

# Curriculum Management, Planning and Leadership in Home Economics / Technology and Living (Refreshed)

**Technology Education Section, CDI**

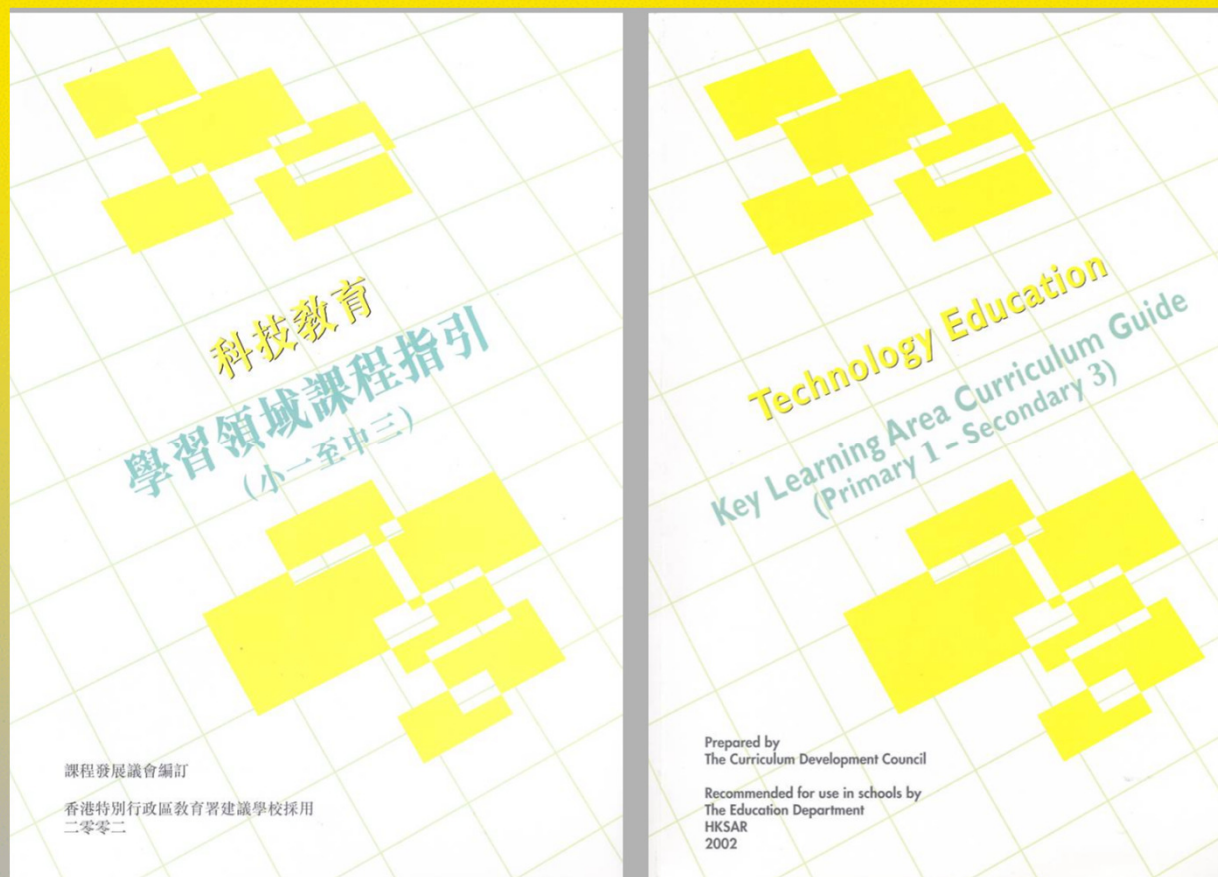
**8 July 2016**



# Technology Education Key Learning Area (TEKLA)



# Technology Education Key Learning Area (TEKLA) Curriculum Guide



# What is Technology?

TEKLA	Home Economics / Technology and Living
<ul style="list-style-type: none"> <li>Technology is the purposeful application of knowledge, skills and experiences in using resources to create products or systems to meet human needs</li> </ul>	<ul style="list-style-type: none"> <li>✓ Resources</li> <li>✓ Products</li> <li>✓ Systems</li> <li>✓ Human needs</li> </ul>
<ul style="list-style-type: none"> <li>Technology influences and is influenced by the culture of people, is part of our daily life and has impact on the individual, family and society</li> </ul>	<ul style="list-style-type: none"> <li>✓ Culture</li> <li>✓ Daily life</li> <li>✓ Individual</li> <li>✓ Family</li> <li>✓ Society</li> </ul>



