

## Guide for teachers or group leaders

### 1. Set up accounts for your students

You will need to create user accounts for your students to be able to log in.

Go to <https://machinelearningforkids.co.uk/teacher>

The section “Students in your group” has a button to let you create user accounts. *Their password will be displayed after the account is created.*

*(Note: You don’t need to use a student’s real name. Generic user names like “student01” are fine.)*

There are also controls there to delete user accounts, & reset passwords if your students forget.

### 2. Prepare a lesson plan

Worksheets for a variety of projects are available for download.

Go to <https://machinelearningforkids.co.uk/worksheets>

A suggested order to try some of these worksheets is included on the following page.

Each worksheet has step-by-step instructions, and is a complete project to demonstrate an aspect of machine learning.

*Some of the projects include a template Scratch project file – these are available for download alongside the worksheet PDFs.*

### 3. Try the worksheets out for yourself

Your teacher’s log on will also let you create projects yourself.

Go to <https://machinelearningforkids.co.uk/projects>

*Follow the instructions from one of the worksheets*

### 4. Check your group settings

Your group will have a number of limits set.

Go to <https://machinelearningforkids.co.uk/teacher>

The section “Restrictions” will list the main limits for your group.

*There will be a limit on the number of machine learning models your group can create at any one time. Models will automatically expire to help stop you exceeding this. The expiry time will be shown in the restrictions list.*

### 5. If you run into any problems...

If something goes wrong, check the list of known problems.

Go to <https://machinelearningforkids.co.uk/help>

The section “Known problems” will list the problems I currently know about, and what you can do to avoid them.

*If you’ve found a problem I don’t know about, it might be worth refreshing your page. It’s cliched, but that can work.*

If you’re still stuck, please let me know. Contact details are on the Help page.

	Introduces...	By getting kids to make a...	Teaching a machine to recognise...	What they will learn
Lesson 1: “Smart Classroom”	Confidence thresholds	Virtual Assistant	text	<ul style="list-style-type: none"> <li>How computers can be trained to recognise the intent behind writing.</li> <li>The way confidence thresholds are used to handle when the machine cannot recognise the meaning.</li> <li>How virtual assistants (e.g. Apple Siri, Amazon Alexa, Google Home) work.</li> </ul>
Lesson 2: “Make me happy”	Sentiment analysis	Scratch character	text	<ul style="list-style-type: none"> <li>How computers can be trained to recognise emotional tone.</li> <li>How supervised learning makes it easier to build systems that have to deal with unexpected input.</li> </ul>
Lesson 3: “Mailman Max”	Handwriting recognition	Sorting Office game	images	<ul style="list-style-type: none"> <li>How computers can be trained to recognise handwriting</li> <li>How OCR is used to automate tasks like recognising postcodes on letters</li> </ul>
Lesson 4: “Sorting Hat”	Text classification	Harry Potter game	text	<ul style="list-style-type: none"> <li>How computers can recognise different types of language.</li> </ul>
Lesson 5: “Noughts & Crosses”	AI in games	Noughts & crosses	numbers	<ul style="list-style-type: none"> <li>How machines have been taught to play games since the 1960’s.</li> <li>Decision tree learning as a way for computers to learn how to play games.</li> </ul>
Lesson 6: “Rock, Paper, Scissors”	Image recognition	Webcam game	images	<ul style="list-style-type: none"> <li>How computers can be trained to recognise pictures.</li> <li>The importance of variety in training machine learning systems.</li> </ul>
Lesson 7: “Headlines”	ML testing	Test system	text	<ul style="list-style-type: none"> <li>How computers can be taught to recognise the source of writing</li> <li>How machine learning systems are tested.</li> </ul>
Lesson 8: “Judge a book”	Image recognition	Scratch game	images	<ul style="list-style-type: none"> <li>How effectiveness of a machine learning system can be measured by comparing performance against humans.</li> </ul>
Lesson 9: “Top Trumps”	Categorical data	Scratch card game	numbers	<ul style="list-style-type: none"> <li>How collecting training is used to make it easier to train computers than manually labelling training data.</li> <li>How computers can learn to play games where the correct answer cannot be known, by predicting the likelihood of each outcome.</li> </ul>
Lesson 10: “Tourist Info”	Training bias	Holiday app	text	<ul style="list-style-type: none"> <li>The impact of training bias on machine learning systems</li> <li>Ethical questions introduced by training bias in machine learning systems.</li> </ul>