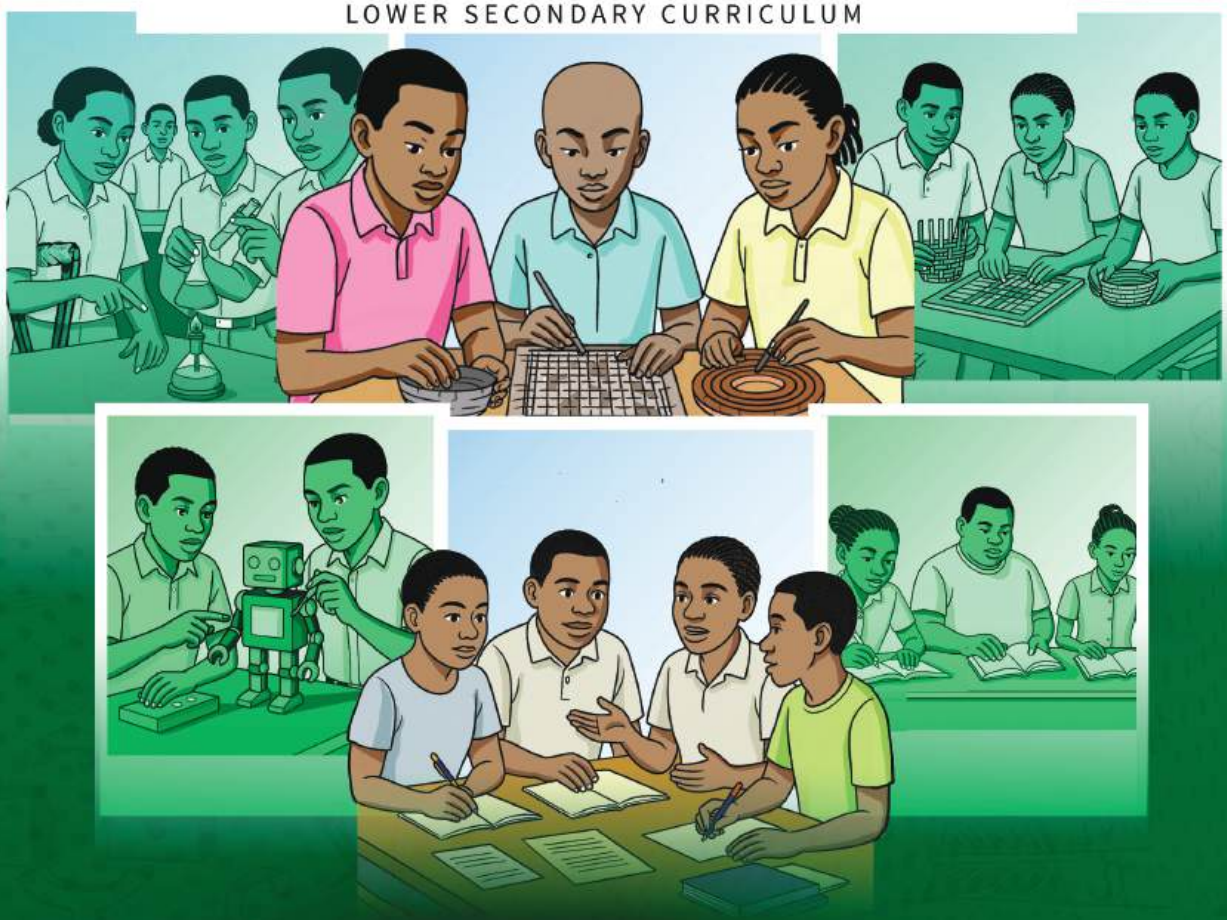
THE REPUBLIC OF UGANDA
MINISTRY OF EDUCATION AND SPORTS

NCDC
NATIONAL CURRICULUM DEVELOPMENT CENTRE

Guidelines on Project Based Learning

LOWER SECONDARY CURRICULUM



July 2025

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LOWER SECONDARY CURRICULUM

July 2025

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FIRST EDITION

National Curriculum Development Centre
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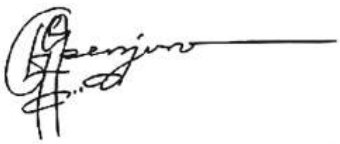
Contents

FOREWORD

The Lower Secondary Curriculum places the learner at the centre of the educational process, emphasising learner-centred approaches that make learning active, meaningful, and relevant. Project-based learning (PBL) is a key method that brings this vision to life, engaging learners in hands-on experiences and real-world applications.

These guidelines are intended as a practical compass for teachers, learners, and assessors, parents, and other stakeholders navigating the dynamic landscape of PBL. By immersing learners in authentic, project-driven scenarios, educators can nurture critical thinking, problem-solving, creativity, and deep understanding across subjects.

