

From the master class to active learning. A new paradigm in the training of university teachers

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Module 1. Attractive approach: active participation and creative presentations

[Canva](#) is a free web design tool for publish a variety of designs for free without using tools like Photoshop or illustrator. To create concrete and simple designs, this tool can solve a large number of day-to-day problems. For those who don't know the tool, it offers options to have results without being an expert designer. You can create content for social networks, create designs with predetermined measurements or make a design with measurements that you want. The tools it uses has a recommended format, social networks, events, event marketing, documents, video. Another opportunity is that it makes photographs in different formats to be able to create any design at any time. It is also free and allows to choose in which format to download the design. Colors are another advantage, because depending on which colors are chosen at any given time, these are automatically saved without having to remember the exact code.

There are many options with different templates that can be viewed at the top right. From templates of calendars and flyers to templates of designs and social networks. It allows to make presentations in an original way, has many options to play with the design: incorporate photos, elements, text, music, videos, etc. The design helps to attract attention and allows educational presentations in a playful way, making it easier for students to feel motivated to access knowledge and, in turn, giving them ideas to be able to carry out their own work in a creative way. However, even though this application has default photos, sometimes we all need professional photos for our projects. Sometimes Google applications are not of good quality, and we end up resorting to the bad ones or with watermarks. In the real world, professional photos must be bought, but there are other options.

[Pexels](#) is a platform from where you can download totally free photos with a perpetual license. It is a kind of photography library. They leave nothing to be desired in terms of quality and exist on any subject. Another similar website is [Freepik](#), which is a mixture of Canva and Pexels, as it allows both finding photographs with different characteristics and downloading them in vector to be able to include them on other websites or photographs. In addition, apart from having good and attractive presentations. The inclusion of concept maps that clarify the information you want to convey is interesting. For example, [Mindomo](#) is a free platform that is easy to access and use. It begins by giving to create new content. For the information to be clear, you should include the general topic of the information in the center of the map and will be able to add levels within the information itself, changing the thickness of the letter, its size and direction of each box depending on the relationships established between the different concepts.

It is interesting to write this relationship between each rectangle, either in writing or using different ranges of colors and arrows. All this you can customize as there are multiple possibilities and the web allows to use the keyboard to copy and paste the different

elements, as well as zoom, change the background, even include images. It is possible to include foreign information interactively, either from the internet or from your computer. Videos can be uploaded both from YouTube and from other platforms. Another option is to include written notes or voice-overs, providing small clarifications. However, although this platform is simple, another quite intuitive example is [Coggle](#). The way to access is the same as in the rest of the materials, simply with a Google search. We immediately find a panel with 6 options, which must be selected based on our preferences. The profile with which we enter may also be different by varying the functions. If we enter into Education as teachers, we will find concept maps and mind maps. In this example we will enter the second and create a diagram. A panel appears where the presentations we make are displayed.

The options, as in the previous case, are very different. It all depends on the information you want to include the most important thing is usually how shapes and colors are used. Again, Canva is once again a useful resource for these types of questions. It presents both templates and multiple resources that include within them: different fonts, font sizes and colors, the possibility of including images and links, as well as a variety of backgrounds and opportunities to vary the elements of the template. On the second hand, we will begin to talk about how to promote active participation in the classroom, since active methodologies are the best way to generate motivation, interest and enjoyment of learning. We find tools that allow us to show the information in a theoretical but motivating way. In this case, [Perusall](#) is a very interesting free tool that allows you to do classes on a interactively form. We simply have to click on create course, mark different categories based on decision-making are associated to a greater extent with what we want to do: how the students will access, name of the course, institution, start date, number of participants and number of people you want to have in each group. It gives us a code which is what we have to give to the students.

