TTS GROUP

Let's Go with Bee-Bot
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Introduction

Bee-Bot is an appealing programmable robot for young children. It is an easy way to introduce control technology into the classroom, for children as young as three. However its versatile nature also means it can be used with up to 8 year olds and help develop other areas of the curriculum in addition to ICT.

Many schools have found that Bee-Bot can help children develop skills or reinforce concepts which other resources or methods don't.

We hope this book will give you some tips for using Bee-Bot with children of all ages, to develop not only their ICT capability, but concepts in other areas.

Contents

1. Planning
2. Bee-Bot Activities
3. Making resources
4. Bought resources
5. Helping Children succeed
6. Finally

Planning

Planning is just as important when using a Bee-Bot than at any other time and you will may be likely to be using some of these principles in other areas of your teaching.
You may need to think about what you want your children to achieve and the best ways to ensure this happens. Hopefully these tips will help put you on the right route.
There is also a planning sheet at the back of the book which encourages you to think about the steps mentioned in the ideas below.

Remember there are 4 main concepts when using a floor robot.

1) It turns on the spot- it does not shuffle sideways.
2) It moves forwards and backwards along a line.
3) The larger the number of button presses you input, the further it moves.
4) Instructions need to be accurately entered by the user.

Make sure the children are familiar with the Bee-Bot buttons and know how to make it work. A mixture of directed and free play time works well with Bee-Bot.

Children may need some time to understand the clear button, know how to move forwards and backwards and be able to turn left and right. They will also need to experiment pressing the GO button once they are ready for the Bee-Bot to move. It helps most children if you show them how to work the Bee-Bot. Whilst some children will love to play and discover how to make it work, many will get bored when Bee-Bot keeps doing the wrong thing. The Clear button is very important. Some teachers have found it useful to tell some children the clear button 'helps to tell Bee-Bot to listen to new commands'.

Think carefully about the stage your children are working at in control technology. Remember there are several steps for children to master when using a Bee-Bot. These are:

a. Program Bee-Bot to move one step forward at a time.
b. Program Bee-Bot to move several squares forward in one go before pressing GO.

c. Program Bee-Bot to move forward and backwards several steps before pressing GO.
d. Program Bee-Bot to turn left or right.
e. Program Bee-Bot to move forwards and backwards several steps, including turns before pressing GO.
f. Add pauses to the sequence.
g. Write the whole program on paper. Then program it all into Bee-Bot before pressing GO.
h. Edit the program, and rewrite as necessary.

Choose a step which suits the majority of the class. This means you can always make the task slightly easier or more difficult so everyone has a chance to succeed.

Make sure you think carefully about the learning objective. Is your aim to develop ICT skills in Control Technology- or is it to use Bee-Bot to develop learning objectives in other subjects- such as Literacy or Numeracy. If developing concepts in other areas of the curriculum, making the level of control technology less complex allows children to concentrate on your desired learning objectives more easily.

Choose a meaningful learning context. Would this activity link well to a book your class love, or would it link well to a theme- like pirates, mini-beasts, teddy bears etc. There are many starting points for activities - so you may need to be inventive and create a story for them and Bee-Bot.

Think about resources carefully. There are lots available- from large obstacle courses to number lines, Grand Prix mats, Treasure Island maps, cards to sequence stories, picture cards and so on. Have a look at what is available (mostly available through TTS). Do any of them link to your idea? If so, they will save you time. Otherwise, are you going to need to make some resources?

Remember to let the children have time to explore and make mistakes. It is really easy to jump in and help them too quickly because you want them to succeed with this exciting toy. They really do learn more… and faster, if you let them make mistakes and learn from them!

Have spare batteries and a small screwdriver in the box, just in case. Bee-Bot works for ages on the batteries, but they will need replacing at some point. As Bee-Bot uses AA batteries, maybe consider rechargeable batteries, one set in the recharger, one in Bee-Bot.

Make some reward stickers. Mini address labels are great as they have 65 on a page! Just the words- "I've used Bee-Bot today!" will be cherished, but also serve to highlight to parents that their children have used control technology at school. This can be taken further with other varieties- gold, silver and bronze Bee-Bot stickers are an easy way of rewarding children's' ability to program the Bee-Bot.

Make your resources easy for other staff to find and use. They might not understand the educational benefits or have used the Bee-Bot before. Large see-through bags with zipped tops and handles are great. Not only do you see what is

inside, but they are easy to carry. Stick a photograph of resources on the outside, along with some activity suggestions. This means other staff can immediately see a few ways of using the resources.

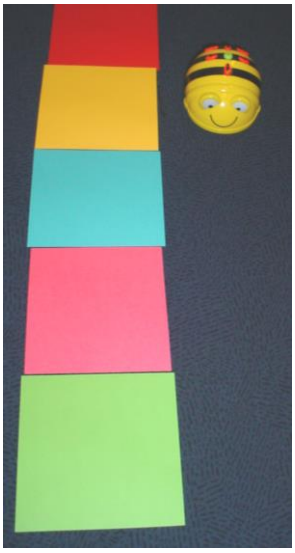
Bee-Bot Activities

Foundation Stage/ Early Years	Literacy	Numeracy	Science	History	Geography	PSHE/ Citizenship /RE
Colours	Guess who?	Find the ANSWER	Materials matter	Toy Time Twister	N, E, S, W.	People Who Help Us
Incy Wincy spider	Deep, dark, wood	Cave explorer	Leaf explorer	Great fire of London	Plan a Pirate Route	Noah's Ark
5 little monkeys	I-Spy	Knock them down	Pull Bee-Bot, Pull	Homes then and now	Bee-Bot Challenge	French Shopping
Names	Deliver the Mail	Shapes	Electricity	Bee-Bot Knight	Co-ordinates	Feelings
Sequence the story	Spell Your name	Find the number	Ourselves			
		3D solids				

Colours

Outline

This activity is aimed at young children to help reinforce their understanding of colour. It is also an opportunity to introduce the Bee-Bot to young children using a concept many will understand. Working on the floor, a small group can experiment with the Bee-Bot and become familiar with the controls.



Resources

- 15cm squares of colours, Bee-Bot, colour die

Activity

Hold each colour square up and ask the children what colour it is. Can they think of anything else that colour? What food is that colour? Who is wearing something that colour?

Place the squares of colour in a long line, perhaps counting them as they are placed there. The line can be as long or short as you want, depending on the ability and age of the children. Initially, a line of about 6 is ideal.

Let the children take it in turns to roll the die, see what colour is chosen and make Bee-Bot move to that square. Some children may be able to make Bee-Bot move backwards too. You can choose the move Bee-Bot back to the start, or move him from the last chosen colour, depending on how difficult you want the task to be.

After a while the children may be able to count the number of squares they need to move forward, and to press the Forward button the corresponding number of times to program Bee-Bot to move.

Cross Curricular links

Early Learning Goals

- Be confident to try new activities, initiate ideas and speak in a familiar group
- Maintain attention, concentrate and sit quietly when appropriate.
- Find out about and identify, some features of living things, objects and events they observe.
- Find out about and identify the uses of everyday technology and use Information and Communications Technology and programmable toys to support their learning.

Incy Wincy Spider

Outline
This is a fun activity involving children in counting, repeating rhymes, responding to rhymes and programming the Bee-Bot. Other rhymes such as Hickory Dickory Dock also work well in this format.

Resources
- Bee-Bot
- A long strip of yellow paper (90cm), marked every 15cm. Bee-Bot shell, customised to look like a spider (pipe cleaner legs and a shell clipped on)
- Picture of a sun
- Picture of a rain cloud.

Activity
Place the yellow strip on the floor. This is a water pipe. Remind them of the rhyme Incy Wincey spider. Place Spider Bee-Bot at the bottom of the pipe. Sing the first part of the rhyme with the children. "Incy Wincey spider climbed the water spout". Let the children make Incy climb the spout.

When they get to the top, place the rain cloud there and sing the next part of the rhyme "Down came the rain and washed the spider out". Let the children move Incy back down. Then swap the sun for the rain, and Incy can climb up again! The group can sing the last part of the song "Out came the sun, and dried up all the rain, and Incy Wincey spider climbed the spout again".

How can they make Incy move up? Are they going to turn Incy at the top or his he going to move backwards? Can the children make Incy move up the water spout in one go?

Cross Curricular links

Early Learning Goals
- Find out about and identify the uses of everyday technology and use Information and Communications Technology and programmable toys to support their learning.
- Listen with enjoyment, and respond to stories, songs and other music, rhymes and poems.
- Say and use number names in familiar contexts

5 Little Monkeys

Outline
This is a varied activity, involving children in counting, repeating rhymes, responding to rhymes and programming the Bee-Bot.

Resources
- Bee-Bot
- 5 pictures of monkeys, A large tree image to fit under the transparent grid,
- Transparent grid,
- Bee-Bot shell, customised to look like a crocodile,
- Table tray.

Activity
Set up the tray with the tree image on it, the transparent grid over the top and 5 little monkey pictures on top. Tell them the rhyme of 5 little monkeys if they are not familiar with it (see the sheet at the end of the book)

Place Bee-Bot at the bottom of the tree. Read the rhyme with the children, encouraging them to clap on the word 'snap'.

