Alice's adventures in Wonderland escape room
Lesson plan

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Short description:
Students will be able to use block-based programming to develop an interactive game that integrates storytelling and design elements.

Educational level: Middle school and above

Subjects: STEAM, Social sciences, ELA,

Format: Individual or in groups

Assignment duration: approx. 4 hours

Introduction:

This lesson guides students in creating a virtual escape room inspired by Alice in Wonderland using Delightex Edu. It integrates block-based programming, game design, and storytelling. Teachers will find guidelines, step-by-step instructions, and organizational tips. The activity fosters logic, problem-solving, creativity, and digital skills in a customizable, playful context.

Curriculum standards:

DigComp 2.2 – European Framework for Digital Competence
- Area 2 – Communication and Collaboration: collaborating through digital technologies.
- Area 3 – Digital Content Creation: developing digital content, programming.
- Area 5 – Problem Solving: solving technical problems, innovating with digital tools.

UNESCO ICT Competency Framework for Teachers
- Knowledge Creation: development of innovative and creative learning environments.
- Technology Literacy: use of digital tools for problem solving.

National Curriculum Guidelines (Italy)
- Digital and technological competences: ability to use digital tools to create original products.
- Citizenship competences: collaborating, communicating, and participating in group projects.
- Mathematics and logic: strengthening problem-solving skills and computational thinking.

Learning goals:

- Learn the basics of block-based programming
- Develop computational thinking and debugging skills
- Enhance logical reasoning and problem-solving abilities
- Integrate storytelling and interactive design
- Improve design and game design skills
- Promote collaboration through role-based teamwork

Lesson structure: (for the teacher)

1. Project Introduction

Explain to students what an escape room is: an interactive game where participants solve puzzles to reach a final goal. Introduce the chosen theme (e.g., Alice in Wonderland) and discuss the class's expectations and objectives.

2. Collective Brainstorming

Lead a guided discussion using questions such as:

- *What puzzles could we include?*
- *Which objects from the story could become clues?*
- *What emotions do we want the players to feel?*

Record the ideas on the board or in a shared document.

3. Getting started on Delightex Edu

Show students how to:

- Create a new Project and select a 3D environment;
- Insert and rename key objects (doors, books, characters);
- Set the game objective (e.g., collect 4 blue mushrooms to "escape").

4. Puzzle Creation

- Explain how to make objects interactive:
- When clicked, a puzzle or clue appears;
- If the answer is correct, a reward object appears (e.g., a blue mushroom);
- If the answer is wrong, a help message appears.

5. Block-Based Programming

- Guide students in using CoBlocks:
- Create variables (funghiRaccolti=collectedMushrooms),
- Set conditions (if/else),
- Trigger events (on click).

6. Closure and Reward

Define the exit condition: when all puzzles are solved and the objects collected, the game ends. Plan a motivating finale (message, badge, book opening).

7. Testing and Review

Have other groups play the escape room. Encourage students to fix bugs, simplify texts, and improve the visibility and clarity of puzzles.

Evaluation suggestions:

Practical tips for teachers to assess students' work during the creation of an escape room in Delightex Edu:

1. Observe the process, not just the final product.
- Evaluate how students organize roles and collaborate.
- Note whether they use problem-solving strategies when facing difficulties.
- Check their ability to debug and explain their choices.

2. Use a rubric (with clear criteria).

Consider levels such as *Basic – Intermediate – Advanced – Excellent* based on:
- **Technical functionality**: Does the programming work? Are there bugs?
- **Creativity and storytelling**: Are the puzzles and story coherent and original?
- **Game design**: Is the difficulty level balanced and engaging?
- **Collaboration**: Were roles respected? Was there active listening?
- **Documentation**: Were storyboards, variables, and logic clearly described?

3. Include self-assessment and peer review.
- Ask students to complete a short self-reflection sheet: What did they learn? What would they do differently?
- Organize a peer review: each group plays another team's escape room and gives feedback on clarity, difficulty, and fun.

**4. Value transversal competences as well.**
- **Creativity**: Original ideas, personalization of the theme.
- **Computational thinking**: Effective use of variables, conditions, sequential logic.
- **Communication**: Ability to present the Project and explain choices made.