They enter with their Google account and log in with it. With the green button we can add from links to videos and documents. In this case, we will do the example with a document. If we enter the web from the version that students will see, we can read the document individually, include questions, comments and interpretations. Later, that student who is included in the same group, will be able to read it, respond to it and interact with it, as if it were a Facebook chat. From the position of the teacher, it is possible to observe all this and interact with the students, being able to also see a compilation of the questions and answers provided to be able to rate the students' work. It is something very useful to be able to work on articles, readings, theory and even exams or exercises. It offers great possibilities for the training of university students, as it is a kind of social network in which all kinds of documents can be worked on interactively. If what we want is to show the information not from written documents but through presentations, a very good option is [Mentimeter](#), a simple platform that allows you to create interactive presentations.

You can access it from any account. If you are new to the platform, you need to select from which category you are going to use it, whether for work, education or other and the type of activity that is going to be carried out with it. It will also ask you what plan you want. The free option allows you to have unlimited participants and presentations, although it is somewhat limited in terms of interactivity. Once the plan is selected, a new presentation must be opened. On the right, a panel appears with the different options for

creating slides. The first type of question that Mentimeter offers is in which the students respond as the presentation progresses. The second group is a competition slide format, where a question with multiple options is posed and participants will have to select the correct option. The third group is the content slides, where you can include covers, images, videos, etc. The web and the code that appears above is the link and the code with which they can access. They simply must include the code to be able to interact with the slide that is currently appearing. As for how to create these types of presentations: you must click on add slide, the first format we find is multiple choice. If we click on it, it opens the content tab, where we can include both the question and the answers that viewers will choose, as well as the correct option.

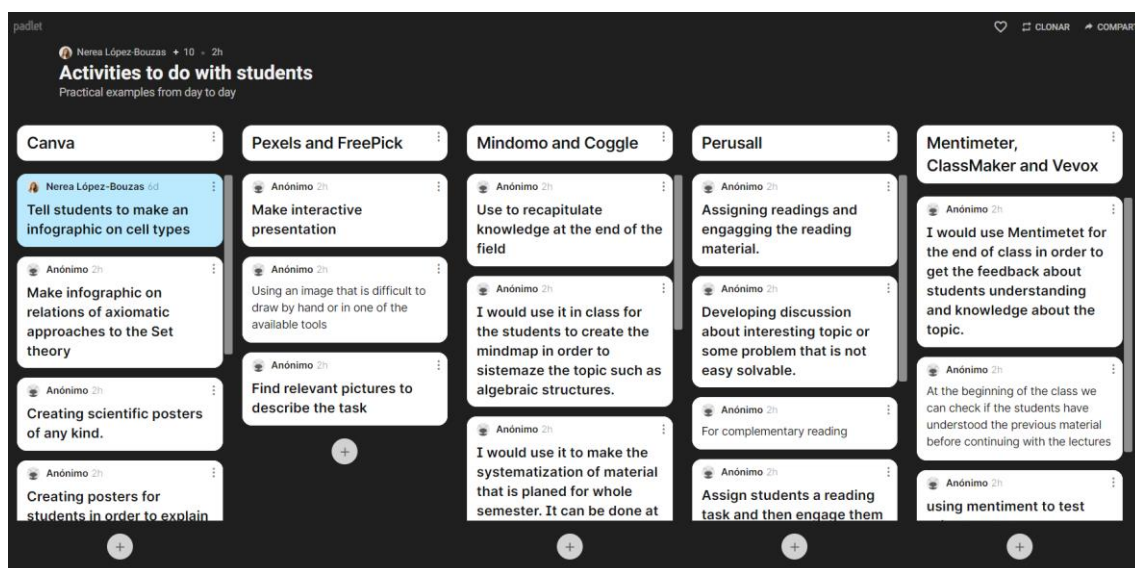
We can add as many as we want and we can choose the type of graph we want to show. It allows us to visualize it in the same way that students will see it. The results will be updated as they respond. To exit the presentation, click on the "escape" key. On the other hand, and no longer in relation to how to display the information but to the student's own evaluation, it is important to highlight the [Classmaker](#) platform, which can be used to carry out evaluations. It is a free platform. First you must choose what role you want to have within the platform. After registering, a panel appears, where you can see the tests, groups and links. For example, if we create a test, the first thing to do is include the name of the group. You add the students you want in each group. You can include them yourself or give them the link and enter directly. Once you have created the groups, you will go to the test marker, create a new one and give it a name. There are different options to include the options, you can choose that all students have the same questions or vary them. You can put them of multiple choice, of true and false, of associating, or of free text where they can write a small answer text.

