

GLOBAL COBIS

Research Skills Competition

2027

OVERVIEW

Discover the Global COBIS Research Skills Challenge

Designed for secondary school students aged 14-18 worldwide, this academic competition offers an intensive and engaging learning experience focused on developing essential research skills. Building on the GEC LASER accelerated research programme, it combines structured academic training with international recognition and awards.

Eligibility:

- ▶ Students aged 14–18
- ▶ Students are expected to have an English level comparable to IELTS 5.5, unless otherwise recommended by their school
- ▶ Students from **all academic backgrounds** are welcome, including Business, STEM, Humanities, the Arts, Medicine, Artificial Intelligence, Sustainability and more.

Time Zones: Global coverage	Format: Online
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AWARDS & RECOGNITION



Top 3 Winners Will Receive:

- A **£50 Amazon Gift Card**
- Feature coverage on **COBIS & GEC platforms**
- A **20% scholarship** for future GEC Pathway research projects
- An **Ofqual-regulated LASER certificate** (8 UCAS points)



All Participants Will Receive:

- A **Certificate of Completion**
- Priority access to GEC–LASER accredited courses
- Academy accredited courses
- Appointment as a **GEC Academy Research Skills Ambassador**
- Free access to the **LUMINAI Lecture Series** featuring global university leaders and Nobel Laureates
- An option to further study Level 3 UCAS 8 points research skills qualification (a standardized 4-week recorded LASER course of four 60-minute units, extra 4 hours learning with a fee*)

*Special rate of £ 285/ student for extra learning of Level 3 Research Skills in Academic Studies Qualification regulated by Ofqual

All participating schools will be recognised as GEC Academy Research Schools. The top 3 winners will receive exclusive GEC benefits, including bursaries and scholarships for our professor-led research programmes.

SUPPORT FOR SCHOOLS & EDUCATORS

- ▶ Schools will be invited to attend a **pre-competition briefing session**.
- ▶ A **comprehensive teacher support pack** and access to **webinars** will be provided to aid student mentorship.
- ▶ **Live chat and online support services** available throughout the competition.
- ▶ Offering all participating schools online webinars to help students learn about the competition. For COBIS schools in China, in-person sessions are also available. To arrange a session, please contact Dr Ran Li at ran.li@gecacademy.com

AIMS & OBJECTIVES

01

To cultivate students' foundational research and academic literacy skills.

02

To prepare students for university-level study through authentic academic training.

03

To promote global participation and intercultural learning.

04

To provide a competitive yet inclusive platform that recognises academic excellence.

05

To equip students with essential university-level learning skills in advance.

06

To foster student independence, critical thinking, and scientific methodology.

COMPETITION STRUCTURE

Phase 1: Research Skills Training (Weeks 1–2)

- ▶ A total of 23 recorded Duration across 3 modules, approximately 6.5 hours in total, delivered by the GEC academic team.
- ▶ Students will complete the three COBIS research skills training modules, including Research Methods, Research Planning, and Finding and Using Sources.
- ▶ Each module is followed by a Module Review, requiring students to complete at least 15 minutes of self-review. See the syllabus below for more details in training.

Phase 2:Independent Research Project Submission (Weeks 3-5)

- ▶ Students are required to submit study notes for the 3 modules, which must meet a specified word count, together with one structured research report on a topic of their choice. Only after all materials meet the requirements will they enter the competition review process.
- ▶ Assessment will be based on originality, methodology, critical thinking, and academic writing.

Phase 3: Evaluation and Recognition

- ▶ A panel including Oxford Professor and Harvard Professor will evaluate submissions. Awards will be conferred for First, Second, and Third Place.
- ▶ In recognition of your achievement, winning students will receive the Level 3 Research Skills for Academic Studies Certificate with UCAS 8 Tariff Points after completing the standardized 4-week LASER recorded course and submitting the required portfolio. **LASER recorded course is delivered as four 60-minute units, with a total course duration of approximately 4 hours.**
- ▶ Others can pay discounted fee to access the LASER course and also have the opportunity to obtain UCAS 8 Tariff Points.

