DataScEd4CiEn

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NEWSLETTER

October 2025/vol. 003

DATA SCIENCE EDUCATION IN STEAM FOR CIVIC ENGAGEMENT AND SOCIAL JUSTICE FROM THE EARLY YEARS

Project Number: 2023-1-CY01-KA220-SCH-000164724

Welcome to the third edition of the DataScEd4CiEn newsletter!

This issue celebrates an exciting milestone: the pilot implementation of student-designed STEAM scenarios. From Cyprus to Spain, students aged 11–15 stepped into the role of data scientists and changemakers, applying digital tools, interdisciplinary thinking, and creative problem-solving to explore some of the most pressing challenges of our time — from climate change and food waste to fast fashion, migration, and gender equity in sports.

With guidance from their teachers, and supported by the DataScEd4CiEn framework, students transformed data into action. They asked hard questions, designed thoughtful solutions, and developed a stronger sense of their power to make a difference.

We're proud to share their voices, their projects, and their impact!

Student Voices in Action: Tackling Real-World Problems with Data Science

These student-led projects are the result of months of collaborative work across our partner schools. They reflect the project's core mission: to equip students with data science skills that empower them to navigate and influence the world around them.

By connecting STEAM education with civic values and social responsibility, the DataScEd4CiEn initiative helps shape critical thinkers, ethical decision-makers, and active citizens. As we move into the next phase—expanding implementation, sharing outcomes, and continuing professional development—we remain inspired by the creativity, compassion, and curiosity these young learners bring to the global challenges of our time.

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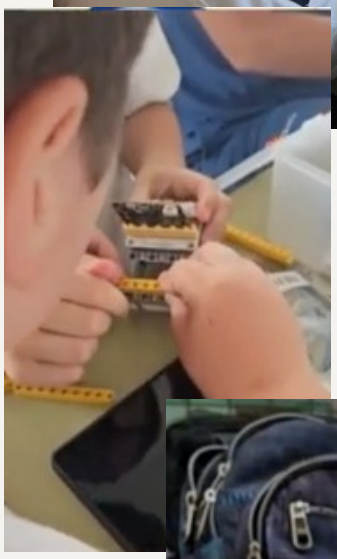
FIRE ALERT! DETECTING WILDFIRES, PROTECTING OUR FUTURE

School: La Salle – Buen Consejo (Spain)
Grade: 6 (Ages 11–12)
Subjects: Natural and Social Sciences, Mathematics, Technology and Digitalization
Authors: María Lucia Vargas & Juan Pablo Cea Mengibar

This impactful educational project aimed to raise awareness about the growing threat of wildfires and their far-reaching environmental, social, and economic impacts. Students investigated the causes, consequences, and geographic distribution of wildfires using official databases, maps, graphs, and news sources.



Through an active, inquiry-based approach, students built skills in data collection, analysis, and visualization. Their learning culminated in an innovative final product: a fire-detecting robot equipped with light and temperature sensors — a hands-on technological response to an urgent ecological challenge.

The project combined scientific inquiry, digital literacy, and social responsibility, encouraging students to take ownership of their role in protecting the environment and promoting sustainable development.

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EMBRACING THE FOREIGNER IN A GLOBALIZED WORLD WHERE DISTANCE IS "RELATIVE"

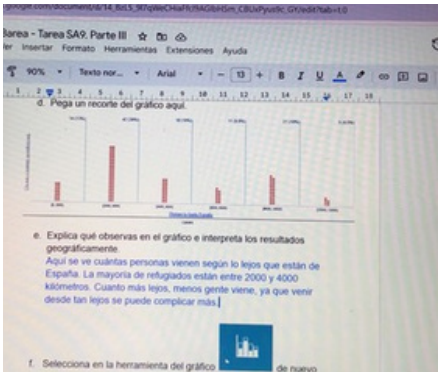
School: La Salle – Buen Consejo (Spain)
Grade: 8 (Ages 13–14)
Subjects: Geography and History, English and Spanish Language, Mathematics, Civic and Ethical Values
Authors: Inmaculada Catalán Sánchez, Álvaro Domínguez Álvarez, María Carmen Fernández Santamaría, María Julia Linares Martínez & Ana Serradó Bayés

