



Republic of the Philippines

Department of Education
SCHOOLS DIVISION OF MARINDUQUE

Office of the Schools Division Superintendent

July 11, 2025

DIVISION MEMORANDUM

No. 066, s. 2025

**INTEGRATION OF PISA KNOWLEDGE TYPES AND KNOWLEDGE DIMENSION
BLOOM'S TAXONOMY IN SCIENCE LESSON DELIVERY AND ASSESSMENT
UNDER PROJECT SCIENCE**

To: Assistant Schools Division Superintendent
Chief Education Supervisors
Public Schools District Supervisors
Public Elementary & Secondary School Heads
All Others Concerned

1. The Programme for International Student Assessment (PISA) emphasizes learners' ability to apply scientific knowledge in real-life contexts. Similarly, Bloom's Revised Taxonomy offers a framework for scaffolding thinking skills. When both frameworks are embedded not only in assessment but also in lesson delivery, classroom questioning, and learning activities, students are better equipped with critical thinking, problem-solving, and 21st-century skills as the main objective of Project SCIENCE.

2. As part of the Division's flagship initiative, **Project Science** (Strategic Comprehensive Initiatives for **Enhancing, Nurturing Competency and Excellence** in Science Education) and in line with the a division-wide training on Test construction specifically on the construction of PISA-like test questions which was conducted in two batches from February to March 2024, this Memorandum reiterates the need for science teachers to fully integrate international frameworks in assessment that foster scientific literacy and global competence among learners. Accordingly, all trained Science teachers from Grades 3 to 12 shall implement the following:

- a. Align lesson questions and discussions to different PISA knowledge types such as content, procedural and epistemic in all components of the Daily Lesson Log, Detailed Lesson Plan or Daily Lesson Exemplar, particularly in classroom discussions and questioning strategies, open-ended or scenario-based activities and simulations, application and evaluation part.
- b. Use of multiple-choice questions (MCQ)/complex multiple-choice questions (CMCQ) for content (factual content), performance tasks for procedural



Address: T. Roque St., Malusak, Boac, Marinduque
Tel. No.: (042) 754-0247 • Fax No.: (042) 332-1611
Email: marinduque@deped.gov.ph
Website: <https://depedmarinduque.com>

(process), and open-ended or scenario questions for epistemic (reasoning and justification).

- c. Include a mix of low to high-level Bloom's questions across all competencies.
- d. Utilize inquiry-based and problem-based approaches during the lesson that promote the application, evaluation, and creation levels of Bloom's taxonomy.

3. Meanwhile, untrained science teachers and school heads on test construction of PISA-like questions will attend the training during the School LAC or District LAC. Hence, Public School District Supervisors and District Science Coordinators are requested to plan and conduct a school or district LAC on test construction of PISA-like test questions to ensure that all science teachers will implement the program in every science classroom.

4. School Heads and Public Schools District Supervisors are requested to use the monitoring tool when observing classes in between observation other than the classroom observation tool. The Education Program Supervisor in Science will collect outputs, validate samples and offer technical assistance as part of the Project SCIENCE monitoring.

5. Attached for reference are the following:

- a. Sample Table of Specification
- b. Classroom Monitoring Tool to be used by the school head, public schools district supervisors and Education Program Supervisor in Science
- c. Teacher Reflection Journal Forma

6. Immediate dissemination of this Memorandum is desired.



LYNN G. MENDOZA, EdD
OIC, Schools Division Superintendent

Encls: As stated
Reference: None
To be indicated in the Division Perpetual Index
under the following subjects:

ELEMENTARY EDUCATION
LEARNERS
LEARNING AREA, SCIENCE
SECONDARY EDUCATION

CID/MSSS



Address: T. Roque St., Malusak, Boac, Marinduque
Tel. No.: (042) 754-0247 • Fax No.: (042) 332-1611
Email: marinduque@deped.gov.ph
Website: <https://depedmarinduque.com>

Enclosure No. 1 to Division Memorandum No. 066, s. 2025

Sample Table of Specifications for Science 3-Quarter 1 that integrates the PISA Knowledge Type and Blooms Cognitive Level

