ERASMUS+ PROJECT

# DigitAll

A Guide On Educational Apps
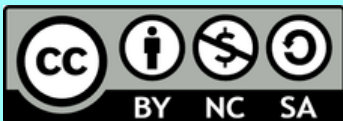
# Partner schools

**LICEUM OGÓLNOKSZTAŁCĄCE IM. WOJSKA POLSKIEGO POLAND**

**FORTE DA CASA PORTUGAL**

**HÜRRIYET ANADOLU LISESI TURKEY**

**SOU GYMNASIUM GOCE DELCHEV NORTH MACEDONIA**

PROJECT TYPE: KA210-SCH-SMALL-SCALE PARTNERSHIPS IN SCHOOL EDUCATION 2021-1-PL01-KA210-SCH-000031360

DURATION: 18 MONTHS (1.01.2022-30.06.2023)

# IN THIS GUIDEBOOK...

In this guidebook we present the information about the project DigitAll and the mobilities while providing pictures from them, some useful apps used in education, info about being safe in the Net through a presentation about cybersecurity, then presentations about educational apps as well as lesson plans for classes in school.

# What is "DigitAll?"

"Digitall" Is an Erasmus+ project whose goal is to improve and ease the process of digitalization in the education process through interactive and interesting activities in schools, such as incorporating educational apps in the teaching-learning process by both the students and the teachers in said schools, using different tools in the classroom that revolutionize learning thanks to modern-day technology etc.





These mobilities encourage students to get to know and be introduced to new ways of learning during classes, which can be incredibly helpful when trying to grasp difficult concepts in school.
Another advantage is the increased level of collaboration and interaction between pupils that these mobilities bring.

For the teachers, on the other hand, these mobilities allow them to get some insight as to what type of teaching they need to incorporate in their class so that their students can better understand the lesson, but also have fun when learning.





So far, these 3 mobilities, held in Poland, Portugal and Turkey, have proven to be very successful in accomplishing the desired goals of the 4 partner countries: Poland, Portugal, Turkey and N. Macedonia.
The biggest advantages in the teaching-learning process have been noticed when incorporating educational apps in schools.
In continuation, here are short explanations of the activities in the past 3 mobilities held in Poland, Portugal and Turkey.
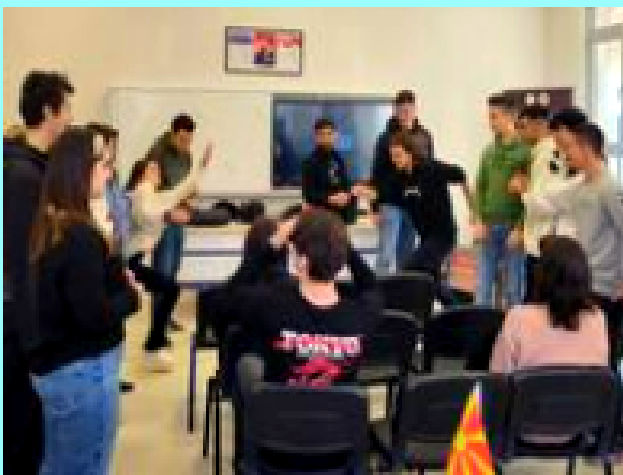
# 1.Polish mobility-HOW DO WE USE THE INTERNET IN THE CLASSROOM?

**In the first mobility, the main goal was, just like the title of the project says, the way both the teachers and students use the Internet during classes in school, as well as what the advantages of that are in the teaching-learning process.**

**It was a very insightful mobility, for both the teachers and the students.**







# 2.Portuguese mobility-LET'S DISCOVER GOOGLE APPS!

**In the second mobility, the students discovered the different types of Google apps that can be used in the teaching-learning process.**

**The students also visited many tourist attractions in Lisbon and areas close to Lisbon.**

# PHOTOS FROM ACTIVITIES DURING THE PORTUGUESE MOBILITY

# 3.Turkish mobility-VIDEO IT

In the third mobility, the students underwent classes whose goal was to discover the different types of programs that can be used to create videos-both phone and computer programs/apps.

They also visited many sights in Bursa in their spare time and hung out with all the students and their hosts.







# 4.Macedonian mobility-YOUR FUTURE IS LOADING, READY?

In the fourth and final mobility, the students learned about how modern technology has become such a crucial part of people's lives, including teenagers today. They also learned about the different jobs that have both appeared and disappeared in recent times, as well as how today's technology can make them earn money by having online jobs etc. They visited many sights, museums, national treasures...

In continuation, here are some of the most used and most helpful educational apps that students and teachers can use in the teaching- learning process in schools.

# PHOTOS FROM ACTIVITIES DURING THE TURKISH MOBILITY

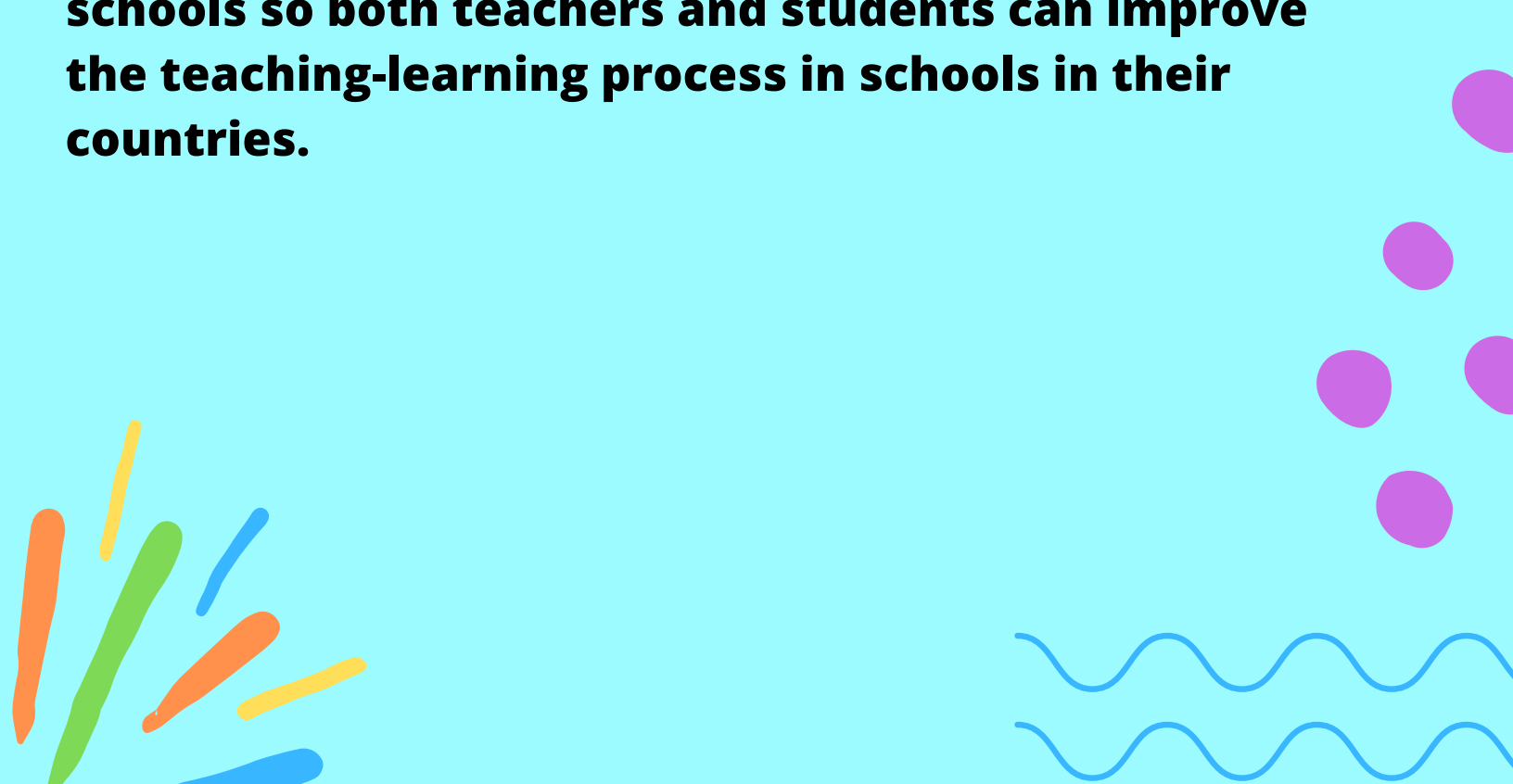# PHOTOS FROM ACTIVITIES DURING THE MACEDONIAN MOBILITY:YOUR FUTURE IS LOADING, READY?

# IN CONTINUATION...

In this project, through all the mobilities, the teachers and the students from the partner schools cooperated whilst learning and researching about educational apps and how they can implement them in the school process.

In continuation follow educational apps that both the teachers and students find to be helpful while tackling learning and teaching new materials in schools so both teachers and students can improve the teaching-learning process in schools in their countries.

# 1.Mathematics

## MICROSOFT WHITEBOARD

Microsoft Whiteboard is an application that is automatically installed on almost all Windows computers. As the name suggests it is essentially a digital whiteboard where you can write and draw anything you want and even use built-in tools such as rulers, erasers, notes, shapes etc. It is great for writing out and solving mathematical problems because you don't need to spend all that time erasing and slowly writing with chalk.
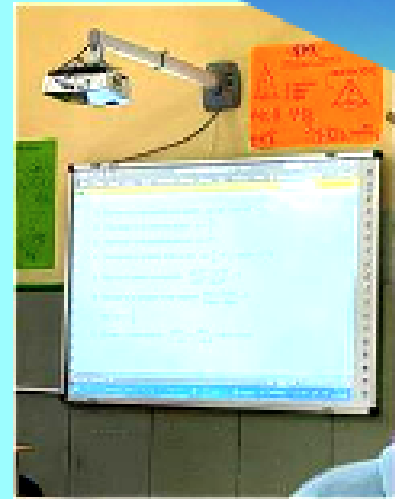
## PHOTOMATH

Photomath is a mobile computer algebra system designed for use with a smartphone's camera to scan and recognize mathematical equations and then display a detailed step-by-step explanation on the screen. Photomath can practically solve any mathematical equation you can think of, and because of that it's incredibly useful. Students from all around the world use Photomath to check their answers for homework and study for tests.

## GEOGEBRA

Geogebra is a free graphing app that lets you graph functions, investigate equations and plot data. It also allows you to visualize and manipulate functions, vectors, graphs and geometric shapes. This helps the student grasp more complex geometric concepts. It is a very useful and powerful app and can be used to loads of geometric problems no matter which grade level students are at.
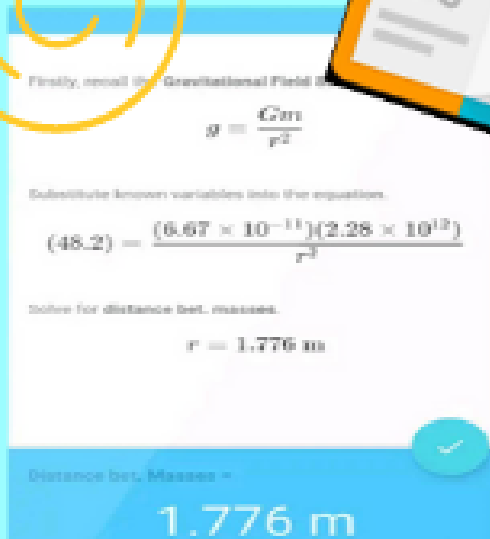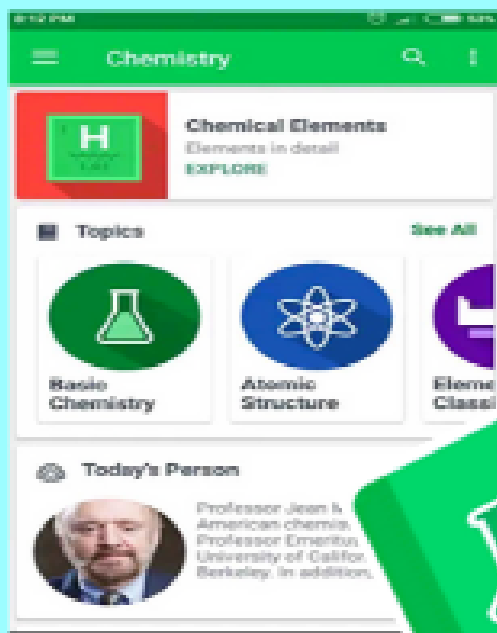
# 2.Physics

## PHYWIZ

Phywiz is, as it says in the app's description, your personal physics wizard. It includes a lengthy list of a formulas and hundreds of practice questions and detailed solutions on every topic: kinematics, energy, forces, quantum physics etc.
It provides a list of exercises for all grade levels.

Finally, recall the **Gravitational Field**

$$g = \frac{Gm}{r^2}$$

Substitute known variables into the equation.

$$(48.2) = \frac{(6.67 \times 10^{-11})(2.28 \times 10^{12})}{r^2}$$

Solve for **distance bet. masses**.

$$r = 1.776 \text{ m}$$

Distance bet. Masses =

**1.776 m**

# 3.Chemistry

## CHEMISTRY PRO

Chemistry Pro is an app which has an enhanced periodic table with details about every individual element. It has quick lectures on certain laws and principles in the world of chemistry. It also includes biographies of famous chemists who have made big discoveries in their own branch.

