**Computing Medium Term Planning**

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| **Term: Autumn 1** | **Year:** EYFS | **Topic/Unit:** Traditional tales |
| **Concepts and approaches**  **Lesson 1- creating, pattern, logic, tinker**  **Lesson 2- Algorithm, program, debug, tinker**  **Lesson 3- tinker, create, debug**  **Lesson 4- algorithms, decomposition, creating** | | |

Extra unplugged lesson ideas- Goldilocks and the Three Bears:

1. Sequencing the algorithm for making porridge.

2. Directing Goldilocks to the correct bowl of porridge/chair/bed on the Twister mat.

3. Directing the 3 Bears to Goldilocks on the Twister mat.

4. Ordering the bowls, spoons, chairs, beds according to size.

5. Giving Goldilocks directions to the 3 Bears’ cottage, avoiding the trees in the forest or crossing the bridge over the river etc.

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| **Week** | **NC Coverage** | **Skills taught** | **Knowledge** | **Activity Outline** |
| 1 | **Early Learning Goals and Development Matters Links:**  **ELG: creating with materials:** Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design,  texture, form and function.  **ELG: Fine Motor Skills:** Use a range of small tools, including scissors, paint brushes and cutlery.  **Active learning**: bring their own interests and fascinations into early years settings. Respond to new experiences that you bring to their attention.  **Creating and thinking clearly:** review their progress as they try to achieve a goal. Check how well they are doing.  **Understanding the world:** 3 and 4 year olds – Use all their senses in hands-on exploration of natural materials.  Reception – Explore the natural world around them | To create based on an image, making changes and fixes where needed.    To use reasoning and explanation when building for a purpose.    To predict patterns with objects for a purpose. | •I can recreate a simple story.  • I can draw pictures of my computer to go with my work.  •I can mark make purposely on the screen. | Begin introducing to children how to use a mouse to click and drag, using tablet, access Purple Mash, how to access their trays at home etc.  Go outside and collect natural materials such as sticks, pebbles etc. Challenge children to create houses for the three little pigs and recreate the story. Children to take photos of their creations and upload the pictures to their tray in Purple Mash.  Can be done through creating “three bears” beds or other traditional tales.  The children can use 2paint to recreate their houses online using relevant skills. |
| 2 | **Early Learning Goals and Development Matters Links:** Children express their ideas and feelings about their experiences using full sentences, including use of past, present and future tenses and making use of conjunctions, with modelling and support from their teacher.  **Playing and Exploring**: bring their own interests and fascinations into the early years setting. Respond to new experiences that you bring to their attention.  **Communication and Language:**  **Reception:**  describe events in some detail. use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.  **Expressive Arts and Design: Reception:** provide opportunities to work together to develop and realise creative ideas.  **Early Learning Goals and Development Matters Links:**  **Computing:** Understand what algorithms are, create and debug simple programs.  **PSHE:** interacting with others; working as a team.  **Maths:** Directional language; counting to 5.  **English:** listening to instructions. | To create an algorithm (a set of instructions) by placing the command cads in order).    To enter a set of instructions into the Bee-Bot to make it move.    To identify and correct errors in their programs.    To follow instructions to reach an item.    To learn to take turns, explore working together, extend and elaborate their play ideas.    To tinker and try things out. | •Children can create a sequence of instructions.  •Children can program a floor robot to move to a specific point.  • Children can debug errors in a program. | The activity (adapted for traditional tales- you might need to adapt the slides to reference the items you want the bee bots to find rather than flowers as stated on the slides)  Introduction  Explain that the pupils are going to be controlling robots to move in this lesson. Firstly, you are going to control the pupils to move like they are robots.  Using the presentation, show the forward arrow on slide 2, and ask what this arrow might mean. Model the action by stepping forwards one step and saying ‘forwards’ ideally on a 2x2 grid of squares, taped to the floor. Ask the pupils to copy you and repeat the word if they can.  Repeat with the other directional buttons, emphasising that the right and left turns are quarter turns on the spot.  Ask one pupil to be a Bee-Bot on the floor grid and ask the pupil to follow one instruction at a time, by saying the word and showing the image for that command. Repeat as appropriate with other pupils.  