



This represents a bite-sized selection of key theory for your forthcoming GCSE ICT exam. It is the bare-minimum you MUST be able to remember before the exam. Ideally read over all powerpoints on Resources drive.

Data / Info / Knowledge	<p>Data: Raw, unprocessed figures (e.g 180516) Info: Data given structure, setting and meaning (e.g Exam Date: 18/05/16) Knowledge: Rules and other facts applied. What you learn from the information (E.g: ****! <i>I only have a 4 days left before my exam...</i>)</p>
Quality Data	Computers only process data and following instructions. Quality of output is only as good as the input and the rules (processing) applied to it. GIGO: Garbage in, garbage out. (E.g: wrong exam date could be entered to system – all kids miss exam!)
Encoding Data	Shortening / Abbreviating data (E.g: Usernames, product codes etc) Pros: Quicker to enter / Easier to check / Less memory used on system Cons: Hard to understand and interpret
Validation	Checking data entered is allowed . Methods: Range Check: Data is in specific range (E.g: Exam grades (A-F)) Format Check: Data is in correct structure (E.g: DOB: DD/MM/YY)/ Also called an Input Mask) Length Check: Data is within certain number of characters (E.g: Age only 1-3 digits – or phone number 11 digits) Presence Check: (Is data there? (present)) Check Digit: Number at end of a bar code. This number is the 'answer' to a sum that has been applied to all of the other numbers. If they have been scanned in correctly, then the sum answer and the check digit should match
Verification	Checking that data entered matches other data (used to verify email address is correct by asking user to type in twice) Methods: Double keying / entry: user types in twice Visual check / proof read Parity check / Batch total: Similar to check digit – all numbers are added up to get a total, then total of second lot of entered data is compared.
Interactive TV	Red-button more info / Pay-to-View / Shopping / Voting etc.. Pros: Allows audience to be more engaged / interested in show / increases profits for company Cons: Equipment needed / high bandwidth / difficult to use
Digital Photography	Pros: Edit photos, reduce file size, remove red-eye, crop etc..., Good quality Cons: May need expensive equipment
Web cameras	Allow chat & conferences to take place without travelling / record to watch again later. Can be used as CCTV and weather monitoring
Gaming	Pros: Play with global audience / discuss on forums / live, real time updates Cons: Lack of social interaction (withdrawn from others) / obesity / back ache
Music Downloads	Pros: More choice than high-street shop – Small files sizes – cheaper (buy single track) Cons: Can lead to piracy – hurts music industry (lack of sales)
Broadband	Pros: 'Always-on' – Does not need to connect manually. / Uses a dedicated line Cons: Not all of UK connected. Speed is different in different parts of country
Satellites	Radio receiver in space. Used to receive and transmit data around the globe. Used to track weather, broadcast TV, Internet signals. Satellite internet phones can be used in very remote places, but they are very expensive .
Cable	Tiny glass tubes 'fibres' are used to pass light signals. More expensive than copper cable (used previously) but can carry signals at much faster speeds.
GIS (Geographical Information systems)	Satellite system that can track positions on earth down to 30cm of accuracy. Pros: Used in car sat-navs , distribution lorry fleets, taxis, military. Cons: Could be used to monitor people's personal movements / lack of signal.
School MIS System. (Management Information Systems)	Administration (admin) staff and teachers use to enter attendance, grades etc. / Pros: Allows them to monitor trends in attendance, behaviour, performance. Automatically generates reports to parents – notified them if child is absent (txt sent automatically). Cons: Software can be expensive and require specific staff to use – lots of staff training needed.
VLE	Virtual Learning Environment (Eg: Moodle) Allows teachers to set work – upload files – check if work has been completed / submitted – pupils access from home if absent. Huge savings on paper – nothing is lost. Can be expensive / training.
Data Logging / Control Sensors	Temperature / Pressure / Movement / Light sensors etc Finger prints / Iris recognition / OMR (Optical Mark sheets) for registers multi choice exams.

