Sunshine Grammar School

Applied Information Technology

ATAR Year 12

Unit 3 — Evolving Digital Technologies

Subject Teacher:

Abdullah Md Raihan Chy

2026

Semester 1 Course Outline

Weeks 1–14 · Unit 3: Evolving Digital Technologies

Weeks	Topic Area	Key Syllabus Content
1–3	**Hardware**	Specifications of digital devices and their impact on usability; development trends in emerging mobile devices; suitability of emerging mobile devices to meet client needs; usability for specified client requirements
4–5	**Design Concepts**	Relationship between elements and principles of design; features of a user interface — logical and hierarchical organisation of content; GUI suitable for target audience; usability, inclusivity, and accessibility as help features
6–9	**Application Skills**	Online software tools; video application features (multi-layer track editing, titles, transitions, effects); sound application features including sound effects; publishing features (colour schemes, layers, frames, typography, templates, print/display options); types of digital publications
10	**Impacts of Technology**	Intellectual property and copyright in Australia; online defamation and legal action; Freedom of Information Act 1982; rights and responsibilities under FOI; advantages, disadvantages and implications of virtual and physical collaboration; impact of convergence trends in contemporary digital technologies
11–14	**Project Management**	Project management approaches (prototype and structured); project planning tools (storyboards, site maps, flowcharts, Gantt charts, project management software); considerations for a digital product — structure, usability, accessibility, user experience (UX), user interface (UI)
15	**Revision**	Consolidation of all Unit 3 content in preparation for examination
16	**Semester 1 Examination**	End-of-semester formal examination covering Weeks 1–14

Note-Taking Structure — This Document Set	
Chunk 1	Weeks 1–3: Hardware
Chunk 2	Weeks 4–5: Design Concepts
Chunk 3	Weeks 6–9: Application Skills
Chunk 4	Week 10: Impacts of Technology
Chunk 5	Weeks 11–14: Project Management

Notes Legend	
Green Box	Definition
Blue Box	Example
Purple Box	Diagram / Image
Amber Box	Test Question
Teal Box	Sample Answer

Prepared by **Abdullah Md Raihan Chy** · Sunshine Grammar School · 2026

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Sunshine Grammar School

Applied Information Technology

ATAR Year 12

Chunk 1 — Weeks 1–3

Hardware

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Abdullah Md Raihan Chy

Unit 3: Evolving Digital Technologies

2026

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1

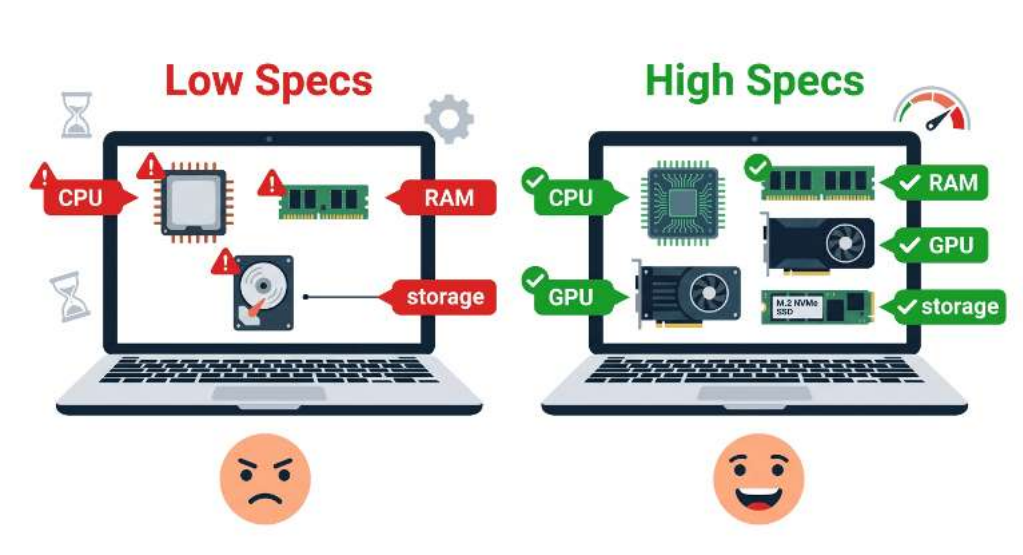
1.1 Device Specifications and Their Impact on Usability

Definition — Specifications of Digital Devices

Digital device **specifications** are the technical details describing a device's capabilities — processor speed (CPU), memory (RAM), storage capacity, screen resolution, battery life, and connectivity. These directly affect **usability**: how easily, efficiently, and comfortably a user can interact with a device to accomplish their goals. A device with poor specifications may be slow, unresponsive, or unsuitable for certain tasks. When evaluating a device for a client, match the specifications to the intended use case rather than simply choosing the most expensive option.

Specification	Impact on Usability
CPU (Processor)	Affects how fast tasks run; slow CPU causes lag and crashes
RAM	More RAM = smoother multitasking; insufficient RAM causes freezing
Storage (SSD/HDD)	SSD is faster than HDD; determines how much data can be saved
GPU	Critical for video editing, design, and gaming tasks
Screen Resolution	Higher resolution = sharper, clearer visuals
Battery Life	Affects portability and usability on the go

Image — `1_1_device_specifications_usability`



Example

A graphic designer needs a laptop with a 4K display, Intel Core i9 CPU, 32 GB RAM, and a dedicated GPU to run design software smoothly. A basic office laptop with 4 GB RAM and integrated graphics would lag, crash, and be nearly unusable for their professional work — even though it is perfectly usable for someone who only needs to write emails.

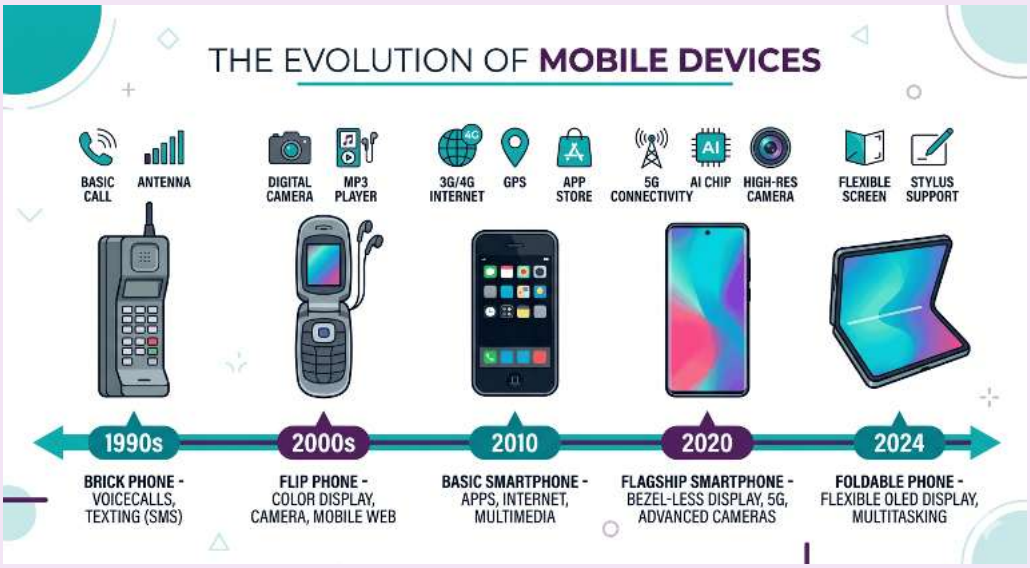
1.2 Development Trends in Emerging Mobile Devices

Definition — Emerging Mobile Device Trends

Emerging mobile devices include the latest smartphones, tablets, smartwatches, AR/VR headsets, and foldable devices. **Development trends** describe the direction in which this technology is evolving. Key trends include:

- **5G Connectivity** — Ultra-fast wireless speeds enabling real-time streaming
- **Foldable Displays** — Flexible screens combining portability with large screen area
- **AI Chips** — On-device AI for real-time translation, photography, and voice recognition
- **Biometric Security** — Fingerprint sensors, facial recognition, iris scanning
- **Extended Battery Life** — Larger batteries and more efficient chips
- **Wearable Integration** — Seamless connectivity between phones, watches, and earbuds

Image — `1_2_mobile_device_trends`



Example

The shift towards **foldable smartphones** (e.g. Samsung Galaxy Z Fold) combines the portability of a phone with the screen real estate of a tablet — giving users a larger display for productivity without sacrificing pocketability. This directly responds to user demand for more screen space without the bulk of a full-sized tablet.

1.3 Suitability of Mobile Devices for Client Needs

Definition — Suitability

Suitability means evaluating whether a mobile device's features, form factor, operating system, connectivity, and software ecosystem match the specific needs, preferences, and constraints of a given client. Factors include:

- **Environment of use** — Outdoor, industrial, medical, or office settings
- **Task requirements** — Photography, data entry, communication, creative work
- **Technical skill level** — Beginner vs. experienced user
- **Accessibility needs** — Large text, voice control, screen reader support
- **Budget** — Premium vs. mid-range vs. budget devices
- **Compatibility** — Must work with existing software or systems

Image — `1_3_device_suitability_client_needs`



Example

A nurse working in a hospital needs a **rugged smartphone** with long battery life, a large clear display, a glove-friendly touchscreen, and fast access to medical apps. A standard consumer smartphone with a fragile glass back and fashion-oriented features would be unsuitable for this professional environment — even if it scores highly in general consumer reviews.

1.4 Usability of Digital Devices for Specified Client Requirements

Definition — Usability (ISO 9241)

Usability refers to the degree to which a product can be used by specified users to achieve specified goals with **effectiveness, efficiency, and satisfaction** in a specified context of use. Usability is always evaluated relative to the user's context. The five components of usability are:

1. **Learnability** — How quickly can a new user learn to use it?
2. **Efficiency** — Once learned, how fast can users perform tasks?
3. **Memorability** — Can returning users remember how to use it after a gap?
4. **Error Rate** — How many errors do users make, and how easily can they recover?
5. **Satisfaction** — How pleasant is the overall experience?

Image — `1_4_usability_five_components`



Example

An elderly user who needs to video call family members requires a device with high usability for their specific needs: a large font size option, simple home screen layout, loud speaker, reliable Wi-Fi, and a large touchscreen with well-spaced icons. A gaming smartphone with a complex interface and small text would have very low usability for this client, despite being technically impressive.

Test Questions — Chunk 1: Hardware

Q1 — Multiple Choice

Which specification would have the GREATEST impact on usability for a 4K video editor?

A) Bluetooth version B) Number of USB ports **C) RAM and GPU** D) Keyboard backlighting

Q2 — Short Answer

Explain what is meant by the "suitability" of a mobile device for a client. Identify TWO factors that must be considered when determining suitability.

Sample Answer

Suitability is how well a device's features match a specific user's needs. Two factors: (1) **Environment of use** — e.g., outdoor use requires a rugged, waterproof build. (2) **Task requirements** — e.g., a user photographing products needs a high-quality camera.

Q3 — True or False

A device with the highest technical specifications will always have the greatest usability for any client.

FALSE — Usability is always relative to the user and their context.

Q4 — Short Answer

Identify ONE current development trend in emerging mobile devices and describe how it could benefit a specific type of user.

Sample Answer

AI-powered on-device chips allow real-time language translation without internet — benefiting a travelling businessperson in areas with poor connectivity who needs to translate foreign language documents in real time.

Q5 — Multiple Choice

A primary school teacher needs a classroom device. Which is MOST relevant to assess?

A) Gaming apps available **B) Screen size, durability, and ease of use**
C) 5G connectivity speeds D) Battery weight

WACE 2025 Exam Practice — Hardware Topics

*The following questions are drawn from the **2025 WACE Applied Information Technology ATAR Examination** and relate directly to the Hardware topics covered in this chunk: device specifications, mobile device trends, suitability, and usability. Use these to practise exam-style responses.*

Section One — Multiple Choice

WACE Q5 — Multiple Choice *(1 mark)*

Which tablet features are **most** important for a drone operator to wirelessly control the drone, view real-time high density (HD) video and manage flight data?

(a) high-resolution screen, long battery life, GPS compatibility, Wi-Fi connectivity
(b) touch screen, Bluetooth connectivity, biometric security, long battery life
(c) lightweight design, touch screen, GPS compatibility, Bluetooth connectivity
(d) large storage capacity, voice control, Wi-Fi connectivity, high-resolution screen

Sample Answer

(a) high-resolution screen, long battery life, GPS compatibility, Wi-Fi connectivity.
A drone operator needs a **high-resolution screen** to view real-time HD video clearly, **long battery life** for extended flight sessions in the field, **GPS compatibility** to track and manage flight data and drone positioning, and **Wi-Fi connectivity** to wirelessly communicate with the drone controller. Biometric security and voice control are not critical to the core task of drone operation.

Section Four — Scenario: Green Hands Community Garden

Scenario summary: The Green Hands Community Garden (GHCG) is installing a touchscreen device at the garden entrance for member registration, check-in/out, and security photos. All data is stored in the cloud.

WACE Q25(a) — Device Comparison *(4 marks)*

The GHCG have asked for your advice on what digital device could be placed at the entrance to the garden for the check-in/out process. Compare the **two** options below, in terms of their features, specifications and suitability for the specific requirements of the scenario.

Smartphone	Tablet
Touchscreen interface	Touchscreen interface
GPS and location tracking	GPS and location tracking
Wi-Fi/cellular connectivity	Wi-Fi/cellular connectivity
QR code scanning	QR code scanning
Mobile app support	Photo geotagging
6.1-inch display	13-inch display
A18 processor	Snapdragon X Elite processor
iOS 18	Windows 11
128 GB storage	256 GB storage
12 MP front facing camera	10.5 MP front facing camera
Up to 12 hours battery life	Up to 14 hours battery life

Sample Answer

The **tablet** is more suitable for the GHCG entrance check-in/out device.
Screen size and usability: The tablet's 13-inch display is significantly larger than the smartphone's 6.1-inch screen. Since the device will be used by members of all ages and technical abilities at a fixed entrance point, the larger screen improves readability of text, makes buttons easier to tap, and provides a better experience for registration forms and photo capture — directly improving usability (learnability and satisfaction).
Battery life: The tablet offers up to 14 hours of battery life compared to the smartphone's 12 hours. Since the device will be stationed at the entrance and needs to operate throughout the day, the longer battery life reduces the risk of the device shutting down during operating hours.
Storage: The tablet has 256 GB of storage versus the smartphone's 128 GB. As the device will capture and temporarily store photos and registration data before syncing to the cloud, the additional storage provides more capacity for data before upload.
Suitability considerations: Both devices share core features like touchscreen, GPS, Wi-Fi/cellular, and QR code scanning. However, the smartphone's small form factor, while portable, is not ideal for a fixed kiosk-style use case. The tablet's larger display and longer battery make it better suited for the GHCG's specific environment and user base. The smartphone's higher-resolution front camera (12 MP vs. 10.5 MP) is a minor advantage for security photos, but screen size and usability outweigh this for the given context.

WACE Q25(b) — GUI Suitability Features ***(6 marks)***

The GHCG has designed a check-in/out graphical user interface (GUI) with the following elements: a large heading "GREEN HANDS COMMUNITY GARDEN CHECK-IN," email and password input fields with icons, large "SIGN IN" and "REGISTER NOW" buttons, a "FORGOT YOUR PASSWORD?" link, a QR code labelled "Scan for information," a language selection option (English), and a screen reader toggle.

On the basis of the GUI described above, describe **three** features that make it suitable for the members of the GHCG.

Sample Answer

Feature 1 — Screen reader support: The GUI includes a screen reader option at the bottom of the interface. This is an accessibility feature that makes the check-in process usable for visually impaired members, aligning with the GHCG's commitment to inclusivity and ensuring all community members can independently register and check in.
Feature 2 — Language selection: The language option (currently showing "English") allows the interface to be switched to other languages. Since the GHCG is a community garden open to everyone, members may come from diverse linguistic backgrounds. This feature ensures non-English speakers can navigate the registration and check-in process effectively, improving usability for a wider user base.
Feature 3 — Large, clearly labelled buttons: The "SIGN IN" and "REGISTER NOW" buttons are prominently displayed with large text, making them easy to identify and tap on a touchscreen. This supports usability for members of all ages, including elderly users or those with limited technical experience, by reducing errors and making the interaction intuitive. The clear visual hierarchy (heading → input fields → action buttons → secondary options) follows a logical structure that guides the user through the process step by step.

WACE Q25(c) — Online Software Tools *(4 marks)*

Describe **two** online software tools that could be used for the registration and/or check-in/out process that allow easy tracking and user-friendly interaction.

Sample Answer

Tool 1 — Google Forms: Google Forms is a free, cloud-based tool that could be used for the GHCG member registration process. It allows the garden administrators to create a custom registration form collecting details like name, email, contact number, and gardening interests. Responses are automatically stored in a linked Google Sheets spreadsheet, enabling easy tracking of all registered members. The form is user-friendly, works on any device with a web browser, and requires no technical expertise from members to complete.
Tool 2 — Eventbrite or a QR-based check-in app (e.g. SignUpGenius): An online event management tool could be configured for the daily check-in/out process. Members could scan a QR code displayed on the entrance device to check in, and the tool automatically logs their arrival time. When they leave, they scan again to check out. The platform tracks visit duration, generates attendance reports, and provides a simple, touch-friendly interface that requires minimal user interaction — making it suitable for members of all technical skill levels.

WACE Q25(f) — Colour Scheme for Digital Publications *(3 marks)*

Explain why choosing an appropriate colour scheme for their digital publications could be important for GHCG.

Sample Answer

An appropriate colour scheme is important for the GHCG because it directly affects how the community perceives and engages with their digital publications. Using **green tones** would reinforce the garden's brand identity and visually communicate its connection to nature, sustainability, and growth. A well-chosen scheme also ensures **readability and accessibility** — for example, high-contrast text (dark text on a light background) makes content legible for users of all ages, including those with visual impairments. Additionally, consistent use of colour across all publications (website, app, posters) creates **visual unity and professionalism**, helping GHCG stand out on a community website and building trust with potential members. Poor colour choices, such as clashing or low-contrast combinations, could make the content difficult to read, appear unprofessional, or fail to attract attention.

WACE Q25(h) — Screen Sizes and Resolutions ***(6 marks)***

Explain **two** considerations for GHCG when designing digital publications that will be viewed on various screen sizes and resolutions.

Sample Answer

Consideration 1 — Responsive design: The GHCG's digital publications must use responsive design techniques so that content automatically adjusts its layout, font sizes, and image scaling based on the device's screen size. For example, a publication viewed on a 13-inch tablet at the garden entrance will display differently from the same content viewed on a member's 6-inch smartphone. Without responsive design, text may appear too small to read on mobile devices, images may overflow the screen, or buttons may become too small to tap — reducing usability. Using flexible grids, relative units (percentages rather than fixed pixels), and CSS media queries ensures the content remains readable and functional across all devices.

Consideration 2 — Image resolution and file size: Different devices have different screen resolutions (e.g. standard HD vs. Retina/4K displays). The GHCG should use appropriately sized images — high enough resolution to appear sharp on high-density screens, but optimised (compressed) so they do not cause slow loading times on mobile devices with limited data connections. Scalable formats such as SVG for icons and logos ensure crisp rendering at any resolution. Balancing visual quality with performance is essential, as many GHCG members may access publications on older or budget devices with slower processors and limited bandwidth.

WACE Q25(i) — Multimedia Features and User Engagement ***(6 marks)***

Explain to GHCG how multimedia features could be integrated into their app **and** the impact of these on user engagement.

Sample Answer

The GHCG app could integrate several multimedia features to enhance the gardening experience:

Video tutorials: Short instructional videos on gardening techniques (e.g. how to plant seedlings, composting methods, or seasonal pruning) could be embedded within the garden management tools section of the app. These cater to visual learners and make complex techniques easier to understand than text-only instructions. This increases user engagement by providing valuable, reusable educational content that encourages members to return to the app regularly.
Image galleries: Members could upload and share photos of their garden plots, harvests, or community events through the community chat feature. A photo gallery section showcasing the garden's progress over time creates a sense of community pride and encourages participation. Visually rich content is more engaging than text-based updates and motivates members to contribute.
Push notifications with audio/visual alerts: Real-time updates on community events and gardening activities could use push notifications with images (e.g. a photo of an upcoming workshop) and optional audio alerts. These multimedia notifications are more attention-grabbing than plain text, increasing the likelihood that members will read and respond to event invitations — directly boosting event attendance and community engagement.
Overall, multimedia features transform the app from a simple information tool into an interactive, engaging platform that appeals to users of different learning styles and encourages ongoing participation in the GHCG community.

WACE Q25(k) — QR Codes and AR: Benefits and Challenges *(8 marks)*

Describe **two** benefits and **two** challenges of including contemporary digital technologies, such as QR codes and/or augmented reality (AR), as interactive features in the app, specifically in the context of digital communication for educational purposes.

Sample Answer

Benefits
Benefit 1 — Instant access to educational content via QR codes: QR codes placed on plant markers throughout the garden can link directly to plant care guides, composting tips, and seasonal planting advice within the app. Members simply scan the code with their phone camera to access relevant educational content instantly, without needing to search or navigate menus. This removes barriers to learning and makes gardening education immediately accessible at the point of need — when the member is standing in front of the plant they want to learn about.
Benefit 2 — Interactive learning through AR experiences: Augmented reality can overlay digital information onto the real-world garden environment. For example, pointing a phone at a garden bed could display an AR tutorial showing the correct planting depth, spacing, and watering schedule for specific plants. This interactive, visual approach to learning is more engaging and memorable than reading a text guide, and it accommodates different learning styles — particularly visual and kinaesthetic learners.

Challenges
Challenge 1 — Technical barriers and digital literacy: Not all GHCG members may own smartphones capable of running AR features, and some (particularly elderly members) may lack the technical skills to scan QR codes or interact with AR overlays.

This creates a digital divide where the educational benefits are only accessible to tech-savvy members, potentially excluding the very users who most need gardening guidance. The GHCG would need to provide training or alternative non-digital options to ensure inclusivity.

Challenge 2 — Development and maintenance costs: Creating high-quality AR experiences and maintaining up-to-date QR code content requires significant technical expertise and ongoing resources. Plant care guides need regular updating for seasonal relevance, QR codes must link to current content, and AR features require 3D modelling and testing across different devices. For a community garden with likely limited funding, these costs could divert resources from the garden itself and may be difficult to sustain long-term without dedicated technical volunteers or external funding.

Applied Information Technology

ATAR Year 12

Chunk 2 — Weeks 4–5

Design Concepts

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1

1.1 Elements of Design

Definition — Elements of Design

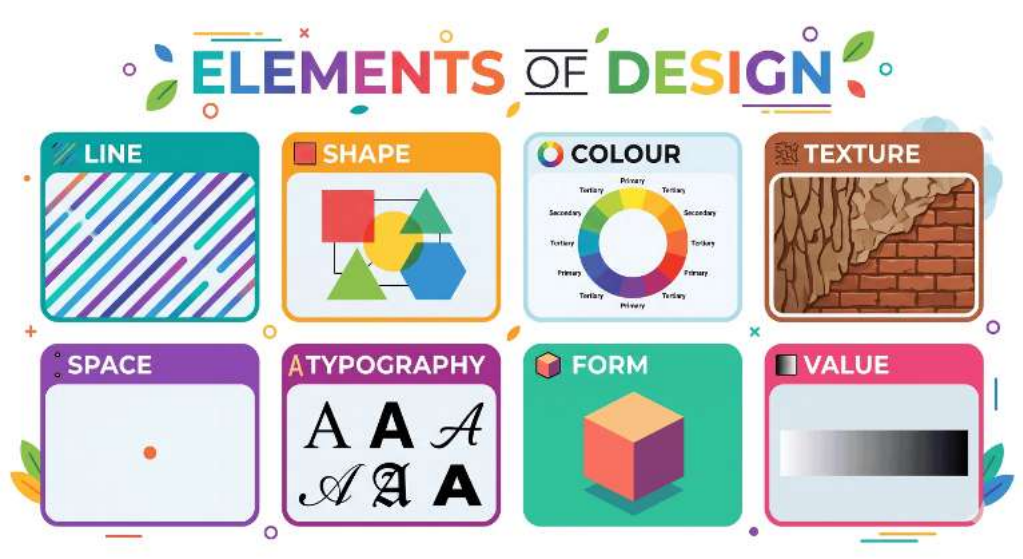
Elements of Design are the fundamental building blocks that make up any visual composition. Every digital product is constructed using these raw ingredients:

Element	Description
Line	A path connecting two points; divides space, directs the eye
Shape	A two-dimensional area defined by edges (geometric or organic)
Colour	Visual property of hue, saturation, and brightness
Texture	Surface quality of a design (rough, smooth, glossy)
Space	Area around, between, or within elements (white/negative space)
Typography	Style, arrangement, and appearance of text
Form	Three-dimensional shapes or illusion of depth
Value	Lightness or darkness of a colour

Example

A web designer uses the **element of colour** (blue headings, white background, grey body text) and the **element of typography** (bold sans-serif headings, regular serif body text) to create visual hierarchy. Without thoughtfully applying these elements, the page would lack structure and be difficult to read.

Image — 2_1_elements_of_design



1.2 Principles of Design

Definition — Principles of Design and Their Relationship to Elements

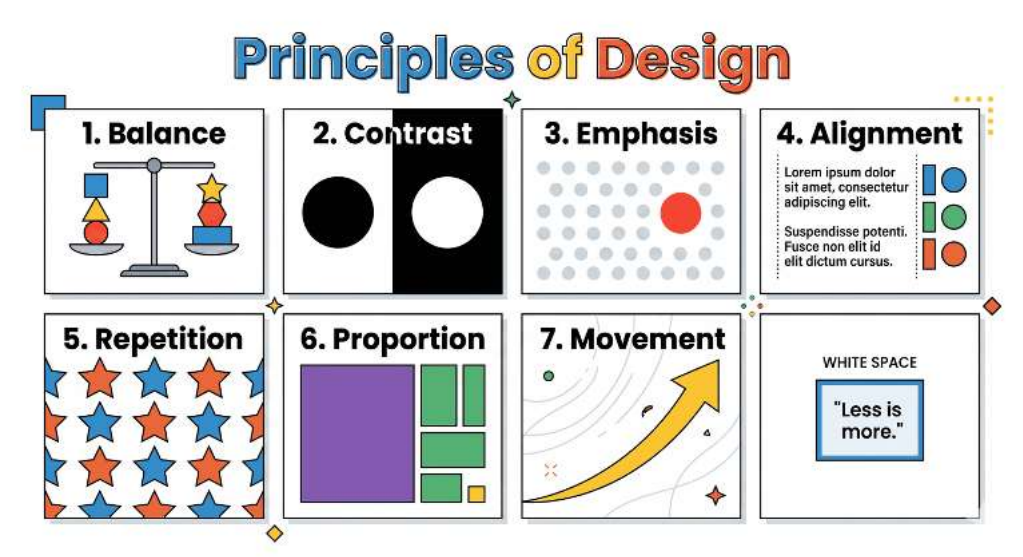
Principles of Design are the rules governing *how* the elements are arranged and combined to create effective, purposeful designs. Elements are the *what*; principles are the *how*.

Principle	Description
Balance	Equal distribution of visual weight (symmetrical or asymmetrical)
Contrast	Using differences (colour, size, shape) to create visual interest
Emphasis	Drawing attention to a key element or focal point
Alignment	Organising elements along a common edge or axis
Repetition	Repeating visual elements to create consistency and unity
Proportion	Size relationship between elements
Movement	Guiding the viewer's eye through the design deliberately
White Space	Intentional empty space that improves readability

Example

A poster designer applies the **principle of emphasis** by making the event title significantly larger and bolder than all other text — immediately drawing the viewer's eye to the most important information. They use **repetition** by applying the same font and colour scheme to all headings, creating visual consistency across every page.

Image — 2_2_principles_of_design



1.3 Logical and Hierarchical Organisation of Content

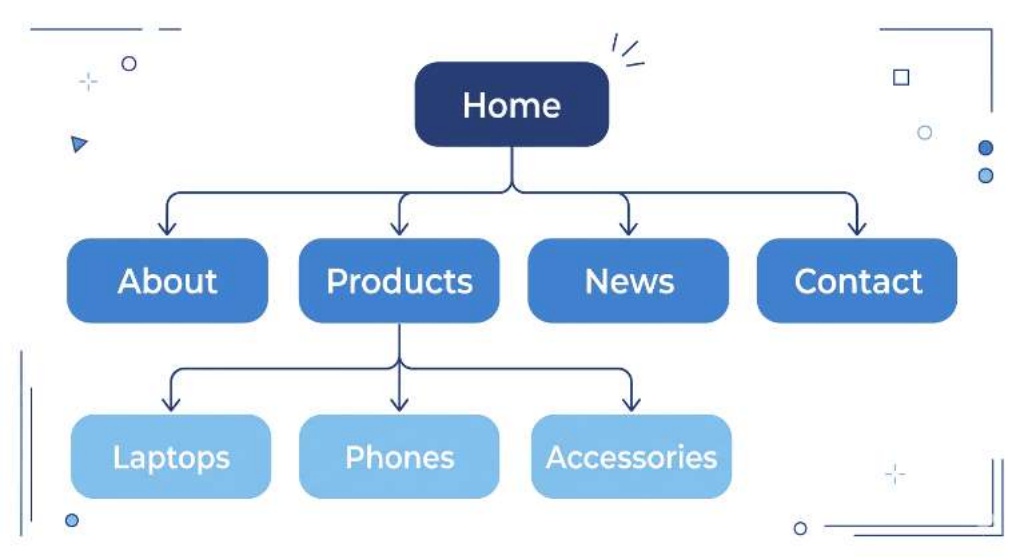
Definition — Logical and Hierarchical Organisation

Logical organisation means placing content where users naturally expect to find it. **Hierarchical organisation** means arranging content from most important to least important so users can quickly identify what matters and navigate with ease. Achieved through: visual hierarchy (larger/bolder headings), navigation menus, breadcrumbs, consistent layouts, and F-pattern/Z-pattern layouts.

Example

A school website organises content hierarchically: **Home** at the top, with major sections like *About*, *Academics*, *Sport*, and *Contact* in the main navigation. Under *Academics*, sub-pages for each subject are nested. A parent navigates logically: Home → Academics → Enrolment — without reading every page.

Image — 2_3_hierarchical_organisation_content



1.4 GUI Suitable for Target Audience

Definition — Graphical User Interface (GUI) for Target Audience

A **GUI** is considered **suitable for its target audience** when design decisions match the characteristics, expectations, and technical literacy of the intended users.

- **Children** — Bright colours, large icons, simple language, playful fonts
- **Professionals** — Dense layouts, keyboard shortcuts, compact interfaces
- **Elderly users** — Large text, high contrast, simple navigation, audio support
- **Mobile users** — Large tap targets, thumb-friendly navigation, minimal text input
- **Cultural context** — Colour meanings and reading direction vary globally

Example

A reading app for children aged 6–10 uses large colourful buttons, cartoon-style icons, and audio instructions. Accounting software for professionals uses a dense, information-rich layout with small text, complex menus, and keyboard shortcuts — because its target audience is efficiency-focused.

Image — 2_4_gui_target_audience



1.5 Usability as a Help Feature of a GUI

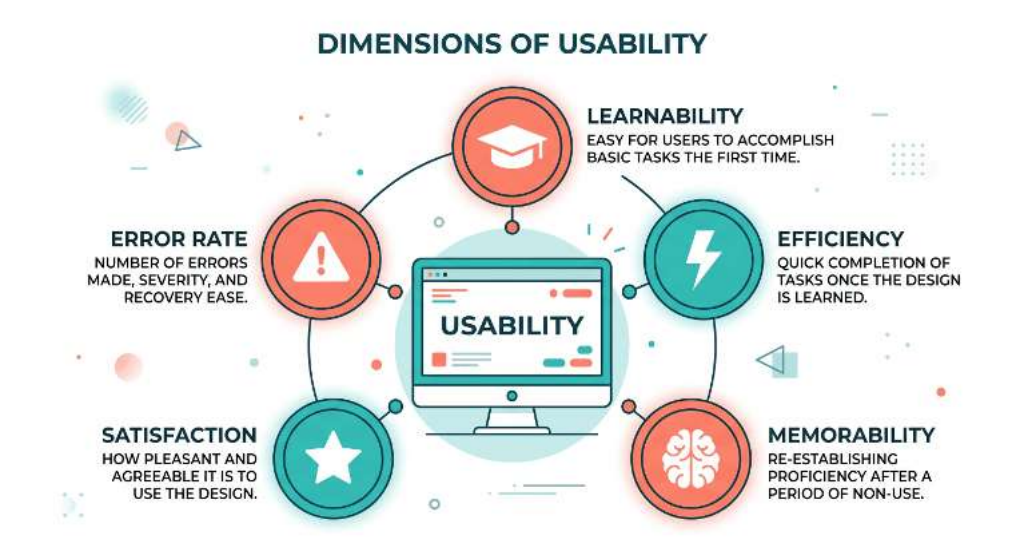
Definition — Usability in GUI Design

Usability in GUI design refers to the degree to which the interface can be used by specified users to achieve goals with effectiveness, efficiency, and satisfaction. GUI help features that improve usability include: **tooltips**, **progress indicators**, **undo/redo functionality**, **search bars**, and **onboarding tutorials**. The five components of usability are: Learnability, Efficiency, Memorability, Error Rate, and Satisfaction.

Example

A complex video editing application improves usability by adding: (1) tooltips explaining each tool on hover; (2) a progress bar during export showing "Rendering: 67% complete"; and (3) an undo history panel for the last 50 actions — making complex software dramatically more usable for beginners.

Image — 2_5_usability_gui



1.6 Inclusivity as a Help Feature of a GUI

Definition — Inclusivity in GUI Design

Inclusivity in design means creating digital products that are welcoming and functional for the **broadest possible range of people**, regardless of background, identity, language, age, gender, culture, or socioeconomic status. Inclusive design choices include: multiple language options, gender-neutral language, multiple input methods (touch, keyboard, voice), and avoiding cultural stereotypes in imagery.

Example

A government health website redesigns its GUI to be inclusive by: offering the interface in 12 languages, replacing gendered language ("mothers" → "parents"), providing a voice navigation option, and using diverse imagery — ensuring no group of citizens feels excluded from accessing essential health services.

Image — 2_6_inclusivity_gui



1.7 Accessibility as a Help Feature of a GUI

Definition — Accessibility in GUI Design

Accessibility ensures that people with **disabilities** can use a digital product. Disabilities may be visual (blindness, colour blindness), auditory (deafness), motor (limited hand movement), or cognitive (dyslexia, ADHD). Accessibility features:

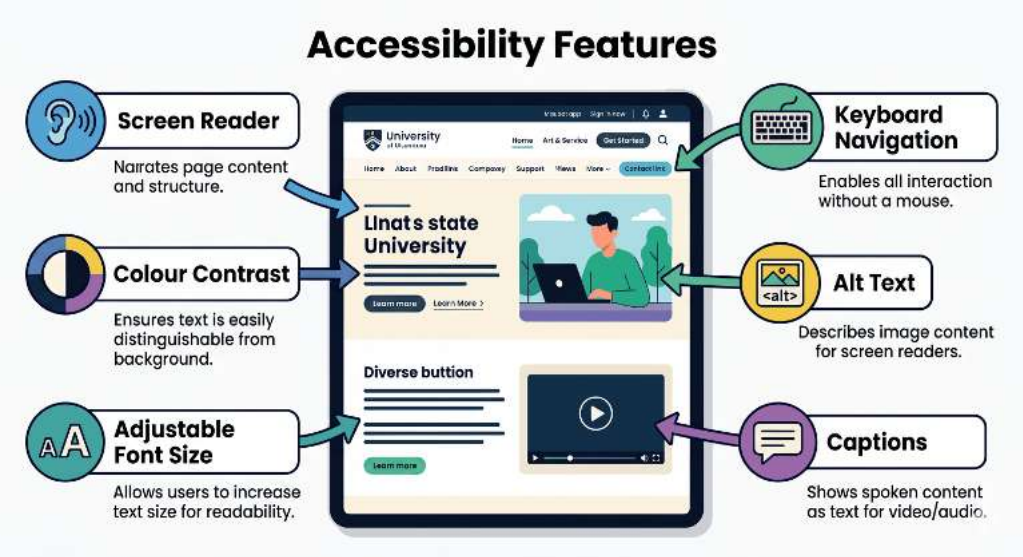
- **Screen reader compatibility** — Text readable by JAWS or VoiceOver
- **Keyboard navigation** — Full functionality without a mouse
- **Colour contrast** — Minimum 4.5:1 ratio for normal text (WCAG AA)
- **Adjustable font sizes** — Allowing users to increase text size
- **Captions and transcripts** — For audio and video content
- **Alt text for images** — Descriptions of images for screen readers

WCAG (Web Content Accessibility Guidelines) defines standards at Levels A, AA, AAA.

Example

A government tax return website ensures accessibility by: making all form fields readable by screen readers, providing 4.5:1 text contrast, enabling full keyboard navigation, and adding captions to all instructional videos — allowing Australians with disabilities to independently complete their tax return online.

Image — 2_7_accessibility_gui



Test Questions — Chunk 2: Design Concepts

Q1 — Multiple Choice

Which BEST describes the relationship between elements and principles of design?

A) Principles are building blocks; elements are rules
B) Elements are building blocks; principles are rules for arranging them
C) Both terms are interchangeable
D) Principles replace elements once a designer is experienced

Q2 — Short Answer

Explain "hierarchical organisation of content" with an example.

Sample Answer

Hierarchical organisation means structuring content from most to least important. Example: an e-commerce site places Home at the top, broad categories (Men, Women, Kids) in navigation, sub-categories (Dresses, Shoes) below — users navigate logically without reading every page.

Q3 — True or False

Accessibility and inclusivity mean the same thing in GUI design.

FALSE — Accessibility removes barriers for users with disabilities. Inclusivity is broader, encompassing all user groups regardless of ability.

Q4 — Short Answer

Identify TWO design decisions that would make a GUI suitable for adults aged 50–70 who are unfamiliar with smartphones.

Sample Answer

(1) **Large fonts and high contrast** for readability. (2) **Labelled icons** — each navigation icon has a text label beneath it to reduce cognitive load for users who may not recognise abstract symbols.

Q5 — Multiple Choice

Which solution is MOST appropriate to make a navigation menu accessible for users who cannot use a mouse?

A) Larger, brighter buttons B) A video tutorial
C) Full keyboard navigation (Tab, Enter, Arrow keys)
D) Hover animations

Q6 — Short Answer

Define "usability" and identify the FIVE components used to measure it.

