



Tactile Reader

Teacher Guide

www.tts-shopping.com

TacTile Reader

Physical programming for Blue-Bot

Contents

National Curriculum for Computing	3
Previous Experiences	3
Progression	3
Key Focus 1 - Programming Blue-Bot using the buttons	4
Key Focus 2 - Recording a program using symbols	5
Key Focus 3 – Using TacTile Reader to program Blue-Bot.....	6
Key Focus 4 – Debugging programs using Tactile Reader	7
Key Focus 5 – Reading a program and predicting what will happen	8
Extension Tiles.....	9

National Curriculum for Computing

TacTile Reader with Blue-Bot for KS1 Computing

At KS1, TacTile Reader can be used to help pupils:

- Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions
- Create and debug simple programs
- Use logical reasoning to predict the behaviour of simple programs

TacTile Reader with Blue-Bot for KS2 Computing

At KS2, TacTile Reader can be used to help pupils:

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- Use sequence, selection and repetition in programs; work with variables and various forms of input and output
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- Understand computer networks

The National Curriculum for Computing references (above) are indicative of some aspects of the curriculum the activities cover. They are not an exhaustive list nor do they indicate that one activity fully covers that curriculum area. The activities support children in learning computing skills and applying computational thinking. Using TacTile Reader with Blue-bot will enable children to engage in open-ended problems which require the use of decomposition, modelling and algorithms.

Previous Experiences

Prior to using TacTile Reader with Blue-Bot children may have had experience of remote control vehicles and Bee-Bot. Remote control vehicles help develop an understanding of action, reaction and directional language. Bee-Bot offers a good route into very early programming.

Progression

The activities listed below are in a suggested order of progression. There is no specific amount of time to be spent on each as this will vary from one situation to another. It may also be necessary to break some of the activities down further to suit children's needs.

Key Focus 1 - Programming Blue-Bot using the buttons

Children may be familiar with Bee-Bot. If possible, show both devices and compare; asking questions such as:

- What differences can you see?
- Is the inside of Bee-Bot similar to Blue-Bot?
- Talk about the parts inside Blue-Bot. What might those parts do?
- Blue-Bot is so named because it has Bluetooth. Have you heard the word Bluetooth? If so, where? Can you explain what it does? (Bluetooth is a wireless technology used for exchanging data over short distances.)

The children should spend some time playing with Blue-Bot. Does it work just like Bee-Bot? Talk about programming Bee-Bot /Blue-Bot.

- What is the process?
- What happens when you add commands, press Go, watch it move, then add more commands? Does it begin again?
- What does the X button do?
- What does the pause button do? How might a pause be useful?
- Is it easy to remember the commands entered? What might help to remember them?

Key points to draw out are:

The **pause button** is useful for breaking a problem down into smaller chunks, e.g. breaking an 'L' shaped movement into two. The movement up to the turn, then a pause, followed by the movement after the turn. This breaking down of a problem is known as 'decomposition'.

Recording programs can also be very useful - enabling them be communicated, repeated or changed. As a starting point, recording may be done with symbols on paper, on a whiteboard, or by using cards with the symbols printed on.



Key Focus 2 - Recording a program using symbols

Depending on the experience or ability of the children this activity may be approached in two ways.

1. The children will need a Blue-Bot (or Bee-Bots) and a mat. Working in twos or threes they should set themselves the challenge of moving from one starting square to a specific destination. As they press buttons they should record those presses by writing each symbol on a dry wipe board, a piece of paper or by using printed cards. Once they think the instructions are complete, they should press 'Go' and as Blue-Bot moves, track their recorded commands to see if they were successful.
2. More experienced or more able users should write their program down before pressing any buttons. When ready, they should press 'Go' and keep track of Blue-Bot's moves using their list. If Blue-Bot does not reach the required destination they should review their program and work out what they need to change. This is called debugging.

Extend the challenge by asking children to go via/avoid a particular square.



Key Focus 3 – Using TacTile Reader to program Blue-Bot

Introduce TacTile Reader. Explain that the Reader sends commands wirelessly to Blue-Bot using Bluetooth.