Weather Forecasting	Satellites and smaller logging machines on high ground monitor movement (speed and direction) of clouds, temperature readings – helps predict weather
Devices for disabilities	Braille Keyboard: Allows blind to type / Braille Printer: Prints (punches) braille dots into paper. Foot-mouse: Allows feet to control mouse movement & selection. Blow-Suck Switch: – Inhale / exhale on tube to control mouse.
Software for disabilities	Screen Reader: Reads out screen contents to blind / Screen magnifier – Alter contrast / sticky keys (allows multiple key-presses without using hands) / Adjust sensitivity of mouse.
Data Types	Text (any words, numbers), Currency , Boolean (any two values e.g: Yes / No)
Key field	A unique field in a database (E.g username or product code)
Data integrity	Ensuring data is trustworthy , accurate and up-to-date.
Password Protocol	Recommended settings for passwords (E.g: a mixture of letters and numbers) pa3zw0rd /Should be changed regularly / don't write it down etc...
Email Features	Send to more than one person (saves time / ensure all get the same message) Include attachments (save on postage costs) Signature (a section with contact details included at the end of an email) Cc: Carbon / Courtesy copy (Copy in someone else to the email out of politeness) bcc: Blind carbon copy: No-one else knows other person is copied in Forwarding: Forward all contents saving time having to re-type (more accurate) Emails also provide a record of when sent and received / opened
Database features	Used to store data. Easy to do complex searches and save search criteria for future use. Filtering on specific criteria. Produce Reports (printouts) of results. Also used for mail merge. Columns (down) are known as fields . Rows are the records .
Database Search Criteria	< Less Than > More than <> Not Equal to
Spreadsheet Features	Formula: More accurate and less time consuming than manual arithmetic. Relative formula: Formula copied using fill handle alters based on new row Absolute formula: Dollar sign around cell \$A\$3 - means it will stay the same if copied to other rows. General benefits of spreadsheet: Automatically recalculate, allow charts to represent data, used to predict outcomes, What-if scenarios
Wordprocessing features	Mailmerge: Takes one letter and a database of people and merges the two together. The database fields are inserted into the letter as 'merge fields' Pros: Quicker than creating each letter individually, ensures all people receive the same information. Cons: A mistake on master letter will be received by all people.
Desk Top Publishing (DTP) features	Used to create newspapers, letters brochures. Can allow text to spill over multiple pages. Text can be aligned in columns easy. Items can be placed in the area 'off-page' (around the edges of the screen)
Web / multimedia terms	URL : (Uniform Resource Locator) a webaddress Megapixel: A million pixels (increases detail in an image, but increases download time and file size) Vector graphic: Line drawings / graphics – made up from mathematical co-ordinates. Re-draws itself when enlarged – keeps crisp quality. Bitmap graphic: Photographic images can contain lots of colour. Made up from individual pixels – blurs when enlarged mp3: a compressed sound file.
On-line shopping	E-Commerce: The buying and selling of goods and services on the internet. Pros (for customer): can buy 24 hours a day / 365 days a year – Huge worldwide choice / often cheaper. Cons: Cannot judge (feel) quality of items before buying, may be sent wrong item and have to return / credit card fraud. Pros (for business): Can sell to worldwide customer base / don't have to rent expensive high-street shop (can run business from home) Cons: Need to hire webdesigner / customers may claim they did not receive item when they did.
Staying safe	Not giving personal details out to strangers on-line. Could be used in identity theft . Not meeting up with met people on-line unless telling others first. People can claim to be someone they are not . Try not to use inappropriate language on-line, as others could be forwarded what you say at a later date.
Health & Safety	Taking regular breaks from PC use can help avoid – Backache, headaches, eye-strain, (Repetitive Strain Injury) from repeated typing / clicking. Safety hazards to avoid are trailing cables to trip over, overloading electricity sockets, spilling water
Emerging Technologies	Anything involving items becoming smaller, more affordable, lighter, more portable mobile. Virtual Reality / Driverless Cars (GIS Controlled with sensors) / Biometric Security/ Internet enabled 'things' (fridges, cars, clothing, glasses etc)