Module	Teaching Content	Learning Objectives
Module 1 7 lessons	Research Methods	This module aims to equip students with essential research methods: ① Introduce students to common research methods. ② Enable students to select suitable methods for their own topics. ③ Enable students to solve general problems in the method-selection process. ④ Introduce students to research aims and objectives. ⑤ Enable students to set appropriate aims and objectives through case studies.
Module 2 7 lessons	Research Planning	This module aims to guide students through the planning of a research project: ① Introduce the concept and content of a research proposal. ② Enable students to select an appropriate research topic through case studies. ③ Enable students to create research plans and outlines based on research objectives. ④ Enable students to use research plans to guide their work and solve common research problems.
Module 3 9 lessons	Finding and Using Sources	This module aims to equip students with literature and information skills: ① Emphasize the importance of literature reading in research. ② Familiarize students with websites and methods for literature search. ③ Enable students to evaluate and select reliable information sources. ④ Enable students to understand the function of citation and master it through exercises.
Module Review	Self-review after each module	After each module, students are required to complete at least 15 minutes of self-review to consolidate the knowledge covered.
Guest Speaker Session 1h	PBL & University Success	Strategic Guide for Elite University Applications: Beyond Grades. In this session, Dr. Fanny Bessard, a distinguished Oxford academic, will decode what leading universities truly seek. Learn how to utilize Project-Based Learning (PBL) as a strategic tool to demonstrate your potential. We will explore how to frame your PBL experiences to showcase advanced competencies—from independent research to complex problem-solving—thereby strengthening your personal statement and interviews.

EXPERT PANEL



University of Oxford
Dr. Fanny Bessard
- Associate Professor in Medieval Eurasian History
- Published monograph with Oxford University Press
- Led Leverhulme-funded research on Islamic economic systems



Dr. James Herron
Anthropologist
- Research focuses on race, social class, political economy, and linguistic anthropology in Latin America
- Recipient of fellowships from NSF, Wenner-Gren Foundation, and Andrew W. Mellon Foundation

TEACHING STAFF INFORMATION



Leading Instructor:
Graduates of prestigious global universities, our leading instructors are experienced educators and published researchers. They have successfully guided students to secure offers from top-tier universities like Oxbridge.

PARTICIPATING SCHOOLS

- ▶ Open to Students from COBIS Schools.
- ▶ Fully **online format** with lessons ensures accessibility across time zones and regions.

COMPETITION TIMELINE 2027



- Registration Deadline: 19th November 2026 (midday GMT)
- Programme Kick-off: 11th January 2027
- Final Submission Deadline: 22nd February 2027
- Results Announcement: 19th April 2027
- Level 3 Research Skills for Academic Studies Certificate Award: By the end of July

SHOWCASE OF ACHIEVEMENTS

Exemplary Student Research Excerpts

FIG 2: REGIONAL AND LARGE-SCALE OCEAN TRANSPORT PROCESSES

Screen shot from supplementary materials for Sources of marine debris for Seychelles and other remote islands in the western Indian Ocean Vogi Vincent et al. (2023) showing accumulation of beach debris and microplastics is strongly shaped by regional and large-scale ocean transport processes, rather than just local inputs. It uses Lagrangian dispersal modelling and ocean current simulations. It collects ocean current data from satellites then "releases" virtual plastic particles into the model and tracks their movement over a set period of time. <https://www.youtube.com/watch?v=ma2u6l9Ud6I>

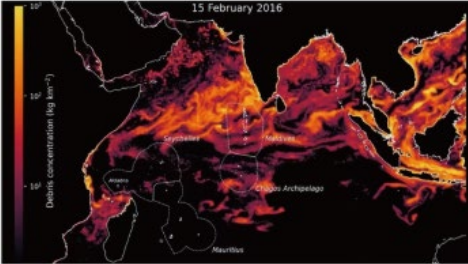


FIG 3: EQUIPMENT AND APPARATUS



Literature Review

First developed by Kermack and McKendrick in 1927¹, the Susceptible - Infected - Recovered (SIR) model offers a formalised structure through which biological transmission processes may be represented analytically. Their formulation conceptualised epidemic spread within a closed population partitioned into three mutually exclusive compartments satisfying:

$$S(t) + I(t) + R(t) = N$$

where $S(t)$ denotes the number of susceptible individuals, $I(t)$ the infected population, $R(t)$ the recovered population, and N the total population size, assumed constant over the modelling period.

