

## Year 8 Topic 5 – Mobile app development

Lesson	Can you?
1. An App for that	Identify when a problem needs to be broken down Implement and customise GUI elements
2. Tappy Tap App	Recognise that events can control the flow of a program Use user input in an event-driven environment Use variables in an event-driven environment Develop a partially complete application
3. School Lab Studios	Identify and fix common coding errors Pass the value of a variable into an object Establish user needs when completing a creative project
4. User input	Apply decomposition to break down a large problem Use user input in a block-based programming language Use a block-based language to create a sequence Use variables in a block-based programming language
5. App development	Use a block-based programming language to include sequencing and selection Use user input in a block-based programming language Use variables in a block-based programming language
6. Project completion	Use a block-based programming language to include sequencing and selection Use user input in a block-based programming language Use variables in a block-based programming language Evaluate the success of the programming project

### Useful websites

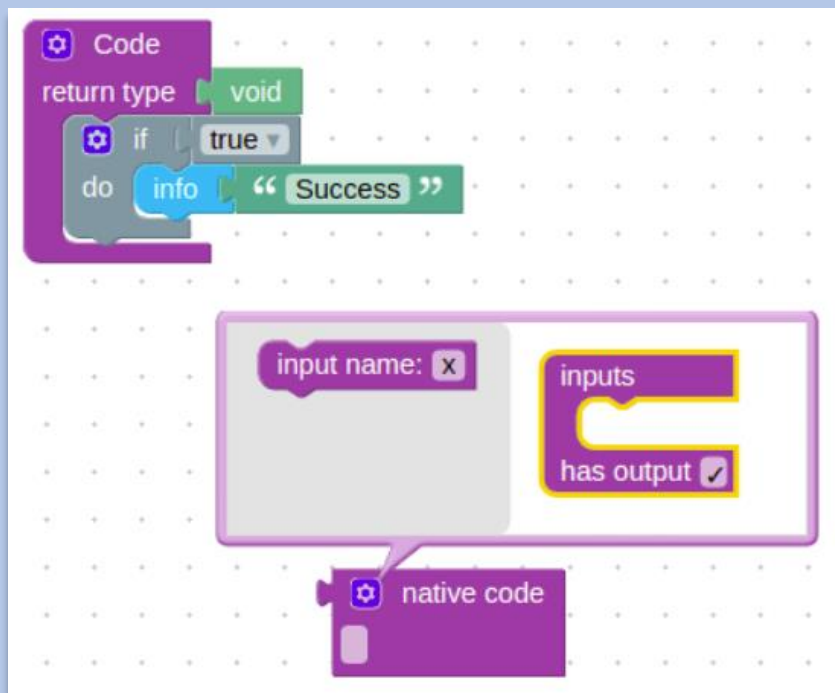
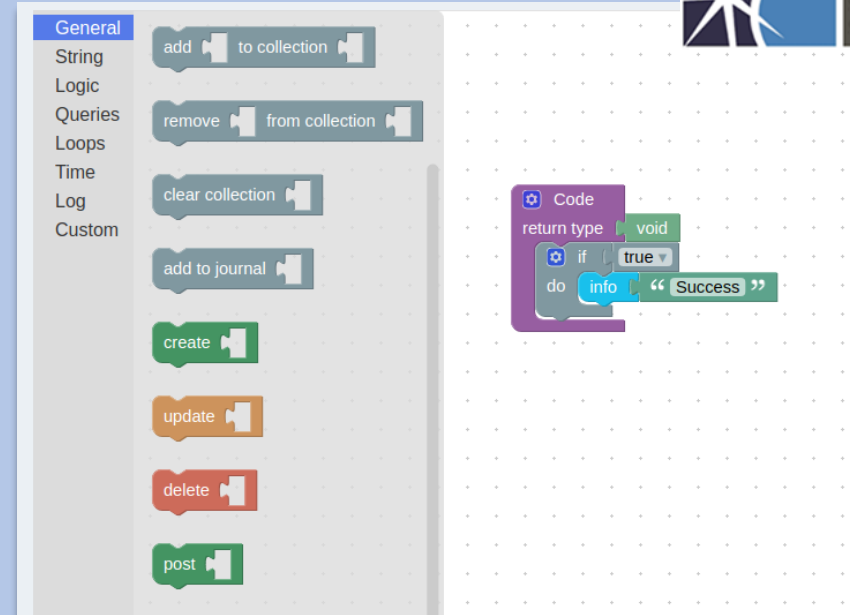
- [www.code.org/educate/applab](http://www.code.org/educate/applab)
- [www.support.code.org/hc/en-us/articles/115000488132-Creating-a-classroom-section](http://www.support.code.org/hc/en-us/articles/115000488132-Creating-a-classroom-section)
- [www.youtube.com/watch?v=EhkxDIr0y2U](http://www.youtube.com/watch?v=EhkxDIr0y2U)
- [www.youtube.com/watch?v=e1St8LB4VJA](http://www.youtube.com/watch?v=e1St8LB4VJA)
- [www.youtube.com/watch?v=fypSGGZZfzM](http://www.youtube.com/watch?v=fypSGGZZfzM)



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**Key Stage 3 - COMPUTING**

## Visual programming language

The block-based approach of visual programming is by no means a new idea but initial implementations lacked technical means to make its usage in a correct way. It has just become popular in recent years due to the appearance of new generation tools like **Scratch**, **Blockly**, and **Snap**. These tools are a part of a larger group known as structured editors (Gouge et al. 1984). Block-based coding is a form of programming language where the developer issues instructions by dragging and dropping blocks. This helps to prevent syntax errors and developers do not have to memorize syntax to write code. For example, in text-based language, missing a semicolon will result in an error message or prevent the program from running at all. These types of errors are eliminated with block-based coding. Block coding is just as powerful and useful as text-based language, but easier to use and understand. Having to drag and drop commands is easier than typing it character-by-character with a keyboard.



## Visual programming blocks

Over the years some best practices have been developed on how the users should be able to interact with the blocks:

- Drag and drop manipulations are used to arrange the blocks into programs.
- End-users should be able to edit the blocks – blocks are interactive and not just static entities. For example, if you want to change a color, you could just pick it from a palette instead of entering color values in an editable text field.
- Blocks are arranged geometrically to define syntax. The block must touch or be connected to each other directly rather than link by lines or additional explicit graphical connectors. This gives the blocks a jigsaw puzzle appearance.
- The block should be self-explanatory to the user. Code readability is important in all types of programming, but becomes essential with citizen developers or children who do not have much experience with programming.