



Health Literacy through Education: A Document Analysis of Thailand's Basic Health Education Curriculum

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Received: January 20 2025; Revised: September 22 2025; Accepted: December 12 2025

Abstract

Health literacy plays a crucial role in fostering informed health decisions and improving health outcomes. This study explores the extent to which Thailand's basic health education, mandated under the Basic Education Core Curriculum, promotes and aligns with health literacy domains and competencies at a systematic level. Document analysis was employed to systematically study curriculum materials, including curriculum elements, mapped indicators, and issued textbooks. The findings revealed a balanced focus on knowledge retention and application, an underrepresentation of skills to obtain health information, strengths and gaps in the cohesive progression of health literacy competencies, comprehensive coverage of health domains through application, and an overemphasis on health promotion at the expense of other health domains. The study highlights areas that should be reconsidered to incorporate evolving health knowledge and the rapid development of information technology. Implications for future research are discussed.

Keywords: Health literacy, Health education curriculum, Document analysis

What was Known

- Health literacy is a strong predictor of health outcome.
- Studies on health literacy in Thailand have primarily focused on measuring the health literacy of small and specific group, leaving a gap in addressing the systematic issues related to health outcomes.

What's New and Next

- Systematically, Thailand's basic health education aligns with and promotes health literacy to some extent.
- A didactic approach to learning is evident in the curriculum through the underrepresentation of competencies aimed at promoting the ability to obtain health information.
- Educational design research, considering the experimentation of a curriculum with more comprehensive and cohesive health literacy domains and competencies, would provide valuable insights into its effectiveness in promoting health literacy.

Introduction

The rapid development of technology and artificial intelligence is theoretically supposed to enhance the quality of life in various aspects. In terms of personal health, anyone can access health information faster than ever, retrieve medical advice, learn about health promotion and care, and even effectively conduct a self-diagnosis⁽¹⁾. However, despite this advancement, health outcomes in Thailand appear to be moving in the opposite direction, as evidenced by the upward trend in the number of hospitalized patients in Thailand since 2012⁽²⁾. This discrepancy suggests that technological advancements alone are insufficient to improve health outcomes. Also, it underscores the important role of health literacy which enables individuals to obtain, understand, analyze, and apply health information in their daily lives⁽³⁾. Thus, health literacy has also been found to be a stronger predictor of health outcome compared to other societal and individual factors such as gender, age, education, and social and economic status⁽⁴⁾. At a systematic level, this raises questions regarding the effectiveness of health education in Thailand, as schools are expected to instill essential knowledge, including health literacy, in individuals⁽⁵⁾.

Given the inseparable relationship between knowledge and health literacy, it is crucial to recognize that the curricular structure of health education, including its pedagogical indicators, plays a crucial role in promoting health literacy and improving health outcomes. However, as Baker⁽⁶⁾ has asserted, knowledge “facilitates health literacy but does not in itself constitute health literacy”⁽⁶⁾. This indicates that a health education curriculum must be responsible for both dissemination of knowledge and the cultivation of skills that form the foundation for health literacy. In Thailand, most studies on health literacy focus on measuring health literacy within small groups⁽⁷⁻⁹⁾. However, these studies do not address health literacy at a systematic level, such as through basic education, which reaches a large portion of the population and has the potential to create a significant societal impact. Hence, the remainder of this section explains health literacy and Thailand’s health education from the study’s perspective and how they are connected to the objective of this study, which aims to address the mentioned gap.

Health literacy

In Thailand, health literacy has been promoted at the policy level by the Ministry of Public Health (MOPH). These efforts have mainly focused on public health programs and community interventions rather than on the integration of health literacy in basic education. Although health literacy has been studied and maintaining its role in public health contexts, little attention has been given to embracing health literacy at a systematic level, such as within formal education⁽¹⁰⁾.

According to Nutbeam⁽¹¹⁾, the World Health Organization (WHO) defines health literacy as “the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health”⁽¹¹⁾. Health literacy research has gained attention for improving health outcomes, with conceptual models emerging in the 2000s as theoretical foundations for further study.¹² The dimensions of these models rely on fundamental abilities that underpin health literacy, such as functional and interactive health literacy,⁽¹³⁻¹⁶⁾ communication skills,^(6,13,17) science literacy,⁽¹⁸⁾ reading and comprehension,⁽¹⁹⁻²⁰⁾ and problem-solving skills,⁽²¹⁾ health-related behaviors,⁽²²⁾ or conceptual foundations⁽²³⁾. According to Sørensen et al.⁽³⁾, the issues with these models is that they are not process-oriented, which contradicts the nature of literacy.

