

STEAM Project

School Meals and Daily Routines for Health

Main school subjects involved

Health Sciences / Biology / Chemistry / Sciences

Complementary school subjects

Mathematics / Economics

Participant Schools

School Logo 1	School Logo 2	School Logo 3	School Logo 4	School Logo 5
School name 1	School name 2	School name 3	School name 4	School name 5

Supporting Organizations

Organizational Endowment

International Schools Association (Switzerland)

Academic Advisor

TBD

School term:

October 2025 - April 2026

Introduction

Students will investigate how diet—particularly school meals—and daily routines influence the health of teenagers by comparing sleep patterns, nutrition habits, and everyday activities across different countries. Using basic food chemistry experiments (such as testing pH levels, identifying starch, and studying fermentation) based on typical student menus, participants will explore the connections between nutrition, lifestyle, and wellbeing. By sharing results internationally, students will compare their findings with those of peers abroad, creating a broader perspective on health practices among young people.

The aim is to identify the most effective conditions for maintaining a healthy daily routine and balanced diet, and to develop practical recommendations both for secondary school students and for school administrations responsible for planning and selecting meals.

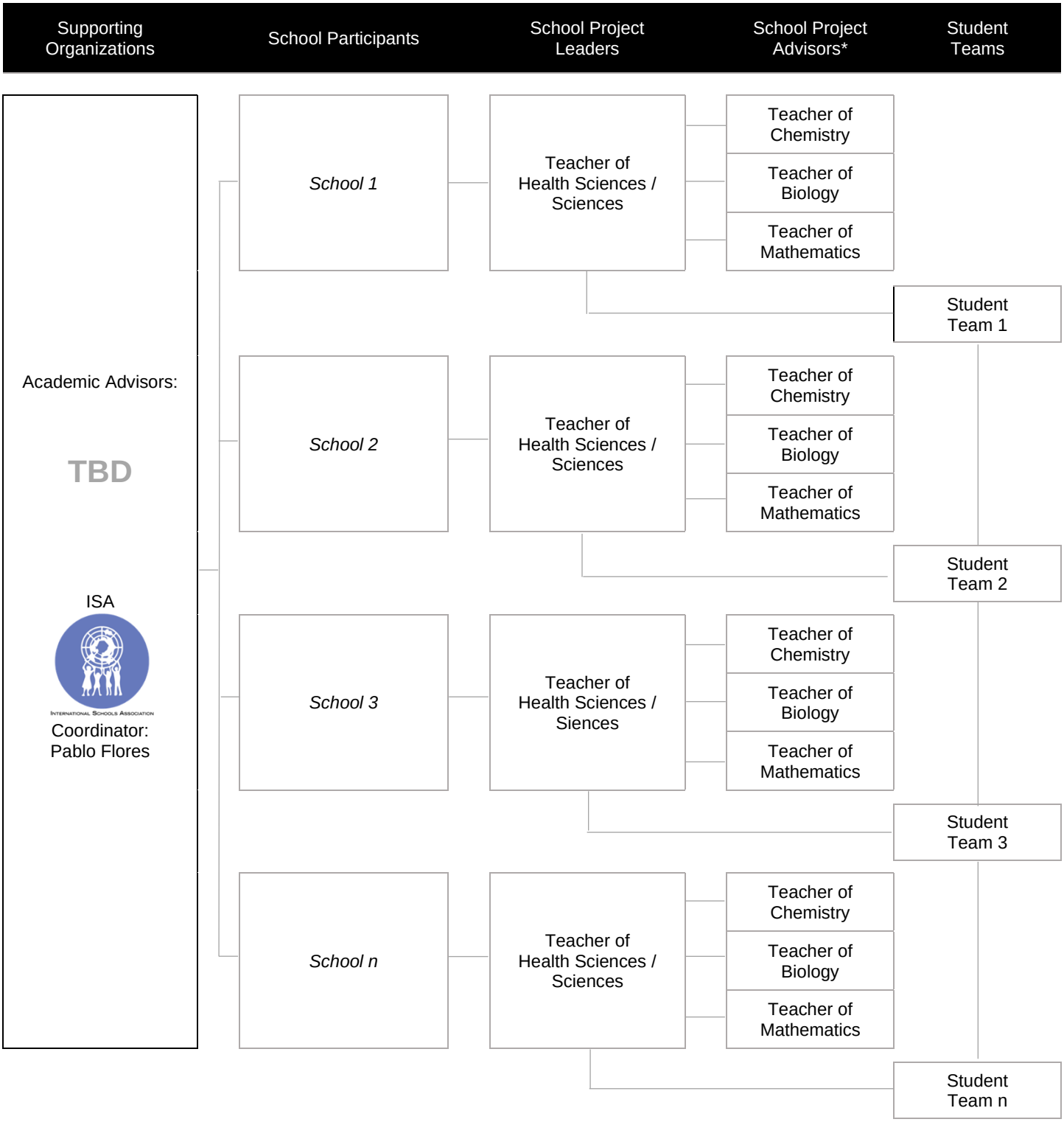
Throughout the year, students will collaborate online to exchange data, discuss results, and reflect on experiences. The project will end in joint presentations to a panel of experts from the supporting organisations.

