WWW.INNATURE-PROJECT.EU

INNATURE FAIR

Guidelines for implementation

Co-funded by the
Erasmus+ Programme
of the European Union

INNOVATION IN SCHOOLS
INSPIRED BY NATURE SOLUTIONS

Content

KNOW THE PARTNERS

	INNCREASE (PL)		*NEWARK SCHOOL (MT)*
	INOVA+ (PT)		*VALMIERAS PARGAUJAS SAKUMSKOLA (LV)*
	CEEBIOS (FR)		*AELPB (PT)*
	ELLINOGERMANIKI AGOGI S.A (GR)		*SZKOŁA PODSTAWOWA NR 375 (PL)*


InNature

About the InNature project

The InNature project is linked to biomimicry, a concept that asserts that nature has already evolved sustainable solutions to many of today's challenges. According to this method, the emulation of natural patterns can be used to solve numerous problems. Hence, this project aims to enhance competences and awareness on biomimicry in the School Community, including students, parents, teachers and directors, and Informal Science Education Providers through the development and implementation of a set of biomimicry related activities and the organisation of a Scientific Fair in schools.

The InNature project has been designed to develop a set of resources to be used and integrated in schools, aiming to enhance the inclusion of biomimicry in classes and schools' activities. Its results are:

- **Catalogue of good practices** – a collection of several good practices in European countries regarding biomimicry in different contexts. Some of those practices have potential to be adapted or transferred to primary and lower secondary schools;
- **InNature Toolkit** – a set of educational activities for teachers to use in classes, workshops or other school activities with students of different ages, described in a way that allows the independent use of activities in the classroom;
- **InNature Fair** – a concept and a programme to organize the "InNature Fair", a 3-day event in schools with activities and presentations to enhance the school community and Informal Science Education Providers curiosity on the biomimicry theme. Similar events have been piloted in partner schools during the project lifetime to receive feedback from the project target groups. The programme can be adaptable to different schools and activities, enhancing the probability to be used in other moments by different stakeholders.

Background for teachers

To introduce the biomimicry approach and its importance to a broader range of stakeholders, including the school community, the InNature partners developed a programme and activities to organize the “InNature Fair”. This Fair is a three-day event at schools that includes activities and presentations designed to pique the interest of the school community and Informal Science Education Providers in the theme.

The InNature partners began by determining the practical activities that would be developed inside the school community. Some of the practical resources developed under IO2 were adapted and new activities were created. Previous experiences, research, and the organization of other STEAM-related events were used to define the activities. Partners structured the activities after identifying them and added the possible supports to be employed, as well as the program for each of the organized Fairs.

This InNature Fair was put to the test in the project's five schools to see if the format and activities were effective based on participant feedback (teachers, directors, and parents, not only from the hosting school, but from other entities also, including the school community from other contexts and informal science education providers, including biomimicry experts). The Fair's program was designed and planned so that the concept underlying it could be used to a variety of fields and objectives.

Even though the organisation of a Fair is quite common in the school context, the InNature Fair is innovative, since it is linked with biomimicry, an approach with a low focus in schools but with a high potential to enhance the competences in the STEM subjects and sustainability principles. For this reason, this document gathers 17 of the activities organised by the school partners in a way that they can be implemented in different contexts and in any school, as well as a programme outline that can also be transferred to other settings.

Programme Outline

The Programme outline below is an example that can be used by schools interested in organising an InNature Fair. The Programme can be adapted to the school context and schedule. The activities presented can be replaced by any other activity detailed in this document, as the school wants.

