

Tactile Reader Pro Skill Builder Challenges

This set of Skill Builder Challenges can be used to help introduce the Tactile Reader Pro to your pupils.

Each card contains a range of possible activities and can be adapted for use with Rugged Robot, Blue-Bot and Loti-Bot.

Note: Card 4 features the Loti-Bot tiles which can only be used with Loti-Bot.



1. Introducing the Tactile Reader Pro and the Standard Tile Pack.
2. Connecting more than one Tactile Reader Pro (Daisy Chaining)
3. Programming with the Tiles
4. Programming with the Loti-Bot Tiles
5. Debugging

Introducing the Tactile Reader Pro

The Tactile Reader Pro is a screen free device that can be used to program a robot.

It connects to a robot 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.



Examples of the tiles:



Each tile has a blue line at the top of the tile so you know which way round to place them in the Tactile Reader Pro.

Activities:

1. Explore the different tiles you have as commands for your robot. Which tile do you think will make the robot move forwards? Backwards? Left? Right?
2. 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?
3. Connecting to your Tactile Reader Pro - Ensure your robot and the Tactile Reader Pro are both turned on. Press the 'Bluetooth' button on the reader. What do you notice on the Tactile Reader Pro? What do you notice on the robot? How do you know they are connected?
4. Making your robot move. Plan an algorithm and program your robot on the Tactile Reader Pro. 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?
5. Test and try out all the different tiles and create a 'Tile Dictionary' explaining what each one means.
6. Create your own 'User Guide'. Include all the information someone might need, for example, how to connect your robot, the buttons to press and how to use the tiles.

Daisy Chain your Tactile Reader Pro

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.

When you connect them together, one set of buttons remains active for connecting to a robot and starting your program.



Can you spot the problem:



Look at this picture of a daisy chained Tactile Reader Pro.

What do you notice will be the problem?

Hint: look at the tiles

Activities:

1. Connect together two or more Tactile Reader Pro's. What do you notice when you connect them? What changes with the LED lights underneath? Which buttons now work on them?
2. How many commands can you now include for your program?
3. Discuss – what is the benefit of being able to daisy chain more than one Tactile Reader Pro together?
4. With your Tactile Reader Pro's daisy chained together, can you plan a program that uses all the tile windows?
5. What happens if you leave a tile window blank? Try out a program with some spaces – what do you notice?
6. If you have created a 'User Guide', can you now add a new section about how to daisy chain more than one Tactile Reader Pro together? What would be your 'top tips'?

Programming with the Tiles

The Tactile Reader Pro works with a collection of different tiles. Each tile represents a different command. When the tiles are placed into the Tactile Reader and the green 'GO' button is pressed, it sends the commands to the connected robot. You can then watch the robot carry out your commands in the order that the tiles have been placed on the Tactile Reader Pro.



Plan my journey ...

I want to travel:

1 move forward, 1 left turn, 2 moves forward, 1 left turn, PAUSE, 2 moves backward, 1 right turn, 1 move forward.

Can you draw the tiles in the order that they will need to be placed in the Tactile Reader Pro?

Activities:

1. Explore the tiles and familiarise yourself with the meaning of each tile. Create a 'Tile Dictionary', listing the command for each tile.
2. Choose which way round will you be programming with the Tactile Reader Pro. It can be used horizontally or vertically. How will this change how you place the tiles?
3. What is the correct way to place the tiles? Explore – what happens if you place the tiles in the Tactile Reader a different way? Can you create a 'rule' to follow when placing the tiles?
4. Choose a starting position and a destination for your robot. Plan the algorithm and use the Tactile Reader Pro to program your robot to make this journey. Which tiles will you need to use? Test it out on the Tactile Reader Pro. Did your robot make it to the correct destination?
5. **Barrier Game:** Work with a partner. One person must use the Tactile Reader Pro to plan a journey for your robot. Use a screen (or similar) to hide the Tactile Reader Pro from your partner. The second person should watch the robot move and draw the tiles that have been used. Check – do they match? Have another go and swap roles.

Programming with the Loti-Bot Tiles

The Loti-Bot Tile Pack introduces 25 new tiles, These enable you to introduce some of the programmable features of Loti-Bot into your programming.

There are:

- 13x RGB tiles to control and change the colours on Loti-Bot or to turn off Loti-Bot's sidelights
- 8x Sound Tiles to program pre-recorded Loti-Bot sounds
- 4x Headlight tiles which can turn Loti-Bot's headlights on or off



What do the tiles mean?



Look through each of the additional Loti-Bot tiles and create a Tile Dictionary for what they mean.

Activities:

1. Think about the different features of Loti-Bot. Which programmable elements can you control using the Tactile Reader Pro?
2. Combine the Loti-Bot tiles with the other movement tiles to create a program including movement, light and sound.
3. Can you create a Loti-Bot dance routine and program this using the Tactile Reader Pro? *Try combining multiple robots to create a flash mob!*
4. **Barrier Game:** Work with a partner. One person must plan and input a program onto the Tactile Reader Pro. Use a screen (or similar) to hide the Tactile Reader Pro from the other partner. The second person should watch the robot carry out the program and draw the tiles they think have been used. Check – do they match? Have another go and swap roles.

Debugging

You can easily debug any errors in a program 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.



Can you debug this program?

I want to travel 1 move backward, 1 left turn, 1 move backward, 1 move forward, PAUSE, 1 left turn.

This is what I have placed on the Tactile Reader Pro – can you check and debug my program?



Activity:

Debug Challenge: Work in pairs or small groups. Create 'debugging' challenges for your 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.

Can you debug this program?

I want to travel 1 right turn, 1 move backward, 1 move forward, 1 left turn, 1 move forward, 1 left turn, 1 move forward, 1 move backward, 1 right turn and 1 move forward.

This is what I have placed on the Tactile Reader Pro – can you check and debug my program?