Relatively, in 2013, WHO published a comprehensive report that covered health literacy from whole-society perspective down to the individual level⁽²⁴⁾. This report includes Sørensen et al.’s^(3,25) health literacy matrix, which was developed based on the conceptual model of health literacy of the European Health Literacy survey. The matrix presents health literacy-related competencies, encompassing three health literacy domains, and 12 subdimensions.

In this study, Sørensen et al.’s⁽³⁾ health literacy matrix serves as a robust tool for exploring how well the curriculum addresses the multifaceted aspects of health literacy. This study adopted this matrix as a tool to analyze the Thailand’s health education curriculum. The utility is explained in the method section.

Thailand’s health education

Thailand’s 2008 Basic Education Core Curriculum has been legally mandating the core subjects of the country’s education including health education⁽²⁶⁾. The curriculum includes eight learning areas that establish the minimum requirements of curricular structure in all schools in Thailand. One of those learning areas is health and physical education, which focuses on promoting health-related knowledge, skills, and attitudes “towards strengthening one’s own health and that of others; prevention and proper treatment of various things affecting one’s health; and life skills”⁽²⁶⁾. The health and physical learning area are made up of five strands, and each strand consists of a number of indicators (which vary for each grade level) that are used to assess the learning outcomes.

These indicators represent the detailed learning objectives regarding health education in all levels, making them, along with other curricular elements, a pivotal subject of analysis for understanding how effectively the curriculum promotes health literacy at a systematic level.

Building on the framework of health literacy and Thailand's health education, this paper aims to examine how comprehensively Thailand's health education curriculum aligns with and promotes health literacy.

Materials and Methods

This study employs document analysis following Dalglish et al.'s⁽²⁷⁾ READ approach, a systematic procedure designed for collecting and analyzing information in health policy research. The study was conducted in four main steps. First, the curricular structure of the health and physical education curriculum was thoroughly reviewed to identify elements for analysis and exclude those not pertinent to health education (ready). Second, the indicators were systematically extracted using curriculum mapping to align each indicator with the health literacy domains and the corresponding levels of competencies, while other elements of the curriculum were organized into tables (extract). Third, content analysis was performed on the curriculum map separately by each author, additional curricular elements, and the Ministry of Education's standardized health education textbooks (grade 1-12) as supplementary materials (analyze). The emergent dimensions were jointly compared, discussed, and summarized by both authors. Finally, the results were distilled to draw meaningful conclusion and discuss implications in relation to existing literature (distill).

Health education curriculum

The subject for this paper analysis, the health and physical education learning area (regarded as the health education curriculum) is part of the Thailand's basic core curriculum. This curriculum consists of three major parts. First, the overview, which covers the rationale, and definitions of the strands used in this curriculum. Secondly, the learners' quality outlines the expected qualities of students as graduates at four different key stages, namely, grade 3, grade 6, grade 9, and grade 12. Thirdly, the curriculum consists five strands, each of which serves as a category for a number of grade-level indicators across all grades.

After a preliminary review of the curriculum, the third strand was found to focus on physical education. Therefore, they were removed from this analysis. Some indicators and learner's qualities were also removed from the analysis due to its lack of relevance to health education. The elements of this health education curriculum included in the analysis are presented in table 1.

Table 1 Elements of the health education curriculum included in the analysis

Learners' quality (four key stages)	Strands and definitions	Numbers of indicators within each strand (grades 1-12)
<p>Grade 3:</p> <ul style="list-style-type: none"> ● Understand the influencing factors of human growth and development, and how to build relationships with family and peers. ● Practice healthy habits. ● Protect themselves from addictive substances, sexual harassment, and how to avoid risky situations. ● Make appropriate choices in selecting foods and other products that benefit health. ● Be able to properly handle health and emotional problems. 	<ul style="list-style-type: none"> ● Health Growth and Development (strand 1): the factors affecting growth, its nature, and its relationship with various body systems and personal conduct. 	<p>Strand 1</p> <ul style="list-style-type: none"> ● Total indicators: 26 ● Indicators analyzed: 26 ● Indicators excluded: 0
<p>Grade 6:</p> <ul style="list-style-type: none"> ● Understand body systems, their relationships, and how to take care of them. ● Understand health-related changes – physical, mental, emotional, social, and sexual – and be able to handle changes that occur during puberty. ● Understand values in genders and sexual practices. ● Avoid and protect themselves from health risks. ● Be able to manage different emotions and health problems. ● Be proficient in obtaining knowledge related to health. 	<ul style="list-style-type: none"> ● Life and Family (strand 2): oneself; family; sex education; and having family life skills. 	<p>Strand 2</p> <ul style="list-style-type: none"> ● Total indicators: 31 ● Indicators analyzed: 8 ● Indicators excluded: 23

Table 1 Elements of the health education curriculum included in the analysis (Cont.)

