

Report on the 2020 MiSAC Annual Competition

VaccAid: fighting infections

The aim of the 32nd MiSAC Annual Competition, sponsored by MiSAC, was to increase an understanding among teenagers of how vaccines work and their uses in controlling infectious diseases in children. The requirements followed the established principle of choosing a topic that is associated with school curricula but with specifications that require students to explore material beyond the curriculum.

The object of the competition was to produce information for a social-media web site (*VaccAid*) to explain to teenagers how immunity provides protection against diseases caused by microbes. The entry had to be divided into two equal 'pages'. The first 'page' was to be devoted to the science of the immune response, the different types of vaccine and how they work, with examples of relevant diseases. The second 'page' was to provide more information about one vaccine or group of vaccines chosen from those featured on the first 'page' that is offered to children up to 15 years old. Ideas for suitable areas of information were suggested and examples of relevant web sites and guidance on what makes a good social-media page were also provided. The entry had to be presented on one A3 sheet (or two A4 pages attached side-by-side) and prepared either by computer or hand written. Following discussions with many teachers about the consequences of the Covid-19 pandemic to schools, the closing date of the competition was extended from 6 April to 31 October. Consequently, thanks to the resilience of the school community, there was a very satisfactory response to the competition under the circumstances.

As usual, there were two entry groups, KS3 and KS4 (Secondary 1/2 and 3/4 in Scotland). The competition yielded 57 group entries from 51 schools (50 in England, Wales and Scotland and 1 in Thailand), i.e. 6 schools submitted entries for both groups. In total, there were 330 separate entries consisting of 134 in the KS3 (S1/2) group and 196 at KS4 (S3/4). This is the first time that the number in the KS4 group exceeded that in KS3. Group entries by no more than 4 members were permitted which enabled a total of 583 students to have the experience of contributing to the competition. The extension was used by some 30% of entries, thereby enabling another 130 students to take part. Analysis of the results indicated that the later submissions had not gained an advantage from the longer time made available for preparation.

The judging panel consisted of members of MiSAC and Dr Gillian Roberts, a microbiologist and former secondary science teacher. On account of travel restrictions, a virtual judging system was devised that was compatible with MiSAC's limited administrative facilities. Entries exhibited a good overall understanding of the principles, practices and significance of vaccination. Among the wide range of diseases chosen for the second 'page', the two most popular, about one-third each of the entries, were MMR and 3-in-1 or 6-in-1 vaccinations; the next most popular was HPV which was chosen by about one-sixth of entrants. Some entries referred to the concept of herd immunity and several made reference to the controversial views of Andrew Wakefield on MMR vaccination and autism. Many submissions, both hand- and computer-produced, achieved high standards of presentation, an important consideration because, in addition to assessing the scientific aspects of the entries, the judges look for entries that meet the requirements of the competition. Therefore, it is important for entrants to take careful note of the specifications. Credit was given for designs that were in the style of a social-media web site, presentation of material that is both informative and entertaining for teenagers, and enrichment with relevant photographs, diagrams and data. Money awards totalling £1,270 were made to prize winners and their establishments and several entries were awarded a commendation. Students who did not receive an award were presented with a certificate of entry to acknowledge their work.

It was encouraging to receive appreciative comments from teachers regarding the benefits that students gained from taking part and the interest and enjoyment that was generated. There were reports of the competition being used in virtual learning schemes during lockdown and of other applications such as using the knowledge gained as a basis for later work on Coronavirus and engaging students in deciding which entries should be submitted when more than the permitted 10 had been prepared. We also thank teachers for their care in recording full identification details on the back of each entry which eases the task of administering several hundred entries, many of which are the work of several students' joint efforts.

MiSAC warmly thanks teachers for their support and participating students for making the competition a success, and also all concerned for their patience in the long wait for the outcome of the judging. Winning entries can be viewed on the MiSAC web site (www.misac.org.uk) where there are also details of the 2021 MiSAC competition *Fungi and climate change*, the closing date for which has also been extended to 31 October in view of the continued uncertainties surrounding Covid.

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