Dedicated Funding Programme for Publicly-funded Schools

Project Number:	2023/0109 (Revised)
Name of School:	聖母玫瑰書院 Our Lady of the Rosary College
Project Title:	混合模式互動電子教學計劃 Blended Mode Interactive e-learning Programme
Beneficiaries:	Secondary
Estimated Number of Direct Beneficiaries:	Student:663 (S1 – S6) Teacher:60 Parent:0 Others (Please specify): 0

1. Project Needs

1.1 Project aim(s)

The project aims to develop a blended-mode interactive e-learning programme that allows classroom students to share the same lesson concurrently with online students. In addition, online students can also interact with the students in the classroom through the Interactive Smartboard.

1.2 School-based innovative element(s)

In the past few years, our school has implemented e-learning in teaching. We provided each teacher with a tablet computer so they could bring their own devices to their lessons. We encourage teachers to use Microsoft Teams with Microsoft OneNote in 2020-2023. In addition, we also installed 16 86" Interactive Smartboards in S1-S4 classrooms, which allows various subjects to taste how e-learning can enhance students' collaborations and initiatives.

During the COVID-19 pandemic, we faced the challenge of some of our students undergoing quarantine and medical surveillance while the rest did not. Some of our colleagues discovered that using the 86" interactive Smartboard perfectly solves this problem. Using the Microsoft Teams Meeting, we can share the screen of OneNote. We can use the smartpen to write on the Smartboard as if using the chalk on an ordinary blackboard. At the same time, the online students can also view the high-quality screen. This kind of mixed-mode interactive e-learning can be one of the possible solutions to this challenge.

After the pandemic, students are used to learning with tablet computers. They jot notes on tablets and finish works with OneNote. With the use of Interactive Smartboards, they can project their ideas and works on the screen to all classmates, just as in the online lessons.

1.3 Meeting with school-based/students' needs

Item: Relevance to the school development plan of this cycle/major concern

One of the targets of the school's development plan (2023-2026) is to promote self-directed learning. This mixed-mode interactive e-learning programme is perfectly aligned with our targets. Students can project their findings and share their ideas with others. We will train our teachers to get familiar with this e-learning technique.

2. Project Feasibility

2.1 Key concept (s)/rationale(s) of the project

Item: Reference the Education Bureau curriculum documents/guidelines

The main idea of this project origins from the research findings of the Education Bureau's "Report on e-Learning Pilot Project in Schools" 《學校電子學習試驗計劃研究報告摘要》(June 2015), which generally supports the following points:
- With proper use of technology and design pedagogy, teachers can clearly articulate e-learning in the classroom and maximize its potential to support students in achieving positive learning outcomes, including information literacy, self-directed learning, learning differences, and discerning learning.

Item: Reference the Education Bureau curriculum documents/guidelines
According to reports from teachers, principals and parents, students have learned a lot in three years, and their learning motivation, information literacy, communication skills and other 21st-century skills have been improved.

Item: Reference the Education Bureau curriculum documents/guidelines
By making good use of IT as a tool for acquiring and sharing information, students have more opportunities to learn outside the classroom, enjoy feasible and flexible learning arrangements anytime, anywhere, and facilitate peer group interaction

Item: Reference the Education Bureau curriculum documents/guidelines
E-learning can be applied to all subjects. According to the experience of the pilot schools, even though teachers' philosophies tend to believe in a "teacher-centred" teaching model, in fact, "student-centred" and "teacher-centred" elements can coexist.

2.2 School's readiness

Item: Relevant facilities and equipment acquired
In the past few years, our school has started to implement e-learning in teaching. We provided each teacher with a tablet computer so they could use their devices in their lessons. We also encourage teachers to use Microsoft Teams with Microsoft OneNote in 2020-2023. In addition, we also installed 86" Interactive Smartboards in every S1-S4 classroom, which allows various subjects to taste how e-learning can enhance students' collaboration and initiative. Teachers are currently ready to implement this programme.

2.3 Principal and teachers' involvement

School Staff: Principal
Duties: Advise and support

School Staff: Vice principal
Duties: Monitor and supervise, coordinate / collaborate; Arrange peer-to-peer lesson observation activities; Arrange group preparation, school visits and classroom activity design; Organizing sharing sessions

School Staff: Project leader
Duties: Write proposals, reports, and programme; Procure equipment and monitoring works; Arrange Teacher Training

2.4 Project period

Project Start Date and End Date: from 06/2025 to 04/2026
The project lasts for 0 year(s) and 11 month(s).

