8+

88-90175

EXPLORE SCIENCE

125
SCIENTIFIC CHALLENGES SET

INSTRUCTIONS

125
SCIENTIFIC CHALLENGES SET

Welcome to the amazing world of one of Explore Science! Explore Science is a D.I.Y (do-it-yourself) educational science kit that provides useful knowledge about simple physics, and is suitable for children of 8 years old and up. “You’ll be amazed” to find what you can learn as the activity enables you to learn realistic concept of basic physical theory.

Once you get started you will be able to build your understanding through experimenting and maybe trying out some interesting experiments on your own. The 125 Scientific Challenges Set is smartly designed for children to connect with ease and breeze. Simply snap all key components and modules together to start, and pull apart once finished.

WARNING: Only for use by children aged 8 years and older.

GLOSSARY

Assembly: A group of machine parts or components that fit together to form a complete unit.

Battery: A consumable for providing electricity. It contains chemicals which will undergo chemical reaction that produces electricity

Motor: A device converts electricity to rotatory mechanical motion.

Power: The energy force or strength generated by a physical system or machine.

Wire: A component which is used in the electronic / electrical industry as a conductor that is used to carry electricity or signals.

WARNING

Adult supervision and assistance is required.

This unit is only for use by children aged 8 years and older.

Not suitable for children under age 3 years old due to small part(s) and component(s) – CHOKING HAZARD.

Read and follow all instructions in the manual before use.

This toy contains small parts and functional sharp points on components. Keep away from children under age 3 years.

7 x AA size batteries are required (not included)

Please retain the information and this manual for future reference.

Instructions for parents are included and have to be observed.

This product contains small ball which may break off and cause a choking hazard. Not suitable for children under 36 months.

Do not aim at eyes and face. Do not use improvised projectiles.

Warning. Do not use close to the ear! Misuse may cause damage to hearing.

CAUTION !

Before setting up this unit, please double check and make sure all wiring connections you have made are correct before inserting the batteries and switching on the unit as failure may result in damage to components or the unit.

When experiment is finished, make sure the batteries are disconnected and switch off the unit before you clear away the wires. Do not apply any components or parts to the unit other than those provided with this kit.

Do not lock the motor or other moving parts. Otherwise it may cause overheating.

The toy is not to be connected to more than recommended number of power supplies.

BATTERY INFORMATION

Use 7 x AA size batteries (not included).

Remove batteries when not in use.

Batteries must be inserted with the correct polarity

Non-rechargeable batteries are not to be recharged

Re-chargeable batteries are only to be charged under adult supervision

Re-chargeable batteries are to be removed from the toy before being charged

Different types of batteries or new and used batteries are not to be mixed.

Exhausted batteries are to be removed from the toy

The supply terminals are not to be short-circuited

Only batteries of the same or equivalent types are to be used

Do not dispose of the batteries in fire

Do not mix old and new batteries

Do not mix alkaline, carbon zinc and re-chargeable batteries

Warning ! Do not short-circuit the battery terminals and spring connectors as this may cause overheating. Do not lock the motor or other moving parts as this may cause overheating.

READ & SAVE

ASSEMBLY & OPERATION INSTRUCTIONS

There are **four** basic individual units in this kit, namely **AIM N SHOOT**, **BUBBLE SCIENCE, ACTION DINO**, and **MAZE CHALLENGE**.

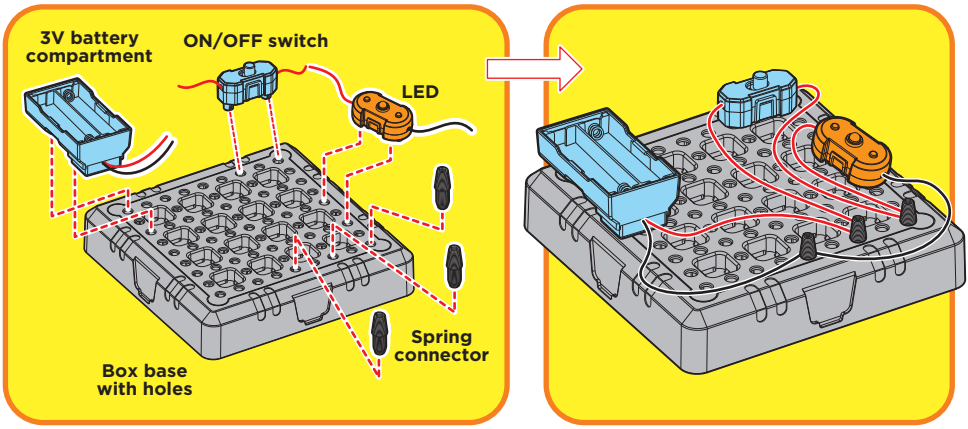
By changing different circuit connections and combinations, it can establish play sets of diverse function.

To ensure the success of the **ASSEMBLY**, be sure to read these instructions and review the diagrams thoroughly before starting.

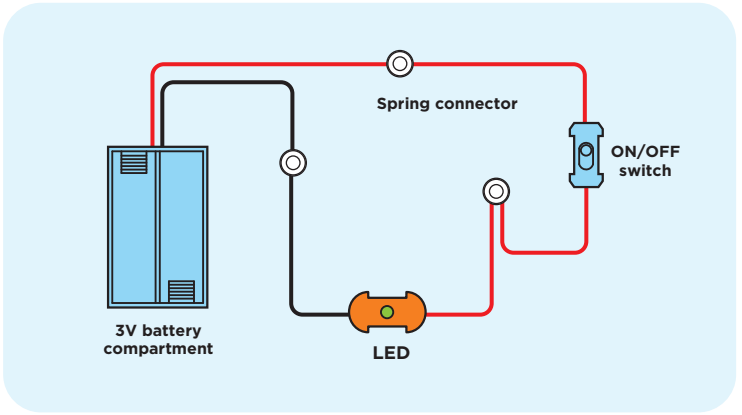
A practice of basic circuit connection

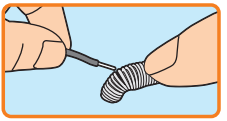
Below is a demonstration of connecting a simple circuit. You can start with this simple circuit as a practice before moving to other advanced circuits.

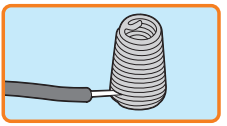
First of all, take out the components shown in below diagram from your amazing connection kit. They may be packed in different bags. Then install them like the pictures shown.



BASIC CONNECTION PRINCIPLE





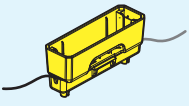


It is now done! Insert 2pcs AA size batteries to the 3V battery compartment. Turn the switch on. The circuit is connected and current can flow in the circuit. Then the LED will light up!

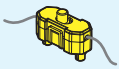
1 Aim N Shoot

PARTS LIST

Description	Quantity
01 1.5V battery compartment	1pc
02 ON/OFF switch	1pc
03 Spring connector	4pcs (1spare)
04 Box base with holes	1pc
05 LED	1pc
06 Gearbox	1pc
07 Gearbox cap	1pc
08 Mini-Basketball	1pc
09 Basketball board	1pc
10 Basketball basket	1pc
11 Basketball base	1pc
12 Catapult body	1pc
13 Catapult sling	1pc
14 Basketball sensor	1pc
15 Sticker	1pc

