

# The STEM game

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Created by Roberts Celmiņš,  
Sindija Mancēviča, Emīls Roze

# GOALS

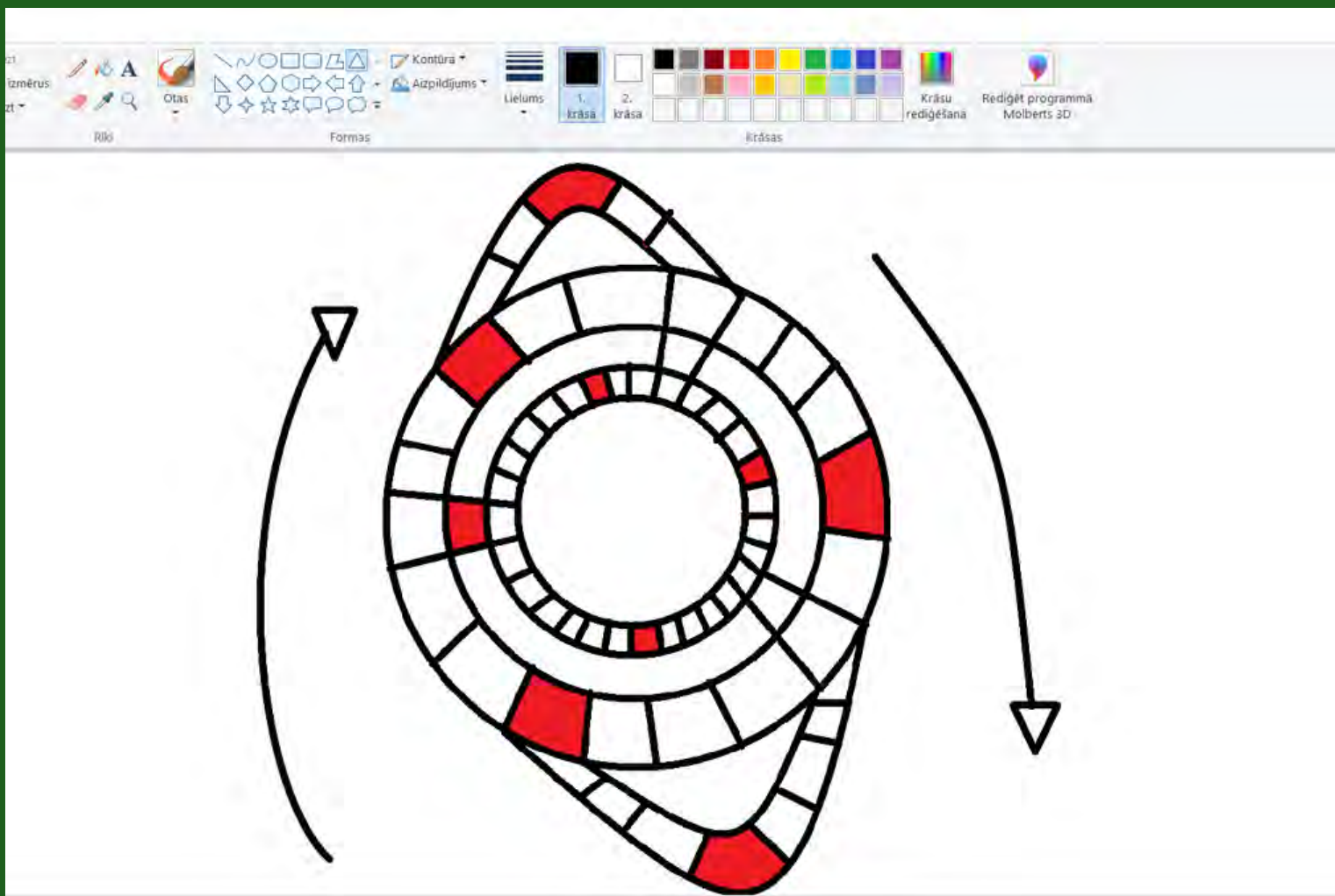
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Our group's goal was to create a board game about STEM learning subjects, to make learning STEM more fun

The game would have:

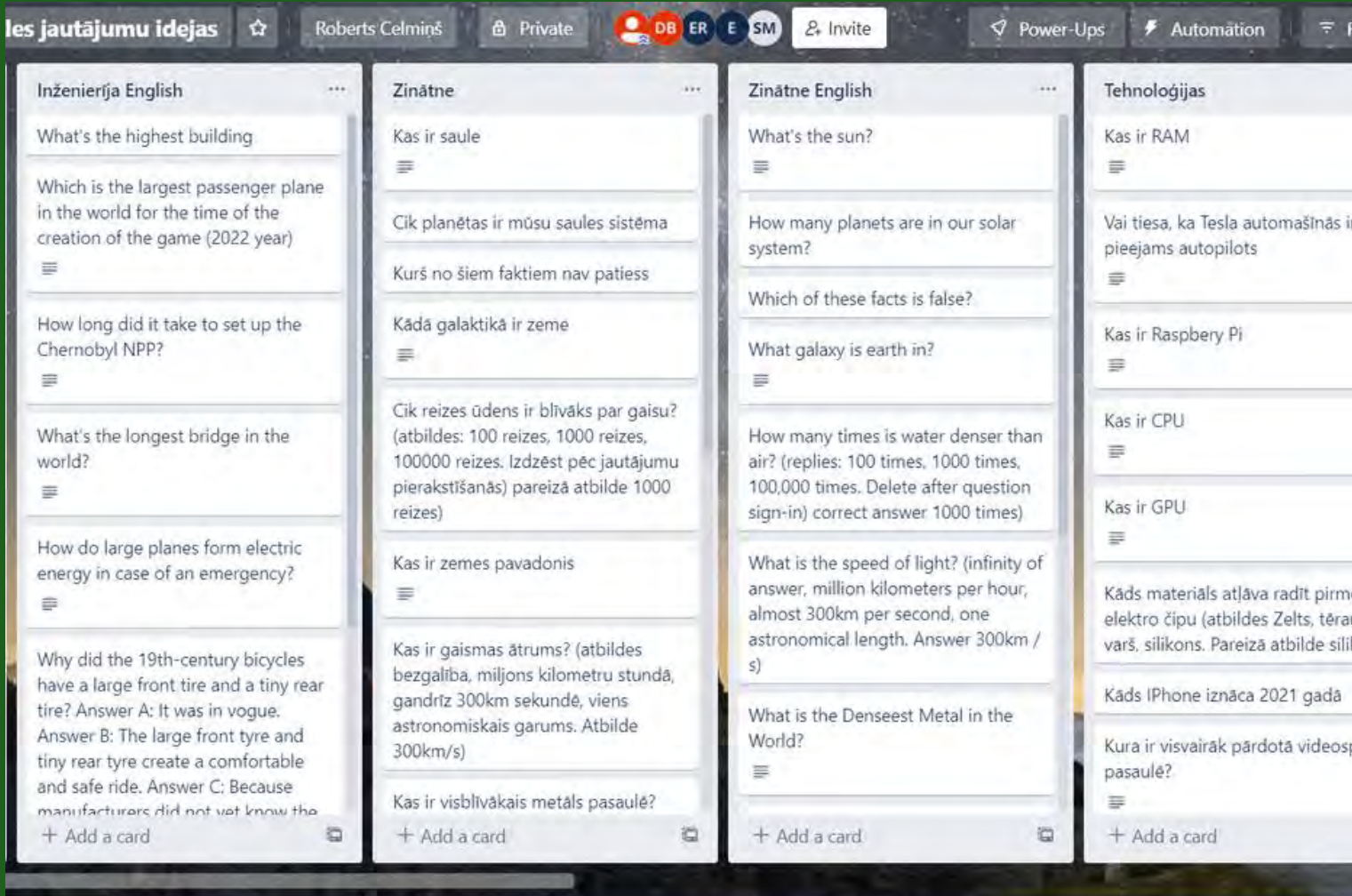
- unique design
- challenging questions
- trophies (collect all types and win)
- more than one way to go
- test the game and get ideas for improvements





# WORKFLOW

When we decided to make a board game, we started making ideas for the design.

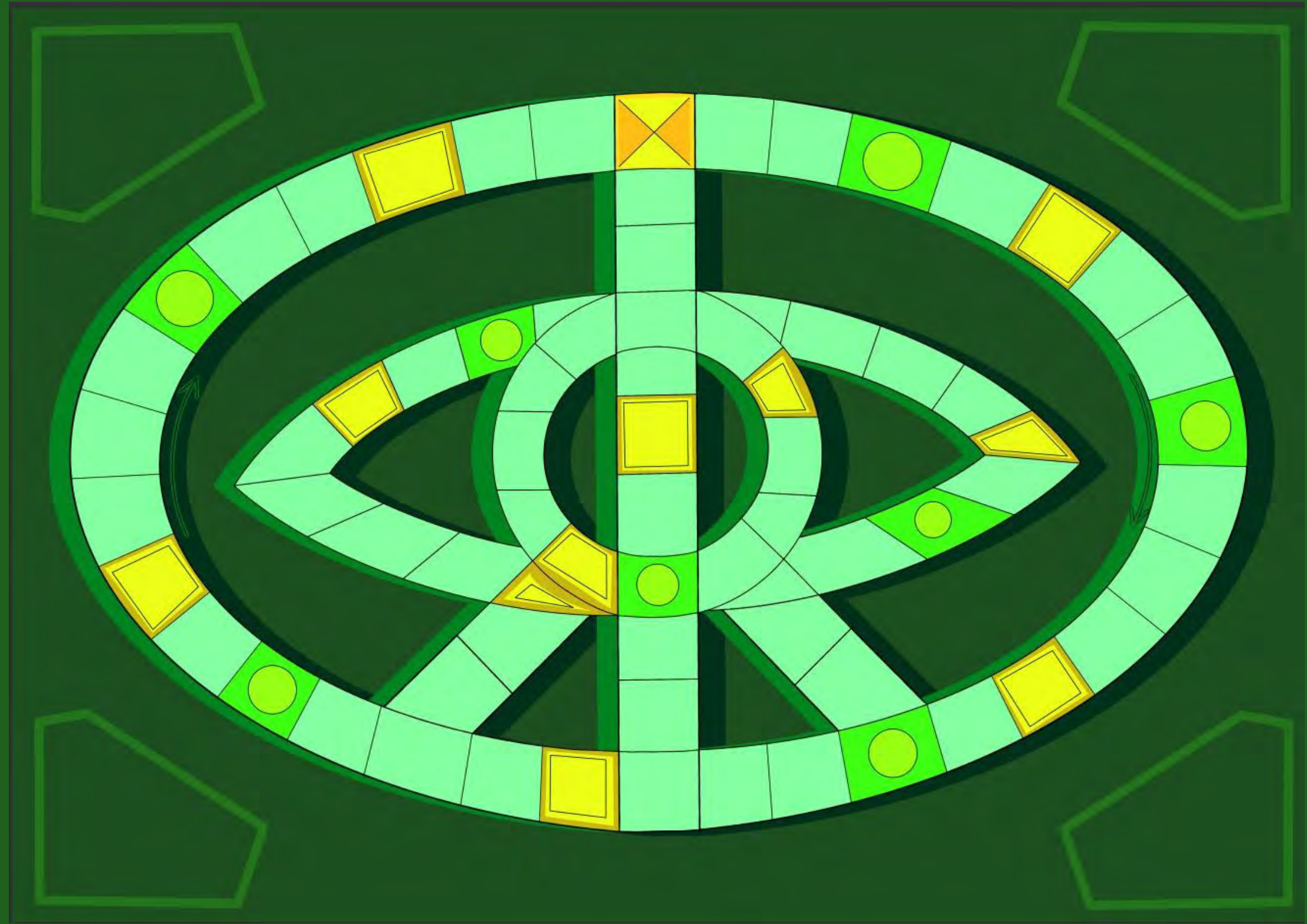


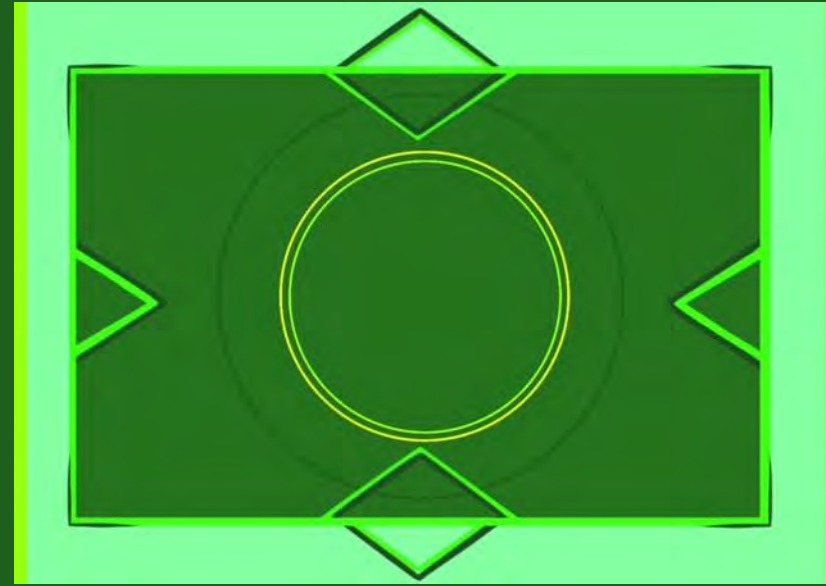
We put our question ideas in a Trello workspace.

# WORKFLOW

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After some time Sindija made the design for the game.





**How many  
times is water  
denser than air?**

- a) 100 times
- b) 1000 times
- c) 100,000 times

**Right answer - b**

# WORKFLOW

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The attachments were made

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The rules were made



# THE STEM GAME

The final result



## Rules

### Before playing

Before playing you need to put the figurines on start field. Then you need to put trophy cards (Euro, Brussel, EU flag) on the green fields with circle (more information at "Ways of trophy placing"). Put the cards next to the game and make sure that the text is at the bottom.

### The start of the game

When the game starts, every player picks their figurine. Players choose one person who will read questions. Players play rock paper scissors, and the winner goes first. The first person rolls the dice and chooses which way to go. When the first person finishes their move, the person at the right side of the first player makes their move. Every person also can choose their way to go. You can't start going backwards!

### Special colored fields:

- Field with orange and yellow triangles - start
- Yellow field - If you get on it, then you need to answer a question from the cards. If you answer correct, congrats, nothing changes for you, but if you answer wrongly, then you pass 1 turn.
- Green fields with circle - If you get on it, you need to answer a question from card. If you answer correct, you can take one of the trophies. If you answer wrongly, then you don't get a trophy.

### Trophy placing:

- On every trophy field place one trophy from every type and when you get on it you can choose which trophy you want.

### Ways of wining:

- The first player to collect one trophy from each type wins

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Making a board game can be difficult.

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Testing is useful.

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Thinking the wrong answers can be hard.

