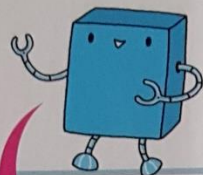


Hardware Basics

IPOMS

Computers all around

Computers are machines that follow instructions. They come in all shapes and sizes – sometimes hidden inside other machines.

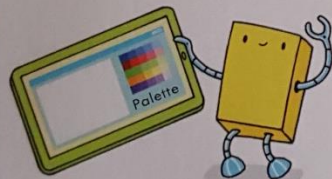


A set of instructions for a computer is called a **program**, or an **app**.

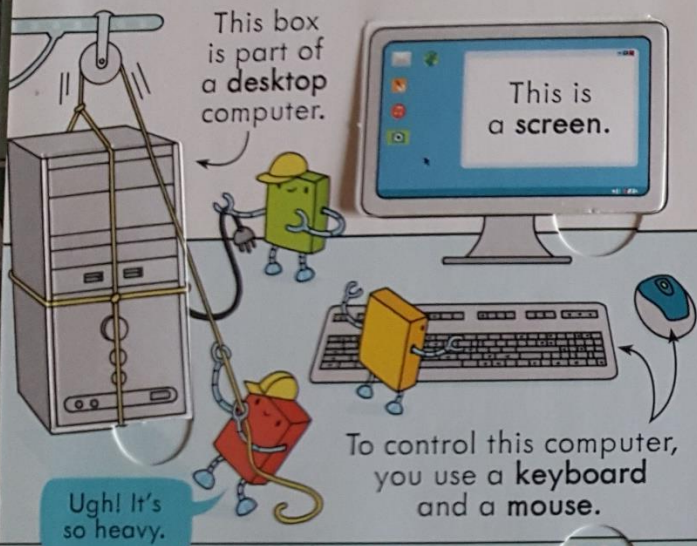
I'm opening a drawing app on my tablet.



The app creates a blank 'page'.



Then it records what you draw.



This box is part of a **desktop** computer.

This is a **screen**.

To control this computer, you use a **keyboard** and a **mouse**.

Ugh! It's so heavy.



This is a **laptop** computer.



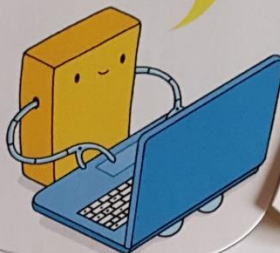
A **smartphone** is a computer too.



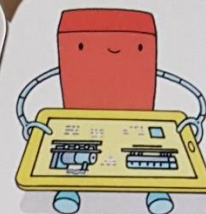
This is a **tablet** computer.

Many people use computers every day.

I'm using the internet to help with homework.



I need to write a report about trains.



We're playing a game.



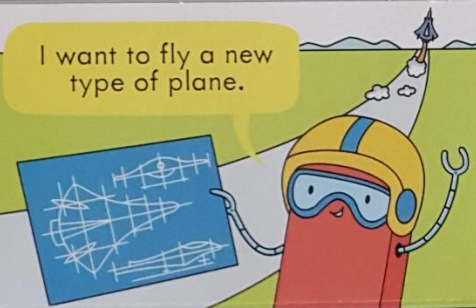
Sometimes people don't even know they're using computers...



Ready to wash. OK!

If you want to do something incredibly fast, or amazingly big, you can use a computer.

I want to fly a new type of plane.



Where are we?

Let me check the screen.



GATHERING DATA...

I want to count all the stars in the sky.



Inside a computer

Lift this flap to see what's behind the screen, and lift the keyboard below to see the electronic parts that make the computer work.

This line is called a **cursor**. It shows you where letters will appear when you type them.

This arrow is called the **pointer**.

These little pictures are called **icons**.

This box on the screen is called a **window**.

Some laptops have a touchscreen, just like tablet computers (see right).

This computer is running on battery power. This symbol shows how much power is left.

Sound comes out of these holes.

This is the **keyboard**.

Tapping on the keys is one way to tell the computer what to do.

This is called a **trackpad**.

If you plug in a power cable, the computer will switch to power from a socket.

Tablet computers have a **touchscreen**.

Lift the flaps to see how touchscreens work.

Inside the tablet is a **microphone**.

Speaking into the microphone can control the tablet, too.

Smartphones work in the same way as tablets.



These little pictures are called **icons**.

shows how much power is left.

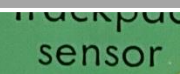
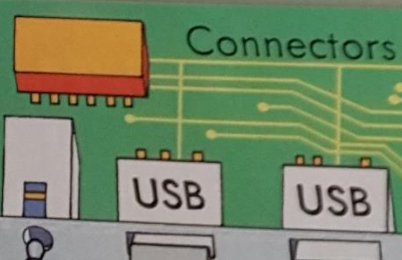
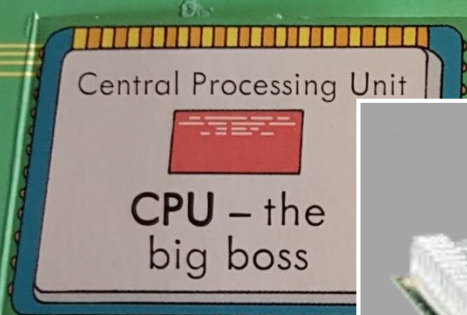
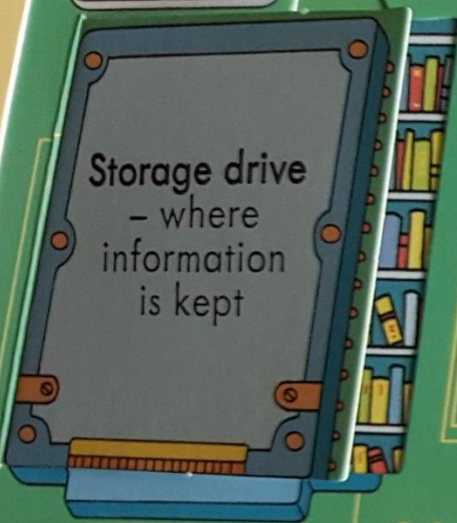


Sound comes out of these holes.



Inside, a computer is a series of parts attached to a hard sheet called the **motherboard**. Thin lines connect the parts together, in arrangements known as **circuits**.

