



## **The Parent Guide**

The Basics/Inter/Adv



Although each of the levels cover specific aspects of the National Curriculum for computing, the following objectives are covered across all levels.

### **Links to the National Curriculum for Computing**

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#### **Key Stage 1**

- Uses technology safely
- Understand what algorithms are
- Knows how they are implemented as programs on digital devices
- Knows that programs execute by following precise and unambiguous instructions
- Create simple programs
- Debug simple programs
- Use logical reasoning to predict the behaviour of simple programs
- Recognise common uses of information technology beyond school

#### **Key Stage 2**

- Uses technology safely
- Uses technology respectfully
- Uses technology responsibly
- Debugs programs that accomplish specific goals
- Controls or simulates a physical system
- Solves problems by decomposing them into smaller parts
- Uses logical reasoning to explain how some simple algorithms work
- Detects errors in programs
- Corrects errors in programs
- Designs a range of systems and content that accomplish given goals
- Uses a range of digital devices



## The Parent Guide

The Basics

**LEVEL 1**



### Links to the National Curriculum for Computing

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Uses sequence in programs

### Prompts for Discussion

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What do you think a mind control helmet might look like? What do you think powers it? Try drawing your own mind control helmet and add notes to explain how it works.

### Level Hints

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When you count the number of squares that you need to move your Rabbid forward, don't include the one that it is already standing on!



## The Parent Guide

The Basics

**LEVEL 2**



### Links to the National Curriculum for Computing

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Uses sequence in programs

### Prompts for Discussion

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In this level you will be introduced to parameters. A parameter is the name given to something that can be changed within a code block to change how it works, for example the parameters in the turn block are right and left to change the direction the Rabbid is turning. What are the advantages to using parameters within the turn block rather than having a separate block to turn right and left?

#### Level Hints

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You can turn your Rabbid to the left by using the right turn block three times but this means you need to use extra code blocks and you won't earn 3 stars – make sure you investigate the different parameters that are available in the turn block.



## The Parent Guide

The Basics

**LEVEL 3**



### Links to the National Curriculum for Computing

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Uses sequence in programs

### Prompts for Discussion

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How does the robot work? What instructions can you use with it? Have you got any ideas for adaptations you could make to how the robot works? What would this mean for your code? You should try to use the smallest number of code blocks possible as this reduces the processing requirements and means you need less storage space for the instructions – we call this efficiency – could you make your code more efficient by making an adaptation?

### Level Hints

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Remember that you will need to pick up and then drop the Rabbid in the right location for it to be dropped into the washing machine.



## The Parent Guide

The Basics

**LEVEL 4**



### Links to the National Curriculum for Computing

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Uses sequence in programs

### Prompts for Discussion

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Try acting out the level, how can you complete the level in the smallest number of instructions?

### Level Hints

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This level is pretty tricky, make sure that you spend some time experimenting with how the robot works, especially when you drop the Rabbid, so you can complete the level with 3 stars. It would also be a good idea to investigate whether any of the other code blocks have parameters.



## The Parent Guide

The Basics

**LEVEL 5**



### Links to the National Curriculum for Computing

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Uses sequence in programs

### Prompts for Discussion

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Can you lay out the level? You could use tape to mark out the squares and toys to represent the objects being hoovered up. Pay careful attention to where each object and character is positioned and what this means for the number of instructions the level can be completed in.

### Level Hints

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Don't forget that if you want the robot to move forward after hoovering you will still need to use the instruction to move forward after using the one for hoovering!



## The Parent Guide

The Basics

**LEVEL 6**



### Links to the National Curriculum for Computing

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Uses sequence in programs

### Prompts for Discussion

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If you could add your own additional object to the game level what would it be? What rules would surround it? Can you draw/design how the level would look if the new object was added to the level.

### Level Hints

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Once you have moved the Hoover robot so it has hoovered the first object, the rest of the instructions are the same four instructions repeated three times.



