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.

Computational thinking is important as it allows us to solve problems, design systems, and understand the power and limits of human and machine intelligence. It is a skill that empowers, and one that all pupils should be aware of and develop competence in. Pupils who can think computationally are better able to conceptualise, understand and use computer-based technology, and so are better prepared for today's world and the future.

Computing is a practical subject, in which invention and resourcefulness are encouraged. The ideas of computing are applied to understanding real-world systems and creating purposeful products. This combination of principles, practice and invention makes computing an extraordinarily useful and intensely creative subject, suffused with excitement, both visceral ('it works!') and intellectual ('that is so beautiful').

Adapted from *A Curriculum Framework for Computer Science and Information Technology*

1. Aims and objectives

1.1 Computing is changing the lives of everyone. Through teaching Computing we equip children 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 children to be able to use information in a discriminating and effective way. Computing skills are a major factor in enabling children to be confident, creative and independent learners.

1.2 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

    At Newdale, we also aim to:

- Provide an ongoing programme of staff development and training in order to keep abreast of new developments in computing.

- Use the computing facilities to teach computing and other areas of the National Curriculum through computing.

- Further enhance children's learning by using a wide range of tools linked to computing. Including green screening, Lego WeDo, Bee Bots and other such devices.

Teaching & Planning

2. Teaching and learning style

2.1 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. At times we do give children direct instruction on how to use hardware or software in 'skills' lessons but we often use Computing capabilities to support teaching across the curriculum. Children who are learning science might use the computer to model a problem or to analyse data. We encourage the children 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 moving text about etc.

2.2 We recognise that all classes have children with widely differing Computing abilities and different access at home to equipment. 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 children complete all tasks);
- using teaching assistants to support the work of individual children or groups of children.

3. Computing curriculum planning

3.1 The school will follow the Newdale Computing progression document, outlined from the 'Computing in the National Curriculum, A guide for Primary Teachers 2013'. This focusses on the computing and digital literacy aspects of this subject. This is supported by the whole school set of Non-negotiables for ICT, which ensures that children learn essential ICT skills throughout each year from Early Years through to Year 6.

3.2 The class teacher is responsible for writing the short-term plans with the Computing component of each lesson and use the specific learning objectives from the curriculum.

3.3 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.

4. The contribution of Computing to teaching in other curriculum areas

4.1 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 the Internet prove very useful for research in humanities subjects. Computing enables children to present their information and conclusions in the most appropriate way.

5. Access to Computing

5.1 At Newdale all pupils, regardless of race, age or gender have the opportunity to develop Computing capability. The school will promote equal opportunities for computer usage and fairness of distribution of Computing resources. Children are encouraged to use computers at home for educational benefit and parents are offered advice about what is appropriate through the school website.

5.2 Children with learning difficulties can also be given greater access to the whole curriculum through the use of Computing. Their motivation can be heightened and they are able to improve the accuracy and presentation of their work. This in turn can raise self-esteem.

5.3 In the Foundation Stage children have access to Computing as part of both Child Initiated Learning and focused group teaching. In KS1 and KS2 each class has a number of dedicated computers to assist in the provision of the subject.

6. Assessment and recording

6.1 Teachers assess children's work in Computing by making informal judgements as they observe them during lessons. Pupils' progress is closely monitored by the class teacher and at the end of each term, each pupil will be assessed against the criteria for the strands of Computing which have been studied. When appropriate, pupils print out work and children can also save their work onto their own files.

6.2 On-going informal assessment by observation takes place during lessons when Computing is used. From Y1, all learners have a personal drive on all networked computers, where work is saved. In Key Stage 2 work will be saved within curriculum folders on their drives. This supports the development of file management.

6.3 Children save final copies of their work on to the N drive for class teachers to monitor individual progress. When appropriate, children will print out their work that will be stuck into the appropriate subject workbook.

6.4 Monitoring of teaching and planning is carried out by the Computing subject leader through lesson observations, work trawls on the N Drive and planning scrutinies.

7 Resources

7.1 At present, each KS2 classroom contains a set of personal computers, with 2 additional computers primarily used by staff. These are all linked to the main school colour printer/photocopiers. There is a laptop trolley containing 12 laptops and a wireless internet connection throughout the whole school. Each classroom also has its own visualiser which links up to the touch screens. The school has a data projector for the hall, for use in

assemblies, presentations, group teaching and productions. Every computer in the school is linked to the Internet. Other resources include, Beebots, data loggers and microphones.

7.2 The school has a trolley with 30 iPads to meet the demands of the new Computing curriculum. 10 mini iPads have also recently been purchased for F/KS1 for intervention.

7.3 We keep resources for Computing, including software, in a central store in the ICT cupboard as well as in the Computing Coordinators classroom and the PPA room.

7.4 We currently employ an ICT technician for 2 days per week to ensure all systems are maintained, to assist with staff training and to input with teaching.

7.5 Each class base has either a Promethean touch screen attached to a networked, desktop computer, or a Sahara touch screen display board.

7.6 In KS 1 each class base has access to a digital camera, beebots and roamers and Coomber listening stations. In KS2 each class base has access to a digital camera, and a digital microscope. Centrally stored resources are available to all classes and include Lego, data loggers, FlowGo and visualisers.

8. E Safety
8.1 Students and staff are monitored using Impero software, which they consent to upon login. E safety lessons are taught as part of the schools SMSC aspects. See separate e-safety policy.

9. School liaison, transfer and transition
9.1 The school is connected to the Telford and Wrekin intranet which enables the transfer of information electronically.

The Newdale website is used to communicate with parents and carers.

10. The Role of the Coordinator
10.1 The named coordinator is Zoe McLaughlin. They are responsible for leading:
- Consultation with SMT and governors
- Reviewing policy and action plan
- Planning with colleagues an appropriate curriculum for Computing
- Monitoring the provision
- Development of inset for colleagues
- Participation in training
- Overseeing of assessment, recording and monitoring pupil progress
- Resources
- Keeping up to date with current developments
- Make sure that all relevant policies and documents refer to Computing

Zoe McLaughlin has reviewed this policy, in consultation with SMT, Staff and governors.

Review:
Next policy review planned for March 2019.