## CHEMIX

Chemix is an educational app that lets you easily draw lab diagram setups and explain your experiments. It has a large library of highly customizable apparatus and various features to help you draw diagrams with ease. Chemix is intuitive to use and easy toy pick up. Students will be drawing complex diagrams in no time!
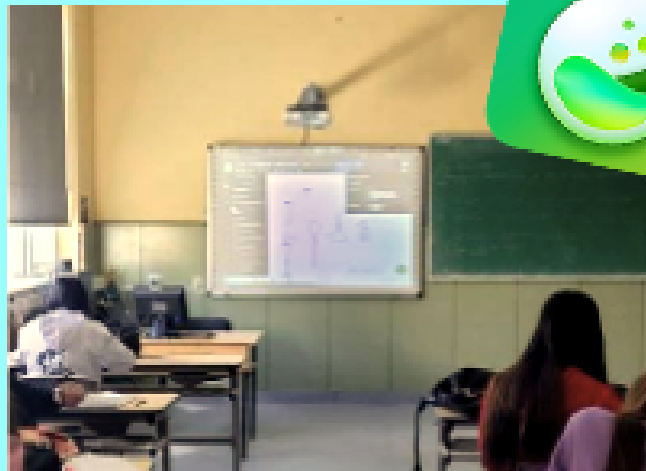
# 4.Information technology

## CODE:BLOCKS

Code Blocks is a free, open-source cross-platform coding application that supports multiple compilers. The current available languages in Code Blocks are C, C++ and Fortran. In education, Code:Blocks is used only for learning how to write code in C and C++ by students.

The reason why this compiler is better than any other online one is because of its sheer amount of speed and easy-to-understand layout.
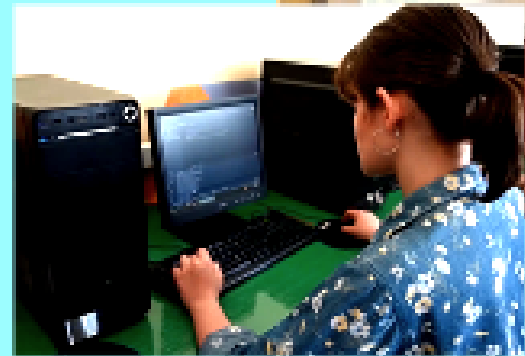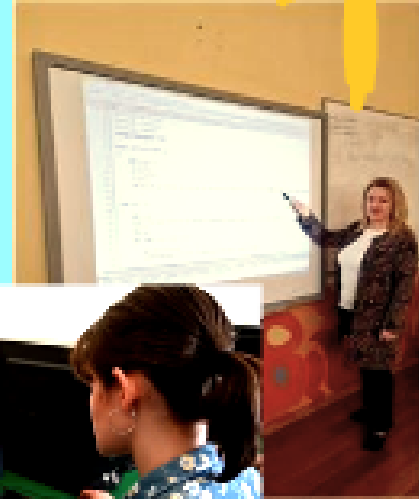
## PHOTOSHOP

Photoshop is a graphic design and photo editing software developed by Adobe. It is used for transforming images, creating incredible art, and design gorgeous graphics like a pro, even if users are just a beginner. In Photoshop, editors can crop photos, adjust photo composition, correct lighting, and make any subject imaginable look its absolute best!

## CORELDRAW

CorelDRAW is a graphic design software which enables users to create professional designs-with vector illustration, layout, photo editing, typography, template tools, and more. CorelDRAW allows users to create, access and store artwork, web graphics and prints.
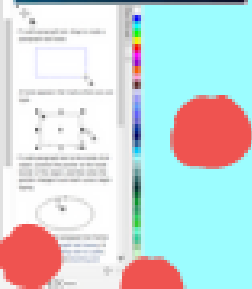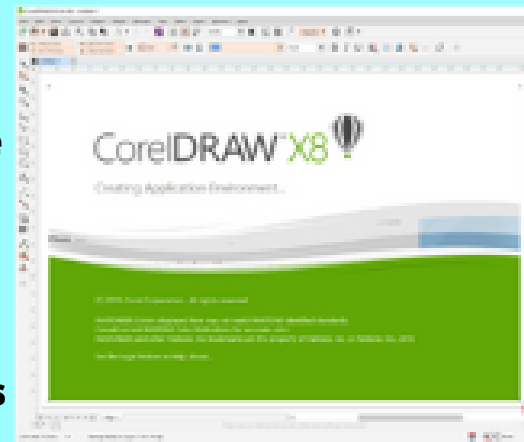
# 5.Biology

## BIOLOGYMASTER

BiologyMaster is an app that teaches pupils biology through quick lectures and quizzes. After every lecture they can take a quiz to test their knowledge on a certain topic. This app includes lectures on: Atoms and Molecules, Cells, Genetics and Evolution etc.

## PICTURETHIS

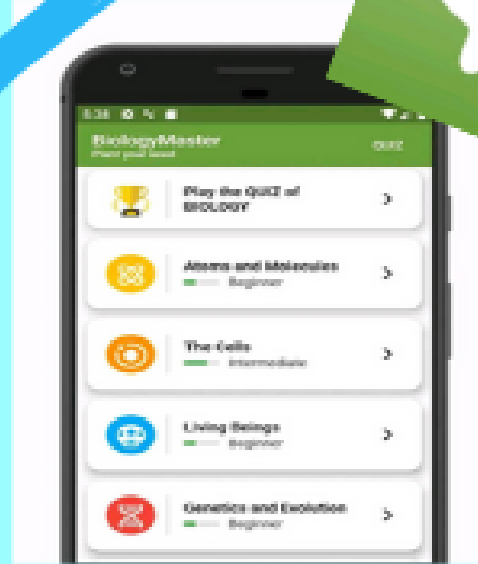PictureThis is a mobile app that allows pupils to identify plants, trees and flowers using their phone's camera. It can identify millions of plant species with 98% accuracy-better than most human experts! Once students identify a plant it also gives them useful plant care tips on that specific plant.

# 6.Languages

## DUOLINGO

Duolingo is an app that revolutionizes language learning with its fun and interactive learning method. It offers more than 40 languages to learn with many vocabulary, grammar, pronunciation and listening exercises. Its gamified learning system and intuitive interface make it easy for users of all ages to learn new languages. The app also provides an engaging way for students to practice what they have learned in class.
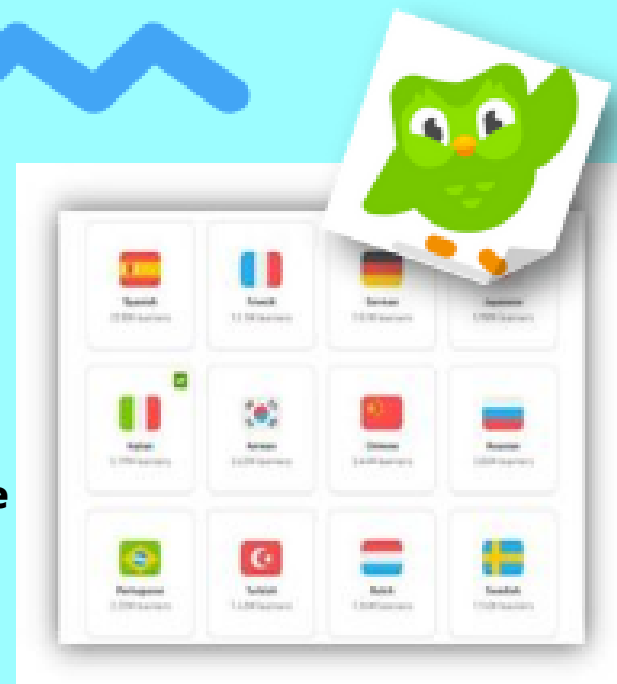
# BUSUU

Busuu is another language learning software app that uses a more formal learning method and a less playful interface compared to Duolingo. When it comes to content, Busuu offers several learning packages. In order to achieve their goal, users need to complete all of the courses as part of their language learning program. It's best for people who prefer a school-like approach to learning a new language.

# MEMRISE

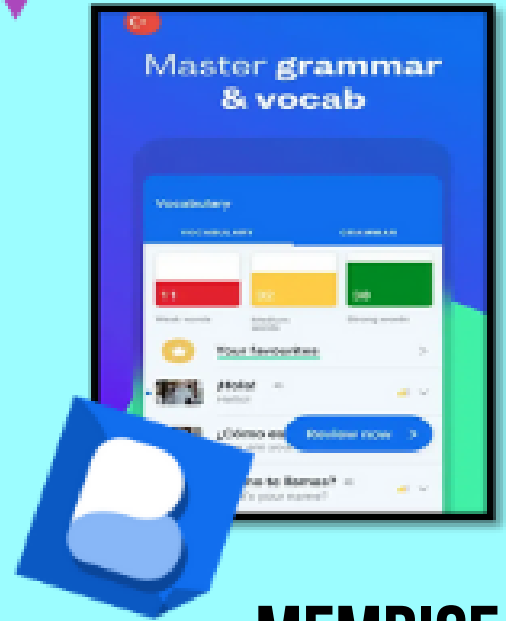Memrise uses a modern, visual interface that offers over 20 languages to learn. This language app uses an engaging method of teaching, such as listening to natives speak. The app provides a lot of courses that teach users how to handle real-life situations in a new language. It's best for people who need a language learning app that is mostly composed of short audio and video clips.
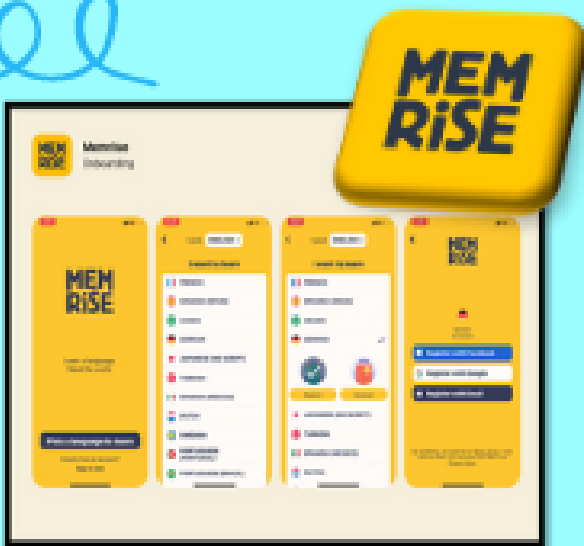
# 7.Art & Art History

## GOOGLE ARTS AND CULTURE

Google Arts & Culture is an app where students can do virtual tours inside world-class museums and tour landmarks and famous sites. Google Arts and Culture is a massive collection of videos and images of cultural artifacts from over 2,000 museums around the world and it also lets people find information about artists, historic figures, historic events etc.
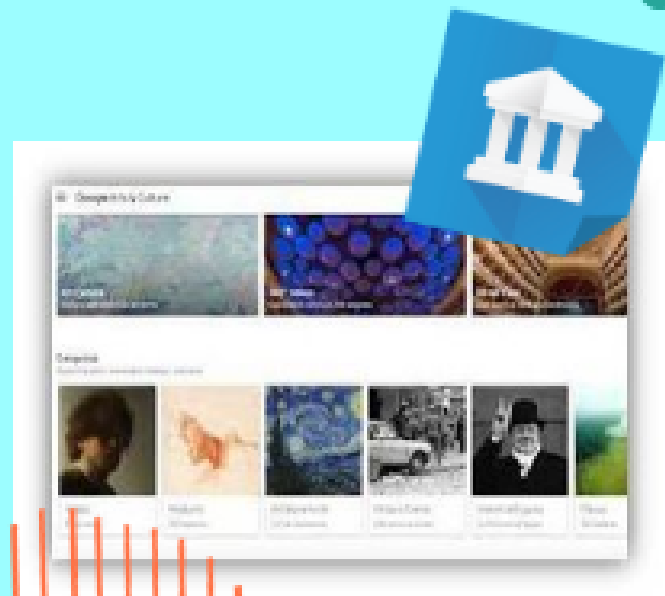
# 8.Music

## YOUSICIAN

Yousician serves both beginners and advanced musicians. Whether people want to learn how to play guitar, bass, ukulele, piano or get vocal training, Yousician's got them covered. It enables users to get or hone musical skills with the help of lessons, regular challenges, and competitions with other people. The built-in sound detection allows the application to accurately evaluate their current level using their instrument of practice.



# 9.Geography

## GOOGLE EARTH

Google Earth is an immersive interactive experience for students and it's better than ordinary maps because it allows students to search for any location in the world, making Google Earth ideal for group projects, solo research, or class exploration. All the countries in the world are available to students with just a few clicks of a button.
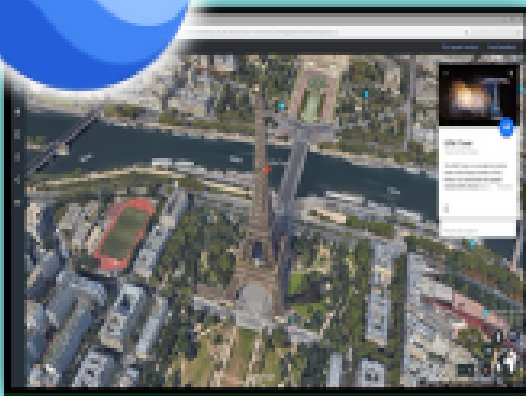


## GEOGUESSR AND SETERRA GEOGRAPHY

In GeoGuessr, the very famous geography game, players are randomly dropped somewhere in the world in street view and have to use their knowledge to find out where they are to win points.
Seterra Geography is a world geography quiz where students can learn about the world's countries, their capitals, cities and towns, rivers, mountains, and even volcanoes.
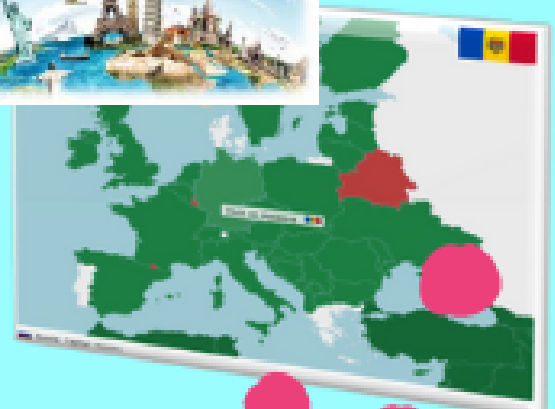
# 10.History

## HISTORY TIMELINE AND HISTORY QUIZ

History Timeline provides a comprehensive history timeline from all around the world. The app covers the complete range of history, from the Evolution of Life to Ancient History up until today. It covers the history of: Music, Philosophy, Arts, Literature, Nations, Leaders, Wars etc. With the History Quiz app, students grow to enjoy history quizzes and teachers can pick between different categories that feature over 2,000 questions.
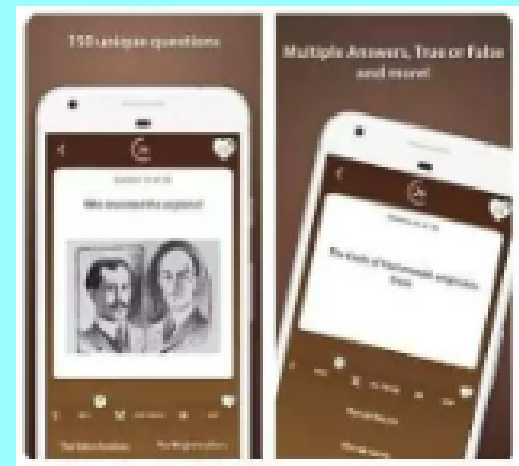


## THE HISTORY OF EVERYTHING

Next, we have a free app called The History of Everything. This vertical timeline gives users the ability to navigate, compare, and explore events over time, be it the birth of the Internet or the Big Bang. The beautiful illustrations and animations for every event help make learning more fun and interactive.