# What is Technology Education?

TEKLA	Home Economics / Technology and Living
<ul style="list-style-type: none"> <li>Technology Education is the entitlement of EVERY student</li> </ul>	<ul style="list-style-type: none"> <li>✓ Learning experiences</li> <li>✓ Time allocated</li> </ul>
<ul style="list-style-type: none"> <li>Technology Education is the learning of how human beings solve their daily problems and how to replicate and transfer the process to solve new problems that arise from time to time</li> </ul>	<ul style="list-style-type: none"> <li>✓ Daily problems</li> <li>✓ New problems</li> <li>✓ Replicate and transfer</li> </ul>

# Suggested Time Allocation

All Key Learning Areas	Lesson Time (over 3 years) S1 –3 (Key Stage 3) 2754 hrs
Technology Education	220 – 413 hours (8-15%)



# Curriculum Aims of Technology Education

## Technological Literacy

- **Technological Understanding**
  - Knowledge Contexts in Technology
- **Technological Capability**
  - Process in Technology
- **Technological Awareness**
  - Impact of Technology



# Central Curriculum of TE

## ■ Knowledge Contexts in technology

- understand the interdisciplinary nature of technological activities; the **concepts**, knowledge and processes of different technologies

## ■ Process in technology

- to identify needs, problems and opportunities; communicate and evaluate solutions; and **make informed decisions**

## ■ Impact in technology

- be aware of the cultural and contextual dependence of developing technologies, and their impact on the **individual, family, society and environment**



# Learning Elements under Knowledge Contexts in Technology Education

Information & Communication Technology	Materials & Structures	Operations & Manufacturing	Strategies & Management	Systems & Control	Technology & Living
Computer Systems	Materials & Resources	Tools & Equipment	Business Environments, Operations & Organizations	Concepts of System	Food & Nutrition
Computer Networks	Material Processing	Production Process	Resources Management	Application of Systems	Food Preparation & Processing
Programming Concepts	Structures & Mechanisms	Project Management	Marketing	System Integration	Fabric & Clothing Construction
				Control & Automation	Fashion & Dress Sense Family Living
					Home Management & Technology
Common Topics					
Technology & Society	Safety & Health	Information Processing & Presentation	Design & Applications	Consumer Education	



# School-based TE Curriculum

## Broad and balanced

- Coverage of knowledge contexts
- Variety of contexts
- Variety of learning experiences



# Home Economics / Technology and Living





# Position of HEc / TL in TEKLA

ICT	M&S	O&M	S&M	S&C	T&L
Apply concepts and skills acquired in Computer Literacy	<ul style="list-style-type: none"> <li>Materials &amp; resources</li> <li>Materials processing</li> </ul>	<ul style="list-style-type: none"> <li>Tools &amp; equipment</li> <li>Production process</li> <li>Project management</li> </ul>	<ul style="list-style-type: none"> <li>Business environment, operation &amp; organisation</li> <li>Resources management</li> <li>Marketing</li> </ul>	<ul style="list-style-type: none"> <li>Concepts of system</li> </ul>	<ul style="list-style-type: none"> <li>Food &amp; nutrition</li> <li>Food preparation &amp; processing</li> <li>Fabric &amp; clothing</li> <li>Fashion &amp; dress sense</li> <li>Family living</li> <li>Home management &amp; technology</li> </ul>
	<ul style="list-style-type: none"> <li><b>Structure &amp; mechanism</b></li> </ul>			<ul style="list-style-type: none"> <li>Application of systems</li> <li>System integration</li> <li>Control &amp; <b>automation</b></li> </ul>	



# Example

## Meal Planning III

### ■ Unit Plan

- Knowledge contexts
- Process (application of design cycle)
- Impact

### ■ Teaching points and learning elements

- Subject based theories, concepts and skills
- Application of knowledge and skills acquired in other subjects
- Collaboration with other subjects



# Modes of TE School-based Curriculum Development

TE School-based Curriculum Development

Existing TE Curriculum

Proposed TE Curriculum

*Aligning Existing Subjects*

*Collaborative Teaching of Subjects*

*Theme-based Learning*

*Life Experiences of Students*

*Subject-based Learning*



# Suggested Strategies (1)

## Subject Based

- Home Economics (HEc) / Technology and Living (TL)
- Computer Literacy
- Design & Technology
- .....
- .....



