Lesson 8	Study Module 4: Working with structured data (3/3)	Time
Lesson objectives	In this lesson students are learning how to: • present information to meet requirements • validate data	
Learning outcomes	At the end of the lesson students will be able to: • enter and format numeric data • perform calculations using data in two fields • use a drop-down list for data-entry • produce print-outs to meet requirements	
Specification coverage	L1: 2.1, 5.1, 7.1, 8.3, 8.4 L2: 2.1, 4.1, 6.1, 7.3, 7.4	
Resources Study Module 4 SAM Mark Scheme **Key vocabulary** Search criterion Search operator Logical Relational Filter Wildcards Data validation Drop-down list	**Starter** The Loyalty Card Scheme is planning to offer a Welsh language service. Mr Baker (Card no 11500), Mr King (Card no 129887), Mr Brennan (Card no 182344) and Ms Hughes (Card no 209889) all want to take advantage of this service. Produce a one page report showing their membership details (apart from street, postcode and telephone number) plus: • the length of their membership (in number of days) The report must also show: • a title, the author of the report, the date it was created, number of pages, and its file name. What needs to be done to meet these requirements? Through discussion, establish that students need to: • search for the five records • save them as a sub-set (recap Study Module 2 Managing information) • create a new date field • enter the details of the last day of the month *Note: instead of entering a date, you might want to introduce the NOW function for able students and compare the outcomes of the two approaches with them.* • calculate the difference in days between the "JoinedDate" and today's date • decide where and how to provide the contextual information. Tell students to take note of the bullet point on **Making tables clear and easy to understand on** page 10.	10 mins

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	Share lesson objectives	5 mins
	Introduce the lesson and share learning objectives and outcomes.	
	Calculating with dates	5 mins
	Write down today's date, then 14 February 2008 (the date when Mr Barker joined the Loyalty Scheme). Ask students what they need to find out – draw a line under 14 February 2008 and write "??? number of days" underneath it.	
	[today's date] - 14 February 2008 ??? number of days	
	Put a minus symbol in front of 14 February 2008 and ask for a show of hands if they think a spreadsheet can calculate the difference between dates by subtracting the older from the newer?	
	Ask them how many days in a year and give two dates as an example for which they should know the answer: number of days between 14 February 2008 and one year later, 14 February 2009. Tell them to open a spreadsheet, then let them find out whether or not it works.	
	Tell them to enter the 2009 date into cell A1, the 2008 date into cell A2, and the formula =A1-A2 into cell A3.	
	What do they think of the result?	
	<table><tr><td>14-Feb-09</td><td></td><td>14-Feb-09</td></tr><tr><td>14-Feb-08</td><td></td><td>14-Feb-08</td></tr><tr><td>31-Dec-00</td><td>formatted to 'number':</td><td>366</td></tr></table>	
	If students are puzzled ask them to tell you what they expected and need (a number) and what is actually shown (a date). Tell them to format the result in cell A3 as a number without any decimal places.	
	366 not 365? – 2008 was a leap year with 29 days in February!	
	Use the example to stress the importance of	
	• appropriate formatting, and	
	• checking the accuracy of a formula with easy numbers (for mental arithmetic or a pocket calculator).	
	Note: omit this if students are working at Level 1.	15 mins
	Tell students they have 15 minutes to produce the report listing those who have opted for the new Welsh language service (as specified in the Starter), then 5 minutes to report back to the class.	

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	Feed-back on the task	5 mins
	Who finished? What was difficult, what was easy? Who did not finish - and why? Did they remember to apply what they learnt in previous lessons? What would they do if they are another 5 minutes?	
	Using data validation to keep rubbish out	10 mins
	Revisit the advantages and disadvantages of various forms of data entry mentioned in the previous lesson.	
	Quote the first sentence from this section (Study Module 4, page 9):	
	"The information you get out of a table is only as good as the data you put in."	
	Ask them what can be done to minimise risks of entering wrong data or entering data into the wrong place.	
	Tell students that spreadsheets have facilities which help users to minimise risks. A spreadsheet can check data entered against criteria set by the user: it accepts data that meets the criteria, e.g. a date for JoinedDate fields, and rejects all that does not, e.g. text for Points fields. The process of checking data on entry is called validation. Advise students that they should test any data validation rules they set – just as they tested calculating days between two dates earlier in the lesson.	
	Note: use this opportunity to recap on minimising risks to folders and files (Lesson 3).	
	Give students 5 minutes to explore the options under Data, Validation.	
	Remind students of the learning objectives and recap on what they have learnt in this and the previous two lessons. Go through the **Skill Check** with students and stress that they need all the skills to gain marks in the test.	10 mins
	Homework	30 mins
	Ask	
	• Level 1 students to complete SAM L1, Task 2	
	• Level 2 students to complete SAM L2, Task 2	