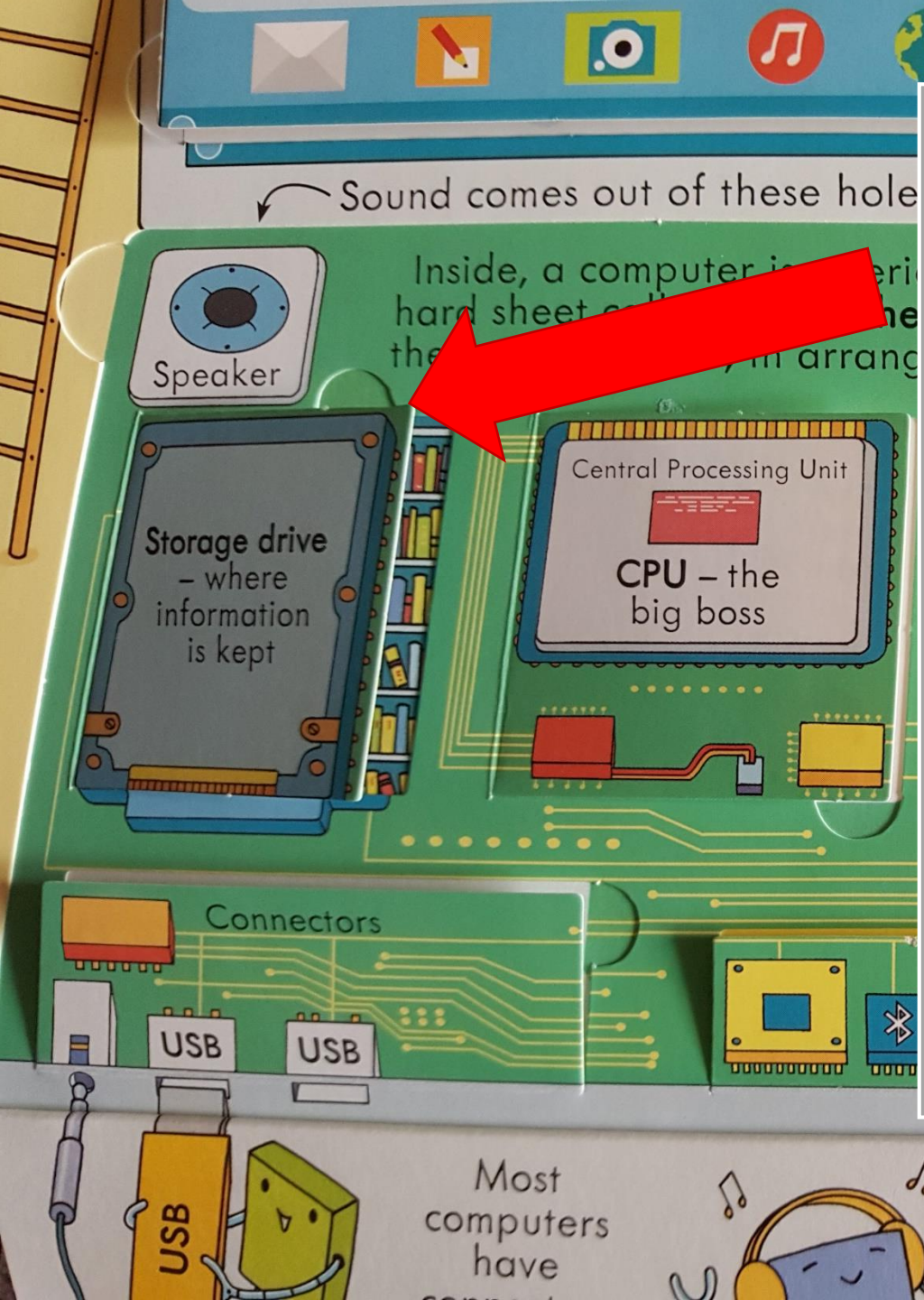
Battery – the power supply



Most

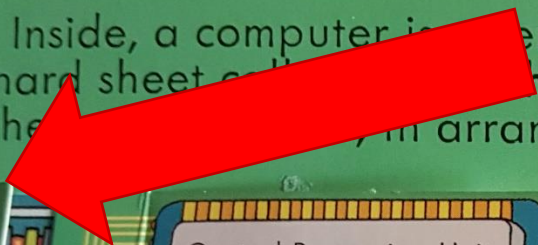
Brainy chips

All the information inside a

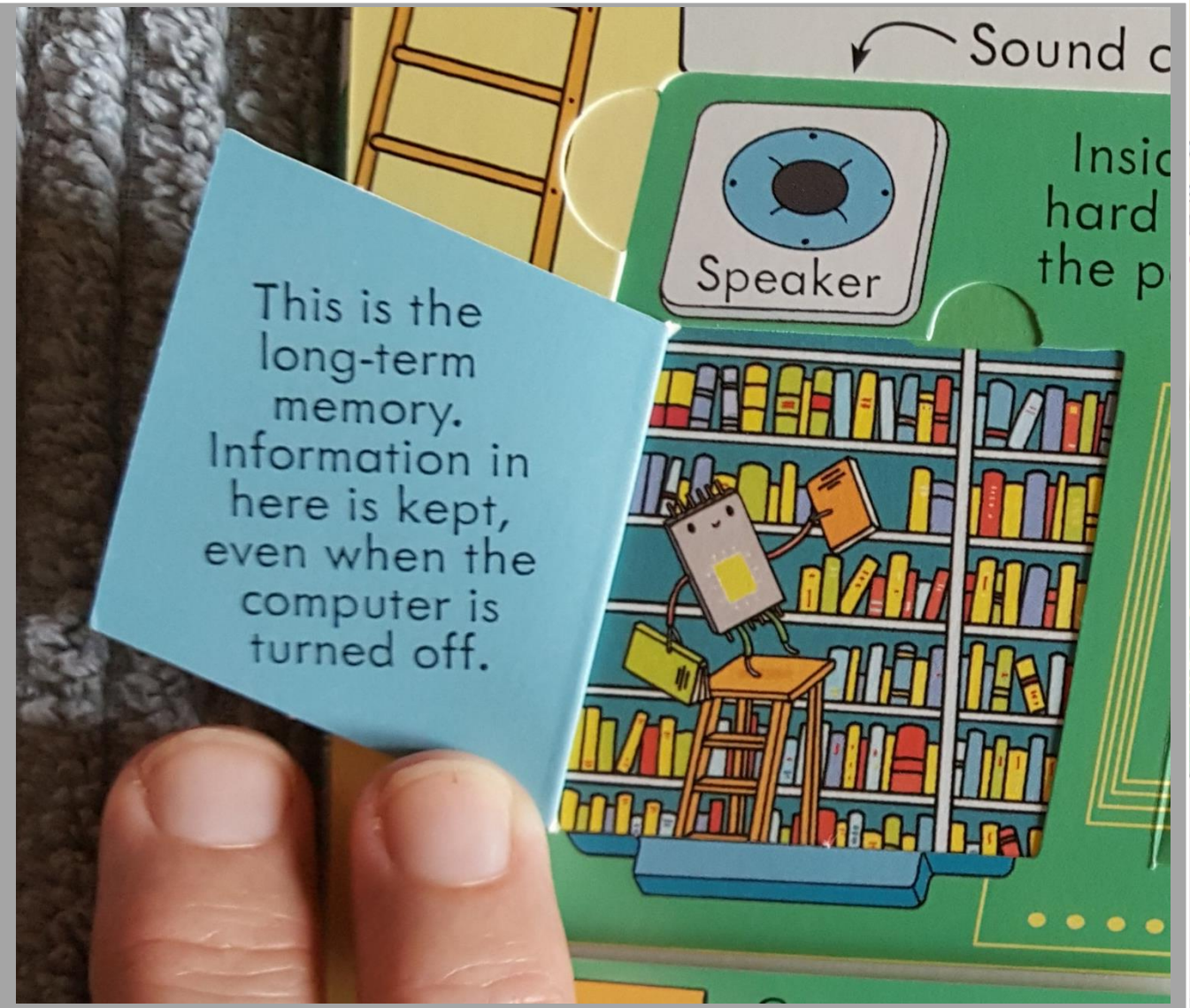


These little pictures are called **icons**.

shows how much power is left



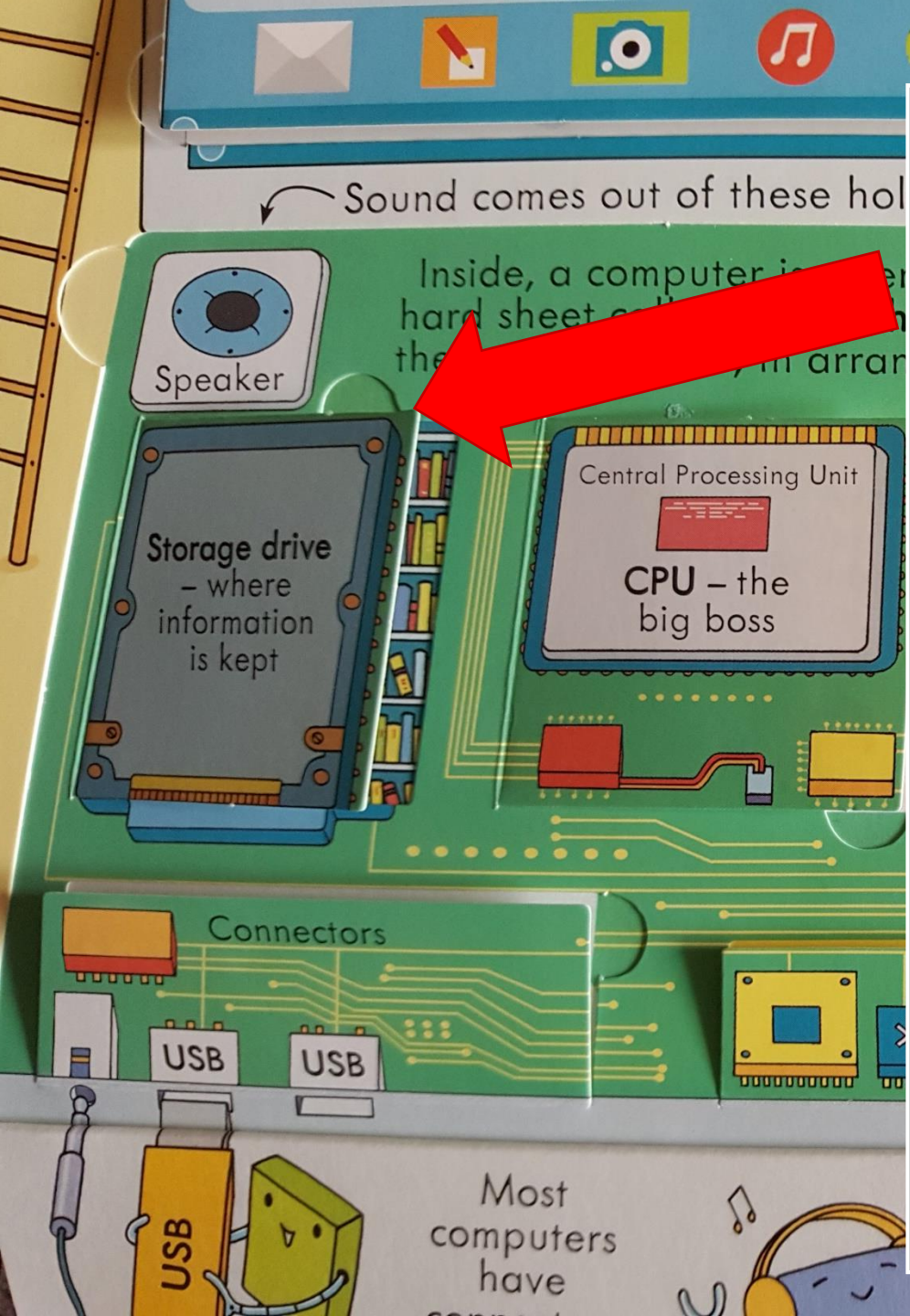
Inside, a computer is...



