PHASE ONE CURRICULUM REVIEW

INITIAL REVIEW OF THE INTENDED CURRICULUM

ACTRC

This report was authored by:

Therese Bustos

Field Rickards

Pam Robertson

Julie Dela Cruz

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UP Campus, Diliman 1101, Quezon City

P: 632-8064680

E: info@actrc.org

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Dr Peter Hill

University of the Philippines College of Education

UP Center for Integrative and Development Studies

Workshop Participants:

Almeyda, Janinn M.

Andres, Brenson Y.

Andres, Melynda

Basio, Glenne D.

Bercando, Mark

Briones, John Kelvin

Cabrera, Michael

Calingasan, Lorina Y.

Caluag, Diana G.

Cantillo, Ma. Luisa

Capistrano, Rowell

Cariño, Maricel

Comiso, Roseta

Crausus, Jerry

Cristobal, Zenaida P.

Dela Cerna, Michael Angelo E.

Dimabuyu, Ma. Portia

Dionisio, Ricardo Ador

Dones, Rogelio

Fajardo, Wenda

Faura, Ryan L.

Ferrer, Joe Amiel Benson M.

Gonzales, Sarah B.

Guerrero, Charlaine G

Jamon, Kristina Grace G.

Lagrimas, Lilia

Lay, Karen

Lico, Nica Regine V.

Macalinao, James Randolf G

Macato, Maria Teresa T.

Masilang, Rosalie B.

Nombres, Girlie D.

Padernal, Rowel S.

Peralta, Eliza C.

Peralta, Luisita

Pineda, Shiela Jay P.

Santiago, Mary Grace F.

Santos, Anna Maria Patricia

Soto, Abel

Sumayo, Grace R.

Tanate, Aldin

Unida, Melanie

Yakit, Michelle Z.

Yang, Emmerson

EXECUTIVE SUMMARY

This report details the initial review of the intended curriculum, the standards and learning competencies students are expected to achieve.

The findings presented in this report show the cognitive demand of learning competencies from Kindergarten to Grade 10 is higher than those expected within the USA Common Core curriculum. This finding will need to be explored further in future stages of the curriculum review to ensure these expectations are real and not simply artefacts of the review process. If the cognitive demand expectations within the Philippine curriculum are higher than the USA, planned research into the implementation of the curriculum in classrooms and the attainment of curriculum expectations by students will explore the feasibility of these expectations.

Clarity and phrasing within parts of the Curriculum Guides were found to require improvement to ensure the intentions of the curriculum are conveyed. The recommended improvements will facilitate future alignment by setting out curriculum expectations in an unambiguous manner.

Revised processes for checking future iterations of the curriculum prior to release were recommended to improve the quality of future curriculum documents. Through participation in this study, staff within the Bureau of Curriculum Development have the built the capacity to implement the revised processes, ensuring the Philippine Department of Education will be able to carry out these checks independently.

This report provides a foundation on which to build subsequent stages of the review of curriculum alignment. Curriculum alignment is important because it has been shown that greater alignment leads to improved student outcomes (Squires, 2012).

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INTRODUCTION

Between 2011 and 2017, the Republic of the Philippines Department of Education (DepEd) rolled out the K to 12 Curriculum, setting in motion large-scale curriculum change. In 2018, a wide-spread review of K to 12 Curriculum began. This report details one component of the review; the initial review of the intended curriculum. It explores the levels of cognitive demand within the intended curriculum. Subsequent components of the review will explore alignment across the intentions of the curriculum, the extent to which these intentions are being enacted in classrooms, assessed by national assessments and achieved by students. Alignment is advantageous because greater degrees of alignment between components of the curriculum has been linked to increased student achievement (Squires, 2009, 2012).

INTENDED CURRICULUM

"A set of formal documents which specify what the relevant national education authorities and society expect that students will learn at school in terms of knowledge, understanding, skills, values, and attitudes to be acquired and developed, and how the outcomes of the teaching and learning process will be assessed." ("Intended curriculum" n.d., para 1)

The study described in this report was carried out by the Bureau of Curriculum Development (BCD) in collaboration with the Assessment, Curriculum and Technology Research Centre (ACTRC). It was undertaken as part of the Basic Education Sector Transformation Annual Plan 5 and was funded by the Australian Government as part of their support for educational reform in the Philippines. It focused on grades K to 10, the curriculum experienced by all students prior to specialisation in senior high school. The purpose of this study was to describe the cognitive demand of the current intended curriculum. It acts as a yard stick by which the curricula examined in each subsequent section of the review can be measured. The study also reviewed the clarity of expression within the curriculum documents.

This report documents the levels of cognitive demand of the learning competencies within the different learning areas and grades in isolation. These outputs will be used subsequently to explore the consistency of expectations across subjects within grades, known as horizontal alignment, and the progression of concepts and demands through consecutive grades within the same subject, known as vertical alignment.

The collaboration between BCD and ACTRC during this study provided an opportunity to train BCD staff in internationally recognised methods used within curriculum alignment studies. It is expected that the enhanced capacity of staff involved in the process will enable DepEd to independently conduct similar reviews in the future.

PROJECT AIMS

The initial review of the intended curriculum has three primary aims:

I. To review the cognitive demand and clarity of expression of learning competencies within the Curriculum Guides for all learning areas at each grade from K to 10.
II. To build capacity within DepEd staff from the Bureau of Curriculum Development in processes and techniques for improving curricular alignment.
III. To establish a foundation for subsequent studies of curriculum alignment within Phase 2 of the Curriculum Review to take place from June 2019 to June 2021.

METHOD

The method used expert judgement to categorize each learning outcome within the curriculum on a scale of cognitive demand, thus codifying the curriculum in a manner that facilitates the identification of trends across and

within grades, and makes the comparison of intended, implemented, tested and attain curricula possible. The method was developed by Porter and Smithson (2001). The method was chosen on the recommendation of Dr Peter Hill, an expert in curriculum and former director of the Australian Curriculum, Assessment and Reporting Authority, who also advised on the structure of the templates for coding the curriculum and the process for verifying the data.

Experts in the curriculum and its teaching were used to categorize the curriculum expectations. Experts were either curriculum specialists from BCD or were experienced teachers/faculty from the University of the Philippines Diliman College of Education and the UP Integrated School. Experts were recruited for each of the eight learning areas within the grade 1 to 10 curriculum. Filipino, English, Mathematics, Science, Araling Panlipunan (Social Studies), MAPEH (Music, Art, Physical Education, Health,), EPP/TLE (Home Economics, Technology and Livelihood Education) and EsP (Values Education). The nature of the kindergarten curriculum was seen to be separate from that of the learning areas and therefore kindergarten experts, familiar in the subjects studied at kindergarten, were also recruited. The kindergarten experts reviewed five core subjects of Language Literacy and Communication, Physical and Natural Environment, Physical Health and Motor Development, Mathematics and Social and Emotional Development. With the addition of kindergarten, nine groups of experts were recruited to conduct the review.

In all grades and subjects, the learning competencies were used to define curriculum expectations. The Curriculum Guides express expectations in three ways; content standards, performance standards and learning competencies. For this study, the learning competencies were chosen because the they most readily captured both the content and the what the students were expected to be able to do with what they have learned at a suitable degree of specificity for this style of review.

Before categorization of the learning competencies could begin, decisions were made about the levels of cognitive demand to be used. Experts within each of the nine groups were given the cognitive demand levels for Science used by Blank, Porter, and Smithson (2001) as a starting point.

These cognitive demand levels were:

Level 1: Memorize facts/definitions/formulas
Level 2: Perform procedures/investigate
Level 3: Communicate understanding of science concepts
Level 4: Analyze information and advance scientific arguments
Level 5: Apply concepts/make connections.

Each level was accompanied by illustrative examples. Groups modified the labels for these cognitive demand levels to ensure relevance for both the learning area and the K to 12 Curriculum. Working definitions and/or examples for each cognitive demand level were also developed. The documentation of the cognitive demand levels was important because the levels will remain consistent across the broader curriculum review project.

Each learning competency was categorized against the levels of cognitive demand to determine the dominant level of cognitive demand required. The process of categorization allowed a summary of the intended curriculum to be developed, as well as identifying any learning competencies for which the level of cognitive demand required was not clear. Groups noted such competencies and made recommendations for better language choices, which can be drawn on when writing future iterations of the curriculum to avoid such difficulties.

A collaborative process was employed to cross check the categorizations made. Each expert group was split into two teams, each of which independently categorized each learning competency against the levels of cognitive demand. Teams used a spreadsheet template to record their decisions. At the end of each grade/subject, the results from the teams were compared to verify the coding decisions. A master template was used to compare the decisions of each team and identify any differences between the teams. When required, a moderation process followed, where teams discussed the categorization differences and reached consensus.

During the review process, teams were also asked to check for alignment between the learning competencies being categorized and the associated content and performance standards and to note misalignments.

Each day, teams were also asked to record their recommendations about the process used and how it could be improved as well as recommendations for future curriculum enhancements.

RESULTS

The judgements of experts were made within a five-day workshop held in February 2019. The workshop began with an introduction to the method and refinement of definitions and processes to ensure all were suitable for application to the various learning areas within the Philippine curriculum.

SCOPE

During the workshop, experts reviewed 80 grade-subject combinations. These are shown in Table 1, where the ticks represent grade-subject combinations reviewed and shaded cells indicate where a subject is not offered at the grade. For learning areas which are umbrellas for multiple subjects, practical considerations were used to select which subjects were reviewed. For MAPEH (music, arts, physical education and health), each subject was reviewed separately. For TLE (Technology and Livelihood Education) the tracks of Home Economics and Agri-Fishery Arts were selected by DepEd for review based on the availability of experts. In Kindergarten the focus subjects were chosen due to their core nature.

Table 1: Subject-grade combinations reviewed

	K	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
Filipino		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
English		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mathematics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Science				✓	✓	✓	✓	✓	✓	✓	✓
AP		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MAPEH		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EPP/TLE					✓	✓	✓	✓	✓	✓	✓
EsP		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Language, Literacy and Communication	✓										
PNE	✓										
PEMD	✓										
SED	✓										

DEFINITIONS AND PROCESSES

The cognitive demand levels and processes were modified to ensure they were suitable for use with all learning areas within grades K to 10 of the Philippine curriculum. The cognitive demand level names, working definitions and examples for kindergarten and each of the learning areas are included in the appendices.

When reviewing the cognitive demand levels, it became apparent that these were not sufficient to capture the requirements of the EsP (Values Education) learning area. To cater for the specifics of learning area, an additional categorization levels for affective demand was developed, based on the affective domain of Bloom's taxonomy (Krathwohl, Bloom, & Masia, 1964). Some other subjects considered including an affective component within their reviews, but in the end decided against it. This appears to be the first time an alignment study has included affective levels.

Where processes were adapted to suit the needs of specific learning areas, these are also listed within the appendices. Typically, these adaptations outline clarifications adopted by the group to ensure consistency of categorization between the two teams conducting the independent categorizations. In some learning areas, the adaptations provide greater detail within the process. The clarifications and adaptations were documented to ensure the process could be used consistently by DepEd in the future.

LEVELS OF COGNITIVE DEMAND

The process of categorizing the learning competencies threw up many challenges for the experts. They sometimes found it difficult to determine the intent of the curriculum writers and many learning areas made specific

recommendations about word choice and expression. There was consensus among the experts that the phrasing of standards and competencies should ensure teachers are clear about what students need to learn.

Once the expert judgements of the teams had been moderated, the final levels of cognitive demand per learning competency were stored within a master spreadsheet for each subject-grade combination. DepEd and ACTRC have copies of these master spreadsheets for future reference. Summaries of the distribution of cognitive demand levels across the grades within each learning area are presented in the appendices. These show the percentage of learning competencies at each cognitive demand level, along with the total number of learning competencies for each grade.

For each learning area, a table was produced, aggregating the cognitive demand levels of all learning competencies within each grade level. Many expected to see an increase in cognitive demand with increasing grade, however, this was often not the case, with some learning areas showing major differences in cognitive demand from one grade to the next. While a mix of cognitive demand levels is reasonable for all grades, many learning areas made recommendations to enhance cohesion and development across the grades. The recommendations for each learning area are contained within the appendices.

TRENDS IN COGNITIVE DEMAND

Overall, the review of cognitive demand levels shows that the curriculum at all grades contains a range of levels of cognitive demand. The aggregated data per grade is shown in Table 2, with the final column showing the average across all grade levels.

Table 2: Distribution of cognitive demand levels per grade

	K	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	Total
Level 1	9%	12%	18%	13%	11%	11%	8%	10%	8%	6%	6%	10%
Level 2	13%	28%	30%	31%	31%	21%	19%	18%	15%	13%	9%	21%
Level 3	14%	17%	13%	16%	14%	14%	14%	16%	15%	15%	18%	15%
Level 4	36%	18%	19%	18%	19%	23%	26%	31%	33%	30%	33%	26%
Level 5	28%	22%	21%	23%	25%	31%	33%	26%	29%	37%	33%	28%

It can be seen from Table 2 that the distribution of cognitive demand levels across the different grades is reasonably uniform, with the bulk of the learning competencies aimed at the higher two levels of cognitive demand. There is no research evidence to provide guidance as to the optimum distribution, however, international comparisons can give some perspective. The same method has been used to review the cognitive demand of the USA Common Core Curriculum in Math and English Language Arts and Reading (Porter, McMaken, Hwang, & Yang, 2011) and the distributions for these subjects across all grades is shown in Table 3. The only difference between the all grade summaries is that the Common Core data includes grades 1 to 12, while the Philippine data includes only K to 10. A visual comparison between the levels of cognitive demand within the Philippine and American curricula are shown in Figure 1. From this it can be seen that the upper two levels of cognitive demand take up a greater proportion of the Philippine curriculum than the USA Common Core curricula. To explore whether the difference in proportions between the curricula of the two countries is due to differences in categorization or representative of real differences in curriculum intent, a comparison was conducted using examples from both studies and present in the appendices of this report. The result of the comparison indicates that some learning competencies were categorized at a higher level by the Philippine experts than could be expected from the USA experts, based on the examples given by both. However, other learning competencies were similar, suggesting that not all of the difference can be

attributed to categorization variations. Based on this, it appears that it is likely the Philippine curriculum expectations are higher in cognitive demand.