# Suggested Strategies (2)

## Aligning Existing subjects

HEc / TL	D&T	CL
Management of resources <ul style="list-style-type: none"> <li>• utilization of resources in the family</li> <li>• principles in developing strategies for sustainable development</li> <li>• reuse and recycle of resources in the home</li> </ul>	Technology and society <ul style="list-style-type: none"> <li>• sustainable development in the society</li> <li>• recycle and reuse of resources</li> <li>• impact of technological decisions</li> <li>• Innovative technological devices</li> </ul>	Issues related to the use of IT <ul style="list-style-type: none"> <li>• recycling</li> <li>• potential health hazards</li> </ul>



# Suggested Strategies (3)

## Collaboration among TE subjects

	HEc / TL	CL
Week 1 – 4	Food and Nutrition <ul style="list-style-type: none"> <li>• Dietary goals and food pyramids for different age groups</li> <li>• Balance intake of nutrients</li> <li>• Nutritive value of food commodities</li> </ul>	Spreadsheet – e.g. excel
Week 5 - 6	<ul style="list-style-type: none"> <li>• Meal planning for adults with different needs               <ul style="list-style-type: none"> <li>➤ calculation and presentation of nutritive value of the planned meals</li> <li>➤ compare the nutritive value of the planned meals with recommended daily intake</li> </ul> </li> </ul>	Powerpoint presentation



# Suggested Strategies (3)

## Collaboration among TE subjects

	HEc / TL	D&T	CL
Week 1- 4	<ul style="list-style-type: none"> <li>Home Management <ul style="list-style-type: none"> <li>➤ food and nutrition</li> </ul> </li> <li>Needlework, Dress and Design <ul style="list-style-type: none"> <li>➤ wardrobe planning</li> </ul> </li> </ul>	<p><i>Problem solving models</i> for product making</p> <ul style="list-style-type: none"> <li>• <b>Design cycle</b></li> <li>• Application of design cycle to a project solution</li> <li>• Realisation of the design</li> </ul>	<p>Webpage design</p>
Week 7 - 10	<ul style="list-style-type: none"> <li>Application of <b>design cycle</b>: <ul style="list-style-type: none"> <li>➤ food product development</li> <li>➤ fashion design</li> </ul> </li> </ul>		<p>Application of <i>problem solving models</i> through designing a programme to solve a specified situation / problem</p>



# Suggested Strategies (4) Theme-based Learning

Celebrating the School's 25<sup>th</sup> Anniversary

		HEc / TL	D&T	CL
S1	Week 1 – 20	Subject based learning		
	Week 21 - 24	TE Project – Decorating the School		
S2	Week 1 - 18	Subject based learning		
	Week 10 - 24	TE Project – Home Coming Gathering		
S3	Week 1- 16	Subject based learning		
	Week 17 - 24	TE Project – Fashion Show		



# Suggested Strategies (5)

## Life Experiences

		<b>HEc / TL</b>
S1	My family	<ul style="list-style-type: none"> <li>• Family living</li> <li>• Meal planning</li> <li>• Family budgeting</li> </ul>
S2	Serving the school / community	<ul style="list-style-type: none"> <li>• Nutrition labelling</li> <li>• Design and make</li> </ul>
S3	Preparing for further studies / work	<ul style="list-style-type: none"> <li>• Food product development</li> <li>• Fashion design and trend setting</li> </ul>