Learning Competency	No. of Items	PISA Knowledge Type/Knowledge Dimension	Blooms Cognitive Level (Item Number)		Type of Test
1. Identify objects, activities, or natural events observed in their local environment explained by science	4	Content/ Factual	Remember (2)	Understand (2)	MCQ, CMCQ, Matching Type
2. Participate in guided science activities by asking questions and tinkering with materials	3	Procedural	Apply	Create (3)	Practical Task, Observation Checklist, Essay (with rubrics)
3. Describe the uses of various science equipment and materials	4	Content/ Conceptual	Understand (1)	Apply (3)	CMCQ, Labeling, Short Answer
4. Describe science process skills (observing, predicting, measuring using standard units)	4	Procedural	Understand (1)	Apply (3)	CMCQ, Situational, Constructed Response
5. Describe physical properties of solid materials	3	Content/ Conceptual	Understand (1)	Analyze (2)	CMCQ, Venn Diagram, Grouping
6. Explain that changes in materials can be harmful to living and non-living things in the environment	5	Epistemic/ Metacognitive	Analyse (2)	Evaluate (3)	Scenario-based Questions, Essay (with rubrics)
7. Demonstrate proper handling and disposal of materials according to their properties	4	Procedural	Apply (2)	Evaluate (2)	Constructed Response, Performance-Based Task (With rubrics)
8. Describe how changes in solid materials make them useful	4	Content/ Conceptual	Understand (2)	Analyze (2)	Situational Questions, Short Essay (with rubrics)
9. Identify properties and uses of metals used by the local community	4	Content/ Factual	Remember (2)	Understand (2)	MCQ, Matching Type
	35				

Enclosure No. 2 to Division Memorandum No. **066**, s. 2025
 Sample Questions for Science 3-Quarter 1, showing the Integration of PISA Knowledge Type, Knowledge Dimension of Blooms Taxonomy and Test Questions Format for Quarterly Assessments

LEARNING COMPETENCY	NO. OF POINTS	PISA KNOWLEDGE TYPE/ KNOWLEDGE DIMENSION	BLOOMS COGNITIVE LEVEL (ITEM NUMBER)		TYPE OF TEST (QUARTERLY, SUMMATIVE, FORMATIVE)
1. Identify objects, activities, or natural events observed in their local environment explained by science	4	Content/ Factual	Remember (2)	Understand (2)	MCQ, CMCQ, Matching Type
Which object is a source of light? A. Bag B. Pencil C. Flashlight D. Spoon	1	/	/		Multiple Choice
Why is it important to sort waste into biodegradable and non-biodegradable materials? Choose all that apply. A. To make the trash heavier B. To fill up the trash bin faster C. To reduce pollution in the environment D. To help in proper disposal and recycling E. To turn biodegradable waste into compost	2	/		/	Complex Multiple Choice
2. Participate in guided science activities by asking questions and tinkering with materials	3	Procedural	Apply	Create (3)	Practical Task, Observation Checklist, Essay (with rubrics)
Create a procedure on simple rainwater collector using recycled materials Enumerate the materials to be used.	3	/		/	Practical Task

Share what questions you had while making it. Draw a simple prototype of the simple rain water collector to be created out of the procedure given.					
3. Describe the uses of various science equipment and materials	4	Content/ Conceptual	Understand (1)	Apply (3)	CMCQ, Labeling, Short Answer
Why do scientists use a magnifying glass during an investigation? Choose all that apply. A. To cook food B. To measure time C. To mix chemicals D. To see small objects more clearly E. To observe tiny details in plants or insects	1		/		Complex multiple Choice
You want to measure the amount of water you will use in a science experiment. What science tool will you use and why? Expected Response Example: "I will use a measuring cup because it helps me know the exact amount of water I need."	2			/	Constructed Response
4. Describe science process skills (observing, predicting, measuring using standard units	4	Procedural	Understand (1)	Apply (3)	CMCQ, Situational, Constructed Response
Anna placed an ice cube on a plate and left it under the sun. After a few minutes, she noticed water around the ice cube. <i>What science process skill is Anna using?</i>	1		/		Situational, Multiple Choice

A. Estimating B. Measuring C. Observing D. Predicting					
You are doing an experiment to find out how long it takes for sugar to dissolve in water. What science process skills will you use, and how will you use them in the activity? Expected Response Example: "I will observe how the sugar looks while it dissolves. I will use a timer to measure how many minutes it takes. I will predict if it will dissolve faster in warm or cold water."	3			/	Constructed Response
5. Describe physical properties of solid materials	3	Content/ Conceptual	Understand (1)	Analyze (2)	CMCQ, Venn Diagram, Grouping
A teacher showed four different objects: <ul style="list-style-type: none"> • A glass cup • A rubber ball • A metal spoon • A wooden block Which set of statements correctly explains the differences in their physical properties? A. <ul style="list-style-type: none"> • The spoon is soft and bendy. • The glass cup is rough and light. • The rubber ball is hard and smooth. • The wooden block is clear and shiny. 	2	/		/	Complex Multiple Choice

