

Recommended Age Range: 6 - 8

# 12 Blue-Bot Pupil Challenge Cards



Blue-Bot



Here you will find 12 fun Blue-Bot activities for pupils to use independently or in pairs!

Blue-Bots are incredibly versatile resources. They are well-known for teaching early coding skills, but there are also many ways they can be used across the curriculum.



## Resourcing

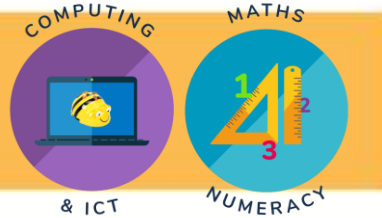
We recommend having a Blue-Bot station in your classroom where children can access the Blue-Bots and the resources for these activities independently.



# Pupil Challenge Card

## 1. Nice to meet you!

Age range: 6-8



### Paired Activity

- Sit opposite your partner with a space between you.
- Press the forward button, then the 'Go' button. Watch to see how far Blue-Bot moves. Remember to press the clear button (X) to clear the program.
- Guess how many moves it will take for Blue-Bot to move from you to your partner. Program Blue-Bot to move to your partner.
- Was the estimate accurate? If not, try again.
- Move closer or further away from your partner. Guess how many moves it will take Blue-Bot to move from you to your partner now. Program Blue-Bot to see if you are correct.
- Choose different targets for Blue-Bot to reach. Can you guess how many moves it will take to reach the target?

Extra Challenge: Can you program Blue-Bot to reach different targets and return to the starting point?



# Pupil Challenge Card

## 2. Guess Who?

Age range: 6-8



### Paired Activity

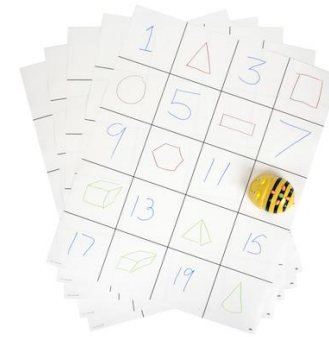
*You will need: A transparent grid with pictures of faces – e.g. children, adults in school, celebrities (leave two corner squares on the grid blank); another set of the same pictures of faces on cards or paper; two Blue-Bots.*

- Place the cards face down in a pile and choose a blank square to place your Blue-Bot on.
- Choose one card each from the pile, without showing your partner.
- Look at the different features the face on your card has. For example, their hair colour, are they wearing a hat, glasses? Are they male or female?
- Take it in turns to ask one question about each other's chosen face. For example, does the person on your card have curly hair? If the face on the card does have curly hair say 'Yes' if it does not say 'No'.
- After asking a question, program Blue-Bot to move and stop at the face that you think matches the one on your partner's card.
- Keep asking questions and programming Blue-Bot to move to the face on the grid that you think matches the one your partner has on their card. The person who programs Blue-Bot to arrive at the matching face first wins.

# Pupil Challenge Card

## 3. Find the Answer

Age range: 6-8



### Independent or Paired Activity

*You will need: Blue-Bot; number cards 3 – 18, 3 dice, blank or transparent grid with numbers in random spaces*

- Place a Blue-Bot on any square on the grid.
- Roll three dice and add up all three numbers on the dice.
- Write the three numbers and the answer on a whiteboard or paper (e.g.  $4 + 3 + 2 = 9$ ).
- Plan a route from wherever Blue-Bot is to the answer on the grid.
- Write the algorithm for the route on a whiteboard or paper.
- Program Blue-Bot with the algorithm to test it.
- Did Blue-Bot reach the correct number? If it didn't, debug and try again.
- If Blue-Bot arrived at the correct number, roll the dice and play again.

# Pupil Challenge Card

## 4. Making Art

Age range: 6-8



### Independent or Paired Activity

*You will need: Blue-Bot wearing pen-holder jackets, coloured pens, large pieces of paper.*

- Can you create a beautiful work of art by programming Blue-Bot to draw lots of different shapes and patterns?
- Use different coloured pens and see how many different shapes and patterns you can make.
- You may wish to create a themed picture, such as a Christmas scene or spring scene.
- You may wish to also work with one or more other children in your class. Can you create one piece of artwork with two or more Blue-Bots drawing at the same time?
- Remember to put the lid on the pens once you have finished using them!