# 11.Miscellaneous apps

## GOOGLE CLASSROOM AND MICROSOFT TEAMS

Online conference apps have been on the rise ever since the pandemic. Google Classroom and Microsoft Teams are very powerful apps that allow students to connect online via video chatting. They also have an assignments function which allows the students to submit homework and the teachers can grade them from the comfort of their own home.
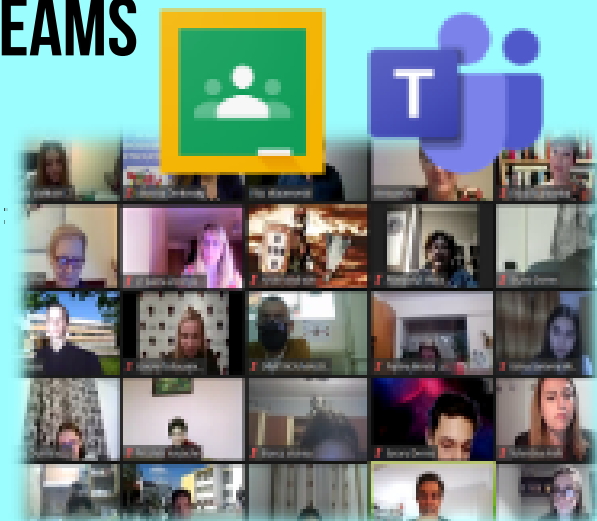
# KHAN ACADEMY

Khan Academy is a popular online learning library filled with courses ranging from Math and Statistics to Psychology and Languages. It was founded to disseminate knowledge and teaching. This online education app aims to provide a free and world-class education. It works using video lectures that display a black whiteboard and a professor just like in a real classroom.

# REMIND

Remind facilitates parents, students, and teachers to stay connected with each other like a community. Users can get regular updates on everyone's activity within their community and can use Remind collaboratively. Teachers can message a whole class as a broadcast, share photos and handouts, while students can submit assignments and clear doubts with their friends.
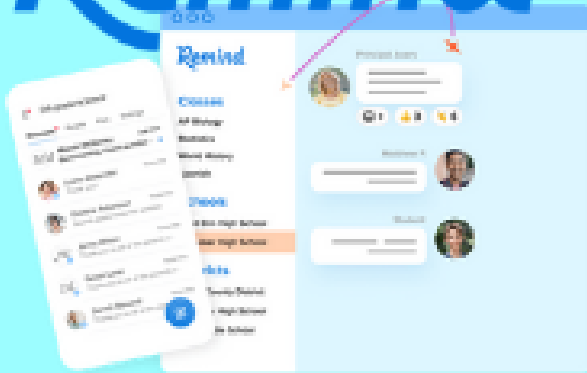
# KAHOOT! AND QUIZLET

Kahoot! is an app that has learning games which are multiple-choice quizzes that can be accessed via a browser or the Kahoot! app. Kahoot! also includes trivia quizzes where students can participate. Quizlet is an app that helps students learn through flashcards. Students can check their knowledge in automatically created tests and in a game in which they have to match words to their definitions. The application also allows people to create group quizzes, which is great for teachers.
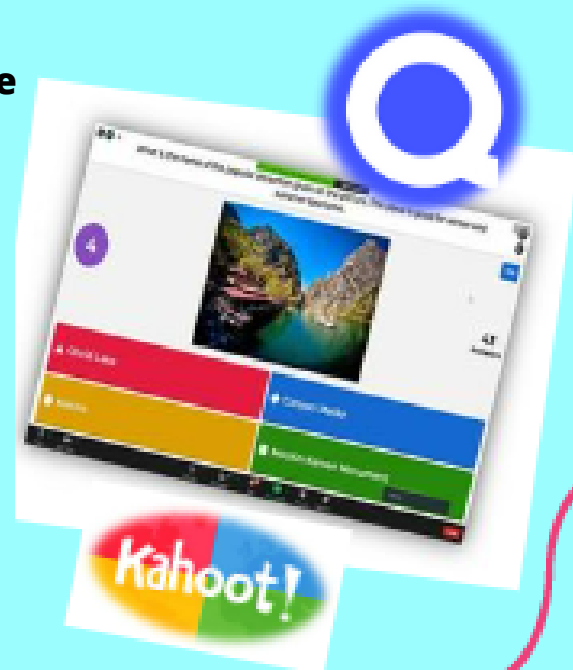
# CAPCUT

CapCut is a free all-in-one video editor and video maker application with everything users need to create stunning, high-quality videos. Beginners can get started with CapCut in a matter of seconds, while advanced users can enjoy all the functions they need to edit videos. It is available both as a phone and computer app.
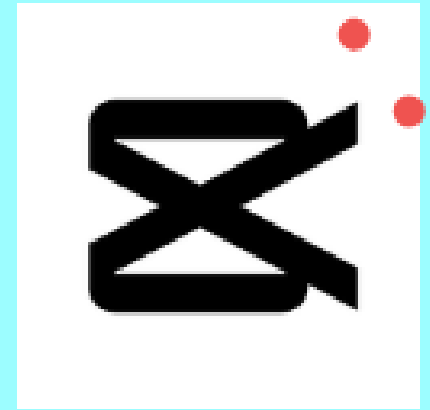
In addition, here are some words and impressions from a student in our gymnasium while using CapCut to create a video tour of Bursa, when he participated in the DigitAll project in March:

*"The experience creating the video was amazing-it was the best because everyone connected with each other and their best qualities shined through. We used a lot of applications to make sure the video was as professional as we could make it, we used the classic IPhone camera to record the video and also to take the voice recordings. We used the application CapCut to edit the videos and cut, faster, slow and to add music to the videos, which was of immense help with projects like these..."*

DIGITALL PROJECT
ERASMUS+

BURSA VIDEO TOUR

MADE BY:
LUCIJA PETROVSKA
MIKALA MARKOVSKI
TEODOR TRAJKOVSKI
PAVEL MANEV

GYMNASIUM "GOCE DELCEV"
KUMANOVO, NORTH MACEDONIA
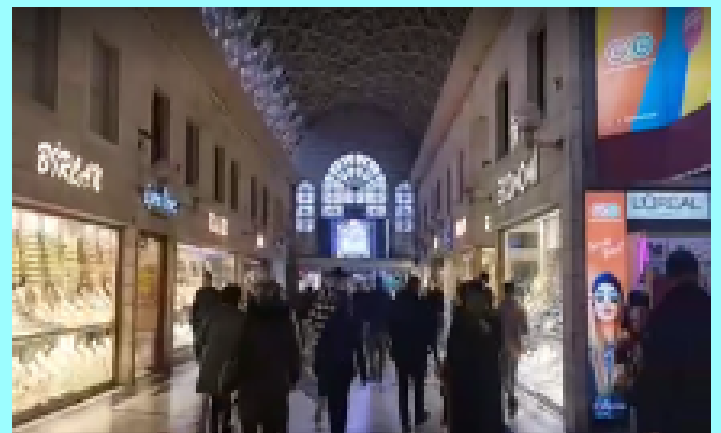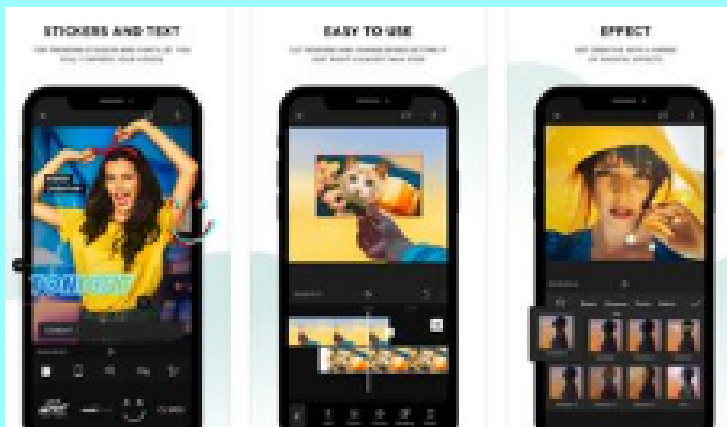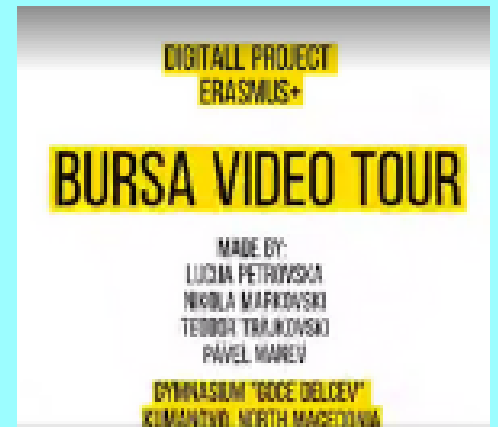
# APP FOR PHYSICAL EDUCATION



Strava is a free app that allows you to record your running and walking activities.

In cycling, Strava allows you to compare your performance with your friends and even enter a world ranking. It is also possible to share your rides and participate in challenges.

The software works seamlessly with the phone's GPS system, which means that even without internet access, Strava can record your routes.

This is a very interesting advantage, as you will be able to analyze your performance and get an idea of where you can improve to reach your goals.
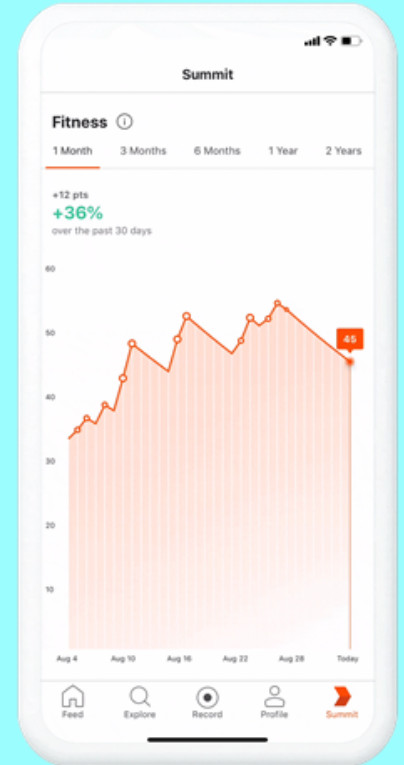
# Actionbound

Actionbound is an application to carry out digitally interactive orientation courses to take the student on a path of discovery. We call these multimedia-based hunts 'Bounds'.

The program literally augments our reality, enhancing people's real-life interactions while using their smartphones and tablets. Create your app-based DIY escape game, a digital timeline of events, or a tour of places of interest, using GPS coordinates and pre-placed codes and mysteries.

It's great for icebreaking exercises, historic or archaeological sites, or simply presenting a vision for the future. Make the most of the huge potential of gamification with Bound Creator's extensive game elements and tools such as GPS locations, directions, maps, compass, photos, videos, quizzes, missions, tournaments, QR codes and much more to create mobile apps fun.

Publish your amazing run to others and let them play it on the app with a mobile device as a tablet tour, scavenger hunt, paper hunt or scavenger hunt for friends or professionally managed as guided tour.
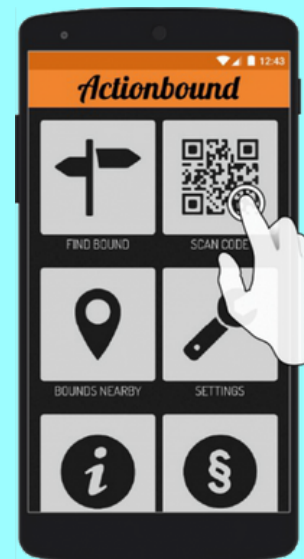
# APP FOR PHYSICAL EDUCATION



Is a wireless standalone device that supports positional tracking with six degrees of freedom, using internal sensors and an array of cameras on the front of the headset instead of external sensors. The cameras are also used as part of the "Passthrough" security feature, which shows a view of the cameras when the user leaves their designated boundary area.

That allows you to run, walk, kayak, bike without leaving home....



Kinovea is a free, open source software with great applications in the study of human biomechanics in various activities: sports, work, performance, among others.

The Kinovea Software is a very useful instrument for use in health and safety at work, allowing a great optimization of the analyzes of movements and ergonomics.

Among many other functions, we highlight:

• Assessment of postures, especially with the angular measurement of joints
• Cycle time, with stopwatch synchronized to work activities

In ergonomics, it is very common to use images to highlight important work situations, identified hazards and verified risks in the Ergonomic Analysis.

