Let's Compare the Educational Systems for Technology and Information Education Around the World !

In Australia, technology and information are established as independent and systematic subjects, forming a curriculum that enables continuous learning across school levels. In Korea, the subjects are flexibly organized as part of a broader field that includes technology, while in Sweden, a greater number of instructional hours are allocated. As you can see, each country has its own characteristics.

While the structure of educational systems varies from country to country, many share a common trend: emphasizing technology and information education through consistent curricula spanning from primary to upper secondary school, and by ensuring sufficient instructional time.

Countries	Subject Names	Estimated Instructional Time	Target Grades and School Levels
America	Technology and Engineering	Example: Massachusetts K–2: 2 h/w*, 3–5: 3 h/w, 6–8: 5 h/w, 9–12: 5h/w *h/w = hours in a week	K–12 (13 years) *Framework depends on each state*
England	Design & Technology	Subject to school-level discretion	KS1–KS3: Compulsory (9 years) KS4: Elective (2 years)
	Computing	Same as above	KS1–KS3: Compulsory (11 years)
Sweden	Technology（Teknik）	200 hours over 9 years	Årskurs 1–9（9 years）
	Sloyd（Slöjd）	330 hours over 9 years	Same as above
France	Technology（Technologie）	Lower secondary: 216–234 h/4 years, Upper secondary: 424 h/2 years	Lower Sec.1–4: Compulsory (4 years) Upper Sec.1–2: Elective (2 years)
New Zealand	Technology	Years 1–10: Not specified	Y1–10（10years）
	Materials Technology and 13 others	Years 11–13: 20 credits/year (200 h)	Y11–13（3years）
Australia	Design & Technology	Varies across states. NSW as example: 200 compulsory hours in Years 7-8	Compulsory to year 10. Year 7-8 core Technology, Year 9-10 electives within Technology
	Digital Technology	Varies across states. NSW as example: students choose, 100 or 200 hours in Years 7-8	Compulsory to year 10.
Singapore	Design & Technology	Depends on the course stream (Express, Normal Academic, Normal, etc.)	Grades 7–8: Compulsory Grade 9 and above: Elective
Korea	Practical Arts (Technology & Home Economics)	Elementary: 68 h/year Middle School: 34-51 h/year	Grades 5–6 (2 years) Grades 7–9 (3 years)
	* General Elective Subjects	Equivalent to 5 credits	High: Grades 11–12
Taiwan	Life Science and Technology Information Technology	Middle: 2 subjects, 2 h/w High: 2 h/w/subject + 8 h/w elective	Grades 7–9 (junior high): Compulsory (3 years); Grades 10–12 (high school): Compulsory + Elective
China	Information Science and Technology	1–3% of total curriculum time	Grades 3–8 (6 years) Grades 1–2 and; Grade 9 integrated into other courses
	General Technology (Technology & Design 1, 2)	Required: 6 credits; Required elective: 0–18; Optional elective: 0–4	Senior Secondary Years 1–3: Time distributed across 3 years
Japan	Technology & Home Economics (Technology Field)	Grade 7–8: 1 h/w Grade 9: 0.5 h/w	Grades 7–9 (3 years)
	Information (Information I, II)	2 credits per course	Over 3 years of high school: Information I (compulsory); Information II (elective)

This leaflet is a summarized and partially expanded version of the "Technology and Information Education at a Glance – International Edition" published by the Japan Society for Technology Education.
For detailed information and references for each country, please refer to the full document (https://www.jste.jp/main/teigen/overview2025inJP.pdf).

JSTE

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Scan here for more details!

Let's Go on a World Tour of Technology and Information Education !

Technology and Information Education in Japan is currently implemented through the technology field within the "Technology and Home Economics" subject in junior high schools, and through "Information I" and "Information II" in senior high schools (as of 2025). In junior high schools, students learn about materials and processing, nurturing living things, energy conversion, and information technology.In senior high schools, the curriculum covers problem–solving in the information society, communication and information design, computers and programming, as well as information and communication networks and data utilization.

In today's world, where new technologies —especially AI— are rapidly being developed and adopted, how is technology and information education evolving around the globe? Let's take a look at how ten countries around the world are fostering "learning to shape the future"!

Focus 1: Contents of Technology and Information Education

In addition to the topics covered in Japan, many countries actively address technologies that combine information technology with other technological fields. What kinds of content related to technology and information are being taught in other countries?

