CONTROLLING DEVICES

SCHOOL: Simonswood

PHASE: Primary

KEY STAGE & YEAR: KS2/Yr5

CURRICULUM AREA: ICT

LINKS TO PLANS/NC: QCA 5E, CLC aims: 2, 3, 8 Obj: 9, 12, 14, EiC/CLC: SO2, 4/FA1
ICT Strategy: CLA 1, 4, 6, EL 1, 2, ED 1, 5, 6, FS 1, 3
EDP2 1a, b, c, d, 4, 6, 7

DURATION: 1 Day

LEARNING OBJECTIVES

Children should learn:

- that devices can be controlled through direct instruction
- that a control box and software can be used to control an output device
- to use simple procedures to control more than one output device
- to use simple control language to activate multiple devices concurrently
- to control output devices by building a sequence of events to solve a problem
- to create a sequence of instructions which can control a number of output devices

BRIEF

This activity encourages children to learn how to control simple devices, such as motors and lights using basic control boxes. They learn how to control devices by turning them off and on using a set of instructions. Children use a variety of equipment including Control Lasy, Aibo robotic dogs and remote control aircraft. Using the equipment detailed, children are given the opportunity to understand how to sequence a set of instructions to get a desired outcome in a wide range of different 'control technology' environments.

DESCRIPTION

This activity is supported by a variety of tasks, some which are teacher led, some led by specialist staff within the Centres and some led by the children in groups. The tasks contain a combination of ICT and non-ICT work.

Activity One – Children discuss where they come into contact with computer control everyday.

They give examples of both single instruction and sequence instruction systems that they have encountered on there way to the Centre egs include the automated security gate activated by a single action ie pressing a button and the door entry system as single instruction and the pelican crossing as a sequence of instructions example. Children are given the opportunity to experiment with 'single instruction' equipment such as the 'Robot Wars' and remote control cars and use the Aibo robotic dogs to demonstrate the concept of a system that operates from a sequence of instructions by playing 'paper, stone and scissors'.

Activity Two **–** Using the Lasy Control kit, children learn how to control a simple device using direct instructions. The learn to use the 'on', 'off', 'flash', 'repeat' and 'sound ' commands.

Activity Three – An opportunity to learn to control more than one device by setting up a simple traffic light/pelican crossing sequence. Initially the children story board the process in pairs to demonstrate the lights before during and after the button has been pressed. Each pair then programs the traffic light sequence on the computer and tests it's validity. Once tested, the groups 'repeat' the sequence several times. The teacher then introduces a series of what if statements to the situation ie what happens at a junction with more than one set of lights?

Activity Four – This involves an element of problem solving ie building a sequence of events to solve a problem. The children program the school heater to come on and off at specific times of the day. The children then modify the events to incorporate breaks. In pairs they are required to make predictions on what happens as they make their changes. The teacher leads a discussion on whether control technology is always beneficial eg when things go wrong.

Activity Five –The children create a sequence of instructions which can control a number of output devices eg an advertising display using coloured lights and sounds. Each pair story boards three different sequenced displays and compares the differences. They then program their sequences and where necessary edit their instructions to modify the outcomes.

To reinforce the concept of control technology, children are engaged in 'fun' activities throughout the day during breaks and lunchtime including 'Robot wars competitions on the Play station 2, using remote control cars and aircraft, programming the robotic dogs and RoboScout – a robotic 'Man Friday'.

OUTCOMES/EVALUATION

Children were able to take away printed and photographic evidence of the work that they had covered. The children covered the elements required for QCA Unit 5E.