Sample Answer

Usability is the degree to which a product enables specified users to achieve goals effectively, efficiently, and satisfactorily. Five components: (1) Learnability, (2) Efficiency, (3) Memorability, (4) Error Rate, (5) Satisfaction.

WACE 2025 Exam Practice — Design Concepts Topics

*The following questions are drawn from the **2025 WACE Applied Information Technology ATAR Examination** and relate directly to the Design Concepts covered in this chunk: elements and principles of design, hierarchical organisation, GUI suitability, usability, inclusivity, accessibility, colour schemes, and typography. Use these to practise exam-style responses.*

Section One — Multiple Choice

WACE Q6 — Layers in Publishing *(1 mark)*

Which of the following publishing features allow text, images or multimedia content to be edited independently without affecting other elements?

(a) frames
(b) templates
(c) layers
(d) file format

Sample Answer

(c) layers.
Layers allow designers to stack different content elements (text, images, graphics) on separate levels within a composition. Each layer can be edited, moved, hidden, or locked independently without affecting content on other layers. This is a fundamental feature in design software such as Adobe Photoshop and Illustrator, directly supporting the design principle of organisation by keeping elements separate and manageable.

WACE Q7 — Complementary Colours and Design Principles *(1 mark)*

A graphic designer is creating a poster for a new movie. They use complementary colours to highlight important content. Which principle of design is being applied?

(a) balance, to ensure equal visual weight
(b) unity, to make sure all elements blend
(c) proportion, to emphasise important information
(d) contrast, to draw attention to key information

Sample Answer

(d) contrast, to draw attention to key information.
Complementary colours sit opposite each other on the colour wheel (e.g. blue and orange, red and green). When placed together, they create strong visual **contrast**, making the highlighted content stand out from its surroundings and immediately drawing the viewer's eye to the most important information. This demonstrates the relationship between the **element of colour** and the **principle of contrast** — the element (colour) is arranged using the principle (contrast) to achieve a purposeful visual effect.

WACE Q8 — GUI Accessibility Features *(1 mark)*

A new online business has created an application (app) to be downloaded and used in ordering their products. The app has the following graphic user interface (GUI) features:

i. product images are saved in portable network graphic (PNG) format
ii. all images include alternative text (alt-text)
iii. voice-activated searches
iv. personalised item recommendations based on past searches and orders
v. option to adjust text size
vi. support for multiple languages

Which of the above GUI features of the app would improve user **accessibility**?

(a) ii, iii, vi
(b) i, iv, vi
(c) ii, iii, v
(d) iii, iv, v

Sample Answer

(c) ii, iii, v.
Alt-text (ii) enables screen readers to describe images to visually impaired users, directly supporting WCAG accessibility standards. **Voice-activated searches (iii)** allow users with motor disabilities or visual impairments to interact with the app without needing to type or navigate visually. **Adjustable text size (v)** helps users with low vision read content comfortably.
Note the distinction: PNG format (i) is a file type choice, not an accessibility feature. Personalised recommendations (iv) enhance user experience but do not address disability barriers. Multiple languages (vi) is an **inclusivity** feature rather than an accessibility feature — it caters to diverse linguistic backgrounds, not disabilities. This question tests the important difference between accessibility and inclusivity covered in Sections 1.6 and 1.7.

WACE Q15 — Structure of a Digital Product *(1 mark)*

When considering the structure of a digital product, which of the following is **most** important for ensuring its effectiveness? The structure should

(a) let users personalise content to suit their preferences without any predefined organisation.
(b) be standardised and consistent, focusing on one format for all content types, to simplify navigation.
(c) offer flexibility for users to explore and access content in multiple ways.
(d) be logical, with clear pathways and categories to allow easy and efficient navigation.

Sample Answer

(d) be logical, with clear pathways and categories to allow easy and efficient navigation.
This directly reflects the concept of **logical and hierarchical organisation** — content should be arranged in a clear, predictable structure so users can find what they need

quickly. While flexibility (c) has some merit, the *most* important factor is a logical foundation. Without clear pathways and categories, users become lost regardless of how flexible the system is. Options (a) and (b) are too extreme — no predefined organisation leads to chaos, and forcing one format ignores different content needs.

Section Two — Short Answer

WACE Q16 — Colour Scheme for a Children's Toy Brand Logo ***(3 marks)***

You have been asked to design a logo for a children's toy brand. Explain your choice of a suitable colour scheme for the logo.

Sample Answer

A suitable colour scheme for a children's toy brand logo would use **bright, warm, primary colours** such as red, yellow, and blue, or a vibrant analogous scheme. These colours are appropriate because:

Target audience appeal: Children are naturally attracted to bold, saturated colours. Bright primary colours evoke feelings of energy, fun, and excitement — matching the playful nature of toys and the expectations of the young target audience (and their parents).

Psychological associations: Red conveys excitement and energy, yellow suggests happiness and warmth, and blue communicates trust and reliability. Together, these colours create a sense of joy and safety that parents associate with quality children's products.

Contrast and readability: Using high-contrast colour combinations (e.g. bold red text on a yellow background) ensures the brand name is easily readable and stands out on packaging, websites, and advertisements. This applies the **principle of contrast** using the **element of colour** to draw attention to the brand identity.

A muted, dark, or monochromatic colour scheme (e.g. greys and blacks) would be unsuitable as it conveys sophistication and formality — characteristics associated with adult products, not children's toys.

Section Four — Scenario: Green Hands Community Garden

Scenario summary: The Green Hands Community Garden (GHCG) is developing a user-friendly cloud-based app for members of all ages. Features include garden management tools, real-time event updates, and a community chat. A touchscreen device at the entrance handles registration and check-in/out.

WACE Q25(b) — GUI Suitability Features ***(6 marks)***

The GHCG has designed a check-in/out graphical user interface (GUI) with the following elements: a large heading "GREEN HANDS COMMUNITY GARDEN CHECK-IN," email and password input fields with icons, large "SIGN IN" and "REGISTER NOW" buttons, a "FORGOT YOUR PASSWORD?" link, a QR code labelled "Scan for information," a

language selection option (English), and a screen reader toggle.

On the basis of the GUI described above, describe **three** features that make it suitable for the members of the GHCG.

Sample Answer

Feature 1 — Screen reader support (Accessibility): The GUI includes a screen reader option, making the check-in process usable for visually impaired members. This is an accessibility feature that aligns with WCAG guidelines and ensures people with disabilities can independently use the system — supporting the GHCG's commitment to being open to everyone.

Feature 2 — Language selection (Inclusivity): The language option allows the interface to be switched to different languages. Since the GHCG is a community garden welcoming people of all backgrounds, members may come from diverse linguistic groups. This inclusive design choice ensures non-English speakers can navigate registration and check-in effectively, broadening the app's usability across the community.

Feature 3 — Large, clearly labelled buttons (Usability / GUI for target audience): The "SIGN IN" and "REGISTER NOW" buttons are prominently displayed with large, bold text and are clearly distinguishable from each other. This supports usability for members of all ages and technical abilities — particularly elderly users or those with limited digital experience — by reducing the chance of errors and making the interaction intuitive. The clear visual hierarchy (heading → input fields → primary action buttons → secondary options) demonstrates logical organisation of content, guiding users step by step through the process.

WACE Q25(d) — Registration Page Design ***(12 marks)***

Design a registration page for the GHCG that allows new members to enter personal details (name, email, contact number) and gardening interests. Your design must show and include annotations that explain:

i. the logical and hierarchical organisation of the content (3 marks)
ii. the relationship between **one** principle and **two** elements of design (3 marks)
iii. **one** accessibility feature (3 marks)
iv. **one** usability feature (3 marks)

Sample Answer

This question requires a hand-drawn or digitally created design with annotations. Below is guidance on what examiners expect for each criterion:

(i) Logical and hierarchical organisation (3 marks): The page should follow a clear top-to-bottom structure: GHCG logo/heading at the top (most important — brand identity), followed by personal details section (name, email, phone), then gardening interests section (checkboxes or dropdown), and finally a "Register" button at the bottom. Annotate: "Content is arranged hierarchically from brand identity to input fields to action — guiding the user through a logical sequence."

(ii) Relationship between one principle and two elements (3 marks): Example annotation: "The principle of **contrast** is applied through the elements of **colour** (bright green 'Register' button against a white background) and **typography** (large bold heading

vs. smaller regular body text). This draws the user's eye to the most important action and creates clear visual hierarchy."
(iii) One accessibility feature (3 marks): Example annotation: "An adjustable font size toggle (A/A+) is placed in the top-right corner, allowing users with visual impairments to increase text size for comfortable reading. This meets WCAG AA standards for accessibility."
(iv) One usability feature (3 marks): Example annotation: "Placeholder text inside each input field (e.g. 'Enter your full name') acts as a tooltip-style prompt, improving learnability by showing users exactly what information is required in each field — reducing errors and improving efficiency."

WACE Q25(e) — App Landing Page Design *(15 marks)*

Design an app landing page for the GHCG that includes all three essential features (garden management tools, real-time event updates, community chat). Your design must include annotations that explain:

(i)	**one** of the three essential features incorporated into the app	(3 marks)
(ii)	the logical and hierarchical organisation of content	(3 marks)
(iii)	the navigation controls suitable for the app	(3 marks)
(iv)	the relationship between the elements and principles of design	(3 marks)
(v)	**one** inclusivity feature	(3 marks)

Sample Answer

This is a design question requiring a hand-drawn mockup with annotations. Key points for each criterion:
(i) One essential feature (3 marks): Show a "Community Chat" section with a text input field, send button, and recent messages preview. Annotate: "The community chat feature allows members to share gardening tips and seek support, fostering collaboration and engagement within the GHCG community."
(ii) Logical and hierarchical organisation (3 marks): Structure the landing page with: welcome banner/heading at top, three feature cards (Garden Tools, Events, Chat) in the middle, and secondary content below. Annotate: "Content flows from the most important (welcome/branding) to feature access to secondary information, following a clear visual hierarchy."
(iii) Navigation controls (3 marks): Include a bottom navigation bar with icons and labels for Home, Garden, Events, Chat, and Profile. Annotate: "A fixed bottom navigation bar with labelled icons provides thumb-friendly, consistent access to all app sections — suitable for mobile users of all ages and abilities."
(iv) Elements and principles of design (3 marks): Annotate: "The principle of **repetition** is applied through consistent use of the elements of **colour** (green accent throughout) and **shape** (rounded card corners for all feature sections), creating visual unity and a cohesive brand identity."
(v) One inclusivity feature (3 marks): Include a language selector or voice input option. Annotate: "A language selector in the settings allows members from diverse cultural backgrounds to use the app in their preferred language, ensuring the GHCG app is welcoming to all community members regardless of their primary language."

WACE Q25(f) — Colour Scheme for Digital Publications *(3 marks)*

Explain why choosing an appropriate colour scheme for their digital publications could be important for GHCG.

Sample Answer

An appropriate colour scheme is important for the GHCG for several reasons:
Brand identity and communication: Using **green tones** across all digital publications reinforces the GHCG's connection to nature, sustainability, and growth. The **element of colour** communicates the garden's values before users even read any text, creating an immediate visual association with the organisation's purpose.
Readability and accessibility: A well-chosen colour scheme ensures high contrast between text and background (e.g. dark green text on a light cream background), making content readable for users of all ages — including elderly members or those with visual impairments. Poor contrast (e.g. light green text on a white background) would fail WCAG accessibility standards and exclude users.
Visual consistency and professionalism: Consistent colour use across the app, website, and community posts applies the **principle of repetition**, creating visual unity that makes GHCG publications immediately recognisable on a busy community website. This builds trust and encourages potential members to engage with the content.

WACE Q25(g) — Typography for Legibility *(4 marks)*

Describe **two** ways in which GHCG can ensure legibility through effective typography on their digital publications.

Sample Answer

Way 1 — Appropriate font selection and sizing: The GHCG should use clean, sans-serif fonts (e.g. Arial, Open Sans, or Roboto) for body text on digital publications, as these fonts render clearly on screens at various sizes. Body text should be at least 16px for comfortable reading on mobile devices, with headings proportionally larger (e.g. 24–32px). This ensures the **element of typography** supports readability across the diverse age range of GHCG members, from younger tech-savvy users to elderly members who may need larger text.
Way 2 — Sufficient line spacing and text hierarchy: Using adequate line spacing (1.5× the font size) prevents lines of text from appearing cramped and improves scanning. Combined with a clear typographic hierarchy — bold, larger headings for section titles, regular weight for body text, and italics sparingly for emphasis — users can quickly distinguish between headings, subheadings, and body content. This applies the **principle of emphasis** through the **element of typography**, guiding the reader's eye to the most important information first.

WACE Q25(j) — W3C Standards: Consistency, Accessibility, Inclusivity *(9 marks)*

In the design of the GHCG app, identify and describe how the relevant World Wide Web Consortium (W3C) standards will help ensure consistency, accessibility and inclusivity

across different web browsers and devices.

Sample Answer

Consistency (3 marks): W3C standards such as **HTML5** and **CSS3** provide standardised markup and styling rules that all major web browsers (Chrome, Safari, Firefox, Edge) are built to interpret consistently. By coding the GHCG app using valid, standards-compliant HTML5 for structure and CSS3 for presentation, the app will render with the same layout, fonts, colours, and functionality regardless of which browser or device a member uses. Without W3C compliance, elements might display differently across browsers — buttons could shift position, fonts could change, or layouts could break — creating a confusing, inconsistent experience for GHCG members.

Accessibility (3 marks): The W3C's **Web Content Accessibility Guidelines (WCAG 2.1)** provide specific, testable criteria for making web content accessible to people with disabilities. For the GHCG app, following WCAG AA standards means: providing alt-text for all garden images so screen readers can describe them to visually impaired users, ensuring a minimum 4.5:1 colour contrast ratio between text and background, enabling full keyboard navigation for users who cannot use a touchscreen, and adding captions to any video tutorials. These standards ensure the app does not exclude members with visual, auditory, motor, or cognitive disabilities.

Inclusivity (3 marks): W3C standards support inclusivity through **internationalisation (i18n)** guidelines, which ensure web content can be adapted for users from different languages, regions, and cultural contexts. For the GHCG app, this means using Unicode character encoding (UTF-8) to support text in multiple languages and scripts, implementing the `lang` attribute in HTML to identify the page language for translation tools, and designing flexible layouts that accommodate text expansion when content is translated (e.g. German text is typically 30% longer than English). These standards ensure the app is welcoming and functional for GHCG's diverse community, regardless of members' linguistic or cultural backgrounds.

Applied Information Technology

ATAR Year 12

Chunk 3 — Weeks 6–9

Application Skills

Sunshine Grammar School

2026

1

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1

1.1 Online Software Tools

Definition — Online Software Tools

Online software tools are programs running through a web browser rather than being installed locally. They store data on remote servers, allowing access from any device with internet. Key **advantages:** no installation, always up-to-date, easy sharing, cross-device access. Key **disadvantages:** internet dependence, data privacy concerns, limited functionality vs. premium desktop software. Common categories: design tools (Canva, Figma), video editors (WeVideo, Clipchamp), document creation (Google Docs), project management (Trello, Notion), publishing tools (Wix, WordPress).

Example

A student creates a school magazine using **Canva**. They access it from their school computer, laptop at home, and phone on the bus — without installing any software. Their teacher can view and comment in real time using a shared link.

Image — `3_1_online_software_tools`



1.2 Video Feature: Multi-Layer Track Editing

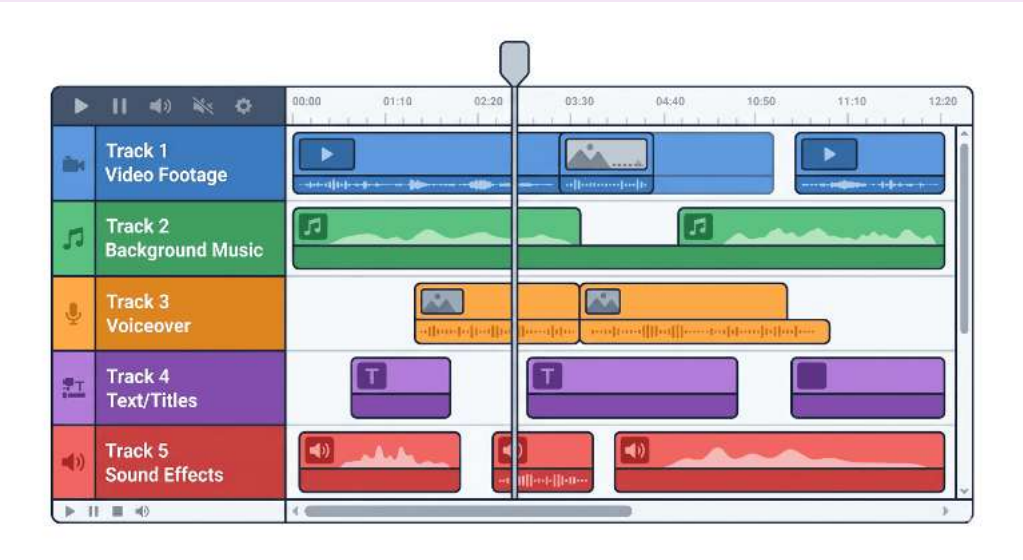
Definition — Multi-Layer Track Editing

Multi-layer track editing allows multiple video, audio, image, and text layers to be stacked on a timeline simultaneously. Each track runs horizontally along the timeline; layers stack vertically — elements on higher tracks appear in front of lower tracks. This enables: overlaying graphics over footage, blending audio tracks, picture-in-picture effects, and complex visual compositions from many separate elements.

Example

In a school news broadcast: Track 1 — raw camera footage; Track 2 — background music; Track 3 — voiceover narration; Track 4 — animated lower-third text banners; Track 5 — school logo watermark. All five tracks play simultaneously to produce the final polished video.

Image — `3_2_multi_layer_track_editing`



1.3 Video Feature: Titles

Definition — Video Titles

Titles in video editing are text elements added to a video — including opening title cards, end credits, chapter headings, subtitles, and **lower-thirds** (text in the lower portion of the screen identifying a speaker or location). Titles can be animated (sliding, fading, bouncing) or static. They serve to: identify the subject, provide context, guide the viewer through narrative structure, and meet accessibility requirements (subtitles for deaf viewers).

Example

A travel vlog opens with an animated title card reading "Tokyo, Japan — Day 3" that fades in over aerial footage, giving the viewer immediate context for the scene before a single word of narration is spoken.

