

Overview of Korea's ICT in Elementary and Secondary Education

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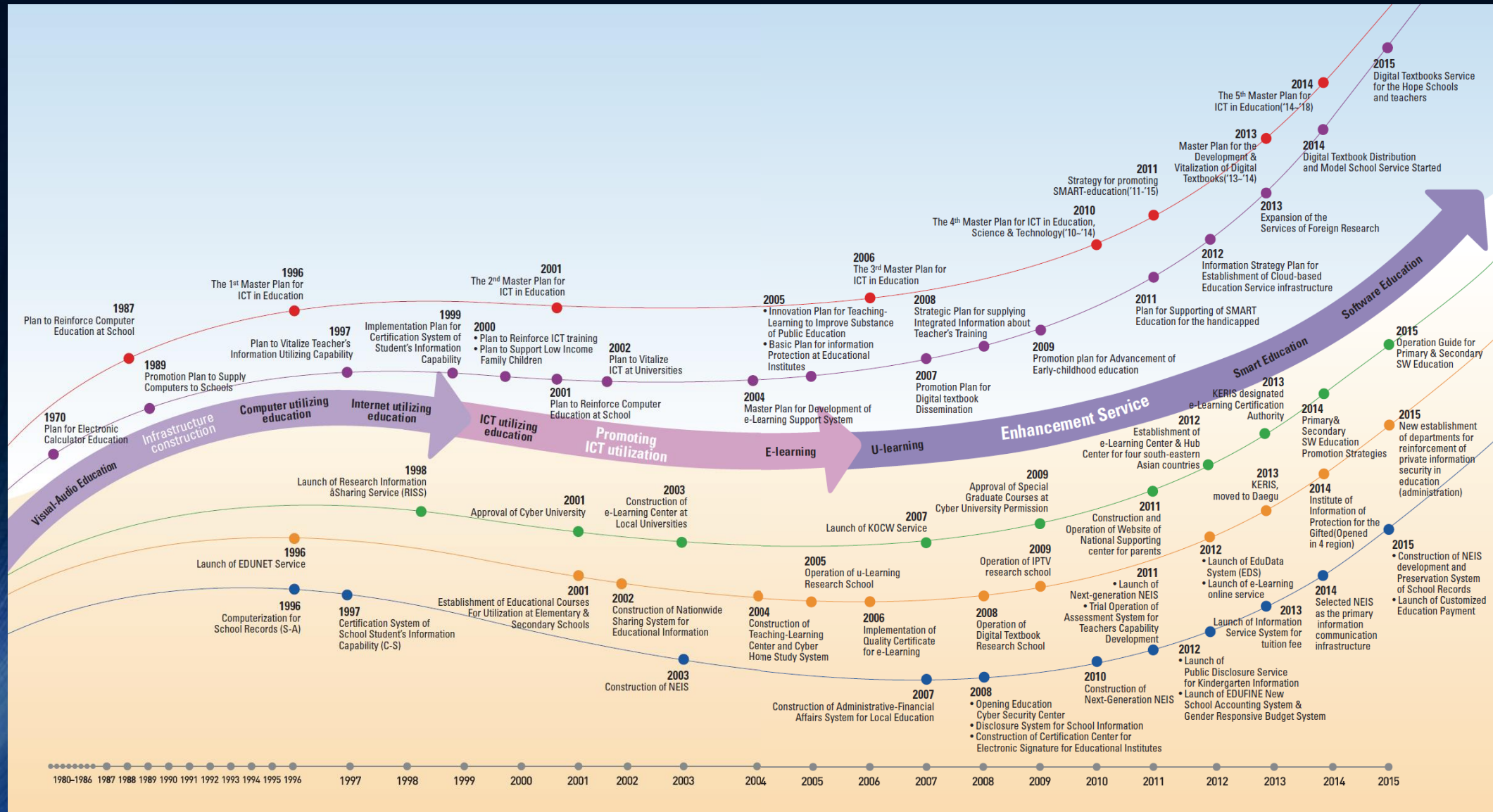
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Themes of Presentation

- 01** Three Main Areas in ICT Education
- 02** EBS CSAT Class Internet Service
- 03** ICT Related Curriculum toward SW Education