This is the long-term memory. Information in here is kept, even when the computer is turned off.

Brainy chips

All the information inside a computer is handled by **chips** - little pieces of electronics which





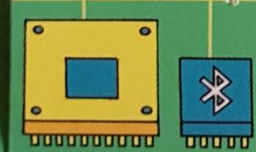
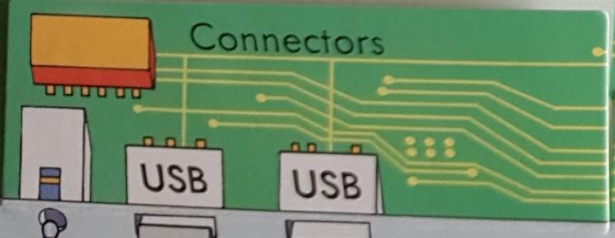
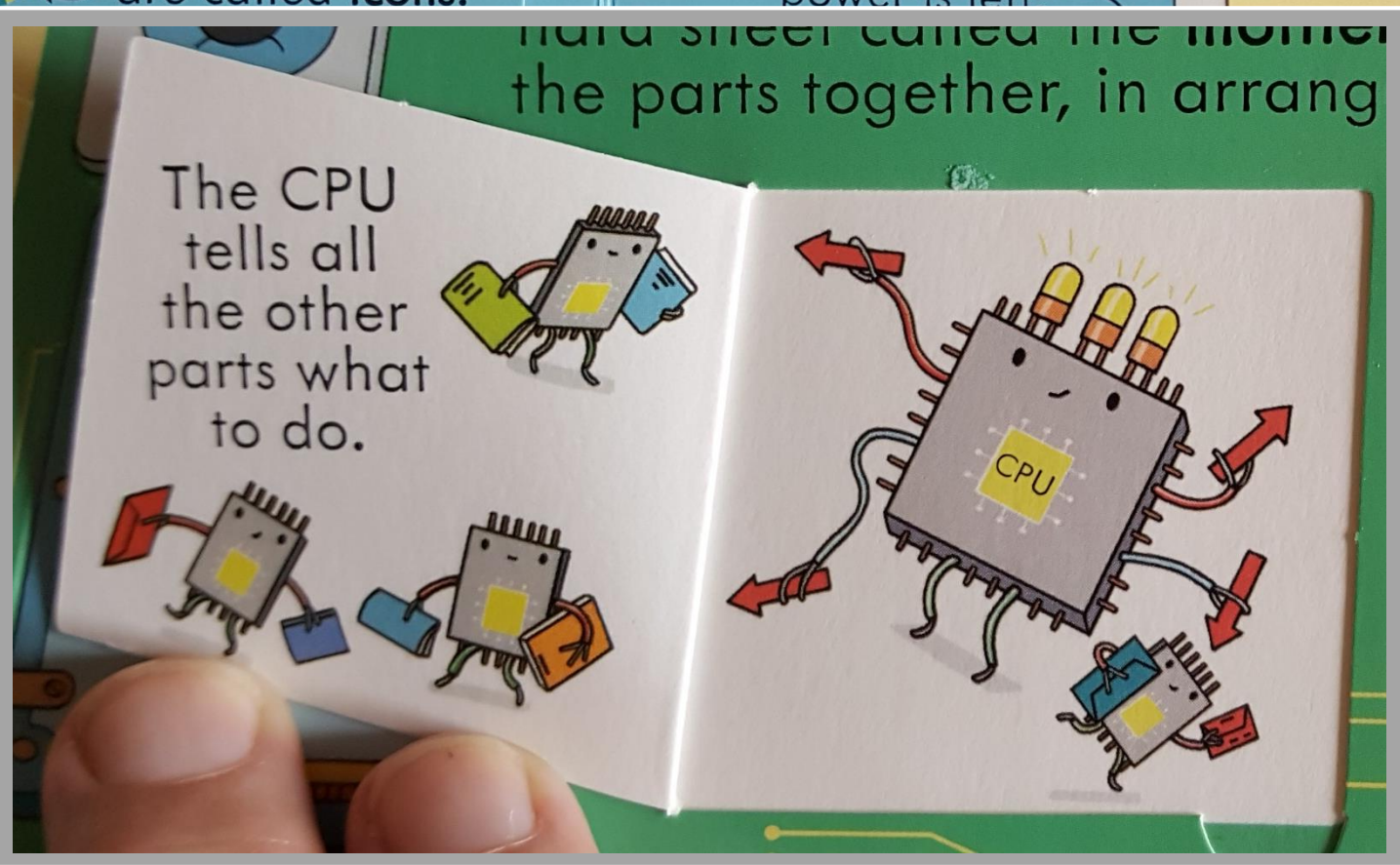
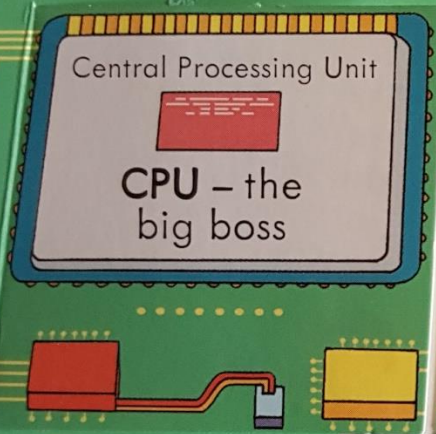
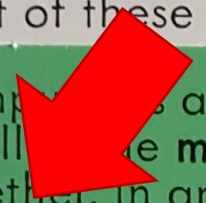
These little pictures are called **icons**.

shows how much power is left

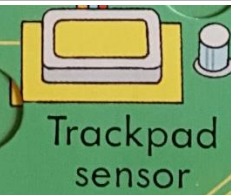
Sound comes out of these hole



Inside, a computer has a series of hard sheet called the **motherboard** the parts together, in arrangement



Wireless connectors



Trackpad sensor



Heat sink



Fan



Most computers have



Brainy chips

All the information inside a computer is handled by **chips** - little pieces of electronics which



