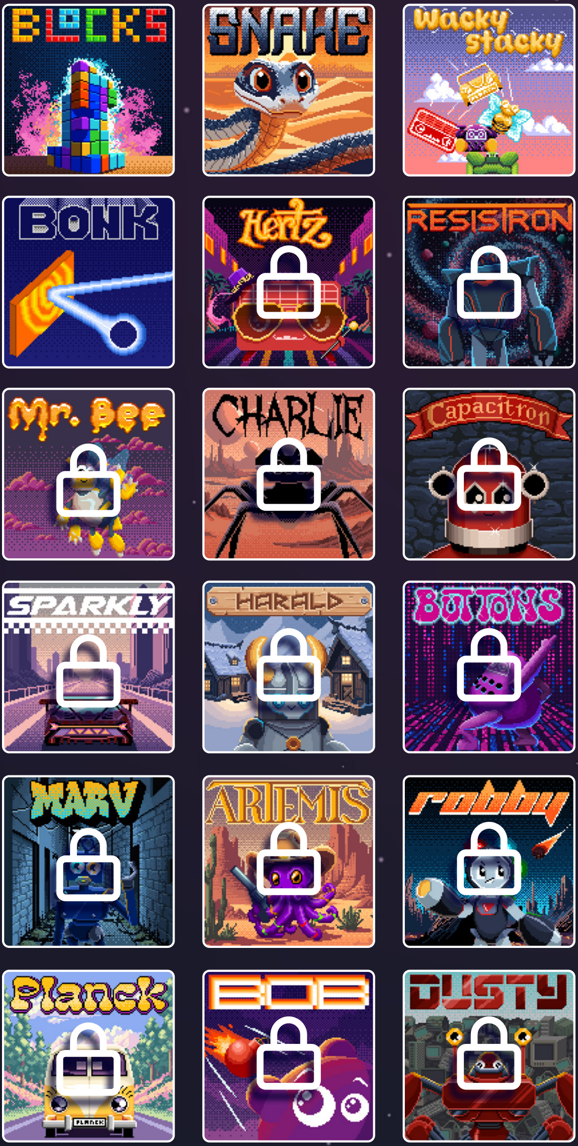
CREATOR'S BOOKLET

BIT 2.0

CircuitMess

UNLOCK ALL VIDEO GAMES



Meet CircuitMess BIT

Introducing CircuitMess BIT, a DIY game console that will help you enter the exciting world of robotics and programming.

Although it is named after the most fundamental computing and digital communication unit, BIT is much more. BIT will teach you how to make your own video games, different electronic components, and the basics of programming.

How does it work?

Follow the guides and assemble your game console

Play the video games or make your own

Wacky Robots (sold separately) can be used to unlock new video games

What is CircuitMess?

CircuitMess started in 2016 when Albert (our CEO) was 17.

Albert loved tinkering with electronics, and one of his first projects was a DIY game console.

People liked the idea, so he launched it on **Kickstarter**, which raised $100,745!

After that, CircuitMess was born. We are a small and fast–growing team of tech lovers who wish to share our love of creating new technology with the rest of the world!

Albert

The mission

Everybody knows how important technology is, but less than 1% of the population knows **HOW TO MAKE** new technology.

We're here to change that! With our kits, we want to inspire people to be **CREATORS** instead of just consumers.

What's inside the box?

1 Acrylic casings

2 PCB

3 Li-Po battery

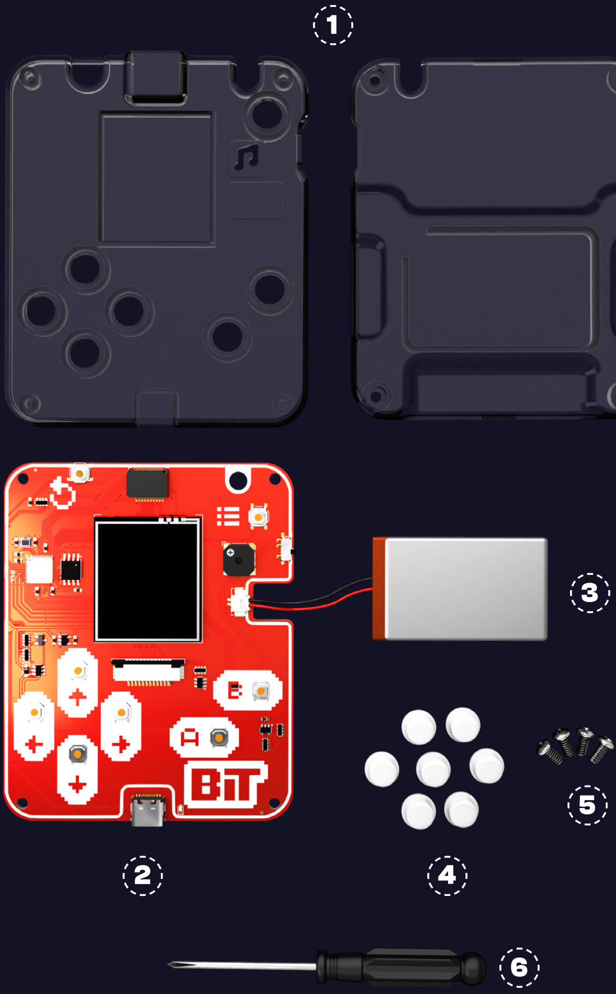
4 Plastic caps for pushbuttons

5 Plastic bolts

6 Screwdriver

You'll learn about:

- Electronics and different electronic components
- Pixel Art and video game creation
- Programming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Gaming through time

1972

Pong™ was the first commercially successful video game.

1977

Mattel Auto race™ was the first handheld electronic game.

1981

Donkey Kong was released. Jumpman, one of the characters, will go on to become Super Mario.

1989

Nintendo Game Boy

1991

Sonic the Hedgehog

2001

Xbox

2016

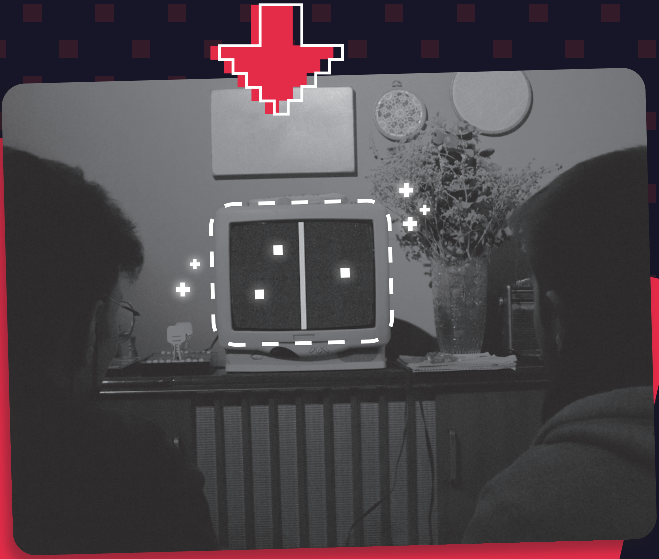
Pokemon Go

2022

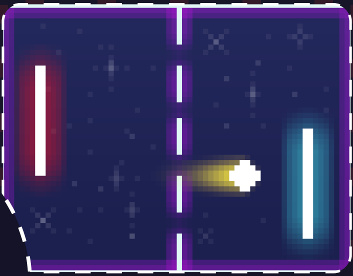
CircuitMess CircuitPet

Unexpected global sensation

Pong, the first video game, was inspired by a tennis match.



Atari, a well-known American computer company, created the first video game. The game was created after the company’s founder, Nolan Bushnell, assigned an exercise task to Allan Alcorn.



Pong on the BIT game console

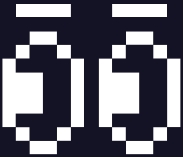
Bushnell was so impressed with the game and Allan’s work that he decided to develop and market it.

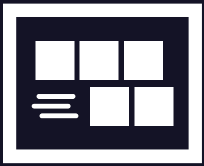
Pong is a two-dimensional table tennis simulation game that you’ve most likely played a hundred times (if not you, your parents have!).

