Unit 1A An introduction to modelling

ABOUT THE UNIT

In this unit children learn that a computer can be used to represent real or fantasy situations. They understand that the representation is not an exact replica of the original. They discuss the main differences and similarities between a representation and the original. They create their own representations of real or fantasy situations.

Children should be able to apply what they have learnt in this unit when exploring adventure programs or simulations.

WHERE THE UNIT FITS IN

This unit builds on previous work with a range of ICT resources. These might include a painting program or a word processor that allows pictures to be imported.

The unit assumes that children:

- have sufficient mouse control to select and drag using objects and tools
- have used a simple objects-based graphics program to communicate information
- have used a simple painting program to create pictures.

TECHNICAL VOCABULARY

- representation/model
- stamp/motif

RESOURCES

- object-based graphics package, *eg 'My World'* with screens which represent real or fantasy situations
- simple adventure game/s
- painting program with stamps or motifs
- clip art

EXPECTATIONS

at the end of this unit

most children will:	understand that a computer can represent real or fantasy situations and that these do not replicate the original exactly; know that simple adventure games also represent real or fantasy situations; create a simple representation of a real or fantasy situation using either an objects-based graphics program or a painting program
some children will not have made so much progress and will:	use software, including a simple adventure game, that represents a real or fantasy situation; create a simple representation of a real or fantasy situation with help
some children will have progressed further and will:	use a variety of software, including adventure games, to represent real or fantasy situations and identify similarities and differences; explain their decisions/choices

LEARNING OBJECTIVES	POSSIBLE TEACHING ACTIVITIES

SETTING THE SCENE

CHILDREN SHOULD LEARN

- **key idea:** that computers can represent real or fantasy situations

◆ Show children a screen for dressing the teddy. When using the computer ask children if they would put the clothes on in the same manner as they would dress a real teddy. Demonstrate the difficulties in dressing a real teddy, *eg how the clothes have to be fitted over legs and arms.* Compare this with dressing the teddy on screen where clothes can be positioned easily.

◆ Ask the children what would happen if they tried to hide a teddy under a mat or behind a picture. Show them alternative screens and discuss whether they are good representations of reality.

SHORT FOCUSED TASKS

- **key idea:** that a computer representation allows the user to make choices and that different decisions produce different outcomes
- **technique:** to use a mouse to move and place items accurately on a screen

◆ Demonstrate a selection of screens where children need to make choices for a particular purpose, *eg picking a football strip, choosing appropriate clothes for a sporting event, designing a room, making an identikit picture.*

◆ Give children lots of opportunities to use the screens and to talk about why they made specific choices.

◆ When all of the children have had a turn, discuss the basis on which they made their decisions.

- **key idea:** that a computer can be used to represent a wide range of environments and some are more elaborate than others

◆ Look at a simple adventure game or simulation. Work through the beginning of the game or simulation with all the children together. Discuss the sort of environment or situation it represents.

◆ Ask the children if the representation is a good one and what similarities or differences they can see.

◆ Devise a set of questions to ask children, *eg If they were out in the countryside, would they be able to hear anything? What might they hear? Can they hear the same sorts of things when they use the adventure game? If the scene depicts an urban area, what sorts of things would they expect to hear? Does the adventure game have these? When we can hear traffic, what does it tell us? Can we tell if it is going fast or slow? How does the computer show this?*

◆ Provide opportunities for children to explore the program. Encourage the children to discuss the decisions or choices they make and why they make them.

- **key idea:** that a computer model is not an exact replica of the original

◆ In a class discussion ask the children to compare the adventure game with real life through a series of questions, *eg Do the characters in the adventure game ever get tired? Do the children get tired when they go out for a long walk or on a long journey? Do the characters ever need to stop and eat or go to the toilet? Does the adventure game show us what season it is? Does this matter? If it was a different season, would this affect the way the characters were dressed? When we see representations on the television how realistic are they? Are cartoons as realistic as representations using real people in real places? Are these sorts of programmes exactly like real life? Do they think that actors would really get hurt?*

- **key idea:** that they can use a computer to create representations of various scenarios
- **technique:** to use simple tools in a painting package
- **technique:** to print out their painting
- **technique:** to add stamps/motifs or clip art to a scene

◆ Demonstrate how a simple painting program can be used to create a visual representation of a scenario, *eg a place or a picture of their favourite meal or character; a friendly, or not-so-friendly monster.*

◆ Allow children to experiment and create their own representations, using simple tools, *eg brushes, colour-fill, palette.*

◆ Show the children how to use the print tool to print out their own work.