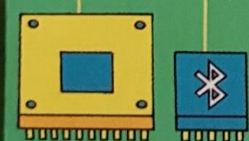
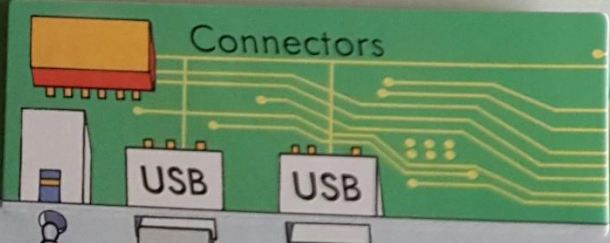
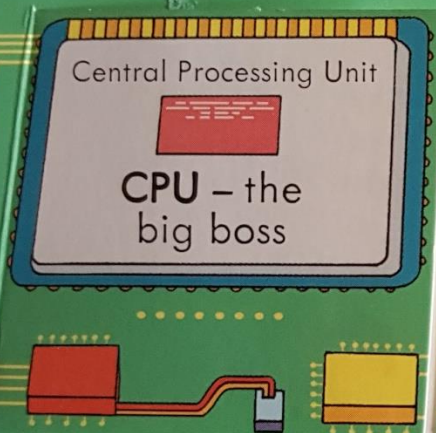
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Wireless
connectors



Trackpad
sensor



Heat
sink



Fan

Most
computers
have

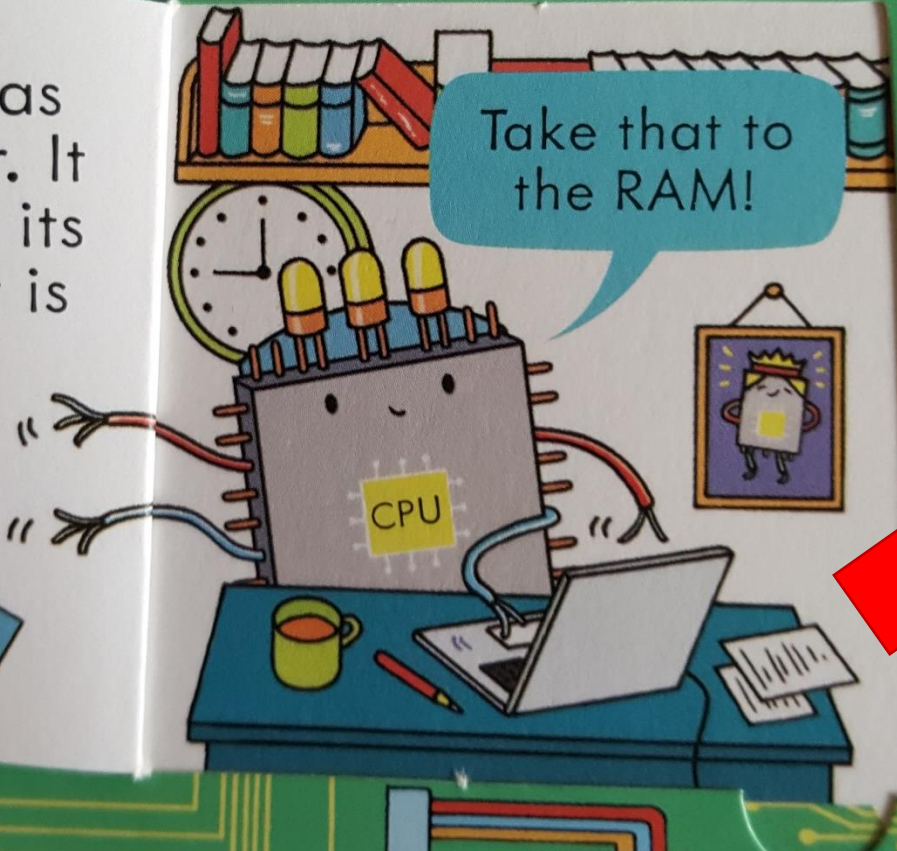
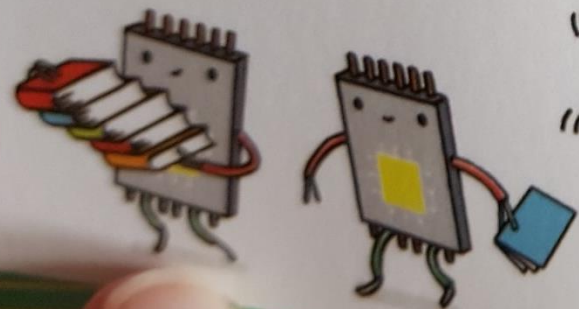


Brainy chips

All the information inside a
computer is handled by **chips** -
little pieces of electronics which

s together, in arrangements known as **circuits**.

The computer has lots to remember. It uses the RAM as its memory while it is working.



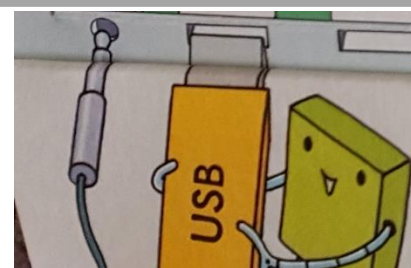
ies of parts attached to a **motherboard**. Thin lines connect components known as **circuits**.