New (old) art

Have you ever heard of the term “Pixel Art”?

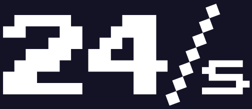
The pixel is the basic unit of programmable color on a computer display or in a computer image.



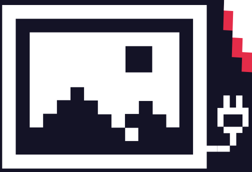


The frame rate is the rate at which a number of frames appear within a second. The unit of measurement we use is fps (frames per second).

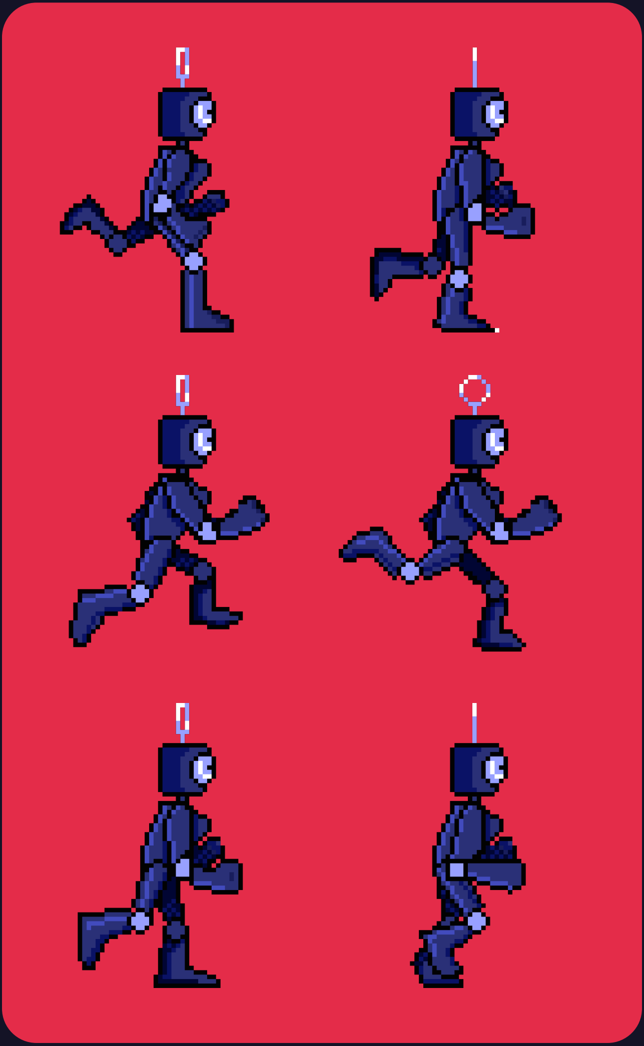
The standard frame rate of **24fps** is used in movies, streaming video content, and even smartphones.



Anything higher than **30fps** is mainly used to create slow–motion video or to record video game footage.



The art of bringing otherwise inanimate objects or illustrated / 3D–generated characters to life is known as **animation**. It is created by rapidly projecting sequenced images one after the other to create the illusion of life.



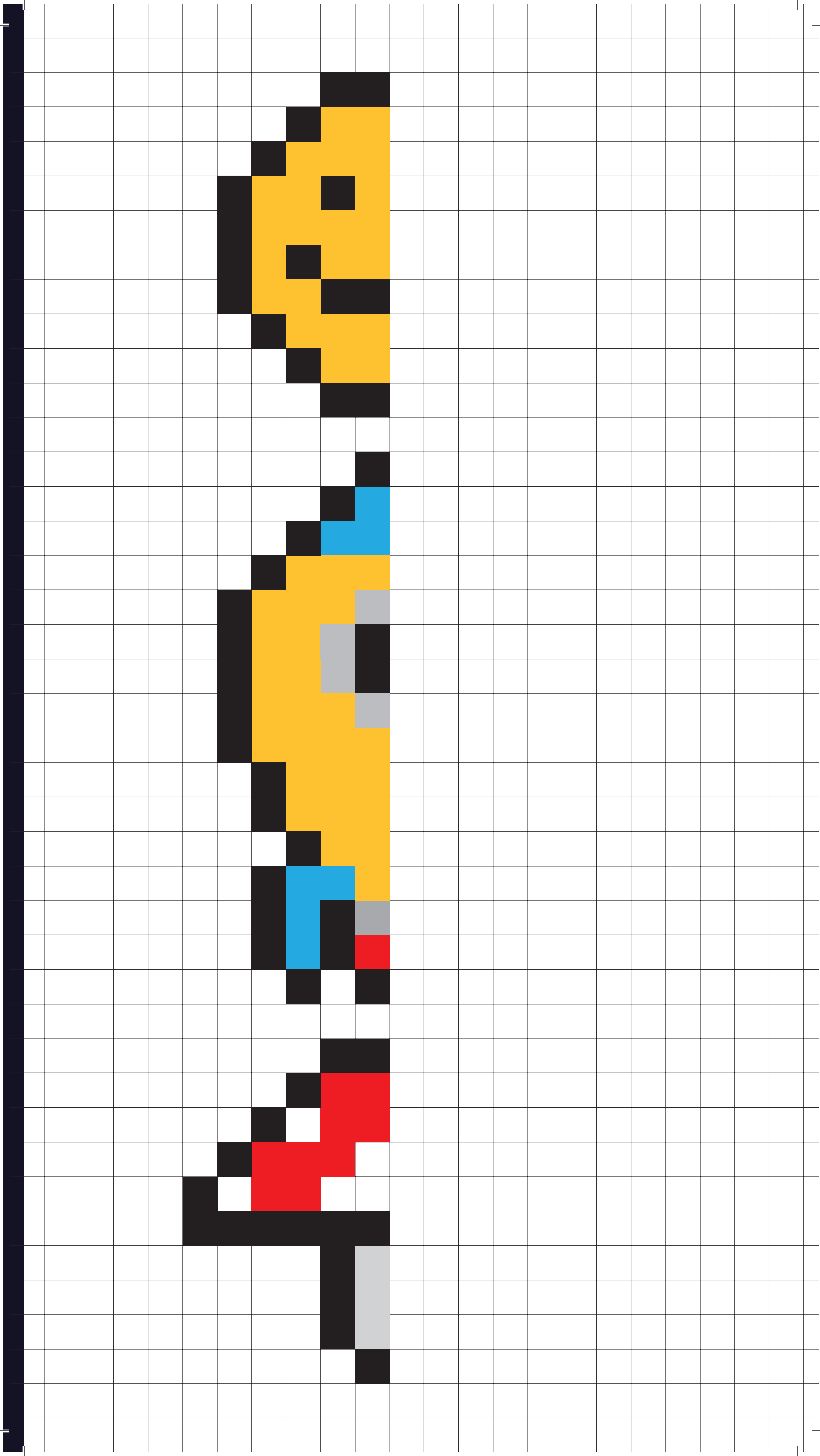
Pixel art is a type of digital art created with graphical software in which images are built entirely from pixels.

Pixel art was born in the 1970s, and some of the earliest examples were simply squares and rectangles.

SuperPaint was the precursor to modern graphic programs like Photoshop, and it was used by NASA as a way to illustrate its discoveries and data.

As the quality of the software improved over time, **pixel art** saw a decline and then a revival of its 8–bit values.

