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| **Computing Progression Overview – Year 1** | | | | | | | | | | | | |
|  | | Autumn 1 | | Autumn 2 | | Spring 1 | | Spring 2 | | Summer 1 | | Summer 2 |
| Topic | | At the zoo | | Knights & Dragons | | Castles | | Seasons | | Minibeasts | | Hot & cold climates |
| Unit | | Computing systems and networks – Technology around us | Programming A – Moving a robot | | Creating media – Digital painting | | Programming B - Programming animations | | Data and information – Grouping data | | Creating media – Digital writing | |
| **Week 1** | Can I | Can I identify technology? | Can I explain what a given command will do? | | Can I describe what different freehand tools do? | | Can I choose a command for a given purpose? | | Can I label objects? | | Can I use a computer to write? | |
| Activity | Learners will become familiar with the term ‘technology’. They will classify what is and what is not technology in their school and/or classroom. Learners will demonstrate their understanding of how technology helps us in different ways. | Learners will be introduced to floor robots. They will talk about what the buttons on a floor robot might do and then try the buttons out. They will spend time linking an outcome to a button press. Learners will consider the direction command buttons, as well as the ‘clear memory’ and ‘run program’ buttons. | | This lesson introduces learners to the freehand tools available for digital painting. | | During this lesson learners will become accustomed to the ScratchJr programming environment. They will discover that they can move characters on-screen using commands, and compare ScratchJr to the Bee-Bots used in the previous unit. | | Learners will begin to understand that objects have many different labels that can be used to put them into groups. They will name different objects and begin to experiment with placing them into different groups. Learners will also label a group of objects, and begin to understand that an object can fit into more than one group depending on the context. | | Learners will familiarise themselves with a word processor and think about how they might use this application in the future. The learners will also identify and find keys, before adding text to their page by pressing keys on a keyboard. | |
| Skills & Knowledge | -I can explain how these technology examples help us - I can explain technology as something that helps us - I can locate examples of technology in the classroom | -I can match a command to an outcome - I can predict the outcome of a command on a device - I can run a command on a device | | -I can draw lines on a screen and explain which tools I used - I can make marks on a screen and explain which tools I used - I can use the paint tools to draw a picture | | -I can compare different programming tools - I can find which commands to move a sprite - I can use commands to move a sprite | | -I can describe objects using labels - I can identify the label for a group of objects - I can match objects to groups | | -I can identify and find keys on a keyboard - I can open a word processor - I can recognise keys on a keyboard | |
| **Week 2** | Can I | Can I identify a computer and its main parts? | Can I act out a given word? | | Can I use the shape tool and the line tools? | | Can I show that a series of commands can be joined together? | | Can I identify that objects can be counted? | | Can I add and remove text on a computer? | |
| Activity | Learners will get to know the main parts of a desktop or laptop computer. They will practise turning on and logging in to a computer. The learners will apply their knowledge of the different parts of a computer, to complete a mouse-based task. | Learners will think about the language used to give directions and how precise it needs to be. They will also work with a partner to give and follow instructions. These real-world activities should, at suitable points during this lesson, be related to the floor robot introduced in Lesson 1. | | This lesson introduces learners to the line and shape tools and revisits the fill and undo tools used for digital painting. Learners create their own digital painting in the style of an artist. | | During this lesson learners will discover that blocks can be joined together in ScratchJr. They will use a **Start** block to run their programs. They will also learn additional skills such as adding backgrounds and deleting sprites. Learners will follow given algorithms to create simple programs. | | Learners will begin to think about grouping objects based on what the objects are. They will demonstrate the ability to count a small number of objects before they group them, and will then begin to show that they can count groups of objects with the same label. Learners will also begin to learn that computers are not intelligent, and require input from humans to perform tasks. | | Learners will continue to familiarise themselves with word processors and how they can interact with the computer using a keyboard. The learners will focus on adding text and will explore more of the keys found on a keyboard. Finally, they will begin to use the Backspace key to remove text from the computer. | |
| Skills & Knowledge | -I can name the main parts of a computer - I can switch on and log into a computer - I can use a mouse to click and drag | | -I can follow an instruction - I can give directions - I can recall words that can be acted out | | -I can make marks with the square and line tools - I can use the shape and line tools effectively - I can use the shape and line tools to recreate the work of an artist | | -I can run my program - I can use a Start block in a program - I can use more than one block by joining them together | | -I can count a group of objects - I can count objects - I can group objects | | -I can enter text into a computer - I can use backspace to remove text - I can use letter, number, and space keys |
