



# Machine Learning For Kids :: Teachers' notes

<b>Worksheet</b>	<b>Jargon Buster</b>
<b>Activity</b>	Make a meeting assistant in Scratch that listens for when certain words are mentioned, and displays a definition of them when they are heard.
<b>Objective</b>	<b>Teach a computer to listen for words</b> <ul style="list-style-type: none"> <li>Learn how computers can be trained to listen for specific key words</li> </ul>
<b>Difficulty level</b>	Intermediate
<b>Time estimate</b>	1 hour
<b>Summary</b>	Students train a sound recognition system to recognize key words. They use this in Scratch to make a project that reacts to hearing them and displays a definition.
<b>Topics</b>	sound recognition, speech 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>Including examples of the student talking (but not mentioning their chosen key words) in the “background noise” bucket can greatly improve how projects perform. This is mentioned in the student worksheet, but it’s worth highlighting it in case students don’t realize.</li> <li>“<a href="https://machinelearningforkids.co.uk">https://machinelearningforkids.co.uk</a>” 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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