

NEXT NATURE MEMORY WORKSHOP

Manual

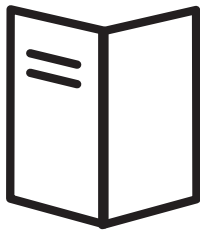
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www.nextnature.net

MATERIALS

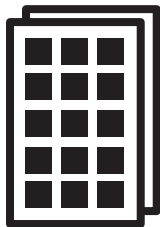
For the workshop you need the following materials:



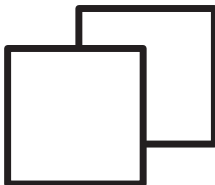
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Worksheet



* Memory Game



2 Empty cards

* To purchase the memory game visit: www.nextnature.net/memorygame.

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NEXT NATURE

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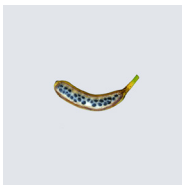
Virtual worlds, printed food, living cities and wild robots; we are so surrounded by technology that it's becoming our *next nature*. How can we live in harmony with technology and biology? It's important that our next generations learn to think, write and debate about the role they can play in the present and future societies.

NEXT NATURE NETWORK

How not to lose sight of the human factor? Next Nature Network is an international movement that wants to move forward, not back, to nature. Through publications, exhibitions, workshops and products we're creating a debate about our future – in which nature and technology are fusing.

THE WORKSHOP

The Next Nature Memory Workshop fits within the technology educational program and 21st century skills. Through a presentation, the Next Nature Memory Game and several assignments, students learn to develop their own opinion on nature, humans and technology. They learn to philosophize about the next nature; a nature caused by humans. Our technological environment is so omnipresent, intricate and autonomous that we start to perceive it as a nature of its own. How to find the right balance? The workshop will help form the new generation of next nature thinkers, researchers and innovators.



Example of next nature

That banana you buy in the supermarket is pure nature, right? Not really. The banana as we know it is the result of carefully artificial selection by humans over the course of many years. If you compare the supermarket banana with the original wild banana, the differences

in size, look and taste are striking. Wild bananas were small, filled with inedible seeds and most of all, less tasteful. Human breeding of the banana even caused it to lose its seeds and ability to reproduce itself. Banana trees are cloned by people that cut branches and plant them to grow into a new banana tree. That familiar banana is not so much a product of nature, as it is a product of design.

NEXT NATURE MEMORY WORKSHOP

The Next Nature Memory Workshops is made up of two parts: **part A Reading Images** and **part B Creative Thinking**.

TARGET GROUP

The target group of the workshop consists of 10- to 12-year-old students. (The workshop is very diverse and can also be applicable to other target groups).

THEME

The Next Nature Memory Workshop fits within the technology educational program and explores the way humans, nature and technology relate to each other.

TIME FRAME

Part A Reading Images: 2 hours. **Part B Creative Thinking:** 2 hours.

These workshops can be split into two lessons.

LEARNING OBJECTIVES

A. Reading Images: learning to make connections between different images, interpret images and question their meaning.

B. Creative thinking: apply previous knowledge. Learning to brainstorm on next nature, creative solutions which will be communicated and translated into clear images.

WORKING METHODS

A: Reading Images

- Classical dialogue
- Collaboration in groups of four.

B: Creative Thinking

- Classical dialogue
- Collaboration in groups of four.

21ST CENTURY SKILLS

THE NEXT NATURE MEMORY WORKSHOP FITS WITHIN THE PROGRAM OF 21ST CENTURY SKILLS. BELOW IT IS EXPLAINED HOW THE 21ST CENTURY SKILLS ARE APPLICABLE TO THE NEXT NATURE MEMORY WORKSHOP.

CRITICAL THINKING

Critical thinking is the most important part of the Next Nature Memory Workshop. Students learn to critically reflect upon their notion of culture and nature.

MEDIA KNOWLEDGE

Students learn to read and interpret the images and the stories behind them. They not only think about what someone else tells them about the images, but also translate their own stories into simple and understandable imagery.

SOCIAL CULTURAL SKILLS

Students reflect on their own notion of culture and that of others.

COLLABORATION

Students learn to listen to each other, to discuss and take group decisions.

CREATIVE THINKING

Students learn acquire the philosophy and turn it into their own memory game. They learn to brainstorm on a subject, to translate a concept into an image understandable to other students.

COMMUNICATION

Students learn to communicate their thoughts and ideas to their classmates and present their work.

PROBLEM SOLVING

Students learn to brainstorm on a subject and create a solution using a combination of nature and technology as a strategy. They learn to find a compromise to put in agreement different opinions.

