

PROJECT WORK SYLLABUS

Pre-University

Implementation starting in
2024 for Pre-University Level



Ministry of Education
SINGAPORE

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SECTION 1: INTRODUCTION

- 1.1 Value of Project Work: Enabling Future-Ready Students
- 1.2 Project Work Syllabus Aims and Learning Outcomes
- 1.3 Nurturing the Desired Outcomes of Education through Project Work

1. INTRODUCTION

1.1 VALUE OF PROJECT WORK: ENABLING FUTURE-READY STUDENTS

Project Work (PW) is a key enabler for the development of 21st Century Competencies (21CC) that nurtures students to learn for life and thrive in the future, taps into their creative wellspring, and harnesses their interests and talents to generate value and goodwill to benefit society.

Project Work as a Key Enabler of 21CC Development in the A-Level Curriculum

PW has a unique value proposition which sets it apart from other subjects in the A-Level curriculum as it develops competencies and life skills in an authentic and applied manner. The nurturing of 21CC requires a combination of knowledge and skills that build on one another. PW facilitates the dynamic interplay of 21CC as students make sense of a real-world issue, share and embrace multiple perspectives to build new understandings and solutions. Students also grow as individuals and responsible members of society as they collaborate and learn to manage relationships with others from diverse backgrounds.

In PW, students have the opportunity to:

- break away from the compartmentalisation of subject-specific knowledge and skills. In examining a real-world issue, students integrate knowledge from different domains, making interdisciplinary connections that help to deepen their understanding of the issue;
- think flexibly and inventively to generate ideas and possibilities for problems without fixed solutions, so as to make a positive difference;
- pursue research in an area that is of interest to them, developing information and digital literacy in the process;
- experiment, innovate and create, nurturing student agency and engendering joy of learning;
- engage relevant stakeholders to enable deeper learning through an authentic learning experience;
- work in groups over a sustained period which allows them to learn more about themselves and others, develop the skills for effective communication and collaboration and nurture essential social-emotional competencies; and
- become more confident and effective communicators as they are required to make a formal oral presentation of their project ideas.

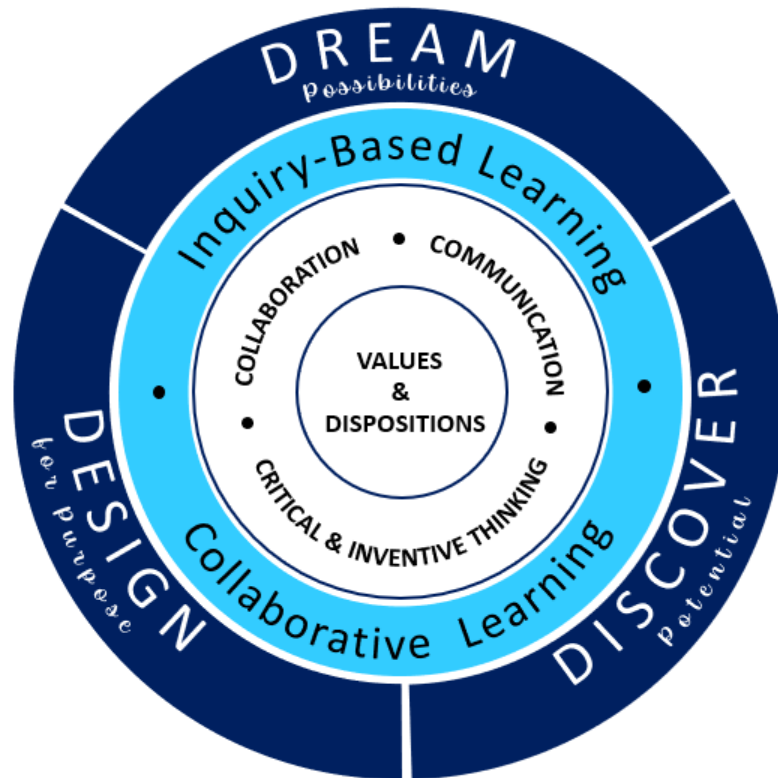
1.2 PROJECT WORK SYLLABUS AIMS AND LEARNING OUTCOMES

Syllabus Aims

The PW Teaching and Learning Syllabus aims to develop students who are:

- active and discerning inquirers of knowledge;
- inventive thinkers who have the courage to explore novel ideas;
- empathetic and effective communicators;
- adaptable individuals who work well independently and in teams; and
- responsible stewards of society.

