Teaching with Technology Guide

Lisbon, April 2018

Index

Adobe Connect is aprogram developed for conference and meeting usage over the internet. It allows multiple people connect, talk and share, all while seeing each other through webcams. The basic set up is to host a conference room, or in school usage, a virtual classroom, that can be accessed by any computer. The students can then join up the session as a participants, who can see and access the host's audio and video feed, as well as any materials shared on platform by the host, including pdf's, powerpoint presentations, images or simply hand drawn pictures that can be done on the virtual whiteboard. The program can also feed live video stream from a document camera, provided that the internet-connection can support such a big data streaming. The program is developed by the Adobe company, which most of us know for making the common pdf-reader, Adobe Acrobat. The company has also made some well-known designer tools, such as Photoshop and InDesign.
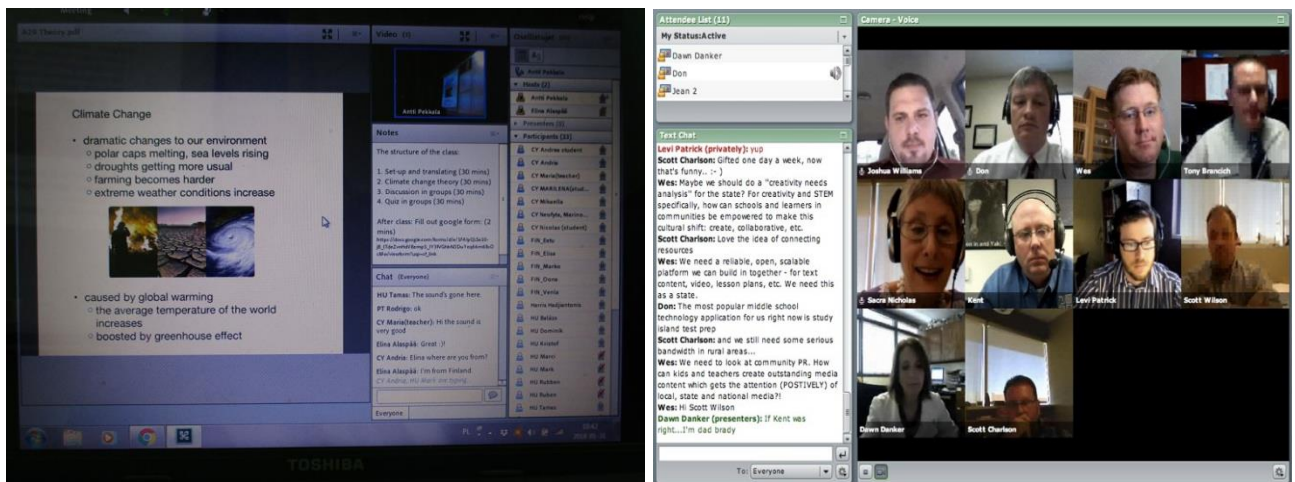

Adobe Connect, although made mainly for conference usage, has proven to be one of the many useful platforms to teach a classroom or individual students online. The platform has a wide array of features, that a skillful teacher can use in a virtual classroom. The usual tools for sharing files and webcam feed from the teacher was already mentioned, which should cover most of the usage, but there are a few handy tools still usable by the teacher. One of these tools is break-out rooms, which allows the teacher to split up the students into different sub-classrooms. In here, the students can

be assigned some discussion or other group related assignment. Afterwards the students can present their

ideas to the whole group, when the host upgrades the picked students into presenters. This is another handy tool for teaching, for the teacher, as a host, can change the role of the people in the virtual classroom, giving them more access and privileges to change the classroom. A teacher can, for example, upgrade one of the students into a presenter, who can share a file and use their microphone and webcam to give their presentation, and afterwards the teacher can change the students role back to participant. Individual privileges can be given as well, such as microphone usage, without changing the role of the person. One final, but very crucial feature of the program is the ability to record sessions. The program will then save the feed, including the material presented, into a recording, than can be viewed either privately through a password or publicly. The teacher can share the link of the recording as they please. It is ideal for students who can't attend the class or for students who want to revise what they learned.

Teaching on computers is often thought to be the modern way to educate children, but as everything, it has it's downsides. Students who participate through their own devices from their own home, can be prone to be less active. In a lot of cases there are some other things to think about or just some small temptations to make you less than 100% dedicated to the teaching going on presently. Teaching online requires a different kind of mindset from the student than normal teaching, because the teacher isn't at your home, telling you to put your phone away, so it can be very easy to start enjoying the company of internet cats instead of boring trigonometry. One way to solve this is to have a supervisor, while the students are being taught online, but then it would be just the same for the supervising adult to teach the topic.
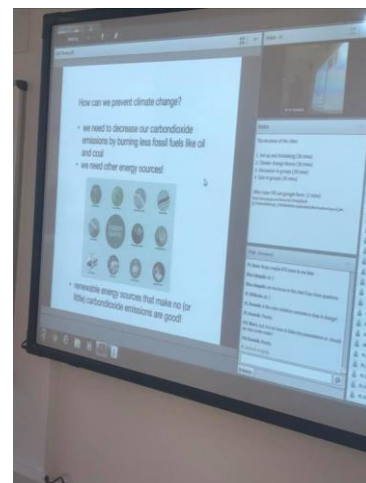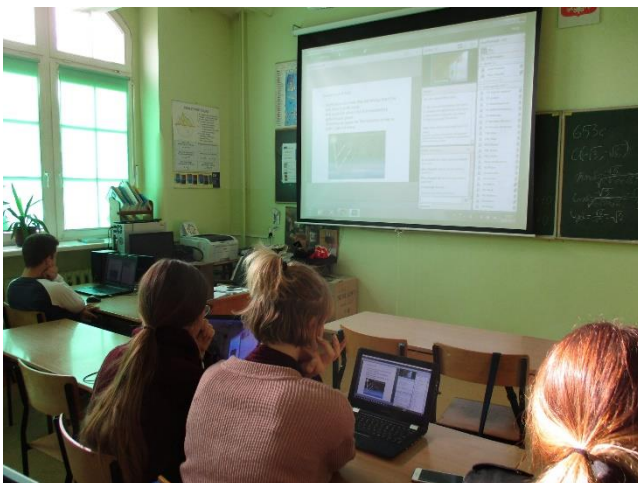
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Another problem that surfaces with the use of virtual classrooms is communicating effectively. The program allows you to use chat, microphones and webcams, but they of course depend on the hardware of both the teacher and students, as well as the speed of the internet. Because the communicating happens through cables and satellites, there is also the normal delay, making conversations slightly slower, which anyone who has made phone calls through the internet have noticed. This communication problem is not only dependent on the slow internet, but also for the general passiveness of the students and sometimes the fear of participating. This is of course, dependent on the individual, but also the general culture of communicating. Finns for example, through my own experience, are generally a bit shy and reluctant to take part in anything. If, for whatever reason, the teacher gets little to no feedback or communication from the students, it can be very difficult to guage the level of understanding. Teachers can't see the puzzled faces of their students when they are not there, nor can the teachers see if the students are just twiddling their pens because the content isn't challenging enough. For the teaching to be effective, the teacher should know how the audience is receiving the teaching, and to improve or change the perspective based on it. Therefore the teacher may require different communication strategies. These are of course problems that are not really based on the platform, but more problems with online teaching in general. A student needs to work harder and have more willpower to keep them focused, which is not a problem for very well motivated students, but for an average student it can just be the reason why online teaching is generally worse than traditonal teaching.

