



## Computing at The Ryde School

### **Research**

National curriculum in England: computing programmes of study

<https://www.gov.uk/government/publications/national-curriculum-in-england-computing-programmes-of-study/national-curriculum-in-england-computing-programmes-of-study>

Cognitive Load Theory and its application in the classroom: Dominic Shibli and Rachel West

<https://impact.chartered.college/wp-content/uploads/2018/03/Cognitive-Load-Theory-and-its-application-in-the-classroom.pdf>

Education for a Connected World – 2020 edition

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/896323/UKCIS\\_Education\\_for\\_a\\_Connected\\_World\\_.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/896323/UKCIS_Education_for_a_Connected_World_.pdf)

### **Computing Curriculum Rationale**

At The Ryde School we encourage our children to love computing. We want them to be ambitious and grow up wanting to be software engineers, video game designers, web developers or IT consultants. We want them to embody our core values of: Resilient, Creative, Safe, Ambitious, Respectful. We firmly believe that ‘From little acorns might oaks grow’. The computing curriculum has been carefully designed so that our children develop their digital skills and knowledge. We want our children to remember their computing lessons in our school and make the most of the opportunities they are presented with.

*A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world (National Curriculum – Computing 2013).*

The staff at The Ryde work very hard to ensure computing teaching and learning are of the highest quality, offering creative and memorable lessons that support children to develop a sound understanding of the key concepts of computing.

We aim to make computing relevant to our children and the lives they will choose to lead. We want our children to use their computing skills to explore the diverse world in which they find themselves and to be able to communicate safely.

### **Curriculum Intent**

The computing curriculum has been designed to inspire curiosity and to develop children’s interests in computing. It is both creative and ambitious and encourages our children to become independent and resilient. Our aim is to for children, at the end of each milestone, to have their knowledge and

understanding of computing embedded in their long term memory, a resource that can be grown and used throughout their lives.

Each milestone spans two years of study. The two years of a milestone have different teaching approaches. In the first year of the milestone the teaching will be direct instruction to enable the learning of knowledge. In the second year of the milestone teaching will support more independent and investigative learning as children will have sufficient knowledge and skills to be able to problem solve and ask relevant and deeper questions to gain further knowledge.

The computing curriculum consists of the key concepts of:

*Code*

*Connect*

*Communicate*

*Collect*

and knowledge categories of: *all aspects of control e.g. motion, sound, looks, sensing, variables and lists. Online safety, data bases, use a range of applications and devices.*

In each year group computing units are carefully planned to ensure development of skills, knowledge and understanding. Opportunities for computing to be used to lead or support learning in other curriculum areas are planned creatively, and with integrity. We want to equip our children not only with the minimum statutory requirements of the computing National Curriculum but also to prepare them for the opportunities, responsibilities and experiences of later life.

To aid this deeper understanding of computing all children are offered opportunities to use their computing skills to support learning in other curriculum areas. For example: **Formulating data bases in science, recording music and drama performances, presenting learning from humanities and English learning with Powerpoint, Word, video or podcast.**

We enrich the children's learning in school with memorable and unforgettable experiences which provide opportunities to inspire, motivate and consolidate learning. Such as: **Animation Nation workshop in Year 6, Mission to Mars workshop in Year 5.**

At The Ryde we believe that it is not just about what happens in our classrooms, it is about the learning that happens outside the classroom and the added value this offers to inspire our children to want to learn. Children have the opportunity to use iPads outdoors to record a range of learning. **For example: recording science data, photograph art works, record short videos or podcasts.**

## **Curriculum Implementation**

In June 2021, a complete audit of the computing curriculum was conducted. Based on the findings from this audit, and the research of Herman Ebbinghaus and John Sweller, the staff worked together to skilfully build a computing curriculum that offers a wide range of learning opportunities and assessment opportunities for each year group. Ensuring each the revisiting of topics throughout the milestone.

This enriched curriculum will ensure progression and repetition in terms of embedding key learning, knowledge and skills, producing a secure base of subject knowledge on which to build future learning.

For example: **our curriculum is built around the four main themes of computing: connect, code, communicate and collect.** These themes are revisited year on year and allow pupils to progressively build their skills and knowledge.

Our knowledge categories of computing are revisited throughout each milestone. These categories are the basis of our computing teaching and learning and provide a common subject specific vocabulary for staff and pupils. These categories more broadly seek the children to be able to: **have a growing confidence and competence in coding through a variety of opportunities, connect with others in a safe, lawful and respectful manner and to understand connectivity of devices, confidently use apps and devices to communicate, manage the storage of data in an organised way so as to be able to retrieve, manipulate and display data effectively.**

In addition to this we provide frequent online safety teaching to children across the school. Our subscription to National Online safety allows both children and parents to be kept updated and informed on the latest safety advice. This information is also available on our website

Teachers, with the support of the curriculum leader, have the autonomy to deliver a curriculum that is relevant to their children. Teachers also make meaningful links with other curriculum areas where relevant for example: **In year...**

The children have a voice in their learning and are encouraged to have independent thoughts.

**Computing is discussed with the children at the beginning of each unit to understand what the children already so teaching can then be planned around this information. Children's individual interests in topics are encouraged and supported.**

Medium term plans are produced at the beginning of each term. They are written in sufficient detail to allow them to be used as weekly plans. Learning objectives are clear to see for each session as are planned activities for learning and expected outcomes. Resources are detailed for each session. Computing is taught on a weekly basis, allowing the time for concepts and categories to be revisited and practised and therefore improving the opportunity for children to retain what they have learned and change their long term memory – increasing the progress that they make.

Teachers are encouraged to teach a weekly computing lesson. Where meaningful, linking to another curriculum subject so as to enhance the knowledge and understanding of both subjects. For example: **In year 5 the use of data bases to support science field work.** Regular time designated to computing and the revisiting of concepts categories allows children to practise their understanding and knowledge of computing, therefore improving the opportunity for children to retain what they have learned and change their long-term memory – increasing the progress they make.

## **Curriculum Impact**

We use both formative and summative assessment information in our computing lessons at The Ryde. This information is used by staff to inform their short term planning and interventions. This helps teachers to provide the best possible support for all children, including children with EAL, SEND or the more-able.

Assessment milestones for each phase have been broken down for each year group, allowing for detailed assessment of progress. Within each milestone children gradually progress through three cognitive fields: basic, advancing and deep. The ambition is that most children will achieve a sustained mastery at the 'advancing' stage of understanding by the end of each milestone, and for

the more-able to have a greater depth of understanding at the 'deep' stage. **Therefore, the time-scale for sustained mastery or greater depth is two years.**

In the first year of a milestone children are expected to achieve the 'basic' stage of learning. Direct teaching will have enabled the children to learn knowledge and skills in preparation for a higher level of learning and understanding in the second year of the milestone.

Proof of progress tasks are carried out by teachers throughout the year. Each child's progress is mapped to ensure they are making the progress they are capable of.

Assessment information is collected at least termly by the subject leader and analysed. Results are reported to senior leaders and the link governor. This process provides an accurate and comprehensive understanding of the quality of teaching and learning in history.

Planning is monitored at the beginning of each term and at intervals in between, in line with other monitoring actions such as: work scrutiny, pupil voice, staff voice, displays, learning walks/lesson observations.