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GUIDE FOR FUTURE CLASSROOM

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About the Guide

This Guide for Future Classroom was prepared by staff members of the institutions forming the consortia of the Erasmus project, "FCL-FUTURE CLASSROOMS' LEADERSHIP", reference number 2021-1-PL01-KA220-SCH-000032614, https://www.fcl-erasmus.eu/ – with specific contributions from:

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About Our Project

FUTURE CLASSROOMS' LEADERSHIP project aims to fill the digital competence gap of the participants in the educational process by practical knowledge sharing on utilization of digital tools for education. The project is focus on promoting partners' 21st century skills, technological skills, critical thinking skills, teamwork skills, and international awareness of teachers and students.

At the end of the project, our aim is:

1 Bigger involvement of teachers and students in digital education;

2 To increase the usage of technology in education at the end of the project;

3 To improve communication and collaboration skills in teachers;

4 To help teachers to address the risks and opportunities of digitization;

5 To increase the capacity of partner institutions by improving their digital literacy;

6 To provide economical, easy and fast access to educational content for students with fewer opportunities.

Methodology

Within the scope of the two-year project activities, the methodology in the implementation of the activities will have a collaborative and participatory path based on communication and experience-sharing through 21st-century educational approaches.

Introduction

The Guide for Future Classroom was created to serve as an inspiration to other schools and teachers. A clear guideline may help them to have the correct image of the Future classroom for planning and creating the future classroom.

Analysis of the current situation regarding best practices in designing the Future Classroom

School of the future 's vision

The role of the Teacher in the Future Classroom

- From dreams to success, or how to strengthen students?
- Effective Communication and Collaboration between Teachers and Families

Future Classroom Setting

- Learner-centered teaching strategies

Create technologically smart spaces

- How we may empower learners through technology
- What to use in terms of technology
- Online safety must be assured!

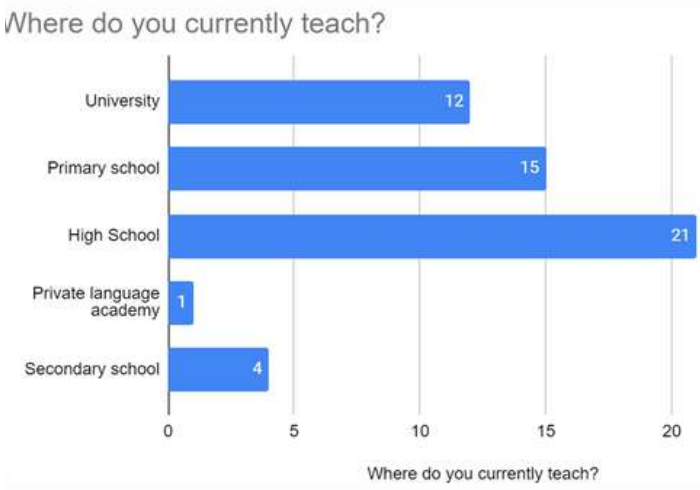
Assessment in the Future Classroom

- Effective Assessment Strategies
- Performance-based student assessment
- The use of technology to collect and analyze student assessment data

Future Classroom Scenarios

- Exploring Technology Resources for Enhanced Student Learning
- Tested Learning Scenarios

Teachers' needs analysis



The team leading the FUTURE CLASSROOMS' LEADERSHIP project has produced an analysis report that evaluates the needs of teachers from partner organizations. This report summarizes the key findings of a comprehensive Technology Needs Assessment conducted among teachers from various backgrounds and experience levels. The assessment aimed to gain insights into teachers' technology usage, proficiency, and the level of assistance they require.

Demographic Overview:

The survey included a balanced distribution of male and female respondents.

Teachers of all ages participated, with experience ranging from young adults to individuals with over 20 years of teaching experience.

The survey covered teachers from different educational levels, including primary school, high school, and university.

Teaching experience varied, with respondents having anywhere from less than five years to over two decades of experience.

Technology Usage in Classes:

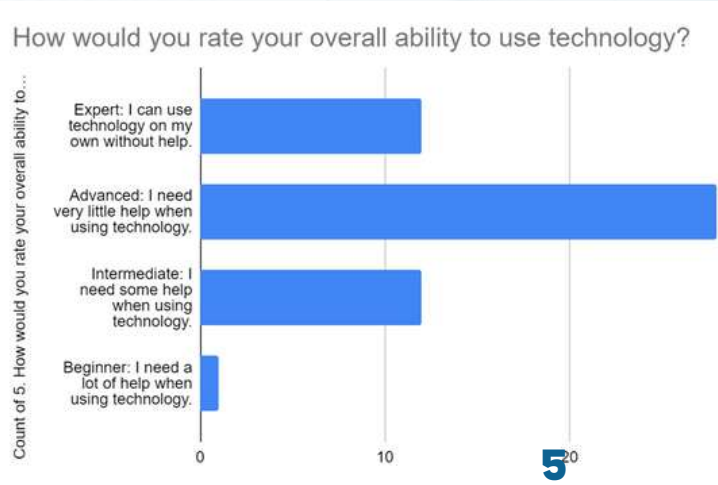
A substantial number of respondents (more than 90%) reported using technology in their classes. Most of them utilized technology for over 60 minutes, with a significant portion using it for more than 90 minutes during a typical class.

Level of Assistance with Technology:

- Many educators (over 60%) mentioned needing very little or no help when using technology.
- Approximately 25% reported needing some help.
- A smaller group (around 15%) indicated needing a lot of help.

Agreement with Statements:

- A majority (around 80%) strongly agreed that they could use technology independently without help.
- Many strongly agreed that they use technology in all or most of their classes.
- However, some respondents (approximately 10%) mentioned not using technology in any of their classes.
- Most disagreed with the statement that they needed a lot of help when using technology.

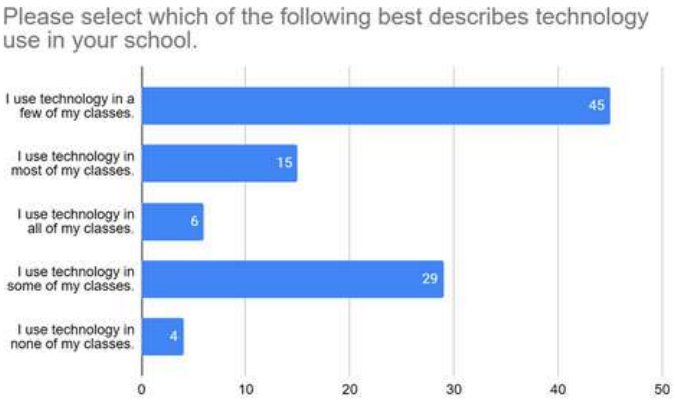


Recommendations:

Training and Professional Development	Given the varied levels of tech proficiency, offering training and professional development opportunities tailored to the needs of different groups was considered to be beneficial. Novice educators would benefit from basic technology training, while more experienced teachers would benefit from advanced training or updates on current educational technology trends.
Support Systems	Provide robust support systems for teachers who need assistance with technology. This includes creating mentorship programs or tech support teams to aid educators who are less confident in their tech skills.
Curriculum Integration	We have encouraged and guided educators to integrate technology into their curricula, irrespective of their proficiency level. Incorporating technology effectively into teaching can significantly enhance student engagement and learning outcomes.
Sharing Best Practices	Fostering a culture of sharing best practices. Experienced educators can mentor those less familiar with technology. Knowledge sharing can help address any disparities in tech proficiency and create a collaborative learning environment.
Evaluate Technology Investments	Partner educational institutions should continually assess their investments in technology resources to ensure they align with the needs and proficiencies of their teaching staff.

In conclusion, this Technology Needs Assessment revealed a diverse landscape of teacher's technological proficiency and needs. The findings underscore the importance of tailored training, support, and curricular integration to ensure educators can effectively use technology in the classroom. This data has served as a foundation for future strategies to enhance their technological capabilities and improve teaching outcomes. The planned LTTS in our project were aimed at providing the necessary training and support to our educators, with a focus on meeting the needs of different proficiency levels.

Students' needs analysis



Embracing technology while staying vigilant in the digital realm empowers students and educators to harness the full potential of the digital era safely and responsibly. Thus, understanding how students engage with technology is of paramount importance. This report provides a summary of the responses obtained from students' technology usage and needs assessment in primary and high school settings.

Overall Key Findings:

1. Diversity in Technology Usage

• Students exhibited diverse levels of technology usage, from those using technology daily to those who rarely use it in their classes.

• The most frequently used subjects for technology integration include English, mathematics, computers or technology, and science.

2. Skill Levels Vary

• Skill levels vary widely, with some students indicating advanced proficiency while others require more assistance when using technology.

• A significant number of students mentioned not being familiar with certain technologies or educational practices, which requires attention.

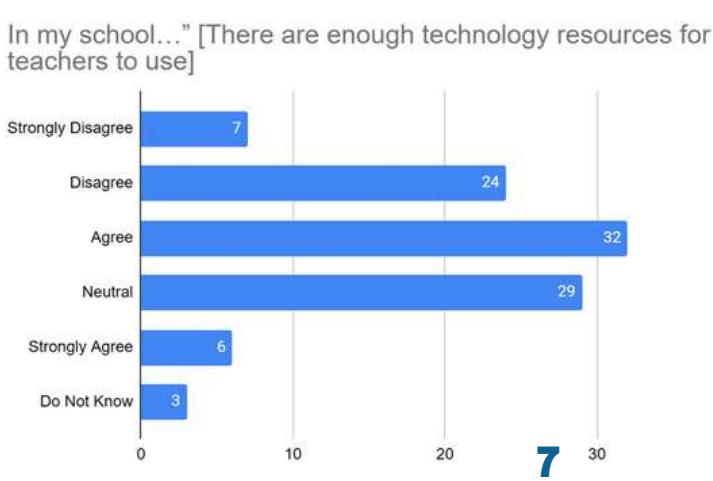
3. Need for Assistance

• Many students expressed the need for help when using technology, emphasizing the importance of supporting students in their technological endeavors.

• Some students reported not knowing who to contact for technology-related assistance.

The findings from the student technology usage and needs assessment present a comprehensive picture of the current state of technology integration in our educational institutions. It is evident that students' familiarity with technology, skill levels, and requirements for support vary widely, emphasizing the need for a well-structured approach to address these differences.

In conclusion, while technology presents an incredible opportunity to enhance the educational experience, it is essential to recognize the disparities that exist among students in their technology proficiency.



Recommendations:

Provide Targeted Support	Identify students who require additional assistance and offer targeted training programs to enhance their technology skills. Work closely with educators to ensure that students receive adequate support in specific subject areas.
Technology Literacy Programs	Implement technology literacy programs aimed at educating students on common software tools, online resources, and best practices. Encourage teachers to incorporate technology in their teaching to bridge the digital divide.
Enhance Communication Channels	Create accessible and well-publicized communication channels for students to reach out when they require help with technology. Develop a clear system for students to contact knowledgeable peers, teachers, or tech support for assistance.
Regular Assessments	Conduct regular assessments to gauge students' progress in technology proficiency. Monitor the impact of technology literacy programs and adapt them as needed to ensure continuous improvement.
Resource Allocation	Allocate resources to provide necessary hardware and software for students who lack access to technology. Establish computer labs or provide loaner devices for those in need.

By identifying students in need of additional support and implementing targeted training programs, we can bridge the digital divide and ensure that all students have equal opportunities for success in an increasingly tech-centric world. Moreover, the establishment of technology literacy programs and improved communication channels is pivotal to building students' confidence in using technology effectively. These initiatives can serve as building blocks for students' digital empowerment, enabling them to become not only consumers but also creators of technology-driven solutions.

School of the future 's vision

The school of the future will give more space to learning processes, with particular attention to critical thinking, active citizenship and media education. The famous 4Cs of education will be fundamental. The 4C are skills that are considered important for students to develop in order to be successful in the 21st century. They are:

Critical thinking	This involves analyzing and evaluating information and arguments in order to make informed decisions. It involves questioning assumptions and seeking evidence to support or refute ideas.
Collaboration	This involves working with others to achieve a common goal. It involves the ability to listen to and respect the ideas of others, and to work together effectively as a team.
Creativity	This involves generating new and innovative ideas and using imagination and originality to solve problems and develop products.
Communication	This involves the ability to effectively convey ideas and information to others through speaking, writing, and other forms of expression.

As the main element in education, the learner plays a key role in developing these skills. It is up to the learner to actively engage in the learning process and seek out opportunities to practice and develop these skills. This may involve participating in class discussions, working on group projects, or pursuing independent learning activities. The learner also has a responsibility to actively listen to and consider the perspectives of others, and to be open to new ideas and ways of thinking.

Furthermore, in an increasingly connected world, in which distances are breaking down, in which knowledge is constantly updated, the school of the future cannot do without the conscious development of students' digital skills. In fact, for lifelong learning, it is necessary to make the best use of digital competence, a competence which is nowadays vital for active citizenship and for participation in decision-making processes.

Digital competence is the ability to use information and communication technologies (ICT) effectively and responsibly in order to access, process, and communicate information, solve problems, and create and share content. Digital competence, already a key competence for the European Union, is the object of attention with the DigComp and DigCompEdu frameworks. It involves a range of skills and knowledge, including:

- Information literacy: The ability to find, evaluate, and use information from a variety of sources.
- Communication skills: The ability to use different forms of communication, such as email, social media, and video conferencing, to communicate effectively with others
- Problem-solving skills: The ability to use ICT to identify and solve problems, including using algorithms and programming languages.
- Creativity and innovation: The ability to use ICT to create and share new content, such as videos, podcasts or websites.