Table 3: Distribution of Cognitive Demand for USA Common Core Curriculum

	USA Common Core Math Curriculum	USA Common Core English Language Arts and Reading Curriculum
Level 1	9.50%	8.07%
Level 2	43.74%	23.07%
Level 3	35.65%	29.88%
Level 4	5.96%	33.35%
Level 5	5.16%	5.64%

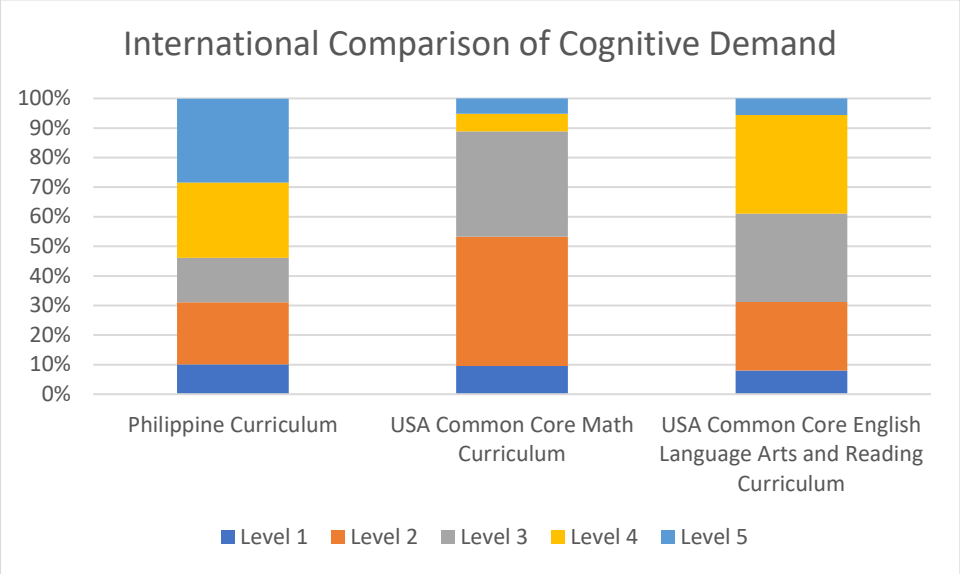

Figure 1: International Comparisons of Cognitive Demand in Intended Curricula

FOUNDATIONS FOR FUTURE CURRICULA REVIEWS

The categorizations of the level of cognitive demand for each learning competency will provide a foundation on which future work can be based to provide a comprehensive curriculum review. The curriculum delivered in classrooms, examined in national assessments and attained by students can all be compared in cognitive demand to that of the intended curriculum, as measured by this study. In addition, the categorizations will help to explore if the expectations of students within a grade are consistent across subjects. It will also assist in future investigations of whether the curriculum for each grade builds on the previous ones to support student development over the grades.

CAPACITY BUILDING

The experts participating in the workshop reported a number of benefits from going through the process of categorizing the curriculum. These included understanding the importance of consistency in the structure of the curriculum across and between learning areas, of clear phrasing and language choice to communicate effectively with users of the curriculum and the importance of checking the cognitive demand and alignment of the future curriculum prior to release. In addition, experts reported they would be able to undertake the process without ACTRC support in the future, meaning that they were sufficiently comfortable with the process, as well as construction and use of the templates to run future workshops themselves. This is a positive outcome because it means there is an increased capacity within DepEd staff.

RECOMMENDATIONS

The following general recommendations were conclusions from the review workshop:

- Future revisions of the curriculum should include a check of phrasing and language choice prior to release.
- The structure of Curriculum Guides in some learning areas be refined to improve consistency and make them easier to use
- Procedures be put in place to check the alignment and clarity of future curricula before they are released

Specific recommendations for each learning area can be found within the appendices.

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APPENDIX A. FILIPINO

I. COGNITIVE DEMAND CODES AND DEFINITIONS

Codes	Working Definitions	Examples of Learning Competencies
1. Pag-alala/Pagkilala (Memorize/Recognition)	Tumutukoy ang kasanayang ito sa pagkilala o pag-alala sa mga konseptong tinalakay sa klase. *This skill refers to the ability to recognize and remember concepts discussed in the class.*	Nasasabi kung ano ang simuno at panaguri sa pangungusap (Baitang 5)
2. Pagsunod sa Panuto (Perform Procedure)	Tumutukoy ang kasanayang ito sa pagsunod o pagsasagawa ng mga simpleng hakbang o panuto (na may paggamit ng gabay). *This skill refers to the ability to perform simple procedures/instructions (with the use of a guide).*	Nailalarawan ang elemento ng kuwento: tagpuan; tauhan; banghay; pangyayari (Baitang 4)
3. Pag-unawa (Comprehend/ Communicate)	Tumutukoy ang kasanayang ito sa pagpapahayag ng pag-unawa sa teksto/midya/impormasyon inilahad. *This skill refers to the ability to express/communicate one's understanding of a text/ medium/ information presented.*	Natutukoy ang magagandang mensahe ng binasang akda (Baitang 5)
4. Pagsusuri (Analysis)	Tumutukoy ang kasanayang ito sa kakayahang mag-analisa ng impormasyon gamit ang mga batayang konseptong natutuhan sa klase. *This skill refers to the ability to analyze information using conceptual bases learned in the classroom.*	Nasusuri ang pagkakabuo ng alamat batay sa mga elemento nito (Baitang 8)
5. Paglalapat/Paglikha (Apply/Create/Value)	Tumutukoy ang kasanayang ito sa paglikha o paglalapat, o pagpapahalaga sa natutuhan, na nangangailangan ng pag-uugnay ng karanasan, impormasyon mula sa ibang teksto, o kaganapan sa lipunan, sa nabasa, napanood, o napakinggang akdang teksto/ midya, matapos ang pagsusuri. *This skills refers to the ability to create or apply, or to value the lessons learned, which requires establishing connections between personal experience, information from other texts, or phenomena in the outside world, with other texts/media, after analysis.*	Naipakikita ang pag-unawa sa pinanood sa pamamagitan ng pagsasakilos ng bahaging naibigan o pagguhit ng isang poster (Baitang 6) Nakasusulat ng talata nang may wastong baybay, bantas at gamit ng malaki at maliit na letra upang maipahayag ang ideya, damdamin o reaksyon sa isang paksa o isyu (Baitang 3)

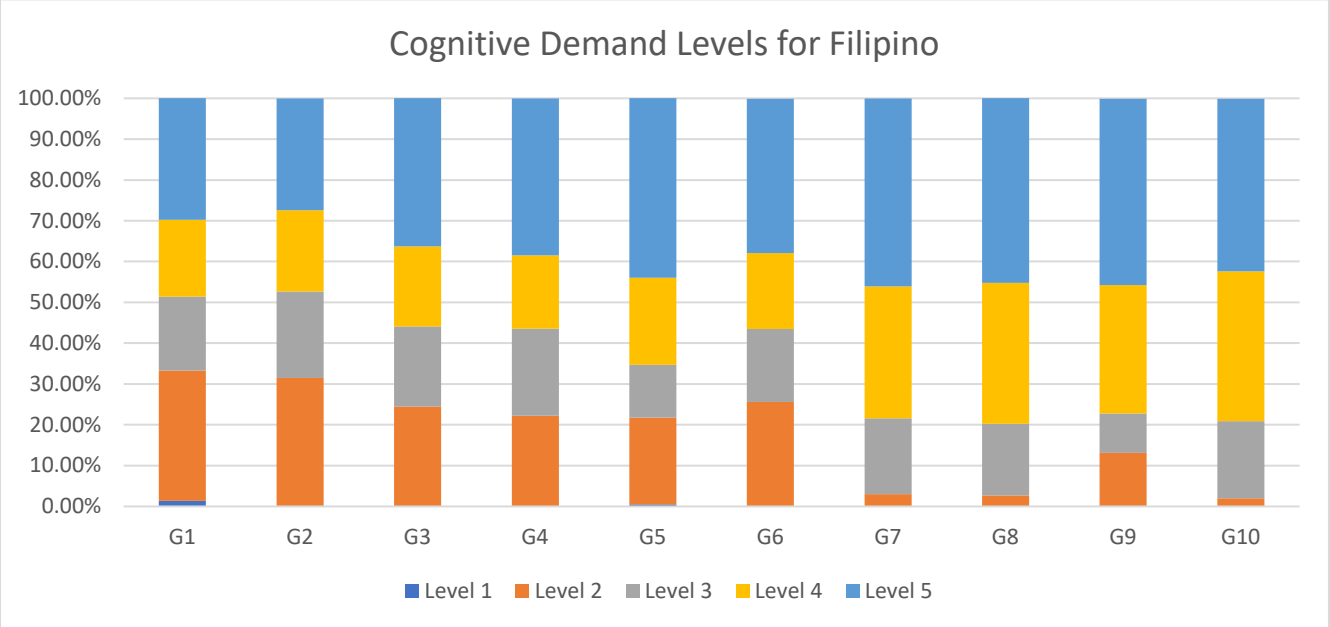
II. GROUP-SPECIFIC CURRICULUM REVIEW PROCESS

I. Neither the Revised Bloom's Taxonomy nor the Cognitive Process Dimensions that DepEd uses were used in modifying the previously determined Cognitive Demand Categories; instead, 'Application' as a Cognitive Demand was classified under 'creation'.

II. Instead of simply looking at the performance standards, it was decided by the group to review and rate the more elaborate learning competencies due to the following reasons:
- Performance standards are not found in some grade levels; and
- Learning competencies are not sufficiently covered by the performance standards.

III. DISTRIBUTION OF COGNITIVE DEMAND ACROSS GRADE LEVELS

Cognitive Demands	**GRADE LEVELS**									
	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
1. Pag-alala/Pagkilala (Memorize/Recognition)	1.4%	0.0%	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
2. Pagsunod sa Panuto (Perform Procedure)	31.9%	31.5%	24.5%	22.2%	21.3%	25.6%	3.0%	2.7%	13.1%	2.0%
3. Pag-unawa (Comprehend/ Communicate)	18.1%	21.2%	19.6%	21.4%	12.9%	17.9%	18.6%	17.6%	9.7%	18.9%
4. Pagsusuri (Analysis)	18.8%	19.9%	19.6%	17.9%	21.3%	18.6%	32.3%	34.5%	31.4%	36.7%
5. Paglalapat/Paglikha (Apply/Create/Value)	29.9%	27.4%	36.4%	38.5%	44.1%	37.8%	46.1%	45.3%	45.7%	42.3%
Total number of learning competencies	165	145	143	117	202	157	167	148	175	196



IV. RECOMMENDATIONS

I. Perform two-pronged language editing of the CGs (grammar, usage, typo, framing of competencies and language use) to check and ensure that:
   - The action verb in the competency complements the context of the statement (Naibibigay ang opinyon at katuwiran tungkol sa paksa ng balagtasan) and aligns with each language domain. (e.g. Napipili ang isang napapanahong paksa sa pagsulat ng isang sanaysay)
   - The translations and terminologies used in the Curriculum Guide are consistent. (Naiisa-isa ang mga hakbang ng pananaliksik mula sa video clip na napanood sa youtube o iba pang pahatid pangmadla; Nagagamit ang paghahambing sa pagbuo ng alinman sa bugtong, salawikain, sawikain o kasabihan (eupemistikong pahayag).
   - The functional definitions for certain terms in the CG are provided (e.g. komunikatibong pahayag).
   - Learning Competencies are clearly stated (e.g. Matalinong nakikilahok sa mga talakayan sa klase/ Intelligently participates in the classroom discussion; Naibibigay ang sariling puna sa kahusayan ng may-akda sa paggamit ng mga salita at pagpapakahulugan sa akda.)
   - The learning competencies are sensible (Nagagamit ang mga hudyat ng pagsusunod-sunod ng mga hakbang na maisasagawa upang magbago ang isang bayan; Naipakikita ang pakikiisa at pakikisangkot ng mga tauhan sa mga kaganapan o pangyayari sa akda sa pamamagitan ng pagiging: sensitibo/pagkamahabagin.)

II. Further review the difficulty pattern of the competencies across all levels. Modify learning competencies that are too easy for the learners in the higher grade levels.

