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APPENDICES (B)

Curriculum in Secondary Level of Thailand

Learning substance and standards to be applied, as criteria to stipulate quality of learners after graduation at basic education level, comprise only fundamental ones for building up quality of life. Educational institutions may add those responsive to learners’ capacity, aptitude and interest. Details of substance and standards are as below:

Thai Language

Substance 1: Reading

Standard T 1.1 Application of reading process to compile knowledge, to stimulate thinking, to make decision, to solve problems, to build up vision for living, and to acquire reading habit.

Substance 2: Writing

Standard T 2.1 Application of writing process to communicate; to be capable of writing essays, abstracts, and features, different forms of information report, education

Substance 3: Listening, observing and speaking

Standard T 3.1 Competency in selective listening and observing critically, speaking to explain knowledge, thoughts and feelings at different occasions effectively and with consideration.
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Substance 4: Principles on language application

Standard T 4.1 Understanding language nature. Theory, evolution, power, wisdom, and preservation of language as national property

Standard T 4.2 Language application competency in search of knowledge, character building, identity, and language relating with culture, career, social activities and daily life.

Substance 5: Literature and literary outputs

Standard T 5.1 Understanding, appreciation and application of Thai literature and literary outputs, ability to express critical ideas and literary review.

Mathematics

Substance 1: Numbers and numerical works

Standard M 1.1 Understanding of number exposition diversity and application in real life.

Standard M 1.2 Understanding of outputs of numerical works and their relationship, ability to apply numerical works in problem solving.

Standard M 1.3 Understanding numerical systems and ability to apply numerical property.

Substance 2: Measurement

Standard M 2.1 Understanding measurement foundation

Standard M 2.2 Measurement and estimation of size of objects to be Measured

Standard M 2.3 Solving measurement problems.
Substance 3: Geometry
Standard M 3.1 Capacity to explain and analysis of two and three dimensions geometric figures.
Standard M 3.2 Application of visualization, spatial reasoning and geometric model for problems solving

Substance 4: Algebra
Standard M 4.1 Capacity to explain and analyze algebraic pattern, relationship and various functions.
Standard M 4.2 Capacity to apply algebraic expression, equation, non-equation, graph and other mathematics models to represent various situations; interpretation and problem solving.

Substance 5: Data analysis and probability
Standard M 5.1 Understanding and capacity to apply statistical procedures for data analysis
Standard M 5.2 Capacity to apply statistical procedures and probability, knowledge in reasonable estimation.
Standard M 5.3 Capacity to apply statistical knowledge and probability in decision-making and problem solving.

Substance 6: Mathematics skills and procedures
Standard M 6.1 Problem solving capacity
Standard M 6.2 Reasoning and justification ability
Standard M 6.3 Communication ability, presentation and interpretation of mathematics knowledge.
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Standard M 6.4  Capacity to relate various disciplines within mathematics and outside.
Standard M 6.5  Creative thinking.

Science

Substance 1: Living beings and life existence processes

Standard Sc 1.1  Understanding foundation of living beings, relationship between structures and functions of various systems operation; procedures in searching for knowledge, communication of knowledge and application of knowledge for own self – existence, taking good care living beings.


Substance 2: Life and environment

Standard Sc. 2.1  Understanding local environment, relationship between living beings and environment, and among all living being in ecological systems, procedures in searching for knowledge and fostering science consciousness, communicating acquired knowledge and application of knowledge.
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Substance 3: Properties of matter
Standard Sc. 3.1 Understanding matter, its quality and relationship with structure, skills in searching for knowledge procedures and processing science consciousness, communicating acquired knowledge and application.
Standard Sc. 3.2 Understanding nature and changing situation of matter, matter solution, chemical reaction, skills in searching for knowledge procedures and possessing science consciousness, communicating acquired knowledge and application.

Substance 4: Force and mobility
Standard Sc. 4.1 Understanding nature of force, magnetic force, gravity force and nuclear force, skills in searching for knowledge procedures, and application of knowledge effectively and righteously with morality.
Standard Sc. 4.2 Understanding various forms of natural object mobility, skills in searching for knowledge procedure and possessing science consciousness, communication acquired knowledge and application of knowledge.

