

# Examples of Level 3 Work in ICT

## Level 3

Pupils use ICT to save information and to find and use appropriate stored information, following straightforward lines of enquiry.(1) They use ICT to generate, develop, organise and present their work.(2; 3; 4) They share and exchange their ideas with others.(3) They use sequences of instructions to control devices and achieve specific outcomes.(2) They make appropriate choices when using ICT-based models or simulations to help them find things out and solve problems.(2) They describe their use of ICT and its use outside school.(3; 4)

### Web challenge (1; 2)

#### Key Stage 2 Year 6

The pupils used the web to find information and answer a series of questions set by the teacher. They presented their findings using desktop publishing software.

Working in pairs, the pupils had 70 minutes in an ICT suite to complete the task. They used the search features of a number of different search engines, having identified key words in the 'challenge' questions. They then investigated likely hits to find their answers.

They copied pictures from the web and composed their own text from information found on websites.

### Lung capacity investigation (1; 2)

#### Key Stage 2 Year 5

The pupils carried out a series of investigations in science. The investigations involved the class measuring and recording the lung capacity, height and weight of different pupils.

The teacher reminded the class, through a brief demonstration, how to use ICT to draw graphs. Then the class discussed the range of charting options available in the software, including scatter graphs and best-fit lines.

Next, the pupils tested the hypothesis 'The more you weigh, the more air you can fit in your lungs.' They entered data in a spreadsheet and produced a variety of graphs to help them with their investigations.

They entered their records into a spreadsheet and produced charts. Finally, they annotated their charts, drawing conclusions about the hypothesis.

### Day trip planner (1; 2; 4)

#### Key Stage 2 Year 5

The pupils used a spreadsheet model to help plan a day trip to a tourist attraction.

As a class activity, the teacher and the pupils devised a spreadsheet model. The teacher asked the pupils to consider what information might be required to plan a day trip. The pupils suggested a variety of destinations and recognised that they would need to include the cost of entry and the cost of transport in the model. Pupils were taught how to enter labels and data into the spreadsheet. In order to introduce a number of variables, the teacher explained that coach hire involved a fixed cost and a variable cost depending on mileage. The teacher encouraged the pupils to help identify the formulas needed in the model.

In order to use real information, the teacher demonstrated the use of a search engine to find out the cost of entry to a popular theme park. Additionally, the pupils were shown how to use an on-line route planner to establish the mileage from the school to the park.

The pupils entered information into the spreadsheet. The class experimented with entering and editing data in the model and noted the changes on the cost for each pupil.

Later, the pupils were given opportunities to use the web to find the entry charges to other tourist attractions. They used the route-finding software to establish the distance to each venue.

They entered new data into the model. The teacher suggested a number of changes to the day trip plans so that pupils could explore different scenarios using the spreadsheet. Some pupils were asked to develop the spreadsheet to include additional information such as discounts for group bookings.

## **Alphabet designer (1; 2)**

### **Key Stage 2 Year 4**

As an introduction, the pupils were given opportunities to revisit activities from unit 2D of the QCA scheme of work. They were asked to program a floor robot to draw the letter 'N' on a large sheet of paper. They recorded the steps taken to complete the task on a worksheet.

Later, the teacher demonstrated to the class how to undertake a similar task on a computer, using the programming language LOGO. The pupils were taught how to enter LOGO instructions using the keyboard. They discussed the need for accuracy in their instructions, and considered similarities and differences between using the floor robot and a screen turtle.

The pupils created a series of instructions to draw on-screen letter shapes. Later, they learnt how to name and create simple procedures.

As an extension activity, some pupils learnt how to create shapes by using the 'REPEAT' instruction.

## **Materials database (1; 2)**

### **Key Stage 2 Year 5**

The teacher asked the pupils to help construct a database to store and interrogate information from a science and technology project examining the properties of materials.

As part of a science project, the pupils devised a series of investigations exploring the different properties of a variety of fabrics. To record their findings, the class devised a data-collection sheet. Through discussion, they agreed the format of the sheet. It included the use of yes/no fields and numeric fields.