This project is student-driven, with teachers acting as supervisors and facilitators. Students will engage in independent learning through a sequence of activities, project stages, and problem-solving tasks. The emphasis will be on practical experience and inquiry-based research that motivates critical thinking and personal engagement. In addition to academic knowledge, the project will foster the development of key competencies. Students will strengthen cognitive skills, such as problem-solving and analytical thinking, as well as non-cognitive skills, including motivation to learn, environmental awareness, intercultural communication, and teamwork.

Learning Objectives

- Develop an understanding of human biology related to nutrition, circadian rhythms, and health.
- Learn how to design and carry out surveys and experiments with ethical considerations.
- Analyse daily routines, diet, and health indicators using statistical methods and informatics tools.
- Perform simple food chemistry experiments (pH, starch presence, fermentation).
- Compare lifestyle and health data across different countries and cultures.
- Identify optimal conditions for balanced nutrition and healthy daily routines.
- Develop teamwork, communication, and intercultural collaboration skills.
- Foster awareness of sustainability and responsibility in food choices and lifestyle.

Organizational Workflow



** School Advisors can develop their own subprojects.*

The Academic Advisor (to be designated) will support the project by providing lectures and guidance to help school teams address challenges. Project leaders should also promote interaction between students through platforms such as Discord or Zoom, fostering intercultural communication and teamwork, while teachers are encouraged to share expertise and resources.

Parameters of Measurement

These parameters must be agreed upon by teachers, and others can be added. Teacher leaders will decide which ones are to be used. The data will be collected regularly throughout the school year, using both individual student logs and aggregated school reports, to ensure comparability across countries.

Proposed parameters:

- **Sleep duration and quality** (self-reported and, if possible, via apps or wearables).
- **Dietary habits** (school meals, breakfast frequency, types of food consumed).
- **Physical activity and screen time.**
- **Circadian rhythm observations** (bedtime, wake-up time, alertness during the day).
- **Basic health indicators** (BMI, perceived energy levels, concentration at school).
- **Food chemistry experiments** (pH of beverages, starch content of foods, fermentation of sugars).

Suggested data collection and reporting:

A) Individual Student Logs (weekly or monthly):
Students fill in a simple table to track their own routines and wellbeing.

Week	Sleep duration (hrs/night)	Sleep quality (1–5)	Breakfast (Y/N)	School meals (main items)	Screen time (hrs/day)	Physical activity (hrs/week)	Alertness at school (1–5)	Energy level (1–5)
1								
2								
n								

B) School Aggregated Reports (monthly):
Teams compile data to calculate averages, ranges, and observations.

Parameter	Average	Minimum	Maximum	Notes/Observations
Sleep duration				
Sleep quality				
Breakfast frequency (%)				
Screen time (hrs/day)				
Physical activity (hrs/wk)				
BMI (average)				

C) Food Chemistry Experiments (as part of science lessons):
Students document experiments related to diet and nutrition, using simple protocols.

Sample tested	Parameter (pH/Starch/Fermentation)	Method used	Results	Conclusion
Apple juice	pH	Litmus/pH meter		
Bread	Starch	Iodine test		
Yogurt	Fermentation (CO_2, smell, taste)	Observation		

Documentation of the Activities

Each team, in each school, should have a "Development report diary" to register details like stages, problems found, things to improve, etc. Project leaders may appoint a student that should be responsible for keeping that diary, take pictures and make short videos on the activities of his team.

Team "……..." School Activity Diary			Teacher Supervisor_____ Team coordinator_____ Team members_____ _____ _____	School Logo
Lesson #	Activity	Working reflections	Difficulties found	Suggestions

Example of diary of activities

Keeping a diary of activities in a school project serves several important purposes. For instance, it provides a detailed record of what has been done throughout the project. Additionally, it documents the progress, milestones, and accomplishments achieved by the project team. This documentation can be valuable as a space for reflection on the project's progress. Team members can analyze what has been accomplished, what challenges have been faced, and how those challenges were overcome. This reflection is crucial for evaluating the project's effectiveness and identifying areas for improvement. Finally, the diary serves as a means of communication within the project team. Team members can refer to the diary to stay informed about the project's status, upcoming tasks, and any changes or adjustments that have been made. This helps to maintain transparency and keeps everyone on the same page.

Blogging

- Blogging in the classroom, especially throughout project work, is a great way for students to document their work and experiences.
- The blog serves as a platform upon which to post written editorials, videos, photos, how-to instructions, and more.
- This would be a great way for students to take initiative, get involved, and share their stories with others.
- Parts of this blog can be uploaded in a collaborative platform in order to share the activities with other schools participating in the project.

Collaborative Platform Engagement

- Digital Hubs for Interaction. Schools will connect through collaborative platforms such as Zoom (for live talks), WhatsApp (for teacher coordination), and potentially Discord or similar tools (for ongoing student discussions).
- Structured Virtual Meetings. Regularly scheduled online sessions will provide space for sharing insights, addressing challenges, and exchanging perspectives across schools.
- Knowledge Repository. The chosen platform will also serve as a central hub where teams can upload research materials, post-debate reflections, and access project updates.

