MICROBIOLOGY IN SCHOOLS ADVISORY COMMITTEE
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Promoting microbiology in schools and colleges for more than 50 years

CHAIRMAN'S ANNUAL REPORT 2025-2026

Summary

MiSAC sponsors UK annual competitions: *How Microbes Make Milk* and *The Return of Deadly Diseases*. Report of Thailand partner competition; Second MiSAC Grant scheme in preparation; BMS UK Fungus Day; New MiSAC*matters Articles* title in preparation; MiSAC continues to offer authoritative advice to schools, colleges and other organisations in the UK and abroad, including continued collaborations with schools in Thailand. The Committee held four meetings, one of which was face-to-face and involved judging competition entries; the others used Zoom.

2026 MiSAC UK Annual Competition
How Microbes Make Milk

The aim of the 38th MiSAC Annual Competition was to develop an understanding among teenagers of the role of microbes in enabling cows to produce milk throughout the year. The requirements of the 2026 competition maintained the well-established approach of basing the competition on a topic that is closely linked to school curricula throughout the UK but with specifications that require students to explore material beyond the curriculum. It has been some time since the competition explored an agricultural theme, though this did not attract as many entries as in previous years. MiSAC was disappointed that no schools in Wales entered the competition and we had hoped for more entrants from schools in Scotland and Northern Ireland. It was evident, however, that students had still enjoyed researching the topic and demonstrated their enthusiasm in producing an illustrated web-page report in a variety of imaginative ways to convey their findings. Teachers thanked MiSAC for organising the competition. Overall, the judges were impressed by the quality of the entries.

On the publicity flyer, the Object of the competition with its three bullet points provided the remit for the students' entries. They were required to explain how it is the microbes in the cows' stomach that are essential to make the enzymes which break down cellulose in the grass they eat to provide the nutrients for the production of milk. In addition, students needed to show their appreciation that, during the winter months, when cows are unable to find sufficient fresh grass, they are provided with stored silage. Microbes ferment this silage, lowering its pH that stops other bacteria breaking it down, which would otherwise make it inedible. Some students failed to discuss the importance of farmers providing legumes in the cows' fodder which allow the nitrogen-fixing bacteria in their roots to improve the quality of nutrients so that proteins can be synthesised.

Whilst MiSAC is always pleased to welcome back entries from regular, established school participants, we were delighted by the number of newcomers to the competition, as well as schools returning to submit entries after an absence last year. As usual, there were two groups, KS3 and KS4 (S1/2 and S3/4 in Scotland; PS4/5 in Wales). Entries were received from a total of 56 establishments: from schools in England (50), Wales (0), Scotland (4) and Northern Ireland (1), together with just one overseas school in the Philippines. This year, the number of state-funded schools that entered (30) was greater than those that are fee-paying (25).

15 schools submitted entries to both entry groups. In total, there were 320 separate entries consisting of 228 in the KS3 group and 92 at KS4. Many participants took the opportunity to work together in groups of up to 4, making a total of 543 students who entered the competition. All students who entered received a personalized certificate. The judging took place on the campus of Reading University; the NCBE, one of MiSAC's sponsors, hosted the event. The judging panel consisted of MiSAC officers, members and Dr G Grainger, microbiologist.

Entries from students in the KS3 group provided a very strong field with some detailed and beautifully-illustrated accounts which met the key requirements. The entries for the KS4 group were also of great merit and led to extensive discussion amongst the judges about potential prize winners. A number of entries in both age groups were commended, not only for their artistic merit, but also for their clarity of presentation. However, students should be careful in their choice of background colours; some were so dark that these made it difficult to read the information.

Teachers should remind students that the entry must be presented on one sheet of A3 paper. Students should be discouraged from extending the area of their report with flaps to be lifted and tabs to be pulled to reveal initially-hidden drawings, photographs and other data. Good students quoted references for the material used in their entries. This need not take up much space but it should be

visible on the front of their presentations; several used the *back* of their entries.

Most students discussed named organisms, as required. Many students wrote correctly the genus and species names of the microbes they described, eg, *Ruminococcus albus* (which can be abbreviated to *R. albus* after its first use). However, many had not learned to be consistent in their proper use of naming all organisms. (Teachers therefore still need to emphasise the use of an upper-case initial letter for the genus name and a lower-case initial letter for the species. This should be in *italics* when printed and underlined when hand-written.)

The judges continued to be impressed by the imagination and creativity of the students as they compiled their entries. Many students showed remarkable technical skills in using their computer to design their submission. In previous competition reports, we have commented on the skill of some students who created a working QR code for use with a smartphone to connect to URLs giving further information. This year, the number of entries that incorporated functioning QR codes showed a significant increase. Those who chose to write their entry by hand could also achieve notable results.

This year, it became apparent that some students had incorporated AI-generated text and visual elements into their entries. This unwelcome trend will not be tolerated when it is identified. The Joint Council for Qualifications CIC provides guidance for students and teachers, eg, *AI and Assessments: A quick guide for students* and *Preventing AI Misuse in Assessments*: *A summary for teachers*. The 2027 competition flyer now has a section discussing the use of Artificial Intelligence, together with the MiSAC competition entry forms providing rules for use of AI. Teachers will be asked to ensure that entries submitted have adhered to these rules.

The judges should also like to thank teachers for responding to the request to record full identification details on the back of each entry which eases the administration of several hundred entries, many involving more than one student. £1335.00 was awarded to prize winners and their establishments. Winning and commended entries will be displayed on the MiSAC web site www.misac.org.uk which includes a list of the prize-winning and commended students and their schools. MiSAC thanks all the students for making the 2026 competition an outstanding success and their teachers for their support. We look forward to entries for the next MiSAC competition in 2027, which will explore the theme of *The Return of Deadly Diseases*.

