STREAMLINING THE K12 CURRICULUM: An Approach to Determining which K12 Standards and Competencies to Teach

PEAC SCIENCE WEBINAR
JUNE 9, 2020

bjectives:

- *Discuss the rationale and parts of the DepEd MELCS Curriculum Guide for SY 2020-2021*
- *Explain the process of streamlining K12 standards and competencies*
- *Relate the importance of alignment in streamlining with PEAC Recertification*
- *Apply the process to selected units of study in Science for curriculum mapping, identification of instructional materials and preparation of the unit calendar*

PEAC

PRIVATE EDUCATION ASSISTANCE COMMITTEE

Trustee of the Fund for Assistance to Private Education

IMPORTANT DATES

Release of Final Report for Schools Visited SY 2019-2020

Starts April 20, 2020

Final reports will be released by batch beginning with schools visited August 2019. Communication will be sent to schools once reports are available in their respective EIS accounts.

ESC Schools Due for Recertification

deadline of submission of requirements

Part 1: September 1, 2020
Part 2: September 30, 2020

Schedule of E-Recertification

November 2020-March 2021

Certification for SY 2020-2021 is suspended.

Go to https://peac.org.ph/certification/ for more details.

For inquiries, please contact the Certification Unit at certification@peac.org.ph or 0917.501.3669.

DEPED LEARNING CONTINUITY PLAN

PEAC E-RECERTIFICATION

SCHOOL CURRICULUM SY 2020-2021

30 May 2020

HOW WILL ESC SCHOOLS IN SY 2020-2021 PREPARE THE SCHOOL CURRICULUM?

14 June 2020

SAMPLE DIARY CURRICULUM MAP

SUBJECT:

GRADE LEVEL:

TEACHERS:

STRANDS:

TERM (NO.): MONTH	UNIT TOPIC: CONTENT	CONTENT STANDARDS (CS)	PERFORMANCE STANDARD (PS)	COMPETENCIES/ SKILLS	ASSESSMENT	ACTIVITIES	RESOURCES	INSTITUTIONAL CORE VALUES
(Q1)								

SAMPLE DIARY CURRICULUM MAP

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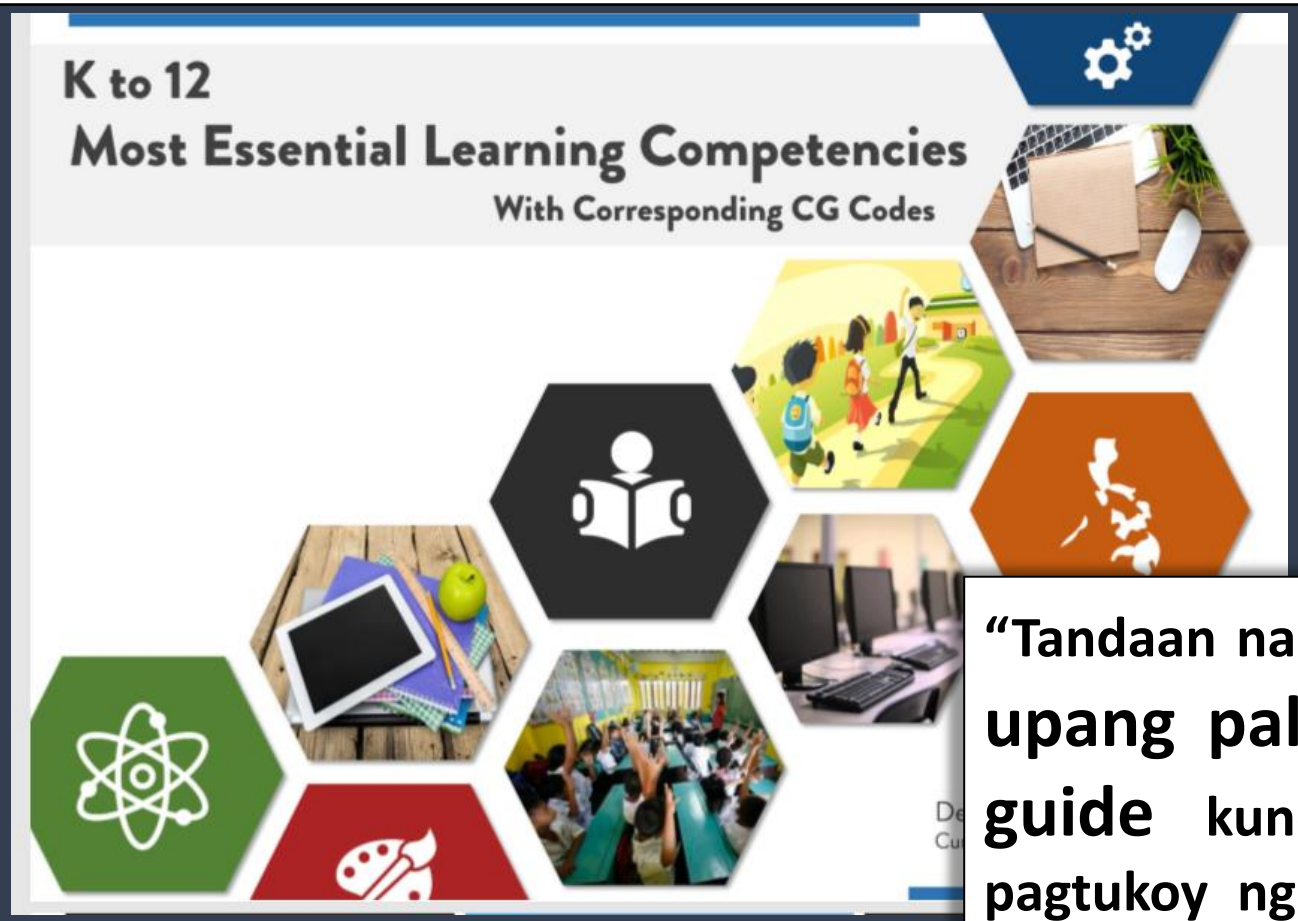
(Q1)								

HOW CAN ESC SCHOOLS PREPARE A CURRICULUM MAP THAT COVERS THE K12 STANDARDS AND COMPETENCIES IN THE "NEW NORMAL" AND MEETS RECERTIFICATION REQUIREMENTS?

"…releasing the MELCs does not downplay the standards set by the K to 12 curriculum guides. Rather, these serve as guide to teachers as they address the instructional needs of learners while ensuring that curriculum standards are maintained and achieved."

GUIDELINES ON THE USE OF THE MELCS, p. 2



"Tandaan na ang layunin sa pagbuo ng MELCs ay hindi upang palitan ang kasakuluyang curriculum guide kundi upang magabayan ang mga guro sa pagtukoy ng mga kompetensing mas kinakailangan ng mga mag-aaral sa Taong Panuruang 2020-2021. Sa huli, hinihikayat pa rin ang mga guro na sumangguni sa curriculum guide ng Filipino kung sa tingin nilang hindi sapat ang mga kompetensing tinukoy sa MELCs. ."

FILIPINO BRIEFER, p. 33

PEAC CERTIFICATION ASSESSMENT INSTRUMENT

Standards of Compliance					
1. A curriculum map in each subject area that:					
- is aligned with the philosophy, vision, mission, goals and objectives*	4	3	2	1	0
- is aligned with the Kto12 curriculum guides, standards and competencies*	4	3	2	1	0
- shows unpacked Kto12 standards and competencies in different ways in all subjects*	4	3	2	1	0
- shows horizontal alignment between standards, competencies, assessment, instruction and resources in all the learning units*	4	3	2	1	0
- articulates vertical learning progressions across the different grade levels*	4	3	2	1	0
2. The implementation and continuous improvement of the curriculum maps by:					
- checking that the standards and competencies, activities and assessments and resources and integration of the PVMGO in the curriculum maps are reflected in the unit learning plans	4	3	2	1	0
- conducting a periodic review, revision and updating of the curriculum maps	4	3	2	1	0

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PREPARE BY USING DEPED CURRICULUM GUIDE AND/OR DEPED MELCS AND PEAC CERTIFICATION ASSESSMENT INSTRUMENT

RECERTIFICATION REQUIREMENT OF ALIGNMENT IN CURRICULUM MAP

SUBJECT:

GRADE LEVEL:

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FROM DEPED CURRICULUM GUIDE (CG)

FROM DEPED CG AND/OR DEPED MELCS

FROM SUBJECT TEACHER

FROM SCHOOL'S VISION AND MISSION

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FROM SUBJECT TEACHER

FROM SCHOOL'S VISION AND MISSION

Quarter	Content Standards The learner…	Performance Standards The learner…	Most Essential Learning competencies The learner…	Duration
	geometry of shapes and sizes, and geometric relationships.	accurately authentic problems involving sides and angles of a polygon	derives relationships of geometric figures using measurements and by inductive reasoning; supplementary angles, complementary angles, congruent angles, vertical angles, adjacent angles, linear pairs, perpendicular lines, and parallel lines.	Week 2
			derives relationships among angles formed by parallel lines cut by a transversal using measurement and by inductive reasoning.	Week 3
			uses a compass and straightedge to bisect line segments and angles and construct perpendiculars and parallels.	Week 4
			illustrates polygons: (a) convexity; (b) angles; and (c) sides.	Week 5
			derives inductively the relationship of exterior and interior angles of a convex polygon.	Week 6
			illustrates a circle and the terms related to it: radius, diameter chord, center, arc, chord, central angle, and inscribed angle.	Week 7
			constructs triangles, squares, rectangles, regular pentagons, and regular hexagons.	Week 8
			solves problems involving sides and angles of a polygon.	Week 9
Q4	demonstrates understanding of key concepts, uses and importance of Statistics, data collection/gathering and the different forms of data representation, measures of central tendency, measures of variability, and probability.	is able to collect and organize data systematically and compute accurately measures of central tendency and variability and apply these appropriately in data analysis and interpretation in different fields.	poses real-life problems that can be solved by Statistics.	Week 1
			formulates simple statistical instruments.	
			gathers statistical data.	Week 2
			organizes data in a frequency distribution table.	Week 3
			uses appropriate graphs to represent organized data: pie chart, bar graph, line graph, histogram, and ogive.	Week 4 to 5
			illustrates the measures of central tendency (mean, median, and mode) of a statistical data.	Week 6
			calculates the measures of central tendency of ungrouped and grouped data.	
			illustrates the measures of variability (range, average deviation, variance, standard deviation) of a statistical data.	Week 7
			calculates the measures of variability of a	
			uses appropriate statistical measures in a	
			draws conclusions from graphic and tabu and variability.	

The K to 12 Basic Education Curriculum is standards-based. The content standards cover a specified scope of sequential topics, identify and set the essential knowledge and understanding that must be learned. The performance standards describe the abilities and skills that the learners are expected to demonstrate in relation to the content standards.

MELCS: SCIENCE BRIEFER, p. 42

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"The content and performance standards are directly lifted from the curriculum guides. Its inclusion is to emphasize that the <u>identification of MELCs is anchored on the prescribed standards</u> and not a departure from the standards-based basic education curriculum. Thus, teachers are encouraged to refer to the 2016 Curriculum Guides in unpacking the MELCs."

GUIDELINES ON THE USE OF THE MELCS, p. 3

SAMPLE DIARY CURRICULUM MAP

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GRADE LEVEL:

TEACHERS:

STRANDS:

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ALIGNMENT OF STANDARDS-COMPETENCIES-ACTIVITIES

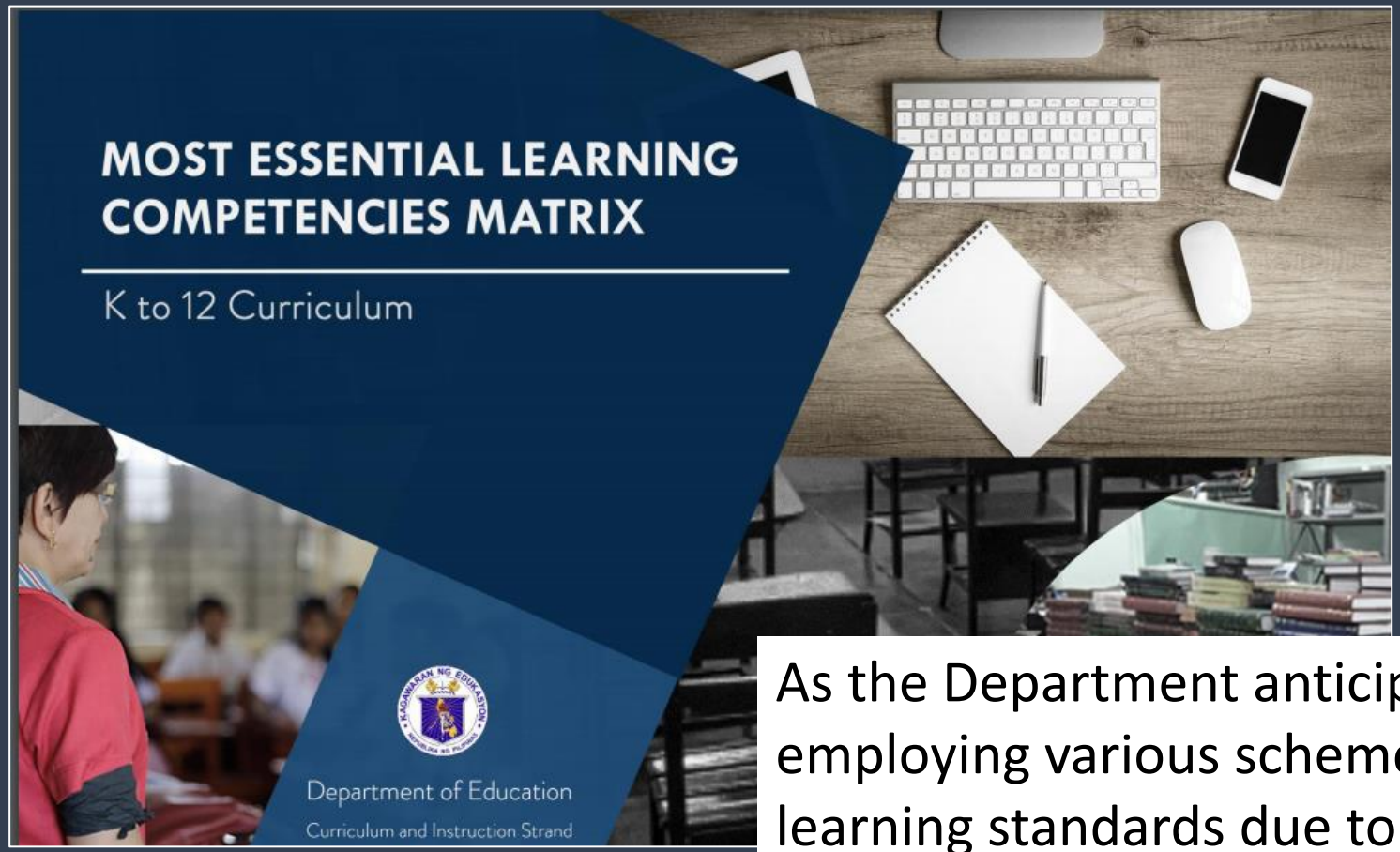
These standards are further represented as learning competencies which are the knowledge, skills and attitudes that students need to demonstrate in every lesson or learning activity.

MELCS: SCIENCE BRIEFER, p. 42

Characteristics of an Essential Learning Competency

Learning competency is *ESSENTIAL* if …	1. it is aligned with national, state, and/or local standards/ frameworks (eg: 'scientifically literate Filipinos'). 2. it connects the content to higher concepts across content areas. 3. it is applicable to real-life situations. 4. If students left school after this grade, it would be important for them to have this competence above many others. 5. it wouldn't be expected that most students would learn this through their parents/communities if not taught at school.

GUIDELINES ON THE USE OF THE MELCS, p. 2



As the Department anticipates the challenges in employing various schemes in the delivery of the learning standards due to COVID19, the number of the identified essential learning competencies per quarter were further reduced, thus, the term **most essential learning competencies (MELCs)**.

GUIDELINES ON THE USE OF THE MELCS, p. 3

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Filipino — Briefer 119 - 121

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Araling Panlipunan — Briefer 23 - 24

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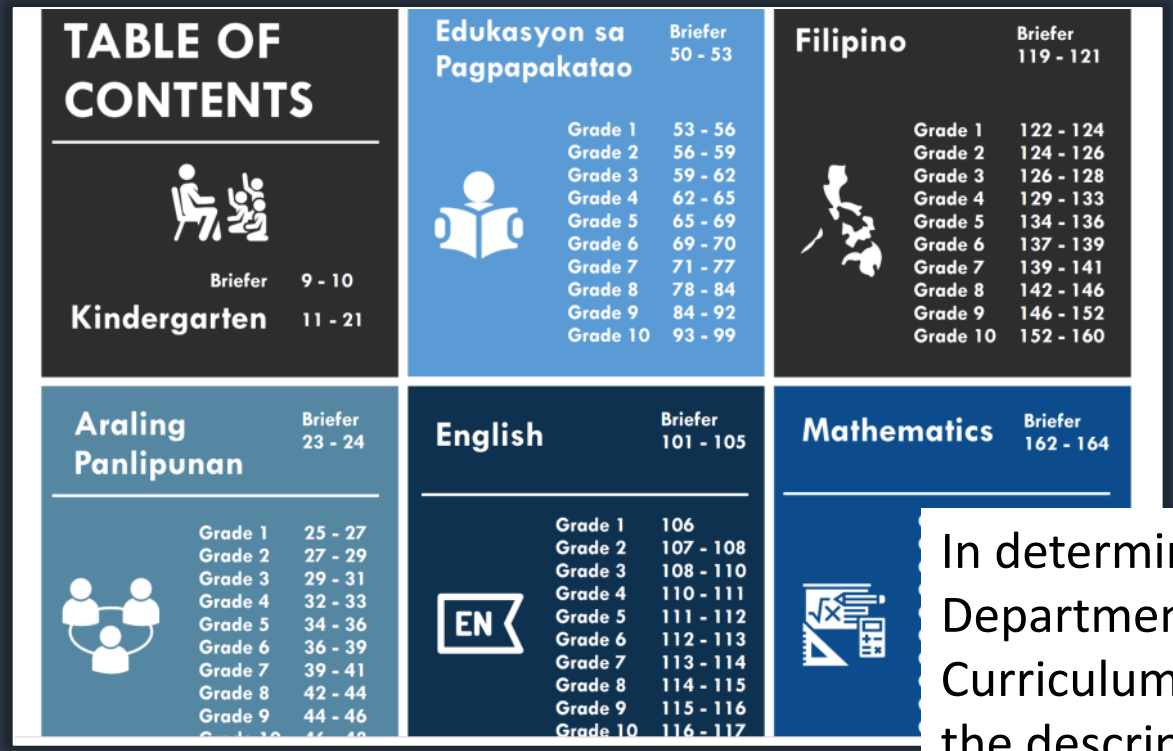
14,171 LC

5,689 LC (40%)



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Mathematics — Briefer 162 - 164

In determining the most essential learning competencies, the Department collaborated with stakeholders from the Assessment Curriculum and Technology Research Centre (ACTRC), during which the descriptor – **ENDURANCE – was considered the primary determining factor. A learning competency is considered enduring if it remains with learners long after a test or unit of study is completed or if it is useful beyond a single test or unit of study.** Examples of such learning competencies include research skills, reading comprehension, writing, map reading, and hypothesis testing, which are essential in many professions and in everyday life (Reeves, 2002; Many & Horrell, 2014).

GUIDELINES ON THE USE OF THE MELCS, p. 3

TEPSA News
Texas Elementary Principals & Supervisors Association

Serving Texas PreK-8 School Leaders | January/February 2014 | Vol. 71, No. 1 | www.tepsa.org

Best Practices/Tom W. Many, Ed.D. and Ted Horrell

Prioritizing the Standards Using R.E.A.L. Criteria

"In the absence of an agreed-upon set of criteria for prioritizing the standards, educators will, out of necessity, make up their own."
-Larry Ainsworth

Whether working in Texas, which has categorized the Essential Knowledge and Skills into readiness and supporting standards, or in the 46 states that adopted the Common Core, teachers routinely ask themselves the same questions: Are some standards more important than others? Which standards will students need in the next class, course or grade level? Will all the standards be tested?

During a recent team meeting teachers were given a sample unit plan and asked to 'identify what was important for students to learn' before an upcoming assessment. Teachers embraced the task but as they worked to identify the requisite standards for the upcoming unit, it became obvious that each individual was using their own unique criteria to prioritize what was essential for students to learn. The result was several different and competing sets of standards based on the contrasting views of individual teachers. Agreement on the unit's essential outcomes remained an elusive goal.

Larry Ainsworth argues that this experience is not unique to a single district, school or team. He suggests that "left to their

rowing a voluminous number of student learning outcomes, educators naturally pick and choose those they know best, like best, the ones for which they have materials and lesson plans or activities, and those most likely to appear on state tests." Reaching consensus on a unit's essential outcomes is important but many teachers wonder where to begin the task of prioritizing an overwhelming number of standards.

Using the R.E.A.L. Criteria to Prioritize the Standards

In response to this dilemma, Ted Horrell and his colleagues in Shelby County, Tennessee have translated criteria first developed by Reeves and Ainsworth into an easy to remember acronym. Using the R.E.A.L. criteria (Readiness, Endurance, Assessed, and Leverage), teachers collaborate around whether a particular standard should be considered a priority. An example for each of the four categories is listed below.

Readiness: The 'R' stands for Readiness. This standard provides students with essential knowledge and skills necessary for success in the next class, course or grade level. Here is an example of a Readiness standard

https://absenterprisedotcom.files.wordpress.com/2016/06/real-standards.pdf

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R

Readiness: The 'R' stands for Readiness. This standard provides students with essential knowledge and skills necessary for success in the next class, course or grade level. Here is an example of a Readiness standard.

Algebra I Standard: *Manipulate formulas and solve literal equations.*

Student proficiency in this standard is necessary for success in subsequent math classes including Geometry and Algebra II. Students who cannot demonstrate these skills would not be ready to advance to the next level of instruction.

E

Endurance: The 'E' represents Endurance. This standard provides students with knowledge and skills that are useful beyond a single test or unit of study. Here is an example of an Endurance standard.

https://absenterprisedotcom.files.wordpress.com/2016/06/real-standards.pdf

English 9-10 Standard: *Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.*

This standard, in particular the skill of providing an objective summary of written passages, will be required for future high school and college courses. It is also likely to be an essential skill in many professions and in everyday life. The standard has a high degree of endurance.

A

Assessed: The 'A' represents Assessed. This standard will be assessed on upcoming state and national exams. Here is an example of a standard reflecting the Assessed criteria.

Algebra I Standard: *Order and classify rational numbers.*

Although ordering numbers is a vital part of the math curriculum that most students master at an early age, classifying rational numbers is a skill that is not an essential building block for understanding future concepts, nor does it have much practical application outside of the math curriculum. However, there are questions on the ACT and PSAT that require students to use this specific skill—a fact that would have to be considered when prioritizing this standard.

L

Leverage: The 'L' corresponds to Leverage. This standard will provide students with the knowledge and skills that will be of value in multiple disciplines. Here is an example of a standard reflecting the Leverage criteria.

Physical Science Standard: *Choose, construct, and analyze appropriate graphical representations for a data set.*

Though it is part of the physical science curriculum, this standard has significant leverage. Students will be expected

which promotes development of better assessments and helps identify which students will need more time and support. This kind of knowledge fosters more efficient planning and more efficient sharing of resources.

Prioritizing the standards also encourages teachers to embrace more effective instructional practices by reducing the pressure to simply cover the material. According to Ainsworth, "the consensus among educators nationwide is that in-depth instruction of 'essential' concepts and skills is more effective than superficially 'covering' every concept in the textbook."

Perhaps the biggest argument in favor of prioritizing standards is the positive effect the process has on sharpening the pedagogy and deepening the content knowledge of teachers. Teams who prioritize the standards recognize that in many ways, the process is as important as the product. Carefully analyzing the standards, debating the merits of individual standards, and coming to consensus on the most essential standards helps everyone gain a more thorough understanding of what teachers should teach and student should learn.

If Everything is Important, Then Nothing is Important

To paraphrase the famous quote, "if everything is a priority, then nothing is a priority." The question is not whether teachers will prioritize the standards but how will teachers prioritize the standards. Will teachers use a unique set of criteria formed by individuals working in isolation or will they prioritize the standards based upon a common and agreed upon set of criteria developed collaboratively while working as a team?

The answer is to embrace our collective responsibility, decide together what is most important for students to know and be able to do, and prioritize our teaching around the most important things. Insisting teams collaboratively prioritize the standards using R.E.A.L. criteria provides an important leverage point for principals. ■

https://absenterprisedotcom.files.wordpress.com/2016/06/real-standards.pdf

SAMPLE DIARY CURRICULUM MAP

SUBJECT:

GRADE LEVEL:

TEACHERS:

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FROM DEPED CG AND/OR DEPED MELCS BASED ON R.E.A.L.

FROM SUBJECT TEACHER

FROM SCHOOL'S VISION AND MISSION

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Mathematics — Briefer 162 - 164

TRANSFER OF LEARNING TO REAL LIFE

In determining the most essential learning competencies, the Department collaborated with stakeholders from the Assessment Curriculum and Technology Research Centre (ACTRC), during which the descriptor – **ENDURANCE – was considered the primary determining factor. A learning competency is considered enduring if it remains with learners long after a test or unit of study is completed or if it is useful beyond a single test or unit of study.** Examples of such learning competencies include research skills, reading comprehension, writing, map reading, and hypothesis testing, which are essential in many professions and in everyday life (Reeves, 2002; Many & Horrell, 2014).

GUIDELINES ON THE USE OF THE MELCS, p. 3

Certification Assessment Instrument

3. Learning plans in each subject area that show:

- use of and alignment with curriculum standards*
- a systematic and progressive development of students' skills resulting in understanding and culminating in transfer of learning*
- use of varied research-based and learner-centered strategies in the classroom for active and engaged student learning*
- incorporation of the philosophy, vision-mission, teaching of the 21st century skills, the use of real world situations, inter-subject integration and use of technology*
- provisions of different activities that are sensitive to and address the learners' varied interests and learning styles
- selection and use of appropriate instructional resources that are aligned with the curriculum maps, standards and competencies

IN THE LEARNING PLAN, WE WILL SEE…

Standards stated at start of plan.

Procedures related to A, M, and T. Plan ends with Performance Task.

Activities and strategies done in procedures describe student actions more than teacher actions. Less teacher talk, more student interaction.

- Values integration with Vision-Mission
- Activities and questions related to 7Cs
- Activities and questions related to social issues and community events
- Activities and questions connecting to other subjects
- Use of multimedia and other apps to present lesson or produce student output

Activities that are differentiated or show use of multiple intelligences; choice in roles or products in performance task

Activities that are differentiated or show use of multiple intelligences; student choice in roles or products in performance task

Since Transfer of Learning to Real Life is emphasized in MELCS, how do we ensure its achievement in the curriculum design?

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ENSURE ENDURANCE OR TRANSFER OF LEARNING BY DOING ANY OF THE FF. WITH MELCS:

1. **Unpack into sub-competencies/tasks**
2. **Repeat in another unit or grade level**
3. **Follow-up in higher grade levels**
4. **Cluster with other competencies**
5. **Merge with other competencies and rephrase**
6. **Focus on skill rather than on content**
7. **Align with unit performance standard**

1. UNPACK MELCS INTO SUB-COMPETENCIES (SCIENCE-BIOLOGY)

G9 Q1	Differentiate basic features and importance of photosynthesis and respiration.	Recognizes the unique features of metabolism as a process that happens inside a living system.
		Identifies patterns at which photosynthesis and respiration are connected or related to each other.
		Explain how plants manufacture their own food.

G9 Q1 LM

1. UNPACK MELCS INTO SUB-COMPETENCIES (Science-Physics)

How to Use the MELCS

The Science curriculum guide lists the learning competencies (LCs) together with the code, which was set to guide the teachers the time at which a certain competency is to be delivered. However, since the learning competencies have been reduced to the most essential, the code will not be of much use. For this reason, the proposed length of time for each of the competency is also included. It should be noted that the time allocation for the competencies is not a hard and fast rule. Teachers may deviate from the time allocation as long as the LCs are delivered and developed among the learners.

The identified MELCS are broad statements and should be therefore unpacked into learning objectives. In translating the LC into a specific learning objective, it is best to look into the content and performance standards. Below is an example of learning objectives for the Physics domain of Grade 8 which is taught in the first quarter.

Content Standard	Performance Standard	Learning Competency	Learning Objectives
The learners demonstrate understanding of work using constant force, power, gravitational potential energy, kinetic energy, and elastic potential energy	The learners should be able to develop a written plan and implement a "Newton's Olympics"	Identify and explain the factors that affect potential and kinetic energy	a. define and differentiate potential and kinetic energy b. identify the factors that affect potential energy c. determine the mathematical variation between potential energy and mass and height from the ground d. compare the values of potential energy of varying masses at the same elevation from the ground e. identify the factors that affect kinetic energy
			f. determine the mathematical variation between kinetic energy and mass and velocity g. create and explain a concept map involving the terms kinetic energy, potential energy, mass, velocity, and elevation h. demonstrate and explain the Law of Conservation of Energy using a pendulum

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2. REPEAT MELCS IN ANOTHER LEVEL FOR REINFORCEMENT Science Grade 3, 4 & 5

Quarter	Content Standard *The learners demonstrate understanding of...*	Performance Standard *The learners should be able to...*	Most Essential Learning Competencies	Duration	K to 12 CG Cod
1st	ways of sorting materials and describing them as solid, liquid or gas based on observable properties	group common objects found at home and in school according to solids, liquids and gas	Classify objects and materials as solid, liquid, and gas based on some observable characteristics;	Week 1-2	
			Describe changes in materials based on the effect of temperature: 1 solid to liquid	Week 3-5	**S3MT-Ih-j-4**

Grade Level: Grade 4
Subject: Science

		one's environment	Describe changes in properties of materials when exposed to certain conditions such as temperature or when mixed with other materials	Week 4 - 5	**S4MT-Ig-h-6**

Grade Level: Grade 5
Subject: Science

			Investigate changes that happen in materials under the following conditions: 1 presence or lack of oxygen 2 application of heat		**S5MT-Ic-d-2**

3. FOLLOW-UP MELCS IN HIGHER GRADE LEVELS (SCIENCE-CHEMISTRY)

The table below in an example of how the Most Essential Learning Competencies is identified in the domain Matter in the different Key Stages.

KEY STAGE	Retained LC	Deleted LC	Justification
Key Stage 1	**S3MT-Ic-d-2** Classify objects and materials as solid, liquid, and gas based on some observable characteristics	**S3MT-Ia-b-1** Describe different objects based on their characteristics (e.g. Shape, Weight, Volume, Ease of flow);	Description of shape and weight has been discussed in Grades 1 and 2 and based on how it is stated the deleted LC (**S3MT-Ia-b-1**) can be covered in the retained LC (**S3MT-Ic-d-2).** Furthermore, the ability to classify solids, liquids and gases based on observable characteristics is a foundation of other science skills.
Key Stage 2	**S5MT-Ih-i-4** Design a product out of local, recyclable solid and/or liquid materials in making useful products	**S5MT- Ie-g-3** Recognize the importance of recycle, reduce, reuse, recover and repair in waste management	The retained LC will already cover the intention of the deleted LC (**S5MT-Ie-g-3)** and will even require students to be more creative
Key Stage 3	**S8MT-IIIi-j-12** Use the periodic table to predict the chemical behavior of an element	**S8MT-IIIg- h-11** Trace the development of the periodic table from observations based on similarities in properties of elements	The deleted LC(**S8MT-IIIg- h-11)** is deemed not as essential as the retained LC (**S8MT-IIIi-j-12)** as it requires the student to use the properties of elements to predict the chemical behavior of an element, hence it is more encompassing.
Key Stage 4	**S11/12PS-IIIc-d17** describe the general types of intermolecular forces	**S11/12PS-IIId-e18** give the type of intermolecular forces in the properties of substances	The deleted LC (**S11/12PS-IIId-e18)** is subsumed in the retained LC (**S11/12PS-IIIc-d7).**

3. FOLLOW-UP MELCS IN HIGHER GRADE LEVELS (SCIENCE-BIOLOGY)

KEY STAGE	Retained LC	Deleted LC	Justification
Key Stage 1	**S3LT-IIa-b-1** Describe the functions of the sense organs of the body.	**3LT-IIa-b-2** Enumerate healthful habits to protect the sense organs.	Identifying one's basic needs and ways to care for one's body was already discussed in Kindergarten (PNEKBS-Ii-8 & PNEKBS-Ii-9).
Key Stage 2	**S5LT-IIa-1** Describe the parts of the reproductive system and their functions	**S5LT-IId-4** Give ways of taking care of the reproductive organs;	The retained LC will already cover the intention of the deleted LC (S5LT-IId-4).
Key Stage 3	**S10LT-IIIc-36** Describe how the nervous system coordinates and regulates these feedback mechanisms to maintain homeostasis.	**S10LT-IIIa-33** Describe the parts of the reproductive system and their functions.	The deleted competency has already been covered in Key Stage 2 (S5LT-IIa-1). In discussing the coordinated functions of the nervous and the reproductive systems, it will already subsume the skill in identifying as well as describing the parts of the reproductive system (S10LT-IIIa-33).
Key Stage 4	**STEM_BIO11/12-IVi-j-2** Explain how some organisms maintain steady internal conditions (e.g., temperature regulation, osmotic balance and glucose levels) that possess various structures and processes.	**STEM_BIO11/12 -IVi-j-3** Describe examples of homeostasis (e.g., temperature regulation, osmotic balance and glucose levels) and the major features of feedback loops that produce such homeostasis.	The retained LC will already cover the intentions of the deleted LC (STEM_BIO11/12 -IVi-j-3).

