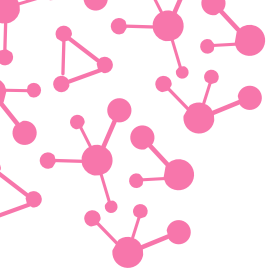
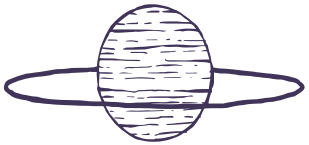
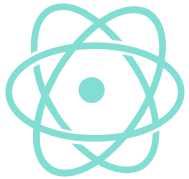






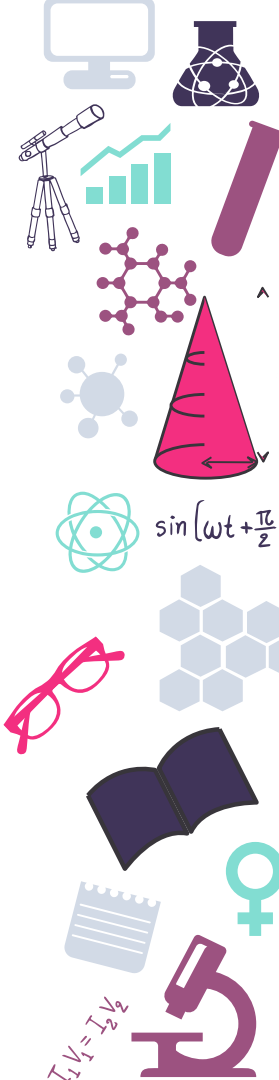
Iniciación en el uso de Raspberry Pi

Héctor Alonso

1

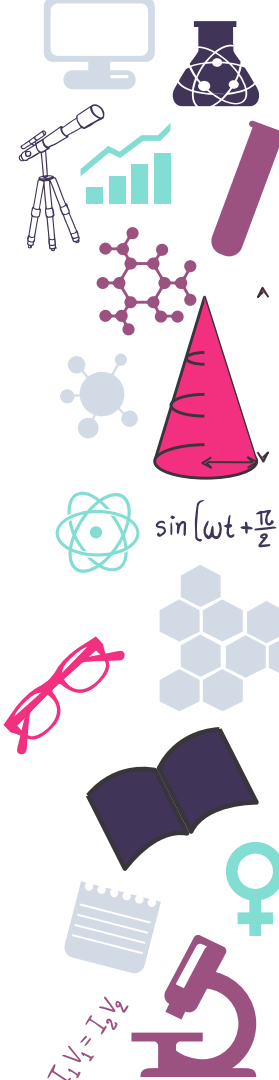
Introducción

Sobre el curso, sobre mi y sobre vosotros



Sobre el curso

- Qué es y de donde viene el proyecto Raspberry Pi
- Puesta en marcha de un sistema
- Uso de este dispositivo en el aula
- Proyectos y ejemplos de uso



¿Quien soy yo?

Héctor Alonso del Bosque

alonsodelbosque.hector@gmail.com

@hector6598

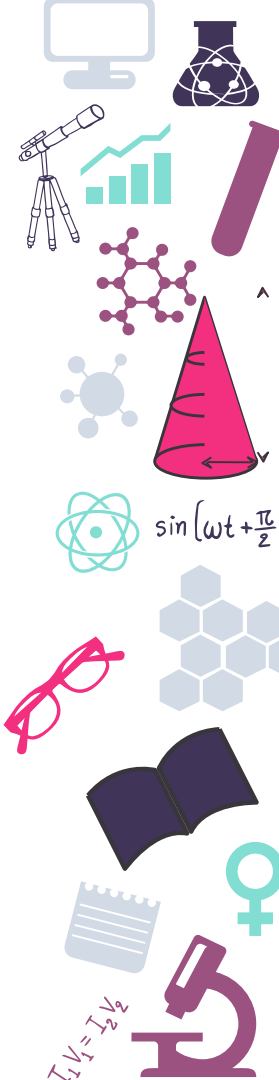
- Técnico superior de telecomunicaciones
- Técnico superior en administración de sistemas informáticos en red
- 6 Años de experiencia como administrador de sistemas
- Co-Autor del Libro - “Raspberry Pi para Hackers & Makers” de 0xWord https://0xword.com/libros/172-raspberry-pi-para-hackers-makers-pocs-hacks-just-for-fun.html
- 3 Años de experiencia como técnico electrónico en Mahle Ebikemotion
- Auditor de seguridad de desarrollo en Telefónica Eleven Paths
- Fundador de la empresa Wixet
- Sobre todo ... FRIKI !

wixet

2

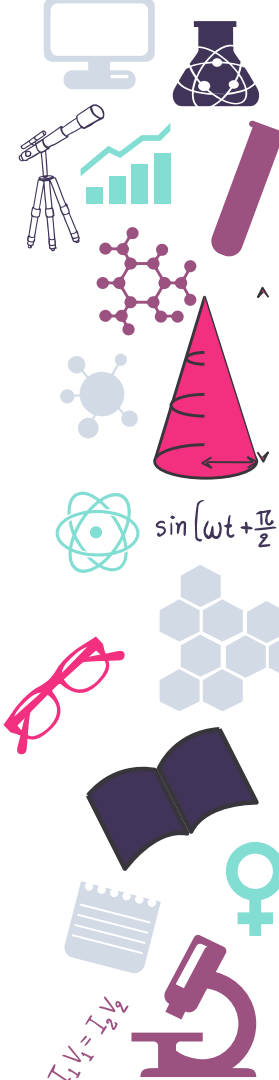
¿Qué es Raspberry Pi?

Inicios y trayectoria



Un poco de historia...