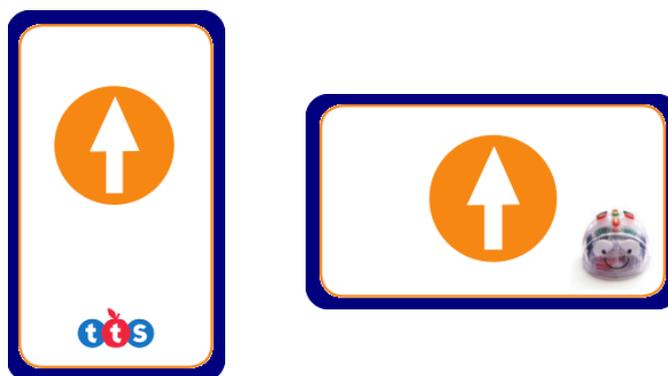
The first step is to connect TacTile Reader to Blue-Bot. Switch both devices on, press the blue connection button and wait for Blue-Bot's eyes to go blue. This means Blue-Bot is connected.

Introduce the tiles. Each tile matches a command button on top of Blue-Bot. If one tile is placed on the Reader and the green button pressed what do children think will happen? Place the same tile on the reader in a different orientation. Again ask the children to predict what will happen. Talk about the symbols on the tiles.

Note: The TTS logo on one side indicates when the reader is in landscape mode. The Blue-Bot picture (on the reverse) indicates the reader is in portrait mode. Begin by displaying the tiles the same way i.e. all portrait or all landscape.

Hidden inside each tile is a tiny electronic piece which tells the Reader what it is.

NB. A forward command is a forward commands no matter which way it is placed on the reader.



Talk through the process.

Command tiles are placed on the Reader and the 'Go' button is pressed. The tiles are read and the commands are sent to Blue-Bot. Blue-Bot then runs that complete program. If a tile is removed after the green button has been pressed it will still be executed by Blue-Bot as the full set of commands has already been sent.

Repeat the activity from Key Focus 2, but this time using the TacTile Reader.

Remember - use the 'pause' command to break problems down into smaller chunks (decomposition). See Key Focus 1.

Key Focus 4 – Debugging programs using Tactile Reader

This activity focusses on finding issues with programs and fixing them (debugging).

Build on Key Focus 3 by asking children to set each other more complex problems. They might have to travel via or avoid a particular square. Blue-Bot could start from a different place on the mat or face away from its destination.

Once a challenge is given, the children should place the relevant tiles on the Reader. Once they are happy, they should press the green button to test their program. If Blue-Bot does not get to the target destination they should debug their program. They will need to work out where it has gone wrong and fix the issue.

To extend the level of challenge, work in partners. Get one child to set up a program with one deliberate error and ask their partner to work out where the error is. Remind children to make a note of their original program so they can more easily see what has changed.



Key Focus 5 – Reading a program and predicting what will happen

The objective of this activity is for children to look at the tiles placed on TacTile Reader and predict where Blue-Bot will end up.

Using TacTile Reader, a teacher or child should create a program (initially with only a few tiles). Blue-Bot should be placed on the mat in a given position and that position marked. One child or a pair of children should look at the tiles and try to work out where Blue-Bot will get to. Initially it may be useful to point at the tiles and mat to work out where each instruction will move Blue-Bot.

Gradually more tiles should be used and more complex programs created.



Extension Tiles

A pack of extension tiles is available. These tiles allow more complex programs to be created on TacTile Reader.



The example below would make Blue-Bot move forward 1 square, turn 90° right and repeat that 3 times (4 times in total). This would make Blue-Bot move in a square shape.



Technical Support

Please visit www.tts-group.co.uk for the latest product information.

Email feedback@tts-group.co.uk for technical support.

TTS Group Ltd.

Park Lane Business Park,

Kirkby-in-Ashfield,

Nottinghamshire,

NG17 9GU, UK.

Freephone: 0800 318686

Freefax: 0800 137525

© TTS Group 2017