

Lesson plan: Maths

Maths

This is an exercise aimed at students currently taking A-level Mathematics and who are curious to know what direction it could lead them in terms of their higher education choices.

Individuals with an A-level in Mathematics go on to enjoy a vast array of occupations, but first let's explore the different degree options for A-level Mathematics students.

To start with click on the blue 'Don't know what career you want' tab in the middle of the home page to be taken to the A-level selection section.

To select an A-level and begin the search either:

- Scroll down the list of alphabetically ordered A-levels and click on the one you wish to select; or,
- type the intended A-level into the search box that says 'type text to search for' and then click the green 'find' arrow to the right of the box.

1. A-Levels

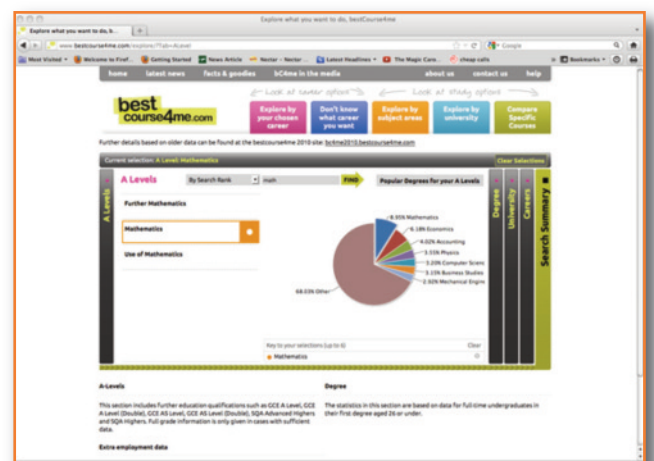
Select **Mathematics** from the list of A-level subjects.

When you make a selection your choice will appear in a key at the bottom right hand side of the list of subjects, underneath the pie chart. If you want to get rid of a choice simply click on the grey arrow to the right of your selection in the key, or deselect the option in the list of A-levels.

As soon as you select one or more A-levels from the list, a pie chart will appear on the right hand side. This pie chart depicts popular degree courses taken by individuals with the A-levels selected.

Remember to remind students that they can select up to 6 in future searches.

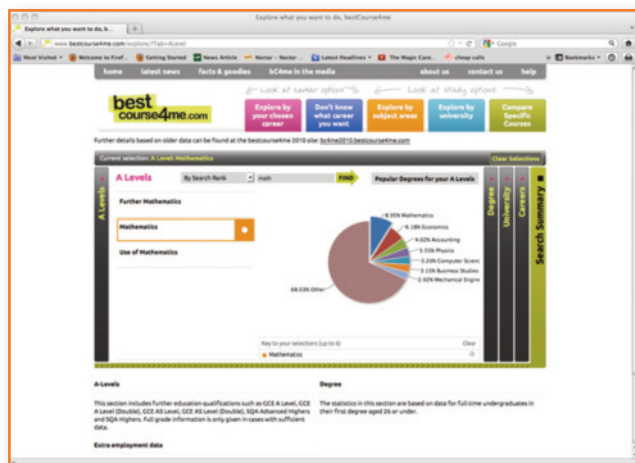
Note: since in this example only one selection has been made the pie chart will only display the data relating to individuals who studied Mathematics at A-Level.



Example: The pie chart that appears from this particular selection will show a number of the degrees that students with an A-Level in Mathematics went on to study.

Q. Ask students to identify how many individuals with Maths A-level went on to study Economics at degree level.

A. 6% of undergraduates with an A-level in Mathematics went on to study Economics.



The data can also be displayed in list form; this can be viewed by clicking on the next tab along, parallel to the vertical A-level tab in green text labelled **Degree**.

2. Degree

At this stage the list of degrees chosen by people with an A-level in Mathematics can be ordered by a choice of criteria. These are:

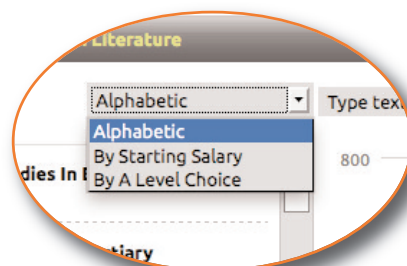
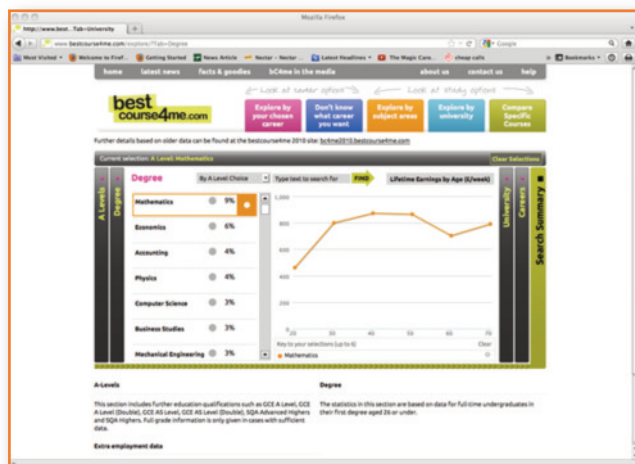
1. **By A-level choice**
2. **Alphabetically**
3. **Starting Salary.**

For this search order the list of degrees 'By A-Level Choice'.

Remind students that for future investigations they have the option to select up to 6 different degree choices from the list of degrees that people with an A-level in Mathematics have gone on to do at University.

Example: using the By A-level choice option from the drop down menu, choose the top three degrees chosen by people with an A-level in Mathematics. These will be **Mathematics, Economics and Accounting.**

As soon as a degree selection has been made a line graph will appear to the right of the list. Making any number of selections will prompt a key to appear in the bottom right hand corner (like with the A-level selection), each degree is given a different shape and colour to mark its position on the line graph.



The line graph that appears highlights the average lifetime earnings of graduates from each degree at ages 30, 40, 50, 60, 70.

Hover the mouse over each point on the graph to get the exact figures for each age.

Example: Hover the mouse over the third blue point on the graph.

Q. Ask students what this figure indicates.

A. This point represents the average weekly salary of Economics graduates aged 40 years old which is £1035 pw.



This graph allows students to investigate the average lifetime pay graduates of a particular course receive and allows them to be compared alongside up to 5 other degree choices.

A-Level thermometer

To introduce students to the **A-Level thermometer** feature, as an example deselect the degree options 'Economics' and 'Accounting'. With only Mathematics selected from the list of degrees click back onto the vertical A-Level tab (when looking at A-levels it is best to only have one degree or one university selected as having multiple degrees and multiple Universities selected will cause A-level results to be averaged across all the choices)

The list that appears will show that unsurprisingly the most common A-Level subject taken by people who studied Mathematics at University is Mathematics.

The A-Level thermometer for this selection will show two things;

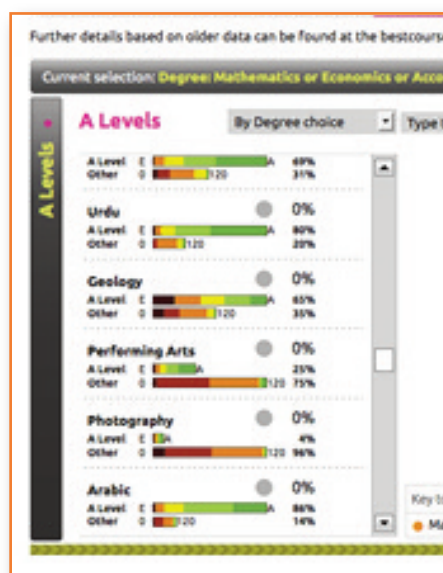
a. The percentage of degree level Mathematics students who have an A-Level in Mathematics and the percentage that have another Mathematics qualification such as an AS Level, BTEC or Highers;

and,

b. the grades that were achieved (in percentages).



(note: when looking at A-levels after a degree or University selection has been made it is best to have only one of each selected, having multiple degrees and multiple Universities selected will cause A-level results to be combined across the different institutions or degrees and therefore less useful)



Q. Looking down the list ask students to identify what percentage of those who studied Mathematics at degree level have a Physics A-Level and received an A grade.

A. 49% of those who studied Mathematics at University have a physics A-Level, of which 36% received an A grade.

This process is also highly useful to gain an understanding of the A-levels subjects and grades achieved by students taking a particular course at a certain University. You will notice that the A-levels taken and grades achieved will vary from one University to the next, even though the degree selection is the same. Choose one University at a time and see how the A-level results alter.