When evaluating postures, we can, for example, highlight the body angles during the execution of the work activity and export the images directly with the markings – single images or image sequences.
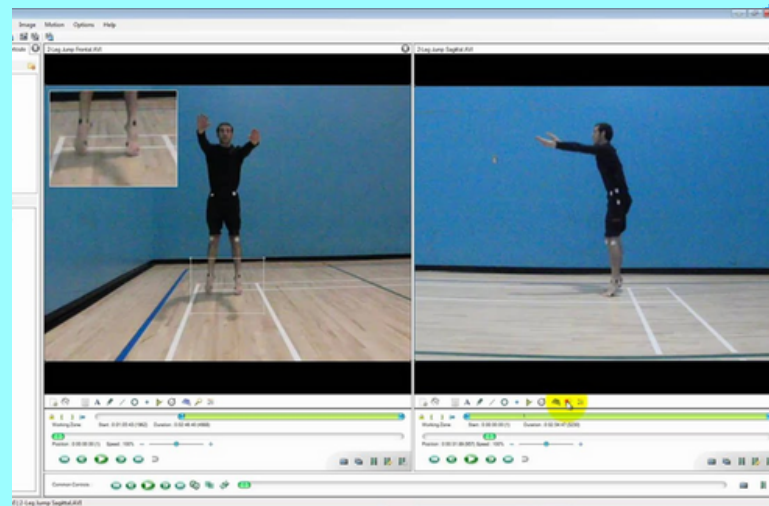
# APP FOR PHYSICAL EDUCATION
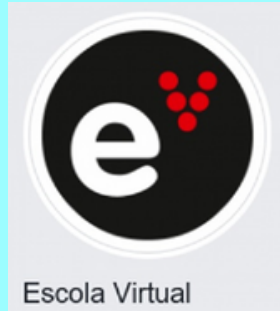


The Virtual School and the digital class is a study support platform with thousands of interactive resources from preschool to 12th grade.

These platforms emerged as a project to integrate new technologies into an educational context, providing new learning (students) and teaching (teachers) methodologies. Today, the Virtual School is used by more than 200,000 students and 75,000 teachers in hundreds of educational establishments across the country.



The Virtual School)aula digital provides educational content in multimedia format for basic and secondary education, from the 1st to the 12th grade. The content of the different disciplines is organized into interactive classes that include animations, interactivity, simulations and videos. Accompanying these interactive lessons is access to hundreds of tests and exercises and downloadable materials.

The e-learning platform can be used from a perspective of self-learning by the student, but also as a didactic-pedagogical tool in the classroom context. For this reason, the Virtual School provides teachers with tens of thousands of multimedia resources that complement the classes, as well as access to an exclusive social network to communicate and exchange ideas with other colleagues from all over the country who are users of the Virtual School.

It is also worth mentioning the care taken to guarantee parents and guardians the possibility of accompanying and monitoring the learning path, namely the time spent using the platform, the completed tasks and the results of each exercise.

# PRESENTATION ABOUT CYBERSECURITY

Milena Bogdanovic

ARTICLE

## Students, Teachers and CyberSecurity

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**JASMINA DENKOVSKA**
- IT teacher
- Coordinator for the project

**MILENA BOGDANOVIC**
- High-school student in ,,Goce Delchev"

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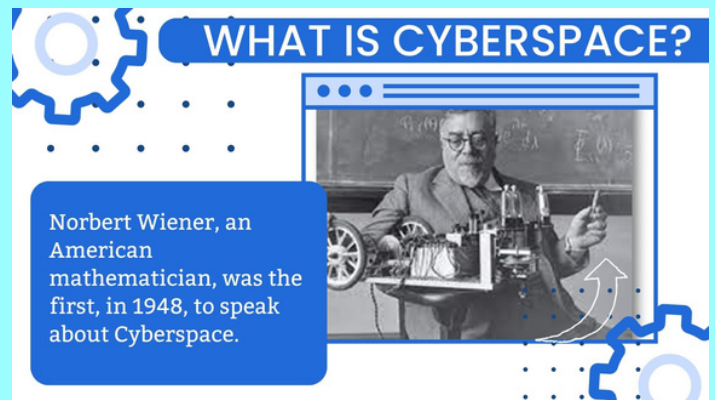
## WHY ARE WE HERE?

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## USE AS STUDENTS

EMAIL

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## CONCERNS AS TEACHERS

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## WHAT IS CYBERSPACE?

Norbert Wiener, an American mathematician, was the first, in 1948, to speak about Cyberspace.

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## WHAT IS CYBERSPACE?

Complex environment, values and interests materializing an area of collective responsibility, which results from the interaction between people, information, information systems, technological equipment and digital networks, including the internet.

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## WHAT IS CYBERSPACE?

Set of measures and actions of prevention, monitoring, detection, reaction, analysis and correction which aim to maintain the desired security state and guarantee the confidentiality, integrity and availability of information, digital networks and information systems in cyberspace.

## DIMENSIONS OF SAFETY

1. PHYSICAL SECURITY
2. LOGICAL SECURITY
3. BEST PRACTICES

## PHYSICAL SECURITY ●●●

• How to protect equipment and information against users who do not have authorization to access them.

## LOGICAL SECURITY ●●●

• A set of resources run to protect the system, data and programs against attempts by unknown people or programs.

## I HAVE NOTHING TO HIDE

*HAPPY DESIGNING!*

• Automatic access to websites (e.g. bank accounts )
• Miscellaneous Documents
• Conversations with family and friends
• Photos
• Videos
• Lists of passwords

## MAIN TYPES OF CYBERATTACKS

MALWARE
PHISHING
PASSWORD ATTACKS
DDOS
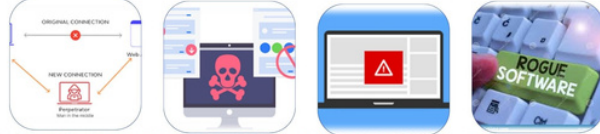
MAN IN THE MIDDLE
DRIVE-BY DOWNLOAD
MALVERTISING
ROGUE SOFTWARE

## MALWARE ●●●

• Malicious software is any part of software that has been written to cause damage to data, devices, or people.

## PHISHING ●●●

• Attacks usually carried out by emails apparently from trusted entities where people are invited to enter sensitive data.
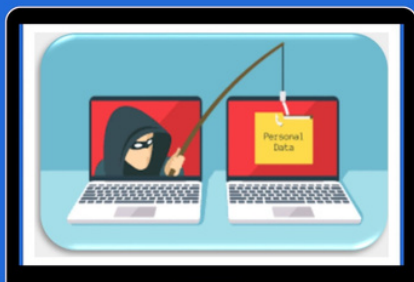
## PASSWORDS ATTACKS ●●●

• An attempt to obtain or decrypt a user's password for illegal use. Hackers can use cracking programs, dictionary attacks, and password sniffers in password attacks.

## DDOS ●●●

•Distributed denial of services (DDoS) attacks are a subclasse of denial of services (DoS) attacks. A DDoS attack envolves multiple connected online devices, collectively know as a botnet, which are used to overwhelm a target website with fake traffic

## MAN IN THE MIDDLE ●●●

•Form of attack in which the data exchanged between two parties (e.g. you and your bank) are somehow intercepted, recorded and possibly altered by the attacker without the victims noticing.

## DRIVE-BY DOWNLOAD ●●●

•Occurs when vulnerable computers get infected by just visiting a website, opening an e-mail attachment or clicking a link, or even clicking on a deceptive pop-up window. Findings from latest Microsoft Security Intelligence Report and many of its previous volumes reveal that Drive-by Exploits have become the top web security threat to worry about.
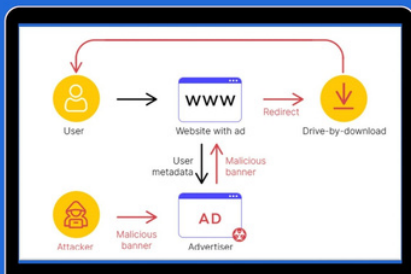
## MALVERTISING ●●●

•Also known as malicious advertising, is the use of online, malicious advertisements to spread malware and compromise systems. Criminally-controlled adverts are used to intentionally infect people and businesses. These can be any ad on any site – often ones which you use as part of your everyday Internet usage.

## ROGUE SOFTWARE ●●●

•Also called smitfraud or scareware, this type of software is defined as malware. It is designed specifically to damage or disrupt a computer system. In this case, not only is the software going to disrupt your system, it´s going to try and trick you into making a purchase using your credit card.

## WHAT DO YOU THINK?

We already know that the internet is not a safe place, we should be careful about the information we share with it.
•How would you protect yourself from the CyberAttacks?

THANK YOU!

THANK YOU!
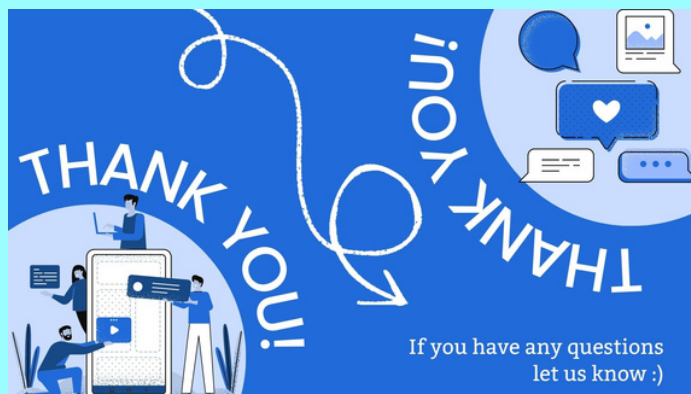
If you have any questions let us know :)

# PRESENTATIONS ABOUT EDUCATIONAL APPS

## Educational apps

Wiktoria Baumann

### Why do we use learning apps?

- With learning applications, you can organize your time, systematize the acquired knowledge, repeat the material or quickly find useful information.
- You will find programs and tools that will help you motivate yourself to learn or inspire you to take up a new hobby.
- The choice of educational applications is very wide. Virtually every subject already has its own application. Even PE specialists will find something from their field.

## ORGANIZING YOUR TIME

## ORGANIZING YOUR TIME

### School Planner

It is best to start the return to school reality with organizational matters and planning the next semester. Mobile personal journals will help with this, where you can create your task schedule, save homework and create quick comments-notes.

## LEARNING MATHS

### Photomath

An application well known to all students, especially those who learn advanced mathematics. After scanning the task, the solution and step-by-step instructions on how to do the calculations appear. You will also find a calculator with advanced functions to help you calculate complex mathematical formulas.

## LEARNING POLISH

### Lekturowo

It contains a collection of the most important information about school reading, epochs and literary themes. The news is divided into three categories, which include summaries, character descriptions, time frames

### Polish spelling

It offers an extensive library of spelling tests. The advantage of this application is informing about spelling and punctuation rules immediately after answering. It is important that the user gets a specific explanation of the error.

## LEARNING HISTORY AND ART

### Historical Calendar

Historical Calendar tells you what happened on a particular day (throughout both ancient and modern-day history) in chronological order. By default, the app shows events from the current day's date, but you can manually switch dates if you'd like to.

## DailyArt

This app does not contain any quizzes. It is based on essays on the artists' biographies and works. They are also filled with descriptions of popular museums, we can watch a virtual collection of works. In addition, the application DailyArt will make sure that you receive a new portion of knowledge every day by sending notifications encouraging you to discover another work of art.

# LEARNING GEOGRAPHY

## StudyGe

This is a geography quiz based on the world map. In the form of a game, you can study information about the countries of all continents. This is another application that will provide you with a new portion of knowledge, even if you do not regularly visit it. Every day in the notification bar you will find a message from StudyGe, containing the name of the country and its capital.

# LEARNING BIOLOGY, PHYSICS AND CHEMISTRY

## The Human Body

The Human Body - is one of the best apps for high school and college, dedicated to biology, specifically the human anatomy. After installing it, the user gains access to numerous interactive boards, video presentations and recordings.

## iNaturalist

This app is based on the observations of users who share photos of various species of animals and plants. Most importantly, the information they provide is verified.

## Learn Physics via Videos

This app and offers different videos on subjects like motion, angular motion, introduction to physics, radioactivity, matter, force, torque, thermodynamics, gravitation, and more. Unfortunately, it is not free.

## Periodic table 2021

There you will find not only Mendeleev's table, but also descriptions of elements and a solubility table. It can be very handy for chemistry enthusiasts.

# LEARNING LANGUAGES

## Duolingo

Duolingo is not only one of the most famous, but also the best applications for learning foreign languages. It's effective especially when it comes to people starting their adventure with foreign vocabulary. Learning is like a game full of challenges created to unlock the next stages. Similar apps are Busuu, Memrise, Babbel, Livango and FunEasyLearn.

## HelloTalk

The best way to learn a language is to actually speak it. HelloTalk connects you with native speakers to chat with for free. You can talk to individual members or join group chats for a collaborative learning experience. Thanks to this language exchange, you become both a student and a teacher. In addition, you make friends around the world.

## Reverso context

Reverso is a multi-functional tool that provides the best translation quality and helps you to improve your language skills. It's free, you can install it on your computer, which can be extremely helpful when writing important assignments. The advantage of the application, and the specificity of learning vocabulary through

# OTHERS

## Forest & Pomodoro

Both Forest: Focus on Productivity and Pomodoro Timer are based on choosing a specific time during which we do not use our phone. This allows us to focus on learning or other activities. Short episodes (e.g. 20 minutes) improve the effects of our work. In the Forest application, interrupting an episode removes a tree from our field, and a successful finish plants a new one.

## Kahoot

Kahoot is a free platform for creating and running interactive quizzes. It's a fantastic tool for revision lessons, but can be used to learn any material through the game. It is an application well known to most students and teachers, but this does not diminish its effectiveness.

## Quizlet

Quizlet was created for the development of flashcards which are an amazing way to study vocabulary. You can check the level of acquired knowledge in automatically created open or closed tests and in a game in which you have to match words to their definitions. The application also allows you to browse sets of other users or create group quizzes, which is an interesting solution for teachers.

Input terms and definitions to create a study set at quizlet.com

Use a study set in variety ways...

