DIGI TOOLBOX

DIGITAL TOOLS FOR TEACHING

DIGI SCHOOL

RESOURCE PLATFORM

Co-funded by the European Union

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This Product has been conceived and developed by the partnership of the Digischool project.

SUMMARY

INTRODUCTION

The Digi Toolbox is one of the products designed during the Erasmus+ Digischool 2021-1-DE02-KA220-VET-000033261 project, developed with the contribution of all project partners.

The Digi Toolbox is a useful tool for teachers and trainers, who will be able to find descriptions of software, platforms and methodologies that can be used to make the learning process more engaging and efficient.

Each proposed tool will have a presentation card, through which the reader can immediately understand what type of software, game or site it is, if it is available in his/her native language and if it can be used in shared mode. The presentation card serves to provide in a simple and clear way the main information about an instrument, which is often not so easy to find on the official website.

Subsequently, each tool and methodology is explained in more detail with a description of the most important and interesting functions with the insertion of screen and video tutorials useful to better understand how it works.

The third section is that of tips and tricks in which the reader will find interesting ideas and tips to use the tool, even in an innovative way with respect to the purposes for which it was created.

Since the toolkit is aimed at teachers and trainers, in the drafting of the contents, we thought it appropriate to add some more indications on how each tool can be useful for certain subjects and to achieve specific learning outcomes.

The Digi Toolkit is a complex and rich guide that collects over 50 tools, so you just have to browse it and find the most effective ones for each need.

LEGEND

Language Icon

There will be the indication about the language available.

Co-working Icon

The icon indicates if the tool ha a co-working mode.

Free/Premium tool

There will be the indication if the tool has a free use mode or are available subscription mode.

Operating System

There will be the indication if the tool work and is available on the most common operating system

Level of difficulty

1 star indicates more complex tools.
5 stars indicate the easiest tools

Previous Knowledge

Indication of previous knowledge needed to use the tool.

Learning Disorder

The tool is useful to create contents friendly for students affected by Learning Disorders


"Libraries were full of ideas – perhaps the most dangerous and powerful of all weapons."
Sarah J. Maas

SKETCHUP

PRESENTATION SCHEDULE

Available in several languages, incluiding some of the languages of the project (italian, german and Spanish).

The free subscription includes the possibility of sharing the projects with other users via Trimble Connect.

Sketchup has a free subscription that includes 3D modelling with the webapp. It includes a free storage plan of 10Gb for projects. There are paid plans from 119$ to 699$ per year that include other options and the possibility of using sketchup offline.

The free version can be used in any device with an internet connection and a compatible browser, regardless the operating system.

Basic knowledge of CAD would be advisable.

Being a 3D design software, it can be useful for people with low skills in mental rotation or spatial view, among other learnig difficulties.

SKETCHUP

FUNCTION DESCRIPTION

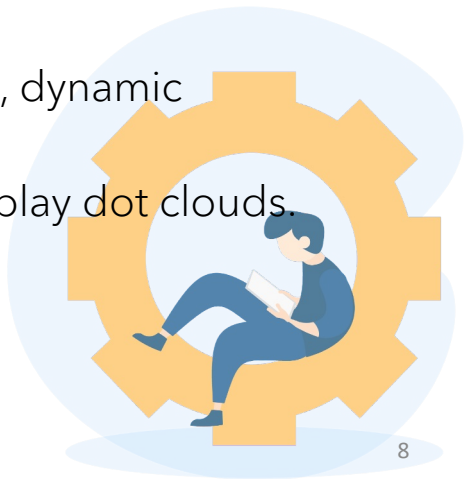
Sketchup is a 3d modelling computer program and web app that can be used in a broad range of applications.

Its main features are:

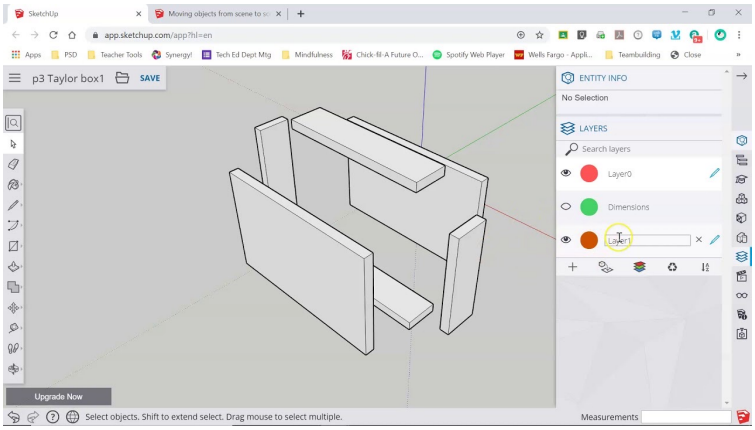
- It is not needed to install any program in the free mode.
- It includes the main basic tools for 3d modelling using lines, arcs, shapes and all kinds of objects directly from the interface.
- Every create model can be exported into a STL file, which give the user the possibility of 3D print it after passing it through the slicer.
- It offers a model library with plenty of 3D models that can be directly used in our designs.
- Offers 10 Gb of cloud storage space with Trimble Connect, enough to share projects.

On the counterpart, main limitations are:

- Native offline versions are only available in the paid subscriptions.
- There is no chance of adding new extensions, which limits the possibilities of the software.
- It is not possible to create, neither edit, dynamic components.
- It is not possible to scan, import or display dot clouds.



FUNCTION DESCRIPTION



Despite of being a free software, Sketchup is a very powerful tool. Designing with Sketchup is very much similar to what you can find in any other comercial CAD software. You will find the tools on the left icons bar and the behaviours and layers on the right menú.

At http://www.thesketchupessentials.com/tutorials/ you can find a variety of videotutorials that will help you to start using Sketchup Free. In the following links you may find some of the most relevant ones:

- Getting started with sketchup free – Begginers start here: https://www.youtube.com/watch?v=I_bJPNnO3HQ&list=PLEQT0qjXe6zjjv3uiHZ5G8Yj37gM8smNU&index=1
- Creating a house model: https://www.youtube.com/watch?v=sQSyofKyKIQ&list=PLEQT0qjXe6zjjv3uiHZ5G8Yj37gM8smNU&index=2
- Components, copies and curves: https://www.youtube.com/watch?v=fKOIObcAY2A&list=PLEQT0qjXe6zjjv3uiHZ5G8Yj37gM8smNU&index=3
- Working with materials in the online version: https://www.youtube.com/watch?v=kF3K2Th0IR0&list=PLEQT0qjXe6zjjv3uiHZ5G8Yj37gM8smNU&index=4
- Hot to use free models from the 3D warehouse: https://www.youtube.com/watch?v=QJiJJ3enEb8&list=PLEQT0qjXe6zjjv3uiHZ5G8Yj37gM8smNU&index=5
- Creating floor plans: https://www.youtube.com/watch?v=BsCAPDgY-10&list=PLEQT0qjXe6zjjv3uiHZ5G8Yj37gM8smNU&index=6
- How to change units: https://www.youtube.com/watch?v=3gXQ_tBjruQ&list=PLEQT0qjXe6zjjv3uiHZ5G8Yj37gM8smNU&index=7
- Adding doors and windows to a floor: https://www.youtube.com/watch?v=x4onqTLKGxI&list=PLEQT0qjXe6zjjv3uiHZ5G8Yj37gM8smNU&index=8
- How to print from the web version: https://www.youtube.com/watch?v=YtDTdmjJIvg&list=PLEQT0qjXe6zjjv3uiHZ5G8Yj37gM8smNU&index=9
- Importing and using images: https://www.youtube.com/watch?v=nKuK7keG8ls&list=PLEQT0qjXe6zjjv3uiHZ5G8Yj37gM8smNU&index=10

Source: http://www.thesketchupessentials.com/

SKETCHUP

TIPS AND TRICKS

- Use a 3-button mouse to navigate. It will be the easiest way of moving through the model and of zooming in and out. If you don't have a 3 button model, use the scroll wheel as the third button.
- If you want your model to be organized and to have the possibility of hiding different parts of your model, use groups. Groups isolate parts of your geometry and protect them from one another. It will alow you to apply changes or move a collection of geometry rather than to manipulate each one individually.
- Most people are used to the idea of using copy/paste, or CTRL + C and CTRL + V for the same effect. Although you can do that in Sketchup, that's not the best way to move or copy something. First, select the object you wish to copy. (Make sure it's in a group). Then, with the Move Tool, click once to start the move. Then, tap the CTRL button on your keyboard. This tells Sketchup you want to make a copy. Move it a specified distance from the original by typing that distance on your keyboard and pressing enter and then paste there.
- Lock Axis with arrow keys. It will make easier to draw or to move anything in the direction you want to. Just tap one of the arrow keys in the keyboard while you move the object and it will be locked to that axis.
- For complex moves, just move one axis at a time. Lock the axis you will be moving and go axis by axis until you finally reach the position you wanted for that part.
- When you use the select tool you can select multiple entities. For example, if you use the tool and select one cube, you will select the face of the cube you clicked in. If you want to select that face and its connected edges, then click twice. And if you want to select all the connected geometry of that face, simply click three times on it.
- Use keyboard shortcuts. They save a lot of time.

