

IT Support Fundamentals - LINCS

Vocabulary (Grades 9-12)

IT Support Fundamentals: The Complete A+ Companion

Tech for Everyone · LINCS Vocabulary Sheet

About This Resource

This vocabulary sheet applies the **LINCS strategy**, developed at the University of Kansas, to the key terms in *IT Support Fundamentals: The Complete A+ Companion* (Grades 9-12). LINCS converts abstract technical vocabulary — acronyms included — into memorable packages: a familiar-sounding word, a short story, and a picture that together anchor each definition in long-term memory.

It is written for both teachers and students working through this book. Teachers can use the finished cards for direct instruction, bell-ringers, or exam review; students preparing for coursework or the CompTIA A+ objectives can study these cards and then build their own with the blank template on the last page. The strategy is strongest when students eventually invent their own reminding words and stories.

The five LINCS steps are:

1. **List the parts** — write the term and its definition.
2. **Identify a reminding word** — find a familiar word that sounds like (part of) the term.
3. **Note a LINCing story** — write a short story that connects the reminding word to the term's meaning.
4. **Create a LINCing picture** — sketch a simple scene from the story.
5. **Self-test** — quiz yourself in both directions until recall is automatic.

Tip

How to self-test: Cover everything on the card except the term. Say the reminding word, retell the story, picture the scene, then state the definition. Then reverse it: cover the term, read only the definition, and work backward — definition, picture, story, reminding word — until the term comes to you. When both directions are quick and accurate, move on.

Chapter 1: Hardware — The Physical Computer

This chapter introduces 7 terms.

CPU

Definition: Central Processing Unit — the chip that executes instructions and performs calculations; measured by cores, threads, and clock speed in GHz.

- **Reminding word:** Central Station ("Central" in Central Processing Unit sounds like "Central Station")
- **LINCing story:** Every train in the city passes through Central Station, and how fast the station moves them decides how fast the whole city runs. Every instruction in a computer passes through the CPU — the chip that executes and calculates, rated by cores, threads, and GHz.
- **Picture idea:** A train station labeled "Central" with trains full of 1s and 0s rushing through on multiple tracks.

RAM

Definition: Random Access Memory — fast, volatile working memory that holds programs and data the CPU is actively using; contents are lost when power is removed.

- **Reminding word:** cram ("RAM" sounds like "cram")
- **LINCing story:** The night before the exam you cram facts into your head — lightning-fast to recall during the test, gone the moment you relax afterward. RAM crams in whatever the CPU is actively using, blazing fast but wiped clean the instant power is removed.
- **Picture idea:** A student cramming with a stack of books, thought bubble packed with facts that visibly evaporate when a lamp switches off.

BIOS/UEFI

Definition: Firmware stored on the motherboard that initializes hardware and starts the boot process; UEFI is the modern replacement for legacy BIOS, adding features like Secure Boot and

support for large drives.

- **Reminding word:** bio before a speech ("BIOS" sounds like "bios," short speaker biographies)
- **LINCing story:** Before the keynote speaker takes the stage, the host reads their bio, checks the mic, and cues the lights — everything is readied before the main act begins. BIOS/UEFI is the motherboard firmware that wakes the hardware and starts the boot before the operating system takes the stage.
- **Picture idea:** A host at a podium reading a "bio" card while stagehands power up lights around a curtain labeled "OS."

NVMe

Definition: Non-Volatile Memory Express — a protocol that connects SSDs directly to the PCIe bus, typically in an M.2 slot, delivering several times the speed of SATA drives.

- **Reminding word:** envy me ("NVMe" sounds like "envy me")
- **LINCing story:** "Envy me," says the little M.2 stick as it blasts down the PCIe express lane, lapping the older SATA drive several times over. NVMe plugs SSDs straight into the PCIe bus for speeds SATA can only envy.
- **Picture idea:** A tiny race car labeled "M.2" streaking down an express lane past a slow truck labeled "SATA."

