



# 2016 National CAS Conference for Teachers of Computing

**COMPUTING AT SCHOOL**  
EDUCATE · ENGAGE · ENCOURAGE  
Part of BCS –The Chartered Institute for IT

# Phil Anley

## Bishopstone Church of England Primary School



Swindon RIG

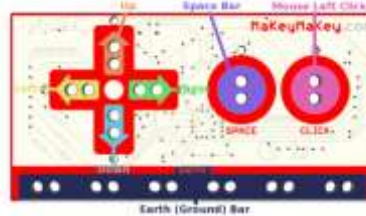
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CAS Regional Hub

SSCP

# Blurb



Coding can be immense fun for children but all too often it is restricted to a narrow computer-only experience.

Today we will build on pupil's enjoyment of Design & Technology to create a timely link between Computing and the wider potential of electronics and design-led manufacture.

Using inexpensive kit and freely downloadable software I will take you through the steps needed to provide for your pupils a hands-on coding and building experience that will inspire them to want to bridge the gap between player and games machine with an interface built of equally robust hardware and software.

# Knowledge Update Today:

- what Kodu is and how it can be used
- what Scratch is and how it can be used
- what MaKey MaKey is and how it can be used
- what MicroBit is and how it can be used



# Objectives



- **To show how Kodu, Scratch, MaKey MaKey and the MicroBit can be used in a cross-curricular way**
- **To share real experiences of Primary School children using these in class**
- **To share effective means of using technology to help to raise attainment for boys' writing**
  - **To demonstrate the programs in action**

# Outcomes from Today

- **Practical ideas that can be readily implemented**
- **Sense of how collaboration, *between pupils and between teachers* supports such projects**
- **Greater confidence in deploying *and in extending the application of* free coding apps**

# My class: KS2 Yrs 3-6





# Tablet learning



BOOK CREATOR<sup>®</sup>





# The Child-led integration of technology



# Teachnology

Letting children use the full range of technology that is available to approach the challenges that they face in the way that they choose without constructing artificial structures / boundaries or otherwise getting in the way of their learning.



# Equip to empower





# Green Screen

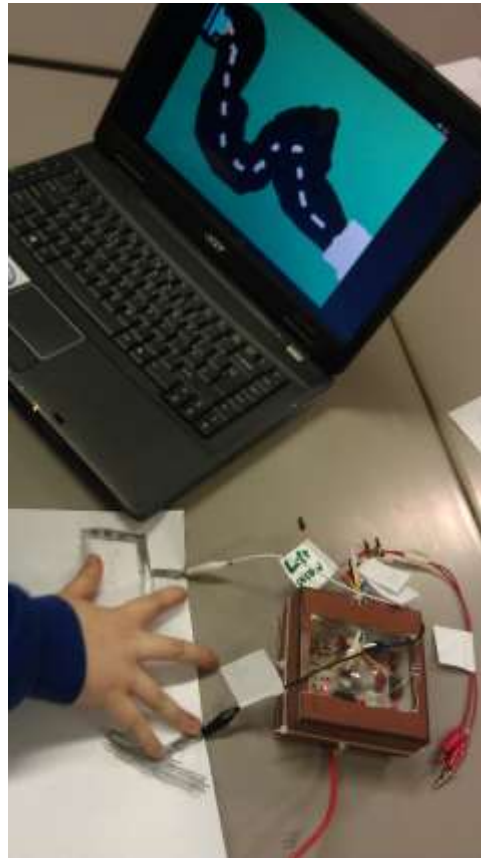
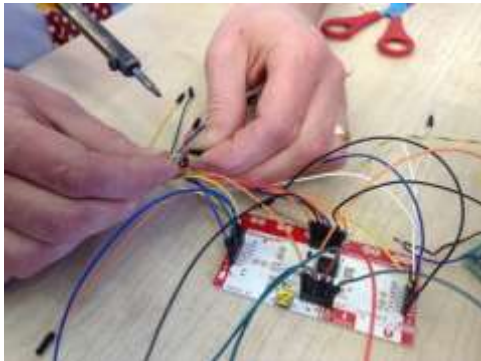


# Computing – discreet timetabling





# Makey Makey



# Makemake

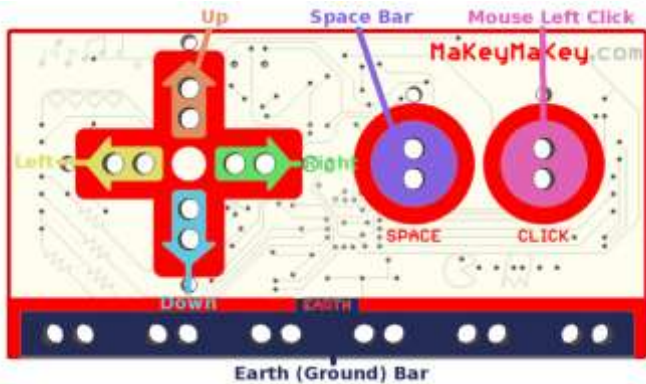


An artist's interpretation of the dwarf planet Makemake beyond Pluto.  
*Credit: NASA*

