

# Machine Learning For Kids :: Teachers' notes

<b>Worksheet</b>	<b>Secret Code</b>
<b>Activity</b>	Make a spy in Scratch and teach it to recognize your secret code words.
<b>Objective</b>	<b>Teach a computer to recognise speech</b> <ul style="list-style-type: none"> <li>Learn how computers can be trained to recognise words</li> </ul>
<b>Difficulty level</b>	Intermediate
<b>Time estimate</b>	1 hour
<b>Summary</b>	Students train a speech recognition system to recognize words. They use this in Scratch to make a spy that recognizes the words, and guide it around a town.
<b>Topics</b>	speech recognition, sound recognition, supervised learning

## Setup

Each student will need:

<b>Print-outs</b>	Project worksheet (download from <a href="https://machinelearningforkids.co.uk/worksheets">https://machinelearningforkids.co.uk/worksheets</a> ) Blocks in Scratch scripts are colour-coded, so printing in colour will make it easier for students.
<b>Technology</b>	Microphone
<b>Access</b>	Username and password for machinelearningforkids.co.uk

Class account will need:

<b>API keys</b>	None
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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**.

<b>Project templates</b>	<a href="https://github.com/IBM/taxinomitis-docs/tree/master/scratch-templates">https://github.com/IBM/taxinomitis-docs/tree/master/scratch-templates</a> Scratch 3 templates end .sb3 Scratch 2 templates end .sb2
<b>Worksheets</b>	<a href="https://github.com/IBM/taxinomitis-docs/tree/master/project-worksheets/msword">https://github.com/IBM/taxinomitis-docs/tree/master/project-worksheets/msword</a>

## Help

<b>Potential issues</b>	<ul style="list-style-type: none"> <li>Students will record their voice and use that to train a machine learning model. This can work using a microphone built in to a laptop but the background noise can make this tricky with a large class all doing it at once. Using dedicated microphones (such as a headset microphone) can be a big help with this.</li> <li>Some students may feel self-conscious recording their voice. The project can be done with non-voice sounds like finger clicks or jangling a bunch of keys instead. You can suggest this as an alternative if that helps.</li> <li>"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.</li> </ul> <p>General troubleshooting and help at <a href="https://machinelearningforkids.co.uk/help">https://machinelearningforkids.co.uk/help</a></p>
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