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# SCRATCH CREATIVE COMPUTING

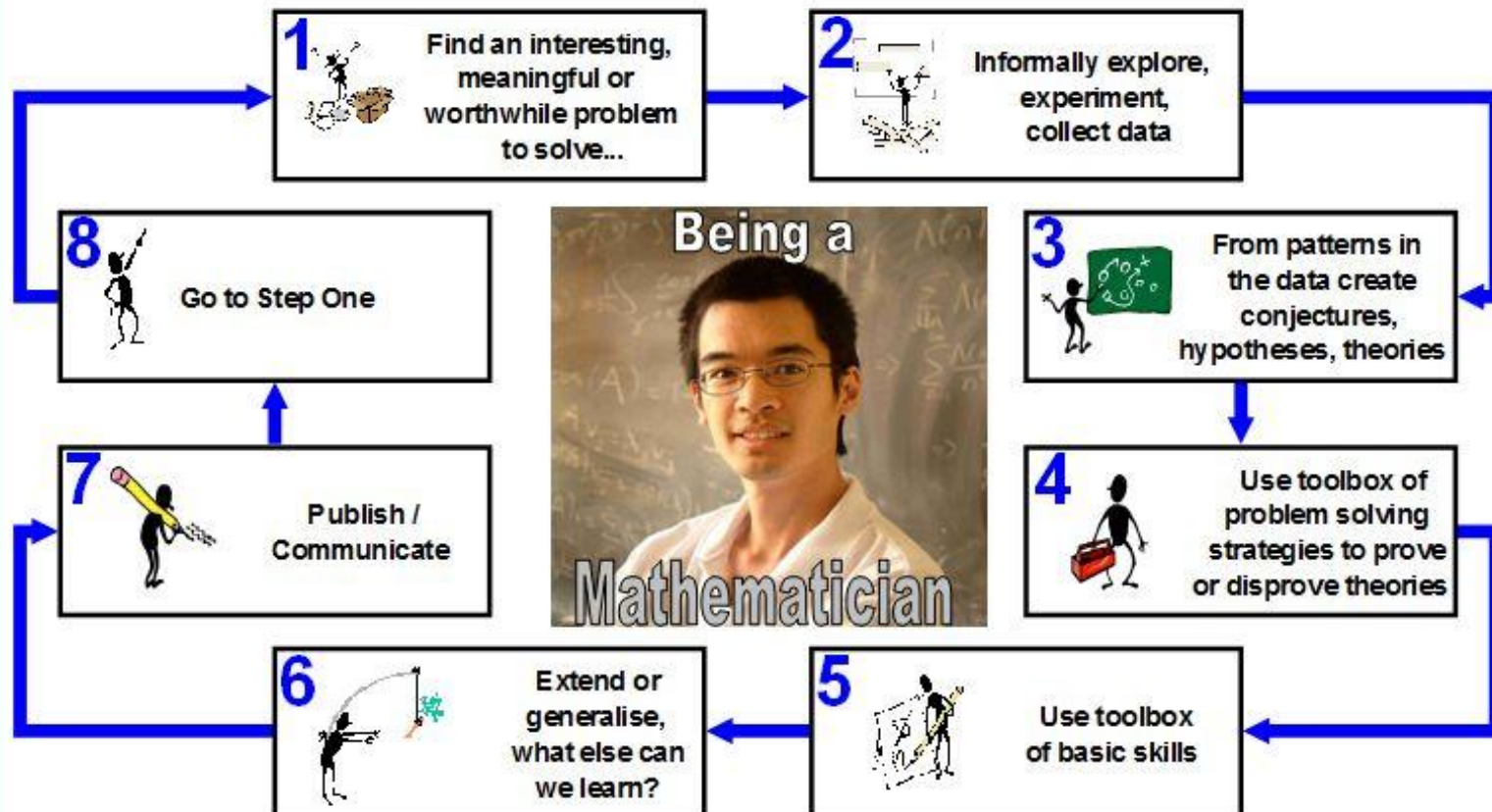


# Today's journey

- Background
- Big ideas of programming
- Creative computing
- The SCRATCH environment
- Complete a small task
- Tasks, projects, sharing and showcasing
- Case studies
- ScratchEd & support
- Reflection