**Quizlet**

## Khan Academy

It is a non-profit educational website application that provides educational materials in many fields - math, science, economics and finance, humanities and arts, computer science. In each section there are courses in the form of videos, notes (articles, essays), quizzes and tests.
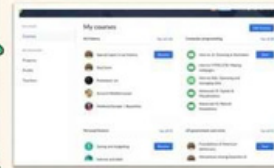
## TED

The TED app offers a collection of videos from scientific conferences where topics from many fields were discussed. The topics are really wide: from technology, through health and psychology, to art. Lectures are conducted in over 100

## KAHOOT - FAST AND FUN LEARNING FOR EVERYONE

**Kahoot!**

- **Kahoot!** is a game-based learning platform, used as educational technology in schools and other educational institutions.

## Kahoot!

**Kahoot!** is an app (and also a website) where you can create your own quizzes and try out other user's quizzes. It is mostly used to revise the knowledge even during lessons. It is a great alternative for regular sitting in front of the book and doing exercises. This way you can study and in the same time you can compete with other people – at the end of every question there is displayed a sum of every player's points in order from the highest score. Kahoot! was created in 2013 and is very appreciated among students during lessons.

**Kahoot!**

## Scratch

**Scratch** is an app where you can see the visual interpretation of a programming language. It was created for children and youth to learn the basics of programming the computers and to familiarize with the development environment. There are a lot of possibilities to do there, like creating stories, animations, games and even music. The elements of the programming language have a 'puzzle' shape, so it is pleasant for eye. Scratch was created in 2003 by MIT Media Lab and has been developed ever since. With this app, some foundations have even organized educational programmes for students in schools.

## Seterra

**Seterra** is an app that contains many educational games about geography. You can find there over 200 various exercises about countries, capital cities, oceans flags and more. Playing it is quite simple, all you have to do is to tap on where the particular area is, the name of it is displayed on the top.
Seterra was created in 1997 and it was translated into 40 languages. The app is easily accesable and it is possible to play offline.

## Duolingo

**Duolingo** is a worldwide famous app for learning foreign languages. This app is created in 25 languages and you mostly focus there on vocabulary. You can pick a lot of languages to study like English, Spanish or even Chinese. While learning every day, you gain a streak that is increasing every day you learn. You lose your streak while you miss one day. There are also many more various things that makes the learning even more interesting. Duolingo was created in 2011 by Luis von Ahn and Severin Hacker. Since 2015 teachers have been able to create virtual classrooms so learning is even more fun.

## Photomath

**Photomath** is an app with algebra system programmed, where you can scan mathematical equations and then see a displayed solution step-by-step. So, when you encounter a difficult equation to solve, this app will show you how to get a correct answer and it might help you in solving next equations and becoming even better in Maths.
Photomath was created in 2014 by the Photomath company. The app started recognising not only printed text, but also handwriting in 2016.

## Quizlet

**Quizlet** is an app that provides tools for studying. There you are able to use digital flash cards to learn quicker. But that's not everything – you can find there matching games or even quizzes to revise everything you've learnt. The best thing is that it can be used for multiple subjects – not only English or other languages, but also Maths, Physics or whichever subject you want. When you are having trouble with solving a particular exercise, you may find a solution there. You can find the exercise by searching for a book – there are not a lot of them, but they are all solved by experts. Quizlet was created in 2007 and founded by Andrew Sutherland. According to Quizlet's website, there are more than 60 million active users, additionally, it is said that 2 in 3 USA high school students use this app.

## CANVA
### new graphics technology

## WHAT IS CANVA AND WHAT IS IT FOR?

This web-based graphic design tool was launched in 2012. The site includes a library where photos, graphics and fonts are shared. The online program has default filters and advanced editing functions.

- POSTERS
- PRESENTATIONS
- FILMS
- INVITATIONS AND GREETING CARDS

## HOW TO START USING THE APP?

Here are some steps to help you get started using canvas:

**1** Go to canva.com or open the free app

**2** Set up a free account via e-mail or Facebook

**3** Enjoy unlimited design possibilities!

## Seterra

Seterra includes fun quizzes that help familiarize you with countries, capital cities, flags, rivers, lakes, and notable geological features. Seterra is an entertaining and educational geography game that gives you access to over 400 customizable quizzes.

## Knowunity

Knowunity is new in Poland. It's similar to Instagram but it's for finding notes for school subjects. It can be really helpful when you are not able to do nice and clear notes during lessons or you need a quick and short revision. Not only that but also

## Have fun learning with Europe's best study app

**SAVE**
Save your favourite content in your library

**LEARN & REVISE**
Study any topic, anywhere, anytime
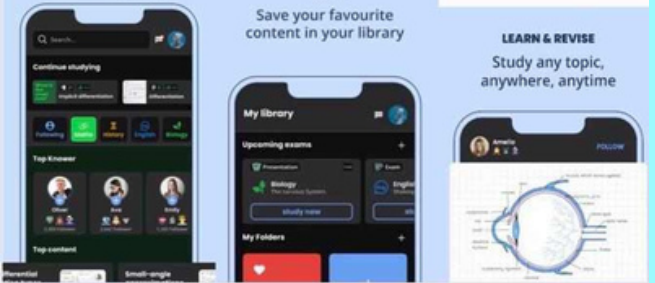
## Quizlet

Quizlet is a free website providing learning tools for students, including flashcards, study and game modes. There are multiple different way to utilize what Quizlet gives you. There are many different way to use the tool to help memorize information for a test. It is most helpful with learning vocabulary – but it can be used for more.

### What You Get With Quizlet

- KNOWLEDGE ACQUISITION
  - FLASHCARDS
  - LEARN
- CONTENT PRACTICE
  - WRITE
  - SPELL
  - TEST
- GAME-BASED LEARNING
  - MATCH
  - GRAVITY
  - LIVE
- HELP CENTER
- SORTED FOLDERS

# Legimi

Legimi is for reading e-books and listening to the audiobooks. You can read your required reading or just read for fun on your way to or from school. You have to pay for it but it's much cheaper than buying regular books and is a lot more convenient than reading free PDF versions than you may find online.



## Forest

Forest is for keeping yourself focused during studying. In this app you can grow your tree - the longer you are focused the bigger it gets. When you have one grown tree, you can grow another one, until you have whole forest! But when you use another app while having opened Forest your tree might die. In order to have nice forest you have to be really consequent!



---

Whenever you want to focus on your work, plant a tree.

In the following time, it will grow when you are working.

The tree will be killed if you open websites on Blocklist.

## Instagram

Instagram is well-known in todays reality. Not many people use it for educational purposes yet but the amount of people that are realising its potential is getting bigger.
You can post your photos but some people also post their notes! Many people explained some subjects in their posts and I think that it's great for young people that don't like doing notes or studying from books. There are not only notes but also films in which they explain some topics.
So if somebody find it easier to study from phone it' great - but it can be hard to focus.



YouTube

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# YouTube

On Youtube are plenty of channels with explanation of almost everything that we are learning in school. It's perfect for revision or just studying. There are not only lessons from school but also lifehacks and tricks useful in students life.
If you find it difficult to stay focused because of noises around you can listen to the sounds that are especially made to make our brains focus on work.



## Spotify

Spotify is really similar to Youtube - you can play special sounds to focus or listen to podcasts - there is not a lot of them dedicated to school but for sure you can find some. You can also listen to your favourite music or listen to the interesting podcasts if it helps you to relax or focus.
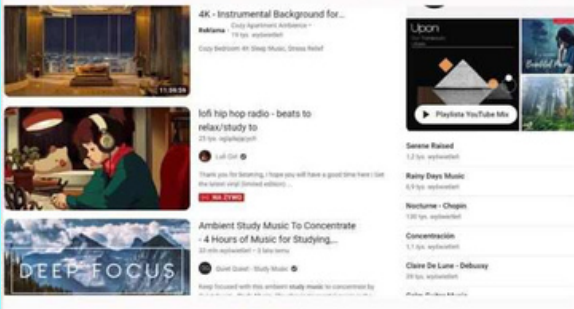
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## NASA

- If astronomy is your thing, there is no better app than NASA to fill you in with all space-related information. Learn about the different space expeditions, upcoming missions and the latest space news in the app. The app also has a huge collection of images and videos, and other content, such as news, features, etc. You can also access new content on a daily basis that would help you keep yourself updated about what is happening in the field of astronomy.

## Khan Academy

- If you plan to restart from where you left off or if you want to review the fundamental concepts that were long learned and forgotten, Khan Academy is your go-to app. The app offers free online courses, lessons and practice sessions across different subjects, including math, art, physics, chemistry and much more. The lessons are in the form of short videos that you can access for free.

Forest

Build Your Forest

- This app does not itself have a learning function. Forest is a productivity tool that helps you stay focused and spend less time on your phone and computer, which can distract you. When you want to focus, you plant a "tree" and the more time you spend away from your phone/tablet, the more it grows.

## Help in study

There are endless applications or websites on the Internet that help us study, they present different approaches that can make everyone find something for themselves - their individual way of learning. However, such a multitude of choices is not necessarily a positive thing, and this is why I've put together a list of apps to help us learn

## Evernote

- I recommend Evernote for people who like to take notes and have them with them at any time. This app is an excellent tool for organizing your thoughts and ideas. With Evernote, you can create digital notebooks and easily store and share your notes with others. You can also access your notes from any device, making it a convenient way to keep all your information organized in one place.

## WordHippo

What's another word for

- WordHippo is an online dictionary for finding similar words and opposite words. If you want to use this app, type the word in the search box and you'll see a list of words that rhyme. It also provides an

## grammarly

- Grammly is an application that works as an English corrector that, depending on the way you want to write, whether it is more formal or more casual, with grammly it becomes easier because the application works for both PCs and mobile phones and we just need to write what we want and then the app suggests changes.

## socrative

- Socrative is an application created within it to make questionnaires/tests for students where, at the end of each test, we immediately receive our evaluation in that test.

## Prezi

Prezi is software for creating presentations. In the browser, everything is created in a single structure, similar to a designer palette. The platform offers a free version.

EMPLOYEE ONBOARDING
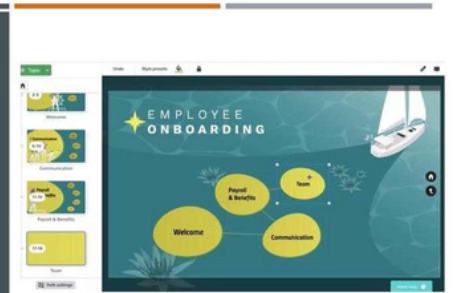
## calaméo

Calaméo is an application dedicated to publishing documents online. It enables you to create publications in a magazine format, comics, brochure, presentation, etc., from text documents, images, spreadsheets, pdf, etc. The result is a publication with its own graphic environment, which can be embedded in a website or a blog, or stored and published on the Calaméo website. Document conversion is done via uploading.

## Google Forms

Google Forms is a survey management application released by Google. Users can use Google Forms to search and collect information about other people and they can also be used as questionnaires or registration forms. The collected information and the results of the questionnaire will be transmitted automatically. In addition, Google Forms also has multi-user collaboration and sharing features.

Formulário sem título
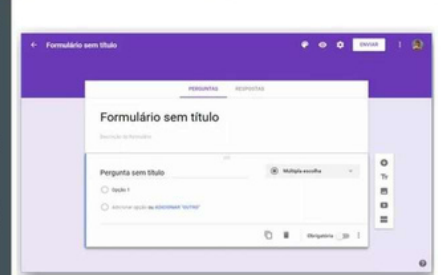
## Microsoft Teams

Microsoft Teams is software developed to control, organize and develop individual work or large and small teams. It works like a virtual desktop.
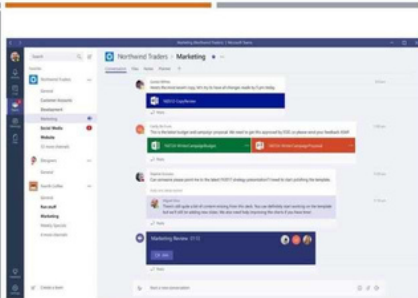
## Kahoot!

- Kahoot is an easy and simple app to use because it only consists of colored blocks that correspond to the answers to the questions that appear on the host's screen and on the participants' mobile phones or computers, only the colored blocks that correspond to the answers appear for the participants to answer.