However, and despite the usefulness and interest that the previous platforms can provide, [Vevox](#) is the one that can offer the most opportunities, since it is very easy to use and offers a large number of options. As in the previous ones, with it you can include information, and questions as a quiz in an interactive way. Students will enter from an access code that will appear each time you create a new form. You can do it from the computer, the tablet or the mobile itself, as this platform has its own app called Meetoo. Once inside the session, they will be able to answer different questions associated with the topic that you want. After that, the platform collects the results, facilitating the evaluation of the competences of your students and allowing you to see an overview of the group, even allowing you to observe the most used words in the case of open-ended questions.

Practical activity

Padlet is a free website where you can create and share different panels with your students. You can create them based on the theory you are giving. For example, if we create a column panel, we can create different sections. In this case we will create a panel with the platforms we just talked about. As a task, you should write under each one a specific example of the activity that you would carry out today with your students using each of these platforms. In this way, you will learn to use this tool and you will have a resource bank with the examples of your colleagues.

RESOURCE CREATED



<https://es.padlet.com/nerealbouzas/lq2ovy9uefiexj37>

Module 2. Gamification, augmented reality and plagiarism detectors

We will start talking about gamification, which consists of including the mechanics and dynamics of the game (missions, rewards, prizes) in a context that is not playful. A simple example of gamification resource is **Classroomscreen**, which is not a game, but about a screen that can offer you the possibility of making some practical classes more entertaining. This is a free and very useful tool for everyday use. Is like a digital whiteboard that can support some practical classes by making them more dynamic. It is a screen that allows you to include backgrounds, make a list of students to be able to choose them randomly to perform some class tasks, as well as make random groups, assigning them names. It also allows you to roll dice, include audios, QR codes, draw, write texts, include symbols, traffic lights, calendars, as well as sand or more conventional clocks. All of this can facilitate hands-on activities, making them more entertaining.

But resources like **Kahoot** are more complex and involve greater interactivity. It is a simple and intuitive platform that allows you to include questions in an interactive way, improving participation in the classroom and the assimilation of theoretical concepts in a fun way. We begin by creating and writing the title that we want to give to our game. You can also include descriptions of the theme of the same as an hashtag, include a background from a bank of photographs that the application has or upload it from the computer itself. We can choose if we want it to be just for us or anyone with the link can access, as well as the music that accompanies it, having different genres.

Later, the questions are added, being able to put both titles and different questions in different fonts, selecting the correct answer. They can include texts, images or links to video. These questions can be of different types, we can choose the maximum response time and the correct questions can be several. If we include videos, we can do it from a

youtube link from a specific moment in the video. The options are endless when it comes to asking the questions. To finish it is given at the end and the first option is selected, being able to choose if we want it to be used individually or in a group, being more recommended that the game be for the whole class. The results can be downloaded in an excel format, being able to have an overview of the group and of each student.

Socrative is a tool that can save you a lot of time. Already on the main screen it allows us to see its main characteristics. There are different offers, although there is the free option. It contains both the teacher and the student option, considering the application on Google Play and the App Store. It can be used on all devices. We quickly see the different options. Exams easily designed and very intuitive. In addition, it offers the opportunity to see the solution to the responses made. It allows students to be divided into different rooms, whether they are groups within the same class or different subjects. However, in my opinion, the most interesting thing is the Space Race, a competition that allows you to see the progress of the different groups as you answer the questions asked. In addition, the correct and incorrect answers of the students can be seen in a simple way both on the platform and by downloading them in PDF.

