ELECTRONIC BUILDING BLOCKS SPACE

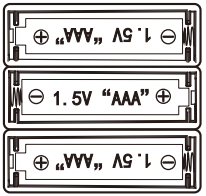
KJ9416

POSITIVE
NEGATIVE
POLARITY

- THEME SCENE
- PHYSICAL SCIENCE
- HANDS ON ABILITY
- CIRCUIT KNOWLEDGE

STEAM
DIY
CREATIVE IDEAS

Battery installation



1. Confirm that the power is turned off.
2. Use a screwdriver to open the battery box cover.
3. Pay attention to installing 3 new 1.5V AAA batteries with the correct polarity (+, -).
4. Place the battery cover and tighten the screws.

If for some reason the power host stops responding, please follow the following steps:

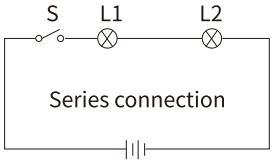
1. Disconnect the wire connection of the power host.
2. Remove the battery.
3. Leave the power host for a few minutes before reinstalling the battery.
4. Restart and use again.
5. If the power host still cannot work, please install a new battery.

⚠ Battery usage precautions

●Toy battery type: 3 1.5V AAA non rechargeable batteries.●Non rechargeable batteries are not rechargeable.●Rechargeable batteries can only be charged under adult supervision.●Rechargeable batteries should be removed from toys before charging.●Do not mix old and new batteries or different types of batteries.●The battery should be placed with the correct polarity (+, -).●The exhausted battery should be removed from the toy.●The power terminal must not be short circuited.●When not in use for a long time, please remove the battery.●Do not throw the battery into fire.●Toys cannot be connected to more than the recommended number of power sources.

Circuit knowledge

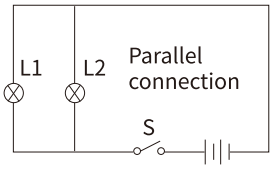
01 Understanding Series Circuits



(1) Series connection refers to the sequential connection of all circuit components, starting and ending one by one. In a series circuit, the current passing through all electrical appliances is equal everywhere.

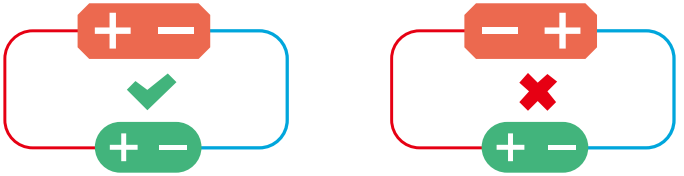
(2) The characteristic of series connection is that there is only one current path, and the current in the path is equal everywhere. The total voltage of the series circuit is equal to the sum of the voltages at each location, and the equivalent resistance in series is equal to the sum of the resistances.
(3) Each switch in series controls the on/off of the entire circuit.

02 Understanding parallel circuits



(1) Parallel connection is a connection method that connects two or more components head to head and tail to tail, and the voltage of the components in parallel is equal.
(2) The characteristic of parallel connection is that there are several paths in the circuit, and the voltage is equal everywhere in the parallel circuit. If connected in parallel with the power supply, the parallel voltage is the same as the power supply voltage.
(3) The parallel main switch controls the on/off of all electrical appliances, while the branch switch controls the on/off of the electrical appliances in the branch.

Line connection instructions



⚠ Matters needing attention

Please carefully read the following materials before your child's experiment. Each child has different abilities, and parents should carefully choose activities that are suitable for their children. Please ensure that your child understands the following content:

●Only follow the instructions in the lesson plan to connect the wires.
●Please do not short circuit the battery. (connect the positive and negative wires to the same connector)
●Do not insert wires into any socket ports at home.
●Please do not disassemble or modify any electronic modules, as modification may cause module damage or overheating.

Explanation of positive and negative polarity of universal wires

“ ——— ” Red wire Positive pole “ ——— ” Blue wire Negative pole

Module Function Introduction

Rocket
Ejection

Astronaut
Light/Swinging

Radar
360 ° rotation

Blow air
Blowing Ball/Bubble

Planet
Lighting

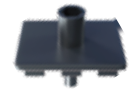
Warning lights
Lighting

Spaceship
Ejection

Battery box
Power

Switch
Control

Connector
Connecting lines

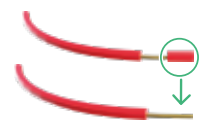


Hidden wire components
Organize wires

⚠ Warning

Only for children aged 8 and above. Please carefully read the instructions for the use and gameplay of toy products. All packaging materials, such as tape, plastic sheets, bags, etc., are not part of the product and are not suitable for children to play with. For the safety of your child, please pay attention to and handle the above packaging materials properly.

Instructions for using connectors



❶ Remove the plastic ring with the red/blue lines. (Pay attention to safety and be careful not to prick your hands with metal wires.)

❷ Bend the spring to form a gap and insert the wire into the gap.

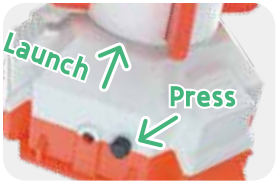
❸ Gently reset the spring and complete the wiring connection.

⚠ Warning

The wire must be in contact with the spring, not the insulation layer. Wires should not be inserted into any sockets to avoid the risk of electric shock. Pay attention to safety when installing connectors and beware of spring gripping.

Module Function Introduction

01 Rocket



Parts: Rocket, battery box, base plate, connectors, switches

Connecting circuits

1. Connect the red wire of the battery box and one of the red wires of the switch to the same connector.
2. Connect the other red line of the switch to the same connector as the rocket red line.
3. The battery box blue wire and rocket blue wire are connected to the same connector.

Operation: Press the power switch, then press the switch again, press the launch button, and the rocket will be launched.

Principle analysis: After the power is turned on, it converts electrical energy into kinetic energy, thereby ejecting the rocket.

02 Astronaut

Parts: Astronauts, battery boxes, baseplates, connectors, switches

Connecting circuits

1. Connect the red wire of the battery box and one of the red wires of the switch to the same connector.
2. Connect the other red line of the switch to the same connector as the astronaut's red line.
3. The blue wire of the battery box is connected to the same connector as the blue wire of the astronaut.

Operation: Press the power switch, then press the switch again, and the astronaut's head will light up.

Principle analysis: After the power is turned on, when the current passes through the chip, electrons in the N-type semiconductor and holes in the P-type semiconductor collide and recombine violently in the luminescent layer, producing photons that emit energy in the form of photons.(Note: Astronauts need to manually swing their limbs.)

03 Radar

Parts: Radar, battery box, base plate, connectors, switches

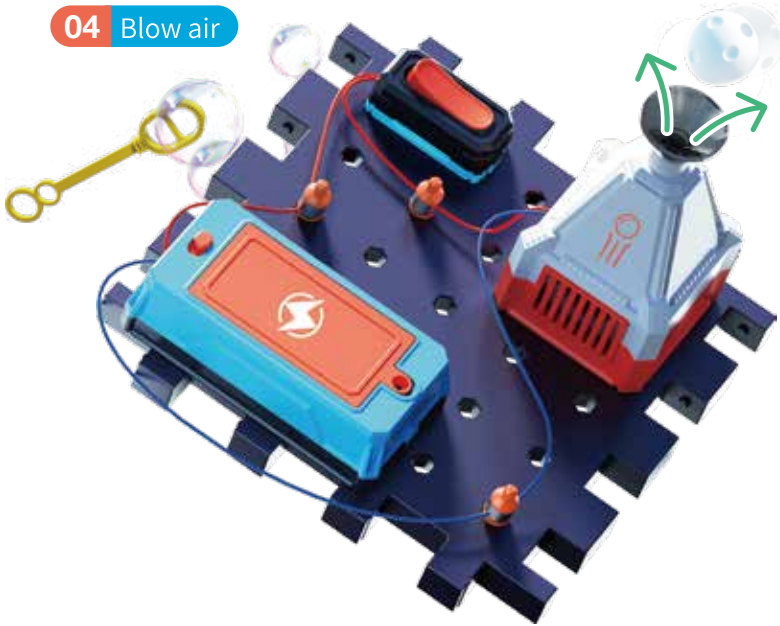
Connecting circuits

1. Connect the red wire of the battery box and one of the red wires of the switch to the same connector.
2. Connect the other red line of the switch to the same connector as the radar red line.
3. The blue wire of the battery box and the blue wire of the radar are connected to the same connector.