RAM – temporary memory

Wireless connectors

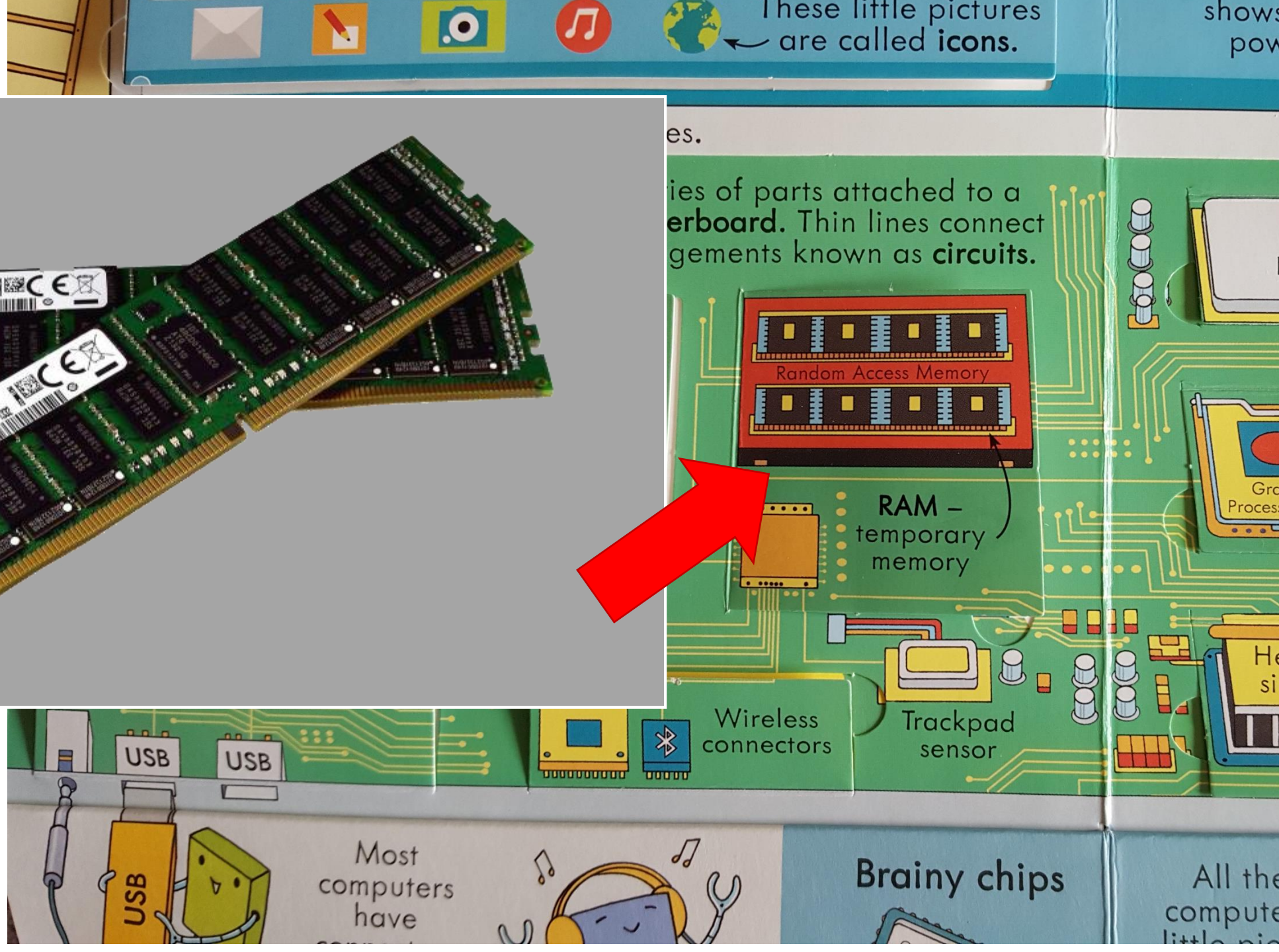
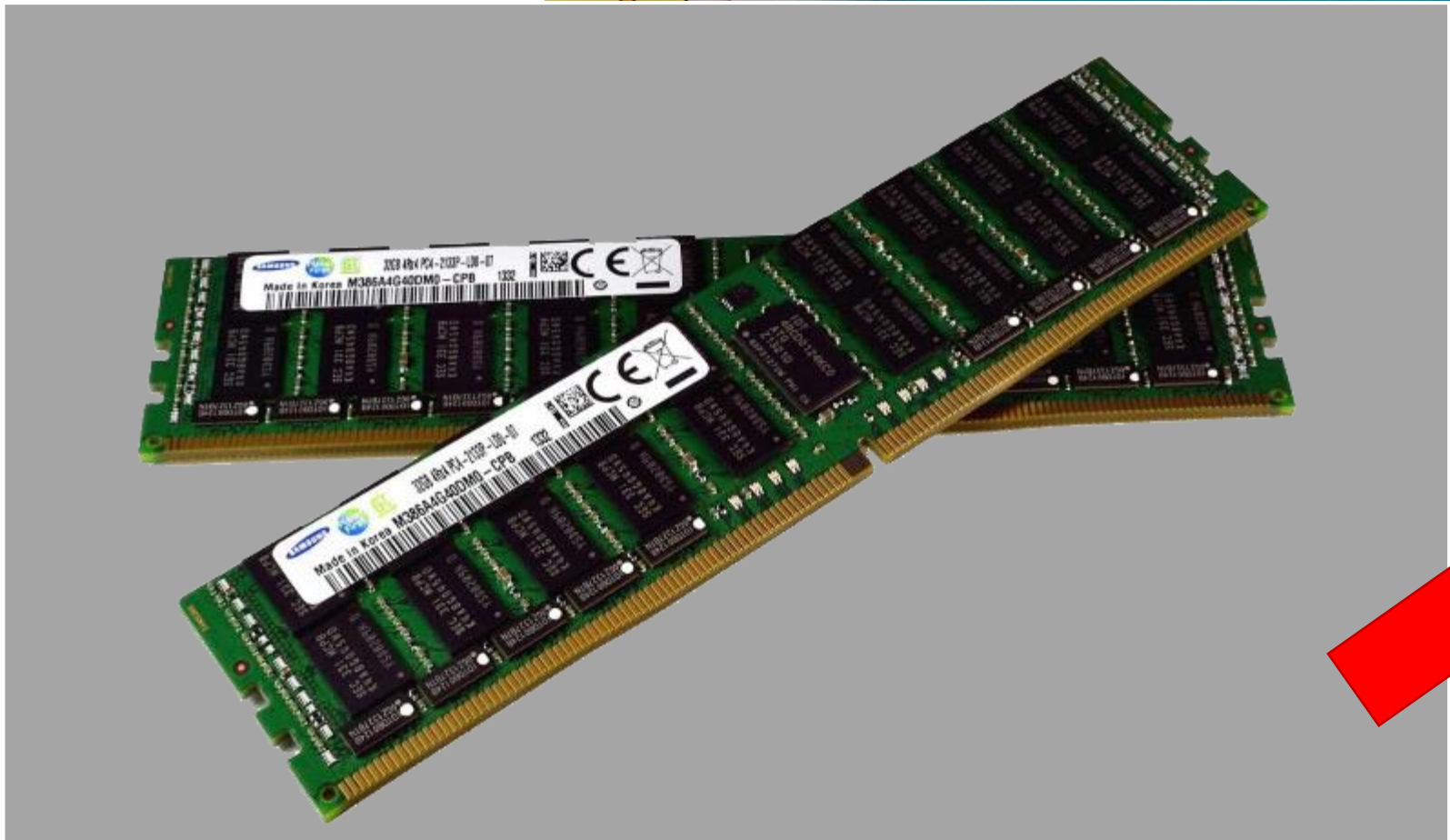
Trackpad sensor