Designed to inspire and guide teachers—whether experienced or new to PBL—this resource provides strategies for planning, implementing, and assessing meaningful projects that foster curiosity, collaboration, and a lifelong love of learning. As Uganda advances this transformative approach, may these guidelines serve as a foundation for cultivating learners who are not only knowledgeable but also resilient, innovative, and ready to thrive in a rapidly changing world.



Prof. George Ladaah Openjuru
Chairperson NCDC, Governing Council

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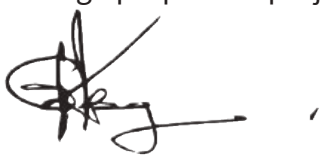
The National Curriculum Development Centre (NCDC) gratefully acknowledges the individuals and institutions whose commitment and expertise made the Guidelines on Project-Based Learning (PBL) possible. These Guidelines are intended to support the implementation of Uganda's competency-based curriculum in our Secondary Schools.

We extend sincere appreciation to the Writing Panels, drawn from schools, universities, teacher education institutions, and curriculum specialists for their rigorous drafting and refinement of the material. We thank the Secondary Department and other NCDC technical teams for coordination, editorial work, and production support.

We are indebted to colleagues across government and the broader education fraternity whose guidance affirmed the relevance and usability of these Guidelines. The collaborative spirit shown at every stage has greatly enhanced the quality and contextual fit of this publication.

While many contributed to this work, NCDC assumes full responsibility for any errors, omissions, or shortcomings that may remain. Education is dynamic, and so too is this resource. We therefore welcome suggestions for improvement to inform future editions. Kindly share feedback through the official NCDC communication channels or by writing to the Office of the Director through P.O Box, 7002, Kampala or email: admin@ncdc.go.ug or through our website at www.ncdc.go.ug

Together, let us continue nurturing competent, creative, and ethical learners through purposeful project-based learning.



Dr Grace K. Baguma
Director
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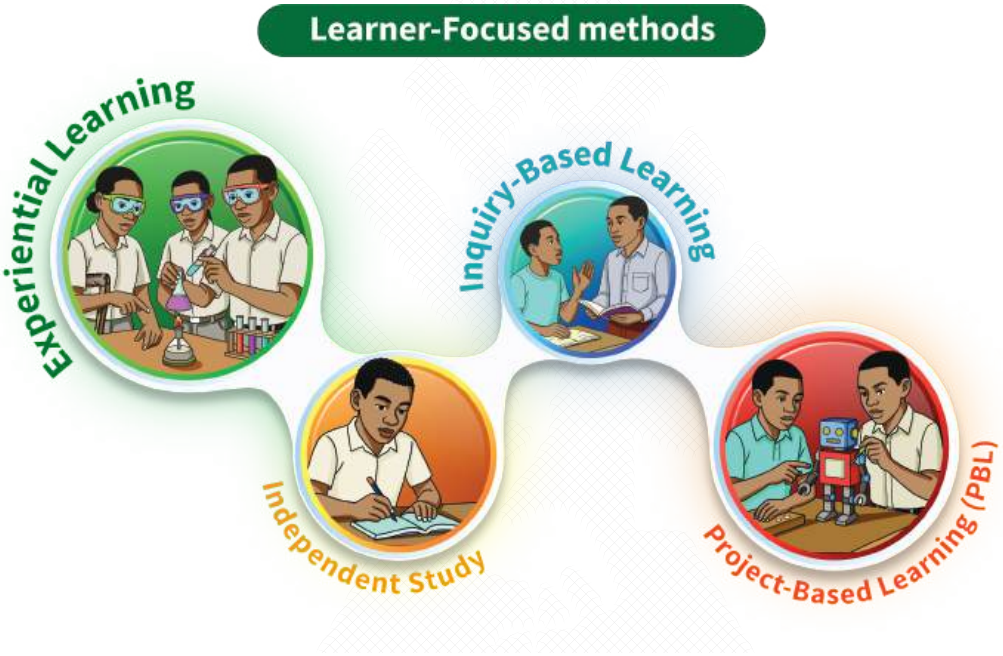
Acronyms