LEARNING OBJECTIVES & BENEFITS OF USING

- Students can design anything for any content area, becoming more involved in their learning.
- It helps students to be more engaged with the tasks as the final results are more dynamic and inmersive.
- The program helps students to reinforce mathematic concepts.
- It will give a virtual space where students can collaborate with their creations in a single space.
- It can be used at all ages, from primary school to help students to become familiar with concepts such as orbit, to high school to help students to create complicated designs of their own.
- Exercises and results are easy to share with trimble.

TED EDUCATION

PRESENTATION SCHEDULE

TedED is avaiable in english language

Lesson creation does not have a collaboration option but can be shared with other users and is interactive

Free Subscription, registration is required

The platform can be used in any device with an internet connection and a compatible browser, regardless the operating system.

ICT basic knowledge

Interaction and didactic activities through video display facilitate the learning of students with learning disorders

TED EDUCATION

FUNCTION DESCRIPTION

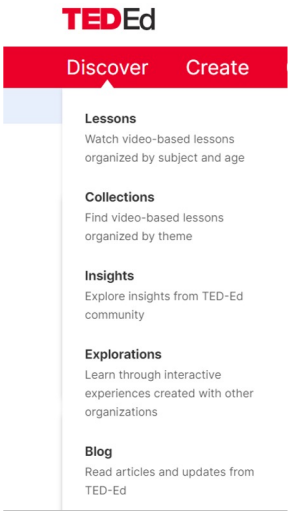
TED stands for Technology, Entertainment and Design and is a global community for the exchange and dissemination of knowledge in every field, including education. TED-Ed is an initiative aimed at young people and the educational world, whose mission is to stimulate and disseminate the innovative ideas of teachers and students worldwide. TED-Ed provides services and resources to support education and learning for millions of teachers and students around the world. These services include:

- **a library** of video lectures and educational animations;
- a platform for educational practitioners to c**reate interactive video lessons** adding quizzes, questions and discussion topics.
- **the ability** to bring TED ideas and lectures into schools
- **support** for digital education and the spread of digital literacy.

The platform is aimed at teachers, educators (and all those involved in learning), primary, secondary and high school students, and finally, parents.

Use of the platform is free of charge but registration is required for content creation, which can be done by registering with your email or by logging in with your Google, Facebook or Apple account.

FUNCTION DESCRIPTION



The digital library consists of the following lessons:

- Educational lessons organised by age and topic
- Collections of didactic lessons organised by topic
- Insights that enable the collection of user feedback through the collection of video answers on certain learning-related questions
- Explorations i.e. interactive lessons already prepared by others
- Blogs with articles and news in the field of education

The following tools are available:

- Whatch: is the interface through which it is possible to watch the video lessons, the teacher can enter a title and a text in which the tasks related to the video can be specified (objectives, tasks, topic, etc.)
- Think: the student is invited, after watching the lesson, to answer questions in the form of multiple choice or open-ended questions, the answers are saved and can be monitored by the teacher who can check the completed questions; questions answered correctly on the first attempt; the total number of attempts made by the student; the completed open ended questions
- Dig Deeper: additional resources that the teacher can insert for further exploration of the topics in the video. You can insert text, links to various resources, tips, further information, a web path, etc.
- Discuss (Discussion): for each video, several discussions can be opened, similar to a forum, in which opinions can be exchanged, clarifications asked, questions answered, doubts clarified, etc.

TED EDUCATION

TIPS AND TRICKS

- You can subscribe to the daily newsletter. After selecting your subject of interest and level of education, you will receive one video per day according to your interests
- You can save your favourite videos and your interactive teaching lessons and keep them in your personal library
- The Get Involved section allows an educational organisation to apply to participate in the free Ted-ed Students and educators programme which provides a free activity-based curriculum that educators can use with a group of students in the classroom, in an out-of-school context or as a plug-in to an existing programme at a youth/educational organisation. When an educator's application is approved, they receive access to a customised virtual and interactive learning platform in our TED Community space. Here they will have access to curriculum resources and the opportunity to connect with the TED team and other educators using the programme. To participate, you need to fill out an application providing information on why you and your organisation/school want to use the TED-Ed Student Talks programme.

