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# Foreword

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The Social and Human Sciences Committee of UNESCO National Commission of the Philippines (UNACOM) studies and seeks to catalyze positive social transformation. After having reviewed the social studies curriculum for grade school and high school students in the Philippines, the Committee initiated this review of the health curriculum prescribed for elementary graders.

Makabayan is the entry point for social sciences. In the Philippines, it currently includes a wide scope of age-appropriate representation from areas of social sciences such as economics, history, geography, civics and governance, as well as the non-social studies areas of Filipino grammar and literature, technology, home economics, livelihood studies, music and other arts, physical education, health education, and values education. Makabayan's multi-disciplinary mix inherently demands the integration of attitudes, behaviors, and skills within its sub-disciplines, as well as with the other subjects taught in school.

Currently elementary pupils learn about health principally in their science subject. But the need for complementation between Science and Health with Makabayan is crucial for positive individual wellness, community progress, national development, and global social stability.

The basic human needs advocated by United Nations Development Program (UNDP) and likewise of concern to scientists are: (1) physical survival and health in a safe and peaceful environment; (2) level of knowledge and understanding of one's natural, social, and cultural environments; (3) livelihood and income, including the capacity to be productive and contribute meaningfully to society; and (4) political freedom and the right to participate in social decisions. Some humanists suggest spiritual well-being as a fifth requisite.

To address those human needs, positive attitudes and basic habits for good health care must be introduced and made habit early in the minds and hearts of a people. Without health orientation that is preventive, considerate, self-empowering, mutually responsible, and rational, a community's progress is hampered. Citizenship and national health are clearly intertwined. A citizenry that seeks to sustain good health will recognize the value of conserving the physical surrounding and the inter-related emotional environment that are necessary for full human development if a society is to become capable of coping with newness and confident it can successfully deal with the challenges of change.

Studies such as this one and those that brought it about have teamed concerned and dedicated scientists, social advocates, humanists, communicators, and educators who acknowledge their responsibility to aid the Department of Education of the Philippines and the United Nations in their quests for respect and care of the human condition, side by side with their advocacies of lifelong learning. It is hoped that this initial report can prioritize the need to bring Filipino students, teachers, textbook writers, and curriculum planners up to date with holistic understandings of wellness that include not only an awareness of pathogens but the social and psychological causes of illness, the role of nutrition, and the absolute need to remain open-minded about the dynamic scientific discoveries being made during the early 21<sup>st</sup> century.

Felice Sta. Maria

Chair

UNACOM Social and Human Sciences Committee

For a detailed list of the errors and suggested revisions, please email [meahsee@yahoo.com](mailto:meahsee@yahoo.com) or write to Carmelea Ang See at 32 Anda corner Cabildo Streets, Intramuros, Manila 1002

# Acronyms

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BEC	Basic Education Curriculum
DepEd	Department of Education
NISMED	National Institute for Science and Mathematics Education
TM	Teacher's manuals
S & H	Science and Health
SRA	Social Reform Agenda
UNACOM	UNESCO National Commission of the Philippines
UNESCO	United Nations Educational, Scientific and Cultural Organization
UPIS	University of the Philippines Integrated School
WHO	World Health Organization

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# CHAPTER 1

## Introduction

One of the most important goals facing the Philippines is the improvement of public education especially basic education. Perennial problems of the Department of Education such as the lack of school buildings and classrooms, the diaspora of teachers seeking more lucrative jobs abroad, shortage of textbooks, among others, have been brought to the fore lately and given due attention by both the public and private sectors.

On the aspect of textbooks supply alone, the statistics are indeed appalling. In school year 1999-2000, the ratio was six pupils per textbook in the better-endowed school districts; and 10 pupils per textbook in the poorest districts. The concern on the quality of the current textbooks being used in Philippine public schools therefore compounds the dire need of more textbooks to be made available to these schools.

At present, all too few students acquire the knowledge and skills required to make informed decisions - be it socio-political, economic or civic. One area of education where illiteracy is more acute is science. Lately there has been a growing clamor to assess science content particularly health and nutrition. Emerging challenges for promotive, preventive, curative and rehabilitative health require students to become better informed about a holistic approach to positive development and well-being.

Health is not relatively new as an addition to the science curriculum in elementary and secondary schools. It has been integrated in other subjects, such as English in the lower grade levels under the present Basic Education Curriculum. Health, which also emphasizes a more detailed inclusion of Nutrition as a subject matter, is a complex and multidisciplinary subject by itself. It combines bodies of knowledge and topics such as Environmental and Physical Science, Biology and Chemistry, Sociology, Basic Medicine and its related subspecialties (such as Anatomy and Physiology) and even Economics. It is also a complicated and dynamic subject; researches in health and nutrition are rapidly advancing and there are still many areas of scientific uncertainty.

Textbooks serve as the foundation of classroom instruction; hence, the selection and inclusion of accurate, factual, and up-to-date health content in public school textbooks are foremost and essential. Periodic reviews have been conducted to assess the textbooks and assist the DepEd, and even private schools, to make

informed decisions and choices about significant textbook selection.

In mid-2004, UNESCO Philippines Commissioner Felice P. Sta. Maria commissioned the National Institutes of Health through Dr. Jaime Z. Galvez Tan to form a team to review the general health content of textbooks in public elementary schools. This was brought about by a growing public concern about what in-school children are taught about health [Refer to Appendices A & B].

Public concern is justified, according to recent events and reports. A group of selected educators had conducted a review to evaluate the Human and Social Sciences content of the current textbooks used in high schools and published a well-received documentation of their valuable and critical findings. Popular news media also took note of the numerous and significant findings of a review on a social studies textbook being used in Philippine high schools and disseminated these findings, which triggered public discussions. The public attention that was generated was also instrumental in getting policy makers as well as decision makers to thoroughly discuss some measures to revise and improve the textbooks' contents.

The previous reports reveal that the textbook materials about the social sciences generally focused more on controversial issues, contain insufficient scientific facts or factual inaccuracies, omit or are deficient in citations, ignore uncertainties associated with scientific findings, lack objectivity, and inappropriately mix science with unwarranted advocacy and subjective perspectives and references.

### **Scope and Delimitations of the Review**

This publication focuses on a study of the Health content of elementary textbooks and teachers' manuals approved by the DepEd for use in all public schools in the country. A total of eight textbooks were reviewed—Grades 1-6 Science and Health, Grades 1-2 English (where Health is also integrated). The Teacher's Manuals available for review were only those for Science and Health Grades 3-6.

Other textbooks and teachers' manuals commercially available for use in private schools have not been included in the study. Instructional materials, for example, DepEd approved charts, as well as instructional materials being used for Alternative Learning Systems (formerly non-formal education) are likewise not included in the review. Books and manuals for pre-school education have also been excluded.

The Review Team noted that there were other Science and Health textbooks for Grades 1 to 6 being used in some public elementary schools aside from those prescribed by the DepEd. These textbooks were published under the Social Expenditure Management Project which is part of the Third Elementary Education Project being implemented in 20 Social Reform Agenda provinces, which are among the poorest in the 79 provinces in the country. It was noted that these textbooks were also distributed and used in schools in Metro Manila. Such textbooks were obtained from an elementary school in Parañaque City. These textbooks were not included in the review.

ponent of textbooks and teachers' manuals in the *Makabayan* (Nationalism) learning area, but no textbook in the area had been approved by DepEd at the time of the Review.

A primary reference in conducting the Review is the BEC. The team, at the onset, however, already noted that the scope and sequence in the BEC are not fully sufficient to address the growing needs of the Philippine population. Current issues like gender, multiculturalism, disabilities and child rights are not evident in the BEC. Hence, the team decided to continue to take the project further than a simple review of the textbooks.

For the second volume of this publication, the team, in close coordination with the DepEd, will aim to enrich the Health Education curriculum to equip public elementary school children with the relevant knowledge base, life skills and values on health, wellness and healthy living [Appendix C].

## CHAPTER 2

# Review design and methodology

The Review is descriptive in design using qualitative and quantitative approaches in analyzing health messages and concepts in elementary school textbooks in the Philippines.

### Sources of Data

Data for the Review were gathered from a documentary assessment of the 2002 Basic Education Curriculum of the Department of Education and the Health component of the English textbooks in Grades 1 and 2, where Health is integrated, and the Science and Health textbooks from Grades 1 to 6, as well as their accompanying Teachers' Manuals.

The following textbooks and Teachers' Manuals were reviewed:

- Grade 1 Social Expenditure Management Project (SEMP)/Third Elementary Education Project (TEEP) Series: Balajadia, J., De Jesus, A., Portes, A., Reyes, A. & Siao, C. (1999). *Fun in English*. MM: SD Publications.
- Grade 1 SEMP Series: Coronel, C.C. & Abracia, N.M. (2000). *Science and Health 1*. MM: SD Publications.
- Grade 2 SEMP/TEEP Series: Biteng, O.P., Eclipse, E.C., & Llamado, L.C. (1997). *Fun in English*. MM: SD Publications.
- Grade 2 SEMP Series: Coronel, C. & Abracia, N.M. *Science and Health 2*. MM: SD Publications.
- Grade 3 SEMP/TEEP Series: Balagtas, M.U., Domanais, L.C., Antonio, E.D., Dallo, E.M., Briones, A.S., & De la Cruz, S.P. (1999). *Growing with Science and Health 3*. Manila: Rex Bookstore, Inc. (With accompanying TM)
- Grade 4 SEMP/TEEP Series: Lozada, B.A. & Mendoza, A.T. (2002). *Science for daily use 4*. Marikina: JICA Enterprises. (With accompanying TM)
- Grade 5 SEMP/TEEP Series: Tan, C.T. (2002). *Science for daily use 5*. Marikina: JICA Enterprises. (With accompanying TM)
- Grade 6 SEMP/TEEP Series: Cruz, J.M., Gutierrez, D.S., Ziganay, V.S., & Caintic, H.E. (2003). *Into the future: Science and Health 6*. Makati: Diwa Scholastic. (With accompanying TM)

## Procedure

The Review was conducted in two phases: Phase 1 involved planning the Review and reviewing the materials, and Phase 2, data processing and reporting. Figure 1 shows the procedure followed in the project.

### PHASE 1. PLANNING AND REVIEWING

The planning stage identified the scope of the Review and the development of the project proposal.

#### *Project proposal*

The Review Team was formed upon invitation of the Team Leader, bringing together medical doctors, health educators and curriculum specialists. During the initial meetings, the Team brainstormed on health messages and concepts that elementary school children “must know” and should practice to grow up healthy. The brainstorming session was based on the Team members’ individual expertise.

The results of the brainstorming session were organized and consolidated according to the learning competencies in DepEd’s BEC. This led to the development of the Project Proposals [Appendices A & B], which were submitted to the Social and Human Sciences Committee of UNESCO National Commission of the Philippines for approval.

The Project Proposal contained the following sections: A) Back-ground; B) Rationale; C) Scope of the Review; D) Methodology; E) Supervision and Management; and F) Budgetary Requirements

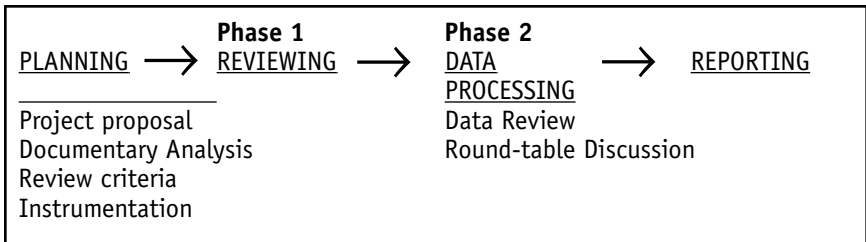


Figure 1. Review procedure

#### *Ethics and human relations*

Ethics was an important consideration in planning the Review. At the outset, the Team agreed that the Review would be a comprehensive study to improve the health textbooks being used in the public schools and to be a reference for future textbook writers, and not an error-finding project. Questions that the Team grappled with were: “Will the results of the Review reflect unfavorably upon DepEd who approved the textbooks?” “How would the authors and the publishers take it if the results were negative?” The Team thought that DepEd would take actions to correct its shortcomings rather than hide them, since the best interest of the learners would transcend other considerations. The Team also thought that it is DepEd’s responsibility to deal with the authors and the publishers.

Human relations were likewise a factor considered in the planning stage. The Team followed appropriate channels of authority in communicating and meet-

ing with DepEd officials. The Team Leader met first with the Undersecretary of Education for Programs and Projects before approaching the Directors of the Textbook Board and the Instructional Materials Center. Hence, the project got the full support and cooperation of DepEd, which provided complimentary copies of the textbooks and Teachers' Manuals reviewed. Briefings were also given to the Secretary of Education.

The Team likewise decided that the findings would only be presented to UNESCO who commissioned the Review, the Department of Education who could do something about the findings, and to groups or organizations so designated by either UNESCO or DepEd.

### ***Documentary analysis***

Before the actual Review, individual members of the Team studied the following documents for background information:

- Using Important Concepts in Social and Human Sciences to Improve Learning Content and Processes in Social Studies by Felice Sta. Maria, Florentino H. Hornedo and Virginia A. Miralao for UNESCO (2002);
- 2002 Revised Basic Education Curriculum of the DepEd, the basis for writing the textbooks and the manuals;
- FRESH (Focusing Resources on Effective School Health) launched by UNESCO, UNICEF, WHO and The World Bank (2000);
- Education For All 1990-2000 Thematic Study;
- School Health Education Study (1967) and American Association for Health Education content areas (1996).

### ***Content areas in health instruction***

The Review used the content areas of the School Health Education Study (1967), a comprehensive five-year research, which for a long time influenced curriculum development in the United States, and which was later revised by the American Association for Health Education (in Institute of Medicine, 1997), to wit:

1. Community health
2. Consumer health
3. Environmental health
4. Family life (includes Sex and Population Education)
5. Injury prevention and safety
6. Mental and emotional health
7. Nutrition
8. Personal health (includes Oral Health, Growth and Development)
9. Prevention and control of diseases
10. Substance use and abuse

To facilitate the work of the Review Team, a Scope and Sequence Chart was prepared using the above-mentioned health content areas based on the BEC [Appendix D].

### ***Formulation of review criteria***

The criteria used in reviewing the textbooks were culled from research literature, the suggestions of the Undersecretary for Programs and Projects Fe A.

Hidalgo, and the comments of Mesdames Lucille Gregorio and Felice Sta. Maria of UNESCO. The final criteria included the following:

1. *Accuracy*—Correctness of concepts, answers to exercises, mechanics of the language and illustrations
2. *Appropriateness*—Relevance and utility (practicality and applicability) of the concepts, materials, activities and evaluation tools, taking into consideration place, time, culture, the learner, society
3. *Balance*—Proportion of Science and Health concepts; fair distribution of content among the grade levels; fair treatment of other aspects like gender, domains of learning, locale, knowledge, attitudes and practices
4. *Comprehensiveness*—Adequacy of content and activities to cover the areas of health instruction, and to attain objectives
5. *Integrity and consistency*—Congruence of content with the philosophy and goals of Health Education and the BEC
6. *Organization*—Logical structure and order in the scope and sequence; presence of features that facilitate synthesis of learning; relatedness of components with each other
7. *Presentation*—Format of book (general appearance, appeal of page layouts, illustrations, etc.) that makes it interesting and pupil-friendly
8. *Readability*—Suitability of vocabulary and sentence length to the comprehension level of the learner using a standard measure
9. *Recency*—Up-to-dateness and timeliness of the content
10. *Sensitivity*—Respectful of the needs, values and sensibilities of different groups

The same set of criteria was used in reviewing the manuals, except for readability, which does not apply to teachers.

In addition to the set of criteria identified, the Team decided to review the books, taking into consideration health-specific as well as curricular trends, hence Health Education should be:

- Holistic
- Preventive
- Conceptual
- Rights-based
- Epidemiological
- Standards-based
- Problem-oriented
- Culture-responsive
- Environmental/ situational in perspective
- Cognitive-behavioral (considering learning styles and multiple intelligences)
- Skills-based (as espoused in WHO’s “Health Promoting Schools” and UNICEF’s “Child-Friendly Schools”) [Appendix G]

These trends will form the conceptual framework of the proposed Health Education curriculum for Phase 4 [Appendix C]

Each member of the Team was provided with a photocopied set of books and reviewed only the Health content of the books, which were limited to the number 7

of pages indicated in Table 1 below.

Table 1. Number of pages dedicated to Health content

Grade	Total # of pages	Grade	Total # of pages
1-SH	176	3-SH	253
1-Eng	255	4-SH	262
2-SH	173	5-SH	314
2-Eng	250	6-SH	282

The books were reviewed by each member of the Team focusing on specific criteria. During the first reading, each member went over the books and made comments and suggestions regardless of criteria. The books were skimmed the second time, paying particular attention to the criteria assigned to the member.

The review necessarily took a long time but there was constant exchange of information among the members through an e-group that was set up. After the review, the Team met to validate, crosscheck and consolidate their findings. The output of Phase 1 was presented on January 20, 2005 at the national conference of the UNESCO-Philippine Millennium Development Goals and its partners in Re-engineering Education for Sustainable Development.

## PHASE 2. DATA PROCESSING AND REPORTING

The results of the individual reviews done by each member of the Team were consolidated and discussed for clarification and confirmation.

The Review was followed by a round-table discussion [see Chapter 5] that sought comments on general and specific aspects of the Review for validation. The discussion focused on the following questions:

1. Are there areas that need further review?
2. Are there other methodologies and processes that can enhance the review?
3. How can integration of the following aspects (listed below) be done effectively?
  - Values Education in Health
  - Core Life Skills in Health
  - Science and Health in English (Grades 1 to 2)
  - Health Education in Science (Grades 3 to 6)
  - Health Education in Physical Education, Music and Arts (PEHMA)
  - PEHMA in other *Makabayan* components (Social Studies, Home Economics and Livelihood Education)
4. How can we reform the Health Education curriculum in basic education in terms of the following educational components: objectives; content; learning experiences; evaluation of learning outcomes?

The round-table discussion brought together experts in medical anthropology and indigenous medicine, to cover local and cultural aspects of health; cognitive psychologists, for suitability of content to the cognitive development of elementary school children; social science and science experts, for the integrative aspect and a more holistic view of health; school health educators, for the

pedagogical and andragogical approaches in teaching health education; and officials of the DepEd, particularly of elementary education and instructional materials (including textbook) sections:

Medical anthropology	Dr. Michael Tan
Indigenous medicine	Dr. Alfonso Lagaya
Cognitive psychology	Dr. Jasmin Acuna
	Dr. Emy Liwag
Science	Dr. Lourdes Carale
	Dr. Riza Reyes
Social Science	Commissioner Felice Sta. Maria
Health Education	Dr. Cristy Vela
	Dr. Catalina Salazar
DepEd official	Dr. Teresita Inciong

The proceedings of the round-table discussion were tape recorded and later transcribed for accuracy and comprehensiveness. The Team then prepared an outline of the report that would be ready for publication.

The results of Phase 2 were presented to the commissioners of UNACOM (UNESCO National Commission of the Philippines) at a regular commissioners' meeting on July 16, 2005

### **Data-Gathering Instruments and Techniques**

A checklist on the Guidelines for Reviewing the Health Textbooks and Manuals [Appendix E] was developed to yield data using the criteria identified. The Review determined the balance among content areas by counting the number of pages devoted to each, for example, Growth and Development. The balance of treatment between Science and Health was likewise determined by counting the number of pages devoted to each. The classic Fry Readability Graph was used to determine the readability index of the textbooks. This is the instrument used by the DepEd in evaluating textbooks for use in public schools. The Social Content Guidelines of the DepEd was used in reviewing the sensitivity of the content to various groups.

## CHAPTER 3

# Criteria for reviewing the Health content

**I**nstructional materials, especially textbooks, should fit previously established goals of the Basic Education Curriculum and of Health Education; otherwise the goals would not find implementation in the curriculum. The goals serve as guides in determining the content of the textbooks; they point to the direction being targeted in learning. They likewise serve as the bases for evaluating the curriculum.

In conjunction with the BEC, the Review Team followed specific criteria and answered particular questions in conducting the review [Appendix E].

Since health is integrated into English during the first two years and with Science from the third grade onwards, the pertinent learning competencies in health in the English and Science curricula were reviewed. Subsequently, for textbooks that were written after the BEC, the health content were assessed based on whether the learning competencies were adequately covered or not.

In the process of doing the review, the pioneering School Health Education Study (Institute of Medicine, USA, 1997) was used as a framework for the review of the public elementary school textbooks. The study identified 10 conceptual areas that make up the health education curriculum. [Refer to p. 6]

## INTEGRITY AND CONSISTENCY

### Definition and rationale

Integrity and consistency are defined as the faithfulness and congruence of the content of the books with the philosophy and goals of Health Education and the BEC.

The guidelines for reviewing integrity and consistency are as follows:

1. Does the book reflect the following philosophy of Health Education as expressed by the World Health Organization [Appendix G]?

“Health education that concentrates on developing skills for making healthy choices in life, in addition to imparting health knowledge, attitudes, values, services, and support is more likely to produce desired outcome.

“Skills-based health education promotes healthy lifestyles and reduces risk behavior.”

2. Does the book reflect the following philosophy of BEC and the goal of Health Education in the BEC?
  - a. *The BEC:*
    - Emphasizes child-centered teaching-learning approaches;
    - Encourages the use of interactive, integrative and collaborative modes of teaching and learning;
    - Puts greater focus on values formation in all the subject areas;
    - Emphasizes the development of self-reliant and patriotic citizens;
    - Emphasizes the use of effective strategies for the development of critical and creative thinking skills;
    - Encourages the use of multiple forms of evaluation;
    - Emphasizes the integration of core life skills:
      - > Awareness
      - > Empathy
      - > Creative thinking
      - > Effective communication
      - > Problem-solving
      - > Critical thinking
      - > Decision-making
      - > Coping with stress
      - > Interpersonal skills
      - > Understanding one’s emotions
      - > Productive/ entrepreneurial skills
  - b. *Goal of Health Education in the elementary level:* Demonstrate understanding of how science, technology, and health relate to the comprehension of the environment, and application of skills, attitudes and values in solving varied life situations (BEC, 2001).

## Findings

In general, life skills are not consciously expressed nor integrated into the lessons. Neither are health rights of children discussed, probably because they have not been mentioned in the BEC competencies, which are given to publishers as a guide in the writing of textbooks.

Nowhere are the goals of Health Education mentioned in the Teacher’s Manuals, which gives an impression that the writers did not use them as guide. There is also no conscious integration of curricular imperatives, like life skills, which can be effectively done if objectives on these are stated in the lesson or if the target life skill for the lesson is explicitly stated. It is therefore surmised that the development of life skills happens only incidentally or by chance.

## COMPREHENSIVENESS

### Definition and Rationale

The Review Team has operationally defined comprehensiveness as the adequacy of content and activities to cover the areas of health instruction and to

attain objectives. The definition also includes a balanced approach in handling the subject matter in terms of the required knowledge base, the attitudes that are acquired, and how practices are developed.

The review team asked the following additional questions to assess the comprehensiveness of the textbooks:

1. Are there concepts that are inadequately explained as to cause misconceptions?
2. Is the content sufficient to attain the objectives of instruction and the articulated learning competencies?

## Findings

Using the 10 conceptual areas in Health Education as guide, [see p.6] the textbooks hardly discuss the areas of Consumer Health and Substance Use and Abuse. The absence of these themes in the textbooks is a missed opportunity to address the tremendous influence of media on health. Topics in Consumer Health would have helped the students to be more discerning of what they hear from the radio, see on television or read in magazines and newspapers. Likewise, early discussion of substance use and abuse would sensitize the students to the dangers and consequences of illicit drug use.

There is also very minimal discussion on Environmental Health. This topic includes the influences of the physical environment namely water, air, solids like metals, sunlight on the human body (American Academy of Pediatrics, 1999). It is commendable that the earlier grade levels discuss the adverse effects of excessive exposure to the sun as well as the necessary precautions that need to be observed. However, other pertinent materials like the effects of common pollutants (in air, in water, on land) on health are not adequately discussed. The effects of heavy metals like mercury and lead are also not addressed.

In the field of Personal Health, hygiene is only briefly discussed in the Science and Health textbooks of the first three grade levels. These years are regarded as the most ideal time during which a child can develop a positive behavior on the practice of good hygiene. As a proxy measure, a count of the total number of pages allotted to the different Health topics was made. Only 46 pages out of 602 pages for all three textbooks are dedicated to the topic [Refer to Table 3 on p.27]. Conspicuously, the discussion on oral health is also limited to the traditional advice of brushing one's teeth. The long-term effects of poor oral hygiene like caries and cavities, non-healing ulcers and sores, halitosis, among others have not been discussed.

One apparent reason why there is no systematic discussion on Personal Health at the lower grade levels is the absence of clear learning competencies on Health in the English subject of the BEC. While the competencies are defined in the Science BEC where Health is integrated, none were articulated in the English curriculum where Health is supposed to be integrated for the first two grade levels. In the books reviewed for the first and second grades, there is a listing of knowledge and skills on Health in the table of contents. There is no corresponding activity, however, in the lessons themselves.

Still on Personal Health, growth and development is usually limited to physical growth. For example, there is an imbalance in the discussion of the physical, emotional, psychosocial and mental aspects of growth in the Grade 5 textbook. There is an extensive discussion of the physical aspects of growth, but minimal to none of the psycho-emotional aspects. This is particularly true in the discussion of the reproductive system. Physical changes are described, but the equally important emotional changes and the psychosocial issues that accompany puberty have not been addressed. There is even gender-bias in the discussion of the physical changes. For example, while menses was discussed for females, the corresponding physiologic changes in males like nocturnal emissions are not discussed. There is also no attempt to stimulate a deeper discussion on a healthy sexuality. This topic could have included themes like the following:

- Emotional and psychological changes that accompany adolescence
- Healthy sexuality, which is the appreciation of one's personhood, gender identity, attraction and developing relationships
- Openness to discuss reproductive health topics with parents and older siblings
- Physical and physiologic changes and processes during puberty among males

Recent research findings on the interrelatedness of the physical, emotional, mental and social factors in the attainment of health and well-being have also not yet found its way into the public elementary school textbooks. This includes concepts like the body's greater ability to ward off infections among those who maintain a positive outlook and disposition, the depression of the immune system during periods of stress, and the relationship between anger and unresolved emotional issues to physical health and to the health of other people.

The topic on Food and Nutrition is covered in all grade levels. However, the emphasis accorded them seems lacking. As in the field of Personal Health, positive practices and behavior on nutrition have to be developed early on since these form part of the life skills that will sustain healthy living in the later years including adulthood. Only five pages are allotted on this topic for the first two grade levels; and only 13 pages in the remaining grade levels [Refer to Table 4 on p.28].

For Community Health, the textbooks are very weak in discussing and analyzing the local health practices. There is very minimal to no mention of traditional healing modalities like the use of herbs and other medicinal plants, acupuncture, natural liniments and therapeutic massage. The role of traditional healers, including *bilots* or birth attendants, has also not been explored. Instead, in many instances, the textbooks make a reference, almost with a tone of necessity, for the need to see a physician, or even medical specialists, for any health concern. In the process, unwittingly, the personal responsibility for one's health and for the health of the family is de-emphasized. The textbooks are lacking in providing a more balanced approach to taking care of one's health that highlights the individual, family and the community's (internal/ inherent) capacity to promote

health by using established and evidence-based local practices and resources.

Integral to the promotion of health is disease prevention. The textbooks have made a good effort to emphasize positive habits and health-promoting practices. Among these is the discussion on having a balanced diet that includes the preferential choice of nutritious vegetables and fresh fruits. It would be ideal to add that eating a variety of food everyday is part of healthy eating. The emphasis on exercise and physical activities, however, can be improved.

On the matter of Disease Control and Prevention, the textbooks are quite deficient. While the textbooks do provide general advice on how to prevent the child from getting sick, the topics are not consciously and systematically chosen to respond to the pressing and common causes of morbidities and mortalities in the country. For example, specific preventive measures for malaria, tuberculosis and the acute diarrhea are not offered. Considering that the health profile differs from region to region, there may be a need to allow flexibility in the curriculum so that the topics discussed are relevant to the local setting. The same flexibility will allow the integration into the lessons of topics that may not be prescribed in the curriculum, but may be demanded by the situation. For example, in the setting of a dengue, SARS or bird flu outbreak, or in any infectious disease epidemic for that matter, disease control and prevention may need to be specifically addressed in class.

Another theme that is significantly absent in the textbooks is the discussion of Child Rights. These are enshrined both in national documents or frameworks as well as in international treaties that the Philippines is a signatory to. Among these documents are the Philippines National Strategic Framework

### **Declaration of the Rights of the Child**

- 1 All children have the right to what follows, no matter what their race, colour, sex, language, religion, political or other opinion, or where they were born or who they were born to.
- 2 You have the special right to grow up and to develop physically and spiritually in a healthy and normal way, free and with dignity.
- 3 You have a right to a name and to be a member of a country.
- 4 You have a right to special care and protection and to good food, housing and medical services.
- 5 You have the right to special care if handicapped in any way.
- 6 You have the right to love and understanding, preferably from parents and family, but from the government where these cannot help.
- 7 You have the right to go to school for free, to play, and to have an equal chance to develop yourself and to learn to be responsible and useful. Your parents have special responsibilities for your education and guidance.
- 8 You have the right always to be among the first to get help.
- 9 You have the right to be protected against cruel acts or exploitation, e.g. you shall not be obliged to do work which hinders your development both physically and mentally. You should not work before a minimum age and never when that would hinder your health, and your moral and physical development.
- 10 You should be taught peace, understanding, tolerance and friendship among all people.

<http://www.un.org/cyberschoolbus/humanrights/resources/plainchild.asp>

Children (2000-2025) and the Medium Term Strategic Framework on the Girl Child, both of which have been spearheaded by the Council for the Welfare of Children. Internationally, the Philippines ratified the United Nations Convention on the Rights of the Child [Figure 2]. More recently, the country has also adopted the United Nations' Millennium Development Goals of September 2000 in New York City.

Many of the provisions of these treaties pertain to the health of children and adolescents. They would have served as a strong anchor in the discussion of Health Rights in the classroom. The potential effect of transforming children and adolescents to be advocates of their own health early on would have a long-lasting value to them, individually, and to society as a whole. There is also the added protective value of children and adolescents being aware of domestic abuse and child abuse, including child sexual abuse. For example, their consciousness on what is “good touch” and “bad touch,” especially when discussed in a developmentally appropriate way, can potentially prevent an abusive situation from taking place. At the same time, discussion of health rights in the broader context of human rights can be very useful in defining the individual responsibilities that come with the promotion of these rights.

## **READABILITY AND PRESENTATION**

### **Definition and rationale**

One major consideration in the selection of textbooks for use in both public and private schools is the readability level. The main objective of a textbook is to provide information to the students. However, the presentation of these concepts should be easily readable and understandable to the students' grade level and stage of development. Vocabulary and sentence length should match the comprehension level of the student. Presentation not only includes the actual text, but also how the text is laid out. Illustrations and photographs are also considered to determine if the book is student-friendly or not.

These considerations were taken into account in this section of the review:

1. Are the concepts presented in a clear and concise manner?
2. Are the procedural texts easy to follow?
3. Is the language used appropriate for the grade level?
4. Is the format of the book helpful in understanding the content?
5. Is the design attractive?
6. Do print size and type ensure legibility of the book?
7. Is the book handy and durable for daily use?
8. Is the style of illustration and layout appropriate for the particular grade level?
9. Are there enough illustrations that facilitate learning?
10. What parts are essential to make the book more useful—index, appendix, glossary?

To measure the suitability of vocabulary and sentence length to the comprehension level of the learner, the Team used the Fry Readability Graph, a readability metric for English texts developed by Edward Fry in the 1960s. While

there are other readability measurement tools, the Fry Readability Graph is used at the Department of Education, hence the Team decided to use the same. Three 100-word passages were randomly selected from each of the books. The average number of syllables and the average number of sentences per 100 words were plotted on the graph to determine the grade level of the material. Two more passages were selected from the books that revealed huge gaps in the results. Factors for the gaps include bulleted lists, pages that contain a seat-work activity and pages with illustrations.

## Findings

After plotting the graph, results show that the texts are consistently meant to be read by higher grade levels [Table 2].

Across all books, except in Grades 1 and 2, there is also prevalent use of complicated vocabulary and technical terms without comprehensive, nor sometimes accurate, definitions or descriptions. Some examples are: autonomic and somatic nervous systems (Grade 6), rheumatoid arthritis (Grade 4).

When compared to the Teacher's Manuals, hoping that there are teaching methods to elaborate on the terms, it is revealed that vocabulary words are simply identified and listed as new terms and concepts to be taught to school children. There is no guidance on how the instructions or delivery of new concepts will be facilitated.

The Grade 5 book is singled out here in particular because of its profuse grammatical and factual errors. The glossary contains terms that are inaccurate or incomplete like "fetus - developing embryo; in humans, after the first two months of pregnancy," and terms that are not defined at all [see p.47].

On another aspect, the layout for the lower elementary levels sometimes features a hanging indent format. While this is not a Science nor Health concern, it is the public school system's concern that certain topics or themes are integrated across subject areas. In light of this, it is significant to note that children in the early elementary grades are only beginning to learn proper sentence construction. While it is obvious that the format is such for presentation purposes, a hanging indent format might become confusing, especially for the first grade level. After all, they are being taught that the first line of every sentence is moved a few spaces inward.

The Grades 1 and 2 Science and Health, and English textbooks contain illustrations that enhance the text. Children at these grade levels who are just starting to read will find it very helpful that the text is explained in pictures. Also, font size is large enough to be easily distinguishable to pupils who are just beginning to read "big" words.

On the other hand, the textbooks for Grades 3-6 are text heavy. The third-grade textbook has sections entitled *Remember* featuring a write-up about the lesson. Random selections of these sections reveal complex ideas, often in poorly written English. For the textbooks in the later elementary grades, font size and spacing are not conducive to learning. A text heavy page immediately

discourages students from reading the text, thus missing out on learning opportunities.

The third-grade book also contain illustrations that can be very helpful. The parts of the body are well-drawn and well-labeled. However, the layout of these illustrations could be revised. For example, a cross-section of the eye complete with labels on the different parts of the eye is presented on page 8. Immediately on the page beside it is a seatwork with the same illustration sans the labels. The seatwork is for the student to fill in the labels for the parts of the eye. The activity would be more useful if it were on another page, where students could not easily copy the answers.

The Team also recommends that if photographs are to be used, then the publisher should ensure that these are printed properly. More often than not, across the books for Grades 3-6, photographs are either too dark or too light. The Team recognizes that this is due to the actual printing process, and sometimes may not be avoided. If this is the case, then the Team recommends that illustrations be used instead.

Overall, the layout of the textbooks for Grades 3-6 leaves much to be desired. It seems that authors and publishers tried to put in as much information as they could into the allotted number of pages and ended up with books that were too compact. This is detrimental to the overall readability of the text. Too much text means children are overloaded with information with barely any time to process the knowledge gained. When reading the text though, the Team discovered that there is plenty of room for revision to make the text more concise. The textbooks could still cover the necessary content, with matching illustrations, photographs or tables, without taxing the reader too much with unnecessary or repeated information

Table 2: Readability

Grade Level	Readability Level
3	6
4	7
5	9
6	8

## SENSITIVITY

### Definition and rationale

The team reviewed all books for sensitivity, defined as whether the messages are respectful of the needs, values and sensibilities of different groups. Sensitivity also refers to the appropriateness of messages and illustrations to the cultural milieu of the children who may utilize these textbooks. Article 29 of the Convention on the Rights of the Child states that the education of the child shall be directed to:

“[...]

(b) The development of respect for human rights and fundamental freedoms, and for the principles enshrined in the Charter of the United Nations;

(c) The development of respect for the child’s parents, his or her own cultural identity, language and values, for the national values

of the country in which the child is living, the country from which he or she may originate, and for civilizations different from his or her own;

(d) The preparation of the child for responsible life in a free society, in the spirit of understanding, peace, tolerance, equality of sexes, and friendship among all peoples, ethnic, national and religious groups and persons of indigenous origin; [...]"

Thus, it is the obligation of educators to actively instill cultural, religious and gender sensitivity, as well as national pride, in each child.

The following questions were answered to determine the sensitivity of the text.

1. Are there aspects of the book that might not be acceptable to significant groups, for example, stakeholders, parents, teachers, students, and others? Identify the parts.
2. Are there aspects of the book that show cultural bias?
  - Sexism—Balanced treatment of the roles, occupations, and contributions of women and men, etc.
  - Racism or regionalism—Balanced treatment of races, indigenous peoples, religions, socioeconomic background, etc.
  - Ageism
  - Disability
  - Geography: rural-urban
  - Religion
3. Are controversial issues addressed fairly, objectively, and in the level of the learners?

## Findings

A common finding in all the books is that these are neither consciously gender sensitive nor gender responsive. There is extensive use of the generic pronoun “he,” instead of “he or she.” In some books, gender stereotyping in terms of occupation and household tasks are evident. Farmers and carpenters are usually depicted as males while teachers and health care workers (except for doctors) are usually depicted as females. One book even distinguishes between household responsibilities of boys and girls, portraying the boy doing the yard work, and the girl doing the kitchen work.

These images perpetuate the gender stereotypes still rampant in our society. In reality, farms are worked by both men and women, boys and girls. Both men and women have excelled in all professions. Ideally, school textbooks should reflect this diversity not only in their text, but also in their illustrations.

On a positive note, most of the books reviewed demonstrate a deliberate effort to focus on science and health issues relevant to the third world setting. There is a lot of space allotted to discussing nutrition, population and environment, which are some of the biggest problems in the country. Many of the examples, stories and illustrations depict scenes commonly found in the Philippines. Houses, transportation, animals, and even the features of the children and adults depicted are Filipino.

Noteworthy to mention also is the introduction of the concept of reproduction with the use of the word “mating.” There are, however, no further explanations about copulation and how the “sperm cell is introduced to the vagina” remains vague or leaves so much to the imagination of the poor reader.

There is also a tendency for the authors to assume that families are always composed of full-time parents and children, which is not realistic nowadays with changing family patterns and care-giving trends. The authors failed to realize the following: 1) there is a growing number of single parents; 2) there is a phenomenon of working mothers; 3) there are absentee parents because they have to work abroad or in the cities, thus children are taken care of by relatives; 4) there are children who are orphans or may have only one surviving parent, and; 5) there are extended families with grandparents and other relatives living together.

Furthermore, some examples, stories and illustrations portray apparent bias to objects, persons, situations that may be familiar only to middle class, urban, lowland children. These are either portrayed as examples, suggested as options or recommended solutions and illustrations.

A very common example is the repetitive recommendation of consulting a doctor when there are health problems. In the third grade textbook, the recommendation even extends to consulting an ophthalmologist. This is quite insensitive because it is not as easy to see a doctor in many rural areas. At best, the recommendation is for children to have regular health maintenance/ preventive check-ups with a physician or at the barangay health center.

Other examples of unsuitable portrayals of concepts are: eye protection equipment portrayed as sunglasses; some fruits, such as grapes and apples, which may not be geographically or economically accessible to some children; illustrations of bottled milk, which is uncommon in most communities.

Majority of the illustrations show idealized scenarios of homes and communities without taking into consideration that there are places without the availability or even the luxury of space, comforts, services, facilities and amenities. Even the idea of using cotton buds when cleaning the ears, which is ill-advised, is inappropriate, if not impractical, in most remote areas.

Items which city dwellers may take for granted [Figure 3], such as fire trucks, trains, showers, fireworks and cookies, may not be familiar to some rural children. While it is commendable that children are exposed to all sorts of items from various areas, it is advisable to consciously teach them about these items, and not simply to use the illustrations without any explanations. One possible method is to portray advances in technology



Figure 3. Growing with Science and Health, Gr. 3, p. 39

in urban areas, side by side with the current technology used in rural areas or marginalized areas.

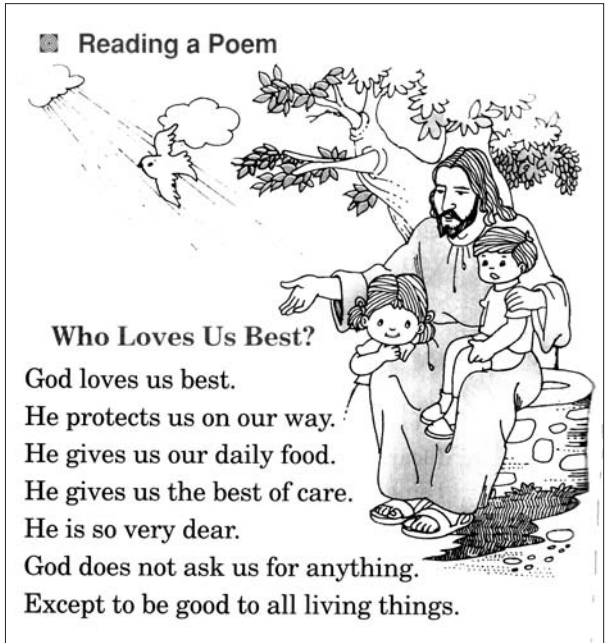
There are also exercises, such as interviewing doctors and dentists, that may be difficult in areas not frequented by these professionals.

There are, moreover, several examples, stories and illustrations that may exclude some groups in the country. Several books often refer to the Supreme Being as “God” or “Lord,” which are distinctly Christian terms. Considering that the textbooks are going to be used in all the public schools in the Philippines, these types of illustrations and texts should be avoided. One illustration depicts a stereotypical Christian icon of children being taught by a man who is obviously meant to be Jesus Christ, with long hair, a beard, robes and sandals.

Moreover, the illustration accompanies a poem proclaiming “*God loves us best*” [Figure 4]. While this may be acceptable for 90 percent of the Philippine population, this could unnecessarily alienate members of other beliefs. One book also uses the sentence “I pray the rosary,” which would be appropriate only to Catholics. Rather than replacing these texts and images, more positive portrayals of other religions or cultures may be included to expand the child’s appreciation of diversity.

Another issue that has to be addressed is the use of English as the language of instruction. Considering a mixture of English, Filipino and the local language may not only improve comprehension of concepts, but also make the subjects less alienating, more organic, comfortable and, therefore easier to internalize for children. Unlocking difficult terms may also be facilitated by using the local language. This can appear in the Teacher’s Manuals provided that the guideline on code switching is followed.

Still on the issue of language, insensitive words like *cripple* and *mentally retarded* are used. The team acknowledges that there may have been no intent to offend anyone. However, using more sensitive terms such as differently-abled persons would warrant that students imbibe the sensitivity imparted by the vocabulary.



team noted few indigenous health terms, concepts or treatments in the health topics discussed. Concepts such as *lamig, pasma, pilay* and the use of traditional medicine are likely to emerge in a free discussion of children's ideas of health, since these may be concepts they are exposed to at home and in the community. No discussion of health in the Philippine context would be complete without these topics. Experts expounded on this issue during the round-table discussion [see Chapter 5].

## APPROPRIATENESS

### Definition and Rationale

Appropriateness is defined as the relevance and utility, practicality and applicability of the concepts, materials, activities and evaluation tools, taking into consideration place, time, culture, the learner and society.

The content of textbooks should be relevant and significant for it to be useful to the learner. It should reflect the social and cultural realities of the times as it keeps up with the advances in technology that affect the lives of the learners.

The learners should be able to apply what they have learned. Knowledge gained, attitudes and values formed, and skills developed will not benefit the individual and society if they are not translated into actions that will improve the learner and his/her social milieu.

The other elements of the instructional process—objectives, materials, activities and evaluation tools—should be carefully selected so that they show congruency. Objectives should be appropriate to the ability and interest of the students and the other elements of the learning process should be synchronized to attain the objectives. Learning therefore is facilitated in spite of individual differences among learners.

These questions were considered in reviewing the appropriateness of the text, illustrations, activities and exercises in the textbooks.

