Blue-Bot Activity Cards

This is a collection of 50 activities for learning with the Blue-Bot. These activities will help children to use, apply and extend their coding skills as they learn across the curriculum.

Most of these activities can be completed by programming directly on to Blue-Bot or with the TTS Tactile Reader Pro as an introduction to block-based programming skills. There are several activities at the end of this collection that have been specifically designed to introduce and explore the Tactile Reader Pro.

Some of the activities also suggest using additional TTS accessories such as the Transparent Grid Mat, Pocket Mat or World Map. You could also create your own if needed.

Nice to Meet You!

Age range: 4+

You will need:

- Blue-Bot

Sit in a circle.

- Point out the **forward, go** and **clear** buttons on the Blue-Bot.
- Press the **forward** button once, then the **go** button to demonstrate how far Blue-Bot travels in one move (15 centimetres). Point out that Blue-Bot makes a 'beep-beep' noise and both eyes flash when the move is finished.
- Explain that the **clear** button (**X**) must be pressed to clear the program.
- Choose a child opposite you in the circle and ask another child to guess how many moves it will take for Blue-Bot to reach them. Press the buttons to see it go.
- Was the estimate accurate? If not, try again.
- Choose a child to programme Blue-Bot to reach somebody else in the circle.
- Allow children to experiment with Blue-Bot. Can they get it to reach a different target? Can they get it to reach a target and then return?

Exploring Colours

Age range: 4+

You will need:

- Blue-Bot
- Line of 15cm squared coloured paper
- Colour Dice
- Tactile Reader (f using to program)

- Look at the different coloured paper squares.
- Hold each square up and ask the children what colour it is. Can they think of anything they know that is that colour? Is anyone wearing something of the same colour?
- Place the squares in a line. The line can be as long as you like. Initially, a line of about 6 is ideal.
- Let children take turns to roll the die, see what colour is chosen and make Blue-Bot move to that square. They may be able to make Blue-Bot move backwards too.
- You can choose to move Blue-Bot back to the start, or go 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, and to press the **forward** or **backward** button the corresponding number of times.

Incy Wincy Spider

Age range: 4+

You will need:

- Blue-Bot (could be dressed as a spider)
- Drainpipe - 90cm strip of paper marked in 15cm squares
- Pictures of sun and a cloud
- Tactile Reader (if using to program)

- Sing '*Incy Wincy Spider*' together.
- Place the 'drainpipe' on the floor and put *Spider* Blue-Bot at the bottom of the pipe.
- Sing the first part of the rhyme together - "Incy Wincy spider climbed up the waterspout."
- Ask children to make Incy 'climb' the spout by programming Blue-Bot to move forward. (You might repeat the phrase until Incy gets to the top.)
- When Incy is at 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 program Incy Wincy Blue-Bot back down. Will they program Blue-Bot to turn around or to go down backwards?
- Swap the cloud for the sun and get Incy to climb up again!
- When children are programming, you can explore whether they will turn Blue-Bot using the arrows or whether they will simply use the back arrow.

Names

Age range: 4+

You will need:

- Blue-Bot
- 15cm squares of paper
- Tactile Reader (if using to program)

- Give each child a piece of square paper (15cm square).
- Ask them to write their name on their piece of paper.
- Put each name into a long line (or if there are lots of names, you could create two parallel lines).
- Each child can take it in turns to program Blue-Bot to reach their own name. How many steps will Blue-Bot need to take?
- Lots of opportunities will arise for looking at names. You could vary the challenges in different ways. For example:
    - Challenge children to move Blue-Bot to another name starting with the same letter, or with the same number of letters in.
    - Ask the children whose name is next, or what sound the next name starts with.
    - Blue-Bot could be programmed to move to all names starting with a particular sound, or with a particular letter pattern.

Guess Who?

Age range: 5+

You will need:

- Blue-Bot
- A transparent grid mat
- Pictures of different faces (these could be children in the class, adults in school, famous people, etc)
- Tactile Reader (if using to program)

- Discuss the pictures. Who are these people? What is special about them? What do they do?
- Look at the characteristics of the faces. Can children find someone with glasses, a beard, long hair, brown hair, etc.
- Encourage children to say or to write a clue, or series of clues, about one of the people.
- Place the faces under the transparent grid.
- One at a time, children read, or listen to the clues, then program Blue-Bot to reach the person they think it is.
- Check – were they right? If not, try listening to some more clues and program Bot again.

Name Spell

Age range: 4+

You will need:

- Blue-Bot
- Alphabet matTactile Reade

- Look at the alphabet mat together.
- Ask children to find the initial letter for their own name.
- Program Blue-Bot to spell out a name, pausing at each letter. Ask children to write down the letters as the Blue-Bot goes around the mat. Whose name did it spell out?
- In pairs, ask children to plan a set of instructions for using Blue-Bot to spell out their own names. They can then input their algorithm onto Blue-Bot and check.
- Was the algorithm correct? If not, encourage them to debug and try again.

I-Spy!

Age range: 5+

You will need:

- Blue-Bot
- Pictures or objects representing different sounds
- Transparent or plain grid mat e.g. 6x6 with each square 15cm
- Tactile Reader (if using to program)

- Rather than letter names, use letter sounds to play this game of I-Spy.
- Place pictures representing different sounds on the transparent or plain grid.
- Choose a sound.
- Can the children see any pictures of objects that begin with that sound?
- Ask the children to plan the route and then program Blue-Bot to reach the picture of something beginning with that sound?
- You may include multiple items that begin with the same sound. Can children plan a route that takes Blue-Bot to all objects beginning with that sound?