The most popular song of 2018 was from which artist?
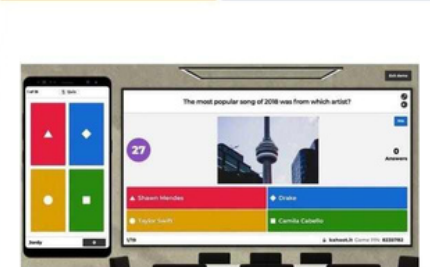
# Preparations for lessons in school

## CHEMISTRY

**PREPARATION FOR THE LESSON**

| Year: fourth ( IV ) | Class: IV | |
|---|---|---|

Subject: **Chemistry**

Teaching unit: **Elements of group VIII-B – noble gases**

Class type: adoption of a new teaching unit

Objectives of the lesson          The student to:

to use data on elements in the periodic table
to determine the place of the elements in the periodic table as a result of the electronic configuration of the atom
to explain methods of obtaining noble gases, properties of noble gases
to represent with a formula typical compounds of elements from a given group, and with equations characteristic reactions

### Class activities

| A teacher | A student |
|---|---|
| **Introductory part: (5 min.)** | |
| Activity 1<br>- asks, reminds about the lesson<br>  unit from the previous lesson and connects<br>  with the current one<br>- explains what will be done in class | Activity 1<br><br>- is actively involved in the repetition of<br>  the teaching unit |
| **Main part: (30 min.)** | |
| Activity 2<br><br>- asks questions about<br>  the slides<br>- indicates the general data on the chemical elements noble gases<br>- directs students to use the ptable and PubChem application when showing general data about the chemical elements helium, neon, argon, krypton, xenon, radon: chemical, symbol, atomic number, relative atomic mass, melting point, density and other useful data about chemical elements elements<br><br>- shows a way to obtain noble gases by fractional distillation of liquid air through the application chemix.org, where with laboratory utensils and equipment it | Activity 2<br><br>- follows a Power Point presentation on noble gases, as a typical representative of Elements of VIII-B-group<br>- interprets slides individually<br>- gives explanations and answers to questions asked by the teacher<br>- applies ptable and PubChem application when displaying general data about the chemical elements helium, neon, argon, krypton, xenon, radon: chemical symbol, atomic number, state of aggregation, relative atomic mass, melting temperature, density and other useful data about chemical elements elements<br><br>Activity 3<br><br>- distinguishes more important noble gases |

| | |
|---|---|
| shows the process of fractional distillation<br>- writes reaction equations<br>- explains properties of noble gases with the help of<br>- describes stable electron configuration $ns^2np^6$ of noble gases with phet application and shows Interactive simualtions<br>**Activity 4**<br>explains the relationship between the atoms that make up the monoatomic molecules of noble gases (weak London forces), unlike other gaseous diatomic molecules<br>- activates the students on the board for oxidation-reduction balancing of the equation<br>- helps if there are problems with the answers<br>- divides the students into groups and directs them to the implementation of questions and tasks as a way to repeat the teaching unit | helium, neon, argon, krypton, xenon, radon<br>- writes down formulas of important compounds of noble gases using the ***ChemTool*** Box application, which consists of Solvents, Solutions, Biochemistry, ***Specroscopy***, whereby the student gets an even clearer picture of the noble gases, and with the ***phet*** application he conducts Interactive simulations<br>- adopts the process of obtaining noble gases through the application chemix.org, where with laboratory utensils and equipment it considers the process of fractional distillation<br>- considers ways of forming an electronic octet (that is, an electronic doublet in helium) and achieving an electronic configuration ns2np6 with the ***phet*** app and follows Interactive simulations<br>- represents a chemical reaction with an equation to obtain $XeF_2$<br>- describes other properties of noble gases<br>- explains and discusses the use of noble gases<br>- formulates conclusions from the questions asked<br><br>**Activity 4**<br>- answers and implements questions and tasks<br> - represents a reaction equation<br>- applies oxidation-reduction equalization to the equation<br>- reviews through specific examples with formulas<br>- draws conclusions<br>- analyze and discuss when setting up an experimental part through the chemix.org application<br> (What do you expect to happen?)<br>- he asks about unclear parts in the new curriculum<br>  unit<br>- he asks about unclear parts in the new curriculum unit |
| **Final part: (10 min.)** ||
| **Activity 5**<br>- summarizes the teaching unit | **Activity 5**<br>- answers short questions individually |

| | |
|---|---|
| with given questions and possible answers yes and checked what was learned | and assesses how far he has adopted the new material |
| Applied teaching and learning techniques: | - demonstrative<br>- verbal-textual |
| Forms of teaching work | Frontal<br>group<br>individual |
| Teaching aids | Classes are held in the chemistry room<br>Whiteboard, projector, ptable app, PubChem, ChemToolBox, phet Interactive simulations, chemix.org |
| Literature | Textbook: Chemistry – *Slobotka Aleksovska, Kiro Stojanoski* |
| Correlation | Chemistry:<br>-basic groups of inorganic compounds<br>-chemical reactions and chemical equations |
| Perceptions of the teacher from the realization of the teaching (self-evaluation) | The student has successfully mastered the new teaching unit, applies the periodic table with the help of chemical applications, writes down formulas and equations with the help of chemical applications, distinguishes properties of noble gases, realizes examples for exercise |

# MATHEMATICS

| PREPARATION FOR THE LESSON | |
|---|---|
| Subject: **Mathematics** | Year of study: IV (18 years old) |
| Topic: Differential calculus | |
| Unit: Solving practical problems for maximum and minimum | |
| Objectives of the lesson:<br><br>1. General: The student should understand the application of the rules for determining extreme values of a function using derivations in tasks from the field of natural sciences and technology.<br>2. Specific: To perceive the dependence between the quantities that change and to compose the function in concrete tasks; To be able to solve simple tasks for the application of the maximum and the minimum | Class type:<br><br>Class for acquisition of a new teaching unit. |

| Class activities | |
|---|---|
| teacher | students |
| **1.Defining the problem**<br><br>- The teacher encourages the students to define the problem and uses brainstorming to discuss whether the task has a solution and whether it is unique, in what way a solution can be reached, etc. | - Students think and, guided by the teacher, discuss the given problem and define it. |
| **2. Determining a research plan and method**<br><br>– In the computer program *GeoGebra*, the teacher makes a model of a circle with an arbitrary rectangle inscribed in it and explains to the students how to use the applet. | -Students are asked to move point A on the applet which will, consequently, change the lengths of the sides of the rectangle and observe how the area changes |
| 3. Data collection and hypothesis setting | - The students write down the data for |
| - The teacher asks the students, based on the collected data, to make a hypothesis about the solution to the task<br>- The teacher explains to the students that the computer simulation allows us to predict the solution to the problem by careful analysis of the obtained measures of the area of the rectangle, but it is only an assumption and the students should know that the task is not solved, because every hypothesis should be proved.<br>- Based on the applet (picture 1), the teacher asks the students to define the function whose graph is given by the curve of the applet | the sides of the rectangle and the area obtained during the research in the table of the applet<br>- Based on the changes that the students perceive by changing the parameters, that is, by moving point A in Figure 1, they should assume the possible solution, that is, set up (create) a hypothesis. After they set their own hypothesis by clicking on the "hypothesis" button from the *GeoGebra* applet, they will be able to see the hypothesis that the teacher had set, which says: "A rectangle will have the largest area when its sides are equal, and in that case, the rectangle is a square".<br>- Students see the connection between the quantities that change and define the function they see on the applet |

| | |
|---|---|
| **4. Data analysis, confirming or rejecting the hypothesis**<br><br>- The teacher explains to the students that they should solve the hypothesis in the task by applying the rules for calculating extreme values with the help of derivations.<br>- The teacher follows the students' individual work and helps them if necessary. | -Students prove/confirm on paper the hypothesis they had set, i.e. they actually solve the task.<br>- Based on the solution, the students conclude and decide whether they should accept or reject the hypothesis<br>- If they set up a hypothesis that needs to be rejected, the teacher helps them to see where they are wrong and set up a new hypothesis<br>- After finishing the independent work by clicking the "solution" button on the applet (picture 2), the students see the solution prepared in advance by the teacher. |
| **5. Application of the result**<br>– Once the hypothesis is proven, the problem is solved and the teacher initiates a constructive | - Students make an evaluation of the lesson, say what they have learned, analyze the solution steps, see the application of what they have learned |
| discussion in the class.<br>- The teacher asks the students what they have learned about this goal, and then shares with them the goals of the lesson and what they should have learned during the lesson.<br>- The teacher asks the students to discuss how the problem would be solved if a right triangle was inscribed in a circle or a _cuboid_ was inscribed in a sphere.<br>- The teacher gives homework to the students to solve a problem with a maximum if a right triangle is inscribed in a circle or if a cube is inscribed in a ball<br>- The teacher asks the students what else they want to know about this teaching content and gives them directions on how they can independently do research at home.<br>- The teacher gives the talented students a homework assignment to prove the hypothesis applying trigonometry. | -Students try to set a new problem similar to the previous one. |

| | |
|---|---|
| **Applied teaching and learning techniques:**<br><br>Problem teaching model, independent work method, research method, conversation method, discussion | |
| **Forms of teaching work**<br><br>Frontal, group and individual work | |
| **Teaching tools**<br><br>Interactive applet made in *GeoGebra*, computer for each student, paper. | |
| **Literature**<br>Fourth-year reformed High School Mathematics Education Textbook and fourth-year Collection of Mathematical Tasks. | |
| **Correlation**<br><br>Mathematics: Geometry, Quadratic Function, Properties of Functions. | |

| |
|---|
| **Assessment of student learning (formative and summative assessment methods)**<br>-Oral feedback;<br>-Discussion with/among students<br>-Monitoring of independent work<br>- Student competition.<br>- Self-assessment |

## PICTURE 1

# PICTURE 2



The GeoGebra screenshot (MAX P2.ggb) shows a Graphics view with a hypothesis and proof, and a Spreadsheet.

**Хипотеза**

Правоаголникот има најголема плоштина кога неговите страни се еднакви, односно кога е квадрат

**Доказ на хипотезата**

$$P = ab \iff P = a\sqrt{4 - a^2}$$

$$P' = \frac{4 - 2a^2}{\sqrt{4 - a^2}}$$

$$4 - 2a^2 = 0 \Rightarrow a = \sqrt{2} \Rightarrow b = \sqrt{2}$$

$$P = 2$$

P=1.95, b=1.25, a=1.56, (0, 1.95), (1.56, 0)

| | A | B | C |
|---|---|---|---|
| 1 | a | b | P |
| 2 | 1.63 | 1.15 | 1.87 |
| 3 | 1.74 | 0.99 | 1.72 |
| 4 | 1.83 | 0.8 | 1.47 |
| 5 | 1.9 | 0.61 | 1.16 |
| 6 | 1.97 | 0.35 | 0.68 |
| 7 | 1.98 | 0.26 | 0.52 |
| 8 | 1.57 | 1.24 | 1.94 |
| 9 | 1.32 | 1.5 | 1.98 |
| 10 | 1.03 | 1.71 | 1.77 |
| 11 | 1.21 | 1.59 | 1.93 |
| 12 | 1.39 | 1.44 | 2,0016 |
| 13 | 1.34 | 1.48 | 1.99 |
| 14 | 1.41 | 1.42 | 2,0022 |
| 15 | 1.4 | 1.43 | 2,0020 |
| 16 | 1.42 | 1.41 | 2,0022 |
| 17 | | | |
| 18 | | | |

# LESSON PLANS



Co-funded by the European Union

**A LESSON PLAN ON THE USAGE OF EDUCATIONAL APPLICATIONS**

School subject: English
Age groups: secondary schools' students aged: 14-19 years old
Duration: 45 minutes
Methods: brainstorming, group working, communicative methods, interactive
Materials/ teaching aids: the Internet, mobile devices
T- stands for a teacher/ Ss- students

**Objectives:**
to review language apps for studying foreign languages
to improve language skills such as: speaking, listening
to expand vocabulary and memorise it in an effective way
to add variety to the lesson
to encourage students to lifelong learning
to include digital skills to the lesson
to improve soft skills

**The topic of the lesson:** „My language apps"

Stages of the lesson
A warm- up activity: T asks the following questions:
1.Do you use language apps to study a language?
2. Are they useful while studying or not?
3. Do you know any other effective ways of studying a language?
Students answer the questions. ( Time: about 5 minutes)

Brainstorm: T divides students into groups and presents the task: Prepare a list of language apps enhancing learning a language. Students use their general knowledge and own experience.
They can use the Internet and their mobiles to research for the information if necessary.
Students present their ideas.
(Time: about 10 minutes)

Main part:
T asks students to make a division of the language apps according to different language skills: apps developing  vocabulary, listening, speaking, writing, grammar.
Ss can work in the same groups.
They can use their mobiles.
T monitors their group work and timing.
Students prepare their presentations.
Students present their research.
 (Time: about 15 minutes for preparations and 10 for presentations )

Follow up: Students are asked to present their research on a Class social group as a hint for other students.

 

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**A LESSON PLAN ON THE USAGE OF EDUCATIONAL APPLICATIONS**

School subject: English
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Duration: 45 minutes
Methods: brainstorming,  group working,  communicative methods, interactive
Materials/ teaching aids: the Internet, mobile devices
T- stands for a teacher/ Ss- students

**Objectives:**
to revise vocabulary connected with science and technology
to improve language skills such as: speaking, listening
to expand vocabulary and memorise it in an effective way
to add variety to the lesson
to encourage students to use Kahoot for revision of knowledge
to include digital skills to the lesson
to improve soft skills

**The topic of the lesson:** "Let's revise vocabulary with Kahoot"

Stages of the lesson
A warm- up activity: T asks the following questions:
1. Do you use Kahoot to study a language?
2. Is it useful while studying or not?
3. How do you usually revise vocabulary?
4. Do you know any other effective ways of learning new words?
Students answer the questions. ( Time: about 5 minutes)

Pre- teaching: T revises words and expressions connected with science in technology (the vocabulary word list discussed in the chapter of the coursebook; it can be any topic section from the curriculum which is updated)
T uses various teaching techniques to involve students in the lesson.
(Time: about 5 minutes)

Main part:
T presents Kahoot apps to revise vocabulary
Ss can work individually or in pairs.
SS can use their mobiles while revising vocabulary.
Kahoot in practice (the range of vocabulary depends on the topics discussed)

Students take part in Kahoot activity.
(Time: about 20 minutes )

Practice: Students are given feedback and use Kahoot's extras: memory game, vocabulary lists, listening, reading tasks associated with Kahoot. (Timing: about 15 minutes)

Follow up: Students are asked to revise vocabulary needed using Kahoot app.

**Grade Level: 10$^{TH}$ Grade**

**Duration: 40 minutes**

**Topic: Acids and Bases**

**Objective:**

By the end of this lesson, students will be able to:

Define acids and bases and identify their properties.

Differentiate between acidic and basic solutions using indicators.

Understand the concept of pH and its significance in determining acidity or basicity.

**Materials:**

Whiteboard or blackboard

Markers or chalk

pH indicator strips (e.g., litmus paper)

Samples of common acids and bases (e.g., vinegar, lemon juice, baking soda solution, soap solution)

Safety goggles (for demonstration)

**Lesson Plan:**

**I. Introduction (5 minutes)**

A. Greet the students and briefly recap the previous lesson.

B. Introduce the topic of acids and bases and explain their relevance in our daily lives.

C. Present the learning objectives for the lesson.

**II. Properties of Acids and Bases (15 minutes)**

A. Discuss the properties of acids, such as sour taste, ability to conduct electricity, and reaction with metals.

B. Discuss the properties of bases, such as bitter taste, soapy feel, and ability to conduct electricity.

C. Conduct demonstrations to showcase the properties of acids and bases using the provided samples.

D. Engage students in a class discussion to identify and classify the given samples as either acids or bases.

**III. Indicators and pH Scale (20 minutes)**

A. Introduce the concept of indicators and their role in determining the acidity or basicity of a solution.

B. Explain the pH scale and its significance in quantifying the concentration of hydrogen ions in a solution.

C. Demonstrate the use of pH indicator strips to test the acidity or basicity of various solutions.

D. Provide samples of different substances and have students test them using the pH indicator strips.

E. Discuss and record the results as a class, and encourage students to interpret the pH values.

**IV. Applications of Acids and Bases (10 minutes)**

A. Discuss the various applications of acids and bases in everyday life, such as in cleaning products, food preservation, and medicine.

