



Qualification Requirements for TGUP's Science Lab in a Box

The Global Uplift Project's **Science Lab in a Box (SLaB)** helps high schools deliver science education at international standard quality. It provides instruments, equipment, and supplies to carry out laboratory work in Physics, Chemistry, and Biology.

This document defines the requirements a school must meet to be a candidate for receiving a **TGUP Science Lab in a Box**. The requirements are intended to ensure that the **SLaB** is effectively utilized and that students are commensurately benefited.

Requirements:

Staff

Recipient schools must have credentialed teaching staff trained at a university level in the fields of Physics, Chemistry, and Biology. Staff must be competent to set up a working laboratory, to conduct standard experiments as defined in the **SLaB**, and be able to test for learning according to national standards.

Curriculum

Courses in at least two of Physics, Chemistry, and Biology must exist as part of the school's standard curriculum. The courses must include laboratory work and be geared to nationally-normed exams required for university matriculation.

Facilities

The school must have facilities competent for hosting standard laboratory work. This includes, but is not limited to, work benches with water, electricity, and gas. Facilities must exist to lock away expensive equipment when not being used.

Feedback

Schools and teachers must be willing to work with TGUP to report on the outcomes of the **SLaB** and students' work. This includes: reporting on the adequacy of equipment for individual experiments; reporting on nationally normed test scores; and matriculation rates before and after **SLaB** installation.



TGUP's Science Lab in a Box School Application

TGUP's Science Lab in a Box (SLaB) is available at no charge to schools that are qualified to use it appropriately. Please complete the below questions and return the completed form by email to cathyd@tgup.org.

School Name, Address, and website: Padmakanya Multiple Campus, Bagbazaar
WWW- PKMC. TU. EDU. NP

Principal's name and email address: Prof. Dr. Jaya Laxmi Pradhan

Senior Science Department official overseeing SLaB, and email address:
Dr. Neena Karmacharya, karmacharya129@gmail.com

Does your school have dedicated space for a science lab? Yes

Does that space have adequate work areas for conducting experiments? Yes

Does that space have locking cabinets to ensure security of equipment? No

Does the room have electricity? Yes water? Yes gas? Yes

Circle which laboratory classes are part of the school's formal curriculum:

Biology Chemistry Physics Other: All

Is there a dedicated, university-trained teacher for each class? Yes

Does your school meet the standards for national university matriculation? Yes

How many students in the school? 250 # Boys x # Girls 250

How many teachers in the school? 45

of students who study laboratory science in any given year x



Pradhan

who study Biology in any given year: Students of Microbiology and Environmental Science
who study Chemistry in any given year: Students of Microbiology and Environmental Science
who study Physics in any given year: Students of Physical Groups
% of students who matriculate every year to college or university 95%

Is your school willing to provide structured feedback to TGUP on:

- Specific outcomes at the experiment level? Yes
- Overall outcomes at the class level? Yes
- Improvements on standardized national tests at the school level? Yes
- Improvements to matriculation at the school level? Yes

Name (if any) of the TGUP partner who has brought SLaB to your school's attention:



School Principal's signature and date:

Pradha 8 August 2024
Campus Chief

Science Dept. Official's signature and date:

Ganachya 2082104/24 (8 August 2024)

TGUP Partner (or equivalent) Official's signature and date:

TGUP * (650) 575-3434 * 4164 Stanford Way, Livermore, CA 94550 * tgup.org
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TGUP'S Science Lab in a Box (SLaB)

IDENTIFY WHICH EXPERIMENTS YOUR SCHOOL IS DOING OR PLANS TO DO

Biology Experiments

1. DNA Extraction
2. Classifying Plant & Animal Cells
3. Solute Concentration Effect on Cells
4. The Cell Cycle
5. Photosynthesis
6. Fermentation
7. Bacterial Growth
8. Natural Drug Discovery
9. Food Web Using Owl Pellets
10. Water Quality Testing

Currently doing	Will do with SLaB	Will not do	Not in curriculum
	✓		
✓			
✓			
	✓		
	✓		
	✓		
	✓		
			✓
	✓		
	✓		

Chemistry Experiments

1. Mass, Volume and Density
2. Chemical Reactions & Reagents
3. Identifying Cations
4. Acid-Base Titration
5. The Universal Gas Constant.
6. Specific Heat of Metals
7. Acid / Base Reactions
8. Products of Combustion
9. Temperature vs. Reaction Rate
10. Temperature vs. Solubility

	✓		
✓			
✓			
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Physics Experiments

1. Free Falling Projectiles
2. Newton's Laws in Equilibrium
3. Circular Motion
4. Work & The Conservation of Energy
5. Simple Harmonic Oscillators
6. Impulse & Conservation of Momentum
7. Sound and Light Wave Phenomenon
8. Electrostatics, Ohm's Law & Circuits
9. Magnetism/Electromagnetic Induction
10. Geometric Optics - Mirrors & Lenses

			✓
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✓			

