Newcastle upon Tyne Royal Grammar School

Junior School Computing Policy

This policy applies to the Junior School and is published to parents and staff

Updated September 2015   **Author: Rachel Towers**

See also:
☐ Safeguarding Policy
☐ Safeguarding Code of Conduct
☐ Procedure for reporting a concern about an adult working at the school
☐ Anti-bullying policy
☐ Anti- cyber bullying policy
☐ Behaviour and Sanctions Policy
☐ BYOD Policy
☐ Data Protection Policy
☐ Acceptable Use Policies (staff and students)
☐ PSHE Scheme of Work and PDS scheme of work in the Junior School
☐ E-safety Policy
☐ Computing – Junior School Policy
☐ Junior School Mobile Phone Contract

Introduction

1.1 The 2014 National Curriculum introduces a new subject, Computing, which replaces ICT. This represents continuity and change, challenge and opportunity.

1.2 Computing is concerned with how computers and computer systems work, and how they are designed and programmed. Pupils studying computing will gain an understanding of computational systems of all kinds, whether or not they include computers. Computational thinking provides insights into many areas of the curriculum, and influences work at the cutting edge of a wide range of disciplines.

1.3 The Acceptable Use of Computing and the E Safety Policies should also be read in conjunction with this policy.

2. The Nature of Computing

2.1 The new National Curriculum presents the subject as one lens through which pupils can understand the world. There is a focus on computational thinking and creativity, as well as opportunities for creative work in programming and digital media. The introduction makes clear the three aspects of the computing curriculum: **Computer Science** (CS), **Information Technology** (IT) and **Digital Literacy** (DL).

2.2 The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. Building on this knowledge and understanding; pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate– able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

3. Aims and objectives

3.1 At the RGS, we recognise that Computing is changing the lives of everyone. Through teaching Computing we equip the pupils to participate in a rapidly changing world where work and leisure activities are increasingly transformed by technology. We enable them to find, explore, analyse, exchange and present information. We also focus on developing the skills necessary for the pupils to use information in a discriminating and effective way. Computing skills are a major factor in enabling the pupils to be confident, creative and independent learners.

The aims of Computing are to enable the pupils:

• to become autonomous, independent users of computing technologies, gaining confidence and enjoyment from their activities;
• to use their Computing skills for effective and appropriate communication;
• to develop Computing capability in finding, selecting and using information;
•to apply hardware and software to creative and appropriate uses of information;
•to explore their attitudes towards Computing and its value to them and society in general;
• to understand how to keep themselves safe when to using a wide range of technologies;
• to apply their Computing skills and knowledge to enrich and extend their learning across a range of subjects.

3.2 The national curriculum for computing has four main 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.

	Key Stage 1	Key Stage 2
Computer Science	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	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 Appreciate how [search] results are selected and ranked
Information Technology	Use technology purposefully to create, organise, store, manipulate and retrieve digital content	Use search technologies effectively 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

Digital Literacy	Recognise common uses of information technology beyond school	Understand the opportunities [networks] offer for communication and collaboration
	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 online technologies	Be discerning in evaluating digital content
		Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a other range of ways to report concerns about content and contact

The content above has been adapted by Computing At School (CAS), to show how it can be broken down into three sub-sections.

4 Teaching and learning style

4.1 As the aims of Computing are to equip children with the skills necessary to use technology to become independent learners, the teaching style that we adopt is as active and practical as possible. The pupils are given direct instruction on how to use hardware and software, in timetabled Computing sessions. This then enables pupils to work independently on set tasks. It also helps them to apply learned computing skills whatever they are studying in other areas of the curriculum. We encourage the pupils to explore ways in which the use of computing can improve their results, for example, how a piece of writing can be edited or how the presentation of a piece of work can be improved, by repositioning text, etc.

4.2 We recognise that all classes have children with widely differing abilities in Computing. This is especially true when some children have access to computing equipment at home, while others do not. We provide suitable learning opportunities for all children by matching the challenge of the task to the ability and experience of the child. We achieve this in a variety of ways, by:
  • setting common tasks which are open-ended and can have a variety of responses;
•setting tasks of increasing difficulty (not all pupils complete all tasks);
•   grouping or pairing pupils with mixed abilities to support each others learning;
•   providing resources of different complexity that are matched to the ability of the child;
  • when possible, using teaching assistants to support the work of individual children or groups of children.

