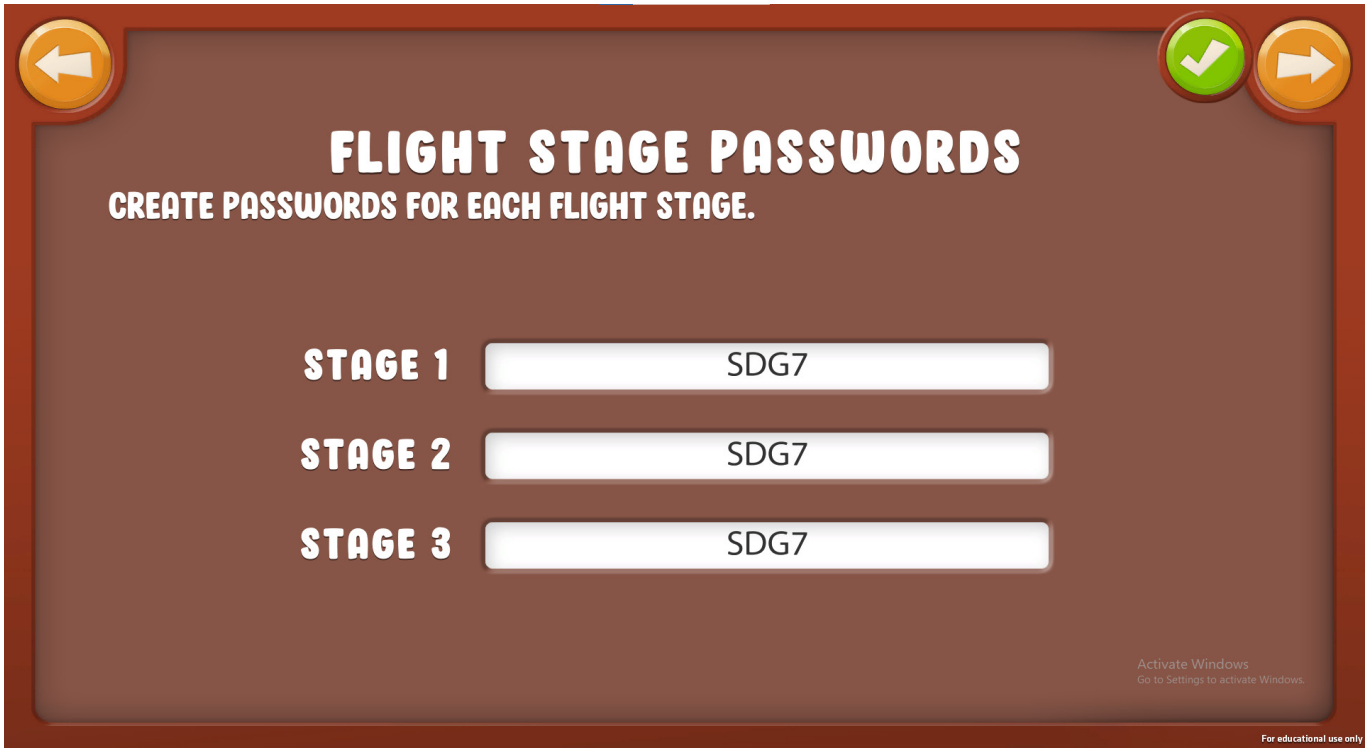


You have to give an eco gesture, which can be like an open question to the class, e.g.:



SET THE PASSWORDS

Then you have to set **three passwords** for each stage of your path.



4 EDUCATIONAL BACKGROUND LEVEL 7 & 13

This game facilitates self-directed learning through a playful approach. It targets children aged 8-12 years, aiming to align with their everyday reality and promote independent exploration of key sustainable issues.

In particular, the game emphasizes the necessity of expanding renewable energy sources by showcasing the environmental impacts of fossil fuels. It presents the following renewable energy options:

- **Photovoltaic:** Converts sunlight directly into electricity using solar panels.
- **Solar Thermal Energy:** Uses solar energy to heat fluids, generating power or heating buildings.
- **Wind Power:** Harvests kinetic energy from wind to generate electricity.
- **Hydropower:** Uses the energy of flowing water to drive turbines for electricity generation.
- **Geothermal Energy:** Taps into heat from beneath the Earth's surface to generate power or heat buildings.