4. CLUSTER WITH OTHER COMPETENCIES (SCIENCE - CHEMISTRY)

LEARNING COMPETENCIES	COMMENTS/RECOMMENDATIONS	IDENTIFIED MELCs
1. describe how the Bohr model of the atom improved Rutherford's atomic model 2. explain how the Quantum Mechanical Model of the atom describes the energies and positions of the electrons	LC is subsumed to the next LC	Explain how the Quantum Mechanical Model of the atom describes the energies and positions of the electrons
1. explain the formation of ionic and covalent bonds; 2. recognize different types of compounds (ionic or covalent) based on their properties such as melting point, hardness, polarity, and electrical and thermal conductivity;	Clustered and rephrased	Recognize different types of compounds (ionic or covalent) based on their properties such as melting point, hardness, polarity, and electrical and thermal conductivity; Explain how ions are formed;

5. MERGE WITH OTHER COMPETENCIES AND REPHRASE (SCIENCE-BIOLOGY)

Grade 8 Quarter 4

Learning Competencies	Comments/Recommendations	Identified MELC
✓ Describe the transfer of energy through the trophic levels;	Clustered and Rephrased	Analyze how the energy and materials flow through organisms in different trophic levels.
✓ Analyze the roles of organisms in the cycling of materials;		
✓ Explain how materials cycle in an Ecosystem;		

6. FOCUS ON SKILL RATHER THAN CONTENT (SCIENCE)

Grade/Quarter	2016 Science CG	Rephrased
Grade 9 – Quarter 1	Differentiate basic features and importance of photosynthesis and respiration.	Analyze the relationship of the features and processes that exist between photosynthesis and respiration.
Grade 7 – Quarter 2	Identify parts of the microscope and the functions.	Manipulate the parts of the microscope in order to see very small objects.

7. ALIGN WITH UNIT PERFORMANCE STANDARD

7. ALIGN WITH UNIT PERFORMANCE STANDARD

CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE
4. Ecosystems **4.1 Flow of Energy and Matter in Ecosystems** 4.1.1 Photosynthesis 4.1.2 Respiration	*The learners demonstrate an understanding of:* 1. the structure and function of plant parts and organelles involved in photosynthesis 2. the structure and function of mitochondrion as the main organelle involved in respiration	*The learners should be able to:* design and conduct an investigation to provide evidence that plants can manufacture their own food	6 differentiate basic features and importance of photosynthesis and respiration.	**S9LT-lg-j-31**

	CONTENT STANDARD	PERFORMANCE STANDARD			
2nd	the parts and functions of the compound microscope	employ appropriate techniques using the compound microscope to gather data about very small objects	Identify parts of the microscope and their functions	Week 1	**S7LT-IIa-1**
			Focus specimens using the compound microscope	Week 2	**S7LT-IIb-2**
	the different levels of biological organization		Describe the different levels of biological organization from cell to biosphere	Week 3	**S7LT-IIc-3**
	the difference between animal and plant cells		Differentiate plant and animal cells according to presence or absence of certain organelles	Week 4	**S7LT-IIc-3**
			Explain why the cell is considered the basic structural and functional unit of all organisms	Week 4	**S7LT-IIe-5**
	reproduction being both asexual or sexual		Differentiate asexual from sexual reproduction in terms of: 1 Number of individuals involved; 2 Similarities of offspring to parents	Week 5	**S7LT-IIg-7**
	organisms interacting with each other and with their environment to survive		Differentiate biotic from abiotic components of an ecosystem	Week 6	**S7LT-IIh-9**
			Describe the different ecological relationships found in an ecosystem	Week 6	**S7LT-IIh-10**
			Predict the effect of changes in abiotic factors on the ecosystem	Week 7	**S7LT-IIj-12**

ALIGNMENT OF STANDARDS AND COMPETENCIES?

WILL THIS ALIGNMENT LEAD TO ENDURANCE OR TRANSFER?

7. ALIGN WITH UNIT PERFORMANCE STANDARD

7. ALIGN WITH UNIT PERFORMANCE STANDARD

Grade Level: Grade 7
Subject: Science

Quarter	Content Standard *The learners demonstrate understanding of...*	Performance Standard *The learners should be able to...*	Most Essential Learning Competencies	Duration	K to 12 CG Code
1st	scientific ways of acquiring knowledge and solving problems	perform in groups in guided investigations involving community-based problems using locally available materials	Describe the components of a scientific investigation	Week 1	**S7MT-Ia-1**
	classifying substances as elements or compounds	make a chart, poster, or multimedia presentation of common elements showing their names, symbols, and uses	Recognize that substances are classified into elements and compounds	Week 2-3	**S7MT-Ig-h-5**
	the properties of substances that distinguish them from mixtures	investigate the properties of mixtures of varying concentrations using available materials in the	Distinguish mixtures from substances based on a set of properties	Week 4-5	**S7MT-Ie-f-4**

7. ALIGN WITH UNIT PERFORMANCE STANDARD

Grade Level: Grade 7
Subject: Science

Quarter	Content Standard *The learners demonstrate understanding of...*	Performance Standard *The learners should be able to...*	Most Essential Learning Competencies	Duration	K to 12 CG Code
1st	scientific ways of acquiring knowledge and solving problems	perform in groups in guided investigations involving community-based problems using locally available materials	Describe the components of a scientific investigation	Week 1	**S7MT-Ia-1**
	classifying substances as elements or compounds	make a chart, poster, or multimedia presentation of common elements showing their names, symbols, and uses	Recognize that substances are classified into elements and compounds	Week 2-3	**S7MT-Ig-h-5**
	the properties of substances that distinguish them from mixtures	investigate the properties of mixtures of varying concentrations using available materials in the	Distinguish mixtures from substances based on a set of properties	Week 4-5	**S7MT-Ie-f-4**

7. ALIGN WITH UNIT PERFORMANCE STANDARD

Grade Level: Grade 7
Subject: Science

Quarter	Content Standard *The learners demonstrate understanding of...*	Performance Standard *The learners should be able to...*	Most Essential Learning Competencies	Duration	K to 12 CG Code
1st	scientific ways of acquiring knowledge and solving problems	perform in groups in guided investigations involving community-based problems using locally available materials	Describe the components of a scientific investigation	Week 1	**S7MT-Ia-1**
	classifying substances as elements or compounds	make a chart, poster, or multimedia presentation of common elements showing their names, symbols, and uses	Recognize that substances are classified into elements and compounds	Week 2-3	**S7MT-Ig-h-5**
	the properties of substances that distinguish them from mixtures	investigate the properties of mixtures of varying concentrations using available materials in the	Distinguish mixtures from substances based on a set of properties	Week 4-5	**S7MT-Ie-f-4**

WILL THIS ALIGNMENT LEAD TO ENDURANCE OR TRANSFER?

	CONTENT STANDARD	PERFORMANCE STANDARD			
	involved in respiration				
2nd	1. the development of atomic models that led to the description of the behavior of electrons within atoms 2. how atoms combine with other atoms by		Explain how the Quantum Mechanical Model of the atom describes the energies and positions of the electrons	Week 1	
			Recognize different types of compounds (ionic or covalent) based on their properties such as melting point,	Week 2	S9MT-IIb-14
			Explain how ions are formed;	Week 3	S9MT-IIe-f-16
	the type of bonds that carbon forms that result in the diversity of carbon compounds		Explain how the structure of the carbon atom affects the type of bonds it forms;	Week 4-5	S9MT-IIg-17
			Recognize the general classes and uses of organic compounds;	Week 6	S9MT-IIh-18

ALIGNMENT OF STANDARDS AND COMPETENCIES?

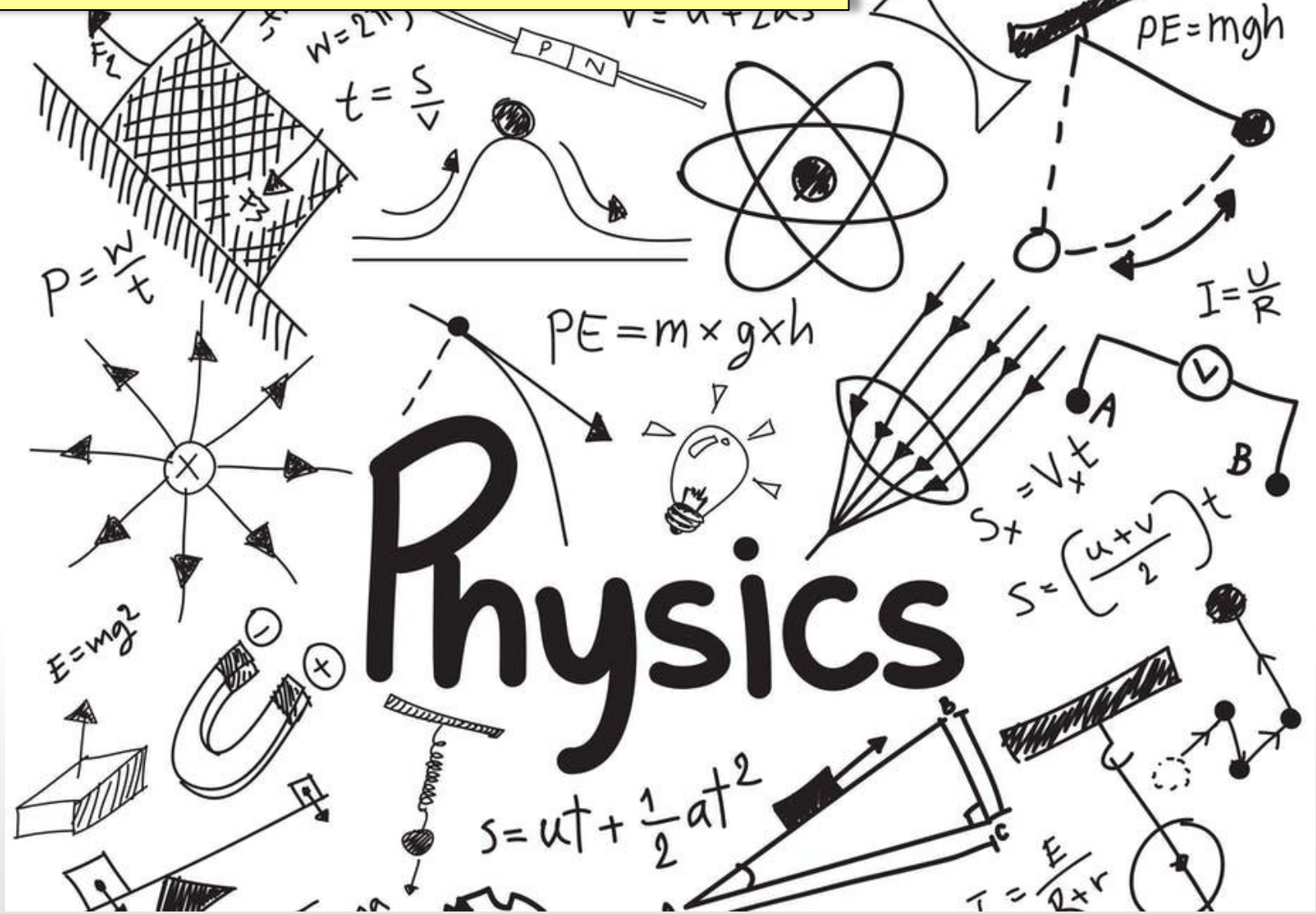
WILL THIS ALIGNMENT LEAD TO ENDURANCE OR TRANSFER?

NO PERFORMANCE STANDARD

4th	how gases behave based on the motion and relative distances between gas particles	?	Investigate the relationship between: 1 volume and pressure at constant temperature of a gas 2 volume and temperature at constant pressure of a gas 3 explains these relationships using the kinetic molecular theory	Week 1-2	S9MT-IIj-20
	the structure of biomolecules, which are made up mostly of a limited number of elements, such as carbon, hydrogen, oxygen, and nitrogen	?	Recognize the major categories of biomolecules such as carbohydrates, lipids, proteins, and nucleic acids	Week 3-4	S10MT-IVc-d-22

ALIGNMENT OF STANDARD AND COMPETENCIES?

7. ALIGN WITH UNIT PERFORMANCE STANDARD



7. ALIGN WITH UNIT PERFORMANCE STANDARD

Grade Level: Grade 7
Subject: Science

Quarter	Content Standard *The learners demonstrate understanding of...*	Performance Standard *The learners should be able to...*	Most Essential Learning Competencies	Duration	K to 12 CG Code
3rd	motion in one dimension	conduct a forum on mitigation and disaster risk reduction	Describe the motion of an object in terms of distance or displacement, speed or velocity, and acceleration	Week 1-2	**S7FE-IIIa-1**

Grade Level: Grade 8
Subject: Science

Quarter	Content Standard *The learners demonstrate understanding of...*	Performance Standard *The learners should be able to...*	Most Essential Learning Competencies	Duration	K to 12 CG Code
1st	Newton's three laws of motion	develop a written plan and implement a "Newton's Olympics"	Investigate the relationship between the amount of force applied and the mass of the object to the amount of change in the object's motion	Week 1	**S8FE-Ia-15**
			Infer that when a body exerts a force on another, an equal amount of force is exerted back on it	Week 2	**S8FE-Ia-16**

7. ALIGN WITH UNIT PERFORMANCE STANDARD

Grade Level: Grade 7
Subject: Science

Quarter	Content Standard *The learners demonstrate understanding of...*	Performance Standard *The learners should be able to...*	Most Essential Learning Competencies	Duration	K to 12 CG Code
3rd	motion in one dimension	conduct a forum on mitigation and disaster risk reduction	Describe the motion of an object in terms of distance or displacement, speed or velocity, and acceleration	Week 1-2	**S7FE-IIIa-1**

Grade Level: Grade 8
Subject: Science

Quarter	Content Standard *The learners demonstrate understanding of...*	Performance Standard *The learners should be able to...*	Most Essential Learning Competencies	Duration	K to 12 CG Code
1st	Newton's three laws of motion	develop a written plan and implement a "Newton's Olympics"	Investigate the relationship between the amount of force applied and the mass of the object to the amount of change in the object's motion	Week 1	**S8FE-Ia-15**
			Infer that when a body exerts a force on	Week 2	**S8FE-Ia-16**

WILL THIS ALIGNMENT LEAD TO ENDURANCE OR TRANSFER?

CONTENT STANDARD | **PERFORMANCE STANDARD**

K to 12 BASIC EDUCATION CURRICULUM

CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
4. Light	*The learners demonstrate an understanding of:* some properties and characteristics of visible light	*The learners shall be able to:* discuss phenomena such as blue sky, rainbow, and red sunset using the concept of wavelength and frequency of visible light	14. explain that red is the least bent and violet the most bent according to their wavelengths or frequencies;	**S8FE-If-28**	III: Chemistry Textbook for Third Year. Mapa, Amelia P., Ph.D., et al. 1999. pp. 67-69. * 4. Science 8 Learner's Module. Campo, Pia C., et al. 2013. pp. 98-105.	
5. Heat	heat and temperature, and the effects of heat on the body		15. differentiate between heat and temperature at the molecular level;	**S8FE-Ig-29**	1. EASE Physics. Module 13. 2. Science 8 Learner's Module. Campo, Pia C., et al. 2013. pp. 37-38.	Thermometer
6. Electricity	current- voltage-resistance relationship, electric power, electric energy, and home circuitry		16. infer the relationship between current and charge;	**S8FE-Ih-30**	1. Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia	1. Dry cell holders 2. Multi-meter resistor 3. Switch 4. Wire

ALIGNMENT OF STANDARDS AND COMPETENCIES?

WILL THIS ALIGNMENT LEAD TO ENDURANCE OR TRANSFER?

NO PERFORMANCE STANDARDS

the propagation of sound through solid, liquid, and gas		Investigates the effect of temperature to the speed of sound	Week 4	
some properties and characteristics of visible light	discuss phenomena such as blue sky, rainbow, and red sunse using the concept of wavelength and frequency of visible lig	Explain the hierarchy of colors in relation to the energy of visible light	Week 4	**S8FE-If-27**
heat and temperature, and the effects of heat on the body		Differentiate between heat and temperature at the molecular level	Week 4	**S8FE-Ig-29**
current- voltage-resistance relationship, electric power, electric energy, and home circuitry		Infer the relationship between current and voltage	Week 5-6	
		Explain the advantages and disadvantages of series and parallel connections in homes	Week 7	**S8FE-Ii-31**
		Explain the functions of circuit breakers, fuses, earthing, double insulation, and other safety devices in the home	Week 7	**S8FE-Ii-33**

ALIGNMENT OF STANDARDS AND COMPETENCIES?

NO PERFORMANCE STANDARDS

the propagation of sound through solid, liquid, and gas		Investigates the effect of temperature to the speed of sound	Week 4	
some properties and characteristics of visible light	discuss phenomena such as blue sky, rainbow, and red sunse using the concept of wavelength and frequency of visible lig	Explain the hierarchy of colors in relation to the energy of visible light	Week 4	**S8FE-If-27**
heat and temperature, and the effects of heat on the body	?	Differentiate between heat and temperature at the molecular level	Week 4	**S8FE-Ig-29**
current- voltage-resistance relationship, electric power, electric energy, and home circuitry	?	Infer the relationship between current and voltage	Week 5-6	
		Explain the advantages and disadvantages of series and parallel connections in homes	Week 7	**S8FE-Ii-31**
		Explain the functions of circuit breakers, fuses, earthing, double insulation, and other safety devices in the home	Week 7	**S8FE-Ii-33**

ALIGNMENT OF STANDARDS AND COMPETENCIES?

NO PERFORMANCE STANDARDS

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		Explain the advantages and disadvantages of series and parallel connections in homes	Week 7	**S8FE-Ii-31**
		Explain the functions of circuit breakers, fuses, earthing, double insulation, and other safety devices in the home	Week 7	**S8FE-Ii-33**

WILL THIS ALIGNMENT LEAD TO ENDURANCE OR TRANSFER?

CONTENT STANDARD	PERFORMANCE STANDARD		
the parts and functions of the compound microscope	employ appropriate techniques using the compound microscope to gather data about very small objects	Identify parts of the microscope and their functions	Week 1
		Focus specimens using the compound microscope	Week 2
the different levels of biological organization		Describe the different levels of biological organization from cell to biosphere	Week 3
the difference between animal and plant cells		Differentiate plant and animal cells according to presence or absence of certain organelles	Week 4
		Explain why the cell is considered the basic structural and functional unit of all organisms	Week 4
reproduction being both asexual or sexual		Differentiate asexual from sexual reproduction in terms of: 1 Number of individuals involved; 2 Similarities of offspring to parents	Week 5
organisms interacting with each other and with their environment to survive		Differentiate biotic from abiotic components	Week 6

7. ALIGNMENT WITH UNIT STANDARDS

Grade Level: Grade 7
Subject: Science

Quarter	Content Standard *The learners demonstrate understanding of...*	Performance Standard *The learners should be able to...*	Most Essential Learning Competencies	Duration
1st	scientific ways of acquiring knowledge and solving problems	perform in groups in guided investigations involving community- based problems using locally available materials	Describe the components of a scientific investigation	Week 1
	classifying substances as elements or compounds	make a chart, poster, or multimedia presentation of common elements showing their names, symbols, and uses	Recognize that substances are classified into elements and compounds	Week 2-3
	the properties of substances that distinguish them from mixtures	investigate the properties of mixtures of varying concentrations using available materials in the community for specific	Distinguish mixtures from substances based on a set of properties	Week 4-5

Grade Level: Grade 7
Subject: Filipino
Grade Level Standards:
Pagkatapos ng Ikapitong Baitang, naipamamalas ng mag-aaral ang kakayahang komunikatibo, mapanuring pag-iisip, at pag-unawa at pagpapahalagang pampanitikan gamit ang teknolohiya at iba't ibang uri ng teksto at akdang pampanitikang rehiyunal upang maipagmalaki ang sariling kultura, gayundin ang iba't ibang kulturang panrehiyon. **NO CONTENT AND PERFORMANCE STANDARDS**

Quarter	Most Essential Learning Competencies	Duration
1st Quarter	Nahihinuha ang kaugalian at kalagayang panlipunan ng lugar na pinagmulan ng kuwentong bayan batay sa mga pangyayari at usapan ng mga tauhan	
	Nagagamit nang wasto ang mga pahayag sa pagbibigay ng mga patunay	
	Nahihinuha ang kalalabasan ng mga pangyayari batay sa akdang napakinggan	
	Naipaliliwanag ang sanhi at bunga ng mga pangyayari	
	Nasusuri ang isang *dokyu-film* batay sa ibinigay na mga pamantayan	
	Naisasalaysay nang maayos at wasto ang buod, pagkakasunod-sunod ng mga pangyayari sa kuwento, mito, alamat, at kuwentong-bayan	
	Nagagamit nang wasto ang mga retorikal na pang-ugnay na ginamit sa akda (*kung, kapag, sakali, at iba pa*), sa paglalahad (una, ikalawa, halimbawa, at iba pa, isang araw, samantala), at sa pagbuo ng editoryal na nanghihikayat (totoo/tunay, talaga, pero/ subalit, at iba pa)	
	Nasusuri ang pagkamakatotohanan ng mga pangyayari batay sa sariling karanasan	
	Naiisa-isa ang mga hakbang na ginawa sa pananaliksik mula sa napakinggang mga pahayag	
	Nasusuri ang ginamit na datos sa pananaliksik sa isang proyektong panturismo (halimbawa: pagsusuri sa isang *promo coupon* o *brochure*)	

Given these gaps, how do we align standards and competencies to ensure transfer to real life or endurance for lifelong learning? What process can be done?

STREAMLINING THE TEACHING AND LEARNING OF THE K12 CURRICULUM

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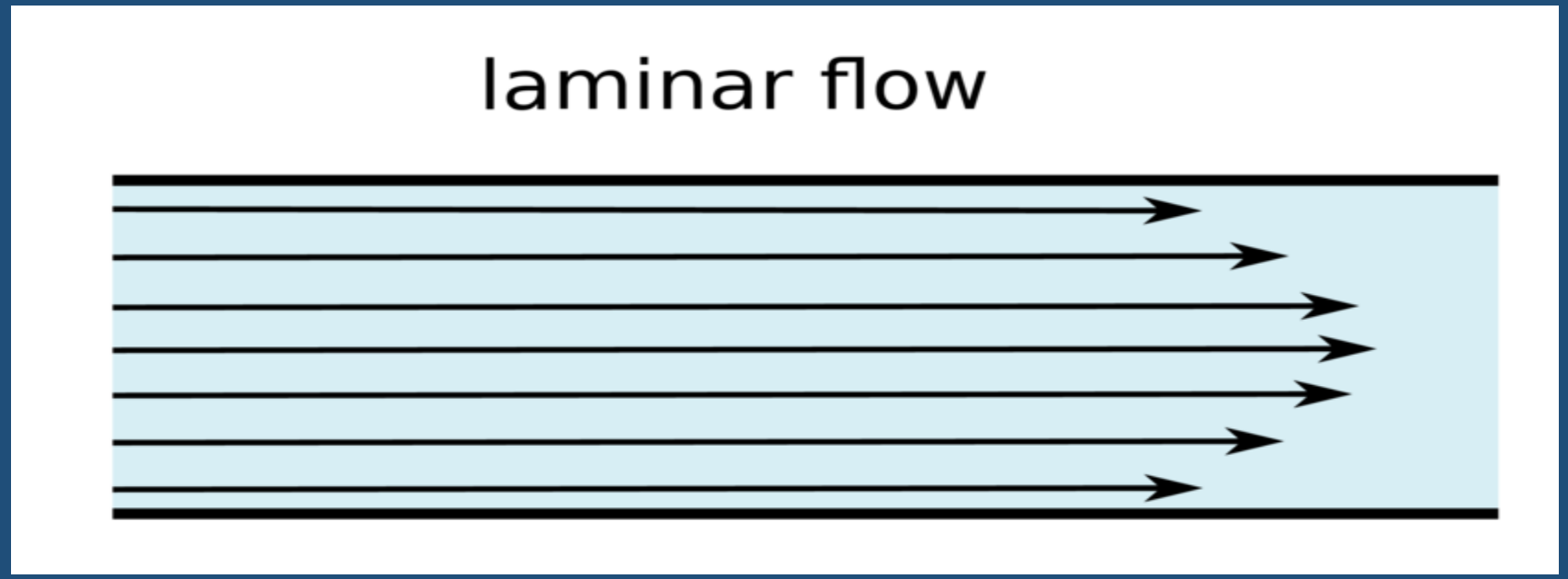
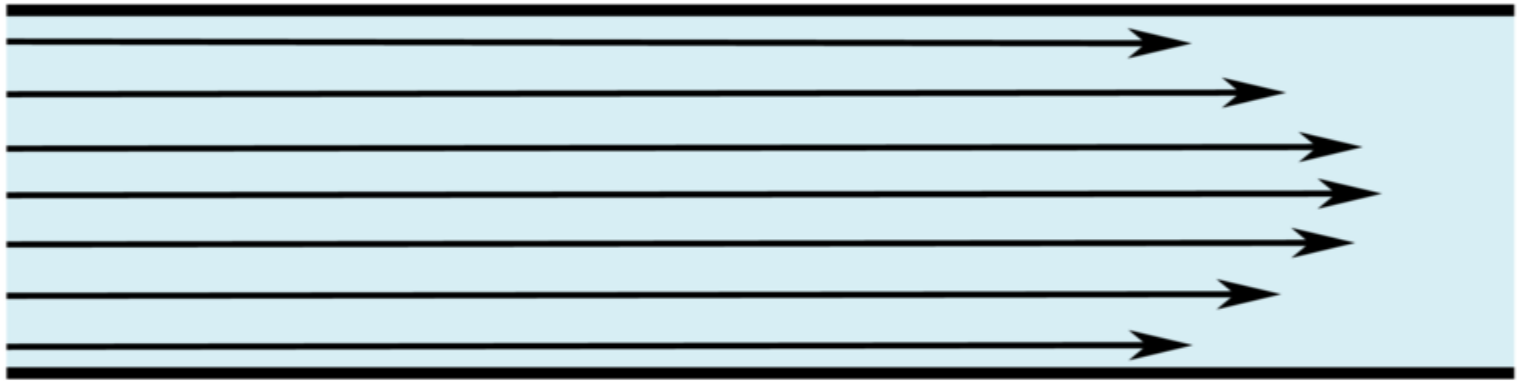


Fluid particles follow a smooth path in layers or laminae with each layer moving parallel to each other without mixing; has visible stream lines

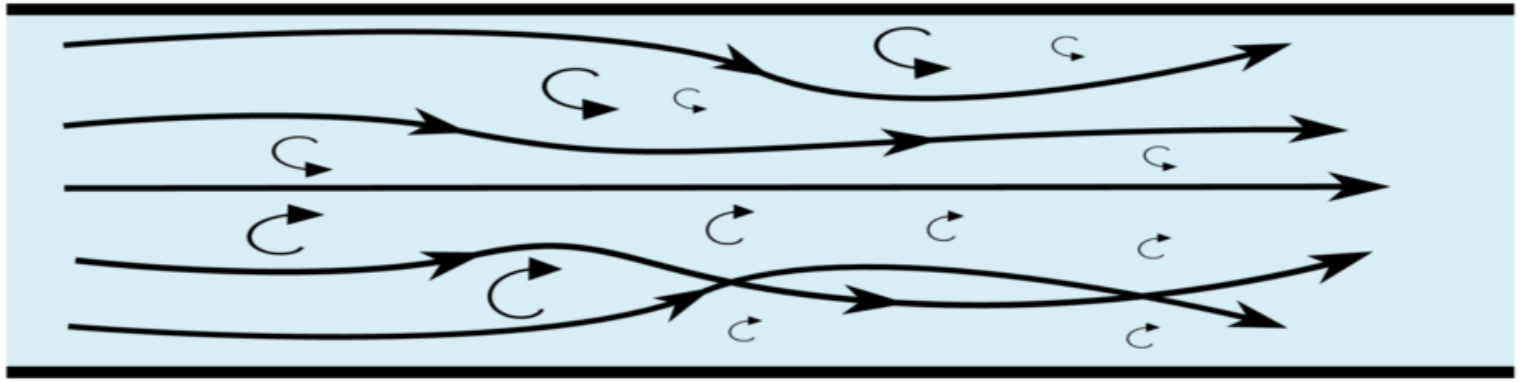
https://www.britannica.com/science/streamlining#ref54495

laminar flow



Fluid particles follow a smooth path in layers or laminae with each layer moving parallel to each other without mixing; has visible stream lines

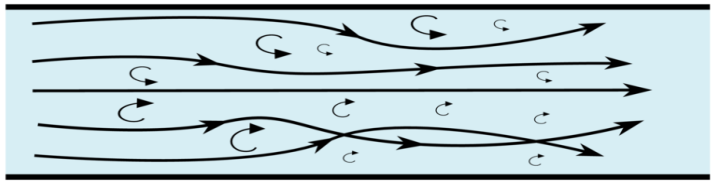
turbulent flow



Fluid particles move in a rough path and there are cross-currents and mixing of layers; has swirling zones

https://www.britannica.com/science/streamlining#ref54495

turbulent flow



ENGLISH GRADE 7
FIRST QUARTER WEEKLY OBJECTIVES

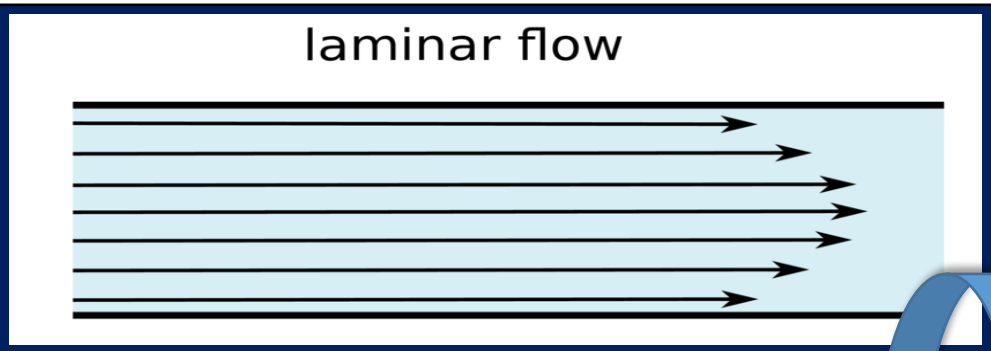
PROGRAM STANDARD: The learner demonstrates communicative competence through his/ her understanding of literature and other texts types for a deeper appreciation of Philippine Culture and those of other countries.

GRADE LEVEL STANDARD: The learner demonstrates communicative competence through his/ her understanding of Philippine Literature and other texts types for a deeper appreciation of Philippine Culture.

CONTENT STANDARD: The learner demonstrates understanding of: pre-colonial Philippine literature as a means of connecting to the past; various reading styles; ways of determining word meaning; the sounds of English and the prosodic features of speech; and correct subject-verb agreement.

