Year 4/5/6 Autumn Term – Kodu - Discrete unit (not linked to Egypt theme)
Outcome - Produce 3D alien world, including multiple enemies, different levels and scoring system

Areas of Computing programme of study covered:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems
- solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs
- work with variables and various forms of input and output
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information

Week	Learning outcomes	Pupil activities	Resources

1	• Pupils can identify the features of games
	• Pupils can move Kodu around a world
	• Pupils can get a Kodu to react to other items in a world
	• Pupils can create a 3D world contain a range of terrain
	• Pupils can sequence instructions
	• Pupils can use selection
	• Pupils can use keyboard input
		• Pupils will discuss what makes a good video game and record on IWB
		• Pupils will play a number of sample games created within Kodu and discuss the main features of the games
		• Pupils will watch a demonstration of opening Kodu, going to Load World and undertaking the First Tutorial. Pupils will then follow the tutorial
		• Pupils will be challenged to create two different sprites, which move, using different controls
		• Pupils will watch a demonstration of undertaking the "Programming Kodu to find apples" tutorial. Pupils will then follow the tutorial
		• Pupils will be challenged to alter their program to interact with other objects in the Kodu world, such as getting a tree to speak
		• Pupils will watch a demonstration of undertaking the "Add / Paint Terrain" tutorial. Pupils will then follow the tutorial
		• Pupils will be challenged to create a terrain, which uses different terrain types, to create a picture, such as a house or the seaside
		• Pupils will create their own game containing the following elements:
		  ○ Simple terrain
		  ○ A Kodu, which can be controlled using the keyboard
		  ○ Four castles on the edge of the screen, which shoot when they see a Kodu close-by
			• Kodu
			• Sample Kodu games
			• Mouse with scroll wheel (preferable)
			• USB Xbox PC controller (optional)

		○ A number of coins for the Kodu to eat ○ An object, such as a tree, which talks when bumped into	
2	• Pupils can move Kodu around a world • Pupils can get a Kodu to react to other items in a world • Pupils can create a 3D world contain a range of terrain • Pupils can define a path for a sprite • Pupils can implement a scoring system • Pupils can sequence instructions • Pupils can use selection • Pupils can use variables • Pupils can use keyboard input	• Pupils will view a demonstration of how the path tool works, including the ability to select different coloured paths for each sprite • Pupils will create a path of their initials or a combination of regular shapes, with each different coloured path being followed by a unique sprite • Pupils will discuss how to score points in games, such as through collecting coins • Pupils will watch a demonstration of undertaking the "Score Tutorial". Pupils will then follow the tutorial • Pupils will create their own game containing the following elements: ○ Two sprites ○ Something the sprites can eat ○ A score for eating each object ○ Varied terrain ○ A specific score, which needs to be reached, to end the game • Pupils will extend their game / create a new world containing: ○ At least three enemy sprites, which follow a specific path ○ The enemy sprites end the game / subtract from the score in bumped into ○ An object, such as a tree, which can be reached to complete the game	• Kodu • Mouse with scroll wheel (preferable) • USB Xbox PC controller (optional)
3	• Pupils can move Kodu around a world • Pupils can get a Kodu to react to other items in a world • Pupils can create a 3D world contain a range of terrain • Pupils can define a path for a sprite • Pupils can implement a scoring system	• Pupils will discuss the kind of games they could create using Kodu • Pupils will record details about their own game, including: ○ Sprites, along with their control mechanism and behaviour ○ Other objects within the world ○ Scoring mechanism ○ Design of their world, including the terrain • Pupils will watch a demonstration of how to research additional functionality within Kodu, such as additional levels, using Google, including e-safety implications • Pupils will discuss what a good game will contain and record on IWB • Pupils will begin implementing their game	• Kodu • Mouse with scroll wheel (preferable) • USB Xbox PC controller (optional) • Web browser • Game planning sheet • Record of "what makes a good game"

	• Pupils can sequence instructions • Pupils can use selection • Pupils can use variables • Pupils can use keyboard input • Pupils can design a game • Pupils can research how to implement unknown functionality		
4	• Pupils can move Kodu around a world • Pupils can get a Kodu to react to other items in a world • Pupils can create a 3D world contain a range of terrain • Pupils can define a path for a sprite • Pupils can implement a scoring system • Pupils can sequence instructions • Pupils can use selection • Pupils can use variables • Pupils can use keyboard input • Pupils can research how to implement unknown functionality • Pupils can debug • Pupils can give feedback	• Pupils will continue implementing their game • Pupils will play the games of their peers and give feedback on any bugs, along with areas for improvements / additional functionality. Pupils will then implement these changes as appropriate • Pupils will save their completed program and watch a demonstration of how to copy / upload the program to the shared folder on school network. Pupils will then copy / upload their program	• Kodu • Mouse with scroll wheel (preferable) • USB Xbox PC controller (optional) • Web browser • Game planning sheet • Shared area on the school network

5	• Pupils can give feedback • Pupils can take screenshots • Pupils can write instructions • Pupils can write a background story	• Pupils will discuss how games require instructions and a story about the characters / setting. Pupils then record some bullet points about their game's story and essential instructions for playing their game • Pupils will share their stories with their peers and get feedback on the content. Pupils will then alter their text as appropriate • Pupils will enter their story into the description when they save their world, plus alter the world setting to display the world description at the start - https://www.youtube.com/watch?v=fT22Xnwk_0Y • Pupils will watch a demonstration of how to undertake a screenshot (press "Print Screen") of their game and cut out a section using Paint. Pupils will then paste this image into the publishing software • Pupils will produce a one page document containing the game's story, images and instructions for the user	• Kodu • Mouse with scroll wheel (preferable) • USB Xbox PC controller (optional) • Web browser • Instructions and story recording sheet • Publishing software (e.g. Publisher or Word) • Paint
6	• Pupils can open a file • Pupils can identify features of a game • Pupils can give feedback to others • Pupils can sequence instructions • Pupils can use repetition • Pupils can use selection	• Pupils will view the "what makes a good game" feedback sheet and play the games produced by their peers. Pupils will record their feedback for each game • Pupils will share their favourite games and view together on IWB • Pupils will discuss the definitions of sequencing, selection and repetition and play the first few stages of Cargobot to reinforce their understanding	• Kodu • Mouse with scroll wheel (preferable) • USB Xbox PC controller (optional) • What makes a good game feedback sheet – one per pupil • Pupils' story and instruction sheets • iPad with Cargobot app