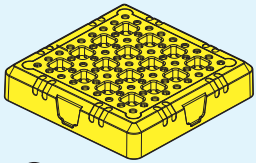


01 1.5V battery compartment



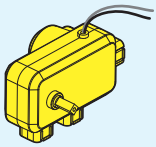
02 ON/OFF switch

03 Spring connector



04 Box base with holes

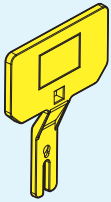
05 LED



06 Gearbox

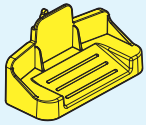
07 Gearbox cap

08 Mini-Basketball

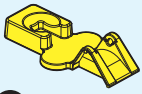


09 Basketball board

10 Basketball basket



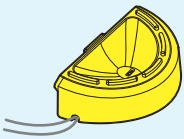
11 Basketball base



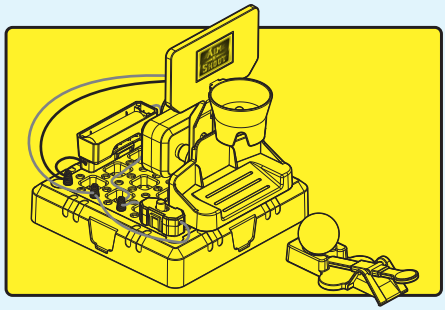
12 Catapult body

13 Catapult sling

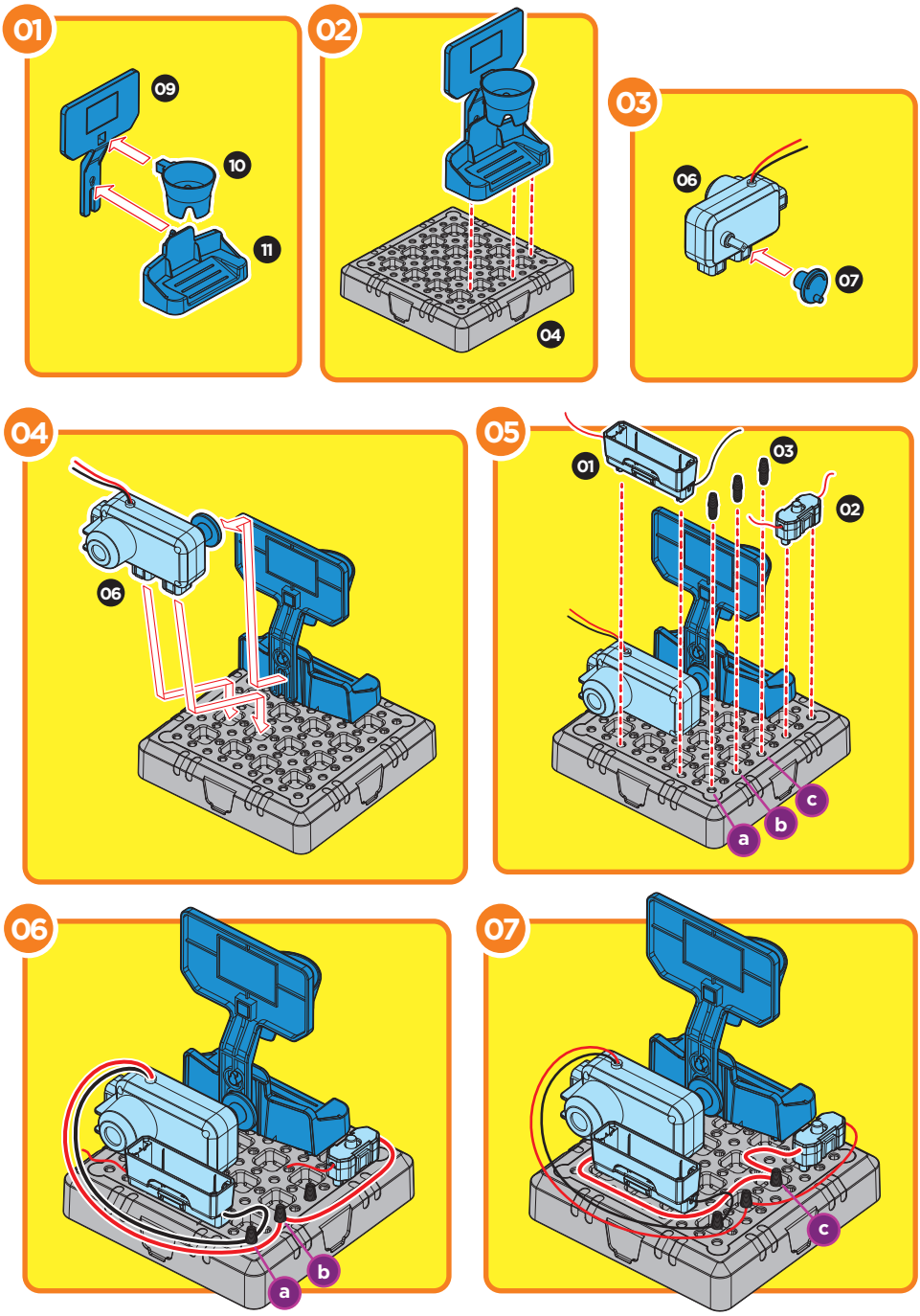
15 Sticker

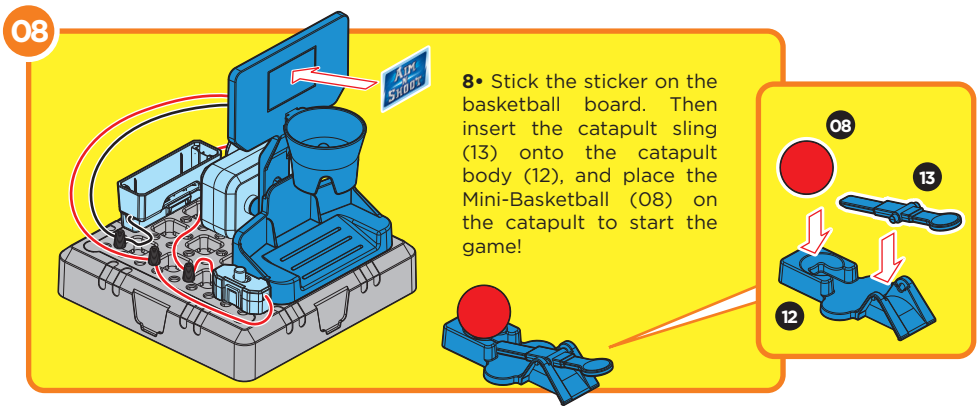


14 Basketball sensor



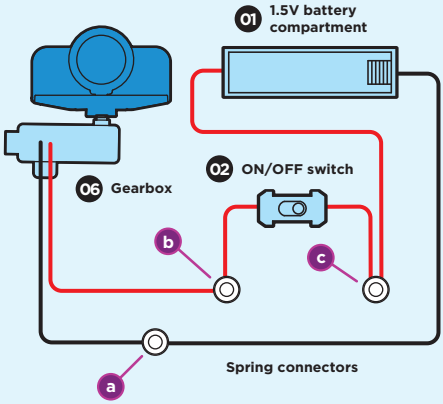
BASIC ASSEMBLY





BASIC CONNECTION PRINCIPLE

Wiring connections	Spring (a)	Spring (b)	Spring (c)
1.5V battery compartment (01)	black		red
ON/OFF switch (02)		red	red
Gearbox (06)	black	red	



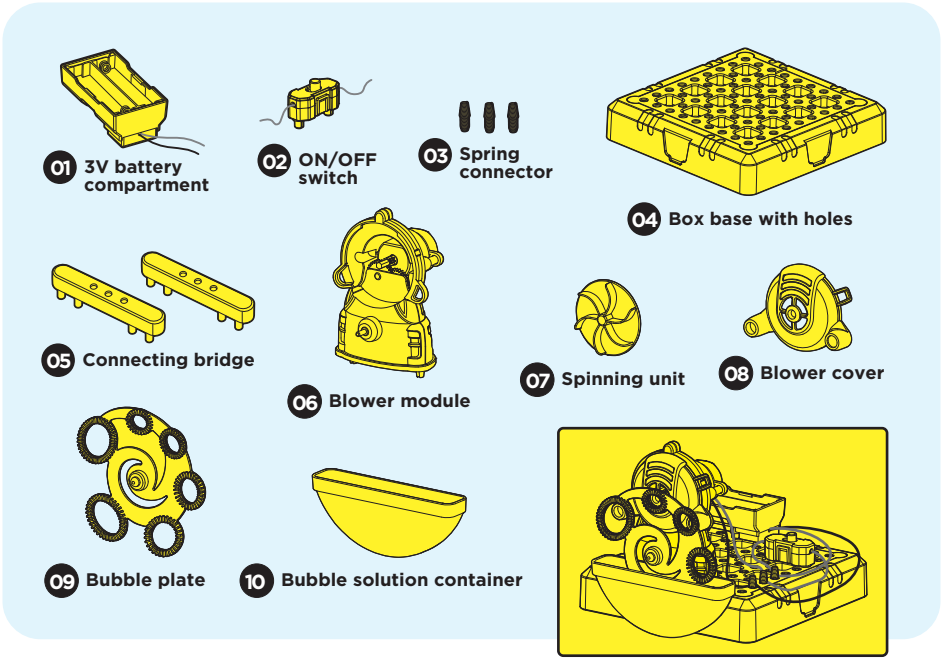
How to play

It is now done! Insert 1pc AA size battery to the 1.5V battery compartment. Turn the switch on. The assembled basketball stand will start moving from the left to the right side. Now let the game begins. To play you need to firstly select the desired distance between the basketball stand and the catapult. Then aim at the basketball basket by tapping the catapult sling with your finger. This fun challenge requires skill as well as luck to make a successful shot! So test yourself and give it your best shot!