Quizziz is a free platform that contains a range of resources created by other people, being able to create our own personal ones. It is as simple as writing about a topic that we want to find, for example, natural resources. Several options of creations made by other teachers appear, which specify the educational level for which they have been created. In case you want to create it yourself, you will find a level with your quiz tests as well as the reports, where we can see what the students have done. In these reports we see the attempts made, their best grade and the percentage of accuracy in their answers, as well as the length of time it took to ask each question. A general version can also be viewed, allowing a global vision of the classroom. You can also create classes and connect them with Google Classroom, being able to organize everything by folders. It is nice in turn that allows memes to be included as positive reinforcement when they answer a question well. Thus, to create a questionnaire, we must write the title, the relevant topics that are going to be covered in it, then this environment appears, where we can add a test image that represents that questionnaire, the language of the environment, as well as the qualifications and the educational level, in your case university. Also, if we want it to be just for us or that other teachers can use. As for how we create the questions, there are multiple options, to complete or short answer, surveys and for open question.

Other example is **Genially**, a free tool that allows you to create all kinds of visual and interactive content easily and quickly, for individual or team use. Thus, it allows you not only to create your own content, but also to be able to create shared resources with other professors from the same or a different university. In addition, something very interesting about this website is that it offers the opportunity to make your own resources from more than 3,000 templates. It allows you to create presentations, offering many different examples. It has much aesthetics, so it is important that you select the most appropriate in relation to the theme you are going to treat. I totally recommend it for the theory classes. The themes are endless, and you can always use several templates in the same presentation. You can create a presentation from scratch or use one of the templates. For example, if you want to make a presentation on renewable energy, it is as simple as writing the topic. A screen will appear in which you will see the template and you will be able to see it. One of the most attractive things about this platform is that all the interaction is through buttons, as if it were a video game.

You can add different sections that will take you to the different screens. Add processes, complementary information, images or any link to any website. All this allows you to create interactive presentations that will not only allow you to include all the information you want, but also to be able to do it in an orderly, beautiful and intuitive way. When you want to select a template, some presentations will have a star. This means that they are paid. However, the free options are many. The way to access the template is very simple, as it is useful by click on get template. The options are very different, since they allow you to include the screens you want. At the same time, it also allows you to ask your students to make their presentations with this platform, as you could ask them to do some work on various topics and in the same presentation include the links to the presentations of each of the members of the class.

As I mentioned, the variations are endless, because you can vary the text, the font, the colors, include images and change their shapes, as well as include buttons that take you from one slide to another, or even from a link to another. For example, to include a button that takes you to a YouTube link, it is as simple as including the figure that you want to have as a button. Click on it and paste the link you want it to take you to. Then, click on this eye in the area above and you will see the presentation in the same way that your students will see it, being able to verify that it is really going to take you to that website. In addition, it allows you to include both photos and videos, as well as change their shapes and sizes. A very attractive way of making these presentations is by including visual elements and adding an information button, in such a way that when clicking on it the students will see a window with such information. For example, in this template, if we want to include additional information, it is as simple as clicking on this button and including the information we want, being able to include images or remove them. Without a doubt, it is an ideal option for making presentations. Although, however, Genially not only allows you to make interactive presentations, but the options are diverse. Also, interactive images, in which in a single photograph you can include all kinds of information, be it video, audio or text. You also have other more traditional options in case you do not want to complicate yourself excessively. However, something useful and that can provide very good feedback from students, are the gamified templates. These include the mechanics and dynamics of the game in the educational context. There are different options, and the mechanism is very similar to that seen in Kahoot or other applications that we have already talked about. The clearest difference is that Genially allows you to customize the theme and the narrative can backbone the game. from classic games and their typical compositions.