The pupils went on to carry out the investigations and recorded their findings using the data-collection sheet.

Later, the teacher showed the pupils how to enter data into the database. The teacher discussed the need for consistency and accuracy, setting up a verification process. This involved each pupil entering one record and checking another record.

In a subsequent lesson, the teacher created a number of design scenarios. The pupils identified the best materials for a range of products such as waterproof gloves, a tea cosy and a hood for a baby buggy. The pupils used the scenarios as a basis for interrogating the database.

The teacher taught the class how to turn 'everyday' questions into a form suitable for use with the database. For example 'I need a material that is waterproof and transparent' needed to be translated as 'Waterproof = YES AND Transparent = YES' to search the database.

The pupils interrogated the database, identifying suitable materials for a variety of design problems.

## **Traffic lights (2)**

### **Key Stage 2 Year 5**

The teacher showed the pupils a control box and taught them how to plug light bulbs into output sockets.

The teacher demonstrated how the light could be switched on and off using a control language. As a class activity the teacher and pupils developed a procedure to make the bulb flash at different speeds.

The pupils had previously observed and recorded the sequence and duration of events at a set of traffic lights.

The pupils made a model of the traffic lights and created a set of instructions to mimic the sequence of lights they had observed. They used the records of their observations as a starting point for their own instructions. Together the class explored which instructions they may have to use, before breaking into groups to undertake the task.

Later, the teacher showed the pupils how to test their procedure and how to make changes to the length and sequence of each event. Where necessary, the pupils amended their instruction to reach the intended outcome. The pupils required varying degrees of support to complete the task.

As an extension activity, some pupils created instructions for other devices and different scenarios.

### **Repeated patterns (3; 4)**

#### **Key Stage 2 Year 4**

The teacher taught the pupils to manipulate images using ICT. They used a range of tools to develop an image, making use of repeated patterns.

The teacher made a collection of items decorated with repeated patterns. It included fabrics, wrapping paper and packaging. The teacher had examples of work by William Morris and a number of Islamic patterns.

The teacher demonstrated the use of a graphics package, showing the pupils how to design a motif and how to copy and paste the motif in order to create a pattern. During the demonstration, the teacher gave a running commentary about her choices, using the UNDO button to go back a step when appropriate.

She showed the class how to select and flip images. She talked about features of patterns such as visual rhythms and drop patterns. She demonstrated the use of SAVE AS to save different versions of her image.

Later, the pupils applied the techniques to create their own 'wrapping paper' or fabric design patterns. The teacher reminded the pupils to save versions of work. They selected and printed out three different images showing the development of their ideas.

The teacher gave the class opportunities to talk about their images, the reasons for their choices and how ICT had helped them to complete the task.

### **Elgin Marbles (3)**

#### **Key Stage 2 Year 6 (levels 3 & 4)**

The pupils undertook an investigation using the web and then used presentation software to create a multimedia presentation on the Elgin Marbles.

As a stimulus for the lesson the teacher held up a bag of marbles, saying they were the 'Elgin Marbles'. The pupils were given some time to search the web to find out all they could about the Marbles.

It quickly became apparent to the pupils that there was a mismatch between the information they were finding on the web and the information that they had been given at the start of the lesson.

The class came together to discuss what they had found. They used a flip chart to note the key points. The teacher gave the class some additional information about the Marbles and explained that there were two conflicting points of view about the future of the Marbles. The pupils went on to search for additional information that reflected both points of view.

In a subsequent lesson, the pupils were taught how to refine their searches using 'AND' and 'NOT'. The teacher taught pupils how to cut and paste text, and how to save images from websites.

The pupils continued to search the web, cutting and pasting appropriate texts and images from websites.

Later, the pupils were asked to examine the information. To encourage pupils to engage purposefully with the information, the teacher asked them to use a presentation package to present two points of view. This would encourage the pupils to synthesise and summarise their work, using bullet points and illustrations.

In a later lesson, the pupils developed their presentations, combining pictures, text and sound. These were shown to other classes. The pupils were encouraged to respond to feedback and amend some of the less effective aspects of their presentation.