Digital competence is important for students because it enables them to participate fully in the digital world, which is increasingly becoming a key aspect of education, work, and social life. It allows students to access and use a wide range of digital resources and tools, to collaborate and communicate with others online, and to develop their own digital skills and knowledge.

In the 21st century, it is expected that the traditional model of schooling will continue to evolve and adapt to the changing needs and demands of society. One key aspect of this evolution will be the incorporation of technology and digital tools into the learning process.

With the increasing availability and accessibility of online resources and educational platforms, it is likely that schools will move towards more blended and hybrid learning models, where students have the option to learn both in a physical classroom setting and online. This will allow for greater flexibility and customization in terms of how students learn and will also enable them to access a wider range of resources and learning materials.

In addition to this, it is also expected that there will be a greater focus on personalized learning and student-centered approaches, where students are given more control over their own learning journey and are able to tailor their education to their individual needs and interests. This may involve the use of adaptive learning technologies and the incorporation of project-based and experiential learning opportunities.

Overall, the future of school in the 21st century will involve a shift towards more flexible, personalized and technology-driven learning models that are better able to meet the diverse needs of students in the digital age.

Digital competence is also important for students' future employability, as many jobs now require digital skills and knowledge. By developing their digital competence, students can better prepare themselves for the demands of the 21st-century workplace. Moreover, in the school of the future, classrooms and school spaces could potentially look very different from what we are used to today. Some possible changes could include:

Flexible and adaptable spaces: Classrooms and school spaces could be designed to be easily reconfigured to accommodate different types of learning activities. For example, a classroom might have moveable walls, adjustable furniture, and built-in multimedia equipment that can be easily repurposed for different types of lessons.

Virtual and augmented reality: Classrooms could feature immersive technologies such as virtual and augmented reality, which allow students to interact with digital content in a more interactive and engaging way. This could include simulations, virtual field trips, and other interactive learning experiences.

Personalized learning: Classrooms and school spaces could be designed to accommodate personalized learning, with students working at their own pace and on their own interests. This could include areas for individual or small group work, as well as spaces for collaborative projects and other hands-on learning activities.

Sustainable design: School spaces could be designed with sustainability in mind, featuring green roofs, solar panels, rainwater harvesting systems, and other eco-friendly features. This could help schools reduce their carbon footprint and foster a sense of environmental responsibility among students.

Health and wellness: Schools of the future could prioritize student health and wellness, with classrooms and school spaces designed to promote physical activity, healthy eating, and mental well-being. This could include features such as yoga and meditation spaces, outdoor classrooms, and healthy food options.

It's complicated to predict exactly what the role of students in the school of the future will be. Education is constantly evolving and adapting to new technologies and ways of learning. For them it is essential to pay attention to the learning processes. However, it's likely that students in the future will continue to play a central role in their own education. This may involve using technology to access and interact with educational materials, collaborating with classmates and teachers online, and taking an active role in setting their own learning goals and tracking their progress. It's also possible that students in the future will have more opportunities to pursue personalized learning paths and to learn at their own pace. Definitely it is important that students in the future are empowered to take an active and responsible role in their own education.

The schools of the future will be designed to accommodate personalized learning, sustainable design, and health and wellness. Personalized learning will allow students to work at their own pace and in their own interests. The school spaces will have areas for individual or small group work, as well as spaces for collaborative projects and other hands-on learning activities.

Sustainable design will feature green roofs, solar panels, rainwater harvesting systems, and other eco-friendly features. Students will continue to play a central role in their own education and will be empowered to take an active and responsible role in their own learning. The use of technology will allow for access and interaction with educational materials, collaboration with classmates and teachers online, and tracking their own learning progress. The future of education is exciting and full of possibilities!

The role of the Teacher in the Future Classroom

The impact of the educational challenges on the role of the teachers

Constant transformations concerning social expectations and the requirements of contemporary culture and economy create the role of the Future Classroom teacher. The 21st-century classroom needs are very different from the 20th-century ones. In the 21st-century classroom, teachers are facilitators of students` learning and creators of productive classroom environments, in which students can develop the skills they might need at present or in the future.

Teachers of the 21st century are the ones who ensure students' versatile development. The online model of teaching has broadened the teacher's responsibilities. Nowadays, the role of a teacher surpasses the conventional thinking that a teacher only educates students. They are now expected to be mentors, coaches, and instructors who use digital equipment in the world focused on skills of the 21st century.

Previously, teachers carried a book and explained the concept. Now, teachers are supposed to help develop students' interests, help them and allow them to become explorers and researchers. In the process of future teaching both students and teachers are partners and teach themselves. What is typical for future teachers is that they should constantly try to find new ways to keep the students inspired using high-tech educational tools.

Nowadays, new teaching strategies are also radically different from those previously employed. The curriculum must become more relevant to what students will be exposed to in the 21st century. One of the most important requirements of the future workplace is collaboration. The collaborative project-based approach ensures that the curriculum used in the Future Classroom develops:

- Higher order thinking skills;
- Effective communication skills;
- Knowledge of technology that students will need for 21st-century careers and the increasingly globalized environment.

The role of the teacher in the Future Classroom

The teacher's role is never passive. An experienced teacher always makes a smooth transition from one role to another. For this reason the role of the teacher in the Future Classroom should be defined by many roles. A modern teacher is a complete person who, depending on the needs and changes in education, is an actor, a "man orchestra" and plays various roles. According to Denek (2005), “teachers at school play the role of experts, managers, inspirers and integrators”. Beata Siewczuk (2021) distinguishes another role as an accurate diagnosis of the new phenomena, especially after the Covid-19 pandemic (depression, social health problems, inability to build interpersonal interactions, etc.). In this sense, assigning the teacher many roles emphasises how difficult and demanding the very nature of the profession is.

According to Nola A., a Senior English instructor at Eton Institute, there are 7 roles of the teachers in the class of the future:

1. Half Controller: The teacher is in charge of the process of teaching but as a conscious leader. The teacher assumes this role while inspiring students through his/her own knowledge and expertise, but allows them to find information, conclude, cooperate and share knowledge with others.
2. The Prompt: The teacher encourages students to participate and makes suggestions about how students may proceed in an activity. The teacher should be helping students only when necessary.
3. The Resource: The teacher is a kind of walking resource center ready to offer help if needed. As a resource, the teacher can guide learners to use available resources such as the Internet. It certainly isn't necessary to provide ready-made learning materials for learners.

4. The Assessor: The teacher assumes this role to see how well students are performing or how well they performed. Feedback and correction are provided and carried out. The role of an assessor gives teachers an opportunity to correct learners in a constructive way or encourages self-correction.
5. The Organizer: Perhaps the most difficult and important role the teacher has to assume. The success of many activities depends on good organisation and on the students knowing exactly what they are supposed to do next. Giving instructions, choosing the appropriate materials and digital tools is vital. The organizer needs to also create a learning-friendly setting in the classroom. The main indicators are free space, team stalls, a presentation corner or free access to multimedia and technology tools.
6. The Participant: This role improves the atmosphere in the class when the teacher takes part in an activity. Here the teacher can enliven a class; if a teacher is able to stand back and not become the center of attention, it can be a great way to interact with learners without being too overpowering.
7. The Tutor: The teacher acts as a coach when students are involved in project work or self-study. The teacher provides advice and guidance and helps students clarify ideas and limit tasks.

By playing all these roles teachers prepare students for changes and make them aware of the unpredictability of these changes. What is more, the role of the teacher in the future classroom is mainly about introducing the student to the necessity of permanent development, critical thinking, drawing conclusions and finally the ability to find and categorize information using appropriate cyber solutions.

The role of the teacher in the Flipped Classroom

The flipped lesson is primarily intended to lead to a clear shift of priorities - from learning the material during the lesson to mastering it on one's own and taking responsibility for the learning process of students. According to the words of Aaron Sams, one of the creators and precursors of the discussed teaching model, "the flipped classroom is focused on diverting attention from the teacher, and paying attention to the student and the learning process."

The idea of the flipped classroom is that the student initially works with the material given by the teacher at home. At school, they analyse the material together and ask questions to consolidate their knowledge. In the flipped classroom model, it is good to use short videos that allow students to work at their own pace, scroll, review the material several times and avoid the obvious parts, so as to focus on what they do not understand. This means that students come to lessons prepared for creative cooperation with their peers. It is also of particular importance for students with special educational requirements (e.g. students with dyslexia, dissortography) who work slower than others in class conditions.

The use of a flipped lesson also allows the teacher to more easily catch repeated mistakes in students' thinking and correct them.

The stages of the Flipped lesson are as follows:

1. Lesson planning by the teacher.
2. Preparing materials for the student according to the principle: specific, engaging, intriguing and short.
3. Conducting an initial conversation with students about the flipped lesson.
4. Self-learning.
5. Conducting and summarizing.

The teacher's role abandons his/her superior position in the classroom in favor of greater interaction with students. The role of students is also changing. students take more responsibility for the learning process. Lesson activities can be led by students, and they also influence how they communicate with the teacher and peers. Students come to class with questions about what they have seen and what they do not understand. They can also ask teachers questions through dedicated applications or social networking sites.

Technology as support for the teacher's role in modern education

Technology gives the possibility of personalization and an individual approach without physical presence. Tools like augmented reality and virtual reality can take a student to a place no school would take them. On the other hand, one can have a high-tech school but the teacher should be moderate and keep balance. Experiencing the world in reality does not stand in opposition to the use of high technologies.

There must be presented some approaches to teaching technology as well. The first of them is to take advantage of technology and its resources. The second approach is moderation because today's youth is overstimulated by technology. Another approach is that, for today's youth, a lack of technology in the educational process will not guarantee success.

Digital or mobile technologies are a huge opportunity and can be used to help children develop in an appropriate way. Some platforms give young people the ability to be part of research or collaborative projects. Nowadays, a young person has an excess of information, and the teacher is a guide who defines the problem makes the subject interesting, and creates conditions for development. The use of technology in the classroom can empower and support both the student and the teacher making the process of teaching more effective and attractive.

From dreams to success, or how to strengthen students?

The teacher in the classroom of the future must remember that in order to inspire and empower the student, he/she must be inspired himself and must treat the world as a source of inspiration or not disturb students' natural need for creativity. In their pursuit of perfection teachers should create a friendly atmosphere of cooperation and tolerate failures as a natural process of learning. Setting goals while learning means discovering the world for yourself. Achieving goals and challenges makes children happier and more self-confident and thus the teacher has to make students responsible for their successes and failures. The teacher of the future is also a captain who defines a specific goal.

Consistency and determination are one of the main features. Students observe the teacher and his/her attitude to work and then imitate good examples. The teacher's role is also to direct students' thinking by asking such a few questions: what do I receive, what are the benefits for others and does my action make sense? All these activities contribute not only to a teacher's role in the future but also to a student`s enormous success.

Effective Communication and Collaboration between Teachers and Families

Effective communication and collaboration between teachers and families play a pivotal role in fostering a supportive and conducive learning environment for students. When teachers and families work together as partners in a child's education, the impact on the student's overall academic performance and social development can be profound. This collaboration creates a seamless bridge between the school and home, ensuring that the child receives consistent guidance and support across different aspects of their learning journey.

Clear and open communication between teachers and families helps in identifying a student's strengths, weaknesses, and unique learning needs. When both parties are well-informed about the student's progress, they can collectively develop tailored strategies to address academic challenges and further enhance the student's strengths, ultimately contributing to their success.

Education extends beyond the classroom, and the involvement of families in a child's education is critical for their holistic development. By collaborating with families, teachers gain insights into the student's background, interests, and personal experiences, enabling them to design more relevant and engaging lessons that resonate with the student's life outside of school.

Effective communication nurtures a strong sense of parental engagement. When parents are actively involved in their child's education, the student feels valued and supported, leading to increased motivation and a positive attitude toward learning.

Through regular communication, teachers can promptly address any academic or behavioral issues a student might be facing. Early intervention can prevent challenges from escalating and ensure that the student receives the necessary assistance before any difficulties become insurmountable.

Communication and collaboration build trust between teachers and families. This trust forms the foundation for open dialogue, where both parties feel comfortable sharing their perspectives and concerns, leading to a more cohesive and understanding educational partnership.

In diverse educational settings, effective communication between teachers and families can help bridge cultural and linguistic gaps. Understanding and respecting each other's backgrounds and languages fosters a sense of inclusivity and cultural appreciation within the school community.

When families are aware of the curriculum and learning objectives, they can extend the learning experience beyond the classroom by reinforcing concepts and skills at home. This collaboration strengthens the connection between school and home, creating a unified and supportive learning environment.

The role of technology in enhancing communication and engagement

In today's digital age, technology has revolutionized the way we communicate and interact with one another. When it comes to education, technology plays a pivotal role in enhancing communication and engagement between teachers and families. It offers a myriad of tools and platforms that streamline the flow of information, facilitate real-time updates, and create opportunities for meaningful collaboration. Here are some key ways technology enhances communication and engagement in the context of education:

Instant Communication: Technology enables teachers and families to communicate instantly, bridging the gap between school and home. With emails, messaging apps, and other communication platforms, important announcements, updates, and queries can be addressed promptly, fostering a seamless and efficient flow of information.

Accessible Information: Through digital platforms, parents have easy access to a wealth of information about school programs, curricula, assignments, and resources. This accessibility ensures that families can stay informed and actively participate in their child's learning journey regardless of physical proximity or time constraints.