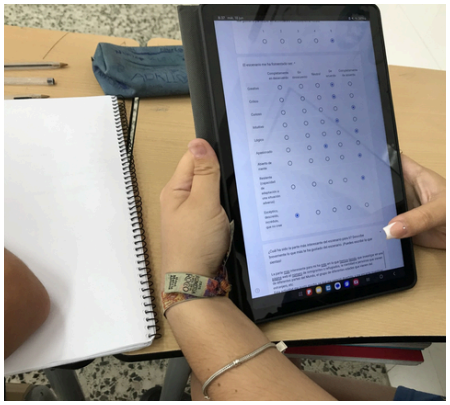
This cross-curricular learning project invited students to reflect on the rights of immigrants in Spain and the ethical responsibilities we share in an increasingly connected world. The scenario began in Geography and History, where students explored the Spanish Conquest of the Americas and the defense of Indigenous rights through historical texts such as 'A Short Account of the Destruction of the Indies and Queen Isabella's Will and Codicil'.

In Mathematics, students calculated the distances traveled by modern immigrants, applying both planar and spherical models and comparing their findings to the navigational challenges of early explorers like Columbus.

They extended this work in Technology and Digitalization, where they automated distance calculations and developed their computational thinking.

Discussions in Civic and Ethical Values centered on constitutional protections and human rights, while in English, students reflected on personal and societal attitudes toward migration, writing about what it means to accept others in a world where distance is increasingly "relative."





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⚽ IS A MIXED-GENDER PROFESSIONAL FOOTBALL LEAGUE VIABLE?

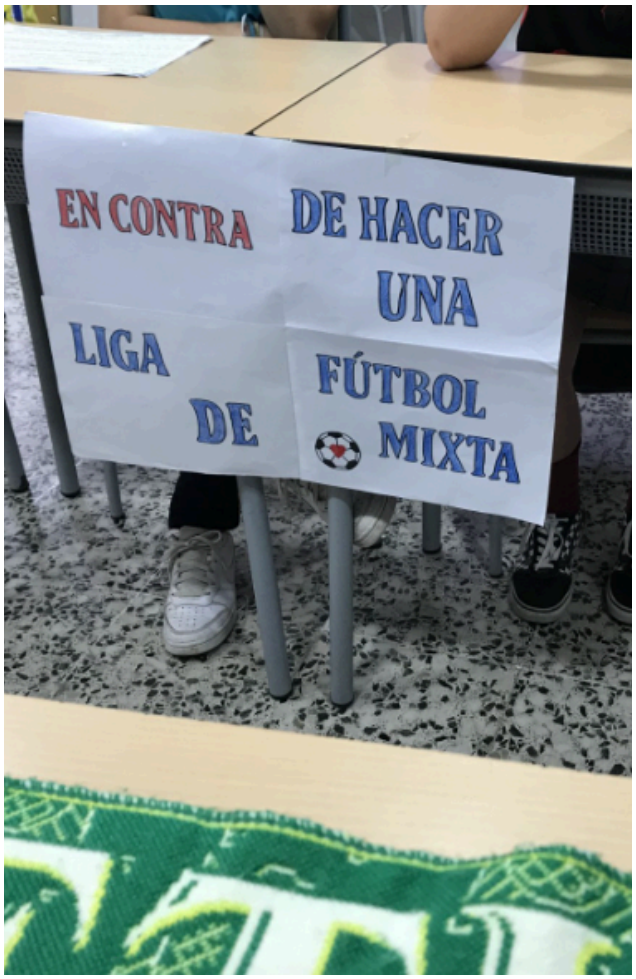
School: La Salle – Buen Consejo (Spain)
Grade: 9 (Ages 14–15)
Subjects: Mathematics, Physics, Physical Education, Technology
Authors: Jose Antonio González Sayagues & Ana Serradó Bayés

This scenario challenged students to investigate a bold, socially relevant question:
“Is a mixed-gender professional football league viable?”
The project invited students to move beyond surface-level opinions and examine the issue through the lens of data science, physical performance metrics, and critical thinking.
Starting with an overview of the current landscape of mixed-gender sports, students developed guiding questions:

- What performance differences exist between male and female professional athletes?
- What do official league statistics reveal?
- How are players’ market values calculated?
- What mathematical models are used to assess performance and value?