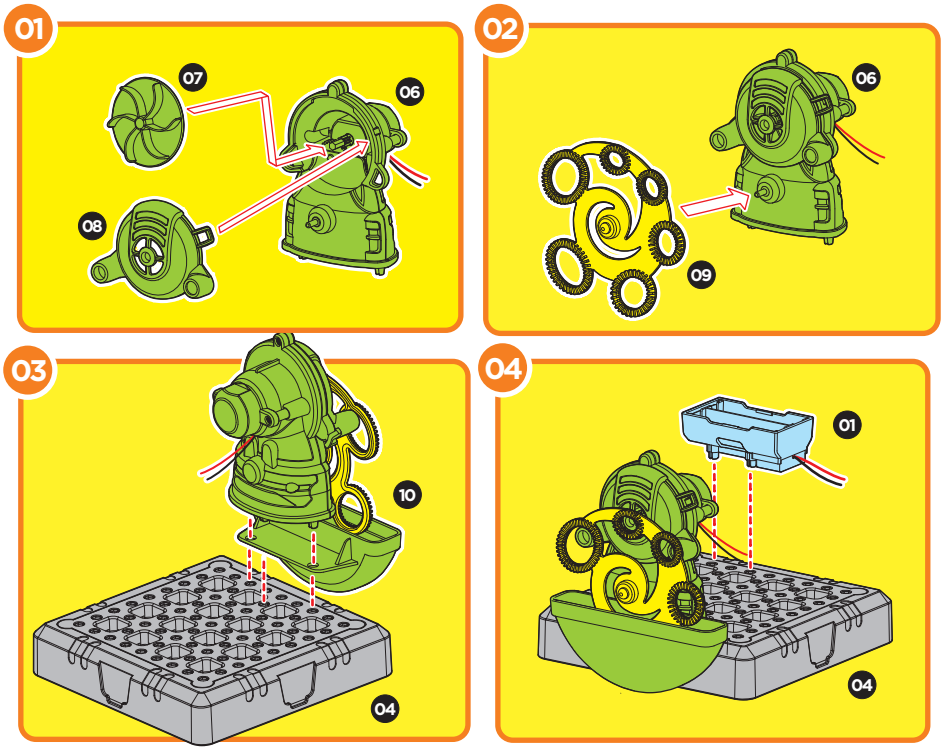
2 BUBBLE SCIENCE

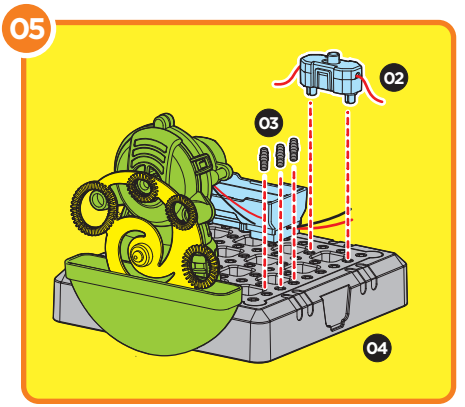
PARTS LIST

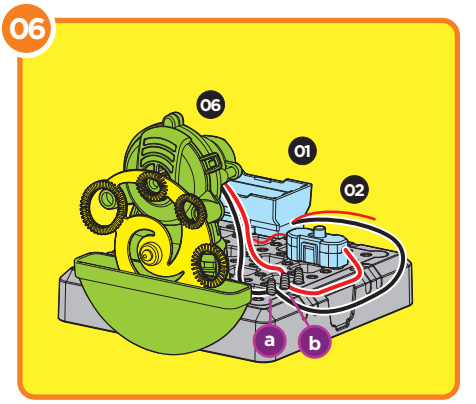
Description	Quantity
01 3V Battery compartment	1pc
02 ON/OFF switch	1pc
03 Spring connector	3pcs
04 Box base with holes	1pc
05 Connecting bridge	2pcs
06 Blower module	1pc
07 Spinning unit	1pc
08 Blower cover	1pc
09 Bubble plate	1pc
10 Bubble solution container	1pc

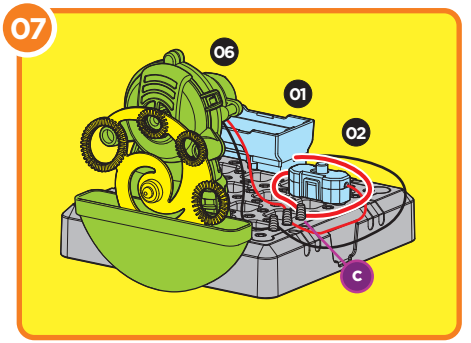


BASIC ASSEMBLY



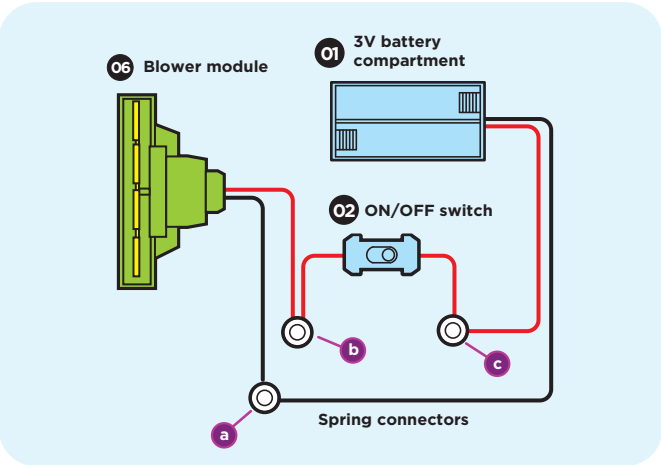






BASIC CONNECTION PRINCIPLE

Wiring connections	Spring (a)	Spring (b)	Spring (c)
3V battery compartment (01)	black		red
ON/OFF switch (02)		red	red
Blower Module (06)	black	red	



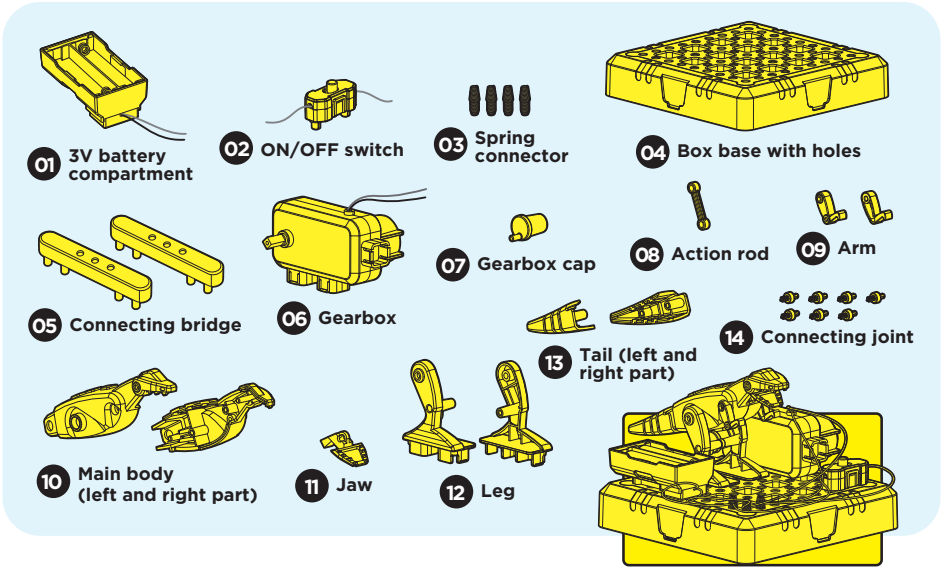
How to play

You need to firstly prepare some bubble solution. It may be bought from the shop, or made in the bathroom (under adult supervision) by adding soap into water to become the bubble solution. When bubble solution is available, fill it into the bubble solution container.
Insert 2pcs AA size batteries to the 3V battery compartment. Turn ON the switch. The bubble plate will start to spin and the blower will blow out bubbles. You will see beautiful bubbles shooting out in continuous bubble stream!

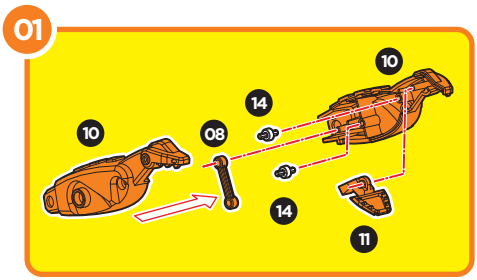
PARTS LIST

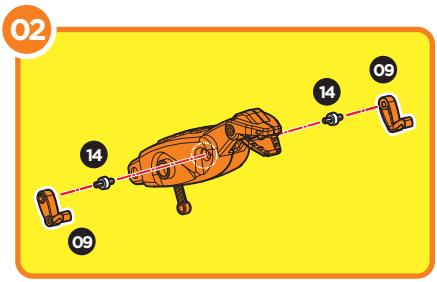
3 ACTION DINO

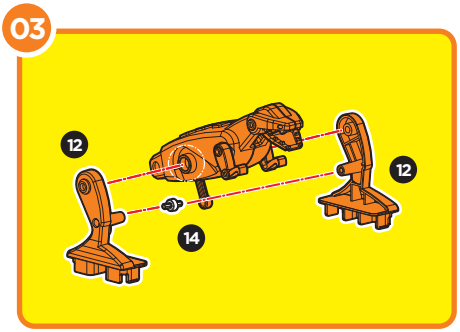
Description	Quantity
01 3V battery compartment	1pc
02 ON/OFF switch	1pc
03 Spring connector	4pcs (1spare)
04 Box base with holes	1pc
05 Connecting bridge	2pcs
06 Gearbox	1pc
07 Gearbox cap	1pc
08 Action rod	1pc
09 Arm	2pcs
10 Main body (left and right part)	2pcs
11 Jaw	1pc
12 Leg	2pcs
13 Tail (left and right part)	2pcs
14 Connecting joint	7pcs