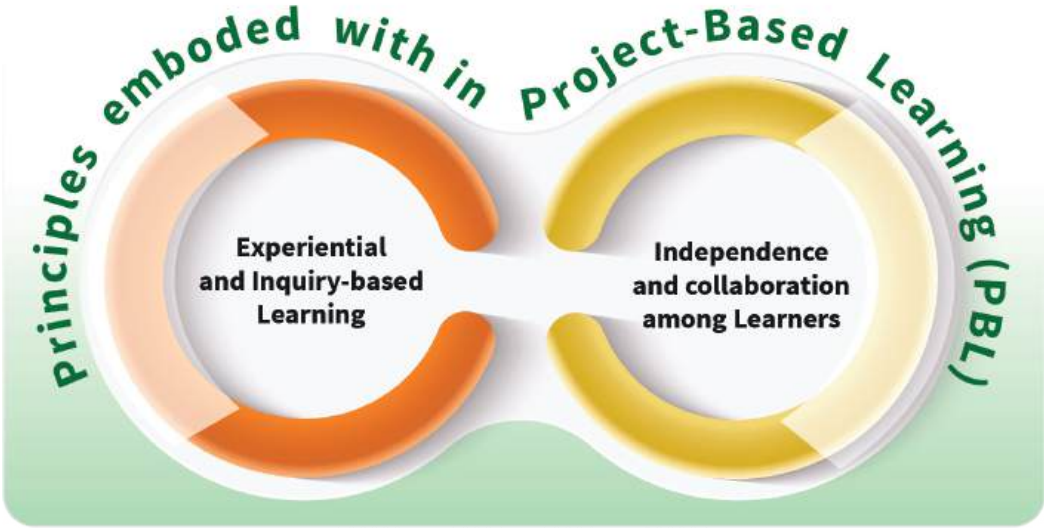
CBL:	Competency-Based Learning
GS:	Generic Skills
ICT:	Information and Communication Technology
KLOs:	Key Learning Outcomes
LOs:	Learning Outcomes
LSC:	Lower Secondary Curriculum
NCDC:	National Curriculum Development Centre
PBL:	Project-Based Learning

INTRODUCTION

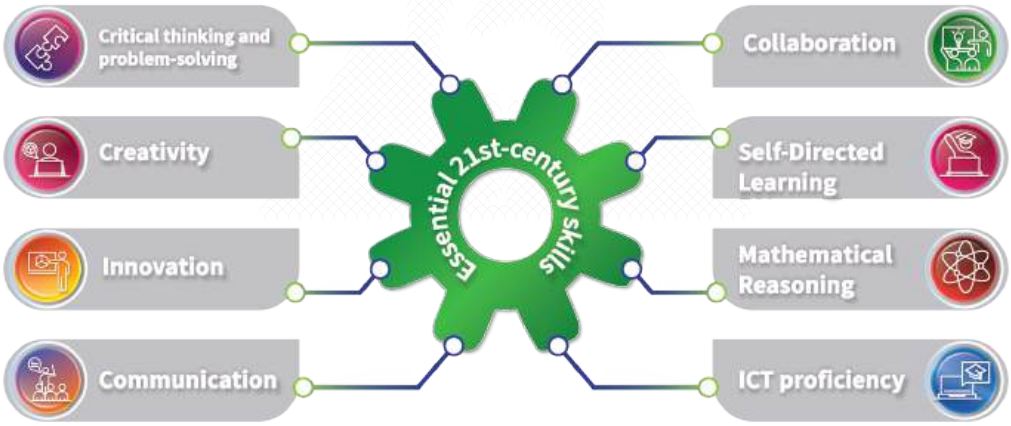
The Lower Secondary Curriculum (LSC), rolled out in 2020, is competency-based and learner-centred. Competency-Based Learning (CBL) emphasises the mastery of specific, observable skills essential for success in school and beyond. To achieve this, the curriculum employs a variety of learner-focused methods, including Experiential Learning, Independent Study, Inquiry-Based Learning, and Project-Based Learning (PBL).



While all these methods contribute to the realisation of CBL goals, PBL is highlighted in these guidelines because of its integrative nature. It provides a practical framework through which learners can apply knowledge, skills, and values from different subjects to solve authentic, real-life problems. PBL naturally embodies the principles of experiential and inquiry-based learning while also encouraging independence and collaboration among learners. Its holistic design makes it an effective vehicle for developing and assessing the generic skills and key learning outcomes emphasised in the LSC.



Project-Based Learning enables learners to collaborate on real-world challenges. It fosters essential 21st-century skills such as critical thinking and problem-solving, creativity, innovation, communication, collaboration, self-directed learning, mathematical reasoning, and ICT proficiency, as outlined in the LSC framework. Beyond developing these skills, PBL promotes deeper understanding and the ability to transfer knowledge to new contexts.



The purpose of these guidelines is therefore to provide practical direction for teachers, learners, school administrators, inspectors, assessors, and policymakers on effectively implementing and supporting PBL in schools.

Project-Based Learning Versus Projects

Understanding Project-Based Learning (PBL)

Project-Based Learning (PBL) is a teaching and learning approach in which learners develop knowledge and skills by engaging over an extended period with authentic, complex, and meaningful problems, or challenges. Examples of PBL activities include designing a website, planning a school event, creating a fitness programme, or designing a production stage. Through PBL, learners actively tackle real-life problems while applying creativity, critical thinking, communication, and collaboration.

Understanding Projects

A project, in the traditional sense, is a structured series of tasks aimed at producing a specific, predefined outcome or product—such as constructing a house, launching a company website, staging a play, or developing a food product. Projects typically follow predetermined standards, steps, and milestones, focusing more on the final product than on the learning process.