Multimedia Sharing: Technology allows for the seamless sharing of multimedia content such as photos, videos, and interactive presentations. This not only provides families with a more vivid understanding of classroom activities but also creates opportunities for students to showcase their work and accomplishments.

Virtual Meetings and Webinars: Video conferencing tools enable virtual meetings and webinars, making it easier for teachers and families to connect, especially in situations where physical meetings might be challenging. This virtual face-to-face interaction fosters a stronger sense of community and collaboration.

Real-Time Progress Updates: Learning management systems and digital portfolios enable real-time updates on student progress and academic performance. Families can monitor grades, track assignments, and receive immediate feedback, allowing for timely interventions and support.

Parent-Teacher Communication Apps: Specialized apps designed for parent-teacher communication offer dedicated platforms for sharing important information, scheduling meetings, and maintaining ongoing dialogue. These apps streamline communication, ensuring that essential messages do not get lost in other communication channels.

Online Collaboration: Technology facilitates collaborative projects and discussions, involving teachers and families. Virtual brainstorming sessions, group discussions, and online forums create opportunities for families to actively engage in school life.

Sharing Student Progress and Academic Updates

Transparent communication about students' academic progress is vital in ensuring that families are actively engaged in their child's education. This section will explore effective ways to share student progress and academic updates with families, using technology to create a seamless and accessible process. Here are the key strategies for sharing student progress and academic updates:

Digital Portfolios: Implement digital portfolios that showcase students' work, progress, and achievements. These portfolios can include samples of assignments, projects, and reflections, providing families with a comprehensive view of their child's learning journey.

Learning Management System (LMS): Utilize a learning management system to update families on students' grades, attendance records, and assignment submissions. An LMS serves as a centralized platform for families to monitor academic performance.

Progress Reports: Issue regular progress reports that outline students' strengths, areas for improvement, and specific learning goals. These reports can be sent via email or accessed through the LMS.

Individualized Communication: For students who require additional support or face challenges, communicate individually with their families. Provide personalized updates on their progress and collaborate on tailored strategies for improvement.

Parent-Teacher Conferences: Offer both in-person and virtual parent-teacher conferences to discuss students' academic progress and address any concerns or questions that families may have.

Real-Time Updates: Use communication platforms that offer real-time updates on students' academic performance and behavior. This helps families stay informed about their child's day-to-day experiences at school.

Rubrics and Grading Criteria: Share rubrics and grading criteria with families, explaining how student performance is assessed. Clarity on evaluation methods helps families understand the grading process and support their child accordingly.

Positive Reinforcement: Celebrate students' achievements and positive behavior through digital communication channels. Sending congratulatory emails or sharing recognition on social media can boost students' motivation and family engagement.

Academic Newsletters: Create academic newsletters to inform families about upcoming curriculum units, important assessments, and classroom highlights. Newsletters can be emailed or shared on the teacher's website.

Goal-Setting Collaboration: Collaborate with families to set academic goals for their child. Regularly review progress towards these goals and adjust strategies as needed.

Student-Led Conferences: Consider incorporating student-led conferences, where students take an active role in sharing their progress and learning experiences with their families. This empowers students and encourages ownership of their education.

Data Visualization: Use data visualization tools to present academic data in an easily understandable format. Graphs, charts, and infographics can help families quickly grasp their child's performance trends.
Assessment Reflections: Provide opportunities for students to reflect on their assessments and share these reflections with their families. This encourages self-awareness and goal-oriented discussions at home.
Remember to tailor the sharing of student progress and academic updates to accommodate families' preferences and needs. Open lines of communication and regular updates foster a strong partnership between teachers and families, allowing them to work collaboratively toward the academic success and overall well-being of each student.

Hosting Virtual Meetings and Webinars

Virtual meetings and webinars have become essential tools for facilitating meaningful communication and collaboration between teachers and families, especially when physical meetings might not be feasible. This section will explore the best practices for hosting successful virtual meetings and webinars, ensuring that these online interactions are engaging, informative, and effective.
Here are the key steps for hosting virtual meetings and webinars:
Selecting the Right Platform: Choose a reliable and user-friendly video conferencing platform that aligns with the preferences and technical capabilities of both teachers and families. Popular options include Zoom, Microsoft Teams, Google Meet, or any other school-approved platform.
Scheduling and Reminders: Set a convenient date and time for the virtual meeting or webinar, and send timely reminders to families to ensure their attendance. Consider different time zones and family schedules when scheduling the sessions.
Clear Agendas: Prepare a clear agenda outlining the topics to be discussed during the virtual meeting or webinar. Share the agenda with families in advance so that they can come prepared with any questions or concerns they might have.
Engaging Presentations: Create visually appealing and engaging presentations to support the virtual meeting or webinar. Use multimedia elements, such as slides, videos, and interactive activities, to keep participants involved and interested.
Interactive Format: Encourage active participation by incorporating interactive elements into the session. Use polling features, Q&A sessions, and breakout rooms for group discussions to involve families and address their specific needs.
Professional Conduct: Set a professional tone and conduct during the virtual meeting or webinar. Dress appropriately, maintain eye contact with the camera, and use clear and concise language to communicate effectively.
Managing Time: Be mindful of the allocated time for the virtual meeting or webinar. Stick to the agenda and ensure that there is sufficient time for questions and discussions at the end of the session.
Recording Option: If possible, offer a recording of the virtual meeting or webinar for families who couldn't attend or for future reference. Ensure that families are aware of the recording and its intended use.

Future Classroom Setting

Creating a Future Classroom Learning Space in your school requires a willingness to recognize its significance. As with any story of change and transformation, the first step is to be "aware" and committed to the process.

It's important to remember that change and transformation can be a difficult process, particularly in a school setting.

However, change is necessary for growth and progress. It allows schools to adapt to new challenges and opportunities and ensures that students receive the best possible education. As educators, it's our responsibility to embrace change and work together to create a positive and supportive environment for all members of the school community. This includes providing resources and support for teachers and staff who may be struggling with the changes, and ensuring that students are included in the process and feel heard. By working together and staying committed to the process, we can create a school culture that is resilient and adaptable, and that prepares students for success both in and beyond the classroom.

Transforming a Space into a Future Classroom!

Here are some useful tips for Organizing Different Learning Areas.

When setting up a Future Classroom, it's important to create a flexible learning space that nurtures collaborative, innovative, questioning, and problem-solving skills. Once you have found the perfect space, you can begin organizing it into various learning areas to create a dynamic and engaging experience for your students. Here are some helpful tips to get you started:

- **Create a comfortable reading area:** Foster a love of reading by setting up a cozy reading nook with bean bags, floor pillows, and shelves filled with books. This area can encourage students to explore their interests and discover new books.
- **Design a maker space:** Encourage creativity and innovation by providing a designated maker space. It should include materials such as craft supplies, building blocks, and other tools that can help students create and experiment.

- **Set up a collaborative workspace:** Create a space where students can work together on group projects and assignments. This area should have ample table space, chairs, and technology to facilitate collaboration.
- **Allocate a quiet zone:** Students need a quiet space to work on individual assignments or to read. Set aside a designated area with desks or tables that can be used for quiet work.
- **Incorporate a technology corner:** Enhance learning by incorporating technology into your classroom. Create a corner with computers, tablets, and other devices to provide students with access to the latest technology and digital resources.

By organizing your Future Classroom into various learning areas, you will be able to create an environment that inspires and motivates your students to learn and succeed.

Get inspired by the Future Classroom Lab designed by European Schoolnet in a virtual tour https://fcl.eun.org/3d-virtual-tour !

Create learning scenarios that empower your students!

Creating a suitable learning environment is only the first step in empowering your students. To truly promote student empowerment, it is important to create learning scenarios that encourage students to take ownership of their own learning. This can involve providing opportunities for students to choose their own projects, conduct research, and collaborate with their peers. By doing this, students can develop a sense of autonomy and responsibility, which can lead to greater engagement and success in their learning. Remember to always encourage and support your students as they navigate their own learning journey.

It is also important to create a safe and inclusive learning environment where all students feel welcome and valued. This can involve promoting diversity and inclusivity in your teaching materials, incorporating different perspectives and viewpoints, and being mindful of the language and tone you use in your interactions with students.

Lastly, it is important to create opportunities for students to reflect on their learning and set goals for themselves. By reflecting on what they have learned and what they still need to work on, students can take ownership of their own growth and development. Encourage your students to set goals and provide support and feedback as they work towards achieving them. With these strategies in place, you can create a learning environment that truly empowers your students.

Learner-centered teaching strategies that incorporate technology, e.g., project-based or cooperative learning

Learner-centered teaching incorporating technology and cooperative learning is essential to enhance student engagement and social and technological development.

Today`s educators need to use 21st-century strategies to equip students with the skills that are helpful in an ever-changing technological world.

Interactive whiteboards, educational apps, online forums, and virtual reality tools build both digital and learner-centered educational ecosystems. Learner-centered teaching involves students and fosters a deeper understanding of the material and better memorization of information. Students learn willingly when they can decide about their activities using technology. Here are some effective ways to combine these methodologies:

1. Flipped classroom-it is a pedagogical approach in which the traditional elements of the lesson taught by the teacher are reversed. Educational materials are studied first by students at home. Technology can be used here to create online lectures, videos, or interactive presentations that students can access before class. Optimize time here is intentionally to focus on the special needs of students and problem-solving activities for developing cooperative projects.

2. Gamification is a game-based learning. Gamification is used to change behavior, educate, or to motivate using game elements such as points, badges, and leaderboards.

To use it effectively you should start with better knowing of your students: What do they like? What are their learning needs? Gamification works best when surrounded by clear rules, the progress is visible, and a prepared manual.

It`s worth mentioning some online tools for preparing games, Jamboard, and Goose Chase EDU.

3. Project-based learning: Students are more likely to be engaged in their schooling when they feel freedom over their learning. Project-based learning allows students to be drivers of their learning. Thanks to this strategy students delved into real-world problems, researching, collaborating, and presenting their findings. With tablets and laptops, they can scour online resources, be engaged in virtual discussions, and finally create multimedia presentations that show their understanding.

ITechnology here has become the catalyst, providing access to information and enabling collaboration among students. Some of the most popular software for creating interactive educational projects are Genially, Canva and Curipod.

4. Cooperative learning

Through online platforms, students can share ideas, give feedbacks, and present collectively constructed knowledge. The main point of this strategy is understanding different perspectives, enhancing communication skills, and learning to work together effectively. Students can work together in real time, share resources, and provide feedback to one another. The most popular collaborative platforms: are E- Twinning, Titanpa, Twinspace, Padlet, and Google Docs.

5. Peer teaching

It is a complex form of communication between peers, which results in teaching and rearing. Peer Teaching involves direct interaction between the learner-student and the teacher-student, this will help them to promote active learning. This method provides a safe learning environment without assessment and judgment. Choosing the appropriate peer tutor is vital in this method.

Tips for teachers:

- Identify children's unique abilities and interests and adjust the teaching process to their development,
- Identify lesson objectives and select appropriate technological tools that are best suited to the lesson topic and students' needs,
- Develop optimal working rules,
- Create a lesson outline, including time for student activities and presentations,
- Introduce a variety of activities to know which ones are the most effective,
- Reflect on your teaching strategies and use others observed from other teachers,
- Share your practiced strategies and technological tools with other teachers.

Create technologically smart spaces

How we may empower learners through technology

Recent research shows that the majority of the learning process occurs outside the classroom. The main reason why this happens is because of the interaction. People learn through action, instead of learning passively. So, why not just bring that “outside” into the classroom?

Technology may be able to help teachers achieve that. In fact, some research indicates that technology can improve both the teaching and learning aspects of education. The students of today are growing up surrounded by technology. They use it every day, in the form of their phones, laptops, computers, Smart TVs, and more, so it only makes sense that technology should become a core part of the classroom. Using technology to empower students should seem like a given since technology is one thing they are more adept at using. Most students have navigated their entire lives with technology and find some comfort in its use. It also encourages active engagement and interactivity that students are so accustomed to outside of class, and miss when having to pay attention to lesson materials. Interactivity makes it easy for students to revisit specific parts of the subjects, to explore them more fully, to test ideas, and to receive feedback.

One of the most important goals of teachers is to develop the creative thinking of students and prepare them for the life ahead, equipped with a mindset that allows them to overtake problems and challenges with innovative and creative solutions. Having this in mind, it is very important to keep the students’ motivation high so that they can assimilate all the knowledge teachers transmit.

It is important to integrate technology in the classroom because it has become so integral to the world outside of the classroom and students are more tech-savvy than ever before. Having technology in the classroom is not a replacement for a good teacher.

However, when we combine a great teacher with a constructive classroom technology usage the results are an even-better education.
Though there are many benefits to technology in the classroom, here is a short list of reasons why you might want to add more digital tech to your classes.

Improves engagement and retention

Digital technology in the classroom opens up new media types not available on its analog versions. And there is potential for far more interactivity being built into digital education content.

Accommodates multiple learning styles

EdTech is a great way to accommodate various learning styles and pace content for individual students. What's more, effective use of tech in the classroom doubles its impact when used as assistive technology for students with a range of special needs.

Promotes collaboration

Technology has a unique ability to collaborate live on a task or project and to share information with peers faster than ever before. From huddle spaces to remote work, technology is able to break down barriers.

Instant feedback for teachers

The same tools that allow students to share with their peers also allow students to share feedback with their teachers. This feedback could come in the form of answers, questions, or even suggestions for teaching improvements.

