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	**PROGRAMMING** **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 **Simulations:** P3.4 I can explain how to control a simulation P3.5 I can explain how a simulation is and isn't realistic **DATA** **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 **COMMUNICATION** **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	**PROGRAMMING** **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 **DATA** **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 **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 **COMMUNICATION** **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	**PROGRAMMING** **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 **DATA** **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 **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 **COMMUNICATION** **Word processing:** C5.1 I can develop consistency across the document **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	**PROGRAMMING** **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 **DATA** **Spreadsheets:** D6.1 I can design and create a spreadsheet for a specific purpose, incorporating different features of design and function **COMMUNICATION** **Word processing:** C6.1 I can discuss and evaluate my documents, and make amendments as needed **Presentations:** C6.2 I can create a consistent design for my presentation, and present to others **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

C3.3 I can use spell check to aid my writing

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

Online collaboration:
C3.6 I can send and reply to online messages, such as email, respectfully
C3.7 I can add and open attachments

C3.8 I know not to open messages and

attachments from strangers

DIGITAL LITERACY & RESEARCH

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

E-safety:
R3.4 I can present the information I have found and share it with others

R3.5 I know why we need to keep passwords

safe and secure

MULTIMEDIA

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

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

Audio:
M3.7 I can re-record an audio recording to improve clarity

M3.8 I can download and save a recording

Presentations:
C4.2 I can add a background colour to improve my work
C4.3 I can add slide transitions and animation effects

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

DIGITAL LITERACY & RESEARCH

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

MULTIMEDIA

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

Photography:
M4.3 I can crop and / or rotate an image where needed
M4.4 I can adjust the colours on a photo

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

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

DIGITAL LITERACY & RESEARCH

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

E-safety:
R5.4 I know different ways of reporting concerns about content

MULTIMEDIA

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

Photography:
M5.3 I can improve a photo with editing tools e.g. blur, filters, add border

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

Audio:
M5.7 I can create an audio recording and add it to other software

DIGITAL LITERACY & RESEARCH

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

MULTIMEDIA

Photography:
M6.1 I can take photos for a given purpose and use them in my work

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

Multimedia overall:
M6.5 I can select and use appropriate multimedia tools, and combine these for a given purpose with confidence

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.

Children need to understand general internet safety before moving into the elements of what they use the internet for, therefore E-Safety is the first main unit we will cover in each year group. We know that our children are more often corresponding with each other through chat and instant messaging with many of them using social software including online gaming. In the summer term, before the summer holiday it is important to recap everything under the topic of using mobile phones and the mobile internet as this is more than likely to be the way they contact over the 6 week break and they need to be reminded of how to use them appropriately and responsibly.

Although there are ilearn2 E-safety units, we ask that teachers spend the first lesson of each half term with a focus on E-Safety.

Autumn 1 – using the internet
Autumn 2 – using email
Spring 1 – using chat and instant messaging
Spring 2 – using social software, including online gaming
Summer 1 – using file sharing services
Summer 2 – Using mobile phone and the mobile internet

Each year group will focus on elements relevant to their year group's age and needs according to current issues.

We use ilearn2 to support the planning and teaching of computing lessons as this programme has been created with progression of skills in mind. Units have been selected carefully to ensure progression in evident throughout the key stage with children building upon skills learn in previous year groups. Some units do stand alone, but the key computing skills the children will be learning will continue to progress through these units too. See end of document for unit order.

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 as their own pace. Teachers can assign activity packs to the children to ensure the correct level of challenge.

The computing lessons support our school context-based drivers, the 5Es (Excel yourself, Embrace yourself, Explore the world, Engage with others, Express yourself). These are explicitly shared with the children.

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 as 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.

For some children, particularly those who are new to English, it may be more important for them to learn key computing skills, for example mouse control or opening and saving documents, rather than being asked to complete the ilearn2 tasks.

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
iv)   Completion of the assessment activity on ilearn2 website
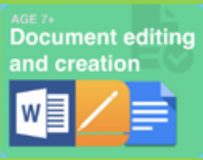
Assessment in computing comes at the end of a unit of work through the use of the online badges on the ilearn2 website and 'I can' statements have been designed for each objective that will be evident in the floor book for each lesson. Where a child has achieved the objective green will be used to indicate this. If they have partially achieved the objective (as they have received peer or adult support) yellow will be used to indicate this. If a child has not achieved the objective, then the space will be left blank.

In the case that a child has not achieved the objective, the teacher must make a note explaining why (for example absence or focusing on key computing skills rather than completing the unit). If a child is focusing on computer skills rather than the objectives that the rest of the class are using their assessment will be on the progression skill tracker *(see computing skills assessment document)*. These progression skill trackers, which focus on key computing skills such as mouse control and opening and saving documents) 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.

As a result of the COVID-19 pandemic lockdown, our use of virtual learning has increased and the children have become more adept at using this technology to engage with their learning. This will continue, even when we are back in school, as the children have enjoyed this use of computing software.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3	Start of with basic skills on assessment grid and word through the skills as appropriate.	Document editing and creation Use Word	No data activity for Year 3 on ilearn2. Supplement from other area 1920 – Curriculum – Computing – Year 3 Computing – Data Handling (use textease)	Video Editing Ages 6+ In Year 4 section of ilearn2 Use iMovie	E-safety Ages 7-11 1920 – Curriculum – Computing – Esafety planning	Programming in Scratch Year 3
Year 4	Please refer to the previous year assessment grid to see the starting point for your children.	Ebook Creation Ages 7+ Which is the flag of It... Activity pack 1	Data Handling Year 4 Use excel – bar chart	Animation AGE 7+ Use PowerPoint	E-safety Ages 7-11 1920 – Curriculum – Computing – Esafety planning	Programming in Scratch Year 4
Year 5	Please refer to the previous year assessment grid to see the starting point for your children.	Ebook Creation Ages 7+ Which is the flag of It... Activity pack 2	Data Handling Year 5 Use excel	Music Creation Year 5 Go back to Y3 music creation pack first Beepbox and Garageband	Computer Networks and the Internet Ages 8+	Programming in Scratch Year 5
Year 6	Please refer to the previous year assessment grid to see the starting point for your children.	Web Design Ages 9+ Need parent content otherwise they cannot publish their website	No data activity for Year 6 on ilearn2. Supplement from other area 1920 – Curriculum – Computing – Year 6 – Data Handling	Virtual Reality	Computers: Past, Present, Future. Ages 8+	Programming in Scratch Year 6

Basic skills	Programming	Data	Communication	Digital Literacy and Research	Multimedia