In conclusion, Adobe Connect is an effective tool for teaching, if it is used for the right purpose and for the right audience. It has a lot of possibilities and many effective ways to satisfy any sort of needs that you might have as a teacher. The general problems with teaching online are present in this program as well, but they are not reinforced by the platform, making it a good choice for online teaching.

Finnish team, Antti Pekkala
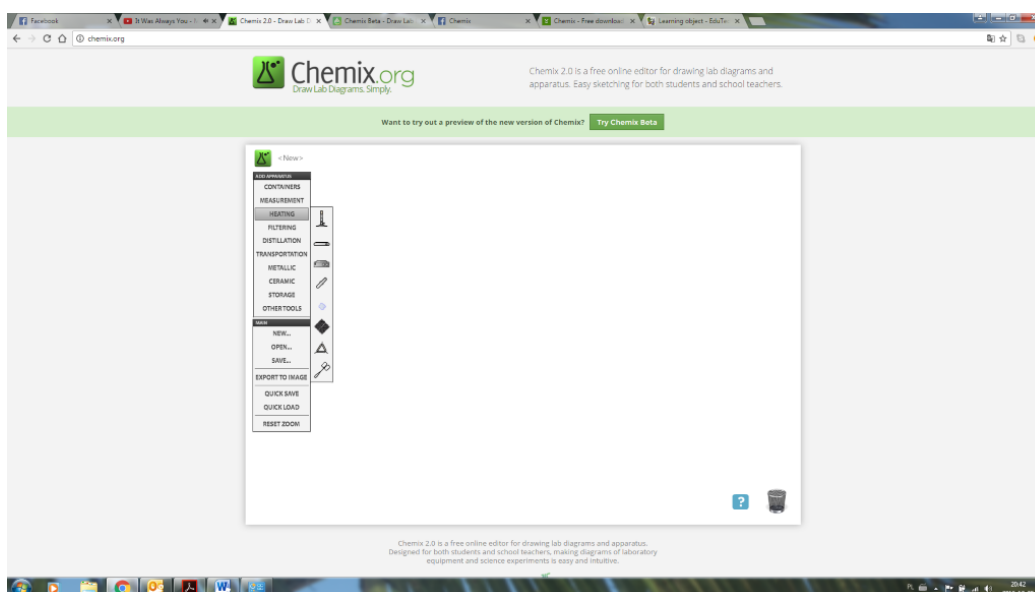
Teaching with Technology
Chemix

Chemix is a free software for drawing lab diagrams. This small tool written in Flash is designed for students to help them draw diagrams of common laboratory equipment and design lab setup of science (especially chemistry and physics) experiments. It is not a professional's tool, but being easy and fast to use, it is suited for quick presentations and for use by students. Chemix is a free tool that lets the user create designs for chemistry labs. Chemix is a free program specifically for those interested in the world of chemistry. This chemistry program is very easy to download, install and then use, through its friendly and intuitive user interface. You don't need any technical experience at all to get the most out of it.

It is being used in many chemical areas:

- Organic Chemistry

- Inorganic Chemistry

- Analytical Chemistry

- Physical Chemistry

- Bio-Chemistry

Chemix includes various options to create figures with which to reproduce tables with experiments, the disposition of flasks and accessories, etc.

You have to start with blank board.

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To work with the program, just choose the objects you want to do the project with. They are separated by category. It also gives you the possibility to perform different calculations related to molecules, balance, thermochemistry, electrochemistry, solubility, and weak acid/base. For all of the aforementioned categories the program comes packed with predefined formulas, and lets you copy the information to the clipboard, so you can paste it into other applications.

You can modify the physical position of each object from the editor menu. This makes using it quite easy. Its interface is also very intuitive. Chemix is a free program specifically for those interested in the world of chemistry. This chemistry program is very easy to download, install and then use, through its friendly and intuitive user interface. You don't need any technical experience at all to get the most out of it.