Learners' quality (four key stages)	Strands and definitions	Numbers of indicators within each strand (grades 1-12)
<p>Grade 9:</p> <ul style="list-style-type: none"> • Understand factors influencing growth and development at different ages. • Accept and adapt to changes in physical, mental, emotional, sexual development, and gender equality. • Choose foods that support growth and development at their ages. • Be skilled at evaluating how sex, peers, family, community, and culture influence health. • Protect themselves from risk factors and behaviors that harm health. • Understand the relationships between health behaviors, disease prevention, and emotional well-being. 	<ul style="list-style-type: none"> • Strengthening of Health, Capacity and Disease Prevention (strand 4): methods of selecting health products and services; prevention of infectious and non-infectious diseases. 	<p>Strand 4</p> <ul style="list-style-type: none"> • Total indicators: 49 • Indicators analyzed: 47 • Indicators excluded: 2
<p>Grade 12:</p> <ul style="list-style-type: none"> • Develop the ability to manage their health effectively and systematically, prevent diseases, and avoid risky behaviors. • Display care and understanding of healthy lifestyles. • Analyze and evaluate their personal health to develop strategies for managing health and preventing disease. 	<ul style="list-style-type: none"> • Safety in Life (strand 5): protecting oneself from risky behaviors, medicines, and addictive substances that may pose harm to health. 	<p>Strand 5</p> <ul style="list-style-type: none"> • Total indicators: 41 • Indicators analyzed: 33 • Indicators excluded: 8

Health literacy matrix and curriculum mapping

Sørensen et al.⁽³⁾ proposed an integrated conceptual model of health literacy that addresses the limitations of earlier models. Thus, the core of this model consists of the competency dimensions of health literacy and health-related domains. Each dimension outlines specific competencies that individuals can demonstrate across these health-related domain. The authors also presented a health matrix based on this model. The matrix comprises four

dimensions of competencies and three health literacy domains, which together encompass 12 subdimensions of health literacy (see table 2). This study adopts Sørensen et al.'s⁽³⁾ health matrix to map the alignment of the health education curriculum by marking which indicators correspond to specific health literacy domains and competencies.

Table 2 Literacy matrix

	Obtain/Access (O)	Understand (U)	Judge (J)	Apply/Use (A)
Health care	Ability to obtain medical information	Ability to understand medical information	Ability to judge medical information	Ability to decide on medical issues
Disease prevention	Ability to obtain information on risk factors	Ability to understand information on risk factors	Ability to judge and evaluate information on risk factors	Ability to make informed decisions on risk factors
Health Promotion	Ability to update oneself on health issues	Ability to understand health issues	Ability to judge and evaluate health issues	Ability to articulate an informed opinion on health issues

Curriculum mapping, conversely, is used to extract and organize the raw data from the health education curriculum. In this study, Allen's⁽²⁸⁾ framework is used to guide the mapping process. While curriculum mapping traditionally examines learning outcomes in relation to courses, this study takes a different approach. Instead of focusing on courses, the learning outcomes (health literacy domains) are mapped against the indicators, which represent the health education curriculum's learning objectives. This approach is particularly suitable for analyzing a national-level core curriculum, ensuring alignment with the broader education goals.

By combining the health literacy matrix with curriculum mapping, this demonstrates how cohesive the curriculum is and how effectively it fosters health literacy (as learning outcomes). The indicators from health education curriculum will be mapped against Sørensen et al.'s⁽³⁾ health literacy domains. Each competency—representing the abilities to obtain (O), understand (U), judge (J), and ability to apply (A)—serves a reference point to mark the curriculum's alignment

to health literacy. To illustrate this approach, Table 3 presents a condensed version of the curriculum map, while the full curriculum map is available in the appendix A.

