

Kids and Computing

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What This Is Not...

- Prescriptive
- Authoritative
- Aimed at Highschool or above
- Social Media focused
- Based on curriculum
- An advertisement

What This Is...

- Our Opinion
- Show and tell!
- Suggestions for resources
- Based on practical experience
- This comes from parents of 2 boys
- Tools found on Android, Linux or Raspberry pi

Resources Used...

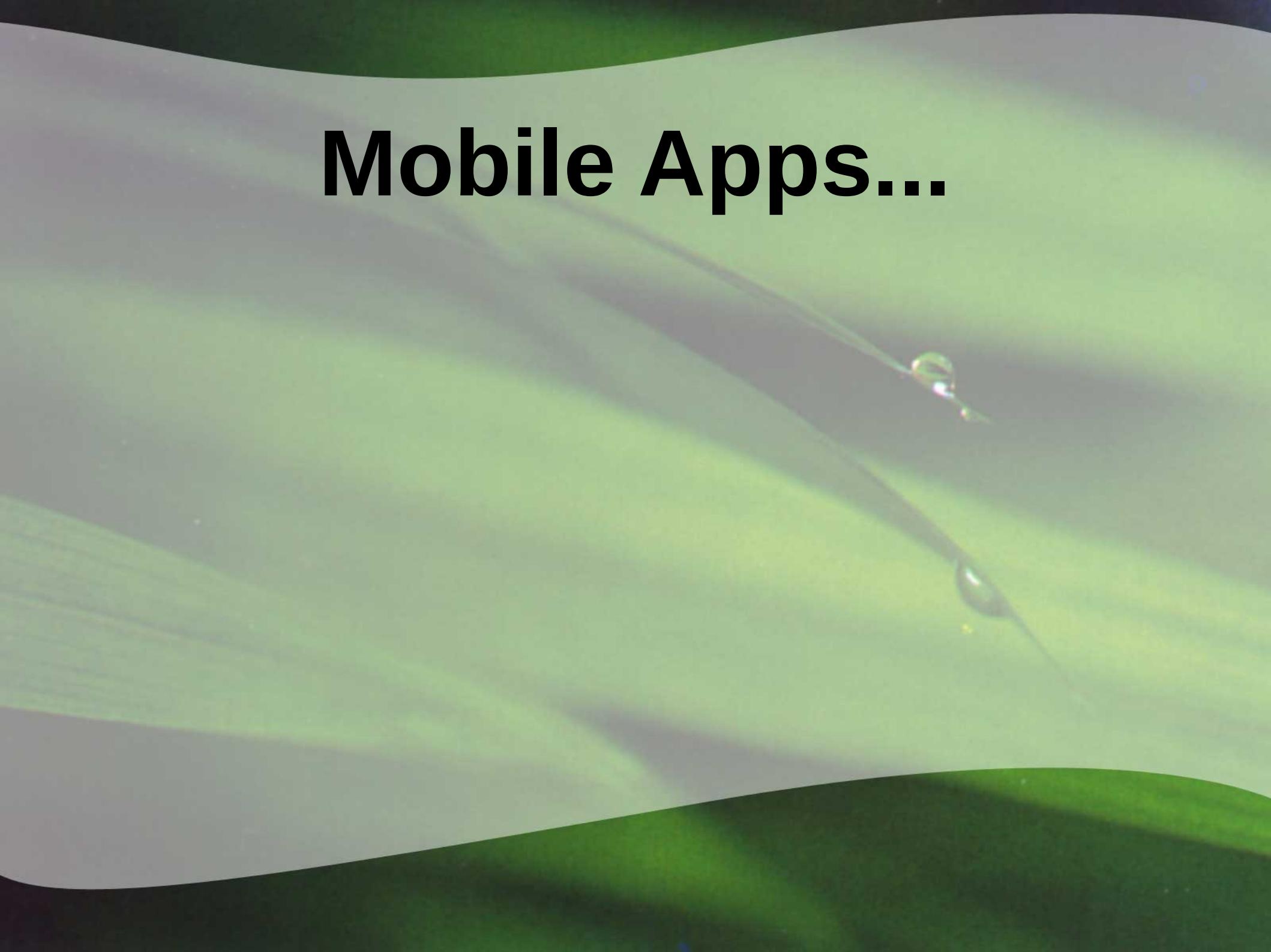
- Code-a-piller
- Code Karts
- CodeCombat
- Crash Course
- Scratch/Scratch Jr
- Human Resource Machine

Resources Used...

