



# **Computing Policy**

**Computing Co-ordinator: Anna Korman**

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## 1. Introduction

At Downs Infant School we understand that a high-quality computing education equips children to use computational thinking and creativity to understand and change the world. The New Computing curriculum has deep links with mathematics, science and design and technology.

The core of computing is computer science, in which children are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. By building on this knowledge and understanding, children are equipped to use information technology to create programs, systems and a range of content.

Computing also ensures that children become digitally literate - able to use, and express themselves and develop their ideas through, information and communication technology as active participants in a digital world.

Computing also ensures that children become digitally literate, so that they not only *use* information and communication technology but also express themselves and develop their ideas through being active participants in the digital world.

Computational thinking involves looking at problems and systems in such a way that children make good use of computer systems to help solve or understand them. Although much of computational thinking can be developed away from the computer, the best route to developing skills and understanding is for the pupils to have the experience of writing useful, interesting programs themselves. At Downs Infants this creativity is seen as a crucial element of children's computing education.

## 2. Aims

The National Curriculum for Computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

### 3. Attainment Targets

By the end of each key stage, pupils are expected to know, apply and understand the knowledge, skills and processes specified in the relevant programme of study.

In Key stage 1 pupils should be taught to:

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- 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.

### 4. Planning and Progression of Computing

Children at Downs Infant School have regular exciting, enjoyable and challenging opportunities to use Computing to safely access, support and enhance their learning.

To support this work we use the highly acclaimed '**Switched on Computing**' scheme of work by **Rising Stars**. This covers the whole breadth of the new Computing Curriculum (i.e. computer science, information technology and digital literacy) and offers six creative and flexible units for each year group covering:

- Programming
- Computational thinking
- Creativity
- Computer networks
- Communication and collaboration
- Productivity

Furthermore, it delivers continuity and clear progression of skills from Early Years Foundation Stage (EYFS) to Year 2 and embeds E-Safety to ensure safe and responsible use of technology (see e-safety policy).

**For an overview of the termly topics see appendix.**

### 5. Differentiation

Differentiation should be achieved through both differentiated activities and intended outcomes. For example, children who are progressing rapidly are encouraged to extend their Computing experiences through use of more challenging tasks to provide depth of experience. Children who are less confident with Computing are

provided with more suitable challenges, using resources which focus on particular areas of learning or are given the opportunity to repeat or consolidate learning, with additional adult support if appropriate.

## **6. Assessment and Reporting**

When assessing computing, we believe it's important to look for evidence of knowledge and understanding as well as technical skills. Children are asked about what they have learned as well as showing the work they have completed, which provides us with important evidence of their learning.

Assessments are carried out by the teacher based on class assessments, children's own self-assessments, examples of work and achievements in tasks, and these elements are combined to give evidence of progression and attainment. Teachers may record videos or screenshots of pupils as they discuss their work, explaining what they have done and, more importantly, how they've done it. Teacher assessments of computing capabilities are reported to parents/ carers at consultation meetings and at the end of each academic year in written reports.

## **7. Cross Curricular Links**

Although Computing is taught as a discrete subject using the ICT suite, iPads, classroom PCs and other hardware, computational thinking (such as looking at algorithms and decomposing problems into smaller steps), creativity and digital literacy are now at the heart of the curriculum. Therefore there's plenty of scope for using other subject areas to ensure these skills are integrated across the curriculum.

## **8. Equalities**

We provide Computing opportunities to all our children, regardless of their ability, disability, gender, race, age or economic circumstances. We aim to develop a culture of inclusion and diversity in the teaching of Computing as we do in all curriculum areas. We take opportunities to raise awareness of cultural diversities through planning and resources e.g. using internet resources to raise awareness of cultures and festivals around the world.

## **9. Children with Special Educational Needs and Disabilities**

The Computing Curriculum is made accessible to all learners through the use of adapted hardware and software. Children with Special Educational Needs and Disabilities have access to a range of specialist resources according to their individual needs e.g. tracker ball or an adapted keyboard. Software packages, such as Writing with Symbols, are used to support children's learning across the curriculum. Teachers will differentiate the Computing Curriculum to ensure access for all children.

## **10. Safeguarding**

We follow Safeguarding procedures, advice and guidelines as laid down by the local Children's Safeguarding Board.

Brighton and Hove have a very sophisticated 'firewall' which prevents children accessing unsuitable material on the internet. Access to the internet is always supervised by a member of staff familiar with the planning. We teach the children about E-safety as part of the Computing Curriculum and they are routinely reminded not to access unfamiliar sites

Children do not have personal passwords to access the school website or network.

### **11. Facilities and Resources**

At Downs Infant School we use a range of resources to support the teaching and learning of Computing. As well as PCs in the ICT suite, we have a set of iPads for class and individual use, control devices, such as BeeBots, digital cameras and voice recorders and CD players in each classroom.

Our website is also being developed to support learning at home through topic/subject related activities. In addition, it gives parents/carers access to newsletters, dates, Governor and OFSTED reports and link sites (FODIS).

### **12. Staff development and Training**

At Downs Infant School, our aim is to develop a highly skilled team which shares new ideas and skills to support children in their learning. The staff has opportunities to attend whole school training regularly.

### **13. Role of the Computing Leader**

It is the Computing co-ordinator's role to offer advice, share knowledge and support staff with Computing. However, all staff are encouraged to share their skills and experiences with members of the team. We also have access to a school IT technician who visits the school once a week to support staff with technical problems and to install software to our system.