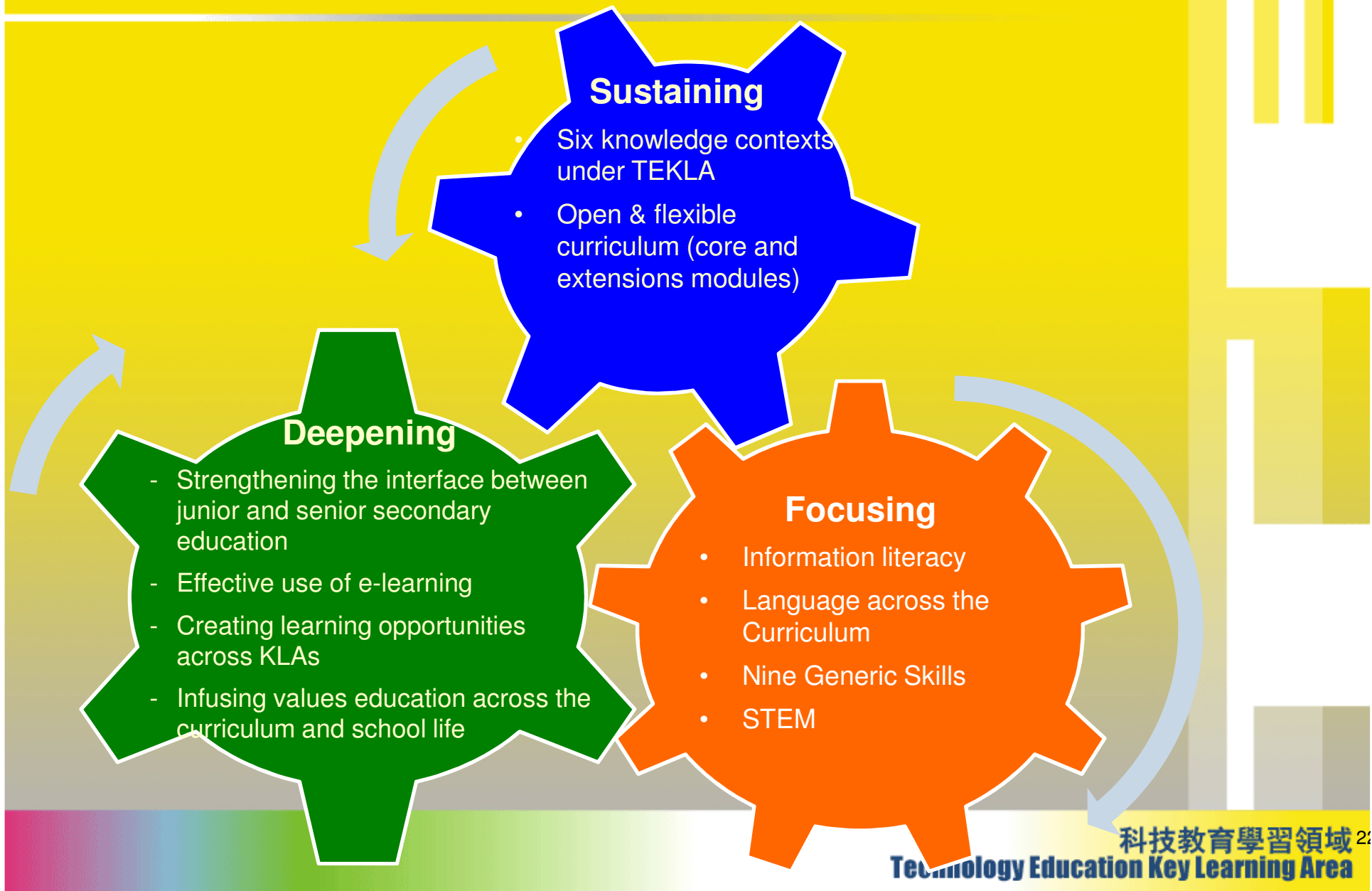
\*\* Other Learning Experiences



# Ongoing Renewal of the School Curriculum Focusing, Deepening and Sustaining



# Technology Education Key Learning Area





# Updated TEKLA Curriculum Guide

- Developing the integrative learning and application skills of students through STEM education
- Highlighting generic skills, values education (including Basic Law education), language across the curriculum and information literacy
- Promoting e-learning
- Emphasising the holistic school-based TE curriculum planning
- Stressing the continuous need to cater for learner diversity in TE