- Circuit Boards for kids
- Interaction with physical parts
- Various typing games
- Lego Codes
- OBS

Resources To Consider...

- littleBits
- Minetest/Minecraft
- Raspberry Pi for Kids -- Bates
- Raspberry Pi Christmas Lights
- 7 Billion Humans

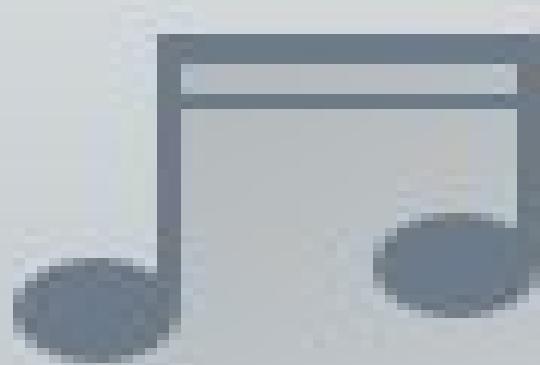


Mobile Apps...

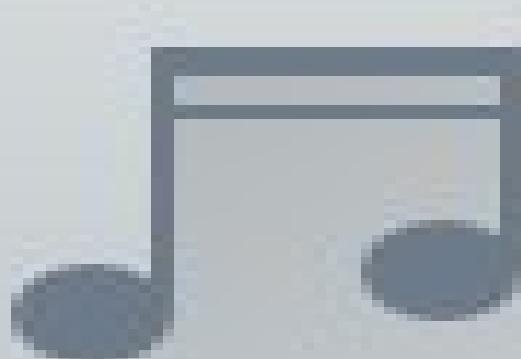
Code-A-Pillars

- Made by Fisher Price
- Mobile App
- Aimed at Pre-School
- Counting and Logic
- From Very simple to complex
- Completely Free

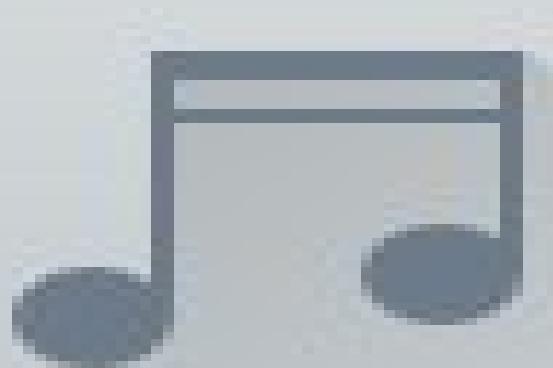
Code-A-Pillars



Code-A-Pillars



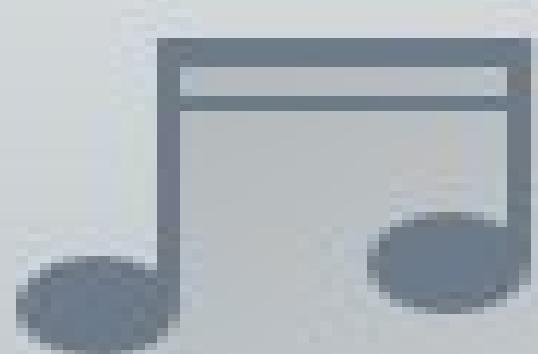
Code-A-Pillars



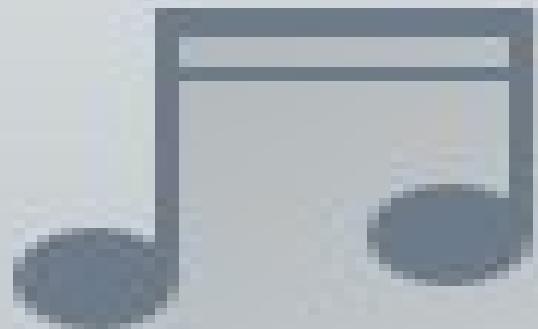
Code Karts

- Edoki Academy
- Mobile App
- Aimed at age 8 and below
- Guide your car around
- Mostly logic based
- First 10 levels are free