PERFORMANCE STANDARD: The learner transfers learning by: showing appreciation for the literature of the past; comprehending texts using appropriate reading styles; participating in conversations using appropriate context-dependent expressions; producing English sounds correctly and using the prosodic features of speech effectively in various situations; and observing correct subject-verb agreement.

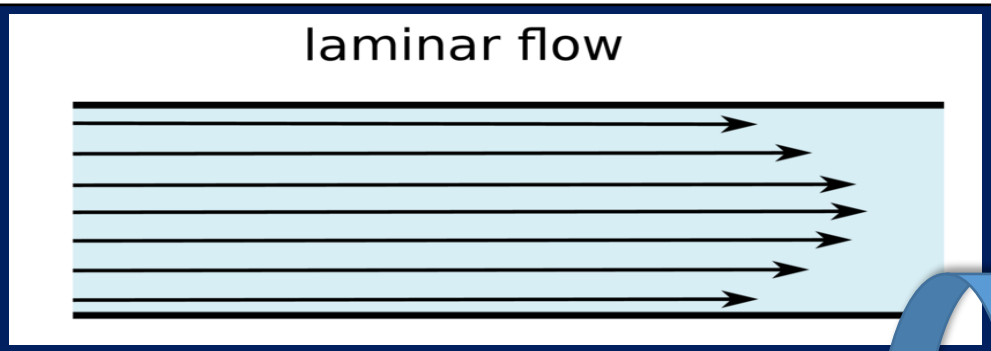
WEEK	READING COMPREHENSION	LISTENING COMPREHENSION	VIEWING COMPREHENSION	VOCABULARY DEVELOPMENT	LITERATURE	WRITING AND COMPOSITION	ORAL LANGUAGE AND [illegible]	GRAMMAR AWARENESS
1	**EN7RC-I-a-7:** Use the appropriate reading style (scanning, skimming, speed reading, intensive reading etc.) for one's purpose **EN7SS-I-a-1.5.2:** **Scan** for specific information.	**EN7LC-I-a-5:** Recognize prosodic features: volume, projection, pitch, stress, intonation, juncture, and speech rate that serve as carriers of meaning. **EN7LC-I-a-5.1:** Listen for important points signalled by volume, projection, pitch, stress, intonation, juncture, and rate of speech **EN7LC-I-a-5.2:** Note the changes in volume, projection, pitch, stress, intonation, juncture, and rate of speech that affect meaning.	**EN7VC-I-a-8:** Use structural analysis to determine the meaning of unfamiliar words or expressions from the material viewed.	**EN7V-I-a-22:** Distinguish between slang and colloquial expressions in conversations. **EN7V-I-a-22.1:** Distinguish features of colloquial language (fillers, contractions, etc.) and slang.	**EN7LT-I-a-1:** Discover literature as a means of connecting to a significant past. **EN7LT-I-a-2:** Describe the different literary genres during the pre-colonial period. **EN7LT-I-a-2.1:** Identify the distinguishing features of proverbs, myths, and legends.	**EN7WC-I-a-4:** Distinguish between formal and written language use. **EN7WC-I-a-4.1:** Recognize the common purposes for writing	**EN7F-I-a-3.11:** Observe the correct pronunciation of vowel and consonant sounds, diphthongs, blends, glides, etc. **EN7F-I-a-3.11.1:** Read words phrases, clauses, sentences and paragraphs using the correct production of vowel and consonant sounds, diphthongs, blends and glides.	**EN7G-I-a-11:** Observe correct subject-verb agreement



SAM[illegible] DIARY CURRICULUM [illegible]AP

SCIENCE GRADE 6

UNIT TOPIC	STANDARDS	COMPETENCIES	ASSESSMENT	ACTIVITIES	RESOURCES
Earth and Science: Layers of the Earth	CONTENT STANDARD: The learners demonstrate understanding of… the effects of earthquakes and volcanic eruptions: PERFORMANCE STANDARD: The learners should be able to… design an emergency and preparedness plan and kit	A1. Identify and label in writing the four interior layers of the earth.	A1. Picture Labeling	A1. Picture Analysis	A1. Worksheet for Picture Labeling
		A2. Describe orally the characteristics of the interior layers of the earth (crust, mantle, inner and outer core)	A2. Recitation	A2.1 Picture Analysis A2.2 Video Viewing and Analysis	A2.1 Powerpoint Slides A2.2-A3 Youtube Video: PBS Digital Studios: "Why Does the Earth Have Layers" https://www.youtube.com/watch?v=WwiiOjyfvAU
		A3. Describe orally the harmful effects of earthquake and volcanic eruption on earth's interior.	A3. Recitation	A3. Video Viewing and Analysis A4. Concept Mapping	A4. Venn Diagram
		A4. Describe in writing the changes on the Earth's surface as the results of earthquakes and volcanic eruptions; S6ES-IVa-1	A4. 3-2-1 Chart	A4. Experiment	A4.1 Experiment Worksheet A4.2 Experiment Materials A4.3 3-2-1 Chart
		A5. Enumerate in writing what to do before, during and after earthquake or volcanic eruptions;	A5. Concept Mapping	A5.1 Situation Analysis A5.2 Role Playing	A5.1 Graphic Organizer A5.2 Powerpoint Slides



STREAMLINING IS NOT SIMPLY REDUCING COMPETENCIES; IT IS ESTABLISHING ALIGNMENTS BETWEEN STANDARDS, COMPETENCIES, ASSESSMENTS, ACTIVITIES, AND RESOURCES

SAM[illegible] DIARY CURRICULUM [illegible]AP

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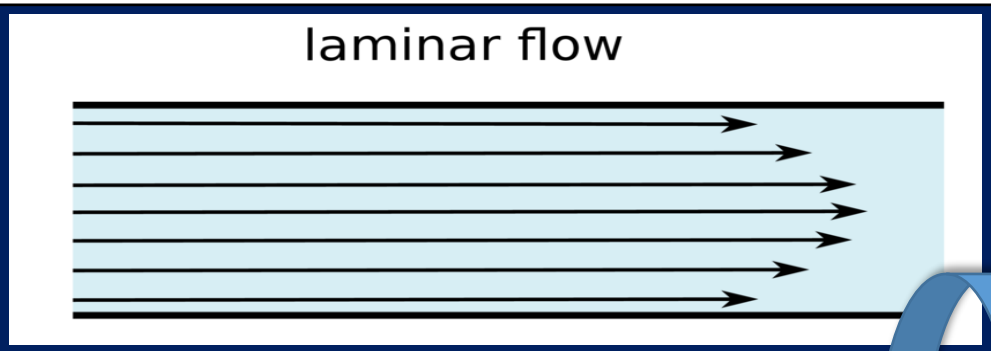

BENEFITS OF STREAMLINING:

- **CLARITY OF PROCESS**
- **EFFICIENCY IN TEACHING**
- **FOCUS ON SKILL**
- **SCAFFOLDED SKILLS DEVELOPMENT**
- **EVIDENCE OF LEARNING**

SAM[illegible] DIARY CURRICULUM [illegible]AP

SCIENCE GRADE 6

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PEAC CERTIFICATION ASSESSMENT INSTRUMENT

Standards of Compliance					
1. A curriculum map in each subject area that:					
- is aligned with the philosophy, vision, mission, goals and objectives*	4	3	2	1	0
- is aligned with the Kto12 curriculum guides, standards and competencies*	4	3	2	1	0
- shows unpacked Kto12 standards and competencies in different ways in all subjects*	4	3	2	1	0
- shows horizontal alignment between standards, competencies, assessment, instruction and resources in all the learning units*	4	3	2	1	0
- articulates vertical learning progressions across the different grade levels*	4	3	2	1	0
2. The implementation and continuous improvement of the curriculum maps by:					
- checking that the standards and competencies, activities and assessments and resources and integration of the PVMGO in the curriculum maps are reflected in the unit learning plans	4	3	2	1	0
- conducting a periodic review, revision and updating of the curriculum maps	4	3	2	1	0

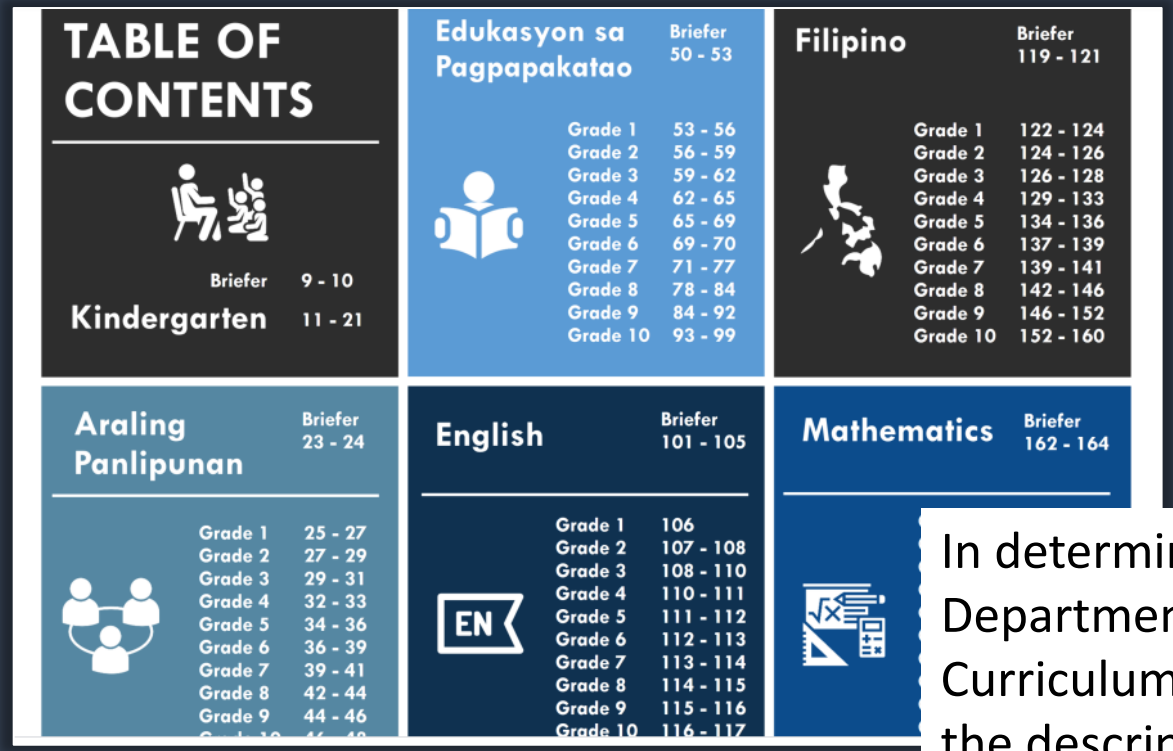
	CONTENT STANDARD	PERFORMANCE STANDARD			
2nd	the parts and functions of the compound microscope	employ appropriate techniques using the compound microscope to gather data about very small objects	Identify parts of the microscope and their functions	Week 1	**S7LT-IIa-1**
			Focus specimens using the compound microscope	Week 2	**S7LT-IIb-2**
	the different levels of biological organization		Describe the different levels of biological organization from cell to biosphere	Week 3	**S7LT-IIc-3**
	the difference between animal and plant cells		Differentiate plant and animal cells according to presence or absence of certain organelles	Week 4	**S7LT-IIc-3**
			Explain why the cell is considered the basic structural and functional unit of all organisms	Week 4	**S7LT-IIe-5**
	reproduction being both asexual or sexual		Differentiate asexual from sexual reproduction in terms of: 1 Number of individuals involved; 2 Similarities of offspring to parents	Week 5	**S7LT-IIg-7**
	organisms interacting with each other and with their environment to survive		Differentiate biotic from abiotic components of an ecosystem	Week 6	**S7LT-IIh-9**
			Describe the different ecological relationships found in an ecosystem	Week 6	**S7LT-IIh-10**
			Predict the effect of changes in abiotic factors on the ecosystem	Week 7	**S7LT-IIj-12**

LAMINAR OR TURBULENT FLOW?

STREAMLINING BY:

<u>TECHNIQUE A</u>. ALIGNING CONTENT STANDARD AND COMPETENCIES WITH PERFORMANCE STANDARD

<u>TECHNIQUE B.</u> IDENTIFYING POWER AND SUPPORTING COMPETENCIES AND CLUSTERING THESE



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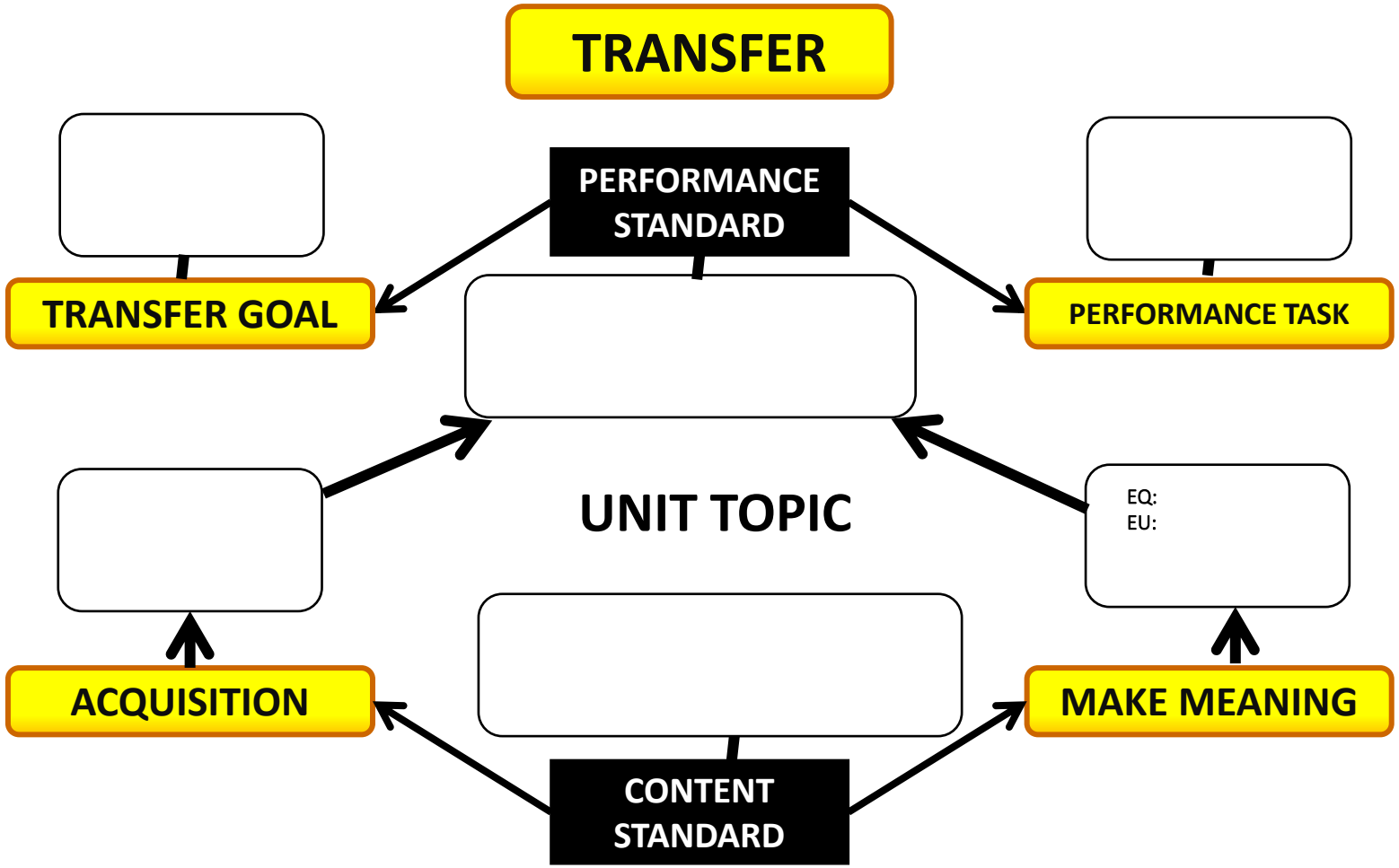
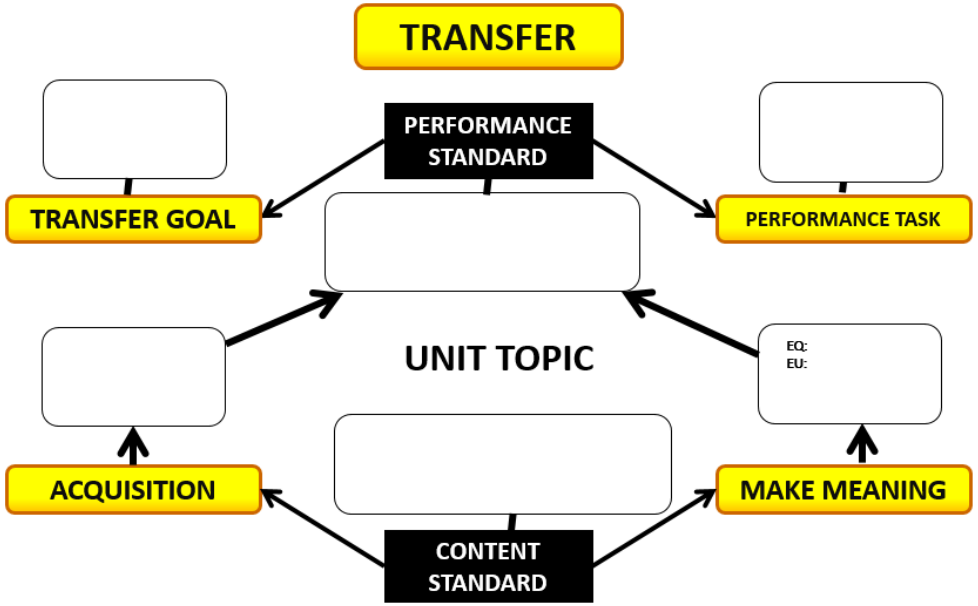
ALIGNMENT WITH PERFORMANCE STANDARD

In determining the most essential learning competencies, the Department collaborated with stakeholders from the Assessment Curriculum and Technology Research Centre (ACTRC), during which the descriptor - **ENDURANCE – was considered the primary determining factor. A learning competency is considered enduring if it remains with learners long after a test or unit of study is completed or if it is useful beyond a single test or unit of study.** Examples of such learning competencies include research skills, reading comprehension, writing, map reading, and hypothesis testing, which are essential in many professions and in everyday life (Reeves, 2002; Many & Horrell, 2014).

GUIDELINES ON THE USE OF THE MELCS, p. 3

TECHNIQUE A. ALIGNING CONTENT STANDARD AND COMPETENCIES WITH PERFORMANCE STANDARD

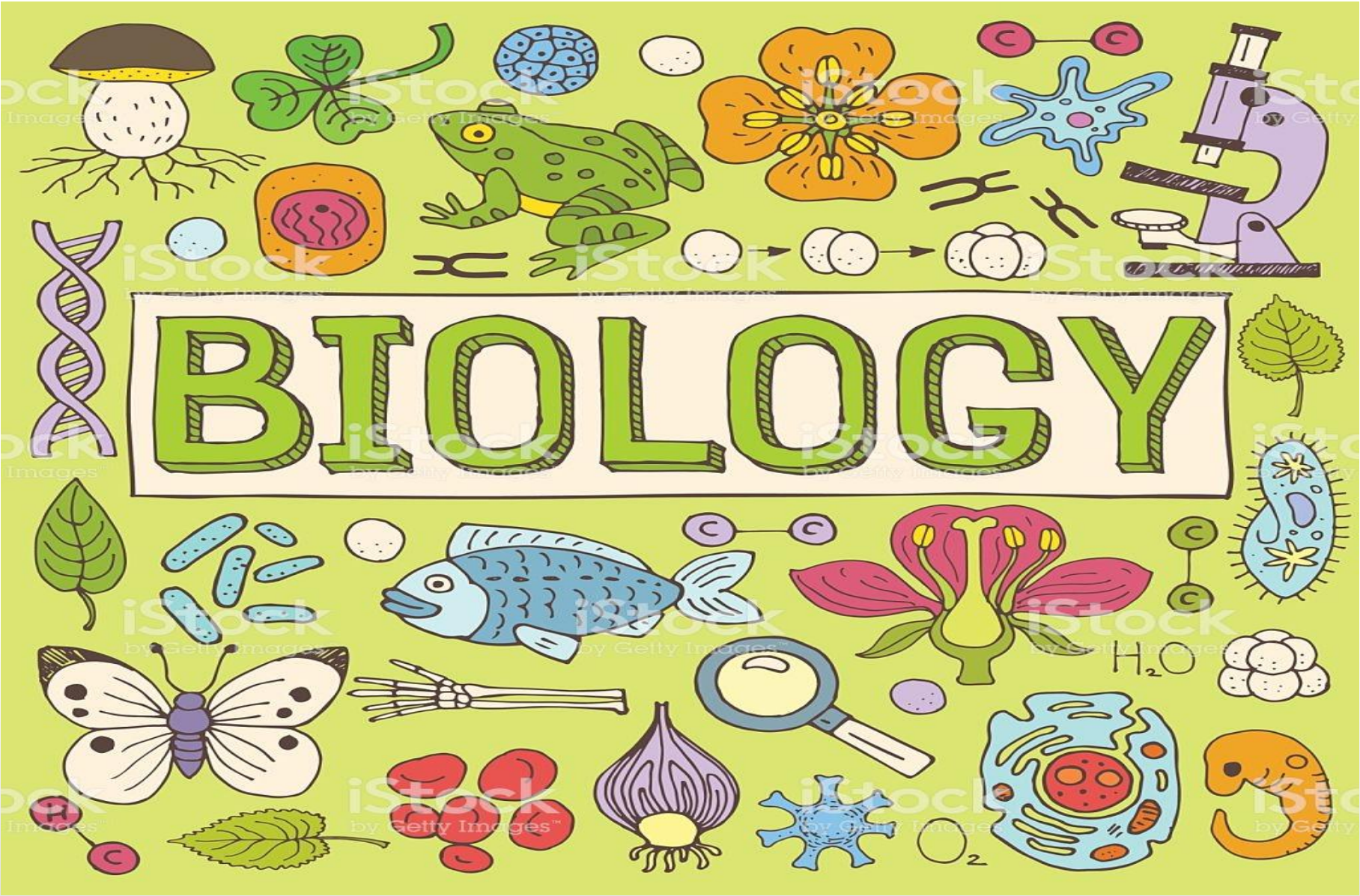




TECHNIQUE A: ALIGNING CONTENT STANDARD AND COMPETENCIES WITH PERFORMANCE STANDARD

STEPS:

1. Copy the Content and Performance Standards and write Unit Topic.
2. Unpack the Transfer Goal and Performance Task from Performance Standard. Then write in diagram.
3. Review DepEd CG/School Curriculum Map and take out competencies that are not directly aligned with Performance Standard. These competencies may already have been taught or may be taught in another grade or unit.
4. Classify the remaining unit competencies in terms of AMT Learning Goals. A & M with Content and T with Performance Standard. Unpack when needed.
5. Unpack the EQ and EU and with M cluster of competencies, establish link with Content Standard and Performance Task.
6. Cluster the A competencies and establish link with Content Standard and Performance Task.
7. Determine assessments for A (QA type) and M (WW type).


BIOLOGY
H_2O
O_2

K to 12 BASIC EDUCATION CURRICULUM

CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
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			8. classify organisms using the hierarchical taxonomic system;	**S8LT-IVh-20**	Science 8 Learner's Module. Campo, Pia C., et al. 2013. Pp. 226-227.	
			9. explain the advantage of high biodiversity in maintaining the stability	**S8LT-IVh-21**	1. Science and Technology I: Integrated NISMED. 2012. pp. 330-333. 3. Science and Technology II: Biology Textbook. NISMED. 2004. pp. 330-333. 4. Science 8 Learner's Module. Campo, Pia C.,	

Grade 8 Q4/Units3&4 has 7 COMPETENCIES

LAMINAR OR TURBULENT FLOW?

STEP 1: Copy the Content and Performance Standards and write Unit Topic.

K to 12 BASIC EDUCATION CURRICULUM

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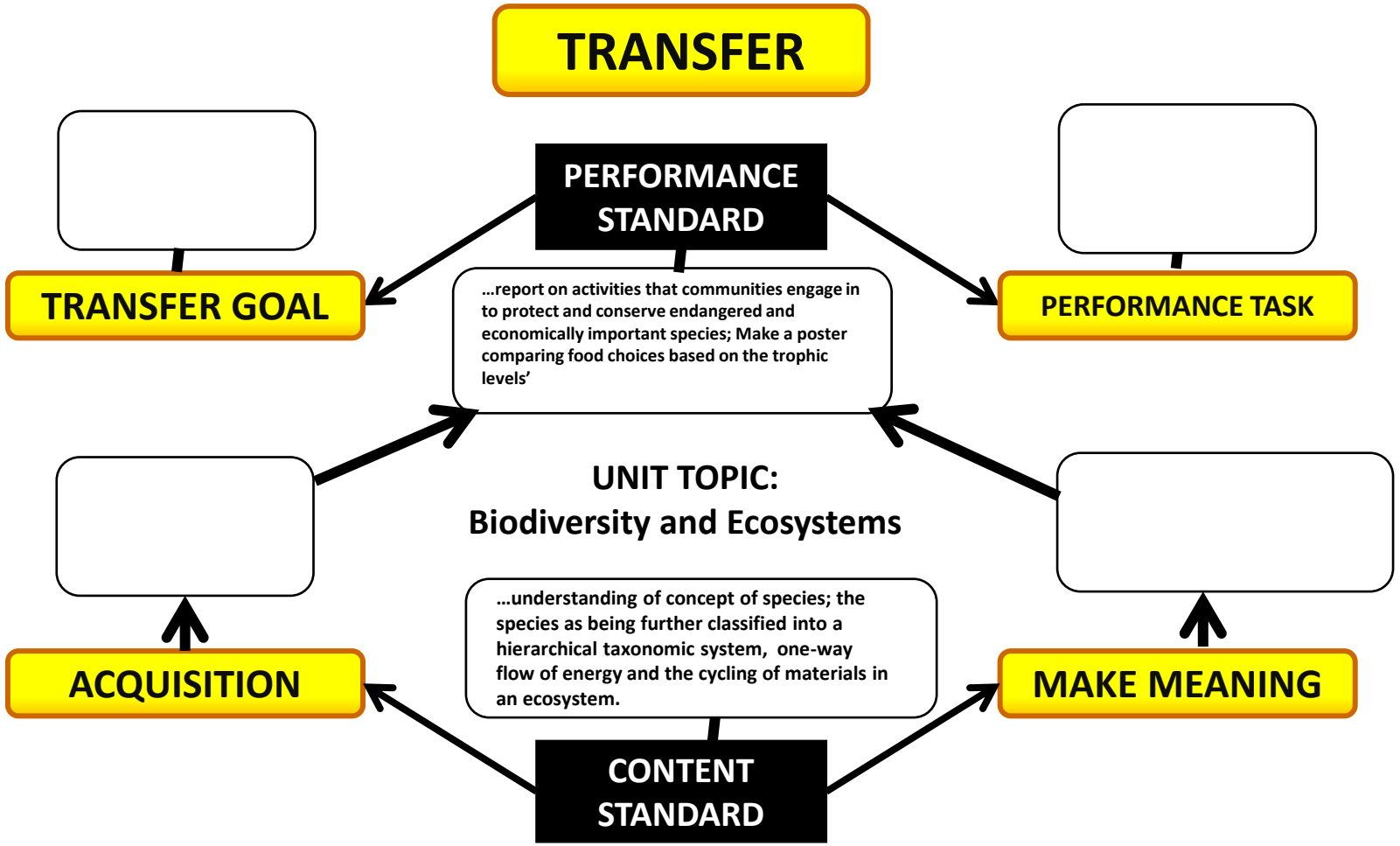

1

PERFORMANCE STANDARD

The learners should be able to

...report on activities that communities engage in to protect and conserve endangered and economically important species; Make a poster comparing food choices based on the trophic levels'

2

TRANSFER GOAL

Students on their own and in the long run will be able to be able to create a multimedia presentation that depicts specific ecosystems (places in the Philippines) that are rich in biodiversity and shows how activities that communities engage in to protect and conserve endangered and economically important species.

3

PERFORMANCE TASK

GRASPS:

Make a survey of threatened economically important species in your locality and CREATE a poster in a form of a travelogue which aims to disseminate information to help protect and conserve economically important species. Your travelogue shall be evaluated by the local government unit so the product should be Engaging, Comprehensive, Accurate, and should contain Practical Recommendations.

STEP 2: Unpack the Transfer Goal and Performance Task from Performance Standard. Then write in diagram.

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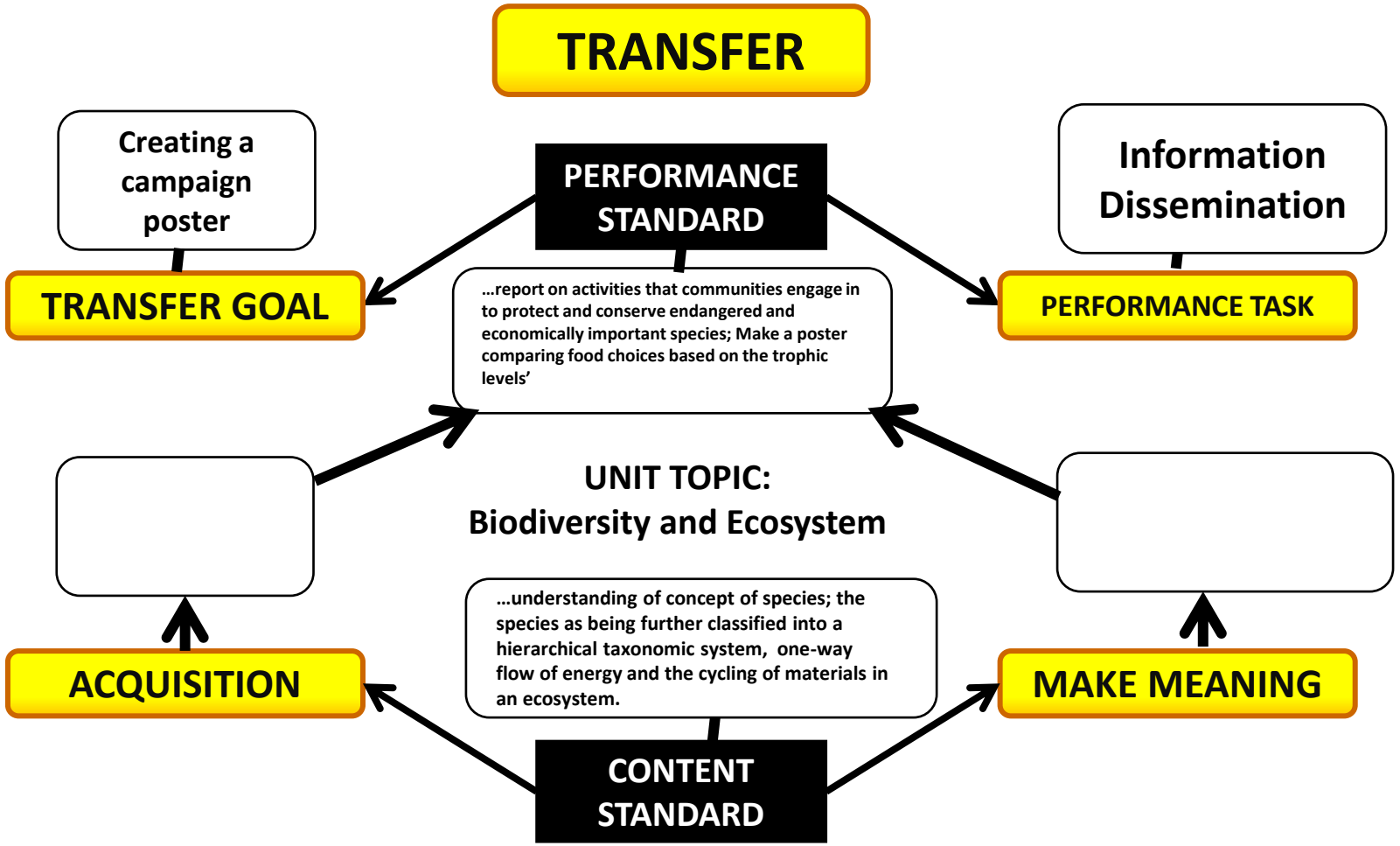

ACTIVITY 26. Transfer Task: Creating a Travelogue

Aware of the present threats to biodiversity and the environmental and economic problems these may cause, the government officials of your locality plan to initiate a conservation project for the threatened and economically important species **found in your area**. They want to create an effective conservation project that is based on careful study and research. They then hired a team of researchers to conduct a preliminary study.

