

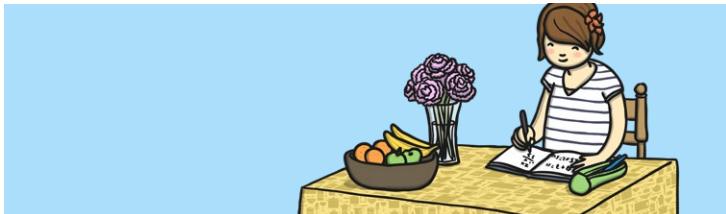
Introduction

This unit introduces children to programming with Kodu, a simple visual programming language made specifically for creating games. The distinguishing features of Kodu are visual icons that are added together like building blocks to form instructions and game environments constructed by the user in a 3D scene editor. It is designed to be accessible by children and enjoyable by anyone. As well as on PC, Kodu is also available via Xbox 360, which adds appeal for many children. If you are unfamiliar with Kodu, then a useful starting point are the sample games and tutorials that are provided as 'Built-in Worlds'. Each sample game is editable so after playing, they can be opened up to see how they work.



Health & Safety

General safety in using a computer and e-safety rules, particularly when accessing the Internet. Encourage good posture when sitting at the computer.



Home Learning

Football Game: Children are set the challenge of creating a football game using Kodu. The first part can be done without the need for a computer by planning and writing algorithms. The second part requires a computer with Kodu Game Lab installed to turn the algorithms into working code.

Kodu Beginner's Guide: Children are challenged to write a beginner's guide to Kodu, aimed at the year group below them, i.e. a slightly younger audience than themselves.

Assessment Statements

By the end of this unit...

...all children should be able to:

- Open Kodu and navigate the programming environment using keyboard or mouse.
- Add objects to a world and program them using When and Do instructions.
- Plan and design the features of an original virtual environment.
- Program a character to move around a track.
- Create a path for a character to follow.

...most children will be able to:

- Follow instructions given in the Kodu programming environment.
- Describe the actions of a sequence of Kodu commands.
- Use tools to change the size of the ground and raise or lower the landscape.
- Decompose code into smaller parts and explain it in their own words.
- Create a race track with an end goal for a game.
- Program a character to follow a path.

...some children will be able to:

- View existing code and explain how it works.
- Create unique worlds with particular attention to detail in the addition of appropriate objects.
- Use ideas from existing codes to adapt and write their own programs.
- Edit and refine a race track design to improve playability.
- Adjust character and path settings to create an appealing game.

To look at all the resources in the Kodu unit [click here](#).

To find out more about PlanIt download our [free guide here](#).

Lesson Breakdown

1. Code Investigator

Select, use and combine a variety of software, including evaluating and presenting data and information. Use logical reasoning to explain how some simple algorithms work.

Children are introduced to Kodu software as a programming environment and evaluate its features and how it works.

- I can investigate and evaluate the features of programming software.

2. When and Do Instructions

Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Children are introduced to Kodu as a programming environment and learn how to write simple instructions using the basic Kodu format.

- I can program Kodu using 'When' and 'Do' instructions.

3. Creating Worlds

Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.

Children design a new virtual landscape for a computer game, first on paper then adapting the features of Kodu to create the world in the computer programming environment.

- I can use tools and add features to create an original landscape in Kodu.

4. Deconstructing Code

Solve problems by decomposing them into smaller parts. Use logical reasoning to explain how some simple algorithms work.

Children are provided with code to analyse and explain what it is intended to do, through logical reasoning. The code can then be input to be tested.

- I can analyse and deconstruct code to work out its purpose.

5. Race Track

Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.

Children design their own race track in Kodu and program a character that they can control around the track from a start point to a finish.

- I can program a character to be controlled around a custom track to reach a goal.

6. Racing Game

Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.

Children develop their existing games from the previous lesson by adding opponent(s) and programming to automatically follow a path, creating a racing game.

- I can program a character to follow an automatic path.

Resources

- Kodu Game Lab software installed



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