III. Perform review of the CG focusing on the spiralling of the competencies.

APPENDIX B. ENGLISH

I. COGNITIVE DEMAND CODES AND DEFINITIONS

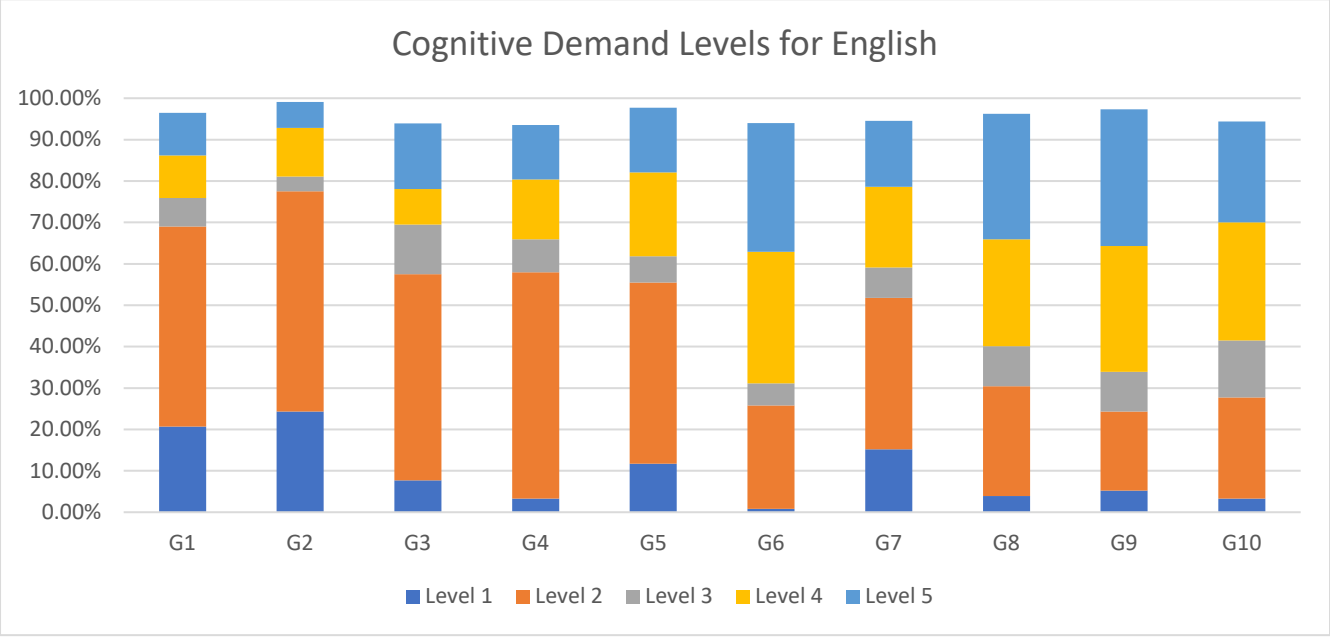
Codes	Working Definitions	Examples of Learning Competencies
Remembers terms, facts, concepts, procedures, relationship	• Recalls basic facts • Recalls terms and definitions	
Performs procedures and comprehends meaning of different materials	• Shows comprehension of a given material which is demonstrated by doing what is required	Scan for needed information
Communicates understanding of concepts and relationships	• Shows understanding by expressing ideas	Determine the roles of discourse markers (e.g. conjunctions, gambits, adverbs) in signaling the functions of statements made)
Analyzes and synthesizes information	• Combines information, patterns and relationships between and among ideas	Draw conclusions from the set of details
Applies concepts/evaluates/makes connections	• Translates theory to practice	Evaluate the information contained in the material viewed in terms of accuracy and effectiveness
Creates/produces outputs based on understanding of concepts	• Produces an output based on a higher level of understanding	Compose a persuasive text of three paragraphs expressing one's stand on an issue

II. GROUP-SPECIFIC CURRICULUM REVIEW PROCESS

I. Based on Anderson, L.W., and Krathwohl's Revised Bloom's Taxonomy of Cognitive Objectives (2001), Create/Produce an output based on understanding of concepts was added to the predetermined cognitive categories.
II. During the deliberation process, moderated results that were different from the team's individual ratings were recorded.
III. New templates were created, and learning competencies were rated after the group realized that performance standards won't suffice in categorizing the cognitive demands.

III. DISTRIBUTION OF COGNITIVE DEMAND ACROSS GRADE LEVELS

Cognitive Demands	**GRADE LEVELS**									
	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
Remembers terms, facts, concepts, procedures, relationship	20.7%	24.3%	7.7%	3.3%	11.7%	0.8%	15.2%	3.9%	5.2%	3.3%
Performs procedures and comprehends meaning of different materials	48.3%	53.2%	49.8%	54.7%	43.8%	25.0%	36.6%	26.5%	19.1%	24.4%
Communicates understanding of concepts and relationships	6.9%	3.6%	12.0%	7.9%	6.3%	5.3%	7.3%	9.7%	9.6%	13.8%
Analyzes and synthesizes information	10.3%	11.7%	8.6%	14.5%	20.3%	31.8%	19.5%	25.8%	30.4%	28.5%
Applies concepts/evaluates/makes connections	10.3%	6.3%	15.8%	13.1%	15.6%	31.1%	15.9%	30.3%	33.0%	24.4%
Creates/produces outputs based on understanding of concepts	3.4%	0.9%	6.2%	6.5%	2.3%	6.1%	5.5%	3.9%	2.6%	5.7%
Total number of learning competencies	29	111	209	214	128	132	164	155	115	123



IV. RECOMMENDATIONS

I. Cross-checking of content and performance standards must be performed to check consistency.

II. Clearly state [learning competencies and] performance standards.
- Make sure there is no unnecessary duplication of learning competencies and overlapping of performance standards.
- Separate learning competencies/performance standards that require different cognitive demands.
- Address "diction" problems in some competency entries, e.g. Give (provide) conclusions to realistic fiction listened to. Provide implies that what is being made available is something that is needed or desired whereas give does not carry this implication.
- Check alignment of performance standards and learning competencies.

III. Analyze how the Performance Standards accommodate the "**terminal competency"**; such must be the highest among the enabling competencies listed under the domains. (describe – analyze)

IV. There is a need to critically check for the domains' descriptions, to determine seamless **"funneling."** This would ensure that entry points and exit points of some competencies are purposefully considered (e.g. study strategies/ research domain is introduced in grade 2 and is considered only until grade 6). The competencies listed under each closely related domains must also be revisited (e.g. case of interdependency between/ among Oral Language, Fluency, Phonics and Word Recognition.)

V. Gradation for **"clear scaffold"** must be rechecked (e.g. Infer feelings and traits of characters, is introduced ahead of Identify the elements of a literary text)

VI. Check if domain description, competency uncovering, horizontal and vertical articulation, TRULY ensure the attainment of the end goal of the Language Curriculum which is to produce **COMMUNICATIVELY COMPETENT** and **MULTILITERATE** students.

APPENDIX C. MATHEMATICS

I. COGNITIVE DEMAND CODES AND DEFINITIONS

Codes	Working Definitions	Examples of Learning Competencies
RECALL	Recalls facts, definitions and formulas	Visualizes and represents numbers Identifies the number, factors, multiples Visualizes and gives the place value Reads and writes ordinal numbers Rounds numbers Illustrates addition, subtraction, union of sets, etc. Names, and describes Describes sets, roots Represents absolute value, etc. Differentiates between primes and composite, constant and variable, etc. Classifies algebraic expressions, kind of triangles, etc. Derives laws of exponents
PERFORM	Performs procedures, solutions, processes (algorithmic computation)	Counts the number of objects Reads and writes numbers Compares numbers Adds, subtracts, multiplies etc. Mentally adds, subtract, etc small digits Draws the four basic shapes Tells and writes time Estimates and measures Collects/sorts data
COMMUNICATE	Communicate understanding of math concepts, the how[s] of the solutions To abstract or explain concepts in words, written or oral	Explains the importance of Statistics Explains strategies used, outcomes Describes and illustrates angles using models Describes the attributes and properties

Codes	Working Definitions	Examples of Learning Competencies
ANALYZE	Analyzes the problem and validates the answer To break down information into component parts, interpret data, structure relationships	Orders sets from least to greatest Solves routine and non-routine problems Compares more than two quantities Determines the missing term/s in a pattern Constructs equivalent expressions Solves problems Infers and interprets data Tell whether an even is likely or unlikely to happen Generates patterns Proves rational root theorem, etc. Derives formulas Reads and interprets
APPLY/CREATE /INFER	Applies concepts, make connections, creates and infers own problem. To use or apply knowledge in real-life or practical applications, display creative thinking, develop new concepts or approaches	Creates situations Describes events in real-life situations Creates problems Formulates mini-research

II. GROUP-SPECIFIC CURRICULUM REVIEW PROCESS

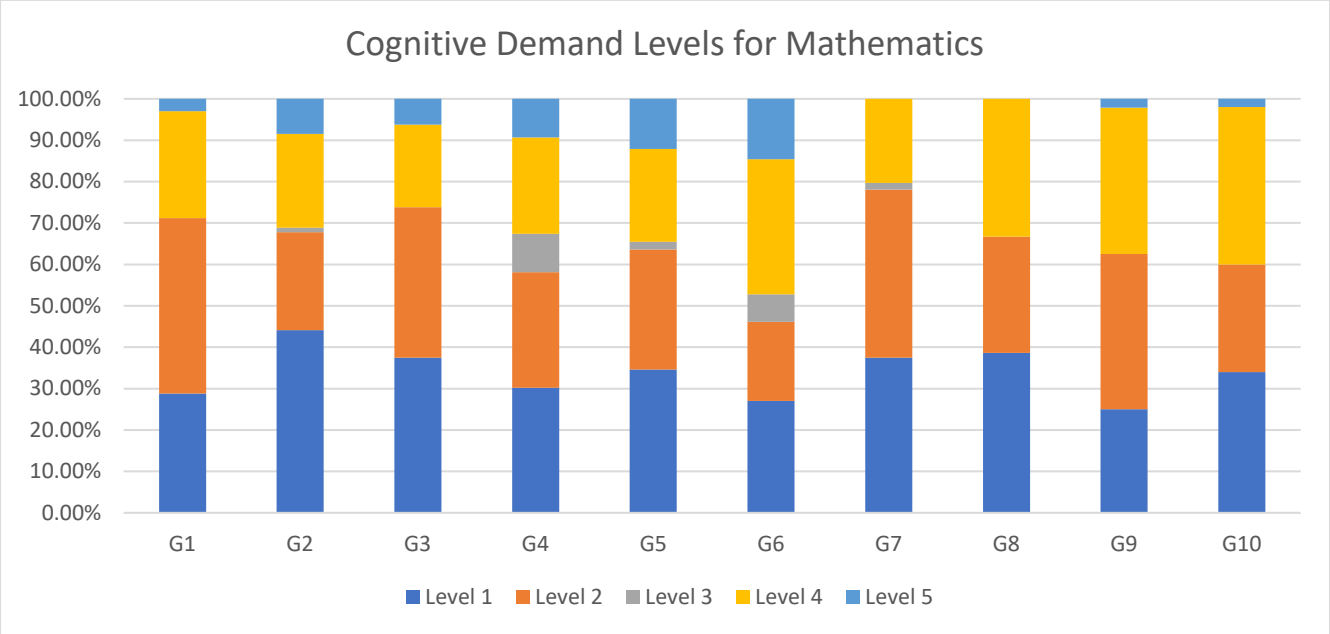
I. The alignment of competencies was carefully analyzed by each member before the articulation of each cognitive demand was deliberated upon by the group.

II. Many factors such as the age of the learners and their math ability, the activities given by the teacher, and the sequence of increasing difficulty were considered in the categorization of Learning Competencies which made it more challenging for the group.

III. The classification of the learning competencies, *writes proofs (both direct and indirect),* transforms statements into an equivalent if-form statement, and applies theorems on triangle inequalities, was discussed carefully by both teams.

III. DISTRIBUTION OF COGNITIVE DEMAND ACROSS GRADE LEVELS

Cognitive Demands	GRADE LEVELS									
	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
1: Recall	28.8%	44.1%	37.5%	30.2%	34.6%	27.0%	37.5%	38.6%	25.0%	34.0%
2: Perform	42.4%	23.7%	36.3%	27.9%	29.0%	19.1%	40.6%	28.1%	37.5%	26.0%
3: Communicate	0.0%	1.1%	0.0%	9.3%	1.9%	6.7%	1.6%	0.0%	0.0%	0.0%
4: Analyze	25.8%	22.6%	20.0%	23.3%	22.4%	32.6%	20.3%	33.3%	35.4%	38.0%
5: Apply/Create/ Infer	3.0%	8.6%	6.3%	9.3%	12.1%	14.6%	0.0%	0.0%	2.1%	2.0%
Total learning competencies per grade	66	93	80	86	107	89	64	57	48	50



IV. RECOMMENDATIONS

I. Refinement of the learning competencies in the curriculum is needed after the group immersed themselves in the rigorous identification of cognitive demand of each learning competency.
II. This initial activity needs subsequent activities to be able to produce an enhanced version of the curriculum.
III. Each key stage in the learning area should be represented during curriculum review and other related activities.
IV. Identification of the cognitive demands of Mathematics competencies and standards should be anchored and aligned in the nature of the learning area and the Math Education Framework (Mathematics K to 12 Curriculum Framework, 2012; MathTEd Math Framework, 2013). Thus, further review on the various elements/components of the curriculum is recommended.
V. Competencies should be clearly stated.
VI. Measurable competencies such as find, solve, and determine, should be used.
VII. All cognitive demand categories should be covered in the curriculum with emphasis on the higher-order thinking skills (HOTS) as the level of difficulty and extent of content-knowledge/standards require progresses. Based on the distribution of cognitive demands per grade level, there is a need to reflect explicit learning competencies that require real life applications of Math to provide venues to develop the "Communicate" and "Apply/Create" cognitive. This explicit statement of learning competencies in the curriculum would also help facilitate common understanding among teachers and guide them in designing instructions more appropriately.
VIII. The competencies should be unpacked, and the progression of the skills being developed reviewed to address the missing competencies that would link one from the other.
IX. There should be documentation of the whole process so that there is something to look at when needed.

