FREE ACTIVITY SHEET · AGES 8–12

How the Internet Works

Follow information on its journey from your screen to a server and back.

Name _____

Date _____

1 Match the Word

Write the letter of the meaning in the box next to each word.

- ☐ **Router**
- ☐ **ISP**
- ☐ **Packet**
- ☐ **DNS**
- ☐ **Server**
- ☐ **Protocol**

A A small labeled piece of information
B A computer that stores website files and sends responses
C A device that passes packets along toward where they are going
D Shared rules that let networks work together
E The company that links your home to the wider Internet
F The system that turns a website name into an IP address

2 Fact or Mix-Up?

Some of these are true. Others are common mix-ups. Circle the right one.

1. Wi-Fi and the Internet are the same thing. **FACT** **MIX-UP**
2. The "cloud" is other people's computers in data centers. **FACT** **MIX-UP**
3. Most of the journey happens through the air, not over cables. **FACT** **MIX-UP**
4. One company owns the whole Internet. **FACT** **MIX-UP**
5. The Web is one service that runs on the Internet, like email and games. **FACT** **MIX-UP**
6. HTTPS scrambles messages while they travel. **FACT** **MIX-UP**

3 The Internet's Contacts List

DNS works like the contacts list on a phone: it looks up a name and finds the number. Use the list to answer.

Website name	IP address
library.example	**192.0.2.10**
games.example	**198.51.100.7**
school.example	**203.0.113.25**
weather.example	**192.0.2.44**

1. Maya types **school.example**. Which address does her browser use? _____
2. Which name belongs to **198.51.100.7**? _____
3. Which is easier to remember, the name or the number? _____

These are made-up example names and addresses.

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4 Opening a Website

A child opens a library website on a tablet. Number the steps from **1** to **6** in the order they happen.

- ☐ **A.** The server sends its response back as packets.
- ☐ **B.** The browser asks DNS for the website's address.
- ☐ **C.** The browser puts the packets back together and shows the page.
- ☐ **D.** The request is split into packets and sent over Wi-Fi to the home router.
- ☐ **E.** The home router passes the packets to the ISP.
- ☐ **F.** Routers across the Internet pass the packets along until they reach the server.

5 Packet Check

A message was split into **8** packets. They took different routes, and these are the ones that arrived.

Packet 3 **Packet 1** **Packet 6** **Packet 2** **Packet 8** **Packet 5** **Packet 4**

1. Which packet is missing? _____

2. Circle what happens next:

THE WHOLE MESSAGE IS LOST **THE MISSING PACKET IS SENT AGAIN**

6 In Your Own Words

Why is it useful to split information into packets?

_____

_____

Good to know: The Internet is a network of networks. Nobody owns the whole thing. It works because the networks share rules called protocols.

Answers for grown-ups. 1: Router C, ISP E, Packet A, DNS F, Server B, Protocol D. **2:** 1 Mix-up (Wi-Fi is a short radio link to your router), 2 Fact, 3 Mix-up (most of it is cables), 4 Mix-up, 5 Fact, 6 Fact. **3:** 1) 203.0.113.25, 2) games.example, 3) the name. **4:** A 5, B 1, C 6, D 2, E 3, F 4. **5:** Packet 7. The missing packet is sent again. **6:** Packets can take different routes, and a missing one can be sent again without resending everything.

KEEP LEARNING

Goes with the book **How the Internet Works for Kids Ages 8–12** by Laith Sad.

How the Internet Works for Kids Ages 8–12 **amazon.com/dp/B0HLH86YQ3**
How Computers Work for Kids Ages 8–12 **amazon.com/dp/B0HLYSJ1QX**
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