Image — `3_3_video_titles`



1.4 Video Feature: Transitions

Definition — Video Transitions

Transitions are visual effects applied at cut points between two clips to smooth the change from one scene to the next. Common types:

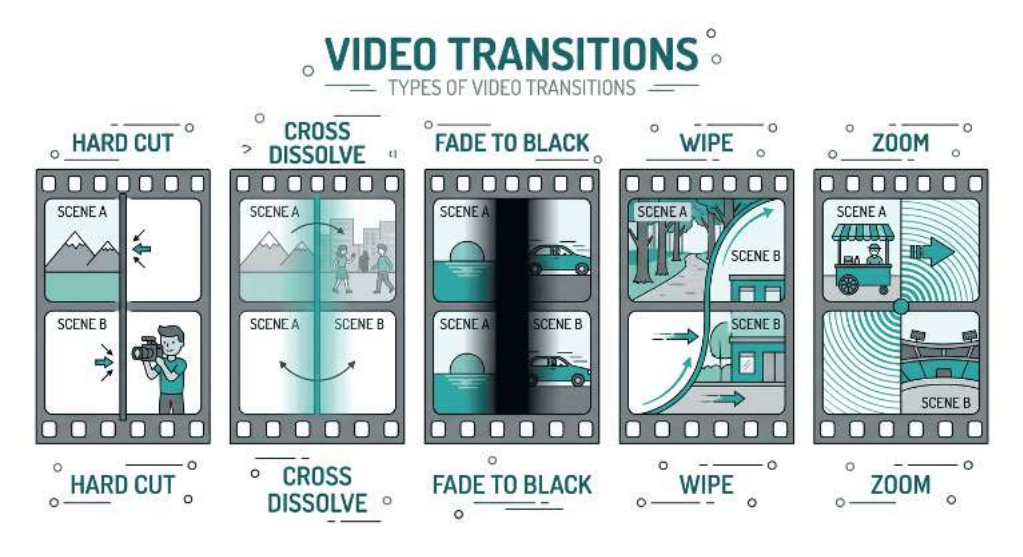
- **Hard Cut** — Instantaneous switch (most professional choice)
- **Fade to/from Black** — Signals the end or beginning of a scene
- **Cross Dissolve** — One clip gradually blends into the next
- **Wipe** — One clip slides in to replace the other
- **Zoom** — Dramatic effect for emphasis
- **Morph Cut** — Seamlessly joins two takes of the same shot

Transitions should be used purposefully — overusing decorative transitions looks unprofessional.

Example

A documentary about seasons uses a **cross dissolve** between summer and autumn footage, creating a smooth visual metaphor for the gradual change of seasons rather than a jarring hard cut.

Image — 3_4_video_transitions



1.5 Video Feature: Effects

Definition — Video Effects

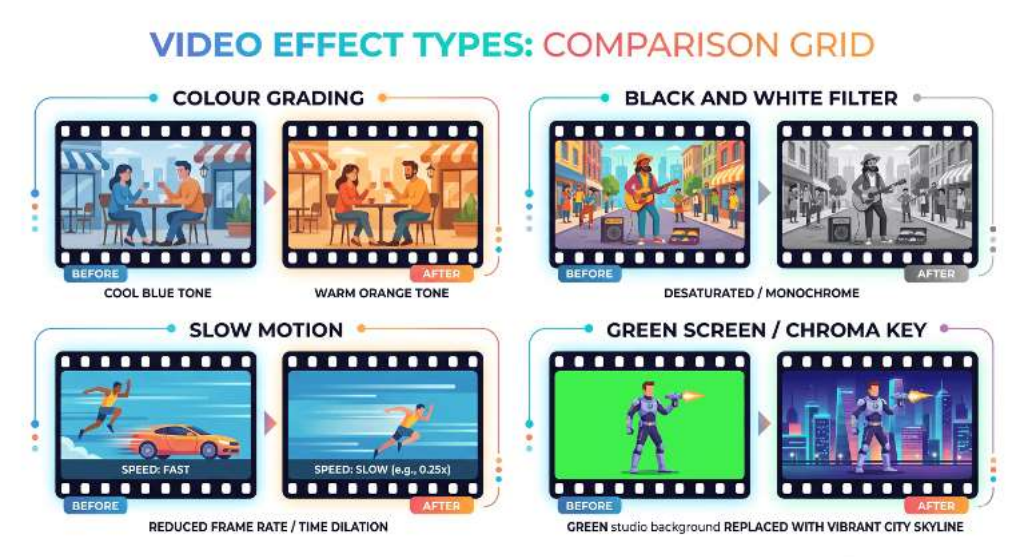
Video effects are visual filters or alterations applied to footage to change its appearance, add atmosphere, or correct technical problems. Categories:

- **Colour effects** — Colour grading, colour correction, black-and-white, vintage
- **Motion effects** — Slow motion, stabilisation, blur, zoom
- **Stylistic effects** — Glitch, film grain, lens flare, vignette
- **Green screen (Chroma key)** — Removing a green background and replacing it

Example

A short film set in the 1970s uses a **warm colour grade** (increased orange/yellow tones), added **film grain**, and **vignetting** to make modern digital footage appear as if shot on old celluloid film — reinforcing the historical setting.

Image — 3_5_video_effects



1.6 Sound Application Features

Definition — Sound Application Features

Sound applications allow users to record, edit, mix, and export audio. Key features:

- **Multi-track recording/mixing** — Layering multiple audio sources
- **Audio trimming** — Removing unwanted sections
- **Fade in/out** — Gradually increasing or decreasing volume
- **Noise reduction** — Filtering out background hiss or hum
- **Equalisation (EQ)** — Adjusting balance of bass, mid, and treble
- **Sound effects** — Pre-recorded clips: footsteps, door slams, crowd noise
- **Export formats** — MP3, WAV, AAC, OGG depending on the platform

Example

A student creates a podcast using **Audacity**: narration on Track 1, background music on Track 2 (faded to 20% volume), **noise reduction** applied to remove computer fan hum, and **fade in/out** at the start and end — producing a polished episode.

Image — 3_6_sound_application_features



1.7 Publishing Feature: Colour Schemes

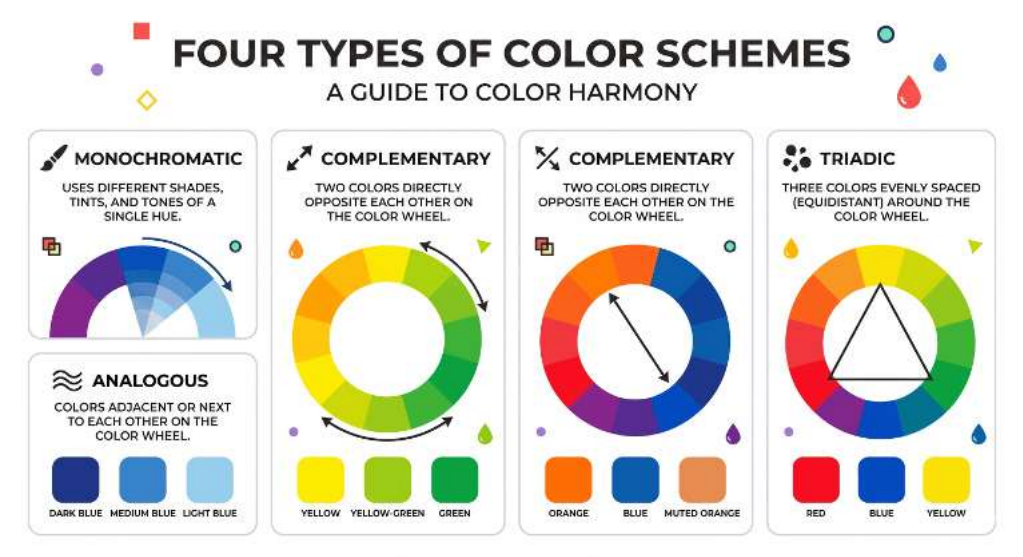
Definition — Colour Schemes in Publishing

A **colour scheme** is a carefully selected set of colours used consistently throughout a digital product. Types: **Monochromatic** (variations of one hue), **Complementary** (opposite on the colour wheel), **Analogous** (adjacent on the wheel), **Triadic** (three equally spaced colours). For **print**: use **CMYK**. For **screen**: use **RGB**. A vibrant RGB colour may appear duller when printed in CMYK.

Example

A school uses a **complementary** colour scheme of navy blue and gold (the school colours) consistently across its website, printed newsletters, and digital magazine — creating a unified, recognisable brand identity.

Image — 3_7_colour_schemes



1.8 Publishing Feature: Layers

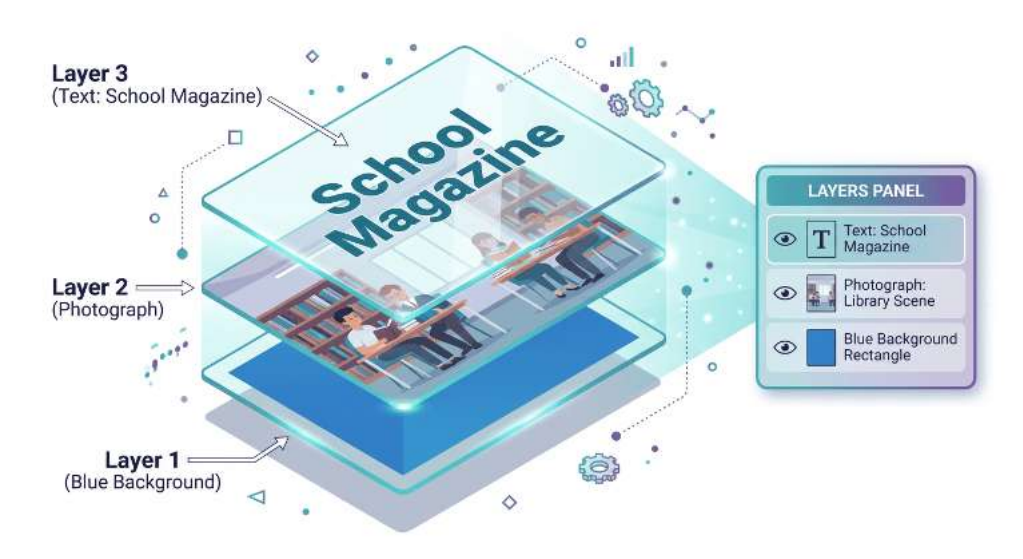
Definition — Layers in Design Software

Layers in design software (Photoshop, InDesign, Canva) work like transparent sheets stacked on top of each other. Each layer contains different elements and can be reordered, hidden, locked, or edited independently. Layers provide: **non-destructive editing**, **organised workflows**, and **easy revision**.

Example

A magazine designer places: background photograph on Layer 1, article text on Layer 2, decorative graphics on Layer 3, and school logo on Layer 4. To adjust the photo without moving text, they lock Layers 2, 3, and 4 and edit only Layer 1.

Image — 3_8_layers_design_software



1.9 Publishing Feature: Frames

Definition — Frames in Publishing Software

Frames are containers within a design that define where content is placed and how it flows. In Adobe InDesign, **text frames** allow text to automatically flow from one frame to the next across multiple pages. **Image frames** define the exact area an image occupies and can crop or mask images to fit precise dimensions.

Example

In a 12-page school magazine, an article starting on page 3 continues on page 7. The designer links the text frame on page 3 to a text frame on page 7 — when text is added or removed, it automatically reflows between the two frames without manual adjustment.

Image — 3_9_frames_publishing



1.10 Publishing Feature: Typography

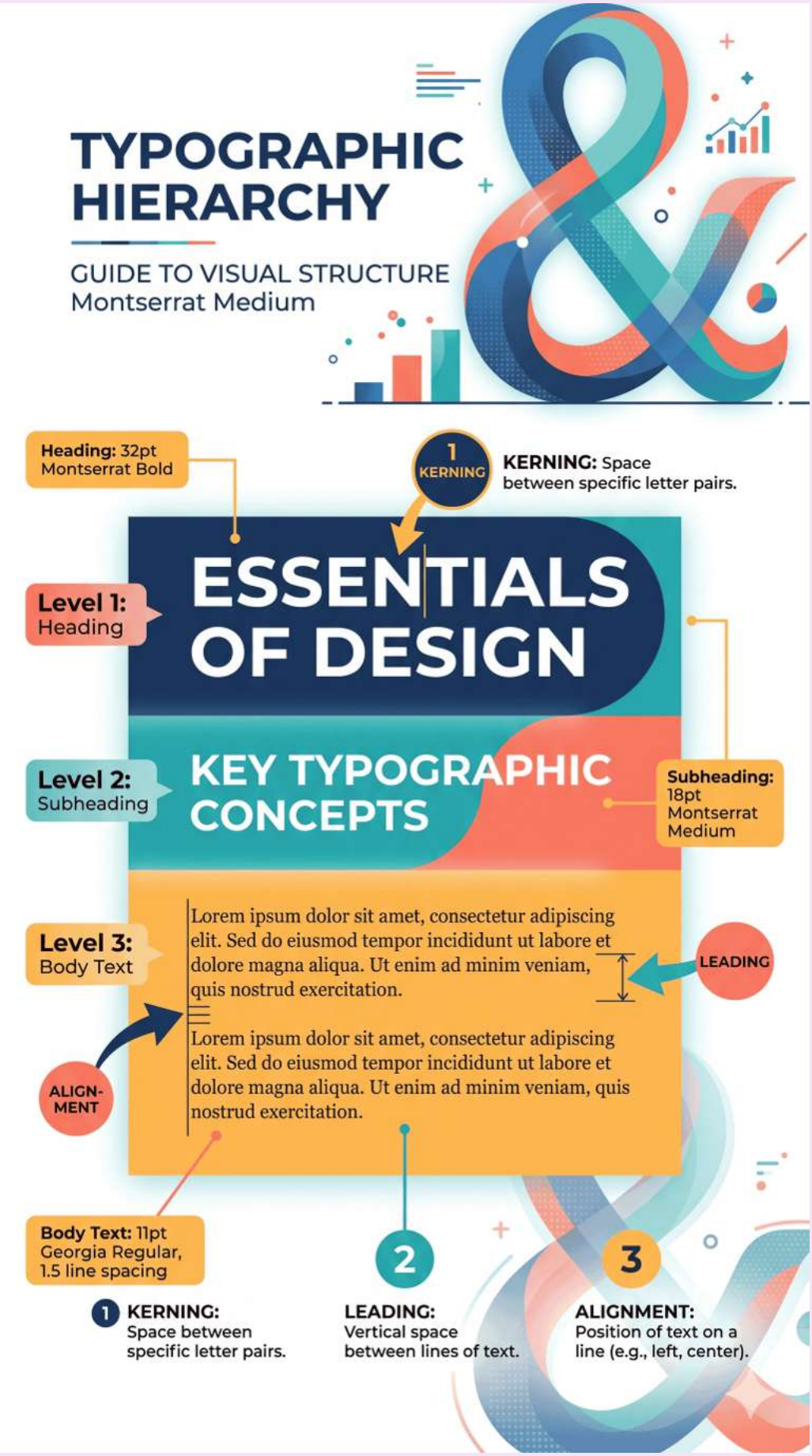
Definition — Typography in Publishing

Typography refers to the selection and arrangement of typefaces, font sizes, line spacing (leading), letter spacing (kerning and tracking), alignment, and text hierarchy. Good typography: establishes visual hierarchy, reinforces tone (serif = formal/traditional; sans-serif = modern/digital), improves readability, and remains consistent throughout. Common rules: limit to 2–3 font families; ensure body text is at least 10–12pt for print.

Example

A magazine uses **Montserrat Bold 24pt** for headings, **Montserrat Regular 14pt** for subheadings, and **Georgia Regular 11pt** for body text — creating a clear three-level hierarchy that helps readers understand the importance of each element at a glance.

Image — 3_10_typography_publishing


TYPOGRAPHIC HIERARCHY
GUIDE TO VISUAL STRUCTURE
Montserrat Medium
Heading: 32pt Montserrat Bold
1 KERNING
KERNING: Space between specific letter pairs.
Level 1: Heading
ESSENTIALS OF DESIGN
Level 2: Subheading
KEY TYPOGRAPHIC CONCEPTS
Subheading: 18pt Montserrat Medium
Level 3: Body Text
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation.
LEADING
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation.
ALIGN-MENT
Body Text: 11pt Georgia Regular, 1.5 line spacing
1 KERNING: Space between specific letter pairs.
2 LEADING: Vertical space between lines of text.
3 ALIGNMENT: Position of text on a line (e.g., left, center).

1.11 Publishing Feature: Templates

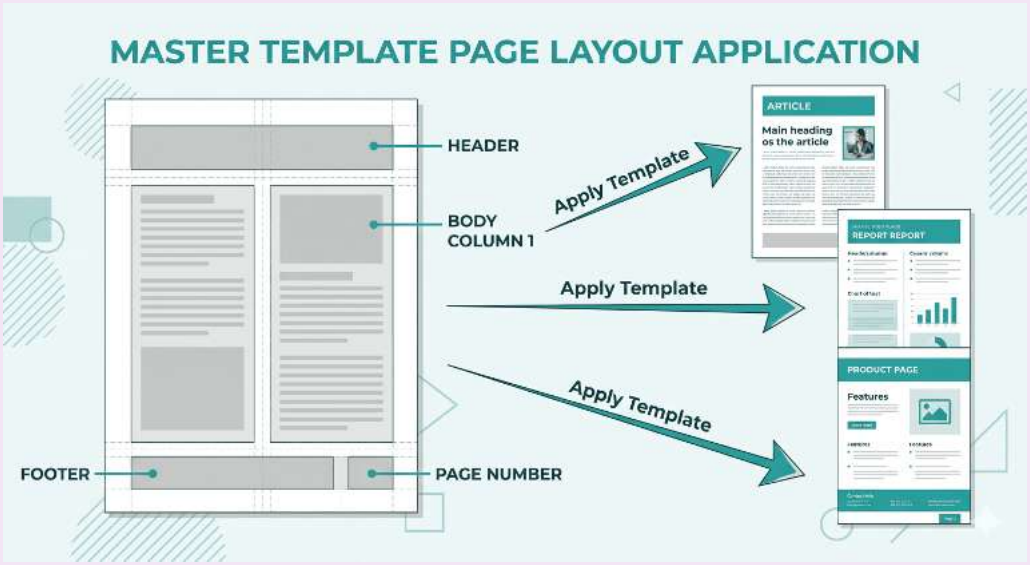
Definition — Templates in Publishing

A **template** is a pre-designed layout providing a consistent structure for a publication, saving time and ensuring visual consistency. Templates define the placement of recurring elements such as headers, footers, page numbers, margins, and column grids. All pages share the same design language, even when different people contribute content.

Example

A school newsletter template includes: a fixed header with the school logo and title, a two-column body layout, a footer with the school address and issue number, and consistent colour-coded section dividers — ensuring parents immediately recognise the newsletter regardless of who produced it.

Image — `3_11_templates_publishing`



1.12 Publishing Feature: Print vs Display Options

Definition — Print vs Display/Screen Settings

When finalising a publication, designers must choose settings optimised for **print** or **display (screen)**:

Setting	Print	Screen
Colour Model	CMYK	RGB
Resolution	300 DPI	72–96 PPI
File Format	PDF, TIFF	PDF, HTML, EPUB
Bleed	3–5 mm	Not applicable

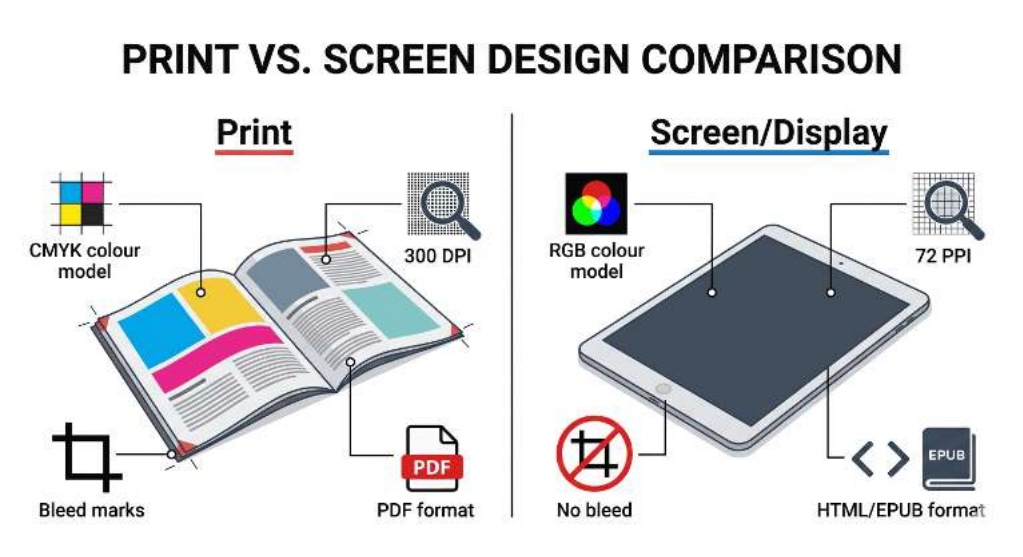
Bleed extends the design beyond the page edge so that when trimmed, no white border

appears at the edges.