5 Computing curriculum planning

5.1 The school uses the national curriculum scheme of work for Computing as the basis for its curriculum planning. However, we have adapted the national scheme to include tasks outside years 3 to 6, to ensure that pupils experience aspects of the curriculum that may have been previously missed. The planning is adapted to take into consideration changes in technology and curriculum requirements.

5.2 We carry out the curriculum planning in Computing in three phases (long-term, medium-term and short-term). The long-term plan maps the Computing topics that the children study in each term. Our long-term Computing plan shows how teaching units are distributed across the year groups and how these fit together to ensure progression within the curriculum plan.

5.3 Our medium-term plans give details of each unit of work for each term. They identify the key learning objectives for each unit of work and stipulate the curriculum time that we devote to it. The Computing subject leader is responsible for keeping and reviewing these plans.

5.4 The Computing teachers are responsible for writing the short term plans for timetabled Computing sessions. Class teachers are responsible for including any relevant Computing component into short-term plans for their subjects.
These daily plans list the specific learning objectives of each lesson.
The class teacher and the Computing subject leader discuss them on an informal basis.

5.5 The topics studied in Computing are planned to build upon prior learning. While we offer opportunities for children of all abilities to develop their skills and knowledge in each unit, we

also build planned progression into the scheme of work, so that the children are increasingly challenged as they move up through the school.

6 Trips and technology days
6.1 As part of the computing curriculum, the pupils are given opportunities to take part in computing workshops and trips. These workshop opportunities will vary from year to year, for example in the academic year 2015-16 Year 4 will visit to Centre for Life to look at computer games throughout the decades (Game On) and take part in a coding workshop and Year 6 pupils will visit Newcastle University to use more complicated computing equipment such as Crumble Bots. In addition, dedicated Technology days will take place at various times throughout the academic year, for example this year Year 5 will be using Lego WeDo to make fun fair rides.
The trips and technology days are designed to act not only to help to deepen the pupils' understanding of different aspects of computing, particularly computer science, but to inspire children to progress further with their computing skills.

6.2 Competitions
To further develop the pupils' computing skills, they will be encouraged, where and when possible, to take part in local and national competitions, for example Junior First Lego League.

7 The contribution of Computing to teaching in other curriculum areas
7.1 Computing contributes to teaching and learning in all curriculum areas. For example, graphics work links in closely with work in art, and work using databases supports work in mathematics, while different apps and the Internet prove very useful for research in science, history and geography. Computing enables children to present their information and conclusions in the most appropriate way.

7.2 English
Information technology is a major contributor to the teaching of English. Through the development of keyboard skills and the use of computers, children learn how to edit and revise text. They have the opportunity to develop their writing skills by communicating with people over the Internet. They learn how to improve the presentation of their work by using presentational or publishing software.

7.3 Mathematics
Many Computing activities build upon the mathematical skills of the children. The pupils use computing skills in mathematics to collect data, make predictions, analyse results, and present information graphically.

7.4 PSHE
Computing makes a contribution to the teaching of PSHE as children
learn to work together in a collaborative manner. They develop a sense of global citizenship by using the Internet and e-mail. Through discrete digital literacy lessons and through the discussion of moral issues related to electronic communication, children develop a view about the use and misuse of technology, and they also gain a knowledge and understanding of the interdependence of people around the world (see Junior School E-Safety Policy).

7.5
Art
In art lessons children are given the opportunity to manipulate electronic images and create animations. iPad art apps are also incorporated into Art Day activities.

8 Teaching Computing to pupils with special educational needs and gifted and talented pupils

8.1 At the RGS we teach Computing to all children, whatever their ability. Computing forms part of the school curriculum policy to provide a broad and balanced education for all pupils. We provide learning opportunities that are matched to the needs of the pupils. In some instances the use of Computing has a considerable impact on the quality of the work that the pupils produce; it increases their confidence and motivation.

8.2 Gifted and Talented

From September 2015 a 'Digital Leaders' scheme will be introduced at the RGS. These 'Digital Leaders' are pupils whom have been recognised for their ability in some aspect/s of computing. It is envisaged that these 'Digital Leaders' will offer some support to their peers, whilst also receiving additional training themselves, to ensure that they continuing making progress in this subject.

All pupils are set challenges, and where appropriate, pupils are provided with, or allowed to choose, different sets of tools. For instance, programming tasks accomplished by most pupils in Scratch can be tackled in Logo or Python by particularly advanced pupils.