| **Week 3** | Can I | Can I use a mouse in different ways? | | Can I combine forwards and backwards commands to make a sequence? | | Can I make careful choices when painting a digital picture? | | Can I identify the effect of changing a value? | | Can I describe objects in different ways? | | Can I identify that the look of text can be changed on a computer? |
| Activity | Learners will be building on the mouse skills they were introduced to in Lesson 2. Learners will review images of a computer to explain what each part does. They will develop an understanding that different computers use different mice, but they perform the same function. They will use the mouse to open a program and create a simple picture. | | Learners will focus on programming the floor robot to move forwards and backwards. They will see that the robot moves forwards and backwards a fixed distance. This highlights the idea that robots follow a clear, fixed command in a precise and repeatable way. Learners will think about starting the robot from the same place each time. Using the same starting position with fixed commands will allow learners to predict what a program will do. | | This lesson introduces learners to a range of shape tools, allowing them to create a painting in the style of an artist. | | During this lesson learners will discover that some blocks in ScratchJr have numbers underneath them. They will learn how to change these values and identify the effect on a block of changing a value. | | Learners will begin to understand that objects can be described in many different ways. They will identify the properties of objects and begin to understand that properties can be used to group objects; for example, objects can be grouped by colour or size. Finally, learners will demonstrate their ability to find objects with similar properties and begin to understand the reason that we need to give labels to images on a computer. | | Learners will begin to explore the different tools that can be used in word processors to change the look of the text. Learners will use the Caps Lock key to add capital letters to their writing and will begin thinking about how to use this successfully. Learners will match simple descriptions to the related keys. Finally, learners will begin exploring the different buttons available on the toolbar in more detail, and use these to change their own text. |
| Skills & Knowledge | -I can click and drag to make objects on a screen - I can use a mouse to create a picture - I can use a mouse to open a program | | -I can compare forwards and backwards movements - I can predict the outcome of a sequence involving forwards and backwards commands - I can start a sequence from the same place | | -I can choose appropriate shapes - I can create a picture in the style of an artist - I can make appropriate colour choices | | -I can change the value - I can find blocks that have numbers - I can say what happens when I change a value | | -I can describe an object - I can describe a property of an object - I can find objects with similar properties | | -I can explain what the keys that I have learnt about already do - I can identify the toolbar and use bold, italic, and underline - I can type capital letters |
| **Week 4** | Can I | Can I use a keyboard to type on a computer? | | Can I combine four direction commands to make sequences? | | Can I explain why I chose the tools I used? | | Can I explain that each sprite has its own instructions? | | Can I count objects with the same properties? | | Can I make careful choices when changing text? |
| Activity | Learners will begin to use the computer keyboard for a purpose. They should understand that writing on a keyboard is called typing and will begin to demonstrate their ability to write their name. Learners will then save their work using the save icon and understand that this icon is used in lots of different programs. | | Learners will use ‘left turn’ and ‘right turn’ commands along with ‘forwards’ and ‘backwards’ commands. Doing this will allow learners to develop slightly more complex programs. Learners will create their programs in this lesson through trial and error, before moving on to planning out their programs in Lesson 5. In Activity 3, learners will predict where given programs will move the robot to. Learners will make their predictions by looking at the commands and matching the program steps to movements. | | This lesson increases learners’ understanding of the available paint tools and encourages them to select the best tools to create a digital painting in the style of Wassily Kandinsky. | | During this lesson learners will be taught how to add and delete sprites in ScratchJr. They will discover that each sprite has its own programming area, and learn how to add programming blocks to give instructions to each of the sprites. | | Learners will classify objects based on their properties. They will group objects that have similar properties, and will be able to explain how they have grouped these. Learners will begin to group a number of the same objects in different ways, and will demonstrate their ability to count these different groups. | | Learners will begin to understand when it is best to change the look of their text and which tool will achieve the most appropriate outcome. The learners will begin to use their mouse cursor to select text to enable them to make more efficient changes. They will explore the different fonts available to them and change the font for their lost toy poster. |
| Skills & Knowledge | -I can save my work to a file - I can say what a keyboard is for - I can type my name on a computer | | -I can compare left and right turns - I can experiment with turn and move commands to move a robot - I can predict the outcome of a sequence involving up to four commands | | -I can choose appropriate paint tools and colours to recreate the work of an artist - I can say which tools were helpful and why - I know that different paint tools do different jobs | | -I can add blocks to each of my sprites - I can delete a sprite - I can show that a project can include more than one sprite | | -I can count how many objects share a property - I can group objects in more than one way - I can group similar objects | | -I can change the font - I can select all of the text by clicking and dragging - I can select a word by double-clicking |