Makemake is a dwarf planet in the outer solar system. It was the fourth body identified as a dwarf planet, and was one of the bodies that caused Pluto to lose its status as a planet. Makemake is large enough and bright enough to be studied by a high-end amateur telescope. Astronomers took advantage of the dwarf planet's recent passage in front of a star — called an occultation — to determine that Makemake has no atmosphere. It has a moon, though. In 2015, astronomers using NASA's Hubble Space Telescope discovered a tiny object orbiting Makemake.

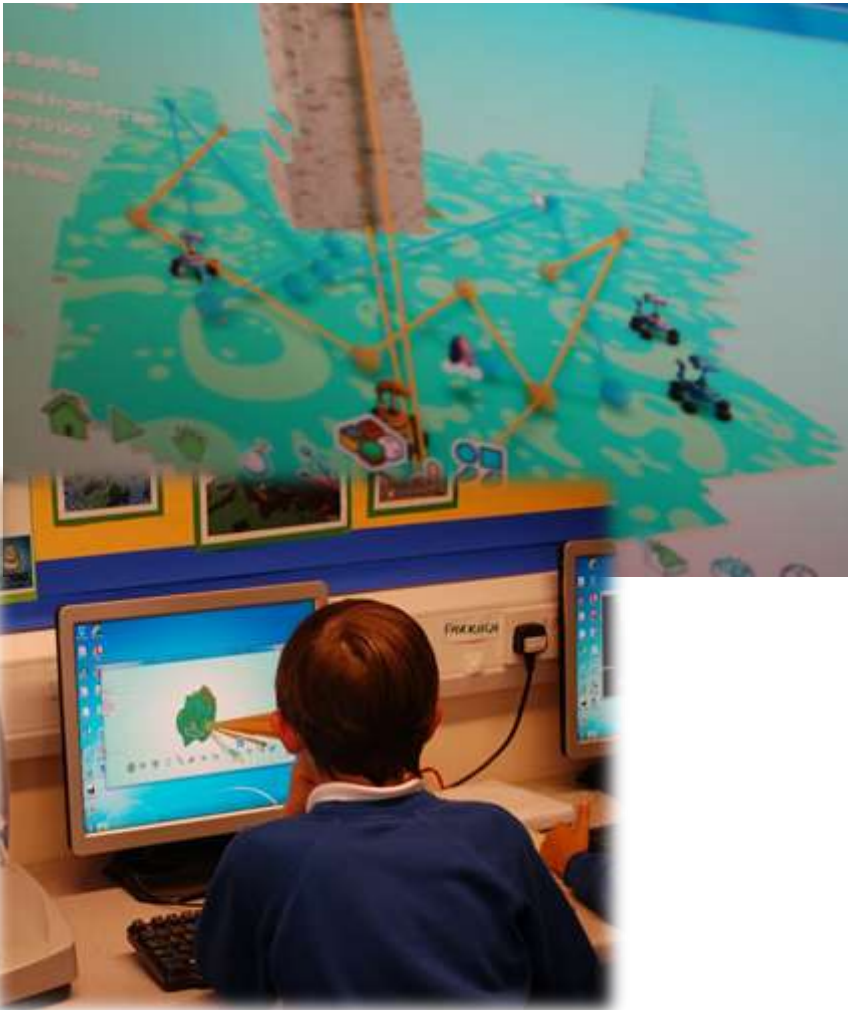


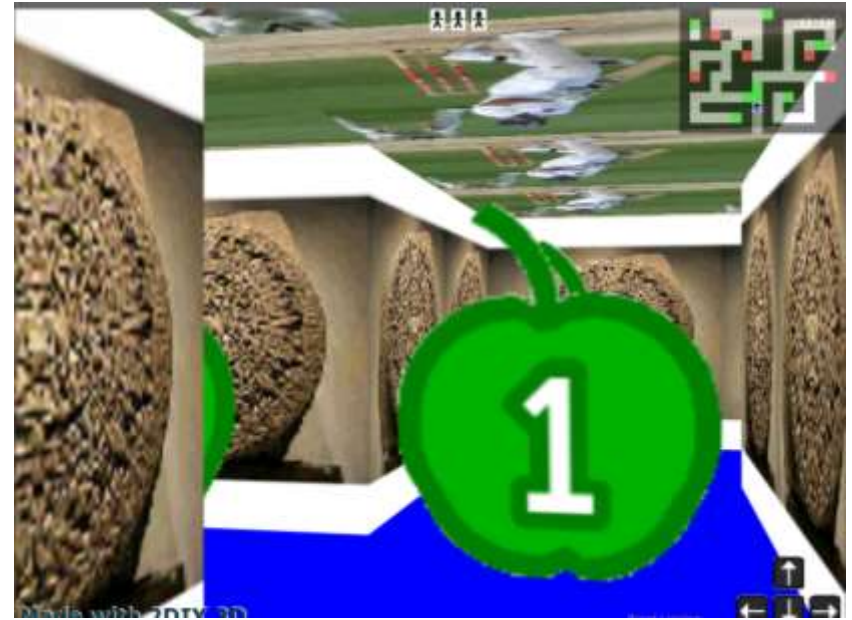
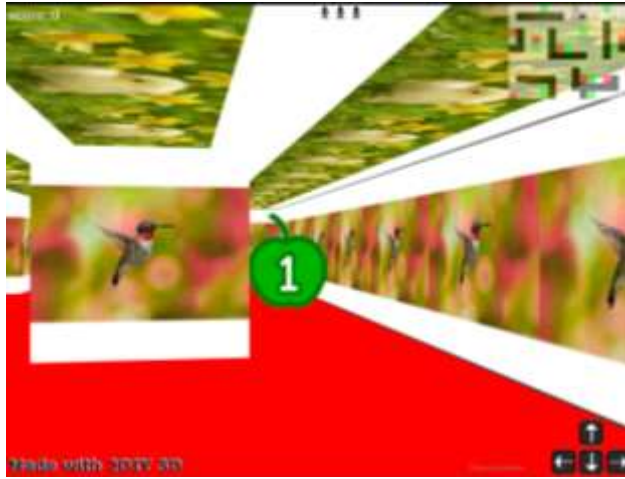
- The missing link between pupil and computer!



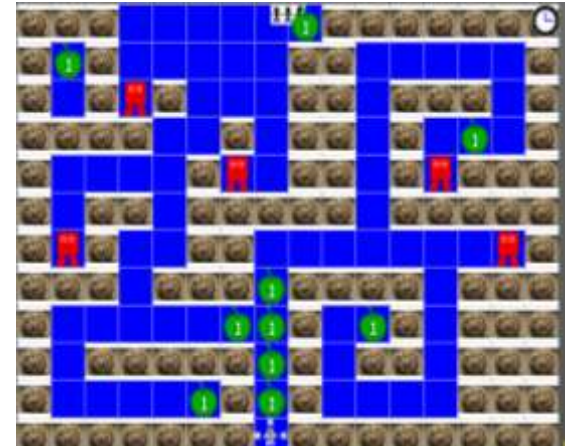
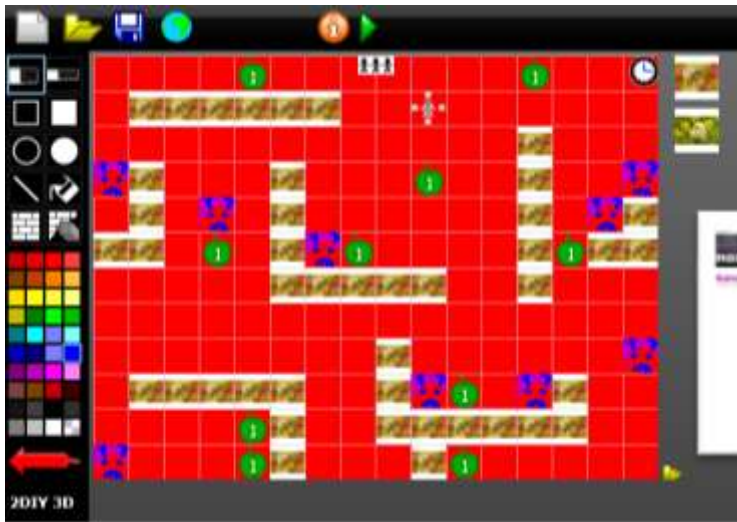