LEARNING OBJECTIVES & BENEFITS OF USING

- TED and is an excellent tool for enhancing one's english language skills
- Makes it easy to find multimedia content on a wide range of topics classified according to age and educational level
- Immediate interaction with students after viewing the lesson allows the teacher to assess the learning level of their students
- Improve educator’s skills regarding
- Increases and innovates teachers' skills in interactive teaching methodologies
- It allows the discovery of ideas that stimulate the students' curiosity.

GEOGEBRA

PRESENTATION SCHEDULE

The tool is available in most European languages, including: English, German, Spanish and Italian

No, but it's possible to share contents and documents from the platform.

The site can be used for free, as can its contents, which are regulated in their use by the Creative Commons. The contents, in fact, can be freely used but not for commercial purposes.

The platform is accessible from any operating system and search engine.

It doesn't require specific knowledge, just the basic ICT skills to download and consult docs online

The platform contains interesting and useful contents for students with dyscalculia

GEOGEBRA

FUNCTION DESCRIPTION

The GeoGebra platform contains open resources for teaching mathematics and algebra, searchable online and downloadable ready to be used as support during one's lessons.

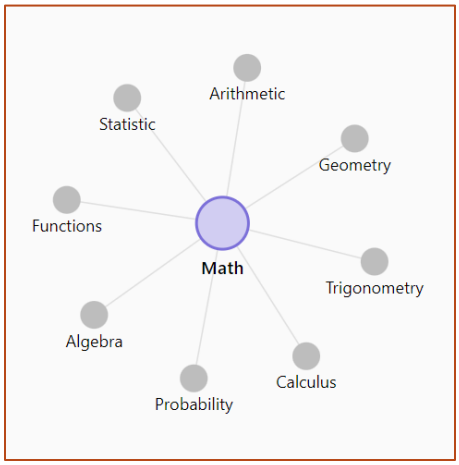
The site is easy to browse as it is organized both in branches of mathematics, in topics, and also by age group. To navigate more easily through the content, one can select the branch of interest, after which choose the topic and browse through the available content. The resources are divided into books and activities that you can freely reuse during your lessons. As mentioned in the presentation sheet, the content is consultable for free, but use is governed by the Creative Commons CC BY-NC which prohibits use for commercial purposes.

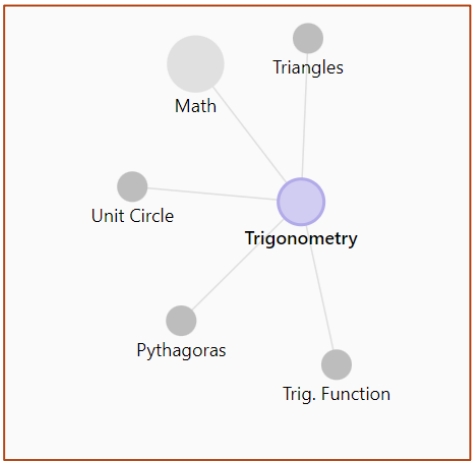
In addition, the platform contains a number of online calculators such as: graphing calculator, 3d calculator, geometric calculator, and probability calculator.

By creating a free account on Geogebra (you can register and log in with your google account), you will be able to save your favorite resources, but also upload your own resources to share with other teachers: you can, in fact, upload original books and activities.

FUNCTION DESCRIPTION

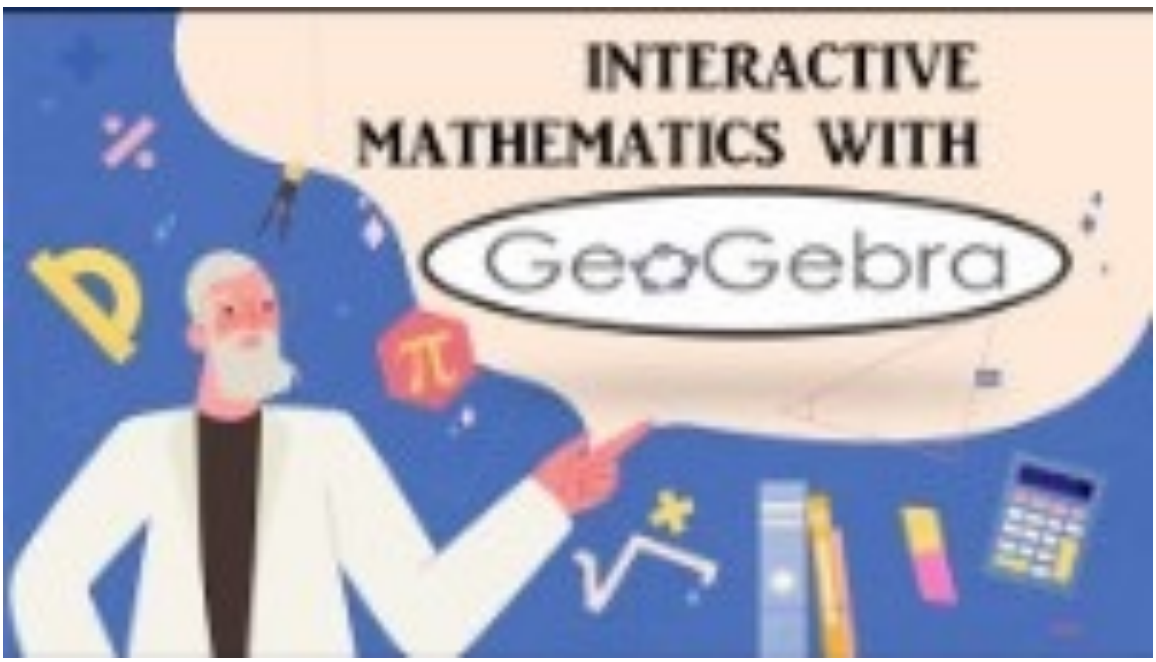
Resources navigation tool





To find the content easily select the dot corresponding to the topic you are interested on. Then the graph will change and reveal the arguments related to that topic. Once again click on the one of your interest and explore the resources.

Tutorial – Introduction and Calculator tool

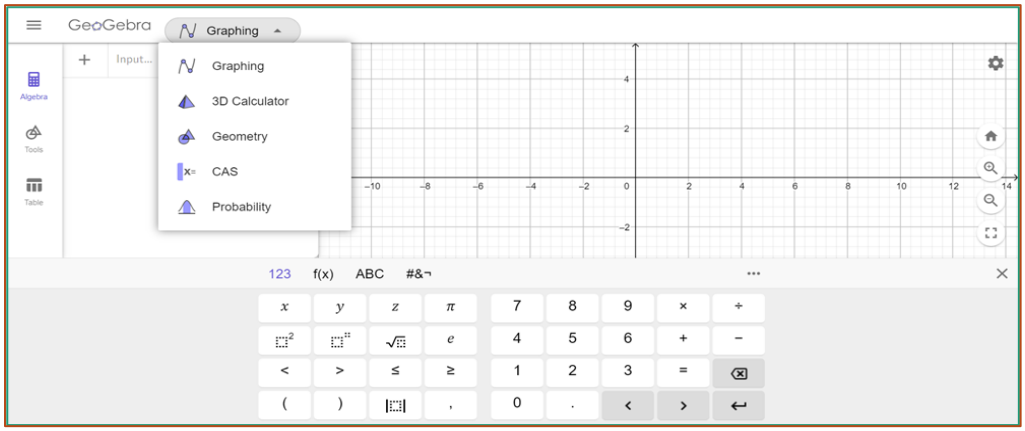


https://www.youtube.com/watch?v=44uP-qqoMbw

GEOGEBRA

TIPS AND TRICKS

- The calculator has different functions and tools. This support is really interesting because can help teachers to explain the most abstract concepts.



- Tired of using traditional books? Or some topics are not very well-explained in the books used? Find the right resource on Geogebra or take inspiration and create your new one!
- Geogebra can be used in Classroom. On the left there is a tool column, click on Classroom, then a new page will open and there upload the link of the lesson. You will be able to use Geogebra tools while in your online class.

- On Geogebra it's possible to create also activities or presentations. They can contain text, images, pdf, video also Geogebra calculator demonstration.

LEARNING OBJECTIVES & BENEFITS OF USING

- The platform can be used to reach learning objectives specifically related to Math and Geometry from the basic (from elementary schools) to the most complex (university level).
- The calculator allows to create visual results for different kind of math problems. This provides a support in making abstract concepts clearer, which is the very hard thing in math study.
- The calculator is a valid support also for students with learning disorders who must use calculator as support.
- The possibility to use online resources or to create new one can supply also to needs of creating personalized contents for students with learning disorders or with special needs.

