Spirit of Innovation STEAM Resources

Technology

Year Six

Coding – Using & Applying Micro:bits, Art & Film Making

Links

Subject content

- Subject content
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
- Use technology purposefully to create, organise, store, manipulate and retrieve digital content
- Recognise common uses of information technology beyond school
- Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

Resources

- Computer
- Internet
- https://makecode.microbit.org/#editor
- Micro:bit
- Paper
- Pencils
- Recording Equipment
- Recording software – **Audacity /Garageband** (Mac) or similar
- **eJay/ ACID XPress** (PC) or **Garageband** (Mac) or similar – jingles

Skills

- Working in a team/pair/individual
- Code with increasing independence

Questions

- Are you going to make a stop watch or compass?

- Evaluate work both during and after completion, and make suitable improvements
- Debug code so it works and is error free
- Create a short informative film/advert/podcast/or computer animation
- Develop literacy skills as they improve their ICT skills.
- Use video/music software and equipment effectively

- Are you going to use blocks, JavaScript or Python Editor?
- What is the 'strapline' of your advert going to be? Why?
- Are your whole group going to star in the advert or are you going to take individual roles in the task?
- Is your advert going to have a jingle?
- Do you know how to stay safe when on the internet?

Activity

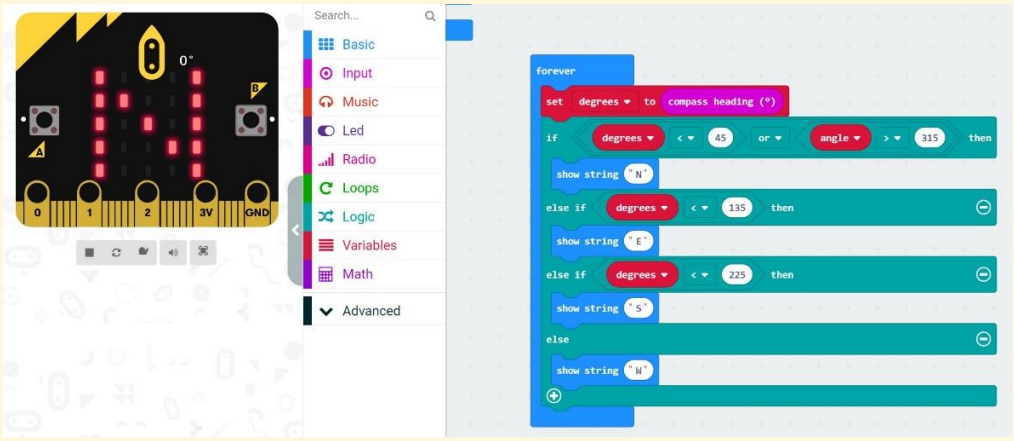
Activity One
Individual/Pairs
(20 - 30 mins)

All planes are fitted with a compass as it is one of the best tools for navigation.

Using a BBC micro:bit program your own compass.
** You could even build the programmed mico:bit into your Spirit of Innovation plane model's cockpit. To link with Yr 6 Science and Engineering.*

The micro:bit measures the compass heading from 0 to 359 degrees with its magnetometer chip. Different numbers mean North, East, South, And West.

Cardinal Point	Degrees
N	0° and 45° or 315° and 360°
E	45° and 135°
S	135° and 225°
W	225° and 315°

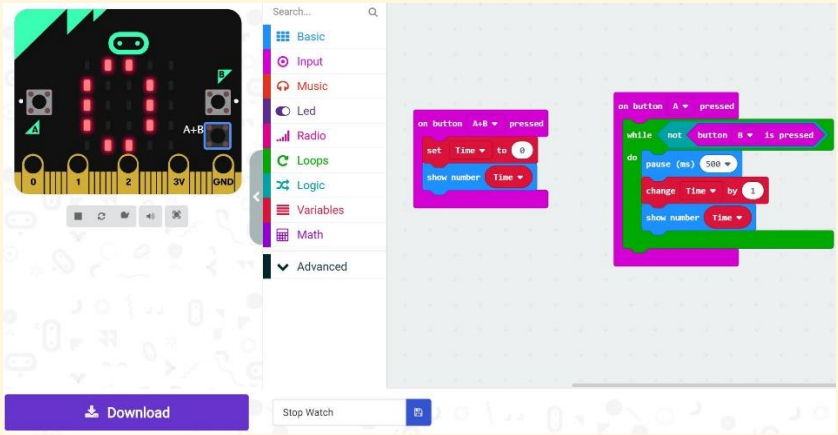


When you run this program, you may be asked to calibrate the compass for accurate readings.

Activity Two
Individual/Pairs
(20 - 30 mins)

When The Spirit of Innovation plane breaks the world record, the Guiness Book of Records will be there with their stop watches timing each run.

Code your own stop watch and then use it to time an activity of your chosing linked to this project: a timed marble run, time taken to complete level one in a Spirit of Innovation 'Scatch' game, a flight of your paper plane, number of spins your propeller makes in 10 secs.



Activity Three
Pairs/Groups
(30 - 40 mins) x2

Design and draw up a storyboard for a film/advert/podcast/animation about Spirit of Innovation's Record Breaking attempt. These are wonderful ways of allowing children to share their work and experiences with a potentially huge audience over the Internet, plus develop their literacy skills at the same time (sssshhh!)

Pupils will need to use the internet to research facts, figures and images about The Spirit of Innovation plane and the team behind it.

This film/advert/podcast/animation can either star the pupils themselves or be a computer animation.

Like all good products the pupils should think of a memerable strapline; Just do it – Nike, Every little helps – Tesco.

Other pupils may want to include a musical jingle, as this is another beneficial way to make their film/advert/podcast/animation about Spirit of Innovation more enjoyable for their audience.

** be aware that you will not be allowed to use commercial music for copyright reasons*

Activity Four
(Art link)
Individual/Pairs
(30 – 40 mins)

This activity has a direct link to the Year 6 Art activity; which is based on M C Escher and TESSELATION.

This hyperlink takes you to a set of coding instructions so you can create your own tessellating pattern using Scratch.

https://www.ngv.vic.gov.au/school_resource/digital-creatives-tessellate-by-code/