



MAGFORMERS®

Intelligent Magnetic Construction Set For Brain Development

BRAIN EVOLUTION SET

GUIDE BOOK



MAGFORMERS INC.



Contents

04

Educational value of Magformers according to age

05

Educational value of Magformers

06

Composition of Brain Evolution Set

08

The principles of Magformers

10

6 ways to use Magformers

12

How to use Magformers Basic accessories

15

How to use Magformers LED Block





16

How to use Magformers Power accessories

18

How to use Magformers R/C accessories

21

Warnings of Magformers

24

Level 1 for beginner

38

Level 2 for intermediate

60

Level 3 for expert





MAGFORMERS

Educational value of Magformers according to age

Sensitive
1-3 year-old

Sensorimotor
Stage

A critical period that forms 80% of brain development. Through various sensory stimulation activities and finger movements, the brain and nervous system are developed.

Educational Effects

- Visual stimuli with the rich colors and shapes of Magformers
- Auditory stimuli with the clear sound of shapes attaching and detaching
- Developing recognition of colored shapes and distinction of different colored shapes
- Fostering coordination of eyes and hands while holding, attaching and detaching Magformers
- Developing gross and fine motor skills while moving arms, hands and fingers

Curious
3-5 year-old

Preoperational
Stage

A period to passionately explore objects. While operating surrounding objects, curiosity increases. Symbolic thinking is developed, and imaginative and virtual play forms are displayed overall.

Educational Effects

- Improving ability to operate objects by developing hand control
- Fostering divergent thinking, imagination and creativity while making desired shapes
- Developing modeling capability while creating a form or shape, and understanding symmetry, configuration, area and lines

Stubborn
5-7 year-old

Concrete
Operational
Stage

A period when self-reliance and independence is developed, which causes behavior based on accomplishment. The ability to think and express themselves is developed, and creative and unique play is possible.

Educational Effects

- Learning the basis of mathematics such as parts and wholes, sequence and patterns while combining Magformers and making models
- Conception of geometric relationships and space by understanding shape and size comparison, direction and location of right, left, top and bottom
- Fostering creativity, problem solving skills, self-reliance and a sense of accomplishment while planning and creating on their own
- Developing verbal expression while expressing planned and finished models

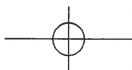
Expressive
7 year-old and
older Formal

Operational
Stage

A period that enables concrete thinking about objects and specific reproduction regarding the surrounding world that they experience. In this process, observation and analytical skills relating to objects, and logical thinking are developed.

