

## Resources for teaching Artificial Intelligence, as shared on #caschat last night

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### Introduction to Machine Learning and AI

★★★★★ 5.0 (22 reviews)

Discover the fundamentals of machine learning, how it works, and learn to train your own AI using free online tools.

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## Teach a computer to play a game

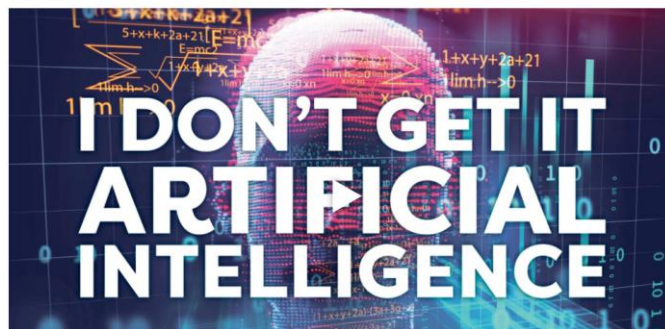
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- 1 Collect examples of things you want to be able to recognise
- 2 Use the examples to train a computer to be able to recognise them
- 3 Make a game in Scratch that uses the computer's ability to recognise them

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### WATCH: I Don't Get It – What is Artificial Intelligence (AI)?

I Don't Get It

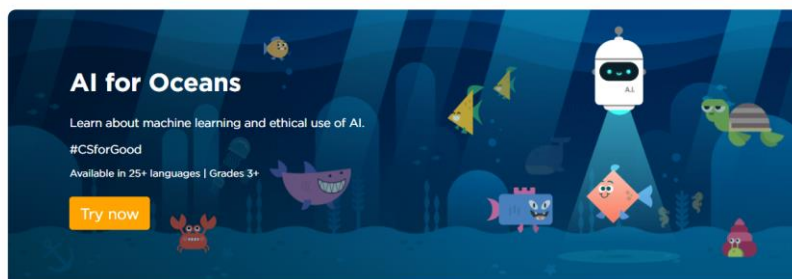
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Learn about machine learning and ethical use of AI.

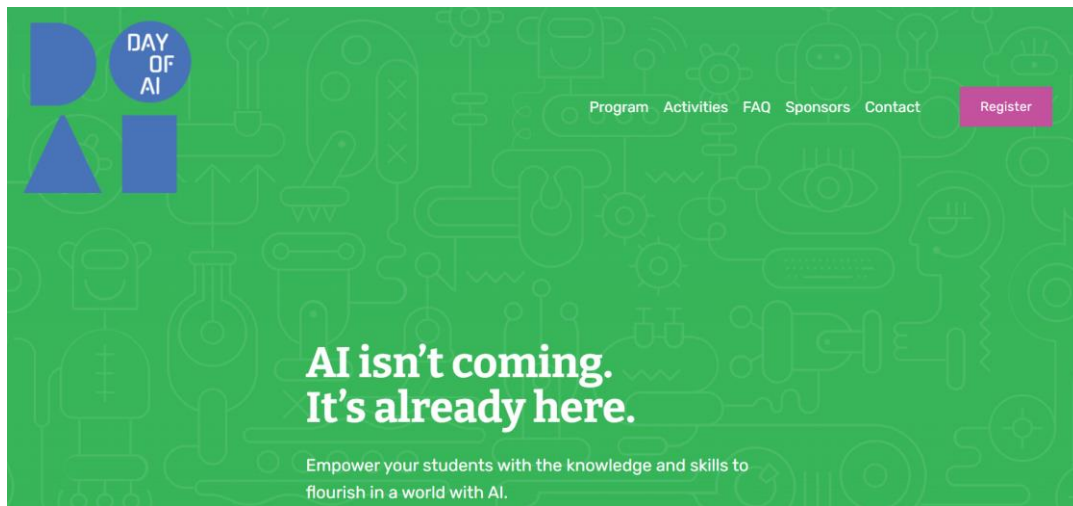
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Computer science is about so much more than coding! Learn about artificial intelligence (AI), machine learning, training data, and bias, while exploring ethical issues and how AI can be used to address world problems. Enjoy Code.org's first step in a new journey to teach more about AI. When you use the AI for Oceans activity you are training real machine learning models. [Learn more.](#)





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### Try our new free machine learning projects for Scratch

7th Oct 2019
Daragh Broderick
0 comments

Machine learning is everywhere. It's used for image and voice recognition, predictions, and even those pesky adverts that always seem to know what you're thinking about!