Choose a child to program Bee-Bot to move to a monkey to 'snap' it out of the trees! Repeat the rhyme with 4 little monkey's etc.

Cross Curricular links

Early Learning Goals
- Find out about and identify the uses of everyday technology and use Information and Communications Technology and programmable toys to support their learning.
- Listen with enjoyment, and respond to stories, songs and other music, rhymes and poems.
- Say and use number names in familiar contexts

Other poems this works well with
- 10 green bottles
- 5 little ducks went fishing one day
- 5 currant buns in a bakers shop
- 7 dizzy dragons

Names

Outline
This activity is great for children just starting to write their name. It is also a quick and easy activity to show lots of children how to move Bee-Bot as it allows lots of children to participate together on the floor. Children write their names on squares of paper, programming Bee-Bot to reach the name. Further discussion about names, letters, sounds etc. can follow as children become familiar with the activity.

Resources
- Bee-Bot
- Pictures of faces (to add variety).
- Transparent grid and table tray

Activity
The children are all given a square of paper and they write their name on it. Each name is then put into a long line (or if there are lots of names, two parallel lines). The easiest option is to start from one end of the line, with children taking it in turns to make bee-Bot reach their name, (with bee-Bot moving to the name next in the line).

Lots of opportunities will arise for looking at names. Ask the children whose name is next, or what sound the next name starts with, are there any other names starting with that sound. Bee-Bot could move to all names starting with a particular sound, or with a particular letter pattern, or a boy's name, the name before John's etc.

Cross Curricular links

Early Learning Goals
- Be confident to try new activities, initiate ideas and speak in a familiar group
- Find out about and identify the uses of everyday technology and use Information and Communications Technology and programmable toys to support their learning.
- Attempt writing for different purposes, using features of different forms such as lists, stories and instructions.
- Write their own names and other things such as labels and captions and begin to form simple sentences, sometimes using punctuation.

Sequence the story

Outline
Reinforce stories and sequences using the Bee-Bot. This activity lets children program Bee-Bot to find the next picture in the sequence, allowing them to develop vocabulary such as before, next, after, then. It also allows them to collaborate in a group, listening to the ideas of others. Any story or sequence of pictures could be used, as long as the pictures are 15cm^2.

Resources
- Bee-Bot
- Story cards from the fairytale picture pack, or picture cards from Bear Hunt, or 6 or 8 Pictures from a story stuck onto 15cm squares.

Activity
Make sure the children are familiar with the pictures on the cards. What are the pictures of? Can the children tell you the story they show? How do they know that? What order do they go in?

Explain to the children that they are going to teach Bee-Bot the story. With help from the children, lay the pictures out in a line in the correct order. Initially, a line of about 6 is ideal. Now they can program Bee-Bot to move along the line so he looks at the picture. Children could take it in turns to tell that section of the story, before Bee-Bot is moved on again.

Once they have completed this, the pictures could be muddled up in the line, so the children need to work out the next one in the sequence and program Bee-Bot to move there.

Cross Curricular links

Early Learning Goals
- Be confident to try new activities, initiate ideas and speak in a familiar group
- Maintain attention, concentrate and sit quietly when appropriate.
- Find out about and identify the uses of everyday technology and use Information and Communications Technology and programmable toys to support their learning.
- Use talk to organise, sequence and clarify thinking, ideas, feelings and events.
- retell narratives in the correct sequence, drawing on language patterns of stories

Other great sequences to order include;
- Making Jelly
- Making a sandwich
- Daily routine
- Seasons
- Getting dressed

Guess Who

Outline
This is a great activity for helping children to become familiar with faces and develop factual writing. This example uses faces of teachers in the school, but it would work equally well with faces from history, faces from the news, general knowledge faces etc. The faces can include all sections of the school community, as long as the children are reasonably familiar with them. Between the group, the children need to know who the people are and what they do (or the pictures need to have sufficient clues for them to guess!). They will write clues for the others in their group to identify the face and then program Bee-Bot to get there.

Resources
- Bee-Bot
- Pictures of faces.
- Transparent grid and table tray

Activity
Discuss the pictures on the cards. Who are these people? What is special about the person? What do they do? Where are they based? Look at the different characteristics of the faces - Can the children find someone with glasses, a beard, long hair, no hair, earrings…

Place the faces under the transparent grid. Help the children to write a clue for one of the faces. For example, this person works in Reception. She is in room 3. She has long hair. Who is it?
Once the children have guessed the person, they can find the face and program Bee-Bot to get there.

Children could also create their own pictures of people in art, or take the photographs themselves.

Cross Curricular links

Early Learning Goals
- Be confident to try new activities, initiate ideas and speak in a familiar group
- Find out about and identify the uses of everyday technology and use Information and Communications Technology and programmable toys to support their learning.
- Form good relationships with adults and peers
- Attempt writing for different purposes, using features of different forms such as lists, stories and instructions.
- Write their own names and other things such as labels and captions and begin to form simple sentences, sometimes using punctuation.
- Find out about and identify, some features of living things, objects and events they observe.

In the deep, dark wood…

Outline

This is another way to link Bee-Bot activities to familiar and well loved story books, developing both literacy and numeracy skills. A book with a journey is required, such as "Going on a Bear Hunt", "Rosies Walk", and "Little Red Riding Hood". The chosen example here is "The Gruffalo". In this activity, we added a stopwatch, to add a new dimension of speed and competition. Pairs of children compete to be the fastest.

Resources

- A 60cm^2 picture of the Gruffalo wood. We used coloured paper and illustrations from an old Gruffalo book with a page missing.
- Bee-Bot
- Transparent grid and table tray
- Stop watch

Activity

Put the picture under the grid on the table tray. Place the Bee-Bot at the start. Ask the children to imagine they have just met the Gruffalo - how quickly can they get back to the safe point on the map?
It is a race against time. One pair will program Bee-Bot, the other pair will time them!

Let them have a little bit of time to think and plan the journey.
Once both pairs are ready, the stop watch group can say Go. How quickly can the other pair press all the arrows, and then Go, to get the Bee-Bot to the Gruffalo? Encourage the pair with the stopwatch to count as each minute passes.

Children could attempt to write the route on small whiteboards, or on paper, using symbols for Forward and Left and right, before they type the list into Bee-Bot.

Learning Objectives

Primary Framework for Literacy -Year 2

- Engage with books through exploring and enacting interpretations

Primary Framework for Numeracy- Year 2

- Estimate, compare and measure lengths, weights and capacities, choosing and using standard units.
- Use units of time (seconds, minutes, hours, days) and know the relationship between them.

PSHE

- To listen to other people and play and work cooperatively

ICT

- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order]

I- Spy…

Outline
This activity allows children to work on specific letters sounds decided upon by the teacher. As children program Bee-Bot to move to specific pictures they also develop their ICT programming skills and their counting skills.

Resources
- Bee-Bot
- Pictures of objects starting with specific sounds and the transparent grid and table tray
- or the CVC mat from TTS (code IB10)

Activity
Introduce the game "I Spy" with the children. Depending on the age and requirements of your children, phonetic letter sounds can be used rather than the traditional game with letter names. Can the children see any pictures starting with that sound? Let the children play the game, choosing a sound for others to guess. Introduce Bee-Bot, can they help Bee-Bot to join in?

Once a child can choose a sound for Bee-Bot to reach, the others can help get Bee-Bot there. Are there any other pictures Bee-Bot could have gone to with the same letter sound?

Try using letter sounds in the middle and ends of words too. Can children help Bee-Bot reach the word with a "ch" sound at the end of the word?

Written words could be substituted for the pictures. Some of the first 45 words for reception could be put under the grid. I Spy with my little eye…. the word "the". Can you help Bee-Bot find it?

Cross Curricular links

Early Learning Goals
- Be confident to try new activities, initiate ideas and speak in a familiar group
- Find out about and identify the uses of everyday technology and use Information and Communications Technology and programmable toys to support their learning.
- Explore and experiment with sounds, words and texts
- Link sounds to letters, naming and sounding the letters of the alphabet
- Hear and say sounds in words in the order in which they occur.

National Curriculum
Literacy
- Segment sounds into their constituent phonemes in order to spell them correctly.
- Recognise automatically an increasing number of familiar high frequency words

ICT
- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order]

Deliver the Island Mail.

Outline
This activity allows you to link Numeracy skills with a favourite book and writing skills. Choose a book with lots of characters or places. (such as houses in "The Jolly Postman", characters and their houses on the Isle of Struay in Katie Morag, places the animals live in "The Gruffalo".) There are many great ones to choose from. We have chosen the Katie Morag series, which also links to the Geography "An Island home" unit.

Resources
- Bee-Bot., Pictures of places in a story, 15cm^2.
- Letters addressed to the homes.
- Starting card (either a bee-Bot home card or a post office picture)

Activity
Once the children are familiar with the Katie Morag stories, encourage them to write letters to characters from the books. (These could also be word processed.). Place in envelopes, stamp them (we designed our own in ICT and printed them onto sticky labels) and add addresses. Specific aspects could be chosen to be written about, such as similarities and differences.