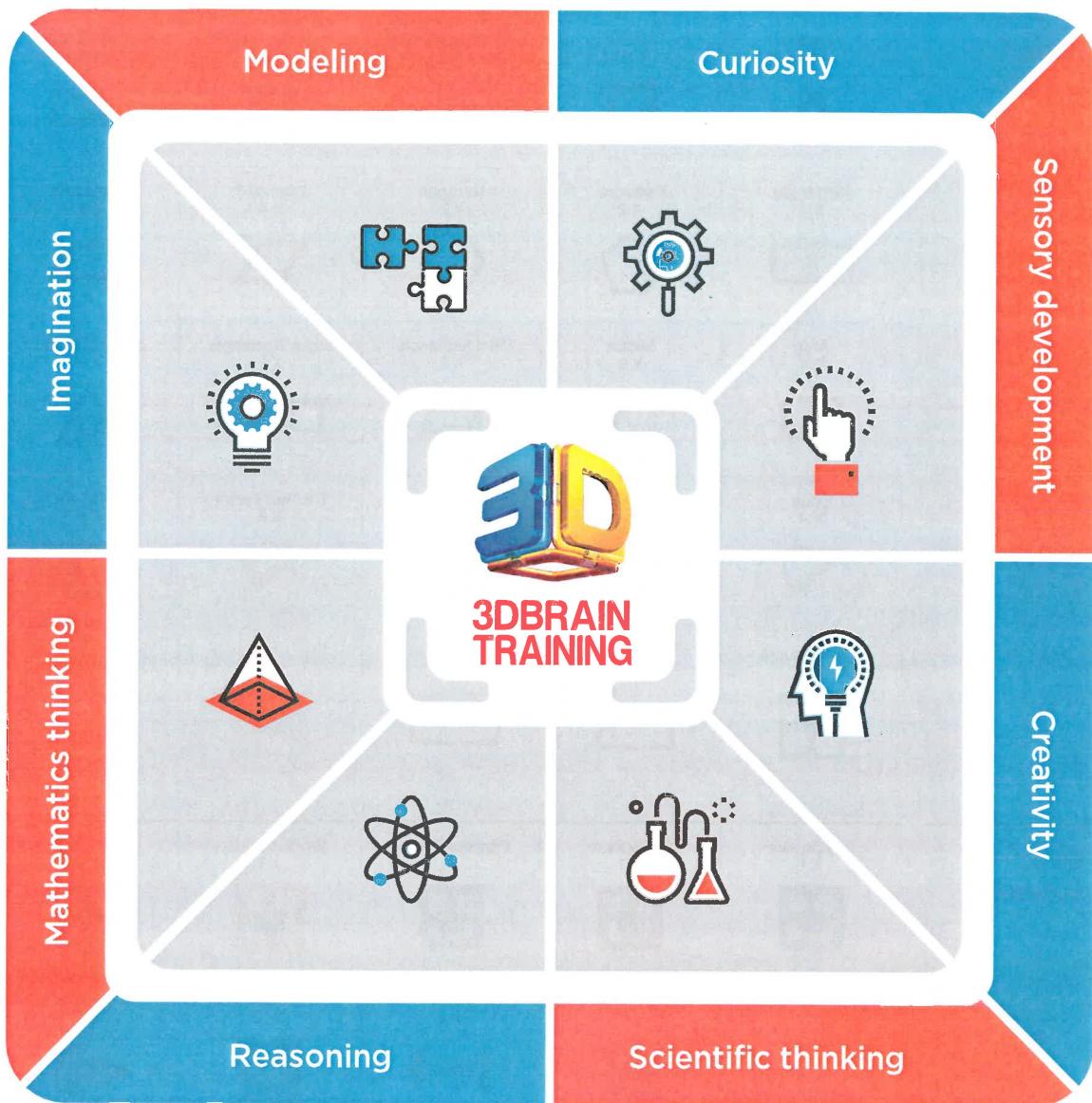
Educational Effects

- Developing observation, analytical and thinking skills while reproducing various surrounding objects
- Developing spatial perception skills while shaping buildings or making 3D models
- Developing reasoning, logic and thinking skills while predicting and representing invisible form
- Developing creative problem solving skills while making and combining complex objects
- Forming geometric concepts, acquiring mathematical knowledge and approaching science with the principle of magnets



Brain Evolution Set

Educational value of Magformers



Magformers is a 3D educational toy that improves creativity and develops brainpower for children. They can connect and combine the various geometric shapes to create unique Magformers models.

Children can also learn the principles of magnets and develop infinite imagination and creativity while they observe 2D shapes being transformed into 3D models.



MAGFORMERS

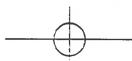
Composition of Brain Evolution Set

Basic
shape

Triangle X 40	Square X 50	Window Triangle X 8	Window Square X 12	Isosceles Triangle X 8
Rectangle X 4	Pentagon X 2	Hexagon X 2	Diamond X 4	Trapezoid X 4
Arch X 4	Sector X 8	Mini Rectangle X 8	Super Rectangle X 2	Super Triangle X 4
Cone X 4	Super Sector X 8	Super Arch X 4	1/8 Mini Sector X 8	1/8 Mini Arch X 4
Super Square X 6	Oval Sector X 4	Oval Arch X 2		

Basic
accessory

Boy Square X 1	Girl Square X 1	Princess Square X 1	Worker Square X 1	Alien Square X 1
Astronaut Square X 1	Insert Square X 6	Wheel X 2	Card X 12	Pulley Block X 1
Crane X 1	Propellers X 1	Antenna X 1	Rotate Block X 3	Triangular Pyramid X 8
Bar X 2	Super Bar X 2			



Brain Evolution Set

Window Single X 4	Window Double X 4	Balcony X 2	Brick X 8	Door X 1
----------------------	----------------------	----------------	--------------	-------------

House
accessory

Stairs X 1	Window Grid X 4	Tree X 2	Log Balcony X 2	Log Brick X 8
---------------	--------------------	-------------	--------------------	------------------

Log Window1 X 4	Log Window2 X 2	Grass X 6	Fence X 6	
--------------------	--------------------	--------------	--------------	--

Power Engine Block(RF) X 1	Engine Module 1-way X 1	Engine Watch X 1	90° Female Connector X 2	Walking Block X 1
-------------------------------	----------------------------	---------------------	-----------------------------	----------------------

Power
accessory

Auto Sliding Block X 1	Big Wheel X 2	Propellers Wheel X 2	Square Auto Connector X 2	LED Block X 1
---------------------------	------------------	-------------------------	------------------------------	------------------

USB Cable X 1				
------------------	--	--	--	--

R/C Block X 1	Head Block X 1	R/C Front Wheel X 1	R/C Remote Control X 1	
------------------	-------------------	------------------------	---------------------------	--

R/C
accessory

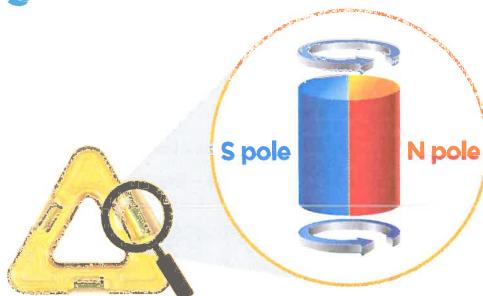
* Engine Watch Operating Frequency : 2.4089-2.4579GHz, Transmit : 10dBm
* R/C Remote Control Operating Frequency : 2.4089-2.4299GHz, Transmit : 10dBm



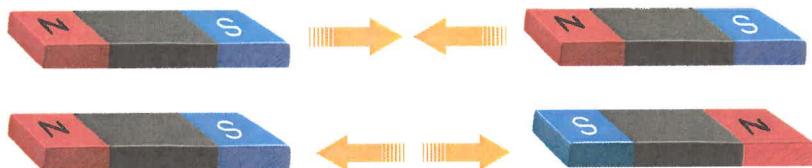
MAGFORMERS

The principles of Magformers

The magnet contained in Magformers is called a neodymium magnet. It has a slightly different shape than typical ones, however, it has the same general properties of magnets. As shown below, the same poles repel and different poles attract each other. The poles are just not displayed on the pieces.