1. Is the content of the book appropriate to local situations?
2. Is the content appropriate to the ability of the learners at the particular grade level?
3. Are the activities and exercises interesting to the learners?
4. Are there varied activities and exercises that suit different intelligences and learning styles of learners?
5. Are the objectives attainable?
6. Are the suggested materials easily available?
7. Are the suggested strategies practical, challenging and stimulating?
8. Are the tests properly constructed? Are they useful in evaluating learning outcomes? Are they congruent with the objectives?

### Findings

In general, the textbooks cater to urban situations, for example, authors assumed that doctors, nurses, dentists and health services are easily available. This is not the reality in the rural areas. Schools are lucky if the health personnel are

able to visit them once a year.

Some materials like cotton buds and food samples are likewise not easily available in the rural areas. Bias favoring foreign products, practices and values are also evident. For example, in a section discussing the needs of the body, an exercise provides illustrations which the child should put a check on if what is portrayed is something the body needs. The first illustration is of a little boy playing baseball. While baseball is a fast-growing sport in the Philippines, it is still not the norm, thus should not be included in a textbook to be distributed nationwide. Another illustration is of a little girl with boxes of candy in front of her. While we want to teach children to think critically enough so as not to check that particular box, a child could also argue that he/she **needs** candy. It would be advisable to exercise caution in depicting illustrations like these to prevent ambiguity. At most, it is advised that the Teacher's Manual contain appropriate teaching techniques to process needing vs. wanting.

Some textbooks use foreign objects to describe and explain certain concepts, as exemplified by the use of *almond* to describe the ovary and *pear* to describe the uterus. The use of analogy here is inappropriate if not downright exemplifying colonial mentality. To localize these analogies, a pili nut and avocado are suggested for use. Other vocabulary/ items found mostly in urban areas are ice, fire truck, train, bottled milk, violet grapes (Gr. 1). Again, it is advised that the TM contain corresponding teaching methods to introduce these words.

In another example, a child is illustrated as wearing sunglasses as protection from the sun, or a statement that says, *wear sun glasses when going to the beach* [Figure 5].

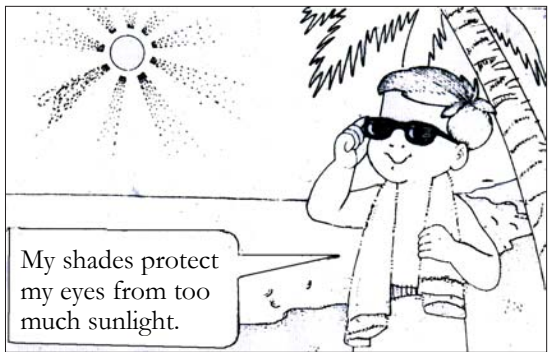


Figure 5. Science and Health, Grade 1, p.109

The sunglasses are unrealistic as they are, but the situation is both impossible and impractical when one considers children who live in remote interiors or in upland communities. More importantly, without proper instruction about ultraviolet rays, dark-colored eyewear without any UV protection will cause damage to the eyes.

Other illustrations, like a boy using a *bolo* in Grade 4 [Figure 6], could encourage students to use the same. Admittedly, there are some young children who are able to use knives or bolos, but it is not appropriate for an authoritative textbook to legitimize this.

Many exercises/ activities are also not appropriate. There are instances where the exercise introduces new terms/concepts not developed in the lessons. Some activities are not realistic [Figure 7]. For example, one exercise asks the children to enjoin the community to create and utilize a composting site. Another asks children to bring the heart of a pig/ cow and chicken parts, which is not realistic

regardless of where the children live. In many rural areas, and for low-income families in urban areas, meat is a rare commodity that children cannot afford to have on their tables. In fact, many rural barangays have only one market day a week and that is usually the only time when meat is available.

While an exercise asking children to *look for places where animals live in your neighborhood* is easily achievable for rural areas, this may pose a big problem to children living in congested urban areas.

There are varied exercises and activities that attempt to suit individual differences—learning styles and multiple intelligences. However, not all the textbooks provide a variety of activities. Most of the activities, even those in the intermediate grades, are teacher-centered.

Remedial activities which are meant for slower children were not given much thought, like *What are the functions of the lymphatic system?* Remedial activities should be exciting activities that will promote learning, not boring questions that require textbook answers. The same is true with enrichment activities, which are meant to challenge fast learners to find out more about the subject, not make them lose interest in the lesson.

Some questions/ activities are so inappropriate that even the safety of pupils is compromised, for example: *What happens when you look directly at sunlight?* Pupils might try to look at the sun to be able to answer the question.

The objectives contained in the Teacher's Manuals are stated in behavioral terms but most of them are cognitive objectives that develop lower order thinking skills—remember, understand and apply. Even the textbooks in the intermediate grades fail to raise the thinking level of the students. Seldom are



Figure 6. Science for Daily Use, Grade 4, p.15

### Activity 1.6

1. Buy a cattle's brain from the market.
2. Describe the physical features of the brain.
  - How big is the brain?
  - What covers the brain?
3. Touch the surface of the brain. How does it feel?

### Parts of the Brain



Cross section of the human brain

these activities that develop the students' ability to analyze, evaluate and create.

The number of recitation hours allotted to the topics is generally appropriate, except for some topics whose time allotted is too long, like three days to study the tongue.

Test items are generally not congruent with objectives although they are relevant to the topic. Furthermore, many tests are poorly constructed. The Grade 2 Teacher's Manual provides rules in constructing test items, but some model items do not follow the rules in test construction. Many test items are ambiguous. Many also provide clues to the correct answer, for example, an option so much longer than the others.

## ORGANIZATION

### Definition and rationale

Organization is the logical structure and order in the scope and sequence, and the presence of features that facilitates synthesis of learning. It also refers to the relatedness or harmony of the components of the book with each other.

The suggested organization of areas in Health Education were systematically researched and identified by the five-year School Health Education Study (1967) done in the United States and later revised by the American Association of Health Education. This organization is comprehensive in that it covers all topics that should be studied in Health Education. This is also the organization used by DepEd in the development of the BEC competencies in Health Education. It is therefore expected that health textbooks would use the same organization in its treatment of health concepts.

Mastery of concepts is facilitated when components or features of a text are related to each other, for example, when today's content matches today's objectives, tomorrow's content, and content across the learning areas, especially in *Makabayan*.

The following questions on organization guided the review of the books:

1. Is there a smooth flow of ideas?
2. Are the topics logically organized?
  - Simple to complex
  - Concrete to abstract
  - Easy to difficult
  - Known to unknown
  - Chronology
  - Prerequisite learning
  - Whole-to-part; part-to-whole
3. Does the book contain advance organizers, summaries, evaluation, and other features that facilitate synthesis of learning?
4. Do the features of the book show agreement and harmony?

## Findings

The review showed that the concepts are organized according to the specified content areas indicated in the BEC learning competencies.

The organization of the features of the book is generally logical. However, there are instances wherein an exercise supposed to check what the children learned, introduces new terms/ concepts that the children are meeting for the first time as they have not been developed in the lessons. In Grade 5, labeling activities are used to start the lesson, when labeling nor the concept to be labelled has not been taught yet. Another example is the inclusion of tubal ligation and vasectomy in the *Find out more* section of Grade 5. These two topics are not even mentioned among the other contraceptives and methods of family planning in the preceding text.

While the *Find out more* section is meant for students to conduct further research, it is advised that the Teacher's Manual also include methods to process what students find out. As it stands, there is no guidance available in the Manual to help students verify their findings. This could be harmful in the long term, if and when students stumble upon erroneous information and perceive these to be correct.

The Teacher's Manual for Grade 2 includes a Table of Specifications for the tests. The organization of the processes/ skills in the tables follow the classic Bloom's Taxonomy of Cognitive Objectives (1956), which is organized according to levels of difficulty. However, the Table (p.xxxiii) should be re-organized to show that Application precedes Analysis, because the latter is a higher-order thinking skill; better yet, the revised Taxonomy (Krathwohl & Anderson, 2001) should be used, which likewise indicates the skill "Apply" preceding "Analyze."

The Teacher's Manuals contain sections on *Evaluation* that enable students to check what they have and have not learned. However, many of the assessment items are not congruent with the objectives set forth in the lesson plan. In effect, the pupils are evaluated on concepts that have not been taught.

## BALANCE

### Definition and rationale

Balance is the proportion of Science and Health concepts, the fair distribution of content among the grade levels, and the fair treatment of other aspects—gender (male and female), the domains of learning (cognitive, affective, psychomotor) and the locale (rural, urban, upland, lowland).

Appropriate weight should be given to each aspect of the curriculum so that distortions do not occur. It has been observed that curriculum developers tend to put too much emphasis on a subject to the disadvantage of another. Furthermore, the criteria for emphasis are often based on pressure and subjectivity, not on systematic planning and objectivity (Ornstein & Hunkins, 1993). The in-

tegration of several subjects, including Health Education, into *Makabayan* with the good intention of deloading the overcrowded curriculum created quite a furor among professional organizations and teachers, such that the integration has not yet been satisfactorily achieved. Even the integration of Science and Health has not been totally accepted by professionals of both areas. The University of the Philippines National Institute of Science and Mathematics Education (UP-NISMED) advocates the integration of the two subjects because they share a common focus of developing basic learning content.

Oliva (1992) states that curriculum developers should not always seek to achieve a 50-50 balance. We need Science to achieve progress in technology and to make our country globally competitive. However, Health is important because of the health-related problems experienced by young people today that are reaching critical level—smoking, drugs, alcohol, high incidence of teen pregnancies, the prevalence of sexually transmitted diseases, including HIV/AIDS, the high incidence of accidents and others. For Science and Health, therefore, an equal balance of science and health is important in basic education, since habits and skills should be developed while the children are still young.

Balance was determined by answering the following questions:

1. Is there an equal balance in Science and Health concepts?
2. Is there a fair distribution of content among the grade levels?
3. Is there a fair treatment of other aspects, for example, gender (male and female), the domains of learning (cognitive, affective, psychomotor), and the locale (rural, urban, upland, lowland)?

## Findings

It is good to note that most books are conscious of the integration of Science and Health as evidenced by their titles:

- Grade 3: *Growing with Science and Health* (Rex Bookstore)
- Grade 6: *Into the Future: Science and Health* (Diwa Scholastic)

However, the unequal treatment between Science and Health can already be detected at the outset in other books because the title and foreword neglect to mention Health as being part of the book. This is gross negligence that should not be tolerated.

For example, Grades 4 and 5 use the title *Science for Daily Use*. The second-grade textbook's title *Science and Health 2* includes Health, but the note to the teacher in the Teacher's Manual mentions only Science and disregards Health (p. viii). It is apparent that the authors did not consider Health as integrated with Science. This is the same case in the Grades 3, 4, 5 and 6 TMs where only Science instruction is mentioned in the Foreword/ To the Teacher. The authors in the Grades 2 and 4 Teacher's Manuals tried to be comprehensive and helpful by adding a section on *Processes Stressed in the Book*, which, however, are all Science processes. A section on *Life Skills for Health* should have been included as well.

Table 3. Balance Between the Science and Health Content of Textbooks

Grade	Total # of pages	Science		Health	
		No. of Pages	%	No. of Pages	%
1-SH	176	61	78	39	22
1-Eng	255			24	
2-SH	173	131	76	42	24
2-Eng	250			38	15
3	253	148	58	105	42
4	262	204	78	58	22
5	314	257	82	57	18
6	282	180	64	102	36

This is followed by Grades 1 and 4 where 78 percent of the textbook is allotted to Science while only 22 percent to Health. The greatest imbalance is in Grade 1 English where Health is given only nine percent allocation in the number of pages and Grade 2 English, 15 percent. The 2001 BEC phased out the Science and Health textbooks in Grades 1 and 2 as Health has been integrated in English. We can therefore foresee a future generation of Filipinos learning to communicate in English (hopefully), but with poor health habits, and poor health.

As there ideally should be a balance between Science and Health, there should also be a balance among the Health content areas. These need not be equal but proportional, depending on the needs of the pupils at this stage of their growth and development and the needs of society. The balance among the content areas in Health Education is shown in Table 4.

Comparatively speaking Table 4 shows too much emphasis on Growth and Development (42.34 percent), which is very conceptual and which should receive more emphasis in high school science. Too much emphasis is likewise placed on Personal Health, which focuses mainly on personal hygiene, to the disadvantage of mental, emotional and social health. There should be added emphasis in Family Health in the intermediate grades (4, 5, 6) since for some children, this is already the age of puberty.

All other areas—Consumer Health, Disease Control, Substance Use and Abuse, Safety and First Aid, Food and Nutrition—should likewise be given emphasis starting in the early grades. As early as 6 years old, children should learn to be discriminative on what products to buy and what information to believe in. Children can also be taught to watch out for and not to ignore symptoms of common childhood diseases like fever, sore throat, stomachache, and others. In addition, students can also learn, at the very least, not to ingest anything they are not familiar with. To extend this lesson to the later elementary grades, they can then be taught to discriminate among food and drugs that are helpful/harmful to the body. Currently, many chronic diseases of later life can be traced back to poor nutrition habits of children. The early development of proper health habits among children will lead to healthy adults.

the application of Science concepts and principles. Therefore, Science provides the theory and Health, the practice.

Table 3 shows that there is imbalance between the Science and Health content of the textbooks reviewed, with prejudice to Health. The greatest imbalance happens in Grade 5 where 82 percent of the pages is devoted to Science while only 18 percent is devoted to Health.

Table 4. Balance Among Health Content Areas (*note: areas listed are based on the BEC*)

Total number of pages	1E	1SH	2E	2SH	3SH	4SH	5SH	6SH		
	255	176	250	173	253	262	314	282		
Areas	Number of Pages								Freq	%
Growth & Development	11	18	0	25	44	30	36	35	199	42.34
Personal Health	10	15	14	11	20	6	11	10	97	20.64
Family Health	0	0	0	0	0	0	0	2	2	0.43
Consumer Health	0	2	0	0	0	0	8	0	10	2.13
Community Health	0	4	14	2	6	3	0	22	51	10.85
Disease Control	0	0	0	2	14	3	4	10	33	7.02
Drug Education	0	0	0	0	5	0	0	0	5	1.06
Safety & First Aid	1	1	8	0	14	12	6	13	55	11.70
Food and Nutrition	2	1	0	2	7	4	0	2	18	3.83
Total	24	39	38	42	110	58	57	102	470	100
Legend: E-English (Science & Health integrated); SH-Science & Health book										

All the books emphasize the cognitive domain of learning, with very little attention to the affective and psychomotor domains.

There is likewise an imbalance in the treatment of specific topics within content areas. In Grade 3, the lesson on the tongue is given three days, which is too long, to the disadvantage of a lesson on the skin, which should have more extensive information, since it is the most obvious and most extensive part of the body.

The discussions and activities are too knowledge-based. In Grade 3, for example, the discussion on *Certain Physical Changes During Puberty*, which aside from being limited to physical changes, focuses too much on the medical explanation of puberty. More important than the changes themselves, which are simply enumerated, is helping the pupils understand why the changes happen and how they should cope with the changes. Important also is a discussion on the emotional and psychological changes and how pupils should manage them. Where there is mention of health practices (psychomotor domain), the cognitive explanation is not given, for example, *wear loose and not tight-fitting clothes* (Gr. 6, p.20), which should have been followed by an explanation of why this should be done.

system, to the exclusion of the female reproductive system.

The review of the accompanying Teachers' Manuals provides a glimpse on whether a balance among the different domains of learning was achieved.

It is evident in the main textbooks that the approach to most of the learning competencies is cognitive. Information is supplied primarily through the feeding of concepts so that students develop and build their knowledge base. The manuals verify the heavy bias of the textbooks towards the cognitive learning domain.

Most of the manuals do, in fact, contain a section on "Learning Activities" that includes three parts:

- (1) a preparatory activity
- (2) the developmental activity
- (3) application or reinforcement of lesson learned.

As outlined, the framework of learning begins by asking the students their current observation and appreciation of a topic. Here are examples:

- Grade 3 Teacher's Manual p.5: Topic – Our Eyes *Ask the pupils to describe what they can do with their eyes.*
- Grade 3 Teacher's Manual p.13: Topic – Our Ears *Let the class listen to different sounds around them and identify each sound.*

There is an effort to build on what the child knows. However, the manuals do not build effectively on these affective domains of learning. The developmental activity that follows may not be related to the previous preparatory activity. Worse, many of the activities are developmentally inappropriate for the level of the child. For example, in the activity on Mental Abilities (Lesson 13, Gr. 3 TM), the student is asked to describe the abilities of a one-, five- and nine-year-old child. Subsequently, the student is asked what mental abilities he/she has now compared to when he/she was younger. These questions require abstract and symbolic thinking that goes beyond the concrete operational stage of a third-grade student.

The application or reinforcement of the lessons could also have been the avenue for the psychomotor domain of learning. The challenge is to ensure that the suggested enrichment activity is again developmentally appropriate for the child.

## ACCURACY AND RECENCY

### Definition and Rationale

The operational definition of accuracy as was discussed and agreed upon by the Review Team is correctness of concepts, answers to exercises, mechanics of the language and illustrations. The inaccuracies may be factual or sheerly omitted. Also considered in terms of accuracy is the inclusion of bias, whether inadvertently or advertently, towards a certain idea or concept without presenting a more balanced treatment. Recency is defined as concepts being up-to-date and timely. This criterion covers the most recent and widely-accepted concepts

in the scientific world.

The following questions were used to assess the accuracy and recency of the textbooks being reviewed:

1. Is the content (text, illustrations, exercises) accurate? If not, which parts need to be corrected?
  - Conceptual errors
  - Factual errors
  - Grammatical errors/misprints, typographical errors
  - Conflicting statements
  - Errors in illustrations, pictures, and the like
2. Are the examples provided realistic?
3. Is the content up-to-date? If not, which part should be updated? (e.g. statistics: How old – not more than 5 years old?)

In addition to the above questions, the Review Team also tried to discern the inclusion of bias in the introduction of an idea or concept which does not in any way reflect what is acceptable as correct, logical and objective.

## Findings

There are numerous errors in accuracy and lapses in recency in the textbooks reviewed which were noted and further discussed by the Team. Whereas there are few errors in health topics which were integrated in English for Grades 1 and 2, all textbooks for Science and Health (Gr. 1-6) contain many inaccuracies that may cause concern and prompt action from the Department of Education. A thorough line-by-line review of the Science and Health textbooks intended for Grades 3 to 6 reveals glaring errors that may have been avoided had these textbooks undergone a more thorough and systematic review by persons with known expertise in the technical fields covering Health and Nutrition. It should be mentioned here that the Science and Health textbooks published and intended for SRA provinces contain more errors and need urgent revision if these textbooks are still going to be used in the public elementary schools.

The total number of errors on accuracy (factual, omission, bias) in text, exercises, illustrations, evaluation and in recency are as follows: Grade 3–157; Grade 4–131; Grade 5–82; Grade 6–122.

Because the textbooks do not, in most ways, motivate the students to think critically and analytically, these inaccuracies may be considered as factual by those students who use the textbooks. It is therefore an urgent task to assess these textbooks and give recommendations in the light of the above concern.

Chapter 4 highlights some of the more glaring errors committed by the authors of the textbooks. It can be noted that there are more errors in accuracy compared to errors of recency. It was also noted that there are more errors on factual accuracy and omission in the texts than there are errors of bias. It was also observed that there are inaccuracies in the illustrations as well as omissions in illustrating vital information. [*Note: Factual and conceptual errors and recommended revisions are detailed in Chapter 4. Also indicated in the chapter are errors made by omission. Errors of bias are indicated in the Sensitivity section of this chapter.*]

A reviewer with a background on the medical sciences is immediately convinced that the authors of the textbooks have very little or inadequate background on the technical contents particularly in describing the body systems, organs and parts (anatomy) and their functions (physiology). There are missing definitions, and if definitions are provided, there are clear inaccuracies. Confusion may also be brought about by the use of layman's terms interspersed with scientific or technical terms. In some instances, there is omitted information which is very essential to the topic being covered.

There are also errors brought about by simplification of technical concepts. For example, the phrase *arteries and veins branch into capillaries* was used to explain that the blood vessels are continuous when in fact capillaries are distinct blood vessels. Also note that in the sentence *The veins transport red blood from the lungs to the heart*, the author might have wanted to imply oxygenated blood. However, the simplified sentence and vocabulary may lead to a young child asking if blood comes in colors other than red.

By simplifying the scientific idea or process, more ambiguity is generated and this may be considered a fact by an unknowing mind. Another classic example of oversimplification is defining *nosebleed* as *attack of bleeding in the nose*.

Other than simplification, there are also instances when unfair generalizations are made, for example, "Did you know that the rapid growth of population is one of the reasons why AIDS and other communicable diseases spread easily?" (Gr. 6, p.98). Firstly, it is the density of people in a given area that contributes to the transmission of diseases, not the increase in population. Secondly, it should be noted that there are various and numerous modes of transmission, which makes it incorrect to lump HIV with all other forms of communicable diseases. Lastly, it is the human immunodeficiency virus that is transferred through exchange of fluids, not the Acquired Immune Deficiency Syndrome. A person could be infected with HIV for more than 10 years, but unless he/she shows signs and symptoms of the disease, it cannot be called AIDS.

After the first reading of all the textbooks, the Review Team decided not to include grammatical errors because it would be too time consuming and tedious. Provided here are general comments on the use of language across all textbooks reviewed.

Grammar, including sentence construction, has to be reviewed. It was noted that there are too many complicated and complex sentences, including multiple ideas that are discussed in one paragraph and sometimes in one statement. There are also many structural errors that make the text confusing.

Examples of other erroneous sentences are *Describe what sweats are?* and *Your classmate is a handicap*. Correcting sentences like these is deemed essential as most teachers use the manuals verbatim and may impart wrong grammar construction to the students.

There are numerous lapses in grammar noted though there are also typographical errors. A significant, if not hilarious, example of typographical error is the

word *anal* instead of *oral* contraceptives which the reviewers would like to believe as indeed typographical. [Note: the Department of Education has since corrected this error in the subsequent printing of the textbooks]. Other errors include the words *lympba* instead of lymph and *ducks* instead of ducts.

The textbooks also tend to introduce vague terms such as *streptbroat*. In this example, streptthroat is oversimplified. It is a layman's term for sore throat caused by the Streptococcus bacteria, but does not encompass all kinds of sore throats, which are more commonly caused by viruses or other kinds of bacteria. Furthermore, usage of *this* term could have included warnings that Streptococcus infections could lead to more life-threatening diseases like Rheumatic Heart Disease.