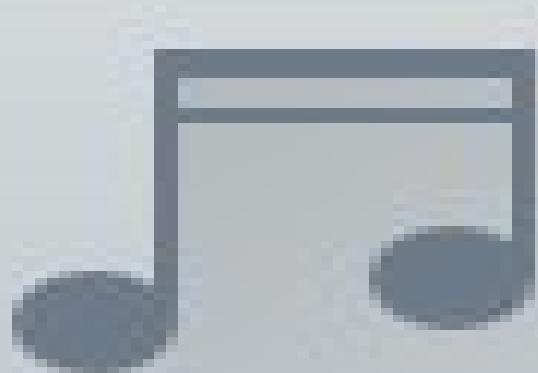
Code Karts



Code Karts



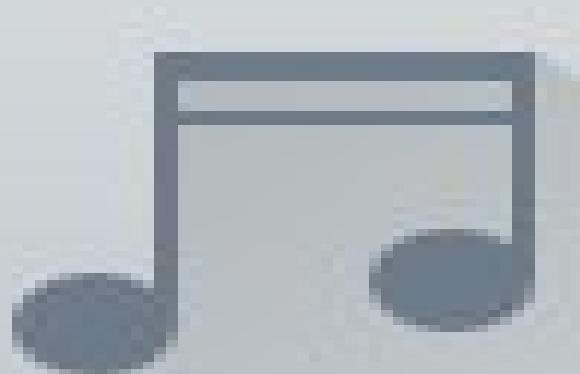
Code Karts



Crash Course/Tynker

- Mobile App
- Some totally free
- Some paid
- Crash Course is Complex
- Control speed, direction, action etc