	1st day		2nd day		3rd day	
I part	Let's talk about Biomimicry! *or* Preparing rebuses on "Biomimicry"	All day: Posters exhibition & Biomimicry Escape Room	Outdoor activity – What kind of plant is it? *or* Beehives and Buildings	All day: Posters exhibition & Biomimicry Escape Room	The QR code quiz	All day: Posters exhibition & Biomimicry Escape Room
break	Poster Presentations		Poster Presentations		Poster Presentations	
II part	Discussion on "Man must act as he does"		The photo quiz or Biomimicry activities – Crosswords and quizzes		Animal Camouflage or Overview Effect	
break	Biomimicry experiment "How to lift a sheet of paper?		Biomimicry Cards Game		Biomimicry Cards Game	
III part	Biomimicry Duets		Yeast *or* Baby Cream		*InNature Fair official closure (summary & handing out the awards)*	

1. Let's talk about Biomimicry!

PRIOR PREPARATION NEEDED

- Go to wordwall.pt and prepare the online games for the students;
- Watch the video in advance to be prepared for the discussion with students.

DESCRIPTION OF THE ACTIVITY

- Students should watch the video “Biomimicry: definition & examples (explained with drawings)”;
- Students and teachers should explore the biomimicry topic. Examples of questions to address:
  “How much do you know about Biomimicry?”
  “What do you think Biomimicry is?”
- After that, students can play the online games done by the teachers in Wordwall.
  (Examples in PT so you can see the type of exercise done:
  https://wordwall.net/pt/resource/24548896
  https://wordwall.net/pt/resource/24548565)

REFERENCES

https://www.youtube.com/watch?v=UHb_XNgIHFY
https://wordwall.net/pt

OPTIONS FOR LOCATION

Library
Amphitheatre
Large classroom

DURATION

Preparation:
1h
ACTIVITY (IES):
50 min

MATERIALS/RESOURCES

Computer /projector
(Laptops, mobile phones/ tablets)

2. Preparing rebuses on “Biomimicry”

PRIOR PREPARATION NEEDED

- Some knowledge of students is required i.e., concept of Biomimicry;
- Read the text on how to create a rebus (link on "References".

DESCRIPTION OF THE ACTIVITY

- Each student prepares his own puzzle in the topic of Biomimicry;
- Make sure that students understand the idea of creating rebuses. It should be a pictorial presentation of a password. Some letters of part of the words may be deleted or added to form a comprehensible entry;
- Prepare an exhibition of rebuses;
- The exhibition should be displayed in a commonly accessible place so that each student could calmly solve them;
- Each rebus should be marked with a number so that the students can later vote for the most interesting ones;
- Every student votes for two the most appealing rebuses;
- After summing up the result of the voting, the winner is declared.

REFERENCES

https://www.theclassroom.com/parts-speech-activities-middle-school-7860969.html

OPTIONS FOR LOCATION

Classroom

DURATION

Preparation:
10 min
ACTIVITY (IES):
50 min

MATERIALS/RESOURCES

Paper, pen

3. Discussion on "Man must act as he does"

PRIOR PREPARATION NEEDED
N/A

DESCRIPTION OF THE ACTIVITY
- Students sit in the corridor;
- The leader draws a clear line on the floor. On one side of the line, he writes the sentence "Man must act as he does", on the other side he writes the sentence "Man does not have to do this";
- At the very beginning, the teacher introduces the rules of the discussion:
  a) Everyone has the right to express his or her own opinion freely;
  b) Respect each other, don't interrupt each other,
  c) Do not ridicule colleagues' opinions.
- He/ she explains briefly the topic of discussion “Man must act as he does.”;
- To explain meaning of sentences rhetorical questions should be asked: "How do humans act in relation to nature? Do they respect nature? Does production take into account the needs of nature?" Students consider silently the questions (it's important that students interpret these sentences themselves);
- Later on, students sit on the side of the line where they agree with the sentence on the floor;
- The discussion “Man must act as he does” begins. It lasts about 20 minutes. Then the students (if they changed their mind during the discussion) can change their position;
- Again, the students discuss and after 20 minutes they can change their mind and change their place of sitting;
- It is important to summarize the result of the discussion and draw conclusions.