While there are well-drawn illustrations particularly in textbooks for Grades 1 and 2, there are still illustrations that are completely erroneous. A chart about the nervous system on the sixth grade textbook feature interchanged labels [Figure 8].

There are also inconsistencies in figures used in the textbooks. An example is the percentage of plasma in the blood as stated on p.12 of the Grade 6 textbook. The second paragraph mentions 40-50 percent while the third paragraph says 55 percent.

Recency issues as to the contents of the Science and Health textbooks also need to be assessed. There has been so much advances in science and technology during the last century which should not be ignored. It is essential for these new concepts to be introduced if our students are to become globally competitive. The review team was able to spot many errors on recency not only on Health but on the Science contents as well. Among the latest Science concepts that needed to be pointed out were: plasma as the fourth state of matter, soil is not present in the moon, and the wind and tides can be harnessed as energy sources.

Health content however also need further updating to ensure that the students are keen and abreast with the current scientific research discoveries, and their knowledge level is at par with those of highly advanced countries. It would be an advantage if the textbooks could include sections for children to conduct research on advances in the medical sciences, local and global health issues. The process of research not only expands the knowledge content, but also trains the students in critical thinking and analysis.

Examples of the notable health concepts that should be introduced or re-introduced are:

- there are no definite locations of the basic tastes in the tongue as previously believed
- saliva contains an immunoglobulin which has a protective action
- fiber is an important component of diet

It is also suggested that textbooks mention that emotions cause or trigger biochemical reactions in the body, which may affect organs and systems. This

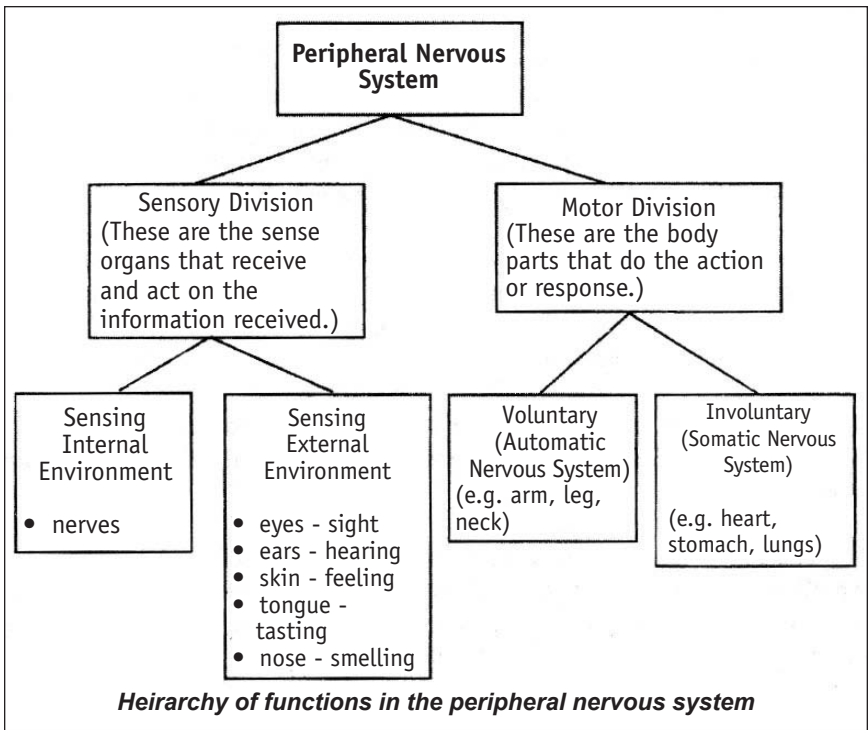


Figure 8. Science and Health, Gr. 6, p.38. The two boxes on the right are interchanged. The Somatic Nervous System is Voluntary, and the Autonomic Nervous System is Involuntary. Also note the typographical error for Autonomic.

is in keeping with the current findings in biochemistry, physiology, neurology and immunology, which show that, indeed, emotions play a very crucial role in staying healthy and fit. The emphasis on the direct interplay of a peaceful and harmonious environment and the biological self should be underscored, if not pursued and promoted as a positive and reinforcing health message.

It was also noted that statistics used in the textbooks need to be updated. Not only should these numbers be verified and validated, it is just as important to use reliable references and cite existing sources. The advent of advanced information technology with its search machines and websites can readily supply the textbook authors with a wealth of updated statistics and figures as well as the most updated information and the latest facts related to health.

The Teachers' Manuals are not spared from the errors found in the Science and Health textbooks. While the review team was able to assess the many errors of accuracy (example: *Some vein disorders include varicose veins and arteriosclerosis*), it also noted that there is generally an omission of Health values where these may have been valuable, and when the opportunity has been presented. In some cases, the integration of key health messages has been neglected.

Factual errors can be remedied by getting experts to review the technical content (example: *cartilage connects the bones and the joints*). More often, as was also noted in 33

the textbooks, there are highly technical terms or concepts, which may be very difficult for a teacher to comprehend like *the process wherein the haploid nucleus of the sperm cell unites with the haploid nucleus of the egg cell to form a diploid nucleus of the fertilization is primarily a nuclear (sic) phenomenon.* (Gr. 5 TM)

In other instances, a list of vocabulary words are provided in the Teacher’s Manual with no instructions or models for teaching the words. If the words were simple terms that could be found in any dictionary, this lapse might be overlooked. However, many of the terms to be taught are technical and medical terms pertaining to the body, which would require the teacher much more extensive research. It is not realistic to expect teachers to conduct further research on anatomical and physiological terms since they are not experts in this field, and most teachers are already overloaded in terms of classroom teaching.

This limitation defeats the very purpose of teaching and thereby contributes to the student’s inability to grasp the subject matter. There are also instructions which are impractical (*bring a dressed chicken with its head and feet intact and debone [sic]*), inappropriate (*explain the principles involved in the operation of dialysis*) and illogical (*can you name the physical changes you and your parents have in common*).

Factual errors in the glossary of the Grade 5 textbook is placed here for clarification purposes [Table 5].

In summary, the review team found numerous errors, inconsistencies and deficiencies in the health content of the textbooks being used in public elementary schools. There also seemed to be no or very little effort placed by the authors and the publishers on: 1) consulting the technical experts on Health and Nutrition to come up with more accurate and factual contents; 2) editing for grammatical errors; 3) consulting education experts on proper evaluation tools; 4) revision for objectivity and recency; and 5) making illustrations that are sensitive, accurate and appropriate.

Table 5. Glossary of Science for Daily Use 5

ERRORS	CORRECTED ENTRY
Adolescence– period in human growth that begins around ages 12-14 and lasts until age 20.	The transitional period from childhood to adulthood (age ranges vary depending on who’s defining it)
Aerobic– Requiring oxygen for respiration	Requiring oxygen
AIDS– Acquired Immune Deficiency Syndrome, a fatal communicable disease caused by an RNA virus; spread by sexual contact, by use of contaminated needles, through the placenta or by nursing by an AIDS-infected mother.	Add: by transfusion of contaminated blood products  Comment: RNA (Ribonucleic Acid) not discussed anywhere in the main text
Amniotic sac– a thin membrane surrounding an embryo, filled with amnion (a clear liquid)	...filled with amniotic fluid (a clear liquid)

Arterioles– not defined	Terminal twigs of arteries that end in capillaries
Capillaries– microscopic blood vessels that connect arteries and veins; nutrients, oxygen and wastes are exchanged through their one-cell-thick walls	... connect arterioles with venules
Embryo– not defined	Developing vertebrate organism; in humans, from implantation to the end of the second month of pregnancy
Fetus– developing embryo; in humans, after the first two months of pregnancy	Developing vertebrate organism after attaining the basic structural plan of its kind; in humans, from after the second month of pregnancy to just before birth
Haploid chromosome number – in organisms that reproduce sexually, the number of chromosomes in a gamete.	... chromosomes in a gamete (sex cell)
Mammary glands– in female mammals that produce milk for feeding young	In female mammals, the organs that produce milk for feeding young
Menstruation– in females, the monthly discharge through the vagina of the lining of the uterus and some blood for fertilization of an egg has not occurred.	In females, the monthly vaginal discharge of blood, secretions, and the lining of the uterus when fertilization has not occurred
Ovulation– in human females, the monthly release of an egg from an ovary	In females, the monthly release of an egg from an ovary
Peristalsis– contractions that move food...	contractions
Placenta– part of the sac that surrounds an embryo in mammals, attached to the uterus, many blood vessels provide life support for an embryo	The organ attached to the uterus and the fetal umbilical cord, allowing the exchange of nutrients and oxygen between mother and child
Sexually transmitted disease– diseases transmitted during sexual contact	Diseases usually transmitted by direct sexual contact, but includes diseases that may also be transmitted by other means
Urinary system– a system of excretory organs that rids of blood of wastes, excess water, salt and other wastes	The system composed of the kidneys, ureters, urinary bladder and urethra that rid the blood of excess water, salt and other wastes

## CHAPTER 4

# Recommended Revisions

### FAMILY HEALTH

This conceptual area covers population education and the effects of rapid population growth on the family, the community, society as a whole, and the environment. Family health also includes sexuality education and topics on reproductive health.

<b>Inaccuracy/ Misstatement</b>	<b>Revisions</b>
<p>Use of the terms family planning, contraception, birth control might be unacceptable to some sectors. [Gr. 5, TM]</p> <p>“Birth spacing” is introduced but not explained. [Gr. 6, TM; Gr. 3, p.69, 99]</p>	<p>The concept of “birth spacing” might be more culturally acceptable. It emphasizes planning pregnancies such that there is an adequate number of years (three or more) from one pregnancy to the next, primarily to decrease the health risks for both mother and baby. Birth spacing does not prescribe a limit on the number of children, but studies have shown that this concept ultimately decreases average family size.</p>
<p>Discussion on the consequences of uncontrolled reproduction are often limited to the effects of a greater number of children on the family’s food and other basic needs. [Gr. 6, p.98]</p>	<p>Rapid population growth depletes resources at the global level; contributes to poverty, unemployment and problems in development planning; and leads to overcrowding and urbanization/ urban migration, which has detrimental effects on health. The message of population control should also be integrated with environmental awareness and social responsibility.</p>
<p>“If you are healthy, you will grow big and tall.” [Gr. 3, p.54]</p>	<p>The height and weight of a child do not solely depend on nutrition or good health. Heredity also plays a significant role. A child can be of a tiny frame, but can be overall healthier than a big-boned child.</p>

<p>Some terms are not defined or have inaccurate descriptions.</p> <p>Existing definitions for the parts of the reproductive system do not help e.g. vas deferens is defined as a duct, ergo, it will have to be the only tube the blank labels are pointing to, which leaves the oval thing to be the epididymis. Note also that the Teacher’s Manual does not have an answer key. [Gr. 5, TM and textbook, p.2-13]</p>	<p>bladder: membranous sac containing fluid or gas; the <u>urinary</u> bladder contains urine collected from the ureters and empties into the urethra</p> <p>cilia: microscopic hairlike projections from certain cells, such as those lining the trachea or the fallopian tubes</p> <p>ejaculation: sudden emission of semen</p> <p>placenta: also known as “afterbirth” or <i>inunan</i>; a structure comprised of blood vessels developed during the third month of pregnancy and attached to the inner wall of the uterus; through it, the fetus is supplied with nutrients and oxygen from the mother and gets rid of its waste products through the mother</p> <p>puberty: the age at which the reproductive organs become functionally active; physical and emotional changes: breast development and menstruation in females, penile enlargement and “wet dreams” in males are just some of the signs of puberty; this usually begins between ages 9-14 in females, and around ages 10-17 in males</p> <p>uterine muscle: contractile tissue which make up the womb</p>
<p>On large families [Gr. 6, p.98]</p>	<p>Many families do not have sufficient space (phenomenon of multiple households in one house), which leads to issues of overcrowding and its concomitant effect on health. Broaden discussion to include effects of urbanization, urban migration.</p>
<p>Fetal Circulation and Maternal Circulation [Gr. 5, TM and textbook, p.2-13]</p>	<p>Terms are introduced but not explained. Note that these two concepts will each take a chapter to fully explain.</p>
<p>Puberty starts when your body begins to produce hormones. [Gr. 5, p.13]</p>	<p>The body produces hormones continuously from the womb. Puberty starts when there is a surge or sudden increase in the production of the <u>sex</u> hormones.</p> <p>In girls, puberty starts with breast development. In boys, it starts with the increase in the size of the testes. Aside from the physical changes listed, puberty is also signalled by the appearance of hair on the armpits and genital area and emotional changes, such as sexual attraction to the opposite sex.</p>

<p>The discussion of the changes in puberty is limited to physical changes. [Gr. 5]</p>	<p>Common concerns identified by adolescents include conflicts with parents and siblings, concerns about peers and peer relationships, school and in today's world, their physical safety.</p> <p>Personal identity is an overwhelming concern expressed by adolescents. Parents of adolescents may also have concerns about their child during this period. Common concerns related to the adolescent's behavior include: risk-taking, rebelliousness, wasting time, mood swings, drug experimentation, school problems, psychosomatic complaints and sexual activities.</p>
<p>Whitish vaginal discharge is a sign that menses will start. [Gr. 5, p.13]</p>	<p>The discharge should not be confused with leukoria, a whitish discharge quite common among prepubescent girls.</p>
<p>Care of the reproductive system consists only of personal hygiene. The hygiene topics are all about underwear. [Gr. 5, p.20]</p>	<p>Include:</p> <ul style="list-style-type: none"> <li>• Front-to-back washing of the vagina</li> <li>• For those not circumcised: retraction of the foreskin to clean secretions around the glans of the penis</li> <li>• Proper use of the sanitary napkin</li> </ul> <p>Reproductive health should also include teaching children and adolescence about "good touch" and "bad touch." Children and adolescents should not allow anybody to touch any part of their body in a way that will make them feel violated or uncomfortable. They should know what to do if somebody attempts to touch them in a "different" or "bad" way.</p> <p>Reproductive health care includes being aware of your fertility. Discussions should begin at this age on how to prevent sexually transmitted diseases and unwanted pregnancy through abstinence or safe sex.</p>

## CONSUMER HEALTH

Consumer health education includes wise choice and use of **health information, health products, and health services**. The recommended scope and sequence should reflect this at specific grade levels. As can be gleaned from the following, this area of health is not given proper attention in the curriculum.

### 1. Nurse [Gr. 2: Science and Health, p.174]

"She helps the doctor in his work." The nurse should be portrayed as an individual health worker as well as part of the health team. There are different kinds of nurses, for example, private-duty nurses who provide nursing care to home patients or hospitalized patients needing continuous attention. The school nurse educates children and their families about health problems and

their prevention. They also attend to children who get sick in school, aside from being a member of school health personnel that includes the doctor and the dentist.

**2. Dentist** [Gr. 2: Science and Health, p.52]

The idea of the dentist being a friend should be introduced, so that the children will not be afraid.

**PERSONAL HEALTH (Including dental, mental and emotional health)**

Inaccuracy/ Misstatement	Revisions
A medical checkup is recommended at least every five years. [Gr. 6, TM]	In pediatrics, an annual health assessment or well-child check-up is recommended.
Washing of hands is mentioned but not how to do it properly. [Gr. 2, p.8; Gr. 4, p.39]	Hand washing must be done using bubbling soap and clean flowing water. Hands should be rubbed vigorously and nails should also be cleaned. Hand washing should be done before and after eating, after using the toilet, and after work or play.
Books recommend to “exercise daily in the morning sunlight”, and not getting “too much exercise” that “can affect the muscles of the heart.” [Gr. 1, p.16; Gr. 4, p.26]	Sunlight after 9 a.m. can be harmful as UV light is already strong. The text should also mention that labored breathing is normal after exercise and the benefits of doing exercise far outweigh this fear.
A child is shown cleaning the ears using cotton buds. It is mentioned that water in the ears is harmful. [Gr. 1, p.183-184; Gr. 2, p.19; Gr. 3, p.20]	Only the outer ear should be cleaned using a soft cloth, not cotton buds. The latter could push the earwax even farther inside the ear canal or, worse, harm the eardrum. Soften hard earwax with eardrops or baby oil before removal by a health worker. Water is not harmful as long as the eardrum is intact.
Books advise to “protect the eyes from too much sunlight”, “not to read in bed”, and “not to go near people who have sore eyes to avoid being infected.” [Gr. 2, p.15; Gr. 3, p.12-13; Gr. 3, p. 16]	Lesson should emphasize: 1) use of sunglasses with good UV rating can protect the eyes; 2) moderation in exposure to screen monitors (TV, computer); 3) annual vision screening to detect visual acuity problems early; and, 4) towels and beddings should not be shared with people who have sore eyes.
Books mention that only parents give love and care. [Gr. 1, p.17]	Even children who are orphaned, whose parents work overseas, cared by single parents or taken care of by relatives or caregivers can also give love and care. This is also a good opportunity to include child abuse, and what a child can do if they experience abuse.

Books mention tooth brushing is done in up-down motion. [Gr. 2, p.20]	Toothbrushing is done using circular strokes. Eating too much sweets frequently can cause cavities if no brushing, gargling or drinking of water is done afterwards.
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## SAFETY AND FIRST AID

Inaccuracy/ Misstatement	Revisions
Generalizations like cats and dogs have rabies, and that all snakes are poisonous are made. Children are admonished to stay away from bees, snakes and wild animals. [Gr. 4, p.60 & TM]	Generalizations like these should be avoided. Telling children to stay away from several animals could also hinder their education. Farm animals and pets, when handled correctly, can be a good experience. The following are recommended for responsible pet owners: 1) Dogs should have a leash when taken for a walk; 2) Pets ( dogs, cats) should be given regular anti-rabies vaccinations; 3) Pets need bathing and clean areas to stay; 4) Pets also need exercise.
The recommended first aid for a fracture is to first ask the child to lie down. [Gr. 4, p.24, 260]	The lesson should state that the first aid for fractures is immobilization. Making the patient lie down might, in fact, make the fracture worse.
Children are advised to stay in a “safe place” during a solar eclipse. [Gr. 4, p.248]	This phenomenon does not necessitate going to a “safe place.” The best advice for a child is to avoid staring at the sun without protective eye gadgets, particularly since it is very interesting to look at a solar eclipse.
Children are advised that the best way to remove foreign object in the eyes is to close their eyes in a basin of water. [Gr. 2, p.16]	For foreign bodies inside the eyes, the recommend procedure is to flush the eyes with clean water. Emphasize that the patient should refrain from rubbing the eyes which might cause irritation and further damage.
There is a simple mention of children being “careful” with firecrackers.” [Gr. 4, p.178]	It should emphasize that children should never play with firecrackers. Alternative ways of celebrating, instead of playing with firecrackers, should be presented.
Students are informed about “objects that burn easily” and that “one must keep these objects away.” These ideas are not clear and need further explanation. [Gr. 4, p.177-178]	Lesson should explain what objects are highly flammable e.g. liquid fuels, paper, synthetic cloth, firecrackers, gunpowder, and that these highly flammable objects should be kept away from sparks or items that produce heat like stoves, lamps, candles. Other fire prevention/ safety measures include: keeping a fire extinguisher and knowing how to use it; using baking soda or a damp towel instead of throwing water on a grease fire and; keeping the electrical system well-maintained.

