Technology Education Key Learning Area: Design and Applied Technology
Curriculum Framework of National Security Education (2025)

Introduction

This Curriculum Framework[1] illustrates in tabular form how learning in Design and Applied Technology can be connected to related learning elements of national security education to facilitate the planning of the learning content of national security education in schools. Schools should integrate national security education into the curriculum planning and learning and teaching of this subject through "organic integration", "natural connection", "diversified strategies", "mutual coordination", "learning within and beyond the classroom" and "whole-school participation". In addition, schools should also refer to the *Curriculum Framework of National Security Education in Hong Kong (2025)* and other relevant curriculum documents to implement national security education more effectively.

1. Overall Teaching Foci

1.1 Design and Applied Technology extends the study of the junior secondary Technology Education KLA curriculum. It further enhances students' knowledge, skills and attitudes in the application of technology. Its knowledge contexts include "Technology, Design and Society" and "Technological Studies", aiming to provide students with fundamental knowledge and skills in technology and design. This enables them to learn to tackle and solve design and technological problems carefully and responsibly through a logical technology design process. Students can learn the knowledge, skills and attitudes required by technology talents for safeguarding science and technology security.

[1] The content of this framework is set out in the form of examples. Schools should adopt or adapt the relevant suggestions based on students' learning needs and abilities.

1.2 The topics under the Compulsory Parts of the DAT curriculum, "Strand 2: Technological Principles – Production process" and "Strand 3: Value and Impact – Values in technology and design", help students understand that when they develop creative ideas towards tangible solutions, they should consider from multiple perspectives, including the selection and use of appropriate tools and equipment in the execution of fabrication processes, as well as the legal principles for protecting designs (such as intellectual property and patents). This raises students' awareness of science and technology security and helps them understand that mastering the patenting of technologies and protecting designs with intellectual property can help prevent our country's technological development from being controlled by others and other issues such as a lack of original innovation capabilities.

1.3 Through the learning and activities in this subject, students can explore the connections between technology, design and society and understand the importance of technology and design in improving people's well-being and supporting national development. Students should learn to apply empathy in the design process to understand user needs and uphold a law-abiding and responsible attitude to use technology properly in accordance with the law to create more valuable products for society, thereby contributing to our country's technological and design development with an enhanced sense of mission in safeguarding national security consciously.

2. Learning Foci

Technology Education Key Learning Area: Design and Applied Technology [Key Stage 4 (Senior Secondary)]		**Curriculum Framework of National Security Education in Hong Kong (2025)**
Learning Areas (Examples)	**Learning Elements (Examples)**	**Related Learning Elements / Major Fields of National Security (Examples)**
Strand 2: Technological Principles – Production process • Health and industrial safety • Tools, equipment and machineries **Strand 3:** Value and Impact – Values in technology and design	• Execute appropriate fabrication processes ➢ Students should learn to select and use appropriate tools and equipment for material processing and understand the safety measures in various production processes, cultivating from an early age to perform technology-related work in an appropriate and legitimate manner, handle and resolve problems cautiously and responsibly, raise their awareness of science and technology security, use technology properly in accordance with the law to create more valuable products for society, and contribute to our country's technological and design development. • Identify the impact and value of design	• 4.8 Further understand the challenges and opportunities faced by our country in the process of development, thereby strengthening the sense of vigilance against potential danger in times of peace • Related major field of national security: Science and Technology Security

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Learning Areas (Examples)	**Learning Elements (Examples)**	**Related Learning Elements / Major Fields of National Security (Examples)**
• The changing roles of the designers and engineers in society • Intellectual property	➢ Students should understand their social responsibility as designers and consider the potential impact to be brought by the design from an individual, group and national perspective. They should understand that the value of design includes enhancing our country's original innovation capabilities and preventing our country's technological development from being controlled by others. • Understand the value of intellectual property ➢ Students should understand the legal principles for protecting technology and design (e.g., copyright, patents, trademarks and rights in layout-design of integrated circuits), and master how to protect technology and design effectively to promote their	

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	development and innovation, so as to safeguard our country's technological achievements and prevent our country's technological development from being controlled by others.	

3. Suggested Learning and Teaching Activities (Examples) (Senior Secondary)

The following are merely examples. Teachers can design appropriate activities based on their school context and subject characteristics to promote national security education.

✧ **Classroom learning**

- **Classroom exercise – [Workshop risk assessment] – Raise students' safety awareness**

  During practical workshop learning activities, students should take note of the various risks associated with using different tools and equipment and take appropriate preventive measures to minimise them. Students should learn how to select and use appropriate tools and equipment for material processing, understand the safety measures in various production processes and handle and resolve problems cautiously and responsibly. This will enhance their awareness of science and technology security and ensure the appropriate use of technology in accordance with regulations. Teachers can arrange students in groups to conduct risk assessments on various machines, equipment and fabrication processes within the school workshop. After completing their tasks, each group can compile their reports into a comprehensive "Risk Assessment Manual", which will serve as reference when they develop prototypes in class. This can help cultivate students from an early age to perform technology-related work in an appropriate and legitimate manner.

  (Reference URL: S4-6 Design and Applied Technology - Theme-based Learning Resources: Theme 6: Green Design Technology, Theme-based Learning Activity (6) – Technological Exploration: Risk Assessment for School Work https://www.edb.gov.hk/en/curriculum-development/kla/technology-edu/resources/tech-subjects/resources.html)

- **Case study – [Smart digital products] – Understand how to effectively safeguard technology and design to promote their development and innovation, safeguard our country's technological achievements and prevent our country's technological development from being controlled by others**

  In recent years, smart digital products have developed rapidly and the competition has been fierce, with there being many design plagiarism accusations brought forward in courts in relation to smart digital phones produced in different countries. Students can work together in groups to explain how the designs of relevant smart digital products can be protected by intellectual property rights in the market to prevent illegal copying or replication. This allows them to understand the importance of safeguarding our country's scientific and technological achievements, which not only protects national development interests but also prevents our country's technological development from being controlled by others.

✧ **Competitions**

- **Participate in promotional activities organised by the Intellectual Property Department - Learn how to effectively protect technology and design to promote their development and innovation, safeguard our country's scientific and technological achievements, and prevent our country's technological development from being controlled by others**

  Arrange for students to participate in seminars, exhibitions, public lectures and competitions organised by the Intellectual Property Department to enhance their knowledge of intellectual property rights, including trademarks, patents, copyrights, and registered designs. This allows students to deepen their understanding of Hong Kong's intellectual property protection policies and legislation, as well as the importance of safeguarding our country's scientific and technological achievements, which not only protects national development interests but also prevents our country's technological development from being controlled by others. (reference URL: Intellectual Property Department website – https://www.ipd.gov.hk/en/ip-overview/ip-in-hong-kong/index.html)

✧ **Exchanges with the Mainland**

- Arrange for students to visit science parks/enterprises in the Mainland to learn about and appreciate different innovative designs and our country's technological achievements.

Disclaimer:

- *In case of any discrepancy in the meaning of wording between the English text and the Chinese text, the Chinese text shall prevail.*