

# Space Science and AI



**MTA-ELTE DIGITALLY SUPPORTED PHYSICS EDUCATION RESEARCH GROUP**  
<http://fiztanar.elte.hu/mta-elte-fdt-kutatocsoport>

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# Some **free** physics education platforms using artificial intelligence at different levels

## 1. EaseMate AI Physics Solver

Ez az eszköz lehetővé teszi fizikai problémák gyors megoldását, magyarázatokkal és részletes lépésről lépésre történő útmutatással.

## 2. HIX Tutor – Physics AI

A HIX Tutor AI segítségével szöveges kérdéseket tehetsz fel, vagy akár képernyőképeket is feltölthetsz fizikai problémák megoldásához.

## 3. StudyMonkey AI Physics Tutor

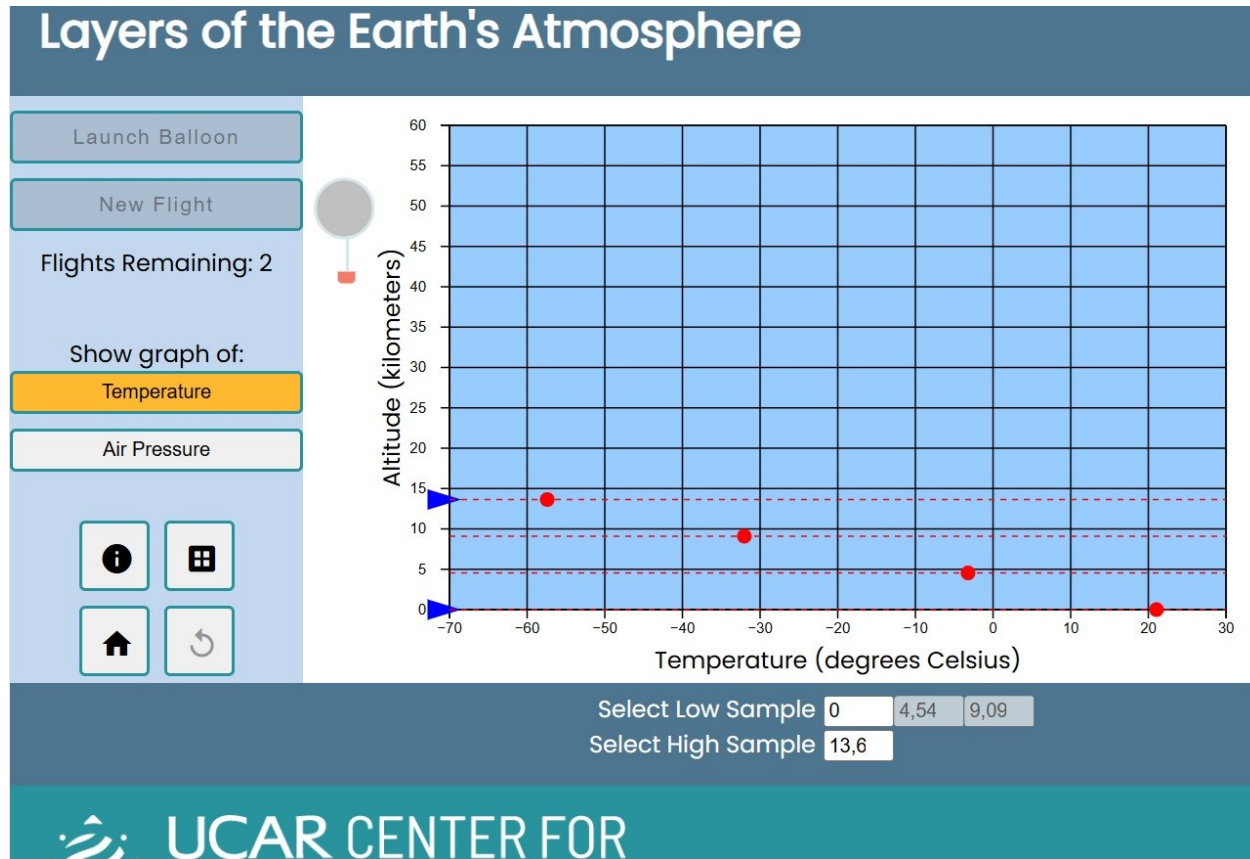
Ez az eszköz 24/7 elérhető, és személyre szabott, lépésről lépésre történő segítséget nyújt bármilyen fizikai házi feladathoz.