RAID

Definition: Redundant Array of Independent Disks — combining multiple physical drives into one logical volume for speed (RAID 0), redundancy (RAID 1), or both.

- **Reminding word:** raid party in a game ("RAID" sounds like "raid")
- **LINCing story:** In an online raid, separate players join into one squad — some builds maximize speed and damage, others exist as backup healers so no one is lost. RAID joins separate drives into one volume: RAID 0 for speed, RAID 1 for backup redundancy.
- **Picture idea:** Four hard drives drawn as game characters standing together under one team banner.

POST

Definition: Power-On Self-Test — the firmware's hardware check at startup; failures are reported through beep codes, indicator LEDs, or on-screen error messages before the OS ever loads.

- **Reminding word:** guard post ("POST" sounds like "post")
- **LINCing story:** The guard at the front post inspects everyone at the start of each shift and radios in a coded alarm the moment something fails inspection. POST inspects the hardware at power-on and reports failures with beep codes, LEDs, or error messages before the OS ever loads.
- **Picture idea:** A guard booth labeled "POST" checking a line of components (RAM stick, keyboard, drive) with a checklist.

troubleshooting methodology

Definition: CompTIA's six-step process: identify the problem; establish a theory of probable cause; test the theory; establish and implement a plan of action; verify full functionality and implement preventive measures; document findings, actions, and outcomes.

- **Reminding word:** sharpshooter ("shoot" in "troubleshooting" sounds like "sharpshooter")
- **LINCing story:** A sharpshooter never sprays shots at trouble — spot the target, form a theory about the wind, test with one round, adjust the plan, confirm the hit, log it in the range book. The troubleshooting methodology aims the same six disciplined steps at every problem: identify, theorize, test, plan and act, verify, document.
- **Picture idea:** A marksman at a range aiming at a target labeled "the problem," with a six-line checklist pinned beside the lane.

Chapter 2: Networking — Connecting Everything

This chapter introduces 8 terms.

packet

Definition: A small unit of data sent over a network, containing a header (source and destination addresses, sequencing info) and a payload (the actual data being delivered).

- **Reminding word:** ketchup packet ("packet" sounds like "packet")
- **LINCing story:** A ketchup packet is small, labeled on the outside, with the actual goods sealed inside. A network packet is the same: a small unit with a header outside (addresses and sequence numbers) and the payload — the real data — inside.
- **Picture idea:** A ketchup packet whose label reads "From: 192.168.1.5 / To: 10.0.0.9" with binary sauce inside.

TCP

Definition: Transmission Control Protocol — a connection-oriented transport protocol that establishes a session, acknowledges delivery, and retransmits lost packets, guaranteeing data arrives complete and in order.

- **Reminding word:** TLC ("TCP" sounds like "TLC" — tender loving care)
- **LINCing story:** TCP handles your data with TLC: it calls ahead to set up the connection, gets a signed acknowledgment for every delivery, and re-sends anything that goes missing — so everything arrives complete and in order.
- **Picture idea:** A delivery driver in a heart-stamped "TLC" uniform collecting a signature for a numbered box.

port

Definition: A number from 0 to 65535 that identifies which service or application on a device should receive a packet — for example, port 443 for HTTPS web traffic.

- **Reminding word:** seaport ("port" sounds like "seaport")

- **LINCing story:** At a busy seaport, every dock has a number, and each arriving ship steers to the dock for its cargo type. A port number (0-65535) steers each arriving packet to the right service on the device — dock 443 handles the HTTPS web traffic.
- **Picture idea:** Ships labeled "web," "email," and "game" steering toward numbered docks, with dock 443 flying an HTTPS flag.

IP address

Definition: A unique numeric address identifying a device on a network; IPv4 addresses are 32-bit numbers written as four octets, like 192.168.1.20.