# Kodu – a popular choice





# Owning Gaming

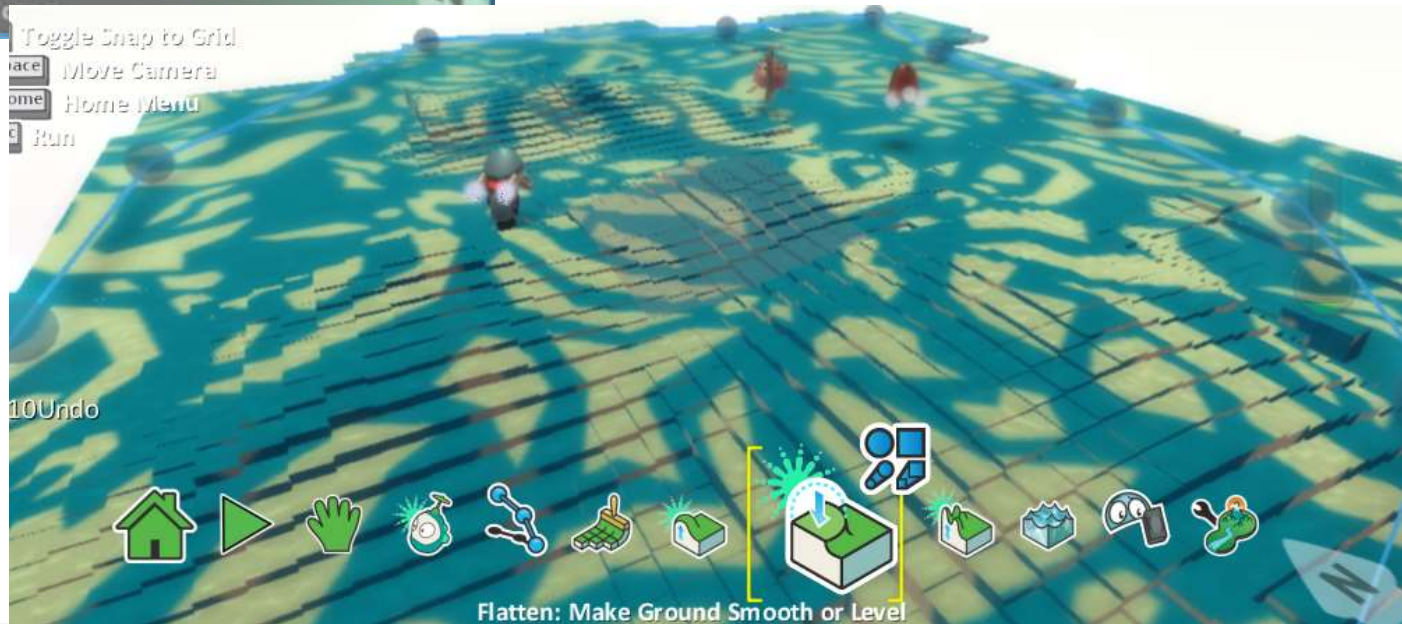
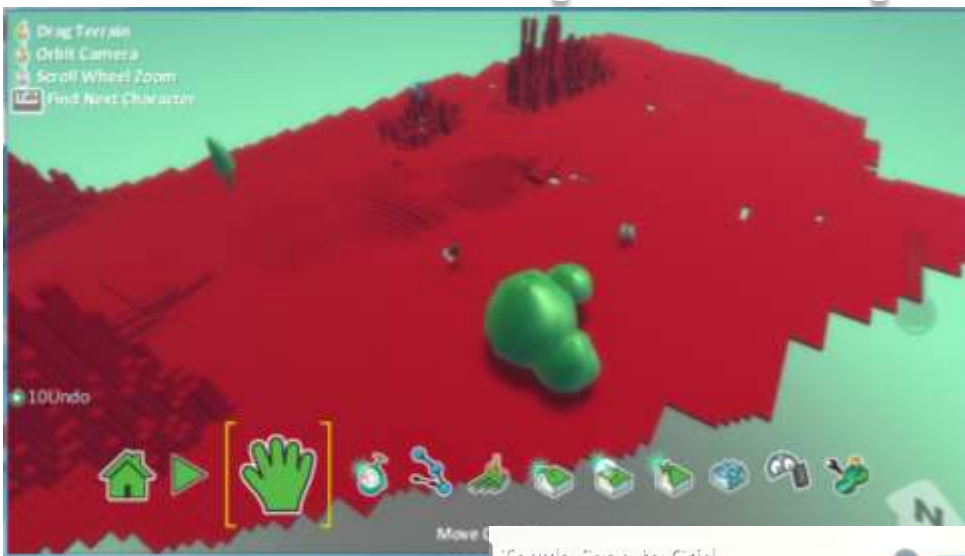


