Accredited

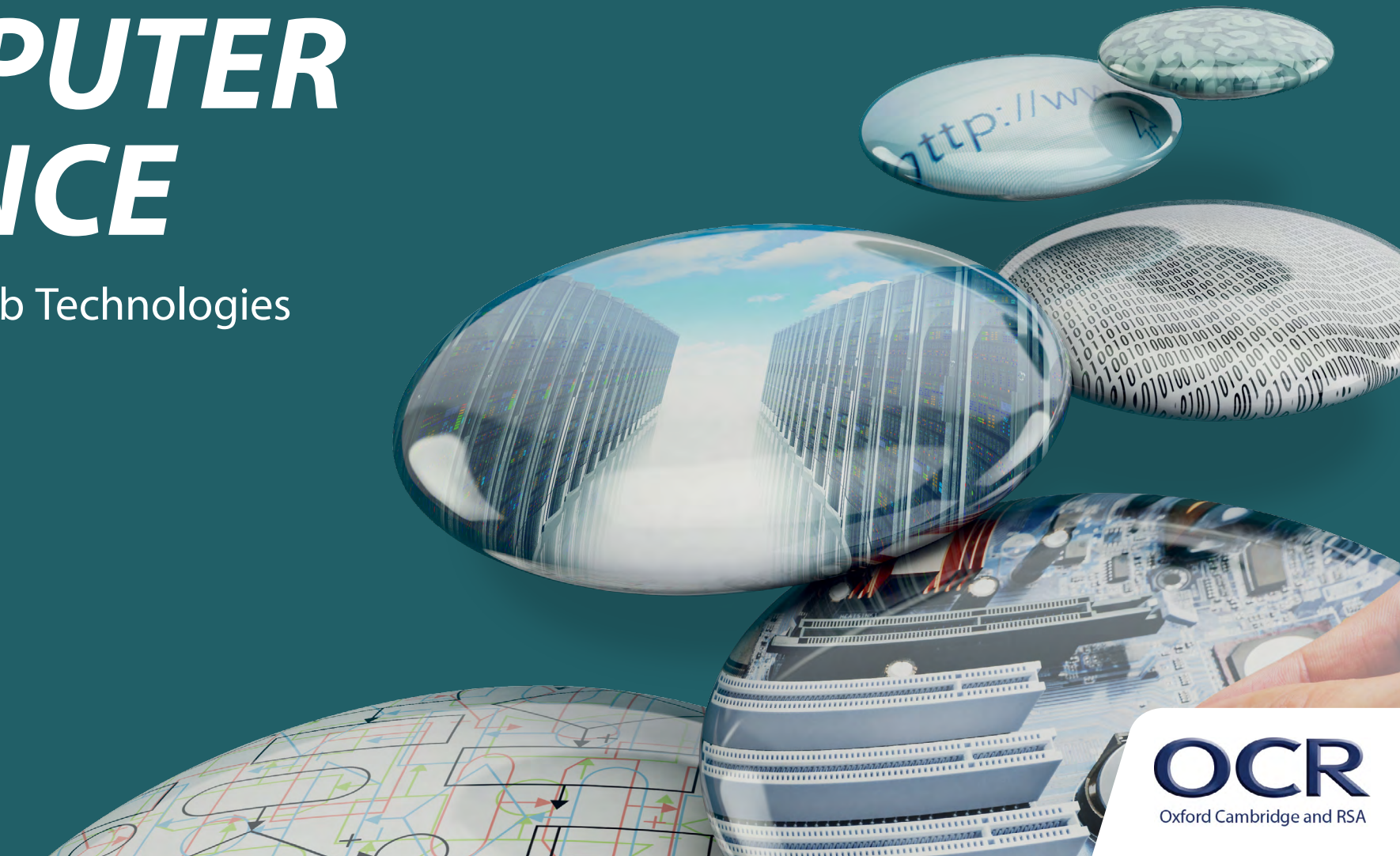
A LEVEL
Delivery Guide

H446

COMPUTER SCIENCE

Theme: 1.3.4 Web Technologies

June 2015



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CONTENTS

Introduction

Delivery guides are designed to represent a body of knowledge about teaching a particular topic and contain:

- Content: a clear outline of the content covered by the delivery guide;
- Thinking Conceptually: expert guidance on the key concepts involved, common difficulties students may have, approaches to teaching that can help students understand these concepts and how this topic links conceptually to other areas of the subject;
- Thinking Contextually: a range of suggested teaching activities using a variety of themes so that different activities can be selected that best suit particular classes, learning styles or teaching approaches.