- En el 2006 se diseña el primer borrador de lo que será Rpi
- 2009 Se funda la Raspberry Foundation
- 2011 Placas Alfa de desarrollo
- 2012 Lanzamiento de la primera Raspberry
- 2021 Lanzamiento de Raspberry Pico con SoC propio



Los orígenes

- Raspberry Pi Alfa

- Raspberry pi B Rev1

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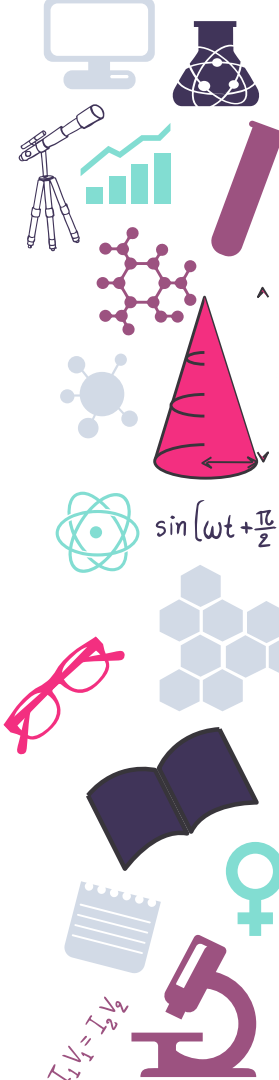
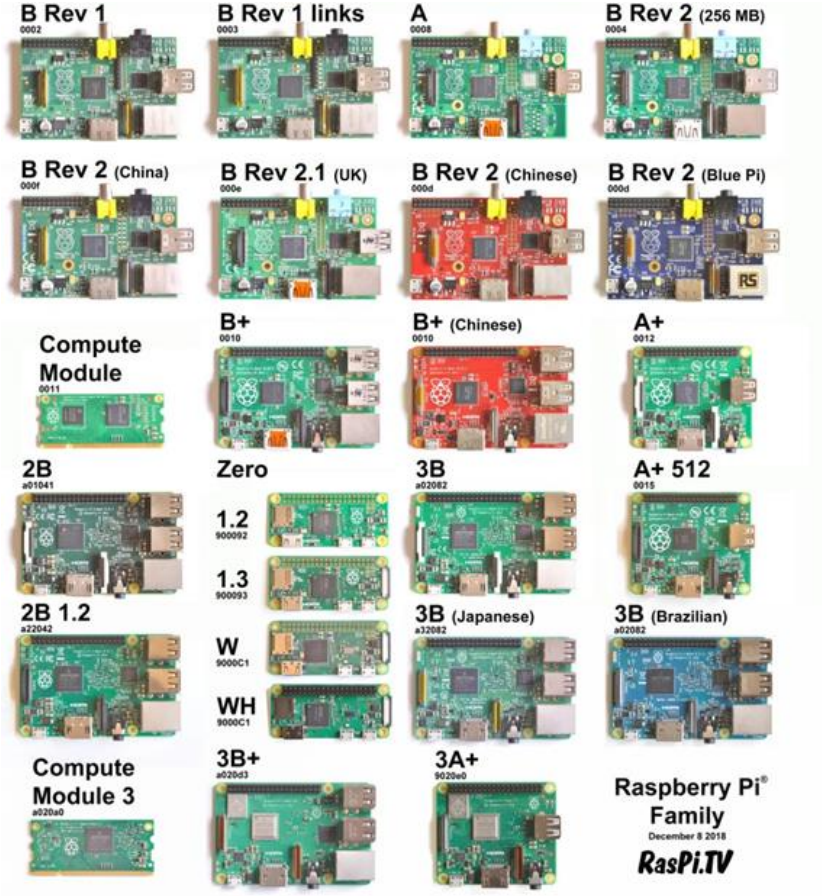
Versiones disponibles

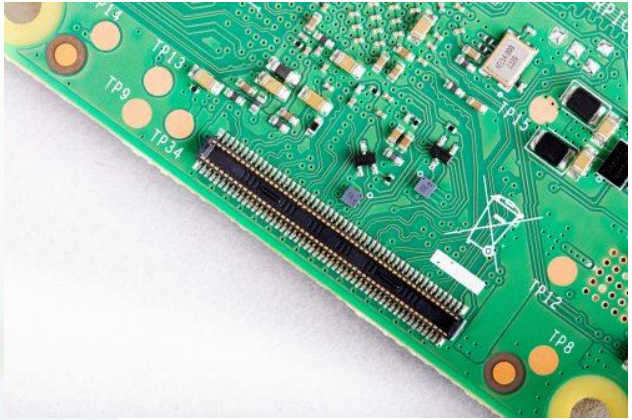
La evolución de un proyecto




B Rev 1
0002
B Rev 1 links
0003
A
0008
B Rev 2 (256 MB)
0004
B Rev 2 (China)
000f
B Rev 2.1 (UK)
000e
B Rev 2 (Chinese)
000d
B Rev 2 (Blue Pi)
000d
Compute Module
0011
B+
0010
B+ (Chinese)
0010
A+
0012
2B
a01041
Zero
1.2
900092
1.3
900093
W
9000C1
WH
9000C1
3B
a02082
A+ 512
0015
2B 1.2
a22042
3B (Japanese)
a32082
3B (Brazilian)
a02082
Compute Module 3
a020a0
3B+
a020d3
3A+
9020e0
Raspberry Pi® Family
December 8 2018
RasPi.TV

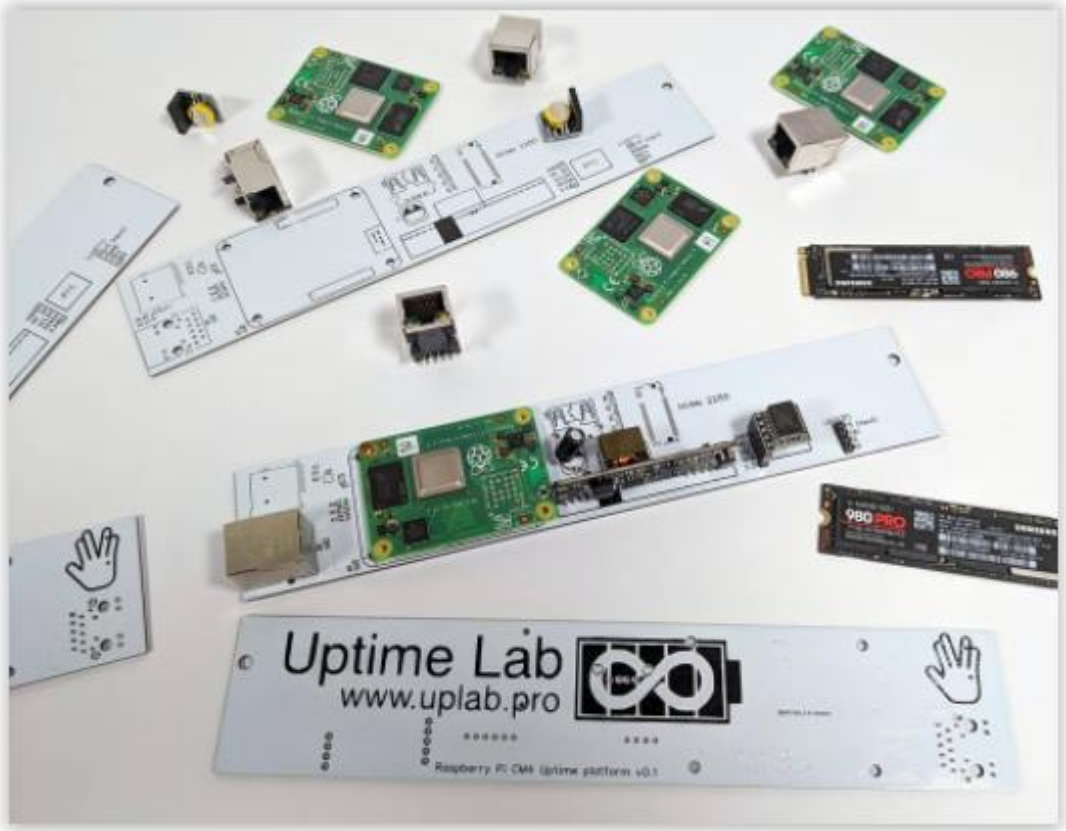
Raspberry Pi 4

Raspberry Pi CM



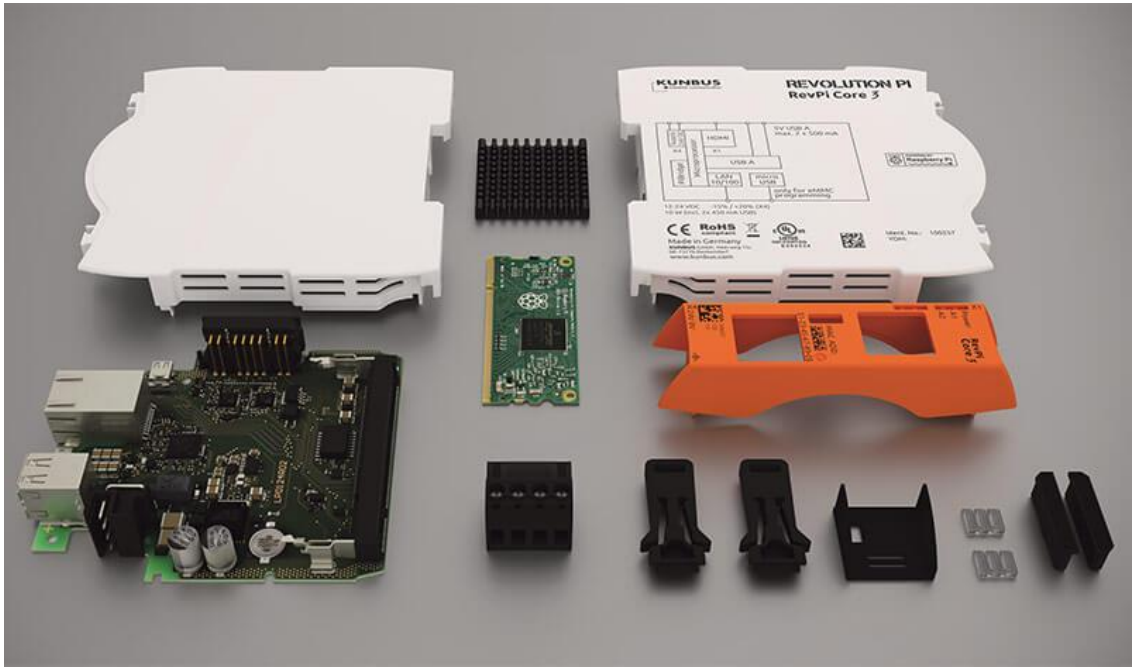
Raspberry Pi CM

Raspberry Pi CM

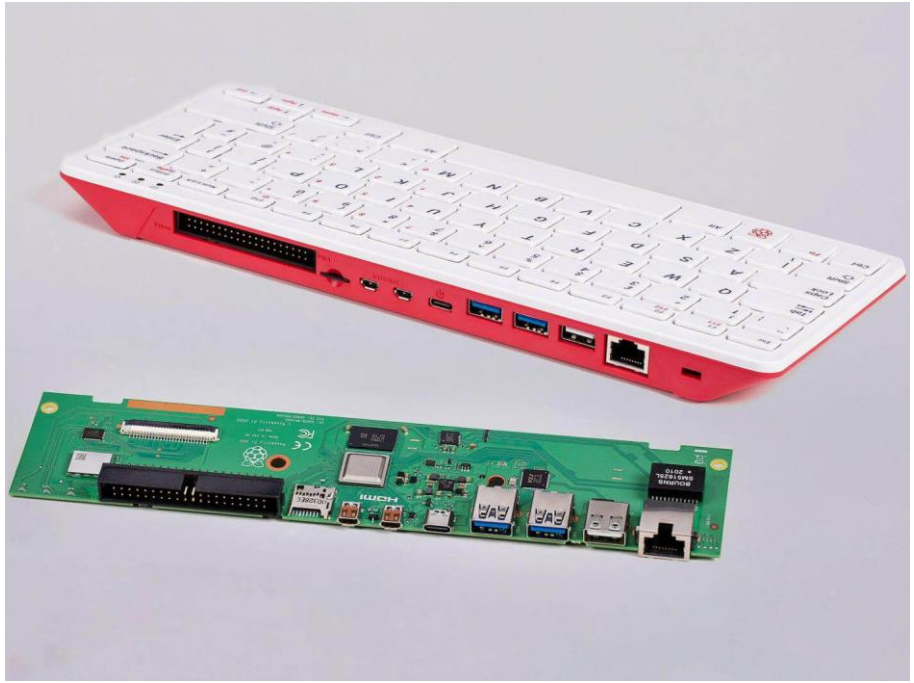


Raspberry Pi CM

Raspberry Industrial

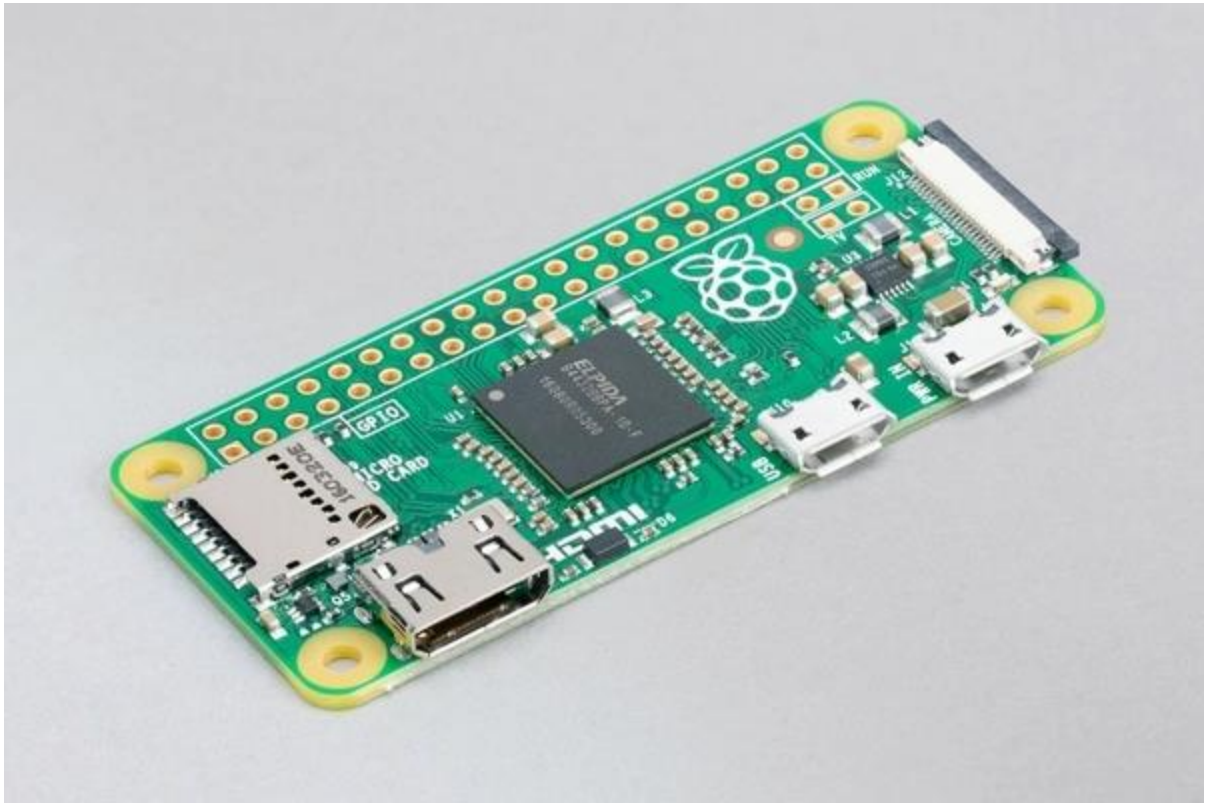


Raspberry 400

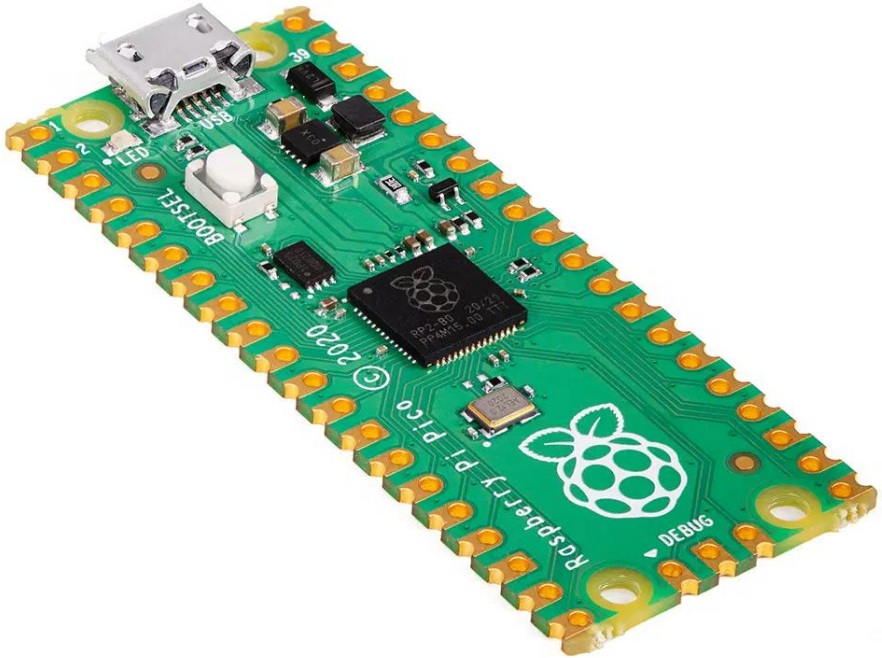


https://www.youtube.com/watch?v=ZSvHJ97d8n8

Raspberry Zero



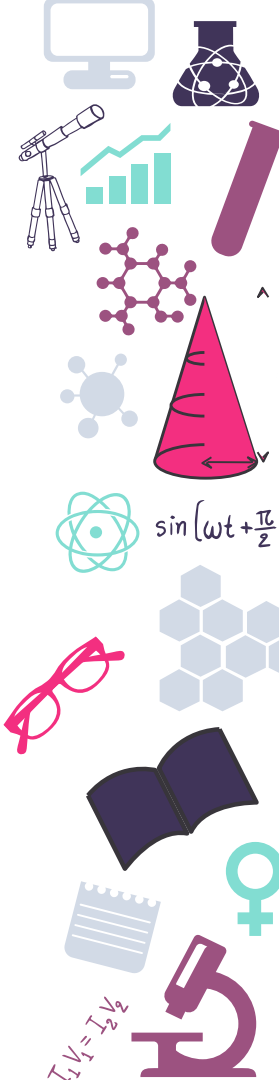
Raspberry Pico



4

Especificaciones y precios