PHET EDUCATION

PRESENTATION SCHEDULE

The tool is available in most languages, including: English, German, Spanish, Italian and Euskara

No. The platform is just for searching and using the learning materials for the different scientific subjects

The site is completely free, however, they suggest making donations to let the project be sustainable. For 4 simulations they suggest donating 15 dollars.

The platform is accessible from any operating system and search engine.

It doesn't require specific knowledge. There are guidelines for using the simulations if needed.

The platform can provide interesting content for users also with learning disorders

PHET EDUCATION

FUNCTION DESCRIPTION

PHET Education is an interactive simulation platform founded and run by the University of Colorado Boulder. This platform is completely free and offers many different teaching contents for scientific subjects, which are considered the most difficult by students and are also the hardest to explain without the support of the needed facilities.

The subjects available are physics, chemistry, math, earth science and biology.

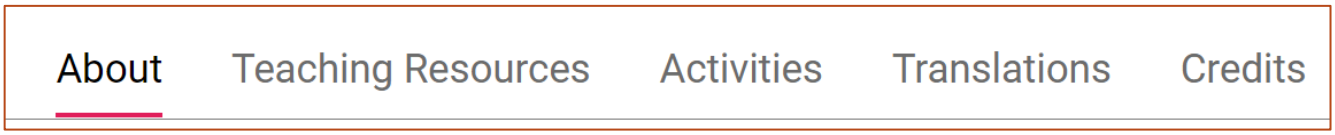
What the simulations are? The simulations are virtual, smart and interactive online environments in which the teachers and the students can experiment the different scientific phenomena, such as motion, pressure, molecule polarity. The aim is to give a visual demonstration of phenomena which generally students learn just in theory. The learning will be more effective because they will try the experiment virtually and fully comprehend the connection between causes and effects.

There are several interactive simulation and teacher-submitted lessons.

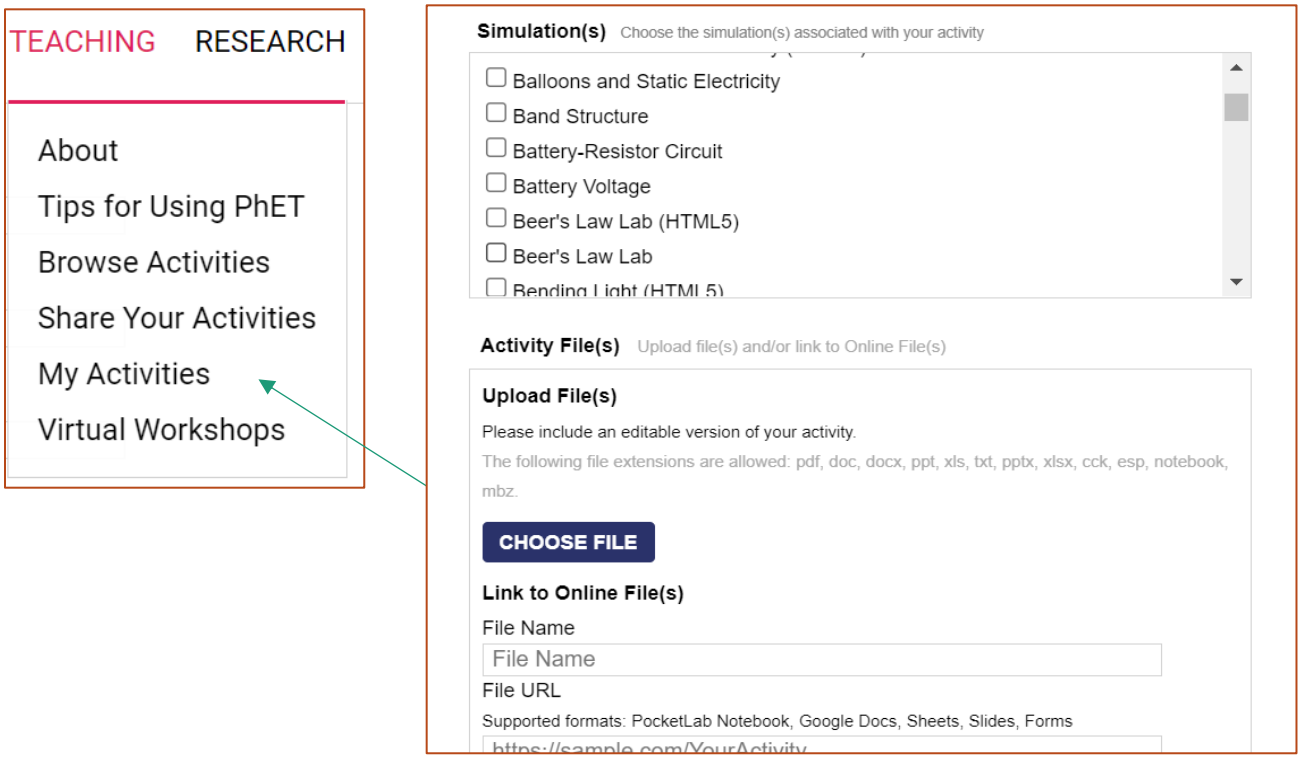
It's possible to surf and search different contents according to different filters: the subject, the topic, the age or the classes.

