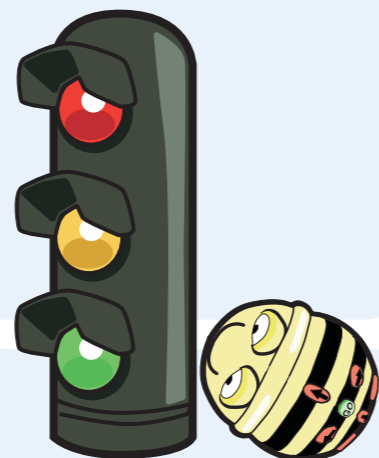


Control

Levelled Examples



Context:

The children worked individually to develop a control system for a car park barrier using Flowol and an on-screen car park mimic.

What the children did:

Children used Flowol to create sequences of instructions. They tested and refined their instructions to develop a working car park barrier. This included the use of a sensor, a counter and sub-routines.



What the children said:

What time delay do we need to allow the car to go through?

We could add a loop to make the sequence shorter.

Pupils should:

- I know how to change instructions to make a device work more efficiently.
- I can solve a problem by testing and refining a sequence of instructions.
- I can use sub-routines as part of a control system.

Next steps:

Create efficient sequences of instructions including the use of sub-routines.

Suggested resources:

Mission maker, Scratch, Game maker, Logo, Flowol, NXT, Crocodile clips, Go Robo, Legodacta

Example Cross Curricular Activities:

- Develop a sequence of instructions to operate an automatic barrier to a theme park allowing a vehicle to pass safely through (DT).
- Create a program that loops continuously, emitting a sound every time the touch sensor on a door is released but no sound when the sensor is pushed in (DT).
- Program a system that continuously checks to see if light is below a particular level and if it is, turns a light on and if it is not, turns a light off (DT / Science).
- Move a floor robot around along a route marked on the floor using a light sensor (DT / Science).
- Control conditions within a greenhouse using sensors to maintain the temperature level within a specific range (Science).

Attainment target for ICT

Level 4
Pupils understand the need for care in framing questions when collecting, finding and interrogating information. They interpret their findings, question plausibility and recognise that poor quality information leads to unreliable results. They add to, amend and combine different forms of information from a variety of sources. They use ICT to present information in different forms and show they are aware of the intended audience and the need for quality in their presentations. They exchange information and ideas with others in a variety of ways, including using email. They use ICT systems to control events in a predetermined manner and to sense physical data. They use ICT based models and simulations to explore patterns and relationships, and make predictions about the consequences of their decisions. They compare their use of ICT with other methods and with its use outside school.

Level 5
Pupils select the information they need for different purposes, check its accuracy and organise it in a form suitable for processing. They use ICT to structure, refine and present information in different forms and styles for specific purposes and audiences. They exchange information and ideas with others in a variety of ways, including using email. **They create sequences of instructions to control events, and understand the need to be precise when framing and sequencing instructions.** They understand how ICT devices with sensors can be used to monitor and measure external events. They explore the effects of changing the variables in an ICT based model. They discuss their knowledge and experience of using ICT and their observations of its use outside school. They assess the use of ICT in their work and are able to reflect critically in order to make improvements in subsequent work.

Level 6
Pupils develop and refine their work to enhance its quality, using information from a range of sources. Where necessary, they use complex lines of enquiry to test hypotheses. They present their ideas in a variety of ways and show a clear sense of audience. They develop, try out and refine sequences of instructions to monitor, measure and control events, and show efficiency in framing these instructions. They use ICT based models to make predictions and vary the rules within the models. They assess the validity of these models by comparing their behaviour with information from other sources. They discuss the impact of ICT on society.