¿Qué necesito en mi proyecto?



Raspberry Pi 1

CPU	Single Core 700 MHz
RAM	256 Mb
WiFi / BT	NO
Ethernet	NO (De serie)
USB	1 USB 1.0
Alimentación	5V / 2A
GPIO	26

Raspberry Pi 2 B

CPU	Quad Core 900 MHz
RAM	1Gb
WiFi / BT	NO
Ethernet	SI (10/100mbps))
USB	4 USB 2.0
Alimentación	5V / 2A
GPIO	40

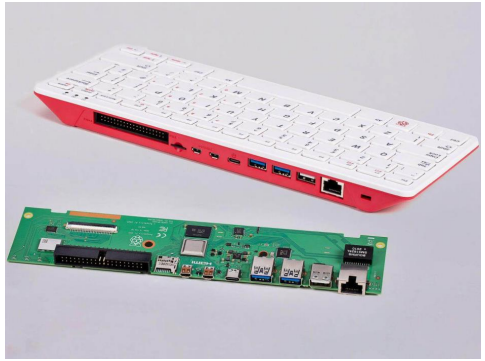
Raspberry Pi 3 B+

CPU	Quad Core 1200 MHz
RAM	1Gb
WiFi / BT	SI - BT 4.1 y Dual band 2.4 y 5GHz
Ethernet	SI (10/300mbps))
USB	4 USB 2.0
Alimentación	5V / 3A
GPIO	40