Mail Delivery

Age range: 5+

You will need:

- Blue-Bot
- A story about delivery/post service, such as the Jolly Postman.
- Small envelopes
- Busy street mat or a homemade street mat
- Houses for your story (could be made with boxes or construction toys)

You can adapt this activity to add more or less challenge depending on the time you have.

- Set up your 'busy street' with different homes for each of the characters from your chosen story.
- Together, look at where the different characters live.
- Ask children to create letters to deliver to the characters in the story. They may simply write the addresses on the envelopes or could write letters to go inside the envelopes too. Alternatively, you could have prewritten envelopes for children to read and use.
- If possible, find a way for Blue-Bot to carry and deliver the letters. This might be by pulling a trailer or using the pen holder jacket to attach a little box.
- Set children the challenge to use Blue-Bot to deliver the letters to the different characters. You could increase the challenge by giving them a specific order to do this in.
- They should start by planning the algorithm and then program Blue-Bot to deliver all of the letters. If Blue-Bot takes a wrong turn, encourage children to review and debug their program.

Knock Them Down

Age range: 4+

MATH

ENGLISH LITERACY

You will need:

- Blue-Bot
- Pusher Jacket
- Skittles (these could be home-made from water bottles
- Pictures or words to stick on the skittles

- Set up the skittles and decide on a starting point for Blue-Bot.
- Children need to plan an algorithm and program Blue-Bot to knock down as many skittles as possible. How many steps will they need to program to do this?
- You can add words, pictures or numbers onto the skittles to link wider areas of the curriculum. For example:
    - Can you knock down the Giant?
    - Can you knock down the number 7?
    - Can you knock down multiples of ….? Or numbers that total …….?
    - Can you knock down the skittles that spell …… word?
    - Are there any words you can build with the letters you have knocked down?

Find the Answer

Age range: 4+

You will need:

- Blue-Bot
- Number cards 3-18
- 3 dice
- Grid with the number cards in random spaces
- Tactile Reader (if using to program)

- Place a Blue-Bot on any square on the grid.
- Roll the three dice and ask for the children's help to add the numbers together to find the total.
- Look at the grid and find the answer.
- Children must first write out and plan a route from wherever Blue-Bot is to the answer of the calculation.
- Children can then test their algorithm by programming Blue-Bot.
- Did he reach the correct number? If not, help children to debug and try again.
- Children can then have another go, working in pairs or small groups.

Find the Number

Age range: 4+

You will need:

- Blue-Bot
- Number cards 1-16
- Transparent Grid

Tactile Reader (if using to program)

- Place the number cards randomly in the grid. You could adapt the numbers you use, based on the level of the children.
- Place Blue-Bot on any number.
- Ask a child to program Blue-Bot to reach the number that is one more than the number Blue-Bot is currently on.
- Once there, choose a new target. It might be 3 less than, 4 more than, a number between 3 and 8, the next multiple of 2, etc. Targets can be differentiated to suit different children.

Shapes

Age range: 4+

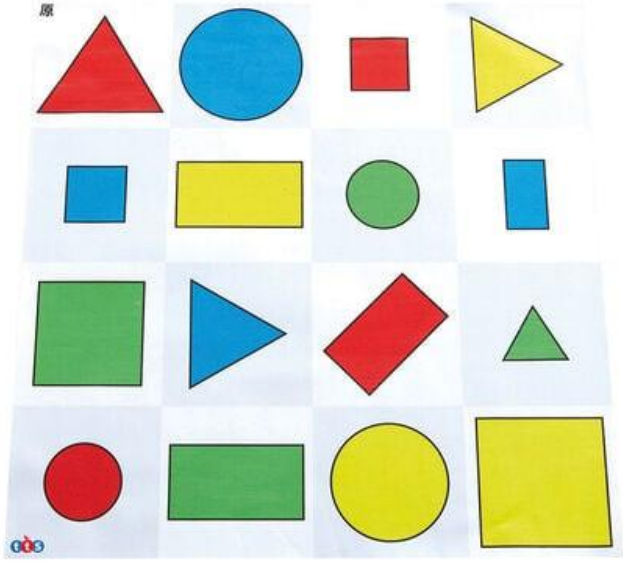
You will need:

- Blue-Bot
- Shape mat or a transparent grid with shape cards
- Clue Cards
- Tactile Reader (if using to program)

- Use a pre-made shape mat or setup the shape pictures to create your own mat.
- Name the shapes with the children and discuss their properties.

- Clue cards could be ready prepared or written with/by the children.
- Pick a clue card from the pile.

  <u>Card examples:</u>
  - *This shape has 3 sides.*
  - *This shape has one curved and one straight side.*
  - *This shape has one curved side.*
  - *This shape has 4 sides, all the same length.*
  - *This shape has 6 sides.*
  - *This shape has 5 sides.*



- Can Blue-Bot reach the correct shape?
- Children take turns to program.
- You could create your own mat using regular, irregular or 3D shapes to challenge children.