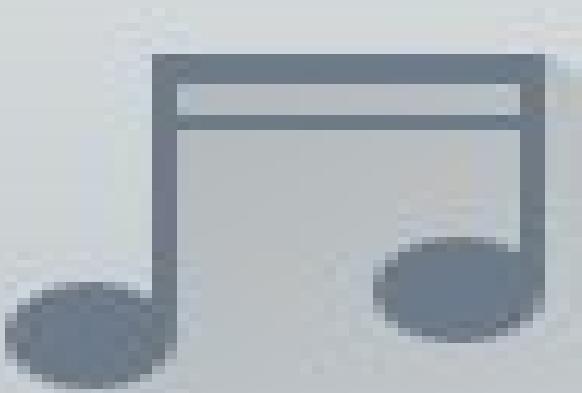
Crash Course/Tynker



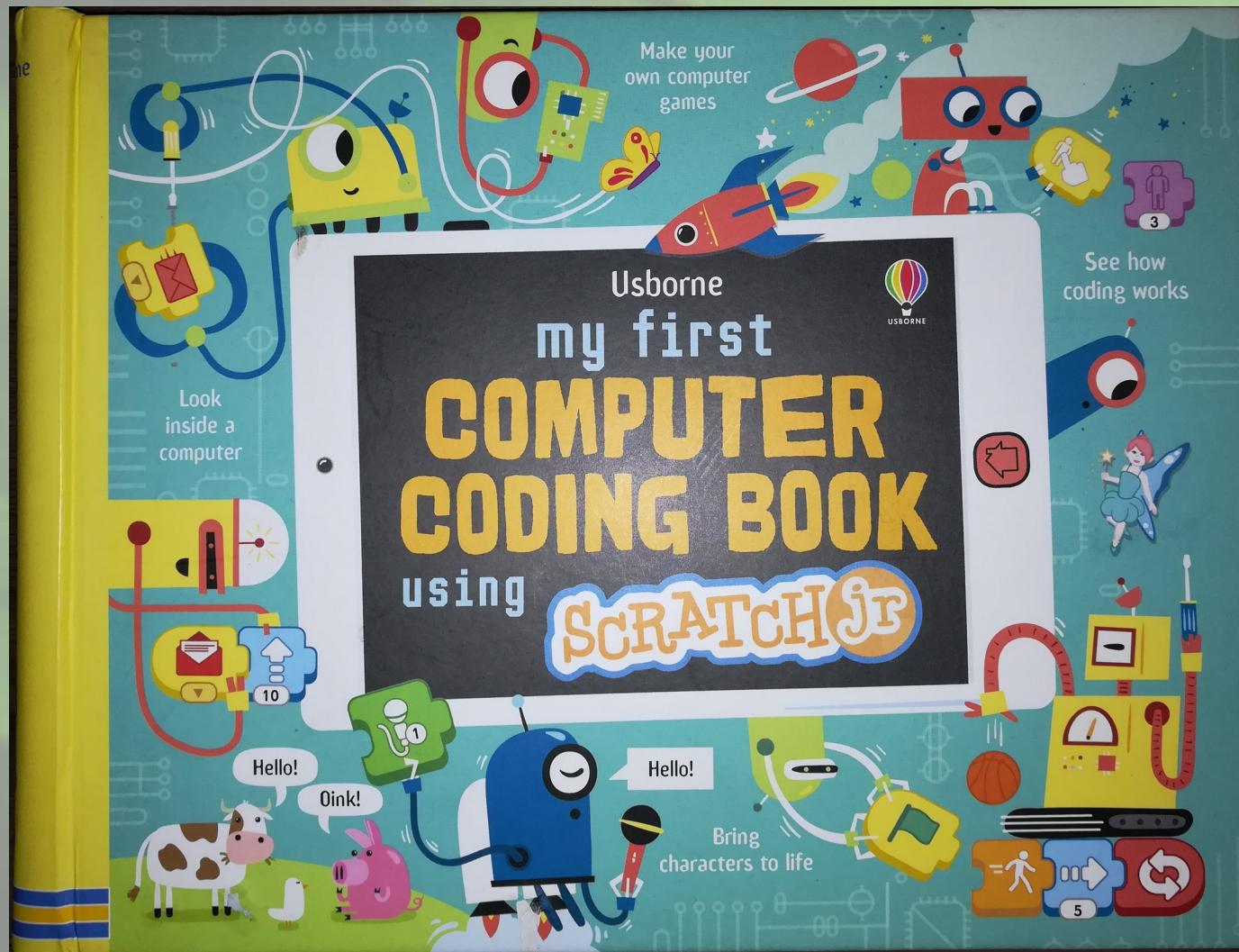
Scratch Jr.

- Mobile App
- Totally Free
- Free form
- Encourages exploration of movement
- Control speed, direction, action, add custom sounds etc

Scratch Jr.



Scratch Jr



Scratch Jr

MEET THE COMPUTERS

A computer is a kind of machine.
It can follow instructions and work things out.

I can do lots of
different things.

Computer



VS



This always does the
same thing.

NOT a computer

Computers come in different shapes and sizes.

This is a laptop computer.



It has a folding screen
and a keyboard.

This is a tablet computer.



You tell it what to do
by touching the screen.

This is a smartphone.



This is a tiny computer
and telephone combined.

Scratch Jr

SPACE FLIER

Put your new coding skills to use by creating this space game.

The aim of this game is to keep your rocket dodging between the stars.

Start a new project and delete the cat. Then...

Tap the left and right buttons to move. If you hit a star, it's game over.

SET THE SCENE

We made the stars yellow so they're easier to see.

The copy will appear on top of the original.

Don't add too many stars, and make sure you leave gaps.

1. Start by adding a space rocket. Get a purple 'shrink' block and tap it a few times to make the rocket smaller. Then, add a star.
2. Find the star in the list beside the stage, and tap the paintbrush for the painting screen. Tap the copy tool and then the star, to make a copy.
3. Drag the stars apart. Add a few more copies the same way. Spread them out, then tap the tick. Your character is now a **group** of stars.

Scratch Jr

Leave a gap just above the rocket. You can tweak your star groups in the painting screen if needed.



4. Repeat with a different star, so you have two groups. Drag the star groups and rocket to arrange them like this on the stage.

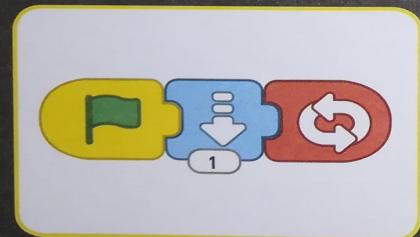


5. Tap the background button above the stage. Tap a background to select it – we chose 'Space'. Tap again to see it on the stage.



6. Tap the ABC above the stage and type in some instructions: 'Dodge the stars!' Tap the paint can and make the text yellow.

MOVING STARS



1. Create this script for the first star group. Then tap the green flag above the stage. The group should keep moving down in an endless loop.