# Updated TEKLA Curriculum Guide

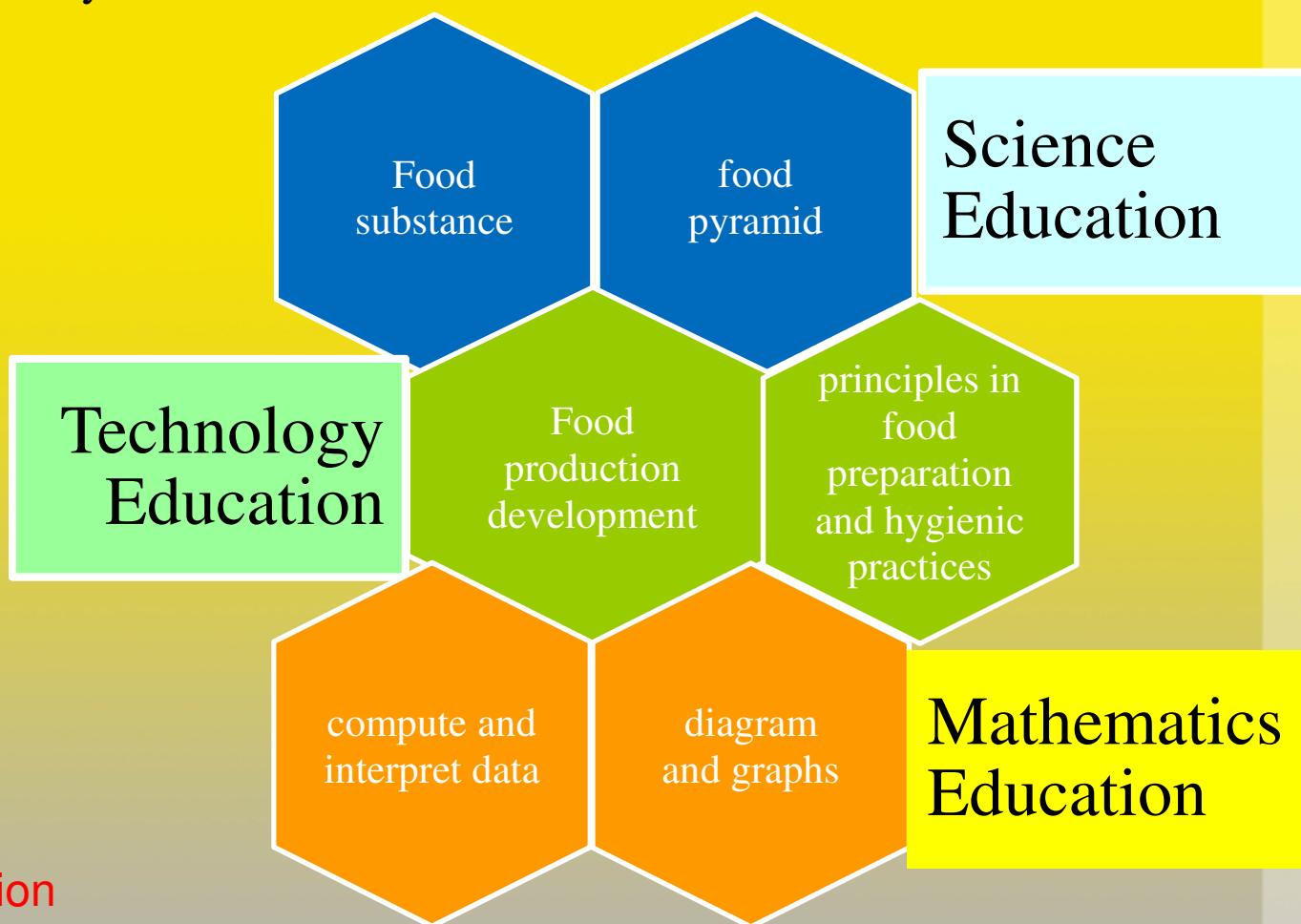
## STEM education

- Approaches
  - Learning activities based on topic of Home Economics / Technology & Living
  - Projects integrating relevant learning elements of different subjects / key learning areas
- Related topics
  - Food and nutrition (e.g. dietary goals and eating habits)
  - Food preparation & processing (e.g. principles of food preparation & processing)
  - Fabric construction
  - Home management & technology (e.g. food technology, energy saving devices)



