



School Practice Evidence FORM

Title (Titolo)*

STEM TrA.I.I-O: Precision Orienteering Enhanced with Artificial Intelligence and 3D Printing

Description (Descrizione) massimo 500 caratteri

The “STEM TrA.I.I-O” project, developed at I.C. Gamerra in Pisa, combines digital learning with outdoor education. Guided by an interdisciplinary team of teachers, students designed and implemented a *Trail-Orienteering* activity integrating Artificial Intelligence (Plantnet), 3D modelling and printing, digital cartography, and nature-based learning. The experience fostered STEM skills, collaboration, environmental awareness, and problem solving within an authentic and inclusive learning environment.

Keywords (Parole chiave) massimo 3

STEM, Orienteering, AI

Language (Lingua)

Italian

STEM School label criteria addressed (Criteri etichetta scuola STEM rispettati)

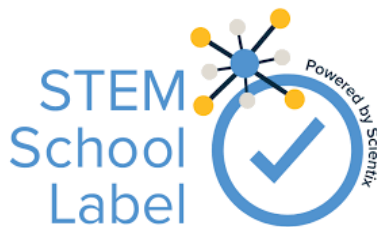
- Personalisation of learning (Personalizzazione dell'apprendimento)
- Problem and project (Progetto) based learning (PBL) (Apprendimento basato su problemi e progetti)
- Inquiry Based Science Education (IBSE) (Educazione scientifica basata sull'indagine)
- Emphasis on STEM topics and competencies (Enfasi su temi e competenze STEM)
- Interdisciplinary instruction (Istruzione interdisciplinare)
- Contextualization of STEM teaching (Contestualizzazione dell'insegnamento STEM)
- Continuous assessment (Valutazione continua)
- Personalised assessment (Valutazione personalizzata)
- Access to technology and equipment (Accesso a tecnologia e attrezzature)
- High quality instruction classroom materials (Materiali didattici di alta qualità)
- School Leadership (Leadership scolastica)
- High level of cooperation among staff (Alto livello di cooperazione tra il personale)
- Inclusive culture (Cultura inclusiva)
- With industry (Con l'industria)



- With parents/guardians (Con genitori/tutori)
- With other schools and/or educational platforms (Con altre scuole e/o piattaforme educative)
- With universities and/or research centers (Con università e/o centri di ricerca)
- With local communities (Con comunità locali)
- Highly qualified professionals (Professionisti altamente qualificati)
- Existence of supporting pedagogical staff (Esistenza di personale pedagogico di supporto)
- Professional development (Sviluppo professionale)

Document type (Tipo di documento)

- App (App/WebApp)
- Application (Applicazione/Software)
- assessment (Valutazione)
- audio (Audio)
- bookmark sharing platform (Piattaforma condivisione segnalibri)
- broadcast (Trasmissione)
- case study (Studio di caso)
- course (Corso)
- data (Dati)
- demonstration (Dimostrazione)
- drill and practice (Esercizi e pratica)
- education game (Gioco educativo)
- enquiry-oriented activity (Attività orientata all'indagine)
- experiment (Esperimento)
- exploration (Esplorazione)
- glossary (Glossario)
- guide (Guida)
- image (Immagine)
- image (Immagine) sharing platform
- learning resource (Risorsa didattica)
- lesson plan (Piano di lezione)
- open activity (Attività aperta)
- other (Altro)
- presentation (Presentazione)
- project (Progetto)
- reference (Riferimento)
- reference sharing platform (Riferimento piattaforma di condivisione)
- role play (Role play)
- simulation (Simulazione)
- social media (Social media)



- sound sharing platform (Piattaforma condivisione audio)
- text (Testo)
- textbook (Libro di testo)
- tool (Strumento)
- video (Video)
- video (Video) sharing platform
- weblog (Blog)
- website (Sito web)
- wiki (Wiki: sito collaborativo, modificabile liberamente)

Difficulties encountered (Difficoltà incontrate) massimo 500 caratteri

The main challenges involved map orientation during the outdoor activity and the botanical identification of plants using AI-based apps. These issues were addressed through reflective sessions, practical exercises, and formative assessment based on direct observation and cooperative work.

School Practice Evidence input field (Campo inserimento evidenza pratica scolastica)

The practice documents a complete interdisciplinary design pathway: from digital cartographic analysis and 3D terrain modelling (Monti Pisani) to the implementation of a *Trail-Orienteering* activity enhanced by AI tools. The project integrated geography, technology, science, and mathematics, promoting teacher collaboration and strong connections with the local environment.

Thumbnail (anteprima in miniatura) (.jpg, .png)

https://www.rivistabricks.it/wp-content/uploads/2024/04/BRICKS_4_2024_03_Silvestro.pdf

Author (Autore)

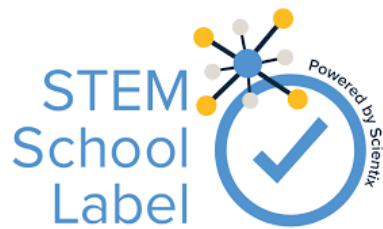
Giovanni Silvestro

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- No (No)



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