MANUAL PART A: READING IMAGES

IN PART A OF THE NEXT NATURE MEMORY WORKSHOP THE STUDENTS WILL GET TO KNOW THE SUBJECT OF 'NEXT NATURE'. BY PLAYING AND RESEARCHING THEY WILL LEARN TO READ THE IMAGES OF THE MEMORY GAME AND DISCUSS THEIR MEANING. BELOW YOU'LL FIND MORE INFORMATION ON HOW TO MANAGE THIS PART A STEP BY STEP:

1. Presentation (15 min.)

- Start the enclosed PDF presentation.
- Give a presentation about the existence of next nature and the memory game by using the enclosed presentation.

2. Worksheet part A (30 min.)

The students are filling in the assignment of worksheet part A. The images on the memory cards will be discussed and the students will find the right combinations.

- Divide the class in groups of four students.
- Each group receives one worksheet and one memory game.
- Put all the cards of the game on the table with the images facing upwards.
- Work together on assignment 1 & 2 of worksheet part A: discuss what you see on the images and why it is a set.
- Draw a line between the images on the worksheet and write down why the two images are a match.

3. Evaluate cards (15 min.)

The answers of assignment 1 and the meaning of the cards and pairs will be discussed.

- Students can ask questions about the cards and sets.
- You can ask the group: What was the most silly card you saw? Which card did you find the most difficult? Which card did you enjoy?
- Let the students debate.

4. Playing the memory game (20 min.)

The students will play the memory game in groups of four.

- Put all the cards on the table with the images facing downwards.
- The youngest player begins.
- Flip up two cards around and check if it's a pair.
- If it is a match: keep the cards. If not: turn them back over.
- Remember where and what you've seen.
- The player with the most matches wins.
- For more variety in the game: play two against two.

5. Creating new combinations (15 min.)

An important part of this workshop is learning to make new connections and combinations. The students will learn this by combining cards to come up with a non existing set. Every combination is possible, as long as long as the group can explain why they think it's a good match.

- Put all the cards on the table.
- Take two cards from different sets and place them together. Discuss why they could make a new set.
- Discuss comprehensively why these cards form a set.
- These are some questions you can answer during this assignment:
 - a. What makes these cards alike?
 - b. In which way do these cards defer from each other?
 - c. Can you think of a story around these cards?
 - d. What is next nature in this story?
 - e. Is there still something untouched by humans or is there something added or changed by humans?
 - f. What makes something natural and what makes it unnatural? Why?
 - g. Is there an order in which you want to show these cards?
 - h. Could you also combine more then two cards?
- Choose the group's favorite combination.
- Prepare a short presentation.

6. Presenting the combinations (20 min.)

- The groups will present their new combinations one by one to each other.

7. Evaluation (5 min.)

- Clear your desk and put the workshop materials away.
- Discuss with the students what they have learned during this workshop.
 - a. What went well? What went wrong? Why?
 - b. What was hard or really easy?
 - c. What is the most important lesson you've learned today?

PART B CREATIVE THINKING

IN PART B OF THE NEXT NATURE MEMORY WORKSHOP THE STUDENTS WILL CREATE THEIR OWN NEXT NATURE MEMORY GAME. THEY'LL COME UP WITH THEIR OWN IDEAS AND LEARN TO EXPRESS THEIR VISION OF OLD NATURE AND NEXT NATURE. EACH GROUP WILL MAKE ONE SET OF MEMORY CARDS. ONE CARD IS ABOUT OLD NATURE AND THE OTHER ABOUT NEXT NATURE. BELOW YOU'LL FIND MORE INFORMATION ON HOW TO MANAGE PART B STEP BY STEP:

1. Preparing (10 min.)

- Use the presentation of the previous workshop.
- Discuss with students what you've done last workshop.

2. Worksheet part B (25 min.)

In groups of four the students will work on the assignments of worksheet B. Work on the assignments step by step and try not to think ahead. This way you can keep an open mind and brainstorm more freely.

- Assignment 1: Work in groups of four on a mindmap about the first card: old nature. This can be any subject: from human to agriculture.
- Assignment 2: Look at every subject in the mind map. Choose one subject which you all find most interesting. Fill in the questions.
- Assignment 3: Fill the chosen subject in the middle on the dotted line of the next nature mindmap. You'll now brainstorm about the next step: your own next nature invention. Write down as many ideas as possible. There is only one rule: it can't exist yet!
- Assignment 4: Choose one idea for your next nature invention which you all find is the best. Describe the invention by answering the questions.

3. Sketching (20 min.)

- Each student will receive sketch paper.
- Each student will make a sketch of the two cards.
- Discuss the sketches:
 - a. Which one do you like and why?
 - b. Which sketch tells a complete and simple story?
 - c. Can you find something interesting in every sketch and combine it?

