

Lesson Plan

Teacher	[AA]	Date	00/00/00	Period	0	Class	9AA
No. pupils	00	SEN	0	G&T	0		

Project title Cryptography

Context of project During this unit, pupils will learn about the use and purpose of cryptography and encryption of data. They will learn about the purpose and use of cryptography in everyday society and understand how the use of computers has enabled ever more secure and sophisticated methods of cryptography to be developed.

Lesson No. Lesson 3

Learning Objectives To understand what kind of information is coded onto a barcode

 To understand the purpose and use of check digits

 To understand other methods of coding data pictorially, for example data matrix codes

Learning Outcomes *All pupils will:* be able to explain the purpose of a barcode

Most pupils will: be able to identify the type of information that is stored on a barcode

Some pupils will: be able to explain the purpose and use of data matrix codes in their own words

Key Terms Coding, barcode, check digit, barcode reader, data matrix codes

Starter	I have the answer.ppt	5 mins
Main activity	<p><u>Teacher led discussion</u> Ask pupils to tell you what codes are used in supermarkets all of the time (answer = barcodes)</p> <p>Go through slides 1-7 of 'barcodes.ppt' with pupils and discuss the use of barcodes</p> <p>Slide 8 has a link to a video on YouTube which explains how barcode readers work in the form of a fun rap. (If you are unable to access YouTube from your school network, it would be worth investigating methods of accessing this resource offline)</p> <p>Go through slides 9 – 14 with pupils and dicuss the use of check digits.</p> <p>Using the following site, demonstrate how to use the check digit calculator in order to work out the check digit from a barcode: http://www.gs1.org/barcodes/support/check_digit_calculator</p>	15 mins

	<p><u>Individual task</u> Hand out a copy of 'check digit task.doc' to pupils. Pupils should log onto the site and find out the check digits of each of the given barcodes. When they have finished this, they can use the online database to find out information about products from a set of given barcodes.</p> <p>Go through the answers with the class (it doesn't matter if pupils don't finish going through all of the products, so long as they have used the database at least once)</p> <p><u>Individual task</u> Direct pupils to an electronic copy of 'data matrix codes.doc'. They should spend the rest of the lesson on research and writing a paragraph to explain their findings.</p>	15 mins
	<p>Direct pupils to an electronic copy of 'data matrix codes.doc'. They should spend the rest of the lesson on research and writing a paragraph to explain their findings.</p>	20 mins
Plenary	Hand out a copy of the lesson summary square.doc to each pupil. Use pupils' responses to help assess whether the learning objectives were met	5 mins
Extension	Using the following news story: http://news.bbc.co.uk/1/hi/technology/8170027.stm Find out about barcodes and be able to explain how they might replace traditional barcodes in the future.	
Homework	Homework3.doc – a new method of coding data	30 mins

Materials required	<p>I have the answer.ppt</p> <p>Barcodes.ppt</p> <p>How does a barcode reader work (rap): http://www.youtube.com/watch?v=vFjG7oqmmZA</p> <p>Check digit calculator: http://www.gs1.org/barcodes/support/check_digit_calculator</p> <p>Check digit task.doc</p> <p>Barcode database: http://www.upcdatabase.com/itemform.asp</p> <p>Data matrix codes.doc</p> <p>Lesson summary square.doc</p> <p>Homework3.doc</p>
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You may:

- Guide teachers or students to access this resource from the teach-ict.com site
- Print out enough copies to use during the lesson

You may not:

- Adapt or build on this work
- Save this resource to a school network or VLE
- Republish this resource on the internet

A subscription will enable you to access an editable version and save it on your protected network or VLE