REFERENCES
www.asknature.org

OPTIONS FOR LOCATION
Corridor

DURATION
Preparation:
N/A
ACTIVITY (IES):
50 min

MATERIALS/RESOURCES
N/A

4. Students' Posters (digital)

PRIOR PREPARATION NEEDED

- Create a new account on Edmondo (or relevant educational networking platforms) and set-up a new classroom;
- By using Edmondo, teachers can create small groups (3-6 students) where the students will collaborate to create their Biomimicry posters;
- In this context, teachers may share material describing different Biomimicry examples in order to inspire or trigger students' interest on different Biomimicry concepts and prototypes;
- In addition, all technical guidelines and relevant information may be also uploaded on Edmondo, explaining how the students will prepare their digital posters via Glogster or any other online platform. In this manner, students may work during or even after school hours;
- Alternatively, students may work directly on Glogster, however, this requires that the students will be mostly communicating and exchanging ideas during school hours.

DESCRIPTION OF THE ACTIVITY

- Students create their own digital posters based on already existing Biomimicry examples or by imagining, reconstructing, and presenting their own prototypes;
- The scope of this activity is to enhance students' creativity as also, their digital, collaborative problem-solving and communication competences. To succeed that, students will work and exchange ideas using different digital platforms in terms of the groups' internal communication and cooperation (i.e., Edmondo education network, Google classroom etc.);
- Moreover, the digital posters may be produced using Glogster, Canva, Visme etc. Group members must effectively cooperate to select a topic/inspiration of common acceptance by all members of the group or to create their own prototype and poster outline, to find all relevant images and the content to be added in their posters;
- In addition, students are slightly introduced to scientific reasoning and writing where their teacher operates as their mentor and project ambassador;
- Finally, for cultivating students' presentation skills, all posters are presented during the Biomimicry Fair, where all groups present their posters to their classmates.

REFERENCES

https://new.edmodo.com/
https://edu.glogster.com/
https://www.shutterstock.com/el/

OPTIONS FOR LOCATION

Inside classroom or at the school lobby.
All posters may be presented in digital form or can be printed and hanged on a dashboard inside or outside classroom.

DURATION

Preparation:
1 -2 weeks
ACTIVITY (IES):
15 minutes of presentation per group (embedded in 2 hours session per day for all students' presentations)

MATERIALS/RESOURCES

Digital platforms:
Edmondo (for students' internal communication and collaboration)
Glogster (a platform that allows users to create glogs, which are online posters that contain text, images, videos or sound files)
Shutterstock or other online photos repository to download images.
Projector or dashboard if the posters are printed.

Annex 1_Digital Poster Guidelines
Annex 2_Glogster Guidelines
Annex 3_Poster Topics

5. Biomimicry Cards Game

PRIOR PREPARATION NEEDED

- Students need to be introduced first to some Biomimicry definitions, concepts and principles;
- Teachers may also discuss with students the Sustainable Development Goals and how these goals are related to the Biomimicry concepts. For example, when and why a Biomimicry concept is sustainable and efficient?;
- This activity can be done inside or outside the classroom. Inside the classroom (or even outside school, at home) by just simply playing the cards game with classmates, friends and parents or outside the classroom by setting up a Treasure Hunt;
- Print Annex 4 as many times as you need.

DESCRIPTION OF THE ACTIVITY (Cards Game)

There are 30 cards that can be printed, packed, and shared to the students during or after the Fairs. The game is quite simple and is inspired by the Top Trumps Cards (you can find further info here: https://toptrumps.com/home/). The concept is that the students share the cards (in groups of 2-4) and on each "battle" the selected category with the highest score wins until one player/team gathers all cards. All categories are inspired by **"The ten principles of Biomimicry"** of IO1 (see the InNature Website for further info here). These categories are based on:

i) the energy consumption,
ii) recyclable materials used,
iii) cooperation of different nature's functions,
iv) optimizing rather than maximizing in terms of efficiency,
v) materials used and
vi) shared information.

The scope of the Biomimicry Cards game is to trigger students' interest on Biomimicry concepts, Biomimicry Principles and Sustainable Development Goals (SDGs) based on numerous prototypes inspired by students and researchers worldwide.

OPTIONS FOR LOCATION

Inside or outside the classroom/school either in the form of a simple cards game or as a Treasure Hunt using the QR codes on the backside of the cards.