### Extra Challenges:

Can you program Blue-Bot to draw a picture of a recognisable object such as a flower or house etc?

Can you use the Tactile Code Reader or Blue-Bot App to program Blue-Bot to perform repeats and 45 degrees to help draw more detailed patterns?

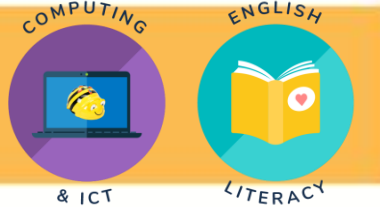
Can you use Blue's Blocs to create an algorithm that will make Blue-Bot draw a pattern of your choice?



# Pupil Challenge Card

## 5. Name Spell

Age range: 6-8



### Independent Activity

*You will need: Blue-Bot, an alphabet mat or transparent grid with pictures of letters*

- Can you program Blue-Bot to spell your name? Program Blue-Bot to move and pause at each letter in your name.
- Write a set of instructions (an algorithm) for Blue-Bot to spell out your name.
- Ask somebody in your class to check your algorithm. Was it correct? If not, debug and try again.
- Can you program Blue-Bot to spell anybody else's name in your class or the name of your class or school?

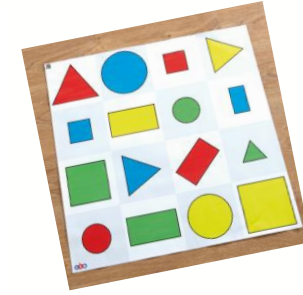
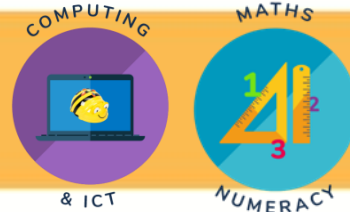
Extra Challenge: Can you program Blue-Bot to spell words from your spelling list?



# Pupil Challenge Card

## 6. Shapes

Age range: 6-8



### Independent Activity

*You will need: Blue-Bot wearing a Pen Holder; coloured pens that fit in the Pen Holder; large pieces of paper.*

- Use the following algorithm to program Blue-Bot to draw a square: 'Forward 2 steps, Right Turn, Forward 2 steps, Right Turn, Forward 2 steps, Right Turn, Forward 2 steps.'
- How many more 2D shapes can you program Blue-Bot to draw?
- You may wish to use different coloured pens for each shape.
- Can you make shapes of different sizes? For example, can you draw a large square and a small one?



### Extra Challenges:

- Can you use the Tactile Code Reader or Blue-Bot app to program Blue-Bot to draw more shapes using 45 degree turns and repeats?
- Can you draw a shape inside another one?
- Can you draw a net for a 3D Shape?

# Pupil Challenge Card

## 7. Letter Writing

Age range: 6-8



### Independent or Paired Activity

*You will need: Blue-Bot wearing a Pen Holder, pen, large pieces of paper*

- Which letters can you program Blue-Bot to draw?
- Experiment by programming Blue-Bot to move in different ways to see how many letters from the alphabet it can spell.

Extra Challenge: Can you program Blue-Bot to write a 3-letter word? What is the longest readable word you can program Blue-Bot to do?

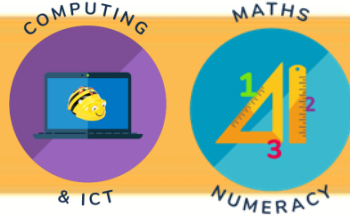




# Pupil Challenge Card

## 8. Knock them Down

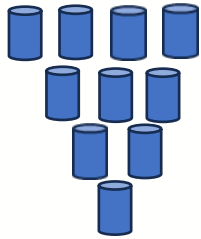
Age range: 6-8



### Paired Activity

*You will need: Two Blue-Bots wearing Pusher Jackets, Skittles (these can be home-made from water bottles with sticky tack in the lid to make them unstable).*

Set up the skittles to make a triangle shape as shown in the picture below. Place the single skittle at the front.



- Take it in turns to program Blue-Bot to knock down all the skittles.
- Each player has two goes at programming Blue-Bot for each turn.
- Scoring: Each player scores 1 point for each skittle knocked down.
- The winner is the player with the highest score after five turns each.



