

Machine Learning For Kids :: Teachers' notes

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| 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 <ul style="list-style-type: none"> 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:

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| 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:

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| 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 20 workspaces more detail at: https://github.com/IBM/taxinomitis-docs/raw/master/docs/pdf/machinelearningforkids-apikeys.pdf |
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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**.

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| 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

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| Potential issues | <ul style="list-style-type: none"> "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. <p>General troubleshooting and help at https://machinelearningforkids.co.uk/help</p> |
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