

## Codebreakers! Activity Lead Notes

<b>Activity Aims</b>	Students are introduced to the concept of cryptography and will be challenged to play a game of battleships with a code-breaking element. Students will be given guidance on code-breaking and will have to break the codes that they are given in order to win the game
<b>Subject/Curriculum Links</b>	History, Politics, Mathematics, Literacy and Numeracy
<b>Learning Outcomes</b>	Students should be able to demonstrate an ability to develop basic codes and code-breaking abilities, and to work in a team to achieve a set goal
<b>Materials Required</b>	Codebreakers handout
<b>Individual Study</b>	Students could be given the opportunity to develop their own codes, particularly if this activity is used as part of a longer session on codes in history. There are also resources available on the student handout that students could use for individual study
<b>Duration</b>	15-20 minutes

### **Ambassador Preparation:**

Prepare Facilitator Game Boards according to the encoded locations provided, and cut up the encoded locations to give to students. Have handouts ready to give to students and be familiar with some historical examples to introduce the topic e.g. Enigma, Alan Turing, QR codes etc.

### **Introduction:**

The Ambassador should introduce the activity by giving a bit of information about the place of codes and code breaking in history, and some recent examples. The Ambassador should then describe that the students will have the opportunity to break some simple codes and see how this can provide a practical advantage in competing in a game of Battleships.

### **Activity:**

Working through the handout, the students should decide which code they wish to use and place their ships on the game board. They should then give the encoded locations of their ships to their opponent, and the game of battleships proceeds according to the usual rules, with each student or team of students taking 'shots' at the opposition, with the addition that the students on each side try to work out the locations of the opposition ships from the code they have been given. The first team to correctly decipher the opposition code will gain an advantage in the game. The students can play the game against one another or against the Ambassador/facilitator.

### **Conclusion:**

The activity ends when the game of battleships has been completed, with one student or team of students winning. This could be extended by playing additional rounds. Three ships of three squares each on a 7X7 grid works well for a 15-20 minute activity, provided that the students do not take too long to place their ships, but the activity could be extended by using a larger grid, additional ships of different sizes, or by using one of the modifications common to different versions of the battleships game e.g. using hexagonal game grids, featuring islands and different types of forces including 'salvo' powers or 'reconnaissance planes'. Alternatively, depending on the ability/ages of the students different codes could be used.

The Ambassador/facilitator should sum up the activity by saying that the students have successfully learned how to break some simple codes and practically apply this skill to a challenge that they have been set. They should also re-cap how the use of codes has been extremely useful and influential in recent history e.g. QR codes or Barcodes.