Pegasus Primary School
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Orchard Meadow Primary School
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Computing Curriculum

Curriculum Intent Statement

At Orchard Meadow and Pegasus pupils will:

- Generate high quality presentation skills through using a range of different programmes. Having the confidence to choose the correct programme to present relevant information
- Write, tinker and debug code to solve specific problems or creatively develop products to be consumed by an audience.
- Understand how to keep themselves and other safe whilst using the internet.

Key driver	Outcome
Respect	I know how to use technology to solve problems. I can produce code following the *Ten Commandments of Computer Ethics*. I know how to interact with other people on the internet safely and with respect for myself and others.
Determination	I know that code can have bugs and that part of my learning is debugging the code. I know that I will have to re-write and 'tinker' with my code to achieve my desired result.
Creativity	I know that code can be written to produce creative content as well as solve problems. I can use a range of technology to create games and artwork to entertain and challenge those who are consuming my code. I know I can present information in different ways to communicate with different audiences for different purposes.
Confidence	I know that I am a coder. I know I use technology purposefully and safely. I am confident that I can use technology to solve problems and to improve my standard of communication. I know how to solve problems and debug. I know where to look if I need further support.
Enthusiasm	I enjoy learning about different forms of communication. I enjoy challenges and tinkering to debug my own and my peers code. I work collaboratively with different people to produce and develop content. I can present information with confidence and enthusiasm. I have resilience in my own practice.
Ambition	I understand how technology can support me and aid my life. I know that the skills I am learning and developing at school are the building blocks for my future and that I will continue to improve on these throughout my academic life. I know these skills will prepare me for life in modern Britain.

Whole school summary

Resources and planning from NCCE Teach Computing			
	Autumn	**Spring**	**Summer**
Nursery	How does technology help me?		
Reception		How can I use technology to present information?	How can technology help me solve a problem?
			Beebots/cars
Year 1 How can I use technology purposefully?	How can I programme a Beebot to move around a set space?	How can I use a keyboard to present information?	How can I code a Sprite?
	Beebot Computer science	Presenting information- computers	Coding- Scratch jnr
Year 2 Do different Apps have different purposes?	How can I plan and debug a programme?	How can I use technology to take photographs?	How can I write code to gather information?
	Coding-Beebots	Making Media: Ipads	Coding: Ipads
Year 3 How can technology entertain?	How can I create an animation to entertain?	How can I use motion, sound, and event blocks to sequence on Scratch?	How can I collect and store information?
	Making Media: Ipads	Coding: Scratch	Databases: Excel
Year 4 How can technology connect people?	How can I present information in a way that will engage people?	How can I use a repeat block to make my code more efficient?	Can I believe everything I read on the internet?
	Making Media: Podcast	Coding: Scratch	Network: using the internet
Year 5 How can technology impact the classroom?	How can I organise data to solve a problem?	How can I use loops to modify my code?	How can I explore and manipulate 2D and 3D shapes?
	Data logging-excel	Coding: Scratch	Google Sketchup
Year 6	How can I use variables to build a project?	How can I present information on a website?	Is everything on a computer 2D?

How can technology present information to the world?			

When programming, there are four levels that can help describe a project: Levels of abstraction

Task – what is needed

Design – what it should do

Code – how it is done

Running the code – what it does

National Centre for Computing Education

Teach Computing

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Our Learning Journey

Progression of Computing Skills

Nursery			Reception		
Autumn	**Spring**	**Summer**	**Autumn**	**Spring**	**Summer**
Digital Literacy	**Information Technology**	**Computer science**	**Digital Literacy**	**Information Technology**	**Computer science**
Children should be taught that if they are using technology they need to use it with an adult.	Children should experience typing on a keyboard and understand these create letters to make words.	**Children should experience moving a Beebot using forward/backwards/turn.**	**Children should participate in Digital Literacy week as part of the whole school. Children should be taught that:** • **Everything that goes on the internet can be seen by anyone** • **Children should never be online unsupervised** • **Some Apps are for older children**	**Children should have access to A computer as part of play** **Children should be taught to:** • **Find the letters to spell their name** • **Find the enter/space bar/ backspace** • **Experience typing into a Word or Paint document with a purpose.**	**Children to have access to Beebots as part of play.** **Children should be taught to:** • **Move the Beebot forward/backwards/turn** • **Wipe the BeeBot's memory.** • **Turn the Beebot and off** • **Attempt to move the Beebot from point A to point B**

Driver	Respect	Determination	Creativity	Confidence	Enthusiasm	Ambition

Progression of Computational Skills

Year 1			Year 2		
Autumn	**Spring**	**Summer**	**Autumn**	**Spring**	**Summer**
BeeBots	**Creating Media**	**Scratch Junior**	**Coding**	**Creating Media**	**Coding-Scratch Junior**
Children will know that: Algorithms are a set of clear, precise and ordered instructions and that a computer program is the implementation of an algorithm on a digital device. **Children will practise:** reading 'code' to predict what a program will do. Engage in aspects of program design, including outlining the project task and creating algorithms.	**Children will know that:** Computers can be used to create and manipulate digital content, focussing on using a word processor. **Children will develop their ability to**: Find and use the keys on a keyboard in order to create digital content. Children are introduced to: Manipulating the resulting text, making cosmetic changes, and justifying their reason for making these changes.	**Children will know that:** Algorithms are a set of clear, precise and ordered instructions and that a computer program is the implementation of an algorithm on a digital device. **Children will develop their ability to:** read 'code' to predict what a program will do. **Children will engage in:** aspects of program design, including outlining the project task and creating algorithms.	**Children will know that:** technology allows us to create short programs and predict the outcome of a simple program. **Children will develop their ability to:** understand algorithms and how they are implemented as programs on digital devices. **Children will practise:** looking at how the order of commands affects outcomes. They will use this knowledge and logical reasoning to trace programs and predict outcomes.	**Children will know that:** Devices can be used to take photographs that can be landscape or portrait. This can change our perception of the images. **Children will develop their ability to:** Use technology purposefully an use a range of apps. They will learn that all pictures are not quite what they seem and s **Children will practise:** to focus, zoom in and out. Images can be altered and improved using different software. They will experience saving photos so they can be accessed again quickly. They will crop, recolour and delete unwanted photographs.	**Children will know that:** sequences of commands have an outcome, and make predictions based on their learning. **Children will develop their ability to:** use and modify designs to create their own quiz questions in ScratchJr, and realise these designs in ScratchJr using blocks of code. **Children will practise:** evaluating their work and make improvements to their programming projects.

