



SMART Lessons & SMART Evaluation Meter



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Designing a Smart Lesson

The approach (join skill to apps) can be used for any subject because the same competence can be nurtured from different angles:

- When preparing a smart lesson, it is important to reflect on the competencies that will be enhanced by the student at the end of the lesson.
- Working on the same skill sets via multiple angles/disciplines is conducive to the concept of unity of knowledge.



1. Template for Designing a Smart Lesson

2. Describe the main data of the lesson

Describe the main data of a smart lesson: Title, Subject, Specific topic, Main target, Duration, Context, School/Author.

Main Data of Your SMART Lesson	
Title:	
Subject:	
Specific topic:	
Main target:	
Duration:	
Context:	
School/Author:	

Figure 1. Table with the main data of a SMART Lesson on Moodle

3. Define learning outcomes (aimed key competences)

Specify the technical competences, digital and lifelong learning competences which will be developed by your SMART Lesson.

4. Survey tools Digital Competence for Lifelong Learning

Key competences

The European Commission works with EU Member States to support and reinforce the development of key competences and basic skills for all, from an early age and throughout life. Key competences include knowledge, skills, and attitudes needed by all for personal fulfillment and development, employability, social inclusion and active citizenship.

The approach is to promote key competences by...

- Providing high-quality education, training and lifelong learning for all.
- Supporting educational staff in implementing competence-based teaching and learning approaches.
- Encouraging a variety of learning approaches and contexts for continued learning.
- Exploring approaches to assess and validate key competences.

What is being done

The Council has adopted a Recommendation on Key Competences for Lifelong Learning based on a Commission proposal. The Recommendation identifies eight key competences needed for personal fulfilment, a healthy and sustainable lifestyle, employability, active citizenship and social inclusion:

- Literacy
- Multilingualism
- Numerical, scientific and engineering skills
- Digital and technology-based competences
- Interpersonal skills, and the ability to adopt new competences
- Active citizenship
- Entrepreneurship
- Cultural awareness and expression

The Council Recommendation provides a common European reference framework on key competences for policymakers, education and training providers, social partners and learners themselves. It also presents successful ways to promote competence development through innovative learning approaches, assessment methods and support for educational staff.

Access the resources!

Resources

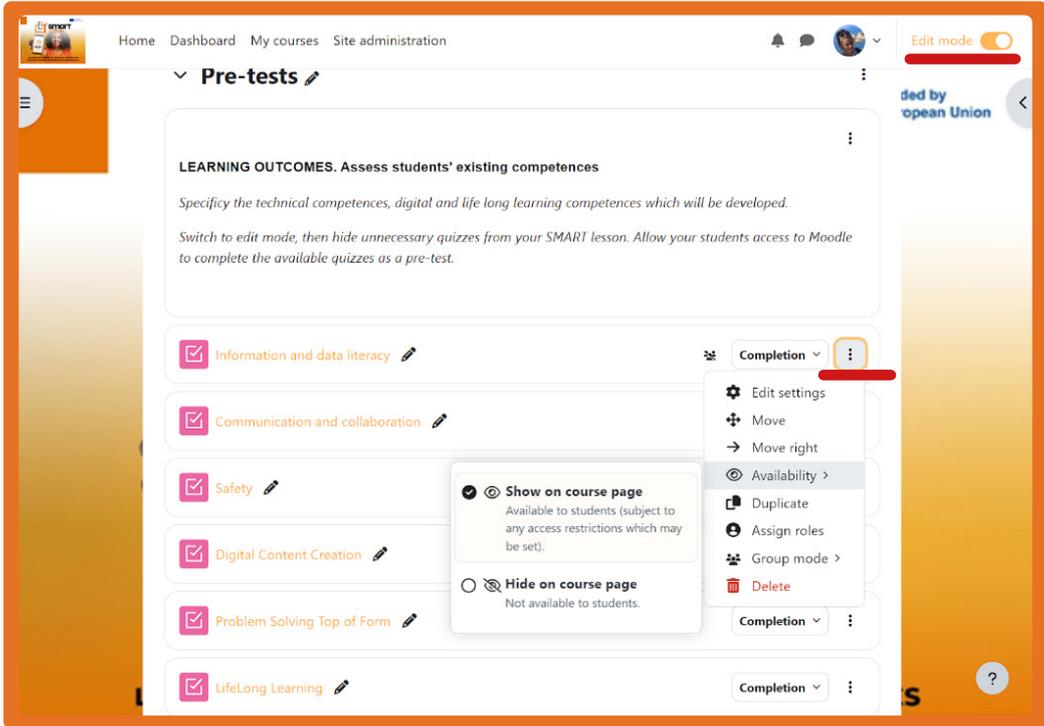
<https://education.ec.europa.eu/focus-topics/improving-quality/key-competences>