Table 1:

Highlights of the Key Differences Between the PBL and Doing a Project

Aspect	Project-Based Learning	Doing a Project
Goal	Develop deep understanding of concepts through application of knowledge, skills, and values	Achieve a specific output or deliverable
Learning Style	Learner-centred; encourages exploration, critical thinking, and creativity	Task-oriented; learners follow a predefined set of steps
Teacher's Role	Facilitator who guides, frames, and supports learners using inquiry questions that challenge assumptions and promote exploration of complex ideas and concepts Takes care of learners with special education needs	Instructor who provides directives and procedures to ensure tasks are completed

Learners with Special Educational Needs	Teacher adapts facilitation to support all learners in the inquiry and learning process	Teacher provides clear instructions and step-by-step guidance to complete tasks
Learner's Role	Owns learning, frames key question, documents progress, and consults teacher and peers during the process	Establishes the problem, formulates a topic, develops a plan, executes tasks, and presents a finished product
Problem-Solving	Focuses on developing problem-solving skills, critical thinking, and transfer of learning	Focuses on completing tasks to meet predefined objectives
Real-Life Application	Integrates learners' ideas, knowledge, and skills to solve authentic, real-life problems	May or may not relate directly to real-world situations
Duration	Flexible; can be ongoing or integrated without strict timelines	Has a specific timeframe for completion
Order of Execution and Outcome	Investigative and open-ended; processes and results cannot be fully predicted	Follows known procedures with a predetermined outcome

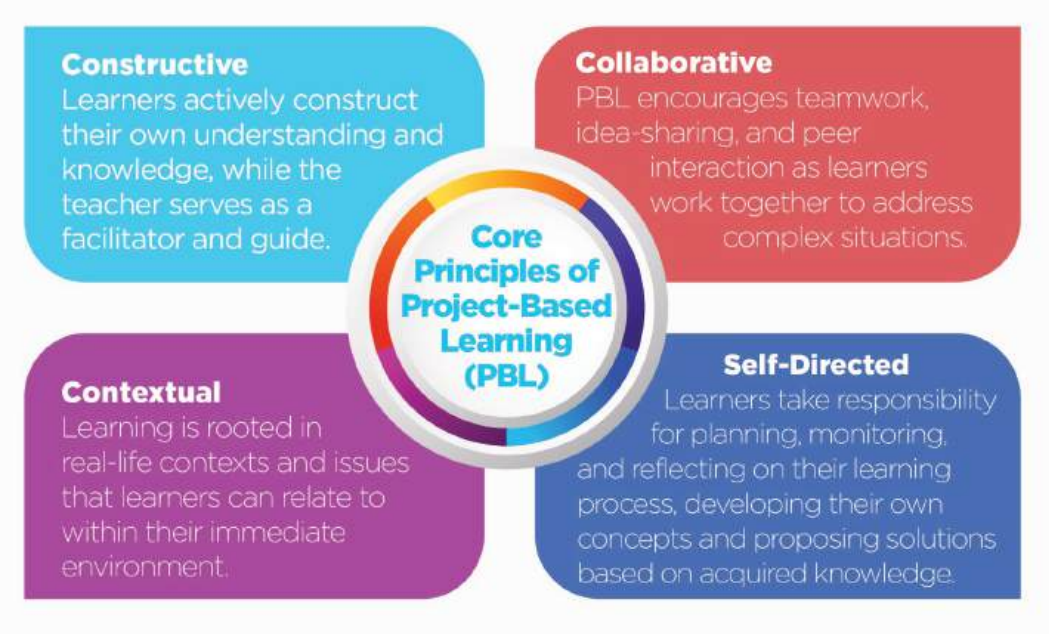
While both project-Based Learning (PBL) and doing a project involve practical, hands-on activities, the key distinction lies in the emphasis on the learning process. PBL is inquiry-driven and highly investigative, allowing learners to experiment with new approaches as they work toward solving real-world problems. In contrast, doing a project focuses primarily on producing a final product by following a known procedure to completion.

Reflective Prompts for Teachers Before Implementing PBL

i. Do I fully understand the difference between PBL and doing a Project?

Core Principles of Project-Based Learning (PBL)

PBL is an inquiry-based educational approach that engages learners in exploring authentic, real-world problems through individual or collaborative projects. It is anchored on four core principles:



Why Project-Based Learning (PBL) in Lower Secondary Curriculum (LSC)?

Project Based Learning was adopted in the Lower Secondary Curriculum to strengthen the practical, experiential, and integrative nature of Competency-Based Learning (CBL).

It provides learners with authentic opportunities to apply knowledge, skills, attitudes, values to address real-world problems—thereby bridging the gap between classroom learning and life beyond school.

PBL nurtures self-discovery, creativity, and innovation while promoting deeper conceptual understanding.

It shifts learning from rote content coverage to meaningful application, empowering learners to become active participants in constructing knowledge and finding solutions to problems or challenges within their communities.