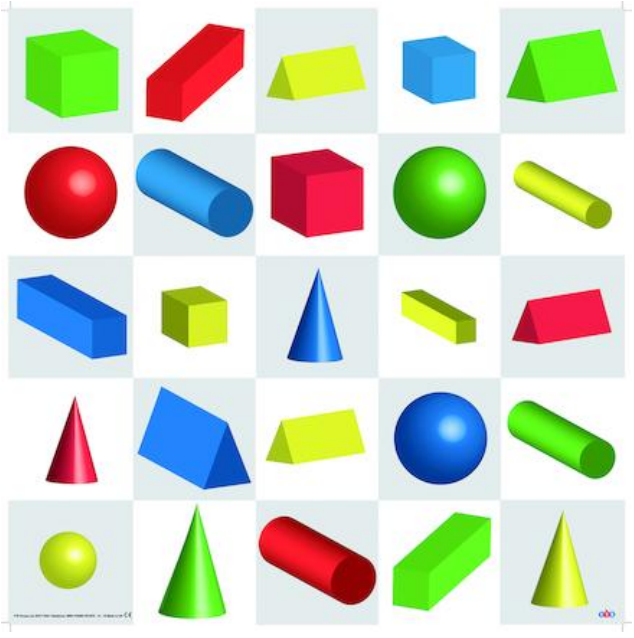
3D Shapes

Age range: 5+

You will need:

- Blue-Bot
- 3D Shape Mat or Shape Cards
- 8 turn cards saying, L, R, LL, RR, LLL, RRR, LLLL, RRRR

- Talk about turning left and right in quarter turns. This is the same as Blue-Bot turning 90 degrees.
- Get children to pretend to be robots. Shout out commands (using the turn cards) and get them to turn and follow e.g. Left, Left.
- What happens if there are 4 quarter turns left/right?
- Place the Blue-Bot in on a shape, surrounded by other 3D shape (either on a mat or use 3D shape cards).
- What shape will he face if he makes one turn to the left?
- Pick up a turn card and program Blue-Bot accordingly. When Blue-Bot turns to the shape, ask a child to tell Blue-Bot about its attributes. For example, “This is a cube. It has 6 faces and 8 corners”.
- Repeat with different 3D shapes.



Cave Explorer!

Age range: 4+

You will need:

- Blue-Bot
- A variety of different sized cardboard boxes as caves (you could paint and decorate these too)

- Start by setting the scene. Blue-Bot is a cave explorer. He might be exploring a new planet, or a new mountain range. You could link this to wider curriculum learning. You could even create a new shell jacket for Blue-Bot for this activity.
- Show children the different caves and explain that Blue-Bot needs their help to get through them.
- Choose a cave to demonstrate, asking the children to estimate how many steps it would need to get through and out the other side.
- Ask a child to program the Blue-Bot, then press GO.
- Did he reach the other side and get out safely, or did he get stuck in the cave? Can the students debug their program if not?
- You can increase the complexity by making the entrances and exits to the cave more challenging, for example that require more turns or steps.

Coin Push

Age range: 5+

You will need:

- Blue-Bot
- Pusher jacket
- Coins
- Suitable quiz questions
- Tactile Reader (if using to program)

- Create a ‘coin push’ game, such as you might find in an amusement arcade.
- Create a shelf for the coins to drop off (it could simply be the edge of a table) and a line for Blue-Bot to start behind.
- Program Blue-Bot to move forward one space and push the coins. (This will take a little trial and error!)
- Children might have to answer a question to get a go, perhaps in teams, or they might simply take turns.
- The idea is to collect the coins Blue-Bot has pushed from off the shelf, count them up and find out how much they have won. If playing with friends, who can win the biggest amount of money? Who has the most coins?

Mark Making

Age range: 4+

You will need:

- Blue-Bot
- Pen holder jackets
- Coloured pens
- Large piece of paper
- Extra materials if required

- Show children the pen holder jacket and explain that Blue-Bot can now draw!
- Demonstrate how to put the jacket on and how the pens go in. Allow children to program Blue-Bot however they like, choose a colour, add a pen to the jacket and set him going to create lines and shapes.
- Children will love having a huge expanse of paper and different colours to experiment with and if the space is big enough, several children could draw at the same time. Remind children about the importance of replacing pen lids before choosing another colour and set a rule that Blue-Bot must stay on the paper.
- Once children have created their Blue-Bot work of art, they may like to enhance it by colouring in any shapes created or by adding any extra bits and pieces, such as other materials, fabrics or sparkles.

Emergency Call!

Age range: 5+

You will need:

- Blue-Bot
- Pen holder jacket
- Large paper

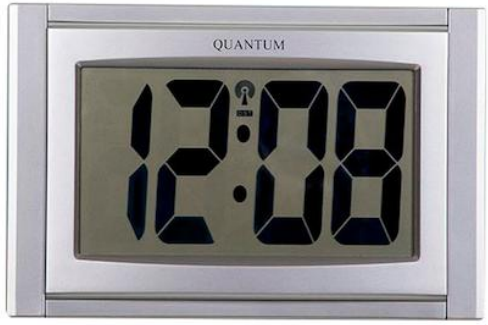
- This activity fits well into a 'People who help us' topic.
- Talk about the word *emergency* and what it means. Who might help if there was an emergency? The emergency services can include different departments, such as the police, fire service and the ambulance service. Each of them may be accessed by using an emergency number. In a lot of countries this is a three-digit telephone number. This obviously varies depending on which part of the world you are in. Explore the emergency number that children would need to remember.
- Use Blue-Bot with the pen-holder jacket and see if children can program and draw each of the digits of the emergency number.
- Extra challenge - Is it possible for children to work out a way to write the 3 numbers together without stopping Blue-Bot in between? This is very challenging!
- Children might even dress Blue-Bot as an emergency vehicle or emergency worker.

Drawing Digits

Age range: 5+

You will need:

- Blue-Bot
- Tactile Reader (optional)
- Pen holder jacket
- Large pieces of paper



- Demonstrate how numbers are shown on a digital clock.
- Look at each of the different numbers and the shapes of them.
- Look at how they are made using straight lines and the angles used.
- Put children into pairs or small groups.
- Explain that their challenge is to use Blue-Bot (with the pen-holder jacket) to make every digit from zero to 9. They could program on Blue-Bot or use the Tactile Reader Pro.
- They must also record each algorithm to show how it is done. Which digit is the easiest/hardest to program? Why?
- This might be achieved using sequencing cards, written down either on paper or whiteboards, or using the tiles in the Tactile Reader.

