



Subject Overview 2020/2021: Computing
Intent (Skills/ knowledge):
Implementation (How/ When):



We know that our children start school with different levels of computing understanding. Our curriculum is designed to ensure that all children have access to progressive, creative and engaging opportunities in computing; preparing them for their future as a lifelong learner. Specific language development will enable them to understand the technical vocabulary linked to computing and the skills they are learning.

Through the study of Computing, children will be able to develop a wide range of fundamental skills, knowledge and understanding that will actually equip them for the rest of their life. Computers and technology are such a part of everyday life that our children would be at a disadvantage would they not be exposed to a thorough and robust Computing curriculum. Children must be taught in the art form of 'Computational Thinking' in order to provide them essential knowledge that will enable them to participate effectively and safely in the digital world beyond our gates.

	Year 3	Year 4	Year 5	Year 6
INTENT	<p><u>PROGRAMMING</u></p> <p>Programming: P3.1 I can refine a program by using the repeat command P3.2 I can create a procedure (group of commands) to do a specific task, draw a specific shape P3.3 I can solve problems by breaking them into smaller parts</p> <p>Simulations: P3.4 I can explain how to control a simulation P3.5 I can explain how a simulation is and isn't realistic</p> <p><u>DATA</u></p> <p>Databases: D3.1 I can create a branching database to sort and organise items D3.2 I can filter and sort records in a database to answer questions D3.3 I can design a questionnaire to collect information, and display the information in a graph or table</p> <p><u>COMMUNICATION</u></p> <p>Word processing: C3.1 I can use cut, copy and paste to reorder content C3.2 I can use and resize graphics within my work</p>	<p><u>PROGRAMMING</u></p> <p>Programming: P4.1 I can use if...then command within a series of instructions P4.2 I can test existing programs to see how they could be improved P4.3 I can write a program for a specific purpose, incorporating features such as inputs, repetition and procedures</p> <p><u>DATA</u></p> <p>Graphs: D4.1 I can present data in a graph, selecting the most appropriate layout D4.2 I understand the difference between discrete and continuous data D4.3 I can answer questions relating to graphs, and pose my own questions D4.4 I can use my graph in a document / presentation to share findings with others</p> <p>Spreadsheets: D4.5 I can add text and numbers to spreadsheet cells D4.6 I can add simple formulae: +* / D4.7 I can change the appearance of cells, e.g. size, borders and colours D4.8 I can copy and paste formulae within a spreadsheet</p> <p><u>COMMUNICATION</u></p> <p>Word processing: C4.1 I can different layouts and effects (such as text box, columns, tables, justification, borders, background colour) to refine and improve my work</p>	<p><u>PROGRAMMING</u></p> <p>Programming: P5.1 I can plan and test my algorithms and programs, detecting and correcting errors as needed P5.2 I can use variables in programs P5.3 I can design and write a program that controls or simulates physical systems and sensors</p> <p><u>DATA</u></p> <p>Databases: D5.1 I can interrogate a database using more complex searches D5.2 I can design and create a database D5.3 I can use information in a database to create a graph in order to answer questions</p> <p>Spreadsheets: D5.4 I can use simple functions, e.g. SUM, AVERAGE, to solve problems D5.5 I can use brackets to organise formulae D5.6 I can change data in a formula to answer 'What if?' questions D5.7 I can change the format of cells appropriately D5.8 I can create a graph using spreadsheet data</p> <p><u>COMMUNICATION</u></p> <p>Word processing: C5.1 I can develop consistency across the document</p> <p>Presentations: C5.2 I can add multimedia elements, e.g. sounds, animation C5.3 I can trigger animations or link to other slides when objects are pressed</p>	<p><u>PROGRAMMING</u></p> <p>Programming: P6.1 I can design and create a game, app and / or model, incorporating variables and different forms of input and output P6.2 I can test, debug and modify a program to improve it</p> <p><u>DATA</u></p> <p>Spreadsheets: D6.1 I can design and create a spreadsheet for a specific purpose, incorporating different features of design and function</p> <p><u>COMMUNICATION</u></p> <p>Word processing: C6.1 I can discuss and evaluate my documents, and make amendments as needed</p> <p>Presentations: C6.2 I can create a consistent design for my presentation, and present to others</p> <p>Online collaboration: C6.3 I know that some websites have age restrictions, and why these might be in place C6.4 I can describe the opportunities computer networks and the internet offer for communication and collaboration C6.5 I know different ways to report concerns about content & contact</p>

<p>C3.3 I can use spell check to aid my writing</p> <p>Presentations: C3.4 I can type text and insert images onto pages C3.5 I can add text effects and move items around to find the best layout</p> <p>Online collaboration: C3.6 I can send and reply to online messages, such as email, respectfully C3.7 I can add and open attachments</p> <p>C3.8 I know not to open messages and attachments from strangers</p> <p><u>DIGITAL LITERACY & RESEARCH</u></p> <p>Research: R3.1 I can type in a URL to find a website R3.2 I can search online for images and information safely R3.3 I can talk about the reliability of information on the internet</p> <p>E-safety: R3.4 I can present the information I have found and share it with others</p> <p>R3.5 I know why we need to keep passwords safe and secure</p> <p><u>MULTIMEDIA</u></p> <p>Creating images: M3.1 I can use the print screen function to capture an image M3.2 I can select and use a certain area of an image</p> <p>Video: M3.3 I can zoom in and out on subjects appropriately M3.4 I can download the video files from the video camera M3.5 I can combine video clips to create a video M3.6 I can add simple titles and credits</p> <p>Audio: M3.7 I can re-record an audio recording to improve clarity</p> <p>M3.8 I can download and save a recording</p>	<p>Presentations: C4.2 I can add a background colour to improve my work C4.3 I can add slide transitions and animation effects</p> <p>Online collaboration: C4.4 I know how and why to keep my personal information private C4.5 I can display myself appropriately online, e.g. avatar, code name C4.6 I can act appropriately & respectfully online C4.7 I know how to deal with cyberbullying</p> <p><u>DIGITAL LITERACY & RESEARCH</u></p> <p>Research: R4.1 I can use more complex search criteria to narrow down my search R4.2 I know that not all websites are accurate and can check information using a different site R4.3 I can make notes from information found on websites to present my findings R4.4 I know what plagiarism is and when I can use the work of others</p> <p><u>MULTIMEDIA</u></p> <p>Creating images: M4.1 I can group, copy and move shapes within a picture M4.2 I can order shapes / images by sending them to the back / front</p> <p>Photography: M4.3 I can crop and / or rotate an image where needed M4.4 I can adjust the colours on a photo</p> <p>Animation: M4.5 I can plan an animation using a storyboard M4.6 I can shoot frames to combine into an animation M4.7 I can edit an animation to improve it / make it more realistic M4.8 I can put sounds over an animation M4.9 I can add titles and photos into an animation M4.10 I can plan and create an animation for a given purpose</p>	<p>Online collaboration: C5.4 I understand that information I put online leaves a trail, or digital footprint C5.5 I know how and why to create secure passwords for online accounts C5.6 I know what spam is, and how to deal with it</p> <p><u>DIGITAL LITERACY & RESEARCH</u></p> <p>Research: R5.1 I know the information found on some sites will be biased R5.2 I know that images and text found on websites is subject to copyright R5.3 I know how to credit the use of websites in my work, and why this should be done</p> <p>E-safety: R5.4 I know different ways of reporting concerns about content</p> <p><u>MULTIMEDIA</u></p> <p>Creating images: M5.1 I can add and combine shapes to design a 3D model M5.2 I can add detail to my 3D model</p> <p>Photography: M5.3 I can improve a photo with editing tools e.g. blur, filters, add border</p> <p>Video: M5.4 I can edit the video; trimming and re-ordering clips M5.5 I can add a voice-over and / or background music to a video M5.6 I can add titles and credits to my video</p> <p>Audio: M5.7 I can create an audio recording and add it to other software</p>	<p><u>DIGITAL LITERACY & RESEARCH</u></p> <p>Research: R6.1 I understand how computer networks work, including the internet R6.2 I understand the difference between the internet and an internet service, e.g. the world wide web, VOIP R6.3 I can use search engines effectively, and I know how search results are selected and ranked</p> <p><u>MULTIMEDIA</u></p> <p>Photography: M6.1 I can take photos for a given purpose and use them in my work</p> <p>Animation: M6.2 I can plan and create an animation for a given purpose M6.3 I can edit an animation to improve it / make it more realistic M6.4 I can combine an animation with other software</p> <p>Multimedia overall: M6.5 I can select and use appropriate multimedia tools, and combine these for a given purpose with confidence</p>
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Approach to Computing

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 technology, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

Computers are now part of everyday life. At Alexandra Junior School, we teach our children 'computational thinking' which enables them to be ready to participate effectively in this digital world.

Through Computing, we teach our children how computers and computer systems work, and how they are designed and programmed. Computing is very much a practical subject where invention is encouraged. The ideas of computing are applied to understanding real-world systems. E-Safety plays a very large part in the Computing curriculum.

Our school delivers the Computing curriculum through topic areas and discrete lessons. We have a range of equipment to enable us to do this: interactive whiteboards, laptops, kindles and iPads.

We use iLearn2 to help us to ensure we appropriately cover the national curriculum objectives in our Computing lessons. The key to iLearn2 is that pupils can access activity pack online. Each pack includes video tutorials, tasks, challenges and extension activities which allow the pupils to learn digital skills at their own pace. Teachers can assign activity packs to the children to ensure the correct level of challenge.

Literacy in Computing

Speaking and Listening

Children are encouraged to discuss their Computing tasks in order for the teacher to assess whether the children understand the concepts that they are learning. When working in mixed ability pairs, it is this discussion that supports the lower ability child and develops their digital literacy.

Reading

Through the use of Myon, an online reading resource, and Accelerated Reader, to complete comprehension quizzes and pass up through book levels, the children are engaging more with reading. Children who are reluctant to pick up a paper copy of a book but who enjoy using digital devices are now showing an improved love for reading.

Children are given the opportunity to use research skills through the use of online texts, sometimes given and sometimes found through the use of search engines. Children are taught to be digitally literate, understanding how to extract important information from the texts or websites and deciding if what they are reading can be trusted or not.

Writing

The children will use their writing skills in a variety of ways in the Computing curriculum: through note taking in research sessions, writing programs in coding sessions and creating presentations to show off their understanding of a concept.

Vocabulary

In Computing, there are so many technical words for the children to get used to hearing and using in order to understand the concepts that they are learning about. Teachers ensure that the children know and use the key vocabulary for the area of computing that they are learning about in order to build upon it as the children progress throughout their school career.

Differentiation/SEND

The key to iLearn2 is that pupils can access activity pack online. Each pack includes video tutorials, tasks, challenges and extension activities which allow the pupils to learn digital skills at their own pace. Teachers can assign activity packs to the children to ensure the correct level of challenge.

Teachers will sometimes decide, that in order to best support a child who requires further support, mixed ability pairs or groupings will be used with the activity packs to give the children peer support and allow for discussion between the children.

Moral/Social and Cultural Development

At Alexandra Junior, we use computing to support our children's spiritual development by helping them to develop deep thinking and question the way in which the computing world works. Moral development is supported through discussion about computing understanding and challenging assumptions, supporting children to question information and data that they are presented with. Self-esteem and building self-confidence is integral to social development and we use growth mind-set, metacognition and our differentiation model to support this. Collaborative learning is encouraged at Alexandra Junior in the form of listening and learning from each other and paired discussion and working with partners.

Assessment

Listening to the children is an important way of assessing what they really understand and may identify misconceptions to aid future planning.

This form of assessment can take place:

- i) Between teacher and child in private conversation
- ii) Between children in a group
- iii) Between teacher and class

Assessment in computing comes at the end of a unit of work and a computing assessment tracker has been produced which will show progression of knowledge and skills as a child progresses through their time at Alexandra Junior School. These progression skill trackers are set out in year groups and will move up with the children as they move year groups to enable each teacher to set the appropriate level of challenge for each child.

Visitors/Trips/Whole school

Set up in our school hall, *Gaming throughout the Years* is an opportunity for the children to be able to use different gaming consoles that they may not otherwise be able to use and gives them some understanding of how gaming has developed throughout time. It also gives them the opportunity to try out 'future' gaming including the use of virtual reality.

Learning Recovery

In light of missed learning due to COVID 19, recovery provision has been planned for and is detailed in specific year group catch up plans. These have been formulated through collaboration of SLT, subject leaders, teachers and across the Key Stage with the feeder Infant School. These plans will be reviewed, modified and RAG rated regularly to inform future teaching & learning. For further detail please see each year group's separate plans.