## The Parent Guide

The Basics

**LEVEL 7**



### Links to the National Curriculum for Computing

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Uses sequence in programs

### Prompts for Discussion

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Have a go at designing your own version of this level, what changes would you make? Currently there are two choices of washing machine to send your Rabbid to and complete the game, how could you change the level, so they must use a particular one?

### Level Hints

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You can't just walk through the lasers – use the new block to give that big red button a whack but make sure you are facing it first!





## The Parent Guide

The Basics

**LEVEL 8**



### Links to the National Curriculum for Computing

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Uses sequence in programs

### Prompts for Discussion

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This level is a bit different to the previous ones, try drawing out the level to help you understand how it works.

Think about:

- How does what you do affect other elements?
- Is there a connection, what is it?

### Level Hints

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Although there are two Rabbids in this level you only need to get one into the washing machine. You can use the Rabbids love of food to control their movements.



### Links to the National Curriculum for Computing

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Uses sequence in programs

### Prompts for Discussion

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If you acted out this level what food would lure you into the washing machine? Why not set up your own version of the level with your favorite food to lure you to the destination.

- What is the minimum number of sausages needed to get both Rabbids into the washing machines?
- How would the design of the level need to change to make it possible to complete the level using just one sausage

### Level Hints

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As long as the sausage is in the Rabbids line of sight it can be used to lure the it into the washing machine. Use this information to ensure that the Rabbid moves the maximum number of spaces possible when being lured by a sausage.



### Links to the National Curriculum for Computing

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Uses sequence in programs

### Prompts for Discussion

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Can you spot where the code is repeated in your program? If you had an extra type of block that repeated instructions, it would be possible to make your code more efficient by reducing the number of instructions needed to complete the level. What would this block look like? Draw a solution that uses your new block.

- How much shorter would your code be if you could use your new block?

### Level Hints

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Once you have the first five instructions you can re-use them to complete the level.



## The Parent Guide

Intermediate

**LEVEL 11**



### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs

### Prompts for Discussion

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If the level was set up so the Rabbid had to do an equal number of steps on either side of the turn you could complete the level using just 4 blocks – can you work out how it's possible to do this? Try drawing or acting out the level to help you think about your solution.

### Level Hints

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Although it's possible to complete this level without using the new repeat block doing it that way will not earn you three stars. Experiment with working out how to complete the level and then see what instructions you need to repeat and how many times. To repeat instructions you need to put them inside the repeat block and then set the parameter for how many times you want them to be repeated.



## The Parent Guide

Intermediate

**LEVEL 12**



### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs

### Prompts for Discussion

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The introduction to this level talks about 'optimizing' your program - what do you think this means? Do you think this is linked to making your code more efficient? How?

### Level Hints

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To find the solution for this level begin by working out the full sequence of instructions that you need to use to reach the washing machine. Once you have this reduce the number of instructions by working out which ones are being repeated and how many times. Finally, replace these instructions with a repeat block.



### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs

### Prompts for Discussion

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What are the 'rules' for sucking a Rabbid into a washing machine? How close do they need to be? Do they need to be facing a certain direction? Can you design a flowchart (a special type of diagram) to explain how the washing machines work?

### Level Hints

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What happens if a Rabbid runs past a washing machine in its quest for a sausage? Experiment with laying sausages to find out!



### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs

### Prompts for Discussion

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There are several possible routes – how could you work which is the shortest? Counting the squares?

- What's the simplest route to write the code for? Is it the shortest?
- Shortest in terms of squares – or code blocks?
- Can you find a three-star solution for both routes?

### Level Hints

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This level may not be what it seems, navigating the shortest path may not require the smallest number of code blocks. It's always worth experimenting - sometimes you can include instructions inside a loop that don't actually move the Rabbid when part of the loop is running. Try repeating a single step forward for more steps than is needed.