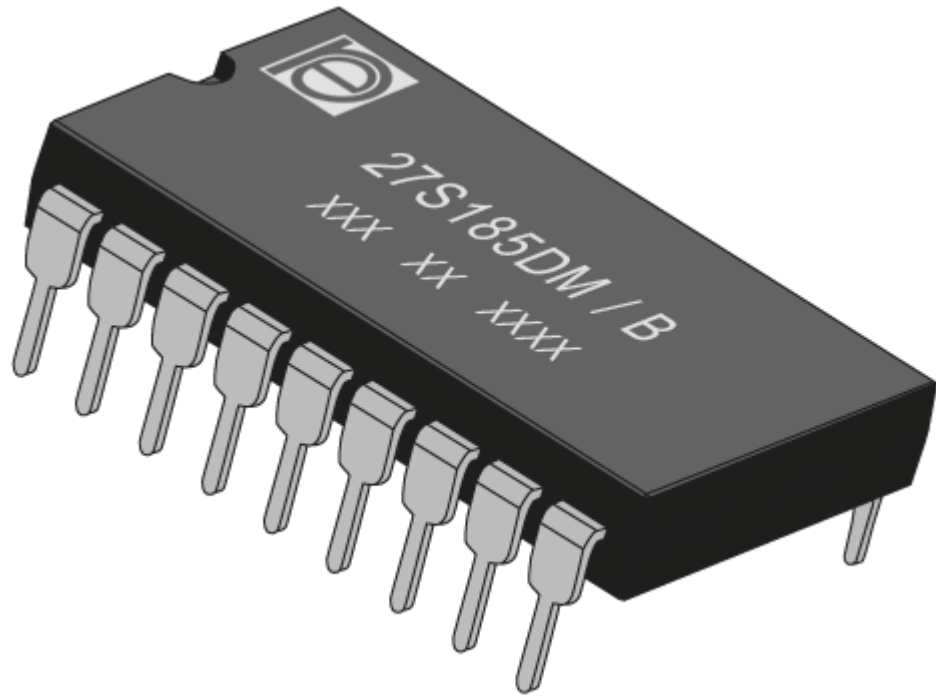


Most computers have

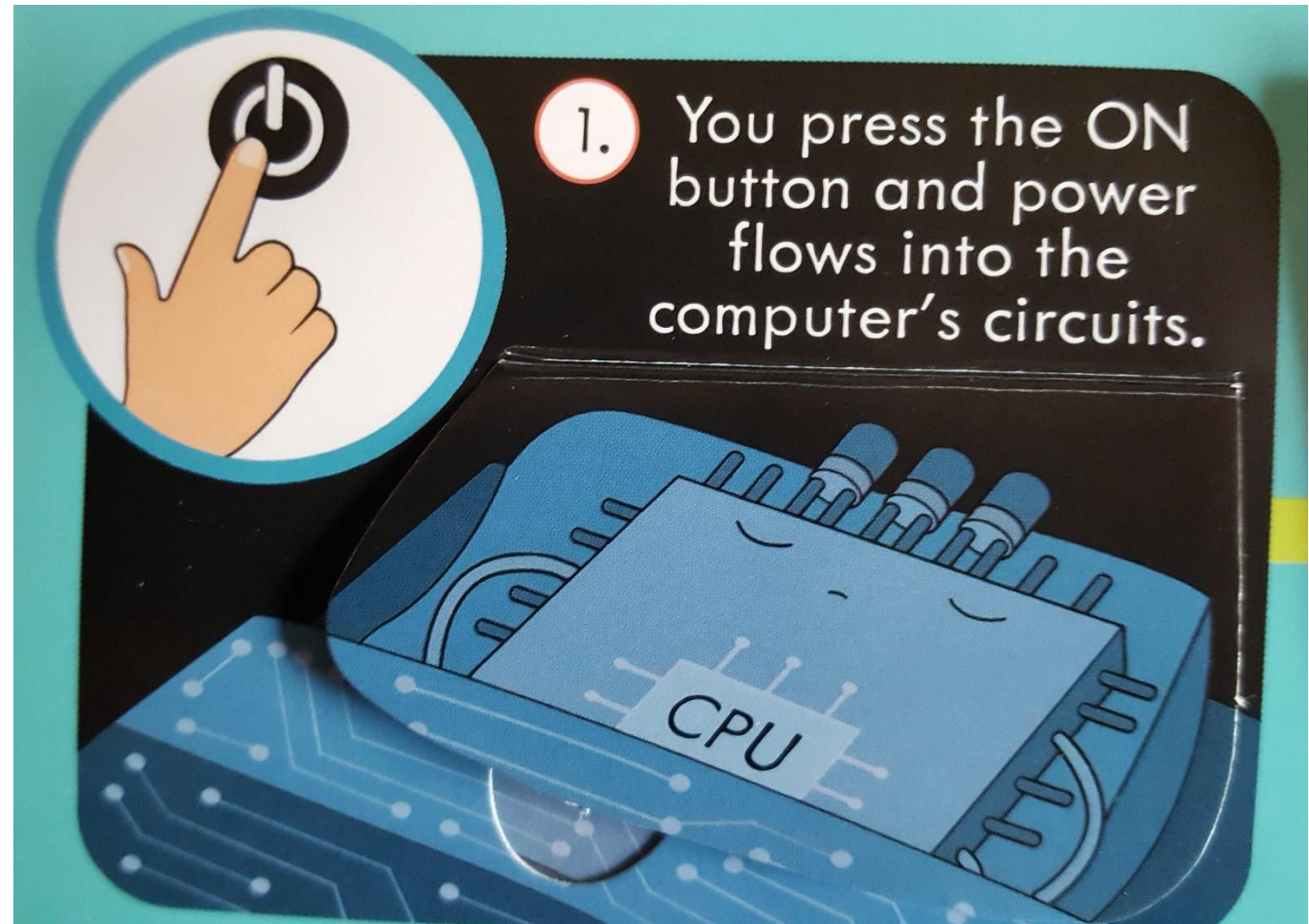
Brainy chips

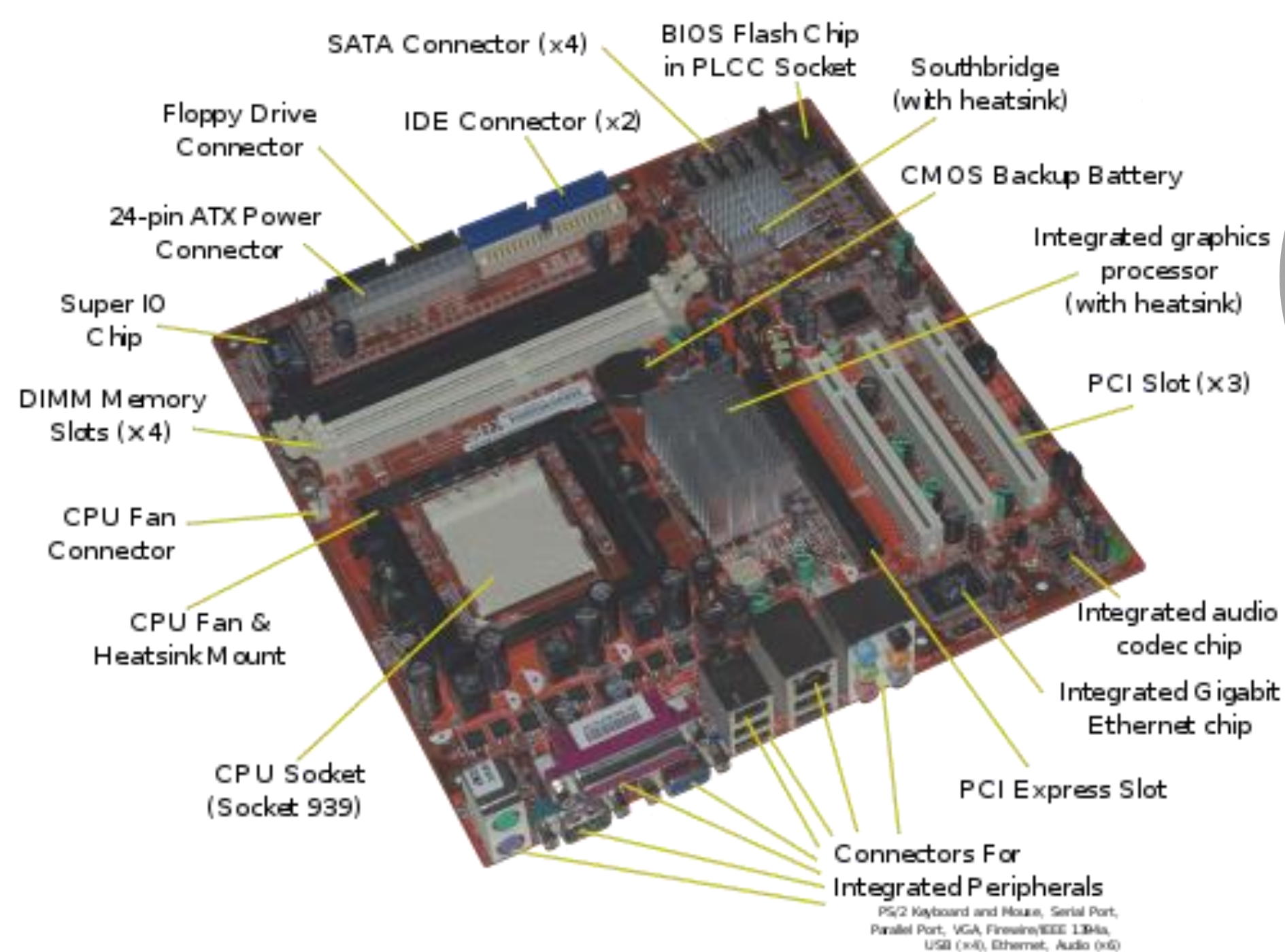
All the computers have little





The ROM's job is to turn on – or wake up the computer. It is also on the motherboard.





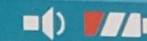
This is a labelled motherboard – with more detail that we need.

Locate the RAM, ROM, Motherboard and CPU. Where is the HD?

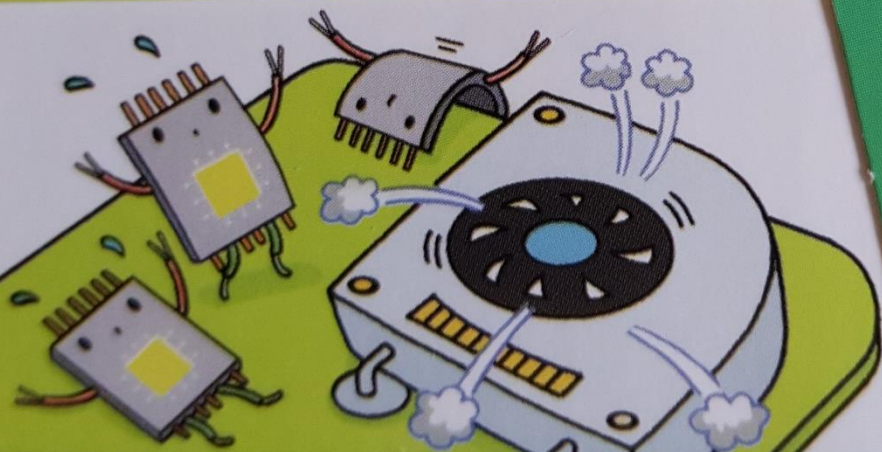


These little pictures are called **icons**.

shows how much power is left.

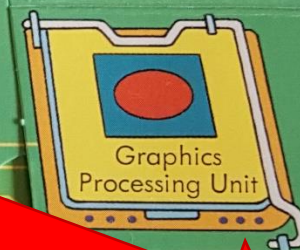


Some computer parts get hot. The fans and heat sinks stop them from getting *too* hot and breaking.



ects
ts.

Battery – the power supply



GPU – in charge of the images on screen

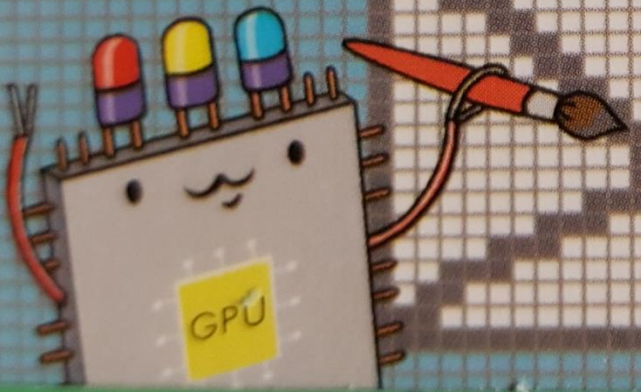
Heat sink

Fan

Brainy chips

All the information inside a computer is handled by **chips** – little pieces of electronics which

The GPU can update millions of pixels every second. So you can watch videos and see pictures quickly.