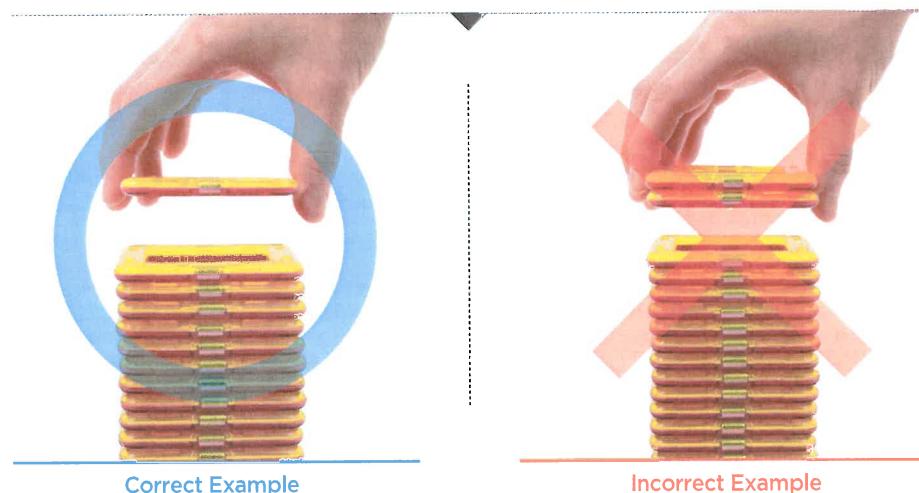
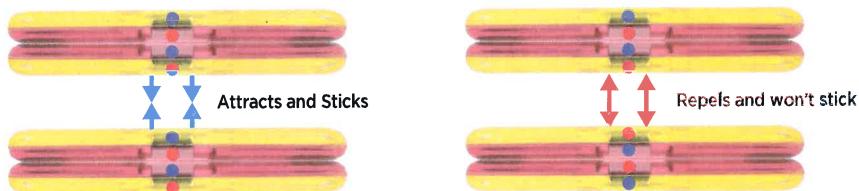


Principles



However, as shown below, if two pieces are stuck together and the magnets cannot rotate, they might repel each other in some cases. That's why it's easier to attach one piece to another. Likewise, when you clean up the Magformers pieces, it's easier to attach one piece to another!

● S pole ● N pole



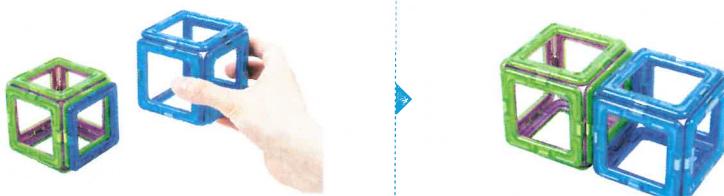


Brain Evolution Set

The neodymium magnets inside Magformers pieces may not rotate. When you combine 3D shapes, you can easily make Magformers after understanding the magnetic properties. Follow the examples below.

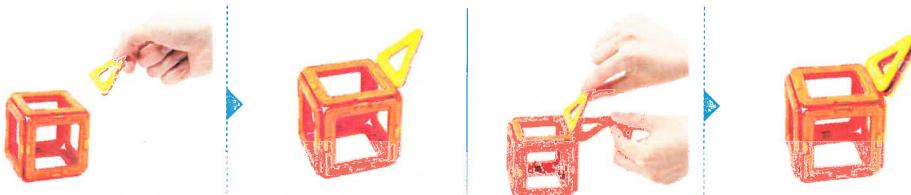
Case1 - Combining a 3D piece with another 3D piece

When you combine a 3D piece with another 3D piece, the rotating magnets may be fixed and repel each other. Just like the picture below, attach one edge of a piece to another first and then attach the rest.



Case2 - Combining a 3D piece with another piece

When you create a 3D shape and add another piece to the edge, attach it to the middle of the edge to fix it well as shown in the picture below. In addition, when you want to attach 2 pieces at once, attach them like the picture below.