**2Simple Software**  
Making simple, powerful & creative educational software

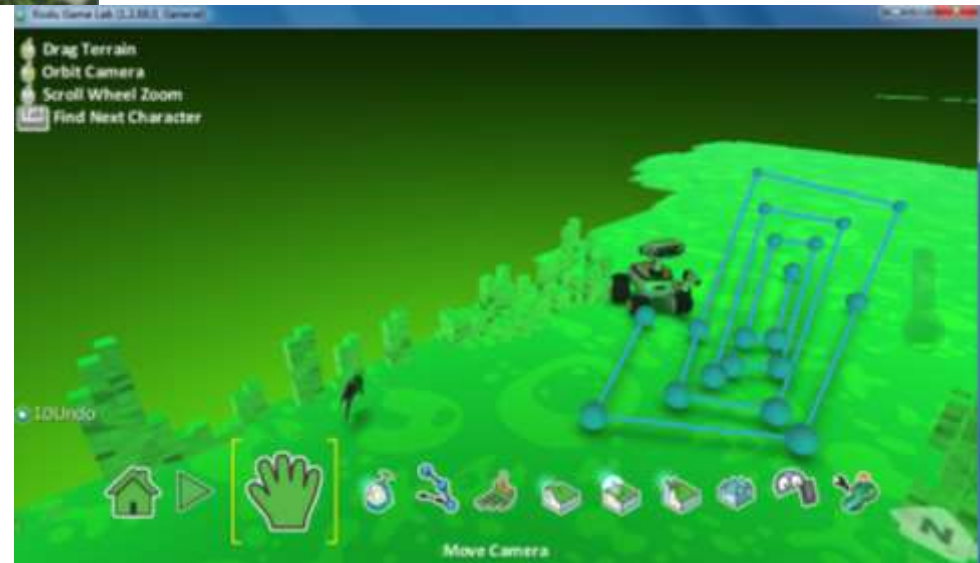
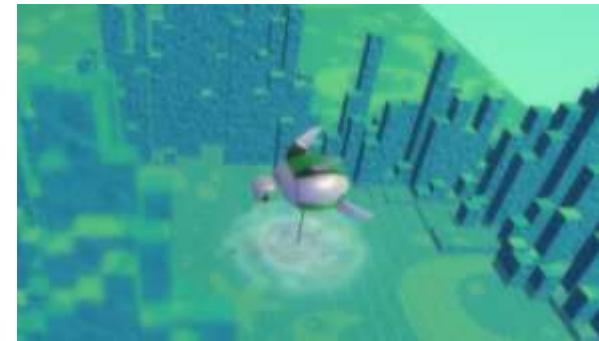




# Samples of pupil Kodu work



# Samples of pupil Kodu work



# The Minecraft similarity



# Cross Curricular

WALT:

Identify and discuss **themes** and **conventions** in and across a wide range of writing

Computing (2014)

"...repeated practical experience of writing computer programs"

# Cross Curricular

## Story Conventions

(What we now expect in every story)

**Plot**

**Character**

**Setting**

**Climax**

**Ending**



# Cross Curricular

## Character



Fergus the mechanical crime-solving robot with a precise and unerring ability to investigate every mystery



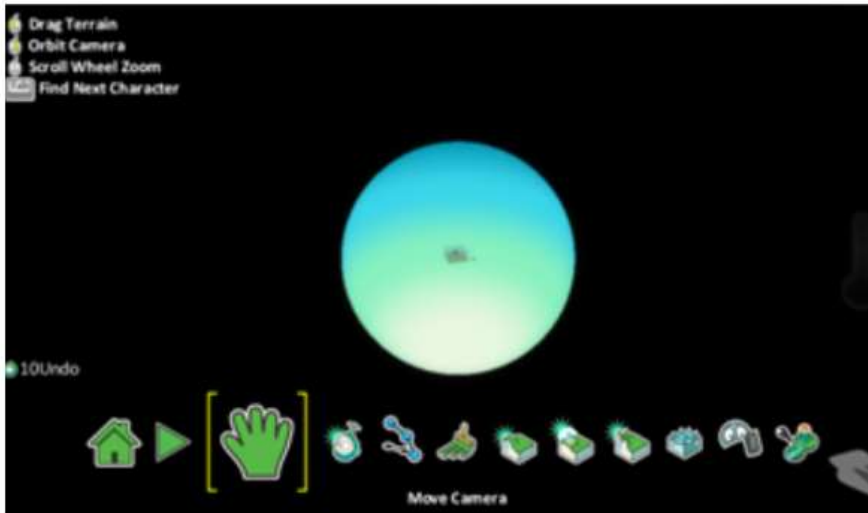
Patrick the plucky Kodu with no sense of direction



Clarabelle - a rare Yellow-bellied Sunfish who is stuck unable to move and deeply unhappy at her plight

# Cross Curricular

## Setting



Your world  
Your details (think  
about descriptions that  
you would use)  
Your atmosphere

# Cross Curricular

## Plot

Fergus the mechanical crime-solving robot with a precise and unerring ability to investigate every mystery has been asked by Patrick to help Claribelle to move again. He goes about this mission with his usual methodical strategy but he is in for a big surprise..!



## Cross Curricular

### Ending

Free once more to roam where she desires Claribelle delights in following Patrick where he wanders.

With each morsel of food that she finds Claribelle grows in strength and confidence.

Something about being close to Claribelle encourages Fergus to behave differently - from this day onwards Fergus has developed thanks to his adventure.