https://eur-lex.europa.eu/legal-content/EN/TXT/?toc=OJ:C:2018:189:TOC&uri=uriserv:OJ.C_.2018.189.01.0001.01.ENG

5. Apply PRE-TEST

Assess students' existing competences. Specify the technical competences, digital and lifelong learning competences which will be developed. Allow your students access to Moodle to complete the available survey tools/ quizzes as a pre-test.

- Information and data literacy Survey / Quiz
- Communication and collaboration Survey / Quiz
- Safety Survey / Quiz
- Digital Content Creation Survey / Quiz
- Problem Solving Top of Form Survey / Quiz
- LifeLong Learning Survey / Quiz



The screenshot shows a Moodle course page titled "Pre-tests". The page is in "Edit mode", as indicated by the toggle switch in the top right corner. The main content area contains a section titled "LEARNING OUTCOMES. Assess students' existing competences" with a description: "Specify the technical competences, digital and life long learning competences which will be developed." Below this, there is a list of pre-tests, each with a checkbox and an edit icon. The pre-tests are: "Information and data literacy", "Communication and collaboration", "Safety", "Digital Content Creation", "Problem Solving Top of Form", and "LifeLong Learning". A context menu is open over the "Information and data literacy" pre-test, showing options: "Edit settings", "Move", "Move right", "Availability >", "Duplicate", "Assign roles", "Group mode >", and "Delete". The "Availability >" option is selected, and a sub-menu is visible with two options: "Show on course page" (checked) and "Hide on course page" (unchecked). The "Show on course page" option has a description: "Available to students (subject to any access restrictions which may be set)." The "Hide on course page" option has a description: "Not available to students." The "Completion" dropdown menu is also visible for each pre-test.

Figure 2. Switch to edit mode, then hide on the course page (from "Availability") unnecessary quizzes from your SMART lesson.

Lifelong learning questionnaires

1. On a scale of 1 to 5, how would you rate the effectiveness of the smart lesson in enhancing your life-long learning competences?
 1 (Not effective at all) 2 (Slightly effective) 3 (Moderately effective) 4 (Very effective) 5 (Extremely effective)
2. Which specific aspects of the smart lesson contributed most to your development of life-long learning competences? (Select up to three)
 Clarity of instructions Interactive activities Relevance of content Other (please specify) Reflection
 Use of multimedia Opportunities for reflection
3. Did the smart lesson encourage you to explore new learning opportunities outside of the classroom?
 Yes No Not sure
4. How well do you think the smart lesson prepared you to apply the acquired competences in real-life situations?
 Very well Moderately well Not very well Not at all
5. Which life-long learning competences do you feel you've developed the most as a result of the smart lesson?
 Critical thinking Problem-solving Creativity Collaboration Adaptability Communication
 Other (please specify)
6. Did the smart lesson increase your motivation to engage in self-directed learning activities?
 Yes, significantly Yes, somewhat No, not really No, not at all
7. How likely are you to apply the skills and knowledge gained from the smart lesson to your future learning endeavors?
 Very likely Somewhat likely Neutral Not very likely Not likely at all
8. Did the smart lesson foster a sense of curiosity and inquiry in you towards learning new things?
 Yes, strongly Yes, to some extent No, not really No, not at all
9. In your opinion, how well did the smart lesson cater to different learning styles and preferences?
 Very well Moderately well Not very well Not at all
10. How satisfied are you overall with the smart lesson's contribution to your life-long learning journey?
 Very satisfied Somewhat satisfied Not very Neutral Somewhat dissatisfied
 Very dissatisfied
11. Would you recommend similar smart lessons focused on life-long learning competences to your peers?
 Yes, definitely Yes, maybe No, probably not No, definitely not