E-safety **Resources and planning from Project Evolve In partnership with Education for a Connected World**			
Online relationships: Give examples of how someone might use technology to communicate with others they don't also know offline and explain why this might be risky	**Online reputation:** Know who to talk to if something has been put online without consent or if it is incorrect.	**Self -Image and identity:** Explain how other people may look and act differently online and offline. .	**Online Bullying** Talk about how anyone experiencing bullying can get help
Managing online information Explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'	**Health, Well-being and Lifestyle** Explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public places and the home environment.	**Privacy and security:** Explain and give examples of what is meant by 'private' and 'keeping things private'.	**Copyright and Ownership** explain and give examples of what is meant by 'private' and 'keeping things private'. Recognise that content on the internet may belong to other people.

Progression of Computational Skills

Year 3			Year 4		
Autumn	**Spring**	**Summer**	**Autumn**	**Spring**	**Summer**
Creating Media- stop motion	**Coding-Scratch**	**Data Bases**	**Networks**	**Coding-computer science**	**Creating media-podcasts**
Children will know that: animations are a series of still images. This can be drawn or captured with a digital device. Stories can be decomposed into characters, key events and stages. Cameras need to be kept very still to avoid inconsistencies. **Children will develop their ability to:** use devices purposefully to create media. Building on their work from Year 2 they will look at compositions of pictures. **Children will practise:** capturing images and reviewing their quality. Using onion skinning to maintain consistency. They will play back and evaluate their work then export and share it to an adult device.	**Children will know that:** all programs have an initial starting point. Programs are made up of sequences. Commands need to be linked to create a sequence of events. **Children will develop their ability to:** Identify and explain what each element of code can do. They will know that the order of the sequence will affect the outcome and tinkering may lead to or fix bugs within the code. That different sequences of code can have the same outcome. **Children will practise:** writing basic code using code blocks. Running programs to identify bugs. Evaluate their own work and the work of peers.	**Children will know that:** what a branching database is and how to create one. They will gain an understanding of what attributes are and how to use them to sort groups of objects by using yes/no questions. They will decide what types of data should be presented as a branching database. **Children will develop their ability to:** evaluate the effectiveness of branching databases and will decide what types of data should be presented as a branching database. **Children will practise:** Using technology purposefully. Using a keyboard to type.	**Children will know that**: apply their knowledge and understanding of networks, to appreciate the internet as a network of networks which need to be kept secure. They will learn that the World Wide Web is part of the internet. **Children will develop their ability to:** to explore the World Wide Web for themselves to learn about who owns content and what they can access, add, and create. **Children will practise:** evaluating online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information.	**Children will know that:** Repetition is doing the same thing over again. This can be used to make code more efficient. That loops enable repetition within code. **Children will develop their ability to:** use sequence of commands in a program to using count-controlled loops. To predict outcomes. **Children will practise:** creating algorithms and then implement those algorithms as code.	**Children will know that:** Sound can be recorded digitally as some devices have microphones. That audio can be edited, layered and altered. **Children will develop their ability to:** create media, by focusing on the recording and editing of sound to produce a podcast. **Children will practise:** pressing the correct buttons to record audio. Using software to record and edit audio. To apply affects and export audio to an adult device.

E-safety

Resources and planning from Project Evolve In partnership with Education for a Connected World

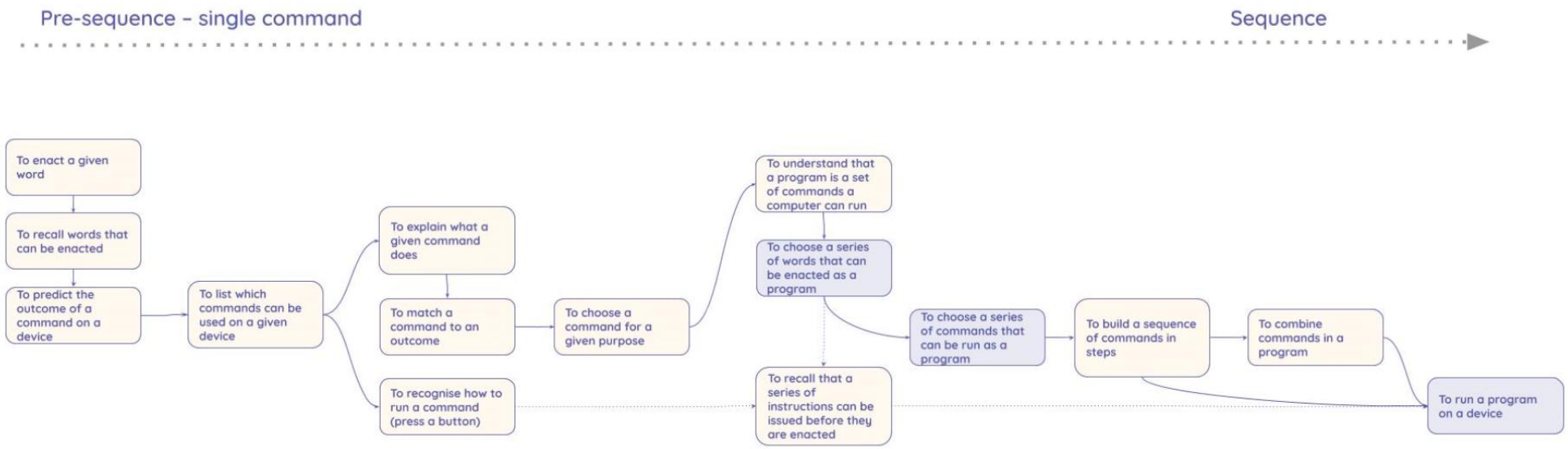
Online relationships: Explain what it means to 'know someone' online and why this might be different from knowing someone offline.	**Online reputation:** Give examples of what anyone may or may not be willing to share about themselves online. I can explain the need to be careful before sharing anything personal.	**Self -Image and identity:** Explain ways in which someone might change their identity depending on what they are doing online (e.g. gaming; using an avatar; social media) and why.	**Online Bullying** Describe appropriate ways to behave towards other people online and why this is important
Managing online information Describe and demonstrate how we can get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened.	**Health, Well-being and Lifestyle** Explain why spending too much time using technology can sometimes have a negative impact on anyone; I can give some examples of both positive and negative activities where it is easy to spend a lot of time engaged	**Privacy and security:** Describe simple strategies for creating and keeping passwords private.	**Copyright and Ownership:** Explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause**.**