Place the pictures of the houses in a long line. Discuss the homes with the children. Who will live there? How do they know? Place all the letters on the start or post office picture. Pick an envelope from the pile. Together read who it needs to be delivered to. Place Bee-Bot on the home card. Blue-tack the letter to the front of Bee-Bot (make sure you don't cover the buttons)

The children need to deliver the letter to the correct house, and make Bee-Bot return for the next letter. How far will they need to go? Can they use pause to make Bee-Bot stop whilst the letter is taken off?

Learning Objectives

National Curriculum Geography- Year 2
- That the world extends outside their locality
- To recognise similarities and differences and communicate them
- To identify likes and dislikes about a place

Primary Framework for Literacy -Year 2
- Engage with books through exploring and enacting interpretations
- Draw on knowledge and experience of texts in deciding and planning what and how to write.
- Select from different presentational features to suit particular writing purposes on paper and screen.

Primary Framework for Numeracy- Year 2
- Estimate, compare and measure lengths, weights and capacities, choosing and using standard units.

ICT

- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order]

Spell

Outline
This activity is great for children who know how to spell their names or other familiar words. It allows Bee-Bot to be programmed and spellings to be reinforced. New words can be practiced and children can write clues to spell messages. This activity works best with just a couple of children at a time. Once it has been introduced to a class, pairs can take turns to use the Bee-Bot and the mat.

Resources
- Bee-Bot
- Alphabet mat (TTS code: ITSMAT3)

Activity
Look at the alphabet mat with the children. Can they find the letters to write their name? Try starting with just the initial letter. Can they program Bee-Bot to move onto all the other letters?

Make sure there is a definite starting point for the Bee-Bot and all the children are familiar with it. Ask the children to write a set of instructions for Bee-Bot to write their name. Bee-Bot should pause on the correct letter. This set of instructions can be written on a card. Once all the children have completed this, challenge them to pick up a card and predict the name. They can then type it into Bee-Bot to check.

This activity can be developed into writing words, making instructions for the spelling words of the week etc.

Cross Curricular links

Literacy Year 1
- Read and spell phonetically decidable two-syllable and three-syllable words
- Recognise automatically an increasing number of familiar high frequency words.

Year 2
- Spell with increasing accuracy and confidence, drawing on word recognition and knowledge or word structure, and spelling patters including common inflections and double letters.

ICT
- Develop and record sequences of instructions to control the floor turtle.
- Predict the result of a sequence of instructions and check their predictions by programming a floor turtle

Mathematics

- Identify objects that turn about a point or about a line: recognise and make whole and half turns
- Follow and give instructions involving position, direction and movement.
- Recognise and use whole, half and quarter turns, both clockwise and anticlockwise: know that a right angle represents a quarter turn.

Find the Answer

Outline
Help your class to develop their mental maths in a different way by using Bee-Bot. They will need to work out answers to sums created by the roll of 3 dice and then program Bee-Bot to reach that number. For added excitement- try using a stop watch to time them from roll of dice to Bee-Bot reaching the goal.

Resources
- Bee-Bot
- Numbers 3-18
- 3 dice
- Transparent grid
- Table tray

Activity
Set the mat on the table tray with the numbers in random spaces. Explain that together they are going to help Bee-Bot do some maths. They are going to roll the three dice, add the numbers up and move Bee-Bot to the correct square- BUT, they are going to program the whole sequence in one go.

Demonstrate first. Place Bee-Bot on a number. Roll the dice and let the children help add the numbers up. Another child can help by finding the number under the grid.

Next plan a route together to move Bee-Bot to the number. Depending where you place Bee-Bot, this can be made easier or more difficult, so you may want to wait and see what the number is before placing Bee-Bot! Let the children take it in turns to move Bee-Bot to the correct number.

Extension/Variation

Place Bee-Bot on a square. Ask the children to choose a number each. Let them plan a sequence of instructions to get to the number they have chosen. They should write this down. Children swap the sequence with a friend and try to work out where Bee-Bot will end up. Then let the children program their list of instructions into Bee-Bot. Did the instructions work? Did the children guess the number?

Learning Objectives

Numeracy Year 1
- Relate addition to counting on: recognise that addition can be done in any order
- Use the vocabulary related to addition

Numeracy Year 2

- Add or subtract mentally a one-digit number or a multiple of 10 to or from any 2 digit number.

ICT

- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order.

Cave Explorer

Outline

This is a great activity at the start of a session when the stationary order has just arrived! It helps children develop their estimation, planning and counting skills in a fun way. It also can be linked to looking at light and dark (Year1 Science) or with the book "Going on a Bear Hunt".

Resources

- Bee-Bot.
- A variety of different sized Cardboard boxes made into tunnels (caves) which Bee-Bot will fit through.

Activity

Show the children the different caves. Tell the children they are going to have to help Bee-Bot to get through the caves and out the other side.

Choose a cave to start with. Ask the children to estimate how many steps forward Bee-Bot would need to move to get through the cave and out the other side. They will need to program them all into Bee-Bot before pressing Go or he will get stuck in the cave!

Were the group successful? If not, what went wrong? Did Bee-Bot get stuck in the cave? What number should they try next? Keep taking it in turns to program Bee-Bot to move through the tunnels.

Several boxes can be put together to make the distances longer, or exits at the side of the cave can be created so he needs to turn.

Extension

Children can decorate their cardboard box caves with paint and materials to create their own pretend foliage and scenic features.

Learning Outcomes.

Primary Framework for Mathematics- Foundation

- Describe solutions to practical problems, drawing on experience, talking about their own ideas, methods and choices.

Primary Framework for Mathematics -Year 1

- Visualise and use everyday language to describe the position of objects and direction and distance when moving them.
- Estimate, measure, weigh and compare objects, choosing and using suitable uniform non- standard or standard units

Primary Framework for Mathematics -Year 2

- Estimate, compare and measure lengths, weights and capacities, choosing and using standard units.

ICT

- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order]

Knock them down!

Outline

Children love knocking things down- so let them program Bee-Bot to do it for them! Clever selection of items to knock down can allow skills in all areas of the curriculum to be developed as well as programming Bee-Bot and developing estimation skills.

Resources

- Bee-Bot behind a line on the floor.
- Skittles (these can be soft light fabric ones, or home made from water bottles with blue tack in the lid to make them 'unstable') Check the Bee-Bot can knock them over before the children start the activity.
- Pictures or words to stick on the skittles

Activity

Set the task up… a starting point and skittles positioned in a line parallel to the Bee-Bot start line, about 5 Bee-Bot lengths away.

Explain the task to the children. They need to make Bee-Bot knock down the skittles. BUT- the children are not allowed past a certain line or mark on the floor. Discuss how they could move Bee-Bot forward a few steps at a time, rather than one step at a time. Each pair can take turns to see how many skittles they knock down. Points can be added if required. Once the skittles have been knocked down they can be repositioned at a different distance from the start line.

Once the children are familiar with the activity, try a variation.

- Use map signs on the skittles- can they knock over the 'Post Office'?
- Put maths sums on the skittles, give the children a number, can they knock over the correct question?
- Colour the skittles, can they knock the red skittle?
- Put a words on the skittles, read the word from one, can they find it and knock it over?

Support- If the children are finding it difficult to estimate the distance, use a number line at the side, or even squares of paper in a line so they can count. These can be removed when the children no longer need the support.

Learning Objectives

Primary Framework for Mathematics -Year 1

- Visualise and use everyday language to describe the position of objects and direction and distance when moving them.
- Estimate, measure, weigh and compare objects, choosing and using suitable uniform non- standard or standard units

Primary Framework for Mathematics -Year 2

- Estimate, compare and measure lengths, weights and capacities, choosing and using standard units.

ICT

- How to plan and give instructions to make things happen.

Shapes

Outline
Whatever their age, this is a great way to let children spend some time focusing on the properties of shapes. Allowing children make the suggested clue cards really forces them to be accurate and precise. Trying to work out which shape (or shapes) they should help Bee-Bot visit creates lots of shape related discussion.

Resources
- Bee-Bot.
- Pictures of shapes, (depending on the age and ability of your children examples include; square, rectangle, circle, triangle, pentagon, hexagon)
- Clue cards which the children have written
- Transparent grid and table tray (available from TTS)

Activity
An initial activity to precede this one will be creating some 'clue cards' with the children that describe the key features and properties of different shapes.

Place the pictures of the shapes under the transparent grid (spread them out, so there are some on each line and row. Discuss the shapes with the children. Name them and discuss the properties. Which ones have 4 sides? Can they find a shape with a curved side?

Pick a clue card from the pile. Together read it. Place Bee-Bot on the grid somewhere. Where does Bee-Bot need to go? Let children take it in turns to move Bee-Bot to a shape.

Extra shapes can be added, depending on the age of the children. It is also possible to add lots of irregular quadrilaterals so older children need to think carefully about shape properties such as parallel lines, obtuse angle, lines of symmetry etc.

Examples of clues using basic shapes

- find a shape with 4 sides
- find a shape with 3 sides
- find a shape with 5 sides
- find a shape with 6 sides
- find a shape with 5 corners
- find a shape with 4 sides the same length
- fine a shape with 4 corners
- find a shape with 0 corners
- find a circle
- find a square
- find a rectangle
- find a triangle

Learning Outcomes

Numeracy- Year 1
- Visualise and name 2D shapes and describe their features.

