

GUIDING OUR TEACHERS: A Briefer on Using the Science MELCs

The K to 12 Basic Education Curriculum is standards-based. The content standards cover a specified scope of topics which sets 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. 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.

The current health crisis brought about by the CoViD-19 pandemic is considered as one of the greatest threats in the Philippine basic education. The challenge to make Education relevant and responsive to the current situation is our primary concern. With the expected decrease in the contact hours of teaching science brought by the change in schedule of the school year, the Curriculum Standards Development Division of the Bureau of Curriculum Development has identified learning competencies that are critical. These Most Essential Learning Competencies (MELCs) were identified using the criterion Endurance. Enduring competencies are those that remain with learners long after a test is completed (Reeves, 2002) or is useful beyond a single test or unit of study (Many and Horrell, 2014). They also refer to learning competencies which are essential in many professions and in everyday life.

To ensure continuity of the learning progression of our learners, it is important to make sure that learning competencies needed in the understanding of succeeding concepts in the next grade level are prioritized. Over all, the resulting list still captures the objective of the science program which is the development of scientifically, technologically, and environmentally literate and productive members of society who manifest skills as a critical problem solvers, responsible stewards of nature, innovative and creative citizens, informed decision makers, and effective communicators.

The table below shows examples of how the Most Essential Learning Competencies in the different Key Stages Matter domain were identified.

KEY STAGE	Retained LC	Deleted LC	Justification
Key Stage 1	S3MT-1c-d-2 Classify objects and materials as solid, liquid, and gas based on some observable characteristics	S3MT-1a-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-1a-b-1) can be covered in the retained LC (S3MT-1c-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-1h-i-4 Design a product out of local, recyclable solid and/or liquid materials in making useful products	S5MT-1e-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-1e-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-IIIId-e18 give the type of intermolecular forces in the properties of substances	The deleted LC (S11/12PS-IIIId-e18) is subsumed in the retained LC (S11/12PS-IIIc-d7).

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	<ul style="list-style-type: none"> 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

			<p>f. determine the mathematical variation between kinetic energy and mass and velocity</p> <p>g. create and explain a concept map involving the terms kinetic energy, potential energy, mass, velocity, and elevation</p> <p>h. demonstrate and explain the Law of Conservation of Energy using a pendulum</p>
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The proposed delivery of the identified LC above is from the middle of the second week up to third week. Since the performance standard, which is to develop and implement a plan for a “Newton’s Olympics,” involves other LCs, an activity involving a pendulum will provide the learners a first-hand observation of the nature of the movement of a pendulum bob with respect to kinetic and potential energy. The learners could also be given activities that relate the impact of an object dropped from a certain height, while varying both the mass and elevation. The impact of the object hitting the ground can then be equated with the amount of energy it possess.