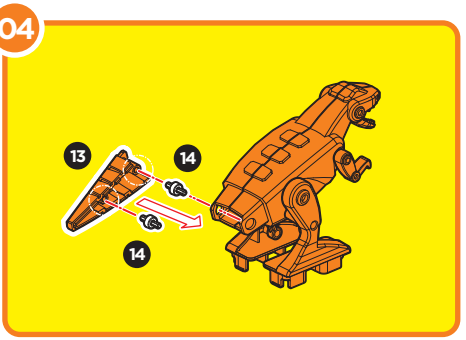


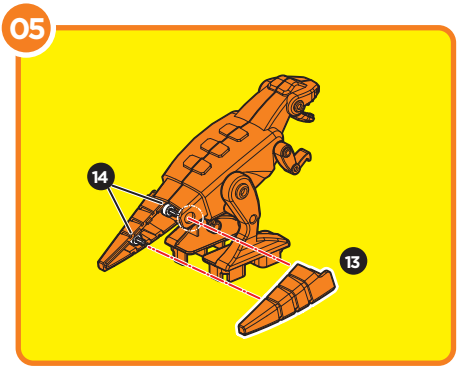
BASIC ASSEMBLY

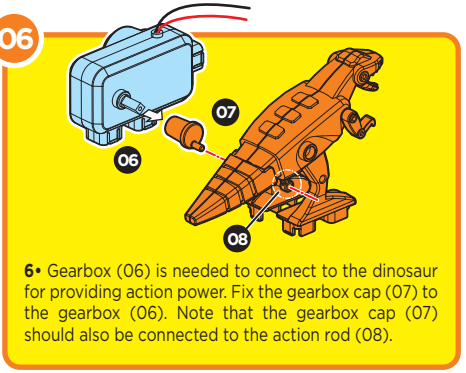




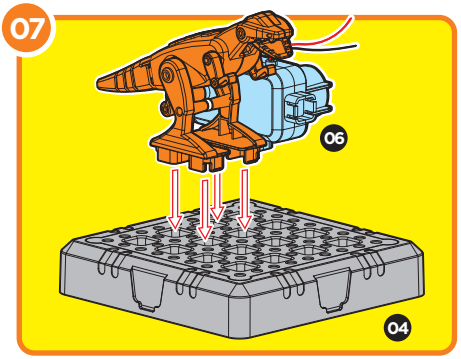


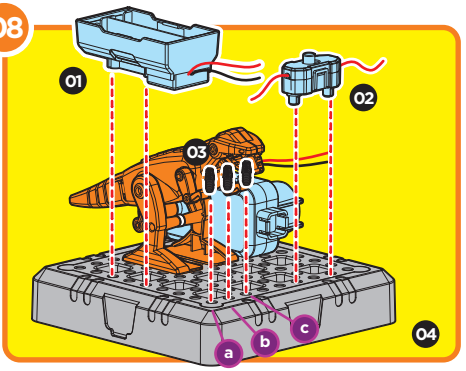


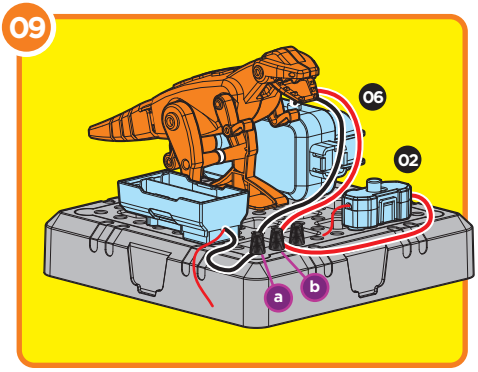


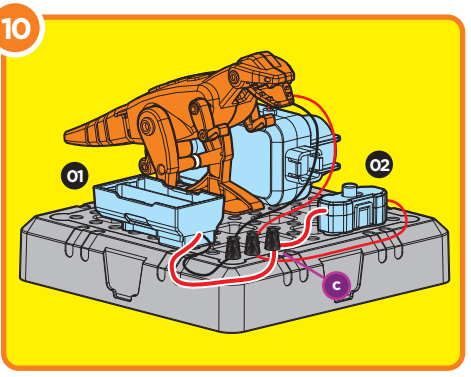


6• Gearbox (06) is needed to connect to the dinosaur for providing action power. Fix the gearbox cap (07) to the gearbox (06). Note that the gearbox cap (07) should also be connected to the action rod (08).



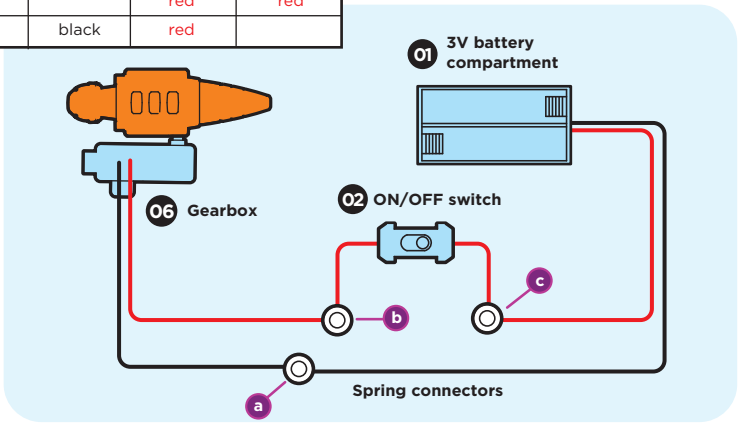






BASIC CONNECTION PRINCIPLE

Wiring connections	Spring (a)	Spring (b)	Spring (c)
3V Battery compartment (01)	black		red
ON/OFF Switch (02)		red	red
Gearbox (06)	black	red	



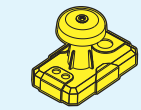
How to play

It is now done! Insert 2pcs AA size batteries to the 3V battery compartment. Turn the switch on. The assembled action dino will start moving. Watch the robotic action from this awesome dinosaur!

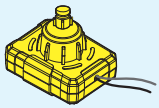
4 Maze Challenge

PARTS LIST

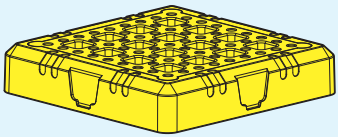
Description	Quantity
01. Bell module	1pc
02. Motor module	1pc
03. Box base with holes	1pc
04. 3V battery compartment	1pc
05. ON/OFF switch	1pc
06. Wand	1pc
07. Spring connector	6pcs (1spare)
08. Metal wire	1pc
09. Spring pole	1pc
10. C-shape plastic lock	1pc
11. Connecting bridge	2pcs
12. Flying disc	1pc
13. Color filter	1pc