2.5 Details of project activities

a. Project implementation measures

Activity 1: Learning Activities: Micro:bit

Implementation Period:

09/2025 - 04/2026

Key learning stages and key learning areas/subjects/learning elements	Content	Number of sessions
• S2 STEM	• To arrange the following learning activities for S2 students for after school activities: - Introducing block programming through Micro:bit and Makecode. - Automation concept - Use of simple sensors - Please refer to Appendix 1 for details.	• 2 sessions, 60 minutes for each session

Number of school personnel and/or appointed project staff involved and respective duties:

- To be taught by 4 STEM teachers with relevant knowledge and experience

Expected outcomes:

- Students can understand the simple concepts of programming logic.
- Students can build simple programs through Micro:bit and Makecode programming.

Activity 2: Learning Activities: Co-authoring in Programming

Implementation Period:

09/2025 - 04/2026

Key learning stages and key learning areas/subjects/learning elements	Content	Number of sessions
• S5 ICT	• To arrange the following learning activities for S5 students in ICT lessons: • Students co-author a computer program with laptops and/or tablets, and project their screen on the Interactive Smartboard	• 2 sessions, 40 minutes for each session

	• Teachers can show their comments with mark-ups on the touchscreen of the Smartboard. • Students can have peer comments on other students' works. • Please refer to Appendix 2 for details.	

Number of school personnel and/or appointed project staff involved and respective duties:

- To be taught by 2 ICT teachers with relevant knowledge and experience

Expected outcomes:

- Students' knowledge and skills in subprograms and parameter passing are improved.
- Students understand the benefits of using subprograms in real-life practice.
- Students understand how to write programs with co-authoring.

Activity 3: Learning Activities: Using GeoGebra to study various function graphically

Implementation Period:

09/2025 - 04/2026

Key learning stages and key learning areas/subjects/learning elements	Content	Number of sessions
• S5 Mathematics	• To arrange the following learning activities for S5 students in Mathematics lessons: - Using GeoGebra to study the trend of various functions. - Students need to project and present their findings on Smartboard instantly. - Teacher can project instant feedback on the Smartboard - Please refer to Appendix 3 for details.	• 1 session, 40 minutes for each session

Number of school personnel and/or appointed project staff involved and respective duties:

- To be taught by 4-5 Maths teachers with relevant knowledge and experience

Expected outcomes:

- Students can study function by using GeoGebra
- Students can recognize, describe, and sketch the following locus of points in different conditions with the assistance of Interactive Smartboard, so that they can have a deeper understanding of the knowledge.

Activity 4: Learning Activities: Interactive English drama activities

Implementation Period:

09/2025 - 04/2026

Key learning stages and key learning areas/subjects/learning elements	Content	Number of sessions
• S1 English Drama • The Selfish Giant' by Oscar Wilde	• Conduct drama activities and warm-up games during Drama lessons with the help of Smartboard – e.g. Pictionary, character-building (sculpting characters) • Assist teaching and learning of drama - Teachers and students can annotate drama scripts collaboratively for analysis. - Teachers can film students' performance or scenes and annotate particular captions of scenes instantly to discuss blocking, gestures, and vocal expression. Students are given instant feedback and can make improvements. - Students use touch screen to contribute ideas for character development and analysis - character diagrams or mind maps (and ideas can be easily stored digitally). • Please refer to Appendix 4 for details.	• 1 session, 80 minutes for each session

Number of school personnel and/or appointed project staff involved and respective duties:

- To be taught by 4-5 English teachers with relevant knowledge and experience

Expected outcomes:

- Students' language and presentation skills are improved.
- Students are able to sustain roles in Teacher-in-role and respond to the situation.
- Students are able to interview the Giant to find out his personalities
- Students can build a character profile of the Giant

Activity 5: Learning Activities: Science discussion

Implementation Period:

09/2025 - 04/2026

Key learning stages and key learning areas/subjects/learning elements	Content	Number of sessions
• S1 Science	• To arrange the following learning activities for S1 students in Science lessons: Student Poster Presentation: • Instead of traditional physical posters, students can create digital posters using Canva or other design tools on their iPads. • The Interactive Smartboard can be used to display the digital posters, allowing all students to view and interact with the content simultaneously. • Students can touch and write directly on the Interactive Smartboard to provide feedback, ask questions, or make annotations on the posters. Observation and Discussion: • Students can use their iPads to take photos or record videos of the changes in the marshmallows and temperature readings inside their solar ovens. • The Interactive Smartboard can be used to display the photos/videos taken by different groups, facilitating comparisons and discussions among the students. • Students can use the QR code scanning feature of the Interactive Smartboard to download and save the discussion results, including photos, videos, and annotations, onto their own tablets for further analysis or reference. • Please refer to Appendix 5 for details.	• 2 sessions, 40 minutes for each session

Number of school personnel and/or appointed project staff involved and respective duties:

- To be taught by 3 Science teachers with relevant knowledge and experience

Expected outcomes:

- Students' science knowledge and presentation skills are improved.
- Students' engagement and inquiry skills through the exploration of heat transfer (radiation) are enhanced.
- Students can apply their knowledge of heat transfer theory to the design of a solar oven, reinforcing their understanding.

Activity 6: Learning Activities: IT Prefects training

Implementation Period:

07/2025 - 04/2026

Key learning stages and key learning areas/subjects/learning elements	Content	Number of sessions
• S2-5 Other Learning Experiences	• To arrange the training workshops for IT Prefects to understand the operations of the Smartboard so that student helpers can facilitate the implementation during lessons. • Students will practice the functions benefited from using the Interactive Smartboard, e.g.: ○ Note-taking ○ Digital Whiteboard ○ Screen Sharing from iPad and Windows Laptops ○ Screen Capture and Annotations ○ Freeze and blacken screen ○ Power Control • Hands-on practices will be included. • These students act as pioneers in classrooms to assist teachers in using the Smartboards. • These students can also help other students in presenting their ideas with the use of Smartboards to facilitate discussions.	• 2 sessions, 60 minutes for each session

Number of school personnel and/or appointed project staff involved and respective duties:

- To be taught by 1-2 teachers with relevant knowledge and experience

Expected outcomes:

- Students can assist teachers in using the Smartboards during the lesson.
- Students can learn and experience the latest use of technology in collaboration and discussion.

b. Teacher training (if applicable)

Activity 1: Workshop

Implementation Period:

07/2025 - 10/2025

Content:

- Provide training activities for teachers on e-learning and teaching, as follows:
- 1. Curriculum planning for interactive e-learning
- 2. Production of interactive e-learning materials
- 3. Skills in using software, hardware, and related equipment
- 4. Teachers practise with each other and share their experience in the production of teaching materials and the use of software and hardware

Number of sessions:

- 4 sessions (3 hours / session)

Teacher training conducted by school personnel/external instructor(s):

- Conducted by hired training instructor/speaker

Expected outcomes:

- Teachers understand interactive e-learning curriculum planning, design and focus of learning activities, and skills in using hardware, and software related equipment

c. Other measures and activities (if applicable)

2.6 Budget

a. Staff cost

Post title	Full-time equivalent	Appointment requirements	Monthly salary	Mandatory Provident Fund	Employment period (months)	Amount($)	Justification
					Sub-total on staff cost :		**0**

b. Service cost

Item	Service details	Unit cost	Quantity	Unit	Amount($)	Justification
				Sub-total on service cost :		**0**

c. Equipment cost

Item	Specifications	Unit cost	Quantity	Unit	Amount($)	Justification
Interactive Smartboard	86" Interactive Smartboard x 6 pcs - S5 Classrooms x 4 rooms - English Corner - Science Laboratory	40,000	6	Pieces	240,000	For conducting lessons and activities for relevant subjects and committees.
				Sub-total on equipment cost :		**240,000**

d. Works cost

Item	Works details	Amount($)	Justification
Installation work	Installation • Clearance of blackboard • Smartboard installation • White board installation • Basic cabling	60,000	To provide cable connections of the Interactive Smartboards. Costs are required by the vendor.
	Sub-total on works cost :		**60,000**

e. General expenses

Item	Amount($)	Justification
Sub-total on general expenses :		**0**

f. Contingency

Item	Amount($) (Round down to the nearest integer)
Works contingency	6,000
General contingency	0
Sub-total on contingency :	**6,000**

g. Audit fee

	Amount($)
Audit fee	5,000
Sub-total on audit fee :	**5,000**
Total amount of funding sought :	**311,000**

3. Expected Project Outcomes

3.1 Deliverables/positive impact on the school's development

Item: Strengthened teachers' capabilities in curriculum design and teaching

Teachers further use information technology to carry out teaching activities in the classroom to make classroom teaching more interesting and effective. Students focus on classroom learning and are more actively involved in learning activities.