Go back to the Degree section and reselect 'Economics' and 'Accounting'.

Now that students have an idea of the kinds of degrees that people with an A-level in Mathematics have gone on to do, along with the average lifetime earnings of each degree choice, we can now bring the University into the search.

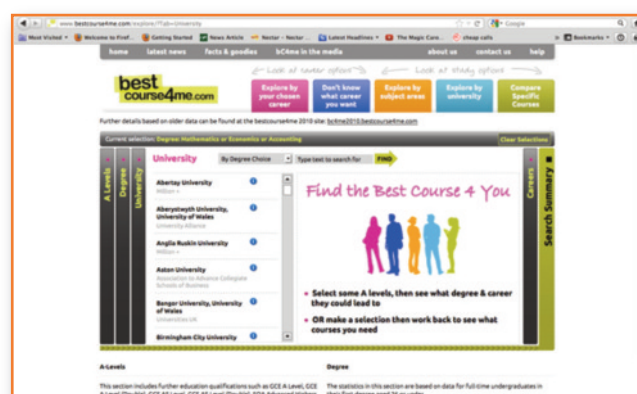
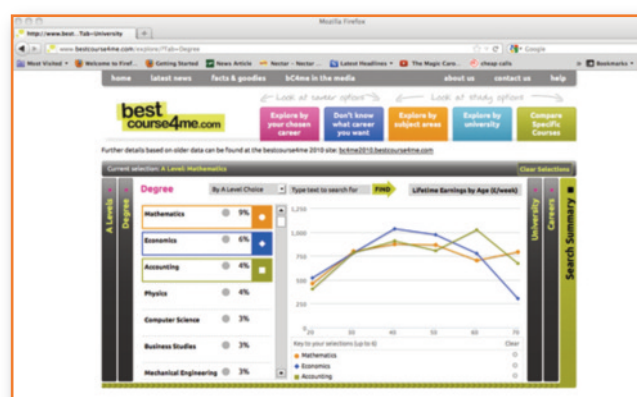
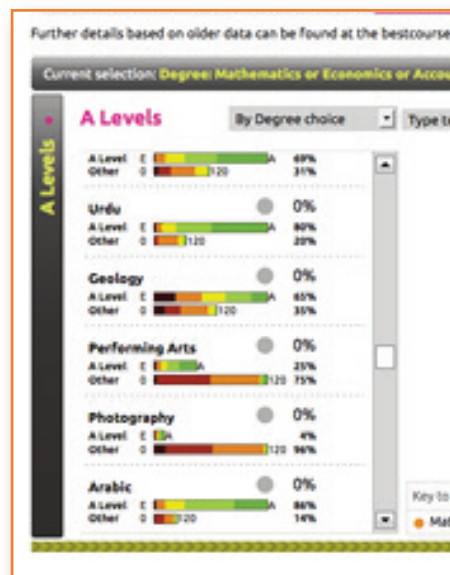
3. University

Having selected the degree/degrees you wish to include in the search (in this case use the top three; **Mathematics, Economics and Accounting**) move to the next tab labelled University.

Remember you can deselect degree courses by clicking on the grey cross to the right of the selection in the key or by clicking on the selection in the list. If you want to get rid of all the selections you have made so far click on the Clear Selections tab at the top right hand corner of the main box.

Clicking on the University selection tab, a list of all the Universities offering the degree courses previously selected on the degree page will appear.

Again, don't forget for future searches up to 6 different selections can be made so that the data can be compared.



- Students could be reminded to include a mix of local universities as well as institutions further a field so a comparison can be made between the different types of institutions.
- Along with taking locality into account students could also be encouraged to choose a range that includes perhaps a mix of different types of institutions for example a mix of Russell group, million +, 1994 group and University Alliance institutions (see the Glossary on the 'Help' section of our website for definitions.)

Remember that if students have a particular University in mind they can make a quick search by typing their choice into the search box and clicking the green 'find' arrow.

Example: Select **Anglia Ruskin**, **Birmingham** and **Queen Mary London** from the choice of Universities.

Remember for future searches you have the option to choose up to 6 selections.

As soon as at least one selection is made a graph will appear to the right of the list representing the average graduate starting salaries for each of the universities selected.