Operation: Press the power switch and then press the switch again to rotate the radar 360 °.

Principle analysis: After the power is turned on, the electrical energy is converted into kinetic energy, causing the radar to rotate 360 degrees.

04 Blow air



Parts: Blow air, bubble stick, buoyancy ball, battery box, bottom plate, connectors, switches

Connecting circuits

1. Connect the red wire of the battery box and one of the red wires of the switch to the same connector.
2. Connect the other red wire of the switch to the same connector as the red wire of the blowing module.
3. The blue wire of the battery box and the blue wire of the blowing module are connected to the same connector.

Operation: Press the power switch, then press the switch again to place the buoyancy ball onto the blowing device. Place a bubble stick soaked in bubble water above the blowing ball to start blowing bubbles.

Principle analysis: After the power is turned on, the blowing module compresses the external air or discharges the gas through mechanical equipment to form an airflow. (Note: You need to bring your own bubble water.)

05 Planet

Parts: Planet, battery box, base plate, connectors, switches

Connecting circuits

1. Connect the red wire of the battery box and one of the red wires of the switch to the same connector.
2. Connect the other red line of the switch to the same connector as the planet's red line.
3. The blue wire of the battery box and the blue wire of the planet are connected to the same connector.

Operation: Press the power switch and then press the switch again to turn on the planet light.

Principle analysis: After the power is turned on, when the current passes through the chip, electrons in the N-type semiconductor and holes in the P-type semiconductor collide and recombine violently in the luminescent layer, producing photons that emit energy in the form of photons.

06 Warning lights

Parts: Warning lights, battery box, base plate, connectors, switches

Connecting circuits

1. Connect the red wire of the battery box and one of the red wires of the switch to the same connector.
2. Connect the other red line of the switch to the same connector as the red line of the warning light.
3. The blue wire of the battery box and the blue wire of the warning light are connected to the same connector.

Operation: Press the power switch, then press the switch again, and the warning light will light up.

Principle analysis: After the power is turned on, when the current passes through the chip, electrons in the N-type semiconductor and holes in the P-type semiconductor collide and recombine violently in the luminescent layer, producing photons that emit energy in the form of photons.

07 Spaceship

Parts: Spaceship, battery box, base plate, connectors, switches

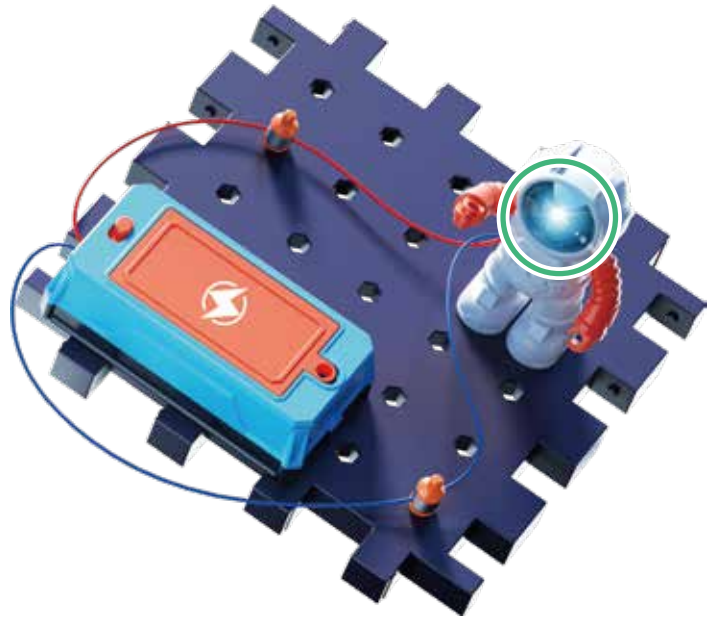
Connecting circuits

1. Connect the red wire of the battery box and one of the red wires of the switch to the same connector.
2. Connect the other red line of the switch to the same connector as the spaceship red line.
3. The blue wire of the battery box and the blue wire of the spaceship light are connected to the same connector.