APPENDIX D. SCIENCE

I. COGNITIVE DEMAND CODES AND DEFINITIONS

Codes	Working Definitions	Examples of Learning Competencies
Memorize facts	• Recall basic science facts, science terms and definitions, and scientific formulas • Enumerate uses of • State ways or importance of • Describe ways to minimize, improve, prevent	State the importance of animals to humans. Enumerate uses of light, sound, heat and electricity.
Perform/ investigate	• Demonstrate by executing procedures or using appropriate tools/equipment • Investigate by performing experiment or executing procedures • make observations, collect or record data • Research information use surveys • Use of appropriate instruments	Demonstrate how sound, heat, light and electricity can be transformed. Investigate properties and characteristics of light and sound.
Communicate understanding of science concepts	• Describe ways, processes, practices, or properties of • Explain concepts • Observe and explain demonstrations • Model or simulate concepts/processes using models • Represent observations, procedures, or ideas using various forms of representations • Explain ways, processes, practices, or properties of	Describe some properties of metals and non-metals such as luster, malleability, ductility, and conductivity Explain the properties of solids, liquids, and gases based on the particle nature of matter.
Analyze information	• Compare stages, cycles, processes, or concepts • Sort, group, classify, categorize, differentiate, • Analyze data, recognize patterns and relationships • Construct concepts using models, diagrams, and other forms of representations • Explain relationships, interconnectedness, or effects between concepts, groups, or processes • Explain difference(s) based on their characteristics or explain distribution of • Investigate relationship between systems, cycles, parts, characteristics recognize the importance of practices • Use a concept to compare and/or evaluate effects • Make predictions, infer from data or situation, draw conclusions, justify ideas based on evidence • Recognize a need or needs for	Compare the relative wavelengths of different forms of electromagnetic waves. Explain the relationship between population growth and carrying capacity. Differentiate quantities in terms of magnitude and direction Investigate the relationship between volume and pressure at constant temperature of a gas; volume and temperature at constant pressure of a gas; explains these relationships using the kinetic molecular theory.
Apply concepts	• Design or create a product • Cite examples of applications • Construct models, or diagrams • Make informed and responsible personal, social, technological, and environmental decision • Enumerate how factors affect a system or a process • Use and integrate concepts evaluate findings	Design a product out of local, recyclable solid and/ or liquid materials in making useful products. Construct a model to demonstrate that heat can do work.

Codes	Working Definitions	Examples of Learning Competencies
	• Apply and adapt science information to real-world situations	Enumerate and practice safety and precautionary measures in dealing with different types of weather.

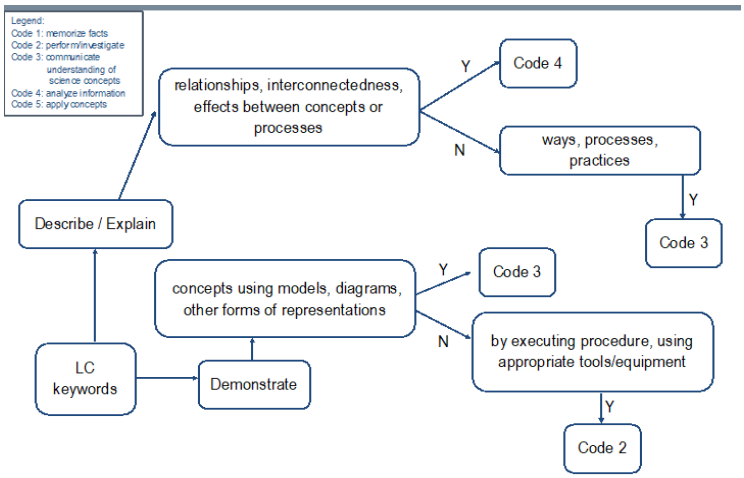
II. GROUP-SPECIFIC CURRICULUM REVIEW PROCESS

Only one team was formed on the first day to review and rate each learning competency in Grades 4 and 6 because the number of the members wasn't enough to form two teams. For the rest of the workshop days, two teams reviewed and rated the learning competencies.

I. LCs including *state, enumerate, or recognize* were classified as *recall or memory*. LCs with the word *differentiate* were classified as analysis of information since it requires comparison. LCs containing describe ways or processes were classified as communicate understanding of science concepts.

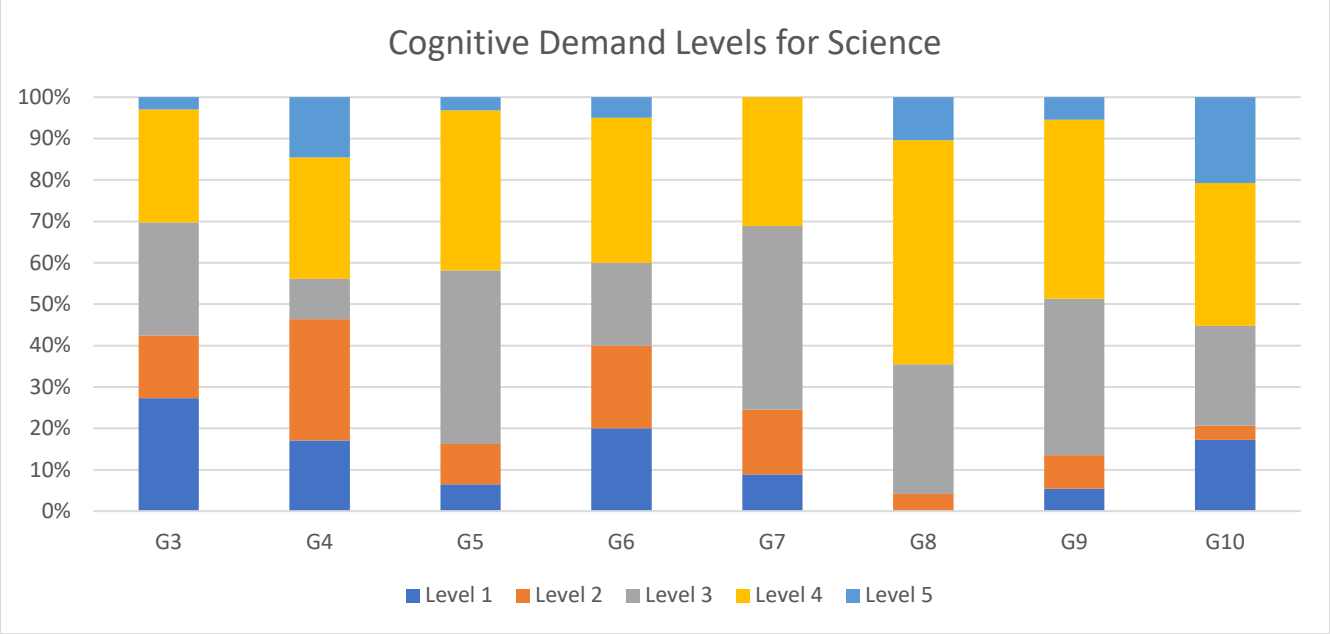
II. LCs with the word explain were weighed first before categorizing. If the goal is to explain interconnectedness, interaction, or "working together" then the LC was classified as analysis. On the other hand, if the goal is to simply explain ways or processes, the LC was classified as communicate understanding of science concepts because the word 'explain' is seemingly equivalent to "discuss".

III. LCs with the word demonstrate were also weighed first before categorizing. If the goal is to execute procedures using appropriate tools or equipment or to investigate and record data, then it is classified as perform procedure. If the goal is to use models and other forms of representation to explain or simulate a concept or process, then it is classified as communicate understanding of science concepts.



III. DISTRIBUTION OF COGNITIVE DEMAND ACROSS GRADE LEVELS

Cognitive Demands	**GRADE LEVELS**							
	G3	G4	G5	G6	G7	G8	G9	G10
Memorize facts	27.30%	17.10%	6.50%	20.00%	8.90%	0.00%	5.40%	17.20%
Perform/ investigate	15.20%	29.30%	9.70%	20.00%	15.60%	4.20%	8.10%	3.40%
Communicate understanding of science concepts	27.30%	9.80%	41.90%	20.00%	44.40%	31.30%	37.80%	24.10%
Analyze information	27.30%	29.30%	38.70%	35.00%	31.10%	54.20%	43.20%	34.50%
Apply concepts	3.00%	14.60%	3.20%	5.00%	0.00%	10.40%	5.40%	20.70%
Total number of Learning Outcomes	33	41	31	20	45	48	37	29



IV. RECOMMENDATIONS

I. All cognitive demand categories must be sufficiently addressed by the curriculum and equitably distributed in each grade level.
II. Task-analysis of Learning Competencies is suggested to establish progression for a specific topic/lesson.
III. Revisit domains to improve alignment and progression of competencies
IV. Revisit domains to address clamor for spiral progression in Science.
V. Decongest content standards and/or learning competencies for particular domains in a level.
VI. In modifying Learning competencies, the following are suggested:

Grade Level/ Topic		
	rties of materials whether they are useful or harmful	

Grade Level/ Topic	Learning Competency	Suggestions
Grade 7 Matter	Recognize that substances are classified into elements and compounds	DIFFERENTIATE elements FROM compounds
Grade 9 Matter	Recognize different types of compounds (ionic or covalent) based on their properties such as melting point, hardness, polarity, and electrical and thermal conductivity	Classify compounds (ionic or covalent) based on their properties such as melting point, hardness, polarity, and electrical and thermal conductivity

APPENDIX E. ARALING PANLIPUNAN (SOCIAL STUDIES)

I. COGNITIVE DEMAND CODES AND DEFINITIONS

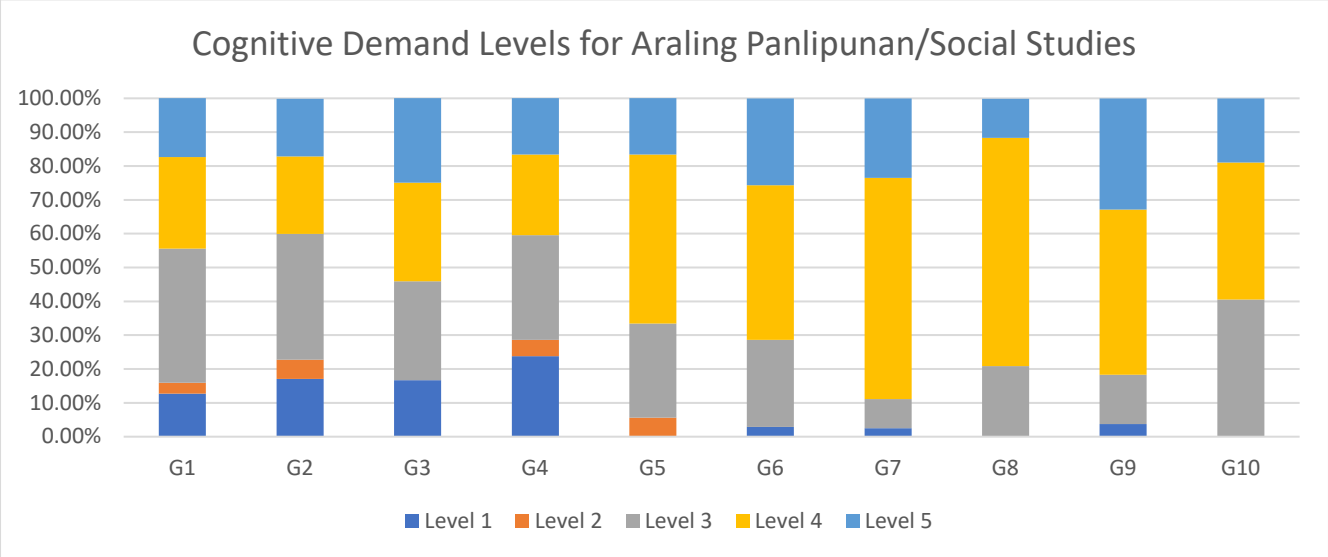
Codes	Working Definitions
Memorise facts/definitions/ formulas	Practice simple recall of information Enumeration of details
Perform procedures/investigate	Indicate the aid of tools such as maps, pictures, globe collect data,
Communicate understanding of concepts	• explain simple concepts or events • describe features and characteristics of events, personalities, political, economic and socio-cultural entities , geographical forms etc. • articulate concepts and ideas using visual and other forms of representations
Analyse information and advance argument	• explain the relationship of concepts or events (factors, causes and effects) • formulate conclusions • make inferences based on given data • compare and contrast concepts and ideas • create projects, models, advocacies etc.
Apply concepts/make connections	• value, appreciate, give significance to ideas and principles worthy of actions • formulate recommendations, suggestions, and proposals • enable the learners to take actions in social issues • apply information in a new situation or real-life situation • make ethical and informed judgments and decisions • demonstrate ways on how to resolve issues relative to social concerns

II. GROUP-SPECIFIC CURRICULUM REVIEW PROCESS

I. The standard categorization process agreed upon by the group members facilitated the identification of the intended learning outcomes and helped the group solve rating differences.
II. Instead of adding an affective demand category, the verb *napahahalagahan* (valuing) was classified under **apply/make connection** cognitive demand.
III. The categorization of the verb nasusuri' [analyze] was based on the articulation of the learning content.