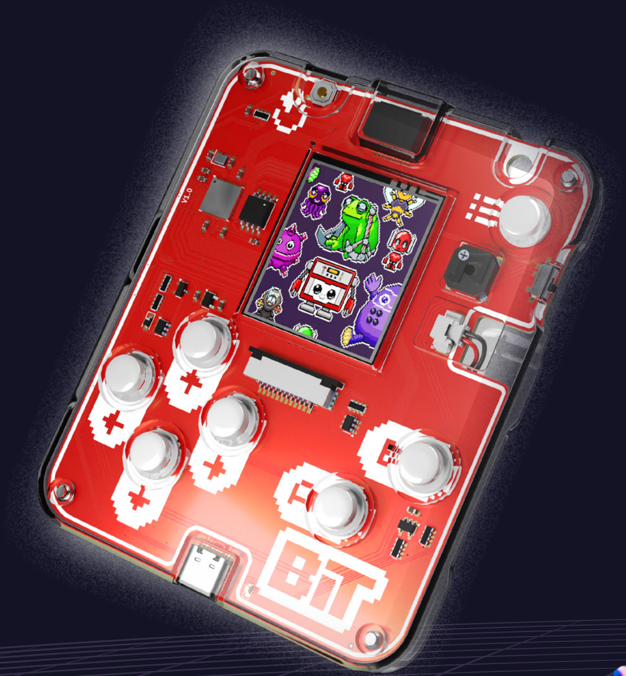
Try it yourself!
Finish the drawings by painting in the squares.

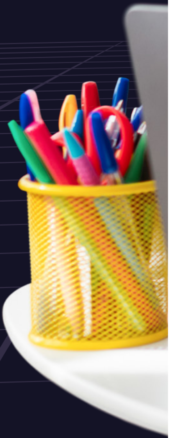


Did you know that you can code your Bit?

The fun does not stop with building!

You can code your Bit in **Python** using our programming interface called **CircuitBlocks**.





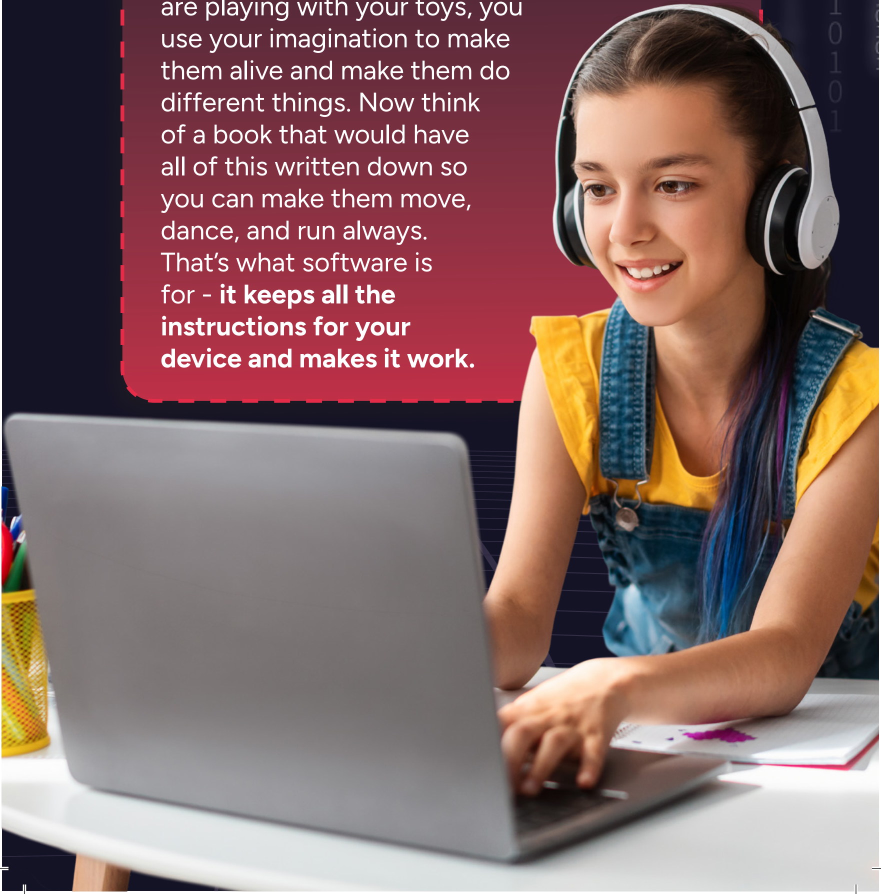
But wait! Let’s take a step back and go over the **basics before coding like pros**!

Exploring the purpose and power of coding

Coding is one of the most important skills of today that can help a person gain some valuable knowledge or even get better jobs. To code or to program something means to **give your device a set of instructions on what to do**.

And, maybe you heard in school or in the movies the mention of the word **software** but never knew what it is.

Imagine it like this: When you are playing with your toys, you use your imagination to make them alive and make them do different things. Now think of a book that would have all of this written down so you can make them move, dance, and run always. That's what software is for - **it keeps all the instructions for your device and makes it work.**



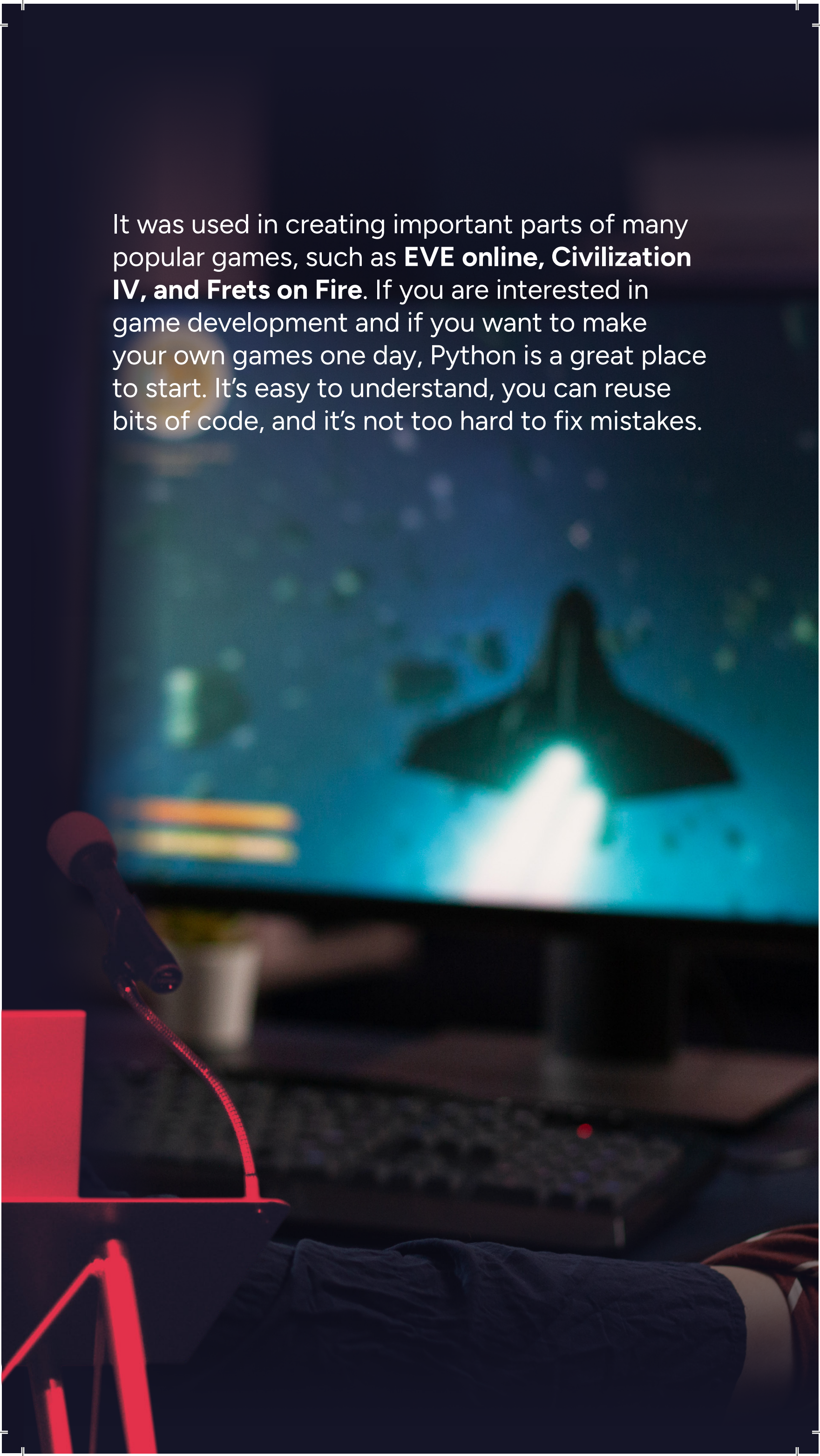
Programming languages

Just like people from all around the world speak thousands of different languages, computers do too. These languages are called **programming languages**.