# CONCLUSIONS



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



# Active and healthy lifestyle



Authors : Aivars Justs, Kārlis  
Grīnvalds, Mareks Vaičuks



# Introduction



- ☞ Help our classmates and schoolmates understand benefits of healthy lifestyle
- ☞ Stop them from their unhealthy habits and improve ours too

# Work process



- ⌘ We analyzed the information found on the Internet
- ⌘ We analyzed a couple of videos
- ⌘ We also showed our made video



# About our survey

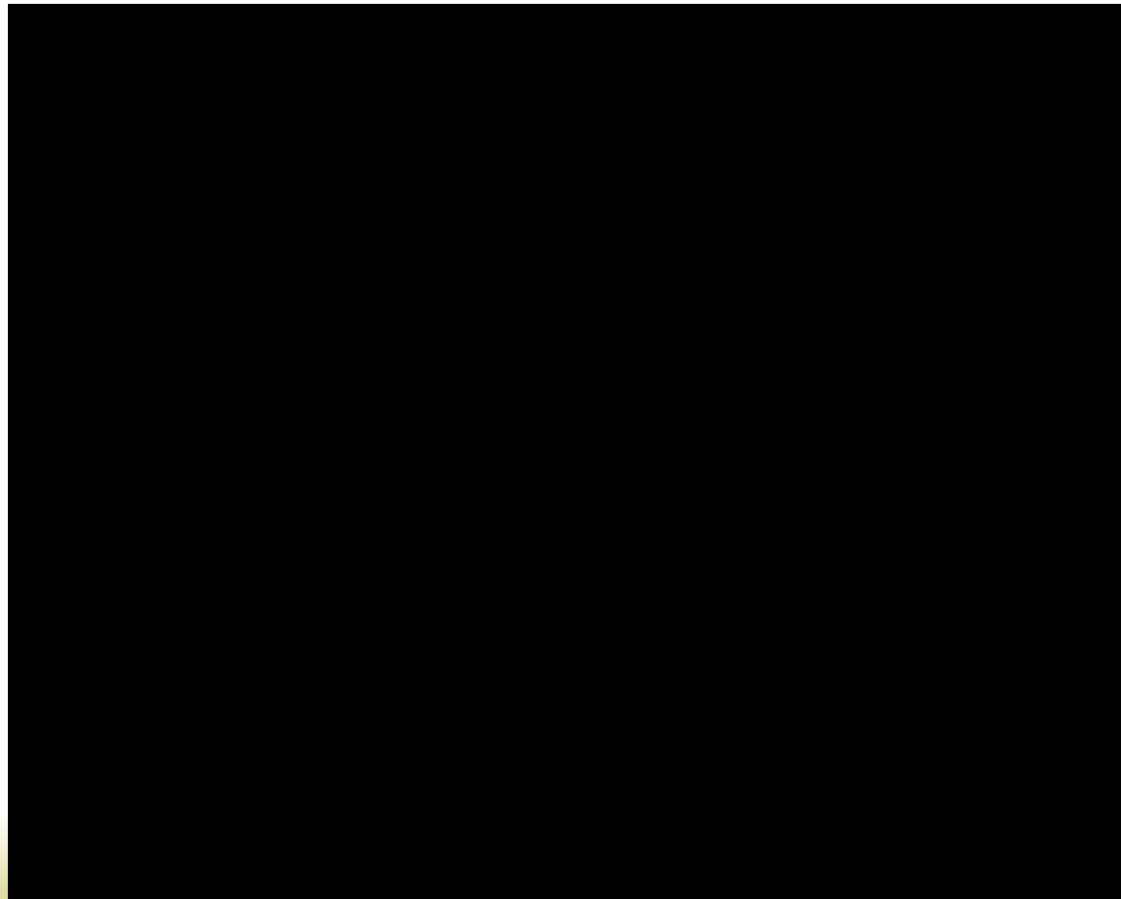


- ❧ Understand about mentally and physical health of our schoolmates
- ❧ Analyze their needs and see what they lack and how can we help
- ❧ Some of the results were surprising

# About the video



Easy and simple activity, finger pressing



# Conclusion



- ❧ Some colleagues think activities won't impact their life
- ❧ Many thought that people will be healthier and lessons more entertaining
- ❧ The most common conclusion : kids believe that it will help their class gel together and become closer

# Bibliography



- ❧ <https://www.healthline.com/health/fitness-nutrition/healthy-lifestyle-benefits>
- ❧ <https://www.health.harvard.edu/blog/healthy-lifestyle-5-keys-to-a-longer-life-2018070514186>
- ❧ <https://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/healthy+living/healthy+communities/schools/what+can+i+do+as+a+teacher+or+school+to+encourage+healthy+eating+habits+and+to+be+active>
- ❧ [https://www.cdc.gov/healthyschools/features/eating\\_healthier.htm](https://www.cdc.gov/healthyschools/features/eating_healthier.htm)
- ❧ [https://www.youtube.com/watch?v=m3-O7gPsQK0&ab\\_channel=BRIGHTSIDE](https://www.youtube.com/watch?v=m3-O7gPsQK0&ab_channel=BRIGHTSIDE)
- ❧ [https://whydonate.nl/en/blog/fundraising-for-mental-health-fundraising/?gclid=CjwKCAiAsNKQBhAPEiwAB-I5zcSIHPhj1sVYwzNbopFCMg2mSMH7\\_7q8\\_zfyYYNciP5GTL7y1Gg9oRoCinIQAvD\\_BwE](https://whydonate.nl/en/blog/fundraising-for-mental-health-fundraising/?gclid=CjwKCAiAsNKQBhAPEiwAB-I5zcSIHPhj1sVYwzNbopFCMg2mSMH7_7q8_zfyYYNciP5GTL7y1Gg9oRoCinIQAvD_BwE)

# Latvian mythology

Authors:

Jana Apaļa

Keitija Beķere

Alise Kristāla



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



# Projects aim

- Inform young people about Latvian mythology
- Collect information about deities of Latvian mythology
- Create dolls that depict our main gods
- Create a board game that includes STEM subjects, sports, slow life and Latvian mythology
- Inspire them to try making their own dolls





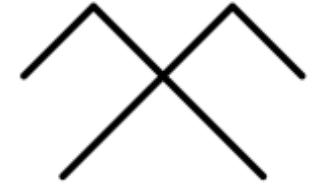
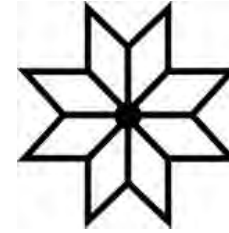
# Methodology

- Creative approach:
- Active thinking:
- Group experience:



# Latvian mythology

- Dates back as far as the early Baltic tribes in the 13th century
- Information comes from the 18th and 19th centuries folksongs
- Deities divide into:
  - Nature or cosmic
  - The universal mythological being
  - Deities of destiny
  - Fertility deities
  - Unnamed house spirits
  - Mothers



# Deities of destiny

- The ancient Latvians had three givers of success, time, life - Laima, Dēkla, Kārta
- Laima - decides the course of a person's life, destiny, accompanies in life
- Dēkla - decides the fate of newborn children
- Kārta - arranges human destiny



# Dievs - God

- Oldest and most important mythological creature
- Portrayed as the guarantor of universal order, harmony, guardian of oppressed people
- Depicted as a man in a gray coat, a hat, armored by a sword
- Adversary to the Velns (Devil), but it is not a struggle between ultimate evil and good
- Associated with birth, marriage, and death



# Pērkons - Thunder

- Pērkons (Thunder) and Dievs (God) are the two main male deities of heaven
- Embodies the rain and stormy heavens
- Only Latvian deity with a large family
- Portrayed having weapons



# Velns - Devil

- Representative of irrational thoughts and actions
- Is the adversary of Dievs (God)
- Portrayed as less skillful than Dievs
- Exists in darkness and storm clouds
- Creator of the creatures of the chaotic world
- Can take many forms



# Dolls – Pērkons, Velns, Laima

- Zero waste
- Creating it ourselves
- Creativity
- Slow lifestyle
- Spending less time on the internet



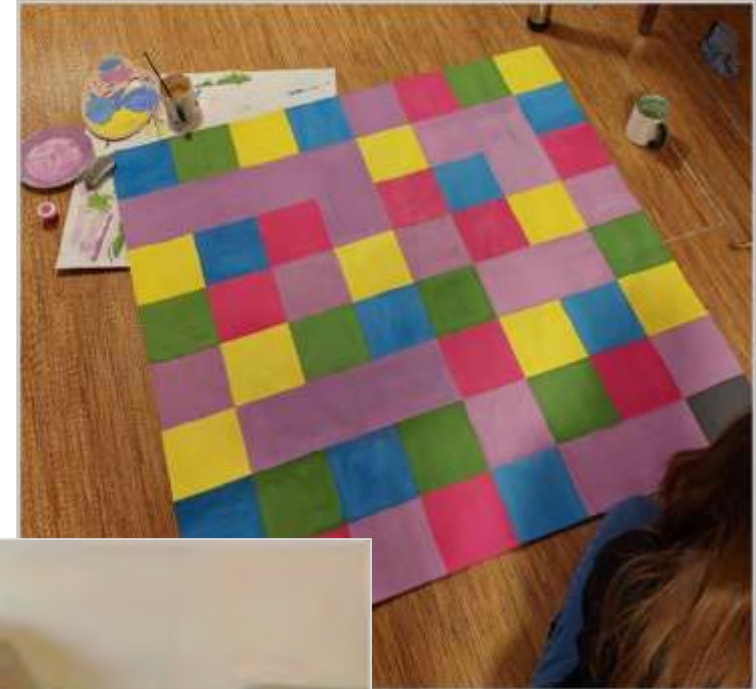
# Creation process





# Game "Ašprātis - Sharpmind"

- Includes STEM subjects, sport, Latvian mythology
- 6 players and 1 host
- On specific squares - a green, blue, yellow, pink the player must answer a question from a card with the same colour
- Landing on a square with Latvian signs the player must follow its direction moving forward or backwards
- The winner is the player, who reaches the finish square first



# Conclusions

- We collected and learned information about the most important Latvian deities
- Created a board game based on Latvian mythology, as well as STEM subjects and sports
- Made dolls in the form of Zero waste



Thank you for your  
attention!



# MENTAL HEALTH AND ITS DISORDERS

Authors: Kitija Slavinska, Ketija  
Kerstīna Godaine, Marta Keita Baduna

Project supervisor: Dālija Briģe

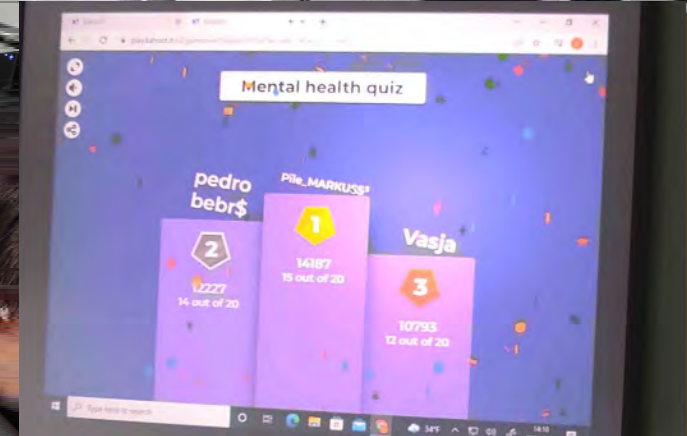
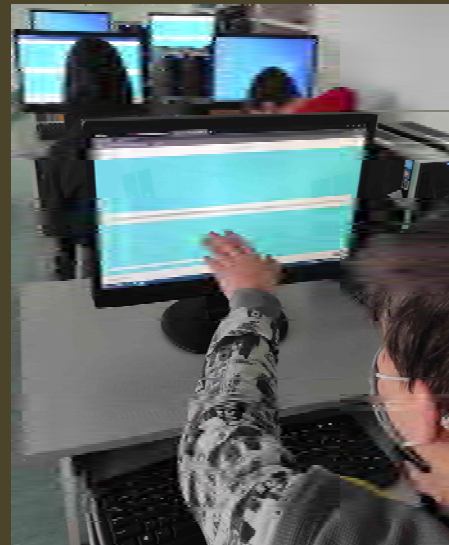
# The aim

- Expand and use our research for educating people.
- Understand how mental health impacts our day to day lives.



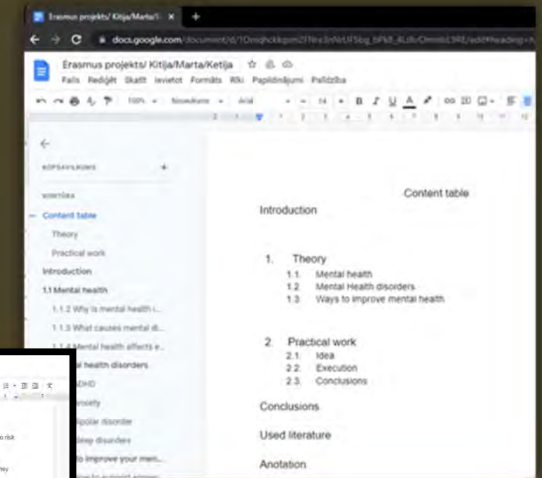
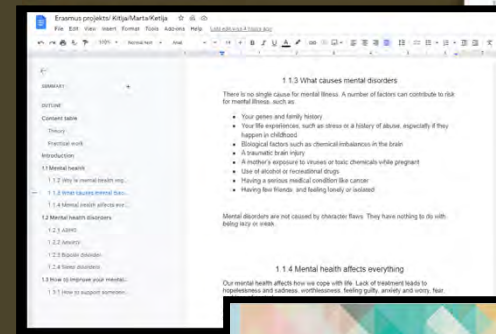
# Methodology

- The goal is to provide insight about mental health.
- Data collection: Kahoot given to our schoolmates.



# Our work process

- Deciding a theme.
- Creating google docs.
- Choosing trusted literature for our research.
- Different versions of a survey for data collecting.
- Kahoot versions for our schoolmates.



**Mental health**

Hey there! We're doing a project for our school about mental health. My name is Kitja and my companions names are Ketija and Marta. We would like to check how's your mental health so we can talk about it in our project. Please answer honestly. This form is anonymous, so don't worry about anyone finding out. Even we ourselves won't know who has answered.

1. Do you have anyone you could reach out to for help?( friends, parents, siblings etc.) \*

Yes

# Achieved results

- Completed our research effectively.
- Successfully conducted our survey about mental health.
- Researched about mental disorders and their signs.
- Completed Kahoot with our classmates.





# Conclusions



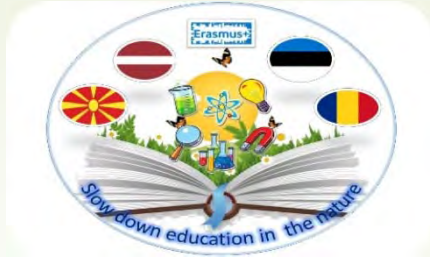
- At the start we had basic knowledge about mental health.
- Social media platforms are a blessing and a curse.
- Getting the right information is a struggle without checking a few sites.





## Our game – Kahoot

- Miniature version of the full Kahoot.
- <https://create.kahoot.it/share/mental-health-quiz-mini/8c76bdf1-bf28-4666-a2c0-f884fdb2ca64>



Erasmus + KA229 project "Slow down education in nature"  
OOU "Lazo Angelovski" - Skopje

# The Million Dollar Project

STEM project

**Team members:**

Jovana Nikolovska 8<sup>th</sup> grade

Simona Grashkoska 7<sup>th</sup> grade

Teodora Jovanovska 6<sup>th</sup> grade

Angela Krstevska 6<sup>th</sup> grade

**Teacher mentor:**

Daniela Davkovska



## ► Project description



### IMAGINE THIS:

You've just won \$1 000 000 !!!

CONGRATULATIONS!!!

Now it is time to start planning what you are going to do with it. There are certain guidelines to your inheritance. You must follow them. If you do not spend the money in that certain way you will lose it!

Happy shopping!

## ► Project aims

This project is designed to help you plan for your future, build your math skills, put them in a real-life situation by spending money within a budget and have some fun while researching!

# Project guidelines



## ► Here are the items you must purchase

1. Put at least \$75,000 aside for college education. *Research the cost of the education for **ONE** year at your favorite university and then calculate it against how many years it will take you to achieve your degree.*
2. Purchase a home that is **NO MORE** than \$300,000. *Research various homes in locations that you would like to live. Find the home that you feel is **PERFECT** for you and print out one page with the specs from the home.*
3. Take a family vacation. *Use a travel agency to determine expenses for the total cost including: hotel, airfare, meals, transportation, spending money, etc.*
4. Purchase a vehicle. *Using dealership sites, find a car or vehicle that is to your liking and print out the one page with the specs for the car from the dealership.*
5. Make one charitable donation. *Remember that friends, family, and pets do not qualify as a charity. Find a charity that means something to you and give them funds based on a project they are working on.*

You may **NOT** spend more than \$1,000,000 but you want to spend as much of it as possible.

# 1. College education



- ▶ **Stanford University**, officially **Leland Stanford Junior University** is a private research university in Stanford, California. The campus occupies 3,310 hectares, among the largest in the United States, and enrolls over 17,000 students. Stanford is ranked among the best universities in the world
- ▶ Tuition costs **\$52,857 per year**, while room and board costs \$16,433 per year. The school also estimates that students can expect to pay about \$1,905, books and supplies that cost about \$1,245 and personal expenses of about \$2,130.
- ▶ Total cost for 4 years: = **\$298280**



## 2. Home

- ▶ Some of the cheapest homes for sale can be found in Queensland at 33 Angora Street, Russell Island.
- ▶ The neat brick house, with four bedrooms, refreshed flooring, modern kitchen and bathroom.
- ▶ Total cost: \$229,000.



### 3. Family vacation - PARIS



- ▶ This Holiday Inn Paris Gare de l'Est hotel is located opposite Gare de l'Est Train and Metro Station, which provides direct access to attractions such as Saint-Michel and the Latin Quarter. It offers a lobby bar with lead glass windows.
- ▶ 1 standard room and 1 twin room perfect for 2 adults and 2 children for 6 nights cost MKD 129,808 on Booking.com
- ▶ Flight from Skopje to Paris for 1 person with Austrian Airlines cost €157. Total cost for 4 persons €628.
- ▶ Additional cost for food, shopping, souvenirs \$2,000.