Progression of Computational Skills

Year 5			Year 6		
Autumn	**Spring**	**Summer**	**Autumn**	**Spring**	**Summer**
<u>Databases</u>	**Coding-scratch**	**Creating Media: google sketchup**	**Coding-scratch**	**Creating Media-Websites**	**Creating media-3D modelling**
Children will know: how a flat-file database can be used to organise data in records. **Children will develop their ability to:** use tools within a database to order and answer questions about data. **Children will practise:** creating graphs and charts from their data to help solve problems. They use a real-life database to answer a question, and present their work to others.	**Children will know that:** difference between count-controlled and infinite loops. **Children will develop their ability to:** Use different coding platforms to create code. **Children will practise:** modifying existing animations and games using repetition. They will design and create a game which uses repetition, applying stages of programming design throughout.	**Children will know that:** different drawing tools have a different result. Images are created in layers. **Children will develop their ability to:** Understand of digital painting. They will draw links to desktop publishing in which children used digital images. Children create the images that they could use in desktop publishing documents. **Children will practise:** grouping images and duplicating to support them in creating more complex pieces of work.	**Children will know that:** variables are a useful tool when coding. They will relate them to real-world examples of values that can be set and changed. **Children will develop their ability to:** use variables to create a simulation of a scoreboard. **Children will practise:** In Use-Modify-Create model, pupils will experiment with variables in an existing project, then modify them, then they will create their own project.	**Children will know that:** people create websites for a chosen purpose. They identify what makes a good web page and use this information to design and evaluate their own website using Google Sites. **Children will develop their ability to:** Throughout the process children pay specific attention to copyright and fair use of media, the aesthetics of the site, and navigation paths.	**Children will know that:** computers to produce 3D models. Learners will initially familiarise themselves with working in a 3D space, including combining 3D objects to make a house and examining the differences between working digitally with 2D and 3D graphics. **Children will develop their ability to:** progress to making accurate 3D models of physical objects, such as a pencil holder, which include using 3D objects as placeholders. **Children will practise: e**xamining the need to group 3D objects, then go on to plan, develop, and evaluate their own 3D model of a photo frame**.**

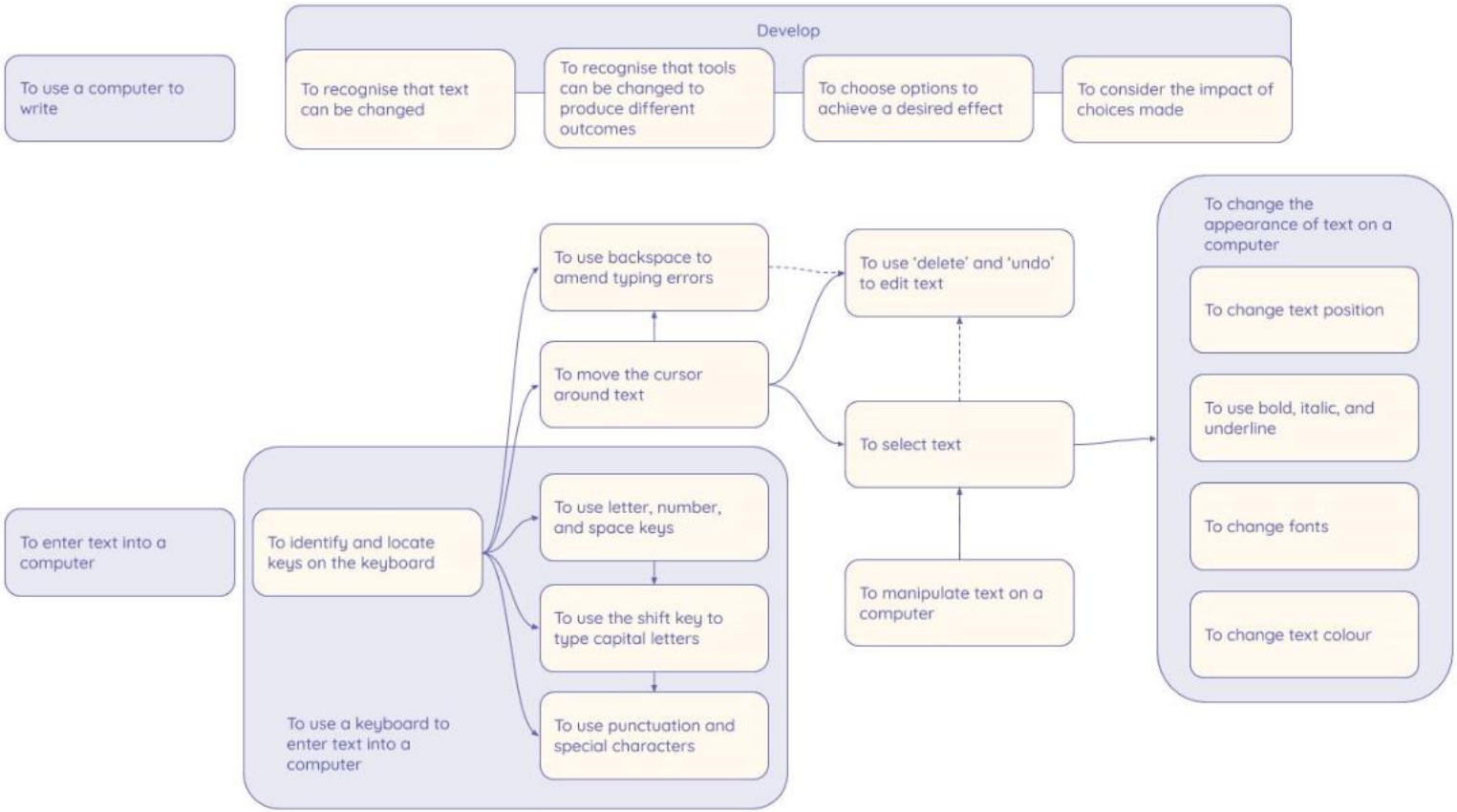
E-safety **Resources and planning from Project Evolve In partnership with Education for a Connected World**			
Online relationships: Explain that there are some people I communicate with online who may want to do me or my friends harm. I can recognise that this is not my / our fault.	**Online reputation:** Describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect	**Self -Image and identity:** Demonstrate how to make responsible choices about having an online identity, depending on context	**Online Bullying** Describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying.
Managing online information Describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful	**Health, Well-being and Lifestyle** Describe some strategies, tips or advice to promote health and wellbeing with regards to technology	**Privacy and security:** Explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others.	**Copyright and Ownership** give examples of content that is permitted to be reused and know how this content can be found online

Learning Graph
Year 1, Coding 1:

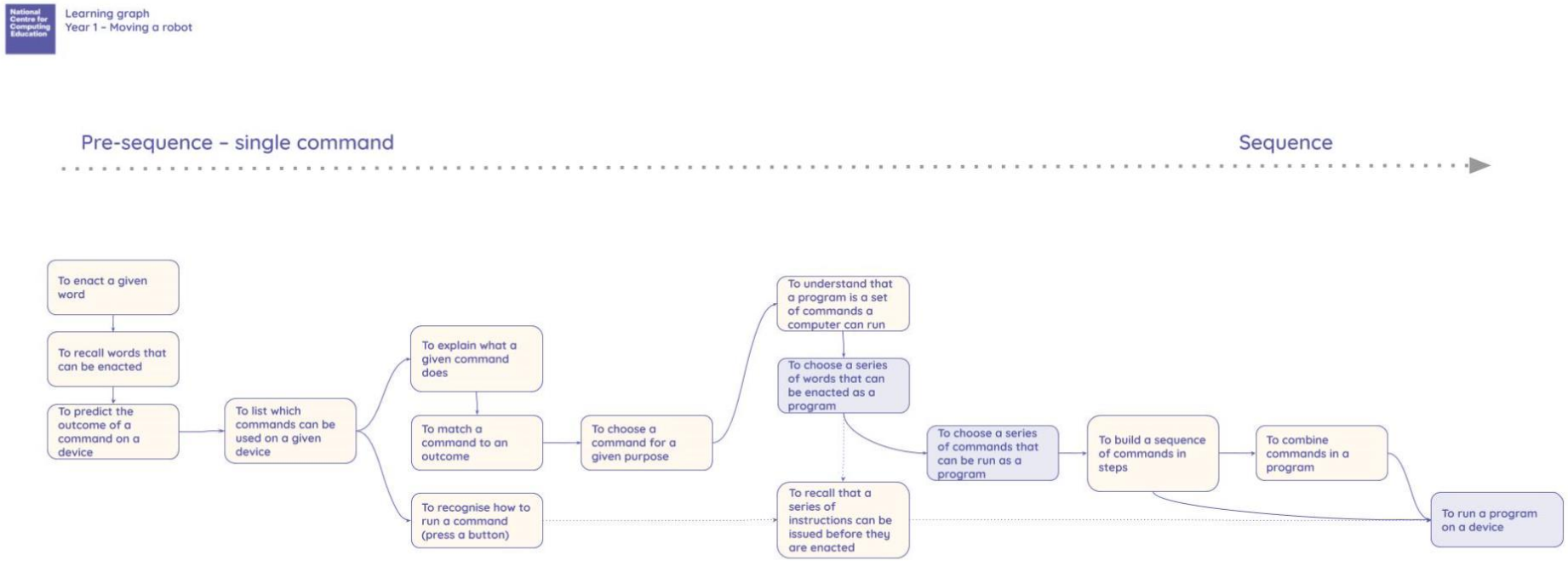


Year 1, Creating media:

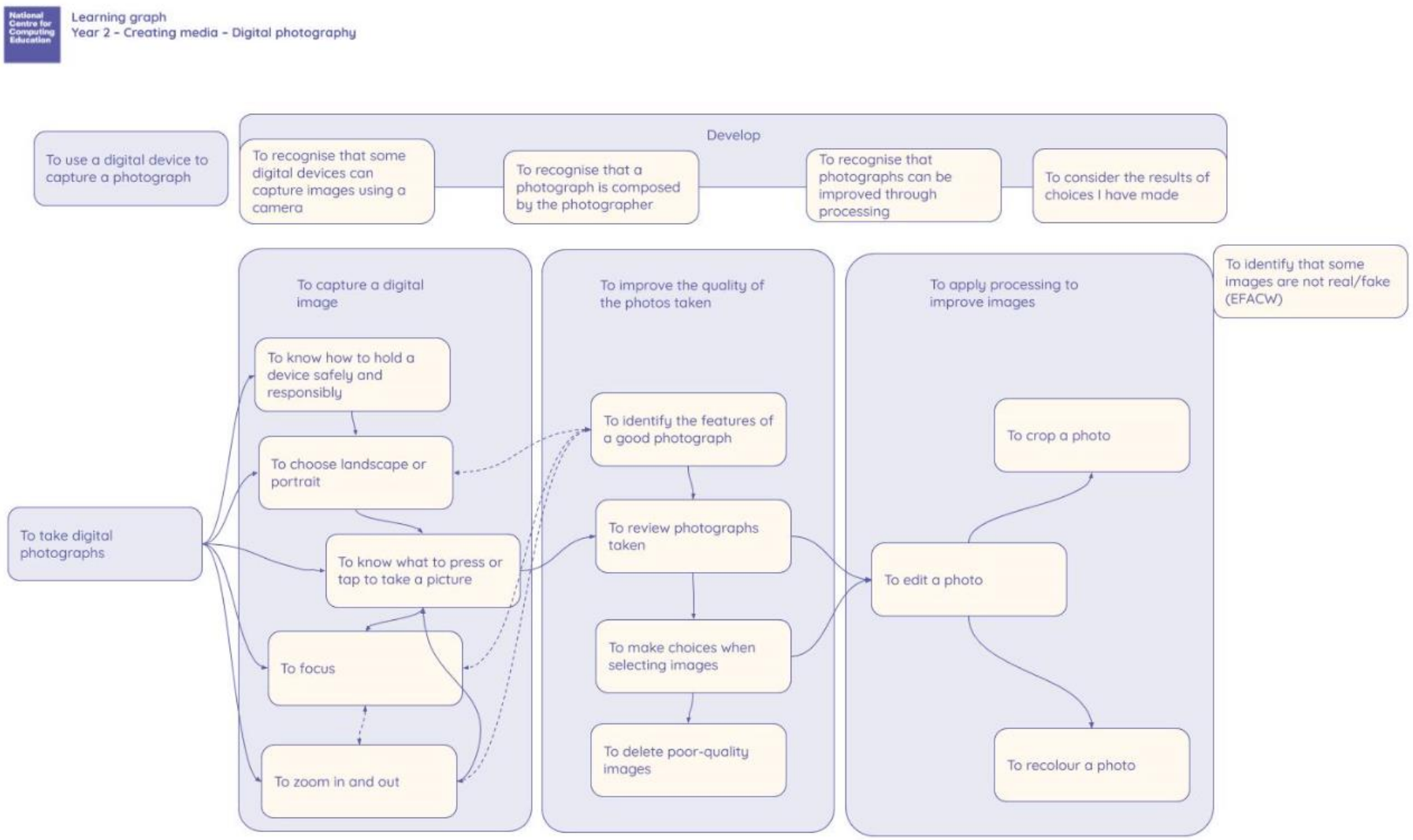
Learning graph
Year 1 – Creating media – Digital writing