Prepares students for the future

Technology – especially digital technology and its connectivity – is becoming increasingly entwined in daily life. Being able to deal with not only familiar tech but strange and new devices will be an important part of students' future success.

STEAM approach

STEAM Education is an approach to learning that uses Science, Technology, Engineering, the Arts and Mathematics as access points for guiding student inquiry, dialogue, and critical thinking.

STEM/STEAM-based programmes take an integrated approach to learning and teaching, which requires an intentional connection between curriculum learning objectives, standards, assessments, and lesson design/implementation.

STEM/STEAM learning applies meaningful maths, science, and technology content to solve real-world problems through hands-on learning activities and creative design.

Global skill shortages in STEAM-related fields are redefining educational priorities. Schools are starting STEAM-based learning programmes to equip students with the skills and knowledge needed to thrive in the 21st century. STEAM learning will not only produce tomorrow's designers and engineers; it will develop innovative mindsets and the ability to problem-solve, ensuring that our students become creators of technology, not just passive consumers.

Students who participate in STEAM learning:

- think outside the box
- feel safe to express innovative and creative ideas
- feel comfortable doing hands-on learning
- take ownership over their learning
- work collaboratively with others
- understand the ways that science, maths, the arts, and technology work together
- become increasingly curious about the world around them and feel empowered to change it for the better.

Global skill shortages in STEAM-related fields are redefining educational priorities. Schools are starting STEAM-based learning programmes to equip students with the skills and knowledge needed to thrive in the 21st century.

Immersive education

As the world becomes increasingly technologically driven, traditional classroom-based learning where a teacher, lecturer or trainer stands at the front of a class is increasingly becoming a thing of the past. Creating a participatory environment where educators are facilitating active, immersive learning can be hugely beneficial to a learner's development; enriching their knowledge base and practical skills.

Traditional classroom-based learning techniques largely rely on auditory and written learning styles. Whether in an educational or work-related training space, this has significant and widely recognized limitations. Every learner is unique and this is reflected in how they process and retain information. For many, providing engaging and interactive content offers a more inclusive and accessible learning experience, especially for those who are predisposed to a visual and kinesthetic style of learning.

Immersive learning is a hugely effective way for many learners to develop their knowledge and skills. It provides artificial, digitally created content and environments that accurately replicate real-life scenarios so that new skills and techniques can be learned and perfected. Learners aren't simply passive spectators; they get to be active participants who directly influence outcomes. And what's more, it offers a risk-free and safe space where learning can be repeated and success can be accurately measured. It's practice-based learning where the sky is the limit.

Types of Immersive Learning Technology:

- Virtual Reality (VR) completely immerses learners in alternative digital worlds.

Content is accessed through VR headsets such as a HTC Vive or Oculus Quest, often combined with headphones and hand controllers that allow the learner to navigate their way around their virtual space.

- Augmented Reality - rather than blocking out the real world, augmented reality blends it with digital content.

Digital assets can take many shapes and forms, so they can be flat and 2D, which is great for instructional information or be more complex and 'real' in 3D. Content can be triggered by specific objects or geographical places. Mobile devices, such as smartphones and tablets allow the learner to access content, making it easily accessible. Widely recognized examples include Pokémon Go and Snapchat filters.

- Mixed Reality combines elements of virtual and augmented reality.

Like augmented reality, it overlays digital content with the real world. This content is anchored to and interacts with objects in the real world. A major difference between mixed and augmented reality is that in mixed reality, digital assets can be visibly obscured by real-world objects.

- 360 Film tends to be live filmed, rather than computer generated. Although you can access this content via a VR headset and are fully immersed in an environment, the learner is anchored by the filmmaker's viewpoint. This means that the learner can move their heads to see the world around them, but interactivity is lost as they can't walk around independently or interact with their surroundings. It's a great way to introduce virtual field trips, transporting students to far-flung places without leaving the classroom.

What to use in terms of technology

- Computers

Both desktops and laptops continue to have places in modern classrooms. Laptops are used primarily for note-taking, writing, and independent research. Depending on the material being presented, computers also present an opportunity for adding more media to lessons, gamification, and connectivity with either classmates or instructors.

- Projectors

Projectors have been used in classrooms in one form or another for well over 100 years. The modern classroom projector has come a long way from its single-slide ancestor, however.

In the classroom, a projector acts primarily as a display. (There are certainly interactive projectors, but those are covered more in the next section on interactive whiteboards.) And display data needs to come from somewhere, so most projectors will be paired with a computer or other device. Even smart projectors won't be able to do much more than playing a video or slideshow without streaming from another device.

As an established classroom technology, projectors are popular for their relative simplicity, low cost to purchase, and their ability to project to very large screens. With the advent of lamp-free projectors, there is less maintenance and fewer calibration issues than older models.

- Interactive Whiteboards

Interactive whiteboards (IWBs) are also sometimes called interactive displays or even digital whiteboards. As a catch-all term, an IWB is any display that also responds in real-time to actions on its surface, allowing it to act as a whiteboard. This includes both projector-based interactive displays (like these) or interactive flat-panel displays (like ViewBoard).

Due to their versatility, there is a global shift towards IWBs that is picking up momentum, especially interactive touchscreen displays. The technology blends the best of multimedia and touch technologies with the familiar functions of a regular whiteboard. Therefore a teacher can show a video or search the Internet live, annotate the content, and then even share it with students via their devices.

- Tablets

More portable than even laptops but with large viewing screens, tablets seem to be custom-made for education. They are very powerful research tools and may serve as a replacement for heavy, expensive textbooks. Their touch screens also allow students to interact with digital content more intuitively than with a keyboard and mouse or trackpad.

- Smartphones

Smartphones are often overlooked as EdTech because they are so often the cause of distractions, but they are a valuable learning tool.

At its most basic, a smartphone is a student's portal to their community of peers for support and the Internet for research. There are educational apps like Duolingo for self-study and Kahoot! for group learning activities. Plus a huge number of media-creation apps produce everything from documents to polished videos. And in fact, a significant number of students already use their smartphones to do their homework.

- Coding robots

Coding robots are becoming increasingly popular in classrooms as a way to teach students valuable STEM skills in a fun and engaging way. These robots come in many different shapes and sizes and are designed to be programmed by students using a variety of coding languages and interfaces. Some robots can even be controlled using smartphones or tablets. By using coding robots, students can learn about programming concepts like sequencing, loops, and functions, while also developing their problem-solving and critical-thinking skills. Plus, they get to see their code come to life in the form of a physical robot, which can be an exciting and rewarding experience.

- VR glasses

They are being used to create immersive learning experiences that allow students to explore and interact with virtual environments. With VR glasses, students can visit places they might never be able to visit in real life, such as outer space, ancient ruins, or even inside the human body. They can also simulate real-life scenarios, like practicing surgery or responding to an emergency. This technology can enhance learning by making it more engaging, interactive, and memorable. It can also help students with special needs or learning difficulties to better understand complex concepts by visualizing them in a 3D environment.

Online safety must be assured!

In today's digital age, technology plays an increasingly integral role in the education sector. Schools are embracing online platforms, cloud-based tools, and digital resources to enhance the learning experience. While these advancements offer numerous benefits, they also come with the responsibility of ensuring online security and safety within educational environments.

However, the transformation of education in the digital age is not without its challenges. As students embrace the virtual world, they expose themselves to a variety of online risks and threats. These challenges range from cyberbullying and privacy concerns to the need for responsible online behaviour and digital manners. Additionally, the digital realm has its share of potential dangers, such as misinformation and a lack of critical thinking.

The Digital Landscape in Student Life

For today's students, the digital landscape is like a second home, a realm where they not only interact with technology but coexist with it. From e-learning platforms and cloud-based applications to social media networks and entertainment apps, digital technology is an integral part of their daily routine. In many ways, it has become an inseparable companion on their educational journey.

The role of technology in modern education is transformative. It has redefined the classroom, extending it beyond the confines of physical walls. Students now have access to a wealth of digital resources, interactive learning tools, and online libraries that enrich their educational involvement. From virtual labs that allow them to conduct experiments without a physical setup to collaborative platforms that facilitate group projects regardless of geographical location, the digital landscape has revolutionized learning.

Furthermore, the internet serves as the primary gateway for students seeking knowledge, information, and resources. It has opened a world of possibilities, enabling them to explore diverse subjects, engage in online research, and access a global network of ideas and perspectives. In this sense, technology has democratized education, making it more accessible and adaptable to individual learning styles.

Yet, the increased reliance on technology also exposes students to a range of online risks and threats. The same internet that offers a vast array of knowledge also harbours dangers such as cyberbullying, online predators, identity theft, misinformation, and the potential for addiction to digital devices. As students become increasingly intertwined with the digital world, the need for comprehensive digital literacy and online safety education becomes ever more critical.

Navigating the digital landscape is a skill set that today's students must cultivate alongside their traditional studies. This includes not only proficiency in using digital tools for research and education but also the ability to discern credible sources from unreliable ones. It involves understanding the implications of sharing personal information online and recognizing the importance of online etiquette and responsible behaviour. Moreover, it encompasses being aware of potential threats and knowing how to protect themselves and others in the virtual realm.

Understanding the Risks

Students, particularly those of school age, find themselves navigating a complex digital environment where a multitude of online threats can impact their well-being and safety. This area presents various risks, and a comprehensive understanding of these challenges is essential for students, their teachers, and parents.

Empowering students for online safety is a collective effort that involves schools, parents, and students themselves. By providing a strong foundation in digital literacy education, promoting safe online behavior, fostering open communication, encouraging the use of security software, and enhancing social media awareness, students can confidently navigate the digital landscape while safeguarding their well-being and personal data. Ultimately, the goal is to equip students to become responsible digital citizens who make informed decisions and contribute positively to the online community.

Here, we examine deeper into the range of online threats that students may face:

- Cyberbullying

The internet, while a source of knowledge and connection, can also be a breeding ground for hurtful behaviour and harassment. Cyberbullying, which includes hurtful messages, spreading rumours, or harassment through digital means, can have profound effects on students' mental and emotional well-being. It can lead to feelings of isolation, anxiety, and even depression, and it's a challenge that schools and parents must address to ensure the emotional safety of students.

- Online Predators

One of the most alarming risks in the digital space involves malicious individuals who exploit online spaces to target vulnerable young people. Online predators may use deception to gain the trust of students and then manipulate them for various purposes. This poses significant risks to their safety, making it crucial for teachers and parents to educate students about the potential dangers and encourage open communication about their online interactions.

- Phishing Scams

Phishing scams are a form of digital deception that students must be aware of. Cybercriminals use deceptive emails, messages, or websites that appear trustworthy to trick students into revealing personal information or financial details. These scams can result in identity theft, financial losses, or unauthorized access to accounts. Teaching students how to identify phishing attempts and respond appropriately is an essential aspect of online safety.

- Inappropriate Content

The vastness of the internet means students may accidentally come upon content that is unsuitable for their age or maturity level. This exposure can be distressing and may lead to misconceptions or discomfort. To mitigate this risk, it is crucial to encourage the use of web filtering tools, and parental controls to foster an environment where students feel safe discussing and reporting any concerning content they come across.

- Privacy Concerns

Understanding the importance of protecting personal information is vital for students. They may not fully understand the potential consequences of sharing sensitive information online. The risk of identity theft, online exploitation, or even harassment increases when personal information is not adequately safeguarded.

Empowering Online Safety for Students:

In an age where the digital landscape is an integral part of a student's daily life, ensuring their online safety has become vital. This comprehensive guide explores five key areas that collectively empower students to be responsible and safe digital citizens.

Digital Literacy Education

Digital literacy is the foundation upon which students can build their online safety. Schools and parents should prioritize digital literacy education to provide students with the skills needed to navigate the digital landscape responsibly. Here's how to empower students through digital literacy education.

Digital literacy goes beyond just knowing how to use digital devices. It encompasses critical thinking, evaluating online content, and understanding the potential risks and rewards of the digital world. Schools must incorporate digital literacy into their curriculum, ensuring that students graduate with a strong foundation in this essential skill.

One of the critical components of digital literacy is the ability to differentiate between reliable and unreliable sources of information. Students must be equipped with the skills to critically evaluate online content, identify credible sources, and assess the credibility of online information. They should learn to apply these skills not only in academic research but also in their everyday online interactions.

The internet is replete with scams and deceptive practices. Students should be taught how to recognize phishing emails, fraudulent websites, and other online scams that aim to steal personal information or compromise their digital security. Real-life examples and hands-on exercises can help students develop a keen eye for spotting online scams.

Understanding the importance of safeguarding personal information is crucial. Students need to be educated about the risks associated with sharing sensitive data online and the potential consequences of identity theft. Schools and parents should provide guidance on creating strong, unique passwords and using two-factor authentication to enhance online security.

Safe Online Behaviour

Encouraging responsible online behaviour is a fundamental aspect of online safety. It equips students with the skills and mindset needed to make informed choices about their online actions and interactions. Here's how we can promote safe online behaviour:

- *Think Before You Share*

One of the primary principles of online safety is encouraging students to think before they share any information, whether it's on social media, in emails, or during online interactions. They should consider the potential consequences of their actions and the long-term impact of their online presence.

- *Privacy Settings and Boundaries*

Understanding how to use privacy settings on social media platforms and other online accounts is crucial. Students should be aware of the information they make public and the information they keep private. Setting boundaries on what is shared with different audiences is an important part of online safety.