Through hardware setup, curriculum development and teacher professional training, this project helps schools to systematically plan and develop school-based interactive e-learning, and to nurture students to become learners in the 21st century.

Item: Resource package

Can be reused or further developed in other years.

3.2 Evaluation

Evaluation Method: Questionnaire

Success criteria:

- The effectiveness of implementing the school-based interactive e-learning plan (Performance Indicator: 80% of teachers and students agreed that the plan would help schools to promote interactive e-learning)
- Enhance students' interest in learning (Performance Indicator: 80% of teachers and students agree that the program can help arouse students' interest in learning related subjects)
- Improve students' concentration, collaboration, and initiative (Performance indicator: 80% of teachers and students agree that the program can help improve students' relevant abilities)
- Enhance the professional competence of teachers (Performance indicator: 80% of teachers believed that the programme helped enhance their confidence in implementing interactive e-learning)

3.3 Sustainability of the project (only applicable to applications with total funding sought exceeding $200,000)

- The curriculum will continue to be implemented and enhanced after the completion of the project.
- The relevant facilities and equipment will be properly used for learning and teaching activities after the completion of the project.
- The project will be extended to other classes/levels/subjects.

3.4 Dissemination (only applicable to applications with total funding sought exceeding $200,000)

Item: Seminar/sharing session

The school intends to hold a project sharing session before the end of the project, inviting secondary school teachers in the district to participate, to showcase the students' learning achievements, and the participating teachers to share the project content and the implementation of interactive e-learning experience.

Item: Learning circle

The finished product will be uploaded to the school website and Hong Kong Education City for teachers' reference

When writing this proposal, did the school refer to the sample proposal/project(s) approved with funding support at the Quality Education Fund (QEF) website?

No

4. Declaration

- Our school should ensure that the teachers involved will master not only the use of these tools, but also the pedagogy and lesson design to conduct relevant student activities.
- Our school should ensure that interactive whiteboards are properly installed, regularly inspected, maintained and repaired. Our school should pay attention to the structural load-bearing capacity of the installation of relevant equipment and seek advice from an authorised person, if necessary.
- Our school should ensure that all procurement of goods and services is conducted on an open, fair and competitive basis with measures taken to avoid conflict of interests in the procurement process.
- Our school confirms that the copyrights of the deliverables/materials should be vested with the QEF. Any reproduction, adaptation, distribution, dissemination or making available of the deliverables to the public by the service provider(s) for commercial purposes is strictly prohibited.
- Our school understands that the expenditure items funded by the QEF is one-off. Our school should bear the recurrent expenditure incurred, including maintenance costs, daily operating costs, etc. and the possible consequences that may arise.
- Our school should ensure that the learning and teaching materials to be developed meet students' learning needs, levels, age and abilities. Moreover, the content and information should be correct, complete, objective and impartial.

5. Asset Usage Plan

Category	Item/Description	Quantity	Amount($)	Proposed Plan for Deployment
Equipment	86-inch interactive whiteboard	6	240,000	The interactive whiteboards will be used to aid the teaching as stated on the plans during the project. They will continue to serve their purposes in the designated rooms after the project ends. We will cover the cost of maintenance after the project.

6. Report Submission Schedule

Our school commits to submit proper reports in strict accordance with the following schedule:

Project Management (Should be submitted via the "Electronic Project Management System" (EPMS))		**Financial Management** (Hard copy together with supporting documents should be submitted to the QEF Secretariat by mail or in person)	
Type of report and reporting period	**Report due on**	**Type of report and reporting period**	**Report due on**
Final Report 01/06/2025 - 30/04/2026	31/07/2026	Final Financial Report 01/06/2025 - 30/04/2026	31/07/2026

Appendix 1

Activity Plan

Subject and Grade: S2 STEM

Time: 60 minutes x 2 sessions

Topic: Introducing block programming through Micro:bit and Makecode.