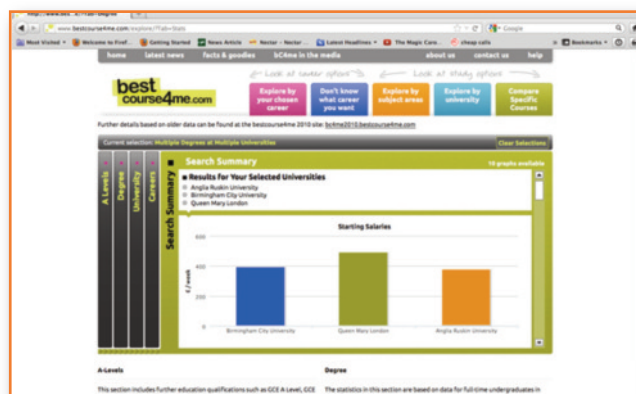
Example: Hover the mouse over the bar representing Queen Mary University

- Q. Ask students to identify the average starting salary for graduates of Queen Mary University compared to graduates of Anglia Ruskin.
- A. Queen Mary University graduates receive an average of £490 pw and graduates of Anglia Ruskin University receive £377 pw.

Discussion point: Ask students why they think differences in salaries might occur?

Note: differences in earnings will arise partly due to wages varying across the different regions of the UK and partly due to differences in the way that employers value degrees from different types of universities and degree courses.

Note: To see a graph that depicts the average starting salary of graduates taking into account both degree course and University go to the Search Summary section. This is useful if for example you wanted to know the average starting salary of say Mathematics graduates from Birmingham University.



Once you have clicked on the Search Summary tab scroll down until you find the graph titled 'starting salaries for graduates of Mathematics' and hover the mouse over the bar labelled 'Birmingham University'. You will see that the average starting salary for Birmingham City Mathematics graduates is £454 per week.

You will also notice in the search Summary Section a number of pie charts will appear representing data relating to first careers after graduating for each degree course. For this search you will be able to identify the first careers after graduating for Mathematics, Economics and Accounting graduates.

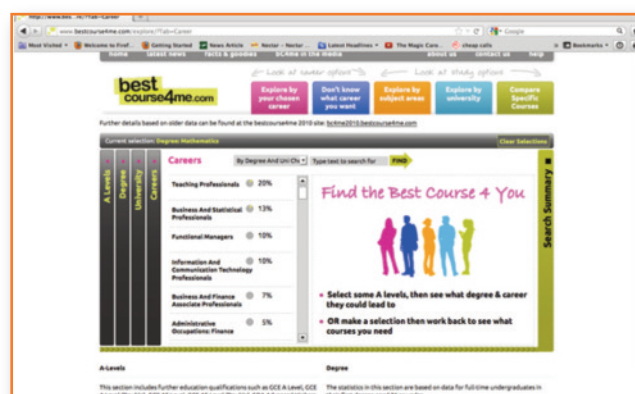
To widen the search or to search for other degree courses just click back onto the degree tab and reduce or alter degree courses previously selected- this will then automatically alter the information on the University page.

Warning! As selections are altered during the investigation you may notice a yellow warning triangle appear at the bottom of the A-level vertical tab. This symbol automatically appears when a particular selection or search alters the list of A-levels taken by the people who took the degrees or went to the Universities in one particular selection.

4. Careers

Once a degree course has been selected the next tab labelled **Careers** will give students the opportunity to investigate the kinds of careers that follow on from selected degree.

Having selected a particular degree choice the careers sections will give a list of all the occupations people with the selected degree have gone on to do. Example: Clear Economics and Accounting from the degree selection page and then go back to the **Careers** section.



Q. Ask student to identify what the second most common profession is for Mathematics graduates.
A. Business and statistical professional.

Once an occupation has been selected (select **Business and statistical professional**) a graph will appear on the right hand side depicting the average lifetime earnings by age for the selected occupation.

Example: Hovering the mouse over the third orange point on the graph shows that the average weekly earnings for business and statistical professional at age 40 years as £924 per week.

The final tab Search summary gives a list of all the graphs that compare the data from the selections made, this is useful when comparing a number of different variables, as they will be clearly displayed on one page. For example a graph will appear charting the average lifetime earnings of graduates who studied a particular degree at a certain University.