The PW Curriculum Design



The PW curriculum design reflects the key features of the syllabus.

Dream Possibilities, Discover Potential, Design for Purpose – The Project Work Learning Experience

The PW curriculum design is underpinned by a unique collaborative learning experience that empowers all students to *Dream Possibilities, Discover Potential* and *Design for Purpose* to bring value to others. PW enables students to engage in authentic learning through their active involvement in projects anchored in real-world issues.

Recommended PW Pedagogies

The PW cycle is undergirded by the recommended PW pedagogies, Inquiry-Based Learning and Collaborative Learning. These teaching approaches strengthen students' acquisition of essential 21CC and life skills, and are elaborated in the Teaching and Learning Guide. Guided by the Singapore Teaching Practice, the Teaching and Learning Guide supports the delivery of the Syllabus Aims and Learning Outcomes of PW and includes lesson ideas demonstrating the application of Inquiry-Based Learning and Collaborative Learning in the PW classroom.

PW Learning Outcomes – 21st Century Competencies, Skills, Values and Dispositions

The PW course enables students to develop the knowledge, skills, values and dispositions outlined below. Values and dispositions underpin students' acquisition of 21CC and life skills.

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By the end of the PW cycle, students will be able to:

- demonstrate critical and inventive thinking skills in gathering, analysing and evaluating information, and generating ideas that address real-world needs;
- communicate clearly, coherently and persuasively in collaborative discussion and in presenting ideas to a specific audience in both written and oral forms; and
- apply collaborative skills in managing the project effectively to achieve the group's goals.

At the heart of PW is the student who is inspired to contribute meaningfully to society, learn for life and thrive in the future. The PW course provides students with opportunities to further develop the following **values**:

- **Respect** through appreciating the diverse views and perspectives of team members and others involved in the project;
- **Responsibility** through seeking out accurate, credible and current information in order to make informed decisions at different stages of the project;
- **Resilience** through persevering in the pursuit of knowledge and understanding, as well as personal growth in the course of navigating the dynamic and uncertain challenges in their research and decision-making;
- **Integrity** through representing with fidelity the views and data gathered, as well as adhering to ethical principles in the conduct of research;
- **Care** through developing empathy for others and the desire to make a positive difference; and
- **Harmony** through contributing to a safe learning environment for the discussion of ideas and appreciating the need for both unity and diversity in their team.

Through the PW course, students should develop the following **dispositions**:

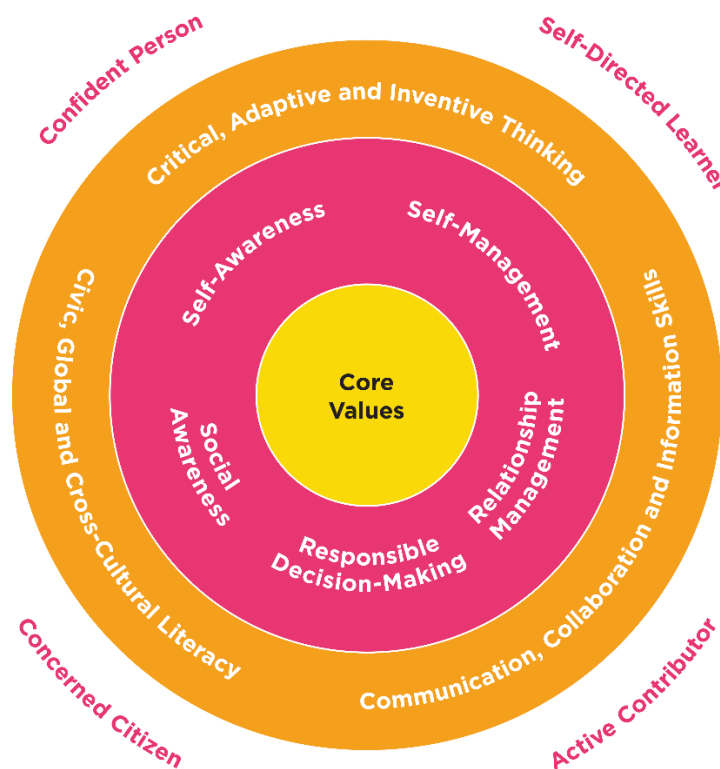
- an intrinsic motivation to wonder and seek new understanding, as well as to have a growth mindset;
- a questioning mind towards information, ideas and issues;
- a willingness to acknowledge and respect different perspectives;
- the humility to reflect on their own learning, mindset and beliefs;
- a commitment to participate in discussions in a respectful and informed manner;
- an openness towards managing uncertainties faced in new and unfamiliar contexts;
- the confidence to be resourceful and adaptable in generating innovative solutions;
- an appreciation of and an active interest in real-world issues, as well as local and global developments; and
- an appreciation and enactment of their responsibility to make a positive difference.