Multiples of ...

Age range: 5+

You will need:

- Blue-Bot
- Transparent grid mat or pocket mat
- Sets of number cards that are multiples of 5 and 10

- Set up a mat similar to the one shown below:

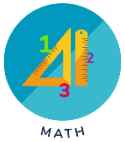
85	35	10	45	75
15	70	25	60	5
80	95	40	90	65
30	55	100	20	50

- Program Blue-Bot to travel to the multiples of 10 in order, starting from 10.
- Now repeat for multiples of 5.

You could easily adapt this activity to different sets of multiples linked to children's learning.

I'm Thinking of a Number

Age range: 5+



You will need:

- Blue-Bot
- A transparent grid or pocket mat
- Sets of number cards 0-20

- Set up the mat shown below:

Start	**10**	**15**	**7**
4	**8**	**12**	**16**
13	**20**	**3**	**18**
11	**5**	**14**	**9**

You could adapt this activity to include numbers on the mat within a range that children have been learning about.

- Place Blue-Bot on **Start.**
- Blue-Bot is thinking of a number and says: "My number is even. It is greater than 3 but less than 12. It is a multiple of 3. What is my number?"
- Can children identify the number and program Blue-Bot to travel to it on the mat?
- Children can then work in pairs. One person creates a series of clues about a number they choose. Their partner must program Blue-Bot to land on that number. Are they correct?

Match My Number!

Age range: 4+

You will need:

- Blue-Bot
- Transparent grid mat or pocket mat
- Sets of number cards as words to 20.
- 1-20 dice

- Set up the mat shown below:

twelve	nine	fifteen	four
six	two	thirteen	twenty
fourteen	five	eighteen	sixteen
eight	eleven	three	nineteen

- Roll the dice and place Blue-Bot on this number.
- Take it in turns to roll the dice and program Blue-Bot to move to this number.
- Collect 1 point if you are correct. First to 5 points is the winner.
- If your number is not on the board then miss a go.

Totals to ...

Age range: 4+

You will need:

- Blue-Bot
- Transparent grid mat or pocket mat
- Sets of number cards in range 0-10
- 0-9 dice

- Set up the mat shown, as shown below:

2	5	7	10
3	9	4	8
0	2	7	1
10	6	5	4

- Roll the dice and place Blue-Bot on that number.
- Program Blue-Bot to travel to the number that when added to the start number will total 10.
- You could try using a different total, e.g. 8.
- Which numbers won't be used? How do you know?

Letter Writing

Age range: 5+

You will need:

- Blue-Bot
- Tactile Reader (optional)
- Pen holder jacket
- Large pieces of paper

- Explore the alphabet together and look at patterns in how the letters are formed.
- Which letters do children think they could make through programming Blue-Bot and using the pen holder jacket? Which ones do you think you couldn't?
- Look at the shape of the letters and using their knowledge about programming with Blue-Bot, can they explain why some may be more challenging than others.
- Set children the challenge to program Blue-Bot to write letters. Can they:
    - Write their name?
    - Write a 3-letter word?
- What is the longest word they can write with Blue-Bot?

Line Graph

Age range:5+

You will need:

- Blue-Bot
- Pen holder jacket
- Large sheet of paper

This activity could be adapted to link with any appropriate topic or area of interest. This example activity is about making a bar chart to demonstrate favourite ice-cream flavours.

- Set the scene. You might be going on a day trip to the seaside and want to pre-order ice-creams for while you are there. Together, decide on 3 or 4 options that everyone can choose between. Choose a coloured pen to represent each choice/flavour, for example vanilla-yellow, chocolate-brown, etc.
- Draw a horizontal line at the bottom of a very large piece of paper. Write the chosen flavours under the line and place 3 or 4 Blue-Bots side-by-side behind the line with a few centimetres between them. Put a pen-holder jacket on each Blue-Bot and add the chosen coloured pens so that each one represents a different flavour.
- One at a time, children make their choice and press the forward arrow once on the Blue-Bot which represents their vote. When everyone has had their turn, press the GO button on each Blue-Bot. Children will clearly see which is the favourite flavour because it will have the longest line!
- Talk about what else the chart shows. How can children know how many chose each flavour?

Blue-Bot the Delivery Driver

Age range: 4+

You will need:

- Blue-Bot
- Pusher jacket

- The pusher jacket is great for enabling Blue-Bot to take objects from one place to another.
- Set the scene. For today, Blue-Bot is a delivery driver and has some very important deliveries to complete. You could link this to a topic you are learning about. Create some challenge cards (or children could create them for each other) that set out an instruction for the delivery.
- Examples might include:
    - Place an animal on one square and explain it needs to be taken to the vet/a park/home. Children must program Blue-Bot to 'collect' the animal and deliver it where it needs to go.
    - Collect a bunch of flowers from a shop and deliver them to a house for someone's birthday.
- If the route doesn't work first time, get children to debug their algorithm and try again.
- **Extension Activity-** The challenges may be differentiated to include avoiding certain obstacles, completing in certain time limits or adding more pieces that must be collected and delivered.