6. Digital Competence questionnaire

• Information and Data Literacy

1. How confident do you feel in searching for information online for your school assignments?
 Very confident Confident Not very confident
2. How confident do you feel in searching for information online for your school assignments?
 Always Sometimes Rarely
3. Do you feel equipped to discern between reliable and unreliable information found online?
 Yes, definitely Somewhat No, not at all
4. How often do you encounter challenges in interpreting data or statistics presented in articles or reports?
 Frequently Occasionally Rarely
5. Are you comfortable using digital tools or software to organize and analyse data for your school projects?
 Very comfortable Comfortable Not comfortable

• Communication and Collaboration

1. How often do you collaborate with classmates or peers on digital projects or assignments?
 Frequently Occasionally Rarely
2. Which digital communication tools do you use most often to collaborate with others? (Select all that apply)
 Email Messaging apps (e.g., WhatsApp, Messenger) Video conferencing platforms (e.g., Zoom, Google Meet)
 Social media platforms (e.g., Facebook, Instagram) Online collaborative tools (e.g., Google Drive, Microsoft Teams) Other (please specify)
3. On a scale of 1 to 5, how comfortable are you with using digital tools for communication and collaboration? (1 being not comfortable at all, 5 being very comfortable)
 1 2 3 4 5
4. What challenges do you face when collaborating with others digitally? (Select all that apply)
 Difficulty in coordinating schedules Technical issues with digital tools Miscommunication or misunderstanding
 Lack of clear roles or responsibilities Other (please specify)
5. Would you be interested in participating in workshops or training sessions focused on improving your digital communication and collaboration skills?
 Yes, definitely Maybe No

• Digital Content Creation

1. How often do you create digital content (e.g., presentations, videos, graphics) for school assignments?
 Frequently Occasionally Rarely
2. What digital tools or software do you use most often for creating content?
 Presentation software (e.g., PowerPoint, Google Slides) Video editing software (e.g., iMovie, Adobe Premiere)
 Graphic design software (e.g., Canva, Adobe Photoshop) Other (please specify)
3. How confident do you feel in citing and crediting sources when using digital content created by others?
 Very confident Confident Not very confident
4. Have you received any instruction or guidance on digital content creation and copyright laws?
 Yes No
5. Would you be interested in learning more about digital content creation and copyright laws?
 Yes, definitely Maybe No

• Safety

1. How often do you encounter potential risks or threats while using digital devices or the internet?
 Frequently Occasionally Rarely
2. Which online safety measures do you currently implement? (Select all that apply)
 Use of strong passwords Avoidance of sharing personal information online Use of antivirus software
 Regular updates of software and apps Other (please specify)
3. How comfortable do you feel navigating privacy settings on social media platforms and other online accounts?
 Very comfortable Comfortable Not very comfortable
4. Have you ever experienced cyberbullying or harassment online?
 Yes No
5. Would you be interested in learning more about online safety practices and strategies?
 Yes, definitely Maybe No

• Problem Solving Top of Form

1. How often do you encounter digital problems or challenges while using technology for school or personal purposes?

Frequently

Occasionally

Rarely

2. When faced with a digital problem, what is your typical approach to solving it?

Try different solutions until one works

Ask for help from friends or family

Look for online tutorials or guides

Seek assistance from teachers or other adults

Other (please specify)