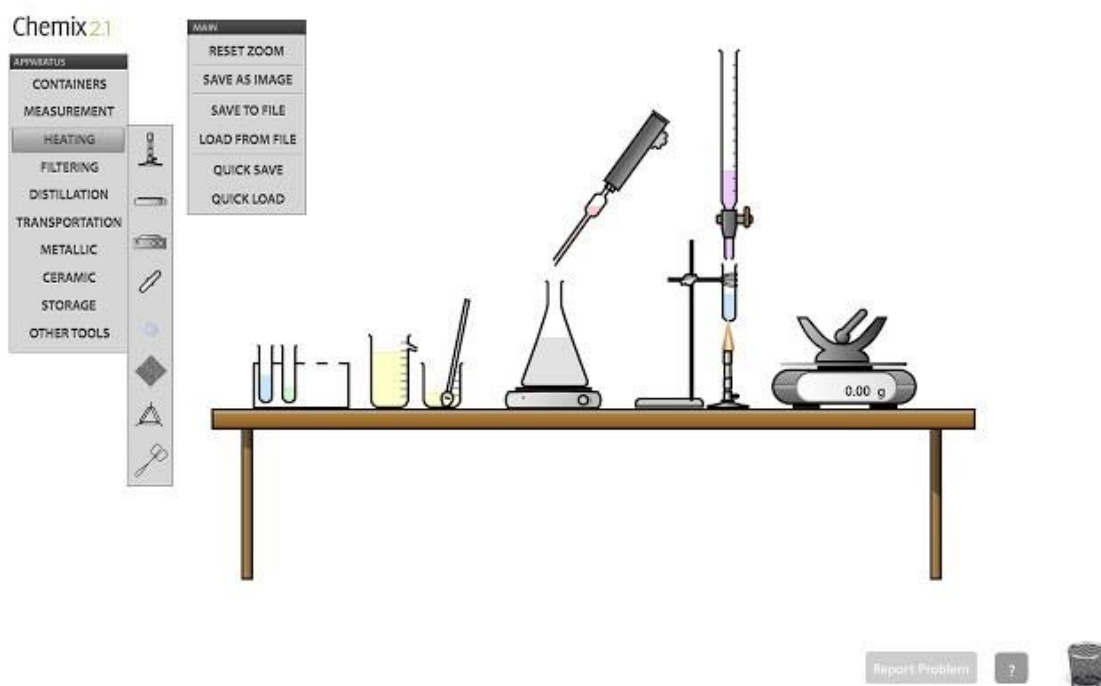You can create simple laboratory equipment, for example:
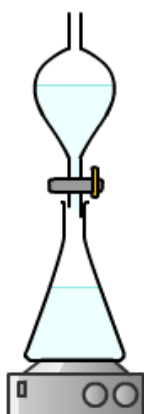
flask with separatory funnel
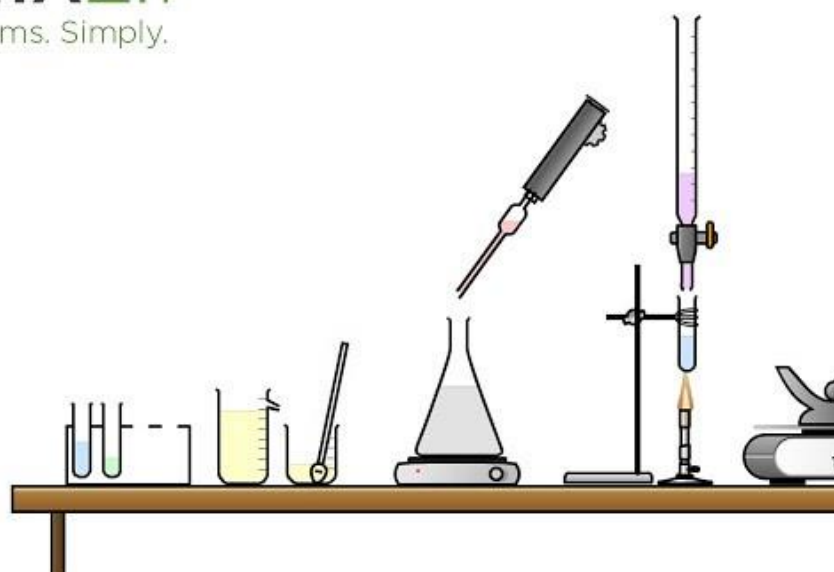
flask with rectificational column

Or you can create complete chemical process laboratory equipment, for example:

Teaching with Technology

For more information you can visit the website www.chemix.org

Polish team, Danuta Kowalczyk

Teaching with Technology

Cy- Seilias Physics and Photography

Seilias Physics and Photography is a very good web page with which students can see certain physical phenomena in three dimensions, so they can acquire a better understanding of them.

We use it for certain chapters in Physics where the use of the whiteboard is not effective enough to allow the students a better understanding. A very good example of this is the chapter on Oscillation.

When we wanted to show the connection between oscillation of a spring and circular movement, we connected to this web page in class and the students could see a simulation which helped them understand the connection better.

In a few words..

In Theory, Theory and Practice are the Same but In Practice They're Different.

| search.. | ? ??????? |

Αρχική ▸ Φυσική Γ Λυκείου ▸ Ταλαντώσεις ▸ Ταλάντωση και κυκλική Κίνηση

Ιαν   Oscillation and Circular Movement
11
201   1
3 ,   2
    ▸   3
    ▸   4
   ▸   5

(4 digits)

- In the simulation below press play ▶ in order to see the movement of the body at each point in time.
- Observe the projection of the yellow point on the vertical axis. What kind of movement does it perform?
- Drag the yellow point so as to change its original position so that the oscillation acquires a starting phase.
- Drag the speed vector to change the linear speed and therefore the angular speed also (*R*=constant).
- Change the radius of the circular orbit to change the width of the oscillation.
- Change the angular speed of the circular movement in order to see how the angular frequency of the oscillation is affected.
- Move the time runner in relation to the period so as to see the position of the point at a certain moment in time *t*.

<u>Full Screen</u>

The sine of an angle φ greater than 90^0 is defined as

$M(x,y)$

A

φ

0

x

y
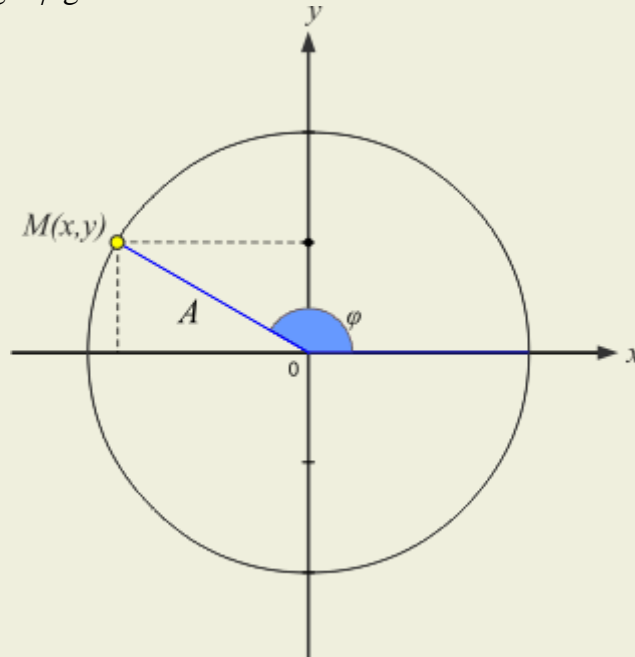
$$\eta\mu\varphi = \frac{ordinate\ of\ point\ M}{distance\ of\ point\ M\ from\ 0}$$

$$\eta\mu\varphi = \frac{y}{A}$$
$$y = A\eta\mu\varphi$$

If we consider that point M performs a smooth circular movement with a constant angular speed ω then the angle φ which is formed by radius OM will be the following:

$$\varphi = \omega t$$

Therefore

$$y = A\eta\mu(\omega t)$$

In other words, the projection of point M on the axis *y'y* (ordinate) performs a simple harmonic oscillation of a width equal to the radius of the cyclical orbit and angular frequency equal to the angular speed of the circular movement.