- *Connecting with Strangers*

Online interactions can sometimes involve connecting with individuals who are not known in the real world. Students should be cautious about these connections, especially on social media or gaming platforms. They need to learn the importance of being selective about whom they connect with and should avoid sharing personal information with strangers.

Open Communication

Fostering open communication is vital to creating a safe environment where students can seek guidance and support when they encounter unfamiliar or distressing online situations. Here's how we can promote open communication:

- *Build Trust*

Building trust between students, parents, and teachers is the foundation of open communication. Students should feel comfortable discussing their online experiences, challenges, and questions without the fear of reprimand. Schools and parents should create an atmosphere where students know they can seek help and guidance when needed.

- *Listen Actively*

Active listening is essential when students share their online experiences and concerns. It's important to take their concerns seriously, provide guidance and support based on their needs, and avoid jumping to conclusions. Active listening shows students that their perspectives and feelings are valued.

- *Teach Reporting Procedures*

Students need to be aware of how to report incidents or concerns related to online safety. This includes knowing how to report cyberbullying, inappropriate content, or any other online threats they may encounter. Schools should have clear reporting procedures in place, and students should be educated on how to use them effectively.

Use of Security Software

In addition to education and responsible behaviour, using security software, such as antivirus programs, adds an extra layer of protection. Here's how we can encourage the use of security software:

- *Anti-malware and Antivirus Tools*

Installing reputable anti-malware and antivirus software on devices is a critical step in defending against malware and viruses. These tools help identify and remove malicious software that may compromise the security of students' devices and personal information.

- *Regular Updates*

Security software should be kept up to date to ensure students have the latest protection against emerging threats. Schools and parents should emphasize the importance of regularly updating security software for students.

- *Safe Browsing Practices*

In addition to security software, students should be educated about safe browsing practices. This includes not clicking on suspicious links, downloading files from trusted sources, and avoiding websites that may pose security risks.

Social Media Awareness

Social media platforms play a significant role in many students' lives, making it important to emphasize the importance of monitoring and managing their online presence. Here's how we can promote social media awareness:

- *Privacy Settings*

Students should learn how to adjust their social media privacy settings to control who can see their posts, photos, and personal information. They should understand the importance of customizing these settings to protect their privacy online.

- *Posting Responsibly*

Encourage students to think before they post on social media. They should be aware that their digital footprint is long-lasting, and what they share online can impact their personal and professional lives in the future. It's essential to promote responsible and respectful behavior on social media platforms.

- *Interactions and Cyberbullying*

Students need to understand how to handle online interactions, including those that involve cyberbullying. Encourage them to report any instances of cyberbullying and seek help if they experience or witness such behaviour.

- *Online Reputation*

Educate students about the concept of online reputation. They should be aware that their online behaviour and interactions can contribute to the development of their digital reputation, which can have a significant impact on their personal and professional lives.

Empowering Online Safety for Teachers

In today's digital age, promoting online safety for teachers is crucial to ensure a secure and supportive learning environment for students. Teachers play a pivotal role in guiding students through the complexities of the online world, and to do this effectively, they need the knowledge, skills, and resources to protect themselves and their students online.

Empowering teachers to champion online safety within their classrooms and school communities is vital. It not only protects students from online threats but also cultivates a culture of digital responsibility and safety. By equipping teachers with the knowledge, tools, and support they need, schools can create a safer and more supportive learning environment for all students. Online safety is a shared responsibility, and teachers are at the forefront of ensuring its success.

Here are some specific ways to empower teachers and promote online safety:

- *Training on Online Safety*

Teachers should receive comprehensive training on online safety. This training should cover essential topics, including:

1. *Safe use of online tools and resources.*
2. *Identifying and reporting online abuse, cyberbullying, and other forms of online threats.*
3. *Communicating with students about online safety, including discussions on responsible internet use, privacy, and digital citizenship.*

- *Access to Technology and Resources*

Teachers should have access to the necessary technology and resources to ensure online safety. This includes:

1. Tools for monitoring students' internet usage.
2. Filters to block inappropriate content.
3. Systems to restrict access to potentially dangerous websites.

These resources are essential for teachers to create a safe digital environment in their classrooms.

- *School Culture of Support*

Creating a school culture that prioritizes online safety is fundamental. To achieve this, schools can:

1. Establish clear policies and procedures for addressing online safety issues, making them readily available to all stakeholders.
2. Encourage teachers to initiate conversations with students about online safety, and support these discussions through guidance and resources.
3. Ensure teachers feel confident and encouraged to report any concerns related to online safety and establish a transparent process for handling such reports.

Beyond these fundamental steps, here are additional thoughts on empowering teachers to promote online safety:

- Involvement in Decision-Making

Teachers should have a voice in the development of online safety policies and procedures within their schools. Inclusion in the decision-making process ensures that policies are practical, realistic, and tailored to the specific needs of their classrooms.

- Peer Learning and Collaboration

Teachers can learn immensely from each other's experiences. Schools should foster a culture of collaboration and peer learning where teachers can share best practices, resources, and lessons learned. This can be achieved through workshops, forums, and collaborative projects focused on online safety.

- Recognition and Celebration

When teachers excel in promoting online safety, their efforts should be recognized and celebrated. Acknowledging their accomplishments and commitment to online safety not only boosts morale but also underscores the value of their work.

In this digital age, where students and teachers alike are immersed in the ever-expanding virtual world, the importance of online safety cannot be overstated. The Internet and digital technologies have become integral to the educational landscape, transforming the way students learn, interact, and grow. This transformation has opened exciting new possibilities for education, enabling students to access a wealth of knowledge and collaborate with peers and teachers on a global scale.

However, this digital journey is not without its perils. Students are navigating a complex and ever-evolving digital landscape filled with potential risks and threats. They face challenges like cyberbullying, online predators, phishing scams, exposure to inappropriate content, and privacy concerns. To equip students to thrive in this digital realm while staying safe, a comprehensive approach to online safety is imperative.

Assessment in the Future Classroom

Many reports reveal that the learning gap was exacerbated by the COVID-19 pandemic. Teachers are doing their best now, to make sure students receive the needed support to fill in the gaps and to facilitate their academic and personal growth.

That is why, assessment should provide teachers with useful information about the development of students' skills, competencies and not define, assess, evaluate and reward merit.

One of the hardest challenges a teacher has is trying to manage and make sense of the various assessments required to support decision-making and the communication of students' progress to families.

Types of assessment

Diagnostic	Formative	Interim	Summative
• Assesses a student's strengths, weaknesses, knowledge, and skills prior to instruction • Done at the beginning–of the school year, beginning of a unit, beginning of a lesson, etc.	• Assesses student's performance during lesson, occurs regularly throughout the instruction • Using digital tools it can be an easy way of checking if students have understood lesson content	• Evaluates student's performance at periodic intervals, frequently at the end of a grading period. Can predict student performance on end-of-the-year summative assessments.	• Measures a student's achievement at the end of instruction. • Useful for teachers to improve units and lessons • Provide data for teachers, school leaders and district leaders.

Educators and teachers use assessments for a variety of purposes, such as determining achievement levels, assessing strengths and weaknesses, and measuring students' progress. The results of the evaluation can then be used to provide a variety of insights, such as personalizing practice, differentiating instruction, and supporting curriculum requirements.

In education, assessment refers to the process of assessing students' skills, knowledge and competencies in order to measure their learning and achievement of educational goals. As indicated by the Italian Ministry of Education and Merit, valuation therefore accompanies the learning processes and constitutes a stimulus to continuous improvement, in order to finalize the educational paths towards the acquisition of disciplinary, personal and social skills.

It is now known in the scientific literature that there are two main types of assessment: formative assessment and summative assessment. Formative assessment is an ongoing, interactive process that takes place during learning to provide feedback to students. Its primary purpose is to help students improve their performance and achieve learning goals. Formative assessment involves activities such as tests, homework, lab activities, class discussions, etc. Thanks to these tools, teachers can identify students' strengths and weaknesses and provide them with specific feedback to facilitate their development.

On the other hand, summative assessment takes place at the end of a learning period and aims to measure the level of proficiency achieved by students against the set learning objectives. Summative assessment often involves final tests, exams, long-term projects, etc. Its main purpose is to give a mark or an evaluation to establish the degree of learning achieved by students.

Both types of assessment can be linked to key citizenship competences for Lifelong Learning, which are skills and knowledge students need to acquire to be responsible and active citizens in society. For example, it's clear that through formative assessment, students can receive feedback on skills such as communication, teamwork, critical thinking, problem-solving, collaboration, and self-assessment skills. Summative assessment, on the other hand, can measure students' level of competence in these key skills and establish whether they have achieved the best results in terms of citizenship competences.

In general, both formative assessment and summative assessment are important tools for assessing learning and promoting student development, including in relation to key citizenship competences.

In this sense, we agree with the words of Lord Kelvin, engineer and physicist of the XIX century, who said: "What cannot be measured, cannot be improved".

According to recent studies, it is critical for the school to evaluate students effectively for several reasons:

- Orientation: Accurate assessment enables teachers to better understand students' skills, competencies and knowledge. This helps to identify their areas of strength, and weakness and provides focused guidance to further their growth and development.

- Tailoring teaching: Effective assessment provides a clear insight into the individual needs of students. This makes learning more meaningful and effective. Teachers can use this information to personalize teaching, tailoring lessons and activities to meet students' different ways of learning.
- Tracking Progress: Regular assessment provides a way to track student progress throughout the year. Teachers can identify any delays or difficulties and take timely corrective actions. This helps students stay motivated and achieve their learning goals.
- Accountability: Evaluation is also a means of evaluating the overall effectiveness of the education system. Evaluation results can be used to identify areas for improvement and to evaluate the impact of school policies and educational interventions.

Performance-based student assessment

Performance-based assessments are an effective and unbiased way to measure student comprehension levels. Such evaluations enable students to apply their knowledge in practical settings, bridging the gap between theory and practice. Furthermore, performance-based assessments not only deepen students' understanding of the concepts but also foster the necessary abilities to achieve their learning goals.

Here are some additional benefits of performance-based assessments:

Performance-based assessments provide valuable insights into the student's learning journey, enabling teachers to identify areas where students may be struggling. This enables teachers to provide tailored assistance and support to enhance their performance. These assessments also help teachers evaluate the effectiveness of their teaching methodologies and adjust their approach to suit their students' needs.

Performance-based assessments require students to scrutinize information and determine the best approach to tackle given problems. This process enhances students' critical thinking and problem-solving proficiencies, as well as their creativity. Performance-based assessments emphasize the learners' decisions and solutions, encouraging them to think outside the box.

Each student has different learning preferences and strengths, and performance-based assessments celebrate this uniqueness. They allow learners to display their understanding of the concepts in ways that suit their interests and abilities. Additionally, they have more freedom to display their skills, allowing educators to provide tailored instruction according to each learner's abilities.

Collaboration and communication skills are critical in today's job market. Performance-based assessments group students together to find solutions to a problem, each contributing their diverse opinions and perspectives to the effort. When students collaborate, they sharpen their active listening skills and learn how to filter information from different sources to come up with an effective solution.

Effective Assessment Strategies

Teachers typically develop their own formal assessment tasks specific to their subject area, such as projects, assignments, role plays and simulations. To achieve maximum results, teachers should involve students in co-creating assessment tasks, as this allows students to take more responsibility for their learning.

Adequate assessment, without standardization, providing feedback, shapes practical habits of thinking and working on one's own development. It models cooperation, curiosity, creativity, openness to new ideas or the ability to ask questions.

Recognizing the individuality of each child and looking for their potential, should be the main educational challenge as it is the only way to a good education. An effective diagnostic assessment allows the teacher to discover what the students can do, so that later in the learning process he may focus on the students' passions and talents, and also create an optimal learning environment. Thus, getting to know each student and their abilities is the basis of the assessment process. Moreover, it enables the teacher to design a curriculum that focuses on students' interests and thus be effective.

A good teacher maps the needs of his students and sets educational goals and ways to achieve them, i.e. active activities of students, in order to organize the learning process.

The next step of course is the choosing of the assessment methods, one of the most difficult actions to be taken in the educational field as pupils have diverse intellectual and psychophysical abilities and are brought up in various socio-social conditions.

The assessment should motivate the students' effort and determination to learn while indicating to teachers and parents the direction of development of the student's skills.

Educational success, and then life success, is the result of work and commitment, above all willingness and motivation. In selecting an appropriate assessment, consideration is given to these characteristics: **reliability, validity, inclusivity, objectivity and practicality**.

Another important aspect of assessment is assuring that teachers will provide constructive feedback to students because it will result in the consolidation of positive behaviors and the elimination of incorrect ones.

Effective feedback:

- appreciates and shows the good sides of the student's work,
- notes what needs improvement (while indicating the method, and way),
- indicates in which direction the student should work further.

But, teachers and students are just two actors involved in learning. It is also crucial for families to understand student progress throughout the year.

Tools for assessment

There are many tools for assessment, including but not limited to: paper and pencil or computer-friendly formats. However in future classrooms, assessments should not be tests in the traditional sense; rather, assessment should be achieved through student observations or student work portfolios.

If well-designed, standardized and non-standardized assessments play a useful role in ensuring education helping all students achieve high standards.

Below there is a list of assessment tools and techniques along with specific examples and resources.