| **Week 5** | Can I | Can I use the keyboard to edit text? | | Can I plan a simple program? | | Can I use an iPad on my own to paint a picture? | | Can I design the parts of a project? | | Can I compare groups of objects? | | Can I explain why I used the tools that I chose? |
| Activity | Learners will begin by opening a file they have previously created. They will demonstrate their ability to use a keyboard to edit text, by writing a sentence and then deleting letters. They will also use the keyboard arrow keys to move the text cursor in their textbox. | | Learners will decide what their program will do. They will then create their program and test it on the robot. Where needed, learners will also debug their program. | | Learners select appropriate colours, brush sizes, and brush tools to independently create their own image in the style of an artist. | | During this lesson learners will choose appropriate backgrounds and sprites for a ‘Space race’ project. They will decide how each sprite will move, and create an algorithm based on the blocks available in ScratchJr that reflects this. | | Learners will choose how they want to group different objects by properties. They will begin to compare and describe groups of objects, then they will record the number of objects in each group. | | Learners will begin to justify their use of certain tools when changing text. The learners will decide whether the changes that they have made have improved their writing and will begin to use ‘Undo’ to remove changes. They will begin to consolidate their ability to select text using the cursor, through double-clicking and clicking and dragging. The learners will be able to explain what tool from the toolbar they have used to change their writing. |
| Skills & Knowledge | -I can delete letters - I can open my work from a file - I can use the arrow keys to move the cursor | | -I can choose the order of commands in a sequence - I can debug my program - I can explain what my program should do | | -I can change the colour and brush sizes - I can make dots of colour on the page - I can use dots of colour to create a picture in the style of an artist on my own | | -I can choose appropriate artwork for my project - I can create an algorithm for each sprite - I can decide how each sprite will move | | -I can choose how to group objects - I can describe groups of objects - I can record how many objects are in a group | | -I can decide if my changes have improved my writing - I can say what tool I used to change the text - I can use ‘undo’ to remove changes |
| **Week 6** | Can I | Can I create rules for using technology responsibly? | | Can I find more than one solution to a problem? | | Can I compare painting a picture on a computer and on paper? | | Can I use my algorithm to create a program? | | Can I answer questions about groups of objects? | | Can I compare typing on a computer to writing on paper? |
| Activity | Learners will be introduced to the concept of using computers safely, within the context of a school setting. They will explore why we have rules in school and how those rules help us, and then apply this understanding to rules needed for using computer technology safely. | | Learners will be encouraged to plan routes around a mat before they start to write programs for those routes. The activities in this lesson also introduce the concept of there being more than one way to solve a problem. This concept is valid for a lot of programming activities: the same outcome can be achieved through a number of different approaches, and there is not necessarily a ‘right’ approach. The lesson also introduces the idea of program design, where learners need to plan what they want their program to achieve before they start programming. | | Learners compare their preferences when creating paintings on computers and on paper. | | During this lesson learners will use their project designs from the previous lesson to create their projects on-screen in ScratchJr. They will use their project design, including algorithms created in the previous lesson, to make programs for each of their rocket sprites. They will test whether their algorithms are effective when their programs are run. | | Learners will decide how to group objects to answer questions. They will compare their groups by thinking about how they are similar or different, and they will record what they find. They will then share what they have found with their peers. | | Learners will make comparisons between using a computer for writing and writing on paper. The learners will discuss how the two methods are the same and different and think of examples to explain this. They will demonstrate making changes to writing using a computer to compare the two methods. Finally, the learners will begin to explain which they like best and think about which method would be the best method to use in different situations. |
| Skills & Knowledge | -I can discuss how we benefit from these rules - I can give examples of some of these rules - I can identify rules to keep us safe and healthy when we are using technology in and beyond the home | | -I can identify several possible solutions - I can plan two programs - I can use two different programs to get to the same place | | -I can explain that pictures can be made in lots of different ways - I can say whether I prefer painting using a computer or using paper - I can spot the differences between painting on a computer and on paper | | -I can add programming blocks based on my algorithm - I can test the programs I have created - I can use sprites that match my design | | -I can compare groups of objects - I can decide how to group objects to answer a question - I can record and share what I have found | | -I can explain the differences between typing and writing - I can make changes to text on a computer - I can say why I prefer typing or writing |