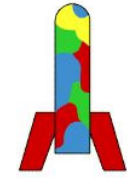




**Sample Lesson Plan**  
**The Big Bus Module: Paint Rockets**



**Paint**  
**Rockets**

**Title**

Using *The Big Bus Paint Rockets* to introduce younger children to modelling.

**Introduction**

This module provides an opportunity for younger children to develop their modelling skills. Changing just one variable or up to three as they direct their paint rocket towards its target.

**In this lesson**

The children are shown how to change one of the variables that affect trajectory as they attempt to find the correct flight-path to avoid airborne obstacles and take their rocket to its target.

**Age Range:** 5 – 8 years

**Lesson Plan**

**Learning objectives**

Having completed this module most children will have developed their ability to:

- Recognise patterns within simulations and make and test predictions
- Estimate angles up to 90 degrees.

**Technical preparation**

Install *The Big Bus* CD-ROM on to the computer. After a short opening sequence select the button to take you to **Bo Bear's World**. Open the notebook index and scroll through the available activities. Select **Paint Rockets**.

**Previous experience**

Experience of estimating angles up to 90° will help the children gain the greatest benefit from this module.

**Introducing the module**

Gather the children around a large computer monitor or interactive whiteboard. Show the children how to start **Paint Rockets** by clicking on the **Start the activity** button.

Click on the Easy button in the Hot Air Balloons section.

Explain that the aim is to hit the bobbing yacht with a rocket launched from the cliff top. The floating air balloon must be avoided, so it is important that the rocket takes the correct flight path through the air. Click on **Configure Rocket**. Go through the settings with the children, explaining that as this is their first attempt, the power and type of rocket have been set. (You may alter this in the Teacher Controls if you wish). They need to set the angle at which the rocket takes off, using the arrow keys on the screen, and then go **Back to the Challenge to Launch the Rocket**.

The course taken by the rocket is shown by markers, use these to lead discussion with the children about the result of their launch and how the settings might be altered before a second attempt.

After successfully guiding the rocket to its target, selecting **Another Go?** Takes you back to the menu screen. At this point set the children their task for the lesson. There are three types of obstacles to be avoided, each graded from easy to hard. Different rockets, which have different flight characteristics, will be set by the program.

After the initial demonstration, and if more than one computer is available, the children could now break into working groups and undertake the module for themselves. Set targets appropriate to the children's experience.

Allow the children about 15 minutes to complete the module, and then gather them back together to discuss how they got on. Did anybody manage to hit the yacht at his or her first attempt? How many different rockets did they come across? How did they vary?

### **Classroom management**

A single classroom computer running *The Big Bus*, using a large monitor or interactive whiteboard, is an effective whole class teaching resource. Introduce the module to the whole class before pupils break into their groups.

If you have access to a computer suite this module can be completed as a whole class lesson.

If you have access to only one or two computers, pupils will need to complete the module on a rotational basis.

### **Duration**

Each group of children will require approximately 15 minutes of computer time. The teacher introduction and follow-up time will take approximately 15 minutes and 10 minutes respectively.

### **Differentiation**

- Each module has three levels, allowing for differentiation according to the children's experience and ability.

### **Extending the module**

- Use the teacher controls to unlock the **Power** and **Rocket Type** variables.

### **Curriculum Information QCA Scheme of work (ICT)**

Unit 3D Exploring simulations.

#### **The National Curriculum in England for Mathematics (KS1)**

Ma3: 1.a, 1.d, 1.e, 1.f, 3.a, 4.b.

#### **The Scotland 5-14 Guidelines for ICT**

Controlling and Modelling: Level C.

#### **The Scotland 5-14 Guidelines for Mathematics**

Shape, Position and Movement: Level C.

#### **The Northern Ireland Curriculum for Science and Technology (KS1)**

Interpreting and Evaluating: d.

#### **The Northern Ireland Curriculum for Mathematics**

Using Mathematics: c.

Mathematical Reasoning: a, b, c.

Position, Movement and Direction: c.

#### **The National Curriculum in Wales for Information Technology (KS1)**

IT: 2.1.

#### **The National Curriculum in Wales for Mathematics (KS1)**

Ma1: 1.1, 1.3, 3.1, 3.2.

Ma3: 2.1.