Finally, we are going to talk about some augmented reality resources. Augmented reality consists of superimposing virtual images to the real world. Today there are applications of all kinds, from the famous Pokémon Go to applications to place furniture in the living room or make a visit to a museum more entertaining. These types of resources are widely used today with the little ones. However, they are still applications that can be interesting in turn for university students. The simplest form of augmentation is the **QR**. The way to create them is very simple: we simply must copy the link to which we want the QR to take us, write it in the search engine, follow the guidelines, and copy and paste the link. Automatically create the image and we can paste it anywhere. It can be a useful tool both to enrich your presentations with complementary information and to carry out cards or practical activities. Another very interesting resource that can be used for a specific moment is the **Mergue Cube**, a very simple resource to create because it is done with a downloadable template and, like the QR, through markers that allow you to see virtual elements in the real world, having multiple applications and themes to be used. On the other hand, the **JigSpace** application is somewhat more complex, more linked to the

university environment and with a more closed range of options, although it may be useful for a specific practice. In addition, it offers the opportunity to create their own images that they want to verse virtually, so it can be very attractive for subjects in which you have to analyze complex pieces or miniscule elements. Finally, it is important and useful for your educational practice to highlight some free web pages that offer plagiarism detectors to be able to use with your students' exams and work. **Paper Rater** is a free service that not only detects plagiarism, but also finds spelling and grammar errors, which analyzes the length of sentences. It only works in English and has a word limit in its free version. **Copyleaks** is a tool that will search, within a document loaded on the page or copied text, for matches in documents and web pages. Once analyzed, Copyleaks will show you the percentage of text that it detects as being copied and will highlight the parts that are identical and those that are suspicious as well. In its free version you can analyze 5 documents, but with its recommendation program you can earn credits to analyze more documents for free. And **Quetext** is a plagiarism checker with a very clean interface, easy to understand and use, which also generates reports by coloring the parts that were taken from other documents or pages and indicating the web address from where they were taken. In the premium version of Quetext you can download a report in PDF.

Practical activity

The activity will consist of making a resource with Genially or Kahoot about a content that the teachers are currently working on.

RESOURCES CREATED

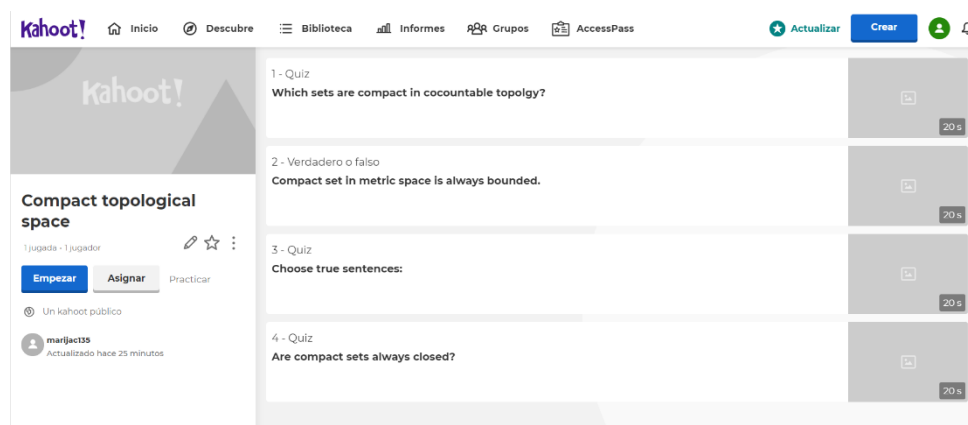
Creators name: Marija Cvetković

Resource title: Compact topological spaces

Platform used: Kahoot

Link to resource: <https://create.kahoot.it/details/7031883b-f277-42e0-9ff3-c303e962e779>

Brief description of the resource: Short after class quiz



Creators name: Denisa Kafazi

Platform used: Canva

Link to resource:

<https://www.canva.com/design/DAEZO0u5fCo/wZEA37HoPag0DaSHzYL0dA/edit>

Brief description of the resource: During the explanation of the lecture

Fëmijët – Matematika – Loja

- 1. Loja në matematikë
- 2. Si të realizojmë lojra të suksesshme ?
- 3. Si reagojnë fëmijët ndaj lojrave matematikore?
- 4. Ku synojmë të arrijmë?