Numeracy- Year 2
- Follow and give instructions involving position, direction and movement

- Identify shapes from pictures of them in different positions and orientations

ICT

- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order]

Find the Number

Outline
This activity is designed to help children recognise numbers and give them an opportunity to use vocabulary related to numbers. It allows them to develop their understanding about the relationship between numbers. Working in groups will allow key number concepts to be explored and discussed.

Resources needed
- A transparent grid,
- Numbers 1-16 placed under the grid,
- Pack of cards with numbers on.
- Alternatively the TTS number line Mat will be useful (code: FWALKN)

Activities
Discuss the numbers with the children. What numbers do they recognise, where do they recognise them from?

Pick a card from the pack of numbers and place Bee-Bot on that number. Ask a child to move Bee-Bot to a number one more than the number he is on. Together the group can work out how to move there. Do the children know the number before this one? Can they find it on the grid? Can they make Bee-Bot move there?

What about the number two more than this? How about three more than this? Number lines can be used to help children find the correct number. Once the numbers around the original one have been explored a different number could be chosen.

Can they move Bee-Bot to a number between 3 and 8? Can Bee-Bot find the answer to 2 add 3? Children can find different numbers depending on their age and experience. Bee-Bot can be moved using single commands or a sequence.

Cross Curricular Links

Numeracy Strategy, Autumn Year 1
- Understand and use the vocabulary of comparing and ordering numbers, including ordinal numbers to at least 20. Use the = sign to represent equality. Compare two familiar numbers, say which is more or less, and give a number, which lies between them.
- Within the range 0-30, say the number that is 1 or 10 more or less than any given number.

ICT
- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order]

Early Learning Goals
- Recognise numerals 1-9
- Say and use number names in familiar contexts

- Find one more or one less than a number from 1-10
- In practical activities and discussion begin to use the vocabulary involved in adding and subtracting.

3D Solids

Outline

This activity focuses on the understanding shape strand of the Core learning in mathematics in Year 2. It will let children spend some time focusing on the properties of shapes whilst developing their understanding of angles.

Resources

- Bee-Bot.
- 4 different 3D shapes
- 4 cards with the names of the shape on
- 8 cards with L, R, LL, RR, LLL, RRR, LLLL, RRRR on them

Activity

Discuss the shapes with the children. What are they called? How can we identify them? What makes each shape special?

Now discuss turning with them. Explain that they will be using left and right turns to rotate Bee-Bot to face the correct shape. Let the children practice being Bee-Bots with you controlling them telling them to turn a quarter turn, or right angle turn left, right, etc. Move onto 2 right angle turns left and right.

Now Place Bee-Bot on the floor with the 4 shapes around him.
Pick a shape card from the pile. Together, look at the shape. What shape is it? How can they make Bee-Bot face the shape? How far will he need to turn and which way? Let children take it in turns to move Bee-Bot to a shape.

Once the children understand this, move onto the next set of cards, asking them to predict where Bee-Bot will end up if they program the list into him.

Learning Outcomes

Numeracy- Year 2

- Follow and give instructions involving position, direction and movement
- Visualise common 2-D shapes and 3-D solids: identify shapes from pictures of them in different positions and orientations: sort, make and describe shapes, referring to their properties.
- Recognise and use whole, half and quarter turns, both clockwise and anticlockwise: know that a right angle represents a quarter turn.

ICT

- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order]

Materials Matter

Outline

This activity links with the QCA Science unit 1C, Sorting and using materials as well as SC1 Scientific enquiry. Using the Bee-Bot as the focus, the children will test the surface Bee-Bot travels on best.

Resources

- Bee-Bot
- Different floor surfaces.

Activity

Identify a floor surface which Bee-Bot does not travel well on. Set up a pretend activity and start using the Bee-Bot with the children. As Bee-Bot starts to not move properly, stop the activity and open a discussion. What is happening? Why is Bee-Bot not moving as we would expect? What other surfaces would be better, or not good for Bee-Bot?

Encourage the children to think of other floor surfaces in the school they could explore? How could they set up a test to see what floors Bee-Bot likes? Which floors do they think will be good, which ones not so good. Make a list together of the floors they will test.

Let the children use the Bee-Bot on different surfaces. They can decide ways of making it fair together. Perhaps they can make a strip of paper 60 cm long, and then press the forward button 4 times. How far along the line does the Bee-Bot move? Once they have tested the surfaces, they will need to record how far Bee-Bot moves.

Did Bee-Bot travel as they expected? Did they predict accurately?

Cross Curricular links

Science SC2

- Ask questions and decide how they might find answers to them
- Use first hand experience and simple information sources to answer questions
- Think about what might happen before deciding what to do
- Recognise when a test or comparison is unfair.
- Explore, using sight, and make and record observations and measurements
- Compare what happened with what they expected to happen and try to explain it, drawing on their knowledge and understanding.

Literacy

- Listen to others in class, ask relevant questions and follow instructions

Primary Framework for Numeracy- Year 2

- Estimate, compare and measure lengths, weights and capacities, choosing and using standard units.

ICT

- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order]

Leaf Explorer

Outline
This is a great activity for helping children to become familiar with different leaves, look for characteristics of objects and also develop factual writing. It can be played at many levels, depending on the age and experience of the children. It links with the QCA scheme of work Unit 2B- Plants and animals in the local environment.

Resources
- Bee-Bot
- Leaves- either real or pictures
- Transparent grid and table tray (available from TTS)

Activity
Take the children on a leaf walk. Let them all collect a different leaf. By trying to find different leaves, they should discuss compare and contrast the different features of their leaf.

Once back in the classroom the children will need to research their leaf to identify it. They will then need to create a clue which can be word processed. On the reverse of the clue they should draw round the leaf and copy the name of the leaf. To create the clue, the children will need to observe the characteristics carefully. They could try to include information about the shape, size, colour, edge of the leaf, veins. Try to encourage the children to think about what makes their leaf special.

Place the leaves under the transparent grid. Pick up a clue from the pile and let the children read it out. Can they identify which leaf Bee-Bot should go to? Once Bee-Bot is there- the clue writer can tell the group the name of the leaf and another clue can be read out to the group.

Cross Curricular links
Science SC2
- Group living things according to observable similarities and differences
- Find out about the different kinds of plants and animals in the local environment.

Literacy
- Listen to others in class, ask relevant questions and follow instructions.
- Word process short narrative and non-narrative texts
- Compose sentences using tense consistently

Primary Framework for Numeracy- Year 2
- Estimate, compare and measure lengths, weights and capacities, choosing and using standard units.

ICT
- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order]

Pull Bee-Bot, Pull!

Outline

This activity links with the QCA Science unit 1E, Pushes and pulls, as well as SC1 Scientific enquiry. Using the Bee-Bot as the Focus, the children will see how strong Bee-Bot is by testing the weight he can pull. This activity can be biased more towards maths or science, depending on the learning outcomes required.

Resources

- Bee-Bot
- Bee-Bot cart
- Weights or stones

Activity

Ask the children how strong Bee-Bot is? Ask them how they could test his strength. Allow discussion and prediction of what will happen. Steer discussions towards pushing and pulling.

To test pulling, attach the cart to the back. Children can add weights or stones etc. make sure they understand that a big stone is not equal to a small stone, so the test is therefore not fair. If using weights, talk about the different weights available. How many stones or weights will he be able to pull? Can the class predict?

Once Bee-Bot cannot pull any more, take the stones or weights out abd count them. Who predicted correctly?

Cross Curricular links

Science SC2

- Ask questions and decide how they might find answers to them
- Use first hand experience and simple information sources to answer questions
- Think about what might happen before deciding what to do
- Recognise when a test or comparison is unfair.
- Explore, using sight, and make and record observations and measurements
- Compare what happened with what they expected to happen and try to explain it, drawing on their knowledge and understanding.

Literacy

- Listen to others in class, ask relevant questions and follow instructions

Primary Framework for Numeracy- Year 2

- Estimate, compare and measure lengths, weights and capacities, choosing and using standard units.

ICT

- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order]

Electricity

Outline
This activity lets children explore the classroom and find appliances which use or don't use electricity. They can then use a digital camera to take photographs of objects to use with Bee-Bot. This activity links with ICT as well as Science (and the Unit 2F in the Schemes of Work).

Resources
- Bee-Bot
- Digital camera
- Transparent grid and table tray

Activity
Let the children use the digital camera to take a photograph of two items in the classroom, one which uses electricity and one which does not. Print the pictures and place on cards 15cm^2. (Alternatively, collect pictures from catalogues and stick them on.)

Discuss the objects with the children. What do all the electrical items do? Where are they? Group the pictures in different ways, depending on identified criteria- such as what they do, where they are located, size, mains or battery.

Place the pictures under the transparent grid. Each child should choose an item to go to, program Bee-Bot to get there and then explain what that item is and what its function is.

Remind children that Bee-Bot uses batteries to work.

Cross Curricular links
Science
- Pupils should be taught about everyday appliances that use electricity
- Use simple scientific language to communicate ideas and to name and describe living things, materials, phenomena and processes.

Primary Framework for Numeracy- Year 2
- Estimate, compare and measure lengths, weights and capacities, choosing and using standard units.

ICT
- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order]

Ourselves

Outline
This activity links with the QCA Science unit 1A, Ourselves. It is a great activity to introduce topic vocabulary to children, and although the initial resources take a while to set up, they can be used by the children throughout the topic.