## 4. Vehicle



- ▶ Jeep® Wrangler 4xe Plug-In Hybrid RUBICON
- ▶ The Wrangler 4xe is a **plug-in hybrid electric SUV** that combines a powerful electric motor with a gas engine, which means that even when the Wrangler 4xe isn't charged, you can still drive using the gas engine.
- ▶ Cost for one \$56,220, we will buy two
- ▶ Total cost \$112,440



## 5. Charitable donation



- Donation to Red Cross organization for medical vehicles.
- This vehicles are intended for older people who need help in emergency situations.
- \$200,000



## Calculations

ITEM NAME	COST	REMAINING BALANCE
College education	$(\$52857 + \$16433 + \$1905 + \$1245 + \$2130) \cdot 4 = \$74570 \cdot 4 = \$298280$	$\$1000000$ $- \$298280$ $= \$701720$
Home	$\$229000$	$\$701720$ $- \$229000$ $= \$472720$
Family vacation	$MKD129808 : 54.32 + \text{€}157 \cdot 4 \cdot 1.13 + \$2000 = \$2390 + \$710 + \$2000 = \$5100$	$\$472720$ $- \$5100$ $= \$467620$
Vehicle	$2 \cdot \$56220 = \$112440$	$\$467620$ $- \$112440$ $= \$355180$
Charitable donation	$\$200000$	$\$355334$ $- \$200000$ $= \$155180$



**TOTAL SPEND :  $\$1000000 - \$155180 = \$844820$**

# Google searches



- [https://en.wikipedia.org/wiki/Stanford\\_University](https://en.wikipedia.org/wiki/Stanford_University)
- <https://www.domain.com.au/news/cheap-properties-seven-homes-under-300000-that-you-can-buy-right-now-1041477/>
- <https://www.booking.com/hotel/fr>
- [https://www.edreams.com/travel/?locale=en\\_GB#results/type=R;dep=2022-04-29;from=SKP;to=PAR;ret=2022-05-05;internalSearch=true](https://www.edreams.com/travel/?locale=en_GB#results/type=R;dep=2022-04-29;from=SKP;to=PAR;ret=2022-05-05;internalSearch=true)
- <https://www.jeep.com/wrangler/wrangler-4xe.html>
- <https://solidarnost.redcross.org.mk/>



***THANK YOU FOR YOUR ATTENTION!***



Slow down education in the nature



# FROM WASTE TO FOOD!

Primary School "Lazo Angelovski" Skopje

Marko Panchevski VII, Kiril Zdravev VI,

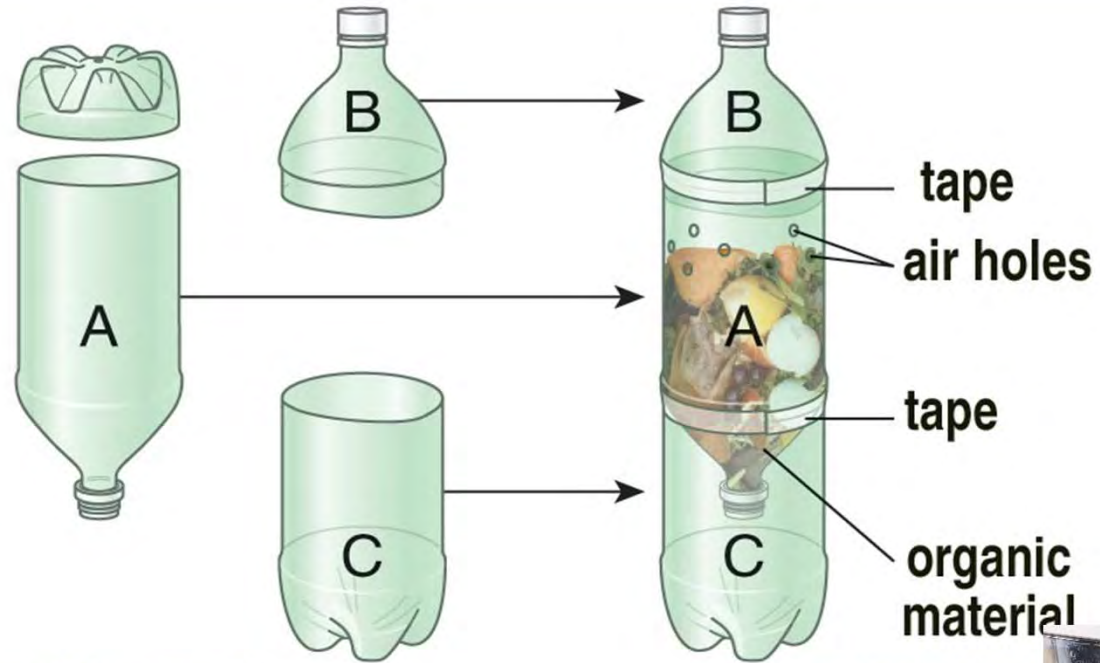
Oleg Petrovski VII, Petar Mandzukovski VII

Mentors: Donka Miteva & Slobodan Stamatovski

**Composting** – process where the compound organic matter from plant food waste is degraded by MO to its basic elements in presence of oxygen-O<sub>2</sub> and water-H<sub>2</sub>O, and realising carbon dioxide - CO<sub>2</sub> and heat, so the final result is a production of high quality compost.



# Mini compost bin in a transparent bottle!



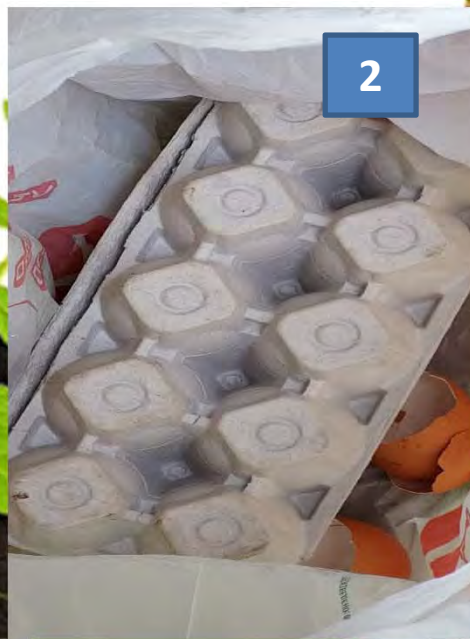
The first layer in the composter is a brown component followed by a green component, which alternate until the composter is full. The last layer in the composter is obliged to be a brown component. Little soil is added on every second layer of the brown component (that is a source of MO which accelerate the decomposing process).



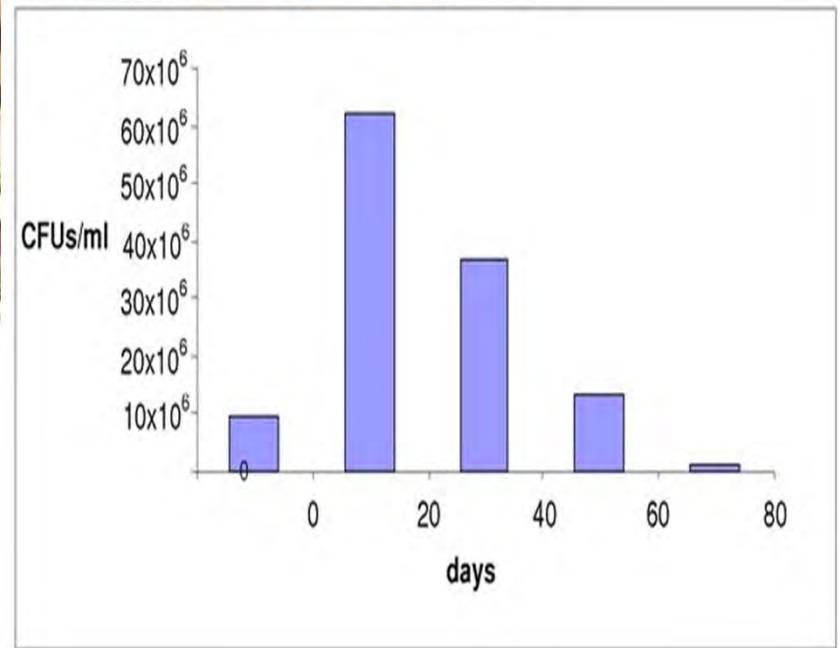
A green component (rich in nitrogen)	A brown component (rich in carbon)	It is not recommended for composting
Fruit	Dried leaves	Anything treated with pesticides or other chemicals
Vegetables	Newspapers	Non biodegradable plastic
Wilted flowers	Dried branches	Meat
Dead plants	Paper (it was not in contact to meat)	Fish
Mown grass	Straw	Bones
Coffee grounds	Hay	Dairy products
Leaves	Egg shells	Oils
	Cardboard	Unhealthy plants
	Wood ash	Baby nappies
		Feces
		Oil paper



# Our experiment...



The following parameters that were measured in the composting process:

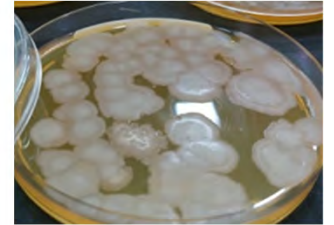
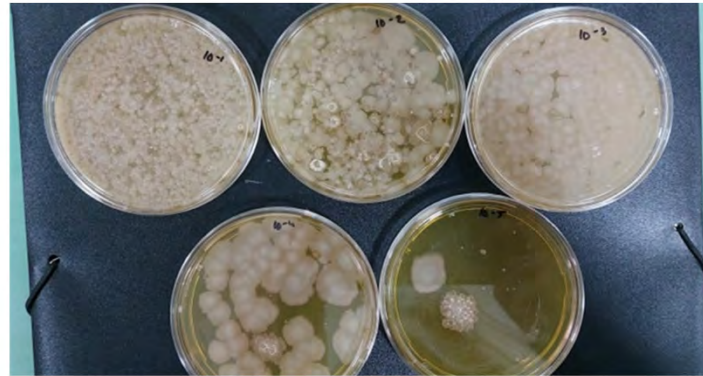
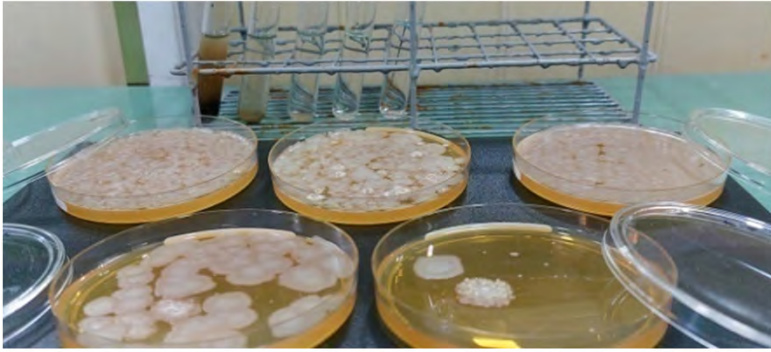


Decreasing the number of MO which were decomposing the organic substance

phase	period (days)	volume decreasing, %	temperature , °C
thermophilic phase	15-20	20	40-60
mesophilic phase	20-30	20	25-35
cooling phase	30-45	15	20-25
maturation	up to 60	15	15-20

# Experiment observation...







# CONCLUSION

**Food waste can be bio-recycled through composting in order to produce nutrient-rich fertilizer, instead of taking space in landfill side.**

**Composting can take place in a classroom, kitchen, yard, neighborhood or city.**

**Compost improves soil quality and gives opportunity for retaining air, nutrients and moisture in the soil.**

**Also, compost loosens hard soil (by making it friable), so plants can easily spread their roots and hold the soil in its place. As well as, it increases the soil's ability for water retention and reduces rainwater runoff.**

**On one side, composting offer a way to reduce the amount of solid waste, on the other side, the nutrients are returned to the soil.**

# OUR WINNING TEAM



# Filtering water using natural materials

Lazo Angelovski - Municipality of Aerodrom, Skopje

## STUDENTS:

ANASTASIJA NIKOLOVA IX-3

MARIJA ZECEVIC VII-3

ANASTASIJA KOSTOVA VI-6

## MENTORS:

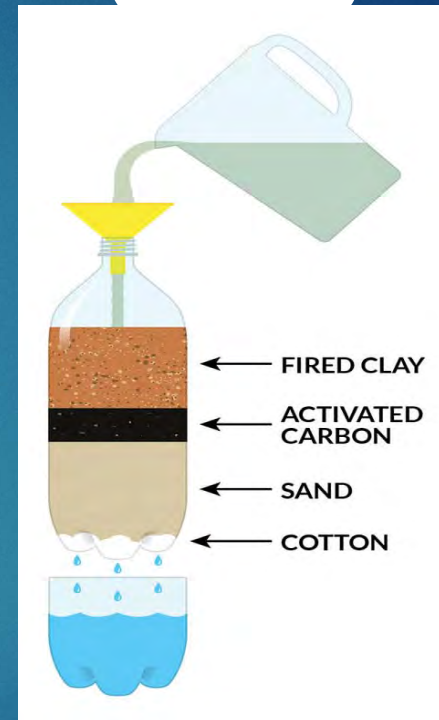
VESNA JORDANOVA

VESNA STREZOSKA



WE CHOOSE THE TOPIC FOR  
FILTRATION OF WATER BECAUSE OF  
THE PROBLEMS THAT ARE IN THE  
WORLD WITH A LACK OF CLEAN  
WATER FOR DRINKING

OUR GOAL WAS TO GET CLEAN  
WATER USING NATURAL MATERIALS.





# Water cycle

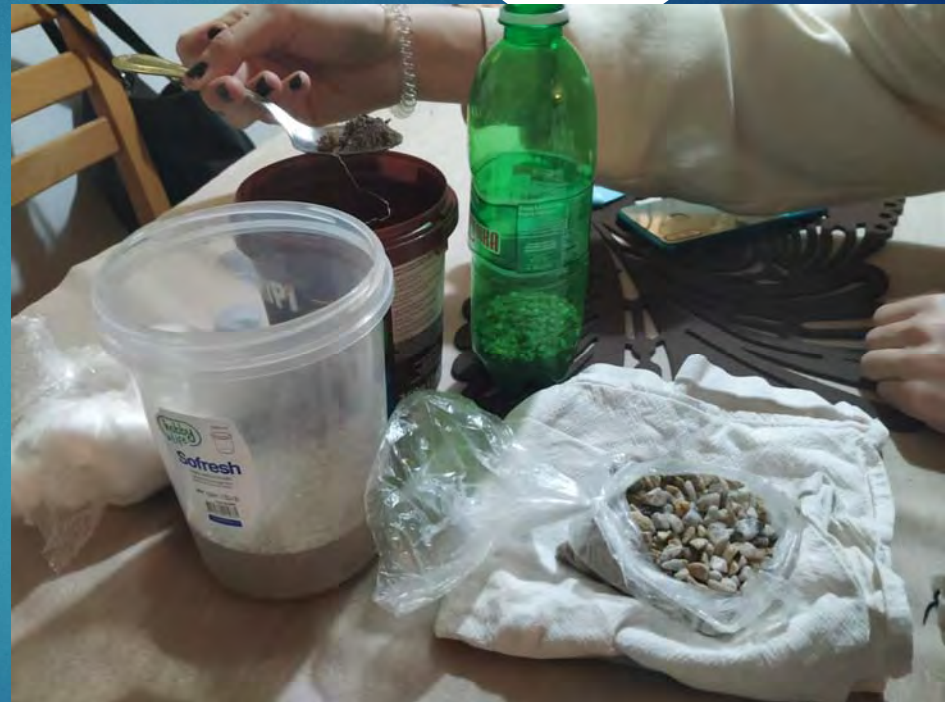
WATER IS A LIQUID, WHICH IS NECESSARY FOR LIFE ON EARTH AND IN HUGE QUANTITIES. MAN WITHOUT WATER CAN ENDURE ONLY A FEW DAYS ALSO WATER IS VERY IMPORTANT FOR PLANTS.

THE WATER EVAPORATES FROM OCEANS AND OTHER WATER SURFACES, THAT IS CHANGING WATER FROM LIQUID INTO THE GAS CONDITION, THEN WATER IS RETAINED IN THE ATMOSPHERE IN THE FORM OF STEAM, CLOUDS OR MOISTURE, CONDENSATION OF WATER IS WHEN WATER CHANGES FROM STEAM IN LIQUID, AND THEN IT FALLS ON EARTH AGAIN IN A FORM OF RAIN OR SNOW.



# Materials:

- SCISSORS OR KNIFE
- PLASTIC BOTTLE
- SMALL FABRIC
- COTTON
- CLEAN SAND
- SAND WITH SMALL PEBBLES
- ROCKS
- ACTIVATED COAL
- HIGH GLASS FOR DRINKING
- WATER



# Making of the experiment

WE STARTED THIS PROCESS BY CUTTING THE BOTTOM OF THE PLASTIC BOTTLE AND PUTTING THE LAYERS OR MATERIALS THAT ARE NEEDED.