DURATION

Preparation:
120 min
ACTIVITY (IES):
30 - 120 min

MATERIALS/RESOURCES

School map
Printables (Cards and Instructions)
Tablet or mobile phone
QR codes scanner application

Annex 4_Biomimicry Card Game

6. Animal Camouflage

PRIOR PREPARATION NEEDED

- Download and print all worksheets using the links on "References".

DESCRIPTION OF THE ACTIVITY

- Show video about animals that can camouflage/mimic being strong and how people copy this;
- Choose a spot they like and draw their chameleon accordingly to show the concept of camouflage;
- Students should design and colour their own butterfly to look fierce and strong.

REFERENCES

- https://classroom.synonym.com/camouflage-activities-lessons-kids-8463476.html
- https://www.education.com/download/worksheet/121501/animal-camouflage-for-kids.pdf
- http://www.supercoloring.com/coloring-pages/cute-chameleon
- http://www.supercoloring.com/coloring-pages/butterfly-18
- You Tube Video 'Animal Camouflage' - https://www.youtube.com/watch?v=tG8556WuyDo

OPTIONS FOR LOCATION

Classroom

DURATION

Preparation:
15 min
ACTIVITY (IES):
45 min

MATERIALS/RESOURCES

Laptop, projector, worksheets, and other objects/spots in our classroom for showing camouflage.

7. Yeast

PRIOR PREPARATION NEEDED

- Buy the needed ingredients for the bread dough.

DESCRIPTION OF THE ACTIVITY

- Introduce the topic using the “History of Fermentation” video;
- Discuss with the students how the idea of using yeast in bread making was taken from nature;
- Watch the “Life of Loaf” video;
- Make bread dough in class.

REFERENCES

- History of Fermentation - YouTube - https://youtu.be/MPToC2_tjxo
- The Life of a Loaf: The Process of Natural Fermentation - YouTube - The https://youtu.be/nqjvdekX_O0Life of a Loaf: The Process of Natural Fermentation - YouTube

OPTIONS FOR LOCATION

Classroom

DURATION

Preparation:
30 min
ACTIVITY (IES):
40 mins

MATERIALS/RESOURCES

Plastic bowl, wooden spoon, water, salt, sugar, flour, yeast

8. Baby Cream

PRIOR PREPARATION NEEDED

- Watch the videos on "References" and prepare some question for discussion.

DESCRIPTION OF THE ACTIVITY

- Introduce the topic using the “Baby Rash” video;
- Demonstrate and explain how oil and water don’t mix, and how this protects the skin;
- Discuss what in nature could inspire the creation of baby rash cream, and other creams used for the protection of our skin;
- Watch ‘What Actually Makes Water Roll Off a Duck’s Back?’;
- In a cup try to mix water and baby rash cream.

REFERENCES

- https://youtu.be/erfN7sOsvp4
- https://youtu.be/Q-8GXk9r0ik

OPTIONS FOR LOCATION

Classroom

DURATION

Preparation:
30 min
ACTIVITY (IES):
40 mins

MATERIALS/RESOURCES

Water, baby rash cream, oil

9. Overview Effect

PRIOR PREPARATION NEEDED

- Watch the videos and prepare some questions for discussion;
- Print Annexes 5,6, and 7.

DESCRIPTION OF THE ACTIVITY

- The teacher explains the roles of the astronauts and NASA. An astronaut's video showing the planet from space is shown to the class. The video includes comments from the astronaut about the feelings he felt from this particular experience;
- Students are split into 3 teams. Each group must discuss what their feelings would be if they were in the astronaut's position. The students need to describe our planet using adjectives – they need to imagine what they would see and feel if they look at the planet from space;
- The feelings and adjectives should be written down on worksheets to be used for their Presentation to the class;
- The last few minutes of the activity are used as discussion time between teams about what they would like to do to help out our Planet Earth;
- Each team should present their work, explaining their feelings, words which can be used to describe our planet and what they wish to do to make it better.