Operational Characteristics & Estimated Schedule

Time Frame	Work	Recommended Steps

September/October 2025	Project design and preparation	• **Schools inform the ISA Coordinator** (Pablo Flores) of their willingness to participate by appointing one or two teacher leaders.
		• The ISA Coordinator will **create a WhatsApp group** for teacher leaders to coordinate and agree on further activities.
		• The ISA Coordinator will also **create a Discord channel** to serve as the collaborative platform.
		• School leaders will **establish student teams and oversee all preparations**.
		• **First Online Meeting of Teacher Leaders.** During the first online meeting, teacher leaders will introduce themselves to one another and agree on:
		  ◦ the parameters to research
		  ◦ the frequency of meetings,
		  ◦ the exchange of ideas and proposals for further steps.

October 2025	Project Start	Photos and videos of the teams, and students at work will be uploaded to the Discord collaborative platform. The list of students participating must be sent to the ISA coordinator.
November 2025- March 2026	Project Development*	• Teacher leaders will remain in constant contact through the dedicated WhatsApp group, using it to coordinate activities and adjust project details when needed. • The Academic Advisor will provide several online lectures to support the project. Themes and dates will be agreed in advance by teacher leaders through the WhatsApp group. • Teacher leaders should encourage their student teams to **share photos and videos at least twice per month**. Students should also be guided to **post questions and actively participate in discussions on the collaborative platform**, fostering meaningful exchanges with peers from other schools. • Teacher leaders may propose regular Zoom meetings (or other online platforms) either among teachers or directly between student teams, to strengthen collaboration and intercultural communication. • Teacher leaders will jointly decide the date and time of the final online presentation, during which student teams will present their outcomes to a panel of experts from ISA and the Academic Advisors.
April / May 2026	End of the project	Presentation of the works before a panel of experts. Closing ceremony.

***** *It is highly recommended to start collecting all data consistently throughout the school year and then upload it to an AI system, so it can detect dependencies and patterns across different countries. This approach requires regular monitoring and disciplined reporting. All data must be shared among schools through a collaborative platform (such as Discord), where it can be jointly analysed to identify correlations between nutrition, sleep, daily routines, and health indicators.*

Safety and Ethics

As this project involves collecting information on student health, lifestyle, and diet, it is essential to ensure the highest level of safety and ethical standards.

1. Data privacy and ethics

- All participation must be voluntary.
- Student data must remain anonymous; only aggregated results should be shared internationally.
- Informed consent should be obtained from parents/guardians where required.
- Sensitive information (such as BMI or medical details) should never be disclosed publicly.

2. Safe participation

- Self-reports should be simple, non-invasive, and limited to general wellbeing, daily routines, and nutrition habits.
- Teachers must ensure that students do not feel pressured to disclose information they are uncomfortable sharing.

3. Food chemistry experiments

- Experiments must use only safe, everyday food items (e.g. bread, juice, yogurt) and simple household substances (e.g. iodine solution for starch tests).
- No harmful chemicals should be used under any circumstances.
- Teachers should supervise all experiments closely to prevent accidents or misuse.

4. Wellbeing during the project

- The project should promote healthy habits, not reinforce negative self-perceptions.
- Teachers should provide support for students who may struggle with discussions about diet, body image, or sleep.

5. Online collaboration

- International exchanges must take place on safe, moderated platforms (e.g. Discord groups managed by teachers).

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APPENDIX

Complementary Information

I. Circadian Rhythms and Health

- UNICEF – Adolescent nutrition overview: https://www.unicef.org/nutrition/middle-childhood-and-adolescence
- PubMed – Review on adolescent nutrition and health: https://pubmed.ncbi.nlm.nih.gov/36924388/

II. Food Chemistry Basics

- ASM – Starch Agar Protocol (PDF): https://asm.org/asm/media/protocol-images/starch-agar-protocol.pdf?ext=.pdf
- ASM – Carbohydrate Fermentation Protocol (PDF): https://asm.org/asm/media/protocol-images/carbohydrate-fermentation-protocol.pdf?ext=.pdf
- University of Wisconsin – *Fermentation in a Bag* Instructor Guide (PDF): https://energy.wisc.edu/sites/default/files/2017-05/Fermentation%20In%20A%20Bag%20Instructor%20Guide.pdf

III. Nutrition and Health (WHO / UNESCO etc.)

- WHO – Guideline on adolescent nutrition (PDF): https://apps.who.int/iris/bitstream/handle/10665/260297/9789241513708-eng.pdf
- Johns Hopkins Medicine – Healthy eating during adolescence: https://www.hopkinsmedicine.org/health/wellness-and-prevention/healthy-eating-during-adolescence

IV. Cross-cultural Comparisons & Survey Guidelines

- Nutrition International's Global Learning Center: https://global.learning.nutritionintl.org/

V. Data Analysis Tools

- WHO Child Growth Standards – Anthro Software & Survey Analyser https://www.who.int/tools/child-growth-standards/software
- WHO Nutrition Databases & Data Portal
- https://www.who.int/teams/nutrition-and-food-safety/databases

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