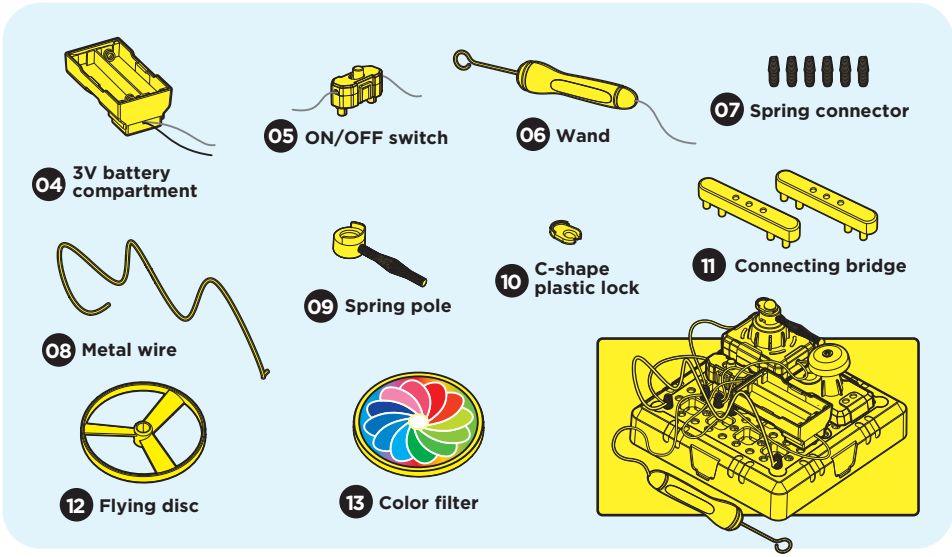
01 Bell module



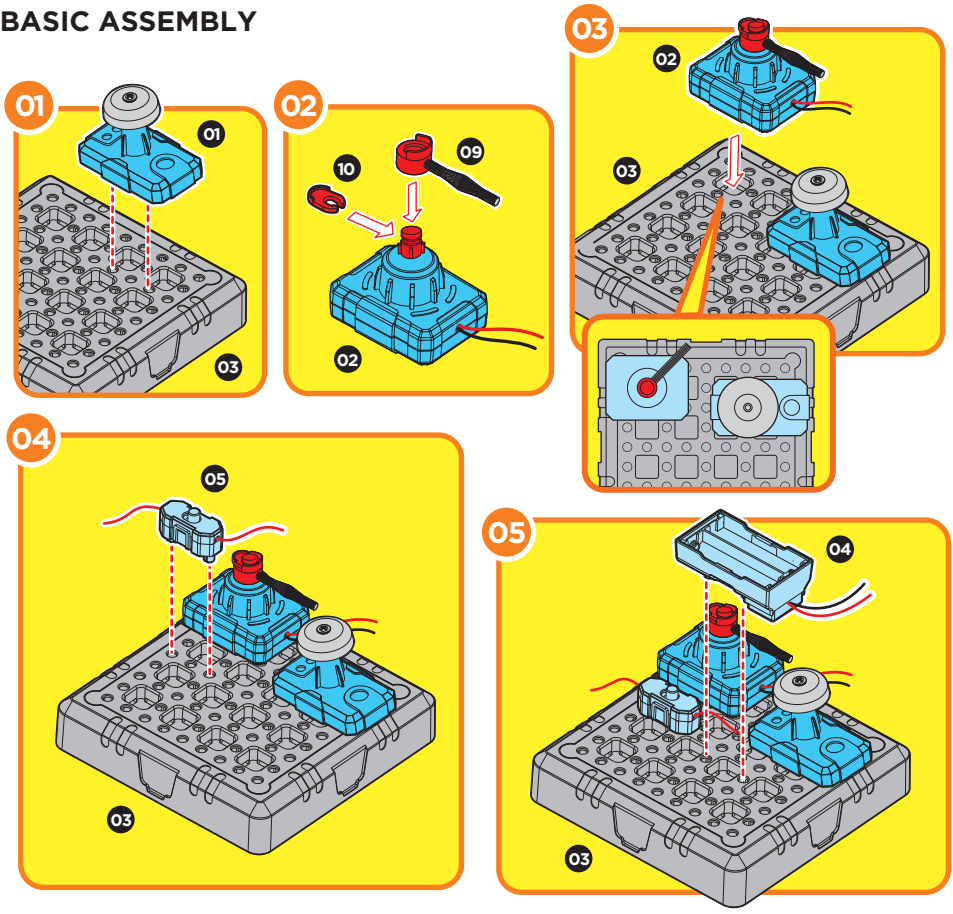
02 Motor module

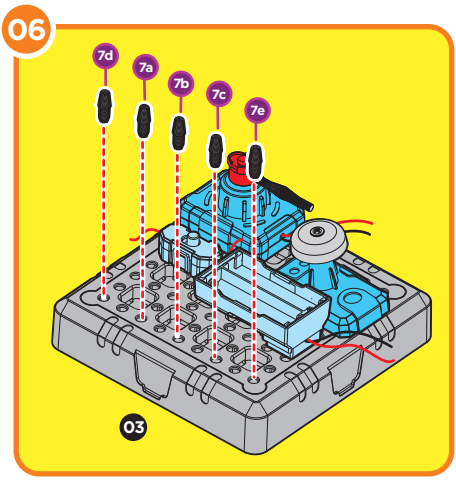


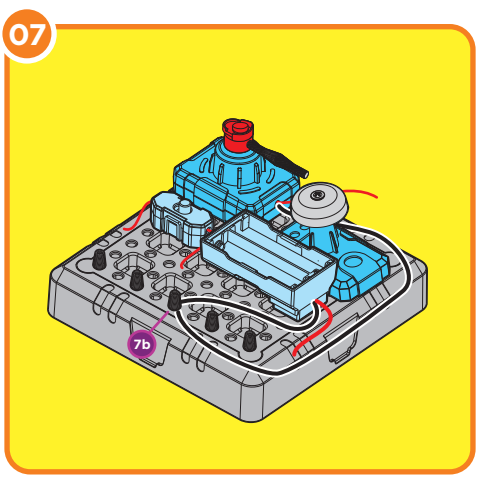
03 Box base with holes

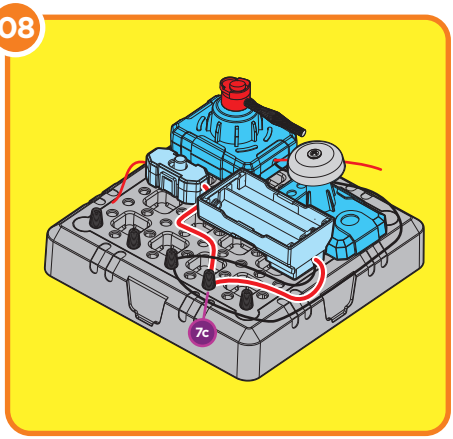


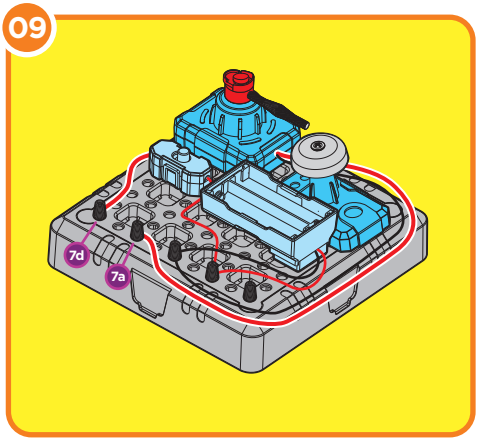
BASIC ASSEMBLY

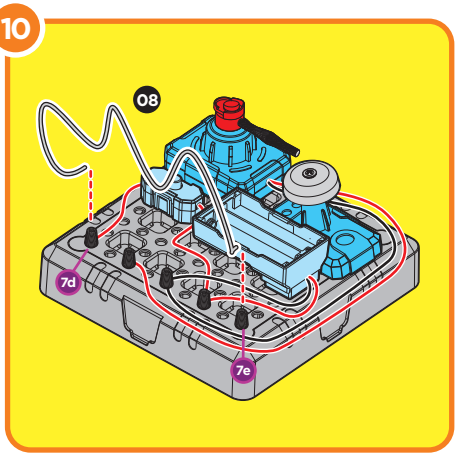


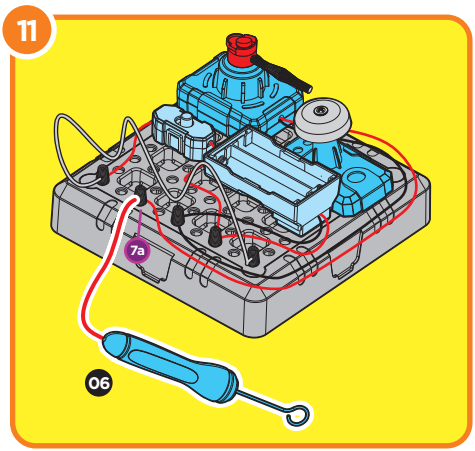










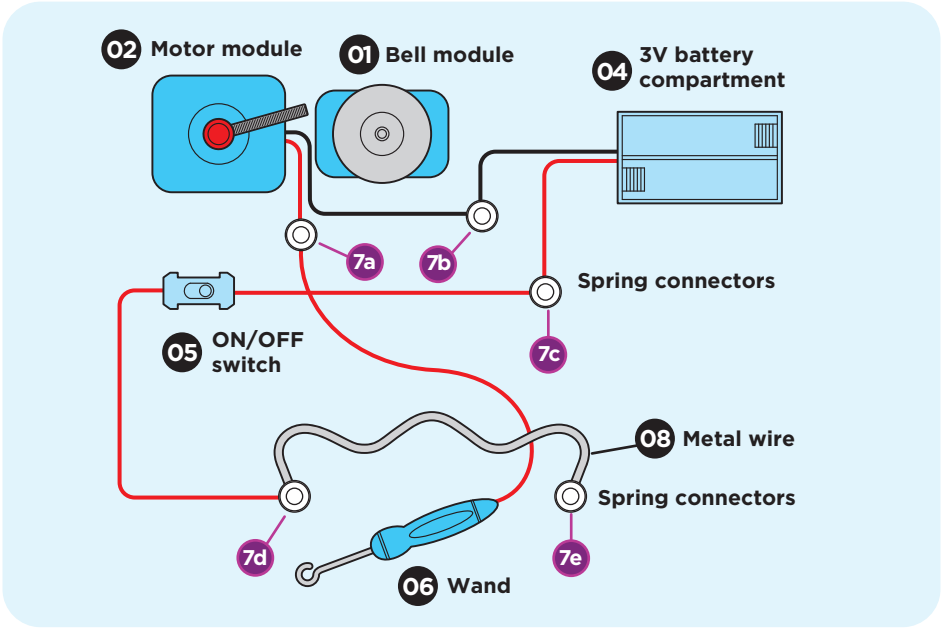


10• Fix the metal wire (08) on the spring connectors (7d) and (7e).

11• Connect the wand (06) to the spring connector (7a).

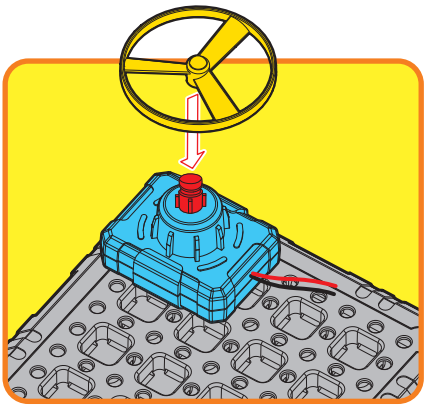
BASIC CONNECTION PRINCIPLE

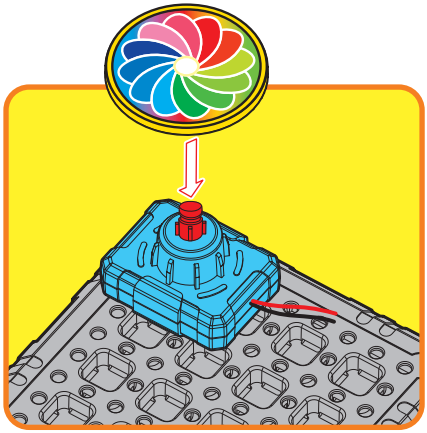
Wiring connections	Spring (7a)	Spring (7b)	Spring (7c)	Spring (7d)	Spring (7e)
3V battery compartment (04)		black	red		
ON/OFF switch (05)			red	red	
Motor Module (02)	red	black			
Metal Wire (08)				silver	silver
Wand (06)	red				



How to play

It is now done! Insert 2pcs AA size batteries to the 3V battery compartment. Turn the switch on and put the ring of the wand around the metal wire via the open area of the ring. Keep your hand steady and carefully move the ring of the wand through the metal wire. If the ring touches the metal wire, the bell will ring and you lose! Complete the maze to achieve the fastest time against your friends. Bend the metal wire to create different levels of difficulty. Please ensure the switch is off and batteries are removed from battery compartment before bending the metal wire. You can switch to use other functions by replacing the spring pole with flying disc or color filter.



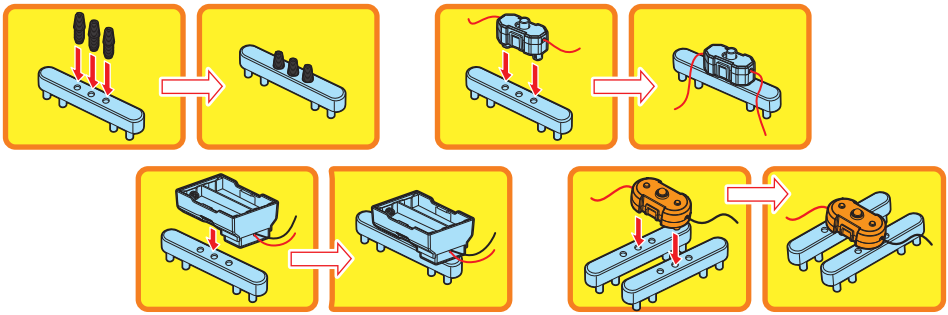


FOR MORE CONNECTING FUN!