The Computing leader is responsible for

- the monitoring of standards of Computing
- keeping the Scheme of Work under review and promoting continuity and progression in Computing
- ensuring resources are appropriate to deliver the scheme of work
- liaising with other subject leaders over cross curricular links
- keeping up to date with developments in Computing.

The Computing leader also works with the Bursar to ensure that the website is kept up to date and supports staff with their website updates.

Policy date: January 2015

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## Overview of Termly Computing Units

| 2014-15   | Autumn 1   | Autumn 2  | Spring 1   | Spring 2   | Summer 1  | Summer 2   |
|---|--|---|--|--|---|--|
| <b>Reception<br/>Topic Title</b>  | <b>Me and My family</b>  | <b>Nursery Rhymes Celebrations</b>  | <b>On The Move Kenya</b>   | <b>Out of This World</b>   | <b>From Garden...<br/>...to Jungle</b>  | <b>Splash!</b>   |
| <i>Each EYFS unit decided on a termly basis, based on children's needs.</i> | We have confidence<br>Creating a game of children's voices.  | We can take turns<br>A picture or pattern created by taking turns.  | We can drive.<br>Making road signs<br>Taking photos with iPads<br>Recording Role Play  |  |   |  |
| <b>Year 1<br/>Topic Title</b>   | <b>Ourselves</b>   | <b>Toys and Celebrations</b>  | <b>The Jolly Postman and Traditional Tales</b>   | <b>Dinosaurs</b>   | <b>By the Sea</b>   | <b>The Great Outdoors</b>  |
| <b>Computing Units</b>  | <b>We are Treasure Hunters</b><br>- understand that a programmable toy can be controlled by inputting a sequence of instructions.<br>-develop and record sequences of instructions as an algorithm.<br>-program the toy to follow their algorithm.<br>-debug programs.<br>-predict how programs will work. | <b>We are Celebrating</b><br>-develop basic keyboard skills, through typing and formatting text.<br>-develop basic mouse skills.<br>-use the web to find and select images.<br>-develop skills in storing and retrieving files.<br>-develop skills in combining text and images.<br>-discuss work and think about whether it could be improved. | <b>We are Painters</b><br>-use the web safely to find ideas for an illustration.<br>-select and use appropriate painting tools to create and change images on the computer.<br>-understand how this use of ICT differs from using paint and paper.<br>-create an illustration for a particular purpose.<br>-know how to save, retrieve and change work and reflect on their work and act on feedback received. | <b>We are Storytellers</b><br>-use sound recording equipment to record sounds.<br>-develop skills in saving and storing sounds on the computer.<br>-develop collaboration skills.<br>-understand how a talking book differs from a paper-based book<br>-talk about and reflect on their use of ICT.<br>-share recordings with an audience. | <b>We are Collectors</b><br>-find and use pictures on the web.<br>-know what to do if they encounter pictures that cause concern.<br>-group images on the basis of a binary (yes/no) question.<br>-organise images into more than two groups according to clear rules.<br>-sort (order) images according to some criteria.<br>-ask and answer binary (yes/no) questions about | <b>We are Photographers (year 2 Unit)</b><br>-consider the technical and artistic merits of Photographs.<br>-use a digital camera or camera app.<br>-take digital photographs<br>-review and reject or pick the images they take.<br>-edit and enhance their photographs.<br>-select their best images to include in a shared portfolio. |

|                               |  |  |  |   |  |   |
|-------------------------------|--|--|--|---|--|---|
|                               |  | (Links to Christmas)   | (Links to Literacy Traditional Tales)  | (Links to Literacy Traditional Tales)   | their images.  |   |
| <b>Year 2<br/>Topic Title</b> | <b>Great Fire of London</b>  | <b>UK Explorers</b>  | <b>Mexico</b>  | <b>Castles</b>  | <b>Rainforests</b>   | <b>Seaside Holidays in the Past</b>   |
| <b>Computing Units</b>        | <b>We are TV Chefs (Yr1 Unit)</b><br>-break down a process into simple, clear steps, as in an algorithm.<br>-use different features of a video camera.<br>-use a video camera to capture moving images<br>develop collaboration skills.<br>-discuss their work and think about how it could be improved.<br><br>(Links to Literacy Instructions) | <b>We are Astronauts</b><br>-have a clear understanding of algorithms as sequences of instructions.<br>-convert simple algorithms to programs.<br>-predict what a simple program will do.<br>-spot and fix (debug) errors in their programs. | <b>We are Researchers</b><br>-develop collaboration skills through working as part of a group.<br>-develop research skills through searching for information on the internet.<br>-improve note-taking skills through the use of mind mapping.<br>-develop presentation skills through creating and delivering a short multimedia presentation.<br>(Links to Topic Research Mexico) | <b>We are Game Testers</b><br>-describe carefully what happens in computer games.<br>-use logical reasoning to make predictions of what a program will do.<br>-test these predictions.<br>-think critically about computer games and their use.<br>-be aware of how to use games. | <b>We are Zoologists</b><br>-sort and classify a group of items by answering questions.<br>-collect data using tick charts or tally charts.<br>-use simple charting software to produce pictograms and other basic charts.<br>-take, edit and enhance photographs.<br>-record information on a digital map.<br><br>(Links to Science Pond Dipping) | <b>We are Detectives</b><br>-understand that email can be used to communicate.<br>-develop skills in opening, composing and sending emails.<br>-gain skills in opening and listening to audio files on the computer.<br>-use appropriate language in emails.<br>-develop skills in editing and formatting text in emails.<br>-be aware of e-safety issues when using email.<br>(Links transition e-mails to Year 3) |

## Appendix