III. DISTRIBUTION OF COGNITIVE DEMAND ACROSS GRADE LEVELS

Cognitive Demands	**GRADE LEVELS**									
	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
Memorise facts/definitions/ formulas	12.7%	17.1%	16.7%	23.8%	0.0%	2.9%	2.5%	0.0%	3.7%	0.0%
Perform procedures/investigate	3.2%	5.7%	0.0%	4.8%	5.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Communicate understanding of concepts	39.7%	37.1%	29.2%	31.0%	27.8%	25.7%	8.6%	20.9%	14.6%	40.5%
Analyse information and advance argument	27.0%	22.9%	29.2%	23.8%	50.0%	45.7%	65.4%	67.4%	48.8%	40.5%
Apply concepts/make connections	17.5%	17.1%	25.0%	16.7%	16.7%	25.7%	23.5%	11.6%	32.9%	19.0%
Total number of Learning Competencies	63	35	48	42	36	35	81	43	82	42



IV. RECOMMENDATIONS

I. Decongest the learning competencies.
II. Standardized the articulation of learning competencies from Grades 1 to 10.
III. Use more general statements in writing the learning competencies especially in the lower grades where the competencies are too specific and objective-like.
IV. Clustered competencies are difficult to categorize. Thus, clustering of competencies should be separated to determine the cognitive demands expected from the learners.
V. Unless a different difficulty level is required, repetition of the same learning competency should be avoided.
VI. Focus on skills development

APPENDIX F. MAPEH

Each subject within MAPEH (Music, Arts, Physical Education and Health) was reviewed separately once a MAPEH-specific review process was decided. This process is described below, followed separately by details for each subject.

GROUP-SPECIFIC CURRICULUM REVIEW PROCESS

I. Instead of dividing the group into two smaller groups, the members were grouped by learning area specialization with two members each except for Arts which has only one member.
II. The two members in each domain rated the learning competencies individually before convening to deliberate and moderate their ratings.

F1. MUSIC

I. COGNITIVE DEMAND CODES AND DEFINITIONS

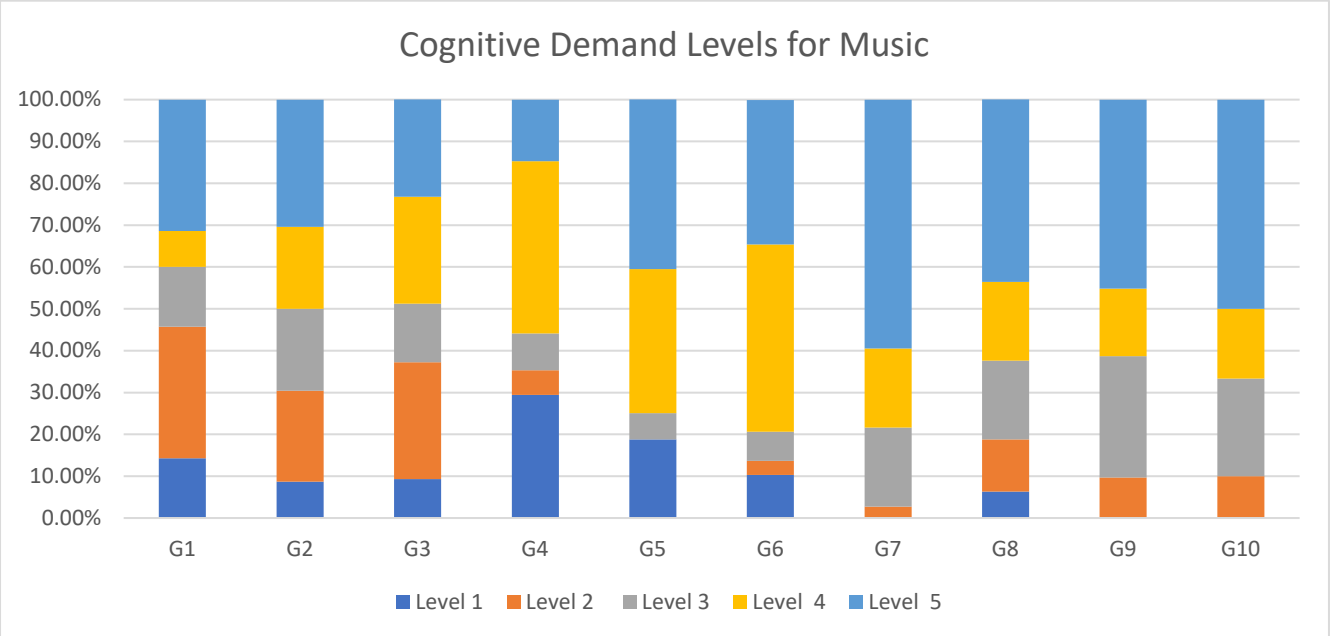
Codes	Working Definitions
Memorize/Recall facts/definitions	Recall basic music facts, terms and definitions
Perform musical procedures / activities	Perform/practice musical procedures and activities (Listening and describing/moving, Singing, Playing instrument / other sound sources, Improvising) that will aid the teaching-learning process
Communicate understanding of concepts	• Describe / narrate / explain musical ideas and experiences • Express musical ideas and experiences through movement and visual representation
Analyze information	• Sort, group, classify and compare musical information • Analyze and recognize patterns and relationships • Apply critical thinking process and strategies
Apply concepts/make connections/integrate to other contexts/create / evaluate	• Create / compose / improvise music • Apply acquired/learned music skills to other context with mastery and expressive qualities • Evaluate music concepts, process and performance

II. TEAM-SPECIFIC CURRICULUM REVIEW PROCESS

I. The Revised Bloom's Taxonomy (Anderson, L.W., and Krathwohl, 2011) was used by the group to get a better grasp of the predetermined cognitive demand categories.
II. The analysis of each cognitive demand was facilitated by the team members' teaching experiences. The verbs and adjectives used in the learning competencies were also taken into consideration by the reviewers.
III. For grades 2,4,6,8, and 10, the Master template was not used. Instead, the moderated ratings were recorded in both the individual templates.

III. DISTRIBUTION OF COGNITIVE DEMAND ACROSS GRADE LEVELS

Cognitive Demands	**GRADE LEVELS**									
	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
Memorize/Recall facts/definitions	14.3%	8.7%	9.3%	29.4%	18.8%	10.3%	0.0%	6.3%	0.0%	0.0%
Perform musical procedures / activities	31.4%	21.7%	27.9%	5.9%	0.0%	3.4%	2.7%	12.5%	9.7%	10.0%
Communicate understanding of concepts	14.3%	19.6%	14.0%	8.8%	6.3%	6.9%	18.9%	18.8%	29.0%	23.3%
Analyze information	8.6%	19.6%	25.6%	41.2%	34.4%	44.8%	18.9%	18.8%	16.1%	16.7%
Apply concepts/make connections/ integrate to other contexts /create / evaluate	31.4%	30.4%	23.3%	14.7%	40.6%	34.5%	59.5%	43.8%	45.2%	50.0%
Total number of learning competencies	35	46	43	34	32	29	37	32	31	30



IV. RECOMMENDATIONS

I. Organize the sequence of content and learning competencies from simple to complex to build on the basic skills/understanding first, before proceeding to the more advanced one.
II. In Grade 6 Consider the competencies relating to communicating understanding to help students reach the higher cognitive levels.

F2. ARTS

I. COGNITIVE DEMAND CODES AND DEFINITIONS

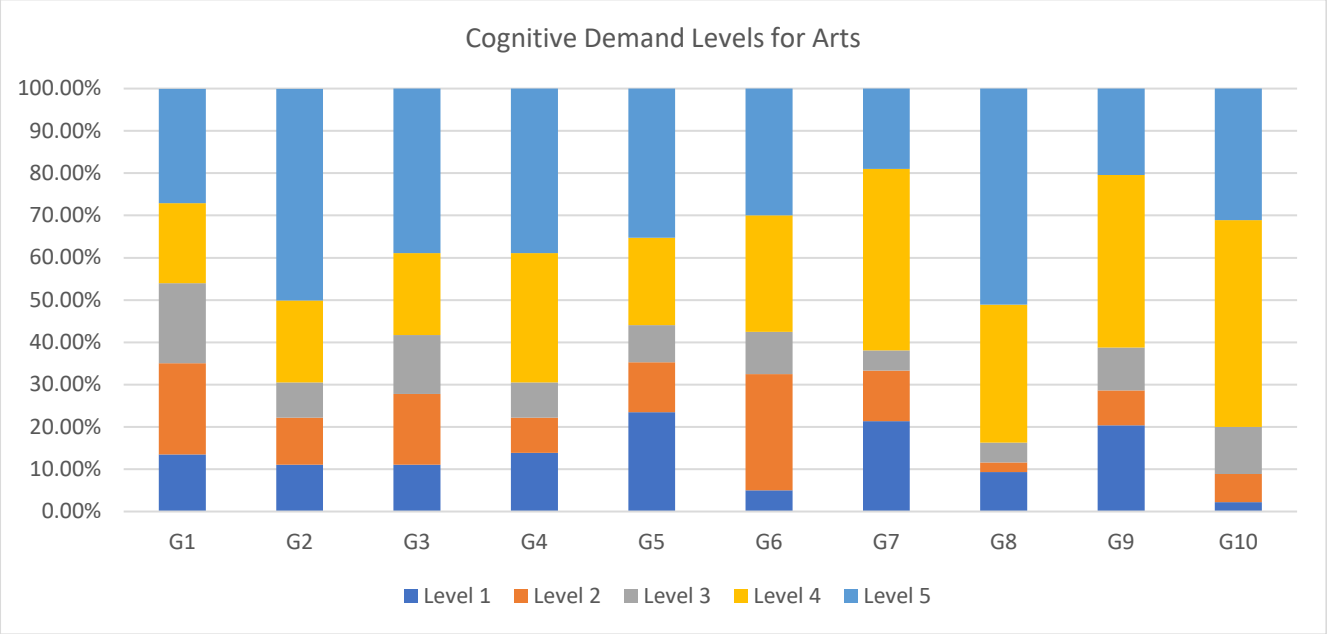
Codes	Working Definitions	Examples of Learning Competencies
Memorize facts/ definitions/formulas	Define, describe, recite, write	Define the different ART FORMS during the Renaissance Period
Create artworks related to and required by the competencies	Compose, construct, predict, propose, change, build	Construct an architectural mural of the antique houses in your community
Communicate understanding of ART concepts, ideas, principles, theories, etc.	Develop, summarize, translate, rephrase,	Develop a creative concept for a poster on Child Pornography
Analyze information and advance arguments relevant and related to Art Studies	Assume, Categorize, Classify, Compare, Conclude, Contrast, Discover	Compare and contrast the artworks of the Filipinos to that of the artworks of the Spaniards
Apply ART concepts/theories and make connections out of them	Build, Choose, Construct, Develop, Experiment with	Experiment on the idea of ART FUSION of the Asian and Western concepts of Architectural designs

II. TEAM-SPECIFIC CURRICULUM REVIEW PROCESS

I. Numerous erroneous competencies were found in the curriculum guide which made the analysis of the cognitive demand categories quite confusing. Judicious judgement on the real intention of the developer of the Curriculum Guide for the Arts had to be done by the specialist.
II. The Cognitive Demand Categories were modified to tailor fit the Content Standards and Performance standards reflected in the Arts Curriculum Guide.
III. One member from BCD rated the learning competencies across grade levels. The other participant, a member of Health subgroup who also teaches Arts, then moderated them. Only the Cog CC sheet in the Master Template was used

III. DISTRIBUTION OF COGNITIVE DEMAND ACROSS GRADE LEVELS

Cognitive Demands	**GRADE LEVELS**									
	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
Memorize facts/ definitions/ formulas	13.5%	11.1%	11.1%	13.9%	23.5%	5.0%	21.4%	9.3%	20.4%	2.2%
Create artworks related to and required by the competencies	21.6%	11.1%	16.7%	8.3%	11.8%	27.5%	11.9%	2.3%	8.2%	6.7%
Communicate understanding of ART concepts, ideas, principles, theories, etc.	18.9%	8.3%	13.9%	8.3%	8.8%	10.0%	4.8%	4.7%	10.2%	11.1%
Analyze information and advance arguments relevant and related to Art Studies	18.9%	19.4%	19.4%	30.6%	20.6%	27.5%	42.9%	32.6%	40.8%	48.9%
Apply ART concepts/theories and make connections out of them	27.0%	50.0%	38.9%	38.9%	35.3%	30.0%	19.0%	51.2%	20.4%	31.1%
Total number of learning competencies	37	36	36	36	34	40	42	43	49	45



IV. RECOMMENDATIONS

I. Revise how the learning competencies are expressed in the curriculum.
II. Collaborate with other reviewers and experts to engage with other perspectives.
III. Consider developmentally appropriate words in writing the learning competencies.
IV. Include in the curriculum Learning Competencies that provide opportunities for learners' fine motor skills development