2. Tap and drag the script to the second star group, to copy it across. Now if you tap the green flag, *all* the stars should move.

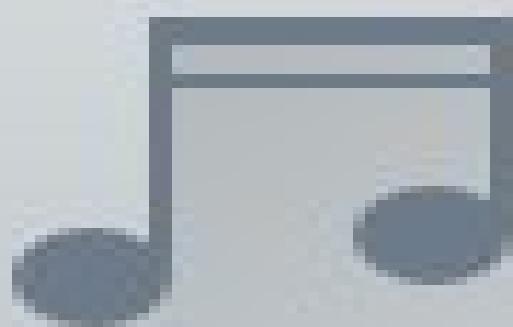


Dealing with Computers

Kids Watch Everything

- Cyberchase is a good show
- Let your kids engage with you
- Answer all the incessant questions
your kids will amaze you!

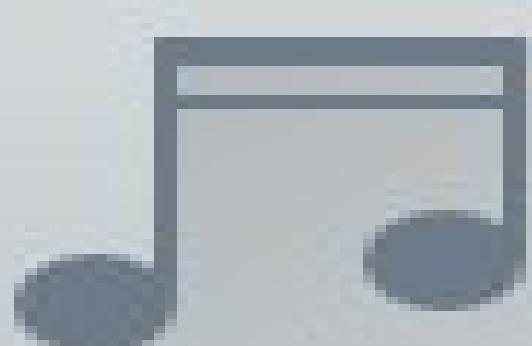
Kids Watch Everything



Typing

- Plenty of good websites
- Tux Typing can be fun
- Depending on the mode text can be hard to read