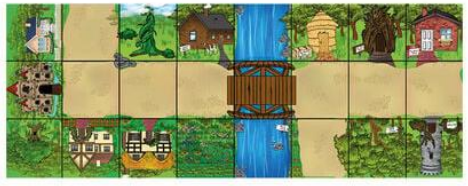
Blue-Bot the Storyteller

Age range: 4+

You will need:

- Blue-Bot
- A familiar story, such as 'The Three Little Pigs'.
- Fairytale mat (optional) or large paper to create your own story map.
- Pusher jacket (optional)

- This activity will work best with a small group of children.
- You can choose a well-known story/book for this activity that children are familiar with. In this example, we use the traditional tale, The Three Little Pigs.
- Begin by reading a version of the story together, getting the children to join in with all the familiar refrains. Tell the children they are going to re-tell the story using Blue-Bot and a story map.
- Using a very large piece of paper, and following the Three Little Pigs sequence, plan out a story map together (or use the Fairy Tale Mat if you have one.) Add 3D houses of straw, twigs and bricks along the route and if possible, turn Blue-Bot into the wolf, either by creating a jacket or perhaps by adding ears and large teeth! Program Wolf Blue-Bot to go to each of the houses in order, pause in front of each and make 4 turns as you all say the well-known refrains together: "Little pig, little pig, let me come in."
- You could also use the pusher jacket on Blue-Bot for children to program 'Wolf' Blue-Bot to 'blow down' the house and push it away.



Where do you live?

Age range: 5+

You will need:

- Blue-Bot
- Busy Street Mat or create your own street mat to use
- Mini envelopes.

- Use the 'Busy Street Mat' or create your own street map mat.
- Do children know their own addresses? Explain that most properties are given a number to make them easier to locate.
- Decide on numbers for each of the buildings on the street. Talk about how they go in sequence. Is there any pattern to the numbers on your street? Add number cards to each property on your street map.
- Turn Blue-Bot into a post van – you could create a jacket or a little sign for Blue-Bot to carry. Prepare envelopes with addresses, e.g. 6 Busy Street.
- Children must plan the journey and program Blue-Bot to deliver all of the letters.
- For greater challenge:
    - You could ask differentiated questions such as: "Can you send Blue-Bot to the first odd number after 8, the number between 11 and 13, etc.".
    - You could also give Blue-Bot a correct order to deliver the letters in to increase the difficulty of the algorithm that children will need to plan.

Rubble Race

Age range: 4+

You will need:

- Blue-Bot
- TTS Construction Mat or your own building site mat
- Pusher jacket

- Setup and use the TTS Construction Mat or create your own Building Site mat for Blue-Bot to explore. Use small rolled-up bits of scrap paper to represent rubble and place it around the mat.
- Set the scene for children. When building on a new site, lots of dirt and rubble must be removed. In this challenge, we will need to use Blue-Bot to help us get rid of this rubble from the mat.
- Children are not allowed to touch the 'rubble' themselves but must program Blue-Bot to push it off the mat. Use the Blue-Bot pusher jacket, or you could tape a cardboard version to the front.
- Give each child an amount of time, e.g., 3 minutes. Blue-Bot must start from off the mat. Any 'rubble' that comes off the mat can be collected. The winner is the one who has collected the most or the first to fill a particular container.
- Alternatively, you could play in teams. Time how long it takes one team to get rid of all the rubble. Can the next team beat that time?
- Talk about how there must be exactly the same amount of 'rubble' on the mat for it to be a fair competition.

The Chase

Age range: 7+

You will need:

- Two Blue-Bots
- Large beanstalk with 8x 15cm parts
- Jack jacket, Giant jacket.
- Multiple choice questions

- This activity is based on 'Jack and the Beanstalk' and takes a little preparation, but children will enjoy the idea of a chase - *Will Jack get away with the Giant's possessions or will he be caught?*
- Draw a large beanstalk ladder segmented into eight 15cm parts.
- Use jackets to transform one Blue-Bot into the Giant and the other into Jack.
- Play a game like the TV programme 'The Chase' by placing 'Giant Blue-Bot' at the top of the beanstalk and 'Jack Blue-Bot' two steps closer to home. One child will play as Jack and other as the Giant. (Jack's aim is to get to the bottom and the Giant's aim is to catch Jack.)
- Prepare some multiple-choice questions where the answer is a, b or c. (The questions can be differentiated to suit. They could be pure guesswork, such as "What is the tallest beanstalk ever grown?" (a. 14.1 metres, b. 20.3 metres, c. 4.4 metres)
- Both players write a, b or c on a whiteboard. Whoever is correct gets to move one space down the beanstalk. Will Jack get to the bottom first or will he be caught?

In the Spider Spin

Age range:5+

You will need:

- Blue-Bot
- Large piece of paper
- Pen holder jacket

- Turn Blue-Bot into a spider and draw a spider's web.
- In the middle of a large piece of paper, draw concentric circles, starting from the middle and getting bigger as they move out.
- Using the pen holder jacket, get Blue-Bot to draw the first circle and go out from there.
- Next, program Blue-Bot to draw straight lines from the outer circle right through the middle to the other side, creating the web effect.
- Using the web, play a game to catch flies.
- Throw a 'fly' (rolled up bit of black paper) onto the web.
- Programme Spider Blue-Bot to catch the fly. If he manages to touch it, he pretends to eat it.
- How many flies can he catch in 5 minutes?
- You might also use the web as a display and add 3D or painted spiders to it.

Life cycles

Age range: 5+

You will need:

- Blue-Bot
- Transparent grid mat or pocket mat
- Life cycle picture cards for 2/3 different life cycles.
- Tactile Reader (if using to program)

- Recap and review a variety of different life cycles for animals, for example frog, caterpillar, duck, etc. Look at the different stages and share picture cards to represent each of the different stages.
- Lay these picture cards out into a grid for Blue-Bot using the transparent grid mat or pocket mat.
- Children must choose one of the animals and program Blue-Bot to travel in sequence to each of the stages of the life cycle. For example, egg-caterpillar-cocoon-butterfly.
- Check, did they reach each stage in the correct order? If not, can they debug the program?
- Encourage children to write out and plan the route first before programming onto Blue-Bot.
- If using the Tactile Reader Pro, children will be able to check and debug visually with the tiles.