Raspberry Pi 4 B

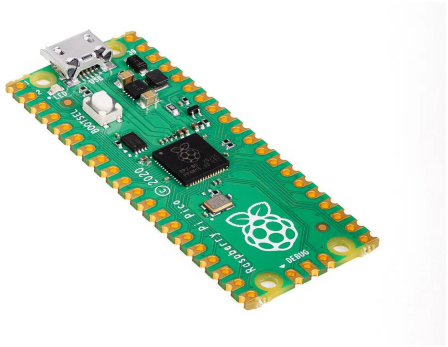
CPU	Quad Core 1500 MHz (64bits)
RAM	2Gb / 4Gb / 8Gb
WiFi / BT	SI - BT 5.0 y Dual band 2.4 y 5GHz
Ethernet	SI (10/100/1000 mbps “teóricos”)
USB	2 USB 2.0 / 2 USB 3.0
Alimentación	5V / 3A
GPIO	40

Raspberry Pi 400



CPU	Quad Core 1800 MHz (64bits)
RAM	4Gb
WiFi / BT	SI - BT 5.0 y Dual band 2.4 y 5GHz
Ethernet	SI (10/1000 mbps “teóricos)
USB	1 USB 2.0 / 2 USB 3.0
Alimentación	5V / 3A
GPIO	40

Raspberry Pico



CPU	Dual Core 133 MHz
RAM	264Kb SRAM / 2 MB Flash
WiFi / BT	NO
Ethernet	NO
USB	Soporte USB 1.1 modo host y device
Alimentación	5V / 3.3 V
GPIO	26

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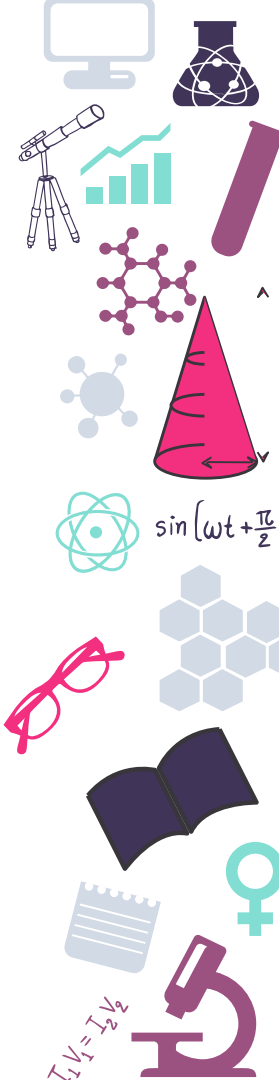
Alternativas

Por si fueran pocas...



Orange Pi

CPU	6 Core 2000MHz
RAM	4Gb / 16Gb Flash
WiFi / BT	BT 5.0 / Wifi 2.4/5 GHz
Ethernet	10/100/1000mbps
USB	2 USB 2.0 / 1 USB 3.0 / 1 USB 3.0 Tipo C
Alimentación	5V / 3.A
GPIO	GPIO1 – 40 / GPIO1 – 26

Precio	En torno a los 75€
http://www.orangepi.org/	

Beagle Bone

CPU	Cortex A8 / 1 GHz
RAM	512Mb / 4Gb Flash
WiFi / BT	NO
Ethernet	10/100mbps
USB	USB Modo cliente y anfitrion
Alimentación	5V / 3.A
GPIO	2 x 46 pines

Precio	En torno a los 38€
https://beagleboard.org/black	

Atomic PI

CPU	Atom x86 1.92 GHz
RAM	2 – 16Gb Flash
WiFi / BT	SI 2.4 / 5GHz / BT sin antena
Ethernet	10/100/1000 mbps
USB	USB 2.0 / USB 3.0 / Tipo C con Display port
Alimentación	5V / 3.A
GPIO	40 pines

Precio	Descontinuada pero en torno a 77€
https://raspberryparatorpes.net/rivales/sobre-la-atomic-pi/	

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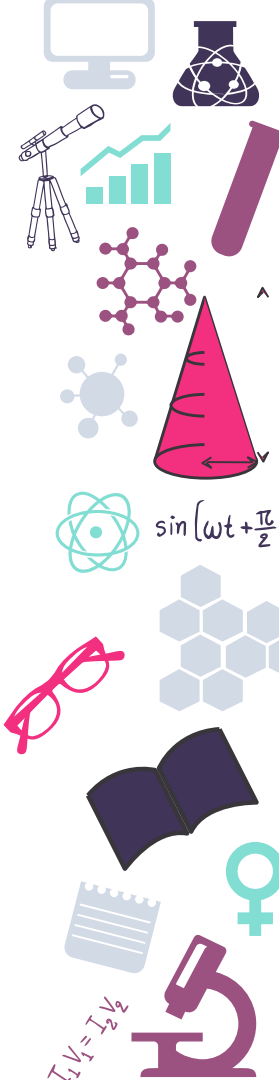
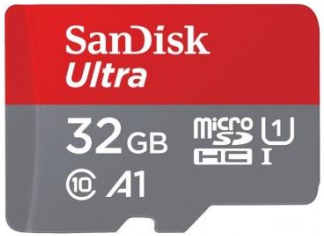
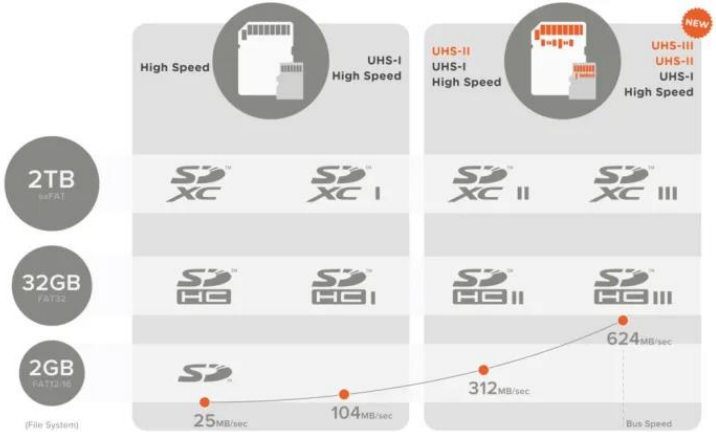
Materiales

Vamos a preparar la lista de la compra



Tarjeta Micro SD





Application Performance Class	Pictograph	Minimum Random Read	Minimum Random Write	Minimum Sustained Sequential Write
Class 1 (A1)*	A1 APP PERFORMANCE	1500 IOPS	500 IOPS	10MBytes/sec
Class 2 (A2)**	A2 APP PERFORMANCE	4000 IOPS	2000 IOPS	10MBytes/sec