FIRST WE PUT COTTON. THE LAYER WAS EXPORTED 3CM.

THE SECOND LAYER WE ADDED WAS CLEAN SAND WHICH WAS ALSO 3CM.

THE THIRD, FOURTH AND FIFTH WERE LITTLE STONES, LARGER STONES AND COAL.

THE THIRD WAS 2 CENTIMETERS, THE FIFTH WAS 5 CENTIMETERS AND THE SIXTH WAS 4 CENTIMETERS.

BEFORE WE PUT THE DIRTY WATER, WE PUT A LITTLE FABRIC ON THE UPPER PART OF THE PLASTIC BOTTLE, AND BE PUT THE PLASTIC BOTTLE IN A GLASS SO THE CLEAN WATER CAN GO INSIDE OF THE GLASS



# Results from the experiment

WE MIXED WATER WITH SOIL TO GET DIRTY WATER. THEN WE PUT THE DIRTY WATER IN THE PLASTIC BOTTLE WITH ALL FIVE LAYERS AND FROM THE KITCHEN CLOTH, THE CLEAN WATER STARTED TO FLOW



# Conclusion from the experiment:

WE WITH THIS WATER FILTERING EXPERIMENT, WE CONCLUDED THAT WE CAN USE NATURAL MATERIALS THAT ARE EASY TO FIND TO FILTER WATER AND GET CLEAN DRINKING WATER.

BY USING SUCH FILTERS, MANY PEOPLE IN THE WORLD CAN GET CLEAN WATER, NECESSARY IN THEIR EVERY DAY.



# Resources:

- [HTTPS://WWW.SCIENCEDIRECT.COM/TOPICS/CHEMICAL-ENGINEERING/WATER-FILTRATION](https://www.sciencedirect.com/topics/chemical-engineering/water-filtration)
- [HTTPS://WWW.HEALTHLINE.COM/NUTRITION/HOW-TO-FILTER-WATER#DIY-METHODS](https://www.healthline.com/nutrition/how-to-filter-water#diy-methods)
- [HTTPS://SCIENCE.LOVETOKNOW.COM/SCIENCE-FAIR-PROJECTS/HOMEMADE-WATER-FILTER-SCIENCE-PROJECT](https://science.lovetoknow.com/science-fair-projects/homemade-water-filter-science-project)

# Orientation in nature with our compass

Primary school "Lazo Angelovski"

Made:

Hristijan Jakimov IX-1

Marko Bonevski VI-6

Natali Cenevska VII-3

Lara Mihajlovska VIII-5

Mentors:

Zaklina Kolevska

Ivana Rakic



# Magnetism

- Magnetism is a phenomenon that describes the attractive or repulsive force between magnets and similar ferromagnetic materials. This phenomenon has been known for thousands of years. The word magnetism comes from the word magnetite (an iron ore) found in the Magnesia region of ancient Asia Minor, where fragments of  $\text{Fe}_3\text{O}_4$  (magnetite) ore were found to attract other metal objects.



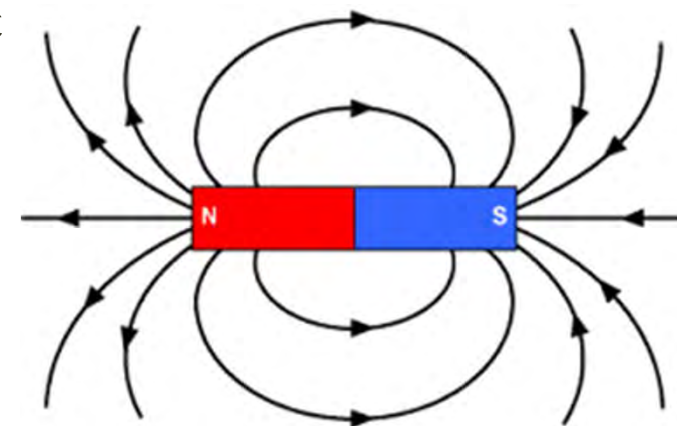
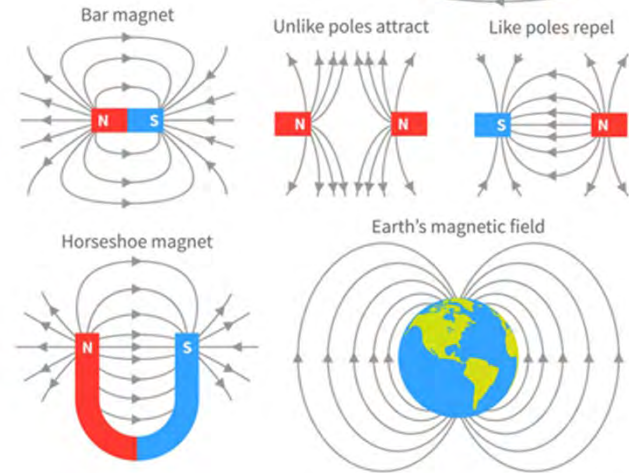
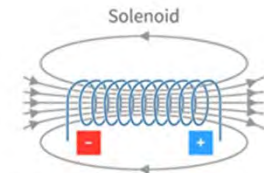


# Magnetic field

- Magnetic field or also called mechanical field, which is created from particles with non-zero magnetic moment. The strength of a magnetic field is measured in tesla (T mark). Magnets act on each other with forces. Electric current also creates a magnetic field in the principle of motion of charged particles. Creating a magnetic field requires energy that is released when the field is destroyed. Electric and magnetic fields are inextricably linked. The change in the electric field creates a magnetic field and the changes in the magnetic field create electricity. The space in which magnetic forces act is called a magnetic field.

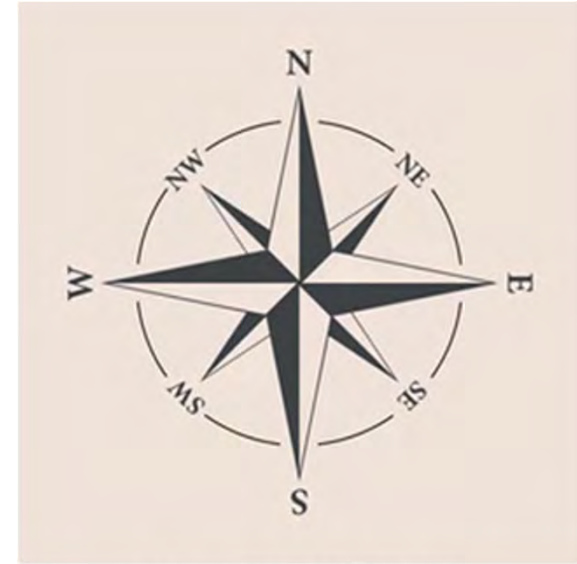
## MAGNETIC FIELD

is a force field that is created by moving electric charges and magnetic dipoles, and exerts a force on other nearby moving charges and magnetic dipoles.



# Compass

- Orientation in space with the help of a compass is based on the use of the properties of the magnetic field created by the Earth, to determine the direction north, south, east and west. Compass is a navigation tool that serves to determine the sides of the world. The compass consists of magnetized arrow that rotates in the direction of the Earth's magnetic field. The magnetic needle always points to the Earth's geographical north. Compasses are instruments that can have different special purpose, construction and design, equipped with various other parts and markings for other purposes, but if you understand the essence of the principles of their construction and operation in the orientation process, their use is simple. Most often the compass is used in an unknown space.



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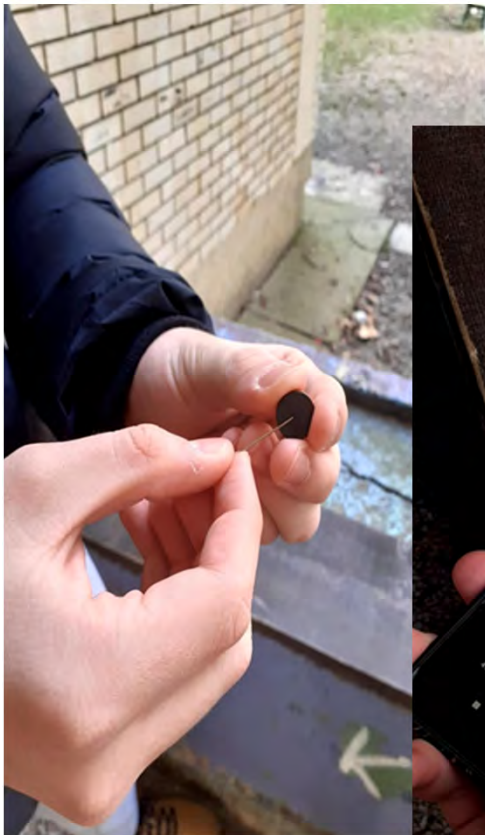
## Making a compass step by step

- Materials needed to make the compass

- -Needle
- -Magnet
- -Cut part of a bottle
- -Water
- -Tree leaf

- We need the materials listed to the left of the text. We will rub the needle with the sharp part from a magnet because it is metal and thus the tip of the needle will be magnetized. Then, without forgetting with which side we rubbed the compass needle, we put it on a tree leaf. Carefully place the leaf with the needle in a cut part of a water bottle with a little water in it. We put the needle on a leaf so that it does not sink in the water and thus its effect will be lost. Then we wait until the needle with the tip from which we rubbed it with the magnet rotates. When it stops moving then the up arrow will point north. This way we will be able to orient ourselves according to which side we should go.

# Pictures from the making



## A way of use

- There are different ways you can use a compass. For example, you go for a walk in a national park. But after a while you detach from the main path and lose orientation. You have a map of the park to the north showing the main path and to the south the parking lot. You do not know which side is north or south and the phone battery is low. So you can not find the right path. But by making the compass with the procedure above, you can easily and effectively find the way to the north for the path or to the south for the parking lot.



- Sources of information:
- Book of Physics
- Book of Chemistry
- Websites

# PH indicators

Acids and bases



# Natural PH indicators

Elementary school „Lazo Angelovski“

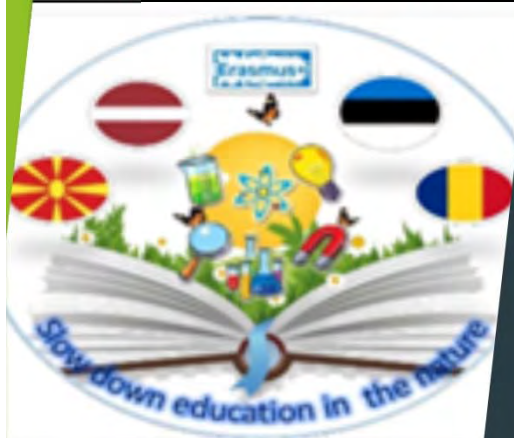
*The reason we made this project is to encourage other students to Study STEAM subjects in this case chemistry, for ex. We want to encourage everyone to study this amazing and funny subject.*

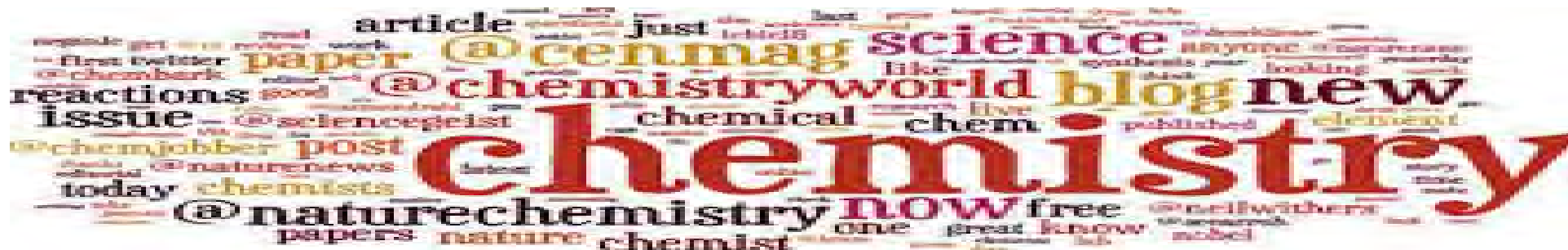
## Authors:

Martin Noveski IX-5  
Matej Pavlovski IX-1  
Stefan Grkovski VIII-1  
Pavel Zafirovski VI-3

## Supervisor:

Elena  
Kuzmanova





## Goals

We made this project in order to encourage other students to study STEM subjects, in this case the chemistry. It is interesting and beautiful subject.

## Methodology

Chemistry is the scientific study of the properties and behaviour of matter. It is a natural science that covers the elements that make up matter to the compounds composed of atoms, molecules and ions: their composition, structure, properties, behaviour and the changes they undergo during a reaction with other substances. In this project we have researched which substance is acidic, which is base and how much recording the colour of the fluid which is marked on the PH scale, (that colours on the PH-scale under 7 are bases, in colour Also we will teach you how to make own natural indicator at home..