## 4. Math-GPT Physics Solver

A Math-GPT AI elemzi a problémát, azonosítja a fizikai fogalmakat, és részletes megoldásokat ad, segítve a megértést.

# Virtual Lab of UCAR

(University Corporation for Atmospheric Research)



<https://scied.ucar.edu/interactive/virtual-ballooning>



# Wordwall

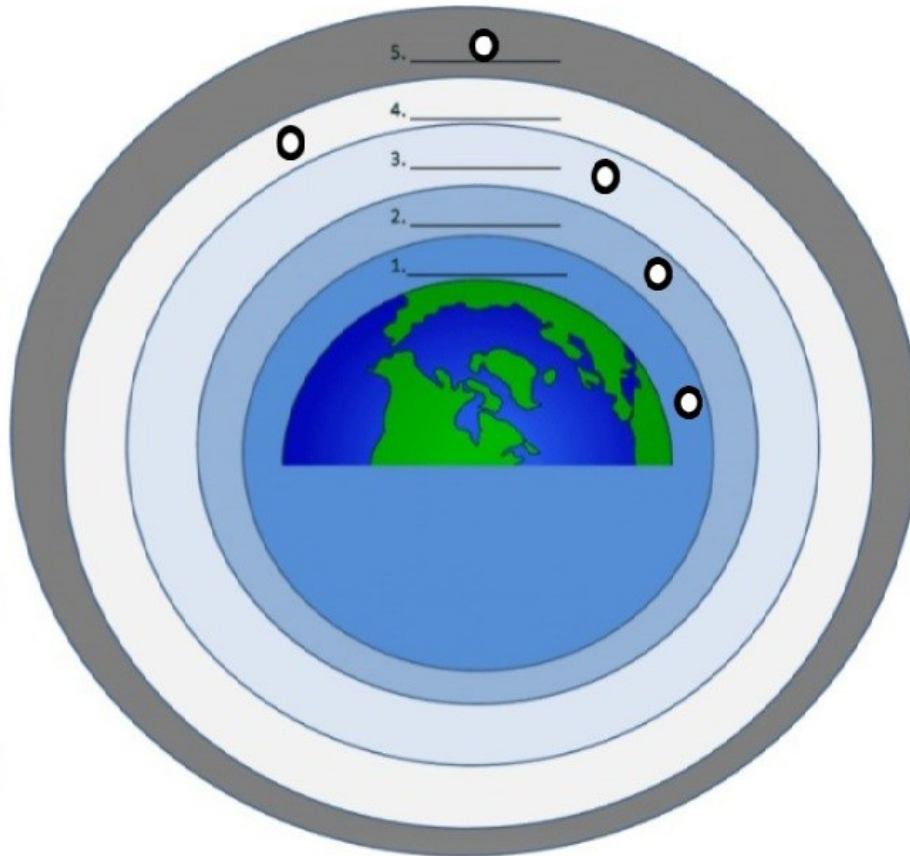
Stratosphere

Troposphere

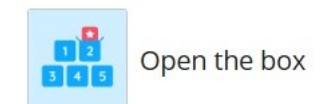
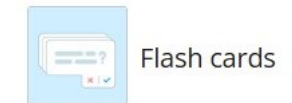
Thermosphere