1.3 NURTURING THE DESIRED OUTCOMES OF EDUCATION THROUGH PROJECT WORK

The PW curriculum seeks to nurture the Desired Outcomes of Education which are the attributes that educators aspire for all students to possess. These attributes are a good sense of self-awareness, a sound moral compass, and the knowledge, skills and dispositions to take on the opportunities and challenges of the future.

The PW learning experience will also develop students who are:

- **confident persons** who have a zest for life, have a strong sense of right and wrong, are adaptable and resilient, know themselves, are discerning in judgment, think independently and critically, and communicate effectively;
- **self-directed learners** who take responsibility for their own learning, are curious, reflective, and persevering in the lifelong pursuit of learning, driven by their passion and purpose;
- **active contributors** who are empathetic and open-minded to collaborate effectively in teams, exercise initiative, have courage to take risks responsibly, are innovative, and strive for excellence; and
- **concerned citizens** who are rooted to Singapore, have a strong civic consciousness, are responsible to their family, community and nation, and take active roles in improving the lives of others.



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Framework for 21st Century Competencies and Student Outcomes¹

¹ For more information on the Framework for 21st Century Competencies and Student Outcomes, access [21st Century Competencies | MOE](#).

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Critical, Adaptive and Inventive Thinking

In PW, students apply Critical, Adaptive and Inventive Thinking skills to analyse a real-world issue and generate fresh solutions. Students ask questions and probe deeper to better understand their project area. Through their analysis and evaluation, students ensure a sound basis for their ideas. They engage in interdisciplinary learning as they tap and synthesise knowledge from different domains such as Science and Technology, the Humanities, Social Sciences, Media and Business.

Students exercise cognitive flexibility and think inventively as they co-construct innovative ideas to address a real-world issue. They demonstrate adaptability by exploring alternatives, reframing issues and modifying their plans in response to new and unexpected developments. Students also develop metacognition skills as they learn to regulate their thinking and feelings as individuals and as members of a group to enable strong teamwork.

Communication, Collaboration and Information Skills

Through sustained teamwork, PW deepens the development of communication and collaboration skills, as well as dispositions such as openness, a commitment to participate in discussions respectfully and a willingness to consider different perspectives. Students learn to communicate their ideas clearly and confidently to an audience in written and oral forms, leveraging digital platforms and tools appropriately. As they work with others and seek consensus in pursuing shared goals, students develop their social-emotional competencies, such as self-management, social awareness and relationship management.

With the availability of diverse sources, including digital information, students learn to evaluate information to ensure it is accurate, credible and current. They also learn to select and use information ethically, adhering to responsible behaviour when they use and create information.

Civic, Global and Cross-cultural Literacy

Through PW, students conduct research on a real-world issue or concern that they are interested in. In this process, they acquire a deeper understanding of issues within their community and also have their pulse on global developments. They develop a sensitive understanding of context. They are better prepared to engage with current concerns as they reach out to relevant stakeholders to ascertain their needs. Students learn to appreciate and respect diversity, and demonstrate sensitivity as they work with people from various backgrounds.