In CircuitBlocks, you'll be able to code in one of the most popular programming languages - **Python**.

Python is really friendly and easy to learn if you are a total beginner. It was created by **Guido van Rossum** out of boredom during the Christmas holidays. And guess what? The name doesn't come from a snake but from Guido's favorite comedy show, "Monty Python"!

It was used in creating important parts of many popular games, such as **EVE online, Civilization IV, and Frets on Fire**. If you are interested in game development and if you want to make your own games one day, Python is a great place to start. It's easy to understand, you can reuse bits of code, and it's not too hard to fix mistakes.



Different coding languages

Did you know that Python is just one of many coding languages out there?

Let's take a look at some of the coolest ones:

Java

This language, created by Sun Microsystems (now Oracle), is great for making big apps and even Android games!

PHP

Want to make a website that changes as you use it? PHP is the way to go! It's perfect for creating dynamic web pages.

Swift

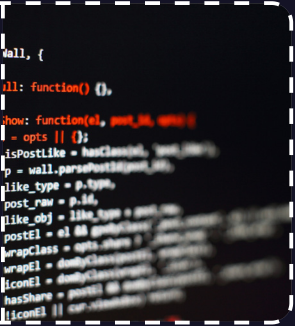
A programming language developed by Apple for developing iOS and macOS applications.

JavaScript

Netscape developed a high-level, dynamic, interpreted programming language in the mid-1990s. You can use it to create awesome web interfaces and even apps for your phone!

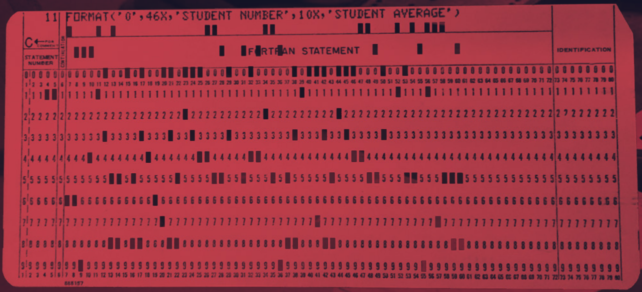
Ruby

This one's special because it's the first open-source language.



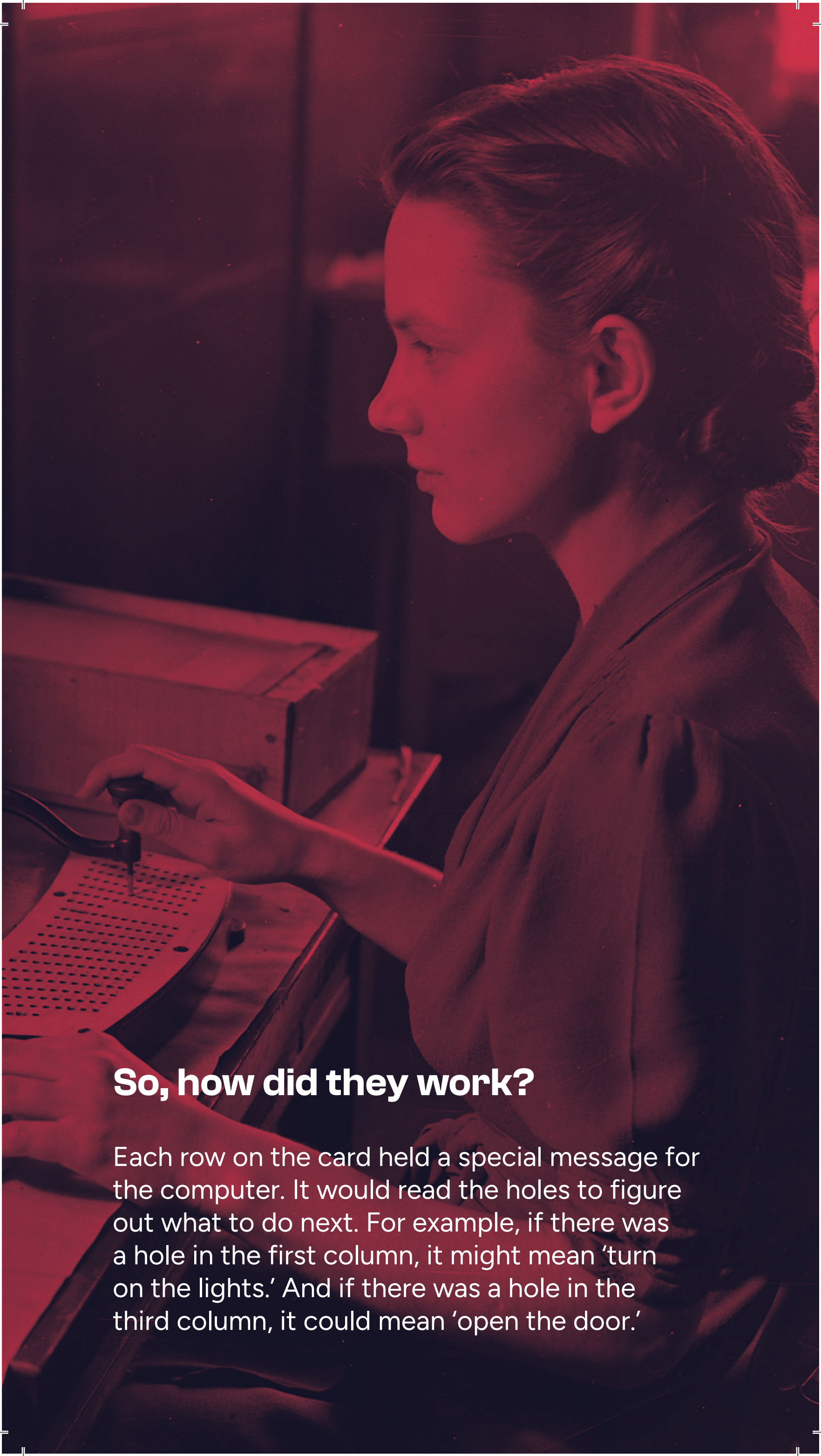
Punched cards

Back in the day, before USB drives and cloud storage, people used punched cards to keep track of information. Imagine a stack of cards, kind of like playing cards, but instead of pictures and numbers, they had little holes punched in them.



```
11 FORMAT('0',46X,'STUDENT NUMBER',10X,'STUDENT AVERAGE')
```

These cards were super important for computers in the 20th century. They helped store, input, and output data. But nowadays, we don't really use them anymore.



So, how did they work?

Each row on the card held a special message for the computer. It would read the holes to figure out what to do next. For example, if there was a hole in the first column, it might mean 'turn on the lights.' And if there was a hole in the third column, it could mean 'open the door.'