B. Engage students in a brainstorming session to identify other examples of acid-base applications.

C. Encourage students to think critically about the benefits and potential risks associated with the use of acids and bases.

## V. Conclusion and Recap (5 minutes)

A. Summarize the key points discussed in the lesson, emphasizing the properties, indicators, and pH scale related to acids and bases.

B. Address any questions or concerns raised by the students.

C. Assign a short homework task where students have to identify and classify common household substances as acids or bases.

D. Remind students about the importance of safety precautions while handling acids and bases.

**Subject: Chemistry**

**Grade Level: High School**

**Duration: 80 minutes**

**Topic: Atom Models**
**Objective:**

By the end of this lesson, students will be able to:

Understand the historical development of atom models.

Describe the key features and limitations of different atom models.

Compare and contrast the different atom models as well as recognize the significance of the modern atomic model.

**Materials:**

Whiteboard or blackboard

Markers or chalk

Images or diagrams of different atom models (e.g., Dalton model, Thomson model, Rutherford model, Bohr model, and modern atomic model)

Handouts or worksheets for note-taking and activities

**Lesson Plan:**

**I. Introduction (5 minutes)**

A. Greet the students and briefly recap the previous lesson.

B. Introduce the topic of atom models and their significance in understanding the structure of matter.

C. Present the learning objectives for the lesson.

**II. Historical Development of Atom Models (20 minutes)**

A. Provide a brief overview of the historical development of atom models, starting from the ancient Greek concept of indivisible particles.

B. Discuss the contributions of key scientists such as Democritus, Dalton, Thomson, Rutherford, and Bohr to the development of atom models.

C. Show images or diagrams of each model and explain their key features and limitations.

## III. Comparing and Contrasting Atom Models (25 minutes)

A. Divide the class into small groups and provide each group with a specific atom model to analyze.

B. Instruct the groups to compare and contrast their assigned model with the other models in terms of structure, particle composition, and key experimental evidence.

C. Ask each group to present their findings to the class, highlighting the unique features and limitations

## IV. Modern Atomic Model (25 minutes)

A. Introduce the modern atomic model, also known as the electron cloud model or quantum mechanical model.

B. Explain the concept of electron orbitals and the probabilistic nature of electron distribution within an atom.

C. Discuss how the modern atomic model addresses the limitations of previous models and provides a more accurate representation of atomic structure.

## V. Conclusion and Application (5 minutes)

A. Summarize the key points discussed in the lesson, emphasizing the progression of atom models and the importance of the modern atomic model.

B. Engage students in a class discussion on the significance of understanding atom models in various scientific disciplines.

C. Assign a short homework task where students research and write a brief report on a specific atom model and its impact on the development of atomic theory.

D. Answer any questions and address student concerns.

https://wordwall.net/tr/resource/28893257/ingilizce/past-simp-was-were

9th Grade Lesson Plan

| Lesson name | English |
|---|---|
| Lesson | Simple past tense<br>• Was/were<br>• Regular verbs |
| Overall goal | Ss can identify difference between past and present<br>Ss can understand past tense form of regular verbs |
| Duration | 35min. |
| Objectives | *Ss will be able to make sentences in past simple tense by using the verbs which is given by the teacher<br>* Ss will be able to differentiate between past and present tense by looking sentences that the teacher writes.<br>* Ss will be able to use was/were by speaking about context of the lesson<br>* Ss will be able to guess that in past tense regular verbs takes "ed" by watching scenes of the film. |
| Methods | Writing sentences, completing sentences, listening |
| Input | Video, pp slides |
| Lesson Environment | classroom |
| Anticipated Problem:<br>Some students may have difficulty when trying to make past tense sentences and speaking about past simple tense. | PLANNED SOLUTIONS: With the aim of showing to students, the teacher will give the first examples. Give help to students when needed. |

PROCEDURE:

| Timing | Procedure | Teacher actions including content and management |
|---|---|---|
| 3 minutes | WARM – UP/ PRE – LISTENING<br>• Teacher greets the students<br>• After greeting the students, the teacher says "Do you know Wednesday? Did you watch?" "When did you watch? Etc. | |
| | • The teacher says "Wednesday is a famous series which is on Netflix. It is famous especially for her iconic dance. It is adaptation of an old film Adams Family" | |
| 10minutes | **Mention about past simple**<br>• The teacher writes sentences which include past simple and present simple about the context.<br>• The teacher support sentences with some scenes from the series<br>• T writes some verbs on the board and asks them to guess how can we turn them into past | +The Adams family was a cartoon in 1938.<br><br>+The Wednesday is a series on Netflix now. (Example sentences)<br><br>+Let us look at the sentences in this scene. Did you hear? What did she say? |
| 10 min. | Making up a sentences<br>Fill in the gaps+ create new sentences<br>• Teacher wants students to fill the gaps Wednesday(now) vs Adams Family (past)<br>• Teacher gives ss some verbs and wants create sentences in past tense and present.<br>(Verbs which is given by the teacher: visit – watch – phone – study – travel – stay)<br>(coursebook's verbs) | + Gomez is fat in Wednesday.<br><br>+ Gomez ........ slim in Adams Family<br><br>+Wednesday protects his brother (İn Wednesday)<br><br>+Let us make negative sentences with dislike (in Adams Family) |
| 12 min | Playing game<br>Past simple or present simple.<br>• T opens *wordwall* and practices playing past simple vs present simple. | |

https://wordwall.net/tr/resource/28893257/ingilizce/past-simp-was-were

(VISUALS)













(Scenes from the movie)

https://www.youtube.com/shorts/qPipKt2OEVQ

https://www.youtube.com/shorts/7yTZY0NNFjw

26.04.2023

| Lesson Name: | The story of Harry Potter and JK Rowling |
|---|---|
| Instructor | Beyza Devlet 061910110 |
| Class Size: | 35-40 Students |
| Grade: | 9th Grade (9I) |

| | |
|---|---|
| **Overall Goal:** | Students will be able to use the past tense. |
| **Unit:** | Unit-7 World Heritage |
| **Context:** | Mösyö Taha is a very big youtuber on the internet who makes videos about Harry Potter. Making a video is easy for him. Today he has to make a video in English for his international fans, but his English is not good enough. He needs our help to make the video. |
| **Target Words:** | -childhood, divorce, imaginative, language, settle in, continue, publishers, wizard, reject, novel, author, best-seller, full time job, immediately, journalist, scar, forehead, owl, island |
| **Target Chunks:** | - Did you hear of Mösyö Taha before?<br><br>- Did you watch the movies of Harry Potter?<br><br>( If yes, did you like it?)<br><br>-Where did JK Rowling live when she was a little girl?<br><br>- Did you see him before?<br><br>- The book was published in 1997.<br><br>-Harry Potter was a very special boy |
| **Objectives:** | • Students will be able to talk about past events and retell the story of Harry potter in past tense by brainstorming with the help of the pictures.<br>• Students will be able to display their comprehension of the reading passage by filling out the True /False activity.<br>• Students will be able to form correct forms of the verbs by using the target words and chunks with correct spelling. |
| **Language Skills and Learning Outcomes:** | E9.7.L1.Students will be able to organize information on world heritage in a recorded text/video.<br><br>E9.7.S1. Students will be able to ask and answer simple questions in an interview about past times and past events.<br><br>E9.7.R1.Students will be able to ask and answer the questions about a text related to the world heritage.<br><br>E9.7.W1. Students will be able to write a series of sentences about historical places they visited in the past. |
| **Duration:** | 35 Minutes |
| **Methods:** | • Intensive reading |

| Timing | Procedure | Chunks, vocabulary, context, and items to be used |
|---|---|---|
| 5 mins. | **Warm-up (pre-reading)**<br><br>**Students will be able to talk about Mösyö Taha and Harry Potter**<br><br>• Teacher asks ss if they did see him before or know who he is? (The picture of Mösyö Taha)<br><br>• After getting the answer, T Asks more detailed questions about him and Harry Potter.<br><br>-Did you see him before?<br>- Did you hear of Mösyö Taha before?<br>-Did you watch any of his videos before?<br><br>• TT shows pictures of Harry Potter ask how these two people are connected. T shows pictures of his collection and aks more questions. | **Chunks:**<br>• **Did you see him before?**<br>• **Do you watch the Harry Potter movies?**<br>• **Did you read the Harry Potter books?**<br>**- Yes, I read all of them 2 years ago.**<br><br>**Context:** Mösyö Taha is a very big youtuber on the internet who makes videos about Harry Potter. Making a video is easy for him. Today he has to make a video in English for his international fans, but his English is not good enough. He needs our help to make the video.<br><br>**Items: Pictures of the character, Harry Potter, Jk Rowling and Taha's collection picture** |
|  | -Did you watch the movies of Harry Potter? ( If yes, did you like it?)<br><br>Did you also know that it was a book? -Do you know its author?<br><br>• Teacher introduces our character again and explains the context. T wants ss to help our character to make a video in english to tell the story of Harry Potter and JK Rowling. |  |

| 10 mins. | **1ˢᵗ activity (reading)**<br><br>**Objective:**<br>-Students will be able to display their comprehension of the reading passage by filling out the true false activity.<br><br>- Students will be able to detect specific information from the passage about JK Rowling<br><br>**Procedure:**<br><br>• First the teacher reads the passage slowly out loud. For the second one the teacher and the students translate it together.<br>• The teacher emphasizes the unknown words and instead of giving a direct translation, she tries to explain it in the target language.<br>• For the 3rd time, the teacher selects 3 students who are volunteers to read the passage.<br>• After the passage is read and understood enaough, the teacher gives the students 2 minutes to choose true or false.<br>• After everybody is done, for each question the students give their answers and also the reason why they have choosed that option..<br>• When students are having a hard time, the teacher explains the vocabulary with simple words again. 'Two people who love each other get | **Chunks:**<br>-JK Rowling lived near Bristol when she was a little girl.<br>Who invented the name Potter?<br>She did not start writing stories after university.<br><br>**Vocabulary:**<br>• -childhood,<br>• divorce,<br>• imaginative,<br>• language,<br>• settle in,<br>• continue,<br>• publishers,<br>• wizard,<br>• reject,<br>• novel,<br>• author,<br>• best-seller,<br>• full time job<br>• immediately<br>• jornalist<br><br>**Context**: Mösyö Taha is a very big youtuber on the internet who makes videos about Harry Potter. Making a video is easy for him. Today he has to make a video in English for his international fans, but his English is not good enough. He needs our help to make the video. |

| | | |
|---|---|---|
| 10 mins. | **1st activity (reading)**<br><br>**Objective:**<br>-Students will be able to display their comprehension of the reading passage by filling out the true false activity.<br><br>- Students will be able to detect specific information from the passage about JK Rowling<br><br>**Procedure:**<br>• First the teacher reads the passage slowly out loud. For the second one the teacher and the students translate it together.<br>• The teacher emphasizes the unknown words and instead of giving a direct translation, she tries to explain it in the target language.<br>• For the 3rd time, the teacher selects 3 students who are volunteers to read the passage.<br>• After the passage is read and understood enaough, the teacher gives the students 2 minutes to choose true or false.<br>• After everybody is done, for each question the students give their answers and also the reason why they have chosen that option..<br>• When students are having a hard time, the teacher explains the vocabulary with simple words again. 'Two people who love each other get | **Chunks:**<br>-JK Rowling lived near Bristol when she was a little girl.<br>Who invented the name Potter?<br>She did not start writing stories after university.<br><br>**Vocabulary:**<br>• -childhood,<br>• divorce,<br>• imaginative,<br>• language,<br>• settle in,<br>• continue,<br>• publishers,<br>• wizard,<br>• reject,<br>• novel,<br>• author,<br>• best-seller,<br>• full time job<br>• immediately<br>• jornalist<br><br><br>**Context**: Mösyö Taha is a very big youtuber on the internet who makes videos about Harry Potter. Making a video is easy for him. Today he has to make a video in English for his international fans, but his English is not good enough. He needs our help to make the video. |
| | | **Items:** |
| | | - reading passage<br><br>-fill in the blank's activity |

**Speaking act**

**Objective:**

- Students will be able to form simple sentences by using the target words and chunks with correct spelling.

**Procedure:**

- T thanks all the students for their help and shows the picture of the video Taha made, thanks to their help. (What did you do Harry?)

- Fist the teacher tells the students when and where she first encountered with Harry Potter. (personalization)

- Teacher asks students about their own experience and tries the motivate students to speak more by asking related questions.

- - Did you ever think that you will receive a letter from Hogwarts?

- What video ideas about Harry Potter could you give to Taha?

- If you were a Wizard, what would your specialty be?

**Chunks:**

- Did you ever think that you will receive a letter from Hogwarts?

- When I was 9 years old, I though I would get a letter from Hogwarts?

- I want to make things invisible.

**Vocabulary:**

- Letter
- Receive
- Wizard
- Specialty
- Story
- Invitation
- Publisher
- Settle in
- novel

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5 mins.

**Back-up**

**Objective:**

- The Teacher has a box filled with vocabulary words.
- Students scramble the vocab cards. Students will come to the board and choose one card and write a sentence in past tense using the word.
- Teacher gives feedback.