Extension ideas:

- **Escape with multiple scenes:** Instead of a single room, create several connected environments (e.g., White Rabbit's Forest → Mad Hatter's Tea Room → Queen of Hearts' Garden). Players progress from one scene to another only by solving key puzzles.
- **Interdisciplinary puzzles:** Include challenges in math, logic, science, or foreign languages to make the escape room a multidisciplinary lab.
- **Multiple endings:** Plan for more than one possible outcome, for example a "full victory" ending if all objects are collected, or an "alternative" ending if only part of the path is completed.

Assignment steps: (for the student)

Duration: 4 hours
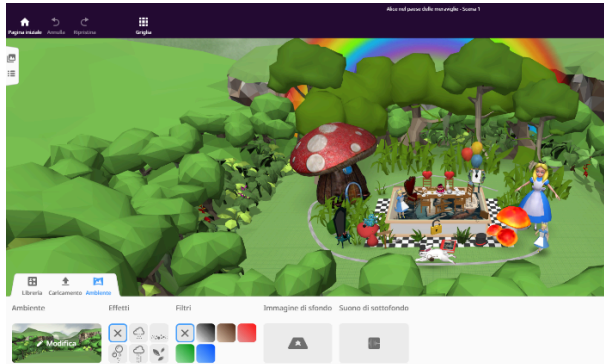
1.   Environment Construction.
Open Delightex Edu, create a blank 3D space, and name the Project. Start building the environment by selecting 3D objects from the library (or import from external libraries if needed). Define the final goal explicitly: in our example, the player must collect four blue mushrooms to escape. Set up the scene to represent a moment from the story; arranging the assets so that they are clear and navigable. Insert the key objects that will contain puzzles (mushrooms, mouse, teapot…).

2. Micro-storyline and onboarding
Immediately connect the goal to the micro-storyline: the Caterpillar welcomes the player, explains the objective, and provides the first instructions. This ensures consistency in the choice of objects, clues, and progression conditions.

3. Puzzle Design
For each interactive object, define purpose, puzzle text, possible answers, solutions, and feedback (message/effect). Keep one single concept per puzzle and link it to the world of Alice (e.g., Alice's clue, "magic food" mushrooms).
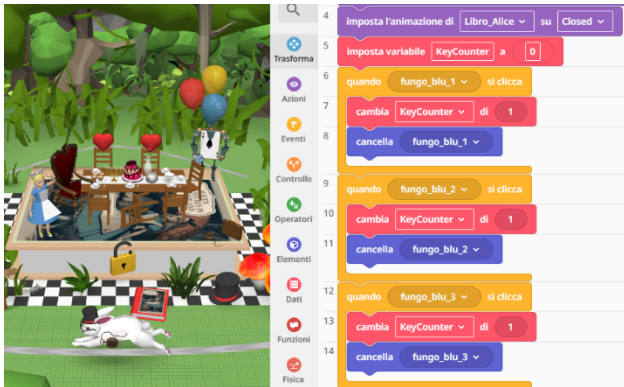
4. Block-Based Programming
Event: On clicking the object, display the puzzle.
Condition: If the answer is correct, show a blue mushroom and make it collectible; if incorrect, provide a progressive hint.
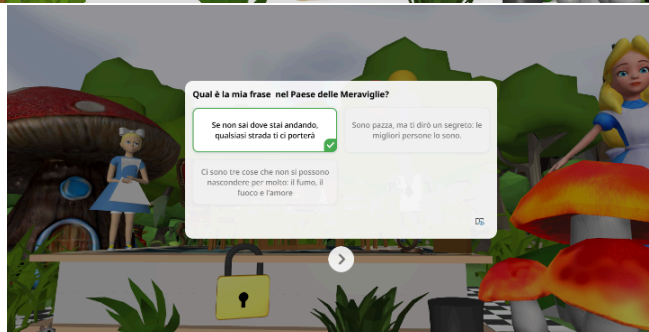
5. How the mushroom collection script works

The variable KeyCounter starts at 0. Each mushroom clicked increases the variable by 1 and is removed from the scene.

When KeyCounter = 4, it means that all mushrooms have been collected.

At this point, a final action can be triggered, such as opening a lock that makes Alice's book appear along with a victory message.

6. Ending and Reward

Design a clear ending for the game, such as a badge, a victory message, a score, or, as in our example, opening the book so the unlocked story can be read.

Example in Delightex Edu

Alice's adventures in Wonderland
https://edu.delightex.com/JGK-GPK