3. Creating (20 min.)

- Create the memory cards in groups of four.
- Divide the tasks:
 - a. Who will draw them?
 - b. Which materials will you use?
 - c. Which color will you use?
 - d. Who's coloring them?

4. Presenting the cards (40 min.)

- Each group will present the self made set by answering these questions:
 - a. Which name did you give to your invention and why?
 - b. Why is one card old nature and the other one next nature?
 - c. What does it add to the current world?
 - d. Why would you like to have this invention?
- After each presentation students can ask questions to each other.

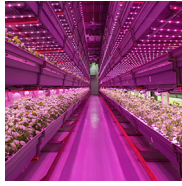
5. Evaluation (5 min.)

- Clean up the desks and hand the memory cards in.
- Reflect on the collaboration process during the assignment.
- Discuss with the students what they have learned during this workshop.
 - a. What went well? What went wrong? Why?
 - b. What was hard or really easy?
 - c. What is the most important lesson you've learned today?

What's next:

After the students have created their own memory game they can play with them. This way they can learn from the creations and ideas of their classmates and understand decisions in the creation of the new pairs.

EXPLANATION OF THE SETS



Vertical farming

As over 50% of the world population now lives in urban areas, a Columbia professor imagined filling New York skyscrapers with farms, which solve distribution problems and reconnect people with their food. Vertical farming has followed

up on his premise, turning modern agriculture into a nightclub for plants. Even though it might seem that vertical farming has added a technological hand to farming, the agricultural gloves already cultivated crops and soils by using machinery.



Digital emotions

They say a smile says more than a thousand words. Conventional wisdom is that smiling is an effect of feeling happy. Studies have shown how smiling reduces stress and increases our overall health.

Our brains can even distinguish between

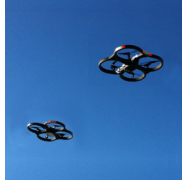
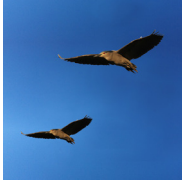
a real smile and a fake smile! The first documented use of “:-)” dates back to 1982, when Scott Fahlman aimed to accentuate a joke on the message board to his fellow computer scientists at Carnegie Mellon University. Widely used today, ask yourself: Do you really have a smile on your face when you send a smiley?



Plastic beaches

Sand was born without human intervention. Once large rocks, all that is left is, you guessed it, sand. On the other hand, man makes plastic. These tiny pebbles resembling sand are actually plastic particles. You can find these

“micro-plastics” in places where they do not belong, such as on every beach in the world. If you see a pristine beach nowadays it has been groomed. According to a compilation of over sixty articles authored by scientists from around the world, the synthetic material is leaving harmful imprints on the environment and perhaps human health. As the usage of plastic keeps increasing, so does the environmental toll we are paying. Plastic is new material in the earth’s ecology.



Flock of drones

Is it a bird? Is it an aircraft? No, it's an Unmanned Air Vehicle (UAV) we know today as a drone. Initially developed for war craft, drones now deliver our goods, mow our front yard, or even put out fires! As unmanned aircrafts are the next

natural inhabitants of our airspace, researchers are developing solar powered satellite drones, to the infinity and beyond. Drones have been claiming their place in our lives in an increasing manner; it is up to us giving these little flying creatures meaningful purposes.

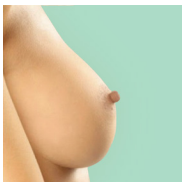


Meat the future

Some people only eat meat if they don't recognize the animal in it anymore. Imagine eating meat that has no natural animal in it then! Scientists are currently growing edible meat in laboratories.

Dutch tissue engineer Mark Post served

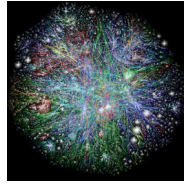
the first petri dish hamburger back in 2013, when Google founder Sergey Brin funded the "cultured beef" project. Isolating embryonic or adult stem cells from an animal, these are then converted into muscle cells, placed on a scaffold where they form muscle fibers. The muscle fibers are then harvested and consumed. It seems in-vitro meat might be the promising solution to our protein crisis.



Formula for success

The presence of baby bottles for helping at nurturing babies dates back to the Middle Ages, when animal horns were strapped on a piece of leather to use as a primitive feeding bottle. Ever since the appearance

of modern baby bottles in the 17th century in Europe, baby bottles have become an indispensable component in the diet of babies by supplementing breastfeeding. However, formula feeding is widely practiced in the United States appears to contribute to the development of several common childhood illnesses, including allergic hypersensitivity, diabetes mellitus and childhood obesity.