Table 3 Condensed curriculum map from the study

Indicator ID	Indicator description*	Health care	Disease Prevention	Health Promotion
1 ^a .3 ^b .1 ^c	Explain the characteristics and the growth of the human body.			U
1.3.2	Compare their growth with standard criteria.			J
1.3.3	Specify the factors affecting the growth.			J
1.6.1	Explain the importance of the reproductive and the circulatory systems affecting health, growth and development.			U
1.6.2	Explain the methods of taking care of the reproductive, the circulatory and the respiratory systems for normal functioning.			U
1.9.1	Compare the changes in physical, mental, emotional, social and intellectual respects at each stage of life.			J
1.9.2	Analyse the social influences and the expectations on the changes of teenagers.			J
2.3.1	Explain the importance and the differences of the family to them.			U
2.6.1	Explain the importance of establishing and maintaining the relationship with others.			U
2.9.1	Explain mother and child health, family planning and the appropriate method for self-conduct.	-	-	U
4.3.1	Explain the transmission and the methods of self- protection from the diseases.	U	U	
4.3.2	Classify the 5 groups of essential nutrients.			U

Table 3 Condensed curriculum map from the study (Cont.)

Indicator ID	Indicator description*	Health care	Disease Prevention	Health Promotion
4.6.1	Explain how to prevent and solve the environmental problems affecting health.		U	
4.6.2	Analyse the effects of the spread of diseases and propose the guidelines to prevent the infectious diseases found in Thailand.	J	A	
4.9.1	Set the menus suitable to various ages, bear in mind the cost-effectiveness and the nutritional value.			A
4.9.2	Propose the guidelines to prevent diseases that are the main causes of illness and death of the Thai people.		A	
5.6.1	Analyse the effects of the violence from the natural disasters on the body, the mind and the society.			J
5.6.3	Analyse the causes of drug addiction and persuade others to avoid the addictive substances.			J
5.9.1	Analyse the risk factors and the risk behaviours affecting health and the methods of prevention.		J	
5.9.3	Analyse the influence of the media on behaviours related to health or violence.			J

Note. A condensed version of curriculum map from the study. See appendix A for the full version. Excluded indicators are not shown in the table.

** The indicator descriptions are quoted directly from the Thailand's Ministry of Education health education and physical education curriculum⁽²⁶⁾ They are used verbatim to accurately represent the learning objectives, and preserve the reliability of the analysis.*

Representation of indicator ID: ^a = strand, ^b = grade level, ^c = indicator number

Legend: O – Obtain, U – Understand, J – Judge, A – Apply

Results

This section presents the findings from the document analysis, focusing on the alignment of Thailand's basic health education with health literacy domains and competencies as outlined by Sørensen et al.⁽³⁾. The analysis utilized the READ approach,⁽²⁷⁾ applied to curriculum maps, additional curriculum materials, and Ministry of Education's standardized textbooks. From this analysis, five key dimensions emerged:

A balanced focus on knowledge retention and application

The analysis reveals that the health education curriculum has a balanced emphasis on knowledge retention and practical application. While the curriculum emphasizes understanding (U) in various health domains, there is a slightly stronger emphasis on application (A) throughout the curriculum.

Considerable attention is given to ensure students' comprehensive understanding of health domains, such as "explain" the bodily functions, "describe" disease preventions methods, and "identify" health-related risks⁽²⁶⁾. On the other hand, the curriculum appropriately shifts focus from knowledge retention to practical application. This balance effectively mitigates the risk of overemphasis on understanding.

Underrepresentation of skills to obtain health information

Another critical finding from the document analysis is the significant underrepresentation of competencies related to obtaining health information (O). The ability to obtain health information equips individuals with the ability to search for, access, and retrieve reliable health information. Also, in terms of cognitive development, this competency builds characteristics of an effective learner. Supporting this competency empowers students to become a proactive learner, and perhaps a lifelong learner, which is particularly important for being health literate. However, the curriculum map shows that the obtain competency is greatly underemphasized compared to other competencies.

Cohesive progression of health literacy competencies: strengths and gaps

Another dimension that has emerged from the analysis is the cohesiveness of the curriculum. It provides insights into the progression of competencies related to health literacy. Ideally, a cohesive curriculum follows a logical cognitive-progress, where students develop progressively from obtaining (O) to ultimately being able to apply (A) knowledge in real-world situations⁽²⁸⁾. In this study, the curriculum map of health education reveals some strengths and gaps in the cohesive progression of health literacy competencies.

The gaps in this aspect lie in the underrepresentation of the “obtain” competency (O). This suggests that the students may not be fully equipped with the tools to seek out health information. This drawback is significant because, without the ability to search for relevant or reliable information, students are more likely to be depending on provided knowledge.

In contrast, the curriculum also yields strengths in this regard. Aside from the underrepresentation of “obtain” competency, the curriculum fairly demonstrates a logical progression of other competencies (understand, judge, and apply) throughout. Moreover, the curriculum fosters cohesion across grade levels, each stage of education found to be complementary to the previous one.