Resources
- Bee-Bot
- Talking postcards available from TTS (TT-CARD3)
- Cards with pictures of parts of the body on.
- Transparent mat and table tray

Activity
Set up the talking postcards so that each card has a part of the body written on it with the word recorded onto it. The children can help with this, looking at the picture cards and trying to write the word, using their phonic knowledge to attempt the words. They can also help record the word into the postcard.

Show the children how to work the talking postcards. They should try to guess the word on the card, and then check by pressing the button.

Show the picture cards to the children, discussing what the parts of the body are and what they do.

Place all the picture cards under the transparent mat. Pile the talking postcards up. In pairs, choose a talking postcard and READ the word. Move Bee-Bot to that square. Once the child has reached the square they can press the button on the talking postcard to se if they were right.

Cross Curricular links
Science SC2
- Recognise and compare the main external parts of the bodies of humans and other animals

PSHE
- The names of the main parts of the body

Literacy
- Spell new words using phonics as the prime approach
- Segment sounds into their constituent phonemes in order to spell correctly
- Read and spell phonetically decodable two-syllable and three-syllable words
- Apply phonic knowledge and skills as the prime approach to reading and spelling unfamiliar words that are not completely decodable.

ICT
- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order]

Toy Time Twister

Outline
Let children guide Bee-Bot to the old toys to find out about toys from the past and compare them with toys from today. Historical activities link with the Toys in the past, Unit 1, Year 1.

Resources
- Bee-Bot
- 8 Pictures of toys from the past
- Transparent grid and table tray

Activity
Place the pictures of old toys under the transparent grid. Let the children choose which picture the Bee-Bot is going to. Discuss the toy with them when Bee-Bot reaches it. What is the toy? How is it used? What is it made from? What colours is it? How is it played with?

Once the children have looked at all the toys, let them see if they can find a modern version from catalogues. Let them cut them out and stick them onto 15cm^2 pieces of paper, Place these mixed with the old ones under the grid.

Now let the children place Bee-Bot on the old toy and move him to the new toy equivalent. How has the toy changed? What is different about it, what is the same?

Cross Curricular links

History
- Use common words relating to the passing of time
- To ask and answer questions from the past
- Think about changes in their own lives and the way of life of their family or others around them

Primary Framework for Numeracy- Year 2
- Estimate, compare and measure lengths, weights and capacities, choosing and using standard units.

ICT
- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order]

Fire of London

Outline

This activity lets children program Bee-Bot to find the sentence in the sequence, allowing them to develop vocabulary such as before, next, after, then. It also allows them to collaborate in a group, listening to the ideas of others. This activity uses pictures from the story of the 'Great Fire of London' so links well with Unit 5 History. How do we know about the great fire of London?

Resources

- Bee-Bot
- Sentences or pictures which make up the sequence of events in the Great fire of London.

Activity

Make sure the children are familiar with the story of the great fire of London. Can the children tell you the story? How do they know that? Look at the sequence cards and discuss the events written on them.

Explain to the children that they are going to teach Bee-Bot the story. With help from the children, lay the pictures out in a line in the correct order. Now they can program Bee-Bot to move along the line so he looks at the picture. Children could take it in turns to tell that section of the story, before Bee-Bot is moved on again.

Once they have completed this, the pictures could be muddled up in the line, so the children need to work out the next one in the sequence and program Bee-Bot to move there.

Cross Curricular links

History

- Place events and objects in chronological order
- Use common words and phrases relating to the passing of time
- Recognise why people did things, why events happened and what happened as a result.

Primary Framework for Numeracy- Year 2

- Estimate, compare and measure lengths, weights and capacities, choosing and using standard units.

ICT

- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order]

Homes

Outline

Developing literacy and mathematical skills, this activity is linked with the QCA scheme of work in History- Unit 2. What were homes like a long time ago? It helps children realise that not all homes are alike so they can use this to compare homes from the past. An extension to this activity also links with D&T as children are encouraged to design a home for Bee-Bot.

Resources

Bee-Bot and its box
Pictures of houses,
Transparent grid and table tray
List of features of the houses created by the children

Activity

Discuss the house pictures with the children. What features can they identify? What is similar with some of the houses and what is different? Which house looks the oldest and the newest? Which one might they like to live in, why? Which one would they not like to live in and why? Use their observations and write them onto blank playing cards.

Place the pictures under the transparent grid. Pick up a feature from the pile and let the children read it out. Can they identify which picture Bee-Bot should go to? Are there more pictures Bee-Bot could get to?

As an extension to this activity, children can be asked to design a home for Bee-Bot. Show the children his current house. Discuss why this is a practical solution to storing bee-Bot. What could be improved? Children could either design a front of a house to stick onto the box, or as a full D&T unit, could design and make a box for him

Cross Curricular links

History

- Identify differences between ways of life at different times
- Ask and answer questions about the past

Primary Framework for Numeracy- Year 2

- Estimate, compare and measure lengths, weights and capacities, choosing and using standard units.

ICT

- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order]

D&T

- Generate ideas by drawing on their own and other peoples experiences
- Communicate their ideas using a variety of methods, including drawing and model making
- Identify what they could have done differently or how they could improve their work in the future.

Bee-Bot Knight

Outline

This activity gives children a chance to build up sequences of instructions into Bee-Bot. Based on a castle theme- the same idea can be used in many contexts. For example, collecting shopping,, collecting Pirate equipment, collecting letters to make a word.

Resources

- Bee-Bot
- Worksheet
- Pictures of objects mentioned on the worksheet- these are all available from Microsoft office clipart.

Activity

Explain that Bee-Bot is capable of storing lists of instructions, just as they are. Demonstrate how it is much more efficient to do two things together (such as pick up a pencil) rather than say the same thing twice.

Place the items for Bee-Bot to collect in a line, but not the same one as on the worksheet. Explain that Bee-Bot wants to be a knight, so they are going to help him by programming in a set of instructions.
Children will be completing the recording sheet which is found in the appendices of this book.
First he needs to collect a shield. Help the group program in all the instructions to get Bee-Bot to the shield. Test the list of instructions.

Explain that that was not enough, so he also needed the sword. Put Bee-Bot back to the start, this time program Bee-Bot to move to the shield and then the sword before pressing GO.

Work through the whole list, so the children fully understand the task, then muddle cards and let them try. They should record their instructions on the sheet.

Learning Objectives

Geography

- Use (directional) geographical vocabulary

Mathematics

- Follow and give instructions involving position, direction and movement

PSHE

- To listen to other people and play and work cooperatively.

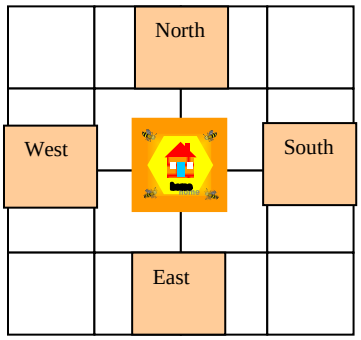
ICT

- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order].

N,E,S,W

Outline

This activity gives children a chance to develop their understanding of the concepts North, East, South, West. By using a robot to turn, the children will need to think carefully about which way is North, use their lefts and rights and also realise that North stays North all the time.



RESOURCES

- 12 cards with 'North', 'South', 'East' or 'West' on them.
- 4 labels each with 'North', 'South', 'East', 'West' on them.
- Bee-Bot
- Transparent Grid and Table tray.
- Home card
- Compass (TTS offer a variety of these to suit different sized budgets)

ACTIVITY

Show the children the compass and show them how it tells you which way is North. Use the compass to set the activity upon the table tray with the transparent mat over the cards. Place the home card in the centre and the direction cards around the edge as shown in the diagram. Place Bee-Bot on the Home card, facing North.

Discuss North, South, East, West with the group. Bee-Bot is facing North. How could the group make him face East? Show them how to make Bee-Bot turn a quarter turn in a particular direction.

Ask one child to pick a card and read it. The second child then needs to make Bee-Bot face that direction. As Bee-Bot does not move back to North, the amount needed to be turned varies each time.

Anti-clockwise and clockwise cards can be introduced too, if required. The children would then pick a N, S, E or W card as well as a rotational direction card, and would need to program Bee-Bot to rotate the required amount and direction.

To support children who are finding this difficult, return Bee-Bot to the North position before a new card is picked.

Learning Objectives

Geography

- Use (directional) geographical vocabulary

Mathematics

- Identify objects that turn about a point or about a line: recognise and make whole and half turns
- Follow and give instructions involving position, direction and movement.
- Recognise and use whole, half and quarter turns, both clockwise and anticlockwise: know that a right angle represents a quarter turn.

ICT

- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order].

Plan a Pirate Route

Outline

This activity gives children a chance to develop their understanding of the concepts North, South, East West. By using a robot to turn, the children will need to think carefully about which way is North, use their lefts and rights and also realise that North stays North all the time. Planning complete routes is a hard skill and will need some support.

Resources

- Pirate treasure map and small copies (TTS Treasure Map code: ITSMAT1)
- Bee-Bot
- Planning sheet

Activity

Show the children the pirate map. Ask them to think about where the treasure will be hidden and identify a co-ordinate on the map. Show them the pirate map sheet. It is wise to give them a plain piece of paper first to write their instructions on. Once they have tested them they can be copied on the real sheet. Children can use the small copy of the pirate map to plan the route, and the large pirate map to check their instructions.