- **Concept Maps** - Students construct a concept linking map for a specific topic or a core idea. (Note: teachers should provide students with links to free online software.).
- **Oral Presentation** - A form of assessment that challenges students to use the spoken word to express their knowledge and understanding of a topic. This not only assesses the research conducted by students but also gauges a spectrum of cognitive and universal skills.
- **Poster Presentations** - Highly visual, posters are a powerful alternative to text-heavy assessment methods. They require students to think complexly, synthesize and integrate information in a clear and concise way and can foster critical thinking.
- **Peer Review** - provides a structured learning process where students can critique constructively and provide feedback on each other's work. It helps students develop lifelong assessment and feedback skills and equips them with self-assessment and self-improvement skills.
- **Portfolios** - A portfolio can be physical, such as papers, objects, and recorded media, but it can also be electronic: an e-portfolio. A portfolio can be used to assess a wide range of achievements and skills but is recommended as an assessment measure only if the learning outcomes of the course include reflective aspects.
- **Rubrics** - a type of scoring guide that assesses and articulates specific components and expectations for an assignment. Rubrics can be used for a variety of assignments: research papers, group projects, portfolios, and presentations.
- **Reports** - a practical and concise document, written for a specific target audience. Presents and analyzes specific information and evidence applied to a specific issue or problem to make findings or recommendations. Reports can be adapted to any investigative context; as such they can be relevant to any discipline.
- **Other Assessment Types** - include **concept sketches, case studies, seminar-style courses, mathematical thinking and performance assessments.**

The use of technology to collect and analyze student assessment data

In the world of teaching, understanding how well our students are learning is crucial. We've always relied on various methods like tests, assignments, and class observations to figure this out. But in recent years, technology has come to our aid, changing the way we gather and make sense of student assessment data.

The integration of technology in education has redefined the way educators collect and analyze student assessment data, offering a wide range of tools and platforms to streamline the process. This analysis explores the influence of technology on student assessment, highlighting key examples of tools and websites, their practical applications, and the numerous advantages they bring to the education sector.

- I. Online Assessment Platforms:

Examples: Google Forms, Quizlet, Kahoot, Mentimeter

Advantages:

Efficiency: Online assessment platforms automate the grading process, saving educators valuable time.

Immediate Feedback: Students receive instant feedback, fostering a deeper understanding of their performance.

Data Tracking: Educators can track student progress over time, identifying areas that require additional attention.

Use: Teachers can create custom quizzes and surveys tailored to specific subject matter.

These platforms automatically collect and organize student responses.

Analysis of data helps educators identify strengths and weaknesses in student knowledge, allowing for targeted interventions.

- II. Learning Management Systems (LMS):

Examples: Moodle, Blackboard, Canvas, Flipgrid

Advantages:

Centralization: LMS platforms serve as centralized hubs for course materials, assessments, and student progress tracking.

Flexibility: Educators can design assessments, assign tasks, and manage grades within one platform.

Collaboration: LMS facilitates communication and collaboration between students and teachers through discussion forums and assignment submissions.

Use: Educators can organize course content, create assignments, and administer assessments within the LMS.

The gradebook feature allows for the recording and analysis of student performance.

Communication tools enhance student engagement and facilitate interaction between educators and learners.

- IIII. Data Analytics and Learning Analytics:

Examples: Tableau, Power BI.

Advantages:

Data-Driven Decision-Making: Analytics tools empower educators to make informed decisions by visualizing assessment data.

Trend Identification: Educators can identify trends and patterns in student performance over time.

Personalization: Learning analytics inform personalized teaching strategies that cater to individual learning needs.

Use: Assessment data can be imported into data visualization tools for analysis.

Interactive dashboards can be created to explore and interpret the data effectively.

Insights gained from analytics can be applied to adapt teaching methods and resources, improving the learning experience.

- IV. Formative Assessment Tools:

Examples: Nearpod, Edpuzzle, Literably

Advantages:

Real-Time Assessment: These tools offer immediate feedback, allowing educators to adjust their teaching in real time.

Engagement: Interactive elements keep students engaged during lessons.

Progress Monitoring: Educators can track student understanding as the lesson progresses.

Use: Educators can create interactive presentations or videos with embedded quizzes.

Monitoring student responses helps educators adjust the lesson plan as needed.

Data from these tools identifies areas where students may need additional support.

- V. AI-Powered Assessment Tools:

Examples: Turnitin, ProctorU.

Advantages:

Plagiarism Detection: AI-powered tools maintain academic integrity by detecting plagiarism.

Efficiency: They automatically identify potential issues, reducing the need for manual review.

Data Insights: These tools provide insights into students' writing and exam performance.

Use: AI-powered assessment tools can be seamlessly integrated into the assessment process.

Educators can educate students on the importance of academic integrity.

The data generated by these tools can be used to refine assessment strategies and promote a culture of academic honesty.

- VI. Personalized Learning Platforms:

Examples: Khan Academy, Duolingo.

Advantages:

Individualized Learning: These platforms adapt assessments and content based on each student's performance.

Efficiency: Targeted resources save time and provide a more effective learning experience.

Engagement: Personalization increases student engagement and motivation.

Use: Encourage students to use personalized learning platforms outside of class.

Monitor student progress and use platform data to inform teaching strategies.

Provide additional support for struggling students based on platform recommendations.

- VII. Digital Portfolios:

Examples: Padlet, Google Sites, Seesaw

Advantages:

Holistic Assessment: Digital portfolios allow students to showcase their skills, knowledge, and growth over time through multimedia artifacts.

Reflection: Students can reflect on their learning experiences, demonstrating metacognitive skills.

Long-Term Growth: Portfolios provide a record of a student's educational journey, aiding in long-term development assessment.

Applying to students' interests and autonomy: Digital portfolios support personalized learning by allowing students to tailor their portfolios to their interests and strengths. They can choose the projects and achievements that best represent their learning journey.

Use: Students can compile and curate their work, including essays, projects, presentations, and videos, in digital portfolios.

Educators can review these portfolios to gain a holistic view of student performance and progress.

- VIII. Escape Rooms for Assessment:

Examples: Genially, Google Forms, Breakout EDU, Teachers Pay Teachers

Advantages:

Engagement: Escape rooms make assessment fun and engaging, encouraging active participation.

Critical Thinking: They test problem-solving, teamwork, and critical thinking skills in an interactive context.

Real-World Application: Escape rooms simulate real-world scenarios, allowing for practical assessment of skills.

Use: Educators can design escape rooms related to the subject matter, requiring students to solve puzzles and complete tasks.

Assessment occurs as students work together to escape within a set time frame, showcasing their abilities.

- IX. Collaborative Assessment Tools:

Examples: Jamboard, Padlet.

Advantages:

Collaborative Learning: These tools promote collaboration among students, encouraging them to work together on assessments.

Creative Expression: Students can use multimedia elements to express their ideas and understanding.

Diverse Assessment Formats: Educators can create diverse assessment formats, including group projects and interactive boards.

Use: Design collaborative assignments where students contribute to Jamboard or Padlet boards.

Assess teamwork, creativity, and critical thinking through group activities.

Evaluate contributions and discussions within the collaborative space to gauge individual and group understanding.

- X.Technology-enhanced peer assessment:

Examples: Peergrade, Canvas Peer Review, Blackboard Peer Assessment, Google Docs

Advantages:

Enhanced efficiency: The integration of technology streamlines the assessment process, making it more efficient and accessible.

Standardization: Digital platforms enable standardized assessment criteria, ensuring fairness and consistency.

Active engagement: Features like comment sections foster constructive dialogue among students.

Development of evaluation skills: Technology-driven peer assessment helps students refine their critical evaluation skills.

Use: Students can provide feedback and evaluate peers' work from anywhere. Digital platforms provide a centralized hub for submitting, reviewing, and discussing assignments. Moreover, technology allows for instant feedback, aiding in immediate learning and improvement and ensuring fairness and objectivity in evaluations.

- XI. Badges, Rewards, and Leaderboards:

Examples: Canva, Online Badge Generator, Google Slide

Advantages:

Motivation: Gamification elements like badges, rewards, and leaderboards motivate students to actively participate in assessments.

Recognition: Badges and rewards acknowledge students' achievements and progress, boosting their self-esteem.

Competitiveness: Leaderboards foster healthy competition among students, encouraging them to excel.

Use: Assign badges or rewards for completing specific assessment milestones or achieving learning objectives. Create leaderboards that display top-performing students, promoting engagement and competition. Recognize and celebrate student accomplishments during assessments, enhancing the learning experience.

Future Classroom Learning Scenarios

Having established the purpose of a Future Classroom, its design, and learning spaces, it's now time to delve into creating effective learning scenarios, or lesson plans.

Effective learning scenarios are essential in a Future Classroom as they provide a framework for meaningful engagement and learning. When creating learning scenarios, it's important to consider the learning objectives, the students' needs, and the resources available. The scenarios should be designed to be interactive, collaborative, and engaging to stimulate critical thinking and creativity. To achieve this, teachers can incorporate a variety of tools and technologies such as multimedia, simulations, virtual and augmented reality, and gamification. The scenarios should also be flexible and adaptable to accommodate different learning styles and abilities. By creating effective learning scenarios, teachers can empower their students to become active learners, problem-solvers, and lifelong learners who are equipped with the necessary skills to succeed in the 21st century.

Exploring Technology Resources for Enhanced Student Learning

Teachers have access to an ever-growing range of digital tools and resources to improve their students' learning experiences as a result of the rapid advancement of technology. Technology has the power to completely transform education by making it more interesting, individualized, and accessible. Examples of this include interactive websites, instructional apps, virtual simulations, and online tests. In order to better serve students, this article will examine the process of identifying, locating, and assessing technological resources that teachers can successfully include into their lesson plans.

- Identification of Technology Resources:

Finding out your students' needs and learning goals is the first step in making good use of digital tools. Take into account the subjects you teach, the age range of your pupils, and each person's unique learning preferences. You can next begin looking through pertinent technology resources based on these characteristics.

Educational Platforms: These websites are extensive and provide a vast array of materials for different disciplines and grade levels. The popular website Khan Academy offers interactive exercises and free video courses in a variety of subjects, including physics, math, and history. Coursera for Schools is another well-liked choice; it provides classes on a variety of subjects from major colleges.

Value of Educational Platforms

Accessibility: A global audience can access top-notch educational content through sites like Coursera for Schools and Khan Academy. They increase access to education by removing financial and geographic barriers.

Variety of Subjects: Numerous subjects are available on these platforms, ranging from science and math to the arts and humanities. Because of this diversity, students can investigate and grow their interests in a range of fields.

Customization: A plethora of educational platforms provide customized learning opportunities. Students can customize their education to meet their unique needs by selecting the subjects, pace, and degree of difficulty.

Interactive Learning: They frequently contain interactive tests, tasks, and quizzes that improve comprehension and engagement. Interactive components can improve the effectiveness and enjoyment of learning.

Cost-Effective: Khan Academy and other similar platforms offer many resources for free. While Coursera has both free and paid courses, the paid options are usually more affordable than traditional college courses.

- Examples:

Khan Academy: A huge collection of interactive activities and video lectures covering a variety of areas, including physics, math, history, and more, are available on Khan Academy. As a free resource for grades K–12 and beyond, it is frequently utilized by instructors and students.
https://www.khanacademy.org/

Coursera for Schools: Coursera offers a wide range of online courses from top universities and institutions. It provides educators with resources to enhance their teaching and offers students opportunities to access high-quality courses that can be integrated into their curriculum.
https://www.coursera.org/collections/courses-for-high-school-students

Duolingo: Duolingo is a language learning platform that gamifies the language learning process. It's accessible to learners of all ages and offers courses in numerous languages.
https://en.duolingo.com/

Codecademy: Codecademy is a platform that focuses on teaching coding and programming skills through interactive exercises and projects. It's a valuable resource for those looking to develop technical skills.

Subject-Specific Websites: For specialized content, consider using subject-specific websites. National Geographic Kids, for instance, offers interactive learning resources related to geography, science, and nature. Similarly, BBC Bitesize provides educational materials for core subjects such as English, math, and science.
https://www.bbc.co.uk/bitesize https://kids.nationalgeographic.com/

Educational Apps: Mobile apps can provide a more personalized and interactive learning experience for students. Apps like Duolingo for language learning, Quizlet for flashcards and study aids, and Photomath for math problem-solving can be valuable additions to the classroom.
https://photomath.com/en
Open Educational Resources (OER): OER are freely accessible educational materials that can be shared, reused, and modified. Websites like OER Commons and Curriki house a vast collection of resources, including textbooks, lesson plans, and multimedia content.
Virtual Field Trips: Take students on virtual field trips to museums, historical sites, and even outer space! Google Arts & Culture and Virtual Field Trips offer immersive experiences that can enhance students' understanding and curiosity.
https://virtualfieldtrips.org/
Technology resources can significantly enrich the learning experience for students, offering diverse and interactive opportunities for educational growth. By identifying the right resources, locating them through reputable channels, and evaluating their suitability, educators can effectively integrate technology into their teaching practices. However, it is crucial to remember that technology should complement, not replace, traditional teaching methods, and a thoughtful, balanced approach is essential to ensure the best outcomes for students.
Embrace technology as a powerful tool in your educational arsenal, and witness the positive impact it can have on student engagement, understanding, and achievement!