3. How confident do you feel in your ability to troubleshoot and solve digital issues independently?

Very confident

Somewhat confident

Not very confident

4. What digital tools or resources do you find most helpful when solving problems?

Search engines (e.g., Google)

Online forums or communities

Educational websites or platforms

Software or apps designed for problem-solving

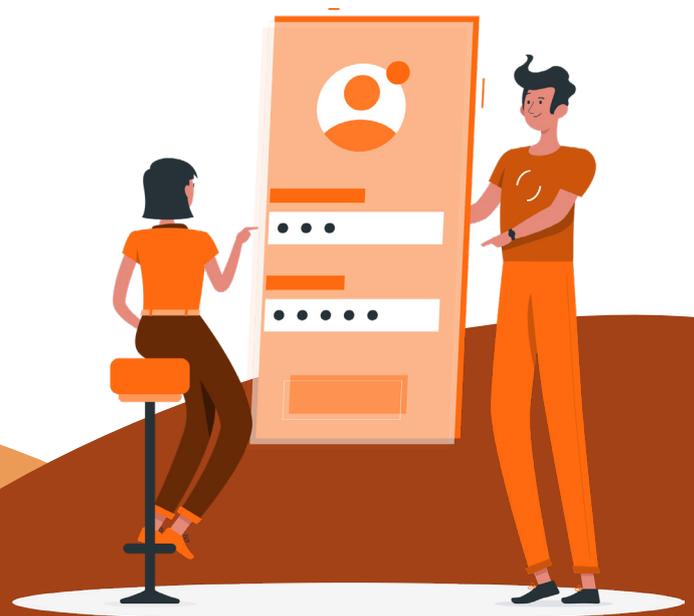
Other (please specify)

5. Would you be interested in participating in workshops or training sessions focused on improving your digital problem-solving skills?

Yes, definitely

Maybe

No



7. Digital Competence questionnaire

Describe your selected applied apps and their corresponding skills/competences in your Smart Lesson or browse the "Digital Tools Library" on Moodle and find useful applications with their descriptions and then make your selections for your SMART Lessons and the corresponding aimed competences. You can also make your own contribution on Digital Tools Library by describing a digital tool.

8. Design of the Smart Lesson in 4 steps

Step 1 · Introduction to the digital task

<p>Step 1 – eTASK Introduction to the digital task</p>	<p><i>(Introduction to the topic, explanation of the different learning outcomes, general introduction to the activities to be carried out: this is a brief introduction to present the topic and the activities to the students)</i></p> <ul style="list-style-type: none">• Topic Introduction: A brief introduction to the subject matter, emphasizing the importance of digital skills.• Learning Outcomes Explanation: Explain how using these apps will contribute to achieving the specified learning outcomes.○ Activity Overview: Outline the main activities, including research, organization, and assessment tasks.
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Step 2 · Digital execution of the task

<p>Step 2 – eEXECUTION Digital execution of the task</p>	<p><i>(Execution of the task, description of the tasks/subtasks that will be carried out with the help of the apps/digital technology)</i></p> <ul style="list-style-type: none">○ Individual Research and Learning: Students use the educational resource app to learn about a specific topic and take notes.○ Task Organization: Using the project management tool, students plan and organize their learning activities and timelines.○ At-Home Execution: Encourage students to engage in these tasks at home, promoting a comfortable and self-paced learning environment.
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Step 3 · Digital correction of the task

<p>Step 3 – eCORRECTION Digital correction of the task</p>	<p><i>(Describe the different options: self-correction, digital correction with the teacher and with the classroom)</i></p> <ul style="list-style-type: none">• Self-Correction: Students use digital tools (like grammar checkers or fact-checking websites) to review their work.• Teacher Feedback: Teachers provide feedback digitally, focusing on content comprehension and digital skill application.○ Classroom Interaction: Incorporate opportunities for students to share their work with peers digitally, encouraging collaborative learning and peer assessment)
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Step 4 · Evaluation of the digital task