This must be read by a child's parent or guardian

- Magformers contain magnets. Since swallowing magnets may cause a severe health hazard, immediate medical attention of a physician is required if ingestion occurs.
- Please use the product under the supervision of a guardian.
- Do not throw the product at anyone's face.
- Always keep the product away from fires.
- If the product becomes dirty, wipe it with a clean towel.
- There is a risk of damage if any excessive shock is imposed. The product may be harmful once damaged. Keep it away from infants and children.
- When you first open the product, it may smell like plastic, but it is safe to use.
- Keep it away from electronic devices such as credit cards, portable storage mediums, cell phones, computers, monitors and TVs; since it contains a magnetic force.
- Keep the product away from high temperatures and humidity. Be careful not to wet the product. Do not use in humid areas or outdoors.

Tip
**How to make
Magformers
easily**

**Warnings
when using
the Magnetic
block**



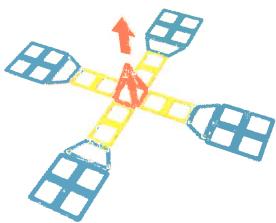
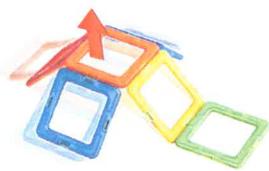
MAGFORMERS

6 ways to use Magformers

You can make different shapes you want by using the attracting power of magnets. Use the magnetic properties of the same poles repelling each other and different poles attracting each other to create Magformers models in a variety of ways.

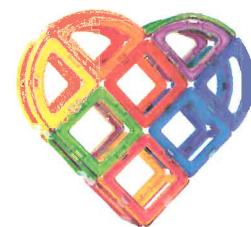
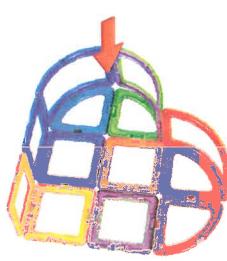
Pull Up

A way to create a 3D shape by making a planar figure with Magformers and lifting up the weight center



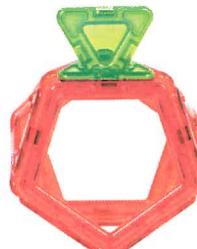
Build a wall

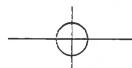
A way to create a 3D shape by making 2D models with Magformers and building a wall



Roll

A way to create a 3D shape by making a planar figure with Magformers and rolling the 3D shape

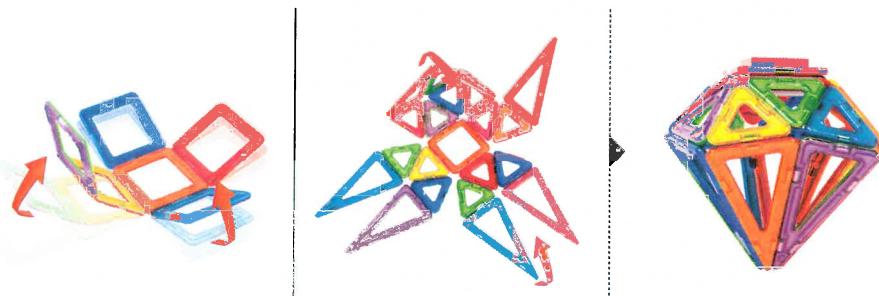




Brain Evolution Set

A way to create a 3D shape by making a planar figure with Magformers and folding the magnetic pieces

Fold



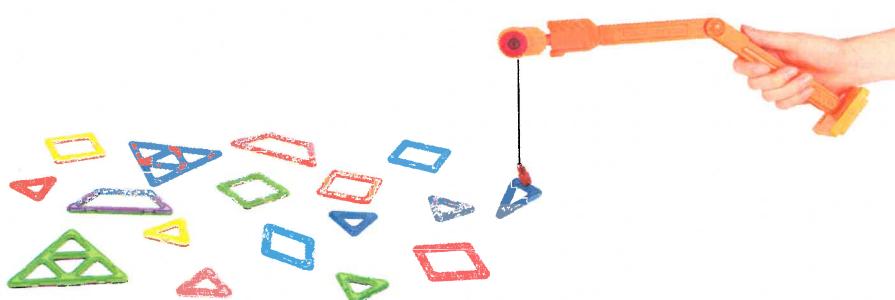
A way to create a larger and more stunning model by combining 3D models made with Magformers

Combine



Magformers Fishing Game

Tip

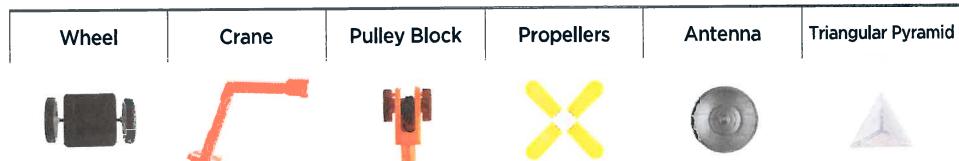




MAGFORMERS

How to use Magformers Basic accessories

Basic accessories



How to assemble and examples

Basic accessories can be combined with Magformers magnetic pieces.



Wheel



Crane, Pulley Block

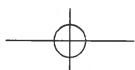


Propellers



Antenna





Brain Evolution Set

Block



Card



Basic accessories

Basic accessories can be combined with Magformers magnetic pieces.

