Playing & Exploring Bee-Bot: Routes

| Learning Objective: To understand that a computer follows precise commands and will respond to those commands consistently	Success Criteria:

Activity: **Plugged**

Make Bee-bot part of continuous provision in the room on a table top or marked out space so that children can switch on and explore what Bee-Bot can do.

You might mark out some simple routes for children to try :

follow a straight line

follow a zigzag

climb up and down steps
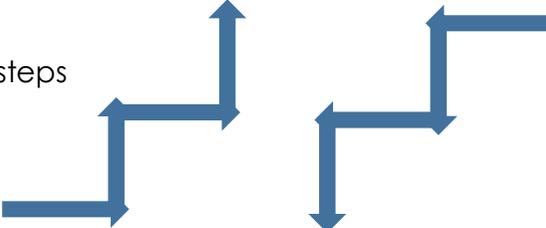
Help! I'm Stuck! Remember Bee-Bot has the ability to move accurately in 15cm steps and to turn in 90 degree increments.	**Need a challenge! What next?** Leave some large sheets of plain paper and felt tips for children to draw their own routes.

Playing & Exploring Bee-Bot: Surfaces

Learning Objective: To be able to plan and predict the behaviour of simple programs	Success Criteria:

Activity: **Plugged**

Identify some different surfaces to try e.g. carpet
- tiles
- concrete
- grass
- plastic
- cardboard
- wood

Which surface does Bee-Bot work best on? How do you know? Why is this? Does everyone agree?

NOTE: This work might link with other work on materials and so you might want to decide when to intervene in order to introduce specific vocabulary.

Help! I'm Stuck!	**Need a challenge! What next?** Set up some experiments with different inclines for Bee-bot to travel up and down.

Playing & Exploring Bee-Bot: How far?

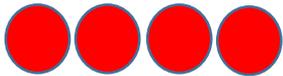| Learning Objective: To be able to use non-standard measures. To be able to predict the behaviour of simple programs	Success Criteria:

Activity: **Plugged**

For this activity, children explore how far Bee-Bot can travel.

Start with materials available in the room and use as non-standard units of measure. For example, estimate and then investigate how many Lego Bricks, counters or paperclips are needed to represent how far a Bee-Bot moves with each step.

| **Help! I'm Stuck!** Think about how you mark the start and end. A key part of this activity is the discussion that should take place. Children may need adult intervention to suggest what objects to try.	**Need a challenge! What next?** This can then provide a starting point to explore standard units of measure and the use of rulers and measuring tapes.

Playing & Exploring Bee-Bot: One Step More

Learning Objective: To be able to use logical reasoning to predict the behaviour of simple programs	Success Criteria:

Activity: **Plugged**
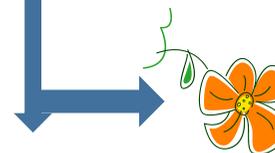
Provide large sheets of paper and felt tips or go outside where children can do can do chalk drawings.

Model how to design a Bee-Bot trail from a starting point to a target such as a flower.

Emphasise the importance of measuring the trail to ensure the Bee-Bot can reach and turn at particular points.

Divide children into pairs and then give each pair a Bee-Bot, some chalk and either a ruler or concrete materials they can use as non-standard units.

| **Help! I'm Stuck!** For children who are not yet ready to use standard rulers or measuring tapes make 15cm Bee-Bot rulers.	**Need a challenge! What next?** Can children design a circular route to get Bee-Bot back home?

Bee-Bot Trail : Challenge

Learning Objective: To be able to work with a friend to plan a route for Beebot. To plan, test and debug simple programs.	**Success Criteria:**

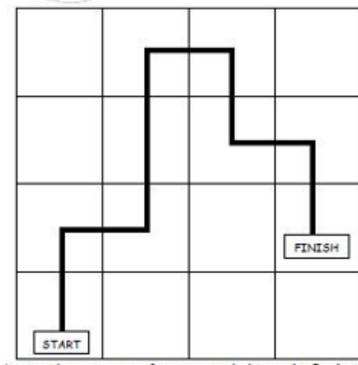| **Activity:**	**Plugged**

Children work collaboratively.
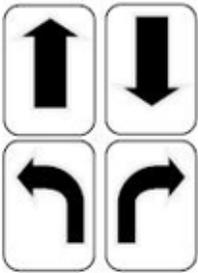
Use the Bee-Bot symbol cards to map out a short trail for Bee-Bot to move around the grid.

Draw the path on paper then work together to get Bee-Bot to follow the route.

FINISH

START

Help! I'm Stuck! Use squared paper to plan the route and walk it through with fingers first. Place symbol cards onto the squares to form the route.	**Need a challenge! What next?** When ready, children could plan their own route and ask a group of their friends to test it out. Does everyone end up at the same place?

Bee-Bots Goes Shopping

Learning Objective: To be able to create an efficient program to achieve a specific goal	**Success Criteria:**

Activity:	**Plugged**

Either use the purchasable Bee-Bot Busy Street mat or create one of your own. Provide shopping lists of things Bee-Bot needs to pick up.