Substance 5: Energy
Standard Sc. 5.1 Understanding relationship between energy and living, energy transformation, matter and energy interaction, result of energy utilization for life and environment, skills in searching for knowledge procedures and possessing science consciousness, communicating acquired knowledge and application.
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Substance 6: **Evolution of earth**
Standard Sc. 6.1 Understanding chains of natural happening within and on earth surface, chains relationship which cause climatic changes, topography and earth form, skills in search of knowledge procedures, and possessing science consciousness, communicating acquired knowledge and application of knowledge.

Substance 7: **Astronomy and space**
Standard Sc. 7.1 Understanding the importance of space technology for investigating space, natural resource
Standard Sc. 7.2 Understanding the importance of space technology for investigating space, natural resource Understanding the evolution of the solar system and galaxy. Internet solar system relationship and its effect on life on the earth, skills in searching for knowledge procedures and possessing science consciousness communicating acquired knowledge and application of knowledge uses, agriculture and communication, communicating acquired knowledge environment

Substance 8: **Nature of science and technology**
Standard Sc. 8.1 Application of science and science consciousness in searching for knowledge, problem solving. Understanding fixed forms of majority of natural phenomena which can be investigated and explain in depending on availability of current information and tools. Understanding science, technology, society and environment relationship.
Social studies, religion and culture

Substance 1: Religion, morality, righteousness

Standard So 1.1 Understanding history, importance and teachings of Buddhism and other religions, ability to apply religious doctrine in living together.

Standard So 1.2 To strictly adhere to moral codes, good deeds, right value and faith in Buddhism or religion which oneself has faith.

Standard So 1.3 To observe and behave in accordance with moral teaching and religious rites of Buddhism or religion which oneself has faith, ability to apply religious teaching for self-development, for society welfare, for preservation of environment, and for peaceful living in society.

Substance 2: Civil responsibility, culture, and life in society

Standard So 2.1 To behave in accordance with good citizen’s responsibilities, laws, customs and Thai culture, Peaceful living in Thai and world society.

Standard So 2.2 Understanding current politics, firmly believe in, and uphold democratic system of government under a constitutional monarchy.

Substance 3: Economics

Standard So 3.1 Understanding and to be capable to efficiently and cost-effectively administer and manage resource production and consumption, utilization of limited resource available, sufficient economy for well balanced living.
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Standard So.3.2 Understanding various economic systems and their relationship, necessity to co-operate for economic stability at international level.

Substance 4: History
Standard So 4.1 Understanding historical importance, meaning, era and period, capable of critical and systematic analysis of events by utilizing historical bases.
Standard So 4.2 Understanding historical evolution and development of human beings, in the events relationship and continuous changes, well aware of their significance and effects.
Standard So 4.3 Understanding historical development of Thai national, culture, local wisdom, be proud of being a Thai and maintaining Thai Identity.

Substance 5: Geography
Standard So 5.1 Understanding the earth’s physical structure, space relationship which results in cross effects within natural systems, capable of utilizing maps and geographical tools to search for geo-data a information needed for effective application and management.
Standard So 5.2 Understanding inter-relationship between human beings and physical environment which lead to cultural creation, and consciousness of resource and environment preservation for sustainable development.
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Substance 1: Human growth and development
Standard H 1.1 Understanding human growth and development nature.

Substance 2: Life and family
Standard H 1.1 Understanding and appreciating life and family, sex, education and life skills.

Substance 3: Movements, physical exercises, games, Thai and international sports
Standard H 3.1 Understanding and possessing skills in movements. Physical exercise, games and sports.
Standard H 3. Appreciating and acquiring habits for physical exercises, games and sports; strictly adhering to disciplines, rules and regulation; respect for right and sportive spirit; possessing competition consciousness, and appreciating sportive aesthetics.