# Design a healthy diet menu for a school lunch box supplier

Junior Secondary



- Investigation
- Design and Make



# Updated TEKLA Curriculum Guide

## Generic skills

- Problem solving skills, creativity and critical thinking skills which are of particular importance in HEc / TL learning and teaching

## Values education

- Nurture of technological awareness in developing learners' ability to make judgment and decisions through
  - choice of design (e.g. meal plan, food product) to meet specific needs
  - choice of materials (e.g. food, fabric) for a specific design
  - choice of process, tools, equipment to realise a design

# Updated TEKLA Curriculum Guide

## Language across the curriculum (LaC)

- Collaboration with English / Chinese teachers to facilitate LaC, e.g.
  - common topics between the HEc / TL and English / Chinese
  - text types typical of the HEc / TL (e.g. procedure / instructions)
  - HEc / TL specific language features and rhetorical functions (e.g. expressing reasons and explanations / cause and effect, comparing and contrasting, giving explanations)

## Information literacy (IL)

- Learners learn to capture, manipulate and analyse data into meaningful information when they try to solve computational problems in IT.



# Updated TEKLA Curriculum Guide

## e-Learning

- Promoting the use of e-learning in the context of HEc / TL

# Updated TEKLA Curriculum Guide

## Holistic school-based TE curriculum planning

- Building of knowledge foundation in TEKLA
  - Central curriculum vs school-based TE curriculum
  - Development of technological literacy through the three strands of TE – knowledge contexts in technology, process in technology and impact of technology
  - Time allocation
    - » Junior secondary level: 8 – 15% of the total curriculum time allocated for TE
- Cross-curricular learning
  - Project learning and task-based activities with collaboration between TEKLA and other KLAs



# TEKLA Knowledge Contexts

## Reference Materials

Materials & Structure Operation & Manufacturing Systems & Control	Strategies & Management	Technology & Living
<p>(1) Modules, e.g.</p> <ul style="list-style-type: none"> <li>• Production Process</li> <li>• Materials and Resources</li> <li>• Tools and Equipment</li> </ul> <p>(2) Case Study, e.g.</p> <ul style="list-style-type: none"> <li>• Design process with ergonomic</li> <li>• 3G: green design, green technology and green enterprise</li> </ul>	<p>(1) Theme-based resources, e.g.</p> <ul style="list-style-type: none"> <li>• Be your own Financial Planner</li> <li>• Organic farming at school</li> <li>• Smart spending</li> <li>• Start your own BIZ</li> <li>• Superb business ideas</li> </ul> <p>(2) Modular-based resources, e.g.</p> <ul style="list-style-type: none"> <li>• Nature of money</li> <li>• Presentation of your consumption patterns</li> <li>• Concepts of incomes, expenses and retained earnings</li> </ul>	<p>(1) E-resources</p> <ul style="list-style-type: none"> <li>• Meal planning</li> <li>• Basic food science</li> </ul> <p>(2) Food and Textile Tests, e.g.</p> <ul style="list-style-type: none"> <li>• Emulsion, enzymatic browning</li> <li>• Absorbency, abrasion</li> </ul> <p>(3) Booklets for TE knowledge context – Technology &amp; Living</p> <p>(4) Learning Modules, e.g.</p> <ul style="list-style-type: none"> <li>• Personal financial education</li> <li>• Food technology and health</li> <li>• Dress sense and appreciation of fashion</li> </ul>

# Subjects of other KLAs – Junior Secondary

## ■ Science

- common acids and alkalines (everyday use - food preservation)
- a healthy body (food substances, balanced diet, natural and processed food)

## ■ Visual Arts

- visual elements, visual images

## ■ Life and Society

- personal and social development (healthy lifestyle and self-management, family life)
- resources and economic activities (managing finance and being your own master with money, rights and responsibilities of sensible consumer)



# Updated TEKLA Curriculum Guide

## Cater for learner diversity

- Stressing continuous support to learner diversity through
  - Selecting and grouping of learning elements
  - Providing a wide variety of learning activities and authentic hands-on learning experiences
  - Allowing different modes of assessment
  - Encouraging group work and collaboration