- **Reminding word:** home address ("address" in "IP address" sounds like "home address")
- **LINCing story:** No two houses on a street share the same home address, or the mail would never arrive. No two devices on a network share the same IP address — a unique number written as four octets, like 192.168.1.20 — so packets always find the right machine.
- **Picture idea:** A row of houses shaped like a laptop, phone, and printer, each with a numbered plaque like "192.168.1.20."

DHCP

Definition: Dynamic Host Configuration Protocol — the service that automatically leases IP addresses and network settings (subnet mask, gateway, DNS servers) to devices when they join a network.

- **Reminding word:** dinner host ("D...H" in Dynamic Host sounds like "dinner host")
- **LINCing story:** A good dinner host meets each guest at the door and automatically shows them to an open seat, hands them a menu, and points out the restrooms. DHCP greets each device joining the network and automatically leases it an IP address plus its settings — subnet mask, gateway, DNS.
- **Picture idea:** A host with a seating chart guiding a phone and a laptop to numbered chairs at a long table.

DNS

Definition: Domain Name System — the internet's directory service, translating human-readable

names like example.com into the IP addresses computers actually connect to.

- **Reminding word:** the main name ("Domain Name" sounds like "the main name")
- **LINCing story:** In your contacts app you tap the main name — "Mom" — and the phone quietly dials the actual number behind it. DNS is the internet's contacts list: you type example.com and it looks up the IP address computers actually connect to.
- **Picture idea:** A phone contact card showing "example.com" as the name and "93.184.216.34" as the number beneath it.

switch

Definition: A network device that connects multiple wired devices on the same local network, learning which device is on each port and forwarding traffic only where it needs to go.

- **Reminding word:** railroad switch ("switch" sounds like "railroad switch")
- **LINCing story:** A railroad switch operator learns which town lies down each track and flips the switch so every train travels only the line it needs. A network switch learns which device sits on each port and forwards traffic only where it needs to go.
- **Picture idea:** Train tracks branching to houses labeled "PC," "printer," and "server," with a lever directing one train down a single branch.

access point

Definition: A device that broadcasts a Wi-Fi network, bridging wireless devices onto the wired local network.

- **Reminding word:** entry point at the gate ("access point" sounds like "entry point")
- **LINCing story:** The stadium gate is the entry point where fans arriving on foot pass through and join the crowd inside. A Wi-Fi access point is the entry point where wireless devices pass through and join the wired local network.
- **Picture idea:** A stadium gate shaped like a Wi-Fi antenna, with phones and laptops walking through toward a field of Ethernet cables.

Chapter 3: Mobile, Virtualization, and Cloud

This chapter introduces 6 terms.

SODIMM

Definition: Small Outline DIMM — the compact memory module form factor used in laptops and small PCs; roughly half the size of desktop RAM modules.

- **Reminding word:** so dim ("SODIMM" sounds like "so dim")
- **LINCing story:** "The lights in this laptop are so dim I can barely see the RAM — no wonder, it's tiny!" A SODIMM is the small-outline memory module for laptops and small PCs, about half the size of a desktop stick.
- **Picture idea:** A flashlight beam inside an open laptop revealing a half-length RAM stick next to a full-size desktop stick for comparison.

MDM

Definition: Mobile Device Management — software that lets an organization centrally enroll, configure, secure, monitor, and remotely wipe the mobile devices used to access its data.

- **Reminding word:** mad mom ("MDM" sounds like "mad mom")
- **LINCing story:** Break the house rules and the mad mom can track your phone, lock it, or wipe it clean from across town. MDM gives an organization that same central power over its mobile devices: enroll, configure, secure, monitor, and remotely wipe.
- **Picture idea:** A stern parent holding a master control tablet with buttons labeled "lock," "track," and "wipe" over a grid of phones.

virtual machine

Definition: A software-emulated computer, with its own virtual CPU, RAM, storage, and operating system, running as a guest on physical host hardware.