FËMIJËT – E ARDHMJA
MATEMATIKA – SFIDË
LOJA – ARGËTIM

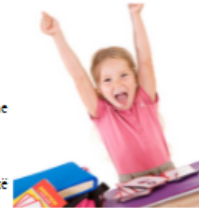
Loja në matematikë



Kur themi loja në matematikë duhet të bëjmë dallimin midis "aktivitet" dhe "lojë" në matematikë.

Oldfield i shikon lojrat matematikore si aktivitete të cilat:

- Përfshijnë sfidë(zakonisht kundër një ose më shumë kundërshtarëve).
- Drejtohen nga një sërë rregullash dhe kanë një strukturë të qartë themelore.
- Kanë objektiva specifike matematikore njohëse.
- Kanë një përfundim.



Si të realizojmë lojra të suksesshme ?

- Loja të përputhet me objektivin mësimor.
- Loja të ketë qëllim specifik dhe jo mbushje të kohës.
- Loja të ketë 2-4 grupe lojtarësh në mënyrë që radha e fëmijëve për lojë të vijë shpejt.
- Loja duhet të ketë edhe pjesë të thjeshta në kryerjen e saj në mënyrë që të lejojnë edhe fëmijët që kanë vështirësi të kenë chans për të fituar.
- Kohëzgjatja e lojës duhet të jetë e shkurtër.
- Të ketë 5-6 rregulla themelore të lojës që fëmijët të familjarizohen me to dhe këtë ta zbatojnë edhe në matematikë më vonë.
- Krijimi i lojrave të tilla të cilat mund të kenë zbatim edhe në shtëpi apo në mjediset të ndryshme



Si reagojnë fëmijët ndaj lojrave matematikore të realizuara me metoda të ndryshme (shembull "Mbledhja e numrave deri në 10 -shen e parë?

Orë e zakonshme në klasë sipas metodave tradicionale

1. Pyetje – përgjigje (mësuesi pyet nxënësi përgjigjet)
2. Shpjegim nga mësuesi
3. Punë e pavarur nga nxënësit (zgjidhje ushtrimesh)

Orë e ndërthurur me lojë

1. Bashkëbisedim me nxënësit
2. Shpjegim i mësimit duke bashkëvepruar me nxënësit
3. Krijimi i grupeve
4. Shumellojshmeri mjetesh(kartona ngjitesa, gërsHERE, objekte të ndryshme)
5. Demonstrim nga nxënësit

Konkluzione

Sipas metodës tradicionale pati : Më pak diskutime , ide apo bashkëveprim.

Sipas metodës me anë të lojës pati : Kureshtje, angazhim, bashkëveprim.

Mundësia për ta përsëritur ushtrimin rriti vlerësimin e nxënësit për veten dhe i ndihmonte ata të zgjidhnin edhe njëherë ushtrimin për të dhënë përgjigjen e saktë.

U tregua interes për ta përdorur përsëri zhvillimin e një ore të tillë.

Disa prej tyre kishin punuar edhe në shtëpi me ushtrime të njëjta.

Creators name: Silvja Čobani

Resource title: Combinatorics Test

Platform used: Kahoot

Link to resource: <https://create.kahoot.it/share/combinatorics-test/232d21da-b4cf-4a7b-9dda-7529408e3df0>

Brief description of the resource: A brief quiz at the end of the Combinatorics Lecture.