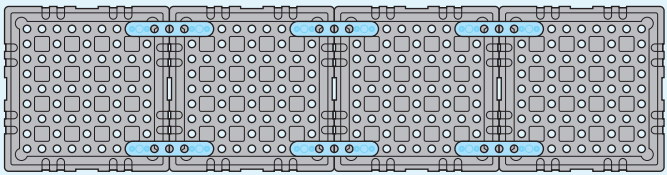
After you have successfully assembled the basic individual units, you can create more exciting interaction with the **AIM N SHOOT**, **BUBBLE SCIENCE**, **ACTION DINO** and **MAZE CHALLENGE** together! Here are some basic things to note when using connecting bridges to connect units together:

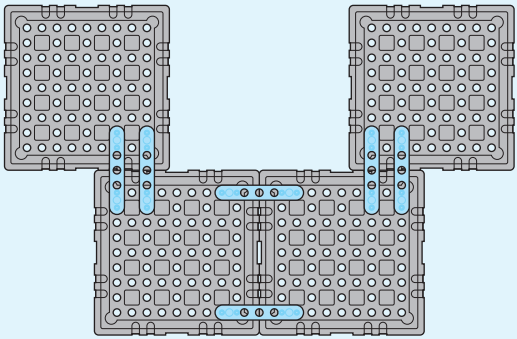
If needed, you can adjust the position of the assembled parts on the box base with holes to suit the **2in1** or **3in1** or **4in1** connection. There is no need to keep their position exactly as the basic assembly. You can adjust their positions as long as the circuit connection is correct as the instruction.

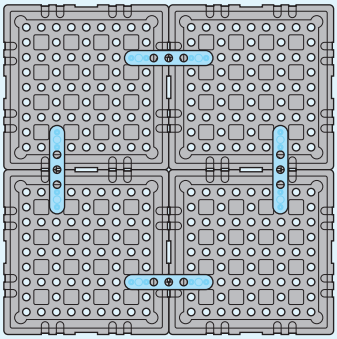
There are 3 holes on each connecting bridge. Therefore switch or spring or other things can be installed onto the connecting bridges. This is useful when you find the box base with holes is crowded and hard to find rooms on it. These diagrams are examples:

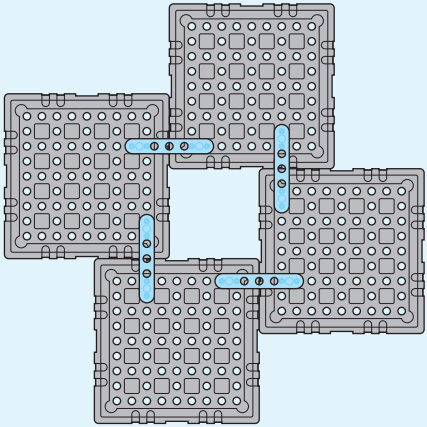


For **3in1** and **4in1** connections, you can have different connecting arrangements. Below figures are examples. You can decide or modify the arrangement to make your own style! Just make sure that the circuit connection is correct as the instruction.









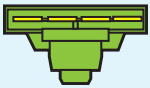
How to Connect

Put the 2, 3 or 4 box bases together. Use connecting bridges to connect them firmly. Then follow below connecting diagrams to connect!