Substance 4: Building up health capacity and sickness prevention
Standard H 4.1 Appreciating and possessing skills in health building, good health maintaining, sickness prevention and capacity strengthening for health.
Substance 6: Safety
Standard H6.1 Preventing and avoiding risking factors and behaviours, accidents, use of drugs and narcotic and violence.

Art
Substance 1: Visual arts
Standard A 1.1 Creating imaginative visual arts, creativity, art review and critical analysis; freely transferring emotions and thought about art; appreciating and applying art in daily life.
Standard A 1.2 Understanding visual arts, history and cultural relationship; appreciating visual arts, cultural heritage, local wisdom and Thai wisdom

Substance 2: Music
Standard A 2.1 Understanding and creatively expressing art of music; reviewing and analyzing its value; freely transferring emotions and thoughts about music; appreciating and applying music in daily life
Standard A 2.2 Understanding music, history and culture relationship; appreciating music, cultural heritage, local wisdom and Thai wisdom.

Substance 3: Performing arts
Standard A 3.1 Understanding and expressing creativity by performing arts; reviewing and analyzing their value; freely transferring emotions thoughts appreciating and applying performing arts in everyday life.
procedures; capable to make creative decision on technological choice for up-grading life, social activities, environment, work and professional world

**Substance 4: Information technology**

Standard C 4.1 Understanding, appreciating and applying information technology to search for data, to learn, to communicate and to solve problems; working and living with morality efficiently and effectively

**Substance 5: Work and career technology**

Standard C 4.2 Applying technology for work, producing, designing solving problems; creating careers and honest vocation; formulating strategic plan; and thinking creatively

**Foreign language**

Core curriculum for foreign language learning is English which is required for all levels until graduation. As for other foreign languages e.g. French, German, Chinese, Japanese, Arabic, Pali or neighboring countries’ language group’s educational institutions may formulate subjects and learning procedure management as appropriate.

**Substance 1: Language for communication**

Standard F 1.1 Understanding listening and reading processes capable to interpret massage derived from
Standard A 3.2 Understanding performing arts, history and culture relationship; appreciating performing arts cultural heritage, local wisdom and Thai wisdom

Career and technology

Substance 1: Living and family life
Standard C 1.1 Understanding, creatively thinking, acquiring skills, moral and consciousness concerning utilization of natural resources and environment; in works for living and family life involving household chores, agriculture, crafts, creative works and business.

Standard C 1.2 Acquiring work management skills and procedures, group work; search for knowledge, competence in problem solving; love to work; positive attitude about work.

Substance 2: Career
Standard C 2. Understanding and possessing skills and experience in right occupation; possessing morality, positive attitude about career; visualizing ways and means to occupy honest profession

Substance 3: Design and technology
Standard C 3.1 Understanding technological nature and procedures; applying knowledge, wisdom, imagination, and systematic thinking for design and inventing utensils; understanding technological strategies and
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Standard F 1.2 Possessing skills for language communication for data, information and ideas exchanges; capable to apply technology to express feelings and manage learning processes appropriately

Standard F 1.3 Understanding speaking and writing processes data, communicating data, opinions and concept of various subjects creatively, efficiently and aesthetically

Substance 2: Language and culture

Standard F 2.1 Understanding language and own culture relationship, utilizing language and culture as appropriate to time and place and other factors

Standard F 2.2 Understanding the similarity and difference between the language and own culture and those of Thai; utilizing language intelligently and with consideration

Substance 3: Language and other subjects groups relationship

Standard F 3.1 Utilizing foreign languages for studying other subjects; own self developing and broadening the world view on language bases

Substance 4: Language, community and world relationship

Standard F 4.1 Possessing skills in the use of foreign languages to encounter different situations within and outside educational institutions, community and society

Standard F 4.2 Possessing skills in the use of foreign language to
acquire knowledge to work to earn living, to
stimulate co-operation and to live together in society

Stipulated standards for learning each subject group, at different grade levels will be printed in Basic Curriculum 2000 documents, which explain in details about scope, substance and standards for each grades level.