Exosphere

Mesosphere



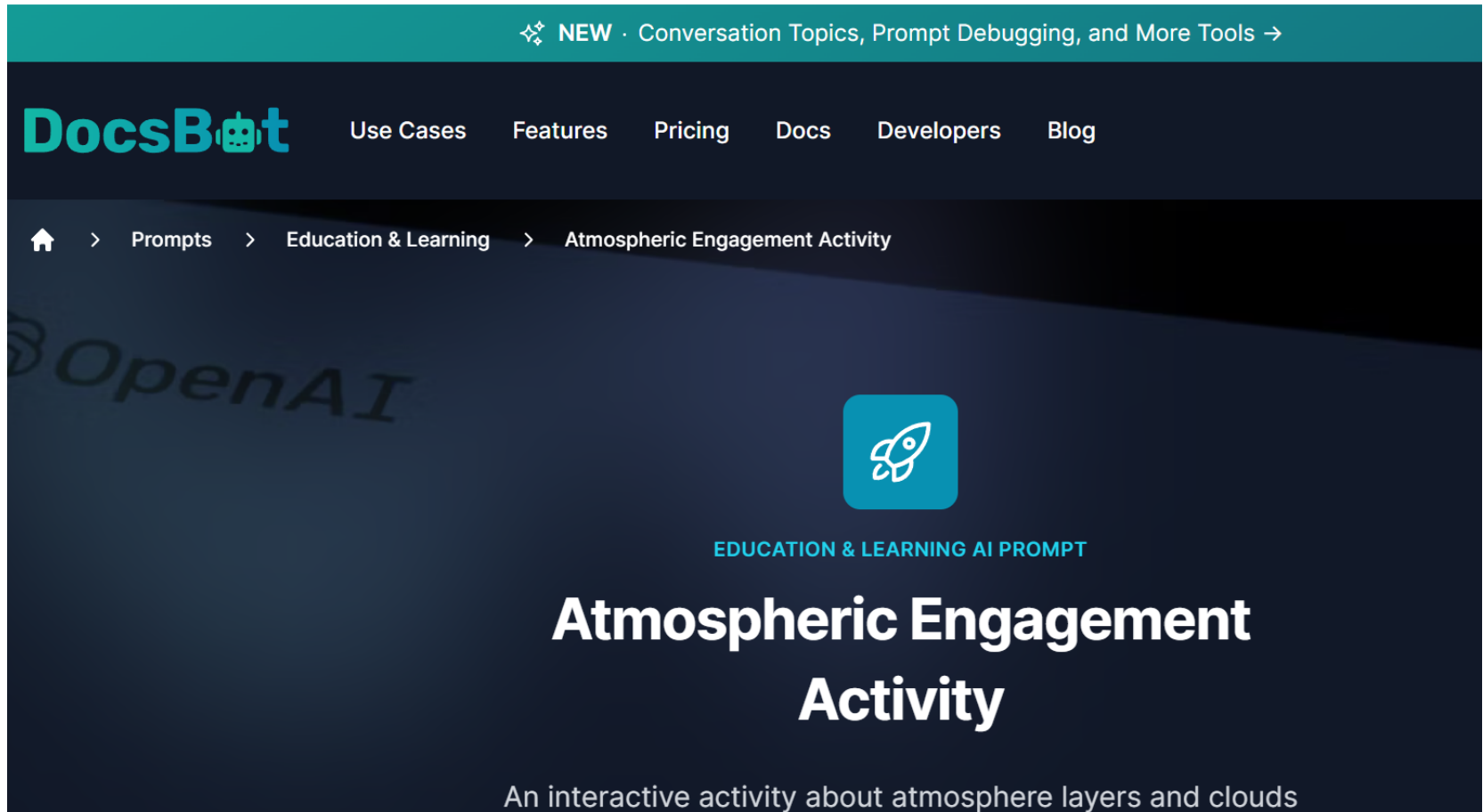
Switch template



Show all

<https://wordwall.net/resource/8628646/science/layers-of-the-atmosphere>

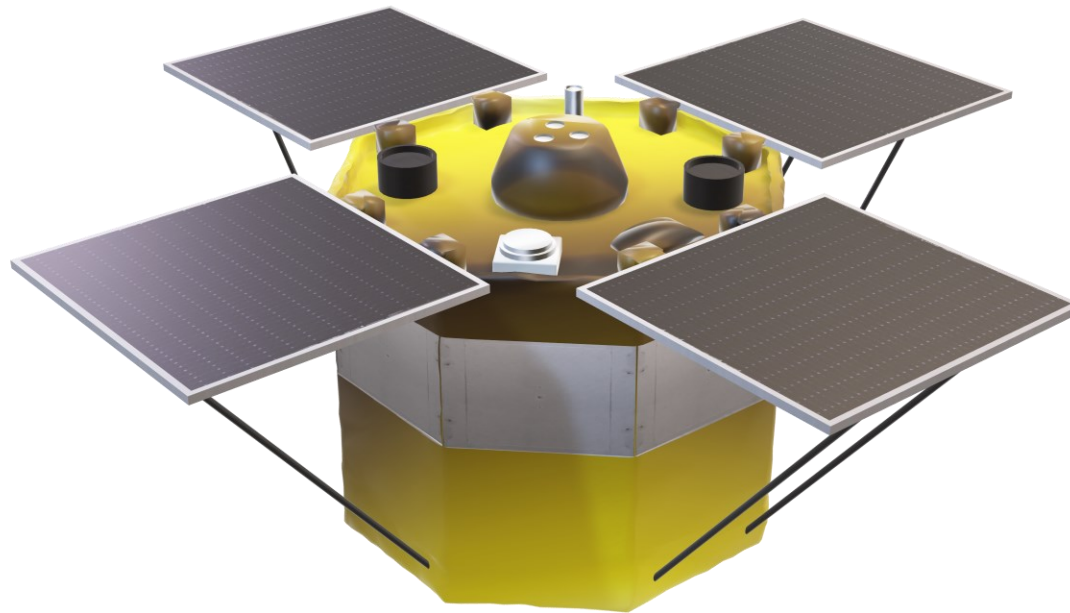
# Lesson plan on the topic of atmosphere



The screenshot shows the DocsBot website interface. At the top, there is a teal banner with the text "NEW · Conversation Topics, Prompt Debugging, and More Tools →". Below this is the DocsBot logo and a navigation menu with links for "Use Cases", "Features", "Pricing", "Docs", "Developers", and "Blog". A breadcrumb trail indicates the current page: "Home > Prompts > Education & Learning > Atmospheric Engagement Activity". The main content area features a blue square icon with a white rocket ship, followed by the text "EDUCATION & LEARNING AI PROMPT" and the title "Atmospheric Engagement Activity" in large white font. Below the title is the subtitle "An interactive activity about atmosphere layers and clouds".