Once chosen, the simulation has a presentation card in which are presented: the topics, the learning goals to which the simulation is aimed and the system requirement to run the simulation. In this way, the teacher will understand if the sim is fitting with his/her need.

FUNCTION DESCRIPTION



- The about section contains the presentation of the simulation.
- The teaching resources contain a pdf with the instructions to use the simulation and suggestions to use.
- The activity section contains a chart of activities made by other teachers classified by education level, type, subject and language. Clicking on it, it's possible to download the activity and replicate it.
- The Translation section contains the downloadable files in different languages

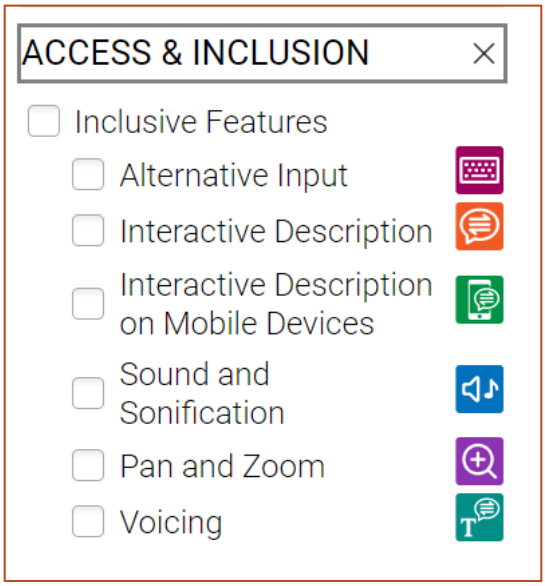


If you want to create your own activity and share it with the other users, it's available the section My activity. Here it's possible to chose the simulation used and then upload the activity created.

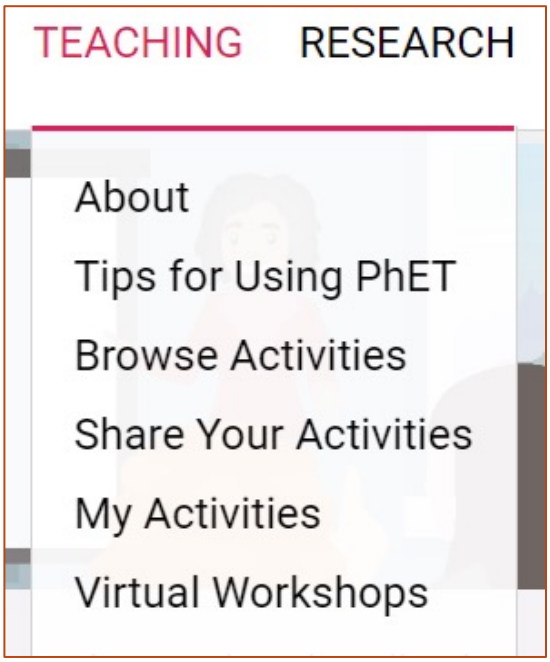
PHET EDUCATION

TIPS AND TRICKS

- While searching the simulation, on the right column there are the filter search divided by subject, grade level, compatibility, and access and inclusion. This is the most interesting filter because the simulations are thought also to help students with physical disabilities or learning issues.



- If you're struggling on how to use the platform, the virtual workshop is the section right for you. There are available videos to understand how to use the site, such as: an introduction phase, teaching strategies, divided on math ans science strategies, how to facilitate the simulations.
- In the research section, instead there are avilable all the research and scientific articles which analyze the use of Phet in teaching.