- **Reminding word:** virtual reality ("virtual" sounds like "virtual reality")
- **LINCing story:** In virtual reality you stand inside a world that looks and behaves

completely real, yet it's all software. A virtual machine is a computer built the same way — its own CPU, RAM, storage, and OS, all emulated in software, living as a guest on real host hardware.

- **Picture idea:** A person in a VR headset looking at a full desktop PC floating inside the headset's view, plugged into nothing.

hypervisor

Definition: The software layer that creates and runs virtual machines, allocating the physical host's CPU, RAM, and storage among its guest VMs.

- **Reminding word:** supervisor ("visor" in "hypervisor" sounds like "supervisor")
- **LINCing story:** A floor supervisor decides which workers get which machines, hours, and supplies so every crew can do its job. The hypervisor supervises the virtual machines, dividing the host's real CPU, RAM, and storage among its guests.
- **Picture idea:** A supervisor with a clipboard slicing a pie labeled "CPU / RAM / storage" and serving pieces to three small computers.

IaaS

Definition: Infrastructure as a Service — renting fundamental computing resources (virtual machines, storage, networks) that you configure and manage yourself.

- **Reminding word:** "I assemble" ("IaaS," said aloud as "eye-as," sounds like "I as-semble")
- **LINCing story:** "I assemble it myself," you say, renting a bare apartment and hauling in your own furniture. IaaS rents you the bare parts — virtual machines, storage, networks — and you configure and manage everything yourself.
- **Picture idea:** A person with an allen wrench assembling flat-pack furniture shaped like servers inside an empty rented room.

SaaS

Definition: Software as a Service — complete applications delivered over the internet through a browser or app, with the provider managing everything below your data.

- **Reminding word:** sass ("SaaS" sounds like "sass")

- **LINCing story:** The waiter serves the finished meal with a little sass: "Relax — kitchen, dishes, everything's handled. You just bring your appetite." SaaS serves you a complete application through your browser, with the provider managing everything below your data.
- **Picture idea:** A waiter presenting a covered platter that lifts to reveal a browser window, while a busy kitchen labeled "provider" works behind him.

Chapter 4: Operating Systems and Software

Troubleshooting

This chapter introduces 6 terms.

operating system

Definition: The core software that manages a computer's hardware and resources and provides the environment where applications run — such as Windows, macOS, Linux, iOS, or Android.

- **Reminding word:** switchboard operator ("operating" sounds like "operator")
- **LINCing story:** The old telephone operator sat at the switchboard connecting every call, deciding which line got through and keeping the whole exchange running. The operating system is the computer's operator — managing hardware and resources and giving every application its line to run on.
- **Picture idea:** An operator at a switchboard plugging cables into jacks labeled "apps," "memory," and "printer."

filesystem

Definition: The method an operating system uses to organize, store, and retrieve files on a drive — such as NTFS on Windows, APFS on macOS, or ext4 on Linux.

- **Reminding word:** filing system ("filesystem" sounds like "filing system")
- **LINCing story:** A law office's filing system dictates exactly how every folder is labeled, shelved, and found again — and each firm has its own scheme. A filesystem is the OS's filing system for a drive: NTFS on Windows, APFS on macOS, ext4 on Linux.
- **Picture idea:** Three filing cabinets labeled NTFS, APFS, and ext4, each organized with a visibly different labeling scheme.

imaging

Definition: Deploying an operating system by copying a complete, preconfigured 'golden image'

of a system — OS, settings, and applications — onto one or many computers at once.

- **Reminding word:** photocopied image ("imaging" sounds like "image")
- **LINCing story:** Place one perfect master page on the photocopier, press a button, and an identical image lands on a hundred sheets. Imaging copies one golden master — OS, settings, and apps — onto one or a hundred computers at once.
- **Picture idea:** A giant photocopier with a golden laptop on the glass and a tray of identical laptops sliding out.

administrator account

Definition: A user account with full control over a system — able to install software, change system settings, and manage other accounts. Daily work should happen in a standard account instead.