Comprehensive coverage of health domains through application

The curriculum demonstrates a significant focus on having the comprehensive approach to covering the health domains. Various indicators emphasize promoting the application of health information, ensuring that students are exposed to a wide range of health-related topics. Health promotion, disease prevention, and health care are well integrated in the curriculum. Through a variety of activities and lessons, students are encouraged to actively apply their knowledge to real-world contexts. The content presented in the issued textbooks further confirm this finding.

An overemphasis on health promotion at the expense of other health domains

While the curriculum covers all health domains, it also overemphasizes health promotion at the expense of other health domains. Health promotion focuses on the positive health behaviors and attitudes, such as physical fitness, emotional well-being, or proper nutrition. While it is an important part of health education and a key component of health literacy. However, it should not outweigh or overshadow the other domains. This imbalance in focus across health domains is evident in the curriculum map, where the majority of indicators are concentrated in the health promotion column compared to the other two domains. This disproportionate emphasis may prevent students from achieving functional and critical health literacy.

Discussion

In regard to knowledge retention and application, this curriculum fosters functional health literacy⁽¹⁶⁾. With a strong emphasis on understanding, the curriculum supports a strong theoretical foundation which is necessary for developing other competencies. This is particularly important in the early years, which cognitive development and readiness are crucial⁽²⁹⁾. The

curriculum emphasizes a strong intention to ensure that the students know how to apply the knowledge they have retained in practical situations.

The underrepresentation of skills to obtain health information may hinder students' ability to independently access information, limiting the sustainable promotion of health literacy. Preparedness for evolving health information is also a concern, as students may struggle to effectively update their knowledge as health advice and guidelines evolve. Furthermore, this creates barriers to achieving critical health literacy or the ability to critically think and evaluate information⁽³⁾. As a result, individuals may become overly dependent on provided information.

On the other hand, the incoherence in the curriculum may result in students being unable to sustain the learning behaviors required for being health literate. In terms of progressive development of competencies, this missing “first step” (O) limits the students' development of other competencies⁽³⁰⁾. It also may lead to the lack of interest in learning, and possibly ineffective education. However, in this regard, the curriculum is found to be cohesive in other competencies. Each “route” maintaining its direction throughout all grades. With consistent direction, they are gradually exposed to more complex topics and competencies. This approach ensures that students are developing their health literacy skills in a cohesive and interconnected manner⁽³¹⁾. Previous research in the Thai context has shown that, although students often use the internet for health information, they are not very confident in evaluating and applying it⁽³²⁾. Likewise, the importance of the ability to obtain information has been emphasized in studies demonstrating the association between information literacy and health literacy⁽³³⁾.

In terms of having a comprehensive coverage of health domains, the curriculum instills the holistic view on health literacy. It moves beyond the isolated topics to create an all-encompassing learning experience, where students learn health topics while also understanding how they interrelate with other areas. Encouraging a holistic view on health is very beneficial to cognitive development, it also nurtures the critical approach to health literacy⁽³⁴⁾.

Lastly, as a result of overemphasizing on health promotion, fragmented health literacy goes beyond simply lacking health literacy or being incomplete. It can pose challenges to individuals' health and well-being. For example, these individuals are more likely to become vulnerable to misinformation and may be limited in their ability to effectively and actively participate in community health efforts or public health initiatives⁽³⁵⁾. Although, the curriculum does not completely disregard the other two areas, the imbalance is evident and the necessity of

holistic health literacy should be considered. Several studies have also suggested that school-based health literacy interventions often place heavy emphasis on health promotion while neglecting other important competencies.^(15,36-38)

Due to the nature of how this study, several limitations should be acknowledged. First, only document analysis was conducted; therefore, the results were not triangulated with other sources such as classroom practice or stakeholder feedback. Second, although some laws may have been passed that affect the practicality of the indicators, this article was restricted to the 2008 health education curriculum.

Conclusion

Based on the findings, we conclude with several recommendations to enhance the promotion of health literacy within Thailand's health education curriculum. First, the curriculum should maintain its comprehensiveness and cohesiveness while striving for a more balanced emphasis across health domains. Secondly, in response to the rapid movement of information today, the curriculum should place greater focus on the "obtain" competency, incorporating appropriate instructional designs such as problem-based learning or self-regulated learning. For future research, educational design research that involves experimenting with a curriculum featuring more comprehensive and cohesive health literacy domains and competencies could offer important insights into its impact on promoting health literacy.