Example

A student designs a school magazine. For the **printed version**: CMYK PDF at 300 DPI with 3 mm bleed. For the **website version**: RGB screen PDF at 96 PPI — ensuring optimal quality for both output types.

Image — 3_12_print_vs_display



1.13 Types of Digital Publications

Definition — Types of Digital Publications

A **digital publication** is any content created, distributed, and consumed digitally.

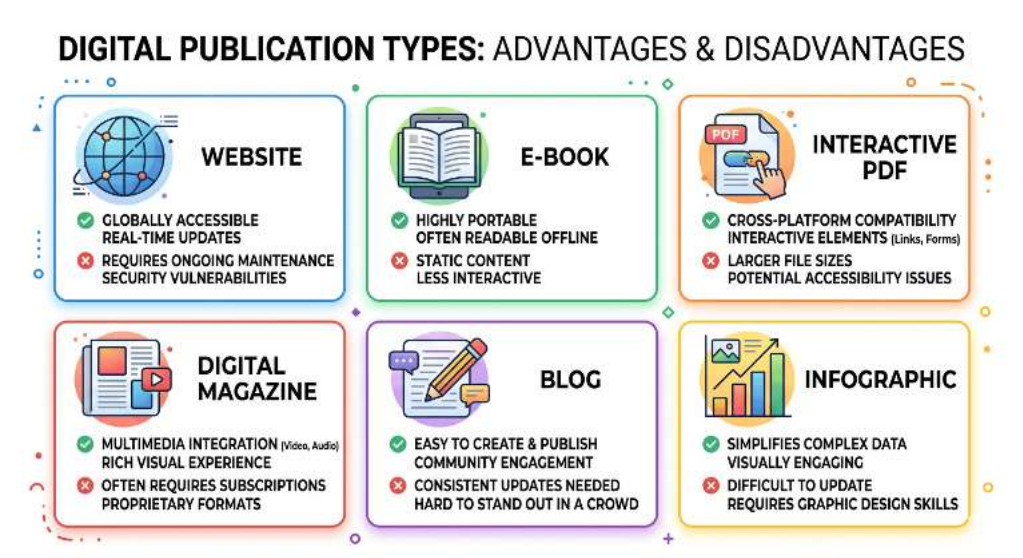
Type	Advantages	Disadvantages
Website	Global access, interactive, multimedia	Requires internet
E-book	Portable, no print cost, searchable	Requires device
Interactive PDF	Universal, interactive	Large files
Digital Magazine	Rich media, global reach, no print cost	Requires internet
Blog	Easy to update, SEO-friendly	Short lifespan
Infographic	Shareable, engaging	Outdated quickly

Example

A school switches from a physical newsletter to a **digital magazine** on Issuu — eliminating printing costs and embedding video interviews. However, families without reliable internet

are excluded, illustrating that digital is not universally superior.

Image — 3_13_types_digital_publications



Test Questions — Chunk 3: Application Skills

Q1 — Multiple Choice

What is the PRIMARY purpose of multi-layer track editing?

A) Compress video file size
B) Allow multiple elements to play simultaneously in a composition
C) Automatically colour-correct footage D) Convert video formats

Q2 — Short Answer

Explain the difference between CMYK and RGB colour models and when each should be used.

Sample Answer

RGB is light-based for screens (wider colour range). CMYK is ink-based for printing. Use RGB for screen publications. Use CMYK for print publications to ensure accurate ink colour reproduction.

Q3 — True or False

Transitions must always be used between every clip to look professional.

FALSE — Hard cuts are often the most professional choice. Overusing decorative transitions looks amateurish.

Q4 — Short Answer

Identify and explain THREE publishing features a student designing a printed school magazine should use.

Sample Answer

(1) **Templates** — consistent page layout across all issues. (2) **Typography hierarchy** — clear heading/body text distinction. (3) **CMYK 300 DPI with bleed** — ensures accurate print colour and no white border after trimming.

Q5 — Multiple Choice

Which is an advantage of a digital magazine over a printed magazine?

A) Always readable without internet B) Better for elderly users
C) Can include embedded video, animation, and hyperlinks
D) Higher production quality than print

Q6 — Short Answer

Define "sound effects" and explain how they contribute to a digital video product.

Sample Answer

Sound effects are pre-recorded audio clips (footsteps, crowd noise, notification chimes) added to enhance realism or mood. They make scenes more immersive, draw attention to key moments, and significantly improve perceived production quality.

Q7 — Multiple Choice

A designer wants to edit the background image without affecting overlaid text. Which feature allows this?

A) Typography B) Colour profiles **C) Layers** D) Frames

WACE 2025 Exam Practice — Application Skills Topics

*The following questions are drawn from the **2025 WACE Applied Information Technology ATAR Examination** and relate directly to the Application Skills covered in this chunk: online software tools, publishing features (layers, frames, colour schemes, typography), multimedia integration, digital publications, and screen/print considerations. Use these to practise exam-style responses.*

Section One — Multiple Choice

WACE Q2 — Content Management Systems *(1 mark)*

Which of the following is the primary purpose of a content management system (CMS)? To

(a) build websites using pre-designed templates.
(b) create, manage and publish digital content.
(c) store large amounts of data for analytics and reporting.
(d) facilitate secure online transactions for customers.

Sample Answer

(b) create, manage and publish digital content.
A CMS (e.g. WordPress, Wix, Drupal) is an **online software tool** whose primary purpose is to allow users to create, organise, edit, and publish digital content — typically for websites — without needing advanced programming skills. While some CMS platforms offer pre-designed templates (a), this is a feature, not the primary purpose. Data storage (c) and secure transactions (d) describe databases and e-commerce platforms respectively, not CMS systems. This connects to Section 1.1 on online software tools and Section 1.13 on types of digital publications (websites).

WACE Q6 — Layers in Publishing *(1 mark)*

Which of the following publishing features allow text, images or multimedia content to be edited independently without affecting other elements?

(a) frames
(b) templates
(c) layers
(d) file format

Sample Answer

(c) layers.
Layers allow designers to stack different content elements on separate levels within a composition. Each layer can be edited, moved, hidden, or locked independently without affecting content on other layers — this is the defining feature of layers as covered in Section 1.8. Frames (a) are containers that define where content is placed and how it flows, but editing a frame can affect adjacent content flow. Templates (b) provide layout

consistency but do not enable independent editing of individual elements. File format (d) is an output setting, not an editing feature.

WACE Q7 — Complementary Colours and Design Principles ***(1 mark)***

A graphic designer is creating a poster for a new movie. They use complementary colours to highlight important content. Which principle of design is being applied?

(a) balance, to ensure equal visual weight
(b) unity, to make sure all elements blend
(c) proportion, to emphasise important information
(d) contrast, to draw attention to key information

Sample Answer

(d) contrast, to draw attention to key information.
Complementary colours sit opposite each other on the colour wheel (e.g. blue and orange). When placed together, they create strong visual contrast — this relates directly to **colour schemes** (Section 1.7). The complementary colour scheme is specifically designed to make elements stand out, applying the principle of contrast through the publishing feature of colour. This is why complementary schemes are commonly used for call-to-action buttons, headings, and key information in digital publications.

WACE Q4 — Storyboards in Web Development ***(1 mark)***

In a website development project, which tool would you use to visually present user experiences from the user's perspective, such as animations, button clicks and page transitions?

(a) site map
(b) storyboard
(c) Gantt chart
(d) flow chart

Sample Answer

(b) storyboard.
A **storyboard** visually presents user experiences frame by frame, showing how animations play, what happens when buttons are clicked, and how page transitions appear — all from the user's perspective. This connects to multimedia application skills: storyboards are used in both video production (planning shot sequences, transitions, and effects) and web/app design (planning user interaction flows). A site map (a) shows page hierarchy, a Gantt chart (c) tracks project timelines, and a flow chart (d) shows logical process steps — none of these visually present the user experience.

Section Two — Short Answer

WACE Q16 — Colour Scheme for a Children's Toy Brand Logo *(3 marks)*

You have been asked to design a logo for a children's toy brand. Explain your choice of a suitable colour scheme for the logo.

Sample Answer

A suitable colour scheme would use **bright, warm, primary colours** such as red, yellow, and blue — a **triadic colour scheme** (three equally spaced colours on the colour wheel, as defined in Section 1.7).
Target audience: Children are naturally attracted to bold, saturated colours. Bright primary colours evoke energy, fun, and excitement — matching the playful nature of toys.
Colour psychology: Red conveys excitement, yellow suggests happiness, and blue communicates trust. Together they create a sense of joy and safety.
Contrast and readability: High-contrast combinations (e.g. bold red on yellow) ensure the brand name is easily readable across all media — packaging, websites, and digital advertisements. The colour scheme should be specified in **RGB** for screen use and converted to **CMYK** for print materials (as covered in Section 1.12), ensuring consistent colour reproduction across both output types.

Section Four — Scenario: Green Hands Community Garden

Scenario summary: The GHCG is developing a cloud-based app and digital publications to promote their community garden. They want to advertise on a local community website and are exploring multimedia features, QR codes, and AR experiences.

WACE Q25(c) — Online Software Tools for Registration *(4 marks)*

Describe **two** online software tools that could be used for the registration and/or check-in/out process that allow easy tracking and user-friendly interaction.

Sample Answer

Tool 1 — Google Forms (document creation/data collection tool): Google Forms is a free, cloud-based **online software tool** (Section 1.1) that could be used for member registration. It allows GHCG administrators to create a custom form collecting names, emails, contact numbers, and gardening interests. Responses are automatically stored in a linked Google Sheets spreadsheet, enabling easy tracking of all registered members. As an online tool, it requires no installation, works on any device with a browser, and is always up-to-date — matching the advantages covered in this chunk.
Tool 2 — Eventbrite / SignUpGenius (event management tool): An online event management tool could handle the daily check-in/out process. Members scan a QR code on the entrance device to check in, and the tool logs their arrival time automatically. When leaving, they scan again to check out. The platform tracks visit duration, generates attendance reports, and provides a simple touch-friendly interface. As a cloud-based tool, data is stored remotely and accessible from any device — but this also means it requires

internet connectivity, a key disadvantage of online software tools.

WACE Q25(f) — Colour Scheme for Digital Publications *(3 marks)*

Explain why choosing an appropriate colour scheme for their digital publications could be important for GHCG.

Sample Answer

Brand identity: Using a consistent **analogous colour scheme** of greens and earth tones across all digital publications reinforces the GHCG's connection to nature and sustainability. This applies the concept of colour schemes (Section 1.7) — selecting colours that consistently represent the brand.
Readability: A well-chosen scheme ensures high contrast between text and background (e.g. dark green text on cream), making content readable for all users. Poor contrast would fail accessibility standards and exclude users with visual impairments.
Consistency across media: Using the same colour scheme across the app, website, and community posts creates visual unity. For any printed materials, the RGB colours used on screen must be converted to CMYK equivalents (Section 1.12) to ensure consistent appearance across both digital and print publications.

WACE Q25(g) — Typography for Legibility *(4 marks)*

Describe **two** ways in which GHCG can ensure legibility through effective typography on their digital publications.

Sample Answer

Way 1 — Appropriate font selection and sizing: The GHCG should use clean, sans-serif fonts (e.g. Arial, Open Sans) for body text on digital publications, as sans-serif fonts render clearly on screens. Body text should be at least 16px for mobile and headings proportionally larger (24–32px). This applies the typography principles from Section 1.10 — choosing typefaces that match the digital medium and ensuring readability across the diverse age range of GHCG members.
Way 2 — Clear typographic hierarchy with adequate spacing: Using a defined hierarchy — bold, larger headings (e.g. 24pt), medium subheadings (e.g. 16pt), and regular body text (e.g. 12pt) — with line spacing of 1.5× the font size helps users distinguish between sections quickly. This applies the typography rule of limiting to 2–3 font families and creating a clear visual hierarchy, as covered in Section 1.10. Adequate leading (line spacing) prevents cramped text and improves scanning speed.

WACE Q25(h) — Screen Sizes and Resolutions *(6 marks)*

Explain **two** considerations for GHCG when designing digital publications that will be viewed on various screen sizes and resolutions.

Sample Answer

Consideration 1 — Responsive layout design: Digital publications must adapt their layout to different screen sizes — from a 13-inch tablet at the garden entrance to a 6-inch smartphone in a member's hand. Text, images, and navigation elements should reflow and resize automatically using flexible grids and relative units. Without responsive design, content may overflow, text may become unreadable, or buttons may be too small to tap on mobile devices. This connects to the difference between print and display settings (Section 1.12) — unlike print, which has a fixed page size, screen publications must accommodate variable dimensions.

Consideration 2 — Image resolution and optimisation: Different devices have different screen densities (e.g. standard 72 PPI vs. Retina displays at 2× resolution). The GHCG should provide images at sufficient resolution to appear sharp on high-density screens but compressed enough to load quickly on mobile data connections. Using scalable formats (SVG for logos and icons) ensures crisp rendering at any resolution without increasing file size. This directly applies the print vs. display resolution knowledge from Section 1.12 — screen publications use 72–96 PPI as a baseline, but modern high-resolution displays require consideration of pixel density.

WACE Q25(i) — Multimedia Features and User Engagement ***(6 marks)***

Explain to GHCG how multimedia features could be integrated into their app **and** the impact of these on user engagement.

Sample Answer

Multimedia features from video, sound, and publishing skills can be integrated into the GHCG app:

Video tutorials with titles and effects: Short instructional videos on gardening techniques could be embedded in the app. Using **titles** (Section 1.3) such as lower-thirds to identify plant species and animated title cards for chapter headings, plus **transitions** (Section 1.4) like cross dissolves between steps, creates polished educational content. **Sound features** (Section 1.6) such as background music with fade in/out and voiceover narration on separate tracks enhance the viewing experience. This increases engagement by providing visual and auditory learning, encouraging members to return to the app regularly.

Image galleries with layered design: Members could upload and share photos of their garden plots through the community chat. These images could be presented in a gallery layout using design principles from **templates** (Section 1.11) for consistent presentation. Visually rich content is more engaging than text-only updates and motivates participation.

Push notifications with multimedia: Real-time event updates could use push notifications featuring images (e.g. a photo of an upcoming workshop) and optional audio alerts. These multimedia notifications are more attention-grabbing than plain text, increasing event attendance and community participation.

WACE Q25(k) — QR Codes and AR: Benefits and Challenges ***(8 marks)***

Describe **two** benefits and **two** challenges of including contemporary digital technologies, such as QR codes and/or augmented reality (AR), as interactive features in the app, specifically in the context of digital communication for educational purposes.

Sample Answer

Benefits

Benefit 1 — Instant access to multimedia educational content via QR codes: QR codes placed on plant markers throughout the garden can link directly to **digital publications** (Section 1.13) such as interactive PDFs with plant care guides, or embedded video tutorials featuring multi-layer compositions (Section 1.2) with voiceover narration, background music, and animated titles. This bridges the physical garden with digital educational content, removing barriers between the user and information.

Benefit 2 — Interactive learning through AR: AR can overlay digital information onto the real-world garden — for example, pointing a phone at a garden bed could display an animated tutorial showing planting depth, spacing, and watering schedules. This uses multimedia principles (video effects, titles, sound) in an immersive format that is more engaging than static digital publications like blogs or infographics.

Challenges

Challenge 1 — Digital literacy and device requirements: Not all GHCG members may own devices capable of running AR, and some may lack the skills to scan QR codes. This creates a digital divide — the same disadvantage of online software tools (Section 1.1): reliance on technology and internet connectivity can exclude users. The GHCG would need to provide alternative non-digital resources.

Challenge 2 — Content creation and maintenance costs: Creating quality AR experiences requires video production skills (multi-layer editing, effects, sound design) and ongoing maintenance to keep QR-linked content current. Unlike a simple blog or website that is easy to update (Section 1.13), AR content requires specialised skills and tools, making it expensive and difficult to sustain for a community organisation with limited resources.

Applied Information Technology

ATAR Year 12

Chunk 4 — Week 10

Impacts of Technology

Sunshine Grammar School

2026

1

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1.2 Copyright and Digital Products in Australia . . . 3
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1

1.1 The Concept of Intellectual Property (IP)

Definition — Intellectual Property

Intellectual Property (IP) refers to creations of the mind — original works, inventions, designs, symbols, names, and images — legally protected so creators can control how they are used. In Australia, IP is administered by **IP Australia**.

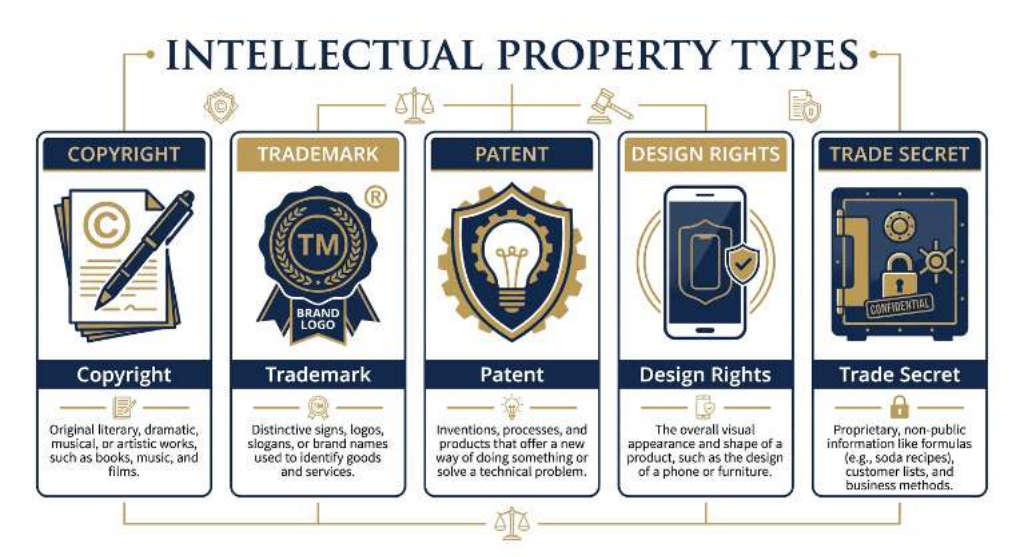
Type	What It Protects	Example
Copyright	Creative works (text, images, music, video, code)	A student's digital poster
Trademark	Brand names, logos, slogans	Apple logo, Nike slogan
Patent	New inventions and processes	A new algorithm
Design Rights	Visual appearance of a product	Phone interface shape
Trade Secret	Confidential business information	Google's search algorithm

Important: IP does NOT protect ideas — only the expression or execution of an idea.

Example

A Year 12 student designs a logo and writes original content for a school project website. Even without formal registration, the student automatically holds **copyright** over their original written content and graphic design. Copying those materials without permission constitutes infringement.

