**Teach Computing Curriculum in Schools With Mixed Year Groups**

**Overview**

The Teach Computing Curriculum is designed as a single-year-group scheme of work and its progression is based on this fact. No re-arrangement of the units comes without compromise. Teachers of mixed year classes will need to consider the knowledge and skills of both cycle years before planning the selected units as some simple introductions to basic concepts may be needed to ensure that all children can access the units successfully.

The general advice on unit order for Teach Computing applies here: split the Creating Media units and the Programming units across the year so that concepts aren’t left for two-terms without revisit.

**Rationale**

**Key Stage 1**

* The Computing Systems and Networks units are the most difficult to do out of sequence and so they have been split in to broad areas of ‘knowledge about computers’ and ‘knowledge of how to use computers’
* The Creating Media units are, broadly speaking, independent of each other. It may be possible to do these in any order, or indeed swap in other units (from other schemes, teachers’ own knowledge) within different contexts.
* In the example below the data units have been considered as representing two different strands of knowledge, one leading to understanding of databases (in Year 4) and one leading to understanding of how to collect and present (particularly numeric) data. This is to allow the units to be taught in any order.
* The Programming units have been arranged so as to preserve as much progression as possible, bringing the robot units together into one year and the Scratch Jr units together in the other. Year 1 units should be completed before Year 2 units.

**Year 3/4**

* As with KS1 one, these units are the most difficult to cover out of sequence and so the learning about networks and the internet (as a network of networks) has been brought together in the same year. This leaves two short sections of learning – one about computers and digital devices and one about content on the World Wide Web (as separate from the internet which hosts it).
* As with Key Stage 1, the Creating Media units are, broadly speaking, independent of each other. They have been placed here in order to create a two-year gap between the KS1 Animation programming unit and the KS2 Animation creating media unit and a two-year gap between digital photography in KS1 and its KS2 equivalent here. As with KS1, the can almost certainly be done in any order, or swapped for other teacher-designed units if desired.
* The data units represent different concepts and so can be done in either order. In this case, the Branching Databases unit comes two years after the linked KS1 Grouping Data unit.
* There is some compromise here with the programming units as it is not possible to recreate the progression within a two-year cycle. However, the units have been paired to give as much prior knowledge for the Year 4 units as possible. Year 3 children will probably need some introductory material in both years in order to allow them to fully access Scratch. Year 3 units should be completed before Year 4 units.

**Year 5/6**

* The Computer Systems and Networks units are largely independent and could be done in any order.
* As previously, there is some independence of the Creating Media units. However, in this case the 3D modelling unit has been placed after the vector drawing units as the former builds on the skills covered in the latter.
* As with Year 3/4, these data units cover different concepts and so can be done in either order.
* These units could be arranged in different ways (eg by bringing the Scratch units together), but here the two physical computing have been split over the two years to give variety and new challenge in each year. Year 5 units should be completed before Year 6 units.