The screenshot shows the Kahoot! interface for a quiz titled "Combinatorics test". The page features a navigation bar at the top with options like "Inicio", "Descubre", "Biblioteca", "Informes", "Grupos", and "AccessPass". The main content area is divided into two columns. The left column contains the quiz title, a "0 jugadas - 0 jugadores" status, and buttons for "Empezar", "Asignar", and "Practicar". Below these are details about the quiz being a "First test" and "Un kahoot público" created by "silvjacobani" 29 minutes ago. The right column, titled "Preguntas (3)", lists three questions: 1. "Combinatorics problem. How many diagonals does a heptagon have?", 2. "Verdadero o falso Combinations are ordered subsets", and 3. "Quiz How many anagrams does the word 'Apple' ?". Each question has a 20-second timer and a "Mostrar respuestas" button. A "Créditos de recursos" section at the bottom mentions the image source as "monkeybusinessimages/iStock/Getty Images".

Creators name: Katarina Zeljic, Jelena Trajkovic

Resource title: Genetics - Katarina Zeljic & Jelena Trajkovic presentation

Platform used: Kahoot
Link to resource: <https://create.kahoot.it/details/eb9a8394-8f82-4d64-b477-166102fc18cb>

Brief description of the resource: A brief quiz about Down syndrome for a Genetics class.

The screenshot shows the Kahoot! interface for a quiz titled "Genetics - Katarina Zeljic". The page features a navigation bar at the top with options like "Inicio", "Descubre", "Biblioteca", "Informes", "Grupos", and "AccessPass". The main content area is divided into two columns. The left column contains the quiz title, a "0 jugadas - 0 jugadores" status, and buttons for "Empezar", "Asignar", and "Practicar". Below these are details about the quiz being a "Un kahoot público" created by "Katjaze" 1 hour ago. The right column, titled "Preguntas (3)", lists three questions: 1. "Quiz Person with 47,XX+21 karyotype has:", 2. "Verdadero o falso Down syndrome is not inherited in 95% of cases.", and 3. "Quiz By morphology, 21st chromosome is:". Each question has a 20-second timer and a "Mostrar respuestas" button.

Creators name: Tatjana Andjelkovic, Emilija Pecev-Marinkovic, Ivana Kostic Kokic

Resource title: Determination of KMnO_4 consumption

Platform used: Genially

Link to resource: <https://view.genial.ly/61ba20fd6327a00dee4640a4/guide-basic-guide>

Brief description of the resource: Here is the explanation of how to determine organic matter content in natural waters in chemical laboratory

Determination of KMnO_4 consumption

Tatjana Andjelkovic
Emilija Pecev-Marinković
Ivana Kostic Kokic

START >



Procedure of water organic matter content determination



Take a 10 mL of sample into 100 mL volumetric flask



Add 5 mL of 0,05 M sulphuric acid



Put 15 mL of potassium permanganate and boil for 10 minutes



After 10 minutes, add 15 mL of oxalic acid



After obtaining colorless solution, titrate by KMnO_4



Based on used volume of KMnO_4 , calculate the oxygen concentration in water and thus organic matter content of water

Creators name: Jelena Ignjatovic

Resource title: Data Structures

Platform used: Kahoot!

Link to resource: <https://create.kahoot.it/details/b27773b7-19ed-4de3-8192-2d4e918c3961>

Brief description of the resource: Check if the students understand the term of RECURSION.