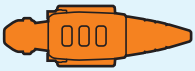
Connection symbols

Basketball board, basket & base

Basketball sensor



Bubble blower



Action dino

Motor module with spring pole

Bell module

Motor module with flying disc

Motor module with color filter

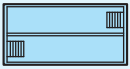
Wand

Metal wire

LED

ON/OFF switch

Spring

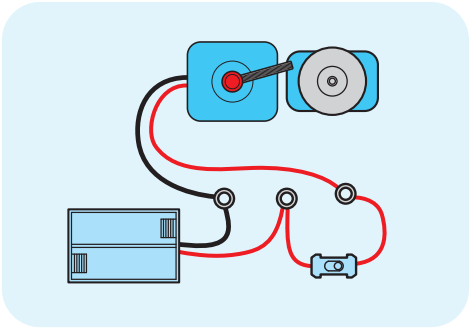


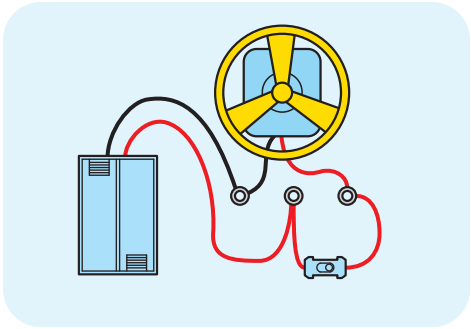
3V battery compartment

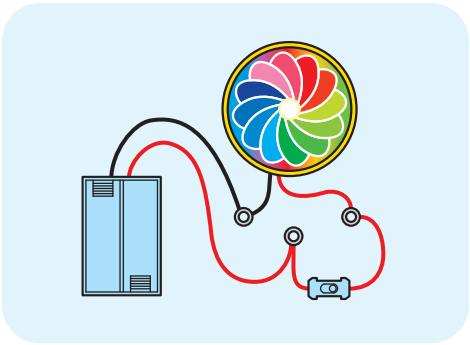
1.5V battery compartment

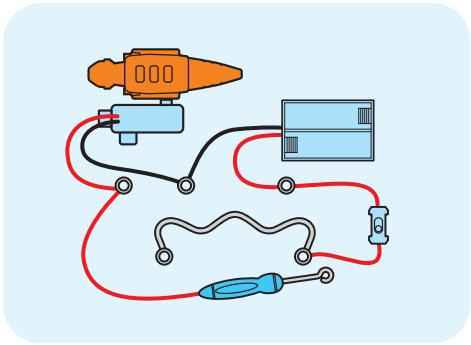
Gearbox

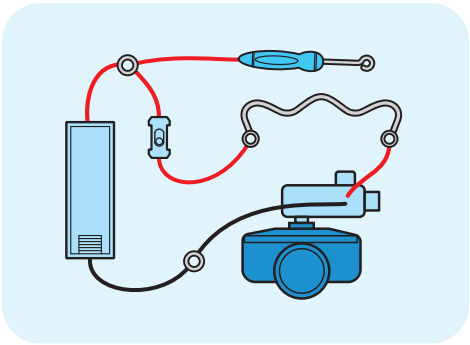
Connection diagrams

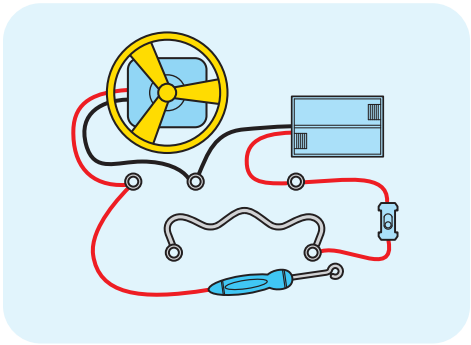


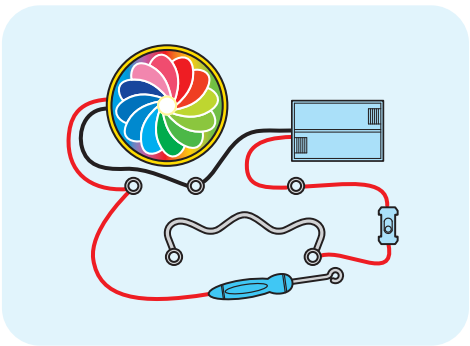


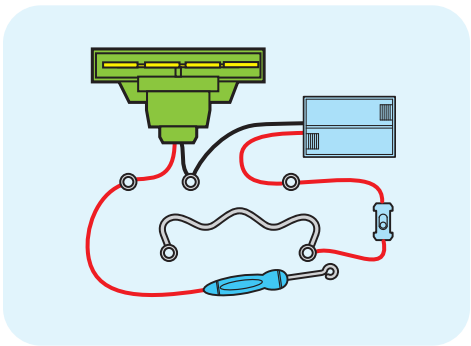


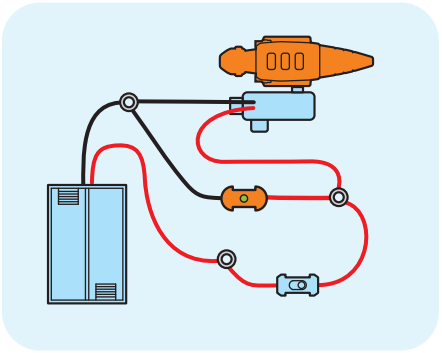


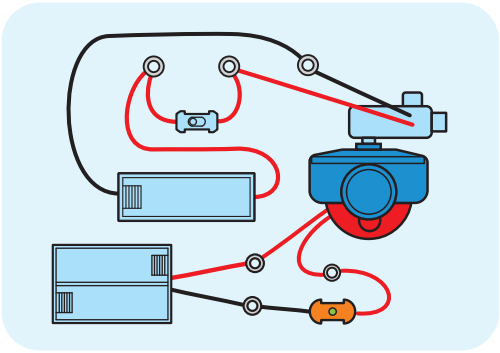


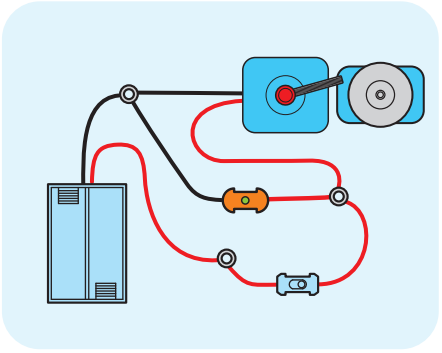


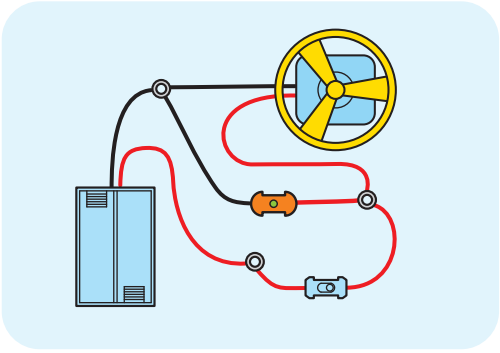


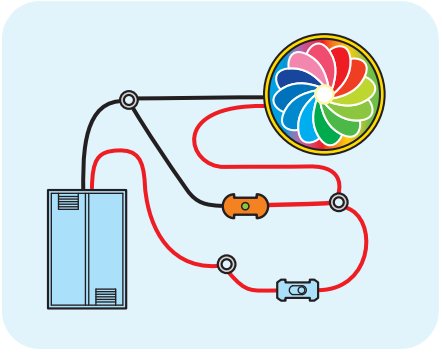


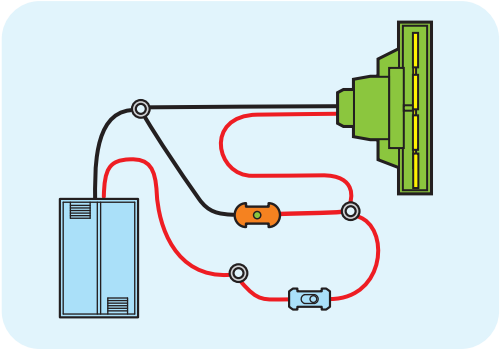


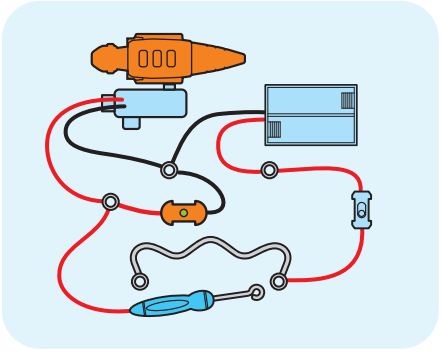


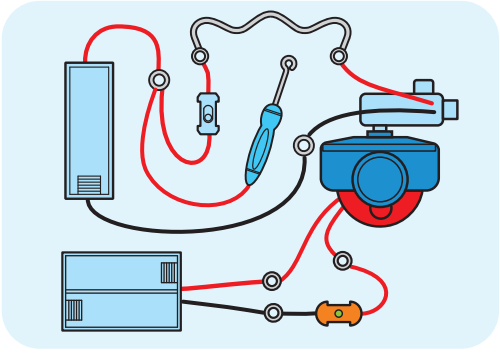


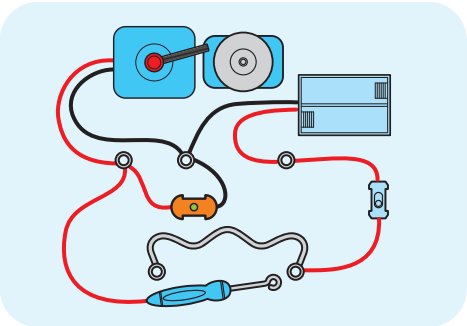


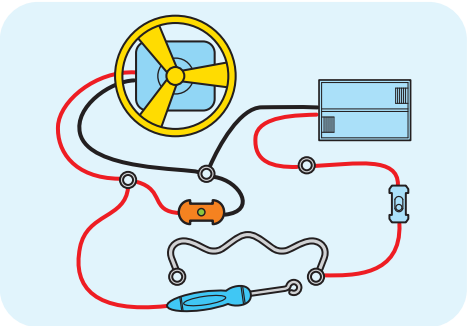


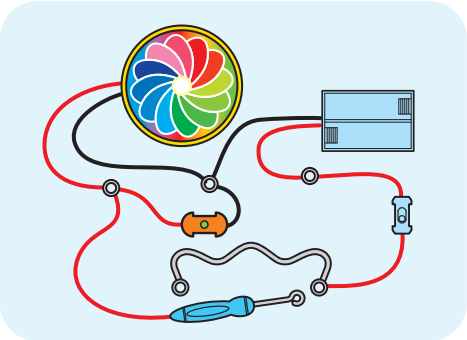