PROGRESS OF KOREA'S ICT IN EDUCATION



THREE MAIN AREAS OF KOREA'S ICT IN EDUCATION

EDUNET



Cyber Learning



Digital Textbook



National Teaching-Learning Centre since 1996

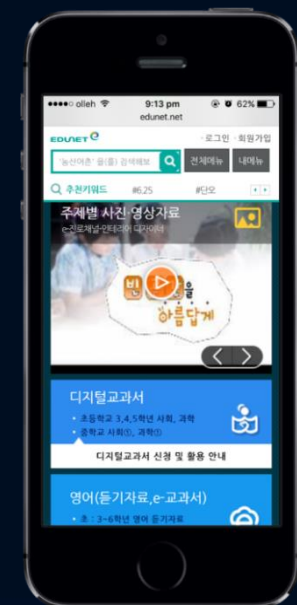
- A portal providing quality and verified Open Education Resources (OER) for primary and secondary education
- More than 400,000 educational contents uploaded for teachers and students (G4-G12)
 - ❖ Video lectures, recordings of exemplary classes, digital textbooks
 - ❖ Wedorang (Learning Community)
- A pioneer & facilitator to the growth of Korea's e-Learning industry



Main Page
(<http://www.edunet.net>)



Site for Best Classes
(<http://good.edunet4u.net>)



Mobile-friendly version



Status of EDUNET Main Services

Item	Service Name	Details
Subject Learning	Subject Learning & evaluation data	Teaching-learning data of Korean, Social studies (History), Math, Science, English, Technology and Home economics (Practical course) from the 3rd grade of elementary school to the 3rd grade of middle school
	Learning data per subject theme	Learning data from main thematic units covered by curriculum of social studies and scientific subjects in elementary and middle schools
	City & Provincial Education Information sharing	All teaching-learning data shared by 17 City, & Provincial Offices of Education
Creative personality	Personality, career and multi-culture	Data related to creative personality, career & occupation, multi- culture
	Wedo-rang	SNS education service
	Doran-doran	Support service of comprehensive Information of violence prevention at school
	Give it to me	Online portfolio producing functions related to 'dreams' and 'careers' with video data
	Thematic photo and image data	Thematic photo, and image data such as eco-environment, social issues and creative careers, etc.
Teacher Specialization	Excellent class videos	Awards for work from class contests at City, & Provincial levels, self- developed data (videos, class designs, etc.)
	Research school	A variety of research school Information and research data on SW education, cyber learning, digital textbooks (operational plans, result reports, etc.)
	Research contest	National, City, & Provincial research contest award recipient data and research contest Information
	Teacher training	Teacher training data sharing and training Information search service
	Research group	Research group Information and performance data operated National, City, or Provincial



Status of EDUNET Main Services

Item	Service Name	Details
Education Policy	SW education	SW education guidance, internal and external related data, & research school data
	IT ethics education	IT ethics class education, subject associated contents, affiliated institutions, parental education data, teacher training, diagnostic tool, etc.
	English (listening data, & e-textbook)	A variety of multimedia contents such as videos, problem-solving, external data association to learning contents of paper based English textbooks
	Reading education	Reading education data, reading activity cases, humanity refinement education, school library Information related task support
	Agricultural, forestry, fishery village ICT utilizing education	Comprehensive content provision serviced by a number of institutions to improve learning conditions of agricultural, forestry, and fishery village students
	Digital textbook	Viewers can learn to use & utilize digital textbooks with related data such as digital samples e.g. models
	Smart Education	Conceptualize and implement Smart Education assignment education with latest trends, all training data, class videos, teaching- learning process agenda, etc.



CYBER LEARNING SYSTEM

(Online Learning Support System for Self-Directed Learning)