The system evolves according to the nonlinear differential equations:

$$\begin{aligned} \frac{dS}{dt} &= -\beta \frac{SI}{N} \\ \frac{dI}{dt} &= \beta \frac{SI}{N} - \gamma I \\ \frac{dR}{dt} &= \gamma I \end{aligned}$$

where β represents the transmission coefficient and γ the recovery rate, formalising the principle that epidemic growth is proportional to contact interactions between susceptible and infected individuals.

Subsequent scholarship expanded the theoretical implications of this system. Anderson and May² formalised the basic reproduction number, R_0 —by a critical threshold governing epidemic expansion or decline. They established that when $R_0 > 1$, infection spreads through the population, whereas when $R_0 < 1$ leads to eventual extinction. This threshold concept remains central to epidemiological forecasting and intervention strategy design.

However, the assumption that all individuals interact randomly and uniformly, as assumed in the model, has been widely contested. Keeling and Rohani³ argue that structured

¹ Kermack, W. O., & McKendrick, A. G. (1927). A contribution to the mathematical theory of epidemics. *Proceedings of the Royal Society A*, 117(722), 700-721. <https://doi.org/10.1093/rpas/117.722.700>
² Anderson, R. M., & May, R. M. (1991). *Infectious diseases of humans: dynamics and control*. Oxford University Press.
³ Keeling, M. J., & Rohani, P. (2008). *Modelling infectious diseases in humans and animals*. Princeton University Press.

Writing Sample

Analysis of Effectiveness and Underlying Mechanisms of Open-Label Placebos in Managing Test Anxiety

The prevalence of mental health struggles among adolescents has risen in recent decades, with academic stress identified as a primary contributor. Test anxiety—a situation-specific trait anxiety causing a combination of physical symptoms and emotional reactions before or during testing—has surfaced as a significant hindrance to student welfare and academic performance, with recent research suggesting 25–40% of students experience this condition. Zeidner (1998) outlines cognitive (depreciating thoughts), physiological (physical sensations of fear), and behavioural (procrastination and avoidance) as the three main components of test anxiety. For high school students facing high-stake examinations, this anxiety can result in overlooking consequences, affecting not only immediate scores but overall quality of life.

Whilst treatments, such as cognitive-behavioural therapy and anxiolytics, exist for managing test anxiety, they may not be accessible to all students. This treatment gap necessitates exploring alternative treatments, such as open-label placebos (OLPs), in managing test anxiety. The emerging research for OLPs is compelling: a recent systematic review suggests OLPs work most effectively for symptom management of chronic conditions with dominating subjective factors, examples being patient- and psychosomatic-related symptoms or complications. However, the study also notes existing evidence is limited by methodological and attrition biases; hence OLPs should be used as adjunctive rather than standalone therapies (Tao, 2025). Additionally, Schaefer (2024) reported the OLP group demonstrated higher pass rates and less self-reported anxiety prior to a practical driving exam compared to the control group. These results align with various studies on OLP effects across different situational settings, such as Burger et al. (2023), emphasizing the efficacy of OLPs. Despite the expansion of OLP research across various medical domains, the application of OLPs to test anxiety in high school students remains almost entirely unexplored. Hence, this proposed study aims to address this critical gap.

Beyond establishing effectiveness, studies have been conducted to illustrate the underlying mechanisms of open-label placebos. Pavlovian classical conditioning (1897)—in which association occurs between the neutral stimulus (inactive pill) and unconditioned stimulus (active medicine) through repeated pairing—represents the basis of the placebo

generating comparative baseline data in settings where technical equipment is limited). (Silva et al., 2021) As most of the microplastics identified were fibres an additional step was added: density separation using a saturated NaCl solution was used to investigate the presence of fragments and beads which are harder to distinguish visually from sand⁴. This simple density separation increased the range of microplastics identified⁵.

the shoreline (swash zone), the mid beach (the mid-intertidal zone), and the upper beach near vegetation

RESULTS CHART (see also FIG 4)

Beach/Location	Size of Microplastic (length) and Frequency	Colour	Type/shape
North East Point Backshore or supralittoral zone (back of beach)	<1mm = 7 =1mm = 1 >1mm = 2	dark blue, light blue, black, colourless	fibres, fragments
North East Point Mid-intertidal Zone (Mid-beach)	<1mm = 19 =1mm = 4 >1mm = 2	dark blue	fibres
North East Point Shoreline or swash zone (shoreline)	<1mm = 4 =1mm = 2 >1mm = 2	dark blue	fibres

