Coding & STEM 4 Schools

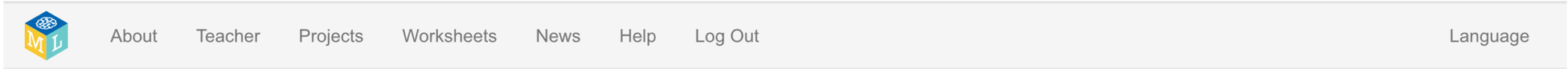
2019 AI Workshop

Training a Smart Assistant

Presented by Mr Daniel Hickmott on 12th November 2019

Machine Learning for Kids

— Free to use, although there can be some cost involved
— Non-commercial and all web-based
— Created and maintained by Dale Lane (Developer at IBM)
— Can use with Scratch, Python and AppInventor
— Important: the Scratch used within ML for Kids is not the 'real' Scratch



Teach a computer to play a game

Go to your **Admin Page**

Go to your **Projects**

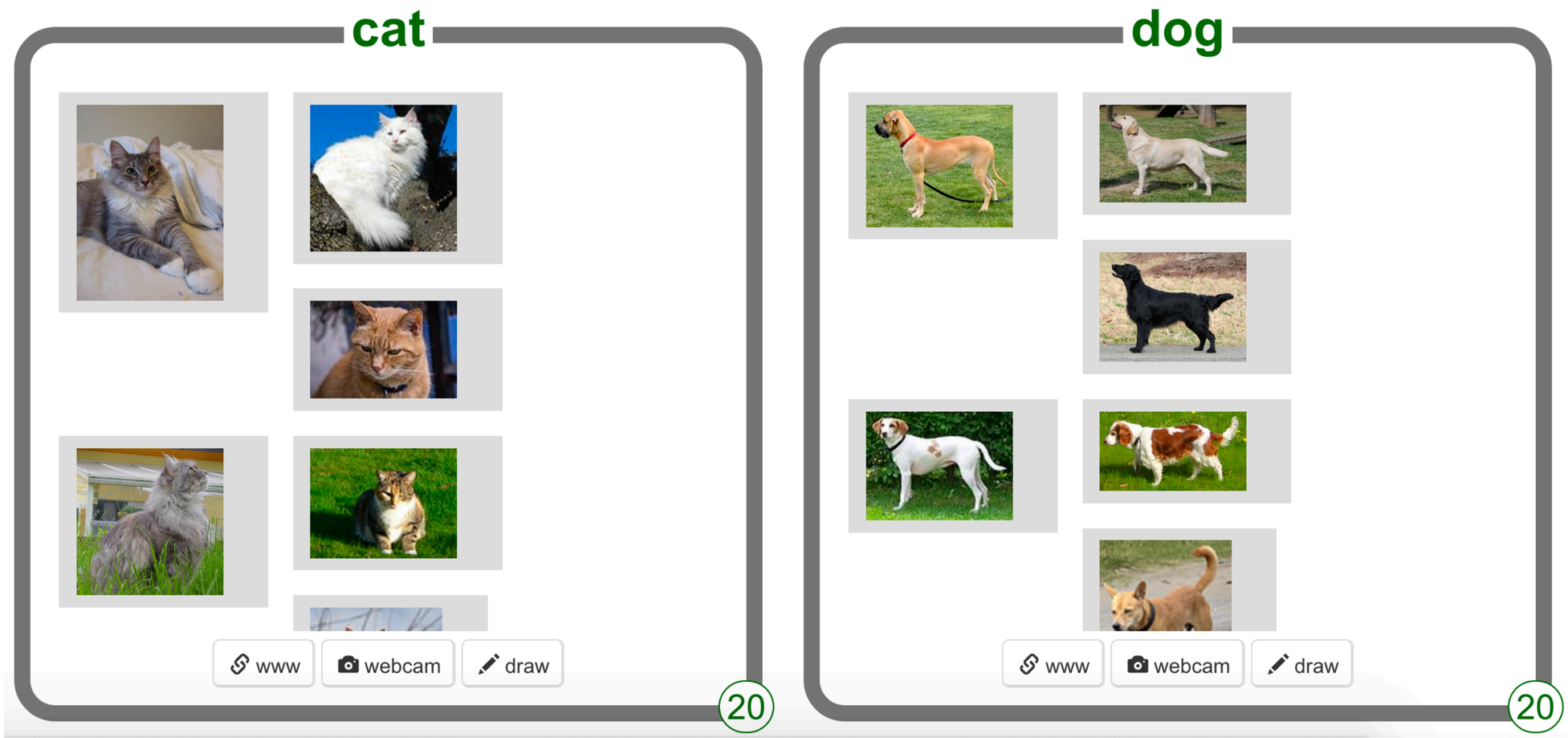
1. Collect examples of things you want to be able to recognise
2. Use the examples to train a computer to be able to recognise them
3. Make a game in Scratch that uses the computer's ability to recognise them