Explain, if appropriate, that the instruction to make somebody move is called an algorithm.  Show the Bee-Bot and explain that it is a robot, and we can control it by pressing the buttons.  Give the pupils the Bee-Bots for two minutes to tinker with them and explore what the buttons do.  Collect in again before the main activity.  **Main activity**  Explain that we will be now making the Bee-Bots move to find an item/s (can be adapted for any fairytale, such as little pigs houses, porridge, chairs and beds for Goldilocks etc), as bees like flowers (slide 6). We do this by creating instructions (an algorithm), and programming this into the Bee-Bot. For more able pupils, explain that computers need programs to tell them what we want them to do.  Show the go button on slide 7 and ask if they know what this does – explain that we press this at the end to make the Bee-Bot move. What about the clear button? (This is used to clear any instructions, and they must press it at the start of a program).  Give each group/pair a 2x2 grid, a fake Bee-Bot card, a card with a picture of the item you have chosen and a set of command cards with a programming mat. Ask pupils to put the Bee-Bot card in the SEND Bee-Bot Basics Page 2 of 3 bottom left-hand corner of the grid facing up, and the item card in the top left-hand corner as shown on slide 9 of the presentation. Ask them to choose a command card that would move the Bee-Bot to the flower and place it on the programming mat (this already has the clear and go commands in place). Explain that this is their instruction (algorithm) – it always begins with clear and ends with go.  Now give each group a Bee-Bot and place it on top of the Bee-Bot card. Ask them to enter their program by pressing the buttons in the order shown on the programming mat. Does the Bee-Bot reach the item? If not, do they know why? Can they correct and retest? Explain, if appropriate, that this is called ‘debugging’.  Repeat by moving the flower card and fake Bee-Bot to different squares of the grid and see if the pupils can create simple programs with just 2 or 3 commands in them to move the Bee-Bot to the item square. They should plan it out with the cards first before testing on the Bee-Bot if possible, but some pupils may need to test it out one square at a time.  Extra: There is an online version of Bee-Bots as well, it may be helpful to have groups cycling that use the cards, then use the online emulator to test their theory and then use the Bee-Bots physically.    **Resources needed:**  ■ Presentation  ■ Fake Bee-Bot and flower cards  ■ Command cards  ■ Programming mat and commands  ■ 2x2 grid  ■ 2x3 grid  ■ Communicate: in print commands  Differentiation  **Support**  Use a 1 x 5 grid with numbers or pictures on each square. Just use the forward and back arrows, and ask pupils to move the Bee-Bot to a number or picture. Add sensory cues to help signal success, e.g. water spray if they reach a picture of the seaside. There is a Communicate: in Print resource so you can print the symbols out on the reverse of the commands for extra support.  **Stretch and Challenge**  Use a 2x3 grid, and use the command cards on their own, so they have to remember the clear and go commands in their program. Ask pupils to set their own challenges for their partner. Add in a no entry symbol that has to be avoided. Ask pupils to evaluate how successful their algorithms and programs are – how do they know if they work? How can they improve them, e.g. using fewer commands. |
| 3 | **Early Learning Goals and Development Matters Links:**  **Fine Motor Skills:** begin to show accuracy and care when drawing.  **Computing:** Understand what algorithms are, create and debug simple programs.  **PSHE:** interacting with others; working as a team.  **Maths:** Directional language; counting to 5.  **English:** listening to instructions. Recall a simple story.  **Active Learning**: begin to correct mistakes themselves. | To tinker and try things out to see what happens.    To experiment, arranging shapes and fixing as they go.  (As children are making their pictures, encourage them to test them out, debugging their design. Some may suggest what they like and what they might improve known as debugging).    To repeat processes until met with success.    To identify and fix errors in my work. | • Children can select colours when painting on the computer  •Children can mark make purposefully on the screen  • Children can control the pencil width. | **The activity:**  Give the children the opportunity to explore the resources in Purple Mash using a range of tools. Use the interactive whiteboard and 2Paint as part of continuous provision to encourage gross motor movements.  Use 2Paint on an iPad to help with fine motor skills and movements. Opportunities for children to practise their accuracy and care in drawing.  Paint Projects – a range of pictures on various topics for children to colour in with different coloured and textured pens.  Various Traditional tales painting options to choose from:  [Purple Mash by 2Simple](https://www.purplemash.com/#tab/fairy_tales:) |