# GROWTH AND DEVELOPMENT

Inaccuracy/ Misstatement	Revisions
<b>Skeletal System</b>	
<p>“Have the children see how cartilages join muscles to the bones.”</p> <p>“The cartilage connects the bones and the joints.” [Gr. 4 TM]</p>	<p>The <b>cartilage</b> does not connect the bone and the joint. Cartilages are tissues that cover the surface of the bone that comes in contact (or articulates) with another bone. <b>Ligaments</b> connect bones to bones. <b>Tendons</b> connect muscles to bones.</p>
<p>“The spinal column is a large bone that is found at the center of the back...” The spinal column is made up of “33 small separate bones.” [Gr. 4, p.4]</p>	<p>This is not an accurate description because the spinal column is not really one large bone. Neither is it made up of 33 separate bones. There are seven separate cervical vertebrae or bones; 12 thoracic and five lumbar. The sacrum is really one unit made up of six fused vertebrae and the coccyx is one unit of four fused vertebrae.</p>
<p>Erroneous definitions [Gr. 4, Glossary]:</p> <p>“Tibia—the smaller bone in the upper arm from the shoulder to the elbow”</p> <p>“Fracture—an injury resulting from a broken bone”</p>	<p><b>Tibia</b> is the big bone of the lower leg. The upper arm bone from the shoulder to the elbow joint is called the <b>humerus</b>; it is not a small bone, but rather one of the long bones of the body.</p> <p>Fracture is a broken bone.</p>
<b>Respiratory System</b>	
<p>“It includes these organs ... bronchitis...” [Gr. 5, p.25]</p>	<p>Bronchitis (as in other words with the suffix “-itis”) refers to the infection of the structure called bronchus. This is the structure that should be referred to in the paragraph.</p>
<p>“socially active people produce less mucus...” [Gr. 6, p.52]</p>	<p>The author makes a claim that this was reported in JAMA (Journal of the American Medical Association); there was no citation made. It cannot be corroborated.</p>
<b>Circulatory System</b>	
<p>“Palpitation—irregular heartbeat” [Gr. 6 TM, p.7]</p>	<p>Palpitation is the conscious sensation of one’s heart beating; it is not synonymous to irregular heartbeat. One can have palpitations and still have regular heartbeat. Conversely, an irregular heartbeat does not necessarily present as palpitations.</p>

<p>“There are about four liters of blood in the human body.” [Gr. 6 TM, p.7]</p>	<p>This is not a fixed volume for everybody; children will have less. An average adult weighing about 70 kilos will have around 4.7 liters of blood. Newborn babies have a blood volume of about 78-86 ml per kilogram body weight; children and teens about 80-90 ml per kilogram body weight.</p>
<p>“Heart to lungs to all parts of the body to heart” [Gr. 6 TM, p.8]</p>	<p>The diagram and the description are inaccurate. Unoxygenated blood from all parts of the body is returned to the right side of the heart, right atrium then right ventricle. The right ventricle pumps this blood to the lungs where it is oxygenated. From the lungs, blood is returned to the left side of the heart; left atrium then left ventricle. The left ventricle then pumps the oxygenated blood to the rest of the body.</p>
<p>Two conflicting statements on the proportion of plasma over the total volume of blood is confusing. [Gr. 6, p.12]</p>	<p>Accuracy and consistency is important. Plasma makes up 40 to 50% of blood.</p>
<p><b>Inaccurate statements</b> [Gr.6]  “Hemoglobin is important to prevent a deficiency disease, anemia.” [p.13]</p>	<p>It is not really hemoglobin alone, its presence or absence, which causes anemia. It is the level or amount of hemoglobin or RBC in the body that matters. Low levels can cause a condition called anemia. Lack of iron also causes anemia.</p>
<p>“WBCs have no regular shape.” [p.13]</p>	<p>WBCs (white blood cells) are all rounded cells; the nucleus of the WBC has no regular shape.</p>
<p>“When you bleed, these platelets break up readily.” [p.14]</p>	<p>The platelets, the smallest cellular components of blood, do not break up when there is bleeding; they actually clump together to form a plug on the cut vessel to stop the bleeding.</p>
<p>“Arteries and veins branch into capillaries.” [p.18]</p>	<p>Capillaries are themselves distinct blood vessels that neither originate from veins or arteries. Capillaries are found between the smallest artery called arteriole and the smallest vein called venule.</p>
<p>“The capillaries carry oxygen and nutrients to the cells.” [p.18]</p>	<p>The exchange of gases and nutrients between the blood and the tissue takes place in the capillaries. Arteries are the blood vessels that carry oxygen and nutrients.</p>
<p>“Macrophages are white blood cells.” [p.18]</p>	<p>They are specialized phagocytic cells, not white blood cells. Macrophages are not found in the blood vessels; they are found in tissues.</p>

<b>Lymphatic system [Gr. 6]</b>	
“If you get sick, you are likely to develop lymph nodes.” [p.15, 20]	The lymph nodes are anatomic structures that are always in the body. They do not develop when one gets sick. Rather, lymph nodes can get swollen during sickness, as in swollen neck glands during a throat infection or a swollen gland in the armpit or the inguinal area when there is an infected wound of the arm or leg respectively. The swelling of the lymph nodes or glands indicate that the body is trying to fight the infection in the body.
Composition of the lymphatic system. [p.15, 20]	The spleen, thymus and bone marrow are also parts of the lymphatic system.
<b>Nervous System</b>	
The description of the cerebrum and cerebellum in the background information is confusing. [Gr. 6 TM, p.21]	The cerebrum and cerebellum are two distinct structures of the brain. The <b>cerebrum</b> is the largest part of the brain, has left and right hemispheres, and controls all conscious efforts of the person. The <b>cerebellum</b> is located at the back of the cerebrum (not back of the skull; it is still within the skull!) and is almost covered by it. It is responsible for coordinating voluntary muscular activities or movements, and in maintaining balance. It has no hemispheres, but has three lobes: anterior, posterior and flocculo-nodular lobe.
The text box in this page and the labeling is wrong. [Gr. 6, p.38]	Control of voluntary movement is exerted by the Somatic Nervous System; involuntary movement is controlled by the Autonomic Nervous System.
Examples of voluntary and involuntary muscles. [Gr. 4, p.15]	The periorbital muscles in the eye (i.e. muscles around the eye) are also voluntary muscles; the small eye muscles that control the size of the pupil is involuntary.
“Sensory nerves which respond to external stimuli....” [Gr. 6, p.41]	Sensory nerves do not respond to a stimulus. Sensory nerves detect or pick up a stimulus. The information is immediately sent to the central nervous system so that an appropriate response is made. The signal for the appropriate response is carried by the motor nerves.
The procedure being described in the activity will not really be able to elicit the knee jerk reflex. [Gr. 6, p.42]	To elicit the knee jerk reflex, the legs should be hanging loosely from the edge of a table. The tendon at the knee joint is then briskly tapped by using a special rubber hammer (i.e. neurologic hammer).
Clarification on the divisions of the nervous system. [Gr. 6, p.53]	Under the peripheral nervous system are the autonomic nervous system and the somatic nervous system.

Comment on the exercise asking a student to look into the ear using a penlight. [Gr. 3, p.16]	A penlight will not allow the student to see the inner parts of the ear. Even the eardrum can hardly be seen with the penlight; a special instrument called an otoscope is used for checking the ear drum. The inner ear, or more accurately, the middle ear can best be taught using a diagram or a model, if available.
<b>Others</b>	
“Eating fruits can cause stomachache.” [Gr. 1, English, p.221]	Eating fruits in itself does not cause abdominal pain. Factors for abdominal pain may include, but are not limited to, indigestion, increase in acidity, infections like acute gastroenteritis or diarrhea.
Definition of <i>pupil</i> as part of the eye found in the middle of the cornea and retina. [Gr. 3, p.7]	The pupil is the black dot in the center of the iris, which is the colored part of the eye. Also, sclera, the white part of the eye, is not mentioned.
“The two ovaries take turns in releasing the egg.” [Gr.5, p.5]	The ovaries do not necessarily alternate every other month, as connoted by the statement. The egg released depends on which one becomes most mature among the many being developed in both ovaries.

## PREVENTION AND CONTROL OF DISEASES

Definition of anemia “This condition is due to iron deficiency.” [Gr. 6, p.21, TM, p.18]	While iron deficiency is, indeed, the most common cause, anemia can come from many possible causes (e.g. blood loss, chronic diseases, and genetic diseases). In the Philippines, anemia that is due to iron deficiency is commonly the result of micronutrient malnutrition or parasitic infestations (e.g. hookworm and other geo-helminths).
Weather and illness: “Rainy days can make you sick.” [Gr. 2, p.158]	It isn’t really the rain that causes sickness. Rather, during the rainy or wet season, there are a lot more viruses that proliferate in the environment that in turn can cause sickness in children and adults.
Arteriosclerosis vs. Atherosclerosis: “Some vein disorders include varicose veins and arteriosclerosis.” [Gr. 6 TM, p.17]	Arteriosclerosis is not a disease of the vein. It is a disease of the arteries. Also, what is being referred to as the hardening of the arteries is really atherosclerosis. The disease process involves the accumulation of deposits like fat and cholesterol in the lining of the arteries. This causes the narrowing of the diameter of the blood vessel. Arteriosclerosis refers to the thickening of the arterioles, the smallest division of arteries, usually due to disease processes called fibromuscular dysphasia and hyalinization.

<p>Common Cold: “When we have a cold, we cannot taste what we eat because we cannot smell the food.” [Gr. 1, p.26]</p>	<p>The sense of taste is not lost when a person has a cold; the sense of smell is not as sensitive because of the nasal congestion that accompanies the common cold. It may be true that food tastes differently when one has a cold. This is because the final perception of taste is a synthesis or “processing” of all the inputs coming from the different sense organs, including sight, smell and even texture of the food we eat.</p>
<p>“Do not blow your nose too hard. Doing so may cause mucus loaded with germs to travel to your sinuses, get lodged there, and start an infection.” [Gr. 3, p.27]</p>	<p>This is not how sinusitis is caused. The danger is that when one blows the nose very hard, tremendous pressure can be generated in the middle ear cavity that can damage the ear drum and the structures inside the middle ear. Remember that there is a canal (called the “Eustachian tube”) that connects the middle ear and the nasal cavity.</p>
<p>“Constipation is caused by certain types of food... Eating too much of other kinds of food can cause soft stools or even diarrhea.” [Gr. 4, p.28]</p>	<p>The lack of sufficient fiber in the diet is the most common cause of constipation. Fiber-rich food include vegetables and fruits, which should be incorporated regularly in the diet. Diarrhea is caused by microorganisms that find their way into the gut, either through improper handling and cooking of food like incompletely washed food ingredients, cooked food that had been standing for a long time, or poor hygiene like eating with dirty hands. It is not caused by eating too much of one kind of food.</p>
<p>Dehydration: Lack of water in the body can make us dehydrated. Sometimes, providing fluid direct to the blood vessel is necessary. [Gr. 3, p.198]</p>	<p>While intravenous therapy is, in fact, an option for dehydration, it is not the first line of treatment. Most cases of dehydration, including those caused by acute diarrheas, should respond to an oral rehydration therapy. This is a special liquid or solution (sometimes called Oresol or oral rehydration solution, which can actually be prepared at home) that is given by mouth to an infant or child who is beginning to show signs of dehydration.</p>
<p>“Gout is similar to arthritis. It affects the ligaments in the joints. It is caused by excessive uric acid in the blood. It is characterized by swelling and inflammation of the ligaments.” [Gr. 3, p.23]</p>	<p>Gout is a systemic disease that is caused by the collection of uric acid crystals in and around the joints. The collection causes inflammation, swelling and pain. The big toe is commonly involved. Gout does not affect the ligaments.</p>

<p>High blood pressure          “This is characterized by a sudden rise in blood pressure. The person usually feels a terrible headache, pain in the neck, dizziness and at times, sweating.” [Gr. 6, p.21]</p>	<p>Not everybody with high blood pressure feel pain in the neck. In fact, a good number of persons with elevated blood pressure will not feel any symptom at all. This highlights the necessity for checking the blood pressure regularly, including children three years and older. Long standing and uncontrolled high blood pressure can be fatal.</p>
<p>HIV/AIDS (6TM-19) "Ask the pupils to find out the measures being taken by the government in controlling the prevalence of disorders of the circulatory system such as AIDS." [Gr. 6 TM, p.19]</p>	<p>Being positive for HIV means that the person has the human immunodeficiency virus within his or her body, but there are no symptoms or signs of the disease yet. AIDS (Acquired Immune Deficiency Syndrome) is the condition when one has the HIV virus and also has the signs and symptoms of the disease. As the name implies, HIV/AIDS is primarily a problem with the immune system, not the circulatory system.</p>
<p>Infantile Paralysis or Poliomyelitis: "It is characterized by fever and shortening of the bones in the legs resulting in deformity." [Gr. 4, p.23]</p>	<p>The paralysis or limp that is the consequence of polio is not because of the shortening of the bones. In fact, poliomyelitis does not affect the bones, but rather the nerves in the brainstem and the spinal cord. The effect on the nerves, the involved muscles of the leg also become wasted. This causes the paralysis of the extremities or the limp that is seen among children or adults who had poliomyelitis.</p>
<p>Rabies: "Rabies may be present in the saliva of a dog or cat so be sure your skin do [sic] not get in contact with it." [Gr. 3, p.106]</p>	<p>Contact with the saliva of dogs or cats will not automatically cause rabies if the skin is not broken. Only a rabid animal can transmit the disease to humans through an open wound or break in the skin, such as a bite. Regular vaccination of pet dogs and cats against rabies is an important preventive measure.</p>
<p>"Rheumatic heart fever" [Gr.6, p.18]</p>	<p>Rheumatic fever is a disease arising from infection with a specific type of bacteria called "beta-hemolytic streptococcus." It can start as a throat infection. (Viruses, however, are still the most common cause of throat infections.) Rheumatic heart disease, on the other hand, is a possible complication of untreated rheumatic fever. There is no such thing as a "rheumatic heart fever."</p>

<p>“Arthritis is a condition that affects the joints. In serious cases, it is called a rheumatoid arthritis. Rheumatoid arthritis is marked by the stiffening of the joints. A person with rheumatoid arthritis becomes permanently invalid and disabled.” [Gr. 4, p.23]</p>	<p>Rheumatoid arthritis is a very specific disease that is characterized by inflammation of the joints. This is different from osteoarthritis, usually the arthritis of old age, where there is actual damage to the surfaces of the joint. One does not lead to the other; neither is one more serious than the other. There are varying degrees of debility. Persons with rheumatoid arthritis or osteoarthritis do not become permanently invalid or disabled. There are tertiary preventive strategies, like rehabilitation that improve the quality of life of the people who are affected with these diseases.</p>
<p>Antibiotics: “Sometimes, antibiotics are given to prevent secondary infections.” [Gr. 3, p.226]</p>	<p>Antibiotics should only be taken when there are clear reasons for them, like in bacterial infections. Viral infections, like the common cold, do not require antibiotics because they have no effect on viruses. Likewise, antibiotics are not used to prevent secondary infections. Some children or adults with an underlying condition like a structural problem in the heart, may be asked to take antibiotics before certain procedures, like tooth extraction, are done. In this case, the antibiotic is given to prevent a potentially serious infection of the heart. Self-medication and unnecessary use of antibiotics are harmful because these cause microorganisms to develop resistance against the antibiotics. This makes the antibiotic less useful when it becomes necessary to use it.</p>

## COMMUNITY HEALTH

This conceptual area aims to impart an appreciation of healthful surroundings and how environmental degradation affects people. This includes care and concern for our environment, such as avoiding practices that cause air, water and soil pollution. On the other hand, this also includes an awareness of how human activities affect the environment.

<b>Inaccuracies/ Misstatements</b>	<b>Revisions</b>
<p>“Ground water...is safe to drink because it is not contaminated with dirt from the surface.... Sometimes it is necessary to boil water for fifteen minutes to make it safe for drinking.” [Gr. 3, p.195]</p>	<p>Ground water needs to be boiled prior to drinking unless the source has been tested by sanitary engineers and found to be safe. Ground water can be contaminated by microorganisms coming from sewage systems or by heavy metals, especially in mining areas.</p>

<p>“We should not throw garbage... non-biodegradable materials into the water because they pollute the water.” [Gr. 3, p. 204]</p>	<p>Even biodegradable human and household wastes pollute the water and should not be thrown into waterways. Human wastes should be disposed of in a manner that prevents contamination of food and water sources, such as the proper use of toilets or burying waste according to environmental laws. Biodegradable household wastes should be composted. There is no mention of solid waste.</p>
<p>“Air pollution can affect the throat and lungs. It can cause sore throat and coughing.” [Gr. 4, p.133]</p>	<p>Air pollution can irritate the throat and airways, but micro-organisms (such as viruses and bacteria) cause sore throat.</p>

## FOOD AND NUTRITION

It has to be emphasized in the textbooks across all grade levels that the body takes in the good nutrients, vitamins, minerals from food, and passes the rest from the body as waste. The best way to get nutrients is to eat fresh food that has been allowed to mature in a clean environment. When we eat food that grows in polluted places, we have a good chance of absorbing the “pollution” into our bodies as well.

Ideally, children and parents need to pay attention to how food is grown and raised. For example, there are farms where vegetables are dipped in cans filled with chemical insect repellent. The best action is to avoid food grown in such chemically-filled environments. However, this might not be entirely realistic, thus the need to thoroughly wash food, particularly vegetables and fruits before cooking or eating them is paramount.

The high rate of poverty in the country has also contributed to the increase of people scavenging for food. Food that is turning rancid is still ingested, which leads to food poisoning. It is important to warn students about the dangers of “bad” food.

<p>Good nutrition: The objective for Lesson 7 is for pupils to name “the good food habits that will help children grow strong and healthy.” However, the activities are limited to classifying children’s favorite food into Go, Glow, Grow. [Gr. 2 TM, p.18]</p>	<p>Include lessons on how to choose the right kind of food at home, in school, and in other places.</p>
<p>Eating fruits and stomachache: “Dory eats all the fruits. Dory has stomachache.” [Gr. 1 Fun in English, p.221]</p>	<p>The activity may de-emphasize the necessity of including fruits in the diet.</p>
<p>Drawing shows child eating junk food and soft drinks but the text does not identify this as a bad habit. [Gr. 4, p.26]</p>	<p>Indicate that eating junk food and drinking soft drinks are not good habits.</p>

<p>Go, Grow, Glow food: A cupcake is not a healthful GO food. [Gr. 1 S &amp; H, p.13)</p>	<p>Replace example with a complex carbohydrate, which should be an important part of our diet. Complex carbohydrates are usually plant-based food and are found in grain products, vegetables and potatoes. They are generally also lower in fat content and have additional essential nutrients like dietary fiber.</p>
<p>Vitamins: There is no mention of vitamins that are present in fruits and vegetables. [Gr. 2 S &amp; H, p.166, 176]</p>	<p>Emphasize that vitamins and minerals in natural food are better than those in pill form and that vitamin supplements are unnecessary if one eats a balanced diet. In addition, sufficient sun exposure also provides Vitamin D.</p>
<p>The main text defines Fats as part of the Go food group. The activity asks students to match Fats with the definition that it “is hard to digest, so they should be eaten in small amounts.” [Gr. 3, p.58, 59]</p>	<p>Fats should be taken in small amounts not because they are hard to digest, but because of the ill effects of a high-fat diet on the cardiovascular system.</p>
<p>“Observe the food habits of the members of the family. Are they good food habits?” [Gr. 2 TM, p.19]</p>	<p>Explain that culture influences food habits.</p>
<p>Food safety: “You smell food before you eat it. Perhaps you want to find out if it is spoiled. Spoiled food does not smell good.” [Gr. 2 S &amp; H, p.8]</p>	<p>Teach when it is not good manners to smell food before eating. Emphasize that just because food does not smell bad, it is not spoiled. Some spoiled food may not smell bad at all. Some good food may not smell good.</p>
<p>Food safety is limited to watching out for red tide, drinking clean water, washing hands, and using a sanitary toilet. [Gr. 4, p.35, 39]</p>	<p>Food poisoning should also cover contaminated or poorly cooked food. Food that has been standing too long in a room temperature might cause food poisoning. It is also important to teach children to look out for expiry dates on any processed food item that they eat. Proper handling and storage of food should also be discussed.</p>

## CHAPTER 5

# Round-table discussion

### I. Introduction

Experts in the disciplines of education, cognitive psychology, medical anthropology, indigenous health and local governance were invited as participants in a round table discussion where the Review Team elicited comments on the findings and recommendations. Participants were provided with copies of the review prior to the discussion.

The following questions were posed for the discussion:

- Are there other methodologies and processes that can enhance the review of the textbooks?
- Are there areas that need further analysis?
- How can integration be done effectively between
  - (1) values education and health;
  - (2) core life skills and health; and
  - (3) various subjects (Science and Health into English for Grades 1 and 2; Health into Science for Grades 3 to 6; and PE-Health-Music into *Makabayan* in high school)?
- How do we reform the health curriculum in basic education in terms of objectives, content, learning experiences and evaluation methods?

Participants to the round table discussion held on March 16, 2005 at the National Institute for Science and Mathematics Education (NISMED) were:

Acuña, Jasmin, Ph.D.	Consultant, Research and Publications Management, Miriam College
Carale, Lourdes, Ph.D.	National Institute for Science and Mathematics Education, UP Diliman
Lagaya, Alfonso, M.D.	Patient First Clinic, Glorietta 4, Makati City
Liwag, Emy, Ph.D.	Chair, Department of Psychology, Ateneo de Manila University
Reyes, Risa, Ph.D.	National Institute for Science and Mathematics Education, UP Diliman
Salazar, Catalina, Ph.D.	Faculty, University of the Philippines Integrated School
Tan, Michael, Ph.D.	Chair, Department of Anthropology, University

Also present to provide input during the discussion were Dr. Teresita Inciong and Ms. Socorro Pilor of the Department of Education, Ma. Asena Galang of the National Book Development Board (NBDB), and Commissioner Felice P. Sta. Maria of UNESCO Social and Human Sciences Committee..

Pilor acknowledged that there is need for huge improvement in public school textbooks. She related that DepEd had already commissioned groups of writers from the University of the Philippines to replace the textbooks on Asya (Social Studies).

Then Education Secretary Florencio Abad also asked that all textbooks being used in public schools be reviewed accordingly. DepEd involved specialists from universities and the academe to undertake this endeavor.

As a stopgap measure, while new textbooks are being written, DepEd will also come up with teaching notes which will contain whatever errors were found by reviewers, with their corresponding corrections, and these will be issued before the start of school year.

As a preventive measure for erroneous textbooks, there is a need for more stringent evaluation processes that would involve the following:

- a) focus on learning competencies
- b) focus on concepts, grammar and facts
- c) appropriateness to grade levels of students
- d) appropriateness of language vocabulary used

It is also current DepEd policy that the Instructional Materials Council produce a list of approved books/ modules/ materials which local governments can choose from for use in their locally-funded schools

The Department of Education is looking forward to enriching the content of Science and Health textbooks. They realize that it is not in the number of pages of the textbook that make it good, but in the quality of content and manner of presentation. Furthermore, they will also inform and convince legislators that steps are being taken to address the gaps in textbook development and production.

Ms. Asena Galang informed the group that the NBDB has been coordinating with textbook publishers in their desire to help in textbook development for private schools. The current problem they face now is that publishers do not introduce their authors to the development board. Therefore, there is presently no effort to provide seminars for each subject where writers, publishers and developers are required to attend. However, the NBDB will organize workshops in the future to provide writers and publishers with new inputs, developments and recommendations in the different subject areas.

If possible, she hopes that this review effort could result into a national gov-

ernment effort that would endorse the work of teams who conduct reviews and recommendations for every subject. She also said that all recommendations by the review boards should be published. All the new textbooks would then be required to meet the criteria or, at the very least, comply with the principles set by the review teams.

Lastly, she stated that whatever recommendations are made by this review team should be made very explicit to prevent guessing games when the textbooks are revised, published and are distributed throughout the public school system.

## II. Leveling off

To level off the participants and the Review Team's expectations for the discussion, Felice Sta. Maria provided an insight into UNESCO's own goals for the review project. Primarily, UNESCO is a proponent for Education for All and is concerned with what is in education.

UNESCO recognizes that there are many ideas about the connection of health to other aspects of human development. Many of these ideas are crucial in developing the life skills of children but have not been incorporated into the curriculum. One step towards incorporation that DepEd undertook was the establishment of the *Makabayan* curriculum which allows teachers to show students how things are interconnected.

For example, attitudes and character formation are reflected in social sciences. Social studies teach people how to create society, how to develop a productive way of life, how to be a mutually responsible person who affects and creates culture using the environment and his/her social self. It shows people how one's way of life affects others and how it is affected by others as well. On the political end, there is a need to consider the decision-making elements of society. Healthier people means less strain on government expenditure.