Activity Objective:

1. To understand the simple concepts of programming logic (Conditions, loops)
2. To build simple programs through Micro:bit and Makecode programming.

Structure/Activities:

Session 1

Steps	Activities	Time
Briefing	• Warm-up • Revise basic knowledge about Makecode in S1	5 minutes

Lecture and Demonstration	• Introduction of Conditions in Programming
	  ○ If
	  ○ If…else…
	• Explain with notations using the Interactive Smartboard
	• Demonstration of program
		10 minutes

Practice 1	• Students work in groups and create their simple programs with mobile devices and Micro:bits. • Students project their ideas on the Interactive Smartboard • Teachers comment on students' ideas with notations using the Interactive Smartboard	10 minutes
• Break		5 minutes
Lecture, Demonstration and Discussion	• Introduction of simple sensors and digital signal ○ Infrared Sensors • Discuss the use of IR Sensors in daily life.	10 minutes
Practice 2	• Students create their project ideas with IR sensors. • Students project their ideas on the Interactive Smartboard • Teachers comment on students' ideas with notations using the Interactive Smartboard. • Students discuss with other groups and share their ideas with the Interactive Smartboard.	15 minutes
Conclusion	• Conclusion	5 minutes

Session 2

Steps	Activities	Time
Briefing	• Warm-up • Revise Conditions using “IF” in Programming	5 minutes
Lecture and Demonstration	• Introduction of Loops in Programming ○ while • Explain with notations using the Interactive Smartboard • Demonstration of program	10 minutes
Practice 1	• Students work in groups and create their simple programs with mobile devices and Micro:bits. • Students discuss and project their ideas on the Interactive Smartboard • Teachers comment on students’ ideas with notations using the Interactive Smartboard	10 minutes

Lecture, Demonstration and Discussion	• Revise digital signal and Infrared Sensors
	• Introduce new sensors and servo motors.
	  ○ Passive Infrared Sensors
	  ○ Vibration Sensors
	• Discuss the use of new sensors and servo motors in daily life with the use of Interactive Smartboard.
		15 minutes

Practice 2	• Students create their project ideas with the sensors they have learnt on the Interactive Smartboard. • Students project their ideas on the Interactive Smartboard • Teachers comment on students’ ideas with notations using the Interactive Smartboard. • Students discuss with other groups and share their ideas with the Interactive Smartboard.	15 minutes
Conclusion	• Conclusion	5 minutes

Appendix 2

Teaching Plan

Subject and Grade: S5 ICT

Time: 40 minutes x 2 sessions

Topic: Subprogram and Parameter Passing in Python.

Lesson Objective:

1. To apply the concept of subprograms and parameters in programming.

Structure/Activities:

Steps	Activities	Time
Briefing	• Warm-up • Revision of basic syntax in Python • Revision of local and global variables	5 minutes
Lecture and Demonstration	• Further Explanation of Subprograms in Programming ○ Syntax and structure • Explain with notations using the Interactive Smartboard • Demonstration on the Interactive Smartboard	10 minutes
Practice 1	• Students work in small groups and change their programming homework structure with the use of subprograms. • Each group of students co-author the same program • Students project their works on the Interactive Smartboard • Teachers comment on students' ideas with notations using the Interactive Smartboard	10 minutes
Lecture and Demonstration	• Introduction of parameters passing • Demonstration of program on the Interactive Smartboard	10 minutes
Practice 2	• Students add parameters to pass in values from the main program. • Students project their ideas on the Interactive Smartboard • Teachers comment on students' ideas with notations using the Interactive Smartboard. • Students discuss with other groups and share their works with the Interactive Smartboard. • Students comment on other groups' works	15 minutes
Lecture and Demonstration	• Explain the benefits of using subprograms in real-life practice	10 minutes
Practice 3	• All groups of students work on 1 mini-project • Each group is responsible for one part of subprogram, with parameters passing. • Students project their ideas on the Interactive Smartboard and discuss with each other. • Teacher guides the students to finish the objectives of the mini project.	15 minutes
Conclusion	• Conclusion • Homework: ○ HKDSE 2022 Paper 2D Q1 Part(a) and (b)	5 minutes