Image — 4_1_intellectual_property_types



1.2 Copyright and Digital Products in Australia

Definition — Copyright Act 1968 (Cth)

Copyright in Australia is governed by the **Copyright Act 1968 (Cth)**. It is **automatic** — no registration required. Protection begins the moment an original work is created and expressed in material form. Copyright protects: written text, images, videos, animations, music, computer software and code, website layouts, and databases.

Duration: Life of the creator + 70 years (literary/artistic works).

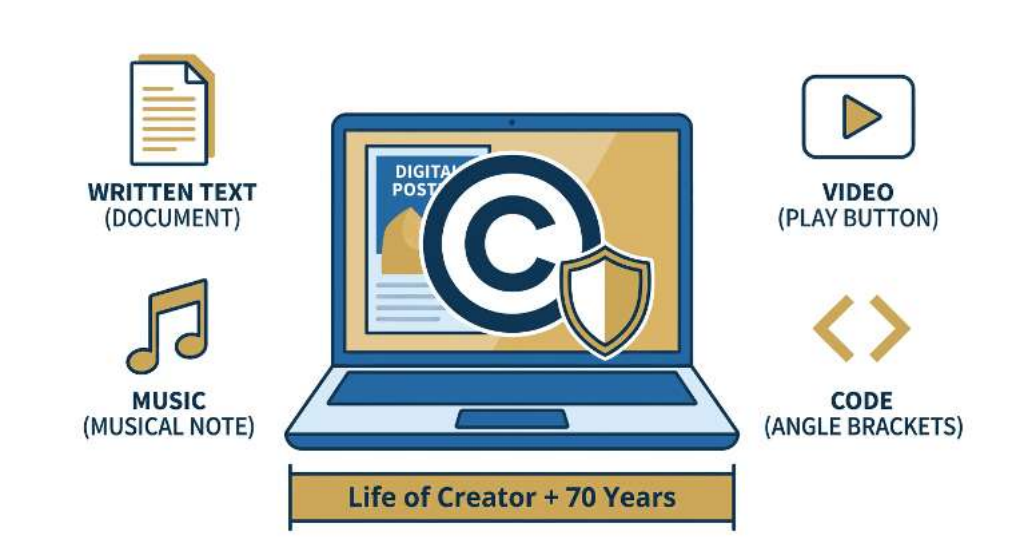
Purpose: Protect creators, encourage creativity, prevent unfair exploitation, and balance public access (works eventually enter the public domain).

Creative Commons (CC) licences allow legal use under specific conditions (e.g. CC0, CC BY).

Example

A student downloads a photograph from Google Images without checking its licence. The photographer holds copyright. Using it without permission infringes copyright — even for a non-commercial school project. The correct approach: use CC0 or CC BY licensed images from Unsplash or Pexels.

Image — 4_2_copyright_digital_products



1.3 The Concept of Online Defamation in Australia

Definition — Online Defamation

Online defamation occurs when a false statement about a person is published via the internet — on social media, websites, review sites, blogs, or messaging apps — in a way that damages their reputation. In Australia, defamation law is based on **Model Defamation Provisions** (updated 2021). Key principles:

- Applies to **individuals** and small businesses (fewer than 10 employees)
- The statement must be **published** (seen by at least one other person)
- It must **identify** the person (directly or by implication)
- It must cause or be likely to cause **serious harm** to reputation
- The statement must be **false** — truth is an absolute defence

Important: Sharing or retweeting defamatory content can make YOU liable — each share is a separate act of publication.

Example

A student posts on Instagram claiming a classmate "cheated on every exam last year and should have been expelled." This false statement, which identifies the classmate and damages their reputation, may constitute online defamation under Australian law — regardless of the platform being informal social media.

Image — 4_3_online_defamation



1.4 Legal Actions to Counteract Online Defamation

Definition — Legal Actions for Online Defamation in Australia

Victims of online defamation have several legal avenues:

1. **Concerns Notice** — Mandatory first step: formal written request identifying the defamatory material and requesting a remedy. Publisher has 28 days to respond. Required before any lawsuit.
2. **Civil Lawsuit** — Court can award **damages** (financial compensation), **injunctions** (order to remove content), or **correction orders** (requiring published retraction).
3. **Platform Reporting** — Report to social media platform for removal under community standards (faster but less legally binding).
4. **ACMA** — Australian Communications and Media Authority handles complaints about certain harmful online content.

Key defences: Truth (absolute defence), Honest Opinion, Qualified Privilege, Public Interest.

Example

A business owner receives a false fraud allegation on Google Reviews. They send a **concerns notice** requesting removal. The poster ignores it. The business owner proceeds to a civil lawsuit. The court awards **compensatory damages** and issues an **injunction** ordering the post removed.

Image — 4_4_defamation_legal_actions



1.5 The Concept of Freedom of Information (FOI)

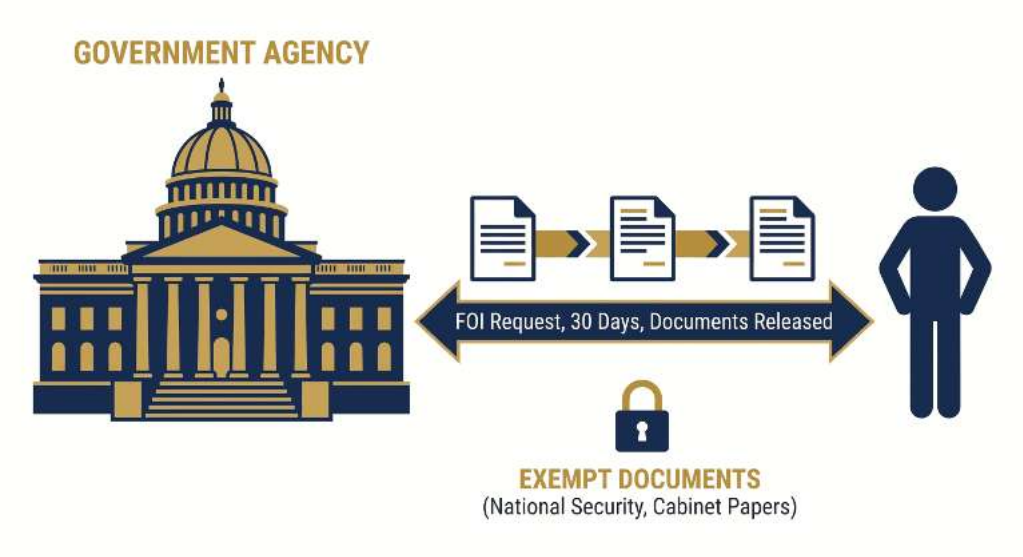
Definition — Freedom of Information Act 1982 (Cth)

Freedom of Information (FOI) is the legal right of individuals to access documents held by Australian government agencies, promoting **transparency**, **accountability**, and **public trust**. Governed by the **Freedom of Information Act 1982 (Cth)**. Any person (citizen or not) can make an FOI request — no reason required. Accessible documents include: government reports, policy documents, internal memos, emails, databases, and digital records. Exempt documents include: national security materials, Cabinet documents, third-party personal information, and commercially sensitive materials.

Example

A journalist suspects government misuse of funds for digital infrastructure projects. They lodge an **FOI request** for all internal emails and budget reports. The department must respond within **30 days** and provide the documents or formally justify any exemptions.

Image — 4_5_freedom_of_information



1.6 Rights and Responsibilities Under the FOI Act 1982

Definition — FOI Rights and Responsibilities

Rights of individuals:

- Access documents held by government agencies
- Amend incorrect personal information
- Seek review if refused (via OAIC — Office of the Australian Information Commissioner)
- Access information free of charge in most cases

Responsibilities of government agencies:

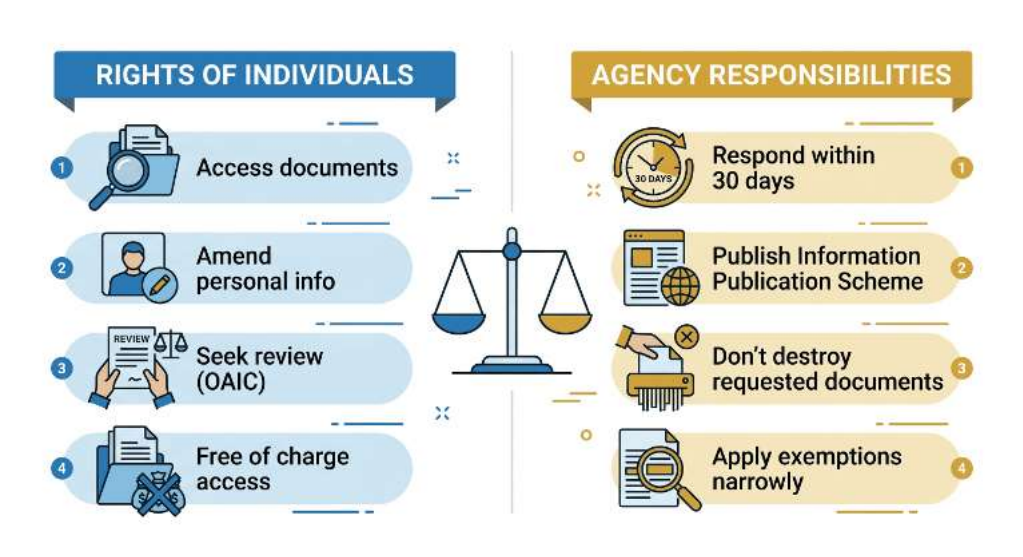
- Acknowledge requests within 14 days, respond within 30 days
- Proactively publish via **Information Publication Schemes (IPS)**
- Not destroy documents subject to an FOI request
- Apply exemptions narrowly and legitimately

Digital relevance: Government agencies now hold vast quantities of digital records (emails, spreadsheets, databases) — all within FOI scope. Metadata may also be requested.

Example

A parent believes their child's government school made an incorrect assessment decision. They lodge an FOI request for all digital records and internal emails. The department must provide digital documents within 30 days. The parent can then request correction of inaccurate personal information.

Image — 4_6_foi_rights_responsibilities



1.7 Virtual vs Physical Collaboration

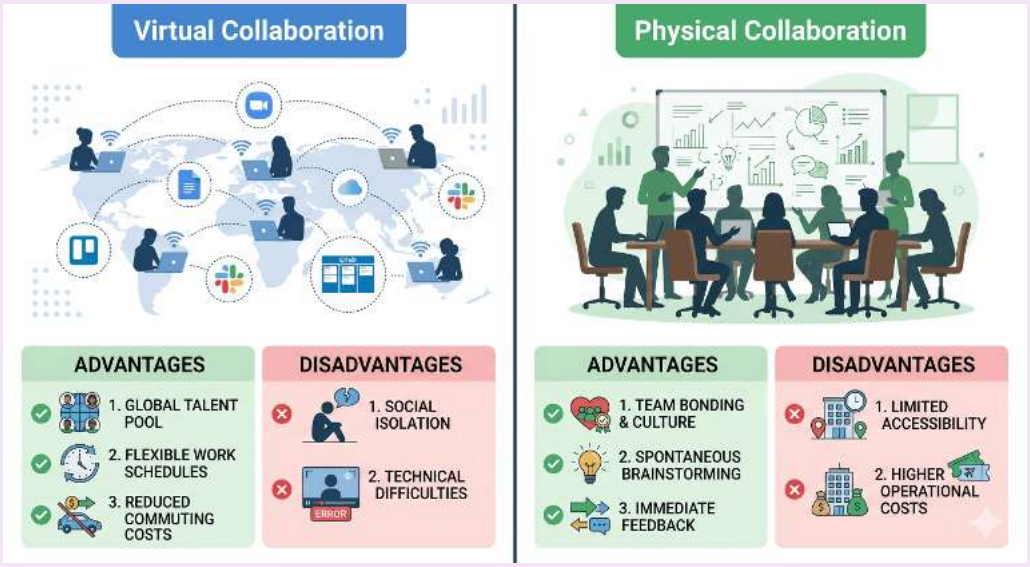
Definition — Virtual vs Physical Collaboration

	Virtual	Physical
Advantages	Global talent, flexible hours, reduced travel, real-time co-editing, version history	Richer communication, faster decisions, stronger relationships, creative brainstorming
Disadvantages	Internet dependency, communication loses nuance, collaboration fatigue, security risks	Geographic limits, higher costs, inflexible scheduling, limited talent pool

Example

A digital marketing agency in Perth hires a designer in Melbourne, copywriter in London, and developer in Manila. They collaborate virtually using Slack, Figma, and Trello — accessing global talent at reduced cost. However, they must manage time zones, use encrypted cloud storage, and schedule regular video calls for team cohesion.

Image — 4_7_virtual_vs_physical_collaboration



1.8 Impact of Convergence Trends in Digital Technologies

Definition — Technological Convergence

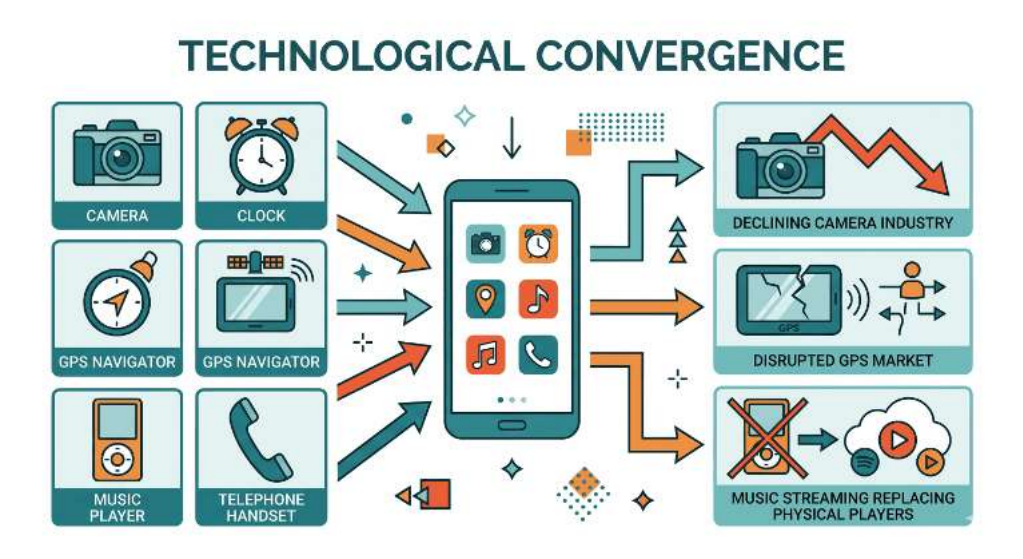
Technological convergence refers to the merging of previously separate technologies, industries, and devices into a single unified system. Examples: smartphones (converge phone, camera, GPS, music player, alarm, banking), Smart TVs, wearables, cloud platforms, social media.

Impact Area	Effect
Consumer behaviour	Users expect one device to do everything
Industry disruption	Cameras, GPS units, music players displaced by smartphones
Data and privacy	More data collected in one place — increased privacy risks
Accessibility	One device provides access to many previously separate services
Security	Single point of failure compromises many integrated services
Digital divide	Those without converged devices increasingly excluded

Example

Twenty years ago a road trip required: paper map, digital camera, portable music player, mobile phone, GPS unit — five separate devices. Today a single smartphone replaces all five. Impact: the GPS consumer industry and music player market declined dramatically.

Image — 4_8_technological_convergence



Test Questions — Chunk 4: Impacts of Technology

Q1 — Multiple Choice

When does copyright protection begin in Australia?

A) When formally registered with IP Australia B) When published publicly
C) Automatically, as soon as the work is created and expressed in material form
D) Only after applying the © symbol

Q2 — Short Answer

Define "online defamation" and explain TWO conditions for a statement to be defamatory.

Sample Answer

Online defamation is a false statement published via the internet that damages a person's reputation. Two conditions: (1) **Publication** — communicated to at least one other person. (2) **Identification** — the person must be clearly identifiable from the statement.

Q3 — True or False

Only Australian citizens can make an FOI request.

FALSE — Any person, regardless of citizenship, can make an FOI request. No reason is required.

Q4 — Short Answer

Explain "technological convergence" and describe ONE negative impact on a traditional industry.

Sample Answer

Technological convergence means merging previously separate technologies into one product. Negative impact: the **dedicated digital camera industry** collapsed as smartphone cameras converged high-quality photography into an always-available device. Major manufacturers saw consumer camera sales decline dramatically.

Q5 — Multiple Choice

What is the FIRST legal step when discovering a false online review?

A) File a Supreme Court lawsuit B) Contact ACMA for criminal prosecution
C) Send a formal concerns notice to the publisher
D) Report to social media and wait indefinitely

Q6 — Short Answer

Identify ONE advantage and ONE disadvantage of virtual collaboration for a digital product team.

Sample Answer

Advantage: Access to global talent without geographic restrictions.
Disadvantage: Full reliance on internet connectivity — outages or platform failures disrupt collaboration, and non-verbal communication cues are lost in text-based communication.

Q7 — Multiple Choice

Which document is EXEMPT from FOI disclosure?

A) Government department's internal budget report for a public project
B) Email between public servants discussing policy options
C) A Cabinet document containing advice given to a government minister
D) A database of non-sensitive procurement records

WACE 2025 Exam Practice — Impacts of Technology Topics

*The following questions are drawn from the **2025 WACE Applied Information Technology ATAR Examination** and relate directly to the Impacts of Technology topics covered in this chunk: intellectual property, copyright, online defamation, FOI, virtual collaboration, and convergence. Use these to practise exam-style responses.*

Section One — Multiple Choice

WACE Q9 — Freedom of Information Act and Private Companies *(1 mark)*

A software company has created a mobile app for electric vehicles that tracks user location data for personalised recommendations on available charging stations. The privacy statement states that user location data is collected and may be shared with third parties. A concerned user of the app would like to have access to internal documents regarding the code, data collection and sharing practices of this mobile app under the *Freedom of Information Act 1982* (Australia).
According to this Act, the software company is

(a) required to provide the requested documents.
(b) obliged to provide the documents, but may charge a fee.
(c) must provide the documents unless they contain sensitive information, such as trade secrets.
(d) not obligated to provide any documentation.

Sample Answer

(d) not obligated to provide any documentation.
The *Freedom of Information Act 1982* applies only to **Australian government agencies** — not to private companies (Section 1.5). A private software company is not a government body and therefore has no legal obligation under FOI to disclose its internal documents, source code, or data practices. The user's recourse would instead be through consumer protection law, the *Privacy Act 1988*, or the company's own privacy policy — not through FOI. This question tests whether students understand the **scope limitation** of the FOI Act.

WACE Q12 — Purpose of Intellectual Property in Australia *(1 mark)*

The primary intention and purpose of intellectual property in Australia, in relation to copyright and the design of digital products, is to

(a) ensure fair compensation for creators, while allowing for public access under certain conditions, such as fair use.
(b) prevent anyone from using, sharing or referencing their work in any way.
(c) automatically grant ownership of a work to whoever uploads or shares the product first.
(d) allow people to freely use copyrighted content, as long as they do not make money

from it.

Sample Answer

(a) ensure fair compensation for creators, while allowing for public access under certain conditions, such as fair use.
IP law in Australia (Section 1.1) is designed to **balance** the rights of creators with the public interest. Copyright protects creators by giving them control over how their work is used and ensuring they can receive fair compensation. However, it also allows limited public access through exceptions like fair dealing (for research, criticism, parody, and reporting). Option (b) is too absolute — IP does not prevent all use. Option (c) is incorrect — copyright belongs to the **creator**, not the first uploader. Option (d) is wrong — non-commercial use without permission still constitutes infringement (Section 1.2).