However, there is very little attention on Health at any level of society. On the micro level, we can look at the effects of nutrition on education like too much protein can lead to migraine headaches or too much carbohydrates lead to sleepiness. On the macro level, we could also look at the effects of stress on the overall health of a person and how s/he copes with stress. Children get stressed from school, parents get stressed from work and this loops again into the role of society in keeping people healthy. If the workplace is supportive, people work better and don't get sick. Hence, if the family environment is healthy, children come home from school to easily relieve themselves of stress. A healthy family environment also becomes a factor for emotional maturity of the children, who will eventually develop into responsible citizens.

Currently, there are also numerous and various new concepts in society that put people into new paradigms. Hand in hand with health, there is a need to make people understand that their minds are important, as well. There cannot be a well-functioning society if its citizens do not maximize the use of their brains. To this end, it is imperative that teachers and parents become up-to-date about the development of the brain and how this affects education.

### III. Initial thoughts on the review

At the outset, it was clear that there were certain common topics that appeared in the Science and Health textbooks like growth and development, nutrition, population. There was also an imbalance among the topics in that hygiene and care for the body are discussed from Grades 1-3 while there is barely any mention of common childhood ailments like colds and fevers. Participants suggested that the common topics could be subsumed under the four domains of Health Education, namely safety, healthy living, environment and consumerism.

Another thinking point that was raised was a World Bank study conducted a few years ago, which reported that the number one reason for children dropping out of school is poor health. Children fall ill; they miss school for two weeks and refuse to return to school. While working on the review, and while thinking of recommendations and suggestions for this project, the Team and the participants were advised to keep this information in mind.

Conceptual development in children was also pointed out during the discussion. Two questions in this area arose:

- a) How children's' concepts develop;
- b) What children get from the textbooks and the teachers.

Reading the review of the textbooks provided an insight into why the level of conceptual development in children is precisely the level that it is now [referring to the dismal results of the review].

Table 6. Concept development in children

Concepts learned through	Review Team's identification
Defining	Team identified inaccurate definitions
Prototypes	Many of the prototypes are not accurate. Some concepts focuses on the unimportant aspects of the concepts. Some prototypes are not culturally sensitive.
Exemplars/ examples	Team picked up that very many exemplars are not appropriate to the children's level of development.

The Review Team was commended for being sensitive to the conceptual development of children [Table 6]. Although the Team did not seem to be aware of the formal framework of conceptual

development, Dr. Emy Liwag noted that the Review Team was picking up and detecting concepts that were introduced at an age when the child is not yet ready to process at that level.

The Team was also able to point out that the process of delivery fails when concepts are delivered through inaccurate or inadequate language, or when the delivery is constrained with structural and instructional problems. This is a significant diagnosis because the delivery is not limited to the textbooks, but includes the Teacher's Manuals as well.

## IV. Inputs and recommendations for the project

### A. On methodology of the project

Participants agreed that the team's methodology was very detailed. However, there is also a need for field validation—to ask, *What is actually happening in the schools?*

The assessment portions of the textbooks should also be a concern. It was suggested that children be involved in its development.

It was also pointed out that culturally, teachers follow what already exists. There is now a need to start a process where different topics to be integrated are identified. The process includes the grade levels into which topics are to be integrated. Science in the schools, as it is being taught, does not reflect nor respect the culture that is already in place such as books or that teachers constantly ask children to wash their hands but there is no water, much less soap, in some communities.

The recommended steps to be taken next in this review project are to identify concepts and set down levels where they are appropriate. A matrix can be created for textbook writers to use as a form of a template that indicates **major concepts that a child should know from elementary to high school**. It is also important to get the participation of children in the identification of topics and how to integrate Health into the Basic Education Curriculum.

### B. On integration

One of the main problems identified in Health Education is how integration is to be done. A brief background on what is actually happening inside the schools was provided. Most teachers in the schools already integrate Health into other subjects. But this is usually done when the need to include health is obvious like when tackling body systems in science, caring for the body is included as the health aspect.

Dr. Cristy Vela related an interview she conducted with a division supervisor on how teachers integrate Health in Science. The answer: *“babala na ang teacher dum (the teacher will take care of that).”* Her follow up question, *“paano kung hindi health expert (what if the teacher is not a health expert)?”* did not merit an answer. She recommended that a seminar on integration should be given to teachers.

All, except one, agree that the integration of Science and Health is appropriate. A common focus will develop basic learning content in the form of knowledge, skills, positive attitudes, and values that a child can use to solve problems and make decisions. They recognized that the school system already has an overloaded curriculum, but there is still a need to include more Health topics and messages into the Science and Health curriculum. This necessitates the deletion of abstract topics in the now overloaded curriculum.

The main concern on the integration process is the prime importance of

Health Education. As such, it is best that Health be integrated in Science, as well as into other subjects – Social Studies, Physical Education, English, Home Economics, Mathematics. Both in the classroom and in the textbooks, the delivery of basic learning content could use strategies that require the active learning involvement of the student. Since Health is concerned with the individual not simply as a biological organism, an intellectual or emotional being, or a social creature, but rather as a whole person, all of the related topics basic to curriculum development command equal consideration.

Values Education should also be present in health in the form of concept attainment, for example, diseases can be prevented through hygiene and sanitation. In turn, Values Education can also be integrated in topics about nutrition, environment and people.

However, caution is advised when identifying points of integration to avoid duplication of health messages in the subject areas like body parts are in Science, drug education is in Values Education, physical abuse is in Physical Education or Social Studies. It would be best for textbook writers to be conscious that any duplications are for reinforcement purposes, thus are meant to enhance the content of the books instead of merely repeating health concepts in various grade levels.

While majority of the participants agree that Science and Health should be integrated, Dr. Catalina Salazar took on a different approach. The U.P. Integrated School (UPIS) believes that both are equally important, thus these two are taught as separate subjects. Health Education at UPIS covers growth, personal health, family health, community health, consumerism, safety, nutrition and disease prevention.

Dr. Salazar related that with the separation of the two subjects, UPIS was able to target specific health issues head on. A few years ago, they discovered that their students were not practicing proper dental care. Thus, they included dental hygiene and care in their Health curriculum for the third grade and asked the UP-Manila College of Dentistry to send their students to “practice” at UPIS. The problem was solved and continues to be addressed as a prevention measure.

Included in UPIS’ sixth grade Health curriculum is the topic of menstruation to be learned by both males and females. Other than the physical aspects of menstruation, they also include *pag-aalaga sa puri ng babae* (caring for virtue). Reproductive health is always taught as within the context of marriage, hence values and valuing are also inculcated.

### **C. On content**

The discussion intimately revolved on the issue of content. Most of the participants felt that there are plenty of gaps in the textbooks. Issues and concepts that should have been prioritized are absent. All the textbooks from Grades 1-6 are knowledge-based with little emphasis on skill building and critical thinking. There is also little conscious effort on the part of the textbook writers to include appropriate lessons for their target audience.

For example, the textbooks dealt extensively with parts of the body but most recommendations for care was to see a doctor. The question of “is there a doctor in the area” arises. The participants recommended that alternative health care and herbal medicines be included in the books especially for the poor, both in urban and rural areas.

Dr. Alfonso Lagaya provided a brief framework to introduce the concept of complementary/ alternative/ indigenous health among elementary students. Four main areas namely, herbal medicines, massage therapy (the Chinese-Filipino practices), energy healing, and other folkloric practices with scientific basis, can be covered [Table 6].

It was also recommended that educators respect the child’s prior knowledge. Health is something a child experiences from birth. Textbooks should come from this and provide deepening concepts. They should draw from the language of the child and involve the children in their own learning.

From this discussion, participants drew attention to the trend among the textbooks – that there is a lot of emphasis on hygiene but the focus is more on the germ theory. It seems that authors have their own issues so were not conscious about gender, health rights or peace education. There is no mention on sustainable development and its inclusion is recommended for Grades 4-6.

Added to that, the textbooks also do not address irresponsible sexuality, substance abuse, lack of respect for the body or for the self. These issues are already prevalent in our society, and it would have been expected for writers to address them. Participants also recommend that **media literacy** and **valuing** be taught in schools as early as the primary grade levels. Being responsible consumers is not only a responsibility for adults.

There is also a need to teach children about preferences and prejudices that is, the country grows tobacco but we always say that smoking is bad for the health. Teachers keep talking about respect for the body, that not everything that appears on television is correct. But then, media is telling the children the exact opposite, and their messages come out as more powerful than those from the classroom. Concepts that are prevalent in this multi-media world promote that women are to be used (*gagamitin ang babae*). Media also presents implicit messages such as if a woman uses a particular shampoo, she gets the man of her choice. These are timely issues that need to be confronted in order to equip children with the power, knowledge and maturity to make their own decisions.

Everyone agreed that this issue should appear in the curriculum. Salazar shared that UPIS focuses on consumer health in Grade 5, and reinforces the topic in Grade 8. One grade level is not enough to fully ensure that students absorb and practice what they learned. She recommended that one grade level should incorporate only three to four major concepts like dental health in Grade 3.

The participants also agreed to the suggestion that textbook writers be required to attend seminars. To further deepen their understanding of their audience, authors can be requested to try living in rural areas in order to contextualize

their books and not alienate readers from marginalized communities.

#### **D. On reform in the Health curriculum**

***Language.*** Given that there is a failure of delivery within the classroom, there appears to be a need to look into the issue of bilingualism to teach Science and Health, especially in public schools. All textbooks and Teacher's Manuals are written in English, thus participants recommended that the Department of Education consider using local languages, including publishing a local language textbook.

Children are thinking in their local languages and teaching them important concepts and life skills in the vernacular will enhance learning. Teachers can use local terms to define English terms. A look at local concepts is also warranted. For example, Filipino terms like *binat*, *pasma*, *hiyang*, have no particular translations into English but are very entrenched in Philippine culture. Furthermore, these health concepts have their own particular treatments and cures that should be acknowledged. Dr. Michael Tan recommended a look into a project of the UP College of Medicine that came up with anatomical terms in Filipino.

To strengthen this idea, it was revealed that UPIS uses modules in teaching Health and uses Filipino as the medium of instruction. Concept development in Filipino can be done for all systems of the body. Through their methods, learning is faster and more efficient. Concepts are absorbed and internalized more thoroughly because children are simply learning the concepts, not both the language and the concepts.

In another study on concept development (about the circulatory system), the whole teaching process was conducted in Tagalog. High-level, mid-level and low-level ability groups of public school students were selected for the study. Students were easily able to learn the concepts when taught to them in Tagalog. The teaching process also used models asking what the students felt, what they saw in their bodies. The use of Filipino or local languages contributes to the step-by-step development of concepts in children.

Dr. Teresita Inciong shared that it is actually DepEd's policy to teach Science and Health in the lingua franca. They acknowledged that students learn and perform better when they are taught in their language. However, she agreed that the scope and sequence of the topics leaves much to be desired.

***Scientific and Technological Literacy.*** Drs. Risa Reyes and Lourdes Carale recommended Scientific and Technological Literacy (STL) as a new direction in science teaching. In brief, it is NISMED's position that "health education is an essential part of the curriculum because it influences the well-being of school-children and impacts on their health-related behavior and action until they become adults." It is also essential that STL be given emphasis "to balance the largely academic and theoretical orientation of science programs in schools." Furthermore, the science curriculum should be incorporated into societal issues like "health, population, nutrition, environment and sustainable development to provide relevance for the learners." [see Appendix F for NISMED position

Table 7. Alternative and Indigenous Health practices

<b>Herbal medicines:</b>	
For fungal skin infections	akapulko leaves ( <i>Cassia alata</i> )
For bacterial skin infections	guava leaves ( <i>Psidium guajava</i> )
For simple body pains	Yerba buena ( <i>Mentha cordifolia</i> )
For high cholesterol	Garlic ( <i>Allium sativa</i> )
For high sugar in the blood (diabetes)	ampalaya ( <i>Momordica charantia</i> )
For high uric acid in the blood (gouty arthritis)	panciti-pancitan or ulasimang bato ( <i>Peperomia pellucida</i> )
For painful menstrual cramps	tsaang-gubat ( <i>Carmona refusa</i> )
For stones in the urinary bladder, kidneys & ureters	sambong ( <i>Blumea balsamifera</i> )
For simple cough	lagundi ( <i>Vitex negundo</i> )
For intestinal parasites	niyog-niyugan ( <i>Quisqualis indica</i> )
<b>Massage Therapy (the common Chinese-Filipino practice)</b>	
Musculo-Skeletal Disorder:	Other Selected Disorders:
For stresses or simple pain relief Headaches, Migraine, Sinusitis Neck Pains Shoulder Pains Back Pains Pelvic Pains, Sciatica Knee Pains Leg Cramps Ankle/ Heel Pains, Foot Pains	Bronchial wheezing, Anxiety High Blood Pressure and Palpitations Gastro-intestinal spasms Menstrual Cramps Control of Addiction to Drugs, Smoking, Alcohol and Food

paper on Health Education].

**Peace, Gender, Environment.** Dr. Jasmin Acuña emphasized that priority be given on peace, gender and the environment. These are three thrusts that the government should address. If there is no peace, health does not really matter because people will die anyway. This is especially true in the war-torn areas of Mindanao, and even in overly populated urban communities where non-peace reigns. She recommended that textbooks address these three essential issues and that they should be integrated across the curriculum. To really understand a particular concern (health), then everything should be centered on this theme. Students have to latch on to something concrete.

Even the concept of STL can become central to the themes of peace, gender and environment. The process of peace could also be facilitated with the use of language. “I killed him” vs “*Napatay ko e?*” and *binuntal* vs *nabuntal* all have very different connotations from each other. Philippine cultural concepts of peace that will help us cope with the changing environment could be taught to children even in the early elementary grades. There should be respect where the child is coming from.

Dr. Alfonso Lagaya also recommended a focus on energy healing. If we introduce concepts on energy and its aspects of healing, we can proceed to the concept of peace like the way Muslims shake hands and put them on their chests to signify peace; the traditional Filipino way of *mano*, and taking care of the environment.

***Basic Principles.*** It was suggested that instead of objectives, schools could utilize basic principles revolving around society like the respect for human rights and the environment, stewardship of resources, and respect for the culture of indigenous peoples. The child's experiences could be used to teach healthy practices

Scientific processes should also be given emphasis and not simply as science topics as we now have. Health concerns could and should pervade all areas of the curriculum like teaching English terms that pertain to Health in English classes in the early grades, then eventually including good health habits in the older grades. Participants agreed that memorization should not take precedence over learning concepts. Layman's terms instead of anatomical terms could be used like lower arm bone instead of radius or ulna.

Also, learning opportunities and content should be based on the desired competencies to best provide the opportunity for students to practice the desired behaviors. A variety of methods could also be specified. For example, the textbook as a learning material is already established as valid input for convergent learning. These could also be utilized in such a way as to provide opportunity for divergent learning – formulating hypotheses, establishing insights, and interpreting events.

Furthermore, learning activities and approaches could be designed to help students develop skills of critical thinking, problem solving, value formation, and of utilizing knowledge in an integrated context.

***Life Cycle Approach.*** Health is a lifetime concern for both women and men, from infancy to old age. Important issues of education and appropriate health care arise in childhood and adolescence. These issues should be addressed in the early grades of the school system.

For example, families, especially in rural areas, do not recognize that children can have poor eyesight or poor hearing. Children should be taught that it happens. Ask the children on the first day of school who wants to sit in front. Those who have poor eyesight and poor hearing would want to be in front and the problems are already identified. Another issue that should be addressed are the most common health problems in the communities, particularly mental health issues.

Concepts of Science and Health should be translated into practical usage in daily life. Supplemental modules could be added to textbooks for local communities; these could include, for example, common diseases in the community, or some concepts and practices to address the common practice of older siblings taking care of younger siblings. Safety issues should also be addressed. 59

It is common in communities, both urban and rural, that pesticide, or kerosene are put in softdrink bottles, which people mistakenly drink at night. To develop these modules, experts like social workers, barangay health workers, and midwives might be consulted. Their inputs would be critical to content formation. These modules could be crafted in such a way that it would not be difficult for teachers to mix and match them with their current topics in the regular curriculum. This would ensure that integration of Health content are addressed properly with minimum fuss.

## V. Challenge

Commissioner Sta. Maria shared that never have textbook writers been given an opportunity to write for a straight 10-year schooling from Grade 1 to High School. There is no chart, master plan or matrix about relationships among subject matters.

She posed a challenge to all participants present, including the representatives from the Department of Education, to take this opportunity to create a **10-year master plan** that includes thinking processes and attitudinal formation.

We must be aware that our goal is to eventually allow local government more participation in curriculum planning. Local governments can then get good ideas enacted in a community. However, unless the local government's own education planners are able to handle this work, there will be vested interests and ill-prepared educators. There will also come a time that when there is not enough money to procure textbooks, then local governments will get private companies who will have vested interests.

These issues should be considered when making the 10-year plan.

During the discussion, the need for a **national textbook** that would provide a national picture of what's happening in the country. It would be the Teacher's Manuals, that are modular and regional, that would keep referring to local lore (e.g. that wild cassava is poisonous is a local lore that has been lost).

Throughout the round-table discussion, a prevailing thread appeared. There is a need to involve local government units, specific experts in various fields, social workers, midwives, teachers, and students in crafting the health education curriculum for public schools. As Dr. Inciong said during the discussion, "education is too important to be left solely to educators."

## CHAPTER 6

# Summary of Findings

The work that the Review Team conducted on the Health content of textbooks in public elementary schools was pursued in the spirit of assisting the Department of Education with its mandate of improving basic education in the country. The goal of making public school textbooks an effective tool for teaching and learning, especially in imparting life skills and knowledge on health, is a shared undertaking. As such, the completed review is not the end goal, but the beginning of a partnership with DepEd in a multi-stakeholder process of continuously improving the textbooks in public schools.

It is also the intention of the UNESCO-National Institutes of Health Review Team to innovate and build on DepEd's existing system of reviewing textbooks. DepEd fully realizes the need for an on-going process of assessment and evaluation. In this regard, the work conducted by an external partner serves to validate the internal efforts being carried out by DepEd.

The observations noted by the Team, including factual errors and inadequacies were made to correct mistakes that might otherwise be passed on to learners in the different schools. It is also a conscious effort to stimulate the cycle of learning for all stakeholders, not just the students but also the teachers, supervisors and school administrators. It would hopefully foster a culture of quality at all levels of the teaching process, from the preparation of the learning materials up to and beyond the actual delivery of instruction in the classrooms.

It was never the intention of the Review Team to be a fault-finding body that would pin down blame on any individual, group or agency for all the observations and statements that have been made in this review.

### **Summary of Findings**

The Review Team made the following general observations on the health content and processes in the textbooks using the framework and the set of criteria that were discussed in the methodology section.

#### **Accuracy and Recency**

The books reviewed presented many errors on accuracy. This is summarized in a simple quantitative count of errors on accuracy based on the criteria used for assessment [Table 7].

Table 7. Total Number of Errors on Accuracy

Grade	3	4	5	6
Total number of errors on accuracy (factual, omission, bias) in text, exercises, illustrations, evaluation, etc. and in recency	<b>157</b>	<b>131</b>	<b>82</b>	<b>122</b>

Though less frequent than the errors on accuracy, there are still some significant errors that are attributable to the recency of the information that the authors of the book are citing (e.g. the average Filipino family size; most recent common morbidities in the country).

The errors in accuracy and recency might be due to the inadequate background of the authors on the technical content of the subject matter, or the inadequate review of the materials by area/ subject specialists. These were gleaned from the way health and medical terms are defined, both in the actual definitions made or in the vital concepts or information that were omitted. The simplification of technical concepts, while important to make the subject matter comprehensible at a level appropriate for the students, is also reflective of the authors' inadequacies, and were not helpful in making the content more understandable.

### **Integrity and Consistency**

While the Basic Education Curriculum emphasizes the integration of core life skills into the curriculum, these are not apparent in the books that were reviewed. Life skills are not consciously expressed nor integrated into the lessons.

Neither the books nor teachers' manual reflect the philosophy that has been defined in the BEC.

### **Organization**

The organization of the features of the book is generally logical.

The teachers' manuals contain many assessment tools that are not congruent with the objectives set forth in the lesson plan. In many instances, the students are being evaluated on concepts that have not yet been taught.

### **Balance**

A cursory count of the pages of the book devoted to the health content and processes, as compared to English and Science show an imbalance with prejudice to Health. This is most notable in the fifth grade textbook. [Refer to Table 3 on p.38].

Balance among the Health content areas need not be equal but proportional, depending on the needs of the pupils at this stage of their growth and development and the needs of society.

Growth and development, as well as personal health constituted, almost two thirds of all the health-related pages in the books. Even in personal health, the focus is largely on hygiene, to the disadvantage of necessary discussions on mental, emotional and social health.

Consumer health and family health have the least allocation of pages while there is barely any discussion at all on Substance Use and Abuse. Considering the potential benefit of preventing many chronic diseases during adulthood through proper food, nutrition and exercise, the discussion on these topics is also very minimal.

All the books emphasize the cognitive domain of learning, with very little attention to the affective and psychomotor domains.

### **Readability and Presentation**

Use of the Fry Readability graph consistently show that the readability levels of the books are for higher grade levels, not for the grade level for which they were written.

Across all books, except for grades one and two, there is prevalent use of complicated vocabulary and technical terms without comprehensive (nor sometimes accurate) definitions or descriptions.

While understandably an effort to control the cost of production, the books are too compact and too overcrowded. Such presentation significantly contributes to an overload of information for the students and does not help at all in the learning process.

### **Sensitivity**

A common finding in all the books is that these are neither consciously gender sensitive nor gender responsive. There is extensive use of the generic pronoun “he,” instead of “he or she.”

Gender stereotyping in terms of occupation and household tasks are evident.

Illustrations and examples are not culturally sensitive to the diverse background of different groups in the country (predominance of Christian symbols and examples; Catholic icons like the cross and rosary; little to no examples coming from ethnic minorities).

Discussion of local concepts (*lamig, pasma, pilay*) and folklore is lacking.

### **Comprehensiveness**

Consumer health and environmental health are minimally discussed. There is barely any discussion of substance use and abuse in any of the grade levels.