Creators name: Teodora Trifunović

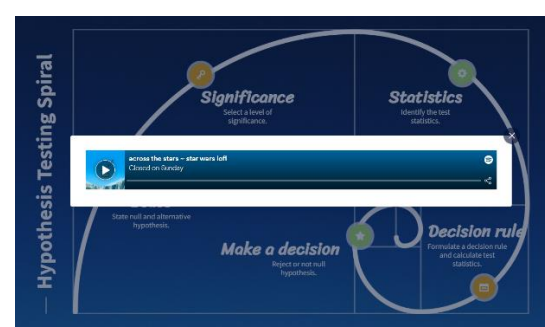
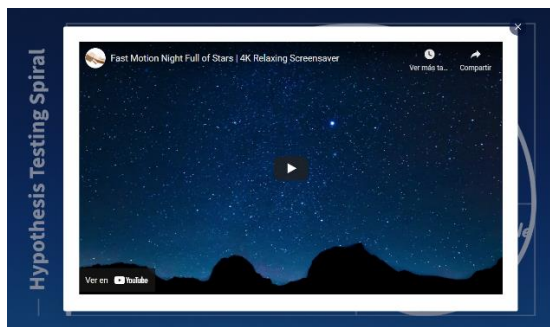
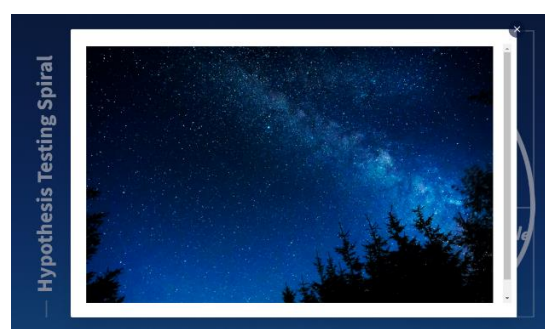
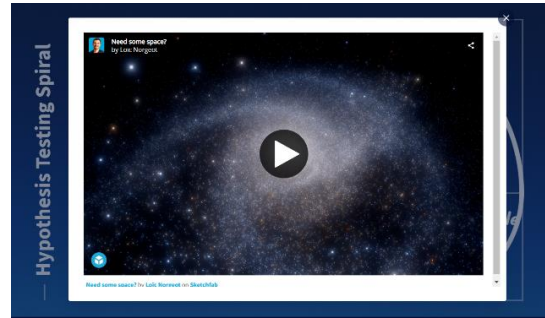
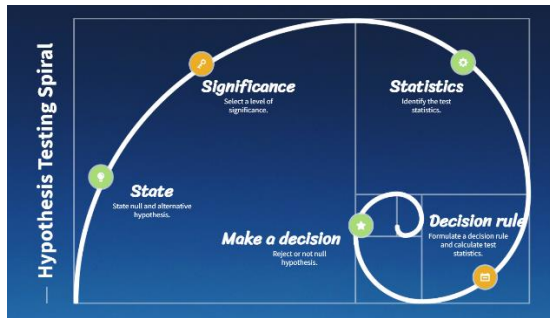
Resource title: Hypothesis testing spyral diagram

Platform used: Genially

Link to resource:

<https://view.genial.ly/61ba22e42185560dc850b358/interactive-content-hypothesis-testing-spyral-diagram>

Brief description of the resource: Steps to remember when testing statistical hypothesis.



Creations whose access is private

Creators name: Marija Tasić

Resource title: Test

Platform used: Kahoot

Link to resource: <https://create.kahoot.it/creator/3faea477-739f-46fa-a985-0a2c11b94f86>

Brief description of the resource: Short after class test

Creators name: Lorena Margo

Resource title: Normal Distribution with Spss.

Platform used: Genially

Link to resource: <https://view.genial.ly/61ba28362185560dc850b407/presentation-basic-dark-presentation>

Brief description of the resource: During the explanation of the lecture

Creators name: Aleksandar Milenkovic, Nemanja Vucicevic, Jelena Stevanic

Resource title: Test - introduction to optimization

Platform used: Kahoot

Link to resource: <https://create.kahoot.it/creator/de5bedc8-7450-4220-b3ca-6e0a61fa64e8>

Brief description of the resource: a brief quiz for students

Creators name: Jasna Stevanović

Resource title: Presentation - short introduction to tensors

Platform used: Genially

Link to resource: <https://app.genial.ly/editor/61ba23622185560dc850b367>

Brief description of the resource: add interactivity and animation in teacher presentation,, hopes students get more involved.

Creators name: Ivana Radojevic

Resource title: Prokariote

Platform used: Genially

Link to resource: <https://app.genial.ly/editor/61ba23ac8d5ba90df5d9da65>

Brief description of the resource: Introduction to the lesson