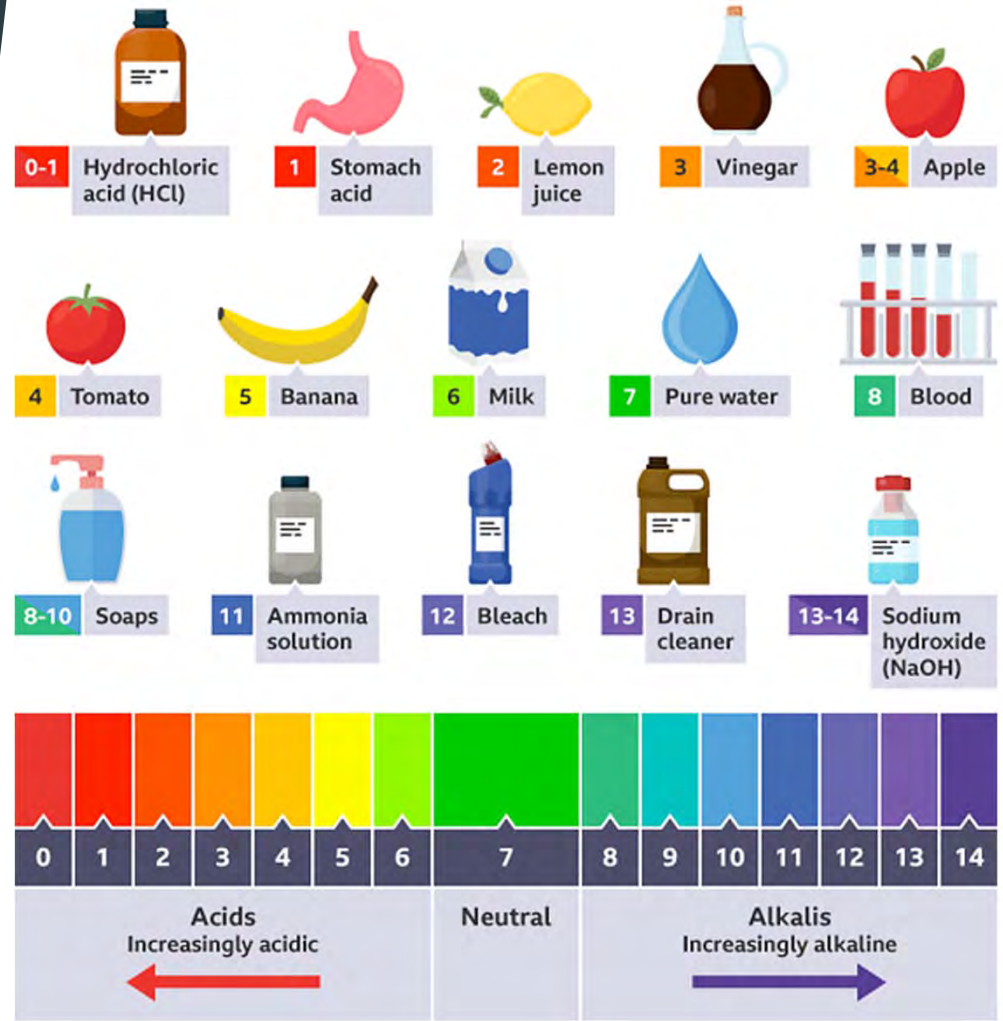




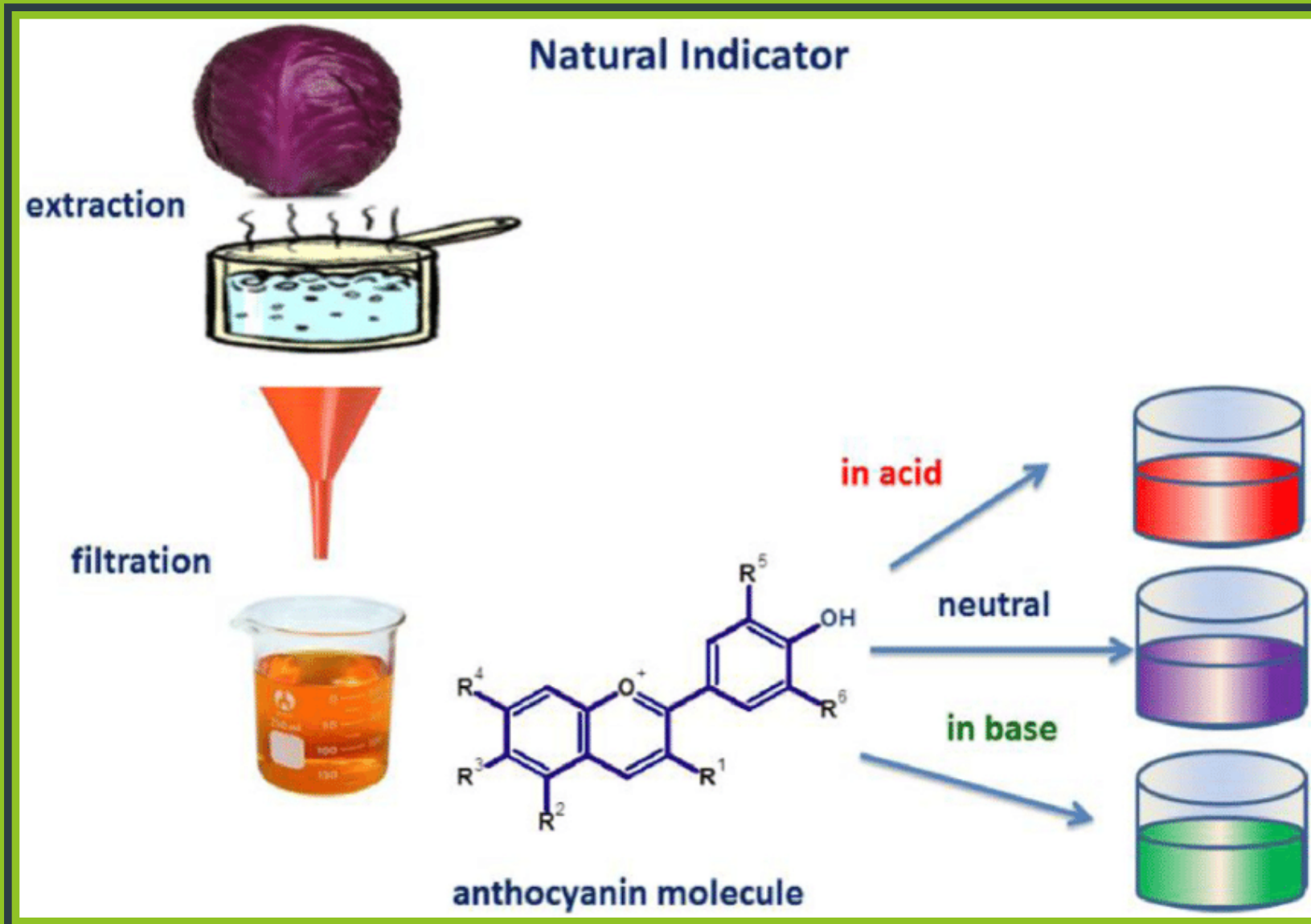
# PH Scale and the meaning of Ph indicators

In this picture, you can see the levels of the ph scale and how acidic or alkaline every substance is

From the levels 0-6 the acids are increasingly acidic, 7 is neutral ex. Pure water and over 7 are the alkalis that are increasingly alkaline

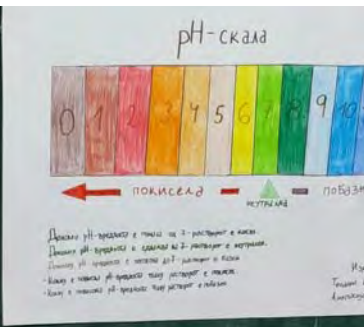


# Procedure





Уређених спојова на  
реакцијана



# Results



# The briefs

The brief from this project is that we found out how to make ph indicators by red cabbage to tested more substances.

Our second brief is this video about how to make homemade indicators.<https://www.youtube.com/watch?v=gaoe06wHya4>

Our third brief is that we found out everything about these indicators

Brief number 4 is that we found out how to make homemade indicators

We learned how to change colors

We learned how many levels the ph scale has

Our last brief was that we learned the substances that can make a ph indicator



# Used literature/ recources

- ▶ <https://mk.warbletoncouncil.org/indicadores-naturales-ph-13458#menu-2>
- ▶ <https://mk.wikipedia.org>
- ▶ <https://wikipedikia.org/mk/what-is-the-best-natural-indicator/>
- ▶ [https://hr.wikipedia.org/wiki/PH\\_indikatori](https://hr.wikipedia.org/wiki/PH_indikatori)
- ▶ <https://mk.nsp-ie.org/indicadores-ph-946>
- ▶ <https://ih.pmf.ukim.edu.mk/materials/download/9496874e19874e2d3c1b9e4f5d788fa9>
- ▶ <https://mk.costsproject.org/195-acid-base-and-ph-indicators.html>
- ▶ <https://www.youtube.com/watch?v=HmzK0zwJMZA>

Game-How much  
do I know about  
Ph indicators

LINK





**INFLUENCE OF PHYSICAL ACTIVITY**  
**ON THE HUMAN BODY**

Вид на проект: Поттикнување на здрав живот

Име на училиште: Лазо Ангеловски.

Ментори: Сандра Ноневска и Вангелица Поповска

Изработиле: Сара Стевановска 9-4,

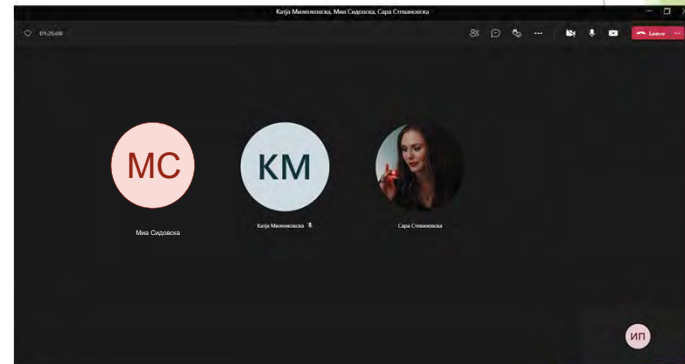
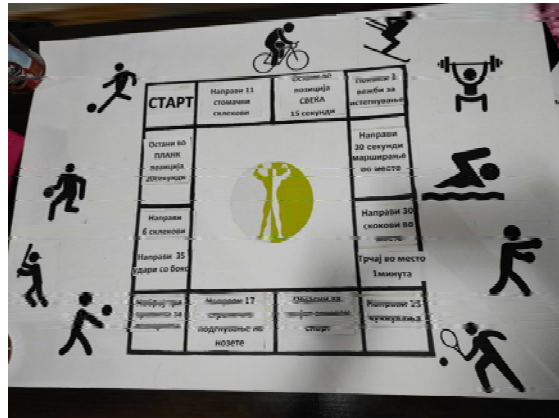
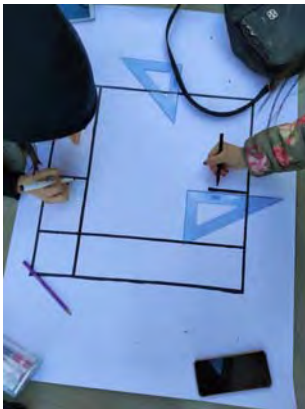
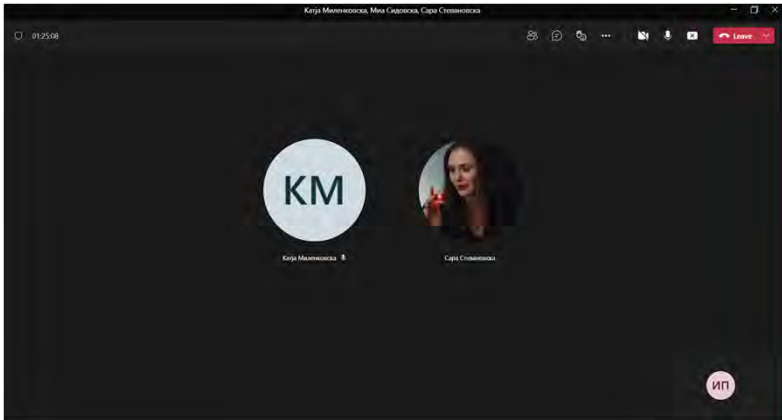
Исидора Павловска 7-3, Катја

Миленковска 9-6 и Миа Сидовска 6-6 .



## Цели на овој проект:

- Човекот да има по активен живот .
  - Да се подобри здравјето на човекот .
  - Да се мотивира човекот да вежба .
  - Човекот да има поздрав живот .
  - Да се покаже дека физичката активност е добра за телото .
- 
- Овој проект го работевме со метод на истражување и набљудување. Со помош на интернетот и книги истражувавме во делот на вежбањето, активниот живот на човекот и резултатите на човечкото тело, но направивме и анкети на нашите соученици, кои ни послужија околу заклучокот на ова истражување.



- Физичка активност е секоја активност која што ја подобрува и одржува физичката кондиција и здравјето на човекот.
- Физичките активности обично се групирани во три групи, во зависност од сите ефекти што ги имаат врз човечкото тело:
  - Вежбите за еластичност, како што се истегнување, го подобруваат движењето на мускулите и зглобовите.
  - Аеробните вежби, како што се возење велосипед, пливање, одење, скокање со јаже, веслање, трчање, планинарење или играње тенис, се фокусираат на зголемување на издржливоста на кардиоваскуларниот систем.
  - Анаеробните вежби, како што се тренинзите со тегови, ексцентричниот или спринт тренинг и тренинзите со висок интензитет, ја зголемуваат краткорочната мускулна сила.

- **Физичката активност го подобрува здравјето на човекот. И ние то го докажавме со нашето истражување.**
- **Редовното вежбање го зајакнува и го гради срцевиот мускул за поефикасно да пумпа.**  
Редовната физичка активност или вежбање ги намалува шансите за добивање срцеви заболувања.
- **Коски**  
Вежбите за носење тегови (на пример, одење, качување скали, кревање тегови) помагаат во зачувување на коскената маса и на тој начин штитат од остеопороза.
- **Зглобови**  
Вежбањето ги подмачкува зглобовите и ја намалува болката и вкочанетоста на зглобовите. Исто така, им помага на луѓето со артритис со зголемување на флексибилноста и мускулната сила.
- **Мускули**  
Вежбањето ги зајакнува мускулите и поради тоа мускулите може да ги заштитат коските и зглобовите од повреди. Силните мускули даваат поголема стабилност, рамнотежа и координација на човечкото тело.



➤ Прекумерно вежбање

Иако вежбањето и физичката активност се позитивни за телото доколку се прават премногу, тоа може да стане штетно. И да предизвика различни здравствени проблеми.

➤ Сон

Физичката активност помага да се елиминира несоницата. Затоа треба да се прав за да се подобри сонот

Име, презиме и одд на ученикот	Што спортува ученикот?	Колку време спортувал ?	Што променило тоа во нивното здравје?
Александра Митеска 7-3	Танц	7 години	Правилен раст на мускули и коски.
Филип Гацев 7-3	Боречки вештини	5 години	Килажа , мускули.
Давор Панајотов 7-3	Пливање	8 години	развиени мускули , добра кондиција и сила.
Симона Петровска 7-3	Пливање	5 години	Правилен раст на телото .
Леонид Блажевски	Бокс	4 години	Правилен раст на тело и растегнување.

Врз база на нашата анкета што ја направивме. Ние докажавме дека нашите соученици кои практикуваат некоја физичка активност имаат подобар раст на коските, мускулите и зглобовите, тие имаат подобро здравје и се повесели.

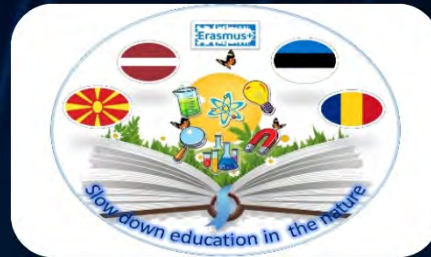
Име, презиме и одд на ученикот	Што спортува ученикот?	Колку време спортувал ?	Што променило тоа во нивното здравје?
Александра Митеска 7-3	Танц	7 години	Правилен раст на мускули и коски.
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Симона Петровска 7-3	Пливање	5 години	Правилен раст на телото .
Леонид Блажевски	Бокс	4 години	Правилен раст на тело и растегнување.
Христина Змејковска	одбојка	1 година	повеќе е среќна
Ена Велеска	Хип Хоп	6 години	и давало повеќе кондиција
Софија Тасиќ	карате	1 година	ја прави по силна
Ангел Саздановски	фудбал	1 месец	да е повеќе силен
Андреј Костадиновски	фудбал	3 години	има повеќе енергија
Леон Јовановиќ	пливање	6 години	има повеќе имунитет
Теона Тасеска	играорна	4 години	ја зголемила својата кондиција
Бисера Ацеска IX 2	пливање	3 години	повредата на ногата е исчезната
Екатерина Атанасова IX 4	јавање	2 години	зајакнати мускули и поголема кондиција
Тина Туџарска IX 4	фудбал	9 години	развиени коски и мускули
Ана Белинска IX 4	карате	4 години	исчезната е укоченоста во телото
Ева Блажевска IX 5	пилатес	1 година	зајакнати мускули
Иван Трајковски IX 3	фудбал	4 години	поголема кондиција

## Листа на користени ресурси за информации:

- <https://fitlife.com.mk/redovna-fizicka-aktivnost-pridobivki/>
- <https://fitlife.com.mk/%D1%84%D0%B8%D0%B7%D0%B8%D1%87%D0%BA%D0%B0%D1%82%D0%B0-%D0%B0%D0%BA%D1%82%D0%B8%D0%B2-%D0%BC%D0%B5%D0%BD%D1%82%D0%B0%D0%BB%D0%BD%D0%BE-%D0%B7%D0%B4%D1%80%D0%B0%D0%B2%D1%98e/>
- <https://www.mydr.com.au/physical-activity-benefits-to-your-body/>
- <https://study.com/academy/lesson/effects-of-physical-activity-on-body-systems.html>
- <https://ncert.nic.in/textbook/pdf/jehp102.pdf>

<b>Старт</b>	Покажи 5 вежби за истегнување	Направи 11 стомачни склекови	Наброј 3 правила за кошарката
Остани во ПЛАНК позиција 20 секунди	<div style="background-color: #ffff00; padding: 20px; display: inline-block;"> <h1>Прашања</h1> </div>		Направи 30 секунди марширање во место
Направи 6 склекови			Направи 30 скокови во место
Направи 45 секунди марширање во место			Трчај во место 1 минута
Наброј 3 правила за одбојката	Направи 17 странично подигнување на нозете	Остани во позиција СВЕЌА 15 секунди	Направи 15 чучнувања





Erasmus + KA 299 project „Slowdown education in nature“  
Elementary school „Lazo Angelovski“ Skopje

# The meaning of pH value

Created by: Gavril Azmanov 7th grade

Aleksandar Cvetkovski 7th grade

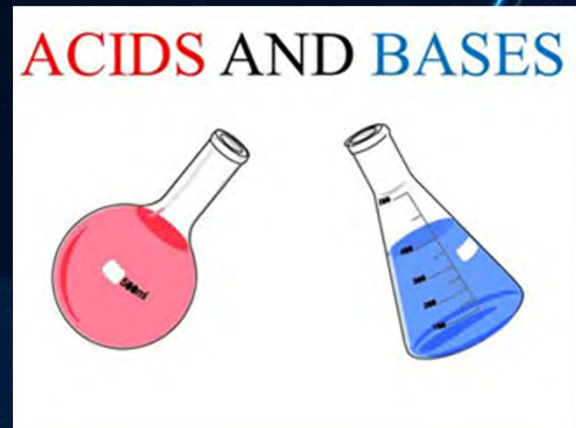
Marko Pavleski 8th grade

Teacher mentor: Lolita Trajkovska, Dalibor Saveski

Chemistry is natural science, the study of composition of matter, the study of all substances and the changes that they can undergo.