Extra Challenge: Can you use the Tactile Code Reader or Blue-Bot App to program Blue-Bot to perform repeats and 45 degrees to knock down the skittles?

# Pupil Challenge Card

## 9. Drawing Digits

Age range: 6-8



### Independent or Paired Activity

*You will need: Blue-Bot wearing a Pen Holder, printed digital clock number 0-9, a pen, large pieces of paper.*

- Look at the digital clock numbers to see how they are drawn.
- Can you program Blue-Bot to draw each digit from 0 to 9?
- Record your algorithm for drawing each digit using sequence cards or writing it down on paper or a whiteboard.

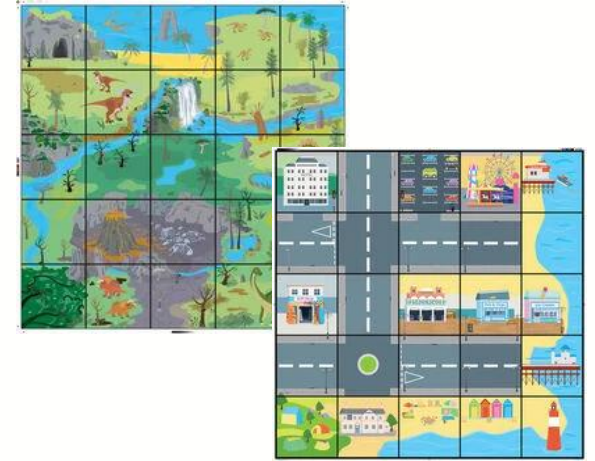
Extra Challenge: Can you use the Tactile Code Reader or Blue-Bot App to program Blue-Bot to perform repeats to help draw some of the numbers?



# Pupil Challenge Card

## 10. How many ways?

Age range: 6-8



### Independent or Paired Activity

*You will need: Blue-Bot, Blue-Bot grid mat*

- Choose a corner square to place Blue-Bot on. This will be your starting square.
- Next, choose a place on the mat that you would like Blue-Bot to go to.
- How many ways can you program Blue-Bot to get to the same place on the grid?
- Record your algorithms for each route using sequence cards or a piece of paper or whiteboard.
- If playing with a partner, who can find the most ways?

### Extra Challenges:

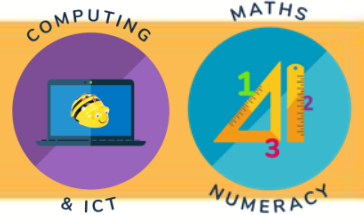
- Can Blue-Bot take the same route but be programmed differently?
- Can you create the longest possible algorithm to get Blue-Bot to the same place?



# Pupil Challenge Card

## 11. Multiples of...

Age range: 6-8



### Independent or Paired Activity

*You will need: Blue-Bot; transparent grid mat or pocket mat; sets of number cards that are multiples of 5 and 10*

- Set up the mat as shown here.

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

- Can you program Blue-Bot to travel to the multiples of 10 in order, starting at 10?
- Record the algorithm using sequence cards or writing it on paper or a whiteboard.
- Now repeat for multiples of 5.

Extra Challenge: Can you repeat the activity using different multiples, such as multiples of 3 and 4?



# Pupil Challenge Card

## 12. I'm Thinking of a Number

Age range: 6-8



### Paired Activity

*You will need: Blue-Bot, transparent grid mat or pocket mat, sets of number cards in range 0-20*

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

- Place Blue-Bot on Start.
- Take it in turns to pick a number from the grid without telling your partner what it is.
- Give your partner three clues to guess your number. For example, “My number is even. It is greater than 3. It is in the three times table.”
- Can your partner program Blue-Bot to travel to the number that you are thinking of?
- Take it in turns to guess each other’s numbers.

## Taking Care of Blue-Bot



- Once you have finished completing a challenge, please remember to put all the equipment away.
- Make sure all Blue-Bot's switches are turned off underneath.
- Place Blue-Bot back on charge so it is all ready to go next time.
- If you have used the Tactile Code Reader or Blue-Bot App, please make sure these are turned off and placed on charge.