## The Parent Guide

Intermediate

**LEVEL 15**



### Links to the National Curriculum for Computing

Uses sequence in programs  
Uses repetition in programs

### Prompts for Discussion

The goal for this level is to solve it in 7 blocks but it is possible to solve this level using 6 blocks. Why is it possible to solve the level using 6 blocks? Using this technique means some blocks are never used – does this matter?

### Level Hints

Once again it is possible to clear this level without using the repeat block, but you will not earn three stars. Once you have the long sequence of instructions needed to complete the level identify the ones that are being repeated and how many times you repeat the sequence.





### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs

### Prompts for Discussion

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What is happening in this scene? Can you predict what the big rabbit is for?  
How many ways can you find to solve this level. Try varying the code to see if you can get it to work but reduce the number of blocks – multiple routes can be taken, which one is the most efficient?

### Level Hints

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You can traverse the room using a similar technique to the one you used to solve level 12.



### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs

### Prompts for Discussion

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Can you design your own level that uses a loop (this is what we call repeated instructions in programming) in a similar way to this level?

### Level Hints

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Once you have worked out the instructions needed to bash one button, work out how to reset the Rabbid ready to bash the next one, then use the repeat block to repeat all the instructions four times!



### Links to the National Curriculum for Computing

Uses sequence in programs  
Uses repetition in programs

### Prompts for Discussion

You have two new blocks to use for this level

- Have a look at a picture of the blocks
- How do you think these blocks will work?
- Read the description at the beginning of the level. What does this mean?
- Can you think of any examples in your everyday life, where carrying out an action is dependent on criteria being met?
- {parent example: IF it is raining THEN take an umbrella}



### Level Hints

You will need to use the new IF block and a condition block in order to complete this level within the target number of instructions. The new IF and condition blocks can be used inside a repeat block.



### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs

### Prompts for Discussion

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Rather than programming the robot hoover using a sequence of simple instructions, this level requires you to use logic. This means that you need to think about the conditions in which the robot needs to move.

- What are the advantages of writing your program using conditions rather than using simple instructions?

### Level Hints

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The way you tackle this level is a bit different to the ones that have come before. Start by considering all the conditions you could use in IF blocks to move around the path, including the turns that you need to make. There are different parameters you can use for the condition block – make sure you investigate them all. Look carefully at the path, where do you need to turn right or left – do you notice a condition you could use to control these movements?



### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs

### Prompts for Discussion

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The type of logic that you have been using is called Boolean logic. The outcome of conditions that use Boolean logic are always either TRUE or FALSE. For example, the Rabbid can move forward, TRUE or FALSE? If the result of the condition is TRUE then the code will be run, if it isn't the program skips to the next instruction.

- Draw out level 20 and then trace your way around the path, considering what the result of each condition will be as you move around

### Level Hints

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Think about the condition that needs to be checked on each square, and what should happen if this condition is not TRUE.



### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs  
Uses selection in programs

### Prompts for Discussion

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This level introduces a new condition that you can use in your IF block – one that will allow you to program the Rabbid based on the colour of the square it is standing on. If you could design your own condition what would it be?

- Design the code block for your new condition
- Create your own version of the level on paper and solve it using your new condition

### Level Hints

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Look carefully at the level and work out what the Rabbid should do on the orange square. Turn this into a condition and then work out how you will code it.



### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs  
Uses selection in programs

### Prompts for Discussion

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Experiment with using loops within loops (putting a repeat block inside another repeat block), in programming we call this technique a nested loop.

- Why might using nested loops make your code more efficient

### Level Hints

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This is no reason why you shouldn't Hoover on every square.



### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs  
Uses selection in programs

### Prompts for Discussion

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This level has an equal number of squares on each side of the path. Would your code still work if the number of steps was not equal?

- Draw a new version of the level
- Experiment with how your code would need to change to complete the level

### Level Hints

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You are not limited to only using movement code blocks within an IF block – experiment with using other code blocks which will run when the condition is true. You will also need to use a nested loop to get three stars on this level.





### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs  
Uses selection in programs

### Prompts for Discussion

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Currently the level is shaped like a letter U. Draw out a new version of the level, joining the paths together at the top so the path is a square. How would your code need to change if the objective was to make the Rabbid walk all the way around the path once and return to its starting position?

### Level Hints

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Look carefully at the location of the big red buttons and the colour of tile they are next to.



## The Parent Guide

Expert

LEVEL 25



### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs  
Uses selection in programs

### Prompts for Discussion

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In Computer Science terminology we call the new block a while loop because WHILE the condition is TRUE the code inside it will continue to run. This type of loop can also cause infinite loops, when the loop never stops running. Can you add a condition to your while loop block that creates an infinite loop? Why might you want to avoid creating these in your programs?

### Level Hints

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You will need to use the new while loop block nested inside a count-controlled loop block.



### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs  
Uses selection in programs

### Prompts for Discussion

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This level introduces more Computer Science terminology – negation. The new condition block checks whether the condition that the levels objectives have been met is equal to TRUE. There is a second parameter in this block that checks that the condition that the levels objectives have NOT been met is equal to TRUE. It is the second parameter that uses negation. Why do you think this might be particularly useful for programming your Rabbids?

### Level Hints

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This level introduces a new condition to use inside your while and if blocks. Make sure you have had a look at the different parameters available for this condition block.



### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs  
Uses selection in programs

### Prompts for Discussion

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Sometimes the order of execution is really important in a program (this means the order that the instructions are run in). Experiment with putting the instructions in different orders and see what happens. Why do you think this is?

### Level Hints

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You will need to use two IF blocks – one to control movement and one to control what the robot hoovers up. Think carefully about the order that you want the instructions to be run in. You might also want to investigate the parameters in the new condition block.



### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs  
Uses selection in programs

### Prompts for Discussion

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If the new condition block which checks to see if the condition 'can see a Rabbid' is TRUE was used in a real robot it would need to use a sensor. Sensors are digital versions of our human senses (hearing, sight, smell, touch), do you know the names of any sensors? Which one do you think the robot in Rabbids Coding! might use?

### Level Hints

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Make sure you check out the parameters for the new condition block. Think about when the Rabbid needs to be grabbed and when it should be released. This level also requires you to think about the order of execution.



### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs  
Uses selection in programs

### Prompts for Discussion

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The new block for this level is the IF THEN ELSE block. Like the IF block, this block lets you set the code that will be run if a condition is TRUE but it also lets you write the code that will be run if the condition is FALSE. Why is this new block useful? How could this be used to help make your code more efficient?

### Level Hints

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Remember that the result of the condition being checked on a square might change as your program is being run. For example, if you hover up an object on a square the result of the condition 'square contains an object' changes from TRUE to FALSE.



## The Parent Guide

Expert

**LEVEL 30**



### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs  
Uses selection in programs

### Prompts for Discussion

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There are times that you shouldn't use an IF THEN ELSE block as using a basic IF block will be more efficient. Why is this? Can you find an example in this level to help you explain this?

### Level Hints

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This is another level where the order of execution is important – think about what movement conditions should be checked before giving the instruction to move forward.



### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs  
Uses selection in programs

### Prompts for Discussion

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If you extended the size of the board for this level would your code still work? The original board is 5 X 5 squares, what happens if you increase the board to 10 X 10 squares? Does your code work? Why? Could you write your code so it only works with one size board?

### Level Hints

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Think about what movement conditions you will need to use to ensure the robot moves over every square on the level.





### Links to the National Curriculum for Computing

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Uses sequence in programs  
Uses repetition in programs  
Uses selection in programs

### Prompts for Discussion

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This is the final level; next you will move onto a sandbox where you can experiment with different code ideas. Why not set a challenge based on this sandbox level – for example, can you work out how many ways you can write the code needed to collect all the toilet rolls?

### Level Hints

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Make sure you think about the order that the code needs to be executed in. Your Rabbid cannot walk through the laser beams so if your code executes a step forward before the button has been pressed you might have bit of a problem!