We then posted the web page link to Edmodo,
(http://www.seilias.gr/index.php?option=com_content&task=view&id=313&Itemid=55
) so that the students could enter from home, study it and enhance their understanding.
We also follow this procedure with other chapters of 3rd Lyceum Physics such as on
Waves and Electromagnetism. For more information, you may also visit this web page.

Cypriot team, Maria Panteli -

Developed by Nic Borg and Jeff O'Hara in 2008 to unite the virtual world with the school, it facilitates learning in a playful way, taking advantage of the fact that students like to surf the Internet and attend social networks.

Edmodo is a free social network where teachers and students can share content and educational applications. It is a tool that seeks to combine technology and education. A esthetically and functionally the platform is very similar to Facebook.

Main features

- Teachers and students collaborate in a secure and closed environment;
- Promotes responsible use of social networks and other tools;
- It enables greater interaction and communication between teachers, parents and students.
- It combines new technologies with education.
- Message system that allows secure and open communication, with supervision and control of the teacher;
- Possibility of supervision of the activities carried out by the student;
- Possibility of assigning papers and evaluations that will be submitted by the students and evaluated automatically;
- Possibility of creating groups by subject area, extendable to the community.
- Possibility of storage and sharing of documents in a cloud computing environment;
- Individual content sharing, by curricular unit or by group;
- Parental control account;
- Simple and intuitive interface;
- Free and free of publicity;
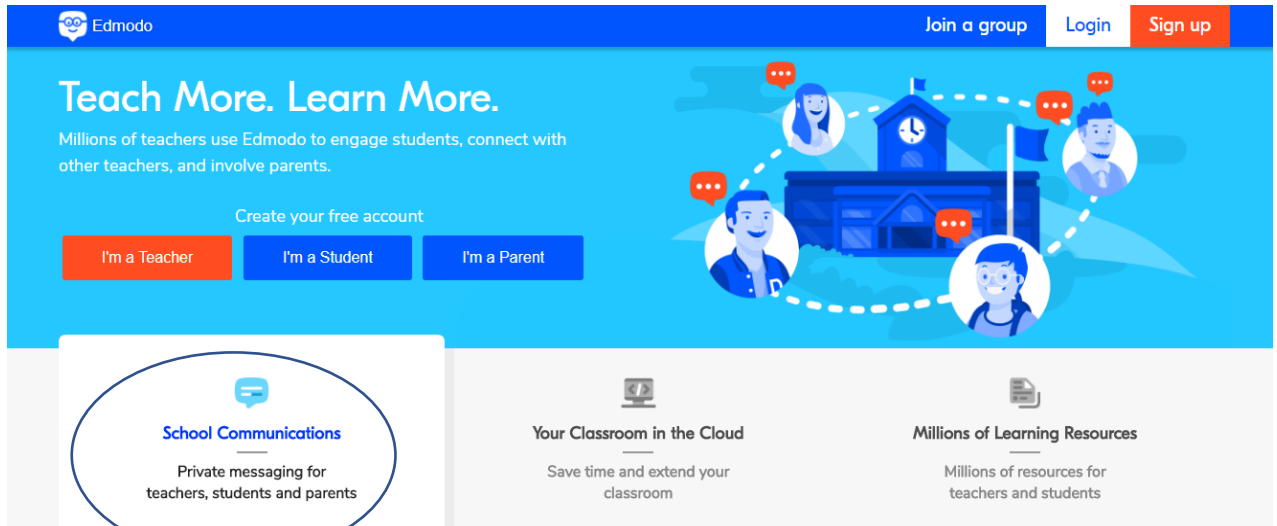- Possibility of access through the computer, mobile phone and tablet.

In order for the application to be secure there are several administrators per country and special access codes for schools and classes / subjects. A student to be able to register in **Edmodo** must have a code that is provided by the group, that is, by the teacher. The fact that users can only exchange information with the members of the group where it is inserted, allows that there is no contact with unwanted users.

Functionalities

- Share contents;
- Educational applications;
- Library;
- Connected to Google Docs;
- Creation and accomplishment of tasks / works online;
- Grades;
- Notifications;
- Performing tasks and online jobs;
- Assessments;
- Calendar;
- Space to exchange ideas;
- Sharing of videos and images;
- Games;
- Help Center.

Focus on teaching not paperwork.

With intuitive features and unlimited storage, quickly create groups, assign homework, schedule quizzes, manage progress, and more. With everything on one platform, Edmodo is designed to give you complete control over your digital classroom.