REFERENCES

- https://www.youtube.com/watch?v=libKVRa01L8
- https://www.youtube.com/watch?v=AmrrSfiMxGA

OPTIONS FOR LOCATION

Classroom

DURATION

Preparation:
45 min
ACTIVITY (IES):
55 mins

MATERIALS/RESOURCES

Video, worksheets
Annex 5_Image for Activity 9
Annex 6__Image for Activity 9
Annex 7__Image for Activity 9

10. Beehives and Buildings

PRIOR PREPARATION NEEDED

- Check the information on the buildings and print the pictures using the link on “References”.

DESCRIPTION OF THE ACTIVITY

- The students are shown different pictures of buildings, the architecture of which has been inspired by beehives;
- Students are taken to a ceramics workshop and should make their own buildings which resemble a beehive out of clay. A ready-made model should be placed on the table for inspiration. Pupils must bake their creations in the kilns and then they should paint them. This beehive model could also be used as a candle holder.

REFERENCES

- https://astorapiaries.com/blogs/nyc-beekeeper/5-astounding-buildings-inspired-by-beehives

OPTIONS FOR LOCATION

Classroom
Workshop

DURATION

Preparation:
30 min
ACTIVITY (IES):
70 mins

MATERIALS/RESOURCES

Laptop, Clay, Paint

11. The photo quiz

PRIOR PREPARATION NEEDED

- A brief characterization of Biomimicry concept is required.

DESCRIPTION OF THE ACTIVITY

- Students can work in groups or on their own;
- Teacher / animator distributes cards with photos of 9 different subjects;
- Students are given 20 minutes to identify "What animal or plant was modelled on in the construction of a given subject?";
- After 20 minutes, the students exchange cards to check them;
- Teacher / animator / "Expert" from task A1 discusses the correctness of the answers. Students mark the correct answers to their classmates and sum up the points. Discussion is recommended during this stage of the task;
- A person with the greatest number of points is a winner.

REFERENCES

www.asknature.com

OPTIONS FOR LOCATION

Classroom

DURATION

Preparation:
45 min
ACTIVITY (IES):
40 min

MATERIALS/RESOURCES

Annex 8_Photo Quiz Pictures

12.The QR code quiz

PRIOR PREPARATION NEEDED

- In advance, clues should be posted in the hallway, classroom, or other place where the quiz will take place.

DESCRIPTION OF THE ACTIVITY

- Each student receives an incomplete QR code as well as a set of questions;
- It is possible to create of own code by means of the website: http://mal-den-code.de It is a German website (please use the automatic translation provided by Google).
- Useful phrases for the website:
  Code zum ausmalen erstellen - create a code to paint over;
  Wähle den Schwierigkeitsgrad- level of difficulty;
- Students have 45 minutes to answer the questions (they use the hints posted earlier), and fill in the appropriate squares to get the QR code completely filled in;
- The first person who reports to the teacher with a correctly completed code (a teacher manages to scan it and then the appropriate password appears) is the winner.

REFERENCES

http://mal-den-code.de

OPTIONS FOR LOCATION

Corridor, library, classroom etc…

DURATION

Preparation:
10 min
ACTIVITY (IES):
45 min

MATERIALS/RESOURCES

Incomplete QR code

13. Outdoor activity - What kind of plant is it?

PRIOR PREPARATION NEEDED

- Students download on their mobile phones (Google Play or App Store) an app - Plant Net Identification.

DESCRIPTION OF THE ACTIVITY

- Students can work in groups or individually;
- In classroom students download the app;
- Students go outside and try to identify as many plant species as possible. They use the downloaded app – Plant Net identification to recognize the names of plants;
- As proof of making this task – students prepare a list of plants around the school;
- The group which has the larger number of species identified is a winner.

REFERENCES

www.asknature.org

OPTIONS FOR LOCATION

Park, Space around the school etc…

DURATION

Preparation:
3 min
ACTIVITY (IES):
45 min

MATERIALS/RESOURCES

Paper and pen

14. Biomimicry activities – Crosswords and quizzes

PRIOR PREPARATION NEEDED

- Some knowledge of student's is required. Students might watch the either video or presentation about Biomimicry.