Battery – the power supply

GPU – in charge of the images on screen

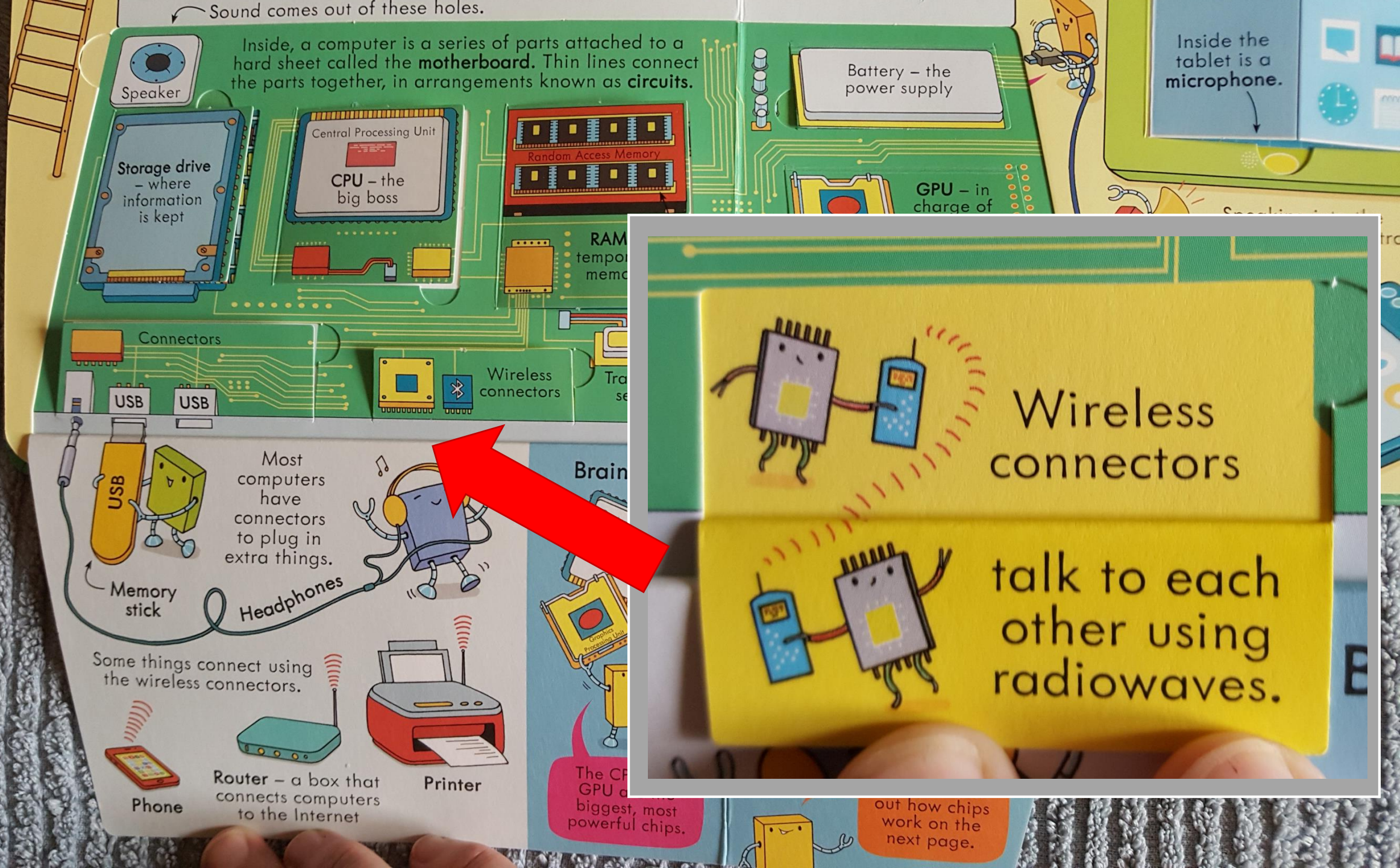
Graphics Processing Unit

Heat sink

Fan

Brainy chips

All the information inside a computer is handled by chips – little pieces of electronics which



Sound comes out of these holes.

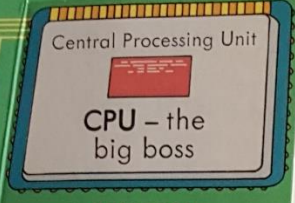


Speaker

Inside, a computer is a series of parts attached to a hard sheet called the **motherboard**. Thin lines connect the parts together, in arrangements known as **circuits**.



Storage drive
- where
information
is kept



Central Processing Unit
CPU - the
big boss



Random Access Memory



Battery - the
power supply



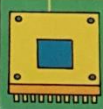
GPU - in
charge of



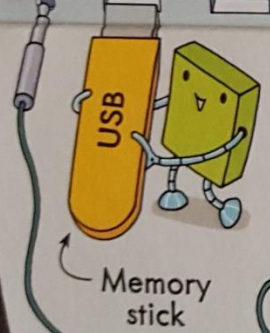
Connectors

USB

USB



Wireless
connectors



Memory
stick

Most
computers
have
connectors
to plug in
extra things.

Headphones

Some things connect using
the wireless connectors.



Phone



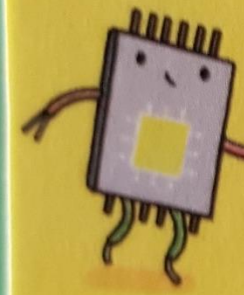
Router - a box that
connects computers
to the Internet



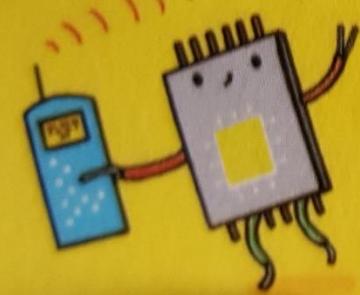
Printer



The CPU, GPU and RAM are the biggest, most powerful chips.