Furthermore there will be a transfer of knowledge, which actions in everyday life can help to ensure a sustainable and liveable future.

By engaging with these concepts in a game format, pupils gain a deeper understanding of the importance of the targets related to the SDGs.

5 SUGGESTED CLASSROOM ACTIVITIES

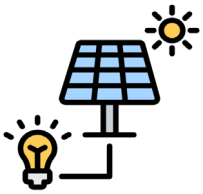
To further integrate the SDGs into learning, here are examples of projects and activities that can follow the gameplay:

- Class Campaign on Renewable Energy: Pupils can design posters or presentations related to renewable energy or climate action
- Energy Audit: Encourage pupils to perform a simple energy audit at home or school, identifying areas where energy consumption could be reduced.
- Creative Writing: Pupils can write short stories from the perspective of a migratory bird affected by climate change, emphasizing the importance of sustainability.
- Debate: Organize a classroom debate on the pros and cons of renewable vs. fossil fuels, encouraging students to use information learned in the game.

By combining gameplay with these activities, students are inspired to think critically and creatively about global energy and climate related challenges.

6 RENEWABLE ENERGIES IN DETAIL

1. Photovoltaic



Photovoltaic technology harnesses sunlight to generate electricity. It uses solar panels composed of semiconductor materials (usually silicon) that absorb photons from sunlight. When sunlight hits the panels, it excites electrons in the material, creating an electrical current. This electricity can be used directly to power homes, schools, or businesses, or stored in batteries for later use. Photovoltaic systems are widely used in residential and commercial settings, and they are a key player in the shift toward clean, renewable energy because they produce zero emissions during operation.

2. Solar Thermal Energy

Solar thermal technology captures the heat from the sun rather than converting it to electricity directly. This heat can be used in several ways:

- Heating water for domestic use.
- Space heating for buildings.
- Generating electricity in solar thermal power plants, where the heat is used to produce steam that drives turbines.

A popular example is concentrated solar power (CSP), where mirrors or lenses are used to focus sunlight onto a small area, generating intense heat. Solar thermal energy is valuable for reducing dependence on fossil fuels for heating and can be particularly effective in sunny regions.

3. Wind Power

Wind power converts the kinetic energy of the wind into electricity using wind turbines. These turbines are often grouped together in wind farms located on land (onshore) or out at sea (offshore), where wind speeds are higher and more consistent. As wind turns the blades of a turbine, the rotor spins a generator, creating electrical power. Wind energy is a highly efficient and sustainable source of electricity, especially in regions with strong, consistent wind patterns. It produces no direct emissions, making it a key component in reducing carbon footprints.

4. Hydropower (Hydroelectric Energy)

Hydropower, or hydroelectric energy, captures the energy of moving water, typically from rivers or dams, to generate electricity. In a hydroelectric dam, water is stored in a reservoir and then released to flow through turbines, turning generators to produce electricity. Run-of-river systems harness the natural flow of rivers without large dams, which can be more environmentally friendly. Hydropower is one of the oldest and most established renewable energy sources and provides a stable and reliable supply of electricity, especially in regions with abundant water resources.

5. Geothermal Energy

Geothermal energy taps into the heat stored beneath the Earth's surface. This heat comes from the decay of radioactive materials deep within the Earth, and it can be accessed via wells or geothermal plants. There are two main uses for geothermal energy:

- Direct heating, such as warming buildings or greenhouses by piping hot water directly from geothermal sources.
- Electricity generation, where steam from geothermal reservoirs is used to spin turbines and generate electricity.

Geothermal energy is highly reliable, available year-round, and offers a low carbon footprint, as the Earth continually produces heat.

7 PASSWORDS

Passwords are required in the levels to ensure that the group progresses evenly and to prevent students from proceeding alone.

They allow the teacher or facilitator to keep control of the progress of the game, and to take advantage of the opportunity to hold discussions or debates with the whole group.

These passwords are requested after each Quiz, before a new flight phase.

Password for Level 6: **water; water02; water05**

Password for Level 7: **energy; energy02; energy05**

Password for Level 13: **climate; climate02; climate05**