DESCRIPTION OF THE ACTIVITY

- Students can work on their own or in groups. However, group work is preferable;
- They receive worksheets and fill them in within 45 minutes;
- The teacher collects worksheets and sums up the number of points they have obtained;
- The question number 2 is graded separately, the most interesting answer is graded;
- A person with the greatest number of points (question 1 and 3) is the winner.

REFERENCES

www.asknature.org

OPTIONS FOR LOCATION

Library, Classroom

DURATION

Preparation:
45 min
ACTIVITY (IES):
45 min

MATERIALS/RESOURCES

Photos
Annex 9_Crosswords and quizzes

15. Biomimicry experiment “How to lift a sheet of paper?”

PRIOR PREPARATION NEEDED

- At the beginning of the experiment, a short explanation of the theoretical background is recommended. You can find basic information here: https://www.thermal-engineering.org/.

DESCRIPTION OF THE ACTIVITY

- This activity can be done during breaks. A willing group of students can act as animators. They watch over the correctness of their colleagues’ trials, help and explain theoretical background during this task;
- Willing students take on the role of a scientist;
- ‘’Scientists ‘’ should receive tools to carry out the experiment: string, paper, tape, a hairdryer, and metal tripods;
- Animators initiate the discussion “How to lift a sheet of paper with the received tools?” Students on their own propose the experiment, they manipulate it to carry out it;
- Animators support activities of the students.

REFERENCES

https://www.thermal-engineering.org/

OPTIONS FOR LOCATION

Corridor, classroom

DURATION

Preparation:
15 min
ACTIVITY (IES):
30 min

MATERIALS/RESOURCES

String, paper, tape,
hairdryer, metal tripods

16. Biomimicry Escape Room

PRIOR PREPARATION NEEDED

Printables

- Print out all the printables (1 - 18)
- Cut out the different parts from printable 10,11,12
- All printables can be laminated after they are cut

Cat's eyes

You will need a glow in the dark ink, aluminum foil paper and reflective tape.
Open all marked holes in printable 1 and stick pieces of aluminum foil paper on marked holes with 'O' and pieces of reflective tape on the marked holes with 'X'.

Velcro Box

For this riddle you will need a locked wooden box, a locker, Velcro tapes and the Cryptex. Inside the Velcro straps hide the key for the cage. Inside the Cryptex hide the coins (or metal balls).

Cage

For this set-up you only have to print and assemble the following: https://creativepark.canon/en/contents/CNT-0026410/index.html
The transparent paper rice will be attached inside the cage's perch along with the Codex of the Flight of Birds and a message attached of the Da Vinci's prototype.

Codex on the Flight of Birds

Leonardo da Vinci's Codex on the Flight of Birds:
(Printable no.4)

Cryptex

You can make a cryptex using a 3D printer:
https://www.thingiverse.com/thing:3018359
Alternatively, you can use other materials. Here are some ideas:
https://www.instructables.com/How-to-Make-a-Cryptex-2/
https://www.instructables.com/Cardboard-Cryptex-Safe/
(remember that for the escape room you will need a cryptex with 5 rings).

OPTIONS FOR LOCATION

Inside school - Classroom or a laboratory

DURATION

Preparation:
1 - 2 weeks (20 minutes to set-up the Escape Room each time a group of students finishes all riddles)
ACTIVITY (IES):
60 min

MATERIALS/RESOURCES

Annex 10_Biomimicry Escape Room Printables
Annex 11_Biomimicry Escape Room Report
Other materials

1. Glow in the dark ink
2. Black marker
3. One Cryptex
4. Coral formation (either using 3D printer or handcrafted)
5. One metal or wooden box that can be locked using a locket
6. One transparent box
7. One plastic box that can be locked using a locket
8. A cage that fits the Da Vinci's prototype (see printables)
9. One Velcro strap
10. Needle and thread (red color)
11. Cloth to cover the cage
12. Magnetic tape (approx. 10cm) and 3 small magnets (2cm)
13. Small metal balls or coins
14. Transparent duct tape
15. Honeycomb cells made of paper
16. Plasticine
17. Transparent paper rice
18. Black ink
19. 3 frames to put inside all hints
20. 1 simple lock and 2 locks with digits
21. Transparent paper rice