You are a member of this team of researchers and science experts tasked to make a survey of threatened economically important species in your locality and to make recommendations for the conservation of these species.

Through field observations and interview with the locals, you are to come up with a biodiversity survey in the form of a travelogue that you will present to the government officials. The travelogue has to be engaging, comprehensive, accurate, and practical recommendations based on data gathered.

Rubric for the Transfer Task

Criteria	4 EXCELLENT	3 SATISFACTORY	2 DEVELOPING	1 BEGINNING
Comprehensive	The presentation is extensively supported with insightful justifications, evidence, facts and ideas.	The presentation is adequately supported with valid justifications, evidences, facts and ideas.	The presentation is limited. Some important facts and evidences were lacking.	Presentation was superficial and erroneous.
Accuracy	Data were presented in an interesting manner and are accurately presented with no errors.	The data were accurate and free from errors.	Some details in the travelogue have minor errors.	The data were not accurate and have a lot of serious errors.
Engaging	The ideas flow smoothly and sustain the audience's attention from the start until the end.	The flow of the presentation is logical and the audience is able to follow the discussion most of the time.	Lack logical flow that confuses the audience several times.	Does not flow smoothly. Fails to engage the audience from beginning to end.
Practicality of Recommendations	There are evident recommendations which are sensible, useful and attainable.	The presented recommendations are sensible.	Some recommendations are impossible to achieve.	No recommendations were presented.

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			8. classify organisms using the hierarchical taxonomic system;	**S8LT-IVh-20**	Science 8 Learner's Module. Campo, Pia C., et al. 2013. Pp. 226-227.	
			9. explain the advantage of high biodiversity in maintaining the stability of an ecosystem; 10. describe the transfer of energy through the trophic levels; 11. analyze the roles of organisms in the cycling of materials; 12. explain how materials cycle in an ecosystem; and 13. suggest ways to minimize human impact on the environment.	**S8LT-IVh-21**	1. Science and Technology I: Integrated Science Textbook for First Year. Villamil, Aurora M., Ed.D. 1998. P. 231. * 2. Science and Technology II: Biology Textbook. NISMED. 2012. pp. 330-333. 3. Science and Technology II: Biology Textbook. NISMED. 2004. pp. 330-333. 4. Science 8 Learner's Module. Campo, Pia C.,	

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K to 12 BASIC EDUCATION CURRICULUM

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			8. classify organisms using the hierarchical taxonomic system;	**S8LT-IVh-20**	Science 8 Learner's Module. Campo, Pia C., et al. 2013. Pp. 226-227.	
			9. explain the advantage of high biodiversity in maintaining the stability	**S8LT-IVh-21**	1. Science and Technology I: Integrated	
			cycling of materials; 12. explain how materials cycle in an ecosystem; and 13. suggest ways to minimize human impact on the environment.		NISMED. 2012. pp. 330-333. 3. Science and Technology II: Biology Textbook. NISMED. 2004. pp. 330-333. 4. Science 8 Learner's Module. Campo, Pia C.,	

Grade 8 Q4/Units3&4 has 7 COMPETENCIES

STEP 4: Classify the remaining unit competencies in terms of AMT Learning Goals. A and M are matched with Content Standard and T with Performance Standard. *Unpack when needed.*

CONTENT STANDARD: …understanding of concept of species; the species as being further classified into a hierarchical taxonomic system, one-way flow of energy and the cycling of materials in an ecosystem.	
S8LT-IVg-19	Explain the concept of species; (A)
S8LT-IVh-20	Classify organisms using the hierarchical taxonomic system; (A)
S8LT-IVh-21	Explain the advantage of high biodiversity in maintaining the stability of an ecosystem; (M)
S8LT-IVi-22	Describe the transfer of energy through the trophic levels; (A)
S8LT-IVi-23	Analyze the roles of organisms in the cycling of materials; (M)
S8LT-IVi-24	Explain how materials cycle in an ecosystem; (M)

LEARNING GOALS

A → **M** → **T**

Facts
Vocabulary
Definitions

UNDERSTAND

Principles and Generalizations
Big ideas of the discipline

do

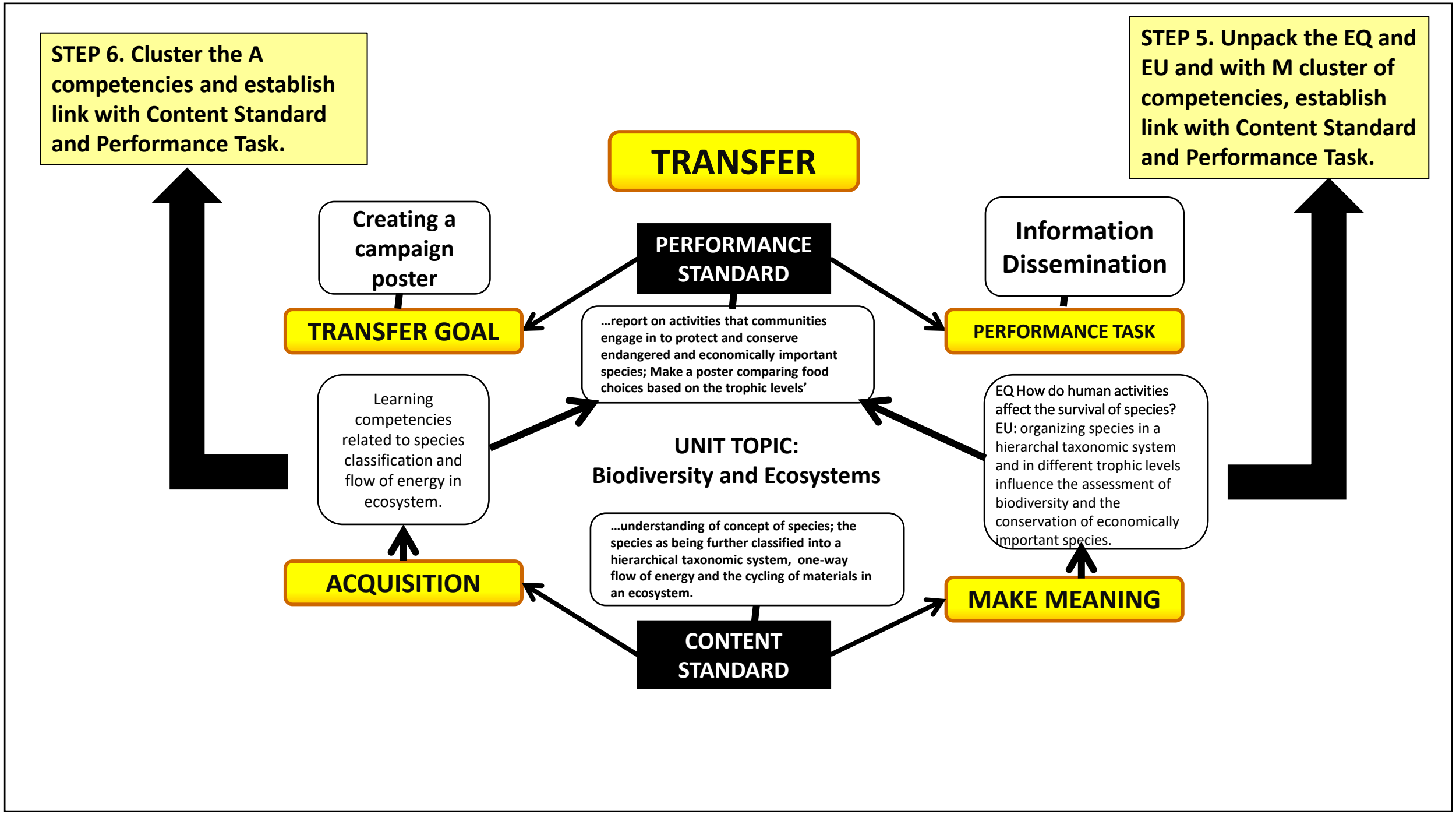
Performance
Product

STANDARDS

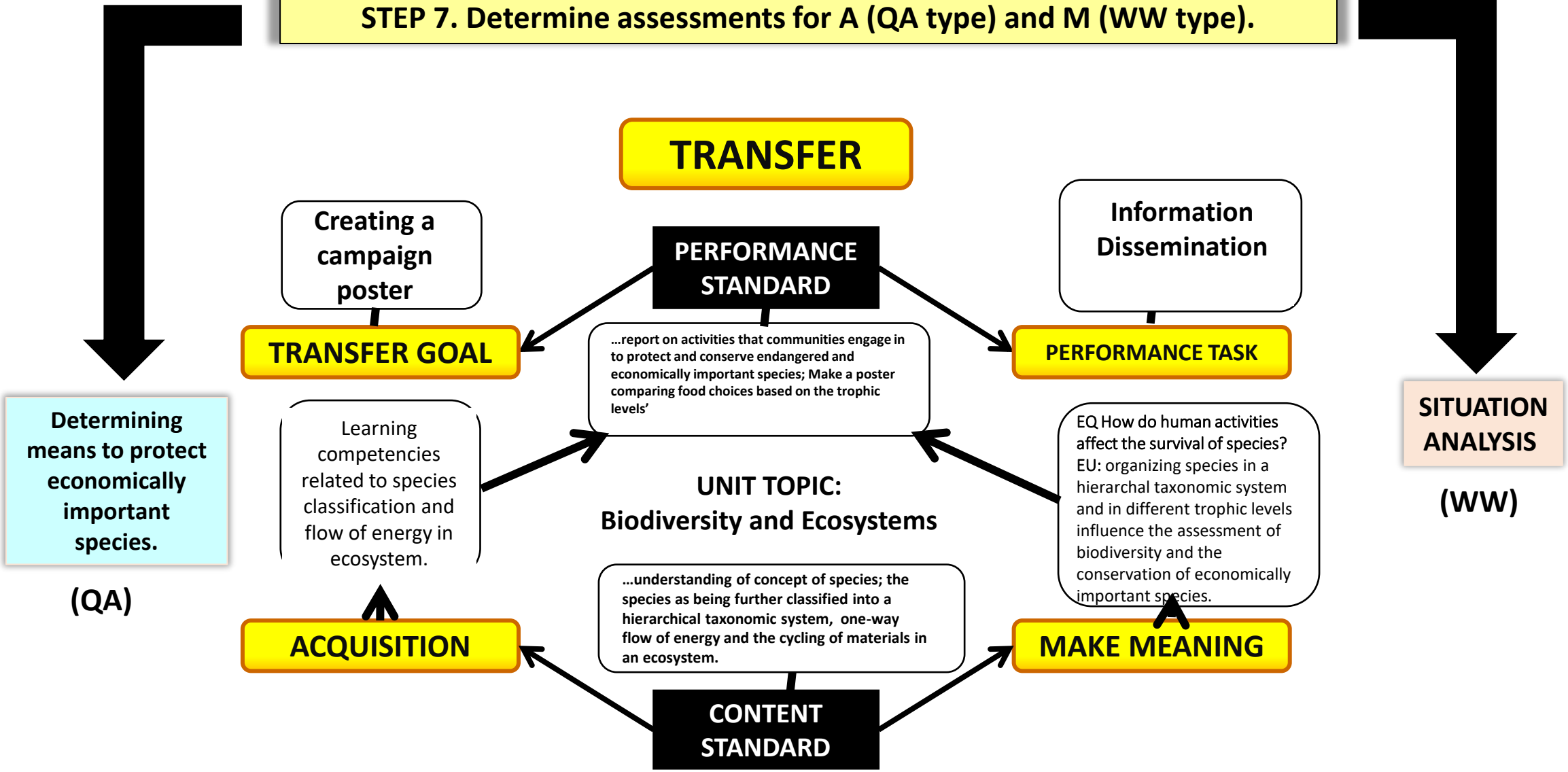
List	Compare	Differentiate	Analyze	Defend	Show	Plan	Campaign
Name	Classify	Locate	Explain	Predict	Demonstrate	Revise	Prepare
Enumerate	Select	Describe	Elaborate	Generalize	Improve	Convert	Promote
Identify	Operate	Report	Discuss	Formulate	Design	Compose	Remedy
Define	Sequence	Copy	Justify	Model	Create	Devise	Portray
State	Compute	Point	Prove	Synthesize	Invent	Propose	Interpret
Solve			Persuade	Reflect	Simulate	Recommend	Innovate

STEP 4: Classify the remaining unit competencies in terms of AMT Learning Goals. A and M are matched with Content Standard and T with Performance Standard. *Unpack when needed.*

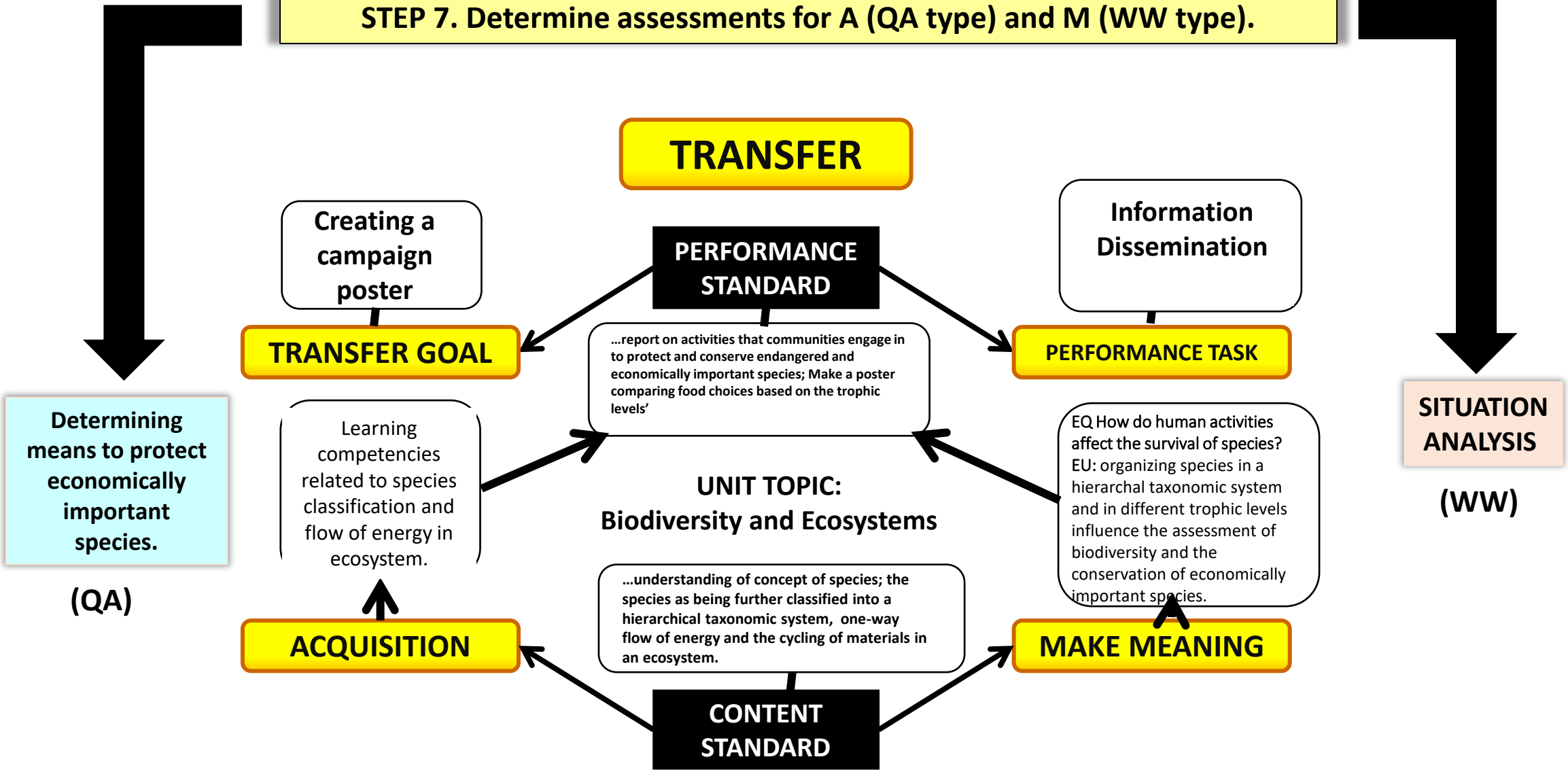
PERFORMANCE STANDARD: …report on activities that communities engage in to protect and conserve endangered and economically important species; Make a poster comparing food choices based on the trophic levels’		
S8LT-IVj-25	Suggest ways to minimize human impact on the environment. (T)	1


STEP 6. Cluster the A competencies and establish link with Content Standard and Performance Task.
STEP 5. Unpack the EQ and EU and with M cluster of competencies, establish link with Content Standard and Performance Task.
TRANSFER
Creating a campaign poster
TRANSFER GOAL
PERFORMANCE STANDARD
…report on activities that communities engage in to protect and conserve endangered and economically important species; Make a poster comparing food choices based on the trophic levels'
Information Dissemination
PERFORMANCE TASK
Learning competencies related to species classification and flow of energy in ecosystem.
UNIT TOPIC:
Biodiversity and Ecosystems
EQ How do human activities affect the survival of species?
EU: organizing species in a hierarchal taxonomic system and in different trophic levels influence the assessment of biodiversity and the conservation of economically important species.
ACQUISITION
…understanding of concept of species; the species as being further classified into a hierarchical taxonomic system, one-way flow of energy and the cycling of materials in an ecosystem.
MAKE MEANING
CONTENT STANDARD

STEP 7. Determine assessments for A (QA type) and M (WW type).



STEP 7. Determine assessments for A (QA type) and M (WW type).



LAMINAR OR TURBULENT FLOW?

CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
3. **Biodiversity** 3.1 Species diversity 3.2 Hierarchical taxonomic system of classification 3.3 Protection and conservation of endangered and economically important species	*The learners demonstrate an understanding of:* 1. the concept of a species 2. the species as being further classified into a hierarchical taxonomic system	*The learners should be able to:* report (e.g., through a travelogue) on the activities that communities engage in to protect and conserve endangered and economically important species make a poster comparing food choices based on the trophic levels'	7. explain the concept of a species;	**S8LT-IVg-19**	Science 8 Learner's Module. Campo, Pia, et al. 2013. P. 224.	
			8. classify organisms using the hierarchical taxonomic system;	**S8LT-IVh-20**	Science 8 Learner's Module. Campo, Pia C., et al. 2013. Pp. 226-227.	
			9. explain the advantage of high biodiversity in maintaining the stability of an ecosystem; 10. describe the transfer of energy through the trophic levels; 11. analyze the roles of organisms in the cycling of materials; 12. explain how materials cycle in an ecosystem; and 13. suggest ways to minimize human impact on the environment.	**S8LT-IVh-21**	1. Science and Technology I: Integrated Science Textbook for First Year. Villamil, Aurora M., Ed.D. 1998. P. 231. * 2. Science and Technology II: Biology Textbook. NISMED. 2012. pp. 330-333. 3. Science and Technology II: Biology Textbook. NISMED. 2004. pp. 330-333. 4. Science 8 Learner's Module. Campo, Pia C.,	

LAMINAR or TURBULENT?

SUBJECT: SCIENCE

GRADE LEVEL: 10

TEACHERS:

Grade Level Standards: Learners investigate how gases behave in different conditions based on their knowledge of the motion of and distances between gas particles. Learners then confirm whether their explanations are consistent with the Kinetic Molecular Theory.

?

4th	how gases behave based on the motion and relative distances between gas particles		Investigate the relationship between: 1 volume and pressure at constant temperature of a gas 2 volume and temperature at constant pressure of a gas 3 explains these relationships using the kinetic molecular theory	Week 1-2	S9MT-IIj-20
	the structure of biomolecules, which are made up mostly of a limited number of elements, such as carbon, hydrogen, oxygen, and nitrogen		Recognize the major categories of biomolecules such as carbohydrates, lipids, proteins, and nucleic acids	Week 3-4	S10MT-IVc-d-22

LAMINAR OR TURBULENT FLOW?

K to 12 BASIC EDUCATION CURRICULUM

CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
Grade 10 – Matter **FOURTH QUARTER/FOURTH GRADING PERIOD**						
1. Gas Laws 1.1 Kinetic Molecular Theory 1.2 Volume, pressure, and temperature relationship 1.3 Ideal gas law	*The learners demonstrate an understanding of...* how gases behave based on the motion and relative distances between gas particles		*The learners should be able to...* 1. investigate the relationship between: 1.1 volume and pressure at constant temperature of a gas; 1.2 volume and	**S10MT-IVa-b-21**	1. APEX Chemistry. Unit 2. Chapeter 3. Lessons 5, 6 and 8. 2. EASE Science II. Module 9. 3. Chemistry III Textbook. Mapa, Amelia P., Ph.D., et al. 2001. pp. 244-253. * 4. Science and Technology III: Chemistry Textbook. NISMED. 1997. pp. 68-81. 5. NFE. Gases: Molecules in Motion. 2001. pp. 12-29.	1. Charles Law setup 2. (stand setup assembly, ring with stem, wire gauze, alcohol burner) 3. Erlenmeyer flask, balloon

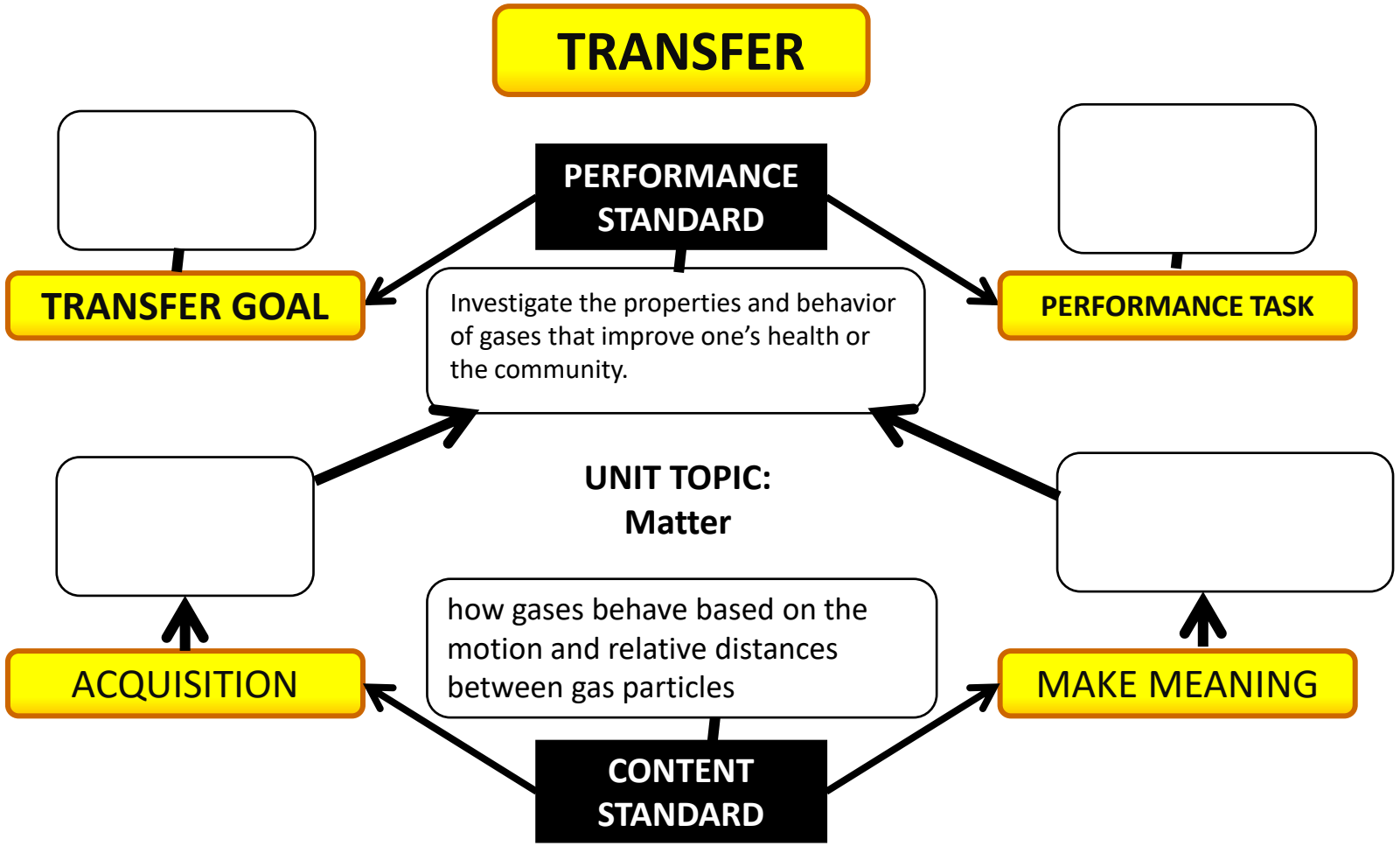
Grade 10 Q4 has 1 COMPETENCY.

LAMINAR OR TURBULENT FLOW?

STEP 1: Copy the Content and Performance Standards and write Unit Topic.

Term (No.) Month	Unit Topic: Content	Content Standard (CS)	Performance Standard (PS)	Competencies / Skills
Q4	**1. Gas Laws** 1.1 Kinetic Molecular Theory 1.2 Volume, pressure, and temperature relationship 1.3 Ideal gas law	The learners demonstrate an understanding of… how gases behave based on the motion and relative distances between gas particles	*The learners should be able to* investigate the properties and behavior of gases as a way of improving one's health and the community.	1. investigate the relationship between: 1.1 volume and pressure at constant temperature of a gas; 1.2 volume and temperature at constant pressure of a gas; 1.3 explains these relationships using the kinetic molecular theory; **S9MT-IIj-20**

STEP 1: Copy the Content and Performance Standards and write Unit Topic.



1 PERFORMANCE STANDARD

The learners should be able to:

investigate the properties and behavior of gases as a way of improving one's health and the community.

2 TRANSFER GOAL

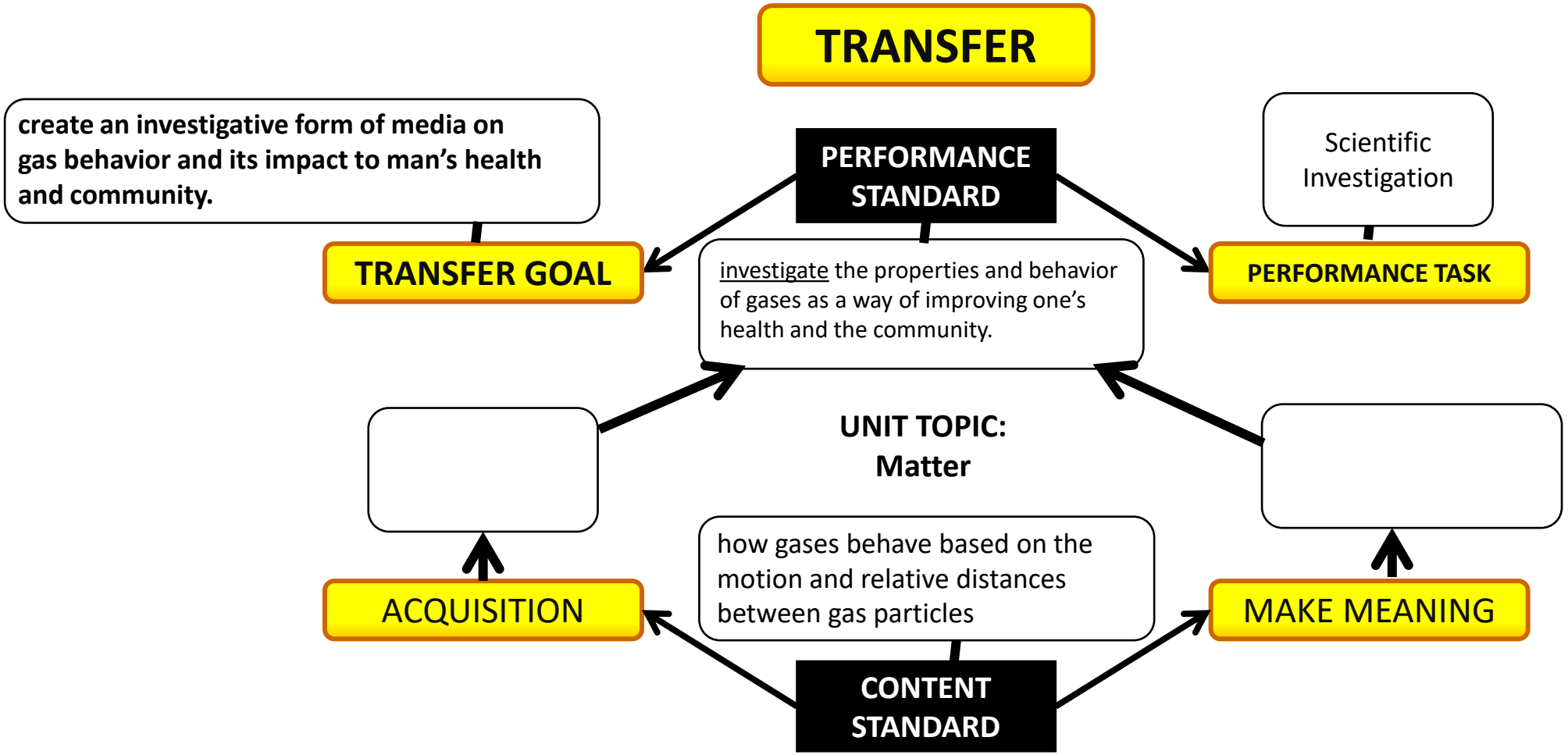
Students on their own and in the long run will be able to create an investigative form of media on gas behavior and its impact to man's health and community.

3 PERFORMANCE TASK

In response to Republic Act 8749 or the Philippine Clean Air Act under its Implementing Rules and Regulations which requires the designation of airsheds to effectively manage the country's air quality program, the Department of Science and Technology, the Department of Health and the Department of Environmental and Natural Resources launches its program entitled: " Strengthening the Philippines Clean Air Act 2015". One of the activities of the said program is the CLEAN AIR ACT EXPO. The Expo will provide opportunities to present Science, Math and Engineering Fair Projects to inspire the next generation of scientists and engineers in fostering Clean Air Philippines. As a member of DOST Science and Research Center, you are asked to join and present **scientific investigations** about the air quality of the Philippines. Your presentation can be in the form of ...

STEP 2: Unpack the Transfer Goal and Performance Task from Performance Standard. Then write in diagram.

STEP 2: Unpack the Transfer Goal and Performance Task from Performance Standard. Then write in diagram.



Term (No.) Month	Unit Topic: Content	Content Standard (CS)	Performance Standard (PS)	Competencies / Skills
Q4	**1. Gas Laws** 1.1 Kinetic Molecular Theory 1.2 Volume, pressure, and temperature relationship 1.3 Ideal gas law	The learners demonstrate an understanding of… how gases behave based on the motion and relative distances between gas particles	*The learners should be able to* investigate the properties and behavior of gases as a way of improving one's health and the community.	1. investigate the relationship between: 1.1 volume and pressure at constant temperature of a gas; 1.2 volume and temperature at constant pressure of a gas; 1.3 explains these relationships using the kinetic molecular theory; **S9MT-IIj-20**

STEP 3: Review DepEd CG/School Curriculum Map and unpack the competencies.