Through PBL, learners actualise the Key Learning Outcomes (KLOs) outlined in the LSC Framework, which form the foundation of the Graduate Profile. For example, the outcome of *lifelong learning* emphasises the ability to plan, reflect, and take ownership of one's learning—skills that PBL naturally cultivates through its inquiry-driven and reflective processes.

Moreover, implementing PBL enhances both generic skills and subject-based competencies by enabling learners to:

In essence, PBL operationalises the core principles of the LSC—ensuring that learning is relevant, learner-centred, and competency-driven. It prepares learners not just to meet academic standards but to thrive as adaptable, responsible, and innovative citizens in a rapidly changing world.

Standards for Project-Based Learning (PBL) Activities

Project-Based Learning (PBL) activities should adhere to clearly defined standards that guide teachers in regulating and supporting the learning process. See Figure 1. According to the Buck Institute for Education (BIE), the following standards are essential for effective implementation of PBL.

Figure 1: Standards for PBL activities

1) **A Driving Question:**
   Each PBL activity should begin with an open-ended question that presents a challenging problem to solve. The question should align with the learners' level, the Key Learning Outcomes (KLOs), topical competencies, and Learning Outcomes (LOs). It should prompt learners to demonstrate skills such as critical thinking, problem-solving, communication, self-management, and collaboration.

2) **Sustained Inquiry:**

Learners should engage in a rigorous and extended process of inquiry that involves asking questions, finding resources, researching, and applying the information gathered to address the driving question.

Reflective Prompts for Teachers Before Implementing PBL

i. How well does the **inquiry question** enable the learners to practice the **7 core standards of PBL?**
ii. What **resources** (time, materials, support) will learners need to address the inquiry question successfully?
iii. Have I considered the **diverse learning needs** of my learners, including those with special educational needs?
iv. What **challenges** might arise, and how can I plan to address them?

3) **Authenticity:**

PBL Activities should be grounded in real-life contexts, task, tools, quality standards, and impacts that connect to learners' personal experiences, interests, and community issues.

4) **Learner's Voice and Choice:**

Learners should be given opportunities to make key decisions regarding the design and implementation of PBL activities, including how they work, and the products they create.

5) **Reflection:**

Both learners and teacher should engage in reflective practices to evaluate what has been learned, identify effective strategies, recognise challenges encountered, and explore ways to overcome them. Sample reflective prompts at different stages are provided below.

Reflective Prompts During PBL Implementation

i. Are the learners **actively engaged** and **collaborating** effectively?
ii. Am I providing the right balance of **guidance** and **independence** for learners?
iii. Are learners **documenting** their process and **reflecting** on their progress?
iv. Is my assessment capturing both the **learning process** and the **final product**?
v. Am I adapting my facilitation based on the ongoing **observations of learners' needs**?

6) **Critique and Revision:**

BPL activities should include structured opportunities for learners to give, receive, and apply feedback to improve both their learning processes and final products.

7) **Public Product:**

Learners should be provided with opportunities to present and explain their work to audiences beyond the classroom, showcasing both their processes and products to demonstrate understanding and application of learning.

Reflective Prompts After PBL Implementation

i. To what extent did the learners achieve the **intended knowledge, skills, values** and **attitudes**?
ii. What went well in my facilitation, and what could I **improve next time**?
iii. Were the learners able to **apply their learning** to **real-world contexts**?
iv. Is the learners voice prominent or reflected in their work?
v. What **lessons have I learned** that will help me **refine future inquiry questions** ?

Planning and Designing Project-Based Learning (PBL) Activities

Designing effective Project-Based Learning (PBL) activities requires careful planning to ensure that learners engage in meaningful and relevant learning experiences. Each activity should be directly linked to Key Learning Outcomes (KLOs), subject learning outcomes (LOs) and Generic Skills (GS) that underpin the overall aims of the Lower Secondary Curriculum. The following steps outline a systematic approach for planning and implementing PBL activities.

1 Identify Clear Learning Outcomes:

a. Clearly articulate the knowledge, skills, values, and attitudes that learners are expected to develop through the PBL activity.
b. Ensure that these outcomes align with the curriculum competencies and assessment standards.

2 Link Learning Outcomes to a Real-World Context:

a. Select a meaningful and authentic context in which the problem is situated, and connect it to learners' interests and lived experiences.
b. Ensure that the problem or challenge to be addressed has a practical relevance and application beyond the classroom setting.
c. Consider learners' prior knowledge, skills, and learning styles when designing the project to cater for diverse abilities.

3 Establish a Driving Question:

a. Develop a compelling, open ended question that frames the challenge or problem the learners are supposed to address and stimulates curiosity and inquiry.
b. The driving question should require learners to apply critical thinking, creativity, and problem-solving to arrive at meaningful solutions and conclusions.