# Cross Curricular

## WILF:

### Must:

1. Open Kodu. Add three characters. Record on your clipboard paper the names of each character and one interesting biographic or personality detail
2. Decide on what the problem is going to be with one of your characters and how it could be fixed.
3. Build your setting
  - remember to take care to avoid unnecessary flooding
  - consider adding atmospheric details such as a brooding sky / forest / hills
- 4 Program your characters (sprites) to behave in a way that fits who you have made them to be
  - for example how they move, how they react to each other, how they react to objects around them

### Should:

Print screen your creation for further analysis in a future lesson

### Could:

Introduce a sub-plot by having a second problem with a different character that also gets fixed  
Print screen a second image of the happy ending for annotating another day.



# Electronics Club



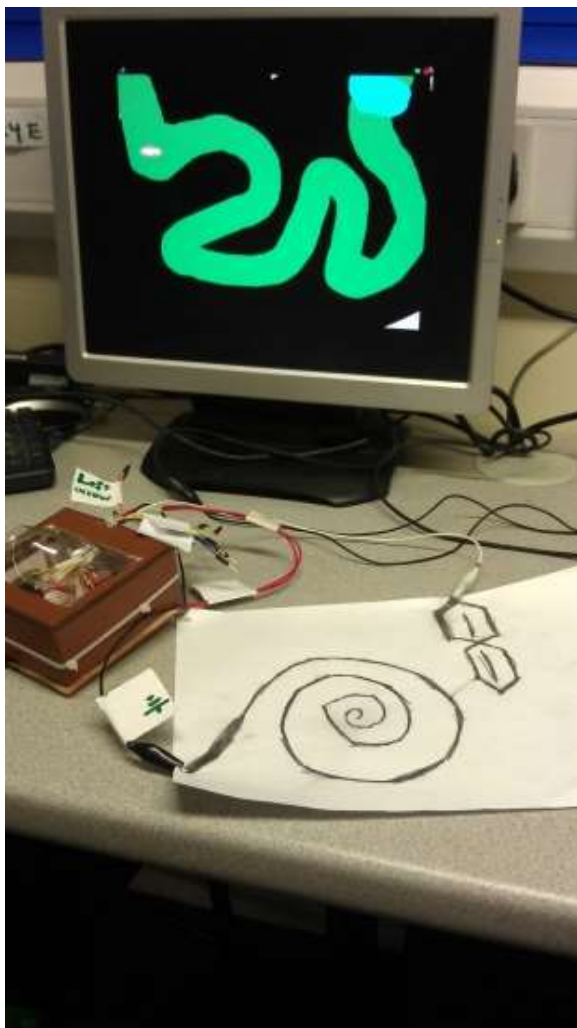
# Electronics Club



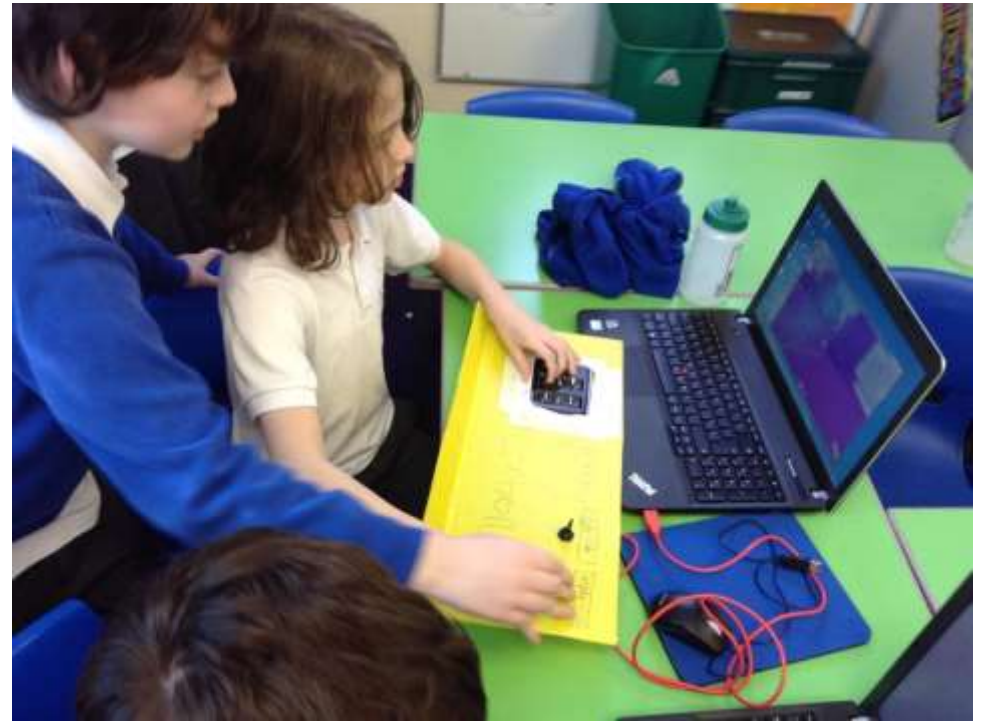
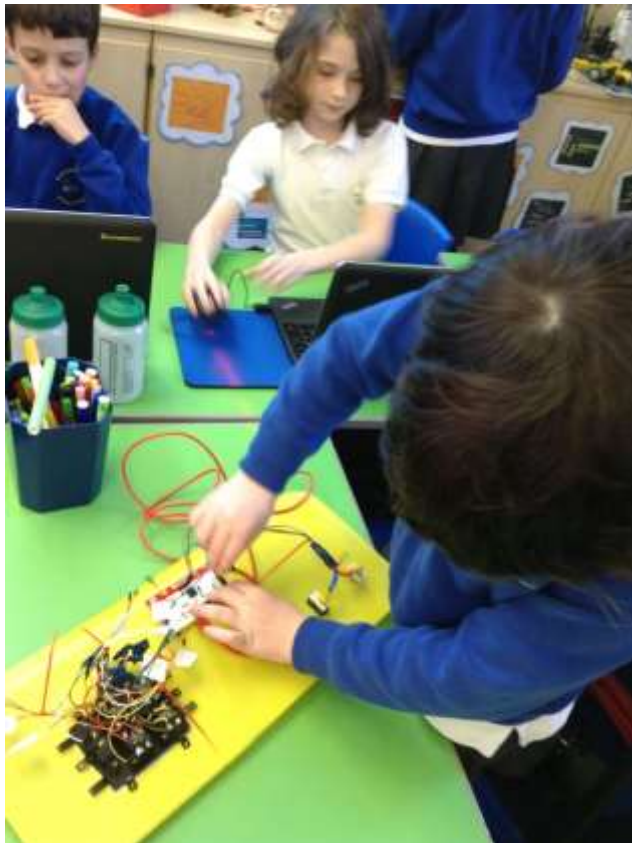
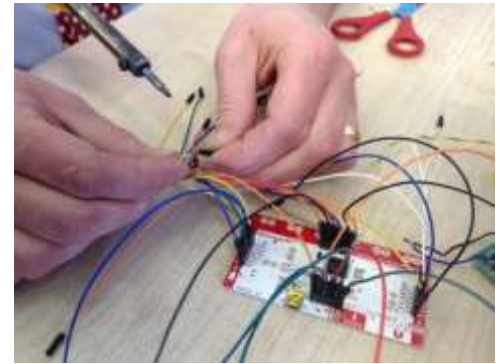
Computing: use technology safely