The pupils are encouraged to attend clubs in the Senior School for example, Coding / Programming devices and robotics club where they will learn new skills.

8.3 Digital Divide

At the RGS we recognise that it is important to help pupils realise that access to technology can bring benefits and power, but that not everyone has easy access. By enabling each pupil to have their own iPad for computing lessons in school and through providing lunch-time clubs, it is one way we try to provide access for all.

We enable pupils to have access to the full range of activities involved in learning Computing. Where children are to participate in activities outside the classroom, for example, a visit to an IT exhibition, we would carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

9 Safe Internet Access

9.1 The RGS provides Internet access for all pupils and the school does have an Internet Policy. This access is filtered to minimise the chances of pupils encountering undesirable materials. Members of staff are aware of the potential for misuse and are responsible for explaining to pupils that there are certain levels of expectation of behaviour when the Internet is being accessed, both at school and at home. An Internet home/school agreement is part of the information given to the parents of new children. (See Appendix A)In addition there are procedures in place that staff must follow if a pupil fails to adhere to the acceptable use rules (see Levels of E-Safety Infringement (Junior School) and Responding to incidents reporting log which are both located in the Junior School E-safety Policy.

9.2 Parents are invited to an annual e-Safety meeting to ensure up-to-date information is passed on to them. Those parents that are unable to attend receive this information in an e-mail. Additional e-safety information is included in the Junior School bulletin.

10 Assessment and recording

10.1 Teachers assess children's work in Computing by making informal judgements as they observe them during lessons. On completion of a piece of work, the teacher is expected to assess it and provide comments / feedback as necessary. At the end of a unit of work the teacher will make a summary judgement about the work of each pupil and records these attainment grades in a mark book. We use this as a basis for assessing the progress of the pupils and to pass information on at the end of the year.

10.2 Progression Pathways Assessment

From September 2015 the progression statements in the Assessment Framework which have been created based on the 2014 National Curriculum for Computing points of study and aligned to the CAS primary guidance document will be used.

The progression through each strand (Digital Badge) of computing is broken down into rows. The rows are colour coded (like karate belts) to help the teacher to assess whether students are showing competence at different levels and recognise achievement or attainment. The focus of this assessment framework is progression through and across strands (Digital Badges) of computing. Pupils will be awarded the different coloured Digital Badges when the teacher deems they have achieved that particular aspect of the curriculum.

Pupils will keep portfolios of their work which will be updated and self-assessed.

11 Resources

11.1 All computers in the Junior and Senior School operate on a local network. In the Junior School each classroom has at least one networked computer. In addition, we have access to the computers in the library at the Senior School, where pupils are able to access the network using their school code name and a personal password. Software is available via the network.

11.2 Along with the computers, the school has the following:

Hardware
- colour printers;
- scanner;
- ☐•digital cameras;
- ☐•video/DVD recorders;
- electronic keyboard;
- calculators;
- robots/roamers;
- interactive whiteboards;
- ☐ •CD players;
- 2 iPads for teachers;
- Class sets of iPads(1 in Lambton House and 1 in Brandling House)

Software
- a word processing package;
- painting/drawing software;
- clip art;
- a music composition package;
- a multimedia programme;
- spreadsheets/database programmes;
- simulation and control programme;
- a variety of apps;
- Lego WeDo software.

This collection is continually being added to and updated, as and when it is deemed appropriate.

12 Monitoring and review

12.1 The monitoring of the standards of the children's work and of the quality of teaching in Computing is the responsibility of the Computing subject leader. The Computing subject leader is also responsible for supporting colleagues in the teaching of Computing, for keeping informed about current developments in the subject. The Computing subject leader is responsible for development planning in the subject to indicate areas for further improvement.

12.2 This policy will be reviewed at least every two years.

Rules for Responsible Use of iPads, Computers and the Internet
(Acceptable Use Agreement for Pupils)

The school has iPads, computers and Internet access to help our learning.
These rules will keep everyone safe and help us be fair to others.

- I will use only my own login and password when using a computer;
- I will use the computers only for schoolwork and homework;
- I will not bring USB Flash drives (memory sticks, pen drives etc) into school without permission;
- I will ask permission from a member of staff before using the Internet;
- I will only e-mail people a teacher has approved;
- The messages I send will be polite and sensible;
- I will not give my home address or phone number;
- To help protect other pupils and myself, I will tell a teacher if I see anything I am unhappy with or I receive a message I do not like;
- I understand that the school can check my computer files and the Internet sites I visit.
- I will take great care with all Computing equipment.

iPad Specific rules

- I will not access other people's files on the iPads;
- I will always hold the iPad with two hands;
- I will always keep food and drink away from the iPads;
- I will remember to turn off my iPad screen when the teacher is talking;
- I will only use the apps my teacher has given me permission to use.