◆ Demonstrate how stamps/motifs or clip art can be used to create more complex representations, *eg a garden, a zoo or a fantasy world with dragons, wizards and witches.* The stamps or clip art will enable them to create more detailed representations.

◆ Ask the children to create their own representation using stamps or clip art. They should print out their work and discuss why they chose particular stamps or pictures.

LEARNING OUTCOMES

POINTS TO NOTE

CHILDREN

- understand that the computer can be used to represent real situations

If children try to hide pictures of teddies (2D representations) under something it will be flat. These pictures are representations of the real objects – it is only when we use the real (3D) objects that distortion or displacement will occur.

- understand that they can make choices and that people make different choices for different reasons
- understand that their decisions can produce different outcomes
- use the mouse to control the pointer and move and place objects with accuracy

Teacher intervention in modelling activities is critical in ensuring that children understand the underlying concepts. As children are utilising established ICT techniques and skills in most modelling activities very little teaching time is required for this and the focus can be directed towards discussion and interaction with children as they work.

- understand that a computer can be used to simulate/model an environment where choices can be made

This activity could be extended over a number of weeks with children working in small groups, taking turns and revisiting the adventure game on a number of occasions. If this approach is adopted, it is essential to draw children together on a regular basis so that they can share what they have discovered and discuss their progress. Some children may like to keep a record of the things they find, the routes they took or the places they visited.

- know that representations of real or fantasy situations can be made in many different ways and although some, like television programmes and films, are very complex they do not replicate real life exactly

- use a painting program to create a representation of a scenario
- print out their work unaided
- can select and add stamps/motifs or clip art to a scene

Only use the simplest tools of a painting package; the children should not need any more at this stage. It is important to establish rules for printing, such as getting permission before printing out work.
If there is no access to a painting program with a stamp or motif facility, it is possible to replicate the activity to a certain extent using a word processor which has a facility to import pictures very easily. Create a set of word processor files that have easy access to appropriate clip art, *eg fairy tale characters and backgrounds, wild animals and backgrounds, under-sea creatures, out-of-space characters and vehicles.* Commercial clip art on a wide variety of topics is available.
Demonstrate how the clip art can be imported to create a representation of the appropriate scenario. More able pupils will need to know how the size of the imported pictures can be altered. Consider providing a background already created and a very limited number of stamp and clip art choices.

LEARNING OBJECTIVES

POSSIBLE TEACHING ACTIVITIES

INTEGRATED TASK

CHILDREN SHOULD LEARN

• to create a representation of a real or a fantasy situation

◆ Discuss with the children the different ways the computer was used to represent real or fantasy situations. Tell them that they are going to create their own representations and they can choose what they would like to represent and how they will do it using appropriate software. This might be linked to topic work, *eg a story or nursery rhyme, designing a new classroom or school, concocting a new set of meals for school dinners, visualising places to go on holiday, fantasy creatures from out-of-space or new modes of transport for the next century.*

◆ Children should decide on the environment or representation that they wish to create. They should think about what it will look like and what sorts of decisions or choices they will have to make.

◆ Some children will be able to use a text tool or a word processor to produce a caption for their representation.

CHILDREN

- describe their scenario
- explain why they made their decisions or choices
- explain how their representations differ from real life

This activity could be done with either a painting package or an object-based graphics package. The choice of scenario is best linked to other activities going on in the classroom. More-able children will be able to produce alternative choices and talk about the differences. The use of models and patterns as a means of supporting children's writing links with *The National Literacy Strategy: Framework for teaching* objectives in all three terms of year 1.
Writing labels and captions is identified in *The National Literacy Strategy: Framework for teaching* as an objective in each term at year 1.