

**Lesson Plan Ref:** Alchemy

**Course Ref:** ABACWS

**Subject:** Computer Science

**Topic:** Binary

**Lesson Title:** Alchemy

**Level:** GCSE / A Level

**Lesson Duration:** 50 Minutes

**Lesson Objectives:**

Understand how numbers are represented in binary and how to apply additions and shifts.

**Summary of Tasks / Actions:**

Learners should be initially introduced to binary, explain what it is and what it is used for. Aim to cover this in approximately 10-15 minutes.

Once the introduction has been given, learners can start the game. They will need to start the alchemy class where they will be given a tutorial to follow. The tutorial will cover how binary numbers are represented and how addition and shifts can be applied. The tutorial is in-depth but may need to be accompanied by bookwork to allow users to write out the sums and make notes. To complete the activity all 4 questions need to be answered correctly and the blocks given must be placed in their respective section. This activity should take 15-20 minutes. Answers are provided in the answer workbook.

Use the remainder of the lesson to test their knowledge with additional questions.

**Materials / Equipment:**

The world template file labelled ABACWS.mctemplate is required, import this in Minecraft for Education.

**Prerequisites:**

No prerequisites for this lesson.