Machine Learning For Kids :: Teachers' notes

Worksheet	Smart Classroom
Activity	Create a smart assistant in Scratch that lets you control virtual devices.
Objective	**Teach a computer to recognise the meaning of your commands** • How computers can be trained to recognise the intent behind writing. • Confidence thresholds indicate when the machine cannot recognise the meaning. • How virtual assistants (e.g. Apple Siri, Amazon Alexa, Google Home) work.
Difficulty level	Beginner
Time estimate	45 minutes - 1 hour (depending on whether students try making it without machine learning first)
Summary	Students will train a machine learning model to recognise the meaning of instructions. They use this in Scratch to make a virtual assistant that will respond to commands.
Topics	digital assistants, confidence thresholds, supervised learning

Setup

Each student will need:

Print-outs	Project worksheet (download from https://machinelearningforkids.co.uk/worksheets) Blocks in Scratch scripts are colour-coded, so printing in colour will make it easier for students. There are **different versions of the worksheet** – one where students try making the assistant without machine learning first to compare, others where students only use machine learning.
Access	Username and password for machinelearningforkids.co.uk

Class account will need:

API keys	**Watson Assistant** - 1 workspace per student One "Lite" API key is free but can only be used to create 5 workspaces One "Standard" API key can be used to create to create 20 workspaces more detail at: https://github.com/IBM/taxinomitis-docs/raw/master/docs/pdf/machinelearningforkids-apikeys.pdf

Customizing

If you use **PRIMM** approaches with your class, add a step where students predict how the project template works.
If you want to **increase the amount of coding** involved, delete some of the code from the project template and add steps to the worksheet so students code it themselves.
If you want to **encourage problem solving**, delete some of the detail in the worksheets and provide more general instructions instead.
Project template files & worksheets in MS Word format are available so you can **modify them to suit your class**.

Project templates	https://github.com/IBM/taxinomitis-docs/tree/master/scratch-templates Scratch 3 templates end .sb3 Scratch 2 templates end .sb2
Worksheets	https://github.com/IBM/taxinomitis-docs/tree/master/project-worksheets/msword

Help

Potential issues	• "https://machinelearningforkids.co.uk" is a long URL to type for some children. You may find it easier to set up a bookmark that they can click on instead. • The worksheet screenshots are based on Scratch 3, but the project can also be done using Scratch 2. General troubleshooting and help at https://machinelearningforkids.co.uk/help