Fun facts

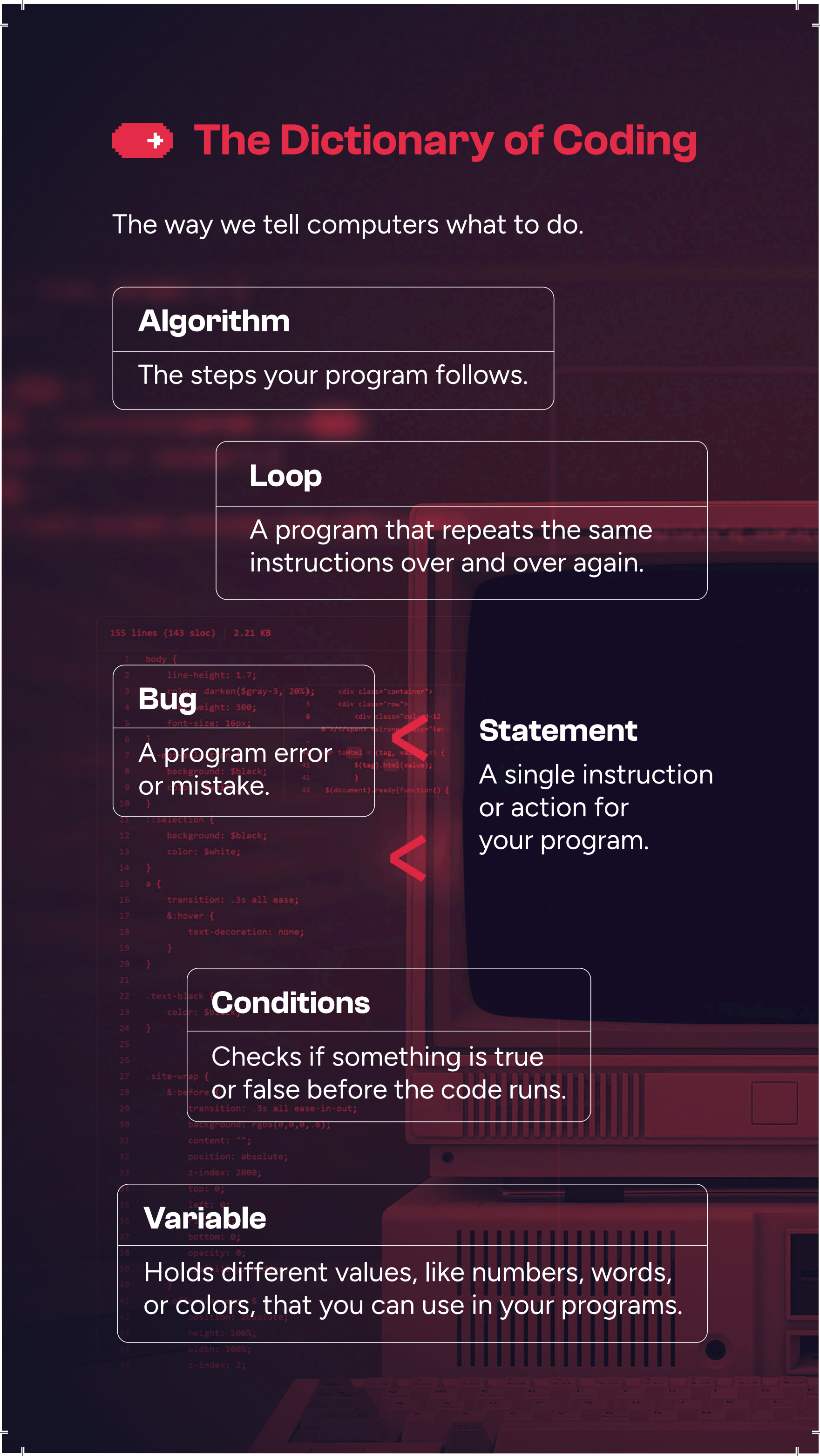
NASA's space shuttles in the 1970s had **less code than today's mobile phones**.

In the **US** there are around **350 spoken languages**, while there are **over 700 coding languages**.

It is a **requirement** for astronauts to know how to code.

Margaret Hamilton made the computer code that saved the Apollo **Moon landing** mission.

The **first programming language** in the world was **FORTRAN** (an acronym for Formula Translation), and it was created in **1956**.



The Dictionary of Coding

The way we tell computers what to do.

Algorithm

The steps your program follows.

Loop

A program that repeats the same instructions over and over again.

Bug

A program error or mistake.

Statement

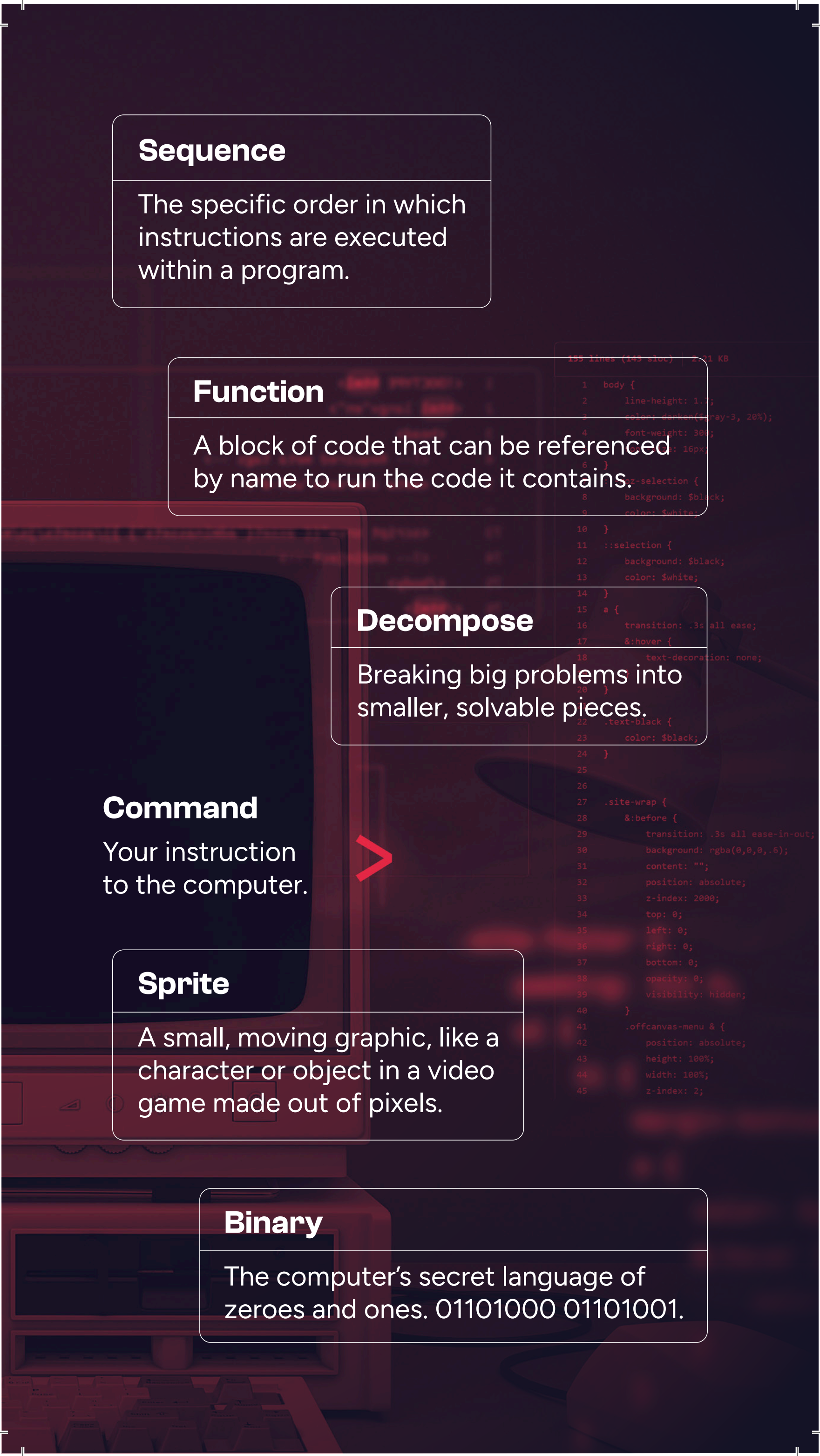
A single instruction or action for your program.

Conditions

Checks if something is true or false before the code runs.

Variable

Holds different values, like numbers, words, or colors, that you can use in your programs.



Sequence

The specific order in which instructions are executed within a program.

Function

A block of code that can be referenced by name to run the code it contains.

Decompose

Breaking big problems into smaller, solvable pieces.

Command

Your instruction to the computer.