➡ pp.2–3

Focus 2: Target Grade Levels for Technology and Information Education

Many countries position technology and information education even before elementary school and continue to address it systematically through to high school. At what school levels and grades, and for how many hours,are these contents taught in other countries?

➡ p.4

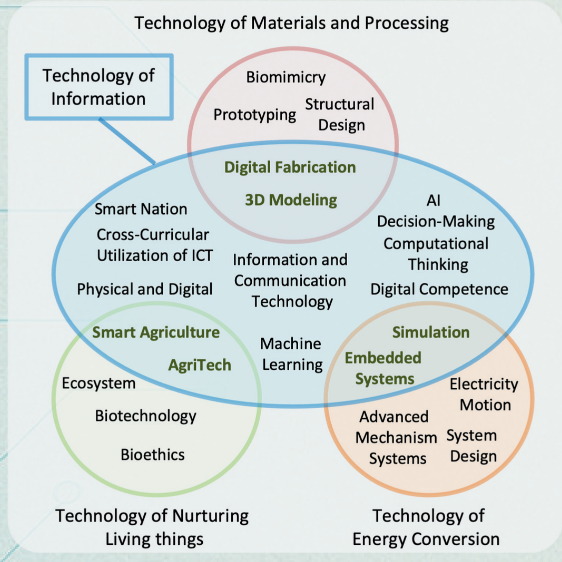


Figure 1: Keywords in Technology and Information Education Across Counties

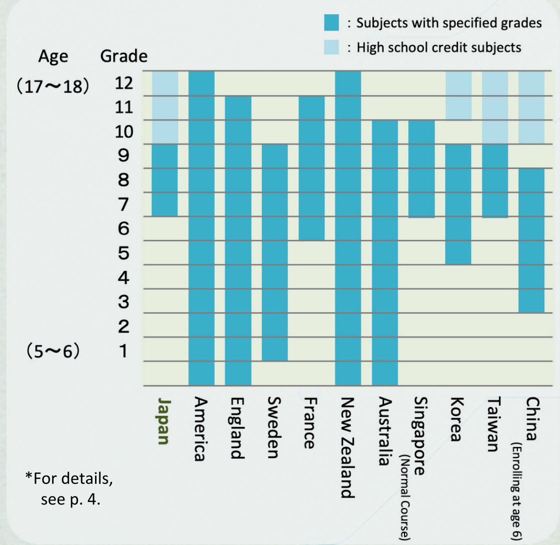
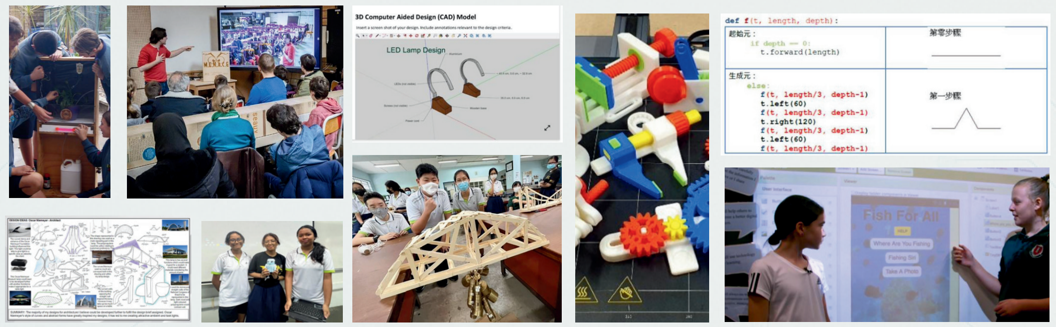


Figure 2: Target Grade Levels for Technology and Information Education in Each Country



The activities of each country are featured in "Technology and Information Education at a Glance: International Edition" (main leaflet)!
For more details, please refer to the QR code on page 4.

The Japan Society of Technology Education（JSTE）

Discover What Students Learn in Technology and Information Education Worldwide！

England

In England, technology and information education consists of two subjects: Design & Technology (compulsory in Key Stages 1 to 3) and Computing (compulsory in Key Stages 1 to 4). Learning activities are structured around the design process, and a revised GCSE in Computer Science is being introduced. The curriculum aims to strengthen systematic education in areas such as AI and programming across Key Stages 1 to 4.

https://www.stmarksprimary.net/2022/01/23/year-4-design-technology-exploring-structures/

Learning in Design & Technology at the Primary School

New Zealand (NZ)

In New Zealand, technology and information education is delivered through subjects such as Technology. It''s compulsory in Years 1–10, while in Years 11–13, students choose from 14 specialized subjects, including Materials Technology. At that stage, they may receive up to 200 hours of instruction annually, based on three key strands such as Technological Practice.