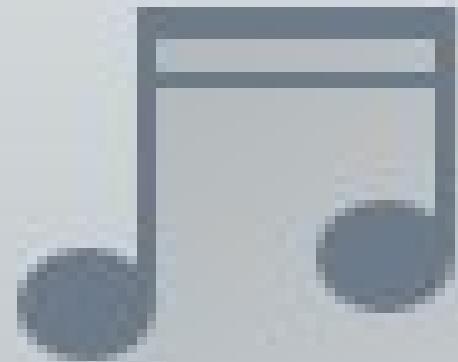
Typing



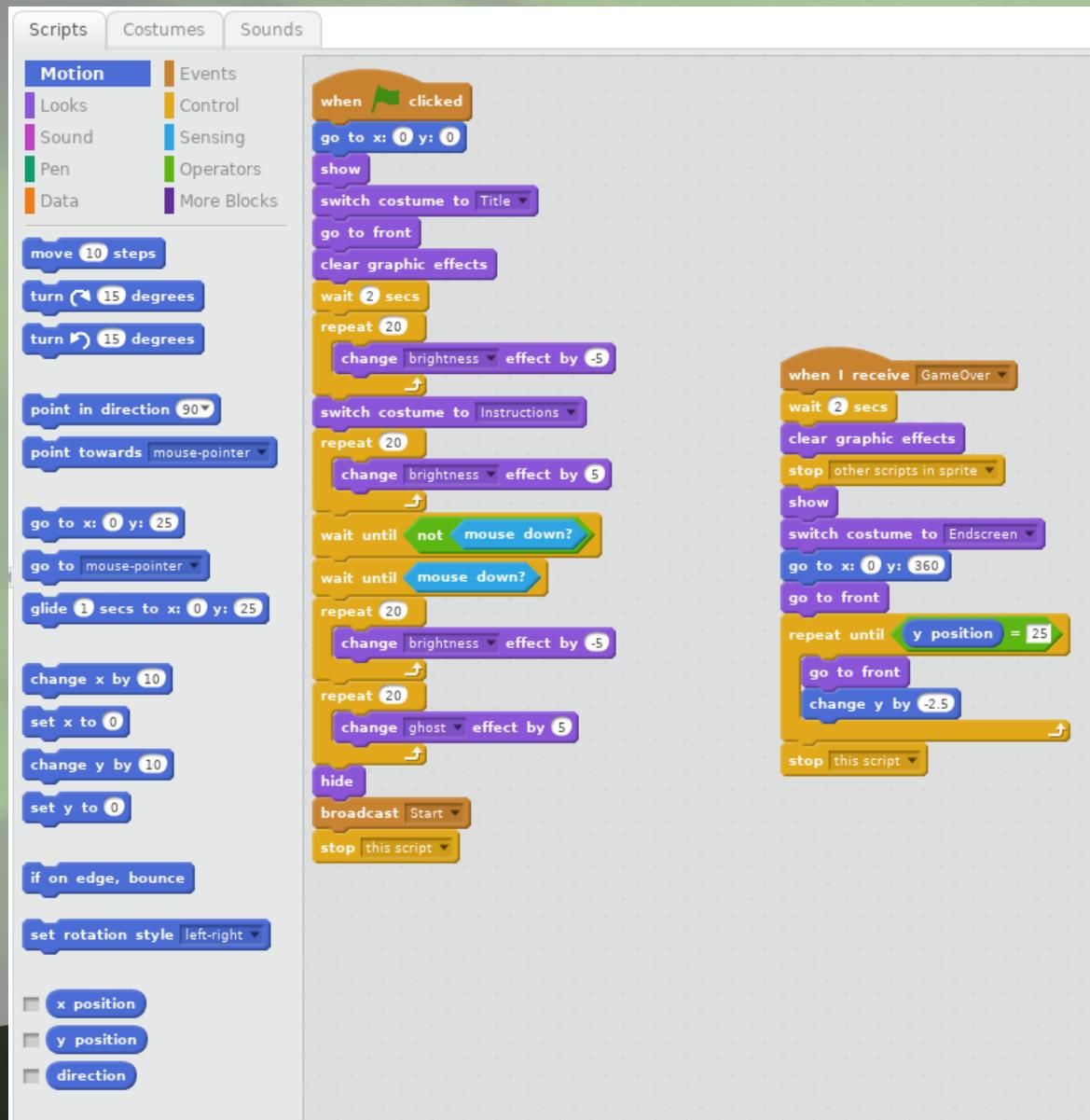
Scratch

- All the benefits of Scratch Jr
- More flexibility and complexity
- Can actually write programs

Scratch



Scratch



CodeCombat

- Web based
- Designed for 9 and up
- Python, Javascript, CoffeeScript
- Gamification!

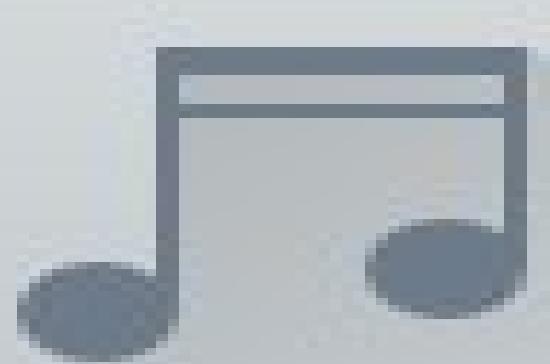
CodeCombat



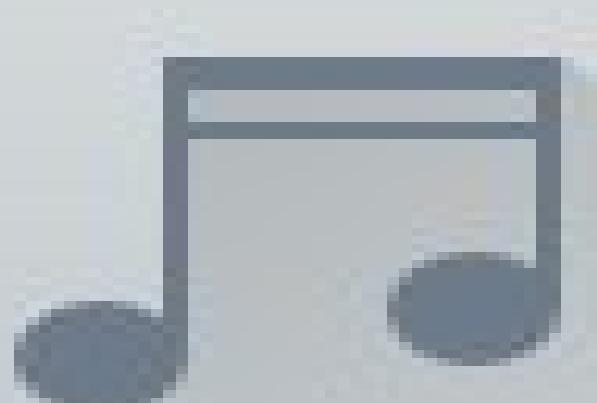
Human Resource Machine

- Starts off simply
- Gets Tricky very quick
- Logic, Math and trial and error
- Available on Steam & Humble Store
- Lots of fun
- Based on Assembly