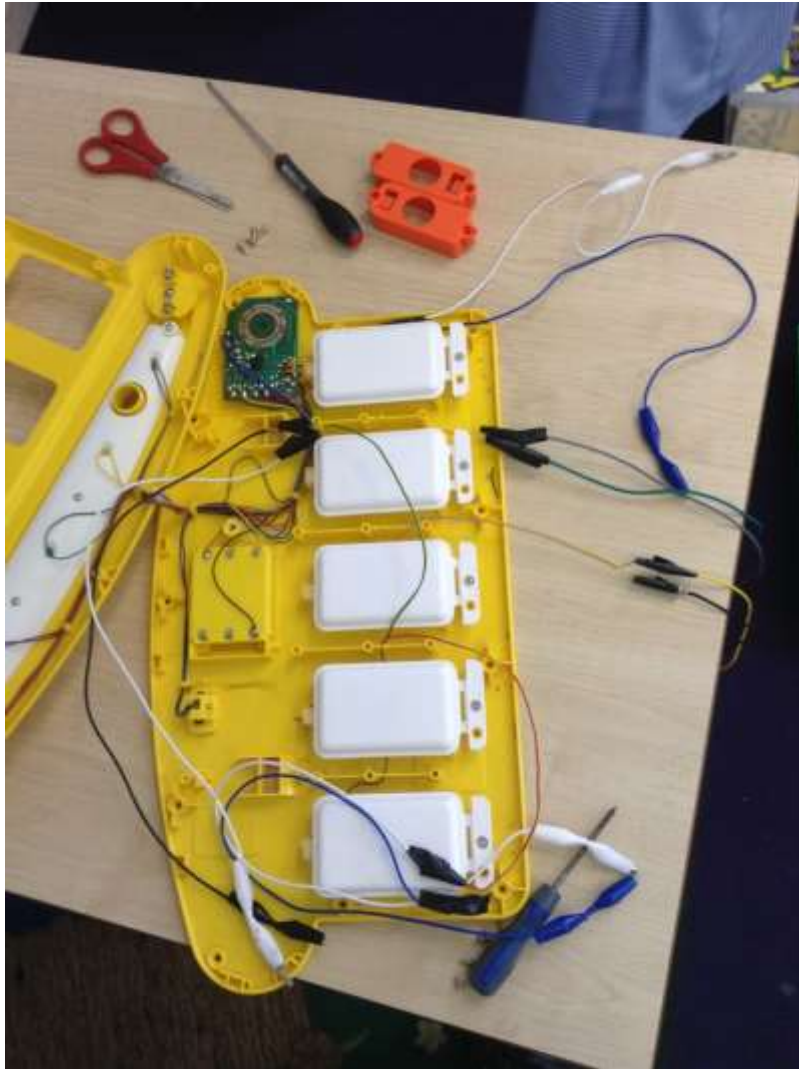
# Electronics Club



# Electronics Club



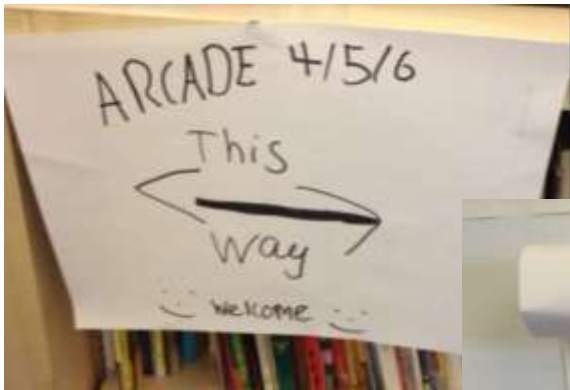




# Arcade 456







# Arcade 456



# The Prediction Machines

# WHAT LEARNING OBJECTIVES ARE MET?

**English:** Identify and discuss **themes** and **conventions** in and across a wide range of writing

Computing: design, write and debug programs that accomplish specific goals

Computing: work with variables and various forms of input and output

DT: understand and use electrical systems in their products

DT: apply their understanding of computing to program, monitor and control their products



# THE MAIN INFO:

## WHAT DO I NEED?



SCRATCH



Scratch



micro:bit

## WHERE FROM?

[www.proto-pic.co.uk](http://www.proto-pic.co.uk)

[www.amazon.co.uk](http://www.amazon.co.uk)

[www.kodugamelab.com](http://www.kodugamelab.com)

[www.scrapstore.co.uk](http://www.scrapstore.co.uk)

[www.scratch.mit.edu](http://www.scratch.mit.edu)

[www.microbit.co.uk](http://www.microbit.co.uk)

## HOW MUCH?

£30 ex vat

£40.99

free

£60 - £120 pa

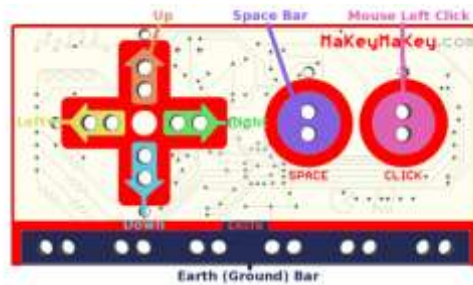
free

free

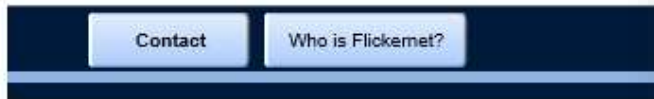
## WHO IS THIS MOST SUITABLE FOR?

Years 2,3,4,5,6,7,8

DEMO TIME



# www.flickernet.com



Useful Files  
(this PowerPoint,  
Kodu,  
Scratch, Microbit link)

Teachers: help in the classroom

The screenshot shows the Flickernet website interface. At the top, there is a dark blue header with a home icon, the text 'Lesson Notes 1', and the 'Flickernet' logo. Below the header is a green circular arrow icon. The main content area features a large photo of children sitting around a table with a map and small figures. To the right of this photo is the text 'Personalising History' and a paragraph: 'Photofiltre, a free graphics editing program, allows children to build historical figures to their exact specification which can then take part in table-top challenges and reenactments.' Below the main photo is a smaller photo of a wooden model of a house with figures. To the right of this is a screenshot of the Photofiltre software interface. At the bottom right of the main content area is a blue button labeled 'More Lesson notes'. The footer is a dark blue bar with four white buttons: 'Request Help', 'Samples of School Work', 'Useful Files' (highlighted in green), and 'Useful Teaching Links'.



Email: [swindonrig@gmail.com](mailto:swindonrig@gmail.com)

Thank you for attending today

[www.SwindonRIG.net](http://www.SwindonRIG.net)

[www.flickernet.com](http://www.flickernet.com)



# The Computing RIG

## Research & Innovation Group

### **Aim:**

- **to discover innovative teaching of Computing in Swindon schools**
- **to disseminate this out to schools through meetings and visits**

### **Outcomes:**

- development of new learning behaviours through ICT, especially those which enhance the skills of discrimination and discernment
- support given to teachers to deliver the new Computing Curriculum
- blended learning (multi-platform / multi-location)
- programming in Primary schools to assist cross-phase transition
- incorporation of new technologies to support good teaching practice

CAS Regional Hub

[www.SwindonRIG.net](http://www.SwindonRIG.net)