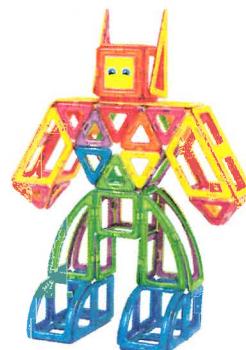
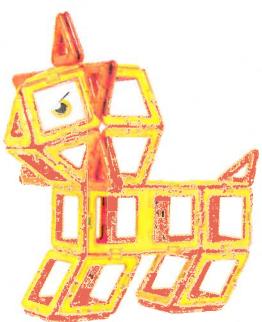


Block



Card

How to assemble and examples

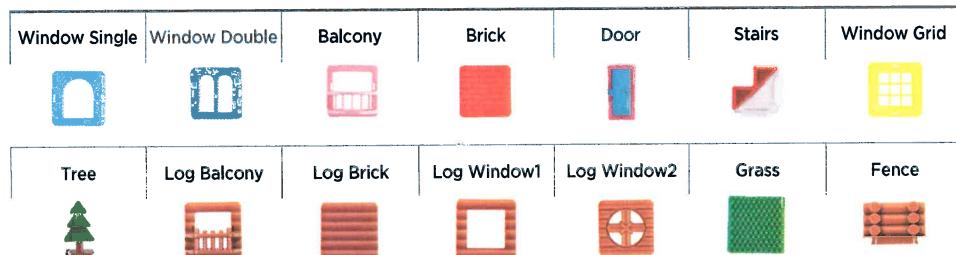




MAGFORMERS

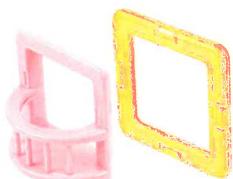
How to use Magformers Basic accessories

House accessories



How to assemble and examples

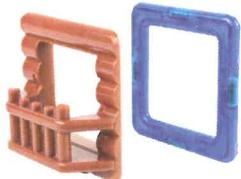
Basic accessories can be combined with Magformers magnetic pieces.



Balcony



Tree



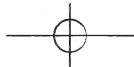
Log Balcony



Fence

* Fence accessories might be a little loose when combined with pieces. They can also be used in combination with mini-rectangles.





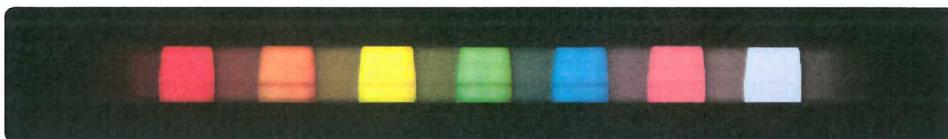
Brain Evolution Set

How to use Magformers LED Block



The LED Block helps children make models beyond their imaginations with various vivid colors that develop their senses. Breathe new life into many Magformers models with the LED Block.

LED Block



The LED Block displays various colors.

Press the button once to change colors quickly, and press the button again to change colors slowly. Each color will be fixed after that. It will turn off after showing all the 7 colors.

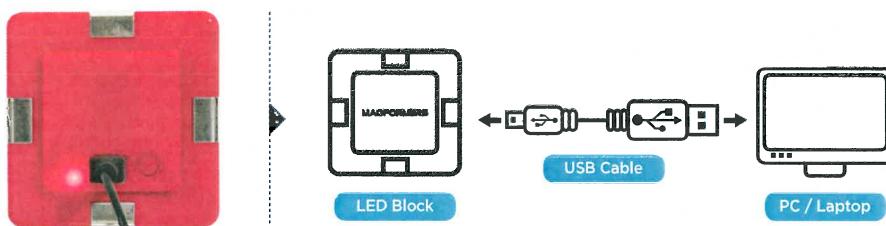
POWER BUTTON



How to use the LED Block

When the USB Cable is plugged in, a red light appears on the LED Block. When it is done charging, the red light goes off. Use a PC or Laptop according to the instructions to charge.

How to charge the LED Block



This must be read by a child's parent or guardian

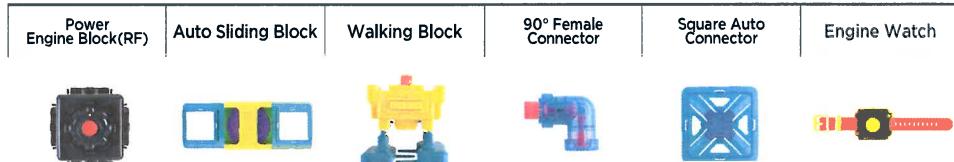
- Please do not stare at the LED light for an extended period of time to protect your vision.
- The internal parts may cause problems when damaged due to some sensitive features of the LED product. Please be careful not to exert force on the product.
- Do not impose any excessive shock or force, including throwing it at someone or hitting a person with the product.
- Do not stand on the product.
- When charging, be sure to connect the USB Cable under the supervision of a guardian.
- The proper charging time is 2 hours. Please be careful not to overcharge because it may shorten battery life.
- Please make sure to turn off after use (No light means the status is 'off').
- Please note that if you force connection or incorrectly connect to the USB Cable, it may cause damage to the terminal.
- Do not disassemble.
- Do not throw, drop, or place in water.