Prizes and commendations were awarded to students from the following schools.

Key Stage 3 Group: *First Prize*: Charlie Fan - The Judd School, Tonbridge; *Second Prize*: Shreya Kumar - Nottingham High School; *Third Prize*: Abhay Gupta - Maiden Erlegh School, Reading; *Commended for Graphic Design*: Mahathi Somasundaram, Cristina Henriquez Santamaria and Shuhan Yang - Colchester County High School for Girls; *Commended for Hand-drawn Originality***:** Isabella Cheng - James Allen's Girls' School, London; *Commended for Art & Design*: Angelgrace Fernando, Justin Diana, Princess Leogen Marcellones and Haydie Jhean Tenorio - Salvacion National High School, The Philippines.

Key Stage 4 Group: *First Prize*: Nikita Unni - The Abbey School, Reading; *Second Prize*: Khadijah Chaudhry - Al-Khair Secondary School, Croydon; *Third Prize*: Emma Chan and Lois Hughes - Solihull School, West Midlands; *Commended for Creative Impression*: Mariia Slobodyanyk - Channing School, Highgate, London.

MiSAC partner competition in Thailand

The success of previous MISAC competitions in Asia encouraged representatives of organisations in Thailand to promote a 2026 MiSAC partner competition, *How Microbes make Milk*, in Thai schools.

The organising partners were the Institute for the Promotion of teaching Science and Technology (IPST), the Development and Promotion of Science and Technology Foundation (DPST Foundation) and King Mongkut University of Technology Thonburi (KMUTT). Liaison in the organisation of the competition was carried out between Margaret Whalley and IPST, the government organisation overseeing science education in Thailand. As in previous years, there was one age group.

The Thai government actively promotes the consumption of milk by children and the theme of the competition proved a huge success, with 4800 participating students from 870 Thai schools sending in 1835 entries. Submission of entries and judging were carried out online and winners were awarded prize money of the equivalent of £500, £340 and £225 (1st - 3rd prizes) with three prizes for an Honourable Mention (£115 each). All participants could include their entries within their university entrance portfolios and winning posters were displayed on the IPST web site and Facebook - and can be viewed on the MiSAC website by clicking the link: *International Competitions in Asia* on the annual competition page.

MiSAC publications

A new title in the collection of **MiSAC*matters Articles*** is being prepared: no. 41, *Fascinating fibres - the Crucial role of Bacterial Pili*, written by Rachel Exley.

MiSAC *Microbiology in Schools* Grant

The operation of a new grant has been delayed because of limited time availability and health issues within the committee membership. MiSAC is considering ways of simplifying the administration of the grant scheme.

With the help of committee members, including Johnathan Doran in particular, it is planned that successful schools can bid for funding to provide 'packages' of selected cultures/media, kits and

equipment, at discounted prices, from Blades Biological, the NCBE and/or Brunel Microscopes.

MiSAC web site

Work has continued with Indent Design Ltd to update pages on the site. On the Annual Competition page, the publicity flyer for the 2027 competition: *The Return of Deadly Diseases*, is now available to download, with two entry forms, depending on the age of the students. Its focus is the increased number of children suffering from diseases such as measles and whooping cough which coincides with a reduction in vaccination rates because of vaccine hesitancy.

The MiSAC News page includes a report of a Wellcome Trust study that reflects on the success of recent MiSAC competition themes in highlighting the dangers of climate change. This has been extended to discuss alternative themes chosen for the MiSAC competitions in 2026 and 2027.

Fungi Connect

The British Mycological Society has chosen October 10th 2026 as its annual **UK Fungus Day**. School children up to age 18 are encouraged to become inspired by fungi and to submit their own pieces of work to celebrate the fungal kingdom.

The deadline for submissions to the BMS is *December 18th 2026*. For further guidance, see: https://www.ukfungusday.co.uk/fungiconnectinformation.

Advisory work

The collective range of experience in microbiology held by the members of the MiSAC Committee continued to provide expert advice in response to a wide range of enquiries.

Finance and sponsorship

The special sponsorship provided for our competitions in 2023 and 2024 has consolidated MiSAC finances. Costs of the competition have been reduced by requiring schools to print the certificates that entrants receive.

MiSAC also relies on the much-appreciated support from its annual sponsors:

- *British Mycological Society (BMS),*
- *British Society for Parasitology (BSP),*
- *CLEAPSS,*
- *Microbiology Society (MS),*
- *NCBE,*
- *The Quekett Microscopical Club (QMC),*
- *SSERC.*

Their generosity provides an annual financial contribution, meeting rooms &/or laboratory facilities.

The annual return was made to the Charity Commissioners.

MiSAC Committee

Committee membership 2025-2026 (with affiliations)

Chairman:	John Grainger, MBE (University of Reading)
Vice-Chairman:	John Schollar (NCBE)
Secretary:	John Tranter (ASE)
Treasurer:	Margaret Whalley (BMS)
Lay members:	Christian Von-Trotha-Taylor (BMS)
	Rebecca Shears (BSP)
	Ai-Linh Tran/Ben Chantrell (CLEAPSS)
	Tansy Hammarton (MS)
	Fiona Lane (NCBE)
	Phil Greaves/Terence Hope (QMC)
	Johnathan Doran (SSERC)

Acknowledgements

MiSAC is most grateful to its sponsors for their continued support. The generous amount of voluntary time, willingly given by the MiSAC Officers and the other Committee members, is also gratefully acknowledged. In addition, we greatly appreciate the work of the Honorary Auditor, Mr Lindsay Hicks who has now retired and welcome our new auditor, Jane Hicks.