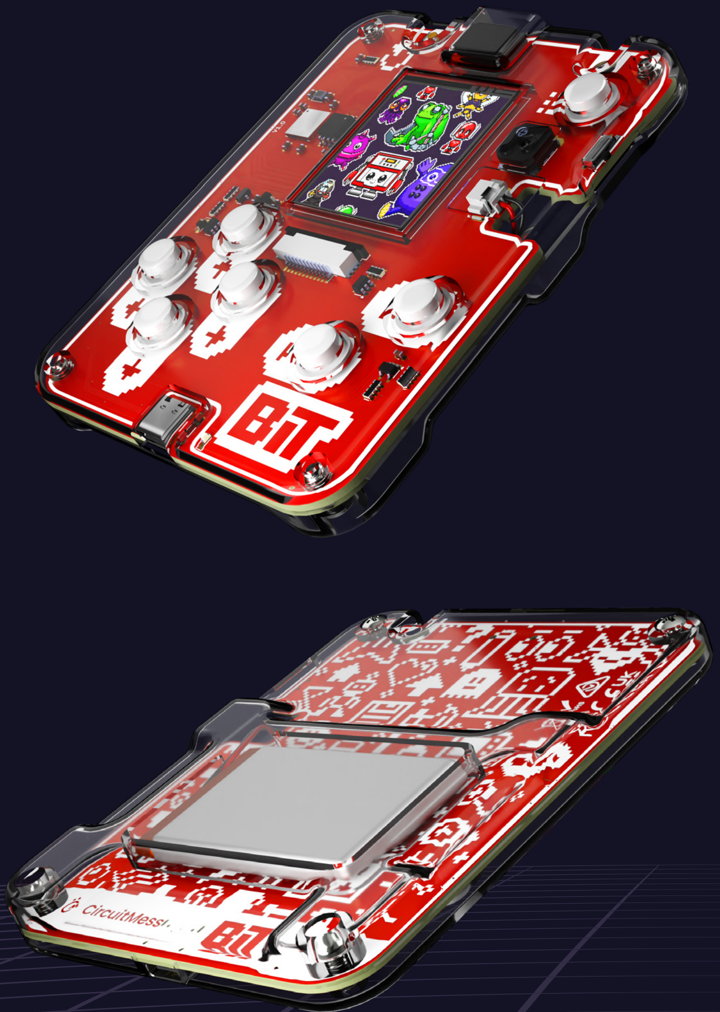
>

Sprite

A small, moving graphic, like a character or object in a video game made out of pixels.

Binary

The computer’s secret language of zeroes and ones. 01101000 01101001.


BIT
CircuitMess
BIT

Safety first

Before you start with the assembly, pay attention to the following safety measures:

1. Handling a screwdriver is not recommended for children under the age of 7!

2. **Keep CircuitMess Bit away from young children! This product contains small components that are dangerous to children under the age of 3.**

3. If you are a minor, assemble Bit strictly with the help of an adult.

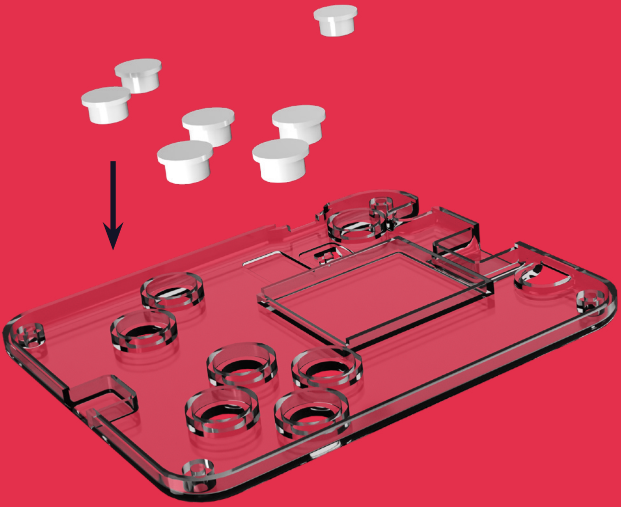
Closely follow all the instructions you received in this kit and those found on our online pages so that no one gets hurt.

If you have never used a screwdriver, carefully follow the assembly instructions on our website and, if necessary, ask someone more experienced or older than you to help you.

If you are having problems with our kit, contact our customer support via email at contact@circuitmess.com.

Build Guide

1



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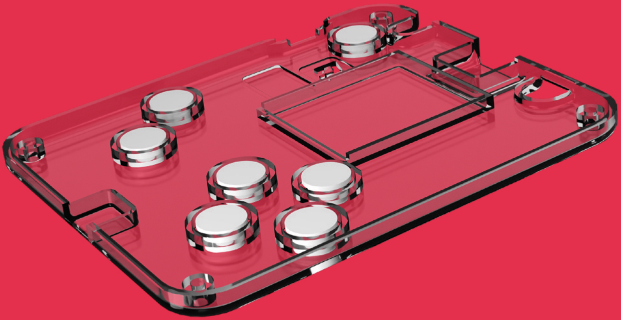

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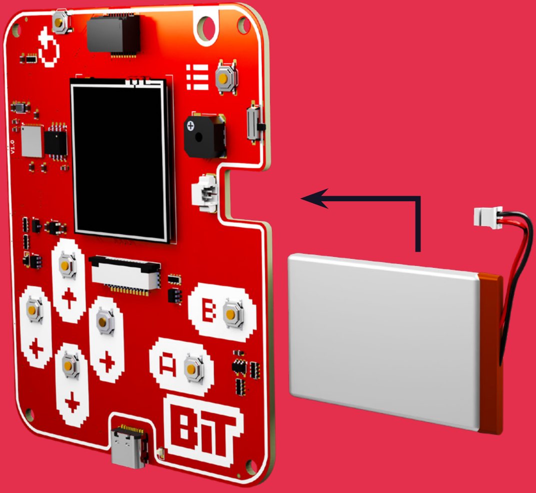

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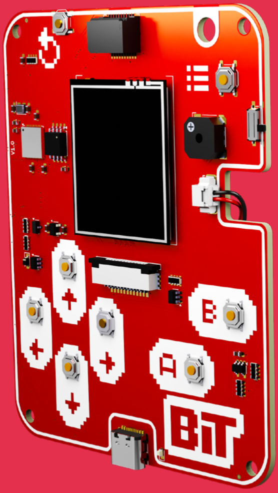

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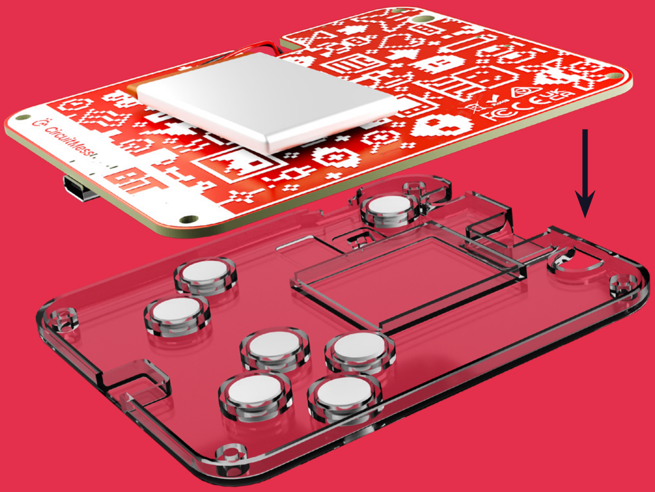

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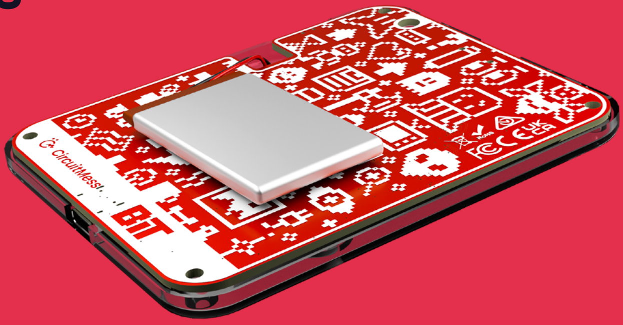