- **Reminding word:** prime minister ("minist" in "administrator" sounds like "minister")
- **LINCing story:** The prime minister holds full power to change national policy — but doesn't use that office to run everyday errands. An administrator account holds full control of a system — installing software, changing settings, managing accounts — while daily work belongs in a standard account.
- **Picture idea:** A prime minister at a grand desk stamping "INSTALL APPROVED," while a plain clerk's desk nearby is labeled "daily work."

command line

Definition: A text-based interface where you type commands for the operating system to execute directly — such as Command Prompt or PowerShell on Windows, or Terminal on macOS and Linux.

- **Reminding word:** drill commander ("command" in "command line" sounds like "commander")
- **LINCing story:** A drill commander barks one crisp order per line, and the troops execute it exactly, instantly, no menus and no discussion. The command line works the same way: type a text command and the OS executes it directly — Command Prompt, PowerShell, or Terminal.

- **Picture idea:** A drill sergeant shouting at a screen where each shouted line appears as text after a blinking prompt.

safe mode

Definition: A diagnostic startup mode that loads the operating system with only the minimum drivers and services needed to run — used to troubleshoot problems caused by bad drivers, updates, or software.

- **Reminding word:** safe room ("safe" in "safe mode" sounds like "safe room")
- **LINCing story:** During the storm the family retreats to the safe room, stocked with only the bare essentials — flashlight, water, radio — until the danger is found and fixed. Safe mode starts the OS with only minimum drivers and services, a bare-essentials room for troubleshooting bad drivers, updates, or software.
- **Picture idea:** A small concrete room containing a single lamp and a computer showing "Safe Mode" in the screen corners.

Chapter 5: Security and the IT Professional

This chapter introduces 9 terms.

malware

Definition: Malicious software — any program designed to damage, disrupt, spy on, or take control of a computer system, including viruses, worms, trojans, ransomware, spyware, and rootkits.

- **Reminding word:** malice ("mal" in "malware" sounds like "malice")
- **LINCing story:** Software written with malice has only bad intentions — to damage, disrupt, spy, or seize control. Malware is that whole malicious family: viruses, worms, trojans, ransomware, spyware, and rootkits.
- **Picture idea:** A shadowy program icon with an evil grin holding a crowbar over a cowering computer.

ransomware

Definition: Malware that encrypts a victim's files and demands payment — usually in cryptocurrency — for the key to unlock them. Reliable backups are the best defense.

- **Reminding word:** ransom note ("ransom" in "ransomware" sounds like "ransom note")
- **LINCing story:** A kidnapper's ransom note demands payment before the hostage is released. Ransomware kidnaps your files — encrypting them — and its note demands cryptocurrency for the unlock key. The family with a backup copy never has to pay.
- **Picture idea:** A folder tied up with rope next to a cut-out-letter note reading "PAY 1 BTC FOR THE KEY," while a backup drive stands free.

social engineering

Definition: Attacks that manipulate people — through deception, urgency, or misplaced trust — into giving up information or access, rather than attacking the technology itself.

- **Reminding word:** socialize ("social" in "social engineering" sounds like "socialize")

- **LINCing story:** The con artist doesn't pick the lock — he socializes his way past the front desk with a fake badge, a friendly smile, and "I'm late, can you hold the door?" Social engineering attacks the people, using deception, urgency, and misplaced trust instead of attacking the technology.
- **Picture idea:** A smiling stranger chatting past a receptionist while the heavy vault door behind her stands wide open.

multi-factor authentication

Definition: Requiring two or more different types of proof — something you know, have, or are — to log in, so a stolen password alone is not enough to break into an account.