4th	how gases behave based on the motion and relative distances between gas particles	?	Investigate the relationship between: 1 volume and pressure at constant temperature of a gas 2 volume and temperature at constant pressure of a gas 3 explains these relationships using the kinetic molecular theory	Week 1-2	S9MT-IIj-20

Grade 10 Q4 has 1 CORE COMPETENCY* (v1)

STEP 4: Classify the remaining unit competencies in terms of AMT Learning Goals. A and M are matched with Content Standard and T with Performance Standard. *Unpack when needed.*

Term (No.) Month	Unit Topic: Content	Content Standard (CS)	Competencies / Skills
Q4	**1. Gas Laws** 1.1 Kinetic Molecular Theory 1.2 Volume, pressure, and temperature relationship 1.3 Ideal gas law	The learners demonstrate an understanding of... how gases behave based on the motion and relative distances between gas particles	*A1. Describe the properties of gases (A) *A2. Solve problems involving gases using the general gas laws. (A) *A3 Use Gas Laws to determine the new properties of a given amount of gas (A) *A4. Discuss common processes or phenomenon through gas laws (M)

STEP 4: Classify the remaining unit competencies in terms of AMT Learning Goals. A and M are matched with Content Standard and T with Performance Standard. *Unpack when needed.*

Term (No.) Month	Unit Topic: Content	Performance Standard (PS)	Competencies / Skills
Q4	**1. Gas Laws** 1.1 Kinetic Molecular Theory 1.2 Volume, pressure, and temperature relationship 1.3 Ideal gas law	*The learners should be able to* investigate the properties and behavior of gases as a way of improving one's health and the community.	A5. investigate the relationship between: (T) 5.1 volume and pressure at constant temperature of a gas; 5.2 volume and temperature at constant pressure of a gas; 5.3 explains these relationships using the kinetic molecular theory; S9MT-IIj-20 *6. propose scientific ways on how to regulate the impact of behavior of gases (T)

LEARNING GOALS

A → **M** → **T**

Facts
Vocabulary
Definitions

UNDERSTAND

Principles and Generalizations
Big ideas of the discipline

do

Performance
Product

STANDARDS

List	Compare	Differentiate	Analyze	Defend	Show	Plan	Campaign
Name	Classify	Locate	Explain	Predict	Demonstrate	Revise	Prepare
Enumerate	Select	Describe	Elaborate	Generalize	Improve	Convert	Promote
Identify	Operate	Report	Discuss	Formulate	Design	Compose	Remedy
Define	Sequence	Copy	Justify	Model	Create	Devise	Portray
State	Compute	Point	Prove	Synthesize	Invent	Propose	Interpret
Solve			Persuade	Reflect	Simulate	Recommend	Innovate

Term (No.) Month	Unit Topic: Content	Content Standard (CS)	Performance Standard (PS)	Competencies / Skills
Q4	**1. Gas Laws** 1.1 Kinetic Molecular Theory 1.2 Volume, pressure, and temperature relationship 1.3 Ideal gas law	The learners demonstrate an understanding of… how gases behave based on the motion and relative distances between gas particles	*The learners should be able to* investigate the properties and behavior of gases as a way of improving one's health and the community.	*A1. Describe the properties of gases (A) *A2. Solve problems involving gases using the general gas laws. (A) *A3 Use Gas Laws to determine the new properties of a given amount of gas (A) *A4. Discuss common processes or phenomenon through gas laws (M) A5. investigate the relationship between: (T) 5.1 volume and pressure at constant temperature of a gas; 5.2 volume and temperature at constant pressure of a gas; 5.3 explains these relationships using the kinetic molecular theory; S9MT-IIj-20 *6. propose scientific ways on how to regulate the impact of behavior of gases (T)

Will the attainment of these competencies eventually lead to students' TRANSFER OF LEARNING?

A

?

Additional competencies

1. **Describe the properties of gases**
2. **Solve problems involving gases using the general gas laws.**
3. **Use Gas Laws to determine the new properties of a given amount of gas**

M

?

Additional competency:
Discuss common processes or phenomenon through gas laws (M)

T

Investigate the relationship between:
1. volume and pressure at constant temperature of a gas;
2. volume and temperature at constant pressure of a gas;
3. explains these relationships using the kinetic molecular theory;

Additional competency:
propose scientific ways on how to regulate the impact of behavior of gases

Learning Goals	**Before Unpacking**	**After Unpacking**
	# of competencies	# of competencies
Acquisition	0	3
Meaning Making	0	1
Transfer	1	2

STEP 6. Cluster the A competencies and establish link with Content Standard and Performance Task.

STEP 5. Unpack the EQ and EU and with M cluster of competencies, establish link with Content Standard and Performance Task.

TRANSFER

PERFORMANCE STANDARD

Investigate the properties and behavior of gases that improve one's health or the community.

TRANSFER GOAL

create an investigative form of media on gas behavior and its impact to man's health and community.

PERFORMANCE TASK

Scientific Investigation

UNIT TOPIC:
Matter

ACQUISITION

Learning Competencies related to gas laws.

MAKE MEANING

EQ How do the behavior of gases affect the community?
EU: The *behavior of gases affect the life activities of humans, sustainability the environment and its impact to the community*.

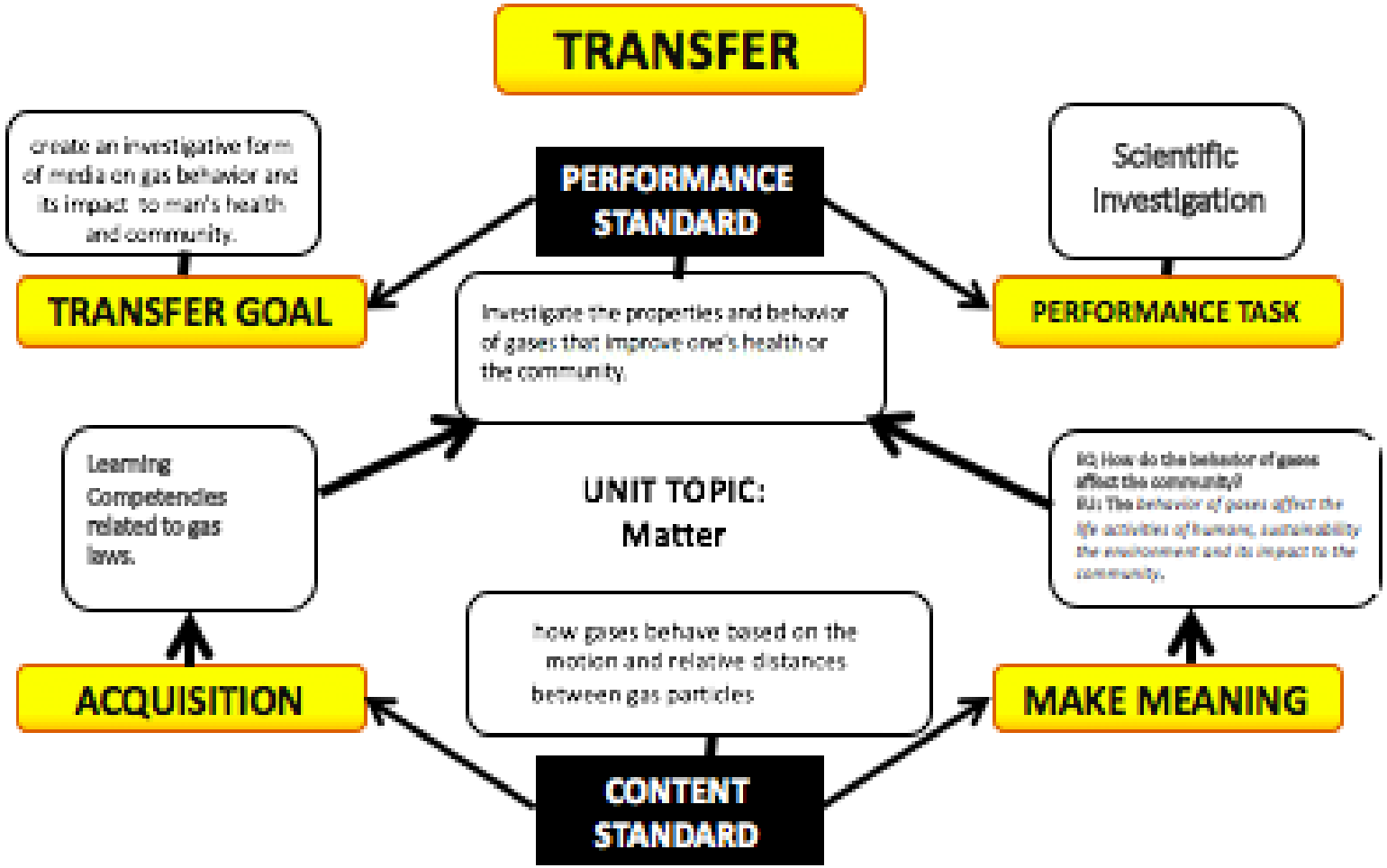
CONTENT STANDARD

how gases behave based on the motion and relative distances between gas particles

STEP 7. Determine assessments for A (QA type) and M (WW type).

Solving Equations From Gas Laws

(QA)



Guided Generalization

(WW)

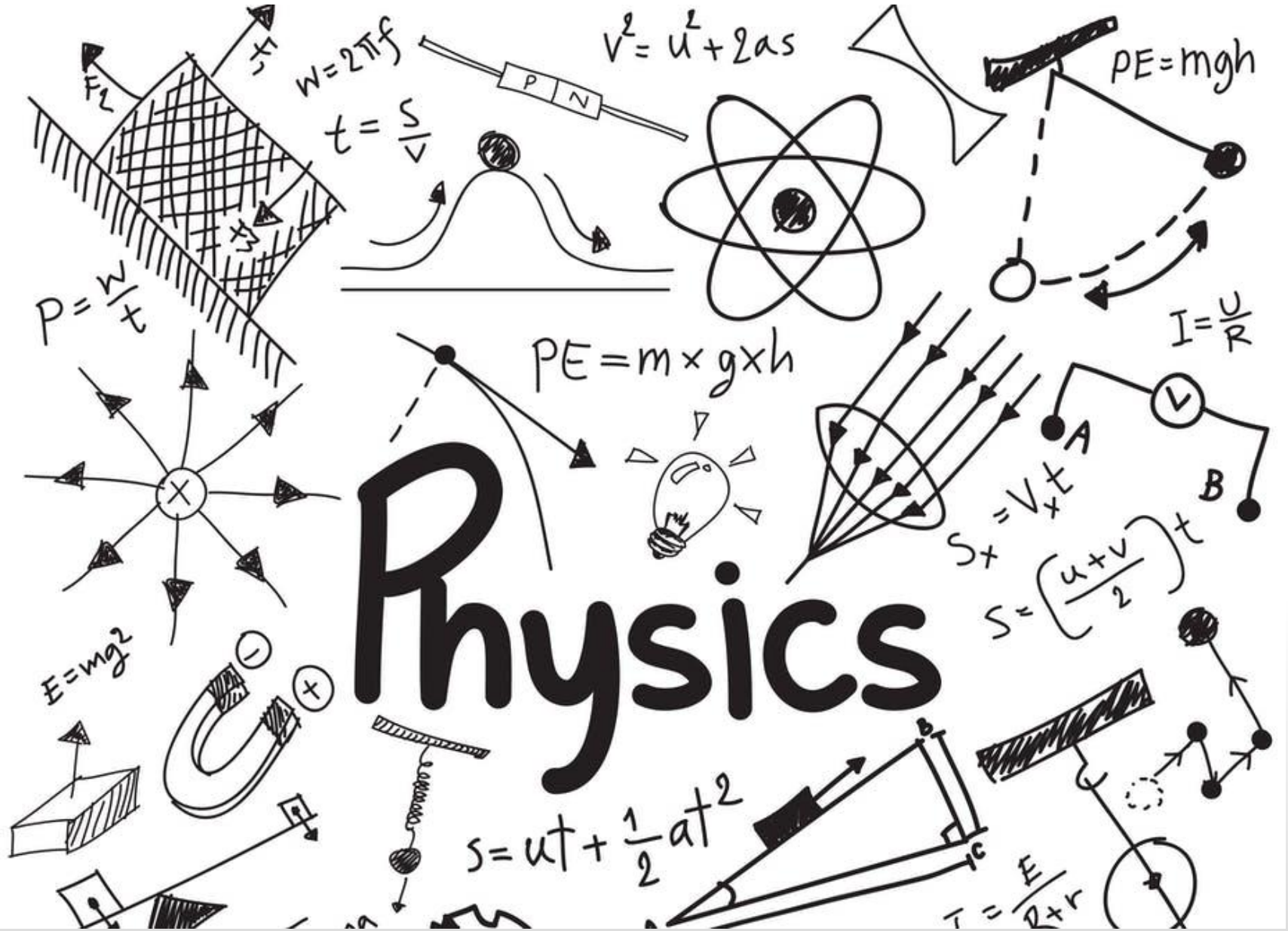
SUBJECT: SCIENCE
GRADE LEVEL: 10
TEACHERS:

?

Grade Level Standards: Learners investigate how gases behave in different conditions based on their knowledge of the motion of and distances between gas particles. Learners then confirm whether their explanations are consistent with the Kinetic Molecular Theory.

Quarter 4	
Competencies	Code
*A1. Describe the properties of gases (A)	
*A2. Solve problems involving gases	
using the general gas laws. (A)	
*A3 Use Gas Laws to determine the new properties of a given amount of gas (A)	
*A4. Discuss common processes or phenomenon through gas laws (M)	
A5. investigate the relationship between: (T)	
5.1 volume and pressure at constant temperature of a gas;	S10MT-IVa-b-21
5.2 volume and temperature at constant pressure of a gas;	
5.3 explains these relationships using the kinetic molecular theory; S9MT-IIj-20	
*6. propose scientific ways on	

LAMINAR OR TURBULENT FLOW?


Physics
w=2πf
t = s/v
v² = u² + 2as
PE=mgh
P = W/t
PE = m × g × h
I = U/R
A
B
S = (u+v/2) t
s = ut + 1/2 at²
E=mg²

Grade 9	At the end of Grade 9, learners have gained a a deeper understanding of the digestive, respiratory, and circulatory systems to promote overall health. They have become familiar with some technologies that introduce desired traits in economically important plants and animals. Learners can explain how new materials are formed when atoms are rearranged. They recognize that a wide variety of useful compounds may arise from such rearrangements. Learners can identify volcanoes and distinguish between active and inactive ones. They can explain how energy from volcanoes may be tapped for human use. They are familiar with climatic phenomena that occur on a global scale. They can explain why certain constellations can be seen only at certain times of the year. Learners can predict the outcomes of interactions among objects in real life applying the laws of conservation of energy and momentum. ?

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Learning Materials and equipment technical specifications may be accessed at http://lrmds.deped.gov.ph/. **These materials are in textbooks that have been delivered to school*

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4th	projectile motion, impulse and momentum, and conservation of linear momentum	propose ways to enhance sports related to projectile motion	Describe the horizontal and vertical motions of a projectile	Week 1	**S9FE-Ia-34**
			Investigate the relationship between the angle of release and the height and range of the projectile	Week 1-2	**S9FE-Ia-35**
			Relate impulse and momentum to collision of objects (e.g., vehicular collision)	Week 3	**S9FE-Ib-36**
			Infer that the total momentum before and after collision is equal	Week 3	**S9FE-Ib-37**
	conservation of mechanical energy	create a device that shows conservation of mechanical energy	Perform activities to demonstrate conservation of mechanical energy	Week 4	**S9FE-IVd-40**
	the relationship among heat, work, and efficiency	analyze how power plants generate and transmit electrical energy	Construct a model to demonstrate that heat can do work	Week 5	**S9FE-IVe-42**
			Explain how heat transfer and energy transformation make heat engines work	Week 6	**S9FE-IVg-45**
	generation, transmission, and distribution of electrical energy from power plants (hydroelectric, geothermal, wind, nuclear) to home		Explain how electrical energy is generated, transmitted, and distributed	Week 6-7	**S9FE-IVh-j-46**

LAMINAR OR TURBULENT FLOW?

CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
2. Work Power and Energy 2.1 Changes in form of mechanical energy 2.2 Conservation of energy	*The learners demonstrate an understanding of:* conservation of mechanical energy	*The learners shall be able to:* create a device that shows conservation of mechanical energy	8. infer that the total mechanical energy remains the same during any process;	**S9FE-IVe-41**	Textbook. NISMED. 2012. pp. 121-122. 5. Science and Technology IV: Physics Textbook. NISMED. 2012. p. 315.	
3. Heat, Work, and Efficiency	the relationship among heat, work, and efficiency	analyze how power plants generate and transmit electrical energy	9. construct a model to demonstrate that heat can do work;	**S9FE-IVe-42**	Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph. D., et al. 2001. pp. 187-188. *	
			10. infer that heat transfer	**S9FE-IVf-**	Science and Technology IV:	
			are never 100-percent efficient;	**44**	Module 11. 2. EASE Physics. Module 11.	

Grade 9 Q4 has 13 COMPETENCIES

LAMINAR OR TURBULENT FLOW?

Learning Materials and equipment technical specifications may be accessed at http://lrmds.deped.gov.ph/. *These materials are in textbooks that have been delivered to schools.

STEP 1: Copy the Content and Performance Standards and write Unit Topic.

K to 12 BASIC EDUCATION CURRICULUM

CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
2. Work Power and Energy 2.1 Changes in form of mechanical energy 2.2 Conservation of energy	*The learners demonstrate an understanding of:* conservation of mechanical energy	*The learners shall be able to:* create a device that shows conservation of mechanical energy	8. infer that the total mechanical energy remains the same during any process;	**S9FE-IVe-41**	Textbook. NISMED. 2012. pp. 121-122. 5. Science and Technology IV: Physics Textbook. NISMED. 2012. p. 315.	
3. Heat, Work, and Efficiency	the relationship among heat, work, and efficiency	analyze how power plants generate and transmit electrical energy	9. construct a model to demonstrate that heat can do work;	**S9FE-IVe-42**	Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph. D., et al. 2001. pp. 187-188. *	
			10. infer that heat transfer can be used to do work, and that work involves the release of heat;	**S9FE-IVf-43**	Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph. D., et al. 2001. pp. 187-188. *	
			11. explain why machines are never 100-percent efficient;	**S9FE-IVf-44**	1. OHSP. Module 11. 2. EASE Physics. Module 11.	

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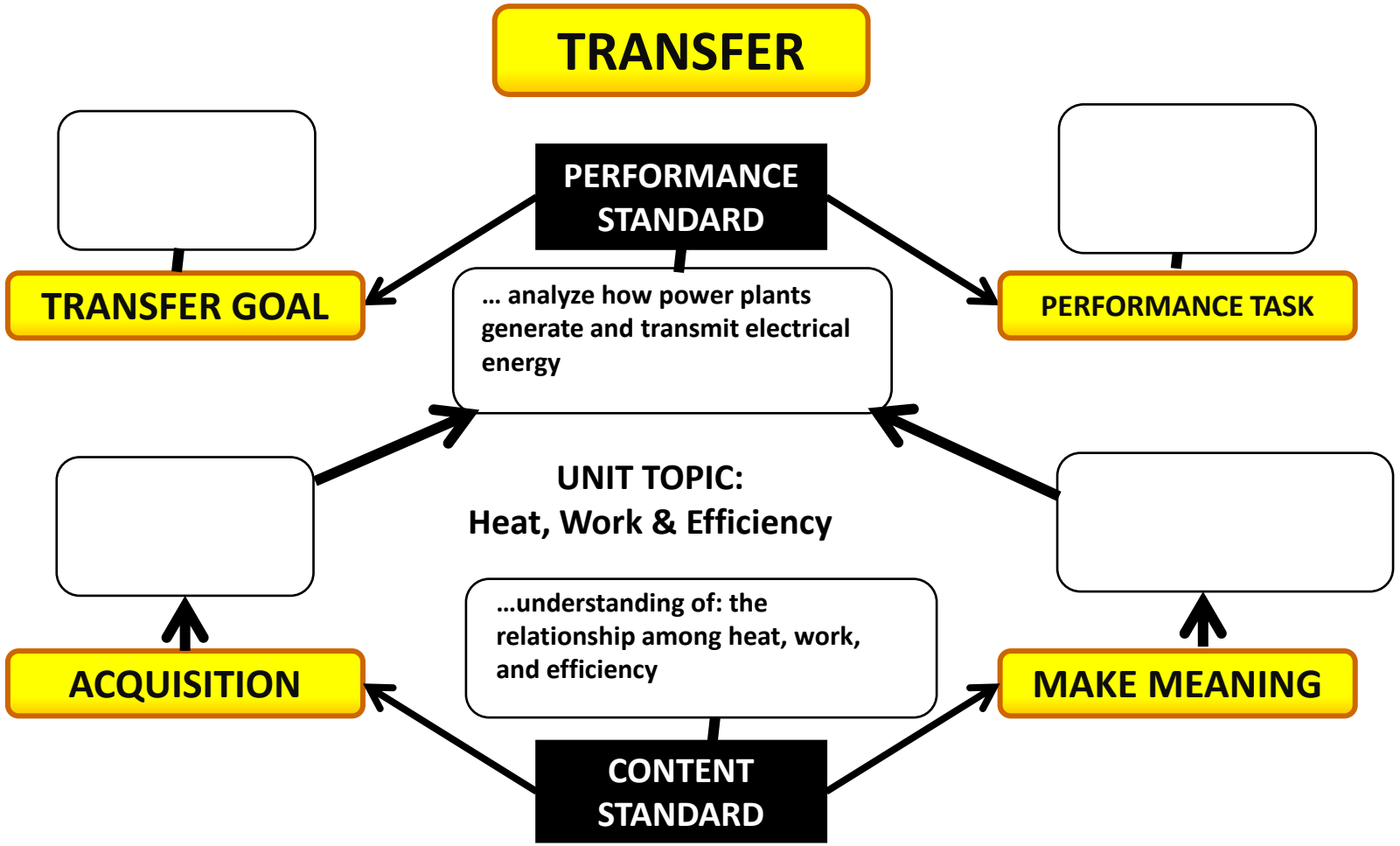
STEP 1: Copy the Content and Performance Standards and write Unit Topic.



1

PERFORMANCE STANDARD

The learners should be able to

analyze how power plants generate and transmit electrical energy

2

TRANSFER GOAL

Students on their own and in the long run will be able to be able to

create a presentation thru varied media a research on the production and distribution of an energy resource for the community

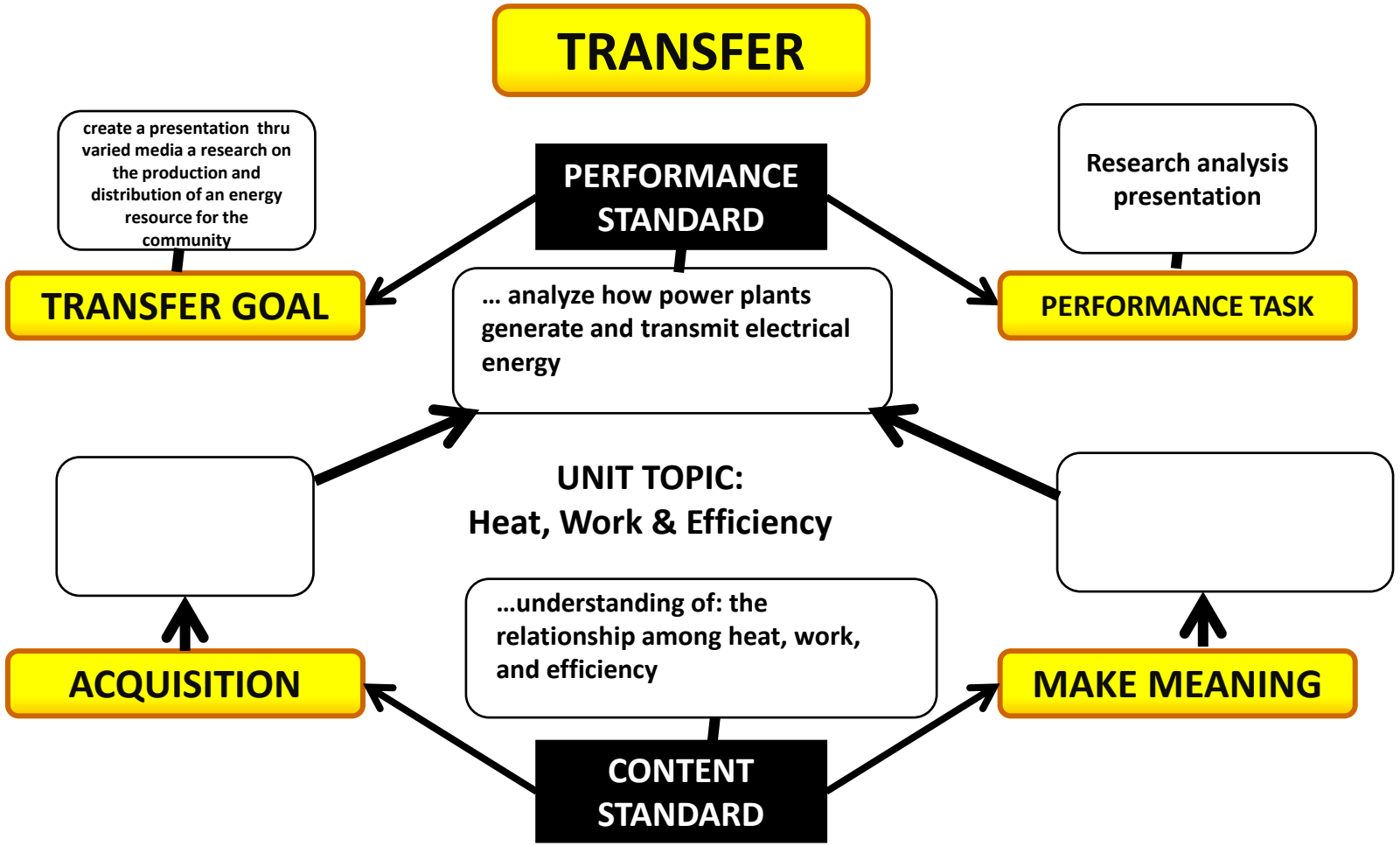
3

PERFORMANCE TASK

…. your group's task is to create a multimedia presentation focusing on a particular energy source. This presentation should present where the energy can be taken, how energy is generated, transmitted and transformed and how it can be distributed to its consumers. Part of this presentation should be your research on the viability of building a power plant for the energy resource.

STEP 2: Unpack the Transfer Goal and Performance Task from Performance Standard. Then write in diagram.

STEP 2: Unpack the Transfer Goal and Performance Task from Performance Standard. Then write in diagram.



***Content Standard: The learners demonstrate an* understanding of: the relationship among heat, work, and efficiency**

***Performance Standard: The learners should be able to* analyze how power plants generate and transmit electrical energy**

constellations and astrology						
Grade 9 – Force, Motion, and Energy **FOURTH QUARTER/FOURTH GRADING PERIOD**						
Motion in Two Dimensions 1. Projectile Motion 1.2. Impulse, Momentum and Impulse 1.3. Conservation of Linear Momentum	*The learners demonstrate an understanding of:* projectile motion, impulse and momentum, and conservation of linear momentum	*The learners shall be able to:* propose ways to enhance sports related to projectile motion	*The learners should be able to...* 1. describe the horizontal and vertical motions of a projectile; X	**S9FE-IVa-34**	1. OHSP Integrated Science. Quarter 2. Module 3. pp. 4-5. 2. EASE Physics. Module 9. Lesson 3. 3. Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph.D., et al. 2001. pp. 93-109. *	

STEP 3: Review DepEd CG/School Curriculum Map and take out competencies that are not directly aligned with Performance Standard. These competencies may already have been taught or may be taught in another grade or unit.

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K to 12 BASIC EDUCATION CURRICULUM

CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
Motion in Two Dimensions 1. Projectile Motion 1.2. Impulse, Momentum and Impulse 1.3. Conservation of Linear Momentum	*The learners demonstrate an understanding of:* projectile motion, impulse and momentum, and conservation of linear momentum	*The learners shall be able to:* propose ways to enhance sports related to projectile motion	2. investigate the relationship between the angle of release and the height and range of the projectile; **X**	**S9FE-IVa-35**	1. EASE Physics. Module 9. Lesson 3. 2. Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph.D., et al. 2001. pp. 93-109. *	
			3. relate impulse and momentum to collision of objects (e.g., vehicular collision);	**S9FE-IVb-36**	Science and Technology IV: Physics Textbook. NISMED. 2012. pp. 298-301.	
			4. infer that the total momentum before and after collision is equal;	**S9FE-IVb-37**	1. BEAM IV. Unit 5. 12 Force and Motion. Energy in Transportation. August 2008. 2. Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph.D., et al. 2001. pp.	NSTIC SciKit Basic and Mechanics: Cart-Rail System; Cylindrical Masses; Meter Stick

Learning Materials and equipment technical specifications may be accessed at http://lrmds.deped.gov.ph/.
**These materials are in textbooks that have been delivered to schools.*

STEP 3: Review DepEd CG/School Curriculum Map and take out competencies that are not directly aligned with Performance Standard. These competencies may already have been taught or may be taught in another grade or unit.

K to 12 BASIC EDUCATION CURRICULUM

CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
3. Heat, Work, and Efficiency	*The learners demonstrate an understanding of:* the relationship among heat, work, and efficiency	*The learners shall be able to:* analyze how power plants generate and transmit electrical energy	12. explain how heat transfer and energy transformation make heat engines like geothermal plants work; and	**S9FE-IVg-45**	1. Science and Technology IV: Physics Textbook for Fourth Year. Ragabo, Lilia M., Ph.D., et al. 2001. pp. 188-191. * 2. Science and Technology IV: Physics Textbook. NISMED. 2012. pp. 325-327.	
4. Electricity and magnetism 4.1 Power generation and energy losses 4.2 Transmission and distribution of electrical energy from power plants to homes	*The learners demonstrate an understanding of:* generation, transmission, and distribution of electrical energy from power plants (hydroelectric, geothermal, wind, nuclear) to home		13. explain how electrical energy is generated, transmitted, and distributed.	**S9FE-IVh-j-46**	1. BEAM IV. 9 Electrical Energy Generation. Electrical Energy. 2. Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph.D., et al. 2001. pp. 342-343. * 3. Science and Technology I: Integrated Science.	1. DC Ammeter 2. DC Voltmeter 3. Dry Cell Holder Size D (1set= 4 pcs) 4. Dry Cell Size D, 1.5 volts 5. Dry Cell, 9 volts 6. Galvanometer 7. Miniature Light Bulb (1 set = 3 pcs) 8. Miniature Light Bulb Base (1set = 3 pcs)

**These materials are in textbooks that have been delivered to schools.*

CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
2. Work Power and Energy 2.1 Changes in form of mechanical energy 2.2 Conservation of energy	*The learners demonstrate an understanding of:* conservation of mechanical energy	*The learners shall be able to:* create a device that shows conservation of mechanical energy	8. infer that the total mechanical energy remains the same during any process;	**S9FE-IVe-41**	Textbook. NISMED. 2012. pp. 121-122. 5. Science and Technology IV: Physics Textbook. NISMED. 2012. p. 315.	
3. Heat, Work, and Efficiency	the relationship among heat, work, and efficiency	analyze how power plants generate and transmit electrical energy	9. construct a model to demonstrate that heat can do work;	**S9FE-IVe-42**	Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia	
					187-188. *	
			11. explain why machines are never 100-percent efficient;	**S9FE-IVf-44**	1. OHSP. Module 11. 2. EASE Physics. Module 11.	