Step 4 – eASSESSMENT
Evaluation of the digital task

(describe how to measure the achievement of the learning outcomes, evaluate the lesson with regard to the 3 different learning outcomes, optimize the lesson - **Please, propose some examples of questions for each of the 3 levels**)

- **Measuring Learning Outcomes:** assess if the 3 different types of competences (technical, digital, life-long learning have been achieved)
- **Evaluating Lesson Effectiveness:** assess how effectively the lesson facilitated and improved the learning experience of students.
 - **Optimization for Future Lessons:** Gather student feedback to refine and enhance future digital lessons.
 - *How confident the students feel in using mobile devices/apps in the classroom and in self-study?*

9. Post tests: Reassess your students' competences

Enable your students to complete the available survey questionnaires/ quizzes as a post-test. Remember, the pre- and post-tests should be the same

- Information and data literacy Survey / Quiz
- Communication and collaboration Survey / Quiz
- Safety Survey / Quiz
- Digital Content Creation Survey / Quiz
- Problem Solving Top of Form Survey / Quiz
- LifeLong Learning Survey / Quiz

The screenshot shows a 'Post-tests' section with a list of quizzes. The 'Communication and collaboration' quiz is highlighted in grey, indicating it is hidden from students. A context menu is open over this quiz, showing various actions: Edit settings, Move, Move right, Availability, Duplicate, Assign roles, Group mode, and Delete. Other quizzes listed include Information and data literacy, Safety, Digital Content Creation, Problem Solving Top of Form, and LifeLong Learning.

Figure 3 Switch to edit mode, then hide unnecessary quizzes from your SMART lesson.

Smart Evaluation Meter

1. The main goal of the Smart Evaluation Meter

The outcomes we will produce should leverage the power of technology to measure what matters and use assessment data to improve learning.

2. Smart Evaluation Meter: method of deployment

- Mobile app, or web app, website
- Central point of access
- Collect, analyse and present data
- On-time feedback
- Help find the appropriate assessment tool connected with the outcomes

3. Integrate Smart Lessons and Smart Evaluation Meter

- Integration can be done effectively using a Learning Management System
- Have a selected set of tools in one place
- Select the assessment tools
- Easy access from any device (requires only a browser)
- Learning Analytics

4. Digital Assessment in Smart Lessons

E-assessment, or electronic assessment, refers to the process of evaluating students' knowledge, understanding, and skills using digital tools and technologies. Unlike traditional pen-and-paper assessments, e-assessment leverages computers, the internet, and specialized software to administer, score, and analyse assessments. This approach encompasses various types of assessments, including quizzes, exams, assignments, and performance evaluations, conducted entirely or partially online.

E-assessment can be provided through specific applications or by learning management systems and is becoming a daily necessity in the education process.

Technology makes assessment smooth and ubiquitous, as it becomes an integral part of any learning activity. Nevertheless, it should be remembered that technology is not a value in itself, and is only important in the process of learning and assessment if it is used to achieve pedagogical goals.

Undoubtedly, the educator has an important role in providing the conditions for e-assessment. The educator is the one who provides quality questions and support for achievement, as well as explaining the assessment process. Important conditions provided by the educator are detecting plagiarism and ensuring fairness. Recalling the importance of feedback, the educator should provide useful feedback.

Characteristics of digital assessment

E-assessment is described as an innovative and powerful tool in education. This can be explained by society's focus on technological development and digital transformation.

The main characteristics of digital assessment:

- Efficiency, Flexibility, and Convenience
- Increased Accessibility
- Automation and Efficiency
- Integration of Multimedia Elements
- Enhanced Data Analysis

Tools for learning digital material development and assessment

A variety of tools exist often with overlapping utilities and properties. Some require fees. Not all of them can be integrated to the Learning Management System. Existing description and information is varied and not compatible with the goals of smart lessons. There is a need to set a classification scheme to solve the above problems.

