INTRODUCTION

This is a short summary of the executive summary of the report, which outlines the statistics currently learnt in schools and colleges in England; evidence is also drawn from Wales and Northern Ireland and so the report is relevant to those parts of the United Kingdom. Based on this evidence, a number of recommendations are made for the improvement of this provision. Much of the text of this summary is taken directly from the report.

STATISTICS IN OUR NATIONAL LIFE

Statistics is about using data as the evidence on which to make decisions and to solve problems. It has widespread applications in policy, society, the economy and the academic world.

Recommendation 1: The increasing importance of statistics to our national life should be recognised in our evolving education system.

Digital technology provides large scale data scale. Our national prosperity is closely linked to our ability to control, understand and make use of this supply of data.

Recommendation 2: Policy makers need to appreciate that the need for statistics will increase as ever more data become available. They need to acknowledge the central role that statistics plays in the current and future economy, and its importance for decision making.

There is now a widespread recognition that our provision of mathematics and statistics is inadequate. Changes are expected, providing opportunities for a better provision of statistics.

Recommendation 3: National education policy should ensure that all students are equipped with a working knowledge of basic statistics, including the necessary associated mathematical competence, and an appreciation of how it impacts on their daily lives.

It is particularly important that those responsible for education policy at school and college level recognise the importance of statistics in most degree courses, in employment as well as in enabling people to be informed citizens who evaluate evidence when making decisions.

Recommendation 4: Those responsible for deciding what courses are made available in schools and colleges, and for advising students about which of them to follow, need to understand how important statistics is likely to be for students in the next stages of their lives.

STATISTICS IN THE SCHOOL CURRICULUM

Statistics is an inter-disciplinary subject. It is taught as part of the mathematics curriculum, with students also using particular techniques in several other subjects. Post-16 mathematics is not compulsory, and is taken by a minority of students. Consequently most students learn no statistics between the ages of 16 and 18. However, there are clear advantages in statistics remaining in the mathematics curriculum.

Recommendations 5 and 6: School and college mathematics departments should ensure they have the expertise to be the authorities on statistics within their institutions. Mathematics departments should be centres of excellence for statistics, providing guidance on correct usage and good practice. Under present conditions, statistics is best placed in the mathematics curriculum.

There is a risk that Statistics could become marginalised and that current problems in our statistics provision are not adequately addressed. To meet these concerns, it is important that statistics is appropriately represented, alongside mathematics, when policy decisions are being made.

Recommendation 7: To ensure that sufficient account is taken of the importance of statistics, it should be represented separately from mathematics, but alongside it, when policy decisions are being made.

At present there is a lack of coordination between the statistics in the mathematics curriculum and that needed in other subjects. Some topics needed in other subjects are not covered in mathematics or are covered after they have been met in other subjects. In particular, hypothesis testing is required in a number of subjects at AS and A Level but is not encountered in mathematics until later.
Recommendations 8 and 9: The curriculum should be designed so that, wherever possible, students have met statistical techniques in mathematics before they need to use them in other subjects. The first statistics course in AS and A level Mathematics, usually called Statistics 1, should contain hypothesis testing to support students using it in other subjects.

ASSESSMENT OF STATISTICS

Statistics is a practical subject. Its importance derives from its use in problem solving, providing the evidence on which decisions can be made, and this involves analysing problems and then collecting suitable data. However, these processes are not recognised in the formal assessment system for mathematics at any level: Key Stage 2, GCSE or A level.

Recommendation 10: Statistics is not adequately served by the assessment techniques used on current mathematics papers. This needs to be improved.

Assessment has a strong influence on classroom practice. A consequence of the present arrangements is that, at almost all levels, most students do not engage in processes that are intrinsic to the nature of statistics, and so learn neither how to carry them out nor how important they are.

Recommendation 11: The assessment techniques used should ensure that, at every level, students carry out work covering all the processes required to use statistics to solve problems and make decisions.

The report includes examples of assessment styles used in a number of other subjects. Many of these are designed to influence classroom practice, ensuring that the work students do gives them experience of the nature of statistics. Adopting such methods would require a change of culture among some mathematics examiners, moving away from answers being either right or wrong.

Recommendation 12: The assessment of statistics within mathematics should be informed by good practice in other subjects.

STATISTICS IN THE NATIONAL CURRICULUM

This report coincides with a revision to the National Curriculum which should provide the basis for an improved all round school education. The new National Curricula in several other subjects could, with advantage, refer to data and statistics.

Recommendations 13 and 16: The new National Curriculum should ensure that students meet a suitable statistics curriculum to the age of 16 which prepares them for a future in which many of them will be using statistics in a wide variety of contexts. In all relevant subjects, revisions to the National Curriculum should be considered in the light of the increasing emphasis on quantitative methods.

The new National Curriculum should support and promote the very good crosscurricular practice to be found in some primary schools. In addition, there is scope for some increase in the content expected at this level. The statistics in GCSE Mathematics is repetitive and there is room for some extra content.

Recommendations 14 and 15: The programme of study for Key Stage 2 should include the data handling cycle, as is currently the case for Key Stages 3 and 4. The statistics content within mathematics, up to GCSE, should include some topics that are either not currently covered or are only treated lightly.

STATISTICS FOR ALL POST-16 STUDENTS

It has been agreed that a move towards some compulsory mathematics education for all students in Post-16 education will be phased in over the next ten years. New courses will be designed for those who currently typically give up mathematics at 16. Statistics is expected to feature prominently in them. These courses will need to be motivating; one requirement for this is that they are relevant to students’ aspirations. For many of those going on to higher education, inference will be important, whereas those going into employment are likely to meet quality control and statistical process control. Everyone will benefit from a better understanding of risk.

Recommendations 17 and 18: The prospect of new courses for mathematics and statistics post-16 is to be welcomed; there should be major involvement from the world of statistics in their design.

Recommendation 18: New courses for post-16 students will require careful design. Their statistics content must be up-to-date and relevant to the future lives of the target students, whether in higher education or employment.

The full report can be downloaded at: http://www.rss.org.uk/site/cms/contentviewarticle.asp?article=1200
alternatively search on the terms ‘future statistics schools colleges’ and follow the links