Ethical Approval Statement

This study was approved and exempted by Siriraj Institutional Review Board, SIRB protocol No. 905/2567(Except). Date of proof: November 15, 2024.

Author Contributions

SB designed the study, extract and organize the data. SB and PM analyzed the elements of the extracted documents. SB organized the analyzed data and wrote the manuscript. All authors read and approved the manuscript prior to submission for publication.

Acknowledgements

We would like to thank the support received from other members at Siriraj Health Science Education Excellence Center, Faculty of Medicine Siriraj Hospital, Mahidol University.

Source of Funding

This research was supported by funding from Faculty of Medicine Siriraj Hospital, Mahidol University.

Conflicts of Interest

The authors have no conflicts of interest to declare.

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Appendix A – Health education curriculum map

Strand	Grade	Indicator		Health care (Cure)	Disease Prevention (Prevention)	Health Promotion (Care)
		ID	Indicator (description)			
1	1	1.1.1	Explain the characteristics and the functions of the external organs.	-	-	U
		1.1.2	Explain the methods of taking care of the external organs.	-	-	U
	2	1.2.1	Explain the characteristics and the functions of the internal organs.	-	-	U
		1.2.2	Explain the methods of taking care of the internal organs.	-	-	U
		1.2.3	Explain the nature of human life.	-	-	U
	3	1.3.1	Explain the characteristics and the growth of the human body.	-	-	U
		1.3.2	Compare their growth with standard criteria.	-	-	J
		1.3.3	Specify the factors affecting the growth.	-	-	J
	4	1.4.1	Explain the physical and the mental growth and the development in accord with their ages.	-	-	U
		1.4.2	Explain the importance of muscles, bones and joints affecting health, growth and development.	-	-	U
		1.4.3	Explain the methods of taking care of muscles, bones and joints for efficient functioning.	-	-	U
	5	1.5.1	Explain the importance of the digestive and the excretory systems on health, growth and development.	-	-	U
		1.5.2	Explain the methods of taking care of the digestive and the excretory systems for normal functioning.	-	-	U
	6	1.6.1	Explain the importance of the reproductive and the circulatory systems affecting health, growth and development.	-	-	U
1.6.2		Explain the methods of taking care of the reproductive, the circulatory and the respiratory systems for normal functioning.	-	-	U	

Strand	Grade	Indicator		Health	Disease	Health
		ID	Indicator (description)	care (Cure)	Prevention (Prevention)	Promotion (Care)
7	1.7	1.7.1	Explain the importance of the nerve and the ductless gland systems affecting health, growth and development of teenagers.	-	-	U
		1.7.2	Explain the methods of taking care of the nerve and the ductless gland systems for normal functioning.	-	-	U
		1.7.3	Analyse the conditions of their own physical growth with standard criteria.	-	-	J
		1.7.4	Search for the guidelines for self-development to attain growth in accord with their ages.	-	-	O
8	1.8	1.8.1	Explain the changes in physical, mental, emotional, social and intellectual respects of teenagers.	-	-	U
		1.8.2	Specify the factors affecting growth and development in physical, mental, emotional, social and intellectual respects of teenagers.	-	-	A
9	1.9	1.9.1	Compare the changes in physical, mental, emotional, social and intellectual respects at each stage of life.	-	-	J
		1.9.2	Analyse the social influences and the expectations on the changes of teenagers.	-	-	J
		1.9.3	Analyse the advertising media influencing growth and development of teenagers.	-	-	J
10-12	1.10	1.10.1	Explain the processes of strengthening and maintaining efficient functioning of various organ systems.	-	-	U
		1.10.2	Plan for health care in accord with conditions of their own growth and development and those of their family members.	-	-	A
2	3	2.3.1	Explain the importance and the differences of the family to them.	-	-	U
		2.3.2	Explain the methods to establish the relationships in the family and groups of friends.	-	-	U
		2.3.3	Tell the methods of avoiding behaviors conducive to sexual harassment.	-	-	U