Classification of best practice software/modes for assessment

LMS (Learning Management System)

- **Google Classroom:** An online platform for managing assignments, communication, and collaboration.
- **Schoology:** Another LMS used for course management.
- **Moodle:** A popular open-source LMS.
- **Microsoft Teams:** Collaboration and communication platform integrated with Microsoft Office 365.
- **Livresq.com**
- **Graasp.eu**
- **Canvas**
- **Edmodo**

Self Assessment

- **Socrative:** Interactive assessment tool for quizzes, polls, and exit tickets.
- **Quizizz:** Self-paced quiz platform.
- **Wordwall:** Create interactive word games and quizzes.
- **TopWorksheets**
- **Edpuzzle**
- **Kahoot**
- **Pear Deck**
- **Nearpod**
- **EduLastic**
- **PlayPosit**
- **Flipgrid**
- **ClassFlow**
- **GoClass**
- **Formative**



Audience Response System

- **Socrative:** Also used as an audience response system.
- **Kahoot:** Engage learners with interactive quizzes.
- **Quizizz**
- **TopWorksheets**
- **Wordwall**

Collaborative Tools

- **Google Documents:** Collaborative text document creation.
- **Google Spreadsheets:** Collaborative data analysis.
- **Google Slides:** Presentation software.
- **Wikis:** Collaborative platforms for creating and editing content.

Apps / Custom Apps

- **Magnetometer (Mobile App):** Possibly used for measuring magnetic fields.
- **Smarty App:** Specific purpose not provided.
- **Phyphox:** Mobile app for physics experiments using smartphone sensors.
- **Smart Box:** Details not provided.
- **Physics toolbox suite**

H5P tools

- | | | |
|-----------------------|----------------------------|---------------------------|
| • Interactive Video | • Question Set | • Chart |
| • Course Presentation | • Multiple Choice question | • Dictation |
| • Branching Scenario | • Memory Game | • Essay |
| • Drag and Drop | • Agamotto | • Image Slider |
| • Dialog Cards | • Documentation Tool | • Summary |
| • Virtual Tour (360) | • Fill in the Blanks | • Collage |
| • Accordion | • True/False | • Impressive Presentation |
| • Image Hotspots | • Image Sequencing | • Guess the Answer |
| • Flashcards | • Column | • Image Pairing |
| • Drag the Words | • Arithmetic Quiz | • Single Choice Set |
| • Timeline | • Mark the Words | • Crossword Labs |

Other Tools

- **Livresq.com:** Assessment tool or service.
- **TopWorksheets**
- **Smarty App**
- **Edpuzzle:** Platform for creating interactive video lessons.
- **Graasp.eu**
- **Canva:** Graphic design tool.
- **Pear Deck, Nearpod:** Interactive presentation tools
- **EduLastic, PlayPosit:** Assessment and interactive learning platforms.
- **Flipgrid, ClassFlow, GoClass, Formative:** Additional tools for various purposes.

5. Template for describing digital tools

Summary

- Important features.
- How is it accessed?
- Is it for the classroom or self-study or both?
- Does it provide feedback to the students/teacher?
- Does it have different modes of use?

Tags

- Important terms
- i.e. all devices
- Self-study
- Classroom
- Feedback

What is xxxx?

- What can the students and the teacher can do with xxxx?
- What other tool/tools is/are similar to xxxx?
- How students access xxxx and how the teacher prepares the material?
- Can it give instant feedback to the students and the teacher?
- With which LMS systems can we integrate the tool?
- Can we export the data and analyse it with a spreadsheet?
- Does it have a repository of material?

Ease of Use & Access

- For students/teachers.
- From different devices.
- Anonymity of students.

Is xxxx free?

- How much staff the free version allows (i.e. 10 quizzes, 20 students...)

How to use xxxx

Detailed instructions with screenshots: how you create an account, which material you can develop, create material, how do you deliver the content to the students, how do you get the feedback, how do you export the feedback, how do you integrate the tool to Moodle or other LMS.



LEARNING PATHS BASED ON THE USE OF SMARTPHONES AND THEIR POTENTIAL TO DEVELOP

STUDENTS' KEY SKILLS



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