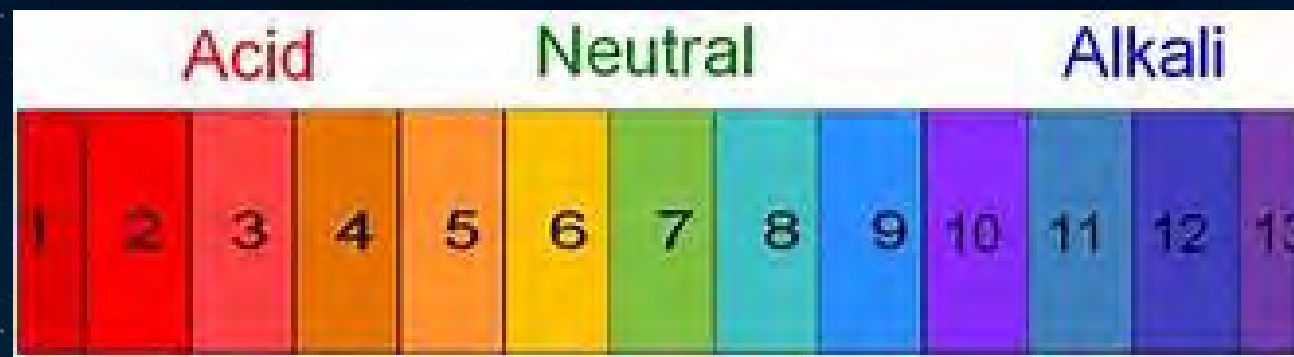
### **Goals of the project:**

To encourage pupils and students to develop interest for Chemistry and all STEM subjects.



# Why is pH important?

- In production plants, laboratories, when checking the quality of drinking water, as well as soil quality, it is necessary to monitor the pH value.
- In chemistry, pH is an indicator of acidity. We say pH is an indicator of hydrogen.

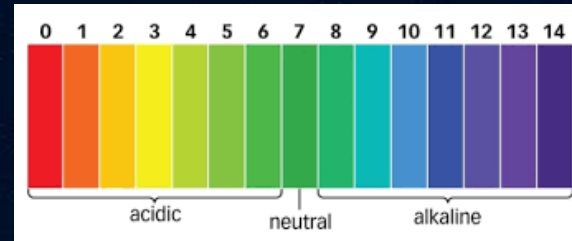


# How is pH measured?

- The pH of a liquid can be 7.0. Then we say that the liquid is pH neutral.
- If we get a value higher than 7.0 by measurement, it means that the environment is alkaline. We say - there is no acidity, there is alkalinity. This value can go up to 14.
- If it is below 7.0, we say there is acidity. The lower the number - the higher the acidity. The most acidic liquid will be with the value of 1.0.

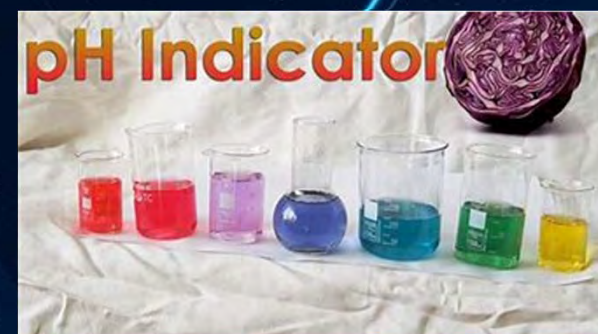
# What is pH used for?

- Indicators are the substances we use to indicate the acidity or alkalinity of the test medium.



# How to make an indicator at home?

- Materials needed:
- - Red cabbage, pot, water, test tubes and various substances.
- Procedure
- - We take a few leaves of red cabbage and boil them in water. Wait a few minutes for the water to turn dark purple and then extract small amounts of water at most 7 ml and mix with another substance. The color can change to red, blue or green if it is red it is an acidic environment. If it is blue it is neutral and if it is green it is basic.



# What is most commonly used in chemistry as a pH indicator?

- The most commonly used indicator in the industry is neutral litmus paper. When placed in a base medium, it turns blue and in an acidic environment, it turns red.
- There is also blue litmus paper and red litmus paper. They are colored in the same way as described above.
- Chemicals used as indicators are methyl genus, methyl orange, phenol phthalenine, potassium bichromate, iodine and many others.

# ADVENTURE ALL AROUND YOU

Topic: How to involve peers in healthy lifestyle activities

**Martha-Lii Voolma**

**Anette Leigri**

**Amanda Liisa Liister**



**Palade Basic School**



# MAIN ACTIVITIES

- Adventure game in school house
- Outdoor learning map
- Outdoor adventure game collaborated with other team- for individual exploring or with families
- Camp fire food -collaborated with other team



# AIMS OF THE PROJECT

- Creating new possibilities for more exciting school days
- Encouraging peers to work in teams
- Offering learning possibilities during inside and outside activities
- Teaching peers to think out of the box and using creative way to solve situations
- Teaching peers to use their creativity for create an adventure by themselves
- Keeping peers active



Using black coffee for colouring the adventure map



# METHODOLOGY

- **Creative approach:**

- using creativity to create new situations, challenges and tools
- using creativity for exploring and solving these situations

- **Active thinking:**

- critical and positive thinking, analyzing, exploring and organizing

- **Outdoor learning:**

- exploring by outside activities-  
collecting knowledge in nature



# ADVENTURE BOOK- INSIDE ACTIVITY AND TEAMWORK



# OUTDOOR LEARNING MAP- FOR INDIVIDUAL EXPLORING IN NATURE

1 Kust algab Suuremõisa õpperada?

2 Mitu võõrpuuliiki on pargis?

3 Mitu võõrpuuliiki on parkmetsas?

4 Nimeta haruldane männiliik, mis kasvab sellel õpperajal

5 Mitu haruldast nululiiki kasvab õpperajal?

6 Mitu haruldast kuuseliiki kasvab õpperajal?

7 Kui pikk on õpperada kilomeetrites?

8 Millised Eesti suurimad puud kasvavad õpperajal?

9 Kes rajas Hiiumaa kõige esinduslikuma pargi?



Suuremõisa õpperada  
park ja parkmets



# OUTDOOR ADVENTURE MAP



SEIKLUSMÄNGU JUHEND



- KASUTADES AARDEKAARTI
- AARET JAHTIDES LÄBI KÕIK KÄÄRDID OLEVAD PUNKTID
- JÄRJEKORD EI OLE OLULINE- VÕID MÄNGU ALUSTADA ÜKSKÕIK, MIBI SEEST PUNKTIST JA LÕPETADA SEAL, KUS SOOVID
- VÕID MÄNGIDA ÜKSI, PERE VÕI SÕPRADEGA
- OBJEKTE KÜLASTADES PÜÜA LAHENDADA NII PALJU MÕISTATUSTI, KUI OSKAD
- PANE VASTUSED KIRJA JA TOO KOOLI- ÄRA UNUSTA LISAMAST VASTUSTE ETTE OBJEKTI NÜMBRIT

@created by Martha, Anette, Amanda ja Elisabet, Eliise, Karel



# SEIKLUSMÄNG



## KÜSIMUSED JA ÜLESANDED

1. Kes või mis on nautiloidid? Vastuse leiad Palade LHK kivimitemärgast
  2. Millises Soera Talumuuseumi hoones asub suur pesurull?
  3. Millise looma moodi on lasteaias õuealal kasvav ilupõõsas?
  4. Mitu raamatukogu on Pühalepa osavallas? (Nimeta)
  5. Kelle nimeline pink/kiik avati Pühalepa Vaba Aja Keskuse ja suuremõisa kooli õuealal?
  6. Kui pikk on Orjaku õpperada?
  7. Mitu masti on Sõru sadamas seisval Alaril?
  8. Mine otsi Auguga kive ja tee endale amulett
  9. Kui kõrge on Kõpu tuletorn merepinnast?
  10. Mis asjad on Kärdeas asuvad „trummid“?
  11. Tee kodus leigrija pilt
- NB! Need punktid, mida sa külastada ei saa või asendada 10 000 sammuga - tee oma tulemustest pilt ja too kooli**

@created by Martha, Anette, Amanda ja Elisabet, Ellise, Karel



# SEIKLUSMÄNG



8

9

10

1  
2

4

3  
5

6

11



@created by Martha, Anette, Amanda ja Elisabet, Eliise, Karel

7





# WORK PROCESS

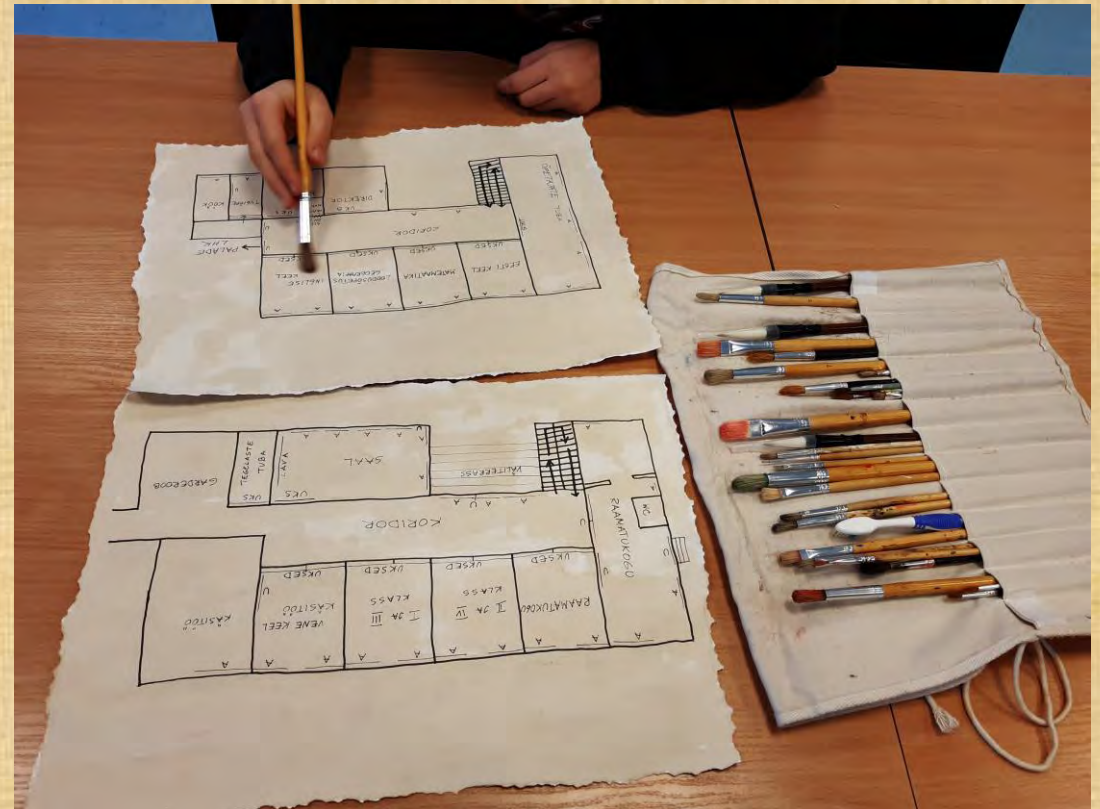
- Meeting online with project coordinator
- Meeting with team at school
- Meeting with other teams at school once a week
- Preparing our ideas in school library



# WORK PROCESS

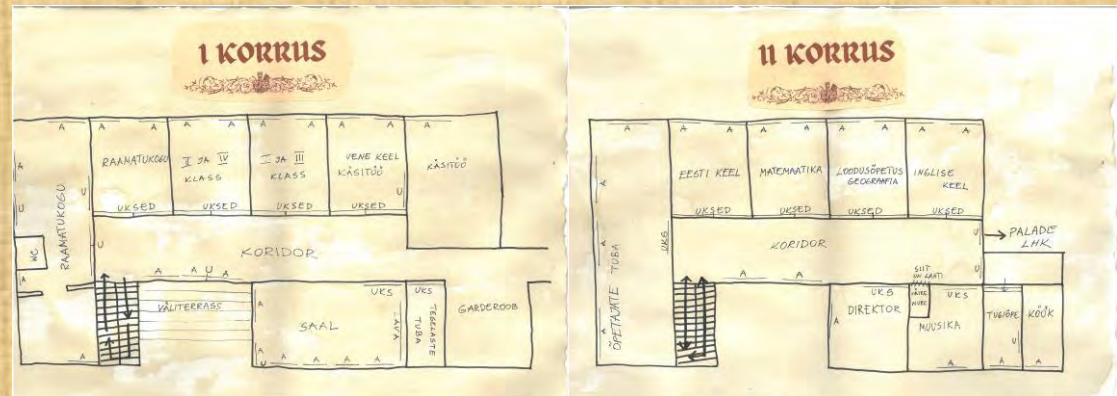
- Collecting ideas in school library
- Exploring school house for the adventure game
- Creating the adventure maps and situations all around the school house
- Creating the adventure book for the adventure game
- Cooperating with ohter team

Using coffee for colouring the adventure map



# WORK PROCESS

- Creating exciting adventure book with lots of secret letters and logic tasks
- Hiding tasks and tools for inside adventure game in school house
- Explaining the adventure game to peers
- Visiting Suuremõisa study trail to collecting ideas for outside learning map
- Having fun together



The bottom section of the image contains three panels related to the adventure game. The left panel, titled "Sümbolite tähendused" (Symbol meanings), shows illustrations of a candle, a hand holding a magnifying glass, an open book, glasses, a book, and a quill pen, with arrows pointing to their respective labels: "vajad abivahendit" (need an aid), "süüta valgus" (light the candle), "võti lüügi" (open the door), "jälgi meelde" (follow the path), and "pane kirja" (write down). The middle panel shows a grid of secret letters (A, U, K, S, E, D) arranged in a pattern, with a magnifying glass icon and a red circle around one of the letters. The right panel contains three numbered tasks in Estonian, a small illustration of a building, and a book icon. The tasks are: 1. Find a book in the library that has a secret letter hidden in its title. 2. Find a book in the library that has a secret letter hidden in its title. 3. Find a book in the library that has a secret letter hidden in its title.

# WORK PROCESS

- Having fun together





# Forest School and Adventure Activities

Topic: *How to involve peers in healthy lifestyle activities*

Elisabet Kallas

Eliise Juhe

Karel Kivila

Palade Basic School

# Aims of the project



- ▶ To involve peers in healthy and active lifestyle
- ▶ To show peers many possibilities for having fun in fresh air and forest all season long
- ▶ To teach peers how to make fire for camp and cooking
- ▶ To teach peers some easy tricks and DIY for being safe in nature
- ▶ To teach peers useful tools in forest and how to use them properly
- ▶ To offer peers emotions and experiences

# Methology

- ▶ Learning by doing and from peer to peer learning method:
- ▶ practical and useful instructions from experienced peers
- ▶ Hands-on activities and teamwork with other students
- ▶ Safe experiential learning
- ▶ Nature experiences:  
Being outside with different kind of weather and all season long
- ▶ Me-feeling and group-experience and -emotion:  
mental and physical achievement, creativity

# Work process

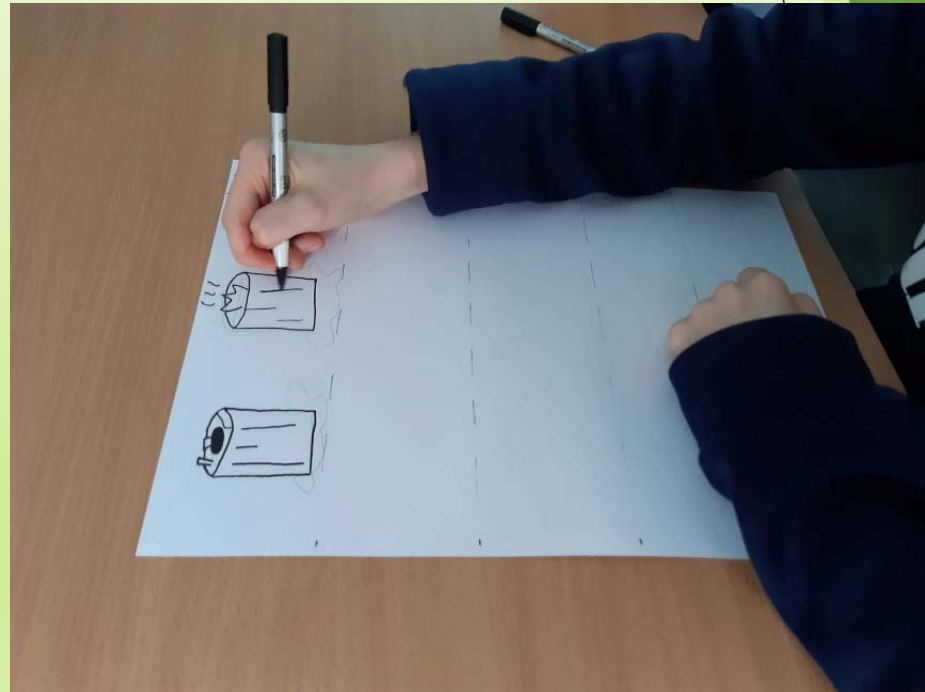
- ▶ Meetings in Messenger group with Project coordinator and with team
- ▶ Meetings at school with team and teachers
- ▶ Meetings at school with other Project teams





