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WELCOME TO THE INTERNET

Hello! I'm **Nij**, a scientist and writer living in Melbourne where I host the ABC's *Imagine This* kids' podcast.

The internet is **absolutely incredible**. FaceTime someone in Tanzania? No worries. Learn how to build a chicken coop? Here's an AI-generated summary with a step-by-step video. What's your cousin up to? Here are ten photos!

But, despite how **amazing** it is – and useful and informative and social and hilarious and **life-changing** – I wrote this book because the internet isn't *always* what it seems. Things are happening **behind the screens** that change what we *see* to try to change what we *do*: what we buy, what we believe and how long we stay online.

And they're actually really effective. The internet is **changing us**! The average Australian now spends 2.5 hours a day on their phone – and 17 years over a lifetime looking at a screen connected to the internet. We can't get enough.

Whether or not you're online a lot already, you're probably going to be using the internet, AI and other online technologies **more and more** in years to come, so it's helpful to explore how those technologies are **using you** a little too.

Politicians and scientists talk about this stuff all the time, but not always *with* young people – the ones inheriting the internet and **a world shaped by it**. My aim with this book is to help change that. I don't work for the government or for any tech companies, and I'm not trying to sell you anything. But I do think that if you get **real info** on how things actually work, you'll be empowered to make decisions in your own best interests.

This book is a guide to what goes on behind the screens. Its purpose is to shine some light on how the internet works, help you to be eSafe and social, figure out what is fact and what is fiction, interact with AI, look after your data privacy, and more. Basically, this book is designed to help you **be more aware** about what's going on online and why – and what that means **for you**.

It doesn't replace what you're getting taught in school (your teachers *should* have that under control) or tell you how to find the best content (google it! [jks]). It also doesn't aim to give you an intro for everything on the internet (it currently contains more than 150 trillion GB of data – and growing every day ...). But it will arm you with some info to help you be online in the **best** way possible.

Let's go!

chapter 1

HOW THE INTERNET WORKS
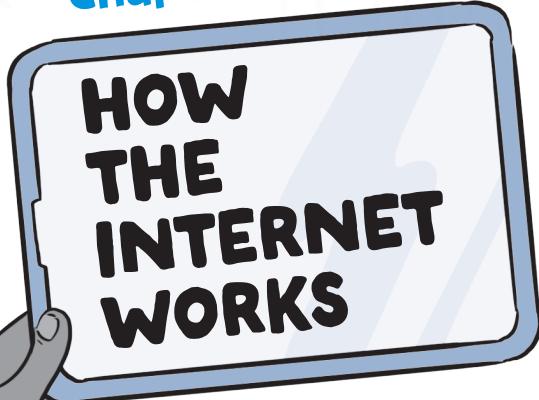
If you type a website address (like **google.com** or **behindthescreens.me**) into a **browser** (like Chrome or Safari or Firefox) and hit 'enter', *amazing* things happen.

What you type into your browser is sent out from your device through **wifi radio waves**. Here's an example:

IP-address 60.240.19.205 wants data from www.behindthescreens.me; here are their phone details; please send through the data …

The router on the wall **sends this message** as light through NBN optic fibres outside your house to your internet service provider. They ask, 'Have you paid your bill?' and, 'Are you allowed to access this website?' and then send the message on to a **domain name server** (which is like a national internet post office).

> '*You can get unlimited information about anything on the internet, and there are videos that can teach you whatever you want to know.*'
> **ARLO, 10**

The domain name server finds where the end website's information is located (say, a data centre in the UK) and sends the message out via **undersea cables** to the exact address, which then sends the website's info back out to your device.

All this takes about 100 milliseconds, quicker than the blink of an eye! *Amazing.*

This process can transmit messages, emails, photos, videos, games – **anything at all** that you can see on the internet. It's incredibly fast, pretty reliable and one of the most life-changing inventions of human history.

We call the information that's being sent out **data**.

WHAT IS DATA?

Data is just a word for **organised information**. People have recognised the value of organising, saving and sharing data for as long as we've been around – it's just been done through songs and stories instead of hard drives. But, with the internet, the amount of data we are generating and transmitting is so, so much greater.

Alongside the 'useful' data being sent – the website or text or video – **other information** is being transmitted too. This other information is called **metadata**.

WHAT IS METADATA?

Metadata is information **about the content**, not the content itself.

Take the example of a WhatsApp message. The data is what you actually write (maybe: 'Hey, let's go to the park after school'). The metadata includes the **other information** that you transmit along with the message. This includes your phone's make and model and IP address (like an internet name for your device), plus a whole lot more about the message, such as:

- **when** you wrote it
- **who** you sent it to
- **where** you were when you sent it
- **how long** you took to write it
- **how many times** you erased it and rewrote it
- **when** the person you sent it to read it
- **where** they were when they read it
- **how long** they read it for …

WhatsApp messages are **encrypted end-to-end**. WhatsApp says they can't access those messages. But they can and do **access the metadata**, save it and share it between all of the companies owned by the same group of people (Instagram, Facebook, Oculus etc.), who then use this information in lots of other ways.

Cookies count as metadata too. When websites ask if they can store cookies on your device, they're saving **small files**. These contain information like passwords, previous browsing histories and purchasing records. Websites use them to remember your information and tailor themselves just for you.

This is different to a **cache**, which is your browser's **temporary storage** of files, webpages, images and similar to make things load faster.

Nearly everything you do on the internet is tracked and recorded through metadata for the simple reason that it is **valuable**!

It's actually what **pays** for much of the internet.