# Resources and Support

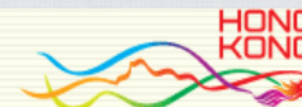


# Resources and Support



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Topic Highlights



Four Key Tasks



Seven Learning Goals



Resources and Support



Major Levels of Educations



Assessment



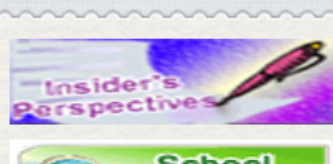
Key Learning Areas



Documents and Reports



- Chinese Language Education
- English Language Education
- Mathematics Education
- Science Education
- Technology Education
- Personal, Social & Humanities Education
- Arts Education
- Physical Education



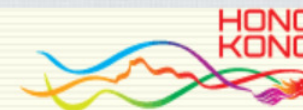


# Resources and Support



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## Technology Education

### Position

#### Technology Education

Technology Education (TE) is the study of the purposeful application of knowledge (such as Information and Communication Technology, Materials & Structures, Operations & Manufacturing, Strategies & Management, Systems & Control and Technology & Living), skills and experiences in using resources to create or add value to products and systems to meet human needs.

#### Evolving Technology Education

TE subjects are introduced at different points of time with varying emphases to cope with the social, economic and technological development both locally and globally.

The history of TE could be backtracked to the development of the Junior Technical Schools in 1930s, a number of technical subjects in the late 1950s, the prevocational schools and related subjects in the late 1960s, the computing subjects in 1980s, the New Technical Curriculum in 1997, and the Technology Education Key Learning Area in 2000.

### Our Mission

#### Key Competencies

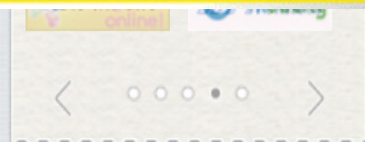
TE aims at preparing students to be valuable human capital amidst the rapidly emerging technologies. It enables students to

- develop technological capability, understanding and awareness
- critically appraise the impacts of technology on the individual, family, society and environment





# Resources and Support



EDB YouTube Channel

Please refer to the section on General Studies for Primary Schools

## Primary 4 – Primary 6

Please refer to the section on General Studies for Primary Schools

## Secondary 1 – Secondary 3

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• (of both genders) have equal opportunities to gain access to broad and balanced learning experiences in TE</li> <li>• engage in authentic, hands-on problem-solving learning activities using easily available materials and equipment</li> <li>• develop their knowledge and skills to cope with rapidly emerging technologies</li> <li>• develop their willingness to update their knowledge and skills in technology from time to time</li> <li>• appraise the impacts of technology and develop critical thinking ability</li> </ul> | <ul style="list-style-type: none"> <li>• provide equal learning opportunities in TE for both genders</li> <li>• move away from subject-based teaching and specific skills training to hands-on problem-solving teaching</li> <li>• integrate student learning within TE KLA and with other KLAs through different knowledge areas</li> <li>• provide life-wide learning experiences to students encourage students to appraise their solutions</li> <li>• use a variety of methods to assess students' learning processes and outcomes</li> </ul> |
|---|---|

## Secondary 4 and above

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• study through different knowledge areas in technology, such as information and communication technology, design &amp; planning, system &amp; management, sciences &amp; technology, etc. according to their aptitudes, interests and abilities, in order to prepare themselves for their future studies and career</li> <li>• engage in authentic, hands-on problem-solving learning activities related to various applications of knowledge areas in TE, such as programming, networking, home management, design and make, graphical communication, marketing, etc. in order to acquire skills, concepts and underlying principles, etc. of the applications</li> <li>• develop a global outlook on the innovative and sustainable development of technology</li> </ul> | <ul style="list-style-type: none"> <li>• provide multiple channels for students to study technology through different knowledge areas according to their aptitudes, interests and abilities</li> <li>• provide students with a wide range of learning experiences (including workplace learning experiences) so that students are better prepared for their future studies and work</li> <li>• provide learning opportunities for students to explore innovative and sustainable development in technology</li> </ul> |
|--|---|

- [Curriculum Documents](#)
- ["Technology Education - Wisdom of Life" Information Folder](#)
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~Thank you~