From Chemistry Lab to STEM Leadership: A Cross-Curricular Lesson Plan Inspired by Cansu Yalçınkaya

1 – GENERAL INFORMATION

Lesson Title:
"Beyond Borders: Cansu Yalçınkaya's Global STEM Journey"
(Alternative: "From Chemistry to Innovation – Cansu's Inspiring Story")

Teacher's Name:
[To be filled in by the implementing teacher – name, institution, and country]

Target Group:
Girls aged 13–15 – lower secondary school or preparatory high school level
(Interest areas: STEM, science & technology, career guidance, intercultural experiences, female representation)

Subject(s):

- Science / STEM Awareness
- Guidance / Career Planning
- English (supportive content – for the transcript and video)

Duration:
2 consecutive lesson hours (40 + 40 minutes) – including warm-up, video analysis, discussion, and creative reflection activities

Lesson Date:
[To be determined by the implementing teacher]

Materials/Tools:

- Interview video with Cansu Yalçınkaya
- Selected inspirational quotes from the interview *(e.g., "Live a life worth remembering.")*
- Projector or screen
- Post-it notes, A4 paper, pens
- Student reflection/evaluation cards

References:

- CodingGirls WP3 Guidelines
- Cansu Yalçınkaya's Interview (Transcript + Milestones)
- "Women in Code" Living Book – Cansu's Story draft
- CodingGirls Lesson Plan Template (Coordinator Format)

2. LEARNING OBJECTIVES

By the end of this lesson, students will be able to:

1. Recognize Cansu Yalçınkaya's personal and professional journey as an inspiring example of women's achievements in STEM and cross-cultural environments.
2. Identify at least three major turning points or challenges she faced in her education and career, and explain how she addressed them.
3. Reflect on the role of global experience, networking, and continuous learning in building a successful STEM career.
4. Discuss the importance of gender equality and cultural diversity in scientific and technological fields.
5. Express their own academic or career aspirations and concrete steps inspired by Cansu's story through a short written, visual, or creative activity.

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3. KEYWORDS & THEMES

Keywords

- Cansu Yalçınkaya
- Women in Technology
- Robotics and Coding
- Chemistry Education
- Interdisciplinary STEM Journey
- Career Path
- Determination and Perseverance
- Overcoming Challenges
- Dreams and Goals
- Inspiring Story
- Female Representation
- Lifelong Learning

Themes

1. **The Role and Representation of Women in Technology**
    - How Cansu's experiences demonstrate the impact women can have in the tech sector.

2. **Resilience and Determination in the Face of Challenges**
    - The obstacles she faced in her career and how she overcame them.
3. **Education and Continuous Development**
    - Her university studies, workplace learning processes, and self-improvement methods.
4. **Challenging Social Stereotypes**
    - Breaking the perception that "women are underrepresented in technology."
5. **Inspiration and Mentorship**
    - The importance of role models and guidance for young girls pursuing tech careers.
6. **Interdisciplinary STEM Journey**
    - Although she graduated in chemistry, she developed herself in robotics and coding, showing that it is possible to bridge different areas within STEM.

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4. STEP-BY-STEP TEACHING PROCEDURE

Duration: 2 × 40 minutes
Approach: Through Cansu's story, students explore themes of interdisciplinary STEM journeys, overcoming challenges, international mobility, and lifelong learning.
Tools:

- Interview video (English)
- Milestone sections (all 4 sections)
- Interview transcript (English)
- "Living Women in Code" booklet (introducing Cansu)
- Materials for in-class reflection and production activities (Post-it notes, A4 paper, pen)

LESSON 1 — Discovering Cansu's Journey (40 Minutes)

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1. Warm-Up & Motivation (5 min)

Write on the board: *Chemistry – Technology – Women – Global Experience – Success*
Ask:

- "Do you know someone who changed their career field and became successful?"
  Allow 1–2 students to share.
  Mini Task: Students write 3 words that come to mind when they hear *career change*.