Pythagora's theorem - Learning Scenario

TOPIC: Mathematics
GRADE: 7-8
APPROACH: Game-based Learning, Collaborative Learning, Investigation
DURATION: 120 min

Summary: This lesson plan is designed for students in grades 8-10 to learn about Pythagoras theorem through a variety of activities. The lesson involves a warm-up activity using a game, collaborative work to discuss the definition of Pythagoras theorem, investigation work where students use rulers and measuring tapes to calculate the hypotenuse of real-world objects, practice work using ICT with an online calculator, producing work where students create posters that showcase the application of Pythagoras theorem in real-world situations, discussion, presentations, and assessment and feedback. The lesson aims to develop students' problem-solving and critical thinking skills, as well as their understanding and application of Pythagoras theorem in real-world situations. Overall, the lesson encourages hands-on learning and collaboration among peers.

Learning Objectives, Skills and competencies:

Learning Objectives:

- Understand the concept of Pythagoras theorem
- Apply Pythagoras theorem to real-world situations
- Develop problem-solving and critical thinking skills

Skills:

- Research and investigation skills
- Problem-solving and critical thinking skills
- Collaboration and teamwork skills
- ICT skills
- Communication and presentation skills

Competencies:

- Scientific literacy
- Mathematical literacy
- Digital literacy
- Critical thinking
- Communication and presentation

Learners' role:

The learners will be involved in a range of activities in this Pythagoras theorem lesson plan, including a warm-up game, collaborative discussions, outdoor investigations, online calculator practice, producing posters, class discussions, and presentations. These activities aim to engage students in hands-on learning and encourage collaboration among peers. The activities also develop problem-solving, critical thinking, and communication skills, as well as mathematical and scientific literacy. The lesson is designed to involve learners in a variety of activities that help them to understand and apply Pythagoras theorem in real-world situations.

Tools and Resources

- Rulers and measuring tapes
- Chart paper
- Markers
- Post-its
- Laptops, tablets, or smartphones with internet access
- Online Pythagoras calculator
- Projector (optional)
- Copies of the student handout.

Learning space

- Classroom
- Outdoor environments

The warm-up activity, collaborative work, producing work, and presentations will take place in the classroom, while the investigation work will take place outdoors. The outdoor environment will provide students with the opportunity to measure the sides of buildings, trees, and other objects to apply Pythagoras theorem in real-world situations. This setting will allow students to see how the theorem works in practice, and to gain a deeper understanding of its application. The different learning settings aim to make the lesson plan engaging and interactive, and to facilitate student learning and understanding of Pythagoras theorem in real-world contexts.

Future Classroom Scenario Description

This lesson plan is focused on teaching students about Pythagoras theorem, which is a fundamental concept in mathematics. The lesson involves a range of activities, including a warm-up game, collaborative discussions, outdoor investigations, online calculator practice, producing posters, class discussions, and presentations. The activities aim to engage students in hands-on learning and encourage collaboration among peers. The resources and technologies used in the lesson plan include rulers and measuring tapes, chart paper, markers, laptops, tablets, or smartphones with internet access, and an online Pythagoras calculator. The learning will take place in both the classroom and outdoor environments, providing students with the opportunity to see how the theorem works in practice. The lesson aims to develop students' problem-solving, critical thinking, and communication skills, as well as their understanding and application of Pythagoras theorem in real-world situations.

Learning Activities

Warm-up activity

Introduce a game about Pythagoras theorem where students have to solve puzzles using the theorem.
Divide students into small groups and provide them with the game. You may use the classic wooden (plastic) Pythagoras game, one made out of cardboard (see handout) or play this version online:
https://radufromfinland.com/projects/pythagoraspuzzle/
Ask students to reflect on the game and share their experiences with the class.

Collaborative work

Divide students into small groups of 3-4 and ask them to discuss the definition of Pythagoras theorem.
Provide each group with chart paper and markers to write down their findings.

Investigation work

The teacher will provide each student with a worksheet containing a set of problems to solve. The problems will involve measuring the lengths of two sides of a right-angled triangle and using the Pythagoras theorem to calculate the length of the third side.
Students will be required to find objects around the school or local area that they can measure to complete the problems on their worksheet.
These could include the length of the diagonal of a classroom, the height of a flagpole, or the distance between two points on a map.
Once students have completed their measurements, they will need to use the Pythagoras theorem to calculate the length of the missing side. This activity promotes critical thinking and problem-solving skills as students will need to apply the Pythagoras theorem correctly to arrive at the correct answer.
At the end of the investigation work, students will share their findings with the class, explaining how they measured the sides and solved the problem using the Pythagoras theorem.

Practice work:

Provide students with laptops, tablets, or smartphones to use an online Pythagoras calculator.
Ask students to solve a few problems using the calculator and write down their answers.
Have students check their answers with their peers and discuss any discrepancies.

Producing work

Ask students to work in pairs and create a poster that showcases the application of Pythagoras theorem in real-world situations.
Provide each pair with chart paper, markers, and post-its.
Have students present their posters to the class.

Discussion

Facilitate a class discussion on the application of Pythagoras theorem in the real world.
Ask students to share their experiences and what they learned during the investigation and producing work.

Presentations

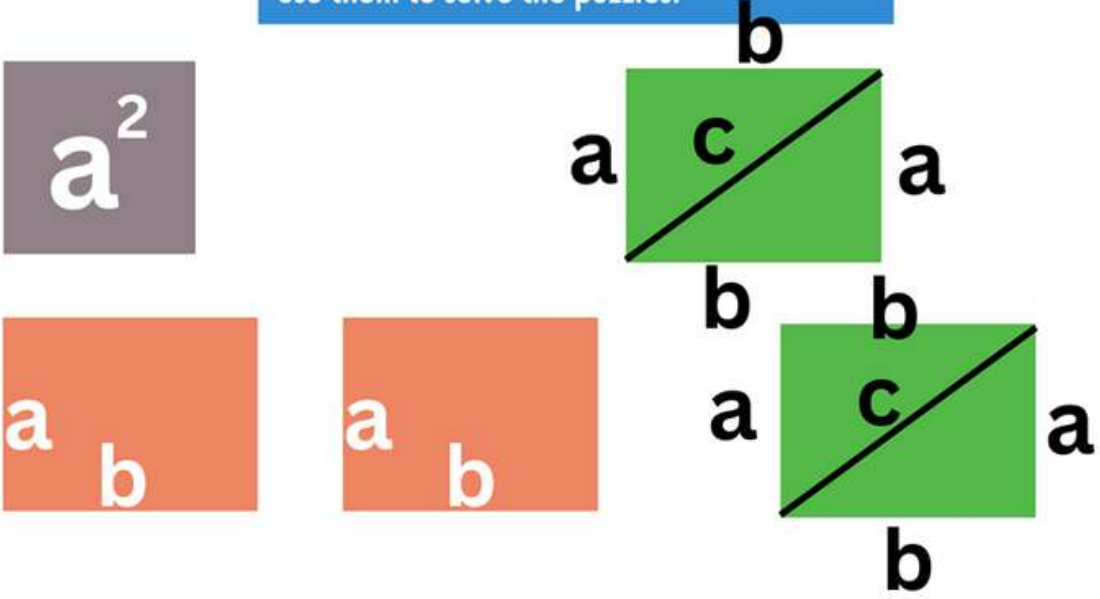
Ask each pair to present their poster to the class and explain how they applied Pythagoras theorem.

Assessment and feedback

Use a rubric to assess each pair's work based on accuracy, creativity, and presentation skills.
Provide feedback to students on their work and what they can improve for next time.

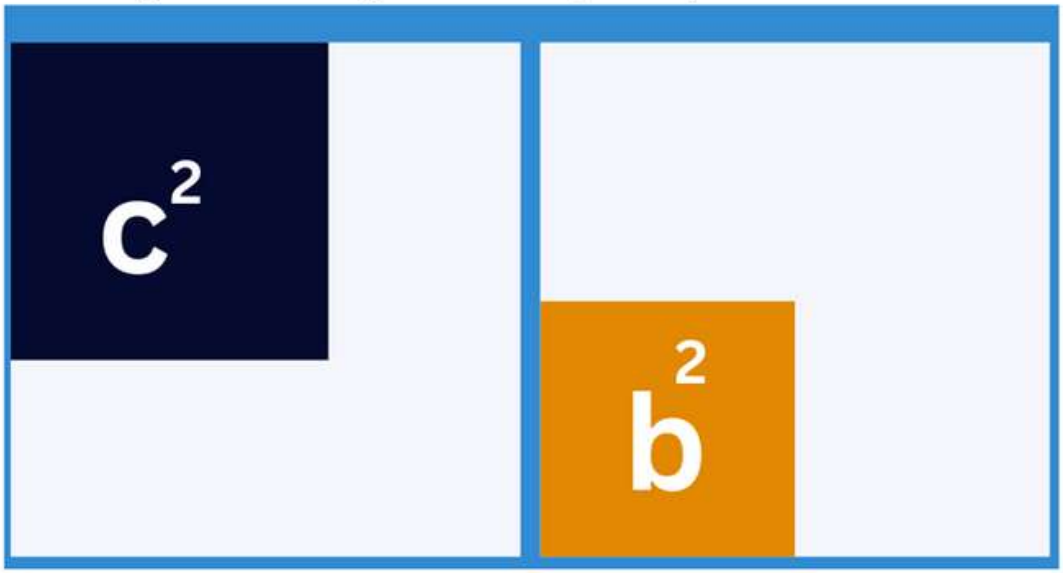
Pythagoras Theorem

Cut the following geometrical figures and use them to solve the puzzles.



Puzzle

Place the geometrical figures so that you may cover the entire area.



Pythagoras Theorem

Choose 3 tasks to solve in the school yard.
Write your findings in the boxes bellow.

1. A ladder is leaning against a wall. The bottom of the ladder is 6 meters from the wall and the ladder makes an angle of 45 degrees with the ground. How long is the ladder?
2. A rectangular field is 20 meters long and 15 meters wide. What is the distance between the two diagonal corners of the field?
3. A flagpole is 10 meters tall. The base of the flagpole is 8 meters from a wall. What is the distance between the top of the flagpole and the wall?
4. The base of a ladder is placed 3 meters from a wall. If the ladder is 5 meters long, how far up the wall does it reach?
5. A rectangular field measures 12 meters by 16 meters. What is the distance between the two corners that are not adjacent?
6. A street sign is mounted on top of a pole that is 5 meters tall. If the sign is attached 2 meters from the top of the pole, how far from the bottom of the pole is the sign attached?

Solutions

Use the space bellow to solve your tasks.

Thanksgiving -Learning Scenario

TOPIC: Thanksgiving
GRADE: 8th (A2/B1)
APPROACH: transdisciplinary, collaborative, project-based learning, technology-based learning, multiply intelligences approach
DURATION: 45 min

Summary: The main trend used in this lesson is based on project based learning with a transdisciplinary approach. The scenario refers to students' multiply intelligences and combines English language learning, critical thinking, cultural knowledge and cooperative work. Above all, the activities of the lesson develop students' IT skills through the use of the Internet, VR glasses, laptops and educational applications.
During the lesson the students get to know the facts/symbols/food and the story of Thanksgiving. Moreover, the students are allowed to perform chosen tasks on the topic of Thanksgiving applying to different learning styles. As a result, the student plays the centered role and the lesson develops learner's autonomy and multiply intelligences.
At the end of the lesson students will know the most important facts on Thanksgiving, they will be able to answer 'Thanksgiving quiz' questions successfully and present the final productive work among the others.

Learning Objectives, Skills and competencies:

- Students will be able to independently search for and select information in various sources of knowledge (authentic materials) using modern technologies.
- They will develop their language skills (listening, reading, writing, speaking).
- Students will deepen their knowledge about Thanksgiving- they will know basic facts about Thanksgiving history and its purpose; they will be able to identify typical food connected with Thanksgiving.
- As a result of a group work, students will develop the ability to formulate statements correctly and logically in the atmosphere of mutual respect.
- Students will be able to combine knowledge and skills from different fields to achieve the goal.
- Students will have the opportunity to foster their cognitive curiosity, creativity, imagination and autonomy in learning.
- The activities of the lesson will implement students in the project work.

Learners' role:

Methods: working with a computer, using the Internet and its resources:

- Reading comprehension tasks - searching for information, filling in gaps.
- Listening comprehension task based on the video - close and open questions, arranging information in order.
- Speaking/communication practice - discussion (sharing an opinion, giving justification, brainstorming).

- Writing practice- writing a short diary from Mayflower journey / designing a Thanksgiving comic / creating a Thanksgiving crossword / designing a Thanksgiving menu.
- Vocabulary practice: matching, filling in gaps.
- Taking part in a virtual tour with the use of VR glasses.
- Taking part in an interactive quiz.
- Presentation of the students' works (a short diary from Mayflower journey / a Thanksgiving comic / a Thanksgiving crossword / Thanksgiving menu).

Tools and Resources

10 tablets with QR code scanner (depends on the number of students), projector, an interactive board, headphones for each student, VR glasses, 3/4 laptops or computers.

Learning space

A room equipped with the necessary IT equipment large enough to ensure that students can work comfortably.

Future Classroom Scenario Description

At the beginning of the lesson, students will be divided into three/four groups of 3 people in each group. Each group will be given a workstation with a computer and 3 tablets and access to the network where they will perform tasks. The tasks are presented on the 'Thanksgiving choice board' and given to groups. Each group must complete 3 tasks in a row (the central square is obligatory for everyone).
The purpose of the tasks is to improve language skills (listening and reading comprehension, writing and communication skills, consolidating and expanding lexical set), deepening the knowledge about Thanksgiving as well as using students' IT skills in practice. In addition, students acquire the ability to work and cooperate in a group and develop their learning autonomy.
After completing the tasks the students take part in a Thanksgiving quiz based on presented material.