Using real datasets and mathematical tools, students conducted a comprehensive data analysis, calculating differences in performance indicators (e.g., sprint speed, distance covered, match statistics) and interpreting results within sports economics. They also used AI tools such as ChatGPT to compare their findings with publicly available narratives and predictions, sparking critical discussions on bias in data interpretation and source reliability.

The scenario encouraged students to confront assumptions, challenge stereotypes, and build evidence-based arguments around gender equity, representation, and inclusion in professional sports.



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WHAT IS THE TRUE COST OF YOUR CLOTHES?

School: The English School, Nicosia (Cyprus)
Year Group: Year 2 (Ages 12–13)
Subjects: PSHCE, Mathematics, Science, English, Art, Design & Technology, Computer Science
Authors: Leoni Hadjithoma, Michalis Gavrielides, Stavroula Neocleous, Maria Christodoulou, Emily Protopaapa, Eleni Skoulia, Harris Evangelou, Nicoletta Stavrides

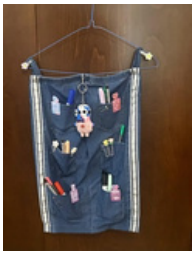
This scenario invites students to explore the ethical, environmental, and economic consequences of fast fashion through a rich interdisciplinary lens. Following the design thinking process, students move through the stages of empathizing, defining, ideating, prototyping, and testing, while applying data science tools across seven subject areas.

In PSHCE, students examine the realities of global garment production, including labor exploitation and social justice. Through videos, real-life testimonies, and classroom reflection, they connect emotionally with the people behind their clothes.

In Mathematics, they analyze real datasets in CODAP, calculating trends in textile production, water usage, and landfill waste — and interpreting how data can both reveal and obscure global inequalities. Science lessons focus on environmental impact. Students design a proposed school-wide study on uniform waste, applying the scientific method to model textile disposal and reuse in their community. In English, they write vivid narratives from the perspective of factory workers, using literary tools like imagery, metaphor, and voice to build empathy and advocacy.

In Art, students examine their personal clothing habits and create reflective posters titled “What I’ll Change and What I’ll Keep.” In Design & Technology, they participate in upcycling workshops, transforming old clothes into new wearable items or functional designs. In Computer Science, they create awareness websites and short videos, sharing sustainable solutions and personal actions with the school and wider community.

“You are a human life that deserves to have a decent life without suffering. You matter!” – Student reflection



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EVERY BITE COUNTS: TACKLING FOOD WASTE TOGETHER

School: The English School, Nicosia (Cyprus)
Year Group: Year 2 (Ages 12–13)
Subjects: PSHCE, Mathematics, Science, English, Design & Technology, Computer Science
Authors: Leoni Hadjithoma, Michalis Gavrielides, Stavroula Neocleous. Maria Christodoulou, Emily Papandreou, Nicoletta Stavrides, Harris Evangelou

In this scenario, students investigate the environmental and social consequences of food waste, beginning with their own daily habits and expanding their understanding through data science, digital storytelling, and civic engagement.
In PSHCE, students define food waste and explore its local and global impact, using a food waste calculator to track their personal waste over five days. They identify common problem areas and reflect on their responsibility as consumers.

In Mathematics, they analyze international data sets to compare waste from households, restaurants, and supermarkets, organizing their findings into tables and graphs and calculating medians and percentages.

In Science, students explore the effects of food waste on climate change, learning how methane from landfills contributes to the greenhouse effect. They research composting and sustainable food systems and watch demonstrations of how composting can be done at home.

To deepen their understanding, students use the AI tool NotebookLM to synthesize documents on food systems, supply chains, and environmental impact. They produce a briefing document summarizing the causes, effects, and potential solutions to food waste.

In English, students write persuasive texts and reflective essays, aiming to raise awareness and inspire change. In Computer Science, they create 1-minute awareness videos and record a podcast, combining visuals, narration, and sound design to spread their message to the school community.

In Design & Technology, students research recipes using leftover ingredients, cook meals at home, and document their process through photos and videos. These contributions are compiled into a collaborative digital cookbook titled “Cooking with Leftovers” — a creative, practical, and shareable output.