WACE Q14 — Evaluating Research Sources ***(1 mark)***

Alex and Jo are investigating the impact of artificial intelligence on the job market for a school project. In their research, they come across the following sources: a research paper published five years ago, a social media post with high engagement, a blog by a freelance writer with industry experience, and a government report released last month.
Which of the following strategies would **best** support the reliability, accuracy and currency of their research?

(a) Prioritise the blog, as the writer has relevant experience and presents a detailed argument.
(b) Focus on the social media post, since its popularity suggests broad agreement and visibility.
(c) Use the recent government report and verify its information against other reputable sources.
(d) Treat all sources equally to ensure a balanced and comprehensive understanding.

Sample Answer

(c) Use the recent government report and verify its information against other reputable sources.
Government reports are **authoritative, peer-reviewed, and institutionally accountable** — making them more reliable than blogs or social media posts. The report was also released last month, making it **current**. Cross-referencing with other reputable sources (e.g. the five-year-old research paper for historical context) ensures **accuracy**. Social media popularity (b) does not indicate reliability. Treating all sources equally (d) ignores quality differences. While this question is not purely an "Impacts of Technology" topic, it tests critical evaluation of digital information — a key skill when assessing claims about technology's societal impacts.

Section Three — Extended Answer: Executive Gaming Studios (EGS)

Scenario summary: Executive Gaming Studios (EGS) develops the online game 'SupremeQuest.' They employ 10 international remote staff and 15 Australian employees (hybrid work).

They use cloud-based applications and manage sensitive data (login credentials, banking details, player profiles). A disgruntled player has spread false accusations of match tampering and theft against an Australian tournament manager on social media.

WACE Q24(b) — Intellectual Property Protection for EGS ***(8 marks)***

Describe the concept of intellectual property (IP) and discuss how its intention and purpose in Australia can protect EGS's IP, using **two** examples from the scenario.

Sample Answer

Concept of IP: Intellectual property refers to legal rights that protect creations of the mind (Section 1.1). In Australia, IP law is intended to ensure creators and businesses can control and benefit from their original work, while balancing public interest through limited exceptions. IP does not protect ideas themselves — only their tangible expression.
Example 1 — Copyright protecting the game 'SupremeQuest': The game's source code, visual assets (character designs, animations), soundtrack, and storyline are all original creative works automatically protected by **copyright** under the *Copyright Act 1968* (Section 1.2). This means competitors cannot copy the game's code, replicate its characters, or reproduce its music without EGS's permission. Copyright protection encourages EGS to continue investing in game development, knowing their creative work cannot be legally stolen. If infringement occurs, EGS can pursue civil action for damages and injunctions to remove copied content.
Example 2 — Trademark protecting the EGS brand and merchandise: EGS has developed branded merchandise featuring key characters and the company logo. The company name "Executive Gaming Studios," the game name "SupremeQuest," and the company logo can be protected as **registered trademarks**. This prevents competitors from creating merchandise with similar branding that could confuse consumers or damage EGS's reputation. Trademark protection ensures EGS maintains exclusive control over its brand identity across international tournament promotion, merchandise sales, and marketing materials.

WACE Q24(c) — Virtual Collaboration: Advantage and Disadvantage ***(8 marks)***

Discuss **one** advantage and **one** disadvantage of virtual collaboration and the implications for EGS.

Sample Answer

Advantage — Access to global talent and flexible working: Virtual collaboration allows EGS to employ 10 international staff across different countries for game development, global marketing, and tournament coordination without requiring physical relocation. This gives EGS access to a **global talent pool** — they can hire the best game developers, marketers, and tournament coordinators regardless of geographic location. International staff work remotely full-time, and Australian employees can work from home three days a week, reducing office costs and improving work-life balance. Cloud-based tools (for file sharing, communication, and analytics) enable real-time co-editing and version control across time zones. The implication for EGS is that they can scale their operations

internationally without the cost of establishing physical offices in multiple countries — critical for a company managing global tournaments and a worldwide fan base.
Disadvantage — Communication challenges and security risks: With 25 staff spread across multiple countries and time zones, virtual collaboration creates significant communication challenges. Text-based communication (Slack, email) loses the nuance of face-to-face interaction — tone can be misinterpreted, and spontaneous creative brainstorming is harder to replicate virtually. The recent reputation crisis (false accusations against the tournament manager) could have been managed more effectively with in-person meetings where non-verbal cues and immediate discussion would facilitate faster decision-making. Additionally, relying on cloud-based applications for sensitive data (login credentials, banking details, player profiles) introduces **security risks** — if a remote employee's device is compromised, it could expose confidential company and player data. The implication for EGS is that they must invest in robust cybersecurity measures, encrypted communication tools, and regular team-building activities (virtual or periodic in-person meetups) to maintain team cohesion and protect sensitive information.

WACE Q24(d) — Code of Conduct for EGS ***(7 marks)***

Due to the expansion of its business, the management of EGS has decided to review the code of conduct for employees. Explain the purpose of a code of conduct and describe **two** elements that should be included in the code for EGS.

Sample Answer

Purpose: A code of conduct is a formal document that establishes the expected standards of behaviour, ethical principles, and professional responsibilities for all employees within an organisation. It provides a clear framework for decision-making, ensures consistency across the workforce, protects the organisation's reputation, and gives management a basis for addressing misconduct. For EGS, with staff spread internationally and working remotely, a code of conduct is particularly important because employees operate with greater autonomy and less direct supervision — clear guidelines ensure consistent professional standards across all locations.
Element 1 — Confidentiality and data handling: Given that EGS manages sensitive data including player login credentials, banking details for tournament winnings, and proprietary game code, the code of conduct should include strict rules about handling confidential information. Employees must not share proprietary game data, player information, or internal business strategies externally. This is especially important for remote international staff who access company systems from personal devices and home networks. This element connects to both **IP protection** (Section 1.1 — trade secrets) and data security obligations.
Element 2 — Social media and public communication: The recent crisis caused by a player spreading false accusations highlights the need for clear guidelines on how employees represent EGS publicly. The code should specify that employees must not make public statements (on social media or otherwise) about company matters, tournament outcomes, or internal investigations without authorisation. Employees should also be prohibited from engaging publicly with defamatory content, as responding improperly could escalate the situation or expose EGS to further reputational damage. This element connects to the concepts of **online defamation** (Section 1.3) and professional responsibility.

WACE Q24(g) — Online Defamation: Legal Action Against False Accusations *(6 marks)*

EGS and the accused tournament manager would like to take legal action against the player who has made false accusations against them. State whether EGS and the tournament manager would be successful in taking legal action, based on the concept of online defamation in Australia. Justify your answer.

Sample Answer

The tournament manager would likely be successful; EGS's success depends on its size.

The tournament manager (individual): The tournament manager has strong grounds for a defamation claim. All key elements of online defamation are met (Section 1.3):

- **Publication:** The false accusations were posted on social media, making them visible to the public (the gaming community and beyond).
- **Identification:** The player specifically accused "an Australian tournament manager" — the person is identifiable within the EGS community.
- **Serious harm:** The allegations of match tampering and theft are serious criminal accusations that damage the manager's professional reputation. Two top-tier players threatened to withdraw unless the manager was removed — demonstrating real reputational harm.
- **Falsity:** EGS conducted a full investigation and confirmed the allegations were baseless — the statement is false, and truth (the primary defence) cannot be invoked by the player.

The manager should first issue a **concerns notice** (Section 1.4) requesting removal and retraction. If the player does not comply within 28 days, the manager can pursue a **civil lawsuit** seeking damages and an injunction to remove the posts.

EGS (the company): Under the **Model Defamation Provisions**, corporations with **10 or more employees** generally **cannot** sue for defamation. EGS employs 25 staff (10 international + 15 Australian), which likely exceeds the threshold. However, EGS may still pursue other legal avenues such as the *Australian Consumer Law* (for misleading conduct) or the tort of injurious falsehood (which requires proof of economic loss). If EGS is classified as having fewer than 10 employees in a specific jurisdiction or entity structure, it could potentially bring a defamation claim — but this would require legal advice on the corporate structure.

Applied Information Technology

ATAR Year 12

Chunk 5 — Weeks 11–14

Project Management

Sunshine Grammar School

2026

1

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1

1.1 Project Management Approach: Prototype

Definition — Prototype Approach (Iterative)

The **Prototype approach** involves building a working model early in the process, then repeatedly testing, gathering client feedback, and refining it through multiple cycles until the final product meets requirements. It is **flexible, iterative, and client-inclusive**.

Process: Requirements → Build Prototype → Client Review → Revise → (repeat) → Final Delivery

Advantages: Reduces risk of building the wrong product; client sees progress early; problems caught before full development.

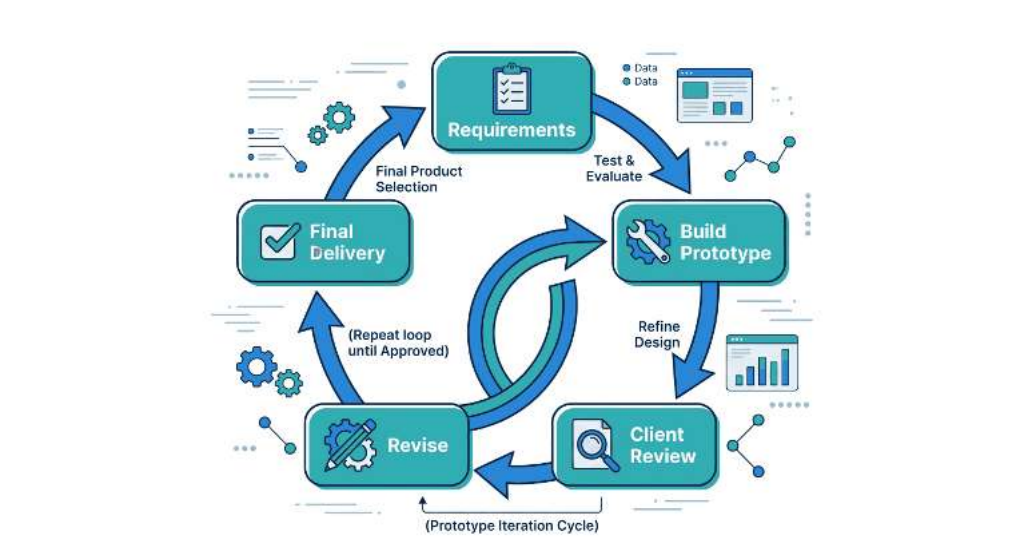
Disadvantages: Can cause "scope creep"; difficult to estimate cost/time upfront; requires consistent client availability.

Best for: Creative digital products (websites, apps, interactive media) where requirements are unclear or likely to evolve.

Example

A local café asks a student to build a new website. Because the café owner isn't sure what they want it to look like, the student uses the **Prototype approach** — quickly building a basic homepage, getting feedback, revising the colour scheme and layout, and after three revision cycles both parties are satisfied with the result.

Image — 5_1_prototype_approach



1.2 Project Management Approach: Structured (Waterfall)

Definition — Structured Approach (Waterfall)

The **Structured approach** involves completing the project in a **fixed, sequential sequence of phases** — each phase must be fully completed and approved before the next begins. Requirements are defined thoroughly upfront. It is **predictable, well-documented, and rigid**.

Process: Requirements Analysis → Design → Development → Testing → Delivery/Maintenance

Advantages: Clear milestones; easier to estimate costs and timelines; strong documentation.

Disadvantages: Inflexible; expensive to change requirements after development begins; client doesn't see a product until late.

Best for: Large-scale, well-defined projects with stable requirements.

Factor	Use Prototype	Use Structured
Requirements	Unclear, likely to change	Clear and fixed
Client input	High, ongoing	Beginning and end only
Project type	Creative, UI-focused	Technical, data-driven
Timeline	Flexible	Fixed deadlines

Example

A hospital commissions a **patient records database** with strict legal and security requirements. The **Structured approach** is used — all requirements are locked in

upfront, and the project follows a strict sequence ensuring every regulatory requirement is met before the next phase begins.

Image — 5_2_structured_waterfall_approach

Place $5_2 structured_w aterfall_a pproach.png in the$ `images/` *folder.*

1.3 Planning Tool: Storyboards

Definition — Storyboards

A **storyboard** is a sequence of visual sketches arranged in order to plan the content, layout, and flow of a digital product — particularly video, animation, interactive media, or website user journeys. They show: the sequence of screens/scenes, content on each screen, transitions, user interactions, camera angles, and narration.

Purpose: Communicate plans to clients; identify logical problems early; provide a shared visual reference; serve as formal project documentation.

Example

A student planning a 3-minute promotional video for Open Day creates a 12-frame storyboard. Each frame shows a sketch of the camera shot, notes on narration and music for that moment, and shot duration. Before filming anything, the teacher and student review the storyboard and agree the sequence is logical and complete.

Image — 5_3_storyboards

Place $5_3 storyboards.png in the$ `images/` *folder.*

1.4 Planning Tool: Site Maps

Definition — Site Maps

A **site map** is a hierarchical diagram showing the complete structure of a website or application — all pages, their names, and how they are connected through navigation. It is the "blueprint" of the website's information architecture.

Structure: Home page at the top → Main navigation pages branch below → Sub-pages branch further below → Utility pages noted separately.

Purpose: Ensure no pages are missing or orphaned; plan navigation structure before coding; help clients understand full scope; form part of project documentation.

Example

Before building a sports club website, the student creates a site map: Home → About the Club → (Team Roster, Season Schedule, Training Times) → News → Gallery → Contact.

This clarifies structure before a single line of code is written.

Image — 5_4_site_maps

Place $5_4 site_m aps.png in the \texttt{images/} folder.

1.5 Planning Tool: Flowcharts

Definition — Flowcharts

A **flowchart** uses standardised symbols to represent the steps, decisions, and logic of a process in sequential visual format.

Symbol	Shape	Meaning
Start/End	Oval	Marks beginning or end of a process
Process	Rectangle	A step or action taken
Decision	Diamond	A yes/no question that branches the flow
Data	Parallelogram	Data entering or leaving the system
Connector	Circle	Links parts of the flowchart across pages
Arrow	Line	Shows direction of flow

Purpose: Plan interactive features; identify all user pathways; document decision logic; troubleshoot logical errors.

Example

A student designing an online quiz flowcharts the logic: Start → Display Question → User selects answer → Is it correct? → Yes: Show "Correct!" → No: Show "Try Again" → More questions? → Yes: loop back → No: Display final score → End.

Image — 5_5_flowcharts

Place $5_5 flowcharts.png in the \texttt{images/} folder.

1.6 Planning Tool: Gantt Charts

Definition — Gantt Charts

A **Gantt chart** is a horizontal bar chart used to visualise a project's schedule — showing all tasks, their durations, sequence, and start/end dates on a timeline.

Key components: Tasks listed vertically; timeline running horizontally; horizontal bars representing task duration; dependency arrows showing task order; milestone diamonds marking key deadlines; progress shading showing completion percentage.

Purpose: At-a-glance project schedule view; identify if on/ahead/behind schedule; show overlapping or parallel tasks; communicate timeline to stakeholders.

Example

A student creating a digital magazine plots a Gantt chart over 6 weeks: Week 1 — Research; Week 2 — Design template; Weeks 3–4 — Create content; Week 4 — Peer feedback; Week 5 — Revisions; Week 6 — Export and submit. The chart immediately shows that a delayed template in Week 2 pushes everything else back.

Image — `5_6_gantt_charts`

Place `5_6_gantt_charts.png` in the `images/` folder.

1.7 Planning Tool: Project Management Software

Definition — Project Management Software

Project management software helps teams plan, track, and collaborate on projects in an organised, centralised platform.

Tool	Key Features	Best For
Trello	Kanban boards, draggable cards	Visual task management, small teams
Asana	Task lists, timelines, dependencies	Medium-sized teams
Microsoft Project	Gantt charts, resource/budget tracking	Large, complex projects
Notion	Docs, databases, task boards, wikis	Documentation + project management
Jira	Issue tracking, sprints, agile boards	Software development teams

Benefits: Centralises project information; enables real-time collaboration; automatic deadline reminders; generates progress reports; maintains a digital audit trail.

Example

Four students use **Trello** to manage their AIT digital product project. Three columns: "To Do", "In Progress", "Done". Each task is a card with an assignee, due date, and attached files. The teacher monitors progress at any time without asking for updates.

Image — `5_7_project_management_software`

Place `5_7_project_management_software.png` in the `images/` folder.

1.8 Design Consideration: Structure

Definition — Structure

Structure refers to how content, information, and components of a digital product are organised and interconnected — its information architecture. A well-structured product has a clear logical hierarchy where users always understand where they are, how they got there, and where they can go next.

Example

A well-structured school website groups all student-facing content under "Students" in navigation, all parent-facing content under "Parents", and ensures key information (contact details, term dates) is reachable in no more than two clicks from the homepage.

Image — `5_8_structure_consideration`

Place `5_8_structure_consideration.png` in the `images/` folder.

1.9 Design Consideration: Usability in Project Planning

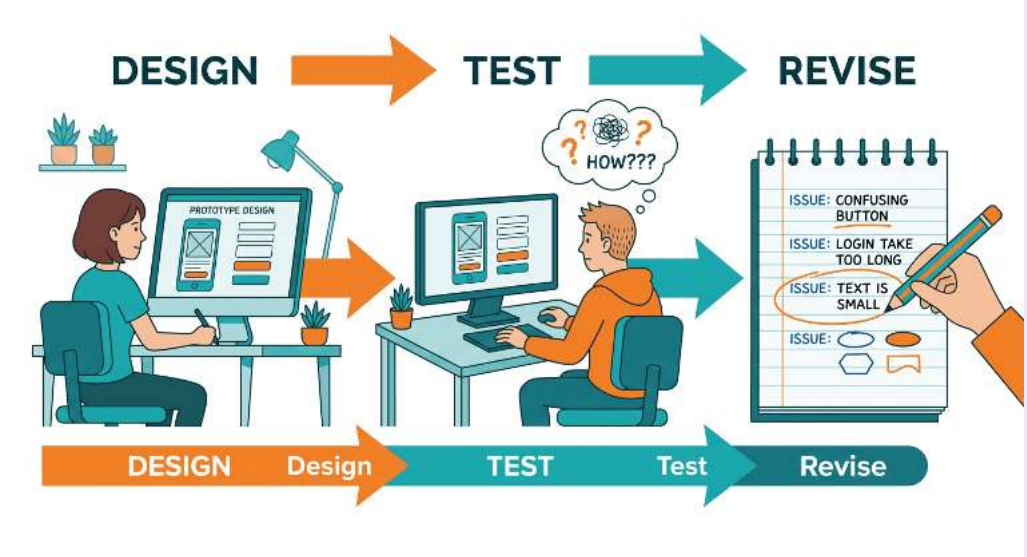
Definition — Usability in Project Planning

In project management, **usability** must be actively planned and tested throughout the development lifecycle — not just at the end. Usability must be addressed at: the **design stage** (creating intuitive layouts), **development stage** (clear error messages, help features), and **testing stage** (conducting usability testing with real users).

Example

During testing of an online enrolment form, a student discovers users are frequently confused by a question using technical jargon. Identifying this usability issue during the project allows the team to rewrite the question in plain English before the final product is delivered.