Operation: Press the power switch, then press the switch again, press the launch button, and the spacecraft will be launched.

Principle analysis: After the power is turned on, it converts electrical energy into kinetic energy, thereby ejecting the spacecraft.

08 Battery



Parts: Astronauts, battery box, base plate, connectors

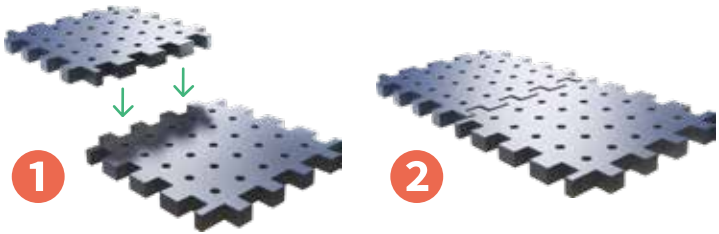
Connecting circuits

1. Connect the red wire of the battery box to the same connector as one of the red wires of the astronaut.
2. The blue wire of the battery box is connected to the same connector as the blue wire of the astronaut.

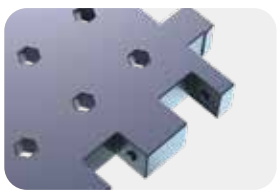
Operation: Press the power switch and the astronaut's head light will turn on.

Principle analysis: After the power is turned on, when the current passes through the chip, electrons in the N-type semiconductor and holes in the P-type semiconductor collide and recombine violently in the luminescent layer, producing photons that emit energy in the form of photons.

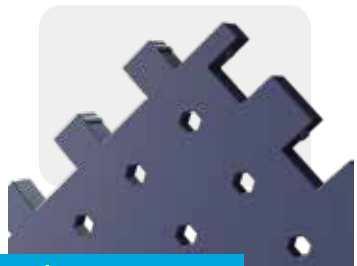
Bottom plate splicing method



Place a bottom plate on a flat surface. Take another base plate, align the grooves, and then press down to connect them together. Be sure to connect the bottom plate with an inner groove to the bottom plate with a flat groove to ensure a tight fit.



Inner groove

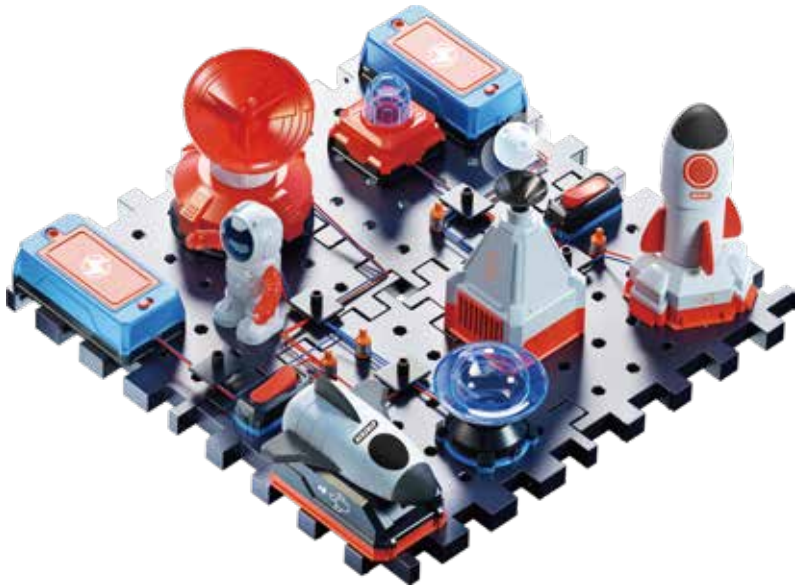


The function of hidden thread components

When assembling and installing modules, if there are many wires, hidden wire fittings can be used to repair the messy lines to avoid tearing the wires during module operation.