Grade 9 Q4 has ~~13~~ 10 CORE COMPETENCIES* (v1)
(other LCs moved to other units or levels)

**These materials are in textbooks that have been delivered to schools.*

STEP 4: Classify the remaining unit competencies in terms of AMT Learning Goals. A and M are matched with Content Standard and T with Performance Standard. *Unpack when needed.*

CONTENT STANDARD: ….. understanding of: the relationship among heat, work, and efficiency
S9FE-IVb36: 3. relate impulse and momentum to collision of objects (e.g., vehicular collision); A
S9FE-IVb37: 4. infer that the total momentum before and after collision is equal; A
S9FE-IVc38: 5. examine effects and predict causes of collision related damages/injuries; M
S9FE-IVc39: 6. explain energy transformation in various activities/events (e.g., waterfalls, archery, amusement rides); M
S9FE-IVe41: 8. infer that the total mechanical energy remains the same during any process; M
S9FE-IVf43: 10. infer that heat transfer can be used to do work, and that work involves the release of heat; A
S9FE-IVf44: 11. explain why machines are never 100-percent efficient; A
S9FE-IVg45: 12. explain how heat transfer and energy transformation make heat engines like geothermal plants work; and M

LEARNING GOALS

A → **M** → **T**

Facts
Vocabulary
Definitions

UNDERSTAND

Principles and Generalizations
Big ideas of the discipline

do

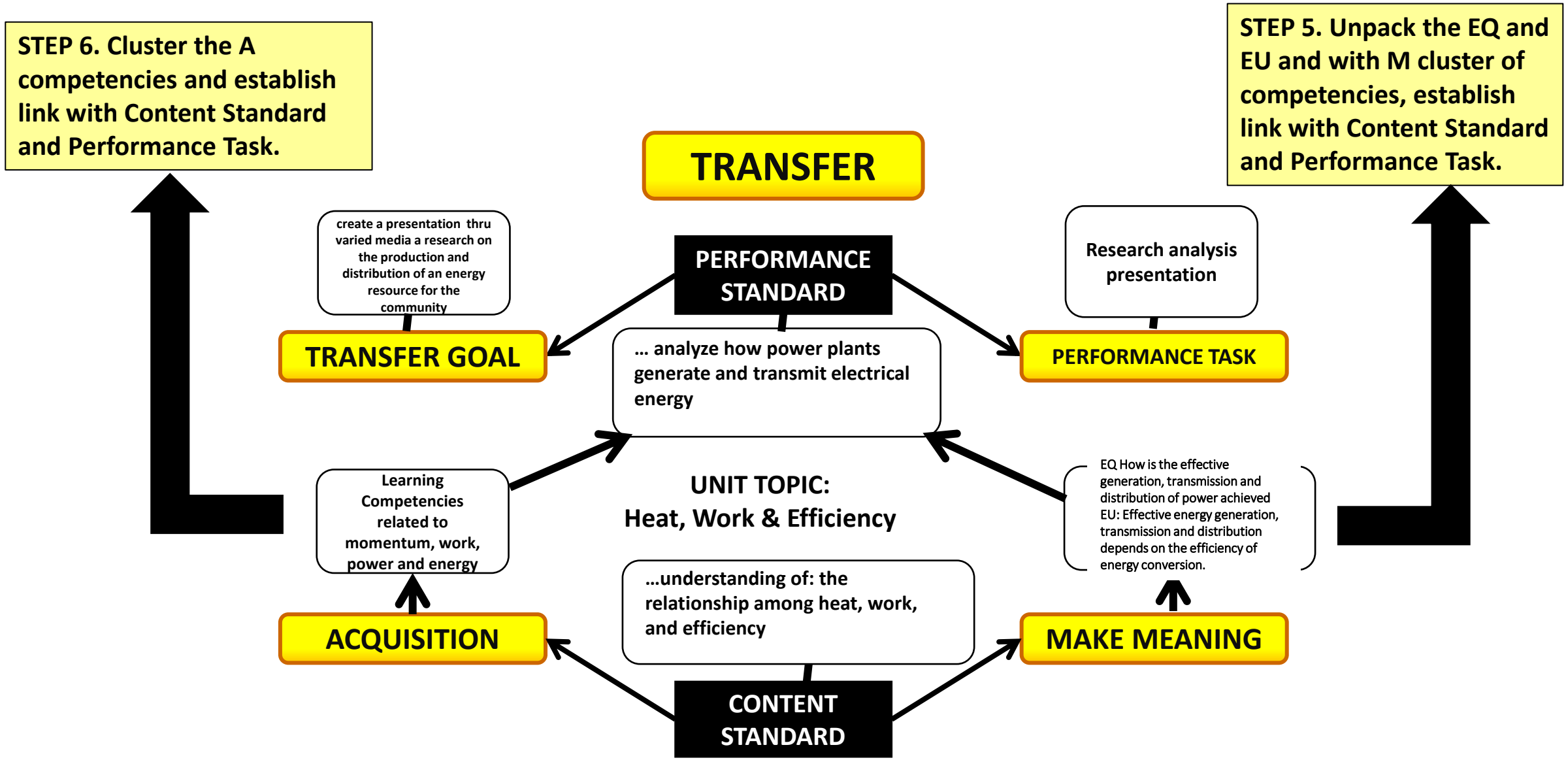
Performance
Product

STANDARDS

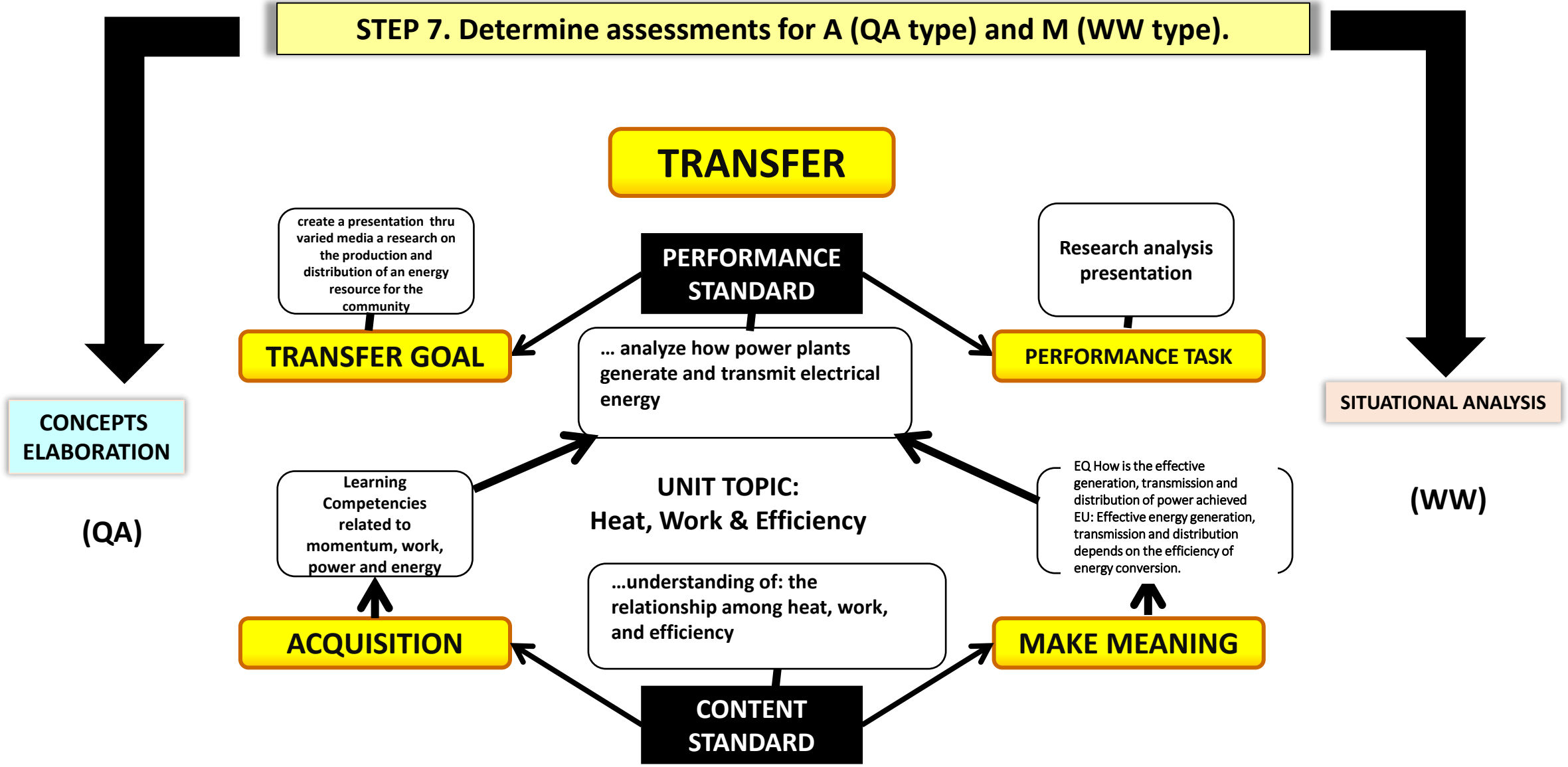
List	Compare	Differentiate	Analyze	Defend	Show	Plan	Campaign
Name	Classify	Locate	Explain	Predict	Demonstrate	Revise	Prepare
Enumerate	Select	Describe	Elaborate	Generalize	Improve	Convert	Promote
Identify	Operate	Report	Discuss	Formulate	Design	Compose	Remedy
Define	Sequence	Copy	Justify	Model	Create	Devise	Portray
State	Compute	Point	Prove	Synthesize	Invent	Propose	Interpret
Solve			Persuade	Reflect	Simulate	Recommend	Innovate

STEP 4: Classify the remaining unit competencies in terms of AMT Learning Goals. A and M are matched with Content Standard and T with Performance Standard. *Unpack when needed.*

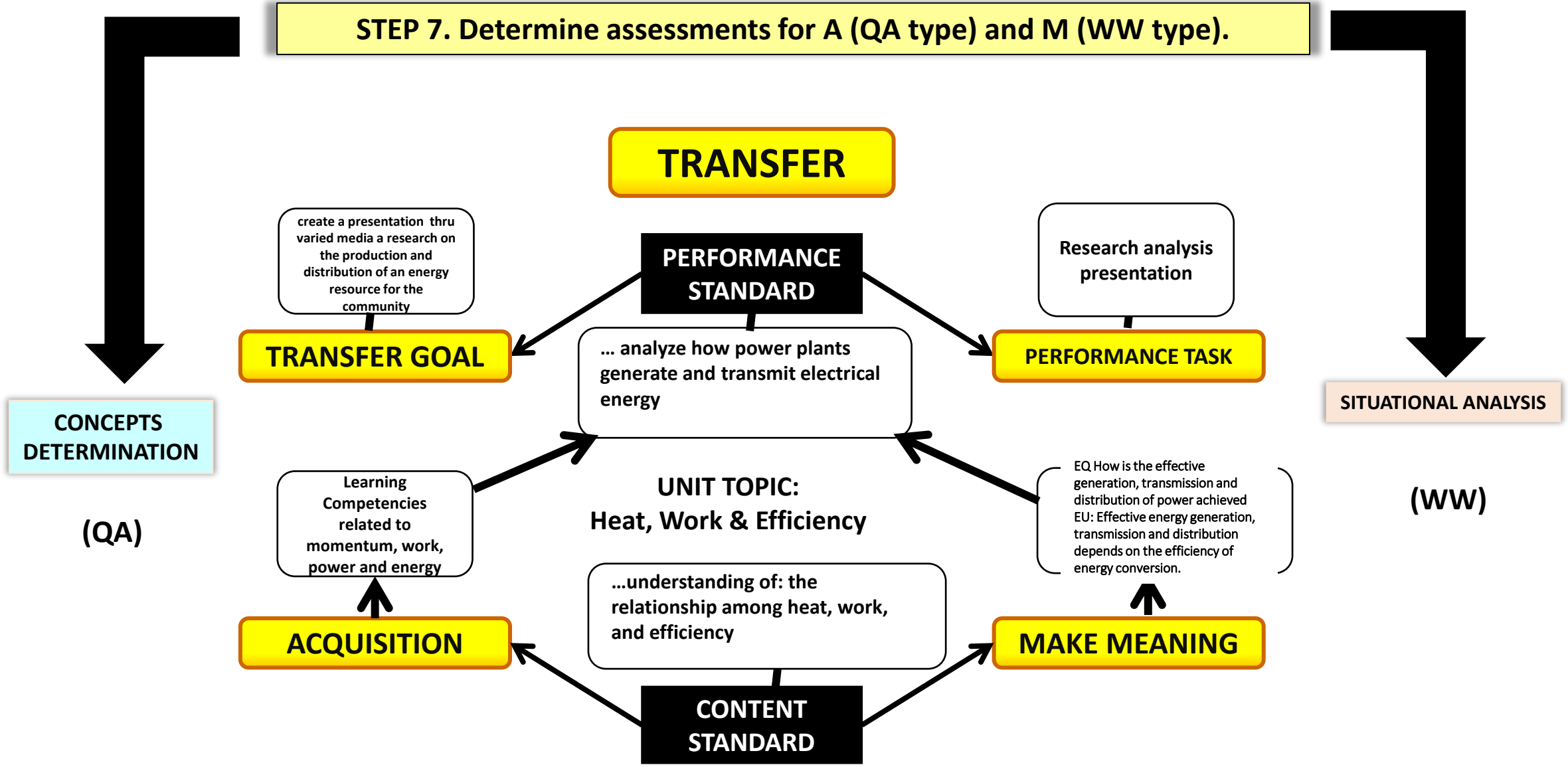
PERFORMANCE STANDARD: …analyze how power plants generate and transmit electrical energy
S9FE-IVd40: 7. perform activities to demonstrate conservation of mechanical energy; T
S9FE-IVe42: 9. construct a model to demonstrate that heat can do work; T


STEP 6. Cluster the A competencies and establish link with Content Standard and Performance Task.
STEP 5. Unpack the EQ and EU and with M cluster of competencies, establish link with Content Standard and Performance Task.
TRANSFER
create a presentation thru varied media a research on the production and distribution of an energy resource for the community
PERFORMANCE STANDARD
Research analysis presentation
TRANSFER GOAL
… analyze how power plants generate and transmit electrical energy
PERFORMANCE TASK
Learning Competencies related to momentum, work, power and energy
UNIT TOPIC:
Heat, Work & Efficiency
EQ How is the effective generation, transmission and distribution of power achieved
EU: Effective energy generation, transmission and distribution depends on the efficiency of energy conversion.
…understanding of: the relationship among heat, work, and efficiency
ACQUISITION
MAKE MEANING
CONTENT STANDARD

STEP 7. Determine assessments for A (QA type) and M (WW type).



STEP 7. Determine assessments for A (QA type) and M (WW type).

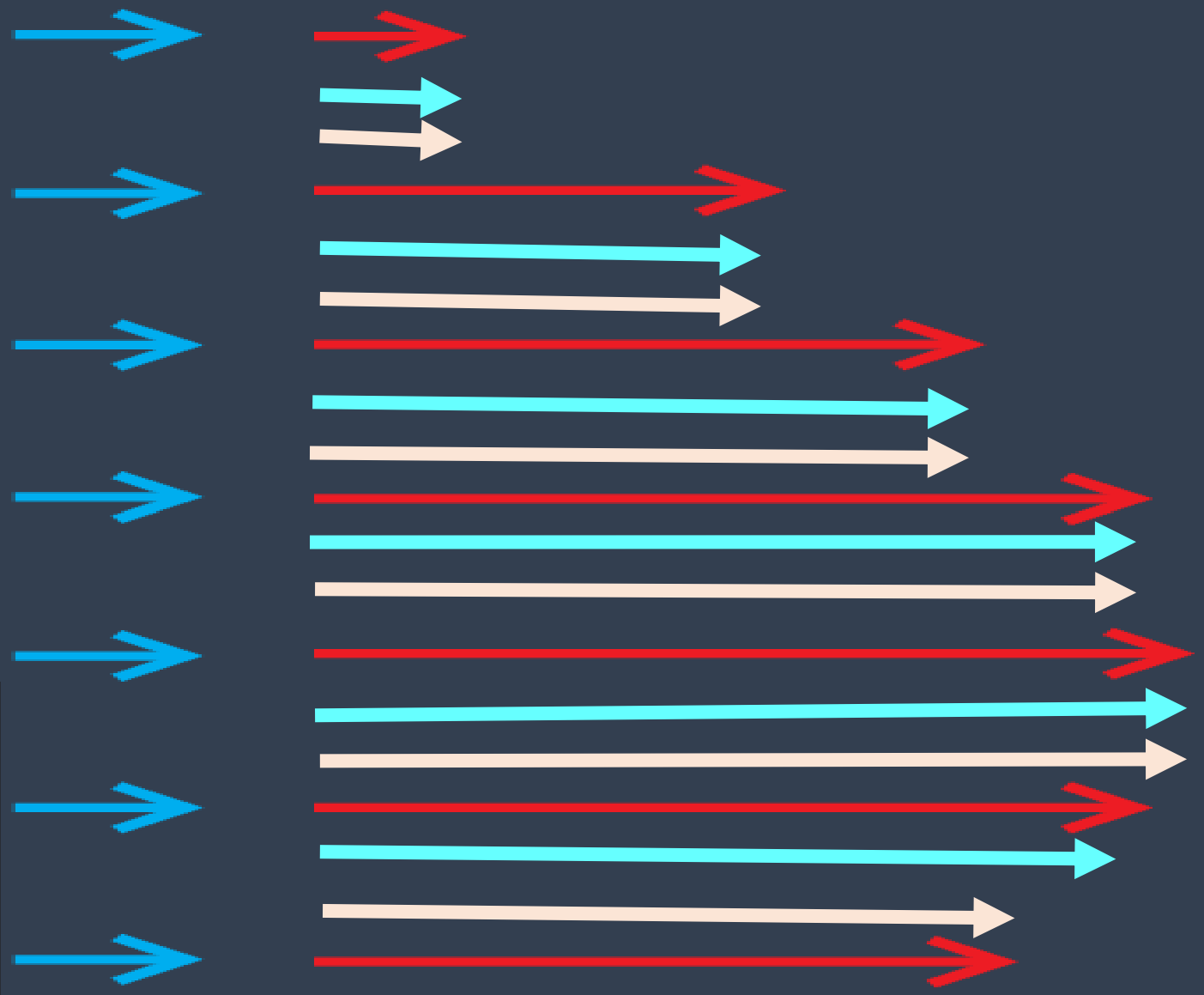


LAMINAR OR TURBULENT FLOW?

Grade 9	At the end of Grade 9, learners have gained a a deeper understanding of the digestive, respiratory, and circulatory systems to promote overall health. They have become familiar with some technologies that introduce desired traits in economically important plants and animals. Learners can explain how new materials are formed when atoms are rearranged. They recognize that a wide variety of useful compounds may arise from such rearrangements. Learners can identify volcanoes and distinguish between active and inactive ones. They can explain how energy from volcanoes may be tapped for human use. They are familiar with climatic phenomena that occur on a global scale. They can explain why certain constellations can be seen only at certain times of the year. Learners can predict the outcomes of interactions among objects in real life applying the laws of conservation of energy and momentum. ?

4th	projectile motion, impulse and momentum, and conservation of linear momentum	propose ways to enhance sports related to projectile motion	Describe the horizontal and vertical motions of a projectile	Week 1	**S9FE-Ia-34**
			Investigate the relationship between the angle of release and the height and range of the projectile	Week 1-2	**S9FE-Ia-35**
			Relate impulse and momentum to collision of objects (e.g., vehicular collision)	Week 3	**S9FE-Ib-36**
			Infer that the total momentum before and after collision is equal	Week 3	**S9FE-Ib-37**
	conservation of mechanical energy	create a device that shows conservation of mechanical energy	Perform activities to demonstrate conservation of mechanical energy	Week 4	**S9FE-IVd-40**
	the relationship among heat, work, and efficiency	analyze how power plants generate and transmit electrical energy	Construct a model to demonstrate that heat can do work	Week 5	**S9FE-IVe-42**
			Explain how heat transfer and energy transformation make heat engines work	Week 6	**S9FE-IVg-45**
	generation, transmission, and distribution of electrical energy from power plants (hydroelectric, geothermal, wind, nuclear) to home		Explain how electrical energy is generated, transmitted, and distributed	Week 6-7	**S9FE-IVh-j-46**

LAMINAR OR TURBULENT FLOW?



STREAMLINING BY:

TECHNIQUE A. ALIGNING CONTENT STANDARD AND COMPETENCIES WITH PERFORMANCE STANDARD

TECHNIQUE B. IDENTIFYING POWER AND SUPPORTING COMPETENCIES AND CLUSTERING THESE

What are Power Standards/Competencies?

- A focus for teachers on what to teach
- "Higher level of Learning"
- A prioritization of the academic standards
- Provides purpose or reason for learning a specific competency

POWER COMPETENCIES

are curricular competencies that directly achieve the Performance Standard and pass all REAL criteria.

SUPPORTING COMPETENCIES

are curricular competencies which contribute to or serve as steps to the attainment of the Power Competencies.

WHICH IS A POWER COMPETENCY AND SUPPORTING COMPETENCY?

- ☑ **R**EADINESS
- ☑ **E**NDURANCE
- ☑ **A**SSESSMENT
- ☑ **L**EVERAGE

SUBJECT	1	2
ENGLISH	Identify Types of Modals	Explain Structure of Effective Persuasive Texts
FILIPINO	Use Graphic Organizers	Find the Main Idea
MATH	Find Area of Rhombus, Trapezoid, Parallelogram	Find Area of Rectangle or Triangle
ARALIN PANLIPUNAN	Record Oral Histories	Evaluate Historical Evidence
SCIENCE	Detect Bias in a Scientific Conclusion	Analyze and Evaluate Scientific Explanation

WHICH IS A POWER COMPETENCY AND SUPPORTING COMPETENCY?

SUBJECT	1	2
ENGLISH	Identify Types of Modals	Explain Structure of Effective Persuasive Texts
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- ☑ **R**EADINESS
- ☑ **E**NDURANCE
- ☑ **A**SSESSMENT
- ☑ **L**EVERAGE

How can identification and clustering of power and supporting competencies be done for streamlining the curriculum?

Do the following steps:

1. Identify power and supporting competencies using REAL from core set of competencies.
2. Make clusters of power and supporting competencies.
3. Sequence clusters with the last related to the Performance Task.
4. Set the budget of time for teaching the clusters.

- ☑ READINESS
- ☑ ENDURANCE
- ☑ ASSESSMENT
- ☑ LEVERAGE

TECHNIQUE B. IDENTIFYING THE UNIT POWER AND SUPPORTING COMPETENCIES

READINESS

When the competency represents learning that is essential for success in a new unit, course of study or succeeding grade level, it has readiness.

GUIDE QUESTION

Does this standard contain prerequisite content and/or skills necessary for the next unit, course of study, or grade level?

EXAMPLE

The learners demonstrate an understanding of chemical reactions associated with biological and industrial processes affecting life and the environment.

ENDURANCE

When the competency represents learning that goes beyond one course or grade level and is representative of a concept or skill that is important in life, it has endurance.

GUIDE QUESTION

Does this standard have value beyond one single test date?
Will this standard endure beyond the test?
Will the knowledge and skills be important beyond this unit?

EXAMPLE

The learners demonstrate an understanding of chemical reactions associated with biological and industrial processes affecting life and the environment.

When the competency is often tested in an achievement or admissions exam or for a job, it has value for assessment

LEVERAGE

When the competency represents learning that is applied both within the content area and in other content areas, it has leverage.

GUIDE QUESTION

Does this standard have multidisciplinary connections?
Is this standard relevant in other disciplines?

EXAMPLE

The learners demonstrate an understanding of chemical reactions associated with biological and industrial processes affecting life and the environment.

(Which discipline can this be linked?)

TECHNIQUE B. IDENTIFYING UNIT POWER AND SUPPORTING COMPETENCIES WITH REAL

COMPETENCIES	R (needed for next unit or grade)	E (needed for real life)	A (needed for achievement or admissions or job tests)	L (needed by other subjects)	POWER OR SUPPORTING?

LIFE
cell
BIOLOGY
genetics
ANATOMY
EVOLUTION
$C_{10}H_{12}N_2O$

TECHNIQUE B. IDENTIFYING UNIT POWER AND SUPPORTING COMPETENCIES WITH REAL

COMPETENCIES	R (needed for next unit or grade)	E (needed for real life)	A (needed for achievement or admissions or job tests)	L (needed by other subjects)	POWER OR SUPPORTING?
S8LT-IVg-19 Explain the concept of species;	✓	✓	✓	✓	POWER
S8LT-IVh-20 Classify organisms using the hierarchical taxonomic system	✓	✗	✗	✗	SUPPORTING
S8LT-IVh-21 Explain the advantage of high biodiversity in maintaining the stability of an ecosystem	✓	✓	✓	✓	POWER
S8LT-IVi-22 Describe the transfer of energy through the trophic levels	✓	✗	✗	✗	SUPPORTING
S8LT-IVi-23 Analyze the roles of organisms in the cycling of materials	✓	✓	✓	✗	SUPPORTING
S8LT-IVi-24 Explain how materials cycle in an ecosystem	✓	✗	✗	✓	SUPPORTING
S8LT-IVj-25 Suggest ways to minimize human impact on the environment.	✓	✓	✓	✓	POWER

CLUSTERING AND BUDGET OF TIME OF UNIT POWER AND SUPPORTING COMPETENCIES

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES
1 (5 days)	S8LT-IVg-19 Explain the concept of species;	S8LT-IVh-20 Classify organisms using the hierarchical taxonomic system
2 (5 Days)	S8LT-IVh-21 Explain the advantage of high biodiversity in maintaining the stability of an ecosystem	
3 (5 Days)		S8LT-IVi-22 Describe the transfer of energy through the trophic levels
		S8LT-IVi-23 Analyze the roles of organisms in the cycling of materials
		S8LT-IVi-24 Explain how materials cycle in an ecosystem
4 (5 Days)	S8LT-IVj-25 Suggest ways to minimize human impact on the environment.	

CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
3. **Biodiversity** 3.1 Species diversity 3.2 Hierarchical taxonomic system of classification 3.3 Protection and conservation of endangered and economically important species	*The learners demonstrate an understanding of:* 1. the concept of a species 2. the species as being further classified into a hierarchical taxonomic system	*The learners should be able to:* report (e.g., through a travelogue) on the activities that communities engage in to protect and conserve endangered and economically important species make a poster comparing food choices based on the trophic levels'	7. explain the concept of a species;	**S8LT-IVg-19**	Science 8 Learner's Module. Campo, Pia, et al. 2013. P. 224.	
			8. classify organisms using the hierarchical taxonomic system;	**S8LT-IVh-20**	Science 8 Learner's Module. Campo, Pia C., et al. 2013. Pp. 226-227.	
			9. explain the advantage of high biodiversity in maintaining the stability of an ecosystem; 10. describe the transfer of energy through the	**S8LT-IVh-21**	1. Science and Technology I: Integrated Science Textbook for First Year. Villamil, Aurora	
			and		Biology	
			minimize human impact on the environment.		4. Science 8 Learner's Module. Campo, Pia C.,	

Grade 8 Q4 has 4 CLUSTERS OF 7 CORE COMPETENCIES FOR 4 WEEKS

NOTE: Number and schedule of clusters of competencies may be adjusted depending on term schedule.

CLUSTERING OF UNIT POWER AND SUPPORTING COMPETENCIES

STEPS 2-4

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES
1 (5 days)	S8LT-IVg-19 Explain the concept of species; MERGE AND REPHRASE	S8LT-IVh-20 Classify organisms using the hierarchical taxonomic system
2 (5 Days)	S8LT-IVh-21 Explain the advantage of high biodiversity in maintaining the stability of an ecosystem	
3 (5 Days)		S8LT-IVi-22 Describe the transfer of energy through the trophic levels
		S8LT-IVi-23 Analyze the roles of organisms in the cycling of materials
		S8LT-IVi-24 Explain how materials cycle in an ecosystem
4 (5 Days)	S8LT-IVj-25 Suggest ways to minimize human impact on the environment.	

CLUSTERING OF UNIT POWER AND SUPPORTING COMPETENCIES

STEPS 2-4

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES
1 (5 days)	~~S8LT-IVg-19 Explain the concept of species;~~ MERGE AND REPHRASE Classify organisms into the hierarchical system using the concept of species.	~~S8LT-IVh-20 Classify organisms using the hierarchical taxonomic system~~
2 (5 Days)	S8LT-IVh-21 Explain the advantage of high biodiversity in maintaining the stability of an ecosystem	
3 (5 Days)		S8LT-IVi-22 Describe the transfer of energy through the trophic levels
		S8LT-IVi-23 Analyze the roles of organisms in the cycling of materials
		S8LT-IVi-24 Explain how materials cycle in an ecosystem
4 (5 Days)	S8LT-IVj-25 Suggest ways to minimize human impact on the environment.	

CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
3. **Biodiversity** 3.1 Species diversity 3.2 Hierarchical taxonomic system of classification 3.3 Protection and conservation of endangered and economically important species	*The learners demonstrate an understanding of:* 1. the concept of a species 2. the species as being further classified into a hierarchical taxonomic system	*The learners should be able to:* report (e.g., through a travelogue) on the activities that communities engage in to protect and conserve endangered and economically important species make a poster comparing food choices based on the trophic levels'	7. explain the concept of a species;	**S8LT-IVg-19**	Science 8 Learner's Module. Campo, Pia, et al. 2013. P. 224.	
			8. classify organisms using the hierarchical taxonomic system;	**S8LT-IVh-20**	Science 8 Learner's Module. Campo, Pia C., et al. 2013. Pp. 226-227.	
			9. explain the advantage of high biodiversity in maintaining the stability of an ecosystem; 10. describe the transfer of energy through the	**S8LT-IVh-21**	1. Science and Technology I: Integrated Science Textbook for First Year. Villamil, Aurora	
			and		Biology	
			minimize human impact on the environment.		4. Science 8 Learner's Module. Campo, Pia C.,	

Grade 8 Q4 has 4 CLUSTERS OF ~~7~~ 6 CORE COMPETENCIES FOR 4 WEEKS

NOTE: Number and schedule of clusters of competencies may be adjusted depending on term schedule.

CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
3. **Biodiversity** 3.1 Species diversity 3.2 Hierarchical taxonomic system of classification 3.3 Protection and conservation of endangered and economically important species	*The learners demonstrate an understanding of:* 1. the concept of a species 2. the species as being further classified into a hierarchical taxonomic system	*The learners should be able to:* report (e.g., through a travelogue) on the activities that communities engage in to protect and conserve endangered and economically important species make a poster comparing food choices based on the trophic levels'	7. explain the concept of a species;	**S8LT-IVg-19**	Science 8 Learner's Module. Campo, Pia, et al. 2013. P. 224.	
			8. classify organisms using the hierarchical taxonomic system;	**S8LT-IVh-20**	Science 8 Learner's Module. Campo, Pia C., et al. 2013. Pp. 226-227.	
			9. explain the advantage of high biodiversity in maintaining the stability of an ecosystem; 10. describe the transfer of energy through the	**S8LT-IVh-21**	1. Science and Technology I: Integrated Science Textbook for First Year. Villamil, Aurora	
			and		Biology	
			minimize human impact on the environment.		4. Science 8 Learner's Module. Campo, Pia C.,	

Grade 8 Q4 has 4 CLUSTERS OF 6 CORE COMPETENCIES FOR 4 WEEKS

NOTE: Number and schedule of clusters of competencies may be adjusted depending on term schedule.

LAMINAR OR TURBULENT FLOW?

CLUSTERING OF UNIT POWER AND SUPPORTING COMPETENCIES

STEPS 2-4

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES
1 (5 days)	~~S8LT-IVg-19 Explain the concept of species;~~ MERGE AND REPHRASE Classify organisms into the hierarchical system using the concept of species.	~~S8LT-IVh-20 Classify organisms using the hierarchical taxonomic system~~
2 (5 Days)	S8LT-IVh-21 Explain the advantage of high biodiversity in maintaining the stability of an ecosystem	
3 (5 Days)	MERGE AND REPHRASE	~~S8LT-IVi-22 Describe the transfer of energy through the trophic levels~~
	Analyze how energy and materials flow through in the different trophic levels.	~~S8LT-IVi-23 Analyze the roles of organisms in the cycling of materials~~
		~~S8LT-IVi-24 Explain how materials cycle in an ecosystem~~
4 (5 Days)	S8LT-IVj-25 Suggest ways to minimize human impact on the environment.	

CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
3. **Biodiversity** 3.1 Species diversity 3.2 Hierarchical taxonomic system of classification 3.3 Protection and conservation of endangered and economically important species	*The learners demonstrate an understanding of:* 1. the concept of a species 2. the species as being further classified into a hierarchical taxonomic system	*The learners should be able to:* report (e.g., through a travelogue) on the activities that communities engage in to protect and conserve endangered and economically important species make a poster comparing food choices based on the trophic levels'	7. explain the concept of a species;	**S8LT-IVg-19**	Science 8 Learner's Module. Campo, Pia, et al. 2013. P. 224.	
			8. classify organisms using the hierarchical taxonomic system;	**S8LT-IVh-20**	Science 8 Learner's Module. Campo, Pia C., et al. 2013. Pp. 226-227.	
			9. explain the advantage of high biodiversity in maintaining the stability of an ecosystem; 10. describe the transfer of energy through the	**S8LT-IVh-21**	1. Science and Technology I: Integrated Science Textbook for First Year. Villamil, Aurora	
			and		Biology	
			minimize human impact on the environment.		4. Science 8 Learner's Module. Campo, Pia C.,	

Grade 8 Q4 has 4 CLUSTERS OF ~~7~~ ~~6~~ 4 CORE COMPETENCIES FOR 4 WEEKS

NOTE: Number and schedule of clusters of competencies may be adjusted depending on term schedule.