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2. Introduction to Cansu's Story (3 min)

Teacher's sample speech:
"Today, we will listen to the story of Cansu Yalçınkaya, a young woman who graduated in chemistry but built her career in robotics and coding, and gained global STEM experience. She shows us that you can start in one field and successfully move into another."

3. Video Watching & Milestone-Based Discovery (27 min)

Milestone 1 – Personal & Educational Background (00:00–00:43) Cansu shares her early life, high school, and decision to study chemistry. **Teacher Questions:** • "What motivated Cansu to choose chemistry?" • "Have you ever been interested in two very different fields?" **Mini Task:** Write 1 subject you study now that you think might help you in a completely different career in the future.
Milestone 2 – Transition to Robotics and Coding (00:44–01:45) She explains how she shifted from chemistry to robotics, and the skills she had to develop. **Teacher Questions:** • "What challenges might someone face when switching fields?" • "What could help you learn a completely new skill?" **Activity:** Challenge–Solution Map – Students write one personal challenge and possible steps to overcome it.
Milestone 3 – International Experience & Networking (01:46–02:33) Cansu talks about her work abroad, Erasmus projects, and meeting people from different cultures. **Teacher Questions:** • "Why is it important to meet people from different cultures?" • "How can networking help your career?" **Mini Task:** Write down one country you'd like to visit for learning or work, and why.
Milestone 4 – Advice & Inspiration (02:34–End) Cansu shares her advice on staying open to opportunities, learning continuously, and not fearing change. **Teacher Questions:** • "What is the most inspiring sentence from Cansu's story?" • "How could you apply this advice to your own life?" **Activity:** My Opportunity List – Students list 3 opportunities they want to explore in the next year.

4. Exit Ticket (5 min)
Write on the board: "Today I realized that…"
Each student writes one sentence and hands it in.

LESSON 2 — Turning Inspiration into Action (40 Minutes)

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1. Warm-Up & Review (5 min)

Write on the board: *"Your background doesn't define your future — your actions do."*
Students think of 3 main ideas from Lesson 1. Teacher takes 3–4 voluntary shares.

2. Inspired by Cansu's Journey (5 min)

Re-watch Milestones 2, 3, and 4 (approx. 1.5 minutes).
Purpose: Reinforce the themes of change, networking, and courage.
Teacher Question: "Which part gave you the biggest motivation to take action?"

3. Group Task: "My Interdisciplinary Roadmap" (15 min)

Tools: English transcript, Cansu's page in the *Living Women in Code* booklet, A3 paper, markers.
Task: Create a roadmap inspired by Cansu's journey. Include:

- Starting point (current skills)
- New skills to learn (can be from different fields)
- Possible challenges & solutions
- Goal
- Motivational sentence from Cansu's advice
  Teacher walks around and prompts:
- "What skills could you combine from different fields?"
- "Which of Cansu's strategies could help you?"

4. Presentations & Peer Feedback (10 min)

Groups present their roadmap (2–3 minutes each).
Other students give feedback: **"+"** (strength) and 💡 (idea to improve).

5. Individual Reflection: "Letter to Cansu" (5 min)

Students write a short thank-you and inspiration note to Cansu.
They may share aloud.

6. Closing Message (Teacher)

"Today, we saw that a career path is not a straight line. Like Cansu, you can start in one area, follow your curiosity, and create your own unique journey."

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5. CROSS-CURRICULAR INTEGRATION

1. **Science / Chemistry & STEM Awareness**
   Cansu's background in chemistry and her scientific thinking skills are directly linked to Science and Chemistry classes. Students can explore topics such as the properties of matter, energy transformations, laboratory safety, and scientific research processes using her story as a starting point. Within STEM awareness, they can also discover how chemistry can intersect with fields like robotics and coding.

2. **Technology and Engineering**
   Cansu's transition from chemistry to robotics and coding encourages students to develop their technology and engineering skills. This lesson can be connected to school robotics clubs, STEM projects, or maker activities, allowing students to practice prototype development, algorithm design, and problem-solving in engineering contexts.