Parent/carer's permission

I give permission for use of computers, iPads and access to the Internet on the terms set out in the above rules.

Signed:……………………………………….

Print Name:…………………………………..

Pupil's agreement
I agree to follow the Rules for Responsible Use of Computers and the Internet

Signed:……………………………………..….

Print Name: ……………………………………

Class: ………………

The above agreement is found in each pupil's student planner.

Rules for Blogging

Blogging is great fun, and an amazing way to share our ideas and what we're learning with other people. But to make sure that Our Blog is fun AND safe, we need to **follow the BBG (Basic Blog Guidelines):**

- **Only use first names** when blogging or commenting. All student work will also be referred to by first names only.

- **Do not provide any personal details** in a post or comment, such as address or family information.

- Parents and others related to students should also refrain from using full names. Please just use first names, or maybe just go with 'Steven's Mum', or 'Lucy's Grandad'!

- **Always write in full sentences**, think about spelling and punctuation.

- **Should the awesome ability to write our own blog posts be abused**, or the BBGs not be followed in any way, **we will have to take away those privileges**. But I'm sure that won't have to happen!

- Remember to **comment on other people's posts**. See commenting guidelines for how to do this, and to get ideas on good commenting protocol.

- Our Blog is a public space, with other people looking at our work, so **always be proud of what you've written or commented**.

Parent/ carer's permission
I give permission for my child to write blogs for the school website as set out in the above rules.
Signed
Print name

Pupil's agreement
I agree to follow the Rules for Blogging
Signed:
Print name:
Class:

Glossary of Computing terms

algorithm – an unambiguous procedure or precise step-by-step guide to solve a problem or achieve a particular objective.

computer networks – the computers and the connecting hardware (wifi access points, cables, fibres, switches and routers) that make it possible to transfer data using an agreed method ('protocol').

control – using computers to move or otherwise change 'physical' systems. The computer can be hidden inside the system or connected to it.

data – a structured set of numbers, representing digitised text, images, sound or video, which can be processed or transmitted by a computer.

debug – to detect and correct the errors in a computer program.

digital content – any media created, edited or viewed on a computer, such as text (including the hypertext of a web page), images, sound, video (including animation), or virtual environments, and combinations of these (i.e. multimedia).

information – the meaning or interpretation given to a set of data by its users, or which results from data being processed.

input – data provided to a computer system, such as via a keyboard, mouse, microphone, camera or physical sensors.

internet – the global collection of computer networks and their connections, all using shared protocols (TCP/IP) to communicate.

logical reasoning – a systematic approach to solving problems or deducing information using a set of universally applicable and totally reliable rules.

output – the information produced by a computer system for its user, typically on a screen, through speakers or on a printer, but possibly though the control of motors in physical systems.

program – a stored set of instructions encoded in a language understood by the computer that does some form of computation, processing input and/or stored data to generate output.

repetition – a programming construct in which one or more instructions are repeated, perhaps a certain number of times, until a condition is satisfied or until the program is stopped.

search – to identify data that satisfies one or more conditions, such as web pages containing supplied keywords, or files on a computer with certain properties.

selection – a programming construct in which the instructions that are executed are determined by whether a particular condition is met.

sequence – to place programming instructions in order, with each executed one after the other.

services – programs running on computers, typically those connected to the internet, which provide functionality in response to requests; for example, to transmit a web page, deliver an email or allow a text, voice or video conversation.

simulation – using a computer to model the state and behaviour of real-world (or imaginary) systems, including physical and social systems; an integral part of most computer games.

software – computer programs, including both application software (such as office programs, web browsers, media editors and games) and the computer operating system. The term also applies to 'apps' running on mobile devices and to web-based services.

The above glossary has been taken from the booklet Computing in the national curriculum
A guide for Primary Teachers published by Computing at School

variables – a way in which computer programs can store, retrieve or change simple data, such as a score, the time left, or the user's name.

World Wide Web – a service provided by computers connected to the internet (web servers), in which pages of hypertext (web pages) are transmitted to users; the pages typically include links to other web pages and may be generated by programs automatically.37