Precio	Unos 15 a 20€

https://blog.330ohms.com/2020/05/27/como-seleccionar-la-microsd-de-mi-raspberry-pi/

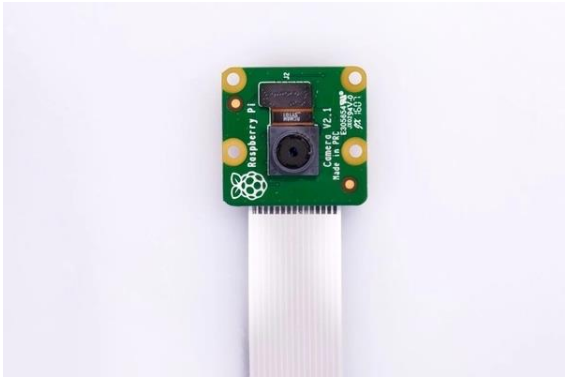
Adaptador de corriente

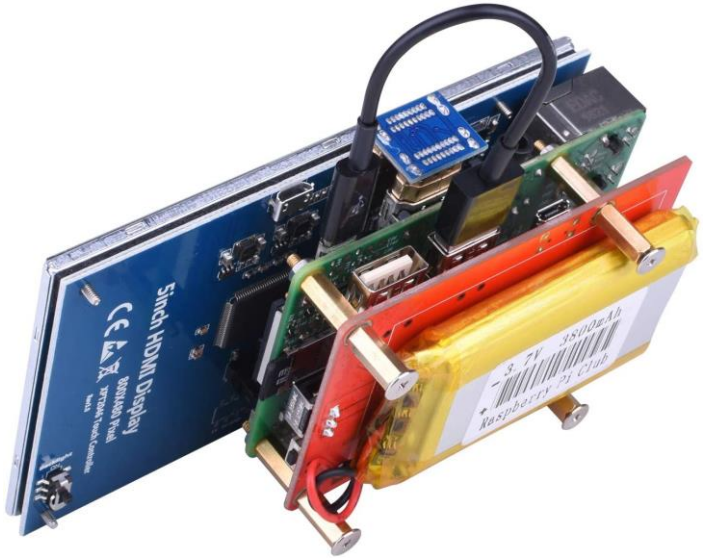
Precio	Unos 12€

Cableados

Precio	Unos 10€

Accesorios



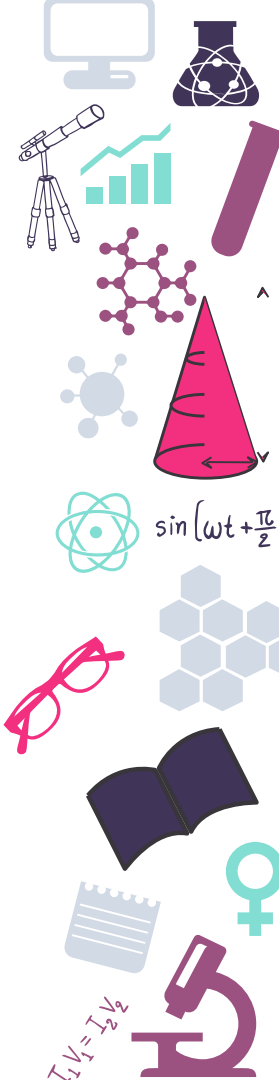


Precio	Muy variable

7

Conexiones

Interactuando con nuestra Raspi



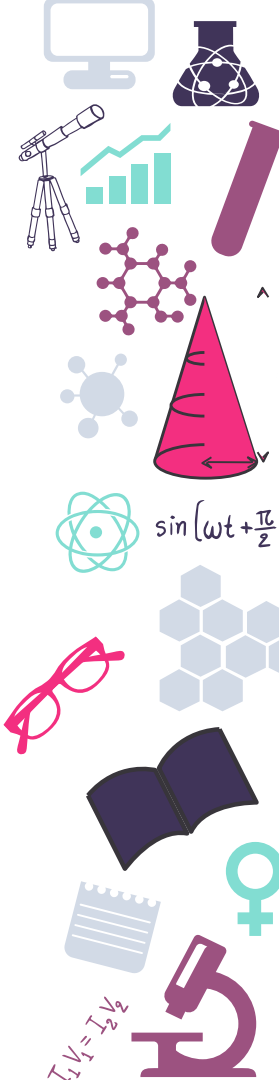
pinout.xyz

https://github.com/splitbrain/rpibplusleaf

Ejemplos uso GPIO

https://raspberrypihq.com/use-a-push-button-with-raspberry-pi-gpio/

https://www.comohacer.eu/gpio-raspberry-pi/



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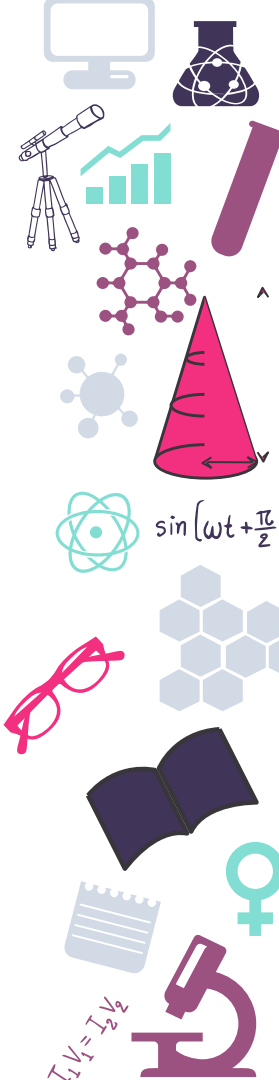
Sistemas Operativos