Combination circuit gameplay

Space electronic building blocks

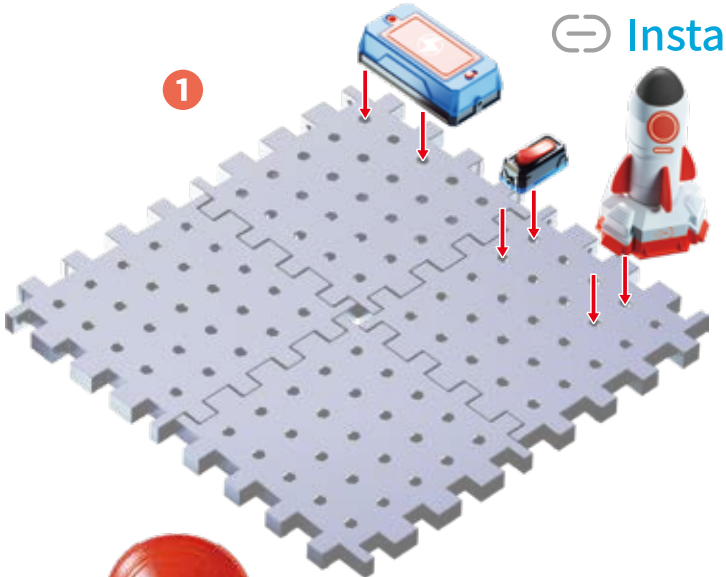


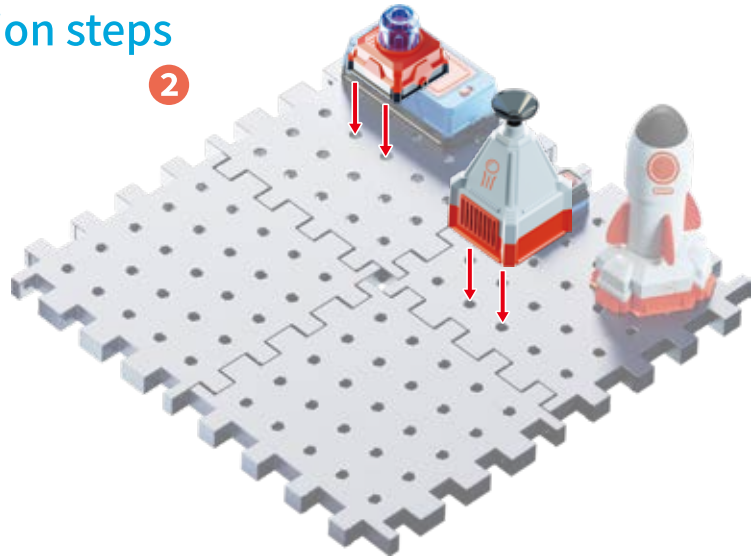
Parts: Rocket, spaceship, astronaut, radar, planet, warning light, blowing air, buoyancy ball, bubble stick, battery box x2, base plate x4, switch x2, connector x6, hidden wire components x6