Digital galaxy

Imagine each and every website pinpointed to a map. This map would be gigantic of size. Artists and architects have attempted making interactive maps of the Internet Universe. As it turns out, the Internet is a massive place. In 2012,

650 million websites were active on the Internet. Researchers found, that if you spent 12 hours a day, 365 days a year for the next 50 years, browsing though five website per minute; you would still only have 10% of the Internet. Ironically, the map of the Internet looks a lot like the map of the Milky Way Galaxy, in which our Sun is one of the many stars.



Biomimicry

Product packaging is full of advertising; sometimes the packaging of a product is nearly identical to the product itself. Lets have a look at the coconut; this fruit might embody the best design solution by nature itself. Not only does the coconut survive a 15-meter free fall,

this waterproof “coco-container” is also immune to salt and heat, protecting its juices and meat and is it ready to eat! Nature designs with no audience in mind, but humans design nature for each other. The ad is the ingredient and the packaging is the product.



What's cooking?

You would be surprised to hear that cooking is the first technology humans ever invented. Cooking allowed us to extend our stomach outside our body and pre-digest our food before the eating. This allowed our ancestors

to intake more calories in less time, grow bigger brains, socialize more and become modern human beings. A study from 2009 suggests that the Homo erectus (the earliest human species that is known to have controlled fire) could not have evolved without consuming cooked food. However, cooking food requires fire, and the early humans of two million years ago did not control fire back then. No fire, no cooking. Our ancestors most probably then waited for “burning events” and let nature do its cause.



Tomorrows fossils

Certain technologies, already obsolete in our time, may be as inscrutable in the distant future as long-extinct species are to us. When presented as a natural part of the geological record, a cellphone or a PlayStation controller may become

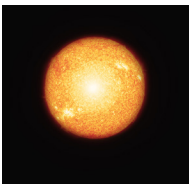
a rare oddity. The skeletons of videogame and cartoon characters are just as disorientating, conjuring a life (and death) for the patently fictional. Yet these imagined artifacts recognize the same premise: the fossil record of our species will possibly not be distinguished by our bones, but by our technologies.



Medicine cabinet

Have you ever wondered where your acetaminophen came from? And more importantly, what it is made of? Pills are obviously made in a laboratory and are designed so that you can swallow them easily. However, these pills

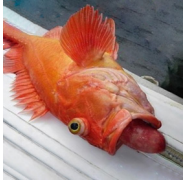
originate from plants and spices. Today there are at least 120 distinct chemical substances derived from plants that are considered important pharmaceuticals in use around the world. With the advent of the modern medicine, pills that are developed for specific cures also changed the way we think about medicine and improve it vastly. Pills are medicine 2.0.



Artificial light

The invention of the light bulb had a huge impact on almost the entire humanity. Before the invention of candlelight and the lightbulb, our lives were largely organized according to the rhythm of the sun. Today our work and living cycles are no longer regulated according to

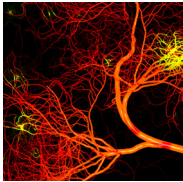
the sunlight, which in turn helped with the efficiency of humanity. It is a perfect example for how humans co-evolve with technology. During the launch of Tesla Powerwall, Elon Musk stated his love for the sun like no one else could; "it just works and shows up every day".



Real world, Virtual Creatures

The launch of mobile video game Pokémon Go turned the world upside down. The Pokémon universe collided with our physical world through augmented reality. Not only is the game very entertaining, it also shapes social

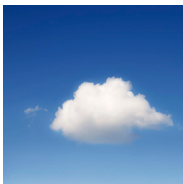
relationships among individuals and increases health. Around the world, users have reported how the game has aided them in relieving their depression and social anxiety symptoms. The revolutionary gameplay takes people outside, to visit “real” locations and roam around. With a collection of 151 Pocket monsters—including intergalactic ones—we wonder, are there Pokémon on the moon?



Blood Highway

Red blood cells carry oxygen through blood vessels through your body to various organs. Although oxygen dissolves in blood, a mere amount is transported this way. The majority of oxygen in our bodies is transported by

metalloproteinase, which is found in red blood cells. The blood streams as it were, move like well-behaved traffic on the highway. They are all equally busy to come home on time. Continuing the metaphor, this would mean that blood clots are actually traffic jams in your veins.



New Clouds

From clouds to cars, people recognize themselves in almost everything. Then what about vapor trails caused by aircraft engine exhaust, what do you see in that? A crash course on clouds: “old clouds” are a visible mass of liquid

droplets or frozen crystals made of water or various chemicals. Whereas “new clouds” are formed when hot humid air from jet exhaust mixes with environment air of low vapor pressure and low temperature. These Next Nature clouds are named contrails, and seem to be more common than normal clouds during a clear, sunny day.