SECTION 2: CONTENT – KNOWLEDGE AND SKILLS

2.1 Area 1: Critical, Adaptive and Inventive Thinking

2.2 Area 2: Communication

2.3 Area 3: Collaboration

2. CONTENT – KNOWLEDGE AND SKILLS

Content for PW comprises knowledge and skills in the three areas of *Critical, Adaptive and Inventive Thinking, Communication and Collaboration*.

Metacognition plays an important role in all three areas for students to gain an awareness of and control over their own cognitive and affective processes to improve their learning. It enables students to monitor, evaluate and adjust the approaches and strategies used in learning.

2.1 AREA 1: CRITICAL, ADAPTIVE and INVENTIVE THINKING

Critical, Adaptive and Inventive Thinking enables students to develop a deeper appreciation of the project focus, analyse information, and generate appropriate solutions to make a positive difference.

Upon identifying an area or issue that presents an opportunity for improvement, students decide how to find, examine and manage relevant information. Through analysis and evaluation of information and ideas, students learn to empathise with the target group, appreciate the complexity of the identified issue, as well as generate innovative and valuable ideas to address the needs of the target group.

The skills related to Critical, Adaptive and Inventive thinking in PW are outlined below:

- Analysis and Evaluation of Information and Ideas
- Generation of Ideas
- Responding to Complexity and Ambiguity

2.2 AREA 2: COMMUNICATION

Communication in PW requires the clear and coherent exchange of information and ideas, in multi-modal ways, for specific purposes, audiences and contexts. Students will need to learn the skills for communicating effectively in formal settings. Communication also plays a crucial role in collaboration as students initiate, sustain and direct interaction with one another to co-construct and co-create ideas. Students demonstrate the attitudes and behaviours for collaborative communication as they agree on the focus of the group discussion, show respect while others are speaking and respond thoughtfully to questions and feedback.

In PW, students will learn and demonstrate the communication skills outlined below:

- Written and Oral Communication
- Collaborative Communication (Oral)

2.3 AREA 3: COLLABORATION

Collaboration, which involves working together with others to achieve shared goals, requires the application of skills in both the individual and social dimensions. Self-awareness and self-management enable one to collaborate and learn from others. In working with others, students learn to apply the skills of social awareness and relationship management to leverage their collective strengths, foster group cohesion and develop competence. Working together as a group to manage the project entails making joint decisions on group processes, strategies and responsibilities.

The skills related to collaboration in PW are outlined below:

- Self-Awareness and Self-Management
- Social Awareness and Relationship Management
- Group Decision-Making and Project Management