Once they have completed their instructions and checked them, they can be given to another child who needs to guess where the treasure is. Again, small copies of the treasure map are needed. The children can mark on their copy of the map where they think the route will go, and then program everything into Bee-Bot and see where he goes, marking the correct route with a red line.

To extend this into language work, the children could turn the journey to collect the treasure as a story.

Learning Objectives

Geography

- Use (directional) geographical vocabulary

Mathematics

- Identify objects that turn about a point or about a line: recognise and make whole and half turns
- Follow and give instructions involving position, direction and movement.
- Recognise and use whole, half and quarter turns, both clockwise and anticlockwise: know that a right angle represents a quarter turn.

ICT

- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order].

Bee-Bot Challenge

Outline

This is a challenge for pupils to see if they can program Bee-Bot to visit all the squares on the grid. There are a few different ways of doing this- so it links well with problem solving in maths. This activity is suited to older children at the end of KS1 or the start of KS2.

Resources

- Grid or map 4x4 squares (15cm^2)
- Bee-Bot
- Child Planning sheets

Activity

Explain the challenge to the pupils. They are to make Bee-Bot visit all the squares on the mat using as few moves as possible.

Let the children have some time to plan their routes using the grids (or squared paper) How many different routs can they find? How many commands are needed for each? Which is the quickest route?

Once the children have a route planned, they should write the list of commands onto the sheet. They can then program the Bee-Bot to follow the route. Does he cover all the squares? How many moves were needed? Which child or group had the least number of moves?

How many different ways did the group find?

Learning Objectives

Geography

- Use (directional) geographical vocabulary
- Make maps and plans
- use globes, maps and plans at a range of scales

Mathematics

- Identify objects that turn about a point or about a line: recognise and make whole and half turns
- Follow and give instructions involving position, direction and movement.
- Recognise and use whole, half and quarter turns, both clockwise and anticlockwise: know that a right angle represents a quarter turn.
- Present solutions to puzzles in an organised way: explain decisions, methods and results in pictorial, spoken or written form, using mathematical language and number sentences.

ICT

- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order].

People who help us

Outline
This activity develops discussion and understanding of how people around us help us and their roles our community. Children will examine the roles of the people who help us at a level suitable to their age. The activity links well with Citizenship in KS1, Unit 4.

Resources
- Bee-Bot
- Pictures of people who help us, such as Nurse, Dentist, Teacher, Policeman, Lollipop person, Fire-fighter, Bus driver, Doctor.
- Table tray and transparent grid (available from TTS: ITSGRID)

Activity
Make sure the children are familiar with the pictures on the cards. What are the pictures of? What links the people? Why are they special? What is their job, who would they help? Have any of the children been helped by the people in the pictures?

Explain to the children that Bee-Bot has lots of problems. Can they help Bee-Bot find the right person to help them?

Read a clue. For example, Bee-Bot has a sore tooth- who can help him? Ask the children to identify the square for Bee-Bot to reach and help them to move him there. Then choose the next clue and so on.

Cross Curricular links

Early Learning Goals
- Be confident to try new activities, initiate ideas and speak in a familiar group
- Maintain attention, concentrate and sit quietly when appropriate.
- Find out about and identify the uses of everyday technology and use Information and Communications Technology and programmable toys to support their learning.
- Use talk to organise, sequence and clarify thinking, ideas, feelings and events.
- Retell narratives in the correct sequence, drawing on language patterns of stories

PSHE/Citizenship
- Learn about the role of different people in the community who help us
- Identify and describe some of the people who help us.

ICT
- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order].

Literacy
- Take turns to speak, listen to others' suggestions and talk about what they are going to do.
- Ask and answer questions, make relevant contributions, offer suggestions and take turns.

Noah's Ark

Outline
Ideal for younger children, this activity allows them to match animals and discuss the characteristics of them, comparing and contrasting, sorting and matching. It also introduces them to a well known Bible story, encouraging them to respond to any aspect of the story. Counting skills and programming Bee-Bot skills are also developed. This activity also links with the NC RE unit for reception.

Resources
Bee-Bot, 2 pictures of each animal (either 15cm^2 or placed on pieces of paper 15cm^2)

Activity
Read the story of Noah's ark to the children. Children could also sing the song of Noah (see appendices). Talk about the animals going into the ark two by two and explain that the animals have got muddled up and they need to help Bee-Bot sort them all out.

Discuss the animals on the cards. What is similar about some of them, what are some special features of some, how do they move? What are they covered with? Why? What sizes are they? Have they seen any of the animals? Have they touched any?

Spread the animal picture cards out in a line (or one of the animals on each 15cm^2 card). Pick a picture out of a bag, or turn over a card etc (older children could have the name of the animal written on the card to match to the picture). Take it in turns to program Bee-Bot to move to the correct animal.

Cross Curricular links

Early Learning Goals
- Listen with enjoyment, and respond to stories, songs and other music, rhymes and poems.
- Find out about and identify, some features of living things, objects and events they observe.
- Find out about and identify the uses of everyday technology and use Information and Communications Technology and programmable toys to support their learning.
- Say and use number names in familiar contexts

Religious Education
- Explore a range of religious stories and sacred writings and talk about their meanings
- Learn about Noah as an introduction to the stories of the Old Testament

ICT
- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order]

French shopping

Outline
This activity allows the use of Bee-Bot to develop French vocabulary related to shopping. Children will program Bee-Bot to collect the items from the correct shop. As much or as little support can be given, depending on the level of French of the children.

Resources
- Bee-Bot
- Busy Street mat
- Various Shopping lists in French.

Activity
Show the children a shopping list. Explain that together they are going to help Bee-Bot do the shopping. Discuss what the items are and the shop they need to visit. Demonstrate how to program Bee-Bot to move to a shop.

Place Bee-Bot at the end of the street. Now the children have to make Bee-Bot move to the next item on the list. What is the next item? What shop would it be in? Does he need to move forwards, backwards and how far?
Encourage the children to use the numbers in French too.

Let the children take it in turns to move Bee-Bot to the correct shop, and then back to the start.

Older of more experienced children can try to program Bee-Bot collect two items of shopping before pressing the Go button. Extend this into Mathematics by using pretend money in a trailer (code: ITRAIL)

Turns can be introduced by asking the Bee-Bot to turn to face the shop to collect the item. Bee-Bot can be started in the side street so that turns are required as part of the route.

Learning Objectives

ICT
- How to plan and give instructions to make things happen [for example, programming a floor turtle, placing instructions in the right order]

Primary Framework for Mathematics -Year 1
- Visualise and use everyday language to describe the position of objects and direction and distance when moving them.
- Estimate, measure, weigh and compare objects, choosing and using suitable uniform non- standard or standard units

Primary Framework for Mathematics -Year 2
- Estimate, compare and measure lengths, weights and capacities, choosing and using standard units.

MFL

- How to use their knowledge of the language creatively and imaginatively
- How to use the foreign language for real purposes

Feelings

Outline
It is important for children to be able to discuss feelings and recognise that others have feelings and that they can impact on how others feel. This activity develops childrens' vocabulary by allowing them to discuss feelings and the causes of those feelings. They will use Bee-Bot to find out about feelings. This activity works especially well if the pictures have been taken of the children pulling faces wherever possible. They can use the digital camera and try to make sad, happy, worried, frightened, excited, angry faces. Alternatively commercially available expressions are available.

Resources
- Bee-Bot
- Pictures of children with different faces.
- Transparent grid and table tray (TTS codes: ITSGRID & ITRAY)

Activity
Make sure the children are familiar with the pictures on the cards. What are the pictures of? Can the children tell how the person is feeling in the photo/picture? How do they know that? What might have made them feel like this? If it is a negative face, such as worried, how could the child help their friend?

Set a scene for the group. Imagine you are playing with a toy and someone comes up and snatches it from you. How would you feel? Let the group discuss this. Allow one child to move Bee-Bot to this face. Make sure children feel able to have differences of feelings and understand we don't all feel the same about things.

Alternatives to try include; asking the children to move to the face they feel like when….. Move to the face to show how you are feeling now…. move to the face showing how the three bears felt when they came home from the woods….

Cross Curricular links

Early Learning Goals
- Be confident to try new activities, initiate ideas and speak in a familiar group
- Find out about and identify the uses of everyday technology and use Information and Communications Technology and programmable toys to support their learning.
- Use talk to organise, sequence and clarify thinking, ideas, feelings and events.
- Respond to significant experiences, showing a range of feelings when appropriate
- Have a developing awareness of their own needs, views and feelings and be sensitive to the needs views and feelings of others

PSHE KS1
- to recognise that people and other living things have needs and that they have responsibilities to meet them
- That they belong to various groups and communities such as families and homes
- Recognise how their behaviour affects other people

- That family and friends they should care for each other

Making Resources

Although there are many resources you can buy, making your own can be quick and easy. Here are some more top tips.

Ensure cards are easy to get out and as quick to put away ready for the next time you want to use them. Sometimes you want the tiles or cards to stay in the same order each time you get them out. The easiest way of doing this is to use treasury tags, whole punched at the top and bottom. This means you can zigzag fold the tiles quickly and easily. They always stay together and are instantly ready the next time. No need to sort them out.

Keep a look out for books which you can use pictures from to make cards. Copy images from the book, and make into 15cm^2 cards. Children can choose images they want to get Bee-Bot to. If you keep the originals as line drawings, the children can colour them. Older children can write a description on the back, so the cards can be turned over.

See if you can use clip art from some of your favourite software. Several companies allow you to print images from your software. If the software does not allow you to resize, print and stick onto 15cm^2 cards. By using clipart from familiar software, the children already recognise the images.

Older children love making games for their younger friends to play. This can easily turn into a D&T project - a clear problem and design need, specific criteria, a market to interview. Once they have created their game, the evaluation is meaningful too, as the specific criteria at the start can be run through.

Tack a magnet on the front of Bee-Bot. (Make sure it is low!) Lay some coloured paperclips out on the floor. Set the children a specific amount of time to collect as many as possible. If you have different amount of points for different colours, the children will need to add the points. You can also have a colour which is worth negative points, and another special one which doubles the score.

Stick Velcro onto the front, (Velcro spots are great) you can then pick up felt shapes or other shapes with Velcro stuck on them. (Make sure the spiky bit of Velcro is on the Bee-Bot if you want to pick up felt). Add a Velcro spot on the top. This allows some funky wool hairstyles to be added too!

Pipe cleaners can be modelled to make excellent glasses and wings, and can also be used to make an eye patch- great for pirate Bee-Bot to find treasure on the Island mat!

Make the most of your Bought Resources

There are many resources you can buy for a Bee-Bot. There are activity mats and cards, physical resources such as arches, obstacle course and accessories such as sequencing cards, table trays and pull along carts. I hope this section helps you make the most of those resources you have spent your precious budget on.

Store you mats carefully. They are best rolled up and put in a poster storage container- you can reuse the rolls of backing paper storage boxes for a cheap option. As Bee-Bot is quite light in comparison with some other robots, folding will cause problems as Bee-Bot can't always make it over the mats.

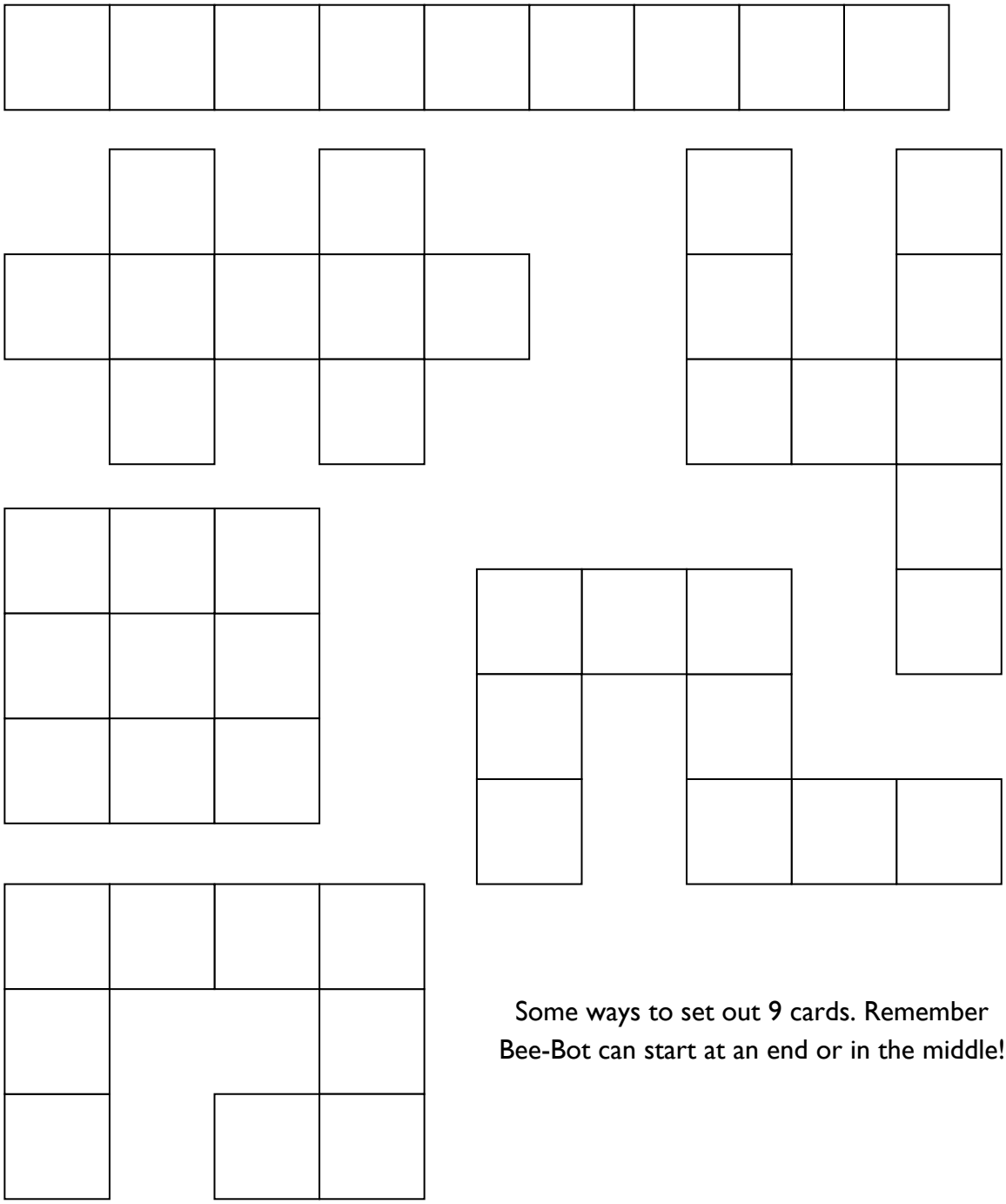
If your mats get a bit creased or crumpled, you can iron them on a low setting. Make sure to cover them with a tea towel or similar first, so the iron itself does not touch the mat. Put them printed side down on the ironing board, white side towards you, and use a low temperature. It can take a while depending on the severity of the creases.

Add timing to spice things up! How quickly can children navigate around the grand prix circuit? Get them to time themselves, and on the board, or a sheet of paper, write down their scores. Are they faster or slower than the last person? Not only are they completing the Bee-Bot task, but they are using a stop watch and working out if times are faster or slower than others. If you are working with younger children, or have a tight time deadline- give the group a set amount of time to see how far they get. For example- how many flowers can they visit before the sand timer runs out? How many shops can they collect from before the big hand gets to the 3?

Before you roll the mat up, write the name of the mat on the white side (at both ends). This means whatever way you roll it up, you can see what mat it is.

Look around your nursery or classroom for resources you already use. Packs of snap cards are useful, as one of the pair can be put under the blank grid or stuck on a 15cm square. The children can then pick up one card from the pack, and make Bee-Bot get to it.

Remember you can lay the 15cm² tiles out in lots of ways. A straight line is the easiest, a wiggly line a little harder. Bee-Bot does not always need to start at one end either- he can start in the middle, making the children move forward and backwards immediately. Cards can also be clustered together.



Some ways to set out 9 cards. Remember Bee-Bot can start at an end or in the middle!

Tips to Help Children succeed

As you are aware, not all children learn in the same way or at the same pace. Here are some ways of helping all children succeed when using the Bee-Bot.

Make a talking book of instructions like a talking manual. Not only will the children have fun helping you make it, but they may learn something whilst creating it. If not, at least they have something to refer to other than you!

Train some Bee-Bot experts. Remember, older children can do this, as can parents if you are lucky enough to have some willing volunteers. Remember to set helpers a clear task, and to make sure they do not help the children too much!

Finally…

Using Bee-Bot should be fun as well as helping the children to develop their ideas of how to control objects, or developing concepts in other areas. Enjoy!

Bee-Bot Planning

Sheet

Date	
ICT Learning Objective (highlight as necessary)	▪ Move one step forward at a time. ▪ Move several squares forward in one go before pressing GO. ▪ Move forward and backwards several steps before pressing GO. ▪ Turn left or right. ▪ Move forwards and backwards several steps, including turns before pressing GO. ▪ Add pauses to the sequence. ▪ Write the whole program on paper. Program it into Bee-Bot before pressing GO. ▪ Edit the program, and rewrite as necessary.
Other learning objective	
Resources needed	
Number of children in group	
Activity Description in steps	
Evaluation	

Bee-Bot Home Card

Words for Seven Dizzy Dragons

Seven dizzy dragons spinning round and round,
One falls and bumps its head and tumbles to the ground!

Six dizzy dragons spinning round and round,
One falls and bumps its head and tumbles to the ground!

Five dizzy dragons spinning round and round,
One falls and bumps its head and tumbles to the ground!

Four dizzy dragons spinning round and round,
One falls and bumps its head and tumbles to the ground!

Three dizzy dragons spinning round and round,
One falls and bumps its head and tumbles to the ground!

Two dizzy dragons spinning round and round,
One falls and bumps its head and tumbles to the ground!

One dizzy dragons spinning round and round,
It falls and bumps its head and tumbles to the ground!

No dizzy dragons spinning round and round,
They all jump up and creep away without a single sound!

