Puzzle Pack 2
Notes for Kids

About this guide

This guide is for children working with Code Kingdoms independently. It provides some helpful hints and guidance for completing puzzles.

What you will learn

Completing these puzzles will teach you about:
- Constant parameters in functions
- Changing values
- Programs – how to run, check and change programs
- Algorithms – logical reasoning and judging if the algorithm is the correct one

Resources

This project requires the use of Code Kingdoms, which is best used in Google Chrome. You can find the website at codekingdoms.com/codeclub

Challenges

Back on Track — Manipulate values for BoostPads to create a maze puzzle

Over the Hill — Code a catapult puzzle to fling characters across the screen

**Pathfinder** — Code a more complex maze puzzle with multiple BoostPads

Glitch-apult — Code multiple catapults to fling Glitches around the screen

Frequently Asked Questions

Q. What other help is there for the player?

    a.   To help visualise what a puzzle should look like, players can click on the Question Mark icon to see a completed version.

    b.   If a player is unsure which steps of the puzzle they have completed or what still needs doing, they can click on the checklist icon to see a list of the required steps.

Q. What is the purpose of building puzzles?

    a.   Building puzzles is a defence against invading Glitches. The puzzles, however, must be solvable by friendly animals so they can move freely around your kingdom. Glitches aren't very clever so if a puzzle is coded well they are unlikely to be able to solve it. The general rule is if an animal tester can bypass a puzzle piece (e.g. catapult) to reach the checkpoint then a Glitch will easily get past the puzzle.

Back on Track

Constant parameters in functions   Changing values   A3   E2

YA1   YP2   PA2   PP3

Description
Back On Track introduces the player to BoostPads and the ability to change direction values. These BoostPads have a single arrow and will move characters one square.

Design Tip
Use the water block to turn the puzzle area into a big lake before starting to design the path across it. This will make it easier to plan a route that works with the BoostPads.

Questions to consider before starting

1 What puzzle objects do you need to use for this puzzle?

2 What code should be given to the puzzle objects?

3 Where can you place your puzzle objects to make it harder for Glitches to solve?

4 Do you know what all the puzzle objects do?

Steps to complete

1 What should the lake and the path across it look like? Use the Question Mark icon to help you.

2 Where should the BoostPad be placed? Which direction should it be facing?

3 Where should the Blue Button be placed?

4 What should happen to the BoostPad when the Blue Button is pressed down? What code will cause this to happen?
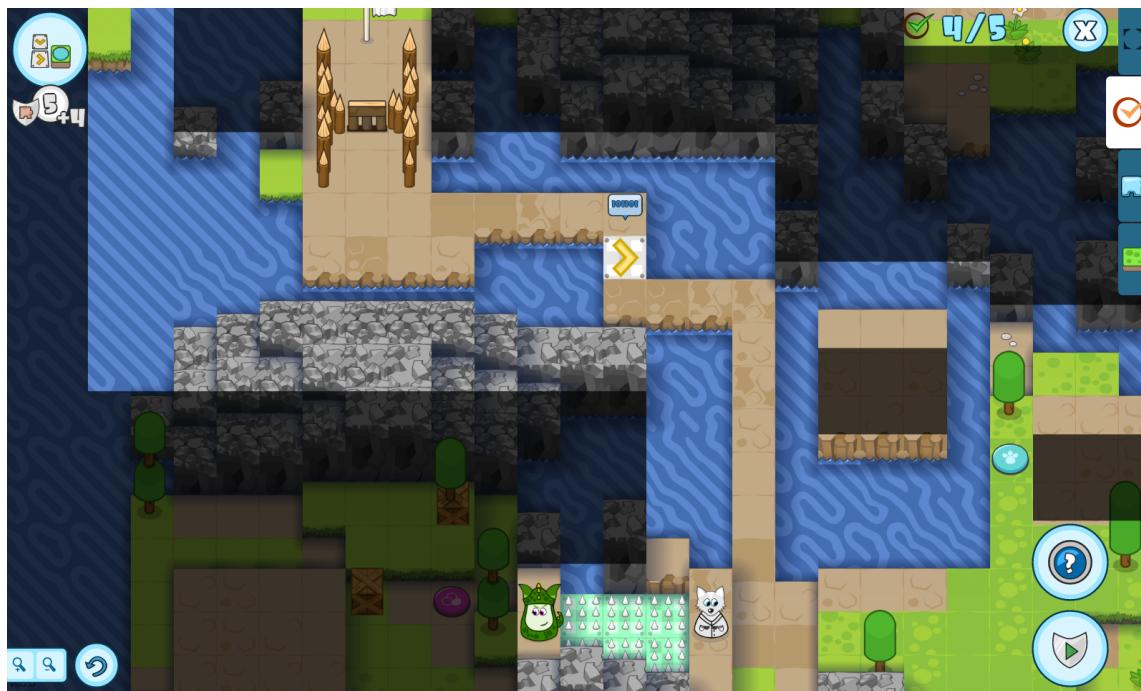
5 Can the tester solve your puzzle?