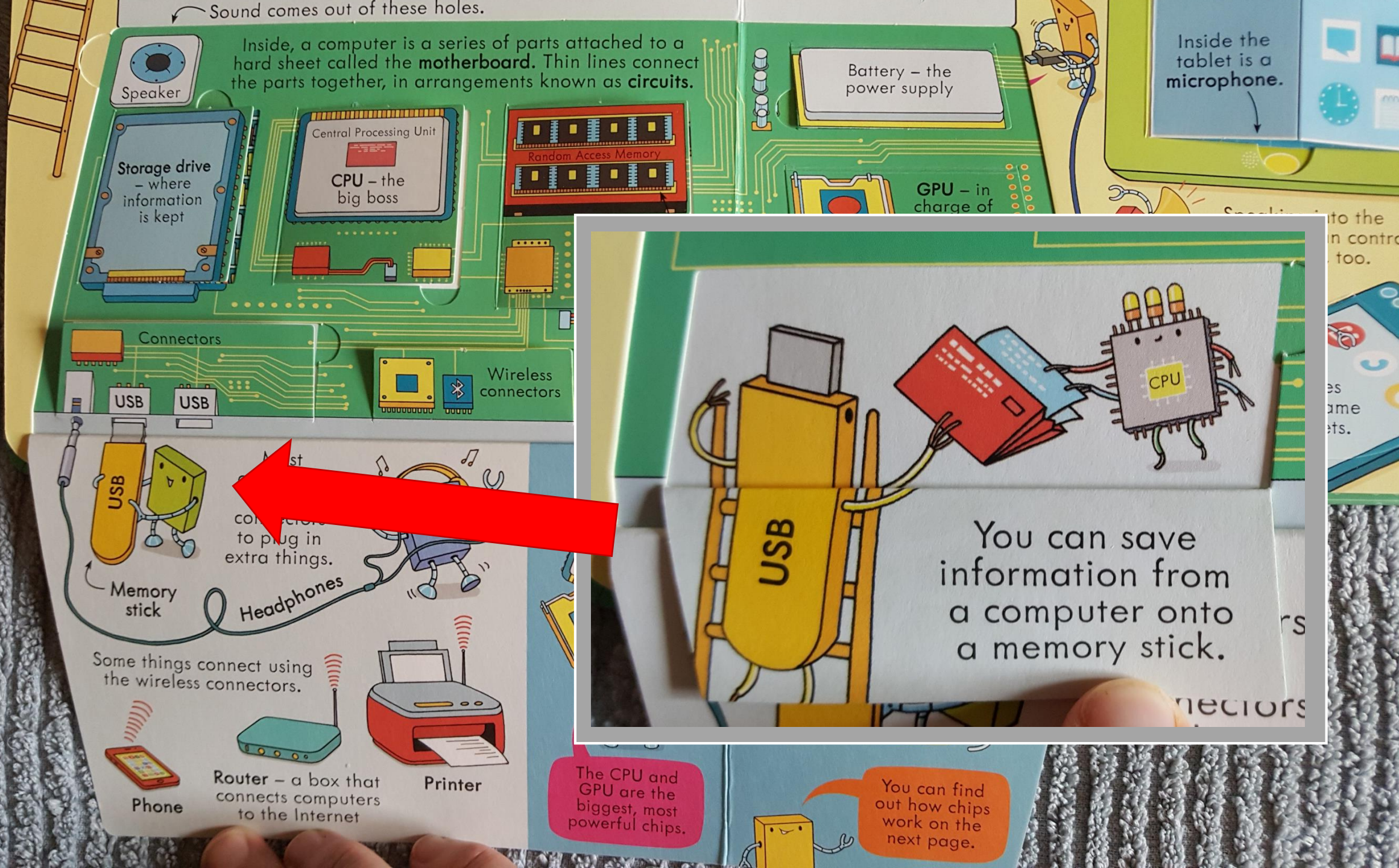
Wireless
connectors



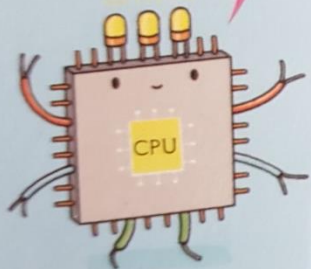
talk to each
other using
radiowaves.



out how chips
work on the
next page.



The screen senses flows of electricity.



For example, when you tap to open an app...

That was a double tap...

...over this spot. That means...



Open the music app!

A grid helps the computer work out where things are.

A tiny amount of electricity flows out of the screen when you touch it.

Sensors use this to track your fingers.

So the computer knows if you touch or move something on-screen.

Tablet computers have a **touchscreen**.



Speaking into the microphone can control the tablet, too.

Smartphones work in the same way as tablets.

Hardware Basics Summary

Name	Examples	Purpose
I nput	Keyboard, Mouse, Trackpad, Touchpad, Camera, Microphone, Touchscreen, Game Controller, RFID Tags, Barcodes	To get instructions from the user.
P rocessing	(all different names for the same thing) CPU, Processor, Chip	The brain of the computer.
O utput	Screen, Printer, LCD Projector, Speakers, Touchscreen, 3D Printer, Robots	To give results to the user.
M emory	RAM (ROM too)	To remember small things for the CPU.
S torage	Hard Drive, USB Memory Stick (Flash Drive), SD Card, CD-ROM, DVD, Blu-Ray.	To remember big things, when power is off.

Inside, a sheet
vibrates to
create sounds.

Hardware
Name?

IPOMS
category?



This large chip
is the control centre
in charge of input, output
and all the other chips.

IPOMS
category?

Hardware
Name?



CPU (Central
Processing Unit)

This is the long-term
memory. Information
in here is kept, even
when the computer is
turned off.

Hardware
Name?

IPOMS
category?

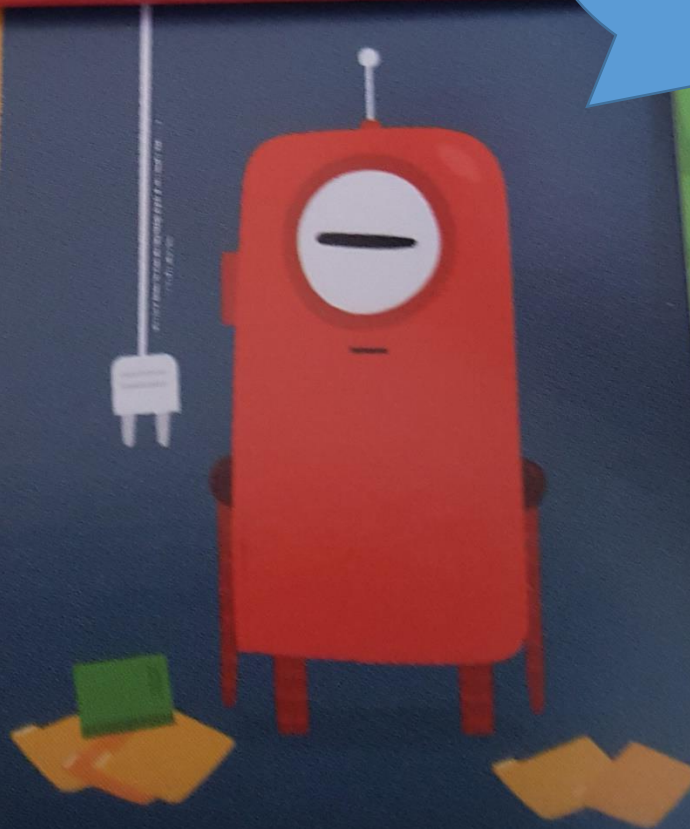
USB

IPOMS
category?

memory. They store information for
programs which are running, but need
power to work. When the computer is
turned off, the information is lost.

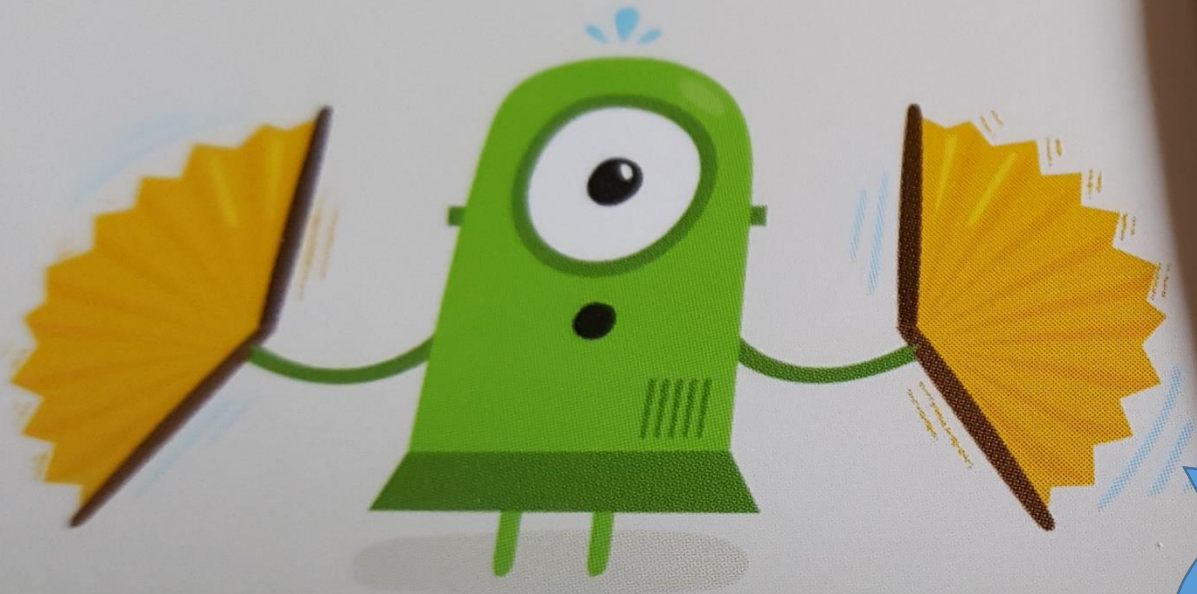
Hardware
Name?

Fan and
heatsinks



This is

Hardware
Name?



IPOMS
category?

Many components get hot
use, so metal fins and a
help to keep them c