⁴ METHODOLOGY FOR HIGH DENSITY SALT SOLUTION: Approximately 300g of table salt was dissolved in 1 L of water to create a dense solution. A 50 g sub-sample of already examined sand from each location was mixed with the solution, allowing heavier sediment to sink while lighter microplastics floated. The floating layer was carefully siphoned off with a pipette, filtered and then examined under the dissecting microscope. Any additional microplastics were visually identified, counted, and categorised by type, size, and colour – See additional results table.

⁵ This methodology worked around the limitations of available laboratory resources particularly the absence of polymer identification via FTIR spectroscopy which would be desirable for further analysis but are not available in Seychelles. (Hidalgo-Pi et al., 2022)



Testimonials from Schools

Please share a brief comment (testimonial) on the impact this competition had on your students.

"Motivates the students and give them confidence as they were among the top students in the competitions."

"The COBIS competition encouraged our students to engage in in-depth research on the subject matter, thereby enhancing their understanding. Additionally, the exposure to and interaction with students from other schools during the online sessions provided a valuable and enriching learning experience. Overall, it was a highly positive experience for ISS students."

"My students developed their critical thinking and reasoning skills during this competition. They are much better able to evaluate sources; considering bias, relevance and validity. Lastly, the referencing skills they have developed and practised will serve them well in the next stage of their academic journeys."

Any other comments?

"Thank you for the opportunity"

"It was a good competition for our Students."

Professor's Comments

Lower Age Group (14–15)

1. **Accuracy: Can the SIR Model Predict the Spread of Seasonal Influenza in a School Environment?**

School: Kelfett School

Score: 94

Headteacher: Joe Alsop

proposal is described as "a standout proposal" and "the strongest overall" because it feels genuinely research-ready. It moves beyond simply describing influenza and asks a sharp, sophisticated question: how well can a mathematical model predict a real outbreak? The methodology is excellent for this age group, using real data, estimating parameters carefully, and evaluating the model with clear criteria (peak timing, peak size, error rates). The proposal also shows intellectual maturity by recognising the limitations of the SIR model. According to the ORSC evaluation, the proposal demonstrates "careful argumentation" in mathematical epidemiology, integrates empirical findings with theoretical interpretation, and appreciates model deviations as informative rather than failures. The only minor weakness noted is a slight mismatch between calling it a "school environment" study and using broader school-age data.

2. **Impact of Habitual Short Sleep on Pain Sensitivity in Female Adolescents**

School: Doha College

Score: 93

Headteacher: David Tongue

This is described as "a really strong proposal" and "one of the most convincing empirical studies in the whole set." The research question is focused and smart, focusing specifically on female adolescents reduces noise and shows awareness of biological variation. The methodology is especially strong: a 7-day sleep diary is practical, and the Cold Pressor Test gives the study a serious scientific feel. Including anxiety as a control variable is noted as a detail that makes the project more mature. The ORSC evaluation adds that the literature review is of high quality, the decision to include anxiety as a covariate reflects methodological sophistication, and the student is appropriately cautious about generalising adult findings to adolescents. The only

weakness is that it calls itself "mixed methods" when it is really a quantitative cross-sectional study, and the sample size may limit statistical conclusions.

3. **Automated Hot-Spot Detection in Whole-Body Bone Scintigraphy Using a Threshold-Based Image Processing Algorithm**

School: European Azerbaijan School

Score: 91

Headteacher: Gulnar Alizada

Kamal's proposal is described as "bold, technical, and genuinely original" and "one of the most ambitious entries." Instead of using flashy AI language, it proposes a clear, explainable threshold-based image processing pipeline with masking, clamping, region analysis, and expert comparison – which makes it feel more mature. The ORSC evaluation highlights its clarity and intellectual ambition, the appropriate literature review citing peer-reviewed sources, and the explicit engagement with the "black-box problem" in medical AI. The realism about pitfalls, especially false positives, is a huge strength. The main concern is feasibility: judges may worry about whether a student can realistically access enough anonymised scans and expert-labelled data. Framing it as a proof-of-concept could strengthen it further.