Strand	Grade	Indicator		Health	Disease	Health
		ID	Indicator (description)	care (Cure)	Prevention (Prevention)	Promotion (Care)
	6	2.6.1	Explain the importance of establishing and maintaining the relationships with others.	-	-	U
		2.6.2	Analyse the risk behavior conducive to sexual intercourse, contracting AIDS and premature pregnancy.	-	J	-
	9	2.9.1	Explain mother and child health, family planning and the appropriate method for self-conduct.	-	-	U
		2.9.2	Analyze the factors affecting pregnancy.	-	-	J
		2.9.3	Analyze the causes and propose the guidelines to prevent and solve family conflicts.	A	-	-
4	1	4.1.1	Observe the principles of the National Health Regulations as advised.	-	-	A
		4.1.2	Tell the symptoms of their own illness.	U	-	-
		4.1.3	Follow advice when being ill.	A	-	-
	2	4.2.1	Tell the characteristics of good health.	-	-	U
		4.2.2	Take nutritious food.	-	-	A
		4.2.3	Specify the utensils and toys detrimental to health.	-	-	J
		4.2.4	Explain the symptoms and the ways to protect themselves from illnesses and injuries.	U	U	-
		4.2.5	Follow the advice when being ill.	A	-	-
	3	4.3.1	Explain the transmission and the methods of self-protection from the diseases.	U	U	-
		4.3.2	Classify the 5 groups of essential nutrients.	-	-	U
		4.3.3	Take a diet with all the 5 groups of essential nutrients in appropriate proportion.	-	-	A
		4.3.4	Perform the correct method of brushing teeth.	-	-	A
		4.3.5	Strengthen physical capacities as advised.	-	-	A

Strand	Grade	Indicator		Health	Disease	Health
		ID	Indicator (description)	care (Cure)	Prevention (Prevention)	Promotion (Care)
4	4.4.1	4.4.1	Explain the relationship between the environment and health.	-	-	U
	4.4.2	4.4.2	Explain the states of emotions and feelings affecting health.	-	-	U
	4.4.3	4.4.3	Analyse the information on the labels of food and health products to make consumption choices.	-	-	J
	4.4.4	4.4.4	Test and improve physical capacities from the results of physical fitness test.	-	-	A
5	4.5.1	4.5.1	Recognise the importance of observing the National Health Regulations.	-	-	A
	4.5.2	4.5.2	Search for the information for health-strengthening.	-	-	O
	4.5.3	4.5.3	Analyse the advertising media to inform decision- making when buying food and health products.	-	-	J
	4.5.4	4.5.4	Observe the requirements of self- protection from the diseases frequently found in daily life.	-	A	-
	4.5.5	4.5.5	Test and improve physical capacities from the results of physical fitness test.	-	-	A
6	4.6.1	4.6.1	Explain how to prevent and solve the environmental problems affecting health.	-	U	-
	4.6.2	4.6.2	Analyse the effects of the spread of diseases and propose the guidelines to prevent the infectious diseases found in Thailand.	J	A	-
	4.6.3	4.6.3	Perform the responsibility for the health of the public.	-	A	-
	4.6.4	4.6.4	Continuously strengthen and improve their physical capacity.	-	-	A
7	4.7.1	4.7.1	Choose to consume food suitable to their ages.	-	-	A
	4.7.3	4.7.3	Analyse the problems arising from the nutritional status affecting health.	J	-	-
	4.7.3	4.7.3	Control their own weight to the norm.	-	-	A

Strand	Grade	Indicator		Health	Disease	Health
		ID	Indicator (description)	care (Cure)	Prevention (Prevention)	Promotion (Care)
		4.7.4	Strengthen and improve their physical capacity from the test results.	-	-	A
8		4.8.1	Choose to take the health services with proper reasons.	-	-	A
		4.8.2	Analyse the effects of technological applications on health.	-	-	J
		4.8.3	Analyse the medical advancement affecting health.	J	-	J
		4.8.4	Analyse the relationship of the balance between physical and mental health.	-	-	J
		4.8.5	Explain the basic characteristics and the symptoms of those who have mental health problems.	U	-	-
		4.8.6	Recommend the self-conduct methods to manage emotions and stress.	-	-	A
		4.8.7	Develop their own physical capacities to meet the criteria prescribed.	-	-	A
9		4.9.1	Set the menus suitable to various ages, bear in mind the cost-effectiveness and the nutritional value.	-	-	A
		4.9.2	Propose the guidelines to prevent diseases that are the main causes of illness and death of the Thai people.	-	A	-
		4.9.3	Collect the data and propose the guidelines to solve health problems in the community.	-	-	A
		4.9.4	Test their physical capacity and develop in accord with the individual differences.	-	-	A
10-12		4.10.1	Analyse the roles and the responsibilities of individuals for health- strengthening and disease prevention in the community.	-	J	J
		4.10.2	Analyse the influences of advertising media on health to make choices of consumption.	-	-	J
		4.10.4	Analyse the causes and propose the guidelines to protect themselves from illnesses and death of the Thai people.	-	A	-
		4.10.5	Plan and implement the health development plans for themselves and their families.	-	-	A

