DESIGN & TECHNOLOGY IN UPPER SECONDARY

G2 7055

G3 7059

Imagine • Design • Make • Improve

D&T is about using design thinking and technology to create purposeful solutions to everyday needs.

What is Design & Technology?

A subject about creating solutions for real people and real situations.

You learn to identify needs, explore ideas, make decisions and turn ideas into prototypes.

It combines creative thinking with practical knowledge and making skills.

The aim is not simply to make a product — it is to understand the user, purpose and context behind the design.

What makes D&T different?

You are not given one correct answer.

You investigate a design opportunity and develop your own response.

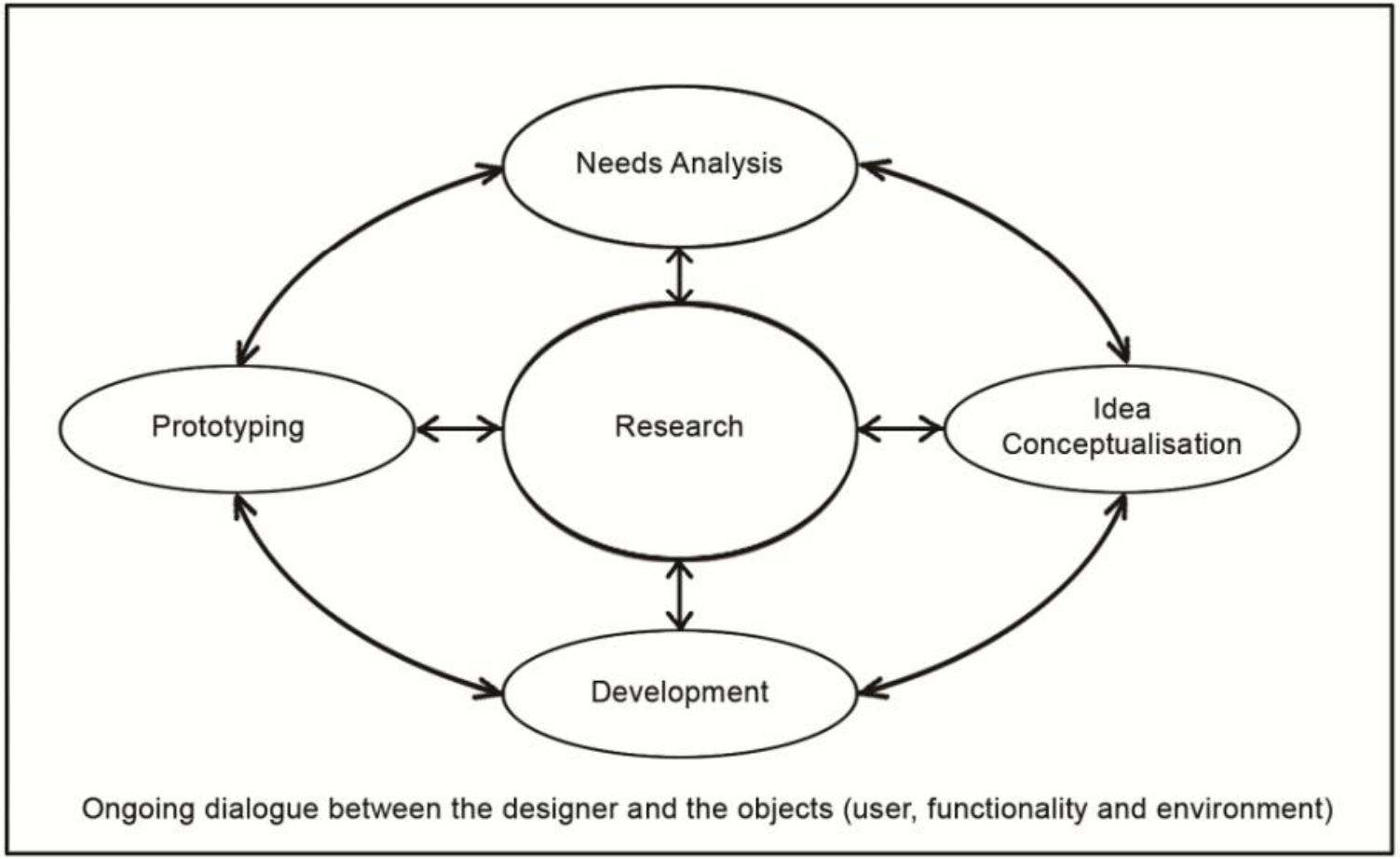
You communicate ideas through doodles, sketches, drawings and models.