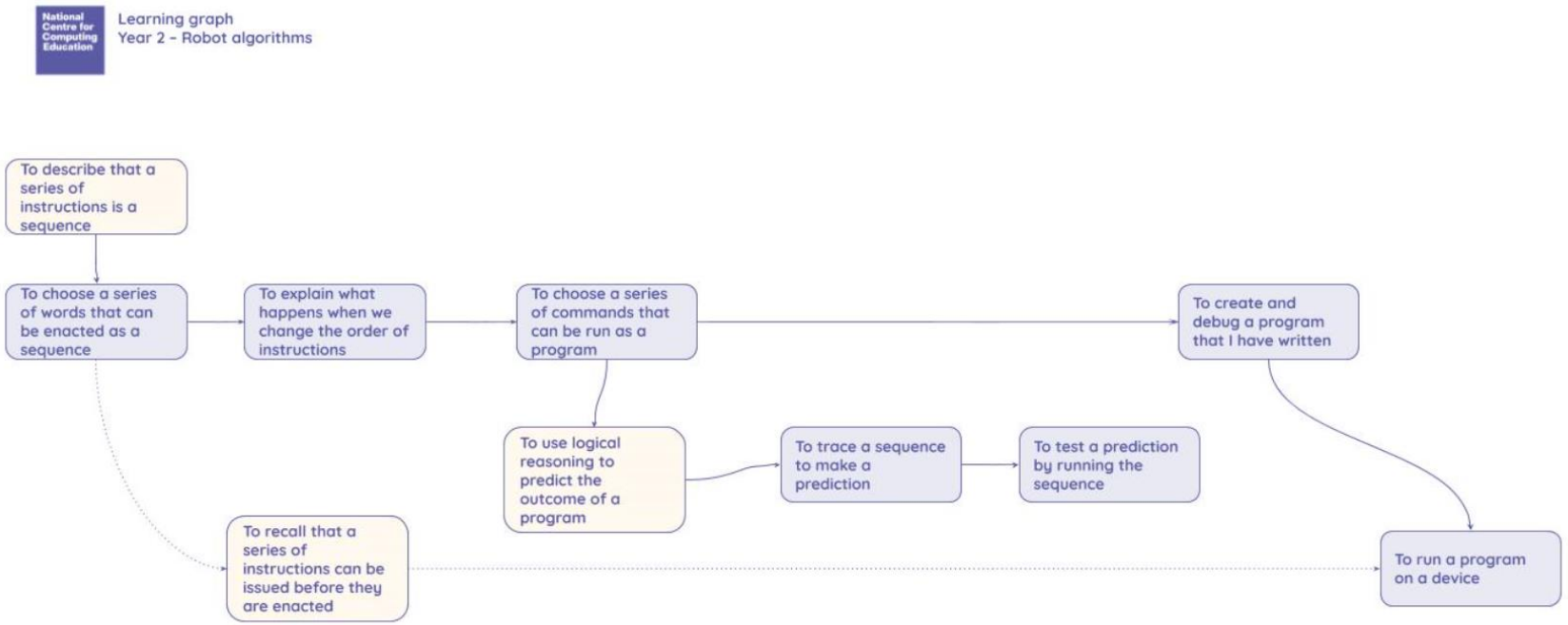
Year 1, Scratch Junior:



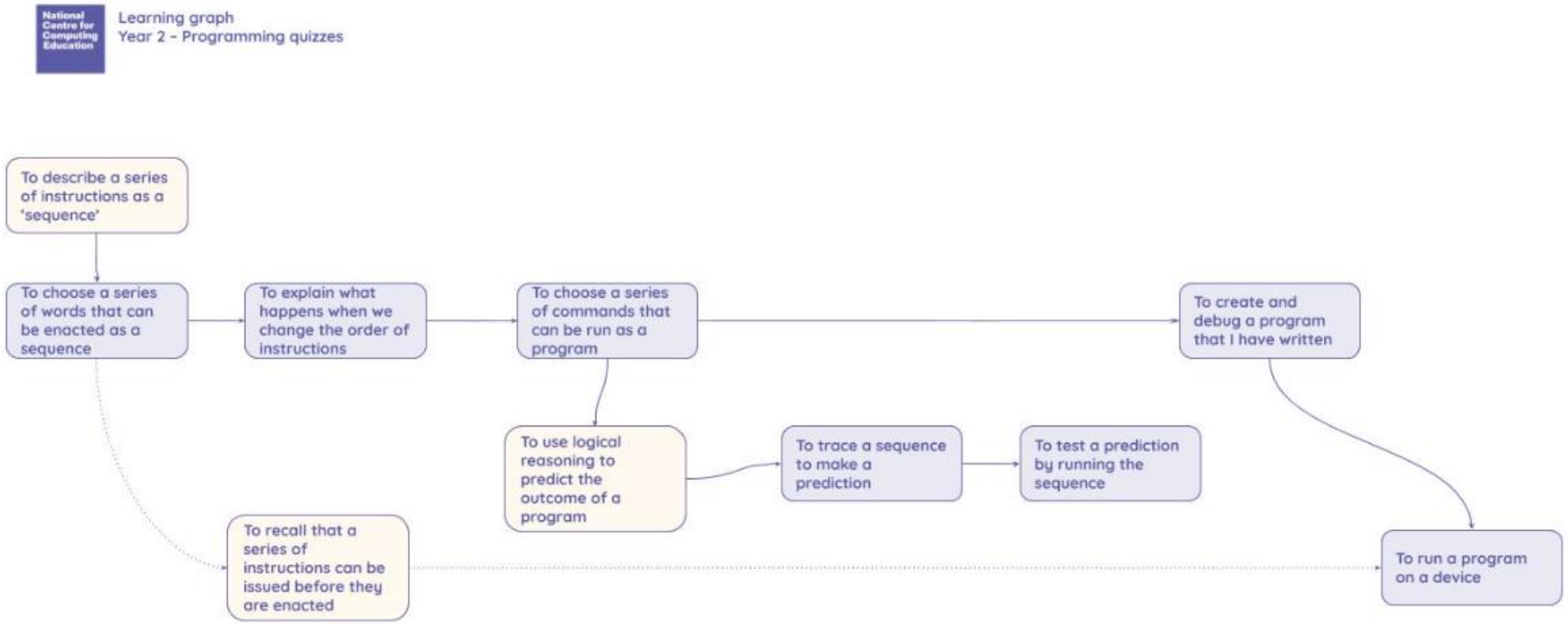
Learning Graph Year 2, Creating Media:



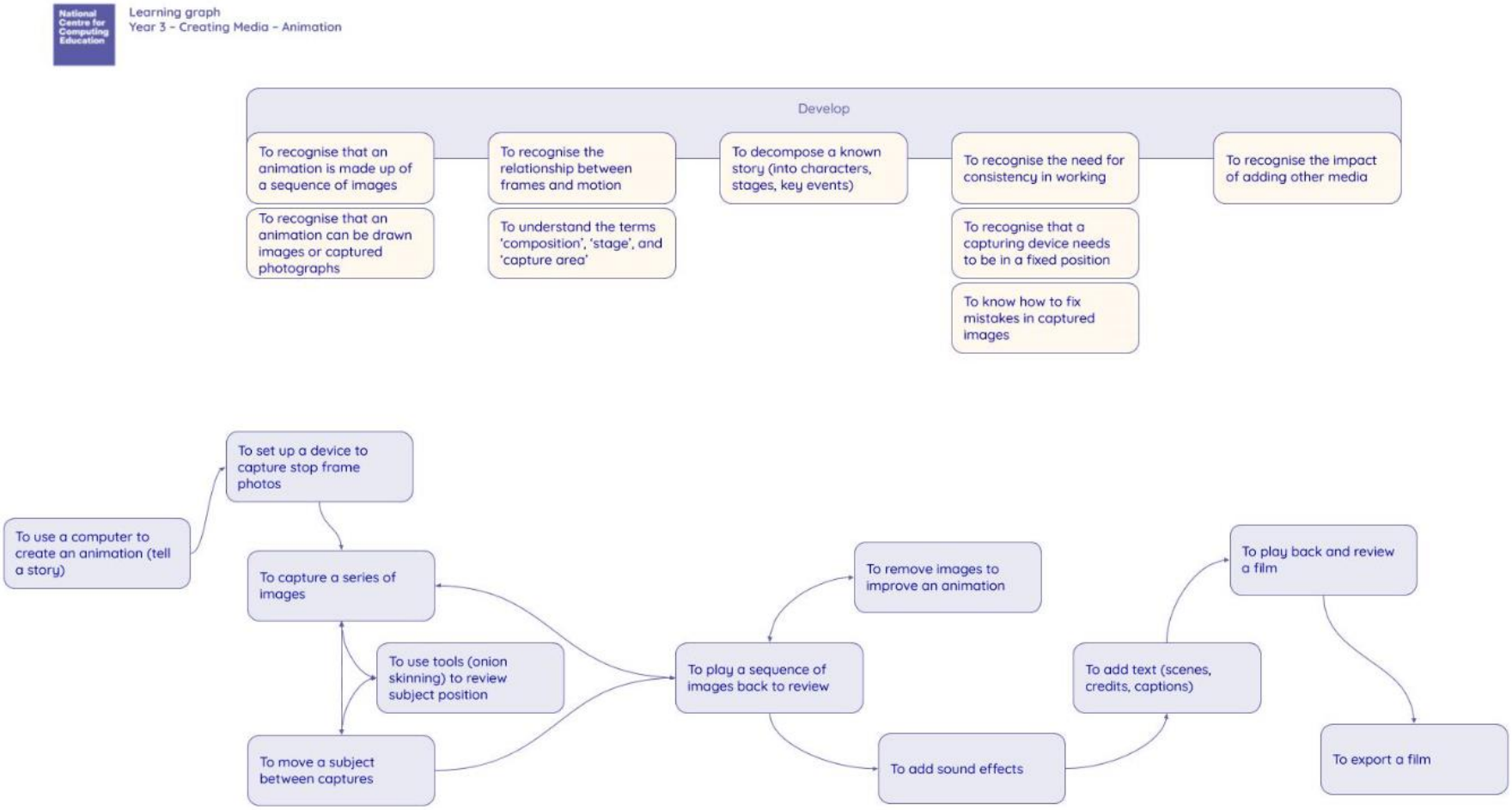
Learning Graph, Year 2 Coding-Beebots:



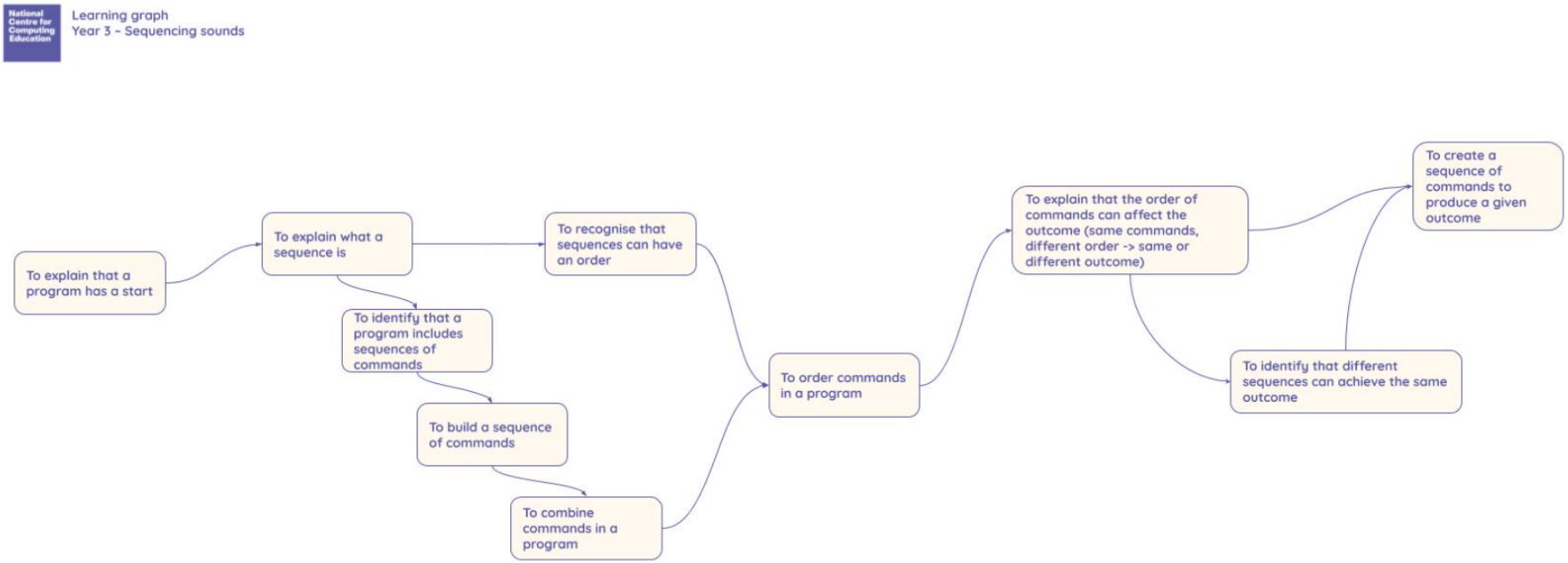
Learning Graph, Year 2 Scratch Junior:



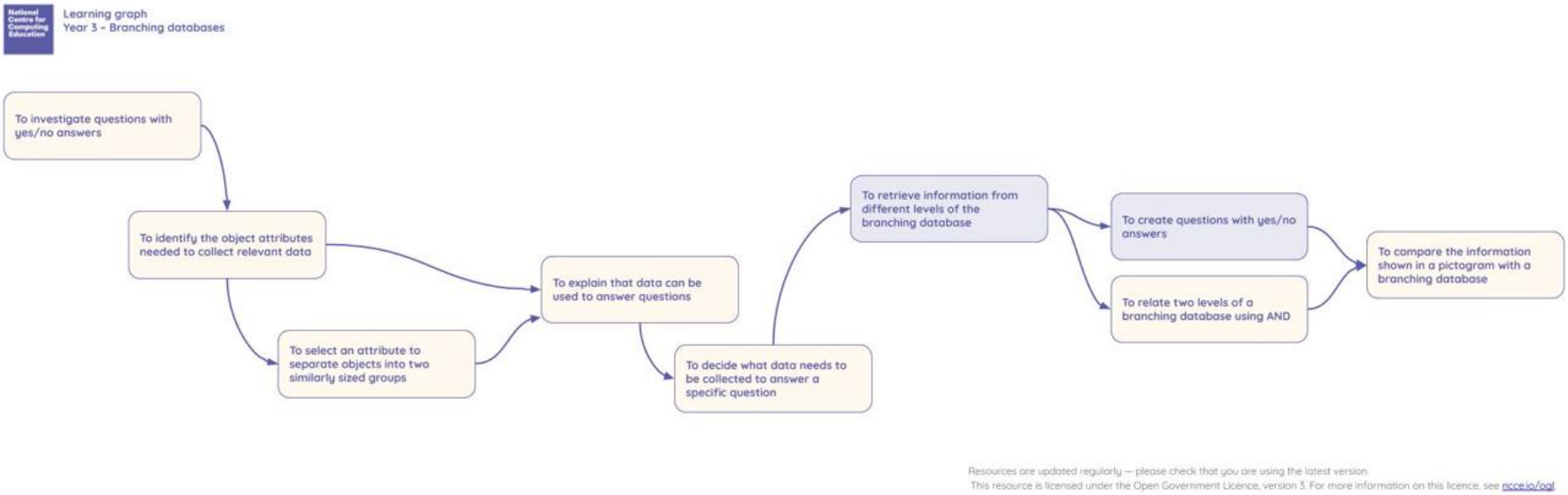
Learning Graph, Year 3 Creating Media, stop motion:



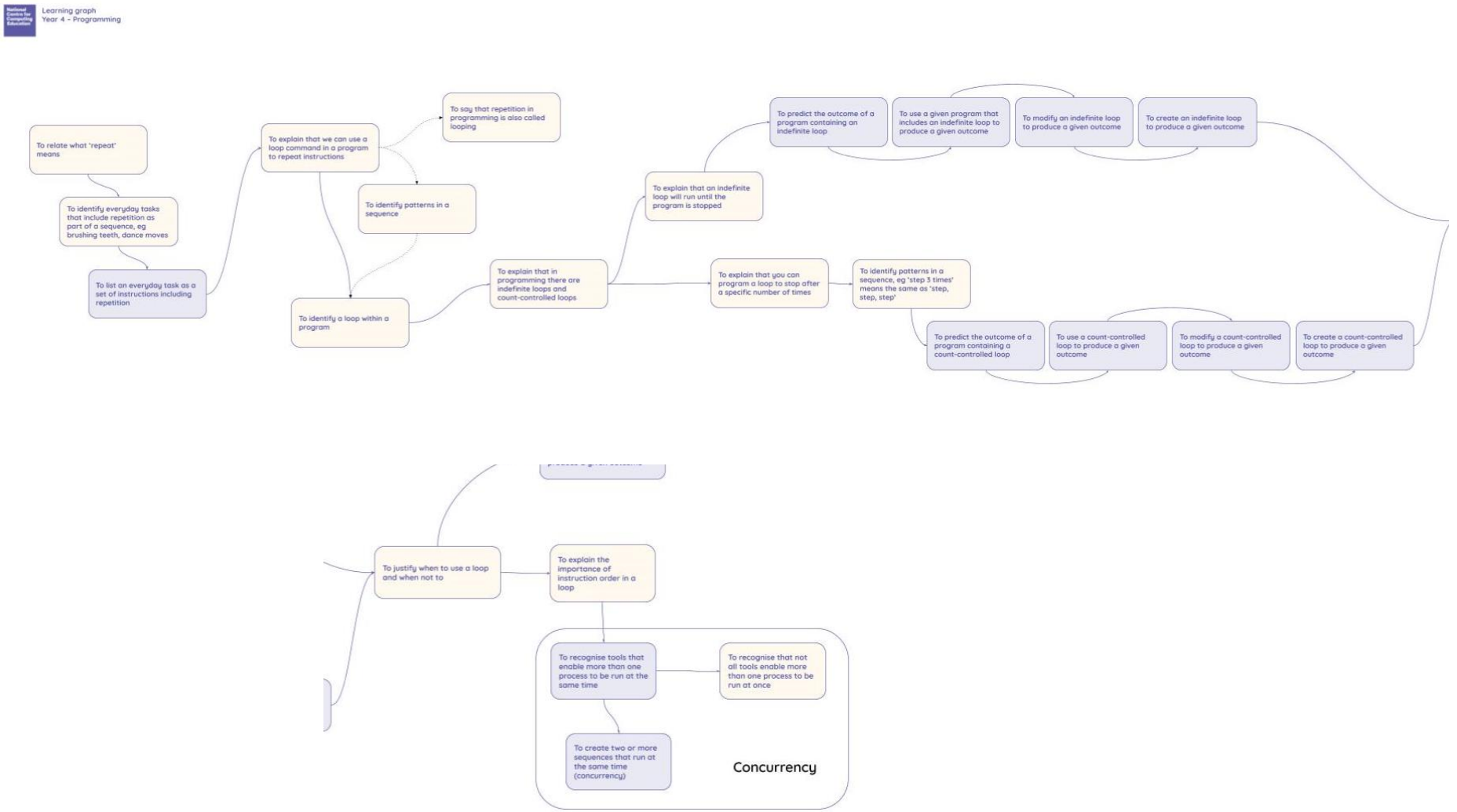
Year 3, Scratch:



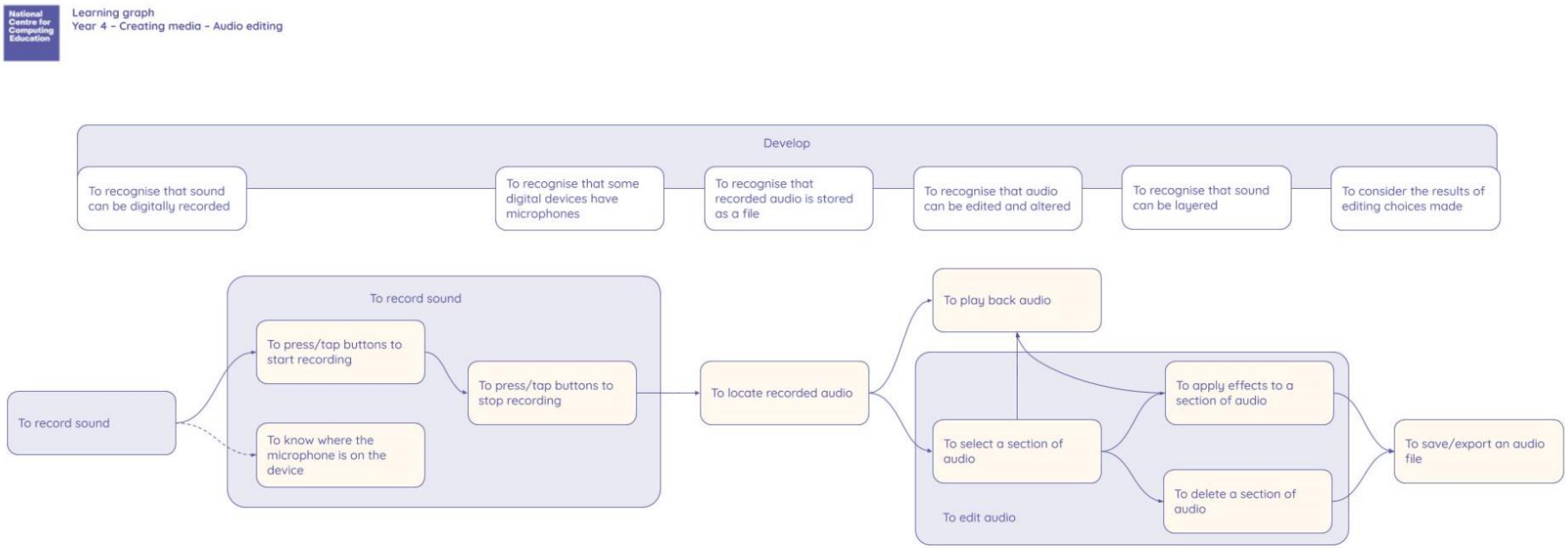
Year 3, Creating data bases:



Year 4, Scratch:



Year 4, Creating Media-podcasts:



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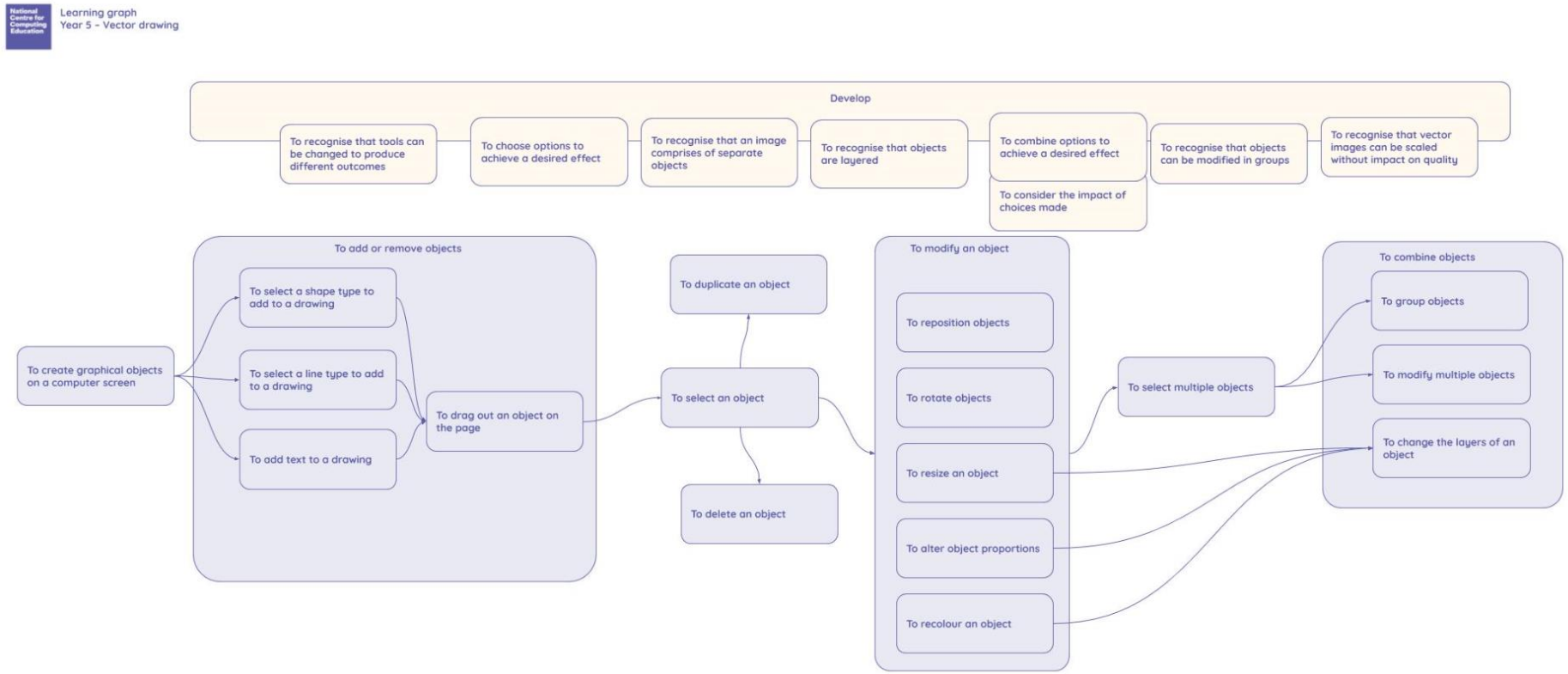
Year 5, Scratch:



Year 5, Data bases:

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Year 6 Scratch

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Learning graph
Year 6 – Programming – Variables in games and Sensing