3. **Social Studies / Citizenship Education**
   Cansu's participation in international projects and experience working in different cultural environments provide valuable inspiration for intercultural understanding, social contribution, and global citizenship. Students can discuss how individuals can contribute to their communities and the importance of international cooperation.

4. **Guidance and Career Development**
   Cansu's achievement through changing her career path offers a powerful example for career guidance. Students can identify their own interests and talents, set career goals, and create step-by-step action plans to reach them.

5. **Gender Equality Education**
   Cansu's inspiring success in the STEM field highlights the importance of women's representation and equal opportunities. Students can examine the role of women in science and technology, the challenges they face, and potential solutions.

6. **English as a Foreign Language**
   The English version of Cansu's interview provides authentic listening, reading, and comprehension practice for students. The transcript can be used for vocabulary building and speaking activities.

7. **First Language Education**
   Creative writing tasks such as "If I Were Cansu…" or "My STEM Story" allow students to create their own narratives in their first language. These activities help improve writing skills, emotional expression, and storytelling techniques.

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6. EVALUATION CRITERIA

This section outlines strategies for formative, inclusive, and student-centered assessment, focusing on curiosity, resilience, and inspiration drawn from Cansu's journey. The aim is to nurture personal growth and meaningful learning in a supportive, respectful environment, rather than competition or grades.

Skill Area	Assessment Tool / Strategy
Emotional Reflection	**Exit Ticket**: Students complete the prompt: *"The most inspiring thing I learned from Cansu today was…"*. Optional: Selected students may share their responses aloud to foster empathy and collective inspiration.
Creative Thinking & Expression	**Creative Output Observation**: The teacher observes originality, symbolism, and personal connection in outputs such as Career Roadmaps, "STEM Story" visuals, or intercultural experience posters. Focus is on ideas and meaning, not artistic perfection.
Engagement & Participation	**Observation Checklist**: Informal tracking of students' active involvement, willingness to share ideas, collaboration in group work, and attentiveness during video segments and discussions.
Empathy & Perspective-Taking	*"If I were Cansu…"* prompt: Students' reflections show their ability to imagine Cansu's experiences, challenges, and successes from her perspective—especially her shift from chemistry to robotics and coding.
Communication & Sharing Skills	**Peer Presentations**: Brief group presentations or story-sharing sessions are evaluated for clarity of message, confidence, and respectful listening to peers.
Goal Setting & Self-Awareness	**Dream Statement**: *"In the future, I want to… because…"* prompts are used to reveal students' aspirations and values, linked to themes from Cansu's story—there are no right or wrong answers.

Additional Notes for Teachers

- These criteria measure connection, creativity, and self-expression, not perfection.
- The assessment process should be supportive, encouraging, and non-judgmental—every student's learning journey is unique.
- Strategies can be applied through individual observation, short feedback moments, or group reflection sessions.
- Emphasis is placed on progress, participation, and inspiration, rather than competition.

7. RESOURCES AND MATERIALS (Extensions & Enrichment)

These enrichment activities aim to extend learning beyond the classroom, strengthen real-world connections, and encourage interdisciplinary engagement. Teachers may select any of these options depending on available time, local context, and student interest.

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1. "My Role Model in STEM" Poster Exhibition
Objective: Introduce inspiring women in STEM—especially highlighting women with diverse academic backgrounds like chemistry, robotics, and coding—to develop students' research skills.
Activity: Each student prepares an A3 poster introducing a woman working in science, technology, or engineering (local or international). The poster includes a photo (if possible), her field, and an inspirational quote or achievement. Students can also feature Cansu's story as an example of transitioning from chemistry to robotics and AI.
Extension: Display the posters in school corridors as a "Women in STEM Gallery." Invite families, teachers, and local media to visit the exhibition.
Pedagogical Value: Enhances research, visual presentation, interdisciplinary career awareness, and representation of non-linear career paths.