4 **Learners Plan how to go about the project:**

a. Through discussion, learners come up with topics which they can use to investigate the problem at hand.
b. Generate the objectives of the project
c. Select methods and resources.
d. Determine phases and time lines.
e. Budget for the project, if necessary.

5 **Execute/Carry out the chosen project:**

a. Learners share roles to execute at different stages of the learning process.
b. Learners apply the methods of investigation chosen during planning
c. Learners continuously consult with the teacher

6 **Plan the Assessment Process:**

a. Develop clear assessment criteria aligned with the learning outcomes.
b. Use a combination of formative and summative assessments to evaluate both the learning process and the final products.
c. Formative assessment should focus on process and progress, while summative assessment should evaluate the final outcomes, lessons learned, and collaboration.

7 **Plan to Celebrate the Final Products:**

a. Organise a concluding event or presentation session where learners can showcase and share their work.
b. Invite audiences beyond the classroom—such as peers, parents, or community members—to enhance authenticity and accountability.

Note Learners should be given opportunities to integrate ideas and concepts from multiple disciplines and to explore the interconnections among various subjects.

Implementation Strategies

This section outlines strategies teachers can employ to effectively facilitate PBL activities and support learner engagement throughout the process.

Once the groups are established, guide learners into the project context to stimulate inquiry and discussion. Where possible, provide an exposition of the different dimensions of the challenge. After a meaningful discussion has emerged, introduce the driving question. The discussion serves as the foundation for idea generation and project planning.

Guide learners to:

i) **Develop a Project Timeline:**

Outline clear stages with milestones to guide the project from initiation to completion. Include checkpoints for reflection, peer feedback, revision, and improvement.

Sample PBL Timeline (8 Weeks)

Week	Activities	Teacher Role	Learner Role	Notes/Resources
1	**Project Introduction & Context:** Provide the situation/ challenge and a driving question.	Provide background knowledge, facilitate discussion, guide brainstorming.	Ask questions, explore prior knowledge, express initial ideas.	Classroom discussion, charts, videos, local examples.
2	**Research & Inquiry Planning:** Identify what learners need to know and plan inquiry strategies.	Help learners develop Project topics, Objectives and research questions; suggest credible sources, guide group formation.	Form groups, develop project topics and objectives, plan inquiry approach, list needed resources.	Books, local observations, offline digital content (Kolibri, tablets).
3-4	**Investigation & Data Collection:** Field visits, observation, interviews, experiments.	Support fieldwork, ensure safety, provide reflection checkpoints.	Conduct research, take notes, gather evidence, document findings in portfolios.	Community visits, local environment, cameras/phones for documenting findings.
5	**Analysis & Design Planning:** Analyse data,	Facilitate discussions, challenge assumptions,	Analyse research, propose designs,	Graph paper, markers, locally available materials.

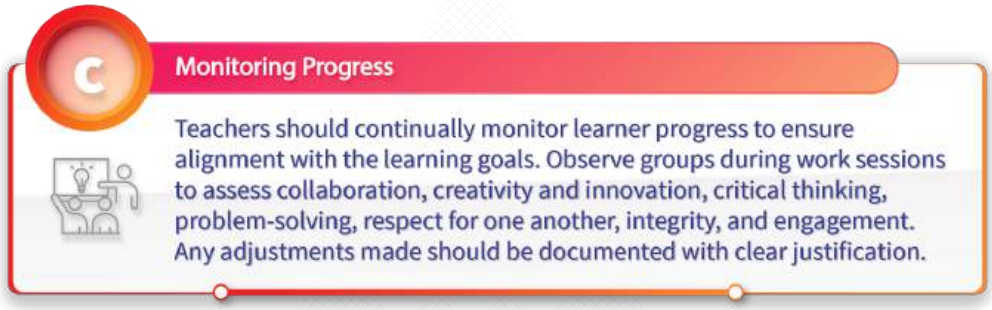
	brainstorm solutions, start drafting habitat designs.	provide formative feedback.	discuss within group.	
6	**Prototype & Testing:** Build models or draft plans; test feasibility.	Guide problem-solving, check alignment with learning outcomes.	Create models or diagrams, test ideas, document process.	Cardboard, sticks, recycled materials, photos for documentation.
7	**Final Product & Presentation Prep:** Finalise reports, designs, and prepare presentations.	Advise on communication strategies, review rubric criteria.	Compile portfolio, finalise reports, rehearse presentations.	Portfolios, posters, slides, or drawings.
8	**Presentation & Reflection:** Present to peers, teachers, community; reflect on learning.	Assess using rubric, facilitate reflective discussions.	Present project, receive feedback, write reflection notes.	Community audience, feedback forms, reflective journals.