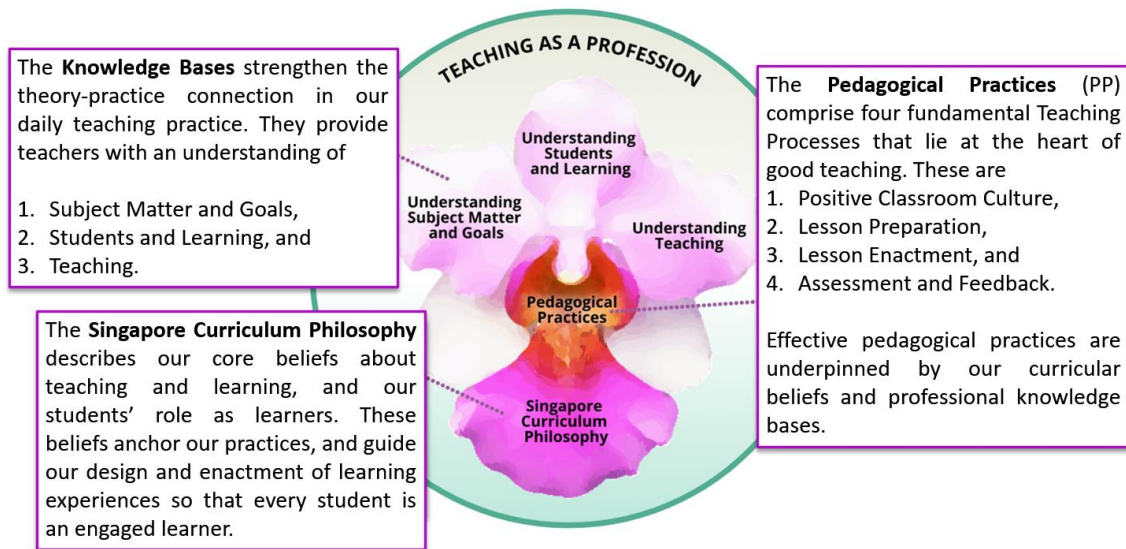
SECTION 3: PEDAGOGY

- 3.1 The Singapore Teaching Practice and Project Work Teaching and Learning
 - 3.2 Recommended Pedagogical Approaches for Project Work
 - 3.3 Technology-Enabled Teaching and Learning in Project Work

3. PEDAGOGY

3.1 THE SINGAPORE TEACHING PRACTICE AND PROJECT WORK TEACHING AND LEARNING

The Singapore Teaching Practice (STP) makes explicit how effective teaching and learning is achieved in Singapore schools. The components of the STP are presented in the model below.

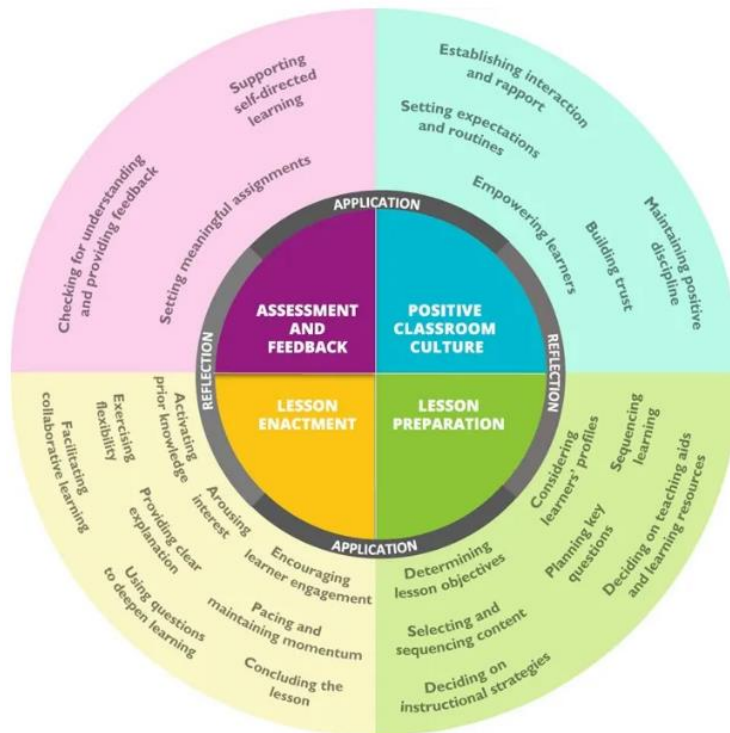


The Singapore Teaching Practice

All educators in Singapore are guided by The Singapore Curriculum Philosophy which describes teachers' core beliefs about learning that place every student at the heart of all educational decisions. In developing 21CC and life skills in students and guiding students to be responsible members of society, PW teachers will continue to uphold the Ethos of the Teaching Profession.

PW teachers are guided by the STP in considering their pedagogical approaches. To enable students with different learning needs and interests to achieve the learning outcomes of PW, teachers engage in Pedagogical Practices comprising the four fundamental Teaching Processes: Positive Classroom Culture, Lesson Preparation, Lesson Enactment, as well as Assessment and Feedback.

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Pedagogical Practices of the Singapore Teaching Practice

3.2 RECOMMENDED PEDAGOGICAL APPROACHES FOR PROJECT WORK

While there is no exhaustive list of pedagogical approaches prescribed for PW, this section outlines the recommended pedagogies for use in the PW classroom to facilitate the learning of knowledge, skills, values and dispositions in PW:

- Collaborative Learning; and
- Inquiry-Based Learning
 - Project-Based Learning
 - Design-Based Learning

Collaborative Learning

Collaborative Learning is a student-centred, coordinated, reciprocal and interactive approach that involves students of diverse backgrounds, knowledge, ideas and interests working together to complete a task, achieve a shared learning goal or address an issue. Through shared inquiry and dialogue, students exchange multiple perspectives, challenge ideas and negotiate collectively towards new understandings. Students learn to co-construct ground rules or norms, as well as identify and acquire the necessary skills to participate and contribute meaningfully to a group.