The Human Body

Age range: 5+

You will need:

- Blue-Bot
- Large piece of paper
- Parts of the body cards
- Pen holder jacket (optional)
- Tactile Reader (if using to program)

You can use this activity to support learning about the different parts of the body.

- On a large piece of paper, draw around an adult/child in the class to create a body outline.
- Explore and discuss the different parts of the body you want children to learn about such as organs, bones, etc.
- One at a time, choose a body part card. Ask children to discuss and decide where in the body they would find this organ/bone.
- Children must then plan a route and program Blue-Bot to travel there. Check – did we get it right? They may want to program directly onto Blue-Bot or use the Tactile Reader Pro.
- You could also use the pen holder jacket to draw and represent the blow flow and circulation around the body, or program Blue-Bot in a sequence, such as following the digestive system.

Around the world

Age range: 5+

You will need:

- Blue-Bot
- Large floor World Map
- Tactile Reader (if using to program)

- Lay out a large world map on the floor that you can use with Blue-Bot, for example the TTS World Map Mat.
- Name and locate the world's seven continents, five oceans and as many countries that they can.
- Use Blue-Bot to explore the world map. You could:
    - Program Blue-Bot to travel to the country where they live.
    - Challenge children to program Blue-Bot to travel from where they live to another country that they have been learning about or have visited before. What countries, seas, oceans, etc does Blue-Bot travel through to get there?
    - Ask children to plan and then program an around the world voyage for Blue-Bot to travel across all five oceans or to visit all seven continents.
- Children can be learning facts about the countries that Blue-Bot travels through on his adventures.

Let's Get Dancing

Age range: 7+

You will need:

- Blue-Bot
- Range of music to listen to.
- Tactile Reader and tiles (if using to program)

- Blue-Bot has a memory of up to 200 steps and is perfect for coding dance routines that can be shared for other groups to follow and learn the dances.
- Begin by listening to short extracts of a variety of different music styles.
- Challenge the children to create a short dance sequence to go with the music. You may wish to watch some video tutorials and learn some well-known dance routines for inspiration.
- Encourage the pupils to break down the dances into stages and to plan the dance routines using algorithms.
- Use the Tactile Reader Pro to incorporate more moves such as 45 degree turns and Repeats.
- Add a further challenge, by asking children to use more than one robot to create group synchronised dances, such as line dancing.
- Groups could share their instructions with other groups so that they can program their robots to perform another dance.

Obstacle Course

Age range: 5+

You will need:

- Blue-Bot
- Objects such as construction or loose parts to create an obstacle course
- Tactile Reader and Tiles (if using)

- In small groups (4+ children), challenge children to design their own obstacle course for Blue-Bot before planning how to navigate around the course to the finish square.
- Split the group into ‘designers’ and ‘programmers’.
- Designers will start by designing and creating the obstacle course for Blue-Bot. They might include obstacles to avoid or include creative elements such as spaces that require a 360-degree spin!
- Programmers will then be responsible for planning the algorithm to help Blue-Bot navigate through the obstacle course.
- Test the program and see if programmers can navigate Blue-Bot to safety.
- Children can then swap roles and have another go.

Drive Thru!

Age range: 5+

You will need:

- Blue-Bot (multiple if wanted)
- Accessories to make the Drive Thru window.

- Ask children to help build a drive through burger bar (or alternative if they prefer) for Blue-Bot to travel to and pick up some tasty food!
- Show children how to program Blue-Bot to say different things on his buttons. For example, when moving forward he could say “hungry”, moving backwards he could say thank you and then when he gets to the counter, change his “hello” to his order.
- Children can then program Blue-Bot’s journey to and through the Drive Thru.
- You could include another Blue-Bot to take the order at the window and use the sensors for the Blue-Bots to respond to each other.
- Learners could design covers as uniforms for the burger restaurant Blue-Bots.

Snakes and Ladders

Age range: 5+

You will need:

- Blue-Bot (one for each player)
- Snakes and Ladders Game Mat
- Dice

- Use a game mat, such as a large Snakes and Ladders Mat to set up the game.
- Children can choose and mark their own Blue-Bot to be their playing counter. They might want to create a jacket or a small sign so they know which is their Blue-Bot.
- Play the game of Snakes and Ladders, by rolling the dice and then programming Blue-Bot to move as their play counter.
- You may want to add in additional rules, such as 'spin 360 degrees after sliding down a snake', or 'do a dance after travelling up a ladder'.
- You could also use the sensors on the Blue-Bots so that they interact with each other when they meet on the play mat.

Game Designer

Age range: 7+

You will need:

- Blue-Bot
- Resources for creating games

- The challenge is for children to create a game involving Blue-Bot and using all their knowledge of programming.
- **Research -** Give children time to research different games they could create. They will need to consider which ones would be adaptable to include Blue-Bot.
- **Design and Make -** Once decided, children then need to plan, design and create their game board. Give them a selection of prompts to consider which will help shape their games, such as: How many players? Will there be any obstacles, clues, questions, quizzes?
- **Test, Trial and Debug** - Within their groups, encourage children to play their game and have a test run to identify any aspects that need to be 'debugged' and improved. They may want to create some 'rules' for their game to help.
- **Play** the game as a group then play another group's game. Each group will need to explain the rules of the game to the other players as these will be different for each game.
- **Evaluate -** Spend time reviewing the games that have been played. Children can either reflect on their own game or one that they have played.