CONTENT	CONTENT STANDARDS	PERFORMANCE STANDARDS	LEARNING COMPETENCY	CODE	LEARNING MATERIALS	SCIENCE EQUIPMENT
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			9. explain the advantage of high biodiversity in maintaining the stability of an ecosystem; 10. describe the transfer of energy through the	**S8LT-IVh-21**	1. Science and Technology I: Integrated Science Textbook for First Year. Villamil, Aurora	
			and		Biology	
			minimize human impact on the environment.		4. Science 8 Learner's Module. Campo, Pia C.,	

Grade 8 Q4 has 4 CLUSTERS OF 4 CORE COMPETENCIES FOR 4 WEEKS

NOTE: Number and schedule of clusters of competencies may be adjusted depending on term schedule.

LAMINAR OR TURBULENT FLOW?

SAMPLE DIARY CURRICULUM MAP

SUBJECT:

GRADE LEVEL:

TEACHERS:

STRANDS:

1 2 3 4

TERM (NO.): MONTH	UNIT TOPIC: CONTENT	CONTENT STANDARDS (CS)	PERFORMANCE STANDARD (PS)	COMPETENCIES/ SKILLS	ASSESSMENT	ACTIVITIES	RESOURCES	INSTITUTIONAL CORE VALUES
(Q1)								

FROM DEPED CURRICULUM GUIDE (CG)

FROM DEPED CG AND/OR DEPED MELCS

FROM SUBJECT TEACHER

FROM SCHOOL'S VISION AND MISSION

MAPPING ASSESSMENT AND ACTIVITIES WITH UNIT POWER AND SUPPORTING COMPETENCIES

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES	ASSESSMENT	PEAC LM ACTIVITY/ MATERIALS:		INSTITUTIONAL CORE VALUES
				OFFLINE	ONLINE	
1	**Classify organisms into the hierarchical system using the concept of species.**	Explain the concept of species.	**Short essay**	**PEAC LM p. 83 ACTIVITY TITLE: Defining Species MATERIAL: Reading Material**	**PEAC LM p. 83 ACTIVITY TITLE: The Concept of Species MATERIAL: Reading Material URL**	**Respect for the Environment**
		Classify organisms using the hierarchical taxonomic system	**Concept Map Completion**	**PEAC LM: p. 85 ACTIVITY TITLE: Venn Diagram: General Classification of Cells**	**PEAC LM p. 86 ACTIVITY TITLE: Creating Phylogenetic Trees MATERIAL: URL of Interactive Concept Mapping**	
2	**Explain the advantage of high biodiversity in maintaining the stability of an ecosystem**		**Situation Analysis**	**PEAC LM p. 92 ACTIVITY TITLE: News Article Analysis MATERIAL: Reading Materials**	**PEAC LM p. 88 ACTIVITY TITLE: Importance of High Biodiversity in the Human Body MATERIAL: URL of Bacteria, More than a Pathogen**	

MAPPING ASSESSMENT AND ACTIVITIES WITH UNIT POWER AND SUPPORTING COMPETENCIES

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES	ASSESSMENT	PEAC LM ACTIVITY/ MATERIALS:		INSTITUTIONAL CORE VALUES
				OFFLINE	ONLINE	
3	Analyze how energy and materials flow through in the different trophic levels.	Describe the transfer of energy through the trophic levels	Short Essay/ Diagram Completion	PEAC LM p. 108 ACTIVITY TITLE: Practice Quiz on Energy Pyramid MATERIAL: Energy Pyramid Diagram	PEAC LM p. 108 ACTIVITY TITLE: How do organisms get their share of Sun's energy? MATERIAL: Reading Material URL	Conservation of the Biodiversity
		Analyze the roles of organisms in the cycling of materials	Short Essay/Matching Type	PEAC LM p. 108-109 ACTIVITY TITLE: Role of Different Organisms in an Ecosystem MATERIAL: Worksheet	PEAC LM p. 109 ACTIVITY TITLE: Analyze Predator-Prey Relationship MATERIAL: URL: Predation or Starvation	
		Explain how materials cycle in an ecosystem	Short Essay	PEAC LM p. 108-109 ACTIVITY TITLE: Role of Different Organisms in an Ecosystem MATERIAL: Worksheet	PEAC LM p. 109 ACTIVITY TITLE: Analyze Predator-Prey Relationship MATERIAL: URL:- Predation or Starvation	

MAPPING ASSESSMENT AND ACTIVITIES WITH UNIT POWER AND SUPPORTING COMPETENCIES

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES	ASSESSMENT	PEAC LM ACTIVITY/ MATERIALS:		INSTITUTIONAL CORE VALUES
				OFFLINE	ONLINE	
4	Suggest ways to minimize human impact on the environment.		Situation Analysis	PEAC LM p. 92 ACTIVITY TITLE: Article Analysis MATERIAL: Reading Materials	PEAC LM p. 98 ACTIVITY TITLE: Article Analysis MATERIAL: Reading Material URL	

MAPPING ASSESSMENT AND ACTIVITIES WITH UNIT POWER AND SUPPORTING COMPETENCIES

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES	ASSESSMENT	PEAC LM ACTIVITY/ MATERIALS:		INSTITUTIONAL CORE VALUES
				OFFLINE	ONLINE	
1	**Classify organisms into the hierarchical system using the concept of species.**	Explain the concept of species.	**Short essay**	**PEAC LM p. 83 ACTIVITY TITLE: Defining Species MATERIAL: Reading Material**	**PEAC LM p. 83 ACTIVITY TITLE: The Concept of Species MATERIAL: Reading Material URL**	**Respect for the Environment**
		Classify organisms using the hierarchical taxonomic system	**Concept Map Completion**	**PEAC LM: p. 85 ACTIVITY TITLE: Venn Diagram: General Classification of Cells**	**PEAC LM p. 86 ACTIVITY TITLE: Creating Phylogenetic Trees MATERIAL: URL of Interactive Concept Mapping**	
2	**Explain the advantage of high biodiversity in maintaining the stability of an ecosystem**		**Situation Analysis**	**PEAC LM p. 92 ACTIVITY TITLE: News Article Analysis MATERIAL: Reading Materials**	**PEAC LM p. 88 ACTIVITY TITLE: Importance of High Biodiversity in the Human Body MATERIAL: URL of Bacteria, More than a Pathogen**	

MAPPING ASSESSMENT AND ACTIVITIES WITH UNIT POWER AND SUPPORTING COMPETENCIES

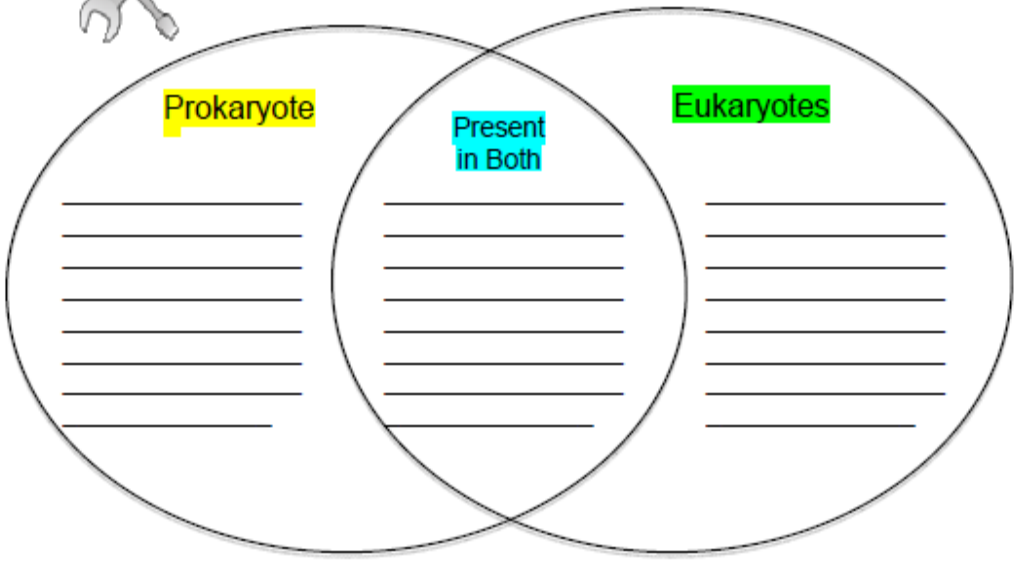
CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES	ASSESSMENT	PEAC LM ACTIVITY/ MATERIALS:		INSTITUTIONAL CORE VALUES
				OFFLINE	ONLINE	
1	**Classify organisms into the hierarchical system using the concept of species.**	Explain the concept of species.	**Short essay**	**PEAC LM p. 83 ACTIVITY TITLE: Defining Species MATERIAL: Reading Material**	**PEAC LM p. 83 ACTIVITY TITLE: The Concept of Species MATERIAL: Reading Material URL**	**Respect for the Environment**
		Classify organisms using the hierarchical taxonomic system	**Concept Map Completion**	**PEAC LM: p. 85 ACTIVITY TITLE: Venn Diagram: General Classification of Cells**	**PEAC LM p. 86 ACTIVITY TITLE: Creating Phylogenetic Trees MATERIAL: URL of Interactive Concept Mapping**	
2	**Explain the advantage of high biodiversity in maintaining the stability of an ecosystem**		**Situation Analysis**	**PEAC LM p. 92 ACTIVITY TITLE: News Article Analysis MATERIAL: Reading Materials**	**PEAC LM p. 88 ACTIVITY TITLE: Importance of High Biodiversity in the Human Body MATERIAL: URL of Bacteria, More than a Pathogen**	

OFFLINE ACTIVITY

PEAC DepED JHS INSET Learning Module Exemplar

ACTIVITY 6. Venn Diagram: General Classification of Cells

Description: Go back to your list of distinguishing features of Prokaryotic and Eukaryotic cells, and then organize these terms/phrases inside the Venn diagram. Click 'SUBMIT' after accomplishing this task.



Process Question: Why is there are need for cells to be classified as prokaryotes and eukaryotes? What information can we derive from this?

ONLINE ACTIVITY

PEAC DepED JHS INSET Learning Module Exemplar

ACTIVITY 8. Web 2.0 - Building Phylogenetic Trees

Description: In this activity, you will be tasked to build a phylogenetic tree using the knowledge you have gained from the previous activities. Download the worksheet below and do the following using www.Gliffy.com web application.

http://www.bioscience-explained.org/ENvol6_2/pdf/fyltreeeng.pdf
Building Phylogenetic Tree
a. Phylogenetic Tree of the Six Flowers (p. 6)
b. Phylogenetic Tree of the Six Birds (p. 7)
c. Phylogenetic Tree of the Six Butterflies (p. 8)

Process Questions:
1. How does a phylogenetic tree explain the origin and relationship of all species?
2. What occurrences may cause the branching of the phylogenetic tree?
3. What is the importance of these changes to the continuity of life on Earth?

Learning Competency: Classify organisms using the hierarchical taxonomic system

SAMPLE DIARY CURRICULUM MAP

SUBJECT: SCIENCE
GRADE LEVEL: 8
TEACHERS: Kristoffer Ordinado
STRAND(S): Living Things and Their Environment

TERM (NO.): MONTH	UNIT TOPIC	CONTENT STANDARDS	PERFORMANCE STANDARDS	COMPETENCIES/ SKILLS	ASSESSMENT	ACTIVITIES	RESOURCE	
Fourth Quarter	**3. Biodiversity** 3.1 Species diversity 3.2 Hierarchical taxonomic system of classification 3.3 Protection and conservation of endangered and economically important species **4. Ecosystems** 4.1 Transfer of Energy in Trophic Levels 4.2 Cycling of materials in the ecosystem 4.2.1 Water Cycle 4.2.2 Oxygen-carbon cycle 4.2.3 Nitrogen cycle 4.3 Impact of human activities in an ecosystem	*The learners demonstrate an understanding of...* the concept of a species the species as being further classified into hierarchal taxonomic system the one-way flow of energy and the cycling of materials in an ecosystem	*The learners should be able to...* Report (e.g., through a travelogue) on the activities that communities engage in to protect and conserve endangered and economically important species Make a poster comparing food choices based on the trophic levels'	*The learner ...* A1.explains the concept of species as a reproductively distinct group of organisms **S8LT-IVg-19** A2.classifies organisms using the hierarchical taxonomic system (domain, kingdom, phylum, class, order, family, genus, species) based on structure and function **S8LT-IVh-20** A3.explains the advantage of high biodiversity over low biodiversity **S8LT-IVh-21** A4.describes the transfer of energy through the trophic levels **S8LT-IVi-22**	A1.Building Phylogenetic Trees A2. Graphic Organizer A2. Quiz on Taxonomy A3. News Article Analysis A4. Graphic Organizer	A1.Web Page Reading: Concept of Species A2.Video Clip : Importance of Taxonomy A2. Taxonomy Chart A3. News Article Analysis A4.Video Clip Analysis	Worksheet Video Powerpoint slide Worksheet News Article Activity Sheet	

SAMPLE DIARY CURRICULUM MAP

SUBJECT: SCIENCE
GRADE LEVEL: 8
TEACHERS: Kristoffer Gidinado
STRAND(S): Living Things and Their Environment

TERM (NO.): MONTH	UNIT TOPIC	CONTENT STANDARDS	PERFORMANCE STANDARDS	COMPETENCIES/ SKILLS	ASSESSMENT	ACTIVITIES	RESOURCE	
Fourth Quarter	**3. Biodiversity** 3.1 Species diversity 3.2 Hierarchical taxonomic system of classification 3.3 Protection and conservation of endangered and economically important species **4. Ecosystems** 4.1 Transfer of Energy in Trophic Levels 4.2 Cycling of materials in the ecosystem 4.2.1 Water Cycle 4.2.2 Oxygen-carbon cycle 4.2.3 Nitrogen cycle 4.3 Impact of human activities in an ecosystem	*The learners demonstrate an understanding of...* the concept of a species the species as being further classified into hierarchal taxonomic system the one-way flow of energy and the cycling of materials in an ecosystem	*The learners should be able to...* Report (e.g., through a travelogue) on the activities that communities engage in to protect and conserve endangered and economically important species Make a poster comparing food choices based on the trophic levels'	*The learner ...* A1.explains the concept of species as a reproductively distinct group of organisms **S8LT-IVg-19** A2.classifies organisms using the hierarchical taxonomic system (domain, kingdom, phylum, class, order, family, genus, species) based on structure and function **S8LT-IVh-20** A3.explains the advantage of high biodiversity over low biodiversity **S8LT-IVh-21** A4.describes the transfer of energy through the trophic levels **S8LT-IVi-22**	A1.Building Phylogenetic Trees A2. Graphic Organizer A2. Quiz on Taxonomy A3. News Article Analysis A4. Graphic Organizer	A1.Web Page Reading: Concept of Species A2.Video Clip : Importance of Taxonomy A2. Taxonomy Chart A3. News Article Analysis A4.Video Clip Analysis	Worksheet Video Powerpoint slide Worksheet News Article Activity Sheet	

STEP 1

TECHNIQUE B. IDENTIFYING UNIT POWER AND SUPPORTING COMPETENCIES WITH REAL

COMPETENCIES	R (needed for next unit or grade)	E (needed for real life)	A (needed for achievement or admissions or job tests)	L (needed by other subjects)	POWER OR SUPPORTING?
1. Describe the properties of gases	✓	✗	✓	✗	SUPPORTING
2. Solve problems involving gases using the general gas laws	✓	✓	✓	✓	POWER
3. Use Gas Laws to determine the new properties of a given amount of gas	✓	✓	✗	✗	SUPPORTING
4. Discuss common processes or phenomenon through gas laws	✓	✓	✓	✗	SUPPORTING
5. investigate the relationship between: (T) 5.1 volume and pressure at constant temperature of a gas; 5.2 volume and temperature at constant pressure of a gas; 5.3 explains these relationships using the kinetic molecular theory	✓	✓	✓	✓	POWER
6. propose scientific ways on how to lessen the impact of behavior of gases	✓	✓	✓	✓	POWER

CLUSTERING AND BUDGET OF TIME OF UNIT POWER AND SUPPORTING COMPETENCIES

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES

CLUSTERING AND BUDGET OF TIME OF UNIT POWER AND SUPPORTING COMPETENCIES **STEPS 2-4**

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES
1 **5 DAYS**	S9MT-IIj-20 5. investigate the relationship between: (T) 5.1 volume and pressure at constant temperature of a gas; 5.2 volume and temperature at constant pressure of a gas; 5.3 explains these relationships using the kinetic molecular theory	1. Describe the properties of gases 4. Discuss common processes or phenomenon through gas laws
2 **5 DAYS**	2. Solve problems involving gases using the general gas laws **6.** propose scientific ways on how to regulate the impact of behavior of gases	3. Use Gas Laws to determine the new properties of a given amount of gas

Term (No.) Month	Unit Topic: Content	Content Standard (CS)	Performance Standard (PS)	Competencies / Skills
Q4	**1. Gas Laws** 1.1 Kinetic Molecular Theory 1.2 Volume, pressure, and temperature relation 1.3 Ide law	The learners demonstrate an understanding of… how gases behave based on the motion and	*The learners should be able to* investigate the properties and behavior of gases as a way of improving one's health and the community.	*A1. Describe the properties of gases (A) *A2. Solve problems involving gases using the general gas laws. (A) *A3 Use Gas Laws to determine the new properties of a given amount of gas (A) *A4. Discuss common processes or phenomenon through gas laws (M) *A5. investigate the relationship between: t constant re at constant pressure of a gas; ips using the 9MT-IIj-20 *6. propose scientific ways on how to regulate the impact of behavior of gases (T)

Grade 10 Q4 has 2 CLUSTERS OF 6 CORE COMPETENCIES FOR 10 DAYS

NOTE: Number and schedule of clusters of competencies may be adjusted depending on term schedule.

Term (No.) Month	Unit Topic: Content	Content Standard (CS)	Performance Standard (PS)	Competencies / Skills
Q4	**1. Gas Laws** 1.1 Kinetic Molecular Theory 1.2 Volume, pressure, and temperature relationship 1.3 Ideal gas law	The learners demonstrate an understanding of… how gases behave based on the motion and relative distances between gas particles	*The learners should be able to* investigate the properties and behavior of gases as a way of improving one's health and the community.	*A1. Describe the properties of gases (A) *A2. Solve problems involving gases using the general gas laws. (A) *A3 Use Gas Laws to determine the new properties of a given amount of gas (A) *A4. Discuss common processes or phenomenon through gas laws (M) A5. investigate the relationship between: (T) 5.1 volume and pressure at constant temperature of a gas; 5.2 volume and temperature at constant pressure of a gas; ships using the S9MT-IIj-20 s on how to avior of gases (T)

Grade 10 Q4 has 6 CORE COMPETENCIES* (v2)

Term (No.) Month	Unit Topic: Content	Content Standard (CS)	Performance Standard (PS)	Competencies / Skills
Q4	**1. Gas Laws** 1.1 Kinetic Molecular Theory 1.2 Volume, pressure, and temperature relation 1.3 Ide law	The learners demonstrate an understanding of… how gases behave based on the motion and	*The learners should be able to* investigate the properties and behavior of gases as a way of improving one's health and the community.	*A1. Describe the properties of gases (A) *A2. Solve problems involving gases using the general gas laws. (A) *A3 Use Gas Laws to determine the new properties of a given amount of gas (A) *A4. Discuss common processes or phenomenon through gas laws (M) A5. investigate the relationship between: t constant re at constant pressure of a gas; ips using the 9MT-IIj-20 *6. propose scientific ways on how to he impact of behavior of gases (T)

Grade 10 Q4 has 2 CLUSTERS OF 6 CORE COMPETENCIES FOR 10 DAYS

NOTE: Number and schedule of clusters of competencies may be adjusted depending on term schedule.

LAMINAR OR TURBULENT FLOW?

SAMPLE DIARY CURRICULUM MAP

SUBJECT:

GRADE LEVEL:

TEACHERS:

STRANDS:

1 2 3 4

TERM (NO.): MONTH	UNIT TOPIC: CONTENT	CONTENT STANDARDS (CS)	PERFORMANCE STANDARD (PS)	COMPETENCIES/ SKILLS	ASSESSMENT	ACTIVITIES	RESOURCES	INSTITUTIONAL CORE VALUES
(Q1)								

FROM DEPED CURRICULUM GUIDE (CG)

FROM DEPED CG AND/OR DEPED MELCS

FROM SUBJECT TEACHER

FROM SCHOOL'S VISION AND MISSION

MAPPING ASSESSMENT AND ACTIVITIES WITH UNIT POWER AND SUPPORTING COMPETENCIES

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES	ASSESSMENT	PEAC LM ACTIVITY/ MATERIALS:		INSTITUTIONAL CORE VALUES
				OFFLINE	ONLINE	

MAPPING ASSESSMENT AND ACTIVITIES WITH UNIT POWER AND SUPPORTING COMPETENCIES

CLUSTER NO. (NO. OF DAYS)	POWER COMPETEN-CIES	SUPPORTING COMPETENCIES	ASSESS-MENT	PEAC LM ACTIVITY/ MATERIALS:		INSTITUTIONAL CORE VALUES
				OFFLINE	ONLINE	
1 (5 days)	S9MT-IIj-20 5. investigate the relationship between: (T) 5.1 volume and pressure at constant temperature of a gas; 5.2 volume and temperature at constant pressure of a gas; 5.3 explains these relationships using the kinetic molecular theory	1. Describe the properties of gases . 2. Discuss common processes or phenomenon through gas laws	**Multiple Choice** **Essay**	**PEAC LM p. 15** **ACTIVITY NO. 4. WHERE ART THOU, OH GASES** **MATERIAL:** **Picture of gas particles** **A roll or box of Mentos mints** **2-liter bottle of diet soda (diet or regular soda will work, but diet soda is not as sticky)** **2 Index Cards**	**PEAC LM p. 11** **ACTIVITY TITLE 13: WHAT'S THE MATTER, MATTER** **States of Matter Interactive Game** http://www.scienceunleashed.ie/Games/States%20of%20Matter.swf	**Protection of the Environment**
2 (5 days)	2. Solve problems involving gases using the general gas laws **6.** propose scientific ways on how to regulate the impact of behavior of gases	3. Use Gas Laws to determine the new properties of a given amount of gas	**Solving Problems**	**PEAC LM p. 30** **ACTIVITY TITLE:THE INVESTIGATING LAB: The Syringe-Marshmallow Experiments** **MATERIAL:** **Kitchen Chemsitry**	**PEAC LM p. 37** **ACTIVITY TITLE: The Virtual Lab** **WEB Boyle's Law:** **http://www.chem.iastate.edu/group/Greenbowe/sections/projectfolder/flashfiles/gaslaw/boyles_law_graph.html**	

UNIT HORIZONTAL ALIGNMENT AND VERTICAL LEARNING PROGRESSION

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES	ASSESSMENT	PEAC LM ACTIVITY/ MATERIALS:		INSTITUTIONAL CORE VALUES
				OFFLINE	ONLINE	
1 (5 days)	S9MT-IIj-20 5. investigate the relationship between: (T) 5.1 volume and pressure at constant temperature of a gas; 5.2 volume and temperature at constant pressure of a gas; 5.3 explains these relationships using the kinetic molecular theory	1. Describe the properties of gases . 2. Discuss common processes or phenomenon through gas laws	Multiple Choice Essay	PEAC LM p. 15 ACTIVITY NO. 4. WHERE ART THOU, OH GASES MATERIAL: Picture of gas particles A roll or box of Mentos mints 2-liter bottle of diet soda (diet or regular soda will work, but diet soda is not as sticky) 2 Index Cards	PEAC LM p. 11 ACTIVITY TITLE 13: WHAT'S THE MATTER, MATTER States of Matter Interactive Game http://www.scienceunleashed.ie/Games/States%20of%20Matter.swf	Protection of the Environment
2 (5 days)	2. Solve problems involving gases using the general gas laws 6. propose scientific ways on how to regulate the impact of behavior of gases	3. Use Gas Laws to determine the new properties of a given amount of gas	Solving Problems	PEAC LM p. 30 ACTIVITY TITLE:THE INVESTIGATING LAB: The Syringe-Marshmallow Experiments MATERIAL: Kitchen Chemsitry	PEAC LM p. 37 ACTIVITY TITLE: The Virtual Lab WEB Boyle's Law: http://www.chem.iastate.edu/group/Greenbowe/sections/projectfolder/flashfiles/gaslaw/boyles_law_graph.html	

OFFLINE ACTIVITY

ACTIVITY NO. 4: WHERE ARE THOU, OH GASES?

In this activity, we will now investigate where to find gases using **scientific inquiry model.** We know that gases are everywhere but how do we know that it is really present?

I. Let's reflect on this question:

What are the evidences that gases are present in a situation?

Place your thoughts in the discussion forum.

II. Predict! Collect! Interpret!

A. Hail to the Fountain!

Have you heard/seen on videos and televisions the famous Coke and Mentos Experiment? Why not try to experience it?

Prepare the materials below:

A roll or box of Mentos mints
2-liter bottle of diet soda (diet or regular soda will work, but diet soda is not as sticky)
2 Index Cards

This activity is probably best done outside the house or in the middle of a lawn.

Warning: This activity can be so much fun and addicting!

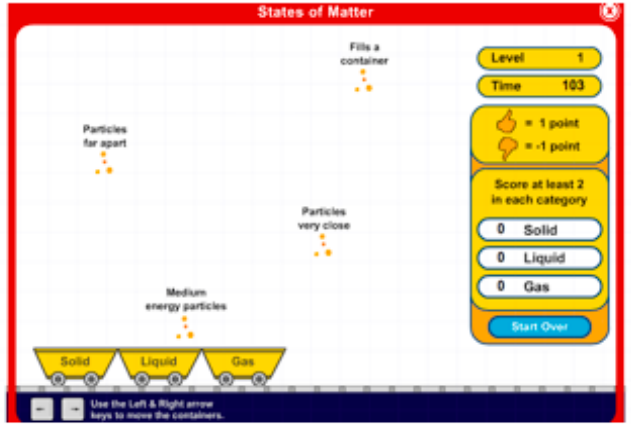
ONLINE ACTIVITY

ACTIVITY NO. 3 WHAT'S THE MATTER, MATTER?

Can you recall the particles in the different states of matter? Do the interactive game below:

States of Matter: Interactive Game

http://www.scienceunleashed.ie/Games/States%20of%20Matter.swf



How's your score? Is it bad or good? Let's refresh your memories by the different activities that will help you recall the states of matter.

Take a visit on the interactive websites about the particles of matter:

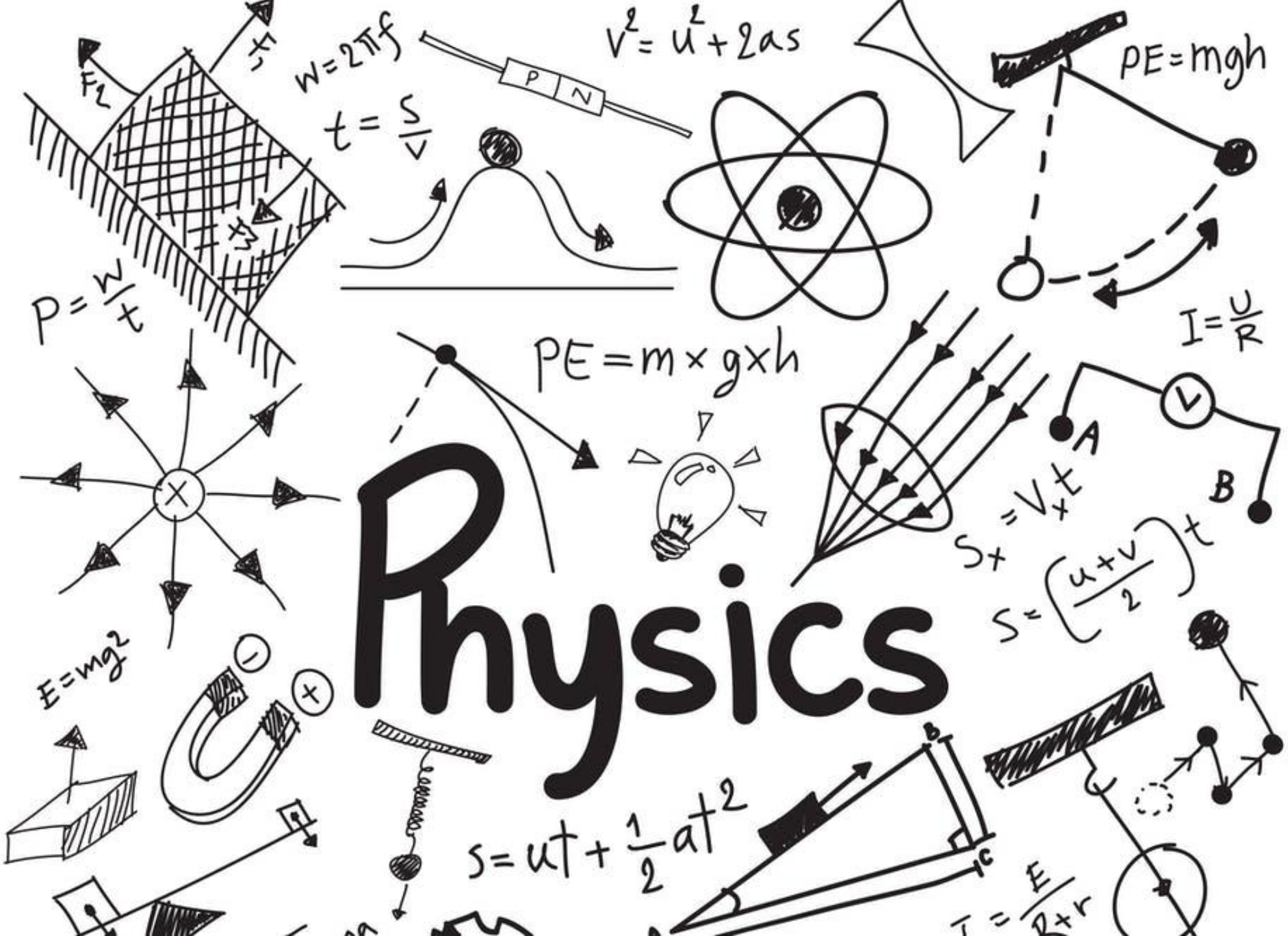
Learning Competency: Describe the properties of gases

SAMPLE DIARY CURRICULUM MAP

Term (No.) Month	Unit Topic: Content	Content Standard (CS)	Performance Standard (PS)	Competencies / Skills	Assessment	Activities	Resources	Institutional Core Values
Q4	**1. Gas Laws** 1.1 Kinetic Molecular Theory 1.2 Volume, pressure, and temperature relationship 1.3 Ideal gas law	The learners demonstrate an understanding of… how gases behave based on the motion and relative distances between gas particles	*The learners should be able to* investigate the properties and behavior of gases as a way of improving one's health and the community.	*A1. Describe the properties of gases (A)	A1. Picture Analysis	A1.WHAT'S THE MATTER, MATTER? Describing gas particles A1. PROPERTIES OF GASES: MASS AND DENSITY	Video Animation Picture Analysis	Protection of the Environment
				*A2. Solve problems involving gases using the general gas laws. (A)	A2. Problem Solving	A2. Let's Do the MATH	Worksheet	
				*A3 Use Gas Laws to determine the new properties of a given amount of gas (A)	A3. Lab Questions	**A3**. Gas Laws Animation http://www.mhhe.com/physsci/chemistry/essentialchemistry/flash/gasesv6.swf	Phet Simulations	

SAMPLE DIARY CURRICULUM MAP

Term (No.) Month	Unit Topic: Content	Content Standard (CS)	Performance Standard (PS)	Competencies / Skills	Assessment	Activities	Resources	Institutional Core Values
Q4	**1. Gas Laws** 1.1 Kinetic Molecular Theory 1.2 Volume, pressure, and temperature relationship 1.3 Ideal gas law	The learners demonstrate an understanding of… how gases behave based on the motion and relative distances between gas particles	*The learners should be able to* investigate the properties and behavior of gases as a way of improving one's health and the community.	*A1. Describe the properties of gases (A) *A2. Solve problems involving gases using the general gas laws. (A) *A3 Use Gas Laws to determine the new properties of a given amount of gas (A)	A1. Picture Analysis A2. Problem Solving A3. Lab Questions	A1.WHAT'S THE MATTER, MATTER? Describing gas particles A1. PROPERTIES OF GASES: MASS AND DENSITY A2. Let's Do the MATH **A3.** Gas Laws Animation http://www.mhhe.com/physsci/chemistry/essentialchemistry/flash/gasesv6.swf	Video Animation Picture Analysis Worksheet Phet Simulations	Protection of the Environement