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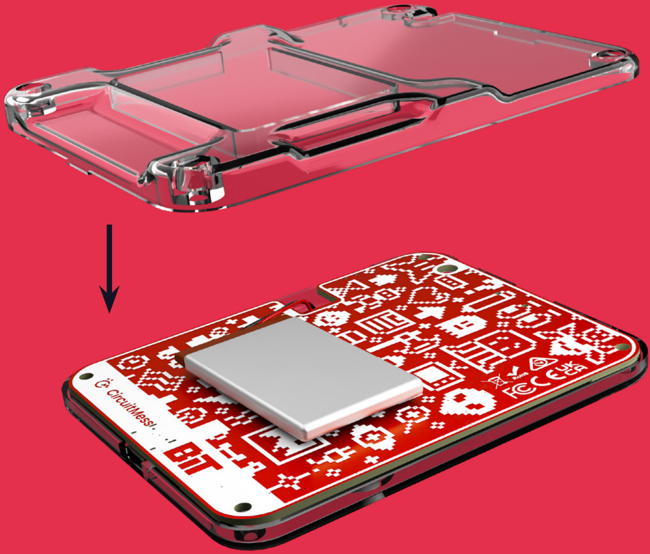

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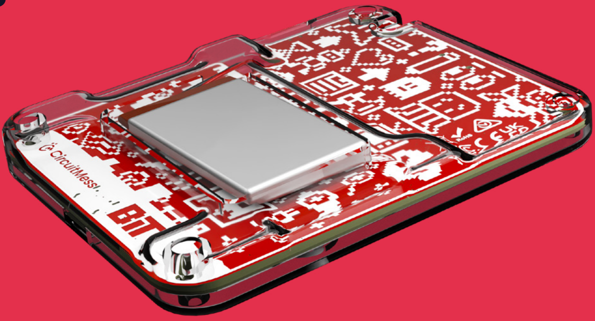

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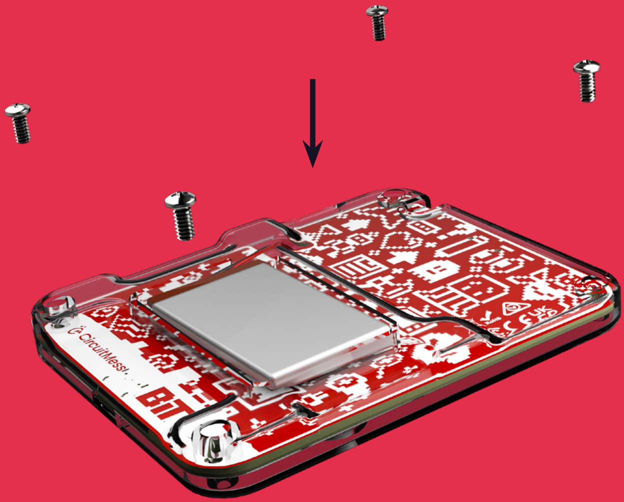

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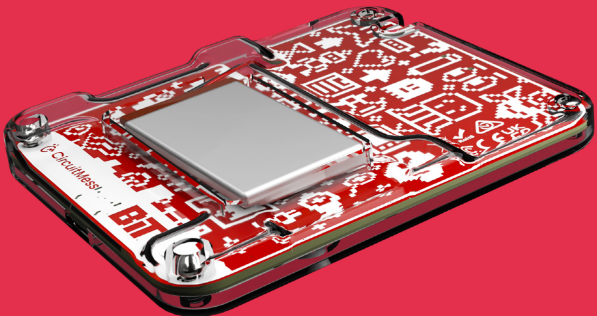

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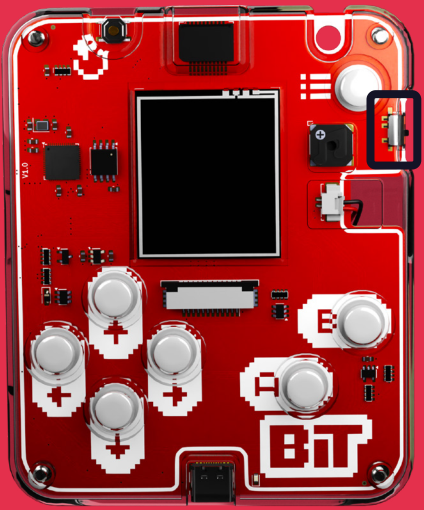

On-off switch

Scan the QR code to learn how to use your device

V1.0
B
A
BIT

Questions and answers

1. What games are pre-installed on BIT?

BIT comes preloaded with four classic games: Blocks (a reimagining of Tetris), Bonk (an homage to Pong), Wacky Stacky (a tower stacking arcade game) and Snake. These games provide instant fun and a nostalgic experience.

2. Can I program my own games on BIT?

Yes! BIT is programmable through CircuitBlocks (our beginner-friendly online coding platform). For more advanced users, programming in Python or C++ is also supported, providing flexibility for various skill levels.

3. How do I unlock additional games on BIT?

You can unlock additional games by connecting Wacky Robots to your BIT. Upon connection, BIT recognizes the robot and unlocks a unique game associated with it.

4. My BIT is not recognizing the connector. What can I do?

Since BIT connectors only work from one side, it may be necessary to turn them to the other side.

5. How can I restore the firmware on BIT?

You can restore BIT’s firmware through **code.circuitmess.com**. Ensure the device is ON when connecting it to your computer and be sure to choose the correct COM port when prompted.

Thank you for purchasing CircuitMess Bit.

For more information and detailed instructions on assembling and using your device, visit our official website: circuitmess.com/resources/guides

Important safety information for CircuitMess Bit

Read all safety information before using the device.

WARNING: Failure to follow these safety instructions could result in fire, electric shock, injury, and damage to your device or other objects. Read all safety information before assembling and using this device.

This product is a do–it–yourself device, and for it to work properly, you must assemble it according to the instructions you'll find on our website.

If you are a minor, assemble it only under an adult's supervision to avoid potential risks.

CircuitMess Bit contains sensitive electronic components. CircuitMess Bit or its components may be damaged if dropped, burned, punctured, crushed, or in contact with liquid. If you suspect that any part of your CircuitMess Bit kit (especially the batteries) is damaged, stop using the device. Using a damaged device may cause injury.

Use only authorized accessories compatible with your device and/or the supplied tools.

The device's operating temperature ranges from 0 ° C ~ 40 ° C.

Using this device in conditions outside this temperature range may damage the device.

Please turn off CircuitMess Bit after use and store it in a safe and dry location.

The included battery must be recycled appropriately and/or disposed of separately from household waste.

Improper handling of batteries can cause a fire or explosion. Dispose of or recycle your device, battery, and accessories according to local regulations.

The included battery is NOT rechargeable.

- Do not short–circuit the battery

- Improper use of the battery can cause overheating, burns, or other injuries.

- Do not leave the battery directly exposed to intense sunlight.

- Do not use the device or the battery in high–temperature conditions. Overheating may cause an explosion.

- Do not disassemble or damage the battery to avoid battery leakage, overheating, or explosion.

- In the case of deformation, stop using the battery immediately and dispose of it properly.

- If you are not sure whether your device or the included battery is safe to use, turn off the device, put it in a safe place, and contact our customer support via email at contact@circuitmess.com.

Keep the device dry.

Do not attempt to repair the device by yourself.

If any part of the device does not work correctly, contact our customer support (contact@circuitmess.com) or take your device to a certified repair shop.

Connect other devices according to their operating instructions. Do not connect incompatible devices to this device.

Precautions

During prolonged use, CircuitMess Bit may rarely overheat.

Keep CircuitMess Bit in a ventilated room during the use and assembly. Pay special attention to this if you suffer from a physical condition that affects your ability to detect heat on your body.

Assembling or using CircuitMess Bit in an area with a potentially explosive atmosphere, such as areas where the air contains high levels of flammable chemicals, vapors, or particles (such as dust or metal powder), can be dangerous.

Exposure of CircuitMess Bit to environments with high concentrations of industrial chemicals, including liquefied gases that evaporate, such as helium, can damage the functionality of CircuitMess Bit.

Do not use CircuitMess Bit in hospital operating rooms or intensive care units.

Contact your doctor or our customer support (contact@circuitmess.com) to determine if the device's operation may compromise the work of medical devices.