<p>B.</p> <ul style="list-style-type: none"> • The spoon is shiny and smooth. • The wooden block is rough and hard. • The glass cup is transparent and brittle. • The rubber ball is flexible and can bounce. <p>C.</p> <ul style="list-style-type: none"> • The spoon is bouncy and hard. • The glass cup is soft and flexible. • The wooden block is bendy and light. • The rubber ball is shiny and breakable. <p>D.</p> <ul style="list-style-type: none"> • The glass cup is opaque and soft. • The rubber ball is hard and rough. • The spoon is transparent and soft. • The wooden block is flexible and shiny. 					
6.Explain that changes in materials can be harmful to living and non-living things in the environment	5	Epistemic/ Metacognitive	Analyse (2)	Evaluate (3)	Scenario-based Questions, Essay (with rubrics)
<p>Your neighbor often burns plastic wrappers after cleaning their yard. One day, you noticed smoke going into your window, and your little brother started coughing.</p> <p><i>What could be the reason for your brother's reaction, and what might happen to the environment if this continues?</i></p>	2	/	/		Scenario-based questions
<p>Some people say burning garbage is okay because it makes the surroundings clean.</p> <p>Do you agree or disagree? Explain your answer using your knowledge of how burning materials can affect living and non-living things.</p>	3	/		/	Essay

7. Demonstrate proper handling and disposal of materials according to their properties	4	Procedural	Apply (2)	Evaluate (2)	Constructed Response, Performance-Based Task (With rubrics)
You found broken glass, used paper, and leftover food in your classroom trash bin. What are the proper ways to handle and dispose of each item? Explain why it is important to do it correctly.	2	/	/	/	Constructed Response
<p>Task: You are part of the school's "Clean and Safe Team." Your task is to sort the following items into recyclable, non-recyclable, and hazardous bins and explain how to properly handle each:</p> <ul style="list-style-type: none"> • Banana peels • Plastic bottles • Used batteries • Crumpled paper • Broken fluorescent bulb <p><i>Rubric suggestion:</i> Criteria may include accuracy in sorting, correct handling procedures, and clarity of explanation.</p>	2	/	/	/	Performance-based Task
8. Describe how changes in solid materials make them useful	4	Content/ Conceptual	Understand (2)	Analyze (2)	Situational Questions, Short Essay (with rubrics)
Anna helped her mother melt old crayons to form new rainbow crayons in heart shapes.	2	/	/	/	Situational

<i>Why is melting old crayons helpful, and how does this change make the material useful again?</i>							
In your home, old newspapers are used to wrap fruits, and melted candle wax is used to make new candles. <i>Explain how changing these solid materials made them more useful. What do these examples tell you about materials and their changes?</i>	2	/		/	Short Essay		
9. Identify properties and uses of metals used by the local community	4	Content/Factual	Remember (2)	Understand (2)	MCQ, Matching Type		
Which of the following is a metal commonly used to make cooking pans? A. Wood B. Plastic C. Rubber D. Aluminum	2	/	/		Multiple Choice		
Match the metal to its use in the local community. <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Column A (Metals)</p> <p>1. Iron 2. Copper 3. Aluminum</p> <p>Answer: 1 – C 2 – B 3 – A</p> </td> <td style="width: 50%; vertical-align: top;"> <p>Column B (Uses)</p> <p>A. Used in roofing sheets B. Used for electrical wires C. Used in gates and fences D. Used in cooking</p> </td> </tr> </table>	<p>Column A (Metals)</p> <p>1. Iron 2. Copper 3. Aluminum</p> <p>Answer: 1 – C 2 – B 3 – A</p>	<p>Column B (Uses)</p> <p>A. Used in roofing sheets B. Used for electrical wires C. Used in gates and fences D. Used in cooking</p>	2	/		/	Matching Type
<p>Column A (Metals)</p> <p>1. Iron 2. Copper 3. Aluminum</p> <p>Answer: 1 – C 2 – B 3 – A</p>	<p>Column B (Uses)</p> <p>A. Used in roofing sheets B. Used for electrical wires C. Used in gates and fences D. Used in cooking</p>						

Enclosure No. 3 to Division Memorandum No. **066**, s. 2025



Republic of the Philippines
Department of Education
SCHOOLS DIVISION OF MARINDUQUE