# Background

- Context (2009)
- Makers vs Users (2012)
- [https://www.youtube.com/watch?v=nKlugye\\_n5nc](https://www.youtube.com/watch?v=nKlugye_n5nc)
- Working as a Mathematician –  
Problem Solving



# The Big Ideas of programming

- Think : Recipe
- Connecting computing – impacts/ connections
- Developing artefacts – problem/ idea
- Abstracting – modelling problem/ solution
- Analysing problems and artefacts – evaluation/ debugging/ efficiency
- Communicating – Explain the process/ meaning/ summarise
- Working effectively in teams – components tasks & collaboration



# Creative Computing

Creativity: Computing is a creative activity.

A. Computing fosters the creation of artefacts.

1. Computing enables people to create digitally—including creating knowledge, tools, expressions of ideas, and solutions to problems.
2. Computing enables people to translate intention into digital artefacts.

B. Computing fosters creative expression.

1. Computing extends traditional forms of human expression and experience.
2. Computing fosters the creation of new forms of expression.
3. Computing enables creative exploration that informs and inspires.

C. Programming is a creative process.

1. Some programs are developed to satisfy personal curiosity or for creative expression.
2. Some programs are developed to solve problems, develop new knowledge, or help people, organizations, or society.

# SCRATCH – the environment

- <http://scratch.mit.edu/>
- Google “Scratch” or go to <http://scratch.mit.edu/>
- Scripts, blocks, loops, controls, sprites

# Let's code!

- Motion
  - Sound
  - Control
  - Pen
  - PLAY
- 
- Step by step instructions at [http://wiki.scratch.mit.edu/wiki/Getting\\_Started\\_with\\_Scratch](http://wiki.scratch.mit.edu/wiki/Getting_Started_with_Scratch)



# Your task: Low floor, high ceiling

- Create an equilateral triangle using the four types of scripts demonstrated
- For fast finishers:
  - Change the colour or create your own sprite
  - Create another triangle, inverted, exactly over the top of your first triangle
  - Can you have your script start and finish at (0, 0)?
- What were your challenges? What did you learn?

# Ways to use SCRATCH in your classroom

- Learning
- Consolidating
- Collaborating
- Making
  - Games: <http://scratch.mit.edu/projects/21435007/>
  - Presentations
  - Whatever you want!
- Sharing learning



# Case Studies

- A – engaged & then wanted to be a mentor
- E – wanted to create and solve problems
- Z – wanted to make the most frustrating game on earth

# ScratchEd- help & share

- <http://scratch.mit.edu/educators/>
- Maths tutorials (Year 8 – 9)  
[http://wiki.scratch.mit.edu/wiki/Scratch\\_Wiki:Table\\_of\\_Contents/Math\\_Tutorials](http://wiki.scratch.mit.edu/wiki/Scratch_Wiki:Table_of_Contents/Math_Tutorials)

# To conclude...

- Give it a go! Trust the process...
- Seriously ...where does this go?
- The next steps?
  - Scratch wiki:  
[http://wiki.scratch.mit.edu/wiki/Scratch\\_Wiki\\_Home](http://wiki.scratch.mit.edu/wiki/Scratch_Wiki_Home)
  - <http://learnscratch.org/> has lesson plans, video tutorials & projects
  - Final word...11 mins in:  
<https://www.youtube.com/watch?v=xyowJZxrtbg>

# References

- Scratch: Programming for All  
<http://cacm.acm.org/magazines/2009/11/48421-scratch-programming-for-all/fulltext>
- Creative Computing – a design-based introduction to computational thinking  
<http://scratched.media.mit.edu/sites/default/files/CurriculumGuide-v20110923.pdf>
- Empowering kids to create and share programmable media  
<http://web.media.mit.edu/~mres/papers/interactions-scratch-o8.pdf>
- Creative Coding: Programming for Personal Expression  
<http://download.scratch.mit.edu/CreativeCoding.pdf>
- Playing and Making Games for Learning  
<http://www.gse.upenn.edu/~kafai/print/pdfs/playing.pdf>