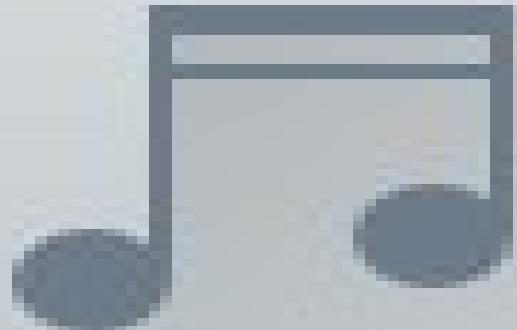
Human Resource Machine



Human Resource Machine



7 Billion Humans



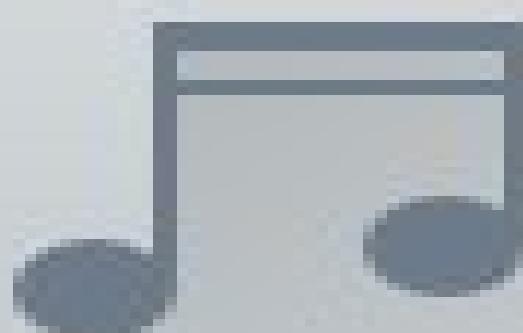


**Not Specifically
Computer Related...**

Snap Circuits

- Easy to use
- Range from \$30 - \$120
- Easy to follow instructions
- Good sense of gratification!

Snap Circuits



Raspberry Pi

- Cheap ... \$25
- Evolution of circuit boards
- Plenty of projects
- Pair with Arduino for more fun!
- Most things you can do with linux
can do with RiPi

Raspberry Pi Good Book



Raspberry Pi Projects for Kids

Start your own coding adventure with your kids by creating cool and exciting games and applications on the Raspberry Pi

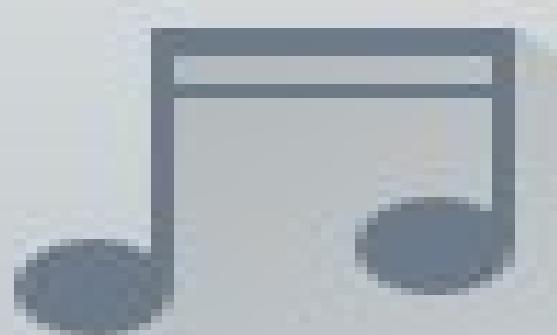
Daniel Bates

[PACKT] open source*
PUBLISHING

Little Bits

- Easy to use
- Range from \$25 - \$200
- Easy to follow instructions
- Good sense of gratification!
- Magnetized!

Little Bits



Lego Codes!

- Create secret messages!
- Can be done with other things
- Cheap and fun
- Spurs curiosity

Lego Codes!

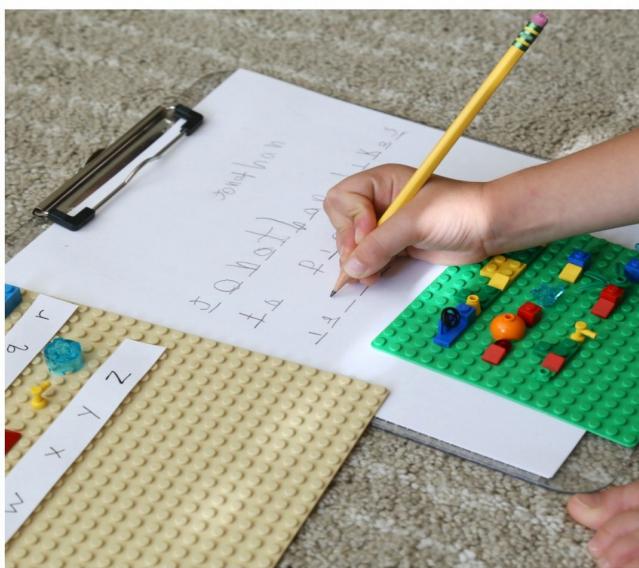
FrugalFun4Boys.com



Lego Codes!



LEGO
Secret Codes!



Minetest/Minecraft!



Sources

- King of Random:
<https://www.youtube.com/watch?v=6fJRDjaoLlk>
- RiPi Christmas Lights:
<https://www.instructables.com/id/DIY-Musical-Xmas-Lights-for-Beginners/>
- 7 Billion Humans Video:
https://www.youtube.com/watch?v=uPcSrc_ewbE
- Little Bits:
<https://www.littlebits.com>
- Raspberry Pi Projects for Kids:
<https://www.packtpub.com/hardware-and-creative/raspberry-pi-projects-kids>
- Tynker: <https://www.tynker.com/>

Sources

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- Code Karts:
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- Human Resource Machine:
<https://tomorrowcorporation.com/humanresourcemachine>
- CodeCombat:
<https://codecombat.com>
- Lego Codes:
<https://frugalfun4boys.com/lego-secret-codes/>