Seamlessly use Google Apps for Education and Microsoft Office

Edmodo is tightly integrated with Google Apps for Education and Microsoft OneNote & Office. You no longer have to remember multiple passwords, or click o of Edmodo to access your Google Drive or to collaborate using Google Docs. Whether it is Microsoft or Google, we support them both.
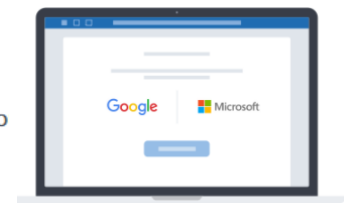
Mums, dads, and carers like learning, too

The Edmodo parent mobile apps make sure whatever you teach during the day gets reinforced at night by getting entire families involved in learning. Share assignments and due dates, classroom announcements, events, set up reminders and more.
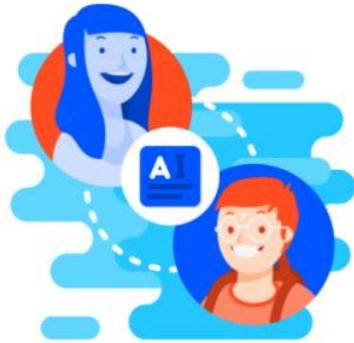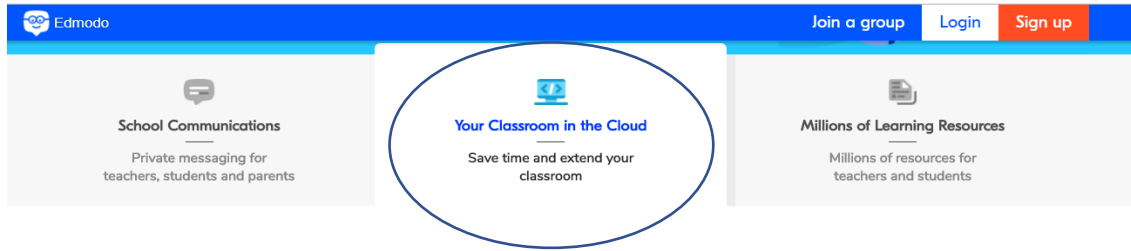
Share resources from across the world

Find the best educational content (open education resources or paid) from all over the web. Using Edmodo Spotlight, you can search and discover free and premium tools, apps, games, and create collections of your favorite resources. You can even upload, share, or sell your original educational content.
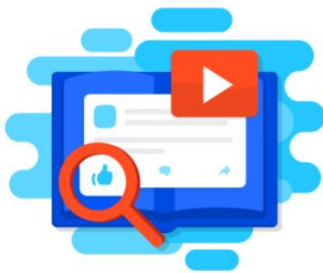
Teaching with Technology

Collaborate More

Share assignments, give feedback, and create active learners–in less time.

Create a Teacher Account

Engage More

Add Edmodo's powerful communication capabilities to Google or Microsoft's productivity tools.

Create a Teacher Account

Find More

Over 2 million resources shared every month on the largest dedicated teacher network.

Create a Teacher Account

Communicate More

Over 500M messages per month between teachers, parents and students.

Create a Teacher Account

Teaching with Technology

Portugal Team, Maria Brites
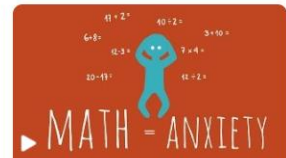
GeoGebra

GeoGebra is an interactive mathematical teaching software which can be applied for the whole learning material in the comprehensive and secondary schools.

The program can be used online and without internet access offline as well. After logging in we can prepare tasks which can be saved for later use. The saved documents can be made accessible for other users too. Without reliable internet access the installed version can be used offline. You can use it for active and problem-oriented teaching, it fosters mathematical experiments and discoveries both in classroom and at home. GeoGebra's Tools enable you to produce new Objects using your pointing device. You don't need any technical experience, that you can use it. https://www.geogebra.org

Within geogebra there are three different views, the geometric, the algebraic window and one for table calculation. These windows make it possible to show an object in three different ways: graphical (the function as it looks like), algebraic (the function with its point coordinates and with its equation) or as a set of date in the cells of a table.

The most important application fields are geometric constructions, coordinate geometry, mathematical analysis, derivation and integral of functions, statistic, displaying and building 3D forms, table calculation, spreadsheet calculation.
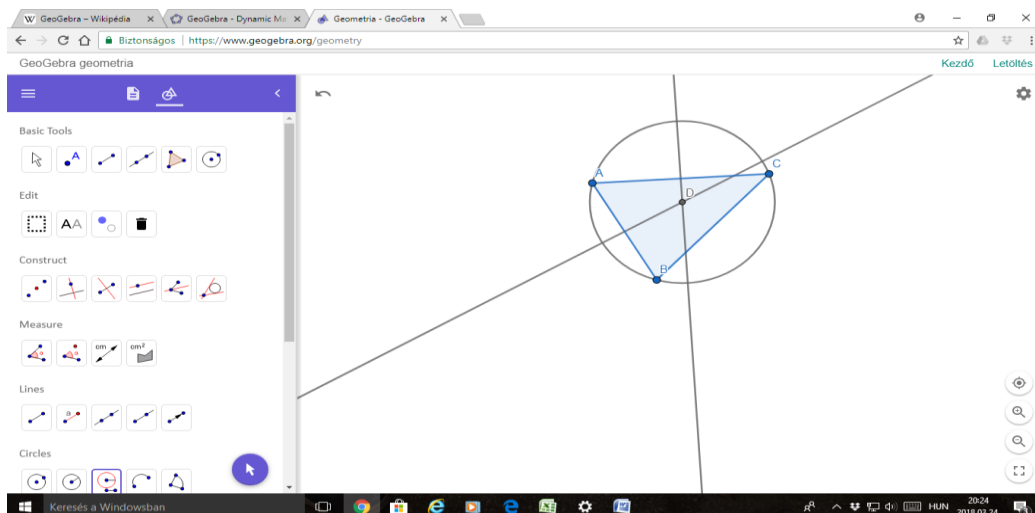
Geometrical construction: by using points, lines, vectors and polygons.

It shows the shape mirrored form of shapes.