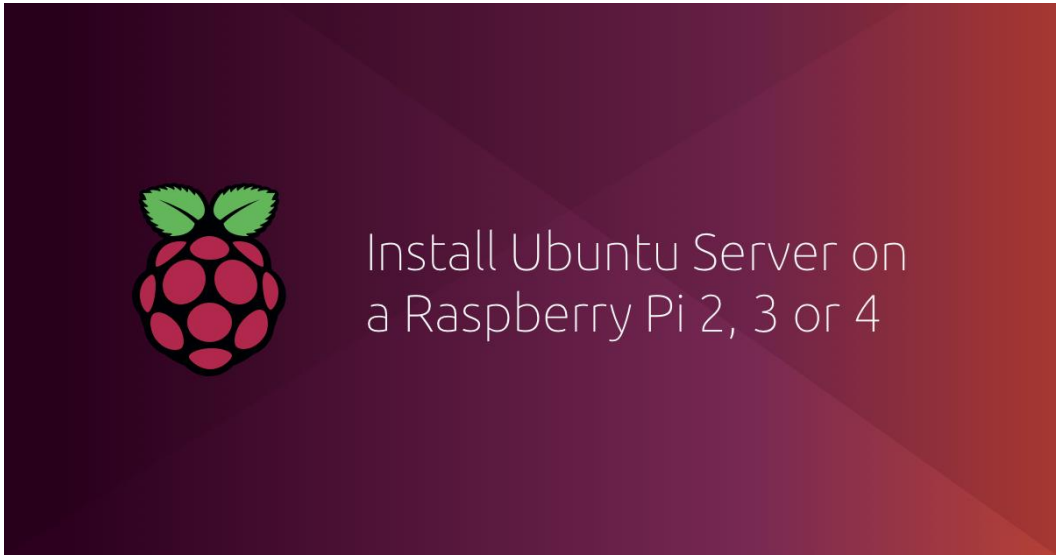
No hay hardware sin su software



Raspberry PI OS (Raspbian)

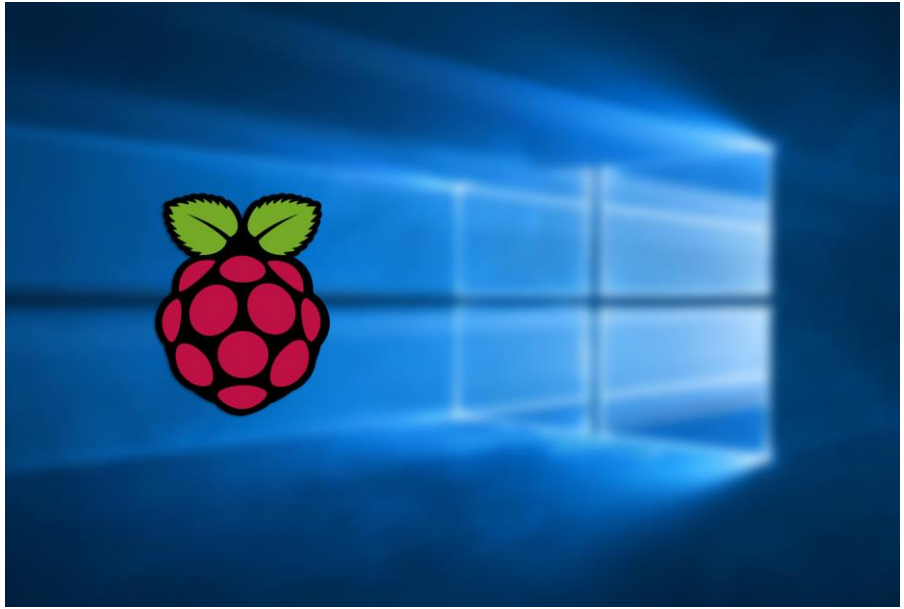
https://www.raspberrypi.org/software/operating-systems/

Ubuntu



https://ubuntu.com/download/raspberry-pi

Windows 10



https://www.worproject.ml/downloads

LibreELEC

https://libreelec.tv/

Retropie

https://retropie.org.uk/

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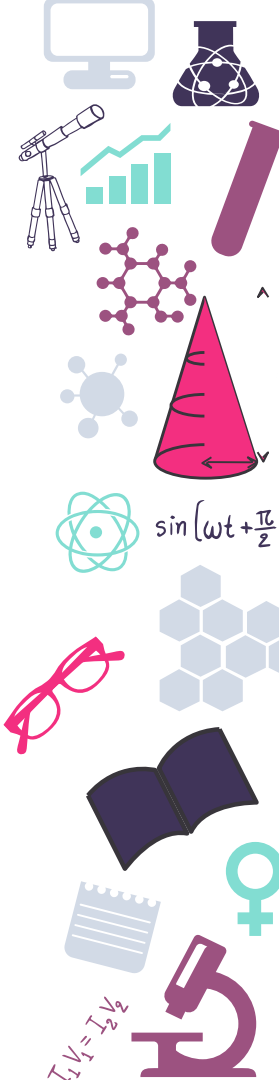
Puesta en marcha