<https://docsbot.ai/prompts/education/atmospheric-engagement-activity>

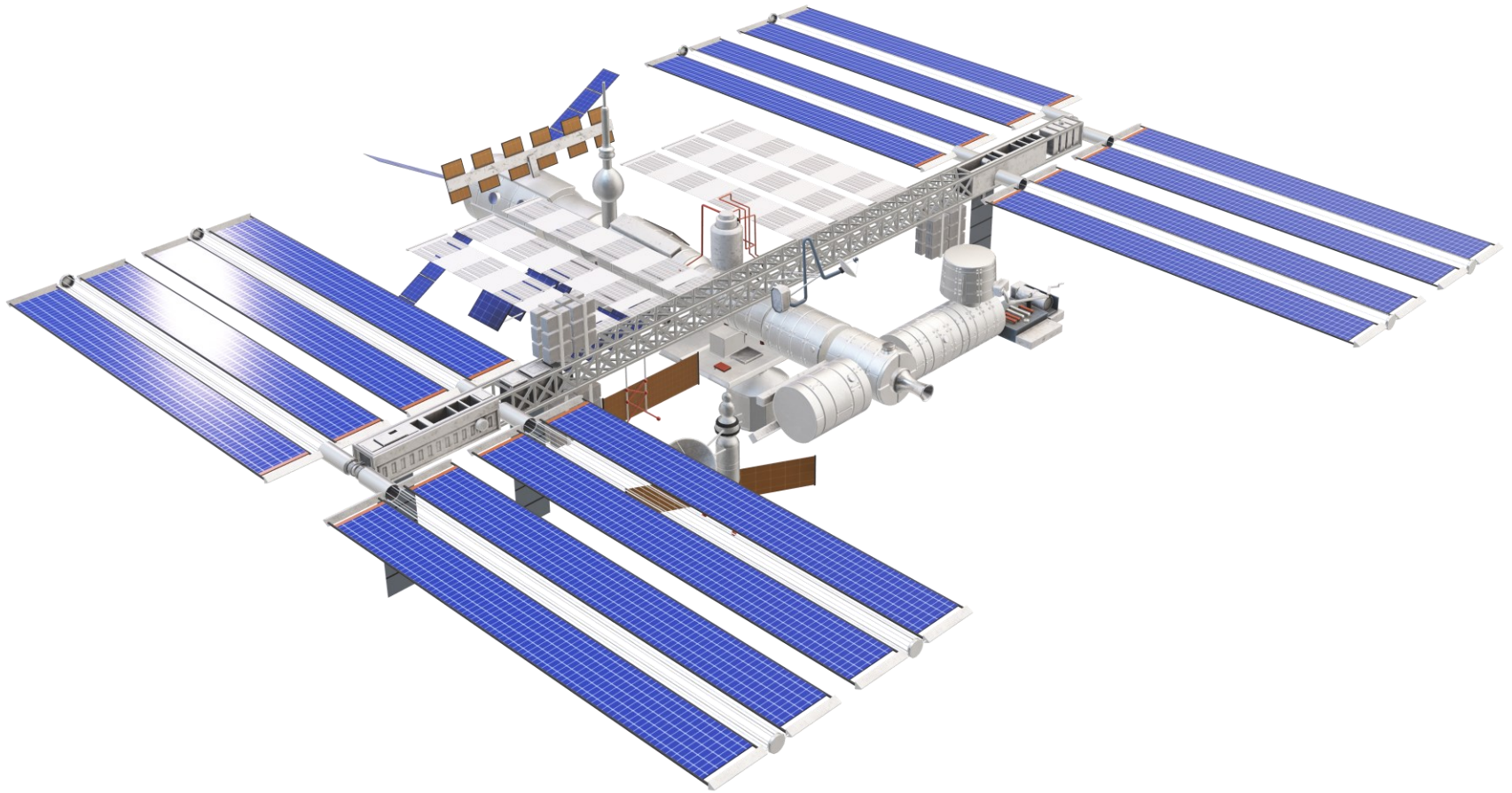
# 3D model from the NASA website



ACRIMSAT studies the sun's energy output.

<https://science.nasa.gov/3d-resources/active-cavity-irradiance-monitor-satellite-acrimsat-a/>

# 3D Model from the PPT gallery





## International Space Station - Interior 🏠

3D Model

<https://sketchfab.com/3d-models/international-space-station-interior-7753b422ca8046b4ae783d44b2bd6cfc>

# VR and AI in education thought-provoking




VR and AI in Education: The Future of Learning | Kristen Tamm |  
TEDxTartuED

<https://www.youtube.com/watch?v=XGkWh4v1hCE>

# AR in Space Science

866-266-7496 imex@psu.edu

 **PennState**  
Teaching and Learning  
with Technology

Home About ▾ Students Faculty + Staff ▾ Experience Catalog ▾ Support ▾ Community 🔍



<https://imex.psu.edu/project/physics-lab-ar/>

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## Software



Adobe Premiere



Final Cut Pro



Adobe Aero



Scaniverse

## Process



Storyboarding

## Hardware



360° Camera



Headset

## Platform



ThingLink




Spatial

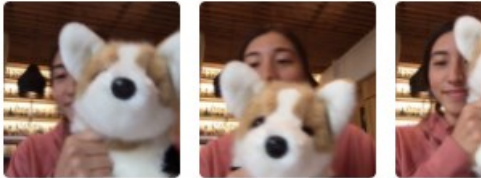
<https://imex.psu.edu/support/tutorials/>

# Teachable machine

## New Project

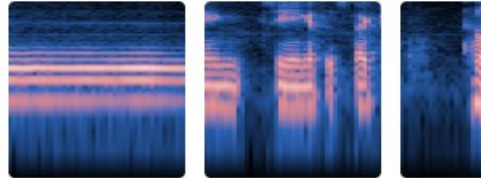
 Open an existing project from Drive.

 Open an existing project from a file.



### Image Project

Teach based on images, from files or your webcam.



### Audio Project

Teach based on one-second-long sounds, from files or your microphone.



### Pose Project

Teach based on images, from files or your webcam.