To avoid possible interference with a pacemaker, maintain a minimum distance of 15 cm between the CircuitMess Bit and the pacemaker.

To achieve this, do not carry the included device in your pockets.

Do not use CircuitMess Bit near hearing aids or similar medical aids and equipment to avoid interference with medical equipment.

Check aircraft safety regulations and turn off CircuitMess Bit on the aircraft if necessary.

Do not use CircuitMess Bit while driving.

To avoid lightning strikes, do not use CircuitMess Bit outdoors during storms.

Do not use the CircuitMess Bit in high-humidity environments such as bathrooms. Failure to do so may result in electric shock, injury, fire, and damage to the product, electronic components, power adapter, or other parts of this electronic educational kit.

Follow all the rules that limit the use of portable electronic devices in some situations and conditions.

The individual parts and components in the CircuitMess Bit can pose a choking risk to children under 36 months. Keep all components, tools, and parts of this product away from small children before and after assembling the device.

Additional Recommendations and Precautions for Parents, Guardians, and Teachers Buying CircuitMess Bit for Children

1. Carefully follow the instructions for adequately assembling CircuitMess Bit. Keep these and all other instructions that came with the products in a safe place.

2. Supervise your child while assembling and using the CircuitMess Bit. Your responsibility is to ensure that the child uses the CircuitMess Bit correctly and that the CircuitMess Bit is suitable for the child's age and abilities.

3. Check from time to time if CircuitMess Bit is damaged or worn out in any way to prevent possible injuries and risks to the child's health and safety. If CircuitMess Bit is damaged, remove it immediately.

4. Remove any unnecessary packaging, but keep the instructions. Take care that children do not play with any plastic packaging as there are suffocation risks.

5. Teach children to always store CircuitMess Bit and other parts of the CircuitMess Bit educational kit appropriately to prevent accidents. Do not leave CircuitMess Bit on stairs or on the floor in your home or classroom where someone can step on it.

6. Always report a product security issue to our customer support (contact@circuitmess.com)

Declaration of Conformity

CircuitMess, Inc. declares that this DIY educational kit CircuitMess Bit model complies with the essential requirements and all other relevant provisions of Directive 2014/53 / EU. The full text of the EU declaration of conformity is available at the following Internet address: circuitmess.com/certification.

Legal Information

This device can be used in all EU Member States. Check all the national and local regulations about using the device. This device may be restricted for use, depending on local laws.

Manufacturer:

CircuitMess, Inc.

651 N Broad St, Suite

206, Middletown, 19709

New Castle,

Delaware

Proper disposal of this product

WEEE markings on the product indicate that this product may not be disposed of with the rest of your household waste in the EU. To prevent possible damage to the environment or human health from uncontrolled waste disposal, recycle the product responsibly. Recycling promotes the sustainable reuse of resources. For more information on the disposal of electrical and electronic equipment, don’t hesitate to contact your local household waste disposal service, the store where you purchased the kit, or our customer support (contact@circuitmess.com).

IMPORTANT! Warranty conditions:

The warranty is valid only if the original invoice is attached to the product as proof of purchase during the complaint. If the customer sends the product for repair for any reason not covered by the warranty, the customer may be charged for inspection and testing and delivery costs.

WARRANTY STATEMENT

CircuitMess, Inc., with its registered office in New Castle, Delaware, 651 N Broad St, Suite, 206, Middletown, 19709, guarantees the quality and proper functionality of the components that come in the CircuitMess Bit DIY educational kit for a duration of 24 months from the date of purchase.

If the assembled device does not work correctly due to defects in supplied parts or electronic components supplied in the CircuitMess Bit DIY educational kit, CircuitMess, Inc. will repair the product or send an equivalent replacement product at their own expense.

In case you are experiencing assembly or functionality difficulties with your device, please contact us via email (contact@circuitmess.com).

Please include a detailed description of the problem.

If you are sending the product to a repair shop, it is recommended to deliver the product in the original packaging to protect it from potential damage during transportation.

WARRANTY CONDITIONS

- The warranty period begins on the day of sale indicated on the invoice.

- The warranty is valid upon presentation of the original invoice.

- If the defect is not remedied within a reasonable period after receiving the product for repair, CircuitMess, Inc. will replace it with a new product.

- The repair shop does not take responsibility for storing and/or losing personal data while repairing the device.

WARRANTY DOES NOT COVER

- Upgrades, alterations, modifications to hardware and/or software without the written consent of CircuitMess, Inc.

- Malfunctions due to improper handling, faults due to wear of the device and/or its parts (in you need help with assembly or if you have difficulty using the device after assembling it, please contact us at contact@circuitmess.com).

• Defects caused by external particles (including, but not limited to: staples, waste, dust, food) and external factors (including, but not limited to: moisture, water, thermal damage).

• Mechanical damage and/or failures caused by mechanical damage.

• Use of the product for a purpose for which it is not intended.

• Requirements for the appearance, technical functionalities, and/or capabilities of the product outside the manufacturer's specifications and/or standards.

• Damages to personal data, other tangible and/or intangible assets of the buyer and/or third parties, indirect damages, lost profits caused by the use of the product, and/or its failure.

• Repairs in an unauthorized repair shop and/or installation of non–original spare parts.

• Damage caused during transportation caused by improper packaging.

The rights under this warranty are the exclusive and final rights of the customer unless otherwise provided by national law.

CircuitMess, Inc. as the warranty provider and/or its authorized partners will not be liable for any defect, damage, loss, direct or indirect cost, or connection with the delivered products outside the warranty conditions written here.

This warranty does not affect other rights of the customer belonging to him on other legal grounds.

FCC STATEMENT:

This device complies with Part 15 of the FCC rules.

Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation. This equipment has been tested and found to comply with the limits for Class B digital devices pursuant to Part 15 of the FCC rules.

These limits are designed to provide reasonable protection against harmful interference to radio communications. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication.

However, there is no guarantee that interference will not occur in a particular installation. If this toy does cause interference to radio or television reception, you can check this by turning the toy off and on while listening for the interference), one or more of the following measures may be useful.

• Reorient or relocate the receiving antenna

• Increase the separation between the toy and the radio or the TV

• Consult the dealer or an experienced TV-radio technician for help.

NOTE: Changes, adjustments or modifications to this unit, including but not limited to the replacement of any transmitter component (crystal, semiconductor, etc), could result in a violation of FCC rules under pad 15 and/or 95 and must be expressly approved by CircuitMess, Inc. or they could void the user's authority to operate the equipment.

Photosensitivity / epilepsy warning:

A very small percentage of individuals may experience epileptic seizures when exposed to certain light patterns or flashing lights. Exposure to certain patterns may induce an epileptic seizure in these individuals. Certain conditions may induce previously undetected epileptic symptoms even in persons who have no history of prior seizures or epilepsy. If you, or anyone in your family, have an epileptic condition, consult your physician before playing. If you experience any of the following symptoms while using the product - dizziness, altered vision, eye or muscle twitches, loss of awareness, disorientation, any involuntary movement, or convulsions - immediately discontinue use and consult your physician before resuming play.

WARNING:
This toy produces flashes that may trigger epilepsy in sensitised individuals.

⚠ **WARNING: CHOKING HAZARD - Small parts.** Not for children under 3 years.

WARRANTY SHEET

Product name:	CircuitMess do-it-yourself educational set for electronics and programming
Warranty on components and parts contained in this set is:	24 months
Date of purchase:	
Seller and point of sale stamp:	
Invoice number:	

Information on interventions during warranty period is entered by a repair shop technician at an authorized repair shop.

Received on	Issued on	Fault description	Warranty extension

CircuitMess

WARNING:
Not for children
under 3 years.

Manufacturer:

CircuitMess, Inc.
651 N Broad St, Suite
206, Middletown, 19709
New Castle,
Delaware
Country of origin: PRC
www.circuitmess.com

Authorized repair shop:

CircuitMess, Inc.
651 N Broad St, Suite
206, Middletown, 19709
New Castle,
Delaware
Country of origin: PRC
www.circuitmess.com

BIT

CircuitMess