| 4 | **Early Learning Goals and Development Matters Links:**  **Computing:** Understand what algorithms are, create and debug simple programs.  **PSHE:** interacting with others; working as a team.  **Maths:** Directional language; counting to 5.  **English:** listening to instructions. Recall a simple story | To create an algorithm (a set of instructions) by placing the command cads in order).    To enter a set of instructions into the Bee-Bot to make it move.    To identify and correct errors in their programs. | •Children can create a sequence of instructions.  •Children can program a floor robot to move to a specific point.  • Children can debug errors in a program. | **The activity- use print outs of the three little pigs houses. The bee bot can simulate the Wolf (picture printed on top) and the children have to guide the wolf to each house in the correct order.**  **Introduction**  **Explain that the pupils are going to be controlling robots to move in this lesson. Firstly, you are going to control the pupils to move like they are robots.**  **Using the presentation, show the forward arrow on slide 2, and ask what this arrow might mean. Model the action by stepping forwards one step and saying ‘forwards’ ideally on a 2x2 grid of squares, taped to**  **the floor. Ask the pupils to copy you and repeat the word if they can.**  **Repeat with the other directional buttons, emphasising that the right and left turns are quarter turns on the spot.**  **Ask one pupil to be a Bee-Bot on the floor grid and ask the pupil to follow one instruction at a time, by saying the word and showing the image for that command. Repeat as appropriate with other pupils.**  **Explain, if appropriate, that the instruction to make somebody move is called an algorithm.**  **Show the Bee-Bot and explain that it is a robot, and we can control it by pressing the buttons. Give the pupils the Bee-Bots for two minutes to tinker with them and explore what the buttons do.**  **Collect in again before the main activity.**  Extra: There is an online version of Bee-Bots as well, it may be helpful to have groups cycling that use the cards, then use the online emulator to test their theory and then use the Bee-Bots physically.    Differentiation  **Support**  Start with just one of the three little pigs houses and give children the printed arrows to allow them to manipulate the beebot successfully. Using the online version is a good way to use trial and error to not only support but challenge thinking.  **Stretch and Challenge**  Add in a no entry symbol that has to be avoided. How can they improve them, e.g. using fewer commands. |
| 5 | **To know how to use a laptop touchpad.**  **To be able to find the individual letters on the keyboard.**  **To use the spacebar.**  **To be able to delete using the backspace and the ‘Delete’ key.**  **To be able to take photos using a device** | To use logical reasoning, the cycle of prediction and explaining.    To look for similarities and differences to identify patterns.    To ignore what is not important and focus on what is important.      To create and follow instructions (an algorithm)    To follow instructions to create a …    To learn to take turns, explore working together, extend and elaborate their play ideas.    To repeat processes until met with success.    To tinker and try things out. | I can use the mouse roller to scroll up and down a page.  Children can use a laptop touchpad.  Children can find all the letters of the alphabet on a keyboard.  Children can put spaces between words in my typed work.  Children know how to correct typed work without re-doing the work entirely using the delete keys.  Children can take photos using a digital device | **Extra Continuous provision cycle ideas:**  [Purple Mash by 2Simple](https://www.purplemash.com/#tab/home/earlyyearsv3)  Mouse finder game on PurpleMash  Goldilocks Quiz  Pre make a sorting and sequencing quiz for children to sequence their traditional tales.  Mash cam- Red Riding Hood for thoughts/role play.  Pre make traditional tales jigsaws for the children to solve via 2Do It Yourself Program. |



To use logical reasoning, the cycle of prediction and explaining.



To look for similarities and differences to identify patterns.



To ignore what is not important and focus on what is important.





To create and follow instructions (an algorithm)



To follow instructions to create a …

(As children are making their boats, encourage them to test them out, debugging their design. Some may suggest what they like and what they might improve known as debugging).



To learn to take turns, explore working together, extend and elaborate their play ideas.



To repeat processes until met with success.



To tinker and try things out.



To identify and fix errors in my work.