https://machinelearningforkids.co.uk

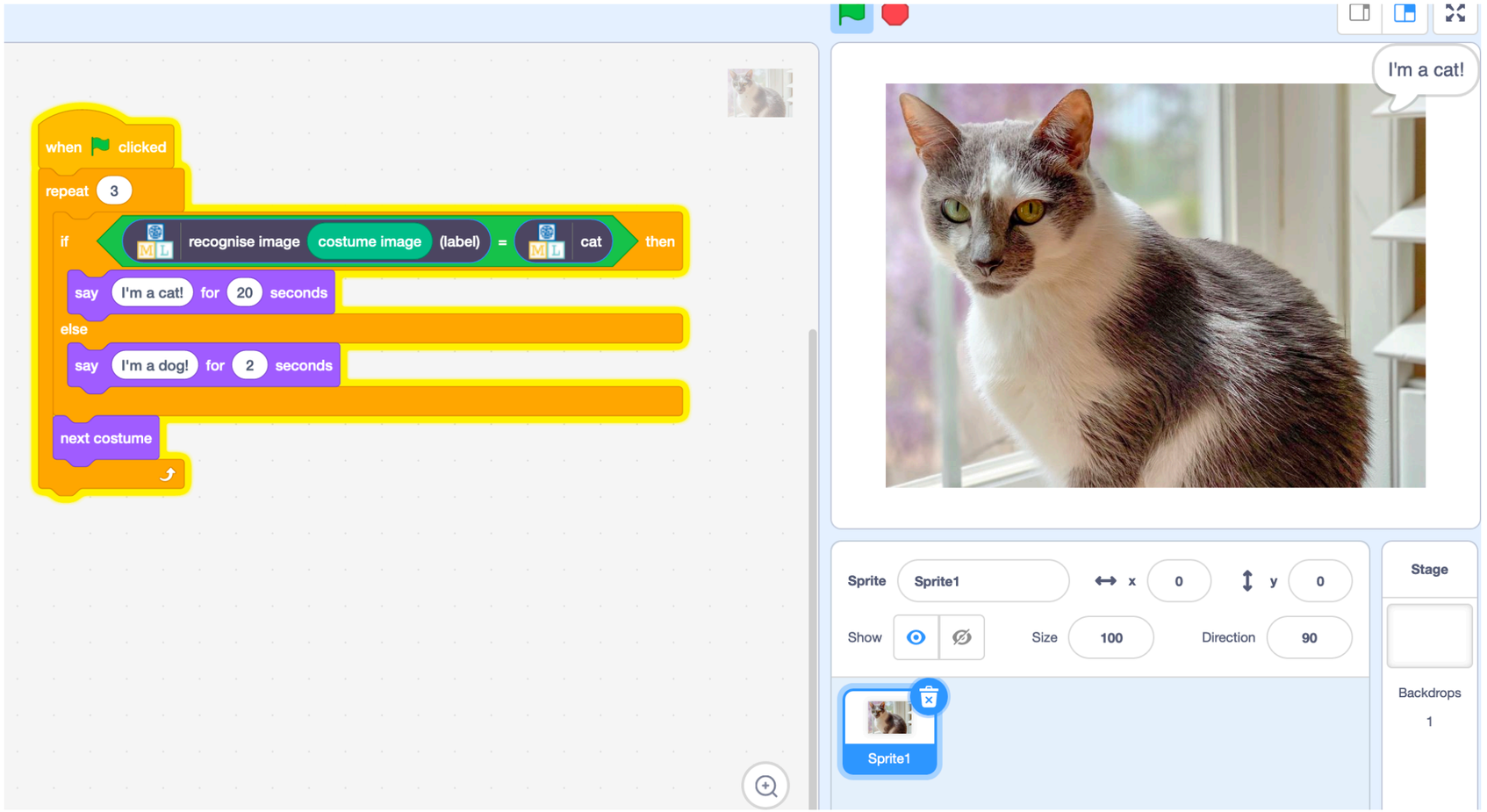
Using Machine Learning for Kids

- Usually involves two main steps:
  - We train a model by giving the computer examples split into different 'buckets', e.g. spam or not spam (supervised learning)
  - Code (e.g. Scratch blocks) are created that use the model to classify new data into these buckets