16. Biomimicry Escape Room (cont.)

PRIOR PREPARATION NEEDED

3D Coral and CO2
You can make a 3D coral using a 3D printer:
https://www.thingiverse.com/thing:2527612
https://www.thingiverse.com/thing:480044
Alternatively, you can create your own Coral Reef following the instructions here:
https://www.amnh.org/explore/ology/marine-biology/create-a-coral-reef2/activity-instructions

Bats and Sonar
Print printable number 8 - 13

Bees and honeycombs
You have to create your own honeycomb cells out of paper. Some ideas:
https://www.cutoutfoldup.com/943-beehive-cells.php

DESCRIPTION OF THE ACTIVITY

- The scope of the Biomimicry Escape Room is to enhance students' creativity and imagination using a gamified activity inspired by Nature and Biomimicry concepts. All riddles introduced to the Escape Room are linked to different logical-, geometry-, biological-, chemistry- and maths- related riddles and puzzles inspired by and for different Biomimicry prototypes. The background story of the Escape Room is:

16. Biomimicry Escape Room (cont.)

DESCRIPTION OF THE ACTIVITY

«Planet Earth is in peril. Gaia, the spirit of the Earth, can no longer stand the terrible destruction plaguing our planet. Since the beginning of time for the planet Earth, Gaia has sent six magic rings, inspired by six of the rudimentary elements of nature that are essential to life (fire, earth, air, water, electricity, light), which were scattered across the world. When assembled, they can be used to summon Nature's wisdom for a sustainable future. These rings have never been used in the past since our planet have never faced such catastrophic threats due to climate change. However, the legend goes that 180 years ago, and by the end of the first industrial revolution, Alexander von Humboldt, as one of the first environmentalists, had already warned that humans had the power to upset the delicate balance of nature. While trekking through the rainforests of South America, Humboldt had witnessed first-hand how human destructiveness could wreak potentially irreversible havoc with natural ecosystems and climate. And it was during his travels that he began to appreciate both the interconnectedness of life and humankind's capacity for destroying it. As a scientific explorer, climatologist and geologist, Humboldt had heard stories of the Gaia and the six rings at different spots around the world (Andes, Venezuela, Cuba, US, Mexico and Russia). When he realized that the stories were true, he gathered all rings and since then, they are kept safe inside a box far far away from any trace of human civilization, buried somewhere in the ***Jerico dessert****. When the six rings/powers combine, they summon Earth's greatest powers, NATURE.»*

REFERENCES

https://en.wikipedia.org/wiki/Alexander_von_Humboldt
https://creativepark.canon/en/contents/CNT-0026410/index.html
https://www.thingiverse.com/thing:2527612
https://www.thingiverse.com/thing:480044
https://www.thingiverse.com/thing:3018359

17. Biomimicry Duets

PRIOR PREPARATION NEEDED

- Printing the biomimicry duets book and cards. Cut the cards.

DESCRIPTION OF THE ACTIVITY

- There are 12 cards that create pairs (an animal and an invention inspired by it). Every card can be glued in a specially prepared for it place in Biomimicry Duets Book;
- By using Biomimicry Duets Book kids can read a bit more about animals and inventions inspired by them;
- Biomimicry Duets may be treated as a full activity in which kids are getting the book and all the cards at the same time OR the cards may be given separately as a reward for well solved task;
- Kids glue the cards in the correct spots and in the end, they design their own biomimicry duet.

REFERENCES

www.asknature.org

OPTIONS FOR LOCATION

All locations

DURATION

Preparation:
10 min
ACTIVITY (IES):
45 min

MATERIALS/RESOURCES

Annex 12_Biomimicry Duets Book
Annex 13_Biomimicry Duets Cards

The European Commission support for the production of this publication does not constitute an endorsement of the contents, which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein. Project Nº.: 2019-1-PL01-KA201-065655.