



<b>Sample assessment task</b>	
<b>Year level</b>	Year 8
<b>Learning area</b>	Technologies
<b>Subject</b>	Digital Technologies
<b>Title of task</b>	Crack the code to find the hidden treasure
<b>Task details</b>	
<b>Description of task</b>	Students will use binary numbers to create a code to a location for other students to find. Each student will then use binary code to crack the code of other students.
<b>Type of assessment</b>	Formative
<b>Purpose of assessment</b>	For students to develop their binary coding skills
<b>Assessment strategy</b>	Practical evidence, written work
<b>Evidence to be collected</b>	<ul style="list-style-type: none"> <li>• Code sheet created by students</li> <li>• Code sheets solved by students</li> </ul>
<b>Suggested time</b>	2 x 1 hour lessons
<b>Content description</b>	
<b>Content from the Western Australian Curriculum</b>	<p><b>Knowledge and understanding</b></p> <p><b>Representation of data</b> Binary is used to represent data in digital systems</p> <p><b>Processes and production skills</b></p> <p><b>Collecting, managing and analysing data</b> Evaluate and visualise data, using a range of software, to create information, and use structured data to model objects or events</p> <p><b>Digital implementation</b> Design plans, using a sequence of steps, and represent them diagrammatically and in English, to solve a problem and to predict output for a given input to identify errors</p> <p><b>Investigating and defining</b> Investigate a given need or opportunity for a specific purpose</p> <p><b>Producing and implementing</b> Safely apply appropriate techniques to make solutions, using a range of components and equipment</p> <p><b>Collaborating and managing</b> Work independently, and collaboratively when required, to plan, develop and communicate ideas and information when managing projects</p>
<b>Task preparation</b>	
<b>Prior learning</b>	Students are familiar with binary code and how to convert characters to binary code using a chart and/or suitable websites or apps
<b>Assessment differentiation</b>	<p>Teachers should differentiate their teaching and assessment to meet the specific learning needs of their students, based on their level of readiness to learn and their need to be challenged.</p> <p>Where appropriate, teachers may either scaffold or extend the scope of the assessment tasks.</p>

## Assessment task

<b>Assessment conditions</b>	Students work in pairs or small groups to complete the task.
<b>Resources</b>	<ul style="list-style-type: none"><li>• App to determine GPS co-ordinates (optional)</li><li>• Access to chart with conversion of characters to binary code and/or website or app conversion tools</li></ul>

### Instructions for teacher

1. The students are to convert the GPS co-ordinates of a location within the school to binary code. The GPS location can be determined using an app (e.g. on their mobile phone). Before class, students may need to download an app for determining GPS co-ordinates.
2. In this location, they should place the 'treasure' to be found (e.g. an envelope containing a picture of a treasure chest).
3. The teacher will then collate all the binary codes of the locations of the hidden treasure ready for the next lesson.
4. The following lesson, the students are given all the binary codes which they will then need to convert back to GPS co-ordinates to locate the hidden treasure. This could be conducted as a competition so see which group can locate the most treasure.

If GPS co-ordinates cannot be obtained, the task could be altered to use famous landmarks around the world, spelling the name of the landmark in binary code rather than GPS co-ordinates.

## Worksheet for students

### Task description: Crack the code to find the hidden treasure

Name: \_\_\_\_\_ Working with: \_\_\_\_\_

#### Lesson 1

You are to find a location within the school where you can hide the 'hidden treasure' provided by your teacher. Ensure that the place is safe for other students to access.

Using the app downloaded on your device, determine the GPS co-ordinates of this location.

Describe the location \_\_\_\_\_

GPS co-ordinates are

\_\_\_\_\_

Using the chart/website/app as specified by your teacher, convert the GPS co-ordinates to binary code – place each piece of binary code in the space provided. Enter only one character per cell horizontally.


Submit this to the teacher at the end of the lesson.

#### Lesson 2

Once the teacher has given you all the binary codes of all the locations of the hidden treasure, use the chart/website/app, as specified by your teacher, to convert the code back to GPS co-ordinates. Make a note of these co-ordinates below.

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Find these GPS co-ordinates in your school and locate the 'hidden treasure'.  
NB: You cannot claim your own hidden treasure.

## Teacher checklist

Student Name	✓ if observed						Comments
	Works collaboratively	Converts to binary code	Converts from binary code	Can locate GPS coordinates			