Warnings for the LED Block

How to use Magformers Power accessories



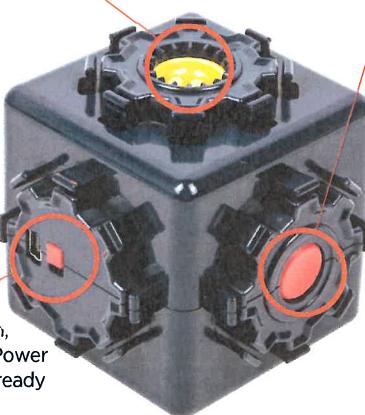
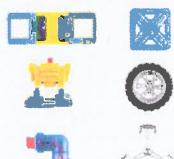
Power accessories



How to use and charge the Power Engine Block(RF)

How to use the Power Engine Block(RF)

When you connect the blocks below, Magformers models will show various movements.



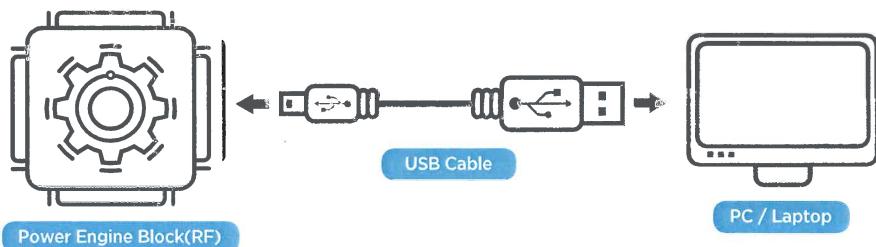
When the light appears on the front, press the button once to operate the Power Engine Block(RF). Press again to operate in the reverse direction and press once again to stop.

When you turn on the switch, a red light appears and the Power Engine Block(RF) becomes ready to use.

* If the model goes backwards when you control it, turn the Engine Watch button to the opposite direction, or press the power button of the Power Engine Block(RF) once more to make it move forward.

How to charge the Power Engine Block(RF)

When the USB Cable is plugged in, a yellow-green light appears on the front. When it is done charging, the yellow-green light turns off. If you operate the Power Engine Block(RF) while charging, the light may look orange. The proper charging time is approximately 3 hours. Since it's a high-capacity charger like a mobile phone charger, it may reduce the product life when charging. Use a PC or Laptop according to the instructions to charge.





Brain Evolution Set

How to use the Engine Watch

When the power switch is turned on, a red light appears on the front. Try to control the Power Engine Block(RF) with the Engine Watch.



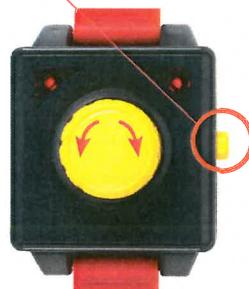
Turn the yellow part to the right to rotate the blocks inserted into the Power Engine Block(RF).

※ Lights appear on both sides of the Head Block.



Turn the yellow part to the left to rotate the blocks inserted into the Power Engine Block(RF) in the opposite direction.

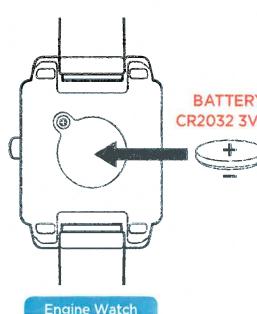
※ Lights appear on both sides of the Head Block.



How to use the Engine Watch and How to replace a battery

How to replace the Engine Watch battery

Please replace batteries if the Engine Watch does not operate.



This must be read by a child's parent or guardian

- The power will shut off for safety if any excessive shock is imposed while operating the Power Engine Block(RF).
- If you force the accessories inserted into the Power Engine Block(RF) to turn, it may cause failure.
- Please make sure to turn off the Power Engine Block(RF) and Engine Watch after use.
- Do not disassemble, drop or place in water.
- If the accessories are working slowly or not working smoothly, please charge (or replace batteries) before use.
- Do not impose any excessive shock or force, including throwing at or hitting a person with the product.
- Do not stand on the product.
- When charging, be sure to connect the USB Cable under the supervision of a guardian.
- Please note that if you force connection or incorrectly connect the USB Cable, it may damage the terminal.
- Do not let children disassemble products with a button-type battery.
- Please note that it is very dangerous if a button-type battery gets lodged in the ears, nose or mouth of children. Please dispose of used batteries properly out of the reach of children. (When replacing the battery, be sure to replace it under the supervision of a parent/guardian.)