If you've ever wanted to know more about machine learning, or if you want to help you learners get started with machine learning, then [our new free projects](#) are for you!

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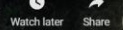
Scratch 3 Desktop for Raspbian on Raspberry Pi

Scratch 3, and upgrading our free resources

#### NEXT POST



If you're feeling creative, you can also **design** your own scenarios, for you and other users to **browse**, share, and discuss.



### 3 State applications of AI

[+ Answer guidance](#)

Materials: <https://www.clickschool.co.uk/?bookId=100>

1 Lots of help	2	3	4	5 Independent learner
<ul style="list-style-type: none"> <li>Knows what AI stands for</li> <li>Identifies smart devices</li> <li>Gives examples of what AI is used for</li> </ul>	<ul style="list-style-type: none"> <li>Defines a smart device, IoT, 'big data', 'AI', 'ML'</li> <li>Knows what 'the cloud' is</li> <li>Knows what The Turing Test is</li> <li>Identifies benefits and drawbacks of AI technology</li> <li>Appreciates how advances in technology make AI possible</li> </ul>	<ul style="list-style-type: none"> <li>Describes how the basics of how a smart device utilises a internet connection</li> <li>Discusses problems associated with smart devices</li> <li>Names different 'parts' of a typical AI system</li> <li>Describes uses for ANI</li> <li>Explains differences between ANI and AGI.</li> <li>Knows advances in technology that make AI possible</li> <li>Implement 'Teachable Machine' to build a game using Scratch</li> <li>Describes how ML is used to detect spam/phishing emails</li> </ul>	<ul style="list-style-type: none"> <li>Can describe what the different 'parts' of an AI system can do</li> <li>Investigates and makes reasonable conclusions about use of Google Cloud Vision</li> <li>Describes issues associated with bad training data</li> <li>Discusses the extent to which machines can demonstrate human intelligence</li> <li>Discusses benefits and drawbacks of AI technology</li> <li>Adapt and improve a game in Scratch that makes use of a Machine Learning model.</li> </ul>	<ul style="list-style-type: none"> <li>Research and discuss ethical considerations and implications concerning AI technology.</li> <li>Explores and describes further branches in AI technology.</li> </ul>

## AI and machine learning mini-clips

Teachers from the Royal Society Schools Network have identified various video excerpts (mini-clips) that can be used as lesson resources to help explore the topic of Artificial Intelligence (AI) and machine learning. Each clip introduces an idea, such as 'How do machines learn?' to 'Is it intelligence, learning or mimicry?', and last just a couple of minutes. The excerpts are all taken from the [You and AI](#) lecture series, and are focused on secondary level learning.

### Artificial intelligence (AI) and machine learning mini-clips

You can download a helpful curriculum linked guide, [Using the You and AI lecture series in teaching](#), to explore the mini-clips in more detail and see some suggested classroom ideas and stimulus questions. The length of each video is noted below in brackets.

Age 11 - 16 (Key stage 3 and 4)

- [What do we mean by machine intelligence?](#) (1:27)
- [What can machines learn today?](#) (1:04)
- [How do machines learn?](#) (2:54)



◀ [Shared resources from our Schools Network](#)

EXTRACT SELECTED BY TEACHERS IN THE ROYAL SOCIETY SCHOOLS NETWORK  
FROM *THE HISTORY, CAPABILITIES AND FRONTIERS OF AI*

# What do we mean by machine intelligence?

Is it possible?

THE  
ROYAL  
SOCIETY

What do we mean by machine intelligence?

IDEA 108

## Make me happy

### 01 Getting started

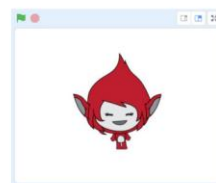
- Go to <https://machinelearningforkids.co.uk/> in a web browser
- Click on "Get started"
- Click on "Try it now"
- Click the "+ Add a new project" button.