Appendix 3

Teaching Plan

Subject and Grade: S5 Mathematics
Time: 40 minutes
Topic: Ch. 8.1 Locus
Lesson Objective:

- According to C&A Guide Learning Objective 12.2, after the lesson, students should be able to (1) recognize, (2) describe, and (3) sketch the following locus of points satisfying given conditions:
- Condition 1: maintaining a fixed distance from a fixed point
- Condition 2: maintaining a fixed distance from a line
- Condition 3: maintaining an equal distance from two parallel lines
- Condition 4: maintaining an equal distance from two given points
- Condition 5: maintaining an equal distance from two intersecting lines

Structure/Activities:

Steps	Activities		Time
	Teacher's tasks / Remarks	Students' tasks	
Engagement • Checking of Pre-lesson task. Locus Condition 1: P maintains a fixed distance from a fixed point	• Using Interactive Smartboard and GeoGebra to trace the path of P (Type 1). • Ask student to describe the locus.	• Using GeoGebra to trace and visualize the path of P. • Describe the locus in word in worksheet.	3 minutes
Exploration of Locus Type 2,3,4 Locus 2 Locus 3 Locus 4	• Ask students to predict what the locus is and then verify it by annotation in GeoGebra on the Interactive Smartboard. • Monitor progress; provide individual support.	• Collaborate with peers to explore the Locus Type 2,3,4 using GeoGebra. • Capture the sketches of loci and paste on OneNote for presentation on the Interactive Smartboard. • Describe the locus in words in the worksheet.	15 minutes
Presentation	• Provide opportunities for students to showcase their findings on the Interactive Smartboard.	• 3 groups will present their findings on the Interactive Smartboard.	10 minutes
Exploration of Locus Type 5 Locus 5	• Remind students that there exist 2 paths. • Monitor progress; provide individual support.	• Collaborate with peers to explore Locus Type 5 using GeoGebra. • Capture the sketches of loci and upload to Teams for presentation on the Interactive Smartboard. • Describe the locus in words in the worksheet.	5 minutes

Presentation	• Provide opportunities for students to showcase their findings on the Interactive Smartboard.	• 1 group will present their findings on the Interactive Smartboard.	5 minutes
Evaluation and Conclusion	• Set a quiz on these 5 types of loci.	• Do the quiz (Google form)	2 minutes
Elaboration Locus 6		Explore Type 6 Condition: AP $\perp$ BP	If time available

Appendix 4

Subject and Grade: S1 English Drama

Time: 80 minutes

Lesson plan using Smartboards in Drama lessons:

Topic: 'The Selfish Giant' by Oscar Wilde

Learning Outcomes:

Students are able to

- sustain roles in Teacher-in-role and respond to the situation
- interview the Giant to find out his personalities
- Build a character profile of the Giant

Structure/Activities:

Steps	Activities / Descriptions	Time
Warm-up	• One student draws on the smartboard while the remainder of the class guesses what is being drawn. The class can be divided into teams to score marks. • This prepares students for observation and attention to details of a character.	10 minutes
Dramatic play in pairs –preparing gifts for the Giant	• Teacher recap: 'What happened in the last session?' • Teacher tells Students to form groups to suggest gifts they would give the Giant as a token of goodwill so that the Giant would let them play inside the garden. Students write the message (could be in a sentence / a phrase) they want to present to the Giant. • Students mark on the Interactive Smartboard where they would like to place their gifts in the garden map. • Teacher asks students to act like they are putting the gifts in the garden based on the location they have marked on the smartboard. Then ask them to watch quietly to see what happened when the Giant answers the door. • Teacher asks students to hide themselves in the garden and wait for the Giant to open the door.	20 minutes
Teacher-in-role as the Giant	• Teacher uses the Interactive Smartboard to project the backdrop of the garden. Teacher narrates how the Giant came to the door and saw the sack but took no sign of the children who were obviously hiding. • Teacher in role as the Giant: The Giant (T) talks in a grumpy voice and take out some of the actual presents the children put into it in the previous exercise. Teacher may say that the gifts students have prepared are actually too small and complete useless. • Teacher in role as the Giant: Be very discourteous and ungrateful about them, throwing them back into the sack and then calling out to the students, whenever they are, that you are not interested in their presents and that you never want to see them near your garden again. It's your garden, not theirs, and they are not welcome in it. Teacher concludes by narrating: 'And with that the Giant slammed the door!'	10 minutes