Warnings when using the Power accessories

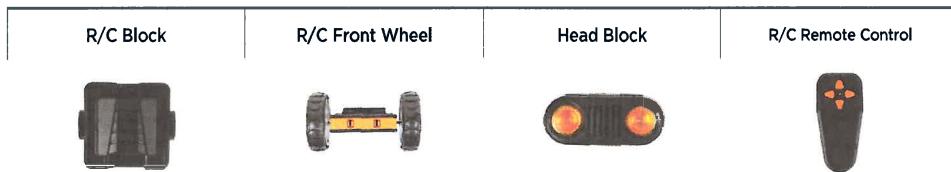


MAGFORMERS

How to use Magformers R/C accessories

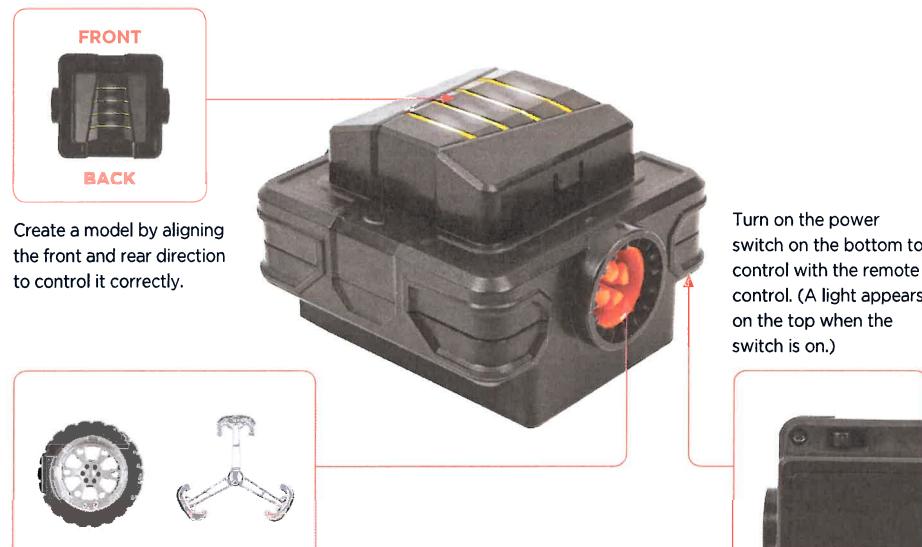


R/C
accessories



* The R/C Block, Head Block and R/C Remote Control do not include batteries.

How to use
the R/C
Block



Insert a big wheel or propeller wheel into the R/C Block and make a car.



You can control the R/C
Block and Head Block with
the R/C Remote Control!



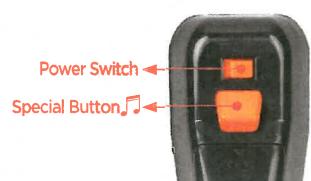


Brain Evolution Set

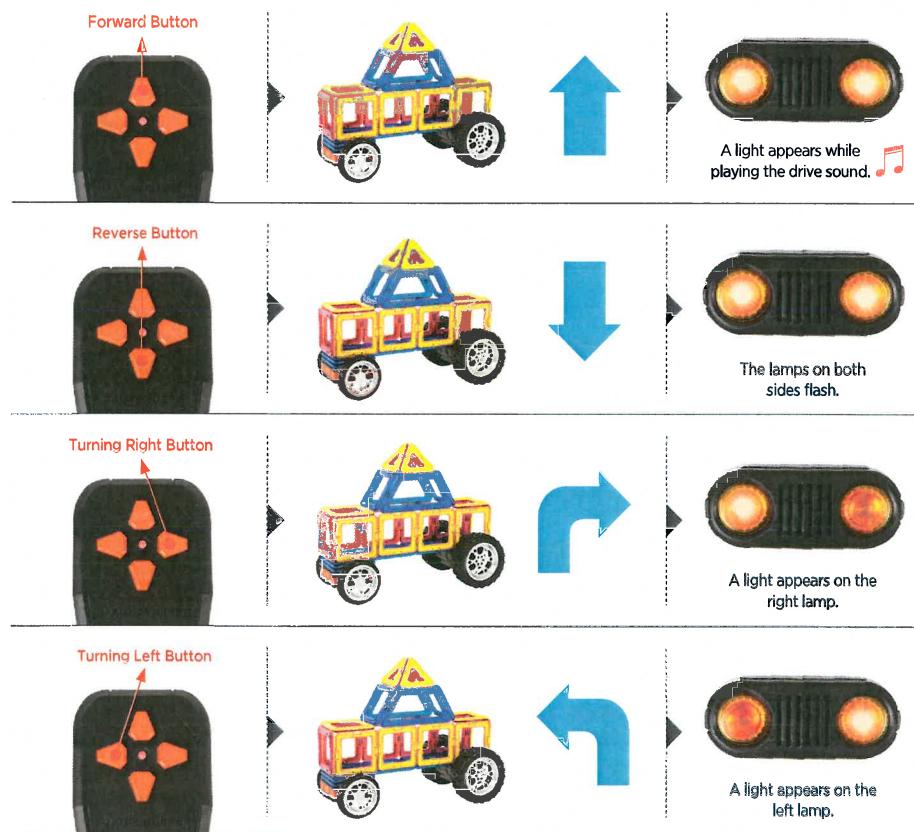


When you press the R/C Remote Control button, the R/C Block and Head Block react! When you turn on the power switch on the back of the R/C Remote Control, a light appears on the front.