5 Core Subjects

- Korean
- Mathematics
- Social Studies
- English
- Science

3 Levels

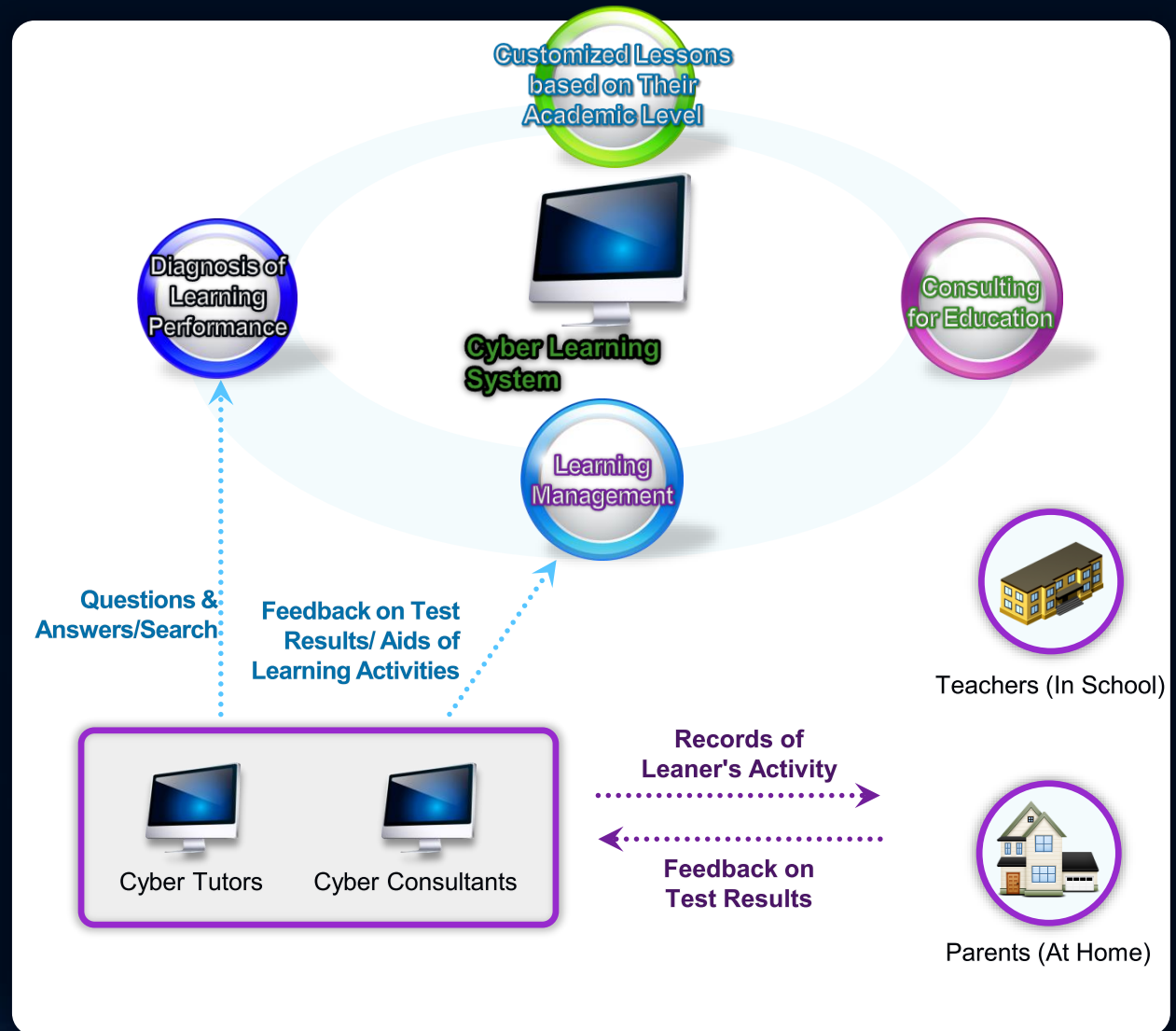
- Basic
- Supplementary
- Advanced

2 Types

- Class Allocation Type
- Self-Study Type

Main Services

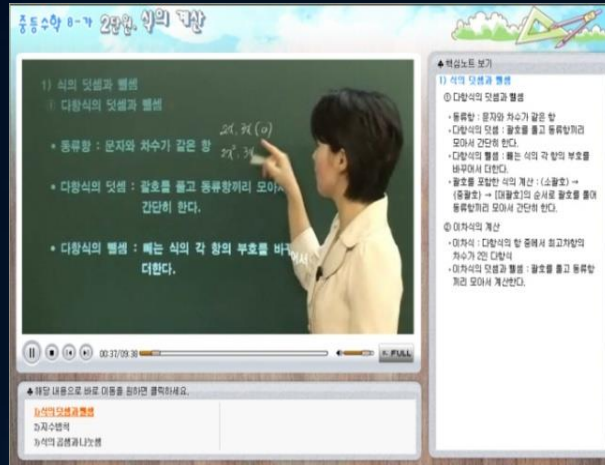
- Learning Management System
- Cyber Teacher
- Learning Diagnosis & Prescription System
- Video Lecturing
- Consulting System



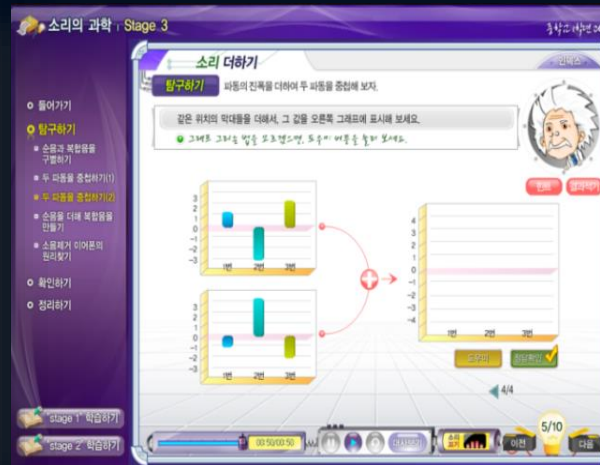
CYBER LEARNING SYSTEM

(Online Learning Support System for Self-Directed Learning)