Walk the Plank

Age range: 5+

You will need:

- Blue-Bot
- Planks of different lengths (e.g. made from lengths of cardboard)
- Tape measure
- Tactile Reader (if using to program)

- Have a series of pirate ship ‘planks’ setup for children all measuring different lengths. These could be made from strips of cardboards.
- Turn your Blue-Bot into a pirate! You could create a full jacket, a bandana or an eye patch for Blue-Bot to wear to get into character. You could have a parrot Blue-Bot to match too.
- Children need to try and stop Blue-Bot from falling off the plank into the shark infested water. They need to measure the planks and then decide what they will need to input to ensure Blue-Bot does not fall off. For example, if the plank is 40cm long, and we know that Blue-Bot travels 15cm, we would only want to do 2x forward (30cm) otherwise Blue-Bot will fall off the plank.
- Challenge children to create the right algorithm for each plank so that Blue-Bot does not fall into the shark infested water below.

Many Languages of the World

Age range: 7+

You will need:

- Blue-Bot
- Large World Map Mat

- Use a large World Map Mat and explore and plot different languages that are spoken around the world.
- Learn how to say hello, or a small key phrase or greeting in the different languages.
- Plot and program a journey for Blue-Bot to take around the world, passing through different countries.
- As Blue-Bot passes through each country, ask children to say a greeting or short phrase in the native language of that country.
- See how many different languages Blue-Bot can learn and explore as he sets off around the world.
- You could extend this with children having a short conversation as they cross the border to a new country or create a Blue-Bot passport which they get stamped as they pass through different countries.

Blue-Bot the Tourist

Age range: 7+

You will need:

- Blue-Bot
- Large World Map Mat
- Landmark models (or images)
- Picture cards of the landmarks

- Use a large World Map to explore different famous landmarks around the world.
- Place mini replica objects of the landmarks, or images of them, onto the World Map.
- The aim of the activity is for children to help Blue-Bot visit the different landmarks and to learn about them by planning and programming his journey.
- Children (individually or in small groups) will select 3 picture cards of the landmarks. They must identify where they are in the world and then plan and program the journey for Blue-Bot to visit them all.
- They may want to think about the most efficient order to visit them (to reduce air miles and time travelling).
- When they arrive, can they teach Blue-Bot some key facts about the landmark and why it is so important.

Find the connection

Age range: 4+

You will need:

- Blue-Bot
- Transparent Grid or Pocket Mat
- Images of objects

- Place a selection of picture cards into a grid or pocket mat. These could include images of everyday objects, natural items, materials or items linked to a theme.
- The challenge is for children to use their thinking skills to find a hidden connection between some of the pictures and plan a route for Blue-Bot to find them.
- One child (or team) looks at the whole mat and chooses three pictures that can be connected in some way. Examples of connections could include:
    - fork, plate and chicken – objects used for dinner
    - window, bottle, light bulb – all made from the same material, glass
    - pig, cow, sheep – animals found on a farm.
- Once they have chosen their connected pictures, they program Blue-Bot to travel to each picture, pausing on each one in turn while the other children make a note of the objects.
- Children to discuss what they think the secret link is before deciding on a final answer. Have they found the hidden connection?
- Children can swap roles and choose a new selection of connected pictures for the next turn.

Rhyming Words!

Age range: 5+

You will need:

- Blue-Bot
- Cards with rhyming words or pictures of things that rhyme.
- Transparent Grid Mat or Pocket Mat

- Prepare the mat by placing rhyming words or images of objects that rhyme into each pocket. These should include a few different ‘groups’ of words/images of words that rhyme.
- Introduce the rhyming strings or the images that rhyme and read them together.
- Children begin by placing their Blue-Bot on the edge of the mat. Explain that their challenge is to program Blue-Bot to stop on all the words or images that rhyme with the one you call out.
- Call out a word, e.g. Find all the words that rhyme with ‘box’.
- Children then plan a route for Blue-Bot, aiming to visit every word or picture that rhymes.
- Each time Blue-Bot reaches a pocket that rhymes, the bot stops, says the object name out loud, then continues to the next rhyming word.
- If a child stops on a word that doesn’t rhyme, can they have another look and re-plan (debug) their route and try again, practising careful listening and checking.
- Challenge children by adding multiple and more complex rhyming strings to the pockets as their confidence grows.

Four in a Row

Age range: 5+

You will need:

- 2 Blue-Bots
- Two sets of coloured marker cards (8 of each colour – 15cmx15cm)
- Transparent Grid Mat or Pocket Mat
- 16 numbered question cards to fit in each pocket on the mat

- Place a numbered question card into each of the pockets on the pocket mat.
- Children could work in pairs for this activity or split the class into teams for a large class game. Each team will have their own Blue-Bot (they might want to create a jacket or mark up their Blue-Bot).
- Choose which team will go first and place their Blue-Bot in one of the corners. This team must choose a numbered question they want to answer and then program Blue-Bot to travel to that question square. When Blue-Bot has arrived, the team should pull out the question, answer it and if they get the question right, they can place one of their coloured marker cards into the pocket.
- If they do not land on the correct square, or they do not get the question right, then the other team can put their coloured marker in the pocket instead.
- The teams then take it in turns to choose a question, program Blue-Bot and answer the question.
- The first team to get four coloured markers in a row on the pocket mat win.