You may need to discuss where you would purchase each item from first.

NOTE: Think about how you could record evidence of this activity.

Help! I'm Stuck! Start with just one item then build to two or three moving backwards and forwards along the street.	**Need a challenge! What next?** Develop clues relating to the different locations on the street. E.g. 'Bee-Bot needs to buy some apples but he needs to get some money out from the cash machine first. Help Bee-Bot get to the bank and then program him to visit the shop where he can buy some bananas'.

Bee-Bot's Journey

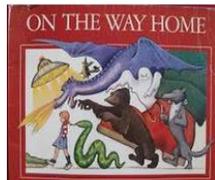| Learning Objective: To be able to plan and combine a sequence of commands to achieve a specific goal.	Success Criteria:

Activity:	Plugged

This kind of activity could be created with any story where a journey is involved- The example here is from the book Rosie the Hen by Pat Hutchins involved

After reading, the class/group jointly construct a Bee-Bot mat that includes the different locations in the farmyard that Rosie visits. Once completed, dress two Bee-Bots as Rosie the Hen and the fox. Collaboratively retell the story and agree the sequence of moves Bee-Bot will need to make to follow the same path that Rosie and the fox followed. Once programmed the students place the Bee-Bots on the mat and see if they can follow the path correctly.

This activity can be a stimulus for other similar activities
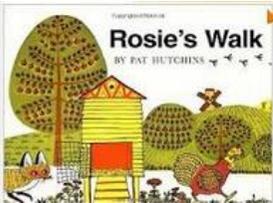
Create mats relating to other popular children's texts that include journeys.

Help! I'm Stuck! Use symbol cards to help plan the route. Try one altogether first before more independent work.	Need a challenge! What next? Can children make their program more efficient?

Bee-Bot Scenario

Learning Objective: To be able to extend vocabulary related to position and direction.	Success Criteria:

Activity:	UnPlugged

To engage students in discussion about positional and directional language. Provide children with the following scenario:

'The creators of the Bee-Bot have decided they want to make a new Bee-Bot that is even better. One suggestion they have had is that the new robot should be able to be told what to do using a real voice rather than by pressing buttons. What words or sentences would the Bee-Bot need to understand to be able to follow these directions?'

Pairs should discuss this first – the join to make fours. Next collate ideas from whole class.
Create a mind map of ideas.
Once completed, display the concept map in the room.
Encourage children to experiment with the different words and sentences when using the Bee-Bots and providing other students with instructions.
Words could include:
forward, backwards, up, down, around, right, left, under, over, through, beside, next to, wait, pause, move, go, turn, rotate, 360 degrees, face, direction etc.

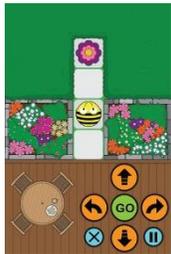| Help! I'm Stuck!	Need a challenge! What next? Could the children come up with symbols for new words and phrases they have thought of?

BEE-Bot App: Recording your route?

Learning Objective:	Success Criteria:
To be able to create, record, test and debug simple algorithms	

Activity:	Plugged

Set a rule such as
Only one sequence of instructions before you press go.

Start at Challenge 1:
How far can you go before you make a mistake?

Introduce a method of recording instructions

Follow your instructions.
Draw a small bug when you spot a mistake.

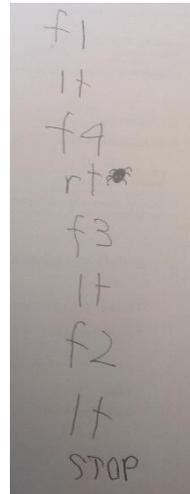[Debug](#) your instructions and try again.

Were you correct?

```
f1
1t
f4
rt🕷
f3
1t
f2
1t
STOP
```

Help! I'm Stuck!	Need a challenge! What next?
	How many challenges can you complete by programming Bee-Bot with a complete sequence of instructions and without making a mistake?

All About Bee-Bot

Learning Objective:	Success Criteria:
To investigate how a simple program behaves and use logical reasoning to predict future behaviour.	

Activity:	Plugged

Allow the children to explore for themselves but look for opportunities to:
Talk about
- How it looks like a bee but it is a robot
- that it is needs batteries – and where these are
- it needs a human to program it to move;
- what the buttons mean
- the 'go' button to make the Bee-Bot move along a mat
- the 'clear' button to delete a set of commands and 'tell the Bee-Bot to start again
- How to make it turn left and right

Once children start to explore what Bee-Bot can do, consolidate
- how to combine sequences of commands to make the Bee-Bot travel to further and along different routes
- how to press the 'pause' button to make the Bee-Bot temporarily stop at a place on a mat before continuing on its journey.

Help! I'm Stuck!	Need a challenge! What next?
See videos on the TTS website [here](#) :	Explain to an adult or friend what you can make Bee-Bot do.