- **Reminding word:** authentic painting ("authentication" sounds like "authentic")
- **LINCing story:** A museum declares a painting authentic only after multiple different tests agree — the signature, the X-ray, the paperwork. Multi-factor authentication declares you authentic only with two or more different proofs — something you know, have, or are — so one stolen password fails the test.
- **Picture idea:** An appraiser examining a painting with three stamps beside it labeled "know," "have," and "are."

least privilege

Definition: The security principle that every user and program should have only the minimum access needed to do its job — no more. Daily work in a standard account is least privilege in action.

- **Reminding word:** driving privileges ("privilege" sounds like "driving privileges")
- **LINCing story:** A learner's permit grants the least driving privilege that still gets you practicing: daytime only, adult beside you, no highways. Least privilege grants every user and program only the minimum access its job needs — and daily work in a standard account is exactly that.
- **Picture idea:** A teen driver holding a permit stamped "MINIMUM ONLY" next to a locked garage of sports cars labeled "admin."

encryption

Definition: Mathematically scrambling data so only someone with the correct key can read it — protecting files stored on a drive (at rest) and information traveling across networks (in transit).

- **Reminding word:** cryptic note ("crypt" in "encryption" sounds like "cryptic")
- **LINCing story:** You pass a cryptic note in a scrambled code; anyone who intercepts it sees gibberish, but your friend with the decoder key reads it instantly. Encryption scrambles data the same way — unreadable without the correct key, whether it's sitting on a drive or crossing a network.
- **Picture idea:** A folded note covered in scrambled symbols passing between desks, with one student holding a small decoder key.

ESD

Definition: Electrostatic discharge — a sudden jump of static electricity from your body into electronics. Even a shock too small to feel can destroy sensitive components like RAM and CPUs.

- **Reminding word:** "...s dead" ("ESD" sounds like "'S dead")
- **LINCing story:** One invisible spark jumps from your fingertip to the RAM stick and the tech pronounces it: "'S dead." ESD — electrostatic discharge — can kill RAM and CPUs with a shock too small for you to even feel, which is why you ground yourself first.
- **Picture idea:** A fingertip with a tiny lightning bolt touching a RAM stick that has cartoon X eyes, while a wrist strap hangs unused nearby.

ticketing system

Definition: Software that tracks every support request as a 'ticket' — recording the problem, the user, each step taken, and the resolution — creating a searchable history for the whole IT team.

- **Reminding word:** deli ticket ("ticket" in "ticketing system" sounds like "deli ticket")
- **LINCing story:** At the deli counter you pull a numbered ticket, and that number follows your order from request to hand-off so nothing is lost or skipped. A ticketing system gives every support request a numbered ticket, tracking the problem, the user, each step, and the

fix in a searchable history for the whole team.

- **Picture idea:** A "Now Serving #42" deli counter where the tickets read "printer jam" and "password reset" instead of sandwich orders.

change management

Definition: The formal process for making changes to IT systems: submit a request, assess the risk, get approval, test, have a rollback plan, implement, and document the result.

- **Reminding word:** counting change at the register ("change" sounds like "change")
- **LINCing story:** A careful cashier never just hands over change — count it, verify it, record it, and keep the receipt in case it has to be reversed. Change management treats every IT change the same way: request it, assess the risk, get approval, test, keep a rollback plan, implement, and document.
- **Picture idea:** A cashier counting coins beside a checklist reading "request, risk, approve, test, rollback, implement, document."

Blank LINC S Card

Copy this table into your notebook to make your own LINC S card for any new term.

Step	Your work
1. List the term	
2. List the definition	
3. Reminding word (sounds like...)	
4. LINCing story	
5. LINCing picture (sketch it!)	

Tips for good LINC S cards

- Choose a reminding word that is a real, familiar word — one you already know cold — that genuinely sounds like the term or a piece of it (acronyms count: say them aloud and listen).
- Make the story carry the meaning: it must link the reminding word's sound to what the term actually means, so recalling the story lets you rebuild the definition.
- Draw the story, not the term: the picture should show the scene from your story and be simple enough to sketch in about 30 seconds.