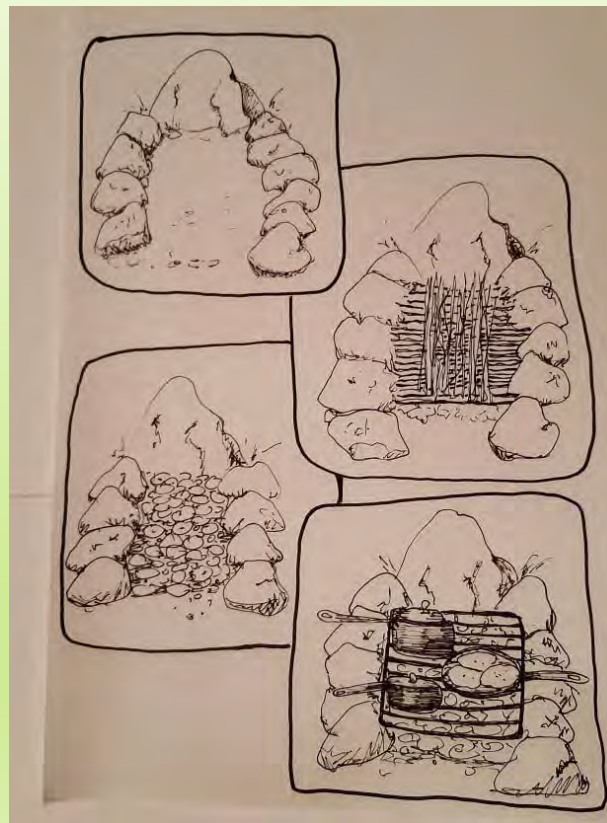
# Work process

- ▶ Collecting ideas from internet
- ▶ Choosing our favourite activities to show to other students
- ▶ Making some drawings and sketches about main ideas
- ▶ Discussion with team about everyone's best sides and abilities to teach peers some outdoor activities
- ▶ Meeting with teachers and principal about dates and students who participating in our activities



# Work process

- ▶ Some examples how to make a good fire place for cooking tea, pancakes or boiling eggs
- ▶ Some examples which kind of fire places are best for getting warm or cooking



## PÜSTINE LÕKE

Sobib lõkke ümber istumiseks.  
Annab hästi sooja ja valgust. Põleb kiiresti



## LAPI TÕRVIK

Annab välja veidi sooja, kuid sobib hästi kuuma joogi valmistamiseks. Põleb aeglaselt



## RISTI-RÄSTI TULEASE

See lõke on kõige parem söögi valmistamiseks. Annab hästi kuuma ja põleb kaua aega

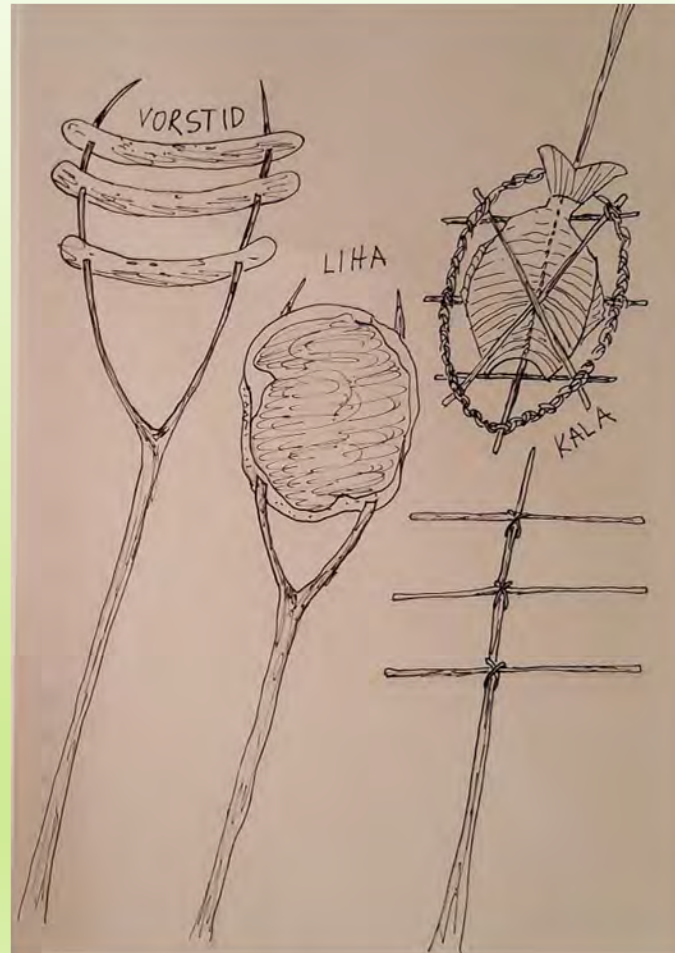


## LUKUAUGU MOODI TULEKOLLE

Parim kombinatsioon kõigest. Võimaldab teravat tuld teha keskele, toota küpsetamiseks sütt ning teha ka risti-rästi tulease

# Work process

- ▶ Some examples how to use branches as a tool for cooking sausages, meat or fish



# Work process

- ▶ Collecting ideas from internet
- ▶ and using them as an appetizer for the rest of activities
- ▶ Collaborate with other team who's one of their activities is healthy cooking



# Work process

- ▶ Adventure tools for using in fresh air activities:
- ▶ Fire starter
- ▶ Compass with whistle and thermometer
- ▶ Cord for binding
- ▶ Signal smoke for make yourself noticeable when getting lost



# Work process

- ▶ Using the fire starter



# List of information sources

- ▶ <https://www.tlu.ee/opmat/tp/seiklus.pdf>



# LICEUL TEHNOLOGIC TOPOLOVENI

Names:

Ionescu Iulia

Sanda Maria

Militaru Maya Ștefania

Clasa a VII-a A

Type of project work :STEM  
Subjects

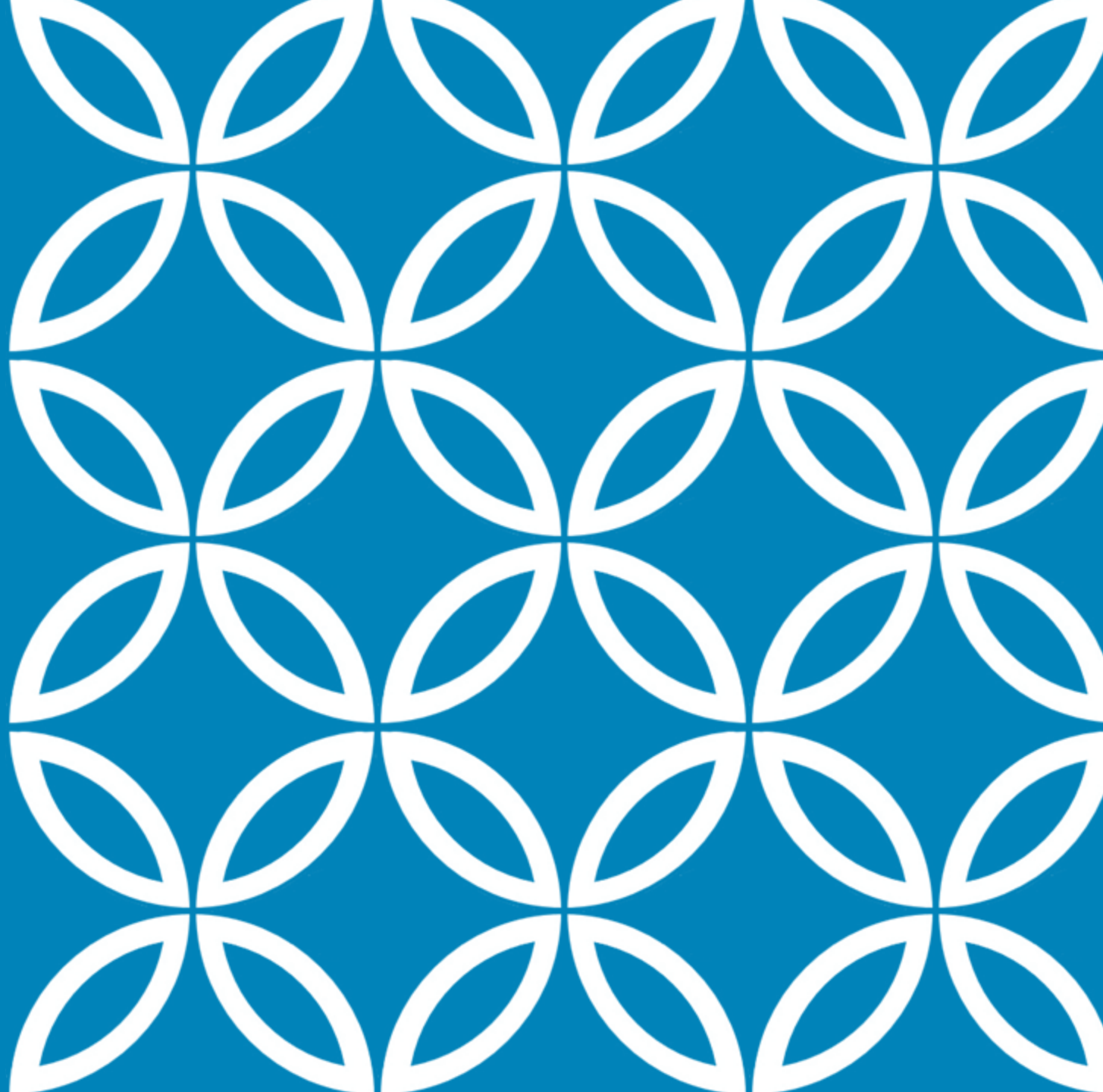


# MATHEMATICS

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Online and physical games such as passing the ball with numbers on it and subtracting or adding 2 numbers, as well as online games.

- Riddles that have numbers or equations as answers.
- Pop culture references in equations or results.
- Less homework and more explanations or results and class participate.
- More straight forward lessons.

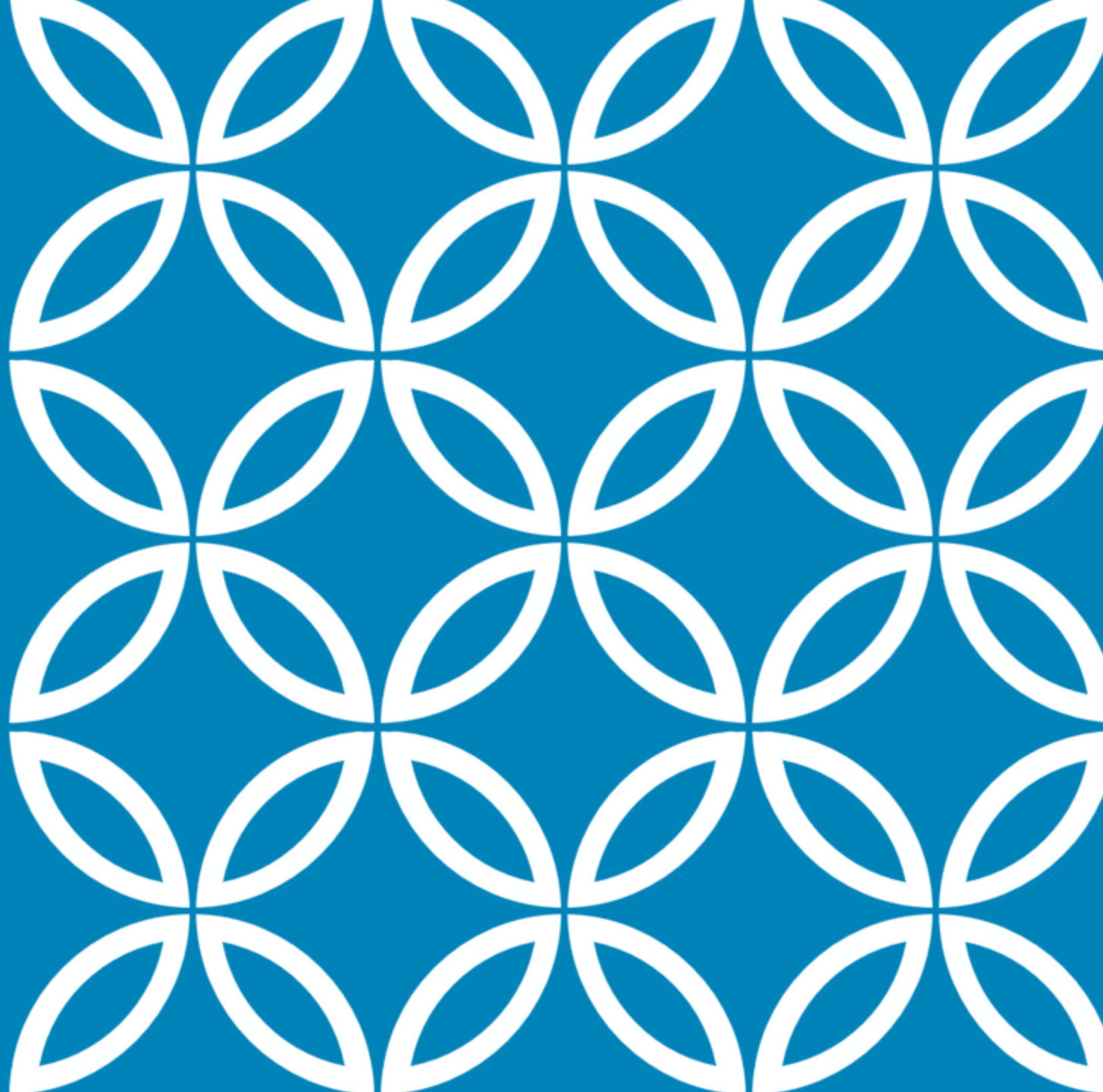


# BIOLOGY

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**Taking students outside for experiments.**

- **Making students solve kahoots and interactive PowerPoints.**
- **Fun informative and interactive videos appropriate for teenagers.**
- **Multiple outside projects.**
- **Small mystery games (Taking students outside and making them solve small mysteries about the wildlife).**

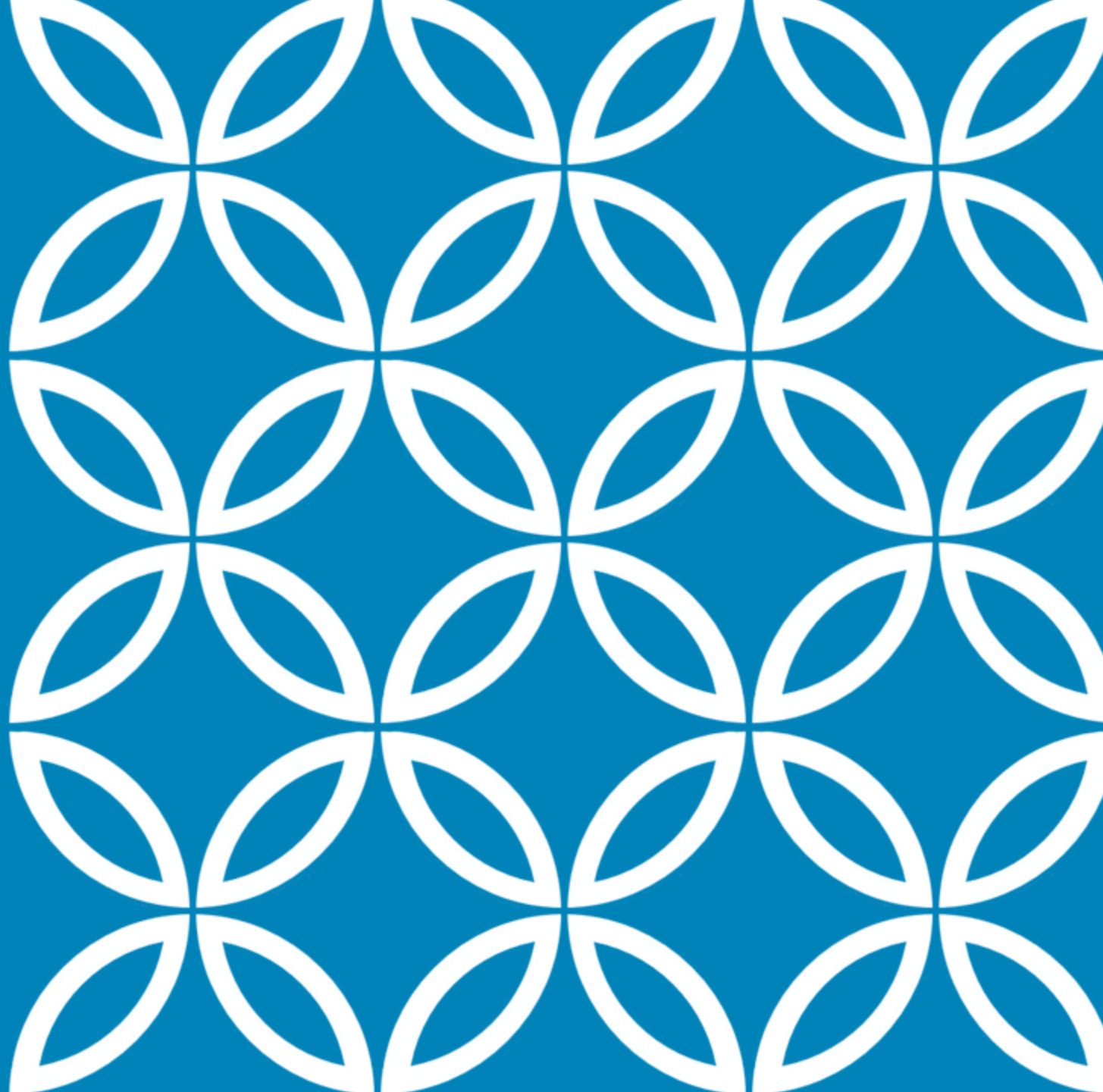


# PHYSICS

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## Outside exercises.