https://technology.tki.org.nz/Resources/Case-studies/Technology-in-the-classroom/Designing-and-developing-digital-outcomes/A-self-watering-plant-system

Designing an Automatic Irrigation System and Plant Cultivation

America

The United States (U.S.) has no national curriculum; each state can do what it wants. In the U.S. K-12 technology and engineering educators, are guided by the International Technology and Engineering Educators Association (ITEEA) Standards for Technological and Engineering Literacy (STEL) that provides a vision of what students should know and be able to do in order to be technologically and engineering literate. Information Technology (IT), often taught by technology and engineering educators, teach the use of computer systems, software, networks, and related infrastructure to manage, process, store, secure, and exchange electronic data. They are guided by standards developed by the Computer Science Teachers Association (CSTA).

https://www.iteea.org/reach

Engineering Design Activities Using 3D Modeling

Examples of Keywords in Technology and Information Education Across Countries

This presents examples of keywords related to the four areas of technology learning defined in Japan. Students engage in broader and deeper content than the Japanese curriculum areas. They also make use of digital fabrication tools such as 3D printer and laser cutters, and apply ICT (Information and Communication Technology) in various learning contexts —for example, plant cultivation and energy simulation— demonstrating the integration of information technology across different areas of technology education.

	America	England	Sweden	France	New Zealand	Australia	Singapore	Korea	Taiwan	China
Technology of Materials and Processing	Processing Methods, Design Process, Material Properties and Selection	Material Properties and Selection, Design, Processing Methods, Biomimicry	Material Properties and Selection (Wood, Metal, Fabric, etc.), Sloyd, Craft Skills	Processing Methods, OST-Based Approach, Material Structures and Components, Performance Evaluation	Products from Processing, Products Based on Materials	Processing Methods, Prototyping, Trial Production, Design	Material Properties and Selection, Design, Material Structure, Processing Methods, Component Production	Design & Problem Solving, Structures & construction, Materials & Manufacturing, Invention and Intellectual Property	Material Properties and Selection, Processing Methods, Material Structure, Design	Processing Methods, Material Structure, Design, Safe Operation, Manufacturing Methods
	Machining, CNC, 3D Modeling	**CAM Production, 3D Modeling**	**3D Sketching**		**3D Modeling**	**3D Modeling**	**Prototyping Using Digital Fabrication**	**Robots & Automation**	**3D Printer**	**Laser Cutter and Engravers, CNC Equipment, 3D Printer**
Technology of Nurturing Living things	Life Cycle, Bioethics, Environment, Biotechnology, Biological Materials			Life, Biodiversity	Horticultural Cultivation, Food Technology, Environmental Control, Biotechnology	Food and Fiber Production, Food Specialization		Biotechnology, Biotechnology of Biomedical Engineering		
	Smart Agriculture				**Agritech**		**ICT-Based Irrigation System**			
Technology of Energy Conversion	Design of Energy Systems, Energy Conversion, Storage, Recovery, and Transmission	Structural Design, Mechanism Analysis, Advanced Mechanical Systems	Safe Use of Electricity, Production and Transportation Systems	Energy Chains, Function Testing, Component Elements	Construction of Technological Systems and Transformation Processes, Energy Applications	Systems Based on Force and Motion, Design of Energy Systems		Electronic components & circuits, Eco-friendly Energy Resources, Energy & Transportation	Use of Energy and Power in Technological Products	Model Making of Simple Mechanical Aircraft, Water Rockets
	Simulation		**Electronic Technology Control and Regulation**	**Embedded System**		**Energy Control**				
Technology of Information	Computing Systems, Networking and the Internet, Algorithms and Programming, Impacts of Computers	Algorithms, ICT, Computational Thinking, Design Process Thinking, Security	Cross-Curricular Utilization of ICT, Digital Competence	Embedded Information Processing, Apps, Data Representation, Networks	Information System Design, Databases, Computational Thinking	Programming, Security, Data Utilization, Algorithms	Application of ICT Technologies (Smart Nation)	Information and Communication Technology, AI, Convergence Technology	System Platforms, Machine Learning, Big Data	Integration of Physical and Digital, Rational AI Decision-Making, IoT System Prototyping

*The lower rows for Materials and Processing, Biological Growth, and Energy Conversion TEchnology indicate content integrated with Information Technology.
*The examples for the United States include elements from STEL and CSTA standards.