The 7 Layers

7 — Application	User-facing services. Protocols: HTTP, FTP, SMTP, DNS, DHCP
6 — Presentation	Data format, encryption, compression. Protocols: TLS/SSL, JPEG, ASCII
5 — Session	Connections between apps. Protocols: NetBIOS, RPC, PPTP
4 — Transport	End-to-end delivery, ports. Protocols: **TCP, UDP**. Devices: Firewall (stateful)
3 — Network	Routing, logical addressing. Protocols: **IP, ICMP**, OSPF, BGP. Devices: **Router**, L3 switch
2 — Data Link	Switch-to-switch, MAC addressing. Protocols: Ethernet, ARP, PPP. Devices: **Switch**, bridge, NIC
1 — Physical	Bits on the wire. Devices: Hub, repeater, cables

All 7 layers, what lives at each, and the mnemonics that make them stick.

Mnemonics

Top → bottom	*All People Seem To Need Data Processing*
Bottom → top	*Please Do Not Throw Sausage Pizza Away*

Say them out loud until they stick.

Data Names per Layer

4 Transport	**Segment** (TCP) / Datagram (UDP)
3 Network	**Packet**
2 Data Link	**Frame**
1 Physical	**Bits**

Exam trick: What PDU at Layer 3? → **Packet**. Layer 2 → **Frame**. Layer 4 → **Segment**.

TCP/IP Model vs OSI

Application	7 + 6 + 5 (Application, Presentation, Session)
Transport	4 (Transport)
Internet	3 (Network)
Network Access	2 + 1 (Data Link, Physical)

The 4-layer model collapses OSI's top three and bottom two.

Quick Exam Hits

ARP	Works at Layer 2/3 boundary (resolves IP → MAC)
TLS	Lives at Layer 6 (Presentation)
Switches vs Routers	Switches = Layer 2 (MAC addresses) · Routers = Layer 3 (IP addresses)
MTU	MTU issues and fragmentation → Layer 3

If you remember nothing else, remember these four.

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