**Chunks:**
Harry was a wizard.
I went on an island when I was 7 years old.
I had a scar on my forehead in my childhood.

**Vocabulary:**
- Wizard
- Hogwartz
- New student
- Scar
- Forehead
- Divorce
- Marriage
- Island
- Train
- Publisher
- Full time job
- Journalist
- Novel
- Author
- immediately

**Items:**
- a box filled with vocab cards

| 3 mins. | **Wrap-up & summarizing the lesson**<br>• Teacher will summarize the lesson and repeat the taught chunks and vocabulary.<br>• Teacher will give the homework. | |
|---|---|---|

**ANTICIPATED PROBLEMS:**

- Pupils may fail at grasping the chunks and vocabulary after the lesson.
- Pupils may fail at forming sentences in correct order.
- Pupils may mispronounce the words.

| **Homework Activity** | **Context:** Taha wants to know the students first encounter with Harry Potter. |
|---|---|
| • Students are expected to write a dm (direct message) to Taha about their video ideas and how they have met Harry Potter. | |



Do You know him?
Who is he?

Who s he?







JK. ROWLING

Mösyö Taha is a very big YouTuber on the internet. Making a video is very easy for him. But today, he has to make a video in English for his international fans.

#video #youtube #facebook

EVERYTHING ABOUT JK ROWLING & HARRY POTTER

4.3M views · 1 year ago

312K   6.1K   Share   Download   Save

Let's help Taha to make a youtube video in English!

## COMPLETE THE PARAGRAPH WITH THE RIGHT FORM OF THE VERBS IN SIMPLE PAST TENSE AND HELP TAHA!

Harry Potter _____ (BE) a very special boy.  He _____ (BE) a young wizard. His hair _____ (BE) black and his eyes _____ (BE) green.  He _____ (HAVE) a scar on his forehead.
He _____ (LIVE) with his aunt, his uncle and his cousin.
He _____ (NOT BE) happy living there because they _____ (NOT LOVE) him.  He _____ (GET) a letter from Hogwarts School of Witchcraft and Wizardry. He _____ (BE) a new student there!!  He _____ (BUY) a new pet, too: an owl. Its name _____ (BE) Hedwig.  But his uncle _____ (NOT WANT) to have a wizard in the family and _____ (TAKE) Harry to a lonely island.

Rubeus Hagrid _____ (RESCUE) Harry and _____ (GO) to Diagon Alley with Harry. There he _____ (BUY) his new clothes and books.
He _____ (GO) to school for the first time by train in Platform 9 ¾. There he _____ (MEET) his new friends: Ron Weasley and Hermione Granger. They _____ (TALK) and _____ (EAT) candies and chocolates.

# Harry Potter

Joanne Kathleen Rowling was born in Chipping Sodbury in 1965. She spent her childhood near Bristol. Two of the children she played with were called Potter, a name she liked very much. At school she wasn't good at sports, but she was very imaginative and very interested in languages and she wrote her first story when she was five or six years old. When she was nine years old, she had a school teacher who terrified her.

After school she studied French at Exeter University and spent one year in Paris. In 1992 she went to Portugal to teach English. Her marriage to a Portuguese TV journalist ended in divorce and she returned to Britain with her daughter. They settled in Edinburgh. She was out of work and she spent her time writing.

The idea of telling the story of a boy who was a wizard came to her in 1990. She continued working on the story for several years and finished her novel when she was in Edinburgh. Then she sent it to many publishers who rejected it. Finally in 1996, Bloomsbury Children's Book bought her novel *Harry Potter and the Philosopher's Stone*. It was published in 1997 and immediately became a best-seller. Writing is now J. K. Rowling's full time job.

## 2) *Right or wrong* ? Justify your answers by quoting the text

**1.** J.K. Rowling lived near Bristol when she was a little girl. right ☐   wrong ☐

..............................................................................................................................

**2.** She invented the name *Potter*. right ☐   wrong ☐

..............................................................................................................................

**3.** She enjoyed practising sport. right ☐   wrong ☐

..............................................................................................................................

**4.** She started writing stories after university. right ☐   wrong ☐

..............................................................................................................................

**5.** She was a French teacher in Portugal. right ☐   wrong ☐

..............................................................................................................................

**6.** Her marriage wasn't a happy one. right ☐   wrong ☐

..............................................................................................................................

**7.** Publishers were immediately interested in *Harry Potter*. right ☐   wrong ☐

..............................................................................................................................

**8.** The first *Harry Potter* was published when J. K. Rowling was thirty-two. right ☐
wrong ☐

..............................................................................................................................

Up next

Autoplay



7:00

**what did you do HARRY?**

MÖSYÖ TAHA · 10Bviews · 11hr ago

## self-evaluation

The topic I wanted to focus on in my lesson plan was the past tense. I decided to integrate this grammar topic with a subject that interests the students. As a result, I decided to use the Harry Potter theme, which many students are familiar with. I was able to process the lesson as planned. I didn't have a problem with the timing. In general, I have made a lesson plan suitable for my purpose and very useful. It was as if the students were learning about Harry Potter and Jk Rowling, not as if they were practicing a grammar topic which was one of my main goals. While planning the lesson, I needed help connecting the activities. It took me a long time to combine these activities with a Context. If I were to teach the same lesson again, I would develop a better context which would entail a story and give students a better purpose to do the activities.

When I compared the students who attended with those who participated in the other lesson, I saw that the students who knew the Harry Potter character were much more prominent in this lesson. There were 3 or 4 students who raised their hands very few in other lessons but showed themselves in this lesson. It means they loved the subject, and it motivated them. When I asked any question about the book, I got answers from many students. For these reasons, the most successful aspect of the course is the subject and how it was taught. Since it was a grammar subject, the activities focused on filling in the blanks and right or wrong. I could only devote a little bit of time to the speaking activity. This may be the part where I am least successful. While creating my context, I wanted to choose a natural person who is closer to our culture and known to the students, besides Harry, while choosing the main character for myself for this lesson. For this, Mösyö Taha was my first choice.

I used various pages from the internet for my fake English video ideas, which helped me a lot to make the story more realistic while teaching it in class. Out of the four main skills, reading and listening were the two skills that students developed the most. Then speaking and at least writing was improved. It took more work for me to prepare the plan than to teach the lesson. It was challenging to connect the activities and match the context. I had already considered the possibility that some students might not know the subject or not recognize Taha. For this reason, at the beginning of the lesson, I went through a summary myself. I repeated the sentences many times so that everyone could understand the story. I tried to explain such words in English in case of unknown words.

In the warm-up part I did at the beginning of the class, the students who knew Taha were eager to talk and immensely enjoyed this part. The student's interest decreased slightly when I moved to the Reading section. This may have been because it was a reading passage about JK Rowling. But as the paragraph continued, they also wondered about her story. As in every lesson, some students wanted to refrain from participating in this lesson. When I noticed that the same students were raising their hands all the time, I randomly pulled out a few students from the class notebook, and they joined the class. Many of them got it right, but they couldn't participate because they were tired.

I had difficulty managing the class. The biggest reason for this was the two students sitting in the front. In this lesson, unlike my other lectures, there were a lot of students talking. After a few moments of silence, they continued even after I warned them several times. I have difficulty managing the class. The biggest reason for this was the two students sitting in the front. If students were to give me some advice, they would want me to make them watch a video. It may have needed more to explain the context rather than with only pictures.

**peer evaluation (Burak Savaş (9-C))**

The course first started with a lecture and then progressed in the form of exemplification and practice. The students first remembered where they used 'must' and then tried to create an example sentence. It was a successful lesson, although there was a bit traditional focus on learning the subject. At the end of the lesson, the students analysed the use of 'must' in movies and series. It was the most successful part of the course as they could see better how this topic is used in real life. The lack of sufficient context in the lesson plan confused the students about what to do and why.

For this reason, the context was a missing part of the lesson plan. We saw how technology could be used effectively in the lesson in the activity in which lines from movies were used. Students enjoyed this activity very much, and participation was higher than other activities. It was an activity that brought distracted students back together. A grammar topic was covered during the lesson, and sample sentences were built on it. Students came to the board and wrote their sample sentences, so writing was one of the four main skills developed the most. While giving lectures, the teacher did not settle for just one example but provided many examples and ensured the students understood.

Many students wanted to avoid attending the lecture. Most of them were tired because it was the last lesson, and the attendance was low because it was a boring subject for the students in terms of grammar. The teacher needed some help controlling the class. The bored students started talking, but the class became quieter in the last activity, and their attention returned.

If I had to give my friend a piece of advice, I would tell him to find a context with purpose and teach the lesson on it. In this way, the lesson would be more planned and effective. It would have caused less student distraction. In the same way, giving grammar topics in the background rather than directly in a reading text or video would cause students to learn more effectively. If I were to teach the same lesson, instead of starting with the lecture, I would ask them to guess today's topic by showing a few examples of the grammar topic used. I would prepare a regular lesson plan with a practical context.

# Physical education lesson plan

**Name and surname: Frederico Umbelina**

**Place of PE: Agrupamento de Escolas Forte da Casa, Portugal**

**PHYSICAL EDUCATIONLESSON PLAN**
**Age of children:15-17 years Number of children: 25**
**Teaching topic: Development of strength**

**Teaching aim: To develop strength, speed, endurance and flexibility through engaging in a wide variety of activities, using at least 50% of MVPA.**

**Degree of teaching: Mastering**

**Equipment used: Cones, bars, stopwatch.**

**Safety: very good warm-up, good coordination, properdistance, clear instructions**

**Structure of PE lesson: (PE Lesson plan is visualised in a video #1)**

**1.Introductory part (Duration: 10 minutes):**
**Warm-up with a physical game – chasing game "Brother,save me!" (5 minutes)**
**Special dynamical warm-up with functional gymnastic and strength exercises (5 minutes)**

**2. Preparatory part (Duration: 10 minutes):**
**Running drills: skips, hops, straight leg extension running, foreleg extension running, ... (5 minutes)**

**Special strength exercises in pairs (5 minutes)**

**3. Main part (Duration: 20 minutes):**
**Circuit workoutwith five exercisestations:**
**1. Leapfrog 20 meters**
**2. Rabbit jumps 20 meters**
**3. Step jack 20 meters**
**4. Push-ups (10 times)**
**5. Bar back squats (10 times) Children performfive circles.**

**4.Closing part (Duration: 5 minutes): Dynamic stretching (3 minutes) Warm down – massage(2 minutes)**

## II. TASK:

## 1. ANTHROPOLOGICAL

**a) Anthropometrics characteristics:**
Stimulate the harmonious physical development of children by increasing musclemass and reducingsubcutaneous fat tissue.

**b) Motor skills:**
Influence on the development of a general motor, with an emphasis on increasing reaction speed, speed of movement, explosive power and precision.

**c) Functional skills:**
Influence on increasing the function of the respiratory and cardiovascular system

## 2. EDUCATIONAL TASK:

Improvement of motor skills from elementary athletic techniques.

# Name and surname:Diogo Costa

## Place of PE: Agrupamento de Escolas Forte da Casa, Portugal

## PHYSICAL EDUCATION LESSON PLAN

**Age of children: 15-17 years Number of children: 25 Teaching topic: Flexibility**

**Teaching aim: Aim of hour of PE is improve flexibility whole body (with at least 50% of MVPA))**

## Degree of teaching: New curriculum

## Equipment used: pin, medicineball, weight

## Safety: additional assistant teacher or a child, very good warm-up very good coordination

**1. Introductory part (Duration: 10 minutes): Stretching, balance, mobility exercises**

**2. Preparatory part (Duration: 10 minutes): Running drills with abc exercise, stretching**

**3. Main part (Duration: 20 minutes):**
**-high skip**
**-chase games**
**-start drills**

**4. Closing part (Duration: 5 minutes):**
**Passive stretching with communication between children**

**II. TASK:**

**1. ANTHROPOLOGICAL**

**a)Anthropometrics characteristics: Stimulate the harmonious physical development of children by increasing flexibility**

**b)Motor skills: Influence on the development of a general motor with an emphasis on flexibility and stretching**

**c)Functional skills: Affectthe cardiovascular system**

**2.Educational task: Appropriate organization of the teaching process put students in mutualrelationships that strengthen fellowship and work discipline**

**Name and surname: Vítor Ruiz**

**Place of PE: Agrupamento de Escolas Forte da Casa, Portugal**

**PHYSICAL EDUCATION LESSON PLAN**

**Age of children: 15-17 years**

**Number of children: 25**

**Teaching topic: General endurance**

**Teaching aim: Whole body endurance development with minimal physicalinactivity (and at least 50% of MVPA)**

**Degree of teaching: First executionor repetition**

**Equipment used: cones, didactichurdles,**

**Safety: light athleticclothes, good athleticshoes, do not exercise in hot and humid**

**1. Introductory part (Duration: 10 minutes):**
Check-up for proper clothes and running shoes (1 minute)
General warm-upwith running or a physicalgame (5 minutes)
Special warm-up with dynamic functional gymnastic whole-body exercises whilewalking (4 minutes)

**2.Preparatory part (Duration: 10 minutes):**
Submaximal ABC running drills with active breaks (5 minutes) MaximalABC running drills with active breaks (5 minutes)

**3. Main part (Duration: 20 minutes):**
Circular exercise with 4 exercise stations, in the order of progress (back core exercise; front core exercise; arm exercises, leg exercises-muscles). Children exercise for 10-30 seconds with 10-30 second active breaks. After completedwhole cycle children run lightly around the exercise stations for 120 seconds, shaking their body parts. While running they slalom around cones, jumps over hurdles. They repeat this exercise for 20 minutes. Teacher could adjust or change exercise stations but keeping the same ratio between exercise time and passive break time.

**4.Closing part (Duration: 5 minutes):**
Dynamic functional stretching and shaking muscles that worked out mostly (5 minutes)

## II. TASK:

### 1.ANTHROPOLOGICAL

**a) Anthropometrics characteristics:**
Exercise is suitablefor maintaining body composition or loosing body fats.

**b) Motor skills:**
Exercise develops general and specific endurance based on interval training principle.

**c) Functional skills:**
All exercises are functional.

### 2.Educational task:
Children learn interval endurance training principle; how to self-monitor heart rate; progression principles between exercises; active breaks; work in team; dynamicfunctional stretching.

**Made by Lucija Petrovska and her mentor Jasmina Denkovska from North Macedonia in collaboraton with the teams from Portugal, Poland and Turkey.**