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2. School Visit or Online Talk with a Woman in STEM
Objective: Connect students with real-life role models who have multidisciplinary expertise.
Activity: Organize a school visit or an online session with a female professional in a STEM field, preferably someone with a background similar to Cansu's—combining science (chemistry) and technology (robotics, coding).
Preparation: Students prepare questions in advance about her career journey, motivations, and challenges.
Pedagogical Value: Increases awareness of diverse career pathways, gender roles in professions, and shows that STEM success can come from different starting points.

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3. "My STEM Dreams" Digital Wall (ICT Integration)
Objective: Foster digital creativity and safe sharing.
Activity: Students design digital posters, dream timelines, or STEM stories and share them on platforms such as Padlet or Jamboard. Students can include inspirations from Cansu's journey—her university studies in chemistry, her shift to robotics, and her work in coding.
Outcome: Creates a safe, inclusive space for self-expression and peer feedback—especially valuable for introverted students.
Cross-Curricular Links: ICT, Visual Arts, Language, Career Guidance.

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4. Collaboration with Parents – "STEM at Home" Diaries
Objective: Build home-school connections through everyday STEM experiences.
Activity: For one week, students log simple STEM-related activities or observations at home (e.g., experimenting in the kitchen, repairing something, measuring ingredients, using coding apps).
Outcome: Highlights the presence of science and technology in daily life and shows parallels with Cansu's own learning process outside formal education.
Pedagogical Value: Encourages reflection, family involvement, and real-life relevance.

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5. Language Extension: Write a Letter to Cansu
Objective: Deepen emotional reflection through writing.
Activity: Students write a letter (in Turkish or English) to Cansu, sharing their feelings and thoughts after

hearing her story. They may ask her about her studies, challenges, or advice for pursuing STEM careers.
Optional Twist: Letters can be compiled into a class book or, if possible, shared directly with Cansu.
Skills Developed: Narrative writing, empathy, language fluency, and communication skills.

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6. Local Community or Municipality Collaboration
Objective: Amplify student voice and visibility.
Activity: Share selected student works with local organizations such as municipal women's centers, youth clubs, or women-focused NGOs. In particular, highlight projects about women in STEM who have multidisciplinary expertise.
Outcome: Raises awareness of women in STEM and gives students recognition beyond the school.
Sustainability: Fosters long-term community engagement and networking opportunities for students.

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8. SUPPORTING MATERIALS AND RESOURCES

This section lists the essential materials and resources needed to implement the lesson effectively. All key educational tools will be provided through the project's digital platform. No specialized or hard-to-access materials are required.

Digital Materials Provided by the Project

Resource	Description
Cansu's Story Video	A short inspirational video (approx. 6–7 minutes) in Turkish with English subtitles. Edited versions highlighting key milestones will also be provided for lesson segmentation.
PDF Transcript (TR + EN)	Full transcript of Cansu's story in both Turkish and English for schools without video projection or for transcript-based learning.
Lesson Plan Document	A complete teaching guide including step-by-step procedures, milestone integration, activity templates, and pedagogical notes.
Digital Platform Access	All resources will be hosted on the project platform (e.g., Living Libraries / CodingGirl Educational Portal), with login instructions provided. Teachers will download and print the needed worksheets.
Printable Templates	- STEM Dream Map

- STEM Story Panels
- Exit Ticket ("The most important thing I learned from Cansu was…")
- Reflection Card ("If I were Cansu, I would…") |

  | **Cansu's Profile Book** | A short "Living Libraries" style booklet introducing Cansu, her background, achievements, and inspirational messages, designed for classroom display or reading circles. |

Basic Stationery (Typically Available in Schools)

These are low-cost and widely accessible materials that support creative expression:

- A4 or A3 white paper
- Pencils and erasers
- Colored pencils or crayons
- Rulers, scissors, glue sticks
- Sticky notes or small cards (optional)

Accessibility Recommendations

- Print transcripts in large font if needed.
- Allow oral sharing instead of written tasks where appropriate.
- If video cannot be shown, use the transcript with guided reading questions.

Note to Teachers:
No external apps or paid tools are required. This lesson is designed to work offline if needed, using only the resources provided by the project and materials already available in schools.