	• Teacher out of the role: Get students sit back into the circle and ask the students to share their feelings towards what the Giant has done.	
Hot-seating the Giant	• Teacher tells the students that they are going to have a chance to interview the Giant to find out more about him. e.g.: What sort of character is he? • Teacher encourages students to think of more questions they want to ask the Giant as this is a golden opportunity. Give them some time to think about those questions. For less capable students, they can write them down in pairs. • Teacher helps students project some questions they have written on the Interactive Smartboard. Have students gather in front of the smartboard and ask them to evaluate the questions - cross out questions that are not useful in getting more information about the Giant. • After the preparation, teacher ask a capable student / student volunteer to take on the Giant's role. Other students ask her questions one by one. Teacher tell the 'Giant' what to answer – prepare answers in a way that shows that the Giant is grumpy.	15 minutes
Sculpting the Giant	• Teacher has students work as a team. One student draws on the smartboard what the Giant would look like, would do, would act like, and other students sculpt the Giant (played by a student volunteer) to embody his attitude during the interview the students have just had with him. • Teacher asks students to write down the adjectives describing the Giant in their Drama Journal.	10 minutes
Writing activity	• Teacher creates a mind map (draw on Interactive Smartboard) with them to help organize what they have learned from the hot seating. Teacher has students contribute as many ideas as possible. • Teacher goes over the writing of character profile with students (see Drama Book Session 2 WS): • A character profile is to describe the personality and his / her background information about a person. • E.g.: The Giant is very selfish. We used to play in his garden but now he keeps all of the children out of it. When we asked him why, he told us in a very annoying voice that he likes doing things on his own. So I think he is such a grumpy person. • Teacher tells students to write their Drama Journal as consolidation tasks with the digital mind map created (and sent to them instantly).	15 minutes

Appendix 5

Teaching Plan - Heat Transfer (S1 Science)

Objective: To enhance student engagement and inquiry skills through the exploration of heat transfer (radiation). Students will apply their knowledge of heat transfer theory to the design of a solar oven, reinforcing their understanding.

Teaching Resources:

- Shoeboxes or cardboard boxes (brought by students)
- Materials provided by the teacher: plastic wrap, black paper, aluminium foil, etc.
- Posters created by students.
- Thermometers
- Marshmallows or other materials

Preparation:
Before the lesson, students have learned about conduction and convection. The teacher divides the students into approximately 8 groups and instructs them to use shoeboxes or cardboard boxes to construct a solar oven according to the competition guidelines. The teacher provides materials such as plastic wrap, black paper, aluminium foil, and other eco-friendly materials. Additionally, students are required to learn how to use Canva to create a poster explaining the scientific principles behind the solar oven.

Teaching Steps:

Steps	**Activities / Description**	**Time**
Introduction	- The teacher introduces the competition process and arranges students to set up solar ovens on the playground and take photos.	15 mins
Student Poster Presentation	- Students take turns presenting their posters, with a time limit of 2 minutes each. They explain the theoretical and heat transfer principles behind their solar oven designs. - Students can create digital posters using Canva or other design tools on their iPads. - Students display digital posters on the Interactive Smartboard, allowing all students to view and interact with the content simultaneously.	20 mins
Teacher Explanation and Discussion	- The teacher supplements and explains the theories presented in the student posters, introducing the heat transfer principles of absorbers and radiators. - Teacher and Students will touch and write directly on the Interactive Smartboard to provide feedback, ask questions, or make annotations on the posters.	15 mins
Observation and Discussion	- Students observe the changes in the marshmallows inside the solar ovens and record the temperature variations. They discuss and reflect on their own group's results and compare them with other groups, exploring the effects of different designs and materials on heat transfer efficiency.	25 mins

Steps	Activities / Description	Time
	- Interactive Smartboard will be used to display the photos/videos taken by different groups, facilitating comparisons and discussions among the students.	
Summary and Review	- The teacher summarizes the key points discussed in the lesson and reviews the main concepts of heat transfer. - Students will use the QR code scanning feature of the Interactive Smartboard to download and save the discussion results, including photos, videos, and annotations, onto their own tablets for further analysis or reference.	5 mins