MONITORING TOOL FOR SCIENCE CLASSES
(Special Curricular Program in Science and Regular Science)

Name of Teacher: _____ Date: _____

School: _____ District: _____

Learning Area: _____ Grade Level: _____

Monitoring Personnel: _____ Position: _____

Focus Area	Key Indicators	Means of Verification	Rating Scale (1-4)	Remarks/ Findings
1. Lesson Objectives	Activities, discussions, and assessments match the lesson objectives	Lesson exemplars, DLPs, Class Observation Tool		
2. Lesson Design and Competency Alignment	Instructional Design aligns with the Revised K to 12 Curriculum and promotes targeted competencies	Lesson plans/Lesson Exemplars, observation Notes		
3. Inquiry-Based (7Es) & Project-Based	Integration of 7Es model Use of project-based activities	Lesson plans, observation notes, video/photo documentation		



Address: T. Roque St., Malusak, Boac, Marinduque
Tel. No.: (042) 754-0247 • Fax No.: (042) 332-1611
Email: marinduque@deped.gov.ph
Website: <https://depedmarinduque.com>

4. PISA and Knowledge Dimension of Blooms Taxonomy Level alignment	Lesson discussions, questions, and activities integrate PISA knowledge types and Bloom's knowledge dimensions (factual, conceptual, procedural, metacognitive).	Lesson plan, observation notes		
4. 21 st Century Skills Development	Evidence of: a. Conceptual HOTS b. Procedural HOTS c. Epistemic /Metacognitive HOTS or Epistemic HOTS	Lesson Plans, Student Work Samples, Test Items		
5. ICT Integration	Use of appropriate ICT tools to enhance lesson delivery and student understanding.	Lesson plan, observation notes		
6. Use of Improved or Localized Materials	Materials are relevant, safe, and effective for contextualized learning.	Lesson Plan, Observation Photo		
7. Use of Intervention Materials	Intervention strategies and materials are used to address least mastered skills.	Sample Materials, Learner Outputs, Post-Test Results		
8. Learner Engagement	Active participation observed; learners demonstrate curiosity, collaboration, and motivation.	Observation, Student Journal, Portfolio		

9. Digital Integration if Possible	Use of digital tools/platforms (e.g., simulations, online activities) in classroom instruction.	Screenshots, Class Records		
10. Medium of Instruction (Grades 1-12) a. Grade 3 uses the Mother Tongue (English or Filipino) in Science Instruction per D.O. No. 20, s. 2025 b. Grade 3 uses a combination of Filipino and English during Quarter 3 transitioning to English in Quarter 4. c. Grades 4-12 consistently uses English as the medium of instruction in Science	Class observation Notes Teaching and Learning Materials Teacher-Student Dialogue Lesson Plan	Actual Observation of Classes		
10. Teacher Reflective Practice	Reflective journal entries based on formative results to inform instruction.	Teacher Journal, Formative Assessment Logs assessment completely filled out with the required information		
Additional Focus Area				

Part 2: Summary and Recommendations

Strengths Observed:

Areas for Improvement:

Action Points / Technical Assistance Needed:

Rating Scale (1-4):

- 4 – Fully Evident
- 3 – Evident with Minor Gaps
- 2 – Partially Evident
- 1 – Not Evident



Address: T. Roque St., Malusak, Boac, Marinduque
 Tel. No.: (042) 754-0247 • Fax No.: (042) 332-1611
 Email: marinduque@deped.gov.ph
 Website: <https://depedmarinduque.com>

Enclosure No. 4 to Division Memorandum No. **066**, s. 2025

Teacher Reflection Journal Format

This section captures the teacher's reflections on students who did not master specific competencies, based on formative assessment results. The journal should include the index of mastery, list of students, and intervention provided.

Date	Learning Competency	Index of Mastery (%)	Name of Students Who Did Not Master	Type of First Intervention Given	Remarks	Type of Second Intervention Given	Remarks
July 18, 2025	Describe the uses of various science equipment and materials	75%	Student A	LAS	Passed		
			Student B	LAS	Failed	SIM	Passed
			Student C	LAS	Passed		
			Student D	LAS	Failed	SIM	Failed (for parent consultation)



Address: T. Roque St., Malusak, Boac, Marinduque
 Tel. No.: (042) 754-0247 • Fax No.: (042) 332-1611
 Email: marinduque@deped.gov.ph
 Website: <https://depedmarinduque.com>