Video Lecturing



3 Different Levels



Self Evaluation



Video Consulting



Chatting with Cyber Teacher



Cyber Learning System(Seoul) :
(<http://www.kkulmat.com>)



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DIGITAL TEXTBOOK (Interactive learning/teaching resource)

Digital Textbook

- Interactive teaching-learning material with not only paper-based contents, but also interactive multimedia resources including dictionaries, practice/assessment questions, and linked data
- Enable students to engage in more active self-directed learning

2002-2006

- Basic research on future education and Digital Textbook

2007-2012

- Development of prototypes
- Application of prototypes to pilot schools
- Development of Digital Textbook Platform

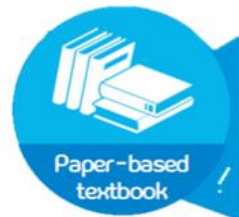
2013-2016

- 128 model schools (2016)
- Grades 3~5 of elementary and 1st year of middle school
- Social Studies/Science/English

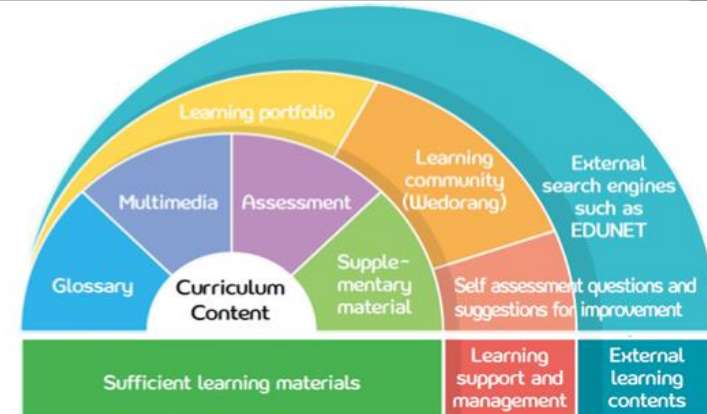


Conventional textbook

- Limited content
- Hard to reflect latest info
- Limited learning activity



Curriculum Content



- No need for reference books and workbooks
- Management suited for individual levels
- Learning textbook perfect for self-directed learning



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DIGITAL TEXTBOOK

Status of Development of Digital Textbooks of 2009 Revised Curriculum(2013~2014)

School Level	Grade	Digital Textbook Development Subject	Remarks
Elementary School	Grades 3~5	Social Studies, & science	Statutory
Middle School	Grade1	Social studies (1) (Donga, MiraeN, Visang Edu, Jihaksa, Chunjae textbook)	Authorized
		Science(1) (Kyohaksa, Donga, MiraeN, Visang Edu, Sinsago, Jihaksa, Chunjae textbook, Chunjae Education)	Recognized

Effects of Digital Textbook (2015)

Classification	No. of participants	Domain		t-value
		Pre-test	Post-test	
Creativity and Innovation	19,348	3.55	3.56	-3.202**
Critical Thinking		3.56	3.58	-3.77***
Information Literacy		3.68	3.76	-13.00***

※ significant: **<.01, ***<.001



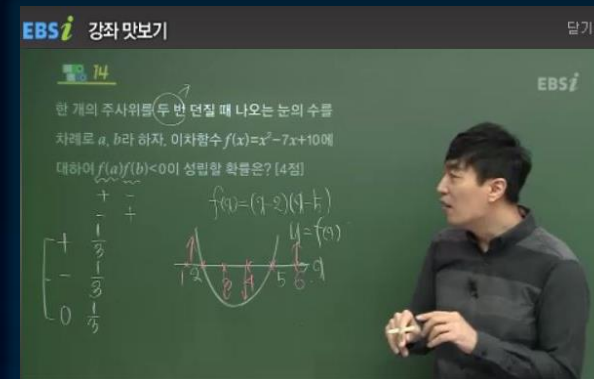
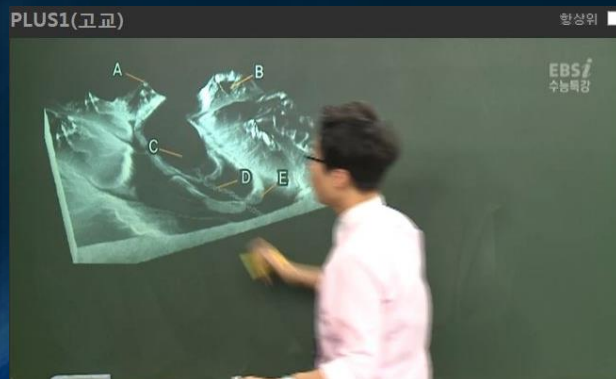
EBS CSAT Class Internet Service