Youth Group (16–18)

1. **Investigating the Comparative Prevalence of Microplastics on Three Beaches of Mahé, Seychelles**

School: International School Seychelles

Score: 95

Headteacher: Elodie Valantine

proposal is called "fantastic" because it feels real, grounded, and meaningful. It turns a huge global issue into a focused local study with a clear purpose. A major strength is how practical and believable it is – one can easily imagine the project actually being carried out. The ORSC evaluation notes that what distinguishes this submission is that the student actually executed the research rather than merely proposing it. The methodology uses primary field research (sediment samples, sieving, density separation, microscope examination). The contextualisation of results against ocean transport modelling and global concentration ranges shows mature scientific

Excerpts from Student Reports to Schools

COBIS Research Skills Competition — School Insight Report

Executive Summary
This report covers 3 students. The cohort average score is 81.3 against a COBIS benchmark of 80.6. Average research readiness is 66.7%, 66.7% of students are Advanced, 33.3% are Developing.

Metric	Value
Students	3
Average Score	81.3
COBIS Average	80.6
Advanced % (≥80)	66.7%
Developing % (<80)	33.3%
Emerging % (<60)	0%
University-ready %	66.7%
Readiness Status	Medium
Recommended Pathway	Professor-led Research Programme.
Pilot Size	Level 3 Research Skills Qualification Programme

Skill	School	COBIS	Δ
Critical Thinking (20)	16.7	16.3	▲ +0.4
Research Question (20)	15.3	16.2	▼ -0.9
Literature Review (15)	12.3	12.6	▼ -0.3
Methodology (20)	16.3	15.0	▲ +1.3
Academic Writing (15)	12.0	12.2	▼ -0.2
Reflection (10)	8.7	8.3	▲ +0.4

Recommendation
Strengths: Methodology and Critical Thinking. Relative gap: Research Question.
Solid research design skills. Strengthening research question formulation would align with their strong methodology.
Recommended pathway: Professor-led Research Programme.

COBIS Research Skills Competition — School Insight Report

Executive Summary
This report covers 4 students. The cohort average score is 75.8 against a COBIS benchmark of 80.6. Average research readiness is 25%.

Metric	Value
Students	4
Average Score	75.8
COBIS Average	80.6
Advanced % (≥80)	50%
Developing % (<80)	25%
Emerging % (<60)	25%
University-ready %	25%
Readiness Status	Low
Recommended Pathway	Level 3 Research Skills Qualification Programme
Pilot Size	Level 3 Research Skills Qualification Programme

Skill	School	COBIS	Δ
Critical Thinking (20)	15.5	16.3	▼ -0.8
Research Question (20)	15.0	16.2	▼ -1.2
Literature Review (15)	11.5	12.6	▼ -1.1
Methodology (20)	14.3	15.0	▼ -0.7
Academic Writing (15)	11.5	12.2	▼ -0.7
Reflection (10)	8.0	8.3	▼ -0.3

Recommendation
Strengths: Critical Thinking
Priority gaps: Literature Review and Academic Writing.
Wide variation in performance. Foundational research training would benefit the lower-performing students.
Recommended pathway: Level 3 Research Skills Qualification Programme

COBIS Research Skills Competition — School Insight Report

Executive Summary
This report covers 3 students. The cohort average score is 86.7 against a COBIS benchmark of 80.6. Average research readiness is 100%. All students Advanced.

Metric	Value
Students	3
Average Score	86.7
COBIS Average	80.6
Advanced % (≥80)	100%
Developing % (<80)	0%
Emerging % (<60)	0%
University-ready %	0%
Readiness Status	High
Recommended Pathway	Professor-led Research Programme
Pilot Size	Professor-led Research Programme

Skill	School	COBIS	Δ
Critical Thinking (20)	17.0	16.3	▲ +0.7
Research Question (20)	17.3	16.2	▲ +1.1
Literature Review (15)	12.3	12.6	▼ -0.3
Methodology (20)	15.0	15.0	▲ +1.7
Academic Writing (15)	14.0	12.2	▲ +1.8
Reflection (10)	9.3	8.3	▲ +1.0

Recommendation
Strengths: Research Question and Academic Writing.
Exceptional research literacy across all dimensions, particularly in question formulation and academic writing.
Recommended pathway: Professor-led Research Programme