Physics
w=2πf
t = s/v
v² = u² + 2as
P
N
PE=mgh
P = W/t
PE = m × g × h
I = U/R
A
B
V
Sx = Vxt
S = ((u+v)/2) t
E=mg2
s = ut + 1/2 at²
I = E/(R+r)

TECHNIQUE B. IDENTIFYING UNIT POWER AND SUPPORTING COMPETENCIES WITH REAL

STEP 1

COMPETENCIES4	R (needed for next unit or grade)	E (needed for real life)	A (needed for achievement or admissions or job tests)	L (needed by other subjects)	POWER OR SUPPORTING?
S9FE-IVa34: 1. describe the horizontal and vertical motions of a projectile;	✓	✗	✓	✗	SUPPORTING
S9FE-IVa35: 2. investigate the relationship between the angle of release and the height and range of the projectile;	✓	✗	✓	✗	SUPPORTING
S9FE-IVb36: 3. relate impulse and momentum to collision of objects (e.g., vehicular collision);	✓	✓	✓	✗	SUPPORTING
S9FE-IVb37: 4. infer that the total momentum before and after collision is equal;	✓	✗	✓	✓	SUPPORTING
S9FE-IVc38: 5. examine effects and predict causes of collision related damages/injuries;	✓	✓	✓	✓	POWER
S9FE-IVc39: 6. explain energy transformation in various activities/events (e.g., waterfalls, archery, amusement rides);	✓	✗	✓	✓	SUPPORTING
S9FE-IVd40: 7. perform activities to demonstrate conservation of mechanical energy;	✓	✓	✗	✗	SUPPORTING

TECHNIQUE B. IDENTIFYING UNIT POWER AND SUPPORTING COMPETENCIES WITH REAL

COMPETENCIES	R (needed for next unit or grade)	E (needed for real life)	A (needed for achievement or admissions or job tests)	L (needed by other subjects)	POWER OR SUPPORTING?
S9FE-IVe41: 8. infer that the total mechanical energy remains the same during any process;	✓	✓	✓	✓	POWER
S9FE-IVe42: 9. construct a model to demonstrate that heat can do work;	✓	✓	✗	✓	SUPPORTING
S9FE-IVf43: 10. infer that heat transfer can be used to do work, and that work involves the release of heat;	✓	✗	✗	✓	SUPPORTING
S9FE-IVf44: 11. explain why machines are never 100-percent efficient;	✓	✗	✓	✓	SUPPORTING
S9FE-IVg45: 12. explain how heat transfer and energy transformation make heat engines like geothermal plants work; and	✓	✓	✓	✓	POWER
S9FE-IVhj-46 : 13. explain how electrical energy is generated, transmitted, and distributed.	✓	✓	✓	✓	POWER

CLUSTERING AND BUDGET OF TIME OF UNIT POWER AND SUPPORTING COMPETENCIES

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES

CLUSTERING AND BUDGET OF TIME OF UNIT POWER AND SUPPORTING COMPETENCIES

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES
1 (12 days)	S9FE-IVc38: 5. examine effects and predict causes of collision related damages/injuries;	S9FE-IVa34: 1. describe the horizontal and vertical motions of a projectile;
		S9FE-IVa35: 2. investigate the relationship between the angle of release and the height and range of the projectile;
		S9FE-IVb36: 3. relate impulse and momentum to collision of objects (e.g., vehicular collision);
		S9FE-IVb37: 4. infer that the total momentum before and after collision is equal;
2 (8 days)	S9FE-IVe41: 8. infer that the total mechanical energy remains the same during any process;	S9FE-IVc39: 6. explain energy transformation in various activities/events (e.g., waterfalls, archery, amusement rides);
		S9FE-IVd40: 7. perform activities to demonstrate conservation of mechanical energy
3 (8 days)	S9FE-IVg45: 12. explain how heat transfer and energy transformation make heat engines like geothermal plants work; and	S9FE-IVe42: 9. construct a model to demonstrate that heat can do work;
		S9FE-IVf43: 10. infer that heat transfer can be used to do work, and that work involves the release of heat;
		S9FE-IVf44: 11. explain why machines are never 100-percent efficient;
4 (12days)	S9FE-IVhj-46 : 13. explain how electrical energy is generated, transmitted, and distributed.	
TOTAL: 40 days		

Grade 9 – Force, Motion, and Energy FOURTH QUARTER/FOURTH GRADING PERIOD						
Motion in Two Dimensions 1. Projectile Motion 1.2.Impulse, Momentum and Impulse 1.3.Conservation of Linear Momentum	*The learners demonstrate an understanding of:* projectile motion, impulse and momentum, and conservation of linear momentum	*The learners shall be able to:* propose ways to enhance sports related to projectile motion	*The learners should be able to…* 1. describe the horizontal and vertical motions of a projectile;	**S9FE-IVa-34**	1. OHSP Integrated Science. Quarter 2. Module 3. pp. 4-5. 2. EASE Physics. Module 9. Lesson 3. 3. Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph.D., et al. 2001. pp. 93-109. *	

Grade 9 Q4 has 4 CLUSTERS OF 13 CORE COMPETENCIES FOR 10 WEEKS

1. Projectile Motion 1.2.Impulse, Momentum	*understanding of:*	propose ways to	release and the height and range of the		Module 9. Lesson 3.	
	conservation of linear momentum				Textbook for Fourth Year. Rabago, Lilia M., Ph.D., et al. 2001. pp. 93-109. *	
			3. relate impulse and momentum to collision of objects (e.g., vehicular collision);	**S9FE-IVb-36**	Science and Technology IV: Physics Textbook. NISMED. 2012. pp. 298-301	

NOTE: Number and schedule of clusters of competencies may be adjusted depending on term schedule.

CLUSTERING OF UNIT POWER AND SUPPORTING COMPETENCIES

STEPS 2-4

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES
1 (12 days)	S9FE-IVc38: 5. examine effects and predict causes of collision related damages/injuries;	~~S9FE-IVa34: 1. describe the horizontal and vertical motions of a projectile;~~
		~~S9FE-IVa35: 2. investigate the relationship between the angle of release and the height and range of the projectile;~~
		S9FE-IVb36: 3. relate impulse and momentum to collision of objects (e.g., vehicular collision);
		S9FE-IVb37: 4. infer that the total momentum before and after collision is equal;
2 (8 days)	S9FE-IVe41: 8. infer that the total mechanical energy remains the same during any process;	S9FE-IVc39: 6. explain energy transformation in various activities/events (e.g., waterfalls, archery, amusement rides);
		S9FE-IVd40: 7. perform activities to demonstrate conservation of mechanical energy
3 (8 days)	S9FE-IVg45: 12. explain how heat transfer and energy transformation make heat engines like geothermal plants work; and	S9FE-IVe42: 9. construct a model to demonstrate that heat can do work;
		S9FE-IVf43: 10. infer that heat transfer can be used to do work, and that work involves the release of heat;
		S9FE-IVf44: 11. explain why machines are never 100-percent efficient;
4 (12 days)	~~S9FE-IVhj-46 : 13. explain how electrical energy is generated, transmitted, and distributed.~~	
TOTAL: 40 days		

Grade 9 – Force, Motion, and Energy FOURTH QUARTER/FOURTH GRADING PERIOD						
Motion in Two Dimensions 1. Projectile Motion 1.2.Impulse, Momentum and Impulse 1.3.Conservation of Linear Momentum	*The learners demonstrate an understanding of:* projectile motion, impulse and momentum, and conservation of linear momentum	*The learners shall be able to:* propose ways to enhance sports related to projectile motion	*The learners should be able to…* 1. describe the horizontal and vertical motions of a projectile;	**S9FE-IVa-34**	1. OHSP Integrated Science. Quarter 2. Module 3. pp. 4-5. 2. EASE Physics. Module 9. Lesson 3. 3. Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph.D., et al. 2001. pp. 93-109. *	

Grade 9 Q4 has ~~13~~ ~~11~~ 10 CORE COMPETENCIES* (v2)

(other LCs moved to other units or levels)

1. Projectile Motion 1.2.Impulse, Momentum and Impulse 1.3.Conservation of Linear Momentum	*understanding of:* projectile motion, impulse and momentum, and conservation of linear momentum	propose ways to enhance sports related to projectile motion	release and the height and range of the projectile;		Module 9. Lesson 3. 2. Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph.D., et al. 2001. pp. 93-109. *	
			3. relate impulse and momentum to collision of objects (e.g., vehicular collision);	**S9FE-IVb-36**	Science and Technology IV: Physics Textbook. NISMED. 2012. pp. 298-301	

Grade 9 – Force, Motion, and Energy FOURTH QUARTER/FOURTH GRADING PERIOD						
Motion in Two Dimensions 1. Projectile Motion 1.2.Impulse, Momentum and Impulse 1.3.Conservation of Linear Momentum	*The learners demonstrate an understanding of:* projectile motion, impulse and momentum, and conservation of linear momentum	*The learners shall be able to:* propose ways to enhance sports related to projectile motion	*The learners should be able to…* 1. describe the horizontal and vertical motions of a projectile;	**S9FE-IVa-34**	1. OHSP Integrated Science. Quarter 2. Module 3. pp. 4-5. 2. EASE Physics. Module 9. Lesson 3. 3. Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph.D., et al. 2001. pp. 93-109. *	

Grade 9 Q4 has 3 CLUSTERS OF 10 CORE COMPETENCIES FOR 7 WEEKS

NOTE: Number and schedule of clusters of competencies may be adjusted depending on term schedule.

LAMINAR OR TURBULENT FLOW?

CLUSTERING OF UNIT POWER AND SUPPORTING COMPETENCIES

STEPS 2-4

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES
1 (12 days)	~~S9FE-IVc38: 5. examine effects and predict causes of collision related damages/injuries;~~	S9FE-IVb36: 3. relate impulse and momentum to collision of objects (e.g., vehicular collision);
	MERGE AND REPHRASE	S9FE-IVb37: 4. infer that the total momentum before and after collision is equal;
2 (8 days)	S9FE-IVe41: 8. infer that the total mechanical energy remains the same during any process;	S9FE-IVc39: 6. explain energy transformation in various activities/events (e.g., waterfalls, archery, amusement rides);
		S9FE-IVd40: 7. perform activities to demonstrate conservation of mechanical energy
3 (8 days)	S9FE-IVg45: 12. explain how heat transfer and energy transformation make heat engines like geothermal plants work; and	~~S9FE-IVe42: 9. construct a model to demonstrate that heat can do work;~~
	MERGE AND REPHRASE	S9FE-IVf43: 10. infer that heat transfer can be used to do work, and that work involves the release of heat;
		S9FE-IVf44: 11. explain why machines are never 100-percent efficient;
TOTAL: 28 days		

CLUSTERING OF UNIT POWER AND SUPPORTING COMPETENCIES

STEPS 2-4

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES
1 (12 days)	~~S9FE-IVc38: 5. examine effects and predict causes of collision related damages/injuries;~~	S9FE-IVb36: 3. relate impulse and momentum to collision of objects (e.g., vehicular collision);
	MERGE AND REPHRASE	S9FE-IVb37: 4. infer that the total momentum before and after collision is equal;
2 (8 days)	S9FE-IVe41: 8. infer that the total mechanical energy remains the same during any process;	S9FE-IVc39: 6. explain energy transformation in various activities/events (e.g., waterfalls, archery, amusement rides);
3 (8 days)	S9FE-IVg45: 12. explain how heat transfer and energy transformation make heat engines like geothermal plants work; and	~~S9FE-IVe42: 9. construct a model to demonstrate that heat can do work;~~
	MERGE AND REPHRASE	S9FE-IVf43: 10. infer that heat transfer can be used to do work, and that work involves the release of heat;
		S9FE-IVf44: 11. explain why machines are never 100-percent efficient;
TOTAL: 28 days		

LAMINAR OR TURBULENT FLOW?

Grade 9 – Force, Motion, and Energy FOURTH QUARTER/FOURTH GRADING PERIOD						
Motion in Two Dimensions 1. Projectile Motion 1.2.Impulse, Momentum and Impulse 1.3.Conservation of Linear Momentum	*The learners demonstrate an understanding of:* projectile motion, impulse and momentum, and conservation of linear momentum	*The learners shall be able to:* propose ways to enhance sports related to projectile motion	*The learners should be able to…* 1. describe the horizontal and vertical motions of a projectile;	**S9FE-IVa-34**	1. OHSP Integrated Science. Quarter 2. Module 3. pp. 4-5. 2. EASE Physics. Module 9. Lesson 3. 3. Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph.D., et al. 2001. pp. 93-109. *	

Grade 9 Q4 has ~~13~~ ~~11~~ ~~10~~ 8 CORE COMPETENCIES* (v3)

(other LCs merged and rephrased)

1. Projectile Motion 1.2.Impulse, Momentum and Impulse 1.3.Conservation of Linear Momentum	*understanding of:* projectile motion, impulse and momentum, and conservation of linear momentum	propose ways to enhance sports related to projectile motion	release and the height and range of the projectile;		Module 9. Lesson 3. 2. Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph.D., et al. 2001. pp. 93-109. *	
			3. relate impulse and momentum to collision of objects (e.g., vehicular collision);	**S9FE-IVb-36**	Science and Technology IV: Physics Textbook. NISMED. 2012. pp. 298-301	

Grade 9 – Force, Motion, and Energy FOURTH QUARTER/FOURTH GRADING PERIOD						
Motion in Two Dimensions 1. Projectile Motion 1.2.Impulse, Momentum and Impulse 1.3.Conservation of Linear Momentum	*The learners demonstrate an understanding of:* projectile motion, impulse and momentum, and conservation of linear momentum	*The learners shall be able to:* propose ways to enhance sports related to projectile motion	*The learners should be able to…* 1. describe the horizontal and vertical motions of a projectile;	**S9FE-IVa-34**	1. OHSP Integrated Science. Quarter 2. Module 3. pp. 4-5. 2. EASE Physics. Module 9. Lesson 3. 3. Science and Technology IV: Physics Textbook for Fourth Year. Rabago, Lilia M., Ph.D., et al. 2001. pp. 93-109. *	

Grade 9 Q4 has 2 CLUSTERS OF 8 CORE COMPETENCIES FOR 6 WEEKS

NOTE: Number and schedule of clusters of competencies may be adjusted depending on term schedule.

LAMINAR OR TURBULENT FLOW?

SAMPLE DIARY CURRICULUM MAP

SUBJECT:

GRADE LEVEL:

TEACHERS:

STRANDS:

1 2 3 4

TERM (NO.): MONTH	UNIT TOPIC: CONTENT	CONTENT STANDARDS (CS)	PERFORMANCE STANDARD (PS)	COMPETENCIES/ SKILLS	ASSESSMENT	ACTIVITIES	RESOURCES	INSTITUTIONAL CORE VALUES
(Q1)								

FROM DEPED CURRICULUM GUIDE (CG)

FROM DEPED CG AND/OR DEPED MELCS

FROM SUBJECT TEACHER

FROM SCHOOL'S VISION AND MISSION

MAPPING ASSESSMENT AND ACTIVITIES WITH UNIT POWER AND SUPPORTING COMPETENCIES

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES	ASSESSMENT	PEAC LM ACTIVITY/ MATERIALS:		INSTITUTIONAL CORE VALUES
				OFFLINE	ONLINE	

MAPPING ASSESSMENT AND ACTIVITIES WITH UNIT POWER AND SUPPORTING COMPETENCIES

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES	ASSESSMENT	PEAC LM ACTIVITY/ MATERIALS:		INSTITUTIONAL CORE VALUES
				OFFLINE	ONLINE	
1 (12 days)	S9FE-Iv c-e 38-41: 5 & 8. infer that the total mechanical energy and momentum remains the same during any process;	S9FE-IVb36: 1. relate impulse and momentum to collision of objects (e.g., vehicular collision);	Multiple Choice	PEAC LM p. 34 ACTIVITY TITLE: Picture Analysis MATERIAL: Pictures and Graphic Organizers	PEAC LM p. 32 ACTIVITY TITLE: Video Analysis WEB LINK: http;//www.youtube.com.watch?v=MbYoxTyKD28	Efficient Use of Energy and Conservation of Resources
		S9FE-IVb37: 2. infer that the total momentum before and after collision is equal;	Short Essay	PEAC LM p. 36 ACTIVITY TITLE: Collision Analysis MATERIAL: Worksheet	PEAC LM p. 35 ACTIVITY TITLE: Simulation Activity WEB LINK: https://phet.colorado.edu/sims/collision-lab/collision - lab_en.html	
		S9FE-IVc39: 3. explain energy transformation in various activities/events (e.g., waterfalls, archery, amusement rides);	Short Essay	PEAC LM p. 80 ACTIVITY TITLE: My Highly Efficient Machine MATERIAL: Home Appliances and Graphic Organizers	PEAC LM p. 78 ACTIVITY TITLE: How Gasoline and Diesel engine Work WEB LINK: Https://www.youtube.com/watch?v=s2WGFELXPNg	

UNIT HORIZONTAL ALIGNMENT AND VERTICAL LEARNING PROGRESSION

CLUSTER NO. (NO. OF DAYS)	POWER COMPETENCIES	SUPPORTING COMPETENCIES	ASSESSMENT	PEAC LM ACTIVITY/ MATERIALS:		INSTITUTIONAL CORE VALUES
				OFFLINE	ONLINE	
1 (12 days)	S9FE-Iv c-e 38-41: 5 & 8. infer that the total mechanical energy and momentum remains the same during any process;	S9FE-IVb36: 1. relate impulse and momentum to collision of objects (e.g., vehicular collision);	Multiple Choice	PEAC LM p. 34 ACTIVITY TITLE: Picture Analysis MATERIAL: Pictures and Graphic Organizers	PEAC LM p. 32 ACTIVITY TITLE: Video Analysis WEB LINK: http;//www.youtube.com.watch?v=MbYoxTyKD28	Efficient Use of Energy and Conservation of Resources
		S9FE-IVb37: 2. infer that the total momentum before and after collision is equal;	Short Essay	PEAC LM p. 36 ACTIVITY TITLE: Collision Analysis MATERIAL: Worksheet	PEAC LM p. 35 ACTIVITY TITLE: Simulation Activity WEB LINK: https://phet.colorado.edu/sims/collision-lab/collision - lab_en.html	
		S9FE-IVc39: 3. explain energy transformation in various activities/events (e.g., waterfalls, archery, amusement rides);	Short Essay	PEAC LM p. 80 ACTIVITY TITLE: My Highly Efficient Machine MATERIAL: Home Appliances and Graphic Organizers	PEAC LM p. 78 ACTIVITY TITLE: How Gasoline and Diesel engine Work WEB LINK: Https://www.youtube.com/watch?v=s2WGFELXPNg	

OFFLINE ACTIVITY

FIRM-UP

Your goal in this section is to learn and understand how the different power plants from sources that are found in the Philippines.

Complete the first two columns (GOALS Columns) of this **learning log** to keep you guided as you accomplish your goals:

POWER GENERATION			
What I need to accomplish?	***How will I accomplish them?***	***What do I think of my performance?***	***What does my teacher think about what I've accomplished?***
Explain how heat transfer and energy transformation make heat engines like geothermal plants work			
Explain how electrical energy is generated, transmitted, and distributed.			

ONLINE ACTIVITY

ACTIVITY 5. The Power of Water

In the previous activities, you encountered power plants that had sources of heat that boils water into steam which turns turbines connected to generators. In this activity, you will explore how the power of water is used in generating electrical energy. How does a hydroelectric power plant work? What energy transformations happen in a hydroelectric power plant? Why is there a need to store water in dams?

Click on the websites below and watch how a hydroelectric power plant operates.

http://www.doe.gov.ph/renewable-energy-res/hydropower advantages and disadvantages of hydroelectric power plants in the Philippines

https://www.youtube.com/watch?v=rnPEtwQtmGQ – animation showing how electricity is generated using hydroelectric power

Process Questions:

1. How is water used in hydroelectric power plants?
2. Why does water have to be stored in dams in order for it to be useful in hydroelectric power plants?
3. Can the water used in the power plant still be used for other purposes?
4. What are the energy transformations that happen in a hydroelectric power plant?
5. What do power plants need in order to generate, transmit, and distribute electrical energy?

G9 Science Q4: LC A3 explain energy transformation in various activities/events (e.g., waterfalls, archery, amusement rides);

SAMPLE DIARY CURRICULUM MAP

SUBJECT:

GRADE LEVEL:

TEACHERS:

STRANDS:

TERM (NO.): MONTH	UNIT TOPIC: CONTENT	CONTENT STANDARDS (CS)	PERFORMANCE STANDARD (PS)	COMPETENCIES/ SKILLS	ASSESSMENT	ACTIVITIES	RESOURCES	INSTITUTIONAL CORE VALUES
Q4	Heat, Work, and Efficiency	…understanding the relationship among heat, work, and efficiency	analyze how power plants generate and transmit electrical energy	M1. S9FE-IVf44: 7. explain why machines are never 100-percent efficient; T1. S9FE-IVf43: 8. model and infer that heat transfer can be used to do work, and that work involves the release of heat;	M.1 Guided Generalization T.1 Performance Task	M1. Text Analysis T1. Power Plant Case Studies	M1. Textbook/Websites:https://mssimpsonheritage.weebly.com/uploads/2/3/6/1/23611004/energy_efficiency_worksheets.pdf Journals/Videos	Wise Reosource Utilization

SAMPLE DIARY CURRICULUM MAP

SUBJECT:

GRADE LEVEL:

TEACHERS:

STRANDS:

TERM (NO.): MONTH	UNIT TOPIC: CONTENT	CONTENT STANDARDS (CS)	PERFORMANCE STANDARD (PS)	COMPETENCIES/ SKILLS	ASSESSMENT	ACTIVITIES	RESOURCES	INSTITUTIONAL CORE VALUES
Q4	Heat, Work, and Efficiency	…understanding the relationship among heat, work, and efficiency	analyze how power plants generate and transmit electrical energy	S9FE-IVf44: 7. explain why machines are never 100-percent efficient; S9FE-IVf43: 8. model and infer that heat transfer can be used to do work, and that work involves the release of heat;	M.1 Guided Generalization T.4 Performance Task	Text Analysis Power Plant Case Studies	Textbook/Websites:https://mssimpsonheritage.weebly.com/uploads/2/3/6/1/23611004/energy_efficiency_worksheets.pdf Journals/Videos	Wise Resource Utilization

PEAC CERTIFICATION ASSESSMENT INSTRUMENT

Standards of Compliance					
1. A curriculum map in each subject area that:					
- is aligned with the philosophy, vision, mission, goals and objectives*	4	3	2	1	0
- is aligned with the Kto12 curriculum guides, standards and competencies*	4	3	2	1	0
- shows unpacked Kto12 standards and competencies in different ways in all subjects*	4	3	2	1	0
- shows horizontal alignment between standards, competencies, assessment, instruction and resources in all the learning units*	4	3	2	1	0
- articulates vertical learning progressions across the different grade levels*	4	3	2	1	0
2. The implementation and continuous improvement of the curriculum maps by:					
- checking that the standards and competencies, activities and assessments and resources and integration of the PVMGO in the curriculum maps are reflected in the unit learning plans	4	3	2	1	0
- conducting a periodic review, revision and updating of the curriculum maps	4	3	2	1	0

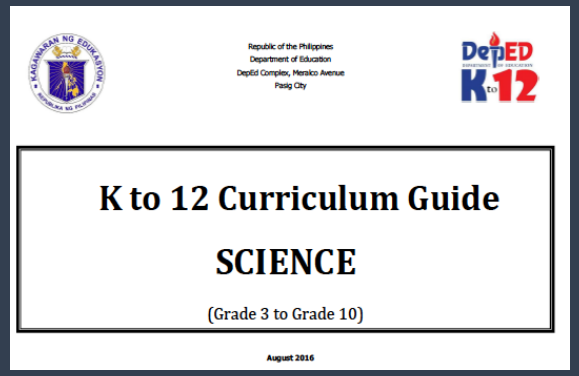
SAMPLE QUARTERLY CALENDAR OF COMPETENCY CLUSTERS

SUBJECT: **GRADE:** **SECTION:** **TEACHER:** **UNIT TOPIC:**

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 ACQUISITION CLUSTER 1	3 ACQUISITION CLUSTER 1 OFFLINE - TEXTBOOK	4 ACQUISITION CLUSTER 1 OFFLINE - TEXTBOOK	5 ACQUISITION CLUSTER 1 OFFLINE – TEXTBOOK	6 ACQUISITION CLUSTER 1 ONLINE – YOUTUBE VIDEO	7 ACQUISITION REVIEW
8	9 ACQUISITION TEST	10 MAKING MEANING CLUSTER 2	11 MAKING MEANING CLUSTER 2	12 MAKING MEANING CLUSTER 2	13 MAKING MEANING CLUSTER 2	14 MAKING MEANING REVIEW
15	16 MAKING MEANING CLUSTER 2	17 MAKING MEANING TEST	18 SCAFFOLD FOR PT CLUSTER 3	19 SCAFFOLD FOR PT CLUSTER 3	20 SCAFFOLD FOR PT CLUSTER 3	21 PT ASSIGNMENT
22	23 SCAFFOLD FOR PT CLUSTER 3	24 SCAFFOLD FOR PT CLUSTER 3	25 SCAFFOLD FOR PT CLUSTER 3	26 SCAFFOLD FOR PT CLUSTER 3	27 SCAFFOLD FOR PT CLUSTER 3	28 PT ASSIGNMENT
29	30 SCAFFOLD FOR PT CLUSTER 3	31 SCAFFOLD FOR PT CLUSTER 3	1 SCAFFOLD FOR PT CLUSTER 3	2 SCAFFOLD FOR PT CLUSTER 4	3 SCAFFOLD FOR PT CLUSTER 4	4 PT ASSIGNMENT

SUMMARY

DEPED SUBJECT CG



Republic of the Philippines
Department of Education
DepEd Complex, Meralco Avenue
Pasig City

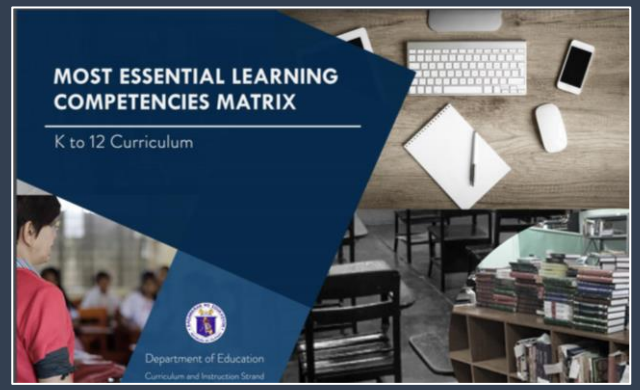
K to 12 Curriculum Guide

SCIENCE

(Grade 3 to Grade 10)

August 2016

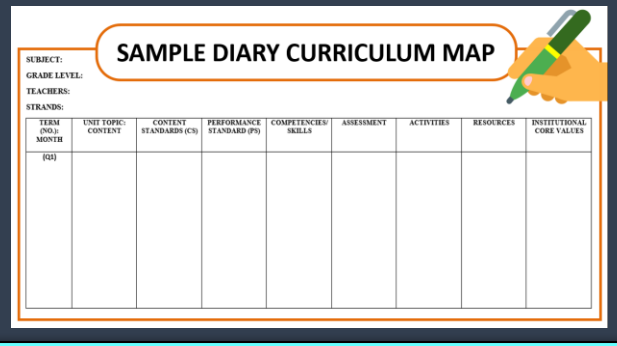
DEPED MELCS MATRIX



MOST ESSENTIAL LEARNING COMPETENCIES MATRIX

K to 12 Curriculum

Department of Education
Curriculum and Instruction Strand



SAMPLE DIARY CURRICULUM MAP

SUBJECT:
GRADE LEVEL:
TEACHERS:
STRANDS:

TERM (NO.): MONTH	UNIT TOPIC: CONTENT	CONTENT STANDARDS (CS)	PERFORMANCE STANDARD (PS)	COMPETENCIES/ SKILLS	ASSESSMENT	ACTIVITIES	RESOURCES	INSTITUTIONAL CORE VALUES
(Q1)								

SCHOOL CURRICULUM SY 2020-2021

PEAC CERTIFICATION ASSESSMENT INSTRUMENT

RECERTIFICATION REQUIREMENT OF ALIGNMENT IN CURRICULUM MAP

SUBJECT:

GRADE LEVEL:

TEACHERS:

STRANDS:

TERM (NO.): MONTH	UNIT TOPIC: CONTENT	CONTENT STANDARDS (CS)	PERFORMANCE STANDARD (PS)	COMPETENCIES/ SKILLS	ASSESSMENT	ACTIVITIES	RESOURCES	INSTITUTIONAL CORE VALUES
(Q1)								

FROM DEPED CURRICULUM GUIDE (CG)

FROM DEPED CG AND/OR DEPED MELCS

FROM SUBJECT TEACHER

FROM SCHOOL'S VISION AND MISSION

RECERTIFICATION REQUIREMENT OF ALIGNMENT IN CURRICULUM MAP

SUBJECT:

GRADE LEVEL:

TEACHERS:

STRANDS:

TERM (NO.): MONTH	UNIT TOPIC: CONTENT	CONTENT STANDARDS (CS)	PERFORMANCE STANDARD (PS)	COMPETENCIES/ SKILLS	ASSESSMENT	ACTIVITIES	RESOURCES	INSTITUTIONAL CORE VALUES
(Q1)								

FROM DEPED CURRICULUM GUIDE (CG)

FROM DEPED CG AND/OR DEPED MELCS

FROM SUBJECT TEACHER

FROM SCHOOL'S VISION AND MISSION

GOAL: TEACH ENDURING SKILLS FOR WORK AND LIFE IN THE 21st CENTURY

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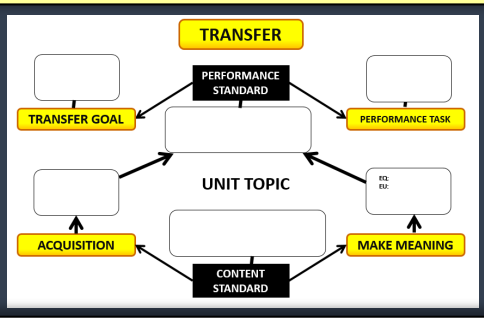
ENSURE ENDURANCE OR TRANSFER OF LEARNING BY DOING ANY OF THE FF. WITH MELCS:

1. **Unpack into sub-competencies/tasks**
2. **Repeat in another unit or grade level**
3. **Follow-up in higher grade levels**
4. **Cluster with other competencies**
5. **Merge with other competencies and rephrase**
6. **Focus on skill rather than on content**
7. **Align with unit performance standard**

STREAMLINING FOR ENDURANCE / TRANSFER BY:

TECHNIQUE A. ALIGNING CONTENT STANDARD AND COMPETENCIES WITH PERFORMANCE STANDARD

TECHNIQUE B. IDENTIFYING POWER AND SUPPORTING COMPETENCIES AND CLUSTERING THESE



STEPS:

1. Copy the Content and Performance Standards and write Unit Topic.
2. Unpack the Transfer Goal and Performance Task from Performance Standard. Then write in diagram.
3. Review DepEd CG/School Curriculum Map and take out competencies that are not directly aligned with Performance Standard. These competencies may already have been taught or may be taught in another grade or unit.
4. Classify the remaining unit competencies in terms of AMT Learning Goals. A & M with Content and T with Performance Standard. Unpack when needed.
5. Unpack the EQ and EU and with M cluster of competencies, establish link with Content Standard and Performance Task.
6. Cluster the A competencies and establish link with Content Standard and Performance Task.
7. Determine assessments for A (QA type) and M (WW type).

How can identification and clustering of power and supporting competencies be done for streamlining the curriculum?

Do the following steps:

1. Identify power and supporting competencies using REAL from core set of competencies.
2. Make clusters of power and supporting competencies.
3. Sequence clusters with the last related to the Performance Task.
4. Set the budget of time for teaching the clusters.

Never give up. Today is hard.
Tomorrow will be worse but
the day after tomorrow will be sunshine.
- Jack Ma

Thank you