Learning Activities

Warm-up activity

IAt the beginning of the lesson the teacher displays the picture of a funny turkey https://pixabay.com/vectors/turkey-animal-pie-tongue-feathers-1456198/ and asks the students to guess the topic of the lesson. After the students' right answer ('Thanksgiving') students take part in an online brainstorming on the topic of 'Thanksgiving' by writing their ideas at AnswerGarden app
e.g. https://answergarden.ch/576847
The students see and compare their associations on a display.

Collaborative work

Students work in established teams throughout the lesson.
The students in groups discuss which tasks they would like to choose and decide together.
In the final stage of the lesson, each group presents the effects of their work.

Investigation work

The students are divided into three groups by random name picker on the interactive board(https://pickerwheel.com/tools/random-team-generator)
Each group is given a tablet with the Thanksgiving Choice board and instructions.
Thanksgiving Choice Board
After completing 3 chosen tasks and before the end of the lesson students check their knowledge in an interactive 'Thanksgiving quiz'.
*Fast finishers can complete additional tasks.

Practice work:

Students perform 3 chosen tasks at the Thanksgiving Choice Board (the central square is obligatory for everyone):

- Watch Thanksgiving story - students watch a video about the most important Thanksgiving facts . While watching they answer the questions and complete the information based on the material.
- Learn Thanksgiving food - students match the pictures of typical Thanksgiving food with their names.
- Read and complete - students read the text about Thanksgiving and filling in the gaps with the words given.
- Explore the Mayflower VR route - students take a virtual tour of Mayflower with a recorded guide. The use of VR glasses will make students feel as if they are onboard.
- Discuss what are you thankful for - students discuss and share their opinion in groups and after that they use a voice recorder to record their ideas.
- Create Thanksgiving comic - students use the app to create a comic referring to Thanksgiving history, traditions, food, celebrations etc.
- Create Thanksgiving crossword - students use the app to create a crossword with the use of Thanksgiving vocabulary.
- Write a travel journal from the Pilgrims journey - students write a short diary based on the Pilgrims' journey (e.g. 4-5 days).
- Design Thanksgiving menu - students use the app to design a menu with typical Thanksgiving food.
- Students take part in the interactive quiz to find out how much they learnt during the lesson.

Producing work

The students are supposed to perform one of the mentioned tasks according to their choice/preference:

- a travel journal from Pilgrims' journey
- a Thanksgiving comic
- a Thanksgiving crossword
- a Thanksgiving menu

Discussion

The teacher discusses each exercise with the students making sure they know how to perform a certain exercise.

Presentations

The students will present the written product (a comic/a crossword /a diary/ a menu) on the forum.

Assessment and feedback

The evaluation will be carried out in two ways.
Firstly, at the end of the lesson students will check their knowledge in an online 'Thanksgiving quiz' from Kahoot as a form of a summary and competition in groups.
Secondly, the students' works will be discussed together with a teacher.The students will be asked to share their opinions on the lesson and the most enjoyable parts by completing a short evaluation survey:
https://docs.google.com/forms/d/e/1FAIpQLSc1js_TVD9y4ezNnrA4nxAIDizKji26SW2UzYKYfnTKIsgaOw/viewform?usp=sf_link

MEDITERRANEAN DIET -Learning Scenario

TOPIC: Mediterranean Diet
GRADE: Lower Secondary School
APPROACH: Cooperative Learning, Laboratory Teaching, Peer Education.
DURATION: 3 weeks

Summary: This class is planned by providing laboratory activities using the school's multimedia classroom. The main topics of this lesson are presented to students through educational films and multimedia presentation.
The students will work together using teaching methods such as Cooperative Learning and Peer Education to produce a multimedia digital work.
The aim of this class is to give to the student all the tools he needs to think about the lab's experience and what he learned about the lesson's topics, as well as develop problem solving skills in carrying out activities and in reworking the topics learned.
The topic of the lesson involves different disciplines such as science and technology, in an interdisciplinary perspective.

Learning Objectives, Skills and competencies:

Skills and Competencies: according to the frame of reference of digital citiziens' skills - DigComp2.1:

• Information and data literacy (Surfing, researching and to filter data, informations and digital contents – To predict informations and digital contents – To mange informations and digital contents)
• Comunication and co-working (To interact throught digital technologies – to share informations throught digital technologies – to exercise citizenship throught digital technologies – To co-work throught digital technologies).
• Digital content creation (Developing digital content - integrate and rework digital content).
• Problem solving (To solve technical issues - Individuate technical needs and answers- Creative using of digital technologies - Identifying digital skills gaps).

Learning Objectives:

• Read and analyze texts or tables or labels to reach the informations on foods available on the market, in order to express evaluations and inspire useful behaviors to protect the environment. Know the correct eating habits, correcting the wrong ones;
• To be able to selct the haltier foods and proportions to avoid the damages of a wrong diet;
• Use problem solving skills by direct observation;
• Cooperate in order to protect the environment.

Learners' role:

According to the teaching methods used (Cooperative Learning, laboratory teaching, active search and Peer Education) the pupil is at the centre of the building of his own knowledge, producing a digital work using the school's multimedial classroom and a 3D graphics program.

Tools and Resources

In particular, the following will be exploited as technological resources:

- Multimedial classroom
- Digital Board 3.0
- Computer
- 3D graphics programs (Paint3D or 3D Builder)
- graphics programs (Google Presentazioni and Canva)
- Virtual classroom (Google Classroom on Google spacework)

Learning space

The activity is introduced to the pupils by the teachers using the classroom's Digital Board, then the pupils work in the multimedia classroom.

Future Classroom Scenario Description

The teacher introduces the educational path through a direct approach to the topic. It motivates students by reading texts on the subject and by watching educational films and videos, also stimulating the student's curiosity towards the proposed activities. Through practical activities, however, the student becomes aware of the importance of the subject matter.

Now we move on to the realization of the digital work, exploiting the pupil's digital knowledge. Students are divided into 4 small groups: a group has the task of creating a summary video to expose the reflections on the learning experience on the subject matter; the other 3 groups realize, in co-working, a 3D multimedia work that concretely represents all the theoretical concepts previously discussed.

Learning Activities

Warm-up activity

The teacher introduces, according to the food technologies studied before, nutrition education. Referring to the 17 Sustainable Development Goals of the 2030 Agenda, it's asked to the students to reflect on the proper use that of the words "education" and "nutrition", and the topics related to this words.

The teacher then, supported by educational videos and a multimedia presentation, argues on the concept of the "balanced diet", highlighting the link between the latter and human health, and the need for a healthy and balanced "lifestyle" (diet).

At this point the class is invited to reflect on the individual contribution that each one can make to improve their lifestyle.

This activity will be carried out in one hour.

Collaborative work

Students are divided into 4 small groups and collaborate to carry out the task assigned by the teacher, trying to internalize learning; The students identified as tutors also guide students in difficulty to achieve the tasks.
This activity will be carried out in one hour.

Investigation work

Students research information on the "Mediterranean Diet" using the Digital Book supplied, and in the school's library, then they research on the web the information requested by the teacher:

• What is the correct diet in adolescence?
• What is the structure and characteristics of the food pyramid?
• What is the Mediterranean diet and what are the characteristic foods of it?

Practice work:

The pupils divided into small groups, carry out a multimedia project using the information obtained from the research after analyzing them.
With the guidance and coordination of the teacher, the groups confront each other, highlighting the different choices made.

Producing work

The students divided into small groups work on the multimedia work assigned to the multimedia computer classroom of the school. The assignments are as follows:

- Make a summary educational video on the "Mediterranean Diet", representing the main characteristics of the diet itself, using the scheme provided by the food pyramid;
- Create a "3D Food Pyramid of the Mediterranean Diet" by inserting images and text appropriately selected and researched.

This activity will be carried out in 2 hours per week for a total of 4 hours.

Discussion

Pupils make decisions independently and discuss the choices made, correcting any mistakes and research again on the subject matter.

Presentations

The students, in small groups, communicate to teachers and classmates, on the basis of the knowledge learned, attitudes, their interests and work projects, the chosen study method and the work done. They reflect on the laboratory experience carried out and reflect critically by formulating hypotheses and judgments on the problems of the subject matter.

Assessment and feedback

Finally, the work of the individual groups is evaluated using a suitably prepared evaluation rubric. Feedback is given to students, based on the final result and the entire path of choices undertaken to achieve it.

A VIRTUAL TRIP TO LONDON -Learning Scenario

TOPIC: A virtual trip to London
GRADE: 6th
APPROACH: transdisciplinary, collaborative and project based lesson and technology
DURATION: 90 min

Summary: The main trend used in this lesson is based on project based learning with a transdisciplinary approach. The subject combines English language learning, critical thinking, cultural knowledge and cooperative work. Above all, the activities of the lesson develop students' IT skills through the use of the Internet, VR glasses, 3D printer, tablets, interactive whiteboard and educational applications. During the lesson the students participate in a virtual tour round London. They perform different tasks at 6 learning stations in 3 teams. As a result, they are able to perform the final productive work and present it among the others

Learning Objectives, Skills and competencies:

- Students will be able to independently search for and select information in various sources of knowledge (authentic materials) using modern technologies.
- They will develop the ability to write useful texts on a given topic (e-mail) and communicate in typical everyday situations.
- Students will deepen their knowledge of London - they will be able to identify , name and briefly characterize selected monuments and places of interest in London.
- As a result of group work, students will develop the ability to formulate statements correctly and logically in the atmosphere of mutual respect
- Students will be able to combine knowledge and skills from different fields to achieve the goal.
- Students will have the opportunity to foster their cognitive curiosity,

The activities of the lesson will involve students in the project work.

Learners' role:

Methods: working with a computer and interactive whiteboard, using the Internet:

- Reading comprehension tasks - searching for information, asking and answering questions based on the text, taking part in an interactive quiz,
- Listening comprehension tasks - arranging information in order, labeling a picture,
- Speaking/communication practice - asking for information (buying a ticket, shopping for souvenirs, getting around a city - directions),
- Writing practice- writing an email with a description of the chosen place in London, sending greetings,

- Watching cultural films and taking a virtual tour with the use of VR glasses - marking places on the map, completing gaps in sentences,
- Designing and 3D printing a souvenir from London,
- Presentation of the students' work: QR badges and the reply email to other teams.

Tools and Resources

- 3 tablets, an interactive board, VR glasses,
- 3 laptops or 3 computers, 3D printer

Learning space

A room equipped with the necessary IT equipment large enough to ensure that students can work comfortably and move freely.

Future Classroom Scenario Description

At the beginning of the lesson, students will be divided into three groups of 3 - 4 people in each group. Each group will be given a tablet on which they will perform tasks. The tasks will be on 5 learning stations and will include instructions hidden in QR codes. Each group must complete all tasks. For completing each task, the groups will receive virtual badges as confirmation of completion of the exercises. The purpose of the tasks is to improve language skills (listening and reading comprehension, writing and communication skills, consolidating and expanding lexical set), deepening the knowledge of London as well asusing students' IT skills in practice. In addition, students acquire the ability to work and cooperate in a group.

Learning Activities

Warm-up activity

At the beginning of the lesson the teacher presents the topic and the main aims of the lesson. The students are going to become tourists and learn about amazing places in London. The warm - up activity is a memory game with the most popular symbols of London. (flippity memory game https://www.flippity.net/mg.php?k=13CAsmTPAYKZqzkFbPTTLsNcfmST3ncpTJbKgZsNPUVg)

Collaborative work

Students work in established teams throughout the lesson. In the final stage of the lesson, there is interaction between all 3 groups through virtual written contact.

Investigation work

1.The students will be divided into three groups by random name picker on the interactive board.
https://www.flippity.net/RandomNamePicker.htm
2. Each group is given a tablet with instructions. After completing each task the students will earn a badge which will be hidden in a code QR.

Practice work:

Students perform tasks at each station:

- A rainy guided tour Station - Students listen to a tour guide and put names of landmarks and places in the order they appear in the recording.
- London transport Station - Students have to translate the given travel-related expressions and questions, and then find the answers on http://projectbritain.com/london/index.htm
- London Virtual Tour Station - Students take a virtual tour of London with a recorded guide. The use of VR glasses will make students feel as if they are actually in London. After taking this short trip, students must mark the places they learned on a virtual map
- Landmarks Station - Students will learn in detail about selected London landmarks described on http://projectbritain.com/london/index.htm
- Then they take part in the interactive quiz to find out how much they learnt
- Shops and markets Station - Students watch a video showing the most famous stores and markets in London. Then they complete the dialogue - ask questions and complete the information based on the material they watched. After completing this task, they receive a badge and the opportunity to print a 3D-printed souvenir of their choice from London.

Producing work

The students are supposed to write an email to other groups with the description of the most amazing landmark visited during the virtual trip. The other groups are expected to guess the name of the place and find an image of it on the Internet. Then they send the image with greetings as a reply email.

Discussion

The teacher discusses each exercise with the students making sure they know how to perform a certain exercise.

Presentations

The students will present the image with greetings which they have sent to other groups. They will also confirm the completion of all the tasks by showing their badges. The final part of the presentation will be the souvenirs 3D-printed.

Assessment and feedback

The evaluation will be carried out on the basis of the attached evaluation tools. Before starting the lesson the starting level of the individual competences that are the goal of the project will be established for each student and the level of expectations. Upon completion of the project, students' knowledge and skills gains will be tested in terms of individual STEAM components and the attractiveness of the project.

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