<https://teachablemachine.withgoogle.com/>

# How does it work?

**1. Collect data**

**2. Train the model** – Teachable Machine builds an AI model from your examples

**3. Test** – try out the model with new inputs to see if it recognizes them correctly

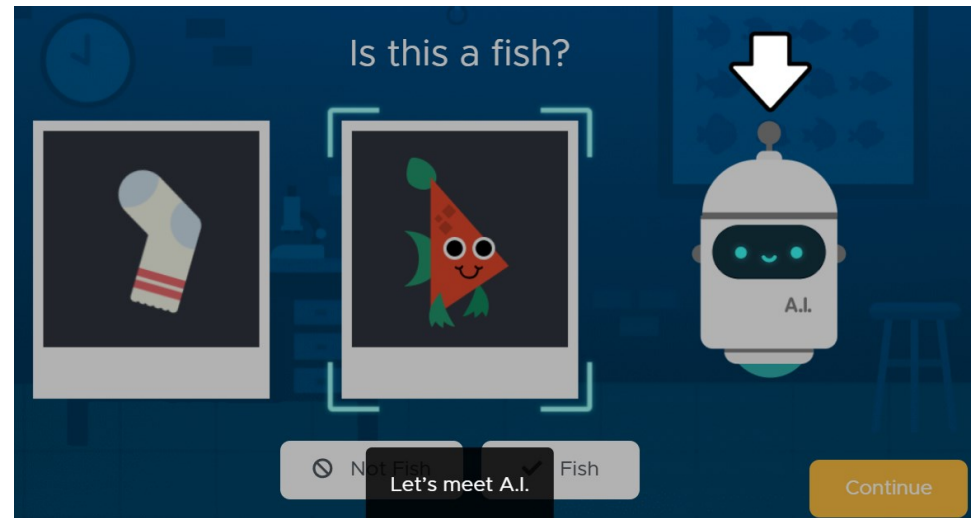
**4. Export**

# Recognizing galaxies and star constellations



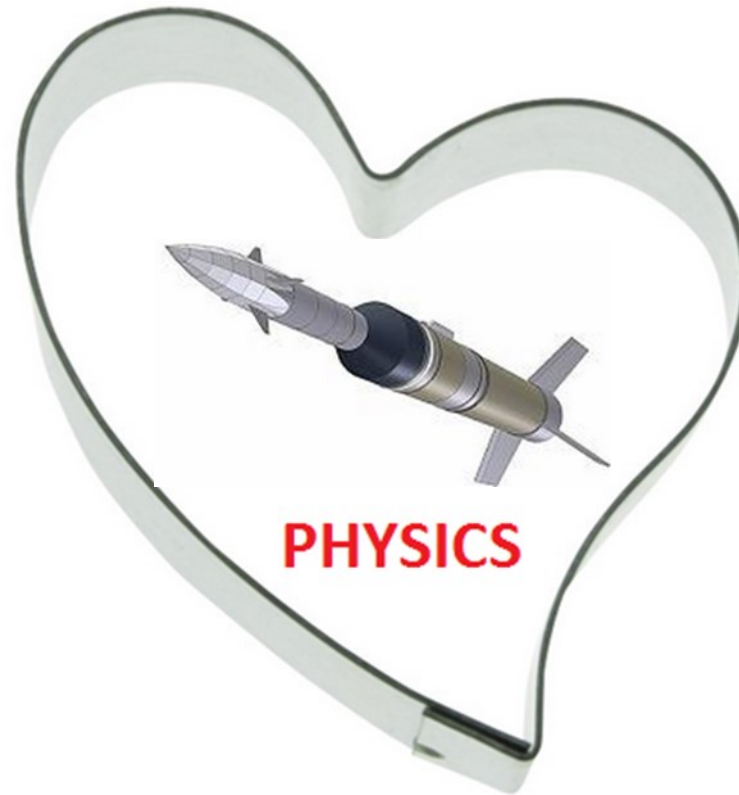
# For younger students

## Working with image-based machine learning projects



<https://studio.code.org/courses/oceans/units/1/lessons/1/levels/1>

28th International Conference on Multimedia in Physics Teaching and Learning (MPTL'28)



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