### Instructions

In this lesson, you will make a character that reacts to what you say.

If you compliment it, it will look happy.

If you insult it, it will look sad.



### 02



- Name your project "Make me happy" and set it to learn how to recognise "text".

### 03

You should now see "Make me happy" in the list of your projects. Click on it. You need examples to train the computer. Click the **Train** button.





## What I learnt about Artificial Intelligence on Twitter during #CASchat last night

On a Tuesday evening most weeks between 8 and 9pm a group of enthusiastic educators come together to Tweet answers to questions (*or ask more questions\**) presented by the host on a topic related to Computer Science and Computing. Last night the topic was Artificial Intelligence – something I am both curious and very nervous about. So I readied myself for an interesting (*and frantic typing*) hour following the discussion with the aid of Tweetdeck - and I was not disappointed. Hosted by Michael @MikeJonesCSTalk along with Simon @clcsimon @caschat\_uk the evening went something like this for me...

### Icebreaker: Why bother with AI in the curriculum?

AI must be taught as part of the curriculum as everything everyone does to the point of how we vote, what we eat, how fast we read and the networks we associate with generates huge amounts of data. @TsuiAllen

It's a big part of our present and will be an even bigger part of our future. @wnfranklin

Feel it's important to examine how AI will feature in society. Lots of decisions to make for future generations. Vital that students see the benefit as well as potential harm, and so they can hope to influence its direction going forward @TeechGeek

currently using AI across the curriculum as a means of utilising high end digital tools to enhance learning @MattWarne

I think we should teach AI in school because we want the next generation to understand ALL it's capabilities and develop it in the best ways possible. @rcoultart

So there was a definite feeling that AI is something we should be teaching in school, which didn't surprise me really given the nature of those who partake in #caschat! But the answers to **Question 1: Are you teaching AI at your school? Why/why not? Do you plan on doing so in the future?** showed that we aren't all doing it yet, for various reasons. Where it is being taught it is clearly a topic that students enjoy and engage with well, as shared by @CSKirsty, @TsuiAllen, @tough\_miss and @sneekylinux

Some amazing resources were then shared as part of **Question 2: What are your go to places for information on AI/curriculums you use?** and this is where the tabs opened for me to explore later multiplied! As shared above!

It was good to hear that the general consensus for **Question 3: Does teaching AI require investment in hardware?** was 'No', again linking to lots of the free online resources as mentioned above.

**Question 4: Do you need to be an expert in AI to create an AI/teach about AI?** was an interesting one for me because I've always maintained that you don't need to be an expert in anything to teach it, you just need enthusiasm and a willingness to learn. And this was reflected in others' answers too @LauraKeeney01, @sneekylinux, @clickschool, @MWimpennyS and @TeechGeek. Yet somehow I haven't quite embraced this ideal when it comes to AI in the curriculum! Possibly because it isn't a statutory part of what we have to deliver and is therefore easy to avoid? I certainly think it could generate some amazing discussions and 'big questions' that would rival anything that comes about in Religious Education lessons!

\*I did have to ask one question eventually... 'Is AI the same as Machine Learning?' and rather than making me feel like it was a silly question (which it might have been!), some great answers came my way:

Machine Learning (ML) is just one type of approach to building models in AI. Others include Deep Learning and rules-based. @caschat\_uk

Arguably, AI is what we get the kit to do. ML is the conclusions the kit comes up with once we've trained. Sorry, a really fuzzy answer. One way is to think - AI is the way I taught you ML is you being able to decide whether the object is a person or a bin bag in the wind. @MikeJonesCSTalk

Finally, after going off on several tangents and having several mini discussions with multiple tweeters, we arrive at **Question 5: Where have you been able to map AI into your curriculum/where would you map AI**

**into your curriculum?** Answers weren't just limited to the Computing/Computer Science curriculums either, which was fantastic to help me consider some of those wider ramifications I was wondering about.

And to top all of this, today, Ben @BenberryPi tweets about this Future Learn course [Introduction to Machine Learning and AI](#) where I can "Discover the fundamentals of machine learning, how it works, and learn to train your own AI using free online tools." So I've no excuses now for not being able to get my head around AI and how to teach it in Primary school. Thank you #caschat once again.