

# Machine Learning For Kids :: Teachers' notes

<b>Worksheet</b>	<b>Mailman Max</b>
<b>Activity</b>	Make a postal sorting office in Scratch that can recognise handwritten postcodes on envelopes.
<b>Objective</b>	<b>Teach a computer to recognise handwriting</b> <ul style="list-style-type: none"> <li>Learn how computers can be trained to recognise handwriting</li> <li>Learn how “optical character recognition” is used to automate tasks like recognising postcodes on letters</li> </ul>
<b>Difficulty level</b>	Beginner
<b>Time estimate</b>	1 hour
<b>Summary</b>	Students will draw letters on the screen using an on-screen canvas. This will train a machine learning model to recognise some handwriting. They will use this in Scratch to make a project that can automatically sort letters based on the postcodes they write on them.
<b>Topics</b>	optical character recognition, handwriting recognition, image classification, 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>Files</b>	mailman-max.sbx (download from <a href="https://machinelearningforkids.co.uk/worksheets">https://machinelearningforkids.co.uk/worksheets</a> )
<b>Access</b>	Username and password for machinelearningforkids.co.uk

Class account will need:

<b>API keys</b>	<b>Watson Visual Recognition</b> 1 custom model per student  One “Lite” API key is free but can only be used to create 1 custom model One “Standard” API key can be used to create multiple custom models  more detail at: <a href="https://github.com/daledane/ml-for-kids/raw/master/doc/machinelearningforkids-apikeys.pdf">https://github.com/daledane/ml-for-kids/raw/master/doc/machinelearningforkids-apikeys.pdf</a>
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## Help

<b>Potential issues</b>	<ul style="list-style-type: none"> <li>Some children may struggle with the coordination needed to write letters on the screen by dragging the mouse pointer on the canvas. Reassure them that it doesn't need to be perfect, and that training the computer to recognise messy handwriting with examples of messy handwriting is fine!</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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