123 SOW

1 Learn to use the Scratch Jnr interface to create a sequence of instructions to follow a given algorithm

2 To debug programs to ensure they match the algorithm

3 To trigger programs using a range of inputs

Key Concepts and Glossary

Algorithm – a set of bossy instructions which can be used to achieve a goal

Debugging - to identify and correct errors in a program

Sequence – a set of instructions (in this case Blocks) which are joined together and followed in order by the software to make things happen

Input – something which triggers the action of a program. Something that humans do to interact with a computer.

Software

Scratch Jnr – free block-based programming language app for iOS and Android with a degree of flexibility and design opportunities. A great building block to starting with Scratch.

Tips

Scratch Jnr makes a great introduction to Scratch

Areas of Computing Curriculum covered by this module:

1a.1   Pupils can understand what algorithms are

1a.2   Pupils can understand how algorithms are implemented as programs on digital devices

1a.3   Pupils can understand that programs execute by following precise and unambiguous instructions

1b.1   Pupils can create simple programs

1b.2   Pupils can debug simple programs

1c.1   Pupils can use logical reasoning to predict the behaviour of simple programs

1d.1   Pupils can use technology purposefully to create digital content

1d.2   Pupils can use technology purposefully to organise digital content

1d.3   Pupils can use technology purposefully to store digital content

1d.4   Pupils can use technology purposefully to manipulate digital content

1d.5   Pupils can use technology purposefully to retrieve digital content

1e.1   Pupils can recognise common uses of information technology beyond school

Resources:

Scratch Jnr - https://www.scratchjr.org/

Scratch Jnr App for iOS - https://itunes.apple.com/gb/app/scratchjr/id895485086?mt=8

ScratchED mention of Scratch Jnr - http://scratched.gse.harvard.edu/discussions/news-and-announcements/scratchjr-coding-young-kids

1. First Program with Scratch Jnr

L.O. – To get to know the Scratch Jnr interface by programming a narrative story.
Decide on a focus and discuss the algorithm for what we are trying to achieve with our program. Plan the first scene of our story as the algorithm and then choose appropriate sprites or paint them using the built-in graphics tools. You could use the camera function to add your own image into the program. Add a suitable background to match our algorithm. Start the program with the first sprite and program movement and speech-bubble.   Use a broadcast message to trigger programs in additional sprites.

2. Adding more scenes

 L.O. - To add more scenes to our story and to program the first scene to automatically move to the second.
Now we have a complete first scene create a second scene to continue the narrative. It might have a different background and might re-use our sprites from the previous scene. We can use RED trigger blocks to automatically change scenes. Action starting with the green flag block in the new scene will run automatically.

3. Completing the first narrative

L.O. – To compare our initial algorithm with the finished digital artefact Scratch Jnr program and to debug our program to make sure it matches the algorithm.
We can add more scenes and experiment with using more than one different coloured broadcast block to program an exchange or dialogue between sprites. Polish off and perform story programs to people in our class or other classes.

4. Creating a Sound Board

L.O. – To create and debug programs featuring different forms of input.
The sound board is a concept where a button or image is used to trigger a sound. It can be traditionally found in radio to trigger jingles or sound-bites. We can program Scratch Jnr versions to help with spelling or phonics or even word recognition or making music. The simple program uses a different trigger (when sprite touched) with the sound recorder block which enables us to record our voices or instruments or other sounds.

5. Creating a simple game

L.O.   - To create a simple game using touch triggers.
Scratch Jnr is really intended as a narrative tool but because of the triggers which start programs when two sprites collide you can use these to program some simple games. You could even use extra sprites as controllers for your game.

6. Further ideas

You can create any kind of narrative using Scratch Jnr. Why not re-tell part of the life story of someone famous. You can program Scratch Jnr as a quiz where a speech bubble asks questions and depending on which sprite you tap you get feedback on correct or incorrect.   You can create sound boards for all kinds of uses

For further resources for this lesson visit http://123sow.co.uk