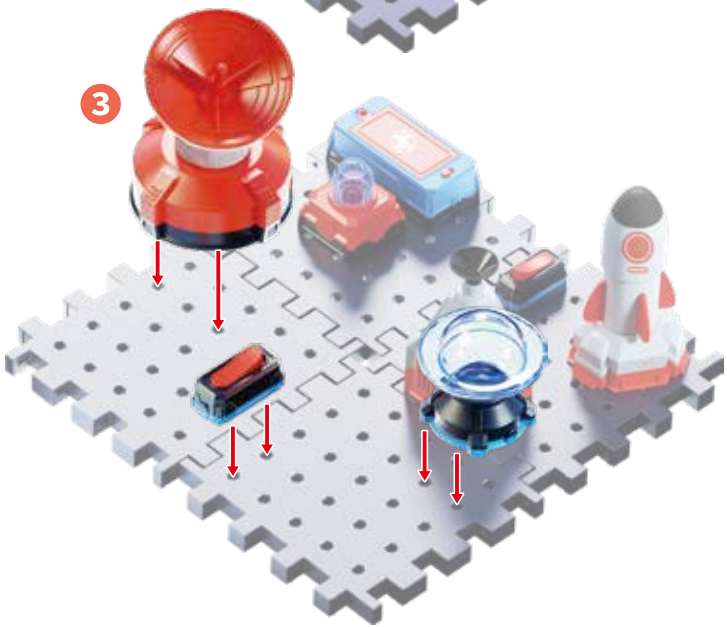
Function Description

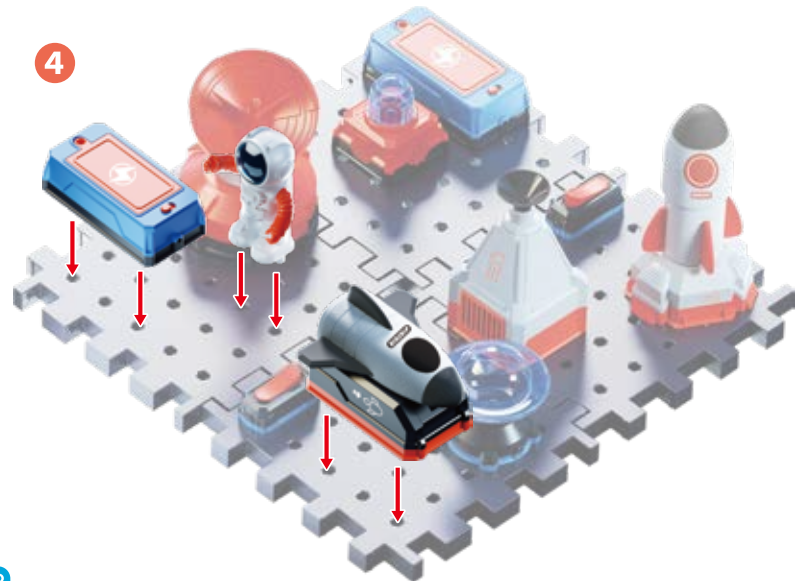
1. Press the power switch and the warning lights/astronaut/planet lights will light up.
2. After turning on the switch, place the buoyancy ball above the blowing device and suspend it; Place the bubble stick covered in bubble water above the blowing device and start blowing bubbles(bubble water needs to be prepared by oneself).
3. The radar device rotates 360 degrees.
4. Press the switch, press the launch button to launch the rocket/spacecraft. After manual installation, press the launch button again to launch again.

Installation steps









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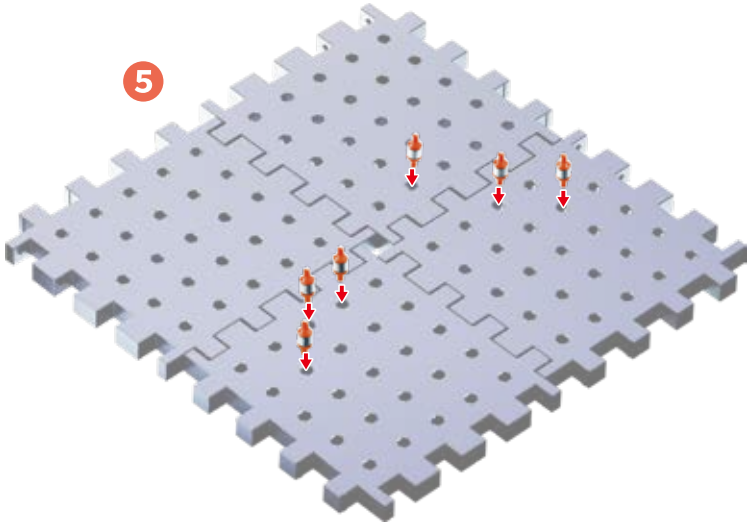