The discussions on growth and development is confined to the physical structures and processes. Mental and emotional health, including the psycho-social aspects of growth, are not incorporated.

Topics on prevention and control of diseases are not focused on the common morbidities and mortalities in the country. The traditional and alternative healing modalities (acupressure, therapeutic massage, etc) including the use of herbs and medicinal plants are not discussed.

New concepts on health and wellness, including the interrelatedness of physical, emotional, mental, social and environmental health, are not broached. There is no discussion of child rights and child protection.

### **Confirmation from Team of Experts**

In a round table discussion conducted with experts of different disciplines, the participants commended the Review Team for the detailed and comprehensive process undertaken in reviewing the public health textbooks. There was agreement with the methodology and the findings of the team.

The experts acknowledged the importance of health education. Moreover, they emphasized the necessity of developing health as an essential life skill that would serve the students well way beyond their years in primary education. The Review Team showed sensitivity to the conceptual development of the child and was able to pick-up and to detect concepts that were being introduced at an age when the child is not yet ready to process the information.

In addition to the factual errors identified by the Review Team, the experts agreed with the general observations and the findings enumerating the gaps in the area of comprehensiveness and sensitivity. The need for a more effective discussion on topics relating to healthy living, safety and the environment resonated very well with the team of experts. They also pointed out the extreme value of enhancing the media literacy of students that would allow them to be more discriminating with the information they get from watching the television; listening to the radio; and, reading from newspapers, magazines or the internet.

Given the overloaded curriculum in basic education, the experts acknowledged the continuing debate of whether health education and instruction need to be a stand-alone subject or integrated into English and Science, as it is being done in the elementary years. If integration is necessary and a necessity, they pointed to the need for clarifying the process of how exactly the health topics would be integrated. This can be done through a much better written Teachers' Manual that details in a step-by-step fashion the process of integration as well as through capacity building and teacher formation measures that would instruct them on how to integrate health into the other subjects.

In addition to the topics presented by the Review Team, the experts also discussed the issue of bilingualism and the use of the local language/s in teaching health. They emphasized the need to build on the prior knowledge of children, and since they think in their vernacular and experience health in the local setting, it follows that building up on these experiences will require the use of the local language/s. This also ties up to the issue of cultural sensitivity and appropriateness. Discussions on health must include the local practices and local lore (e.g., *binat*, *pasma*, *hinyang*). Examples need to be appropriate to their actual settings (e.g. how to teach the value of handwashing when neither water nor soap is available in the community). In this regard, the experts recommended that prospective authors of textbooks be well-grounded in the realities of the Filipino communities; they can either be given seminars or be asked to undergo immersion in communities outside their own.

As an addition to the review process, the experts recommended doing field validation as part of the methodology. This step would provide the information on what exactly is happening in our schools.

### **Way Forward**

At the very start of the project, the Review Team ascertained that the Department of Education was fully aware of the project goal and activities that were proposed to and sanctioned by the Philippine Commission of the UNESCO. Formal and informal representations were made to then Secretary of Education Florencio Abad and Undersecretary Fe Hidalgo. Project updates, when available, were also relayed to the Department.

Results generated by the Review Team after Phase One of the project were first presented to DepEd. These included the findings on accuracy and recency, integrity and consistency, organization and balance, readability and presentation, and comprehensiveness and sensitivity. These findings were generated following a thorough and page-by-page review of the elementary school textbooks in Science and English where Health content and processes are integrated.

DepEd was also an active participant and a reactor in the Round Table Discussion of experts from different disciplines that were gathered to comment on the findings of the Review Team. Immediately, the Department made the Phase One Results available as Teaching Notes. This is a remedial measure undertaken by DepEd to readily inform teachers nationwide of factual errors, corrections and inadequacies of the currently used textbooks.

It has always been the intention of the Review Team to work with DepEd and to collaboratively pursue the textbook reforms that need to be undertaken. In this spirit, this completed report is not the end-goal. It is part of an on-going process of engaging the Department in the necessary next steps that are made even more imperative by the findings of this initial work.

In succeeding phases, the Review Team will work to develop a Health Education curriculum that will equip public elementary school children with the relevant knowledge base, life skills and values on health and healthy living. To do this, it will continue to closely work with the Department of Education. This is to ensure that the existing processes and systems within the Department are utilized to achieve this common goal. In the end, the Health Education curriculum that will be developed, both in scope and sequence, is as much an output of the Department as it is of the Review Team. To carry this out, the Review Team will actively involve multi-stakeholders, including content area and process specialists, in the development of the curriculum. It would also consciously formulate innovative approaches and learning activities that will promote school children's acquisition of knowledge, skills and values on health.

Preliminary work is already going on to define the working relationship between the Review Team and the Department, and to establish the operating mechanisms. The Review Team has identified the following methodologies that will be undertaken:

- Development of the Curriculum Framework

- Identification of Competencies and Scope of Learning
- Development of the Curriculum Sequence
- Integration and Inter-face Planning
- Selection of Learning Experiences
- Validation of the Curriculum
- Presentation and Publication

The work that needs to be done in the reform of public school textbooks, particularly those pertaining to the health content and process, is enormous. A common determination and a firm conviction to undertake the reform is a solid first step and the process made more manageable by the openness of the Department of Education to confront this challenge not in isolation, but collaboratively with all principal stakeholders.

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# APPENDICES

# APPENDIX A

## Project Proposal I

### Review of Health Messages and Concepts in Public Elementary and High School Textbooks in the Philippines

#### A. Background

Learning takes place more effectively and successfully when students are healthy and prepared to actively learn in schools. A school is said to be health-promoting when all members of the community work together to provide students with integrated and positive experiences and structure, which promote and protect their health. This includes:

- formal and informal health curricula
- safe and healthy school environment
- provision of appropriate health service
- involvement of the family and community

The above is taken from the “Health Promoting School” concept developed by the Health and Nutrition Center of the Philippines’ Department of Education and the UNICEF Manila Office. What is not mentioned in the concept is the quality and quantity of health messages in the textbooks that children read and study in schools everyday. Textbooks are one of the factors that define the quality of a child’s education aside from the qualification of teachers, curriculum content and the manner it is delivered, availability of teaching-learning materials and facilities, and the type of school environment. Unfortunately, most Philippine public schools, elementary and secondary, are short of these learning requirements, including availability and quality of textbooks.

Recently, there had been disturbing education-related concerns that came out in the Philippine media about alleged discrepancies and erroneous entries in public elementary and high school textbooks that have been officially approved by the Department of Education (DepEd). This issue has raised worries and doubts among parents and concerned citizens on the reliability and accuracy of knowledge and skills learned by children in schools, particularly in government-run institutions.

Along the same concern, a study is being commissioned by UNESCO Philippines to review key health messages and concepts found in different DepEd approved textbooks used in the elementary and high school. A similar review

of textbooks was done not too long ago but looking at social science concepts and important events. That review revealed some discrepancies and contradictions along many important aspects of social science.

This review is significant as the quality and quantity of health messages and concepts in the textbooks in schools will determine the quality of health practices and behavior that the students will actually live out in life.

## **B. Objective**

The purpose of this study is to track down and review the health messages and concepts entrenched in different textbooks in the elementary and secondary schools in the Philippines in terms of accuracy, comprehensiveness, recency, relevance and consistency. The study seeks to find out whether or not the Filipino students are learning from their school textbooks the health information considered necessary and appropriate for them to grow up to be healthy individuals.

Specifically, the review will be guided by the following questions:

1. Are there errors in the messages and concepts?
2. Are there errors in facts?
3. Are the concepts written in an understandable and comprehensible way?
4. Are there obsolete ideas?
5. Are the concepts along the level of the evolving capacity of the child to learn in terms of age and of grade or year level?
6. What important health messages and concepts are lacking?
7. What proportion of the books cover key health concepts in terms of number of pages?

## **C. Scope of the Review**

The review will include only textbooks in public and elementary high schools that have been approved by the Department of Education (DepEd). It will therefore not cover materials used in preschools, non-formal education and alternative learning systems, Madrasah, and vocational and technical schools.

The review will cover knowledge level on key health messages and concepts, as well as, their practical use or “life skills.” It will not cover the way the health messages and concepts are delivered in a classroom environment.

## **D. Methodology**

A team of six professionals with various expertise from the University of the Philippines, Ateneo de Manila University, De La Salle University and the Asian Social Institute, has been organized to conduct the review. The team has met three times recently to discuss the background of the review and the activities required to effectively and efficiently do the work, given the limitations in terms of time and resources.

A plan of action has been developed by the team covering the following activities:

1. List down all health messages and concepts that elementary and high school students “must know” and should be able to practice to grow up

- healthy. The team will brainstorm the list based on their individual expertise. (Already done).
2. Organize and consolidate the list of “must know” health messages and concepts according to DepEd-approved learning competencies. (Already done).
  3. Agree on the list of criteria to be used for the review in coordination with DepEd.
  4. Assemble all elementary and high school textbooks that will be examined based on DepEd’s official list of required textbooks.
  5. Assess the books using the list of “must know” health messages and concepts and based on the agreed criteria. Each of the six reviewers will be in charge of a set of books.
  6. Present the results of individual reviews to the whole team for validation and cross-checking.
  7. Consolidate the overall outputs in terms of the following:
    - Errors in concepts
    - Errors in facts
    - Health concepts written in an understandable and comprehensible way
    - Obsolete ideas
    - Health concepts written along the level of the evolving capacity of the child to learn in terms of age and of grade or year level
    - Proportion of the books covering key health concepts in terms of number of pages
  8. Write a synthesis of the review and make recommendations to improve the elementary and high school textbooks in terms of health topic and messages intended for Filipino students.

### **E. Supervision and Management**

This project will be supervised by Dr. Jaime Galvez Tan, the Project Manager, who will make sure that the project will proceed as planned and based on agreed schedule, and that the reviews are conducted professionally using mutually agreed parameters. A meeting of reviewers will be convened periodically for updating and feedbacking on problems that may arise in the course of the review. Dr. Galvez Tan will be assisted by a Project Coordinator who will document the proceedings of the meetings and keep track of the progress of the project. Dr. Galvez Tan is the Executive Director of the National Institutes of Health.

### **F. Budgetary Requirements**

This project, considered Phase 1 of the review, costs P150,000 that will run up to the end of the year and is broken down as follows:

Expenditure Items	Budget Requirements
1. Round Table Discussions	2,000
2. Reproduction and Supplies	5,000
3. Honoraria for Reviewers: P18,000 x 6	108,000
4. Honoraria for Project Coordinator	10,000
5. Honoraria for Project Manager	25,000
<b>Total</b>	<b>150,000</b>

## APPENDIX B

# Project Proposal II

### Review of Health Messages and Concepts in Public Elementary and High School Textbooks in the Philippines

#### **A. Introduction**

**Background.** This proposal is a follow-up of an earlier proposal for UNESCO Philippines on the "Review of Health Messages and Concepts in Public Elementary and High School Textbooks in the Philippines."

The purpose of this study is to identify and analyze the health messages and concepts found in different textbooks in the elementary and secondary schools in the Philippines in terms of accuracy, comprehensiveness, recency, relevance and consistency of the messages, and skills and attitudes promoted. The study seeks to find out whether the Filipino students are learning from their school textbooks the health information considered necessary and appropriate for them to grow up to be healthy individuals.

The initial phase of the review covers elementary books, after which the assessment of secondary books will follow, when they become available.

Interestingly enough, the initial challenge encountered by the team was obtaining the textbooks to be evaluated from the DepEd. Since there were not enough books for all the reviewers, the team resorted to photocopying the books so that each member of the reviewing team could have a complete set of textbooks.

**Status of the Project.** The team composed of seven professionals from different institutions in the Philippines and representing different academic backgrounds and work experiences, met several times for brainstorming and discussions on how to proceed with the review. The team was guided by an earlier study supported by UNESCO with a similar purpose and scope.

To date, the team has accomplished the following:

1. Listed down all health messages and concepts that elementary and high school students "must know" and should be able to practice in life to grow up healthy.
2. Agreed on the list of criteria and process for the review.

3. Photocopied the following books and distributed a complete set to all the seven reviewers:
4. Conducted random visits to selected public elementary schools in Metro Manila to compare textbooks, in terms of titles and authors, that are actually being used by the pupils, and the textbooks that were provided by DepEd for review.
5. Conducted initial general review of the textbooks.

Gr	Title of Textbooks	Authors/Writers
I	Science and Health	Carmelita Coronel, Norma Abracia (SD Publications)
I	Fun in English	J. Balajadia, A. De Jesus, A. Portes, Adelaida Reyes, Carmen Siao, P. Balingit as Editor (SD Publications)
II	Science and Health	Carmelita Coronel, Norma Abracia (SD Publications)
II	Fun in English	Oralla Biteng, Estela Eclipse and Librada Llamado (SD Publications)
III	Growing with Science and Health	Marilyn Balagtas et al. (Rex Bookstore)
IV	Science for Daily Use	Buena Lozada, Augusto Mendoza (JICA Enterprises)
V	Into the Future: Science and Health	Jose Llarinas, Emily Pelabello (JICA Enterprises)
VI	Into the Future: Science and Health	Editorial board led by Saturnina Belen (Diwa Scholastic Press)

## **B. Objective**

The overall purpose of the study remains the same as stated in the background of this document.

Specifically, this proposal aims to continue the conduct of the review of public elementary textbooks, in terms of health contents and messages, based on specific criteria of integrity and consistency, readability, organization, accuracy and recency, comprehensiveness, appropriateness and sensitivity, and presentation.

The expected outputs in this proposal include a synthesis of findings of the review, a PowerPoint presentation of the findings of the review, documentation of a round-table discussion with specialists, and synthesis of the feedbacking session with UNESCO and DepEd.

**Scope of the Review.** The review covers textbooks in public elementary schools, as listed above, in terms of key health messages and concepts, as well as, their practical use or “life skills.”

## **C. Methodology**

The team will continue to review the textbooks, record observations, discuss and compare notes on some of the initial findings. The team will now move at the stage where the textbooks will be revisited, but this time with a more focused lens based on the following criteria:

1. Integrity and consistency

2. Readability
3. Organization
4. Accuracy and recency
5. Comprehensiveness
6. Appropriateness and Sensitivity
7. Presentation

Each reviewer will be assigned a specific criterion from which to focus the assessment of the textbooks. On-the-spot recommendations will be recorded as the review progresses.

The results of the review will be consolidated and presented before a panel of specialists in a round-table discussion or workshop for critiquing, analysis and validation of the findings.

The team will come up with an initial write-up of the findings of the review, produce a computer-based presentation in PowerPoint and present it during a UNESCO Consultation Meeting.

#### **D. Supervision and Management**

This project will continue to be supervised by Dr. Jaime Galvez Tan, the Project Manager, who will make sure that the project will proceed as planned and based on agreed schedule, and that the reviews are conducted professionally using mutually agreed parameters. A meeting of reviewers will be convened periodically for updating and giving feedback on problems that may arise in the course of the review. Dr. Galvez Tan will continue to be assisted by a Project Coordinator who will document the proceedings of the meetings and keep track of the progress of the project. Dr. Galvez Tan is the Executive Director of the National Institutes of Health.

#### **E. Budgetary Requirements**

This project proposal, costing a total of P150,000, will cover the following activities and outputs:

<b>Expenditure Items</b>	<b>Budget Requirements</b>
1. Consultation Meetings of Reviewers	4,000
2. Round Table Discussion with Specialists	5,000
2. Honoraria for Specialists : 3,000 x 8 Specialists	24,000
2. Reproduction and Supplies	15,000
3. Honoraria for Reviewers: P12,000 x 6	72,000
4. Honoraria for Project Coordinator	0,000
5. Honoraria for Project Manager	20,000
<b>Total</b>	<b>150,000</b>

## APPENDIX C

# Project Proposals III & IV

### Review of Health Messages and Concepts in Public Elementary and High School Textbooks in the Philippines

#### Introduction

The project proposal for the third and fourth phases of the review builds on the accomplishment of the first two phases. Thus far, the review team has completed three important outputs:

- General review of the current textbooks being used in public elementary schools based on a defined set of framework and criteria
- Round table discussion with a group of experts from different academic disciplines to validate the findings of the review team and to explore subsequent courses of action
- Actual writing of the review based on both the discussion of the review team and the inputs from the round table discussion

The proposal for Phase III covers the cost of the actual printing of the review findings, including the recommendations of the expert panel.

The proposal for Phase IV covers the next set of activities that will be carried out by the review team.

#### Objectives

The general objective for the fourth phase of the review project is as follows: To develop a health education curriculum that will equip public elementary school children with the relevant knowledge base, life skills and values on health and healthy living.

Specific objectives are as follows:

- To actively engage the Department of Education (DepEd) in the development of the health education curriculum;
- To actively involve multi-stakeholders, including content area and process specialists, in the development of the curriculum;
- To identify innovative approaches and learning activities that will promote school children's acquisition of knowledge, skills and values on health.

## Methodology

The final output expected at the end of this project phase is a health education curriculum that has been collaboratively developed with the curriculum development team of the Department of Education. The curriculum can be used independently as a subject matter or may be integrated both in English (for Grades 1 and 2) and Science (for Grades 3 and 4), as it is currently being done by DepEd.

The review team hopes to incorporate the outcomes of the review process and the round table discussion into the final output. In addition to these initial findings from the textbooks that are currently in use, the review team has already begun a review of current literature. Findings from this literature review will also enrich the curriculum that will be developed.

The outcomes of the review process shall be presented in book form as follows:

- |  |  |
|--|--|
| A. Title page  | • Comprehensiveness  |
| B. Acronyms  | • Appropriateness (to the ability of learner)                              |
| C. Table of contents   | • Sensitivity  |
| D. Foreword:   | • Balance  |
| E. Chapter 1: Background and rationale of the project [Introduction]                                 | • Readability and Presentation   |
| F. Chapter 2: Methodology  | • Organization   |
| G. Chapter 3: <u>Findings according to criteria</u><br>Definitions and rationale<br>General Findings | H. Chapter 4: Results of the RTD – summary including their recommendations |
| • Integrity and Consistency  | I. Chapter 5: Moving forward   |
| • Accuracy & Recency   | J. Bibliography  |
|  | K. Appendices  |

The review team has identified the following work plan and activity clusters [refer to table] for the proposed fourth project phase.

## Project Management

The project team will continue to be housed at the National Institutes of Health – Philippines at the University of the Philippines Manila. Dr. Jaime Galvez Tan will continue to be the project manager. Dr. Evelina Maclang-Vicencio (U.P. College of Education) will also continue as the assistant project manager. Other members of the multidisciplinary team are Dr. M.G. Raymundo S. Baquiran (Ateneo Graduate School of Business – Health Unit); Drs. Stephanie Anne Sison and Amado Parawan (Save the Children – Philippines); and Carmelea Ang See, M.Ed. (De La Salle University).

The project team will meet regularly and proceed according to the defined work plan. Individual members of the team will be assigned to facilitate the conduct of each sub-phase of the project. A project coordinator will also be identified to assist with the administrative requirements of the grant.

## Time Frame

The proposed project phase begins immediately after the submission and acceptance of the camera-ready publication of the first two phases of the review. The project is estimated to be completed in one year.

## Budget Requirement

The Project Team proposes that the budget requirement for this current undertaking be supported by both UNESCO Philippines and the Department of Education (DepEd). The project team will consciously involve the DepEd in most of the activities of the project. Likewise, the project team recognizes that the dissemination and eventual use of the curriculum lies with DepEd. [refer to budget worksheet.]

**Note:** The expense of validation (expert and field validation) is not included in the worksheet. It is hoped that DepEd would take this on as a counterpart expense. The cost of publishing the output of this project is also not included in the budget worksheet.

Work Plan	Activity Clusters
A. Development of Curriculum Framework	<ul style="list-style-type: none"><li>• Review of Phases I and II outputs</li><li>• Review of Literature</li><li>• Benchmarking</li></ul>
B. Identification of Competencies and Scope of Learning	<ul style="list-style-type: none"><li>• Team discussion</li><li>• Round-table discussion or one-to-one discussion with content area specialists.</li><li>• Workshop with DepEd</li></ul>
C. Development of the Curriculum Sequence	Team discussion/ Workshop with DepEd
D. Integration/ Interface Planning	Team discussion/ Workshop with DepEd
E. Selection of Learning Experiences	<ul style="list-style-type: none"><li>• Round-table discussion or one-to-one discussion with process specialists</li><li>• Workshop with DepEd</li></ul>
F. Validation of Curriculum	<u>Expert validation</u> through a workshop or a round-table discussion <u>Field validation</u> through workshops and focus group discussions
G. Presentation of Curriculum	Presentation and discussion with UNESCO and DepEd
H. Publication of Output	(Next project phase.)