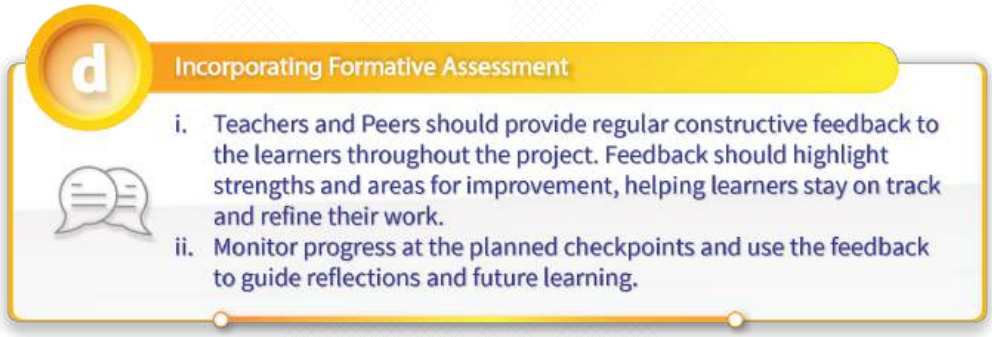
ii) Map Out Required Resources and Support:

Support learners in identifying materials, technology, and human resources needed to implement the project. Encourage use of ICT tools such as collaboration platforms, simulations, and data collection tools to enhance efficiency and creativity, while emphasising the use of low-cost, locally available resources.

iii) **Document the Process:**

Instruct learners to document each stage of responding to the inquiry question as evidence of participation and progress. Documentation should be compiled in a portfolio, capturing reflections, problem-solving stages, and originality.





Example of PBL Activity

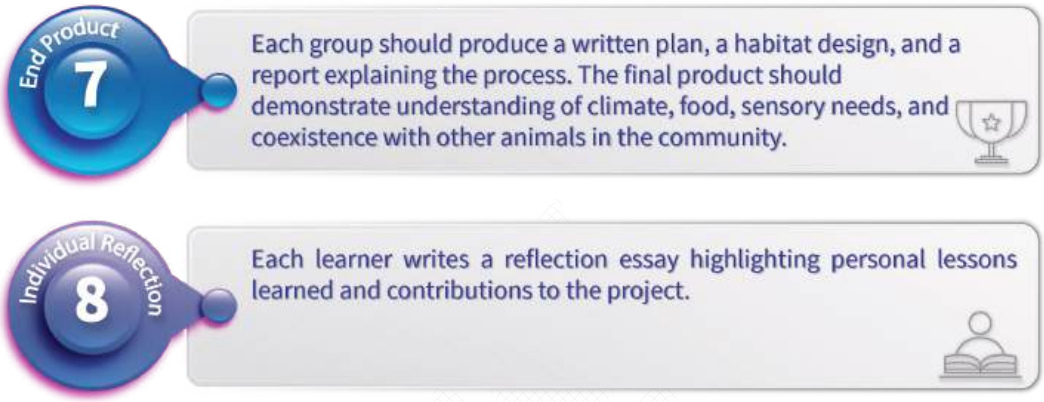
Topic: *Concept of Ecology (Biology)*
Competency: *The learner understands the concepts of communities, habitats, and ecosystems*

Driving Question: *How can we plan a suitable habitat for the newest animal to be introduced in our community or homestead?*
Teachers should design an assessment plan to evaluate learner's efforts, progress, and final products. A sample assessment rubric for this activity is provided in the subsequent section.

Introducing the Driving Question

A PBL activity requires a structured and engaging introduction. The driving question should be introduced after learners have gained sufficient background knowledge and context. The following sequence is recommended:

1. **Field or Virtual Visit** — Take learners to a nearby community or facilitate a virtual tour to explore various animal habitats. Alternatively, conduct a brainstorming session where learners identify local animal habitats and gather information about animal-environment relationships.
2. **Class Discussion** — Lead a discussion on key elements of animal habitats, allowing learners to compare and contrast observations from different species.
3. **Inquiry Phase** — Guide learners to investigate the characteristics and ecological importance of selected animal habitats and their interrelationships within the environment.
4. **Introduce the Driving Question** — Once learners have developed foundational understanding, present the driving question to anchor the project.
5. **Group Work:** — In groups, learners choose an animal they wish to introduce to their community or use gathered information to design an appropriate habitat.
6. **Guided Inquiry** — Provide guiding questions to help learners to explore what would be necessary to create a suitable habitat for the chosen animal.



Note: The teacher should offer continuous guidance throughout the project. Learners should document lessons learned at different stages, which will inform their project report and reflection essays.

Overcoming Challenges in PBL Implementation

Project-Based Learning (PBL) often presents challenges that go beyond inexperience or limited exposure. Teachers may struggle with issues such as time management, assessment complexity, resource constraints, or the need for institutional support. Overcoming these challenges requires a proactive, reflective, and collaborative approach. Teachers should adopt the following strategies to address these challenges:

01 **Use Challenges as Teachable Moments:**
Discuss difficulties openly with learners and identify lessons each situation presents. Encourage learners to reflect on what worked, what didn't, and how their approaches might evolve. This not only builds resilience but also models problem-solving behaviour.

