Technology mandatory -design careers – Stage 4 virtual lessons

This unit has been developed to address the outcome TE4-10TS: “explains how people in technology related professions contribute to society now and into the future” of the Technology Mandatory syllabus. It is intended as a sample unit to show how teachers could address the syllabus content while teaching remotely. The sample activities should be contextualised for the school and could then be printed or adapted for use on an online learning platform.

All outcomes referred to in this unit come from [Technology Mandatory Years 7-8 Syllabus](https://educationstandards.nsw.edu.au/wps/portal/nesa/k-10/learning-areas/technologies/technology-mandatory-7-8-new-syllabus) © NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales, 2017

Guiding question

|  |  |
| --- | --- |
| Guiding question | Suggested solution |
| What are your students going to learn? (Objectives) | Students will identify:   * Career opportunities and requirements in their specified field * The role of a designer * Intellectual property and the rights and responsibility of designers * New and emerging technologies * Factors that affect design   **TE4-10TS** explains how people in technology related professions contribute to society now and into the future   * consider innovative applications of advancing technologies to increase efficiency of time and/or materials in the production of models or products * investigate the role of the professional in the related technology, and their impact on the environment and society * investigate the way in which technologies evolve locally, regionally or globally and how competing factors are prioritised in the development of design solutions |
| How are they going to learn it? (Resources and Strategies) | Students complete worksheets (attached). These can be delivered electronically (email or through an online learning platform) or printed and given to students. |
| What is the time for completion? | Within two weeks (can be adjusted to be longer or shorter by adjusting the tasks. |
| How are you going to know that they learned it? (Success criteria) | Students are to complete the attached worksheets  **Careers in TAS related fields**  Teacher can allocate specific field for students to research possible careers.  Student’s research a profession related to the TAS area they are studying. Students are to create a report with the following information:   * Job title * Training required * Personal requirements * Outline of duties * Average income * Profile of a designer   **Profile of a designer**  Teacher can allocate specific field or specific designer for students to research.  Student’s research a designer. Students are to create a report with the following information:   * Name * Occupation * Biography * Inspiration * Materials used * Tools and equipment used * Their design process   **Intellectual Property and trademarks**  Students are to outline:   * patents * copyright * trademarks   Using the information available on the Australian Government Business website students are to answer the following questions:   * What is a trademark? * How does a trademark differ from copyright? * How long does a trademark last?   **New and emerging technologies**  Students are to research new and emerging technologies in their related field.  Students are to use the information on [BBC Bitesize emerging technologies](https://www.bbc.co.uk/bitesize/guides/zn4bcj6/revision/1) to answer the questions below.   * What are the advantages of automation? * Who owns cooperatives? * Metals, plastics, coal and gas are all examples of what? * The Japanese term 'Kaizen' is used for which process? * What is market pull? * What do trend forecasters do? * What does CAM stand for? * List some examples of CAD? * What does Just in time (JIT) manufacturing do? * What is planned obsolescence?   Students are to research an emerging technology in your field of study. Create a multimedia presentation demonstrating the new technology and its impact on the industry.  **Factors that affect design**  Students are to outline the factors that affect design:   * function * form * aesthetics * end-user applications * quality * trends * historical, contemporary and future considerations   Students apply their knowledge by identifying how each factor affects design in the following fields:   * fashion design * game design * the design of table * the design of a boat |
| How are you collecting evidence of student learning? (Verification) | Students complete worksheets (attached). These can be submitted to the teacher by the due date electronically (email or through an online learning platform) or printed and handed in. |
| How will feedback be made? (Evaluation) | Format to be communicated clearly by teacher, whether it is by emailing comments or annotations on documents, upload of media/audio via online platforms or a blended approach. |
| How will students and teachers communicate? | Teachers are able to gauge the progress of the tasks via the schools online platform. Submission dates for each task may be useful as opposed to one final due date.  Students can pose questions/clarifications directly to teacher via email or online platform   * Scaffolds for each task may be posted by the teacher to help clarify specific requirements for each activity. |

## Careers in Technological and Applied Studies

Research how you can become a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (use [the good universities guide](https://www.gooduniversitiesguide.com.au/careers-guide) as a starting point).

|  |  |
| --- | --- |
| Criteria | Response |
| Job title |  |
| Training required |  |
| Personal requirements |  |
| Outline of duties |  |
| Average income |  |

## Profile of a designer

Choose a designer in a related field

|  |  |
| --- | --- |
| Criteria | Response |
| Name |  |
| Occupation |  |
| Biography |  |
| Inspiration |  |
| Materials used |  |
| Tools and equipment used |  |
| Their design process |  |
| Pictures of some of their designs |  |

## Intellectual property – what is it?

Various types of intellectual property (IP) exist to protect ownership of an idea or product.

The main protection of IP are:

* patents
* copyright
* trademarks

Give a brief outline of each in the space below.

**Patents**

|  |
| --- |

**Copyright**

|  |
| --- |

**Trademarks**

|  |
| --- |

## Trademarks

Using the information available on the Australian Government Business website answer the following questions in the spaces provided.

**What is a trademark?**

|  |
| --- |

**How does a trademark differ from copyright?**

|  |
| --- |

**How long does a trademark last?**

|  |
| --- |

## New and emerging technologies

Use the information on [BBC Bitesize emerging technologies](https://www.bbc.co.uk/bitesize/guides/zn4bcj6/revision/1) to answer the questions below.

**What are the advantages of automation?**

|  |
| --- |

**Who owns cooperatives?**

|  |
| --- |

**Metals, plastics, coal and gas are all examples of what?**

|  |
| --- |

**The Japanese term 'Kaizen' is used for which process?**

|  |
| --- |

**What is market pull?**

|  |
| --- |

**What do trend forecasters do?**

|  |
| --- |

**What does CAM stand for?**

|  |
| --- |

**List some examples of CAD?**

|  |
| --- |

**What does Just in time (JIT) manufacturing do?**

|  |
| --- |

**What is planned obsolescence?**

|  |
| --- |

### Emerging technology research

Research an emerging technology in your field of study. Create a multimedia presentation demonstrating the new technology and its impact on the industry.

Send a link of the presentation to your teacher.

## Factors affecting design

When designing, there is a range of factors that can affect the success of the final design. These factors include:

* function
* form
* aesthetics
* end-user applications
* quality
* trends
* historical, contemporary and future considerations

For each of the factors affecting design, write a short explanation in the spaces below.

|  |  |
| --- | --- |
| Factor | Explanation |
| Function |  |
| Form |  |
| Aesthetics |  |
| End-user applications |  |
| Quality |  |
| Trends |  |
| Historical, contemporary and future considerations |  |

### Factors affecting design activity

Describe how the factors affecting design impact on fashion design.

|  |  |
| --- | --- |
| Factor affecting design | How it affects design |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Describe how the factors affecting design impact on game design.

|  |  |
| --- | --- |
| Factor affecting design | How it affects design |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Describe how the factors affecting design impact on designing a table

|  |  |
| --- | --- |
| Factor affecting design | How it affects design |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Describe how the factors affecting design impact on designing a boat.

|  |  |
| --- | --- |
| Factor affecting design | How it affects design |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |