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Recognizing Patterns in Cells: How AI Sees Biology



BIOS4YOU
AR 2.0

BIO-INSPIRED STEM TOPICS FOR ENGAGING YOUNG GENERATIONS
THANKS TO THE USE OF AUGMENTED REALITY

Project Number: 2023-1-DE03-KA220-SCH-000126516

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General Information

Name of the exercise:	Recognizing Patterns in Cells: How AI Sees Biology
Description of the exercises:	In this exercise, students explore plant and animal cell structures using Augmented Reality to understand how Artificial Intelligence recognizes biological patterns. By observing, comparing, and marking visual features of cells in a Delightex Edu AR environment, students learn how biological information is transformed into data used by AI systems for classification and decision-making.
Participants:	Students (individual or small groups)
Participants' age range:	14–18 years
STEM subject and specific topic:	Biology / Artificial Intelligence Topic: Cell structures, pattern recognition, bio-inspired AI
Gamification process:	Points for identifying correct cell features Visual feedback for correct/incorrect observations Optional challenge: classify cells using simple rule-based logic
Written or graphic description of Augmented info:	Interactive 3D models of plant and animal cells displayed in AR, allowing rotation, zooming, and exploration of organelles.
External (or extra) tools required	Mobile device or tablet with camera Internet connection
Links (video, images, text online and so on).	Use existing biology AR templates from Delightex gallery: https://edu.delightex.com/KWD-RUK





Pedagogical specifications

Here we will collect information on how to use the exercise in the learning session and the results and benefits of using it, from a pedagogical perspective.

How can this augmented information be used to address a STEAM topic in a more interesting way for students?

Augmented Reality allows students to explore biological cell structures in three dimensions, making abstract microscopic concepts tangible and engaging. Instead of memorizing diagrams, students actively investigate cells and visually identify features that Artificial Intelligence could use for pattern recognition, such as shape, size, and structure.

Which pedagogical objectives are addressed through this scenario?

Understanding cell structure and function
Developing awareness of how AI analyzes biological data
Strengthening observation and comparison skills
Introducing bio-inspiration as a bridge between biology and technology

Which results are expected to be reached with its use?

Students are expected to:

- correctly identify major cell structures,
- explain how AI could use visual patterns for classification,
- demonstrate improved conceptual understanding compared to traditional textbook-based learning.

Which benefits are expected to be reached with its use?

Increased engagement and motivation
Improved spatial understanding of biological structures
Development of critical thinking and systems thinking
Positive emotional involvement through interactive learning





Technical specifications

In this part it is necessary to specify whether the exercise was designed to be implemented with AR technology. This part is fundamental for the translation process. Please include text, audio text and all the necessary materials.

AR INFORMATION	
Technology	Delightex Edu (formerly CoSpaces Edu)
If it's needed a marker, description of the marker	https://edu.delightex.com/KWD-RUK 
Hardware and software needed:	pc, smartphone, tablet, camera.
Type of Augmented data	Text labels; 3D models
Written description of the AR data	Students explore interactive 3D models of plant and animal cells in AR. By interacting with the models, they identify visual features and discuss how an AI system could interpret these features to recognize patterns and classify cells.
If Image	





If Text	
If video	-
If audio	-
If 3D model	.obj, .stl (preloaded in Delightex Edu) https://edu.delightex.com/KWD-RUK





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