F3. PHYSICAL EDUCATION

I. COGNITIVE DEMAND CODES AND DEFINITIONS

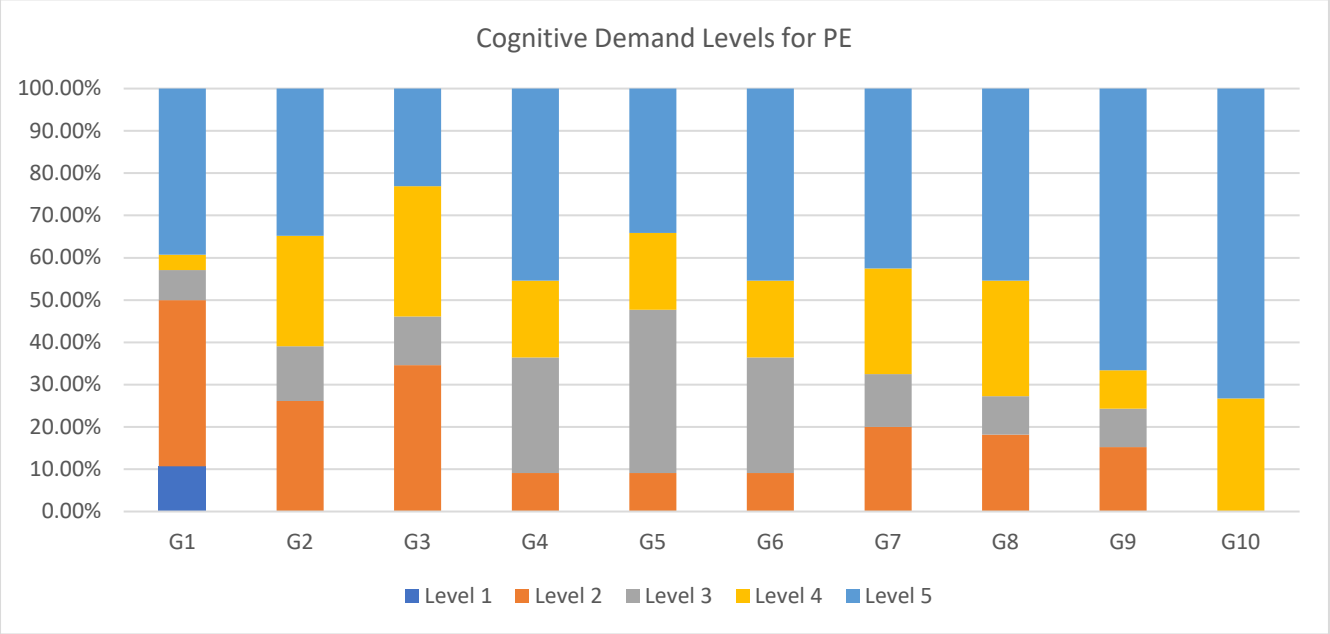
Codes	Working Definitions	Examples of Learning Competencies
Memorise facts/definition/formulas	Students are able to identify the names of the skills taught in physical education, they are able to identify what movement to do when a sport/movement term is given	Identifies locomotor skills. Identifies movement relationships.
Perform procedures/investigates	Students are able to demonstrate the movement properly. They are able to understand how to execute the concepts using their body parts.	Executes the different skills involved in the game. Performs jumping over a stationary object several times in succession, using forward- and-back and side-to-side movement patterns. Demonstrates moving within a group without bumping or falling using locomotors skills Follows simple instructions and rules
Communicate understandings of concepts	Students are able to explain the movements that they are doing. They are able to know and verbalize the step by step procedure of a movement or skill.	Describes the skills involved in the dance. Describes movements in a location, direction, level, pathway and plane. Describes the different parts of the body and their movements through enjoyable physical activities.
Analyze information and advance scientific arguments	Students are able to explore other way of doing things. They are able to apply the concepts in PE in their life. They are able to adapt the values learned in PE in the activities.	Analyzes the effects of media and technology on fitness and physical activity. Distinguishes facts from myths and misinformation associated with eating habits.
Apply	Students are able to apply their physical competence and knowledge to perform in a wide range of activities associated with the development of an active healthy lifestyle.	Performs appropriate first aid for injuries and emergency situations in physical activity and sport settings. Engages in moderate to vigorous physical activities for at least 60 minutes a day in and out of school Expresses a sense of purpose and belongingness by participating in physical activity-related community services and programs

II. TEAM-SPECIFIC CURRICULUM REVIEW PROCESS

Different perspectives, that of a curriculum specialist and a teacher from the field, resulted to differences in learning competency ratings. Consensus was attained and differences in ratings were resolved through good communication.

III. Distribution of Cognitive Demand Across Grade Levels

Cognitive Demands	**GRADE LEVELS**									
	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
Memorise facts/definition/formulas	10.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Perform procedures/ investigates	39.3%	26.1%	34.6%	9.1%	9.1%	9.1%	20.0%	18.2%	15.2%	0.0%
Communicate understandings of concepts	7.1%	13.0%	11.5%	27.3%	38.6%	27.3%	12.5%	9.1%	9.1%	0.0%
Analyze information and advance scientific arguments	3.6%	26.1%	30.8%	18.2%	18.2%	18.2%	25.0%	27.3%	9.1%	26.7%
Apply concepts/ make connections	39.3%	34.8%	23.1%	45.5%	34.1%	45.5%	42.5%	45.5%	66.7%	73.3%
Total number of learning competencies	28	23	26	44	44	44	40	44	33	30



IV. RECOMMENDATIONS

I. More learning competencies on performance tasks should be included in the curriculum to help learners acquire and develop movement competency.
II. Understanding of movement concepts and skills in the lower levels should be reinforced since this is important in the preparation for performing a variety of physical activities.
III. The action verbs used should be appropriate and within the developmental stage of the learner.
IV. Higher grade levels should still address the first three cognitive demand categories instead of focusing only on analysis and application.

F4. HEALTH

I. COGNITIVE DEMAND CODES AND DEFINITIONS

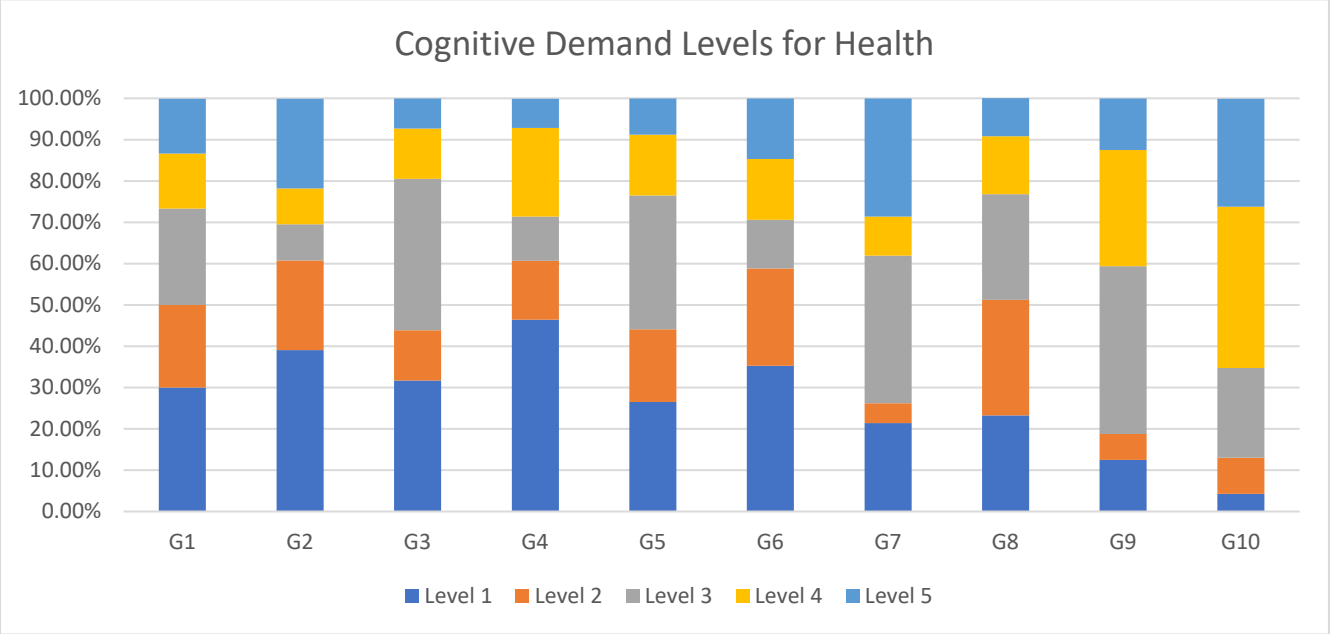
Codes	Working Definitions	Examples of Learning Competencies
Memorize facts/definitions/terminologies	• Recapitulation of facts, information and health concepts • Definition of terms • Enumerate data and facts • Identify appropriate examples • Groups according to classification and types	*Identifies appropriate resources and people who can help in dealing with mental, emotional and social, health concerns.*
Perform concepts	• Demonstrate basic health concept and procedures • Make conclusions based on facts • Follow basic guide for healthful living • Apply procedural tasks (specifically on the health areas such as First Aid, Safety Prevention and Disease Control)	*Demonstrate the conduct of primary and secondary survey of the victim (CAB)*
Communicate understanding of health concepts	• Explain personal stand on certain health related issues and concerns • Express opinion on health related issues and concerns • Recommend healthful options • Suggest healthful alternatives • Discuss trends, issues and concerns in health objectively	*Explain the health, socio-cultural, psychological, legal, and economic dimensions of substance use and abuse*
Analyze health information, products, and services	• Compare and contrast health concepts • Differentiate health myths and facts • Formulates conclusions based on health research findings • Discern pros and cons on various health related issues and concerns • Interpret statistical data (epidemiological, mortality and morbidity, accident etc.) • Create personal plan to preserve, promote and protect one's health • Recognize threats and red flags to health and healthful living	*Analyzes the risk factors related to intentional injuries*
Apply life skills for health	• Perform health skills-based education • Practice desirable health habits • Adopt healthful lifestyles • Advocate for lifelong health and wellness • Exhibit sound decision making skills • Participate in health campaigns	*Participates in programs for consumer welfare and protection*

II. TEAM-SPECIFIC CURRICULUM REVIEW PROCESS

In order to understand the development of the lessons and health concepts, a review of the curriculum guide for grades 1-3 were made prior to the individual evaluation of the learning competencies. The same process was done for grades 7-10.

III. DISTRIBUTION OF COGNITIVE DEMANDS ACROSS GRADE LEVELS

Cognitive Demands	**GRADE LEVELS**									
	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
Memorize facts/definit-ions/termin-ologies	30.0%	39.1%	31.7%	46.4%	26.5%	35.3%	21.4%	23.3%	12.5%	4.3%
Perform concepts	20.0%	21.7%	12.2%	14.3%	17.6%	23.5%	4.8%	27.9%	6.3%	8.7%
Communicate understanding of health concepts	23.3%	8.7%	36.6%	10.7%	32.4%	11.8%	35.7%	25.6%	40.6%	21.7%
Analyze health information, products, and services	13.3%	8.7%	12.2%	21.4%	14.7%	14.7%	9.5%	14.0%	28.1%	39.1%
Apply life skills for health	13.3%	21.7%	7.3%	7.1%	8.8%	14.7%	28.6%	9.3%	12.5%	26.1%
Total number of learning competencies	30	23	41	28	34	34	42	43	32	23



IV. RECOMMENDATIONS

I. Repeated/redundant learning competencies in the primary level should be removed.
II. Learning Competencies in different Health content areas should be preventive and outcomes-based and not merely dependent on recall and memorization.
III. More competencies that focus on life skills development should be incorporated in the primary grades' curriculum.
IV. More competencies that allow for application of learned concepts in the content area Prevention, and Control in Grades 4-6 should be added in the curriculum.
V. The alignment of the Learning Competencies with the framework of the K-12 Basic Education Curriculum for Health Education should be checked and ensured.
VI. Curriculum review/workshop sessions to further study and evaluate the curriculum should be conducted.

