Lowerhouse Junior School
Computing Overview Sheet

Year 6 – 3D Modelling

National Centre for Computing Education

Rationale: During this unit, learners will develop their knowledge and understanding of using a computer to produce 3D models. Learners will initially familiarise themselves with working in a 3D space, including combining 3D objects to make a house and examining the differences between working digitally with 2D and 3D graphics. Learners will progress to making accurate 3D models of physical objects, such as a pencil holder, which include using 3D objects as placeholders. Finally, learners will examine the need to group 3D objects, then go on to plan, develop, and evaluate their own 3D model of a photo frame.

Progression: This unit progresses students' knowledge and understanding of creating 3D graphics using a computer. Prior to undertaking this unit, learners should have worked with 2D graphics applications.

Overview:

Lesson 1: To use a computer to create and manipulate three-dimensional (3D) digital objects

Lesson 2: To compare working digitally with 2D and 3D graphics

Lesson 3: To construct a digital 3D model of a physical object

Lesson 4: To identify that physical objects can be broken down into a collection of 3D shapes

Lesson 5: To design a digital model by combining 3D objects

Lesson 6: To develop and improve a digital 3D model

Subject Knowledge

Lesson 1: This lesson introduces learners to the concept of 3D modelling by creating a range of 3D shapes that they select and move. They also examine the shapes from a variety of views within the 3D space.

Lesson 2: This lesson examines the similarities and differences between working digitally with 2D and 3D graphics. Learners initially discuss the similarities and differences they have identified so far, then move on to combine 3D shapes, including lifting the 3D object, to produce a house. Learners then colour their 3D shapes, followed by adding further shapes.

Lesson 3: During this lesson, learners will produce a 3D model of a physical object, which will contain a number of different 3D objects. 3D objects will need to be rotated and placed into position in relation to other 3D objects.

Lesson 4: During this lesson, learners will produce a 3D model of a pencil holder desk tidy. The 3D model will contain a number of 3D objects that are of specific dimensions and use other 3D objects as placeholders to create holes with them.

Lesson 5: During this lesson, learners will resize and enhance their 3D model of a pencil holder desk tidy. Learners will also plan their own 3D model of a photo frame, which will be developed during the next lesson.

Lesson 6: During this lesson, learners will produce their own 3D model based on their planning during the previous lesson. They will evaluate their work and make improvements based on feedback from their peers.

Assessment/Key Skills

Formative assessment

Assessment opportunities are detailed in each lesson plan. The learning objectives and success criteria are introduced in the slide deck at the beginning of each lesson and then reviewed at the end. Learners are invited to assess how well they feel they have met the learning objective using thumbs up, thumbs sideways, or thumbs down.

Summative assessment

Within this unit, a rubric is used to assess learners' work after Lesson 6. Please see the assessment rubric document for this unit.