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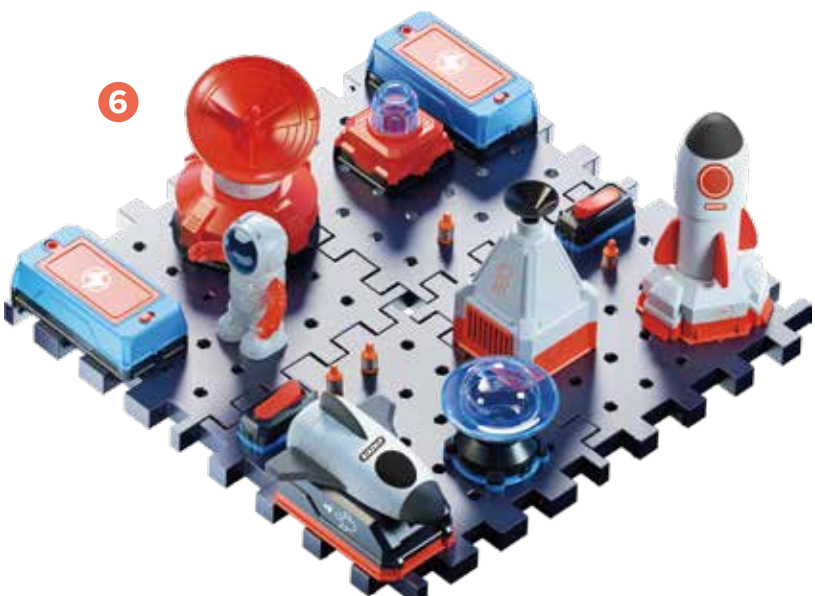
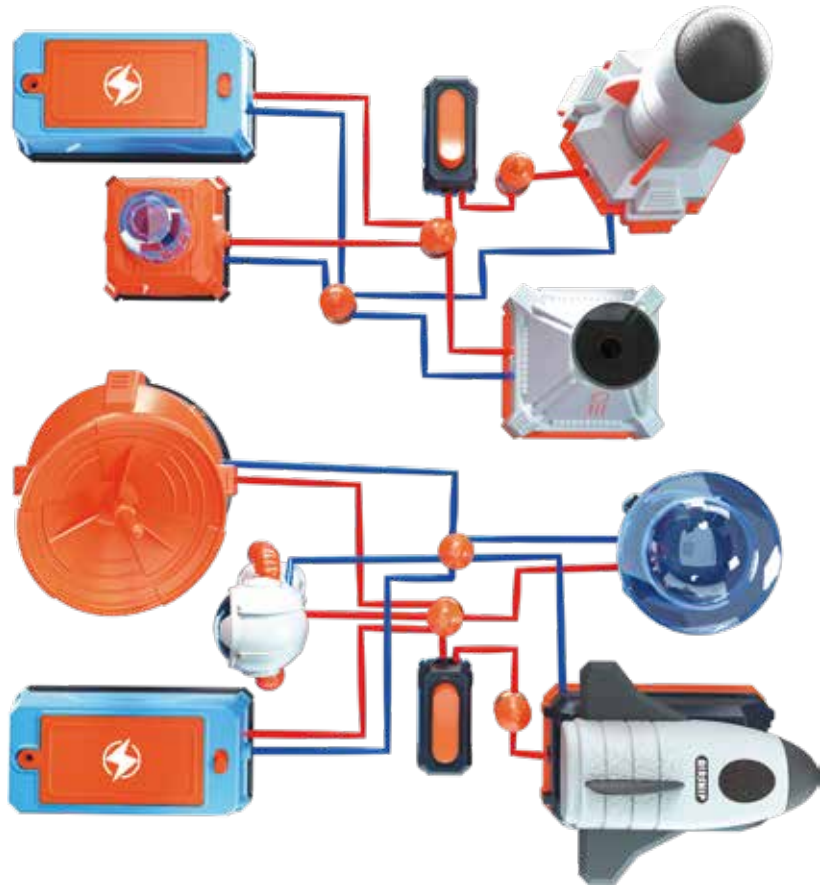
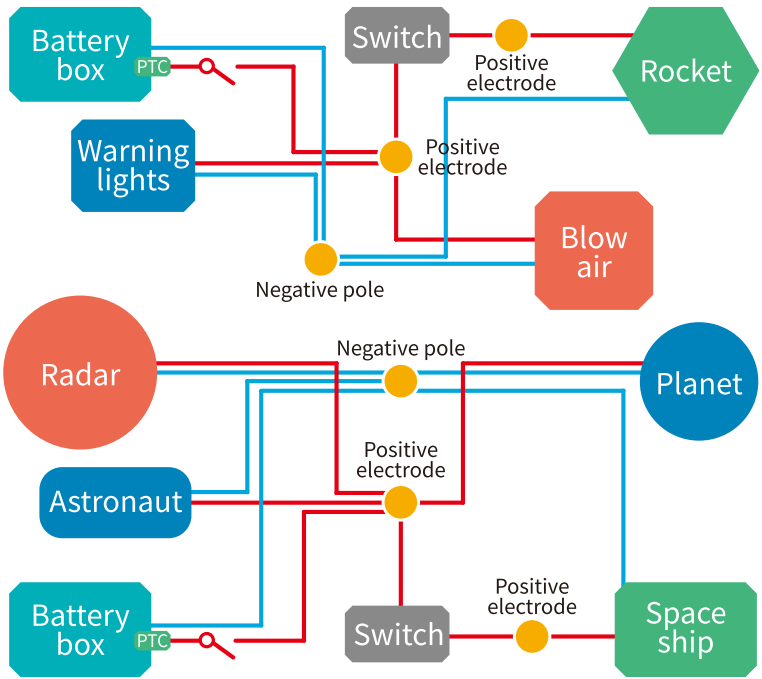