If you have any feedback on this Delivery Guide or suggestions for other resources you would like OCR to develop, please email resources.feedback@ocr.org.uk.

KEY

Click to view associated resources within this document.

Click here — Click to view external resources

AS Level only — AS Level content only

Curriculum Content

a) HTML, CSS and JavaScript. See appendix 5e.

b) Search engine indexing.

c) PageRank Algorithm.

d) Server- and client-side processing.

Thinking Conceptually

Click here

Approaches to teaching the content

It would certainly be worth teaching HTML, CSS and JavaScript by covering why we use each of these languages and then going straight in with some activities off a website, such as http://www.codecademy.com/ to make the learning meaningful and to engage with the topic.

Using exercises such as "Getting onto the Right Page" gets students away from the computer and gives them a chance to think in depth about what technology actually helps to achieve.

Common misconceptions or difficulties students may have

There has never been a better time to learn how to write HTML, CSS or JavaScript due to the mass of resources available both online and offline in the form of books. That being said, because there are three languages, students may get confused by the syntax involved, and therefore should get into the routine of taking notes, doing small exercises to refine their skills and perhaps using a 'cheat sheet' for any of the languages.

Conceptual links to other areas of the specification – useful ways to approach this topic to set students up for topics later in the course

A teacher could use JavaScript as the language for teaching component 2.2 Problem solving and programming, and that may well be the language that is used for the programming project. This would also serve as a way of introducing client-side processing, and could be extended by the use of PHP to teach server-side processing.

Thinking Contextually

Activities	Resources
Sweet Resources – OCR Computing A-Level (Laura @codeboom) http://codeboom.wordpress.com/sweet-resources/ Some nice resources that have been developed to teach HTML, CSS and jQuery, as well as PHP and MySQL, to A Level standard along with some tasks.	Click here
How internet search engines work (How Stuff Works) http://computer.howstuffworks.com/internet/basics/search-engine.htm Good breakdown of search engine indexing, web crawling and future web.	Click here
How search works – from algorithms to answers (Google) http://www.google.com/insidesearch/howsearchworks/thestory/index.html Interesting web-based animation which gives the basics of how Google does what it does.	Click here
Inside search (CPD introductory video – Oct 2012) (Peter Dickman) http://community.computingatschool.org.uk/resources/246 A collection of interesting resources that discuss the idea of PageRank. The slides from Doug Aberdeen's PageRank activity can be found at this page: http://www.computingatschool.org.uk/index.php?id=aberdeen	Click here Click here
Web pages and web apps – client-side and server-side scripts (BBC Bitesize) http://www.bbc.co.uk/education/guides/znkqn39/revision/3 A concise, up-to-date and student-friendly guide to what server-side and client-side scripting really means. Also talks about cloud based computing.	Click here
Finding a needle in a haystack (CSInside) http://csi.dcs.gla.ac.uk/workshop-view.php?workshopID=9 Really interesting activity where students have to act out the role of the PageRank. Helps students to consider how they search for things.	Click here

Thinking Contextually

Activities	Resources
Getting onto the Right Page (CSInside) http://csi.dcs.gla.ac.uk/workshop-view.php?workshopID=3 Another activity to get students to consider how PageRank works.	Click here
Make a Website (Codecademy) http://www.codecademy.com/en/skills/make-a-website Guided 'tracks' that talk the user through how to construct simple web pages through HTML, CSS, JavaScript and PHP.	Click here


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