You will hear the horn sound when you press the special button.



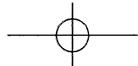
How to use the R/C Remote Control



Magformers pieces can be inserted into the back groove of the Head Block, and also can be combined with R/C Front Wheels. A red light on the side appears when the power switch is on.



How to use the Head Block

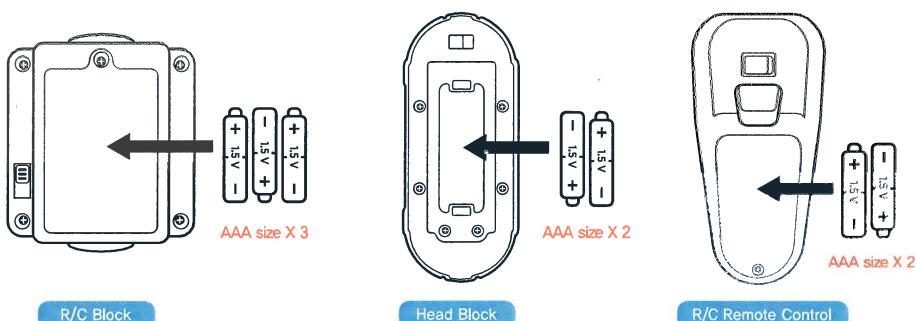


MAGFORMERS

How to use Magformers R/C accessories

How to replace the R/C Block, R/C Remote Control and Head Block batteries

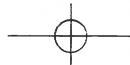
The R/C Block, R/C Remote Control and Head Block do not include batteries. Please insert AAA batteries. If each block is moving slowly or not working smoothly, please replace the batteries.



Warnings when using the R/C accessories

This must be read by a child's parent or guardian

- When using the R/C, be sure to use it under the direct supervision of a guardian.
- Internal parts may cause problems when damaged due to some sensitive features of the R/C. Please be careful not to exert force on the product. Make sure to turn it off after use.
- Avoid spilling water inside the R/C.
- Use the R/C indoors only to prevent accidents.
- Do not let hair or a piece of cloth get tangled in the wheel. Do not insert your finger into the wheel while using the R/C. There is a risk of injury if your finger gets stuck in the wheel.
- Do not arbitrarily disassemble, repair or remodel the R/C product.
- Keep the R/C away from fire or areas with high temperatures or high heat.
- Do not stand on the R/C product.
- When using the R/C, stay away from fragile glass or furniture.
- Do not use on sand or wet ground to prevent failure of the R/C electric circuit board.
- If the R/C is moving slowly or not working smoothly, replace the batteries since they may be weak.
- The R/C may not work smoothly if you mix used batteries with new ones or different brand batteries.
- Never use the R/C on the road. In particular, do not use outdoors during lightning or storms.
- Avoid hitting obstacles with the R/C product if possible. Read the directions carefully before using the product.
- The range of the remote control is 5-8 m, however, use it within the range of 3-4 m since its signal may drop depending on the usage conditions.
- Since the Magformers R/C uses a single frequency, malfunction may occur when multiple R/C products are simultaneously used.
- If there is an identical product nearby, there may be interference with the control.
- Avoid hitting obstacles with the R/C product if possible. Read the directions carefully before using the product.
- The range of the remote control is 5-8 m, however, use it within the range of 3-4 m since its signal may drop depending on the usage conditions.
- Since the Magformers R/C uses a single frequency, malfunction may occur when multiple R/C products are simultaneously used.
- If there is an identical product nearby, there may be interference with the control.



Brain Evolution Set

Warnings of Magformers

- If putting a battery in it or using it mistakenly, overheating, rupture and lachrymal fluid could be caused.
- When lachrymal fluid oozes out, never touch it with hands.
- When the fluid which comes out from the battery is stained with the skin or the clothes and gets into the eye, counsel with the doctor immediately.
- Do not mix old and new batteries.
- Do not mix alkaline, standard(carbon-zinc) or rechargeable batteries.
- Turn off the power when not in use.
- After playing, turn off the power without fail and keep it separate from others.
- Separate the used battery safely.

Battery warnings

- Remove screws and place batteries in the correct position as displayed inside.
- Non-rechargeable batteries are not to be recharged.
- Rechargeable batteries are to be removed from the toy before being charged.
- Rechargeable batteries are only to be charged under adult supervision.
- Batteries are to be inserted with the correct polarity.
- Exhausted batteries are to be removed from the toy.
- The supply terminals are not to be short-circuited.

How to remove and insert replaceable batteries

► Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Warnings

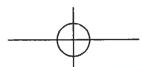
NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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 device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference, including interference that may cause undesired operation of the device." This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. CAN ICES-3(B)/NMB-3(B)



ENDLESS POSSIBILITY
FOR BUILDING CREATIVITY