LEARNING OBJECTIVES & BENEFITS OF USING

- The platform is just aimed at teaching science subjects for every grade of school, so it provides useful support for these purposes.
- The accessibility section is the best ally to find content for students with learning issues or physical disabilities.
- The simulation supports the way to teach science in schools moreover where the labs are not present.
- The learning outcomes reachable are all related to science subjects, by the way, the teachers can adapt the simulation according to his/her news.

MOOVEEZ

PRESENTATION SCHEDULE

This app is available in many languages, including partner languages.

This app is aimed for one user only.

Mooveez app is for free. However, users can decide for subscription to have better content.

The app works on iOS as well as on Androids. And it also works in the web browser.

This app is for beginners and advanced students too.

People with learning difficulties can use this app as well. However, people with sight problems might have trouble using it.

MOOVEEZ

FUNCTION DESCRIPTION

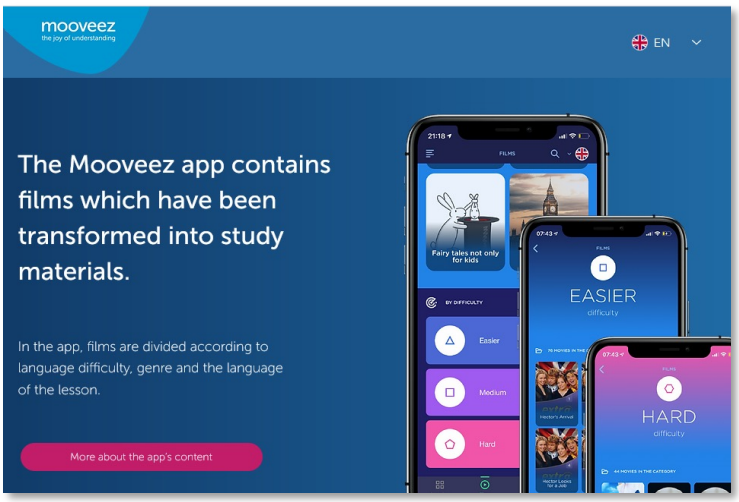
Mooveez is a unique mobile app for teaching English and other languages using movies, especially for improving speaking skills in a foreign language. This app won the British Council's award for the Most Innovative Digital Product for language instruction in 2016.

This app uses movies, series, and documentaries to teach English and other languages as well. Basically, students choose the movie according to their own preferences and then have fun watching it, which means they adopt language knowledge more effectively during it.

Each movie is accompanied by word-for-word professional translations, audio flashcards with selected phrases, cultural explanations of the plot, and relevant grammar exercises.

The app can be used by students for self-study or teachers can use it as comprehensive teaching material for their lectures. Currently, the app offers several blockbusters, series, and popular science documentaries adapted for English Language teaching. It also offers short animated movies to teach students important phrases and allows them to listen to everyday language.

FUNCTION DESCRIPTION



Mooveez teaching methodology is very effective as it uses the principle of natural learning. It is like with small children and the way how they begin to speak - it is about 4 easy steps.

First, they listen a lot, try to understand the content and meaning of individual words and phrases, then they imitate us and finally start talking.

Students can choose what language they would like to study. They can choose from many languages such as English, German, Italian or even Czech.

In the latest version, there are short animated videos that will teach students the language. In the previous version of the Mooveez app, there are available movies. After watching the videos, users can do quizzes or revise the phrases from the video.

Students can either use it in the class together with their teacher or they can use it at home. Mooveez offers a special teacher portal where teachers can choose how they will add variability to their teaching.

MOOVEEZ

TIPS AND TRICKS

- Students can use the app in their free time. The app will remind them to use it.
- Teachers can make plans in the app based on the level of language skills of their students.
- In order to increase students' motivation teachers can set a challenge for a class in form of the quizzes after watching the videos. It will help them to not forget the words and phrases they just heard.
- Students can also watch famous movies, but for this, it is necessary to pay a fee. Movies are sorted by genre or difficulty.
- There is also no longer needed to download movies and other materials onto devices since streaming is available which can be more convenient in some cases.

LEARNING OBJECTIVES & BENEFITS OF USING

- This app will bring to students
  a rapid expansion of passive vocabulary and in general an improvement in language skills.
- Students will also have a deeper understanding of the cultural contexts of videos and this way they can gain knowledge of the conversational and colloquial language.
- The app is focused on speaking so let your students speak.

DIGITOOLKIT

DIGI SCHOOL

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