Helpful Guidance

To correctly build this puzzle you need to code the Blue Button so that when it is pressed down:

- the obstacle is solved
- the BoostPad changes direction to allow the tester to pass

Over the Hill

Constant parameters in functions   Changing values   A3   E2

YA1   YP2   PA2   PP3

Description
Over the Hill introduces the player to catapults and also gives more practice in changing values.

Design Tip
These catapults will fling characters three squares. This value can't be changed for this puzzle.

Questions to consider before starting

1 What puzzle objects do you need to use for this puzzle?

2 What code should be given to the puzzle objects?

3 Where can you place your puzzle objects to make it harder for Glitches to solve?

4 Do you know what all the puzzle objects do?

Steps to complete

1 What should your hill look like? Where should it be built?

2 Where should your catapult be placed? Which direction should it be facing?

3 Where should the Blue Button be placed?

4 What should happen to the Catapult when the Blue Button is pressed down? What code will cause this to happen?

5 Can the tester solve your puzzle?

Helpful Guidance

To correctly build this puzzle you need to code the Blue Button so that when it is pressed down:

● the obstacle is solved

● the Catapult changes direction to fling the tester over the hill

Pathfinder

Constant parameters in functions   Changing values   A3   E2

YA1   YP2   PA2   PP3

Description
Pathfinder is a little bit more difficult than the BoostPad puzzle created in Back on Track. The double BoostPads will move characters until they collide with another object so this puzzle needs to be designed more carefully.

Design Tip
Use the water block to turn the puzzle area into a big lake before starting to design the path across it. This will make it easier to plan a route that works with the BoostPads.