Inquiry-Based Learning

Inquiry-Based Learning (IBL) is a multi-faceted constructivist approach to teaching and learning in PW as students explore a real-world issue, phenomenon, or idea. IBL emphasises active and self-directed student learning where teachers activate and facilitate the process of

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inquiry. In PW, the IBL approaches commonly used include Project-Based Learning and Design-Based Learning.

- **Project-Based Learning**

Project-Based Learning engages students in the process of investigating and responding to a real-world problem. Beginning with a driving question, students engage in sustained inquiry to address the real-world problem. With teacher guidance, students exercise choice in goal setting, planning and monitoring the progress of the project. Through the inquiry process and the development and sharing of artefacts such as proposals, presentations or models, students work collaboratively to co-construct and refine their understanding of the real-world problem.

- **Design-Based Learning**

Design-Based Learning is a teaching approach in which students engage in inquiry to generate ideas and create prototypes for testing to address real-world issues and the needs of the target group. Through the process of generating and refining ideas and solutions, students become active learners. Deeper learning is supported when students generate a range of solutions, define criteria to evaluate competing ideas, and create artefacts or prototypes that require understanding and application of knowledge.

3.3 TECHNOLOGY-ENABLED TEACHING AND LEARNING IN PROJECT WORK

Educational technology is an enabler which contributes to a culture where learning is self-directed, personalised, connected and learner-centred. It is used to develop pedagogy, tools and structures for the design of physical and virtual learning environments that empower students to learn and take ownership of their learning.

In PW, in-class learning can be thoughtfully integrated with technology-based approaches to support deeper student learning. Teachers can leverage digital platforms to introduce students to authentic real-world issues through connecting a range of online and offline information sources. Teachers can also facilitate students' generation and evaluation of ideas using online collaborative platforms that enable students to collectively share, analyse and refine ideas in addressing a real-world issue. The affordances of technology enable teachers to capture evidence of learning, provide timely feedback and diagnose learning needs to design customised learning experiences to improve learning.

SECTION 4: ASSESSMENT

4.1 Assessment in the Singapore Teaching Practice

4.2 Formative and Summative Assessment in Project Work

4. ASSESSMENT

Assessment is the process of gathering and analysing evidence about student learning which includes 21CC development. Teachers make appropriate decisions and modify instructional practices based on assessment evidence to enhance teaching and learning.

4.1 ASSESSMENT IN THE SINGAPORE TEACHING PRACTICE

Assessment is an integral part of the teaching and learning process and must closely align with curricular objectives, content and pedagogy. Whether conducted in the classroom or in the form of national examinations, assessment should lead to meaningful learning. The 'what' and 'how' of assessment should be anchored on the clarity of purpose ('why'). There should be regular gathering of quantitative and qualitative information about a student's progress and development. Such information should be used to identify students' strengths and areas for growth, and to provide them with feedback that improves learning.

4.2 FORMATIVE AND SUMMATIVE ASSESSMENT IN PROJECT WORK

A balanced and learner-centred assessment system consists of both formative and summative assessment. PW classrooms should have a balance of both formative and summative assessment practices as they are both valuable, informative and necessary to achieve teaching and learning goals.

Formative assessment or Assessment for Learning (AfL) usually takes place during the instructional process. In formative assessment, both teachers and students understand and focus on the learning goals of PW, take stock of students' current levels of understanding and work towards narrowing the learning gap. Effective formative assessment hinges on the provision of timely, relevant and specific qualitative feedback so that students will be able to self-regulate and improve their own learning.

Summative assessment or Assessment of Learning (AoL) is used to evaluate student learning or provide information on students' achievement of learning. AoL takes place usually at the end of the instructional process using a set of standards or benchmarks. Details on summative assessment in PW can be found in the A-Level Project Work (8882) Examination Syllabus on the SEAB website.

**SECTION 5:
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ACKNOWLEDGEMENTS**

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