02 **Encourage Persistence:**
PBL thrives on persistence. Teachers should cultivate a growth mindset, helping learners view setback as opportunities for learning rather than failure. Praise effort, creativity, and collaboration as much as correct solutions.

03 **Provide Emotional Support:**
A safe and supporting classroom climate encourages learners to take intellectual risks. When learners know their struggles are valued as part of the process, they become more engaged and willing to explore new ideas.

04 **Maintain Continuous Communication:**
Regular check-ins and open dialogue help identify difficulties early. Through class discussions, peer feedback, and reflection logs, teachers can monitor both emotional and academic progress.

05 **Strengthen Teacher Collaboration:**
Working collaboratively with colleagues to plan and review PBL activities reduces isolation and enhances innovation. Shared lesson design, co-teaching, and peer reflection can make the process more manageable and enriching.

06 **Seek Ongoing Professional Development:**
Engaging in training, workshops, or online professional learning communities enables teachers to deepen their understanding of project-based learning and its assessment strategies.

07 **Engage Stakeholders:**
Parents, administrators, and community partners can support PBL by providing resources, expertise, guidance, and authentic contexts for problem-solving. This also helps learners connect classroom learning to real-life situations.

Assessment of Project-Based Learning (PBL)

Assessment in Project-Based Learning (PBL) should be guided by a well-structured rubric that evaluates both the learning process and the final product. The rubric should be flexible enough to accommodate diverse project outcomes. Below is a sample rubric for assessing the *Animal Habitat Project*.

Table 2:

Sample Scoring Rubric

Criteria	Indicator
Research and Information Gathering	Thorough research on the animal habitats and ecosystems; detailed, accurate notes; sources listed.
	Satisfactory research on the animal habitat and ecosystem with adequate notes and a few listed sources.
	Limited research on either habitat, ecosystem or both; incomplete notes but presented with accurate information; sources not consistently included.
	Minimal or no research conducted.
Planning and Critical Thinking	Logical and well-supported decisions; clear documentation.
	Mostly logical decisions; some supporting evidence
	Inconsistent reasoning; limited justification.
	Poor or missing planning and documentation.
Written Plan/ Report	Complete sentences; grammatically correct; free of errors.
	Mostly correct sentences; minor grammatical errors.
	Incomplete sentences; several grammatical errors.
	Incomplete, unclear, or illogical report.
Habitat Design	Creative, appropriate, and environmentally sensitive design.
	Appropriate design but lacks innovation or environmental consideration.
	Incomplete design with missing, elements.
	Habitat design not completed.
Presentation	Well-prepared, engaging presentation that effectively answers the driving question.
	Clear presentation with minor issues in delivery.
	Somewhat unclear presentation with limited focus.
	Unprepared or incoherent presentation.

Note: This rubric can be adapted for various projects across subjects. When customising, ensure that it captures the intended knowledge, process and generic skills, values, and attitudes associated with each learning outcome.

Conclusion

Project-Based Learning (PBL) is a learner-centred approach designed to effectively implement a competency-based curriculum. Unlike simply doing a project, PBL emphasises the learning process through inquiry, collaboration, and critical engagement. The teacher plays a pivotal role in guiding this process to ensure its success. A well-designed driving question serves as the compass for the entire project, connecting learners to real-world contexts that stimulate discussion, investigation, and reflection while maintaining focus on the general competencies and key learning outcomes.

Glossary of Key Terms

Term	Definition
Competence	The ability of an individual to perform a task successfully and efficiently according to a defined standard
Competency	The demonstrated ability of an individual to apply knowledge, skills, and attitudes confidently and effectively in a variety of contexts
Driving Question	A thought-provoking, open-ended question that guides the focus of a project or inquiry-based learning activity.
Formative Assessment	A continuous process of evaluating a learner's performance by interpreting their responses to tasks to gauge progress and inform subsequent learning step. Its goal is to help the learner progressively attain expert-level understanding
Generic Skills	Broad-based skills that can be applied across subjects to enhance learning. These skills also prepare learners for employment and life beyond school
Goal	A desired result or outcome that an individual or organisation aims to achieve within a specific timeframe
Graduate Profile	A comprehensive description of knowledge, skills, attitudes, and attributes that learners are expected to possess upon completing a given level of education the time they graduate from a school
Portfolio	A curated collection of a learner's work that demonstrates progress, achievements, actions and skills over time.

Learning Outcome	A clear statement specifying what a learner should know, understand, or be able to do at the end of a learning experience
Summative Assessment	A method used to evaluate learning, skill acquisition, and academic achievement at the end of an instructional period, such as a topic, sub-topic, competency, or school year
Topical Integration	The process of combining concepts or topics into a cohesive learning experience to create meaningful and engaging learning opportunities
Rubric	An assessment tool that outlines specific criteria performance levels for evaluating tasks, projects, or performance.

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