Strand	Grade	Indicator		Health care (Cure)	Disease Prevention (Prevention)	Health Promotion (Care)
		ID	Indicator (description)			
		4.10.6	Participate in strengthening and developing community health.	-	-	A
		4.10.7	Devise and follow the plans of developing physical and mechanical capacities.	-	-	A
5	1	5.1.1	Specify harmful things at home and at school, and the methods of prevention.	-	U	-
		5.1.2	Tell the causes and the way to prevent harm resulting from playing.	-	U	-
	2	5.2.2	Tell the names of the conventional medicines and take them as advised.	A	-	-
		5.2.3	Specify the dangers of addictive substances and the dangerous substances around them, and the methods to protect themselves.	-	A	-
		5.2.5	Explain the causes and the dangers of fires, and explain the methods of fire prevention as well as perform the fire escape routes.			
	3	5.3.1	Analyze the factors influencing the addiction of addictive substances.	-	-	J
		5.3.2	Analyze the effects of the taking of medicines and of addictive substances on the body, the mind, the emotions, the society and the brain.	J	-	J
		5.3.3	Perform the methods of the first aid treatment.	A	-	-
	4	5.4.1	Explain the importance of medicines and the proper methods of taking medicines.	U	-	-
		5.4.2	Perform the methods of the first aid treatment when taking the wrong medicines, the chemicals, the insect and animal bites, and the injuries from playing sports.	A	-	-
		5.4.3	Analyse the damages from cigarette smoking and alcoholic drinks on health and analyse methods of prevention.		J	J
	5	5.5.1	Analyse the factors influencing the addiction of addictive substances.	-	-	J

Strand	Grade	Indicator		Health	Disease	Health
		ID	Indicator (description)	care (Cure)	Prevention (Prevention)	Promotion (Care)
		5.5.2	Analyse the effects of the taking of medicines and of addictive substances on the body, the mind, the emotions, the society and the brain.	J	-	-
		5.5.3	Know how to protect themselves from taking wrong medicines and addictive substances.	-	U	-
		5.5.4	Analyse the influence of media on health behaviours.	-	-	J
6		5.6.1	Analyse the effects of the violence from the natural disasters on the body, the mind and the society.	-	-	J
		5.6.2	Specify the self-conduct to protect themselves from the natural disasters.	-	-	U
		5.6.3	Analyse the causes of drug addiction and persuade others to avoid the addictive substances.	-	-	J
7		5.7.1	Perform the methods of the first aid treatment and safe transfer of the patients.	A	-	-
		5.7.2	Tell the characteristics and the symptoms of drug addiction and the prevention of drug addiction.	U	U	-
		5.7.3	Explain the relationship of taking drugs with the contracting disease and the accidents.	U	-	-
8		5.8.1	Specify the methods, the factors and the sources of assistance and rehabilitation for drug addicts.	U	-	-
9		5.9.1	Analyse the risk factors and the risk behaviours affecting health and the methods of prevention.	-	J	-
		5.9.2	Avoid resorting to violence and persuade friends to avoid resorting violence for problem-solving.	-	-	A
		5.9.3	Analyse the influence of the media on behaviours related to health or violence.	-	-	J
		5.9.4	Analyse the effects of consuming alcoholic drinks on health and causing of the accidents.	-	-	J
		5.9.5	Perform the proper methods of resuscitation.	A	-	-

Strand	Grade	Indicator		Health	Disease	Health
		ID	Indicator (description)	care (Cure)	Prevention (Prevention)	Promotion (Care)
	10-12	5.10.1	Participate in protection themselves from the medicines, the addictive substances and the violence for their own health, family and society.	-	A	-
		5.10.2	Analyse the effects from possession, taking and sale of the addictive substances.	-	-	J
		5.10.3	Analyse the factors affecting health and violence of the Thai people and propose the guidelines of prevention.	-	A	-
		5.10.4	Plan and set the guidelines to decrease the accidents and to strengthen safety in the community.	-	-	A
		5.10.5	Participate in safety strengthening in the community.	-	-	A
		5.10.7	Perform the proper methods of resuscitation.	-	-	A

* The indicator descriptions are quoted directly from the Thailand's Ministry of Education health education and physical education curriculum.²⁵ They are used verbatim to accurately represent the learning objectives, and preserve the reliability of the analysis.

Representation of indicator ID: a = strand, b = grade level, c = indicator number

Legend: O – Obtain, U – Understand, J – Judge, A – Apply