

AI Basics for Schools MOOC

AI Learning Activity

WHAT IS AN AI LEARNING ACTIVITY?

An AI learning activity is a short activity that encourages the use of AI tools and technologies in the classroom. In this AI activity called Smart Classroom, students will train a machine learning model to recognise the meaning of instructions. They will create a smart assistant in scratch allowing them to control virtual devices. This project aims to introduce students to the basics of Machine Learning (ML) and Artificial Intelligence (AI) by making their own machine learning powered project. This is team project, each team training their own ML Model and working with its own Scratch 3.0 program. All activities can be done remotely.

BASIC INFORMATION AT A GLANCE

Name of author:	Vasiliki Servou
Subject:	ICT Computer science
Title of activity:	<i>Smart Classroom</i>
Topic of activity:	Text recognition, digital assistants, confidence thresholds, supervised learning
Learning objectives:	<p>By completing this project, students will be able to:</p> <ul style="list-style-type: none"> • Demonstrate familiarity with basic AI and ML concepts. • Build and train a machine learning model to recognise the meaning behind writing. • Recognize what the main stages of a machine learning project are. • Apply the supervised learning technique based on labelling. • Recognize the importance of quality and quantity of training data. • Reflect on the ethical use of AI, the need for transparency and the risks of bias. • Identify threats and challenges imposed by AI. • Understand how virtual assistants (E.g. Amazon Alexa, Google Home) work.
Preparation time:	1 hour
Teaching time:	45 minutes -1 hour
Materials needed:	<p>Internet access, a smartboard or a projector, one computer per 2 students. If the lab includes an LTSP server, epoptes can be used instead of a projector.</p> <p>Each group of 2 students will need a computer with a web browser. Project worksheet (download from) https://machinelearningforkids.co.uk/worksheets</p> <p>Project templates in scratch3 and scratch2 https://github.com/IBM/taxinomis-docs/tree/master/scratch-templates</p> <p>Project worksheets in Ms Word format are available so you can modify them to suit your class https://github.com/IBM/taxinomis-docs/tree/master/project-worksheets/msword</p> <p>Username and password for every team for machinelearningforkids.co.uk</p> <p>Class account will need: API Keys Watson Assistant 1 workspace per team One "Lite"API key is free and can only be used to create 5 workspaces but is adequate for this project.</p> <p>Learning space School Lab or Synchronous Virtual Classroom (collaborative real-time web2.0 tools with breakout rooms).</p>
Age of students:	<i>Lower Secondary School (12-15)</i>
Other relevant remarks:	The students should know basic scratch programming. The project will be implemented by all the students from all classes I teach, average 250 students. The activity is suitable for physical classroom, online classroom and hybrid classroom.

SHORT DESCRIPTION OF YOUR AI LEARNING ACTIVITY

- **Preparation for the Activity,**
- The teacher sets up students accounts for the Machine Learning for Kids tool (<https://machinelearningforkids.co.uk>), and the ML model, and assists the students with both theoretical knowledge (introduction to virtual assistants like Amazon Alexa, ML & AI introduction, vocabulary) and technical support (use of the Machine Learning for Kids tool, description of the classification method, Scratch 3.0 coding). As students become more independent and self-confident, the teacher acts as facilitator and mentor to support the teams.
- **Activities and roles.**
-
- **Activity1, 15 minutes.**
- The teacher asks the students to discuss in groups what they think the terms artificial intelligence and machine learning mean and whether they can give some examples. A representative of each group presents the outcome of the group discussion to the plenary. The teacher sums up all the presentations and concludes by giving definitions of Artificial Intelligence, Machine Learning and more examples and emphasising that many students already use language translators, language learning apps, math helpers, text-to-speech, also describing Amazon Alexa, Google Home etc. The teacher may also show some videos like:
 - https://www.youtube.com/watch?v=f_uwKZIAeM0,
 - <https://www.youtube.com/watch?v=UdE-W30oOXo>
 - <https://www.youtube.com/watch?v=fvtrRGmv7aU>
 - <https://www.youtube.com/watch?v=OeU5m6vRyCk>

- Then using the Machine Learning for kids, the students are shown what they are going to make.
- **Activity 2, 20 min**
- The students work in pairs with the worksheet: Quick simplified version of the project, ideal for use as a first introduction to the tool:
<https://machinelearningforkids.co.uk/worksheets>
- **Activity 3, 10 minutes**
- In the plenary, students discuss the confidence score each team attained, and they draw conclusions about AI ethics and biases in the training data. The teacher sums up and maybe shows a video like:
<https://www.youtube.com/watch?v=59bMh59JQDo&t=5s>

Μπορείς να κοινοποιείς τον κωδικό Codeweek for all σε
ελλάδα άτομα: cw21-jKaWJ