Prepared by: Dr. Jaime Z. Galvez Tan, Dr. Raymundo Baquiran, Dr. Evelyn Vicencio, Dr. Amado Parawan, Dr. Stephanie Sison, Carmelea Ang See

### BUDGET WORKSHEET Phase III

Activity / Cost Item	Details	Total
A Project team honorarium	P4000 per person x 6	P24,000
B Production	Editing, lay-outing, final proofing, camera-ready output	P6,000
C Printing cost	2000 copies: (120 pp, substance 60 paper offset printing, 9x6 in, 2-color matte cover)	P100,000
	<b>TOTAL BUDGET REQUIREMENT</b>	<b>P130,000</b>

### BUDGET WORKSHEET Phase IV

Activity/Cost Item	Details	Total
A. Consultative meetings & team discussions of project team	P600 per meeting x 10 meetings	P6,000
B. Workshop Expenses <ul style="list-style-type: none"> <li>with DepEd and other resource persons</li> <li>8 workshops projected</li> </ul>	Per workshop (WS): Venue P2000 Meals for 15 pax P3000 Documentation P1000 Mat/Supplies P1500 Total per WS P7500	P60,000
C. Honoraria: resource persons <ul style="list-style-type: none"> <li>Round-table Discussions</li> <li>One-on-one Discussions</li> <li>12 resource persons projected</li> </ul>	P2000 per person	P24,000
D. Materials and supplies, including cost of reproduction		P14,000
E. Honorarium: Project Manager		P15,000
F. Honorarium: members of the Project Team	P12,000 per person	P72,000
G. Honorarium: Project Coordinator		P6,000
H. Presentation Cost (UNESCO and DepEd)	P3,000	
	<b>TOTAL BUDGET REQUIREMENT</b>	<b>P200,000</b>

# APPENDIX D

## DEPARTMENT OF EDUCATION

### Health curriculum scope and sequence

	Grade 3	Grade 4	Grade 5	Grade 6
<b>Growth and Development</b>	Sense organs Physical, social, & mental growth Rest, sleep & recreation	Skeletal system Muscular system Digestive system	Reproductive system Body changes during puberty Respiratory system Urinary system Removal of other body wastes	Circulatory system Nervous system Physical, mental, emotional, & social needs of a person
<b>Personal Health</b>	Harmful effects of heat and light	Taking care of the skeletal, muscular, & digestive systems Concern & right attitude towards handicapped persons	Taking care of the respiratory system & urinary systems Hygiene in caring for the reproductive organs	Taking care of the circulatory & nervous systems A healthy person
<b>Family Health</b>	Effect of family size and meeting the basic needs of the family.			
<b>Environmental Health</b>	Care & concern for soil & water Practices that cause pollution Healthful & unhealthful surroundings	Chemical substances that cause pollution Preventing pollution Effects of polluted land, water & air on people		Effects of overpopulation in a community Rapid population growth Controlling/preventing harmful effects of human activities on the environment

<p><b>Disease Control</b></p>	<p>Common ailments affecting the sense organs Ways of keeping the sense organs healthy Effect of certain diseases/illnesses on growth &amp; devt.</p>	<p>Diseases that can harm the skeletal, muscular, and digestive systems and their prevention &amp; control Animals that carry diseases Sources of infections, allergy, injury</p>	<p>Common ailments of the respiratory system caused by pollution, smoking, or inhaling drugs; Preventing/ controlling common ailments of the urinary system</p>	<p>Common ailments affecting the circulatory &amp; nervous systems</p>
<p><b>Substance Use and Abuse</b></p>	<p>Care in taking medicines Harmful effects of some chemical substances on man if not used properly Precautionary measures in using certain substances</p>			
<p><b>Safety and First Aid</b></p>	<p>Safety with animals First aid for insect &amp; animal bites Precautionary measures in handling plants Allergies/skin irritation caused by plants Precautionary measures in using certain substances Safety measures for certain types of weather Ways of protecting oneself from excessive heat, light, and loud sounds</p>	<p>First aid for injuries of the system-sprain, cramps, simple fracture Safety with animals Effect of some animals on people Safe ways of handling hot objects and flammable materials Hazards of fire Safety rules/emergency measures in case of fire Safety measures to avoid damage to eyes during solar eclipse</p>	<p>Using electricity properly Precautionary measures in using simple machines Precautionary measures before, during, &amp; after a typhoon</p>	<p>Safety precautions in handling, storing, and disposing certain materials Warning signs/precautions in product labels Precautionary measures related to electricity Precautionary measures before, during &amp; after an earthquake Precautionary measures during volcanic eruptions</p>
<p><b>Food and Nutrition</b></p>	<p>3 basic food groups Eating the right amount of food Health &amp; food habits</p>			

## APPENDIX E

# Guidelines in evaluating the Health content in textbooks

### INTEGRITY AND CONSISTENCY

1. Does the book reflect the philosophy of Health Education as expressed by the World Health Organization?
  - “Health education that concentrates on developing skills for making healthy choices in life, in addition to imparting health knowledge, attitudes, values, services, and support is more likely to produce desired outcome.” (WHO)
  - “Skills-based health education promotes healthy lifestyles and reduces risk behavior.” (WHO)
  
2. Does the book reflect the philosophy of BEC and the goals of Health Education in the BEC?
  - a. *The BEC*
    - Emphasizes child-centered teaching-learning approaches;
    - Encourages the use of interactive, integrative and collaborative modes of teaching and learning;
    - Puts greater focus on values formation in all the subject areas;
    - Emphasizes the development of self-reliant and patriotic citizens;
    - Emphasizes the use of effective strategies for the development of critical and creative thinking skills;
    - Encourages the use of multiple forms of evaluation;
    - Emphasizes the integration of core life skills:
      - > Awareness
      - > Empathy
      - > Effective Communication
      - > Interpersonal skills
      - > Decision-making
      - > Problem solving
      - > Critical thinking
      - > Creative thinking
      - > Coping with stress
      - > Understanding one’s emotions
      - > Productive/entrepreneurial skills
  - b. *Goal of Health Education in the elementary level:* Demonstrate understanding of how science, technology, and health relate to the comprehension of the environment, and application of skills, attitudes and

values in solving varied life situations (BEC, 2001).

## **READABILITY AND PRESENTATION**

1. Are the concepts presented in a clear and concise manner?
2. Are the procedural texts easy to follow?
3. Is the language used appropriate for the grade level?
4. Is the format of the book helpful in understanding the content?
5. Is the design attractive?
6. Do print size and type ensure legibility of the book?
7. Is the book handy and durable for daily use?
8. Is the style of illustration and layout appropriate for the particular grade level?
9. Are there enough illustrations that facilitate learning?
10. What parts are essential to make the book more useful—index, appendix, glossary?

## **ORGANIZATION**

1. Is there a smooth flow of ideas?
2. Are the topics logically organized?
  - Simple to complex
  - Concrete to abstract
  - Easy to difficult
  - Known to unknown
  - Chronology
  - Prerequisite learning
  - Whole-to-part; part-to-whole
3. Does the book contain advance organizers, summaries, evaluation, and other features that facilitate synthesis of learning?
4. Do the features of the book show agreement and harmony?

## **ACCURACY AND RECENCY**

1. Is the content (text, illustrations, exercises) accurate? If not, which parts need to be corrected?
  - Conceptual errors
  - Factual errors
  - Grammatical errors/ misprints, typographical errors
  - Conflicting statements
  - Errors in illustrations, pictures, and the like
2. Are the examples provided realistic?
3. Is the content up-to-date? If not, which part should be updated? (e.g. statistics: How old—not more than 5 years old?)

## **APPROPRIATENESS**

1. Is the content of the book appropriate to local situations?
2. Is the content appropriate to the ability of the learners at the particular grade level?
3. Are the activities and exercises interesting to the learners?
4. Are there varied activities and exercises that suit different intelligences and learning styles of learners?
5. Are the objectives attainable?

6. Are the suggested materials easily available?
7. Are the suggested strategies practical, challenging and stimulating?
8. Are the tests properly constructed? Are they useful in evaluating learning outcomes? Are they congruent with the objectives?

### **SENSITIVITY**

1. Are there aspects of the book that might not be acceptable to significant groups, for example, stakeholders, parents, teachers, students, and others? Identify the parts.
2. Are there aspects of the book that show cultural bias?
  - Sexism—Balanced treatment of the roles, occupations, and contributions of women and men, etc.
  - Racism or regionalism—Balanced treatment of races, indigenous peoples, religions, socioeconomic background, etc.
  - Ageism
  - Disability
  - Geography: rural-urban
  - Religion
3. Are controversial issues addressed fairly, objectively, and in the level of the learners?

### **COMPREHENSIVENESS**

1. Are the learning competencies covered adequately? If not, what should be included? What should be deleted?
2. Are there concepts that are inadequately explained as to cause misconceptions?
3. Is the content sufficient to attain the objectives of instruction and the articulated learning competencies?

### **BALANCE**

1. Is there an equal balance in Science and Health concepts?
2. Is there a fair distribution of content among the grade levels?
3. Is there a fair treatment of other aspects, for example, gender (male and female), the domains of learning (cognitive, affective, psychomotor), and the locale (rural, urban, upland, lowland)?

## APPENDIX F

# Position paper of UP NISMED on Health Education

We believe that.....

Ø **Health education is an essential part of the curriculum** at the basic level because it influences the well-being of schoolchildren and impacts on their health-related behavior and action until they become adults. A quality health education program enhances better health for individuals and society in general as a result of applying health knowledge, skills and values in daily living.

Ø In the case of science education, **Scientific and Technological Literacy (STL) should be given emphasis** to balance the largely academic and theoretical orientation of science programs, which students cannot apply in real life. Incorporation in the science curriculum of societal issues such as health, population, nutrition, environment and sustainable development provides relevance in the science education of the learners. A scientifically and technologically literate society is envisioned to have the necessary tools in terms of knowledge, skills, attitudes and values, to maintain good health, live safely, become environment-friendly and be a wise consumer. Individuals should be able to evaluate health-related messages in media (particularly those regarding food) leading to sound decisions and practice.

As articulated by UNESCO in Science for All 2000+, **a scientifically literate person is one who possesses knowledge, skills, positive attitudes and values and uses these in daily living, at the very least, to maintain good health, live safely, be environment-friendly and a wise consumer.** Note that these domains are all health-related.

Ø **The integration of Science and Health** in the elementary curriculum is **appropriate** due to the following reasons:

- **Common topics for integration exist** such as growth and development, food and nutrition, environmental resources like air, soil, and water, population and other societal issues. In addition, there are topics in the science subject where integration of other aspects of health education comes naturally. For instance, safety is presently incorporated in the unit on electricity, weather and environmental hazards. Since safety is an important concern, more topics for integration can be studied. Substance use and abuse can be part of the discussion not only of mixtures and solutions but of other

topics as well.

- **Both Science and Health share a common focus of developing basic learning content consisting of knowledge, skills, positive attitudes and values of the students.** In the case of health education this basic learning content will help the individual make informed decisions on health and social issues leading to actions that will benefit the person and society in general. On the other hand, science education has parallel aims embodied in the four pillars of learning under STL for All, articulated by UNESCO to wit: personal development through acquisition of scientific knowledge; personal development through the use of scientific skills and methods; development of individual attributes, positive attitudes and perceptions; and development of values and skills as a responsible member of society. Note that the first three pillars relate to the development of the individual while the last is societal in nature.
- **Science and Health use common approaches and strategies** for delivering the subject matter or basic learning content to students. In general, these require active involvement of students in the learning process.

Ø **Aside from usefulness, the choice of concepts for inclusion in Science and Health depends primarily on whether these are within the experience of students.** Abstract concepts can be postponed to a higher level of schooling. An example in Health is the study of the lymphatic system. Another aspect that has to be considered has to do with local/cultural health-related practices.

Ø **The development and functional understanding of concepts should take precedence over the definition of terms.** Introducing too many scientific terms which are not vital to a functional understanding of the concept should be avoided. Emphasis on memorization is not useful to students and gives a wrong impression about the importance of the subject.

Ø The content of Science and Health has three components. Besides concepts, it includes skills, both manipulative and cognitive, and attitudes and values. **Thinking skills, exemplified by the most basic, which is observing, and higher order thinking skills such as problem solving and decision making, are important not only to enable the learner to develop particular concepts, but more so for practical purposes.** These skills can be transferred to new situations and are useful throughout the life of the individual. For example, critical thinking is necessary to evaluate which health-related practices introduced through media are beneficial or harmful to a person's well-being. On the other hand, positive attitudes and values are important in addressing problems, issues and concerns both at a personal and societal level.

Ø **The teaching of Science and Health is most effective if it is hands-on, minds-on and hearts-on.** The students manipulate concrete objects or have a personal encounter with events and phenomena. They make observations, organize and process information, and arrive at generalizations. Because they enjoy and understand what they do, and experience success in a given task, they acquire self-confidence and a desire to learn more. They become involved in

continuous learning and eventually develop into lifelong learners.

Ø **Students of Science and Health should be given every opportunity to actively “construct” their own ideas based on what they experience rather than merely deriving information from books.** Starting from their prior knowledge, they link together ideas, with new ones building upon what is previously learned. The teacher’s role is to provide experiences, e.g., logically sequenced activities, and to unravel what the students have in mind through skillful questioning and facilitate active participation of and among students in the discussion.

Ø It appears that more health topics or “messages” have to be incorporated in the Science and Health Curriculum. These have to be carefully thought out on the basis of functionality, relevance and the cognitive level of students. **Addition of more topics necessitates the deletion of existing ones in both areas of science and health to avoid overcrowding of what many perceive to be an already congested curriculum.**

Ø **Due to its importance, health education has to be a part not only of the Science and Health subject but relevant concepts and information have to be integrated in other subjects such as the physical education program, social studies curriculum, home economics, art and music, and even mathematics and language.** Careful design and planning are essential to ensure that needless duplication does not exist in the different subjects.

Ø **Regarding textbooks, these are not the primary source of information of students, but their experiences.** Textbooks can serve as summary, extension and enrichment of the major ideas or concepts learned from student activities. Textbooks can also provide activities to be performed by students and self-assessment questions to guide them on what they have learned so far.

Ø Textbooks must have accuracy of information expressed in clear, simple language and using an attractive and highly pictorial format. Because of these requirements, the development team has to consist of people coming from different areas of specialization. **The writing team has to include classroom teachers, science and health education specialists and if possible, an educational psychologist. There is also need for a language editor and reviewers coming from different areas of science specialization, including a medical doctor.** The role of a good textbook designer and artist is crucial. **There should be a tryout phase.**

Ø **To ensure “up-to-dateness” or currency of curriculum materials, there is a need to review and revise the curriculum every 5 years.** Whenever necessary, supplementary modules have to be developed to help the teachers incorporate new topics in classroom teaching.

In summary, UP NISMED recommends the following:

1. A review of the Science and Health curriculum for elementary grades as well as other subject areas where health may be integrated. The purpose is to delete unnecessary topics or incorporate additional messages. Hence-

forth, this should be done every 5 years.

2. Emphasis should be given to Scientific and Technological Literacy. Incorporate societal issues for relevance.
3. Health education should be integrated in other subjects such as physical education, social studies, home economics, art, music and even mathematics and language.
4. Adoption of the following features for curriculum materials:
  - Hands-on activities within the experience of the learner
  - Useful and relevant to life
  - Minimum of scientific/health terms
  - Develop thinking skills
  - Step-by-step concept development
5. Development and use of supplementary materials to incorporate new topics.
6. The development team of curriculum materials should consist of classroom teachers, science and health education specialists, and educational psychologists. There should also be a language editor and reviewers from different areas of science specialization including a medical doctor. There should be a tryout phase.

# APPENDIX G

## World Health Organization's Skills for Health

### Skills-based Health Education including life skills: An important component of a Child-Friendly/ Health Promoting school

#### Understanding Skills-Based Health Education and Life Skills

In efforts to achieve specific behavioral outcomes, programs aimed at developing young people's life skills without a particular context such as a health behavior or condition are less effective than programs that overtly focus on applying life skills to specific health choices and behaviors (Kirby et.al., 1994). To influence behavior effectively, skills must be applied to a particular topic, such as a prevalent health issue. Not to be overlooked, however, is the importance of building life skills to equip young people in other aspects of their development as well, such as maintaining positive interpersonal relations with teachers, students and family members.

#### Life skills for skills-based Health Education

Communication & interpersonal skills	Decision making & critical thinking skills	Coping & self-management skills
Interpersonal communication skills: verbal/nonverbal communication; active listening; expressing feelings; giving feedback (without blaming) and; receiving feedback	Decision-making/ problem solving skills: information gathering skills; evaluating future consequences of present actions for self and others; determining alternative solutions to problems; analysis skills regarding the influence of values and of attitudes about self and others on motivation	Skills for managing feelings: managing anger; dealing with grief & anxiety; coping with loss, abuse, trauma
Negotiation/refusal skills: Negotiation and conflict management; assertiveness skills; refusal skills	Critical thinking skills: analyzing peer and media influences- analyzing attitudes, values, social norms, beliefs, and factors affecting them- identifying relevant information and sources of information	

<b>Communication &amp; interpersonal skills</b>	<b>Coping &amp; self-management skills</b>
Empathy building: ability to listen, understand another's needs & circumstances, and express that understanding	Skills for managing stress: time management; positive thinking; relaxation techniques
Cooperation and teamwork: Expressing respect for others' contributions & different styles; assessing one's own abilities & contributing to the group	Skills for increasing personal confidence & abilities to assume control, take responsibility, make a difference, or bring about change: building self-esteem/confidence; creating self-awareness skills, including awareness of rights, influences, values, attitudes, rights, strengths and weaknesses; setting goals; self-evaluation/ self-assessment/ self-monitoring skills
Advocacy skills: influencing skills & persuasion; networking & motivation skills	

### Life skills made specific to major Health topics

<b>Health topics</b>	<b>Communication &amp; interpersonal skills</b>	<b>Decision making &amp; critical thinking skills</b>	<b>Coping &amp; self-management skills</b>
Alcohol, tobacco and other drugs	Communication skills: inform others of negative health & social consequences & personal reasons for refraining from alcohol, tobacco & drug use; ask parents not to smoke in the car when they ride with them	Decision-making skills: gather information about consequences of alcohol & tobacco use; weigh the consequences against common reasons young people give for using alcohol or tobacco; identify their own reasons for not using alcohol or other drugs and explain those reasons to others; suggest a decision to drink non-alcoholic beverages at a party where alcohol is served; make & sustain a decision to stop using tobacco or other drugs & seek help to do so	Skills for managing stress: analyze what contributes to stress; reduce stress through activities such as exercise, meditation & time management; make friends with people who provide support & relaxation
Alcohol, tobacco and other drugs	Empathy Skills: listen to and show understanding of the reasons a friend may choose to use drugs-suggest alternatives in an appealing & convincing manner	Critical thinking skills: analyze advertisements directed toward young people to use tobacco & see how they are playing upon the need to seem "cool," appeal to girls, or be attractive to boys; develop counter-messages that include the cost of buying cigarettes & how else that money could be used; assess how tobacco use takes advantage of poor people; analyze what may be driving them to use substances & aim to find a healthy alternative	

Health topics	Communication & interpersonal skills	Decision making & critical thinking skills	Coping & self-management skills
Alcohol, tobacco and other drugs	Advocacy skills: persuade the headmaster to adopt & enforce a policy for tobacco-free schools; generate local support for tobacco-free schools & public buildings		
Alcohol, tobacco and other drugs	Negotiation/refusal skills: resist a friend's repeated request to chew or smoke tobacco, without losing face or friends		
Alcohol, tobacco and other drugs	Interpersonal skills: support persons who are trying to stop using tobacco & other drugs; express constructive positive intolerance for a friend's use of substances—"It is not okay for you to do that...."		
Healthy Nutrition	Communication skills: persuade parents & friends to make healthy food & menu choices		
Healthy Nutrition	Refusal skills: counter social pressures to adopt unhealthy eating practices	Critical thinking skills: evaluate nutrition claims from advertisements & nutrition-related news stories	
Healthy Nutrition	Advocacy skills: present messages of healthy nutrition to others through posters, ads, performances & presentations; gain support of influential adults such as headmasters, teachers & local physicians to provide healthy food in the school environment.	Decision-making skills: choose nutritious food & snacks over those less nutritious; convincingly demonstrate an understanding of the consequences of unbalanced nutrition (deficiency diseases)	Self-awareness & self-management skills: recognize links between eating disorders & psychological & emotional factors; identify personal preferences among nutritious food & snacks; develop a healthy body image

Sexual and reproductive health and HIV/AIDS Prevention	Communication skills: effectively express a desire to not have sex; influence others to abstain from sex or practice safe sex using condoms if they cannot be influenced to abstain; demonstrate support for the prevention of discrimination related to HIV/AIDS	Decision-making skills: seek & find reliable sources of information about human anatomy, puberty, conception & pregnancy, STIs, HIV/AIDS, & local prevalence rates, & available methods of contraception; analyze a variety of potential situations for sexual interaction & determine a variety of actions they may take & the consequences of such actions	Skills for managing stress: seek services for help with reproductive & sexual health issues, e.g. contraception, condoms to prevent HIV or unplanned pregnancy, sexual abuse, exploitation, discrimination, (gender-based) violence, or other emotional trauma
Sexual and reproductive health and HIV/AIDS Prevention	Advocacy skills: present arguments for access to sexual & reproductive health information, services, & counselling for young people	Critical thinking skills: analyze myths & misconceptions about HIV/AIDS, contraceptives, gender roles & body image that are perpetuated by the media; analyze social, cultural influences regarding sexual behaviors	
Sexual and reproductive health and HIV/AIDS Prevention	Negotiation/refusal skills: refuse sexual intercourse or negotiate the use of condoms		
Sexual and reproductive health and HIV/AIDS Prevention	Interpersonal skills: show interest & listen actively to others; be caring and compassionate, including when interacting with someone who is infected with HIV		Skills for increasing personal confidence & abilities to assume control, take responsibility, make a difference, or bring about change: assert personal values when encountering peer & other pressures
Reducing Helminth (worm) infections	Communication Skills: communicate messages about worm infection to families, peers, members of the community; encourage peers, siblings, family members to take part in deworming activities & to avoid reinfection	Decision-making/ problem-solving skills: identify & avoid behaviors & environmental conditions that are likely to cause infection, such as ingestion of or contact with contaminated soil, & adopt behaviors that are likely to prevent infection, such as keeping human feces from polluting the ground or surface water; use safe water & uncontaminated food	Self-Monitoring Skills: engage in behaviors that are not conducive to contracting helminth & worm infections, such as avoiding contaminated water

Reducing Helminth (worm) infections	Advocacy Skills: advocate for an environment & behavior that are not conducive to helminth infections; share positive results of deworming activities		
Violence prevention or peace education	Communication skills: state their position clearly & calmly, without blaming; listen to each other's point of view communicate positive messages; use "I" statements & not accuse others		
Violence prevention or peace education	Negotiation skills: intervene and discourage others from conflict before it escalates		
Violence prevention or peace education	Advocacy skills: get involved in community activities that promote non-violent behavior; join, support & inform others about non-violent activities & organizations; advocate for programs to buy back weapons or create weapon -free zones; discourage viewing violent television movies & video games	Decision-making skills: understand the roles of aggressor, victim & bystander	
Violence prevention or peace education	Critical thinking skills: identify & avoid situations of conflict; evaluate both violent & non-violent solutions that appear to be successful as depicted in the media; analyze their own stereotypes, beliefs & attributions that support violence; help reduce prejudice & increase tolerance for diversity	Skills for managing stress: identify & implement peaceful ways of resolving conflict; resist pressure from peers & adults to engage in violent behavior	