Questions to consider before starting

1 What puzzle objects do you need to use for this puzzle?

2 What code should be given to the puzzle objects?

3 Where can you place your puzzle objects to make it harder for Glitches to solve?

4 Do you know what all the puzzle objects do?

Steps to complete

1 What should the lake and the path across it look like? Use the Question Mark icon to help you.

2 Where should the BoostPads be placed? Which direction should they be facing?

3 Where should the Blue Button be placed?

4 What should happen to the BoostPads when the Blue Button is pressed down? What code will cause this to happen?
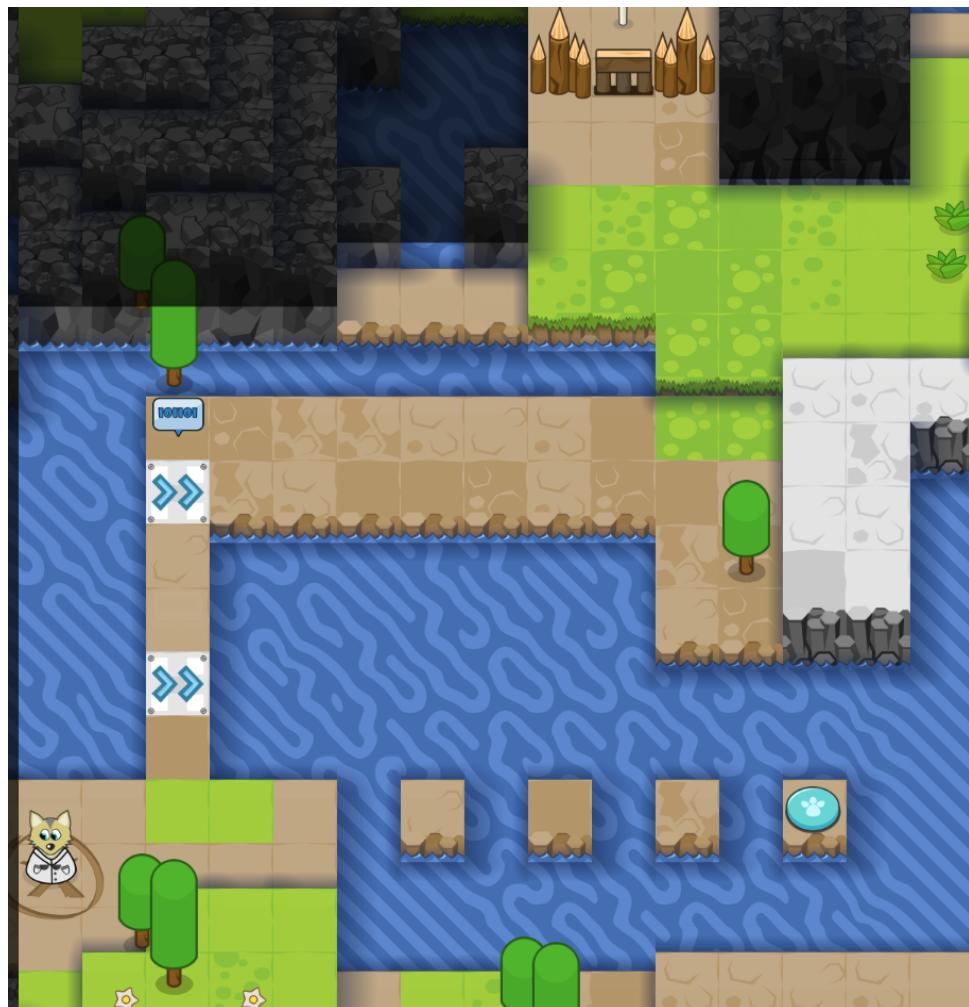
5 Can the tester solve your puzzle?

Helpful Guidance

To correctly build this puzzle you need to code the Blue Button so that when it is pressed down:

- the obstacle is solved
- the BoostPads change direction to allow the tester to pass

Glitch-apult

Constant parameters in functions   **Changing values**   A3   E2

YA1   YP2   PA2   PP3

Description
Glitch-apult is similar to Over the Hill but you will have to think about the design a bit more. Players should use three catapults to fling the tester around the puzzle area so they can reach the checkpoint.

Design Tip
The catapults in this puzzle have distance values that can be changed giving the player greater freedom when designing the puzzle.

Questions to consider before starting

1   What puzzle objects do you need to use for this puzzle?

2   What code should be given to the puzzle objects?

3   Where can you place your puzzle objects to make it harder for Glitches to solve?

4   Do you know what all the puzzle objects do?

Steps to complete

1 How many islands do you need to build? Use the Question Mark icon to help you.

2 Where should the three catapults be placed?

3 Where should the Blue Button be placed?

4 Which direction should each Catapult be facing when the Blue Button is pressed down? What code will cause this to happen?

5 How far does each Catapult need to fling the tester? What code will cause this to happen?

6 Can the tester solve your puzzle?

Helpful Guidance

To correctly build this puzzle you need to code the Blue Button so that when it is pressed down:

- the obstacle is solved
- the Catapults change direction to fling the tester to the next island
- the Catapults fling the tester the correct distance to reach the next island