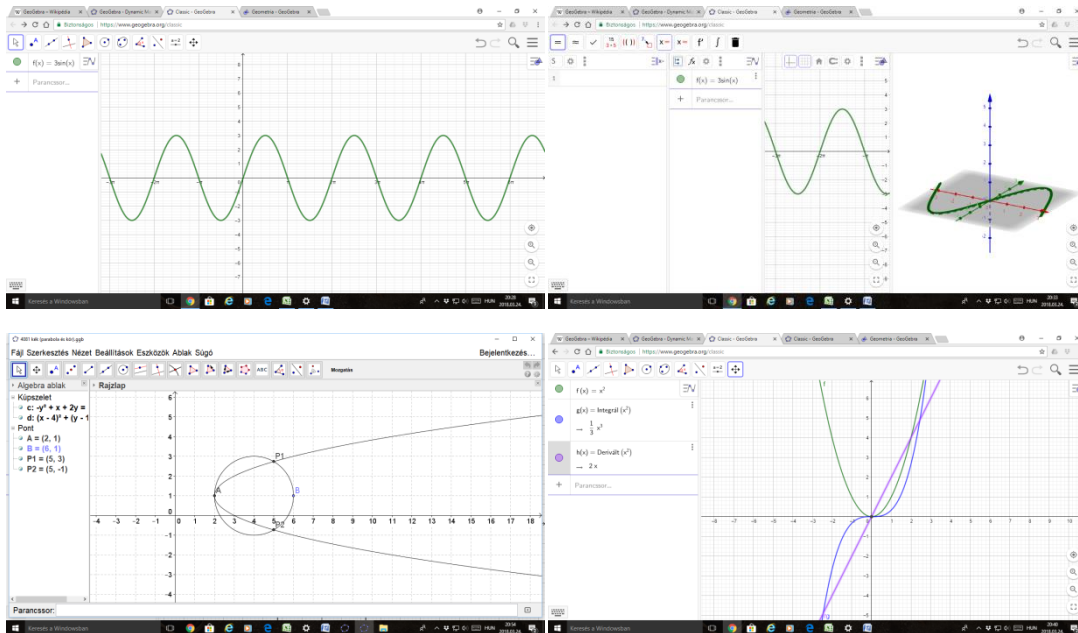You can make the shapes' important lines with this program.

You can determine the points in the shapes.
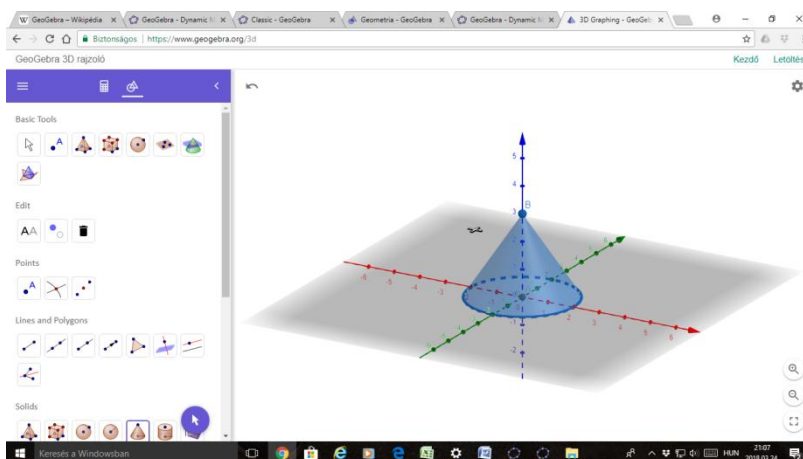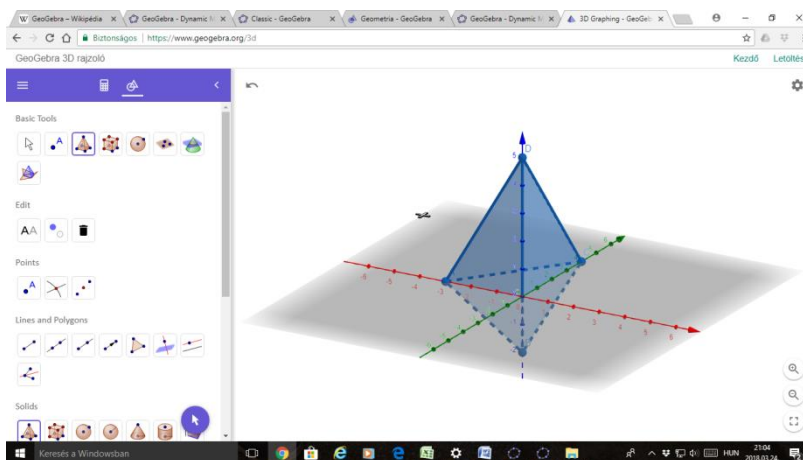
You can play mathematically with GeoGebra.

Teaching with Technology

Coordinate geometry: equations, inequities and functions

In the **3D view** in geogebra we can construct spatial figures:

You can make a shape in 3D. So you can get away from 2D, and you can do the more interesting tasks.

Table calculation:

The program has a built in table calculation which can be used for example for the examining of the results of measurements. The rows and columns can be seen as a table which is referable in the CAS system of geogebra or it is possible to adapt some curves to the given data which allows the examining of them from the statistical point of view. Within the table calculation it is also possible to use build-in functions. These mainly manipulate the lists derived from the content of the cells. That includes the statistical analysis and the probability theory.
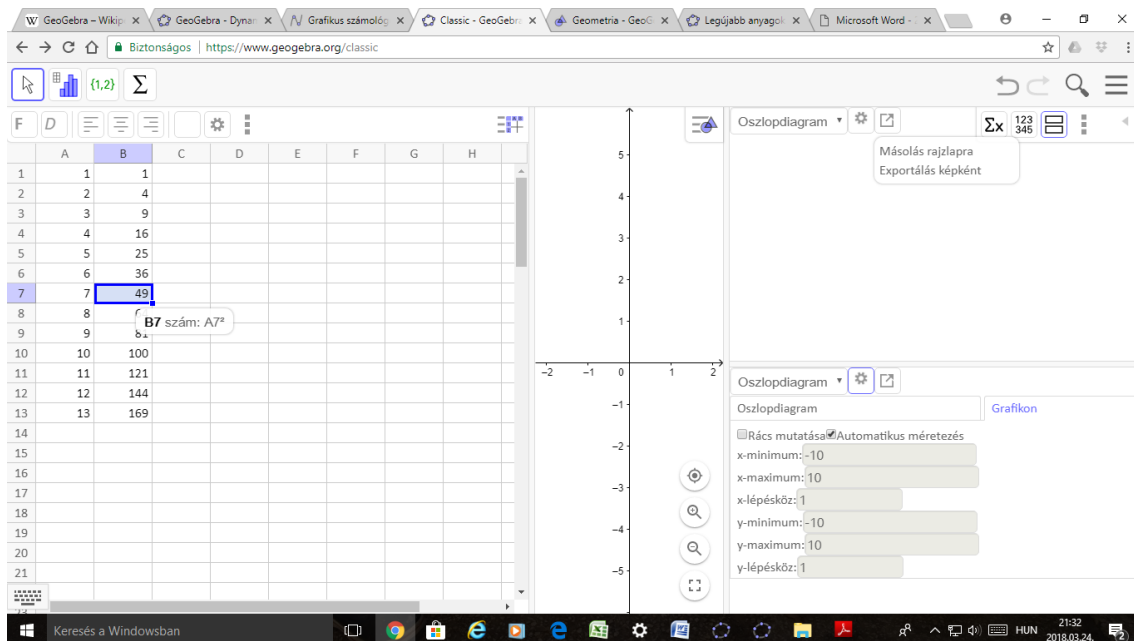
Learning material in internet:

Parallel and perspective projections - https://www.geogebra.org/m/rtYzMd23
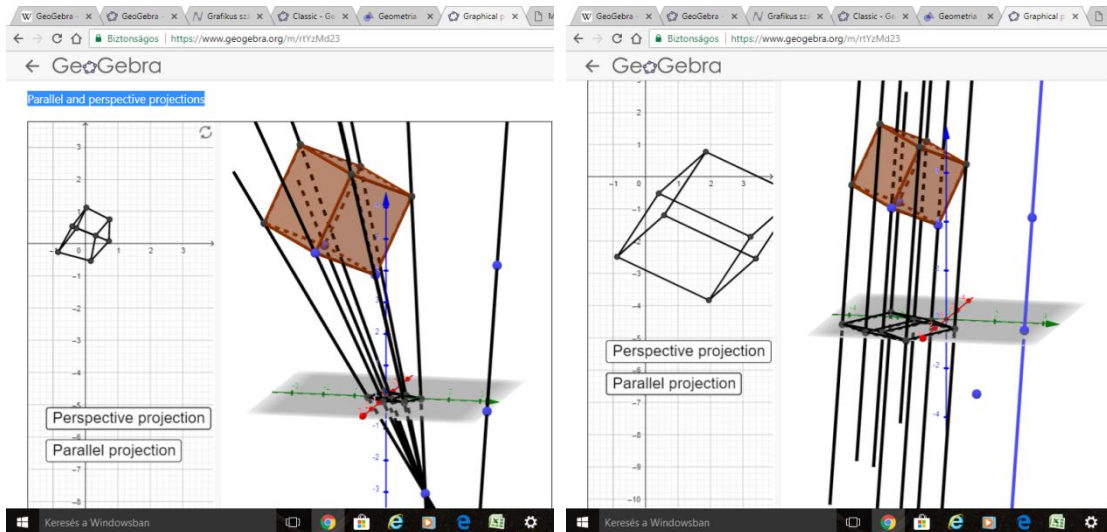
Powers Of Complex Numbers - https://www.geogebra.org/m/Rc8AKxvs

Figure 8 surface - **https://www.geogebra.org/m/FPD4PFCT**

https://hu.wikipedia.org/wiki/GeoGebra

https://wiki.geogebra.org/hu/K%C3%A9zik%C3%B6nyv
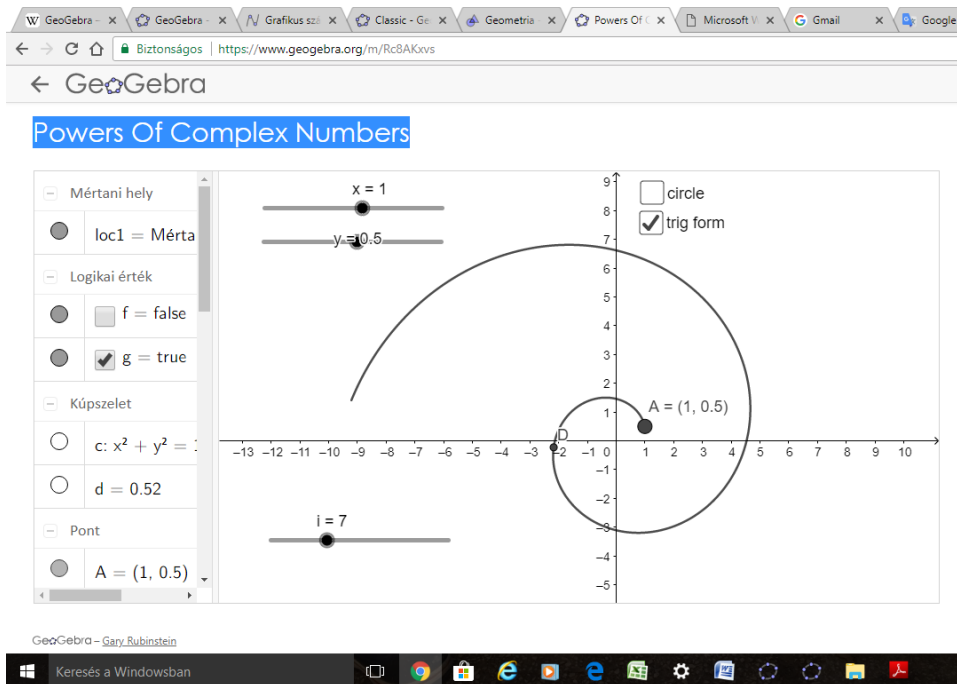
Hungarian team

Kahoot

https://kahoot.com/

What is it?

Kahoot! is a game-based classroom response system and educational platform that leaves your students begging for more. Through quizzing, collaboration and presentation of content Kahoot! initiates peer-led discussions, with students left on the edge of their seats.

The key difference between Kahoot! and any other quiz is that **pupils don't see it as a test**. Unlike tests, they want to do a kahoot! Unlike tests, they ask me to do a kahoot! I can't think of any other AFL tool that creates such excitement amongst pupils.

How did it begin?

Teaching with Technology

So, where did the Kahoot! journey start? A few years ago, several talented entrepreneurs with fire in their belly – Johan Brand, Jamie Brooker and Morten Versvik – put their heads together to make learning awesome. In a joint project with the Norwegian University of Technology and Science, they teamed up with Professor Alf Inge Wang, and were later joined by the Norwegian entrepreneur Åsmund Furuseth.

Kahoot! has been around since 2013. Its birthday dates back to March 2013 when Kahoot! was launched in private beta at SXSWedu. In September 2013, the beta was opened to public, and it's been quite a ride ever since!