You test, evaluate and refine — mistakes become information for the next design decision.

You move between thinking and making throughout the design process.

The Design Process

A dynamic process: not always a linear process and that it is dynamic in nature requiring frequent and careful looping back to other stages in a holistic manner.



The Design Model

What will you learn?

Design thinking skills — observing, framing needs, generating ideas, analysing information and making informed decisions.

Design manipulating skills — sketching, building mock-ups and using appropriate technology for prototyping.

Technology knowledge — materials, workshop processes, structures, mechanisms and electronics.

Communication skills — explaining and presenting your design thinking clearly.

Technology Areas

MATERIALS
Properties • Selection • Processes

STRUCTURES
Forces • Stability • Strength

MECHANISMS
Movement • Motion • Mechanical systems

ELECTRONICS
Components • Circuits • Control

How do we think like a designer?

Be curious: What is happening? Why does it happen?

Think about people: Who is the user? What do they need?

Explore possibilities: What different solutions could work?

Make ideas visible: Can I sketch or model it?

Question decisions: Why is this material, form, mechanism or feature appropriate?

Learn from testing: What worked? What needs to change?

Sketching is thinking

Doodling and sketching help you explore possibilities before committing to a final solution.

Draw to communicate shape, function, movement and important features.

Use annotations to explain your design decisions.

Good design communication is about making your thinking understandable — not producing artwork.

From idea to prototype

A sketch is an idea.

A mock-up helps you explore or test an idea.

A prototype allows you to investigate how a proposed solution works in practice.

Testing gives evidence for evaluation and refinement.

The final outcome should be practical and appropriate for the identified user.

How is GCE D&T assessed?

Paper 1 — Written Examination: 40%

- **G2: 1.5 Hr**
- **G3: 2 Hr**

Paper 2 — Design Project: 60%

- **G2: 20 Weeks**
- **G3: 22 Weeks**

What will success look like?

- You can explain the need behind a design opportunity.
- You can generate and develop ideas rather than jumping to the first solution.
- You can justify design decisions using relevant information.
- You can sketch, model and prototype to explore ideas.
- You can evaluate evidence and refine your solution.
- You can use technology safely and appropriately to realise a design.

Your D&T Mindset

DON'T ask: “What is the correct answer?”

ASK: “What is the need, and what possibilities can I explore?”

DON'T be afraid of failed ideas.

USE testing and feedback to improve your design.

DON'T design only for yourself.

DESIGN with empathy — understand the user and context.

Key Takeaways

- D&T is about designing purposeful solutions — not just making things.
- The Design Process connects research, thinking, sketching, modelling, making, testing and refinement.
- You will develop both design thinking and practical technology skills.
- There is rarely one perfect solution: strong designers make informed decisions and learn through iteration.
- Be curious. Be willing to experiment. Make your thinking visible.

For more information on G2 and G3 D&T syllabus, please refer to 7055 and 7059 syllabus document from SEAB Website.

G3 D&T 7059

https://www.seab.gov.sg/gce-o-level/o-level-syllabuses-examined-for-school-candidates-2026/

G2 D&T 7055

https://www.seab.gov.sg/gce-na-level/na-level-syllabuses-examined-for-school-candidates-2026/

G2 Students may be offered to take D&T at G3 Level.