Introducing the Tactile Reader

Age range: 5+

You will need:

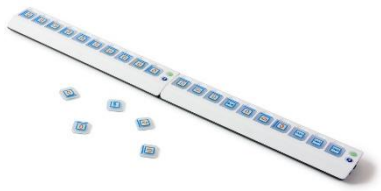
- Blue-Bot
- Tactile Reader and Tiles

The Tactile Reader Pro is a screen free device that can be used to program Blue-Bot. It connects via Bluetooth and comes with a selection of different tiles. Each tile represents a different command which can be placed into the tile windows on the Tactile Reader Pro. When the green 'GO' button is pressed, the robot will carry out the commands in the order they have been placed. You can use the Tactile Reader Pro in a horizontal or vertical position for programming.

- Show children the Tactile Reader Pro and give them time to explore the different tiles you have as commands for Blue-Bot. Which tile do you think will make the robot move forwards? Backwards? Left? Right?
- Each tile window can be used for a different command. How long can a single program be on one Tactile Reader Pro? How many tiles would you need?
- Ask them to plan an algorithm and program Blue-Bot on the Tactile Reader Pro. Check - how do you need to place the tiles? How is this different if the Tactile Reader Pro is vertical or horizontal? What buttons need to be used?
- Test and try out all the different tiles and create a 'Tile Dictionary' explaining what each tile means.

Daisy Chain the Tactile Reader

Age range: 5+



You will need:

- Blue-Bot
- Tactile Reader and Tiles (at least 2)

You can connect up to three Tactile Reader Pro's to extend the number of commands in your program (maximum of 30 tiles). They click together with magnets, so it is recommended you use them on a flat surface, otherwise they may disconnect.

- Connect together two or more Tactile Reader Pro's. Give children to explore and investigate the following:
  - What do you notice when you connect them?
  - What changes with the LED lights underneath?
  - Which buttons now work on them?
  - How many commands can you now include for your program?
- Discuss – what is the benefit of being able to daisy chain more than one Tactile Reader Pro together?
- With your Tactile Reader Pro's daisy chained together, ask children to plan a program that uses all the tile windows. Explore what happens if you leave a tile window blank.
- Can children create their own user guide for the Tactile Reader Pro with any top tips!

Tactile Reader Barrier Game

Age range: 5+

You will need:

- Blue-Bot
- Tactile Reader and Tiles

- Children could work in pairs or small groups for this activity.
- One person must use the Tactile Reader Pro to plan a journey for Blue-Bot. Record this first or plan it on the Tactile Reader Pro.
- Use a screen (or similar) to hide the Tactile Reader Pro from the other partner.
- Set Blue-Bot off on its journey.
- The second person should watch Blue-Bot move and draw the tiles that have been used.
- Remove the screen and check – do they match?
- Swap roles and have another go.

Debugging with Tactile Reader

Age range: 5+

You will need:

- Blue-Bot
- Tactile Reader and Tiles

You can easily debug any errors on a Tactile Reader Pro with these simple steps:

- **Find the error:** Watch your robot follow the commands and spot which tiles are not correct.
- **SWAP the Tiles:** Rearrange, add, or remove tiles in the desired order.
- **Press the green button:** Your robot will then perform the new set of commands.
- **Observe:** Watch your robot to see if it performs the new set of commands in the correct order for the desired task. If not, the tiles can be rearranged, and another set of commands tried until the desired outcome is achieved.

Remember – the tiles need to be placed into the Tactile Reader Pro correctly or this may alter your program.

- **Debug Challenge:** Children can work in pairs or small groups to create 'debugging' challenges for their partner(s). Choose a starting point and a destination for your robot. One person plans a program in the Tactile Reader Pro but deliberately includes a mistake or two. The other person/people must watch the robot execute the program and spot how to debug the program to make it run correctly. Have a go debugging and see if you can make it run smoothly! Swap roles after each turn.

Tactile Reader: 45 degree turns

Age range: 7+

You will need:

- Blue-Bot
- Tactile Reader and Tiles
- Large Floor Mat (with 15cm squares) e.g. 6x6
- Lighthouse Target Marker
- Rocks or waves markers as obstacles

With the Tactile Reader Pro tiles, you can introduce 45 degree turns to programming with Blue-Bot.

Explore 45 degree turns and why adding them in to Blue-Bot's programming might be useful? Allow time for the children to discuss then share answers. Establish that it allows for more precise turning (3D printers and robotic arms on production lines are some 'real life' examples of machines that are programmed using 45 degree turns).

- Place the 'Lighthouse' at the top of the floor mat. Put Blue-Bot at the bottom of the mat and some rocks/obstacles in between Blue-Bot and the lighthouse. Mark some squares as 'shallow water' where only diagonal movements are allowed (so will require 45 degree turns). Explain that boats often move diagonally to avoid hazards.
- The challenge is for children to navigate the sea so that Blue-Bot can safely reach the Lighthouse.
- Children should write and plan their algorithm using the Tactile Reader and then test it. They can debug their program if anything doesn't go quite to plan.
- You can make the journey to the Lighthouse as challenging as you like by adjusting the number of obstacles along the way.

Debating the Tactile Reader Pro

Age range: 7+

You will need:

- Blue-Bot
- Tactile Reader Pro

This activity works best once children have completed some of the other activities that introduce and use the Tactile Reader Pro.

- Split the class into two groups. One group will be ‘programming on Blue-Bot’ and the other group will be ‘programming with Tactile Reader Pro’.
- As a group briefly explore some of the benefits of programming using Blue-Bots buttons and the benefits of programming on the Tactile Reader Pro. What can you do/not do and how does that help us in our coding?
- Depending on which group they are in, children should prepare their own persuasive piece for the benefits of either programming directly onto Blue-Bot or programming with the Tactile Reader Pro.
- Children can share their persuasive pieces to the class. You may want to have a class vote on which method they prefer!