Digital Innovation and Sustainability: Collodi Primary School's Journey in the Erasmus+ Project

From computational thinking to virtual reality: an educational experience for digital literacy and inclusion.

The **Collodi Primary School** actively participated in the Erasmus+ project "Technology Understanding and Sustainability" through a series of educational activities aimed at developing digital skills and increasing awareness of sustainability. This journey enabled students to acquire new technological competencies, develop computational thinking, and understand the role of technology in environmental sustainability. Below is a detailed overview of the main initiatives undertaken.

Digital Skills and Achieved Objectives

1. Coding and Computational Thinking

- **Coding Unplugged (March 2022)**:

  Fourth and fifth-grade students developed logic and problem-solving skills through programming without digital devices. Using **Scotty Go** (link), they learned to move on a chessboard and later applied their knowledge in an online game. Additionally, with

the educational games **CodyFeet** (link) and **CodyRoby** (link), they internalized the basics of coding.

- **Coding with Scratch**:

  Introduction to basic programming concepts through the creation of simple animations and games.

- **Programming with Micro:Bits**: Use of Micro:Bit boards for hands-on coding experiments and automation.

- **Scratch Coding Game for First-Grade Students (November 2023)**: Students from the 1st grades with the help of their teacher built a grid-based game, enhancing their spatial awareness. They developed a Christmas-themed story featuring a reindeer and an elf, incorporating sounds, timers, and scores, thus exploring the concept of digital interaction.

2. 3D Design and Printing

This activity was carried out in collaboration with the secondary school technology teacher as part of an educational continuity project.

Students used **SugarCAD** (link) and **Tinkercad** (link) software to create eco-sustainable objects, combining creativity and technology.

3. Digital Tools and Virtual Reality

- **Exploration with Virtual Reality**:

  Fourth-grade students used **NK Virtual Reality Glasses** and the **Google Maps** app to virtually explore their dream destinations, broadening their understanding of the world through technology.

- **Use of Educational Apps**:

  Students experimented with various software and digital platforms to enhance learning across different subjects.

- **Machine Learning for Italian Grammar (January 2024)**: First-grade students used machine learning tools to create personalized exercises, improving their grasp of Italian grammar.

- **Temperature Monitoring with Micro:Bits**: Third and fourth-grade students programmed **Micro:Bits** to collect and analyze external temperature data, applying coding to real-world scenarios.

4. Digital Inclusion

Fifth-grade students explored the opportunities offered by ICT for supporting students with special educational needs. Tools such as **Lions Spoken Book** and **Teach 4All** were used to promote inclusive learning, ensuring accessibility and personalized educational resources.

5. Robotics and LEGO Programming

- **LEGO Programming and Robotics (April 2024)**: Third and fourth-grade students experimented with robotic programming using **Mytiny Robot**, programming movements and interactions with **Scratch**.

Conclusion

Through these activities, students acquired advanced digital skills, learning to use technology in a conscious and creative way. The project fostered an **active approach to learning, promoting problem-solving, collaboration, and environmental sustainability through technology**. These advancements demonstrate how digital literacy can become a bridge to innovation and inclusion in the school of the future.