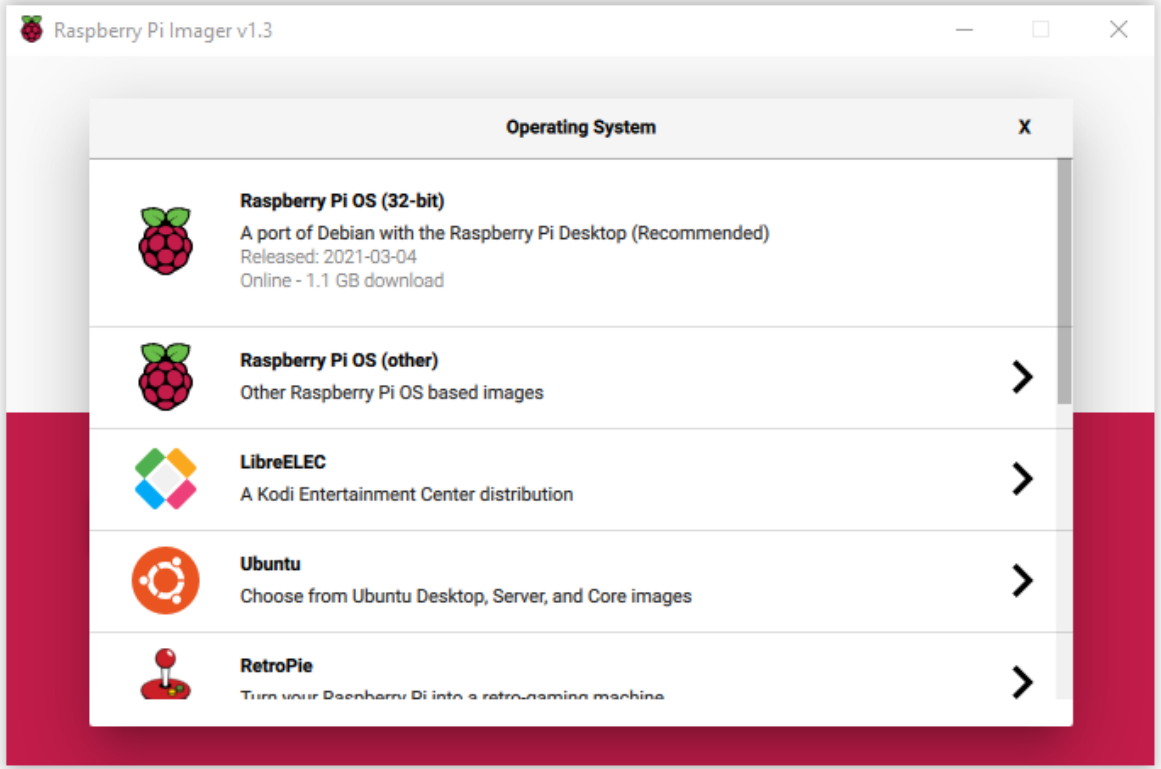
“Hello Word” Raspberry



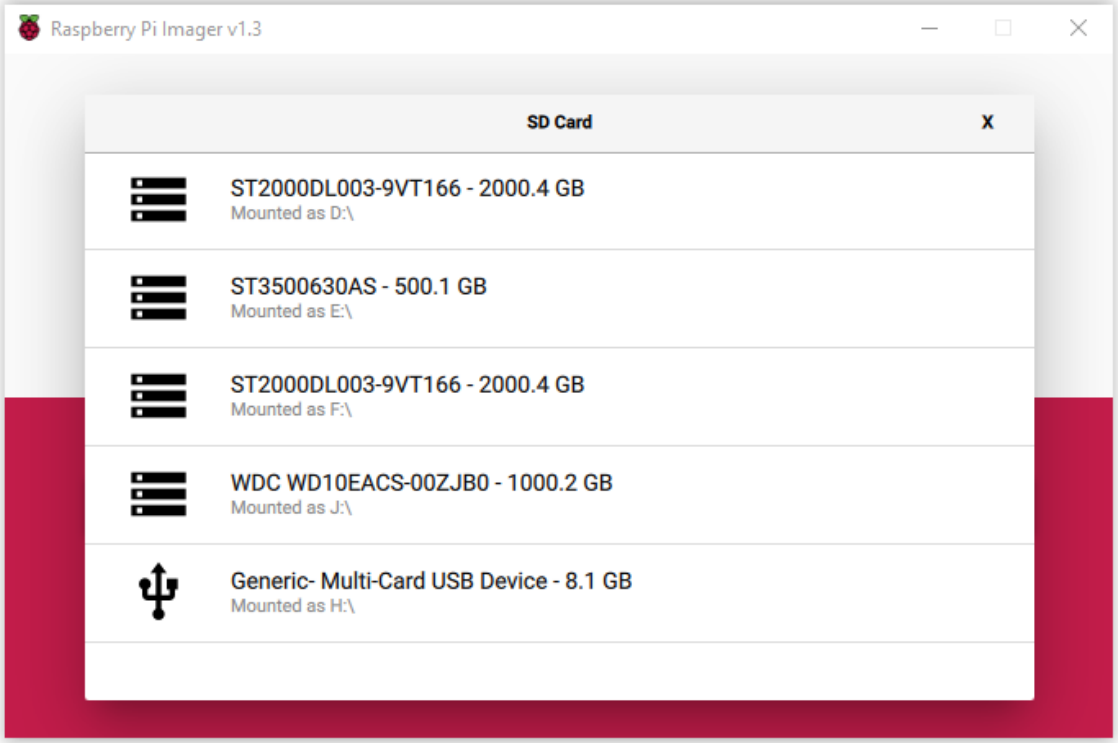
Instalación de la imagen

https://www.raspberrypi.org/software/

Instalación de la imagen



Instalación de la imagen



Instalación de la imagen

Instalando software

- Ofimatica
- Navegador
- Scratch
- Arduino

Clonando el sistema

- Piclone

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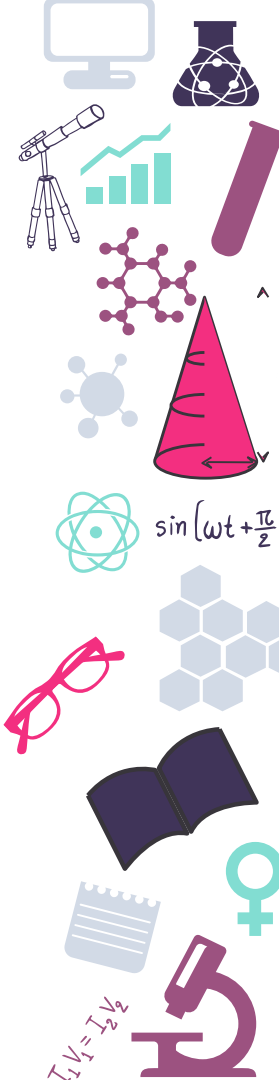
Proyectos y ejemplos

Ideas donde poderse inspirar



Ordenador impreso en 3D

https://learn.adafruit.com/mini-mac-pi

Devolviendo la vida a ordenadores

https://www.youtube.com/watch?v=5UBRUyofiiU&feature=emb_title

Pwngatochi

https://pwnagotchi.ai/

Robótica y automatismos

https://projects.raspberrypi.org/en/projects/build-a-buggy/4

https://www.instructables.com/SmartPost-Smart-Postal-Package-Locker/

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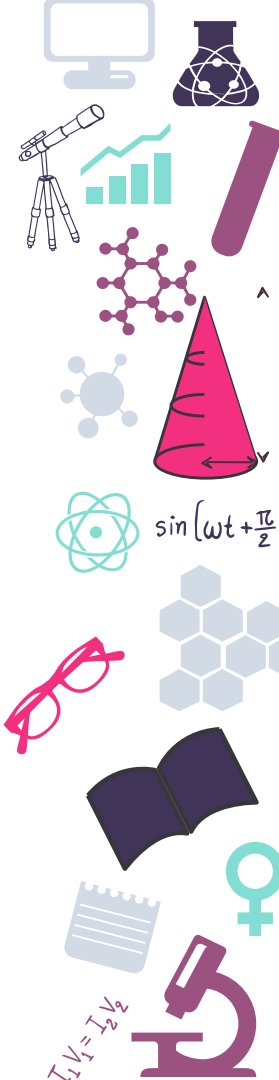
Uso didáctico en el centro

Ideas donde poderse inspirar



Joy-IT y EduBlocks

https://joy-it.net/en/products/rb-joypi

https://app.edublocks.org/

¡Gracias!

¿Preguntas?

Métodos de contacto:

@hector6598

alonsodelbosque.hector@gmail.com

Credits

Special thanks to all people who made and share these awesome resources for free:

- Presentation template designed by Slidesmash
- Photographs by pexels.com and unsplash.com

Presentation Design

This presentation uses the following typographies and colors:

Free Fonts used:

https://www.fontsquirrel.com/fonts/Nixie-One

https://www.fontsquirrel.com/fonts/nunito

Colors used