APPENDIX G. EPP/TLE

I. COGNITIVE DEMAND CODES AND DEFINITIONS

Codes	Working Definitions
Memorise facts/definitions/ formulas	Learners are able to name, list, identify, describe, select, recognize tools, equipment, materials used in AFA, ICT, HE, IA.
Perform procedures/investigate	• Learners are able to use tools, material, equipment, supplies in AFA,IA,HE,ICT. • Learners are able to make projects/products relative to AFA, IA, HE, ICT. • Learners are able to prepare reports, materials, supplies, equipment used in AFA,IA,HE,ICT. • Learners are able to check conditions of tools, materials and equipment in AFA,IA,HE, ICT. • Learners are able to execute, show, demonstrate steps in making a project in AFA,IA,HE,ICT. • Learners are able to draw, lay-out, plans for AFA,IA,HE,ICT. • Learners are able to fix, arrange tools and equipment • Learners are able to maintain, follow safety rules in AFA,IA,HE, ICT. • Learners are able to search documents, materials, and supplies used for project making in AFA,IA, HE, ICT.
Communicate understanding of concepts in EPP/TLE/TVL	• Learners are able to explain, discuss concepts, facts relative to AFA,IA,HE,ICT. Learners are able to participate, consult, communicate information, data, facts, researches relative to AFA,IA,HE,ICT. • Learners are able to write, edit and revise, post and share documents relative to AFA,IA,HE,ICT.
Analyse information and scientific argument	Learners are able to conduct research, examine, analyse information, data, facts relative to AFA,IA,HE,ICT. *(The term "Natutukoy" can fall under this criteria depending on the context it was used. E.g. natutukoy ang mga oportunidad na maaaring mapagkakitaan (products and services) sa tahanan at pamayanan)*
Apply concepts/make connections	Learners are to apply knowledge and skills in the context of a culminating activity for any of the EPP/TLE component.eg. *(recycles the identified products/waste material into functional items (binding of used paper into notebook or memo pad; bottled plastic into lampshades, flowers, plants; etc.)*

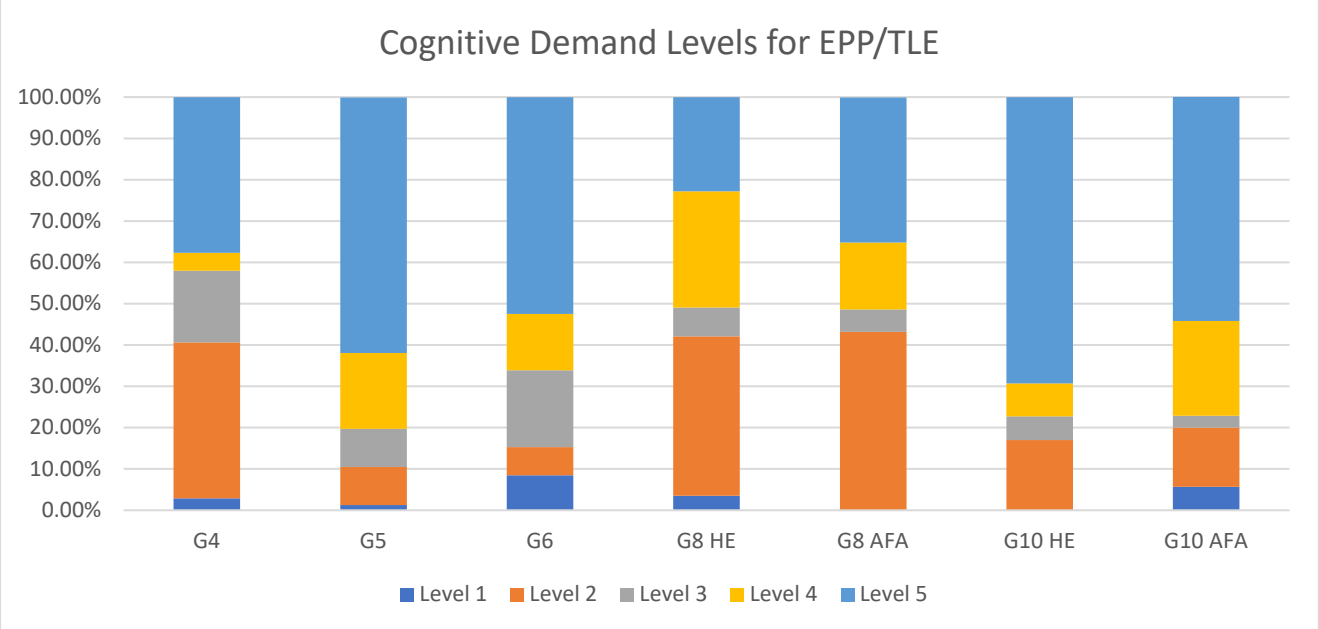
II. GROUP-SPECIFIC CURRICULUM REVIEW PROCESS

I. Prior to classifying the learning competencies, the difference between the predetermined cognitive demand categories *Perform* and *Apply* was clarified with the workshop facilitators.

II. The third cognitive demand category, communicate understanding of Science concepts, was modified to fit into the subject EPP.

III. DISTRIBUTION OF COGNITIVE DEMANDS ACROSS GRADE LEVELS

Cognitive Demands	**GRADE LEVELS**						
	G4	G5	G6	G8 TLE-HE	G8 TLE-AFA	G10 TLE-HE	G10 TLE-AFA
Memorise facts/definitions/ formulas	2.9%	1.3%	8.5%	3.5%	0.0%	0.0%	5.7%
Perform procedures/investigate	37.7%	9.2%	6.8%	38.6%	43.2%	17.0%	14.3%
Communicate understanding of concepts in EPP/TLE/TVL	17.4%	9.2%	18.6%	7.0%	5.4%	5.7%	2.9%
Analyse information and scientific argument	4.3%	18.4%	13.6%	28.1%	16.2%	8.0%	22.9%
Apply concepts/make connections	37.7%	61.8%	52.5%	22.8%	35.1%	69.3%	54.3%
Total number of learning competencies	69	76	58	57	37	88	35



IV. RECOMMENDATIONS

I. Personal Entrepreneurial Competencies (PECs) were repeated in all the courses but differed in the contexts depending on the specialization. So, it is suggested this may be discussed once.

II. Clustering of competencies must be avoided because the varying degree of focus or difficulty level of each competency makes it difficult to determine the cognitive demand it requires.

APPENDIX H. ESP (VALUES EDUCATION)

I. COGNITIVE DEMAND CODES AND DEFINITIONS

Codes	Working Definitions	Examples of Learning Competencies
Memorize facts	Recall basic facts	Nakatutukoy ng mga karapatang maaaring ibigay ng mag-anak (G2, Q3) *Identifies his/her rights inherent in the family*
	Recall terms and definitions	Nakikilala ang pagkakaiba at pagkakaugnay ng birtud at pagpapahalaga (G7, Q3) *Identify the difference between virtue and value and the relationship between the two*
Communicate understanding of concepts	Explain concepts	Nakapagpapahayag na tungo sa pagkakaisa ang pagsasama-sama ng pamilya (G1, Q1) *Explains that togetherness (warm fellowship) in the family fosters unity (G1, Q1)* Naipaliliwanag na ang pagpapaunlad ng mga hilig ay makatutulong sa pagtupad ng mga tungkulin, paghahanda tungo sa pagpili ng propesyon, kursong akademiko o teknikal-bokasyonal, negosyo o hanapbuhay, pagtulong sa kapwa at paglilingkod sa pamayanan (G7,Q1) *Explains that improving one's interests enables one to fulfill one's responsibilities, prepares him/her in the choice of a profession, academic or technical-vocational course, business or work, enables him/her to help others and serve the community (G7,Q1)*
	Observe and explain actions/inferences	Napatutunayan na di nakukuha sa kasakiman ang pangangailangan: pagiging vigilant sa mga illegal na gawaing nakasisira sa kapaligiran (G5,Q3) *Proves (Gives reasons) that needs cannot be met through greed: for example, being vigilant with regard to illegal activities concerning the environment (G5,Q3*)
Communicate understanding of concepts	Model and simulate concepts/processes	Natataya ang pag-iral o kawalan sa pamilya, paaralan, baranggay, pamayanan, o lipunan/bansa ng: a. Prinsipyo ng Subsidiarity b. Prinsipyo ng Pagkakaisa (G9, Q2) *Evaluates the presence of economic society in a barangay/community, society/country through a documentary or photo/video journal (hal.YouScoop) (G9, Q2)*

Codes	Working Definitions	Examples of Learning Competencies
	Represent observations, procedures and ideas using diagrams/visual representations	Nakatataya ng lipunang ekonomiya sa isang baranggay/pamayanan, at lipunan/bansa gamit ang dokumentaryo o photo/video journal (hal.YouScoop) (G9, Q2) *Evaluates the presence of economic society in a barangay/community, society/country through a documentary or photo/video journal (hal.YouScoop) (G9, Q2)*
Perform procedures/investigation	**NOT EVIDENT AND APPLICABLE**	
Analyze information and advance arguments	Sort, group, classify, compare data	Nakikilala ang iba't ibang gawain/paraan na maaaring makasama o makakabuti sa kalusugan (G1,Q1) *Identifies the different activities/ways that are good or bad to health (G1,Q1)*
	Analyze data, recognize patterrns and relationships (including cause-effect)	Natutukoy ang kaugnayan ng pagpapaunlad ng mga hilig sa pagpili ng kursong akademiko o teknikal-bokasyonal, negosyo o hanapbuhay (G7, Q1) *Identifies the connection between improving on one's interests to the choice of academic or technical-vocational course, business or work (G7, Q1)*
Analyze information and advance arguments	Choose the investigation type that suits the problem	Natutukoy ang mga gawain o karanasan sa sariling pamilya na kapupulutan ng aral o may positibong impluwensya sa sarili (G8, Q1) *Identifies the activities or experiences in one's family that influence him/her positively or where moral lessons can be inferred (G8, Q1)*
	Design investigations	Nasusuri ang mga kilos na nagpapakita ng maingat na paghuhusga (G10, Q3) *Analyzes actions that demonstrate prudence or careful judgment (G10, Q3)*
	Draw conclusions and justify ideas based on evidence	*Natutukoy ang mga aspekto ng sarili kung saan kulang siya ng tiwala sa sarili at nakikilala ang mga paraan kung paano* lalampasan ang mga ito (G7, Q1) *Identifies aspects of one's self where he/she lacks sel-confidence and ways to overcome these (G7, Q1)*

Codes	Working Definitions	Examples of Learning Competencies
	Apply critical thinking processes and strategies	Nasusuri ang: a. pagkakaiba-iba ng mga henerasyon sa pananaw sa teknolohiya at b. ang implikasyon ng pagkakaroon at di pagkakaroon ng access sa teknolohiya (G8, Q4) *Analyzes the difference among the generations on their perspectives on technology and the implications of the presence or absence of technology (G8, Q4)*
	Use and integrate concepts	Naisasagawa ang isang gawaing angkop sa panlipunan at pampulitikal na papel ng pamilya (G8, Q1) *Carries out an action relevant to the societal and political role of the family (G8, Q1)*
Apply concepts/make connections	Evaluate and question claims and arguments	Nakapagsusuri ng sariling kilos na dapat panagutan at nakagagawa ng paraan upang maging mapanagutan sa pagkilos (G10, Q2) *Analyzes one's actions that he/she must be accountable and works on ways to be responsible to the consequences of these actions (G10, Q2)*
	Make ethical judgements	Nahuhusgahan ang angkop na kilos o tugon sa mga sitwasiyong kailangan ang mapanuring pag-iisip bilang pagpapakita ng pagmamahal sa bayan (G10, Q3) *Evaluates the appropriate actions or responses to situations that require critical thinking as a way of showing one's love of country (G10, Q3)*
	Apply and adapt evidence-based information to real-world situations	Naisasagawa ang paglalapat ng mga tiyak na hakbang upang mapataas ang antas ng kaniyang mga pagpapahalaga (G7, Q3) *Carries out appropriate actions to increase the stage of his/her values based on the hierarchy of values (G7, Q3)*
	Make informed and responsible personal, social, technological and environmental decisions	Natutukoy ang kanyang mga paghahandang gagawin upang makamit ang piniling kursong akademiko, teknikal-bokasyonal, sining at palakasan o negosyo (hal., pagkuha ng impormasyon at pag-unawa sa mga tracks sa Senior High School) (G9, Q4) *Identifies concrete preparations to ensure congruence of one's talents, abilities and values to the academic course or technical-vocational, arts or sports track, business that he/she will pursue in Senior High School (G9, Q4)*

Codes	Working Definitions	Examples of Learning Competencies
	Build or revise principles and generalizations	Nahihinuha na ang pagbuo ng Personal na Pahayag ng Misyon sa Buhay ay gabay sa tamang pagpapasiya upang magkaroon ng tamang direksyon sa buhay at matupad ang mga pangarap (G7, Q4) *Infers that the formulation of one's Personal Mission Statement is a guide to decision making in order to have a good direction in life and achieve one's dreams (G7, Q4)*
	Apply ethical decisions	Naisasagawa ang paglalapat ng mga tiyak na hakbang upang mapataas ang antas ng kaniyang mga pagpapahalaga (G7, Q3) *Carries out concrete steps towards improving the levels of his/her values based on the hierarchy of values (G7, Q3)*
	Apply findings/conclusions from own investigations to other contexts	Nakabubuo ng sintesis tungkol sa kabutihang naidudulot ng paggawa gamit ang panayam sa mga manggagawang kumakatawan sa taong nangangailangan (marginalized) na nasa iba't ibang kurso o trabahong teknikal-bokasyonal (G9, Q2) *Create synthesis about the good resulting from work based on an interview conducted with a worker from a marginalized group representing different courses or technical-vocational tracks (G9, Q2)* Naisasagawa ang mga angkop na kilos upang mapaunlad ang pakikipagkaibigan (hal.: pagpapatawad) (G8, Q2) *Implements appropriate actions on improving one;s friendships (G8, Q2)*
	Apply creative thinking processes and strategies	Naisasagawa ang mga angkop na kilos upang mapaunlad ang kakayahang maging mapanagutang lider at tagasunod (G8, Q2) *Implements appropriate actions on improving one's leadership and followership abilities (G8, Q2)*
	Generate courses of actions that have potential for change	Natataya ang sariling kakayahan sa pamamahala sa oras batay sa pagsasagawa ng mga gawain na nasa kanyang iskedyul ng mga gawain (G9, Q3) *Evaluates one's ability in time management based on the result of implantaTable tion of his/her schedule of activities (G9, Q3)*

II. AFFECTIVE DEMAND CODES AND DEFINITIONS (KRATHWOHL, D. R., BLOOM, B., & MASIA, B. ,1964)

Codes	Working Definitions	Examples of Learning Competencies
Receiving	A learner who is willing to receive or listen to new information and ideas but has not made decisions about the worth of the information.	To : differentiate, accept, listen to, respond to
Responding	A learner who is actively participating in and interacting with the new information or procedures without necessarily agreeing or endorsing them. This could be described as compliance.	To: comply with, follow, commend, volunteer, spend leisure time, acclaim
Valuing	A learner who is able to see the worth of new information and procedures.	To: increase measured proficiency in, subsidize, support, debate
Organization	A learner who is incorporating new information and procedures into their existing schema. New information and procedures can be implemented with understanding in a regular and effective manner.	To: discuss, theorize, formulate, balance, examine, consider/accommodate/integrate
Characterisation (by value set)	A learner who behaves consistently with the new information and procedures and can advocate for them.	To: revise, require. Be rated high in the value, avoid, resist, resolve, advocate, influence, lead

III. GROUP-SPECIFIC CURRICULUM REVIEW PROCESS

I. Due to the nature of the subject, Affective Demand categories were added to the template.
II. Materials on the affective domain from ACTRC guided the review process on the affective content of the LCs. These were complemented by the online literature search of the EsP team.
III. Careful understanding of the intent of each Learning Competency, particularly the Cognitive and Affective content was observed prior to determining the category where each belongs.
IV. One grade level was reviewed by each team. The findings (ratings) in both grade levels were then discussed and moderated together by the teams.
V. Synergy was achieved among the EsP team members as inspired by the probing questions posed by Mr. Mark Bercando, the team leader.

