ANNEX A · NETWORK COMPONENTS

Name: _____ Date: _____ Group: _____

TASK 1 The name on your door

Run `ip -br link`. Find the line of your Ethernet card (its name starts with `en`).

MAC address of your PC: _____ Hex digits: _____ Bits: _____

First half (the maker): _____ Second half (this card): _____

Compare with two neighbours. Which half is the same? _____ Why?

_____

DONE WHEN your MAC is written in two halves and you can say what each half means.

TASK 2 The way to the router

Run `ip route` and find the line that starts with `default via`. The address after `via` is the router.

Address of the router: _____

Run `ping -c 3 ADDRESS` with that address. Answers received: _____ of 3 Time of one answer: _____ ms

Run `ip neigh` and find the line of the router. MAC address of the router: _____

Same router address and same router MAC as your neighbour? _____ What does that tell you?

_____

DONE WHEN you have the router's address and its MAC, and they match your neighbour's.

TASK 3 Who does what?

Write the component next to its job: **NIC · MAC address · switch · router · access point · ONT**.

a Delivers each message only to the right device inside one LAN _____

b Joins different networks and chooses the path between them _____

c Lets wireless devices join the wired LAN _____

d Turns the light of the provider's fibre into electrical signals and back _____

e The part of a device that connects it to the network _____

f The 48-bit number that identifies one network card _____

Draw the Wi-Fi box you have at home, seen from the back, and label the devices hidden inside it.

DONE WHEN six components are placed and your drawing has at least three labels.

TASK 4 Cable bench

Read the print on the jacket of each numbered cable. Do not unplug anything that is connected.

Cable	What the jacket says	Category	Length (m)	Copper or fibre?
1				
2				
3				
4				

Choose the medium and say why in three words: **twisted pair (which category?) · fibre · Wi-Fi · Bluetooth.**

1 A PC to the wall socket, 3 m away _____

2 Two buildings 800 m apart _____

3 A laptop that moves around the house _____

4 Earbuds to a phone _____

5 A server that needs 10 Gbps; the switch is 80 m away _____

6 A sensor 120 m from the switch; the owner wants copper _____

DONE WHEN four cables are identified and each situation has a medium and a reason.

TASK 5 Rack hunt

Eyes only: do not touch or unplug anything.

Find	What you see
Patch panel: how many sockets? Which labels?	
Switch: how many ports? How many lights on?	
The cable that leaves towards the rest of the school	
Router: is it in this rack? Which brand?	
The label of the wall socket of your own PC	

If the switch loses power, who is offline? _____

DONE WHEN the table is full and you can point at the centre of the star.

EXIT TICKET One answer per question. Alone, no notes.

1. What does a MAC address identify?

☐ A. The place of a device in the world ☐ B. The speed of a cable

☐ C. One network card ☐ D. The website you visit

2. Which device delivers a message only to the right device inside one LAN?

☐ A. The switch ☐ B. The router ☐ C. The ONT ☐ D. The access point

3. What is the maximum length of a twisted-pair network cable?

☐ A. 55 m ☐ B. 100 m ☐ C. 800 m ☐ D. 10 m

4. What is the small box where the provider's fibre enters your home?

☐ A. A switch ☐ B. An access point ☐ C. A NIC ☐ D. An ONT

5. A server needs 10 Gbps over 80 m of copper. Which cable?

☐ A. Cat5e ☐ B. Cat6a ☐ C. Cat6 ☐ D. Cat5