Learning management

National education Act 1998 section 22 stipulates guidelines for teaching management that education shall be based on the principle that all learners are capable of learning and self-development, and are regarded as being most important. Therefore, teachers, instructors and administrators must change their roles from guiding and knowledge transferring to helping, promoting and encouraging learners in acquiring knowledge from various media and learners for use in creating their own knowledge.

Basic education curriculum management emphasizes training for intelligence and thinking process development, which shall result in learners' creative and critical thinking ability. Moreover, management shall also focus on emotion control development by instilling awareness on own self value, understanding one self and others, building up capability to solve emotional conflicts appropriately and effectively.

Thailand and other countries around the world are confronting social crisis; in particular those related to conflicts in thought and deeds of individuals, organizations and whole society. Therefore, educational institutions must emphasize learning for realization of situations, of ways and means to redeem undesirable issues, in particular those pertaining to religion and culture.
There are variety of substance procedures and methodologies. Instructors must, periodically and continuously, focus their attention on individual learners’ total development body, intelligence, learning methodology, interest and ability. Therefore, different forms and methodologies shall be applied in each level of learning management, emphasizing actual teaching-learning situation, self-learning, group learning, and learning from nature, from actual practice, and integrated learning.

Researches shall be integral parts of learning processes; similarly, learning academic subject shall be integrated with moral issue. Attempts shall be made to integrate the following procedures in teaching learning of all subjects’ management of environment preservation and development, thinking, and scientific analysis. Such integration of different subjects and learning procedures stipulate common goals, and learner centre focus. Integration may be within the same subject group or otherwise. There are different forms of integration.

1. Integration by one instructor

Individual teacher may link one it or one subject concerned with real life or stipulated subjects. For example environment with water. Linkages between various subjects and learning procedures may also be undertaken e.g. reading, writing, calculating, critical thinking on certain issues, enabling learner to apply skills and learning procedures in acquiring knowledge about stipulated field.

2. Integration by two and more instructors

Two and more instructors jointly work out integration to teach one specific them or subject, on parallel activities basis. For example, teaching about certain subject may be undertaken by one science teacher and one art
teacher, one mathematics teacher about distance measurement by shadow measurement, the art teacher about technique of drawing shadowed picture.

3. Multi-disciplines integration

Subjects from different groups are integrated to replace Normal learning management by each individual instructor was teaching each subject or each subject group separately. For some topics such as environment, different teachers jointly arrange learning processes together. Thai language learning about environment terms, science teacher works out scientific research on environment, social studies teacher assigns lessons or group activities about environment, health education teacher arranges activities pertaining to preserve healthy environment.

4. Integration by project learning approach

Learners and instructors jointly create a project for integrated teaching learning. The project will run continuously, as many hours of learning common goals. This is learning teaching as a team. In the event it is necessary to emphasize skills for particular subject, learning management can be singled out such as music camp, English language camp, art camp and so on.

Guidelines for each grades level learning management

The first level, primary grades 1-3: Learning management must respond to learners' interest. Taking into consideration development psychology and learning psychology. Each time frame should not be too long to hold learners' interest. Thai language and mathematics must be integrated with all subjects groups. Emphasis must be placed on actual practice, and learning enjoyment. Humanity development shall include basic communication skills, mathematical and critical thinking, characteristic and aesthetic development.
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The second level, primary grades 4-6: Similar with learning management levels 1, the difference lies in provision, for wider choice to fulfill learners' interest. Focus will be on promoting group work skills; integrating learning, project learning and application of themes with the aims to foster skills in thinking process, search for knowledge, own self creating body of knowledge and creative production in order to exchange knowledge and skills with others.

The third level, secondary grades 1-3: Management of learning more difficult, more complicated and intensive subjects. Those having difficult and complicated theory and substance may be isolated. More emphasis shall be laid on project leading to understanding and own self. Identifying capability and aptitude, and readiness for careers. Educational institutions shall arrange appropriate learning atmosphere.

The fourth level, secondary grades 4-6: More specialized subject learning management shall be the focuses; emphasizing fulfillment of learners' capability, aptitude, needs, in depth thinking concerning careers and further education. Learning management for non-formal and lifelong education may be made flexible to suit the needs of individuals, community and educational institutions.