**Example**

|  |  | **Computing Systems and Networks** | **Creating Media (2 units)** | **Data and Information** | **Programming (2 units)** |
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| **Year 1/2** | **Year A** | Year 1 Unit – **Technology Around Us** (Lessons 1 & 2); Year 2 Unit – **IT Around Us** (Lessons 1 – 4) (learn about technology and information technology; identify the parts of a computer) | Year 1 Unit – **Digital Painting** (create images using painting and drawing software on a computer, eg Mondrian-style art)  Year 2 Unit – **Digital Music** (creating music using software on a computer) | Year 1 Unit – **Grouping Data** (learn how objects can be described and categorised in ways which a computer can then sort and process) \*This unit leads on to the Key Stage 2 units about branching and flat-file databases. Schools may find that Year 2 children need increased complexity in search criteria. | Year 1 Unit – **Moving a Robot** (learn sequence in programming by programming a floor robot)  Year 2 Unit – **Robot Algorithms** (create algorithms to achieve a specific goal, implement them and debug code) |
| **Year B** | Year 1 Unit – **Technology Around Us** (Lessons 3 – 6 ); Year 2 Unit – **IT Around Us** (Lessons 5 & 6) (learn about how to use a computer mouse and keyboard; learn how to use technology safely and responsibly) \*This work has been paired with the digital writing unit as it provides the supporting skills, however, schools with good embedded IT may find that the mouse and keyboard skills have already been developed for Year 2 children and may wish to replace these lessons with others from sources such as Barefoot Computing or develop keyboard skills further with the resources given below. | Year 2 Unit – **Digital Photography** (develop photography skills by considering what makes a good photograph and making simple changes to taken photographs)  Year 1 Unit – **Digital Writing** (use a word processer-style tool to create, edit and change the look of writing on a computer) \*Schools with good embedded IT teaching may find this unit too simple for Year 2 children and may want to extend it further to, for example, make books by combining photographs and text in PowerPoint. | Year 2 Unit – **Pictograms** (collect, organise and present data using tally charts and pictograms) \*This unit focuses more on collecting and presenting data. Children do need to understand object properties which would have been covered in the Year 1 unit, but is likely to have also been covered in maths. Schools may find that this unit can be extended to included block graphs and simple bar charts. | Year 1 Unit – **Programming Animations** (learn sequencing in programming by using Scratch Jr to animate a sprite)  Year 2 Unit – **Programming Quizzes** (develop algorithms to implement quizzes in Scratch Jr, debug and improve code) \*Teachers may need to introduce Year 1 children to the concept of an algorithm as they will not have covered this in the Robot Algorithms unit in the preceding year. |
| **Year 3/4** | **Year A** | Year 3 Unit – **Connecting Computers** (Lessons 4 – 6); Year 4 Unit – **The Internet** (Lessons 1 – 3) (learn about how computers talk to each other over a network and then how the internet is a network of networks which allows computer across the world to talk to each other) | Year 3 Unit – **Desktop Publishing** (use a desktop publishing program to create media considering layout and design)  Year 4 Unit – **Audio Production** (record and edit sounds creating a podcast or other digital audio product) | Year 3 Unit – **Branching Databases** (identify attributes and use these to create branching database) | Year 3 Unit – **Sequencing Sounds** (introduction to Scratch and learn how to change costumes and backgrounds culminating in making a Scratch musical instrument)  Year 4 Unit – **Repetition in Games** (use repetition in a Scratch game controlling a sprite to make it move) \*Teachers may need to introduce Year 3 children to the Scratch movement blocks which would have been covered in Year 3 Programming B. |
| **Year B** | Year 3 Unit – **Connecting Computers** (Lessons 1 – 3); Year 4 Unit – **The Internet** (Lessons 4 – 6) (learn about computers as input-process-output devices and explore the World Wide Web, its resources and its risks) | Year 3 Unit – **Stop-Frame** **Animation** (create a short film animation using a computer)  Year 4 Unit – **Photo Editing** (use software to change an image using a variety of tools) | Year 4 Unit – **Data Logging** (use sensors to collect and analyse data using a data logger) | Year 3 Unit – **Events and Actions** (use Scratch and the movement and pen blocks to draw shapes and move around a maze) \*Teachers may need to give Year 3 children a general introduction to Scratch which would have been covered in Year 3 Programming A.  Year 4 Unit – **Repetition in Shapes** (introduce repetition to draw shapes in Logo) |
| **Year 5/6** | **Year A** | Year 5 Unit – **Systems and Searching** (understand more about computer systems and devices, learn about searching the web effectively and safely) | Year 5 Unit – **Introduction to Vector Graphics** (learn how to create a vector drawing and use the associated tools)  Year 6 Unit – **3D Modelling** (use a range of 3D modelling tools culminating in designing a 3D model) | Year 5 Unit – **Flat-file Databases** (build and search a flat-file database) | Year 5 Unit – **Selection in Quizzes** (learn how to use selection in Scratch to make a quiz)  Year 6 Unit – **Sensing Movement** (use a Micro:bit and knowledge of selection and variables to create a step-counter) \*For this unit, ideally children need an understanding of selection and variables. Year 5 children may need an introduction to variables before starting this unit. |
| **Year B** | Year 6 Unit – **Communication and Collaboration** (understand that data travels in packets over the internet, understand different methods of communication and collaboration over the internet) | Year 5 Unit – **Video Production** (film and edit a video using different filming and editing techniques)  Year 6 Unit – **Web Page Creation** (understand web pages and design a page layout adding content and evaluating the finished product) | Year 6 Unit – **Introduction to Spreadsheets** (learn how to use spreadsheets including simple formulae and ways to present information) | Year 5 Unit – **Selection in Physical Computing** (learn how to use selection with a Crumble device)  Year 6 Unit – **Variables in Games** (learn about variables and how these can be used in Scratch to program a games which keeps score, or counts lives.) |

**Example Keyboard Development Websites:**

**Developing Typing:**

[Dance Mat](https://www.bbc.co.uk/bitesize/topics/zf2f9j6/articles/z3c6tfr)

[Learn to Type](http://bigbrownbear.co.uk/learntotype/)

[Typing.com](https://www.typing.com/)

**Typing Words Practice:**

[Type Rush](https://www.typerush.com/)

[Typing O](http://games.sense-lang.org/EN.php)[lympics](http://games.sense-lang.org/olympic/)