Building a company with learning at its heart, they chose to address the classroom first, but it seems game-based learning is now a pop culture phenomenon! Today, the Kahoot! movement spans far beyond classrooms: it is played in business training sessions, at sporting and cultural events, or in any social and learning context really.

Why Kahoot?

- **It's flexible** - In a few minutes, you can create a learning game for any age, any topic. You can do every subject not limited to school activity. You can create your quiz or search for quizzes made by other users. It can be run with large groups in the classroom or combined with a webcast to run a global event. It also can be played individually because of the features of the new mobile app which allows you to see the questions on your smartphone screen

- **Simple** - Kahoot! works on any device with internet connection. For players, no account or login is required to join a game. It is easy to create a kahoot. You just need to follow some simple steps. You can also easily add an image or youtube video to deepen understanding or to provoke critical thinking.

- **Diverse -**Starting a conversation or reinforcing knowledge, introducing new topics or encouraging teamwork, and more – there are so many different ways to Kahoot!

- **It's engaging–** With Kahoot! You engage audience in real time. Participants join via their own mobiles and race to answer correctly multiple choice or jumble questions. It fosters social learning, unlocks learners' potential and deepens pedagogical impact.

➢ **Global -** You can connect and play in real time with other players in 180+ countries.

➢ **Free -** Creating learning games and playing Kahoot! in your classroom is free.

What can you do with it?

With Kahoot!, YOU are the game designer, so it's up to you how to play and help learners unlock their deepest potential! You can create your own kahoots or choose among thousands of kahoots made by other people. The most important feature for me is that it is diverse. You can use it for many different reasons:

➢ Review, revise and reinforce - Revise topics, reinforce knowledge, recap learning, pre-assess and practice before exams. It is a great tool for revising and consolidation.

➢ Re-energize and reward - Create a kahoot to break the ice, re-energize a room, reward good behavior or just have a little fun.

➢ Get classroom insights - Test personal knowledge, evaluate understanding or create a kahoot to assist formative assessment.

➢ Gather opinions - Think beyond the quiz! Create a kahoot to survey opinions and insights, facilitate discussion and initiate debate.

➢ Motivate team work - Kahoot! helps learners develop 21st century skills, including communication and teamwork. Encourage collaboration in your class by playing in team mode.

➢ Join global classrooms - Connect with classrooms in over 180 countries and play a kahoot together in realtime using screenshare.

➢ Introduce new topics - Create a kahoot to kick-off a lesson, introduce new concepts or preview content. Some Kahoot!'ers call this a 'Blind Kahoot'! It is a unique way to deliver presentations without slides.

➢ Turn the learners into leaders - Close the loop on learning! Challenge students to create their own kahoots, individually or in groups to deepen understanding, mastery and purpose.This works wonders – the pupils have to put thought into the questions and it is often quite **illuminating to see what they see as difficult questions**. When I see what they find difficult, I get food for thought for planning the next lesson.

They also have to make sure they can identify the correct answers and so take ownership for their own learning. But the most instructive element is in their choosing of the wrong answers – those should look real, too so they have to think really carefully and be very specific in their knowledge in order to decide on the real answer and the almost-real answer.

How to start?

You can create a fun learning game in minutes. You can make a series of multiple choice questions or try Jumble mode. The format and number of questions are entirely up to you. Add videos, images and diagrams to your questions to amplify engagement. Just go to https://kahoot.com/, create an account and start creating your kahoots following some simple steps.

Kahoots are best played in a group setting, like a classroom or a conference room – or even with family in the living room.

Games are displayed on a shared screen – for example an interactive whiteboard. You can also use screensharing tools like Appear.In, Skype or Google Hangouts to include players from other classes or other parts of the world.
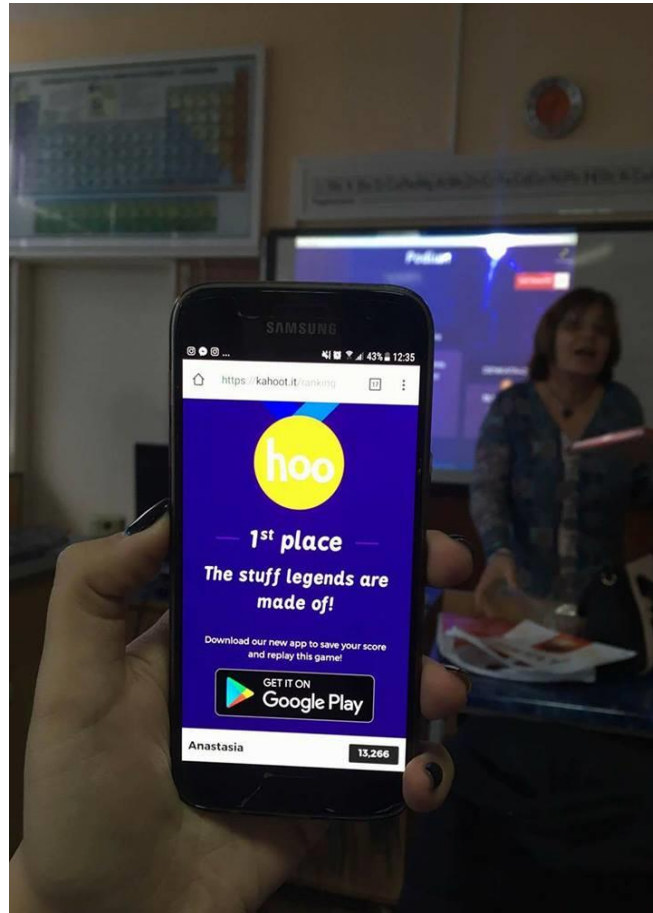
Players join in using their own device – whether that is a smartphone, iPad, laptop, or desktop doesn't matter, as long as they have a browser and good internet connection. Players do NOT need a kahoot account to play. They go to https://kahoot.it/ or they can also download the mobile app. Students sign in with a class code, choose a name and start having fun and learning at the same time.

Kahoot provides real time results that can be downloaded for use. It is a quick and easy way to assess kids learning.

It really makes learning awesome! Give it a try!

Teaching with Technology

Bulgarian team, Aneta Spasova,