IV. COGNITIVE DEMANDS ACROSS GRADE LEVELS

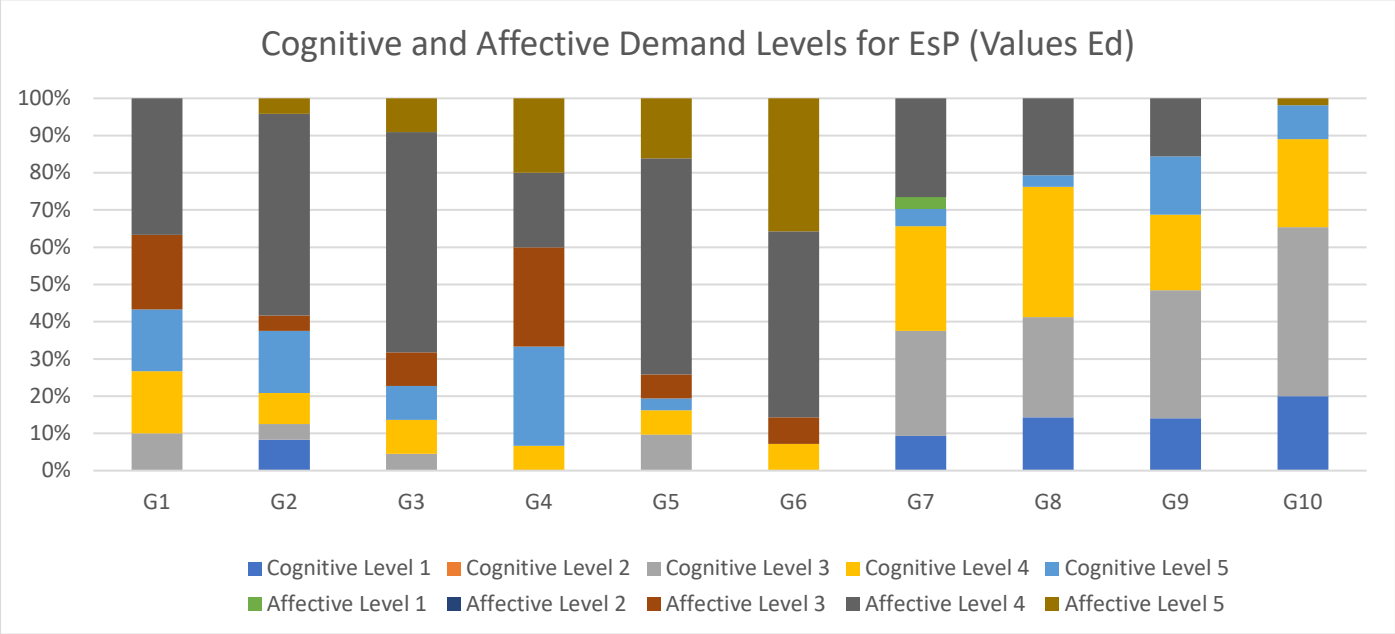
Cognitive Demands	**GRADE LEVELS**									
	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
Memorize facts	0.0%	8.3%	0.0%	0.0%	0.0%	0.0%	9.4%	14.3%	14.1%	17.2%
Communicate understanding of concepts	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Perform procedures/investigation	10.0%	4.2%	4.5%	0.0%	9.7%	0.0%	28.1%	27.0%	34.4%	39.1%
Analyze information and advance arguments	16.7%	8.3%	9.1%	6.7%	6.5%	7.1%	28.1%	34.9%	20.3%	20.3%
Apply concepts/make connections	16.7%	16.7%	9.1%	26.7%	3.2%	0.0%	4.7%	3.2%	15.6%	7.8%

V. AFFECTIVE DEMAND ACROSS GRADE LEVELS

Affective Demands	**GRADE LEVELS**									
	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
Receiving	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.1%	0.0%	0.0%	0.0%
Responding	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Valuing	20.0%	4.2%	9.1%	26.7%	6.5%	7.1%	0.0%	0.0%	0.0%	0.0%
Organization	36.7%	54.2%	59.1%	20.0%	58.1%	50.0%	26.6%	20.6%	15.6%	14.1%
Characterisation	0.0%	4.2%	9.1%	20.0%	16.1%	35.7%	0.0%	0.0%	0.0%	1.6%

VI. LEARNING OUTCOME COUNT PER GRADE

	GRADE LEVELS									
	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10
Learning outcome Count	30	24	22	15	31	14	64	63	64	64



VII. RECOMMENDATIONS

I. There is a need to revise the Learning Competencies gearing towards Characterization level because of the nature of the learning area.

II. Equitable distribution of Learning Competencies across categories of cognitive demands and affective demands shall be carefully ensured based on the context and nature of the subject.

III. In Grades 1 to 6, there is a need to develop conceptual understanding first before skills in applying these in concrete real-life situations. Sadly, most of the LCs are activity-based, not on developing concepts.

IV. There is a need to revise the learning competencies in Grades 4 and 6 and align them to the Learning Competencies in Junior High School.

V. The inclusion of learning competencies in the curriculum that makes learners generate questions, make predictions, and infer from data should be considered.

VI. The need to strengthen Learning Competencies on the affective domain is critical given the nature of Edukasyon sa Pagpapakatao.

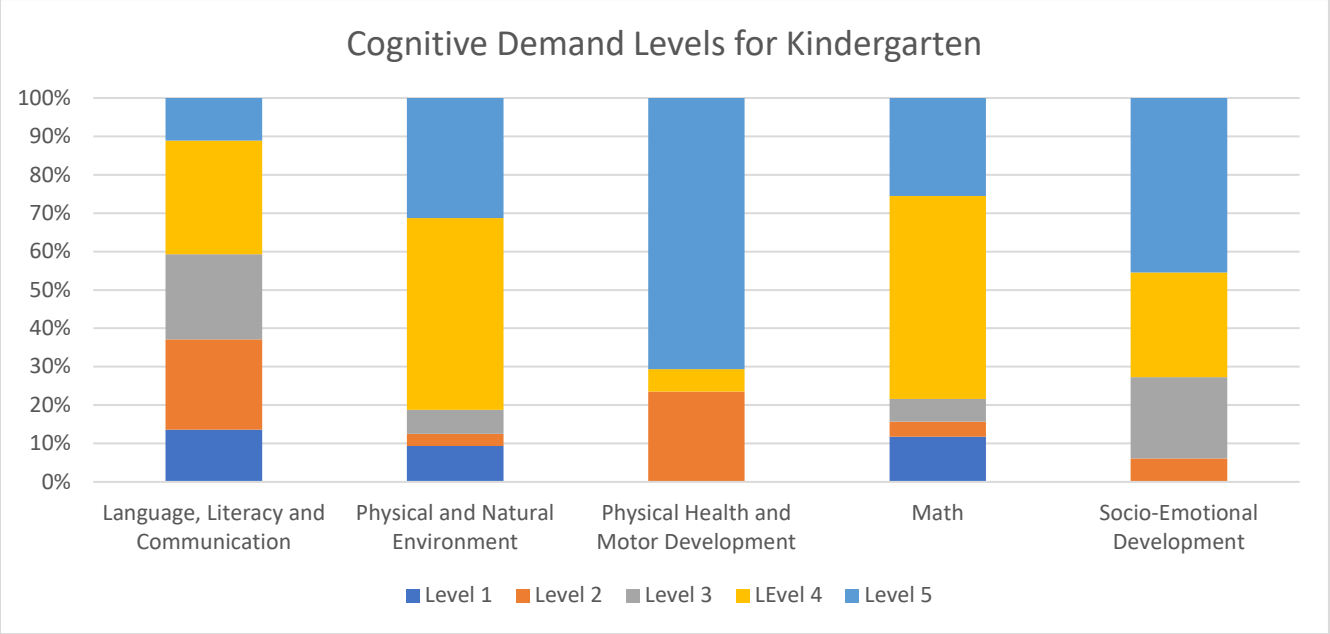
APPENDIX I. KINDERGARTEN

I. COGNITIVE DEMAND CODES AND DEFINITIONS

Codes	Working Definitions
Memorise	• Recall/remember basic facts • Recognize/Identify common information
Perform	• Demonstrate understanding of facts • Make observations • Collect data • Make measurements • Execute 1-2 step procedures
Communicate	• Retell basic facts • Explain simple concepts • Observe and explain demonstrations • Organize and display own understanding of concept/s • Simulate simple concepts/ processes
Analyse	• Sort, group, classify, and compare data • Analyze data and recognize patterns and relationships (including cause-and-effect) • Generate questions • Make predictions • Compare observations with predictions • Infer from data • Draw conclusions and justify ideas based on evidence • Apply critical thinking processes • Do simple computations
Apply concepts/make connections	• Use and integrate concepts and language • Evaluate and comment on processes and findings • Evaluate and debate claims and arguments • Make ethical judgments • Apply and adapt information to real-world situations • Make informed and responsible decisions • Apply creative thinking processes and strategies • Respond to a given topic through dramatization, songs, or art activities • Participate actively by making comments and asking questions using complete sentences. • Relate one's own experience and ideas to the topic using a variety of words with proper phrasing and intonation • Answer with fluency and accuracy

II. COGNITIVE DEMANDS ACROSS GRADE LEVELS

Cognitive Demands	GRADE LEVELS				
	Language, Literacy and Communi-cation	Physical and Natural Environment	Physical Health and Motor Development	Math	Socio-Emotional Development
Memorize	13.6%	9.4%	0.0%	11.5%	0.0%
Perform	23.5%	3.1%	23.5%	5.8%	5.9%
Communicate	22.2%	6.3%	0.0%	5.8%	20.6%
Analyse	29.6%	50.0%	5.9%	51.9%	29.4%
Apply concepts/make connections	11.1%	31.3%	70.6%	25.0%	44.1%
Total number of Learning Competencies	81	32	17	52	34



III. RECOMMENDATIONS

I. Include Affective Domain for the Kindergarten competencies.
II. Most of the competencies were too complicated for Kindergarten pupils. Most of the competencies fall under the Analyzing Information and Applying Concepts which we find too difficult for the learners if we really wanted to apply the strategy learning through play, if possible it should fall under performance and communicate.
III. Arrange the competencies from simple to complex.
IV. Lessen the number of learning competencies per quarter to make it attainable.

APPENDIX J. CATEGORIZATION EXAMPLES FROM USA COMMON CORE CURRICULUM

Cognitive Demand	USA Common Core Mathematics Curriculum	USA Common Core English Language Arts and Reading
Level 1	*Memorize* • Recall basic mathematics facts • Recall mathematics terms and definitions • Recall formulas and computational processes	*Memorize, recall* • Reproduce sounds or words • Provide facts, terms definitions, conventions • Locate literal answers in text • Identify relevant information • Describe
Level 2	*Perform procedures* • Use numbers to count, order, or denote • Do computational procedures or algorithms • Follow procedures/instructions • Make measurements, do computations • Solve equations/formulas, routine word problems • Organize or display data • Read or produce graphs and tables • Execute geometric constructions	*Perform procedures, explain* • Follow instructions • Give examples • Check consistency • Summarize • Identify purpose, main ideas, organizational patterns • Gather information
Level 3	*Demonstrate understanding* • Communicate new mathematical ideas • Use representations to model mathematical ideas • Explain findings and results from data analysis • Develop/explain relationships between concepts • Explain relationship between models, diagrams, and other representations	*Generate, create, demonstrate* • Create/develop connections among text, self, world • Recognize relationships • Dramatize • Order, group, outline, organize ideas • Express new ideas (or express old ideas in new ways) • Develop reasonable alternatives • Integrate with other topics and subjects
Level 4	*Conjecture, generalize, prove* • Determine the truth of a mathematical pattern or proposition • Write formal or informal proofs • Analyze data • Find a mathematical rule to generate a pattern or number sequence • Reason inductively or deductively • Use spatial reasoning	*Analyze, investigate* • Categorize/schematize information • Distinguish fact and opinion • Compare and contrast • Identify with another's point of view • Make inferences, draw conclusions • Predict probable consequences
Level 5	*Solve nonroutine problems, make connections* • Apply and adapt a variety of appropriate strategies to solve problems • Apply mathematics in contexts outside mathematics • Recognize, generate or create patterns • Synthesize content and ideas from several sources	*Evaluate* • Determine relevance, coherence, internal consistency, logic • Assess adequacy, appropriateness, credibility • Test conclusions, hypotheses • Synthesize content and ideas from several sources • Generalize • Critique

ACTRC is a partnership between the University of Melbourne and the University of the Philippines, supported by the Australian Government