Diagram of Line Connection

Attention: Some wires cannot be connected to the connector, and their positions can be adjusted appropriately.



Attention: Do not connect the red and blue wires to the same connector



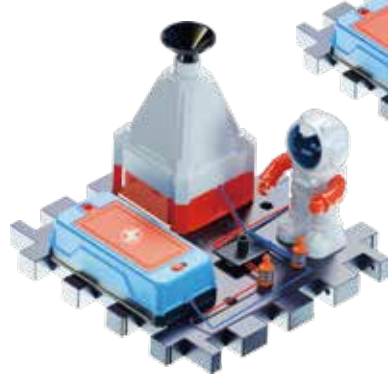
DIY creative for more themed scenes

Some themes need to be paired with other series accessories

Astronaut+Rocket

Rocket+Switch

Rocket+Blowing Air



Astronaut+Blowing Air

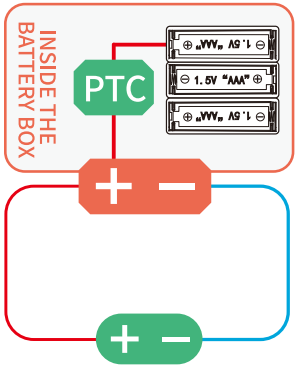
Astronaut+Rocket+Blow Air

Astronaut+Spaceship+Radar

Astronaut+Radar+Planet+Spaceship

Self recovery insurance tube function

When a short circuit occurs in a circuit, the current is too high, causing the battery to self heat up. The PTC "self recovery fuse" causes a sharp drop in voltage in the circuit. When the factors causing the overcurrent are eliminated and the normal working current is restored, the component also returns to a low resistance state. The PTC component can be reused, hence the nickname "self recovery fuse".



⚠ Short circuit precautions

If the positive and negative lines are connected incorrectly, the battery may heat up, the light may not be on, the module may not operate, and the fuse may trip. The power switch should be turned off first, the circuit should be checked, and the correct polarity should be reinstalled.

Troubleshooting

? The battery is hot and the light is not on

First, turn off the battery box switch and check if the positive and negative wires are connected incorrectly? Check if the polarity of the battery box is installed correctly? Do not connect the positive and negative wires to the same connector to avoid short circuits.

? Module not running

Ensure that the metal wire is in contact with the spring? Is the battery running low?

? Why do some modules not run when multiple modules are running simultaneously?

The battery capacity of a single battery box is limited, and opening multiple modules at the same time may exceed the capacity supported by the battery, causing some modules to be unable to operate.

Our product is guaranteed to be free from manufacturing defects for a period of 12 Months.
If your product becomes defective during this period, Electus Distribution will repair, replace, or refund where a product is faulty; or not fit for intended purpose.
This warranty will not cover modified product; misuse or abuse of the product contrary to user instructions or packaging label; change of mind and normal wear and tear.
Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and failure does not amount to a major failure.
To claim warranty, please contact the place of purchase. You will need to show receipt or other proof of purchase. Additional information may be required to process your claim.
Any expenses relating to the return of your product to the store will normally have to be paid by you.
The benefits to the customer given by this warranty are in addition to other rights and remedies of the Australian Consumer Law in relation to the goods or services to which this warranty relates.

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