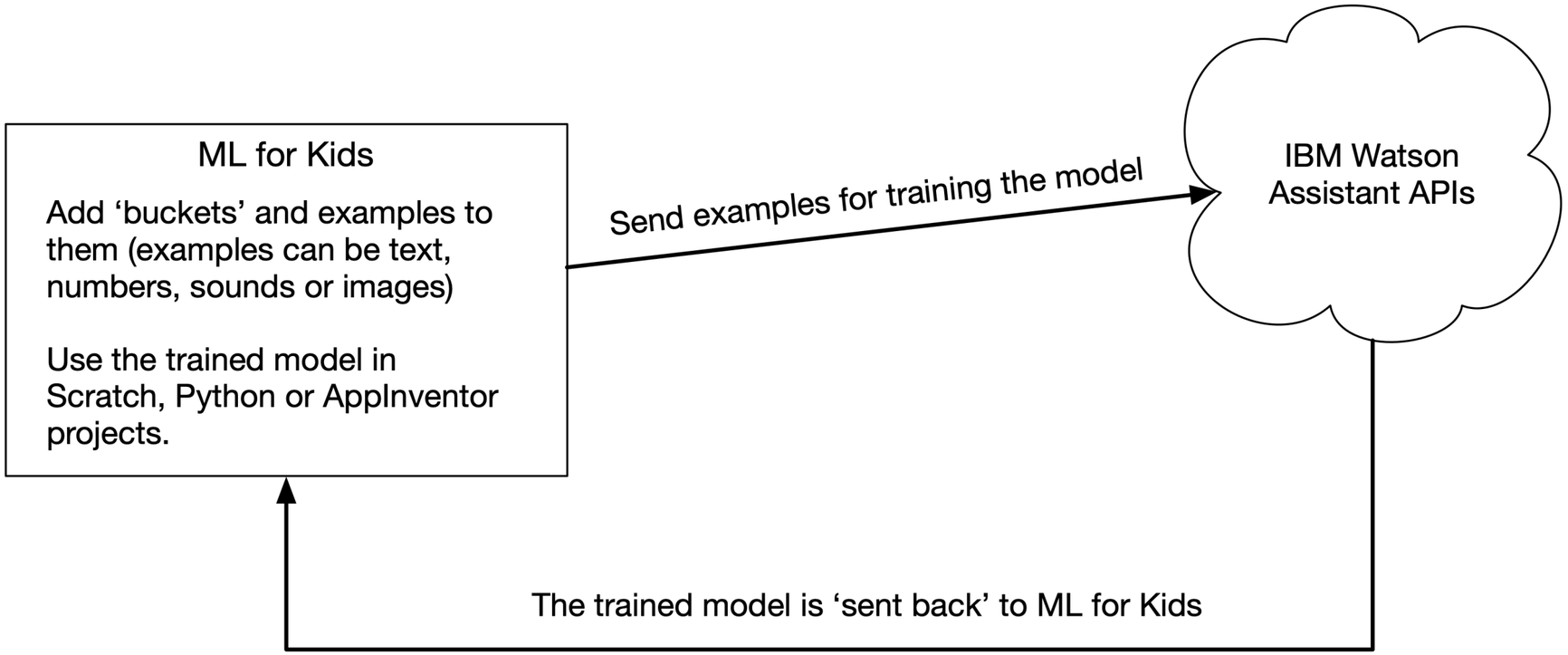
Training with Examples



Coding with the Model



How it Works



— Usage of IBM Watson Assistant can cost $

Resources

- Worksheets
- Project templates (e.g, pictures of cats and dogs, passengers on the titanic)
- Sample projects within Scratch and Code editors
- Raspberry Pi Foundation: Scratch Machine Learning projects

Training a Smart Assistant

— We will use the Raspberry Pi Foundation's version of the Smart Classroom Assistant activity

— We will compare coding with rules and machine learning first

— You will create a Scratch project that 'understands' different instructions for turning a fan and light on and off

Application of these Models

- Amazon Alexa Skills
- As described in Smart Classroom activity:
  - Buckets are created for different commands
  - Examples of appropriate phrases are added to each of the buckets
  - Model is trained with these examples