Supply of High Quality CSAT Lectures

- CSAT and academic reports in 2015 have provided in excess of 16,000 lessons and preparation plans to assist in gaining university entrance without the need for private education. In 2014 alone, around 12,000 lectures were created to assist examination takers targeting the CSAT. The same was done with academic reports in 2016 to nullify private education dependence.

Manufacturing Plan for Web Contents in 2015

Classification	No. Production	Amount (Million KRW)
CSAT Clip-type	440	180
Preliminary Course Grade 1 High School	120	60
Concept Academic Reports	40	200
Concept Required Reading	20	20
Others	120	600
Total	740	1,060



ICT Related Curriculum for Elementary and Secondary Schools

Current Curriculum for Elementary, Middle and High schools

Classification	Subject	Domain	Contents
Elementary School	Practical Course (Grades 5~6)	Life & Information	<ul style="list-style-type: none"> •IT devices & cyber space •Production & use of multimedia materials
Middle School	Technology& Home Economics (Grades 1~3)	Information Communication Technology	<ul style="list-style-type: none"> •The world of ICT •Computer & communication technology •Information & communication technology experience & problem-solving activities
High School	Information (Optional)	Information Science & Information Communication Ethics	<ul style="list-style-type: none"> •Information science & Information society •Ethical use of Information •Side-effects of Information society & preventative plans
		Configuration & Operation of Information Devices	<ul style="list-style-type: none"> •Composition & operation of computers •Understanding operating systems •Understanding networks
		Representation & Management of Information	<ul style="list-style-type: none"> •Data & Information •Binary representation of Information •Structuralizing of Information
		Problem-solving Methods & Procedures	<ul style="list-style-type: none"> •Problem-solving •Trouble shooting procedures •Basis of programming



ICT Related Curriculum for Elementary and Secondary Schools

- MOE announced the 2015 Revised National Curriculum on 23 September 2015. 'Practical Course' classes for grades 5-6 in elementary school were embedded with units of ICT utilization in basic software competency. Middle schools combined science & technology, and home economics subjects into a single science and technology course. Home economics and Information subjects, a.k.a. Information is a compulsory course. High schools changed information, a secondary elective, to a general elective, and restructured the curriculum to focus on software learning

2015 Reorganized Curriculum: Expansion of SW Education

Classification	Present Status		Reorganized Agenda	Major Direction Change
Elementary School (‘19~)	ICT unit within ‘Practical course’ (12hours)		Basic SW education in ‘Practical course’ (17hrs.or more)	-Problem-solving processes, algorithms, & programming -IT ethics
Middle School (‘18~)	‘IT’ subject (optional)	▶▶▶	34hrs. or more ‘IT’ subject (required curriculum)	-Simple algorithms, & program development -Problem solving based on computing logics
High School (‘18~)	‘IT’ subject (advanced optional)		‘IT’ subject (common optional)	-Developing algorithms & programs in convergence with a variety of fields



Expansion of SW Education in Elementary and Secondary Schools

Basic Education

Creating Elementary and Middle School SW education fundamentals.

- SW education operated schools and student beneficiaries.

(`15) 228 Schools → (`20) 9,000 or more

(`15) Approx. 70,000 students → (`20) 22 million or more

Advanced Education

Early training support for SW professional talents

- SW talented education support
(`14) 3,090 → (`20) 10,000 or more
- SW Meister High School
(`15) 1school/80 → (`20) 3schools/720

Promotion Plan to Train Talent for SW Focused Society

- MOE and the Ministry of Science, ICT and Future Planning (MSIP) announced the 'Promotion Plan to Train Talent for SW Focused Society.' Software (SW) was identified as key to information societies of the future at a cabinet meeting held 21 July 2015.
- The plan will lay groundwork for the basic framework of SW education and thrust forward SW education innovation toward elementary, secondary and university education.
- Needs for promoting active use of Robots in SW education



Expansion of SW Education in Elementary and Secondary Schools

Promotion Plan to Use Robots in SW Education

- 17 Research Schools, as of Feb. 2016
- ↓
- 34 schools at the end of 2016

Software Festival with Robot



Q & A



Thank you.

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