5 Little Monkeys

5 little Monkeys
Sitting in the tree.
Teasing Mr. Alligator,
"You can't catch me!"
"You can't catch me!"
Along comes Mr. Alligator
Quiet as can be…
SNAP that monkey right out of that tree!

4 little Monkeys
Sitting in the tree.
Teasing Mr. Alligator,
"You can't catch me!"
"You can't catch me!"
Along comes Mr. Alligator
Quiet as can be…
SNAP that monkey right out of that tree!

3 little Monkeys
Sitting in the tree.
Teasing Mr. Alligator,
"You can't catch me!"
"You can't catch me!"
Along comes Mr. Alligator
Quiet as can be…
SNAP that monkey right out of that tree!

2 little Monkeys
Sitting in the tree.
Teasing Mr. Alligator,
"You can't catch me!"
"You can't catch me!"
Along comes Mr. Alligator
Quiet as can be…
SNAP that monkey right out of that tree!

1 little Monkey
Sitting in the tree.
Teasing Mr. Alligator,
"You can't catch me!"
"You can't catch me!"
Along comes Mr. Alligator
Quiet as can be…
SNAP that monkey right out of that tree!

Now no little Monkeys
Sitting in the tree!

Great Fire of London Teacher Resource Sheets

1. On Sunday 2nd September 1666, the baker Thomas Farynor forgot to douse the embers and they set light to the nearby stacked firewood.	2. By one o'clock in the morning, the baker's house and shop were well alight.
3. Thomas Farynor, his wife and daughter and one servant escaped along the roof tops.	4. Sparks from the burning house fell on hay and straw in the yard of the Star Inn and the sparks spread rapidly, setting fire to roofs and houses as they fell.
5. By 8.00am, the flames were half way across old London Bridge.	6. The fires burned all that day and on through the next. The strong easterly winds kept the flames going.
7. People tried to put out the fire but it was hard, so they fled in boats across the river.	8. The king ordered houses to be demolished so the fire could not spread, but they were too late.
9. In desperation, gunpowder was used to blow up houses	10. The wind changed direction and the fire went out.
11. The London fire brigade was set up	12. Many buildings were rebuilt in stone
13. Christopher Wren built the Monument to remember the fire.	

Great Fire of London Sequencing Cards

On Sunday 2nd September 1666, the baker Thomas Farynor forgot to douse the embers and they set light to the nearby stacked firewood.	By one o'clock in the morning, the baker's house and shop were well alight.
Thomas Farynor, his wife and daughter and one servant escaped along the roof tops.	Sparks from the burning house fell on hay and straw in the yard of the Star Inn and the sparks spread rapidly, setting fire to roofs and houses as they fell.
By 8.00am, the flames were half way across old London Bridge.	The fires burned all that day and on through the next. The strong easterly winds kept the flames going.
People tried to put out the fire but it was hard, so they fled in boats across the river.	The king ordered houses to be demolished so the fire could not spread, but they were too late.
In desperation, gunpowder was used to blow up houses	The wind changed direction and the fire went out.
The London fire brigade was set up	Many buildings were rebuilt in stone

WHO BUILT THE ARK?

(Traditional folksong)

Who built the ark? Noah Noah
Who built the ark? Noah did.

Verse:
Here come the elephants two by two
Here come the elephants two by two
Here come the elephants two by two
If I were there I'd go along too. (Chorus)

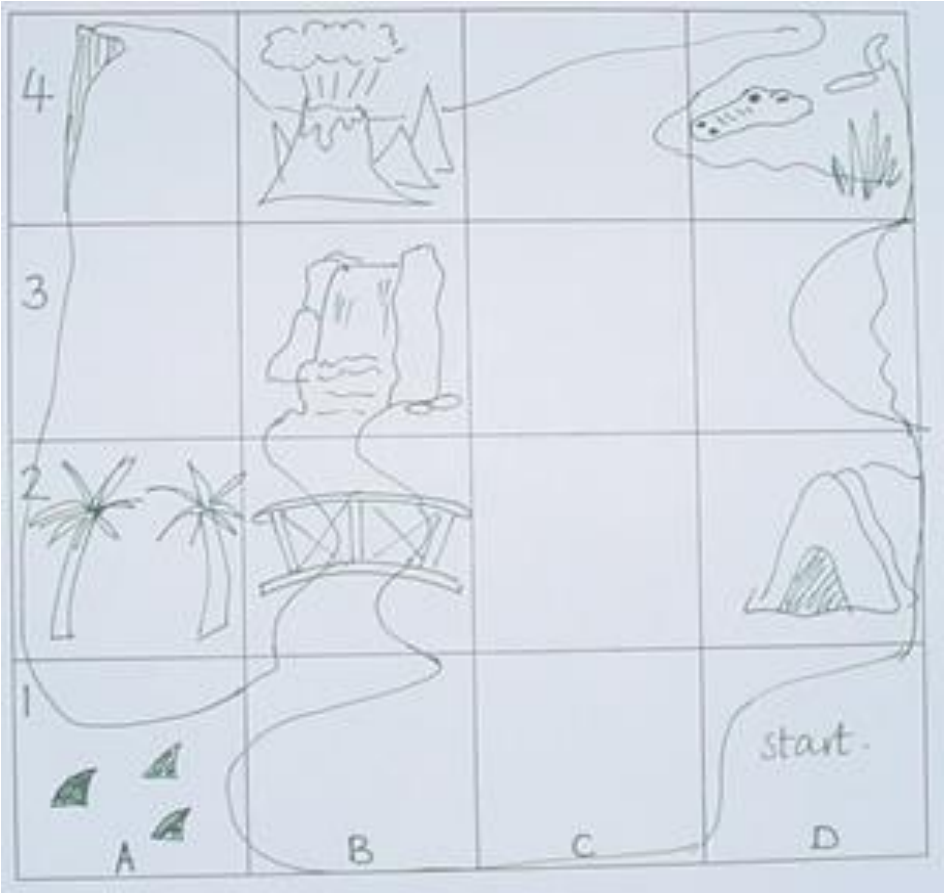
Here come the horses two by two.
Here come the horses two by two.
Here come the horses two by two.
If I were there I'd go along too. (Chorus)

Here come the kangaroos two by two.
Here come the kangaroos two by two.
Here come the kangaroos two by two.
If I were there, I'd go along too. (Chorus)

Here come the lions two by two
Here come the lions two by two
Here come the lions two by two
If I were there I'd go along, too. (Chorus)

Here come the zebras ....

Treasure Map



Name

1) Decide where you are going to put the treasure.

My treasure will be in square ____ ____ .

2) Use the space on the right to make a list of instructions to help your pirate friends reach the treasure.

3) Check it carefully.

Hunt the Treasure

Start in square D1

Names _____

Bee-Bot is trying to be a knight. Can you help him please?

On the first day, Bee-Bot collected a shield.

Clear **GO**

It wasn't enough to win the battle…

…so on the second day he collected a shield and a sword

CM **GO**

It still wasn't enough to win the battle…

so on the third day he collected a shield, a sword and a helmet

GO

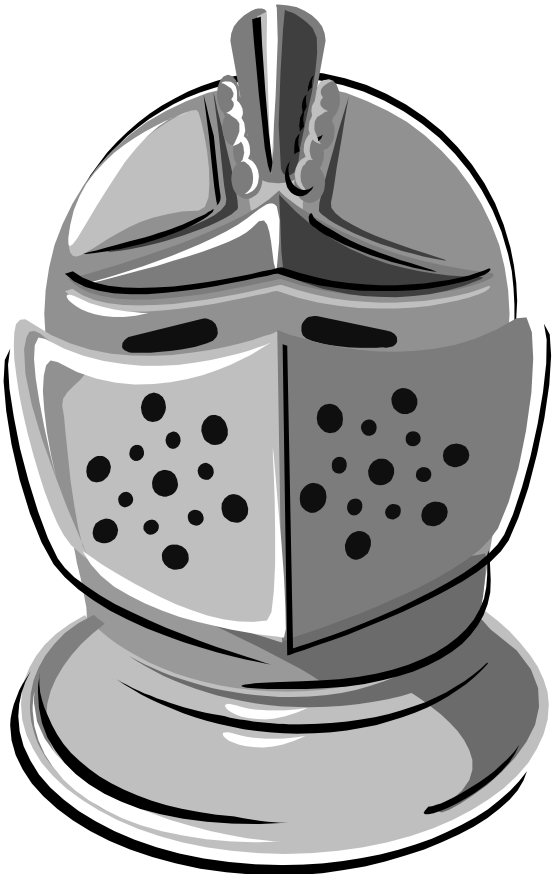
It still wasn't enough to win the battle…

so on the forth day he collected a shield, a sword, a helmet and some shoes

It still wasn't enough to win the battle…

so on the fifth day he collected a shield, a sword, a helmet, some shoes and a horse

Hurray, that worked… Bee-Bot won the battle!



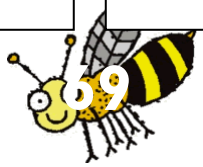
66

Name

Bee-Bot Challenge

Use the space on the right to plan a list of instructions to make Bee-Bot visit all the squares on the mat in as few moves as possible.

Check it carefully. Has Bee-Bot been to all the squares?

How many moves did you use?

Bee-Bot Challenge