- **Real life science and calculations.**
- **Interactive games.**
- **Make students craft things that help with explanations.**
- **Make students find out the speed/weight of things around them.**

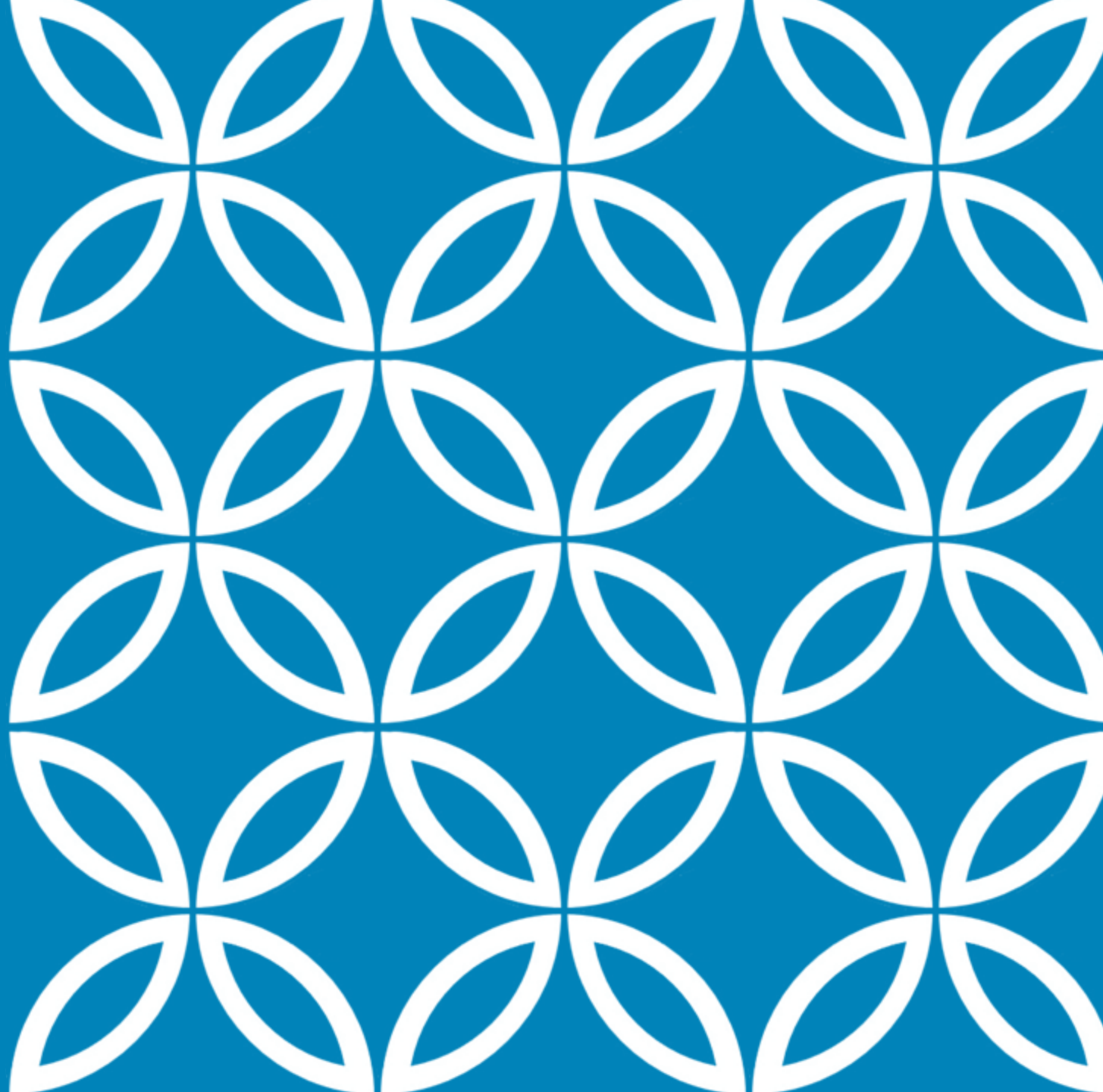


# CHEMISTRY

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## Funny experiments.

- After every answer, you can celebrate with colorful stickers, emojis that correspond with the answer you gave.
- Visit popular chemistry museums.
- Celebrate National Chemistry day.
- Teachers can teach less information and will give easier explanations for the lesson.

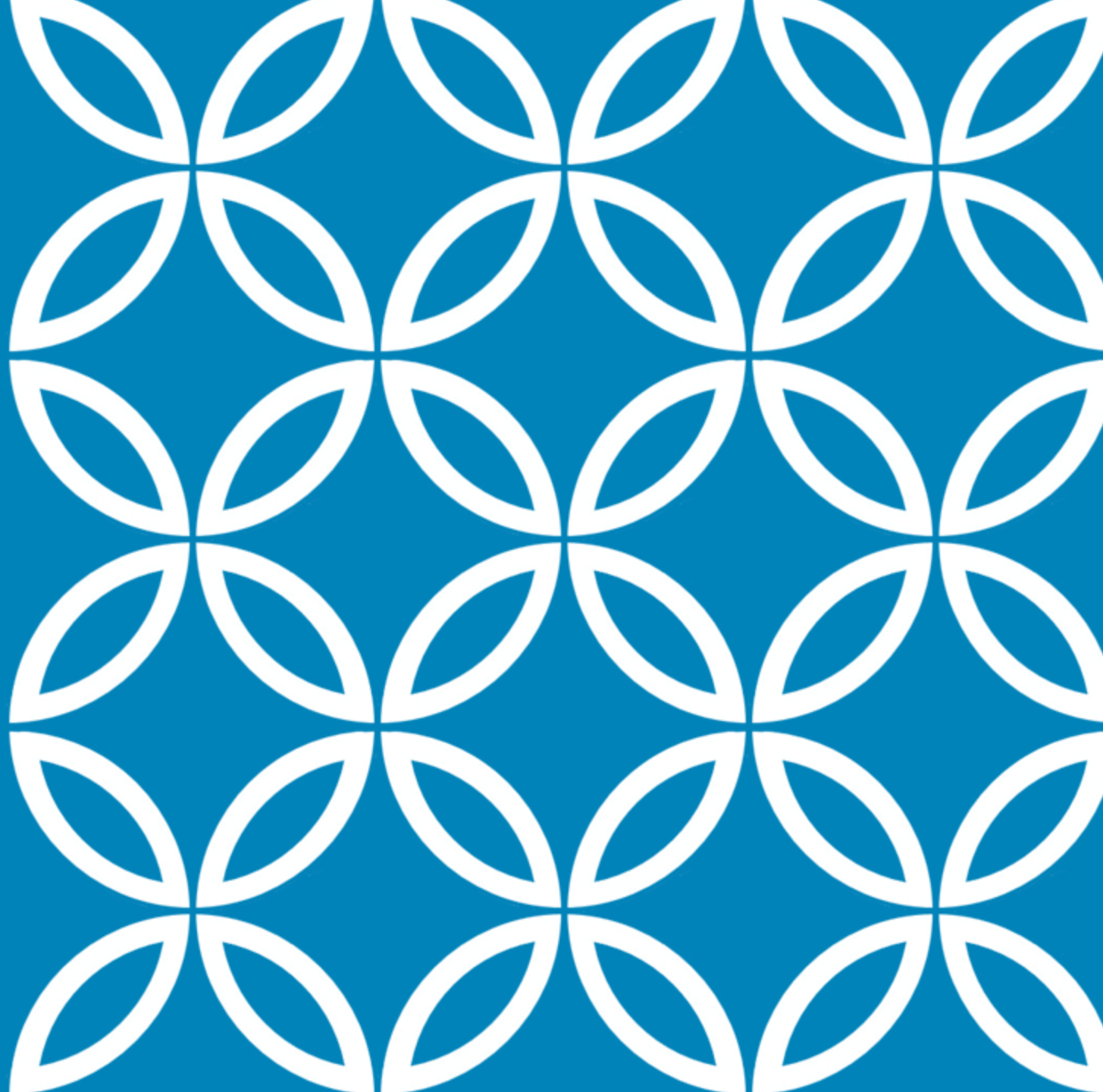


# OVERALL CHANGES:

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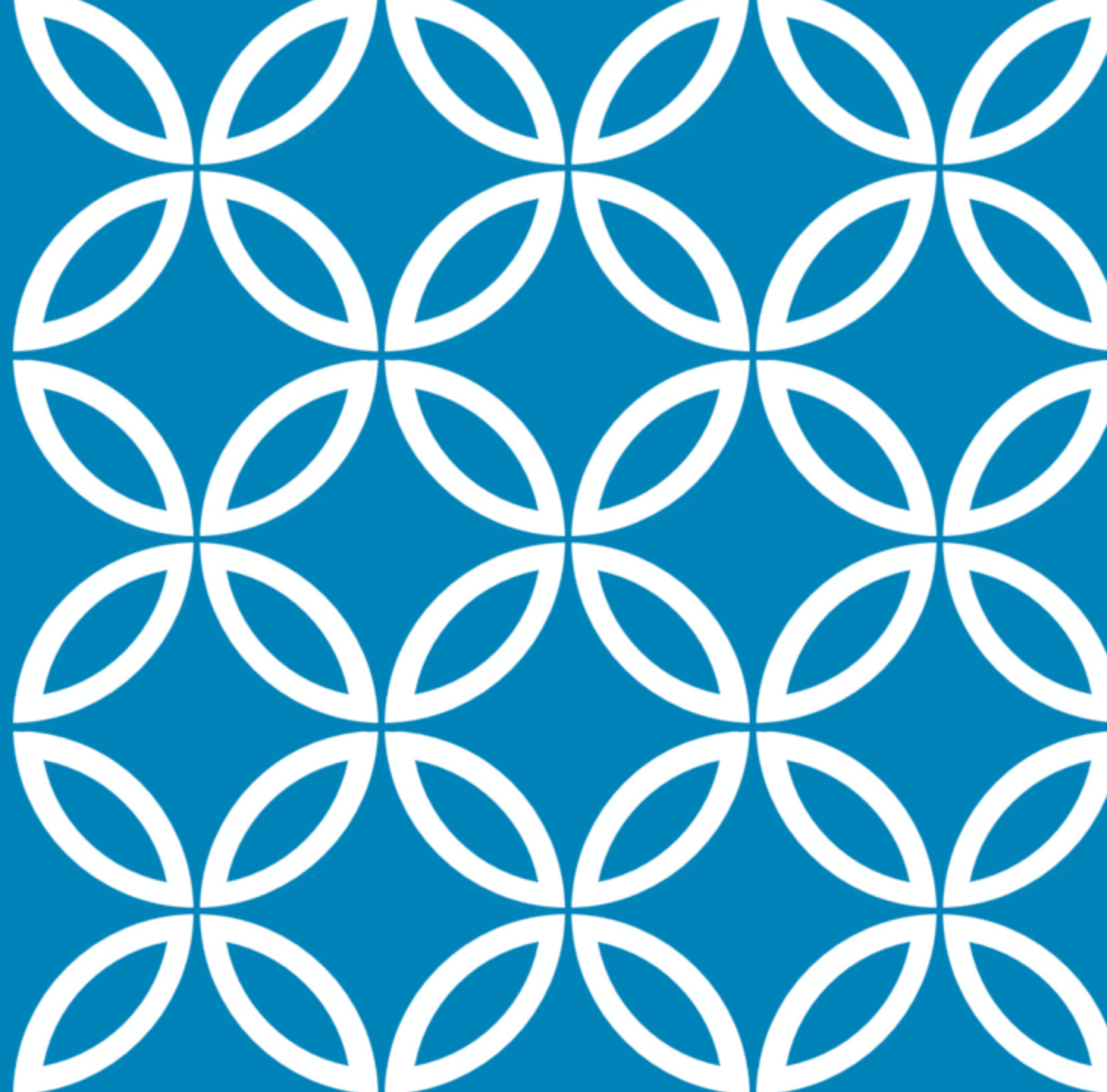
**Make students feel safe and happy.**

- **A lot of projects and activities.**
- **Small pop quizzes at the end of every lesson.**
- **Less restraints for students.**
- **Teachers will teach easier lessons.**
- **Teachers can play relaxing music in the background of every lesson.**



**THANK YOU FOR  
YOUR TIME SPENT  
WATCHING OUR  
PRESENTATION!**

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# Healthy life stile



School: Liceul Tehnologic Topoloveni

By: Călinoiu Lorena Maria, Mușat Maya Andreea  
and Roșoga Maria Alexandra

Class: 7A

---

# Description

1) *Healthy muffins with carrots*

2) *How to do it*

3) *Food pyramid*

4) *What is bad about sugar*

5) *What is good about fruits*

---





# Healthy muffins with carrots

---

## Ingredients:

---

200g flour

---

1½ spoons of bicarbonate

---

¾ spoons of salt

---

1 spoon of cinnamon

---

1⅓ cups of sugar

---

Two caarots

---

---

1⅓ cups of grape seeds oil

---

1 spoon of white vinegar

---

1 spoon of vanilla essence

---

80 ml of milk

---

2 eggs

---



# How to do it

- In one bowl put all the dried ingredients and we mix them
- We grate the carrots
- In another bowl we put all the liquid ingredients including the carrots and then we mix them
- After that we mix the two compositions together then we add the milk and the eggs and we mix again
- We put the composition in the muffin tins in the preheated oven at 117 degrees
- And then we wait 20 minutes so they can cook and now you are ready to enjoy them !



# Food pyramid



<https://www.stockfood.no/images/00260800-Food-pyramid-for-a-balanced-diet?query=q%3DFood%2520Pyramid&i=1>

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Fats,oils&confectionary

Meat,diary,milk,alternatives

Fruit&vegetables

Bread,cereales&potatoes



## What is bad about sugar ?

Rates of obesity are rising worldwide and added sugar, especially from sugar-sweetened beverages, is thought to be one of the main culprits.

For example, a study in 2,300 teens demonstrated that those who frequently consumed added sugar had a 30% greater risk of developing acne

### **Increases Your Risk of Type 2 Diabetes**

The worldwide prevalence of diabetes has more than doubled over the past 30 years

Eating excessive amounts of sugar can cause developing certain cancers

A study in over 430,000 people found out that added sugar consumption was positively associated with an increased cancer risk.

Eating too much sugar can cause cavities

Having consistently high blood sugar levels can cause damage to the delicate blood vessels in your kidneys.

### **Increase the risk of developing gout**

**Accelerate cognitive decline:** High-sugar diets can lead to impaired memory and have been linked to an increased risk of dementia





# What is good about fruits ?

- Eating more fruits is an excellent way to improve overall health and reduce the risk of disease.
- Eating fruits can reduce the risk of : heart disease, cancer, inflammation and diabetes
- Lemons are a citrus fruit that people often use in traditional remedies because of their health benefits  
Circuits fruits, include lemons, contain active components called phytochemicals that benefit health. These include:
- Vitamin C
- Folic acid
- Potassium
- Pectin
- In one study ,women who ate 3 or more serving per week of strawberries and blueberries - which are both known for their high anthocyanin content—had a lower risk of having a heart attack than those with lower intake.