Image — 5_9_usability_project_planning



1.10 Design Consideration: Accessibility in Project Planning

Definition — Accessibility in Project Planning

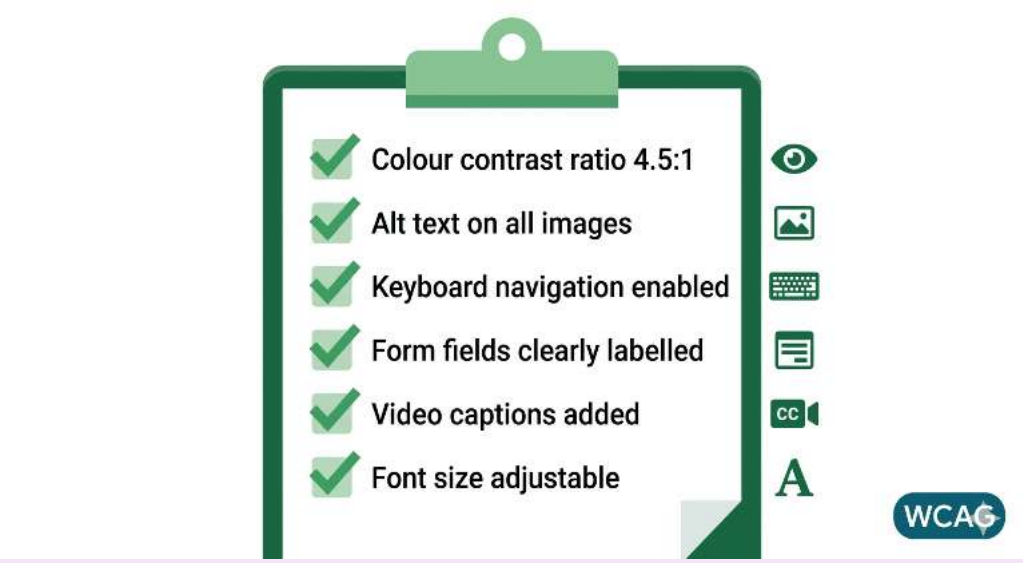
Accessibility in project planning means deliberately designing and building the product so that people with disabilities can use it — from the very first design decision. The key standard is **WCAG (Web Content Accessibility Guidelines)** with compliance levels A, AA, and AAA.

Accessibility planning decisions include: alt text for all images; sufficient colour contrast ratio (minimum 4.5:1 for normal text); full keyboard navigation; clearly labelled form fields; video captions.

Example

During the design phase of a government information website, the team creates an accessibility checklist and runs the prototype through an automated checker (WAVE or Axe). They discover the navigation menu is not keyboard-accessible and fix it during development.

Image — 5_10_accessibility_project_planning



1.11 Design Consideration: User Experience (UX)

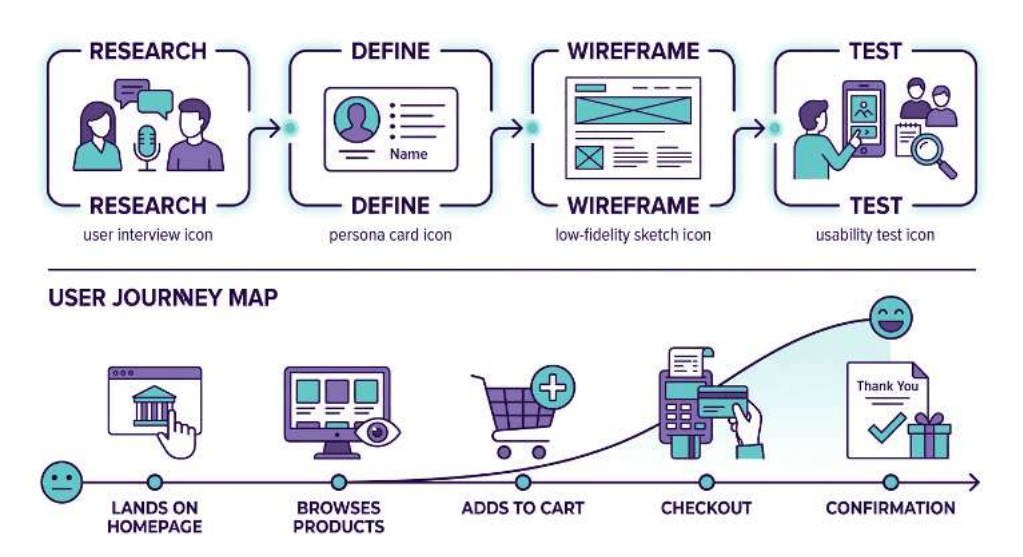
Definition — User Experience (UX)

User Experience (UX) refers to the overall experience a person has when interacting with a digital product — every emotional, cognitive, and practical dimension. UX considerations include: user research, user journeys, information architecture, emotional design, error handling, and feedback mechanisms. UX is the strategic foundation that UI design is built upon.

Example

Before designing a school canteen ordering app, the UX designer interviews 10 students and discovers they find the wait time uncertainty frustrating. The designer incorporates a **real-time wait time indicator** — a feature driven directly by user research.

Image — 5_11_user_experience_ux



1.12 Design Consideration: User Interface (UI)

Definition — User Interface (UI)

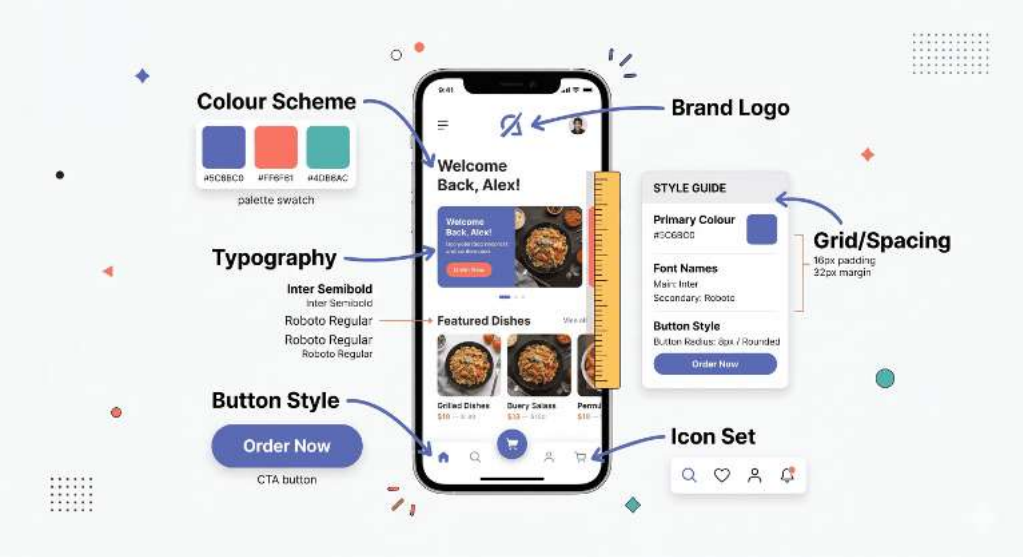
User Interface (UI) refers to the visual and interactive design of the digital product — the specific elements a user sees and interacts with on screen. While UX defines *what* needs to happen and *why*, UI defines *how* it looks and feels.

	UX	UI
Focus	How product works and feels	How product looks
Concerns	Research, journeys, logic, flow	Colours, fonts, buttons, layout
Output	Wireframes, user flows, personas	High-fidelity mockups, style guides
Analogy	Architectural plan of a building	Interior decoration and finishes

Example

A UX designer determines the checkout process needs three steps with a progress indicator. The UI designer then designs those three screens with: a clean white layout, large clearly labelled input fields, a contrasting blue “Continue” button, and a green tick when each step is completed.

Image — 5_12_user_interface_ui



Test Questions — Chunk 5: Project Management

Q1 — Multiple Choice

A student builds a website for a charity unsure about what they want. Which approach is MOST appropriate?

A) Structured approach — clear milestones
B) Prototype approach — iterative feedback and revision
C) Structured approach — documents requirements upfront
D) Prototype approach — guarantees lower cost

Q2 — Short Answer

Explain the purpose of a Gantt chart and identify THREE pieces of information it communicates.

Sample Answer

A Gantt chart visually represents a project's schedule. Three pieces of information: (1) **Task names and sequence.** (2) **Start and end dates** for each task. (3) **Task dependencies** — which tasks cannot start until a preceding task is complete.

Q3 — True or False

A site map and a flowchart serve the same purpose.

FALSE — A site map shows hierarchical page structure and navigation. A flowchart shows the logical steps and decision points of a process or algorithm.

Q4 — Short Answer

Distinguish between UX and UI design. Give ONE example of a design decision belonging to each.

Sample Answer

UX focuses on the overall experience — research, user journeys, and logic. Example: "Checkout reduced to three steps based on user research showing multi-step checkouts cause cart abandonment."

UI focuses on visual presentation. Example: "The 'Confirm Order' button will be green with white text, positioned bottom-right of each checkout screen."

Q5 — Multiple Choice

What BEST describes what a storyboard is used for?

A) Tracking task completion over time B) Mapping hierarchical page structure
C) Visualising the sequence of screens or scenes before development begins
D) Documenting server infrastructure specifications

Q6 — Short Answer

Explain how Structure, Accessibility, and UX should each be considered when developing an online learning platform for Year 7 students.

Sample Answer

Structure: Simple hierarchy — dashboard → subject tiles → lessons/quizzes, never more than two clicks from home.

Accessibility: Sufficient colour contrast, alt text on images, options to increase font size, avoid colour-only indicators for correct/incorrect answers.

UX: Encouraging feedback messages, progress bars showing unit completion, friendly error messages — based on understanding what Year 7 students find engaging.

Q7 — Multiple Choice

In a flowchart, which symbol represents a decision point?

A) Rectangle B) Oval C) Parallelogram **D) Diamond**

WACE 2025 Exam Practice — Project Management Topics

*The following questions are drawn from the **2025 WACE Applied Information Technology ATAR Examination** and relate directly to the Project Management topics covered in this chunk: prototype vs structured approaches, planning tools (storyboards, site maps, flowcharts, Gantt charts), design considerations (structure, usability, accessibility, UX/UI), and browser compatibility testing. Use these to practise exam-style responses.*

Section One — Multiple Choice

WACE Q4 — Storyboards in Web Development ***(1 mark)***

In a website development project, which tool would you use to visually present user experiences from the user's perspective, such as animations, button clicks and page transitions?

(a) site map
(b) storyboard
(c) Gantt chart
(d) flow chart

Sample Answer

(b) storyboard.
A **storyboard** (Section 1.3) visually presents user experiences frame by frame — showing how animations play, what happens when buttons are clicked, and how page transitions appear, all from the user's perspective. A site map (a) shows page hierarchy (Section 1.4), not user experience. A Gantt chart (c) tracks project timelines (Section 1.6). A flowchart (d) shows logical process steps and decisions (Section 1.5). The key distinction is that storyboards are the only tool that shows *what the user sees and experiences* sequentially.

WACE Q13 — Roles of Site Maps, Gantt Charts, and Flowcharts ***(1 mark)***

Which of the following statements articulate correctly the roles site maps, Gantt charts and flow charts play in project planning?

(a) site maps are used for time management, Gantt charts for website navigation and flow charts for tracking project progress
(b) Gantt charts are best for scheduling tasks over time, flow charts show the sequence of processes and site maps represent the structure of a website
(c) flowcharts track project deadlines, site maps outline task dependencies and Gantt charts map out website navigation
(d) site maps visualise decision-making processes, Gantt charts help plan task timelines and flowcharts outline website structures

Sample Answer

(b) Gantt charts are best for scheduling tasks over time, flow charts show the sequence of processes and site maps represent the structure of a website.
This correctly identifies the distinct role of each planning tool: **Gantt charts** (Section 1.6) visualise project schedules with task bars along a timeline, showing durations, dependencies, and milestones. **Flowcharts** (Section 1.5) use standardised symbols (ovals, rectangles, diamonds) to map sequential processes with decision points. **Site maps** (Section 1.4) show the hierarchical page structure and navigation architecture of a website. All other options incorrectly swap the roles — a common exam trap designed to test whether students can precisely distinguish between these three tools.

Section Two — Short Answer

WACE Q19 — Prototype vs Structured Approaches *(6 marks)*

Explain **two** differences between the prototype and structured project management approaches on the development process.

Sample Answer

Difference 1 — Flexibility vs rigidity in development: The **prototype approach** (Section 1.1) is iterative and flexible — a working model is built early and then repeatedly refined through cycles of client feedback and revision. The development process loops back on itself, with requirements evolving as the client sees each version. In contrast, the **structured (waterfall) approach** (Section 1.2) follows a fixed, sequential process where each phase (requirements, design, development, testing, delivery) must be fully completed before the next begins. Once a phase is approved, returning to it is expensive and disruptive. This means prototype is better suited to projects where requirements are unclear (e.g. a creative website), while structured is better for projects with well-defined, stable requirements (e.g. a hospital database).
Difference 2 — Client involvement throughout vs at endpoints only: In the prototype approach, the client is **actively involved throughout** the development process — they review each iteration, provide feedback, and approve changes at every cycle. This reduces the risk of delivering a product that doesn't meet their needs. In the structured approach, client involvement is concentrated at the **beginning** (defining requirements) and the **end** (accepting the final product). The client does not see a working product until late in the process, which means if their expectations were misunderstood during the requirements phase, the error is only discovered after significant development effort has been invested — making corrections far more costly.

WACE Q22 — Browser Compatibility Testing *(4 marks)*

Describe **two** ways of testing and evaluating an online application for browser compatibility.

Sample Answer

Way 1 — Manual cross-browser testing: The development team opens the online application in multiple web browsers (Chrome, Firefox, Safari, Edge) on different operating systems (Windows, macOS, iOS, Android) and systematically checks that all features work correctly. They verify that the layout renders consistently, buttons function as expected, forms submit properly, media plays without errors, and responsive design adapts to different screen sizes. This method directly relates to the **testing stage** of both prototype and structured approaches (Sections 1.1–1.2) — it is a form of usability testing (Section 1.9) applied specifically to browser environments.

Way 2 — Automated browser testing tools: Using online platforms such as BrowserStack, LambdaTest, or CrossBrowserTesting, the team can automatically render the application across hundreds of browser/OS/device combinations without needing physical access to each one. These tools generate screenshots and reports highlighting visual differences, broken elements, or functionality failures across browsers. This is more efficient than manual testing for large applications and ensures comprehensive coverage. The results feed back into the development cycle — in a prototype approach, issues found lead to a revision cycle; in a structured approach, they are resolved during the formal testing phase before delivery.

Section Three — Extended Answer: Executive Gaming Studios (EGS)

Scenario summary: EGS develops the online game 'SupremeQuest' with 25 staff across multiple countries. They use cloud-based applications and are exploring cloud server upgrades. They need to sign a new service level agreement (SLA) with a cloud provider.

WACE Q24(a) — Data Security Measures for EGS ***(4 marks)***

Describe **two** data security measures EGS should implement to protect data.

Sample Answer

Measure 1 — Encryption of sensitive data: EGS should implement **end-to-end encryption** for all sensitive data — including player login credentials, banking details for tournament winnings, and player profiles — both in transit (using TLS/SSL when data moves between devices and servers) and at rest (encrypting stored data on cloud servers). This ensures that even if data is intercepted during transmission or a server is compromised, the information remains unreadable without the decryption key. This is a critical security consideration for the project planning phase (Section 1.10) — accessibility and security must be designed into the system from the start, not added as an afterthought.

Measure 2 — Multi-factor authentication (MFA): EGS should require **multi-factor authentication** for all employee access to cloud-based applications, databases, and administrative systems. MFA requires users to verify their identity through two or more methods (e.g. password plus a one-time code sent to their phone). This is especially important given that 10 international staff work remotely and access company systems from various locations and devices. Even if a password is compromised through phishing or a data breach, MFA prevents unauthorised access. This measure should be included in

the project's design consideration for structure (Section 1.8) — security architecture is part of the system's information architecture.

WACE Q24(e) — Service Level Agreement (SLA) Features *(8 marks)*

EGS have decided to go with another provider for their cloud services and will need to sign a new service level agreement (SLA). Discuss the importance of the following features of a SLA for both EGS and the cloud service provider.

Sample Answer

Availability of service: The SLA should specify a guaranteed **uptime percentage** (e.g. 99.9% or 99.99%) for the cloud services. For EGS, this is critical because their game 'SupremeQuest' operates globally with thousands of daily subscribers — any downtime directly affects player experience, tournament scheduling, and online store revenue. Even 0.1% downtime translates to approximately 8.7 hours per year of service interruption. The SLA should also define **penalties or service credits** if the provider fails to meet the agreed uptime — giving EGS financial recourse and incentivising the provider to maintain reliability. For the cloud provider, clearly defining availability expectations protects them from unreasonable claims — they commit to a specific, measurable standard rather than an implied "always available" expectation. This connects to project planning because selecting the right cloud infrastructure is a design consideration for structure (Section 1.8) — the system architecture must be built on a reliable foundation.

Type of services: The SLA must clearly specify **exactly which services** the provider will deliver — including: cloud server hosting (for game data, website, and online store), database management (customer, employee, and tournament records), data backup and disaster recovery, security services (firewalls, intrusion detection), and technical support levels (24/7 vs. business hours, response time guarantees). For EGS, clearly defining service types ensures they receive everything needed to run their operations without unexpected additional costs. It prevents disputes over whether a particular service (e.g. automatic backups, DDoS protection) is included or requires additional payment. For the provider, specifying service types sets clear boundaries on their obligations — they know exactly what they must deliver and can price accordingly. Vague or undefined service types could lead to EGS expecting services the provider never intended to include, causing conflict and potentially disrupting EGS's operations during a critical business expansion period.

WACE Q24(f) — Cloud Computing Issues for EGS *(8 marks)*

Discuss the impact that the following issues associated with cloud computing might have on EGS.

Sample Answer

Confidentiality of data: EGS stores highly sensitive data on cloud servers — including player login credentials, banking details for tournament winnings, player profiles, and ranking information. Hosting this data on a third-party cloud provider means EGS is entrusting confidentiality to an external organisation. If the provider experiences a

data breach, EGS's players' personal and financial information could be exposed, leading to: loss of player trust (potentially causing subscribers to leave), legal liability under Australian privacy law, financial penalties, and severe reputational damage — particularly damaging given they are already managing a reputation crisis from the false accusations incident. EGS must ensure the SLA includes strict data confidentiality clauses, specify where data is geographically stored (important for compliance with Australian data sovereignty requirements), and require the provider to notify EGS immediately of any breach. This is a critical project planning consideration — data confidentiality must be designed into the system architecture from the beginning (Section 1.8), not treated as an optional add-on.

Availability of online applications: EGS relies on multiple cloud-based applications for administration, communication, file sharing, analytics, and database management. If the cloud provider experiences outages, EGS's operations grind to a halt — international staff cannot access development tools, Australian employees cannot manage marketing or merchandise distribution, tournament coordination is disrupted, and the online store becomes inaccessible to customers. For a company with a global fan base and regular international tournaments, even brief outages during peak events (e.g. a major tournament) could cause significant revenue loss and player dissatisfaction. The impact is amplified because EGS has no local fallback — they have fully committed to cloud-based operations. To mitigate this, EGS should ensure the SLA guarantees high availability (99.99%+), includes redundancy and failover provisions, and specifies compensation for downtime. They should also consider a multi-cloud strategy (using a secondary provider as backup) to avoid single-provider dependency — a structural design decision (Section 1.8) that builds resilience into the system architecture.