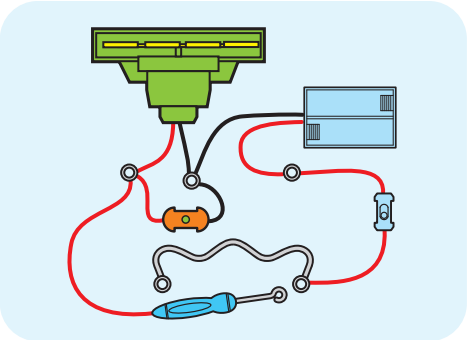


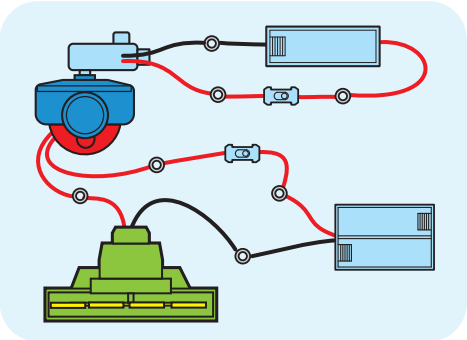


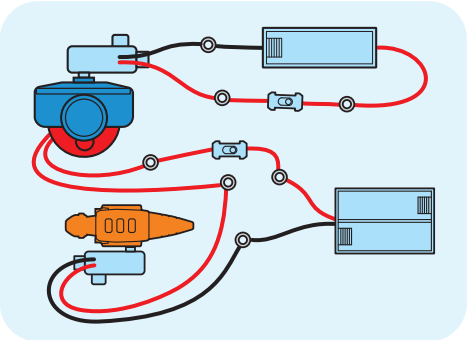


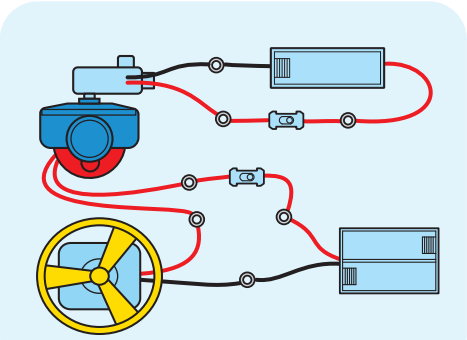


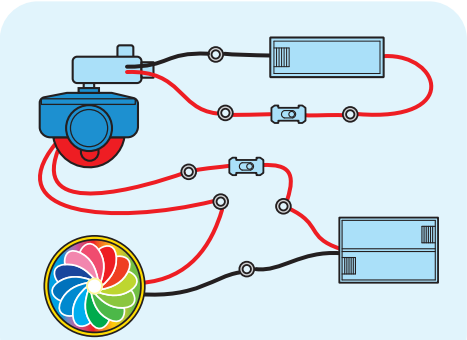


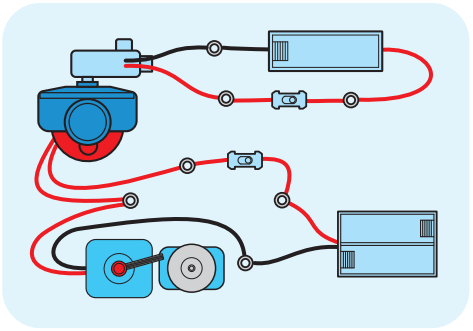


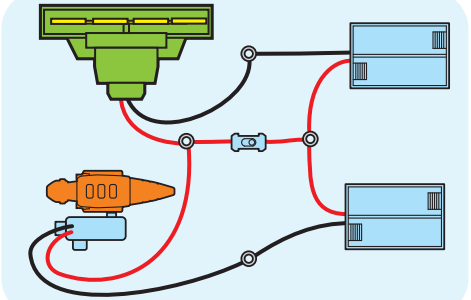


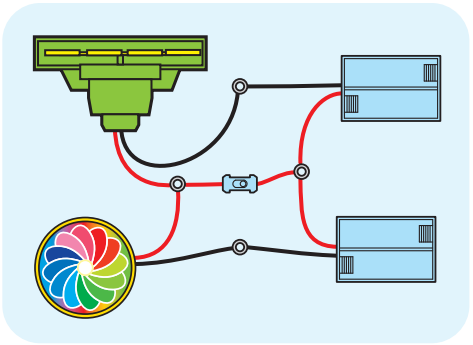


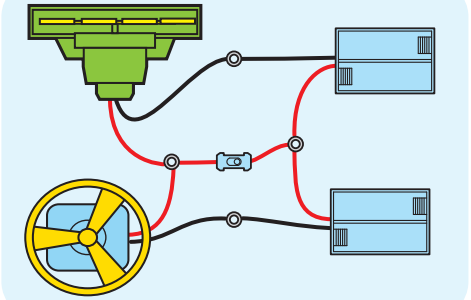


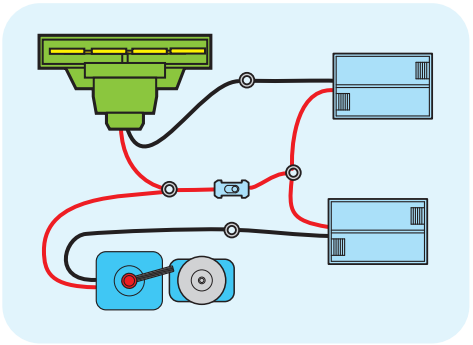


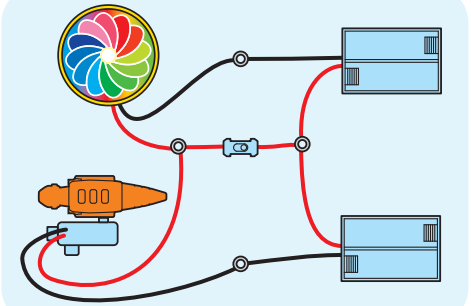


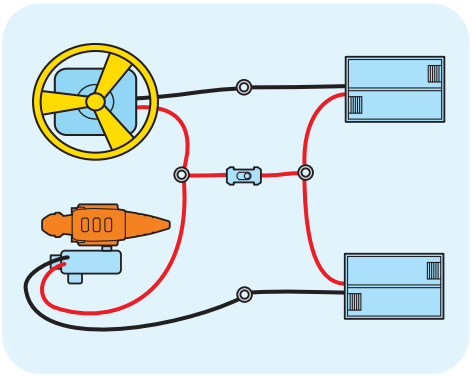


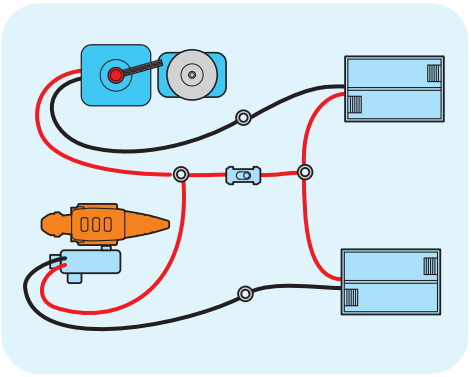


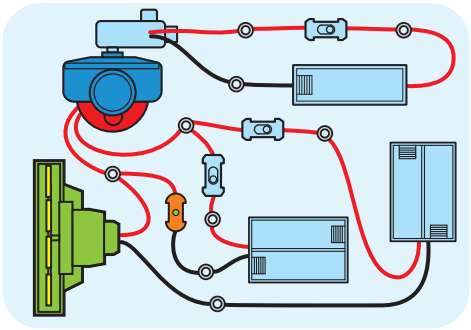


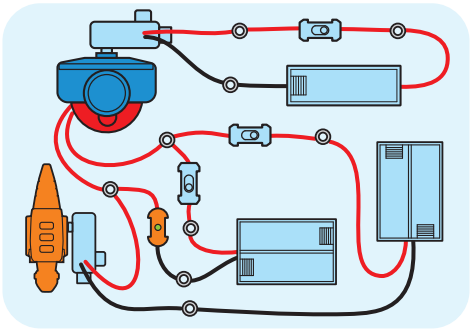


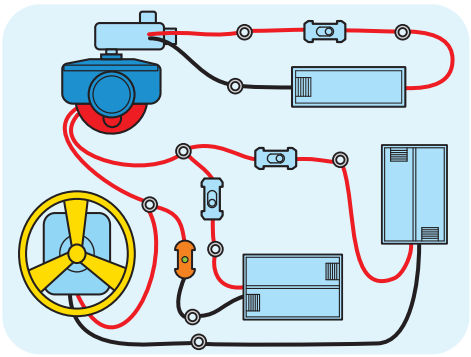


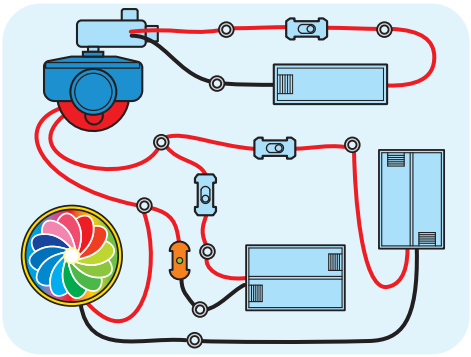


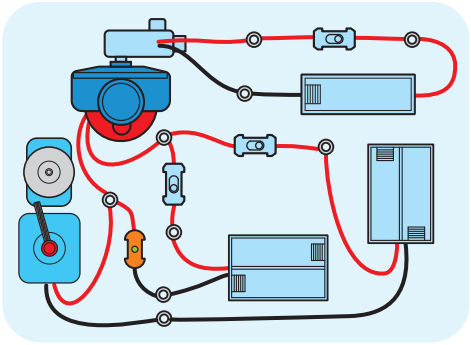


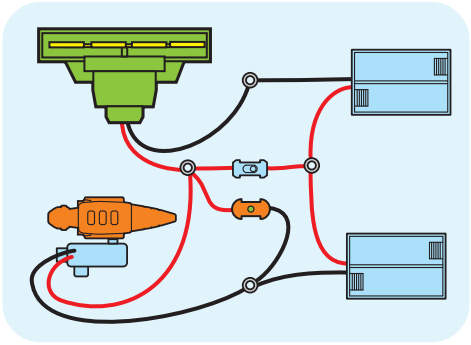


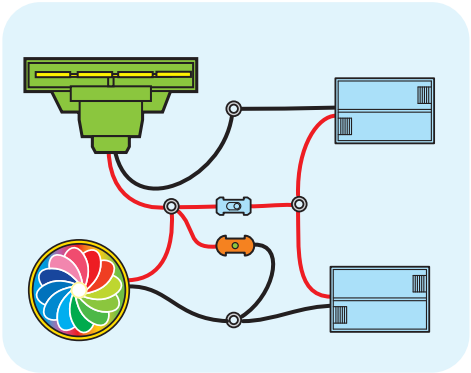


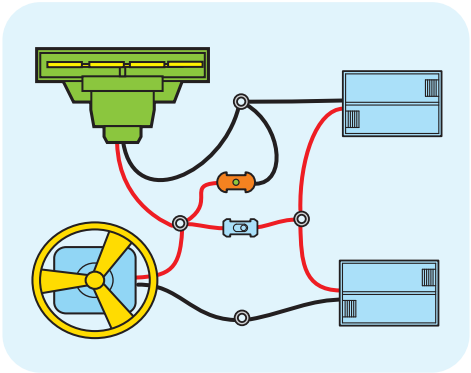


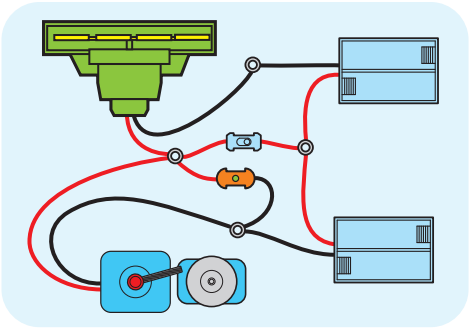


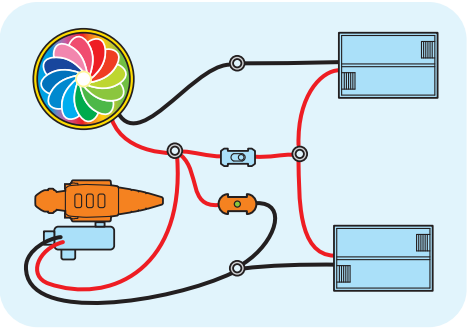


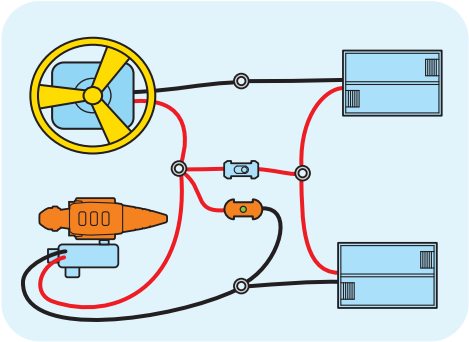


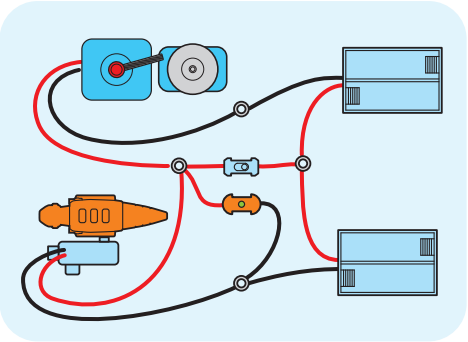


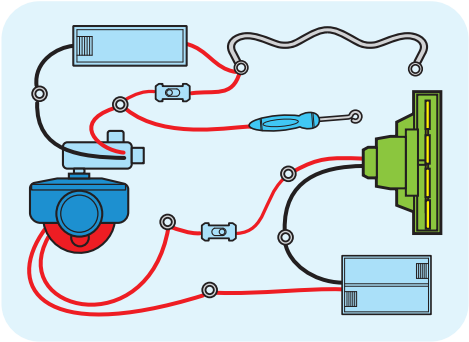


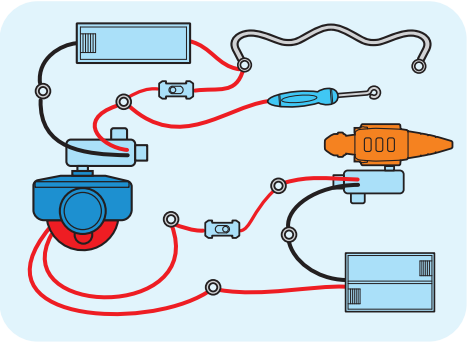


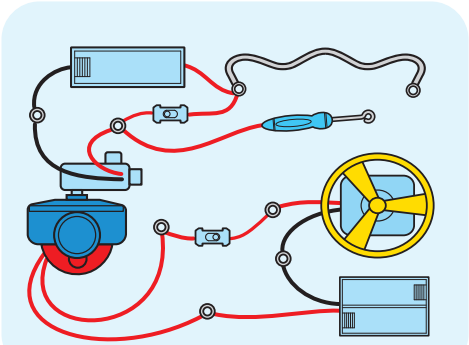


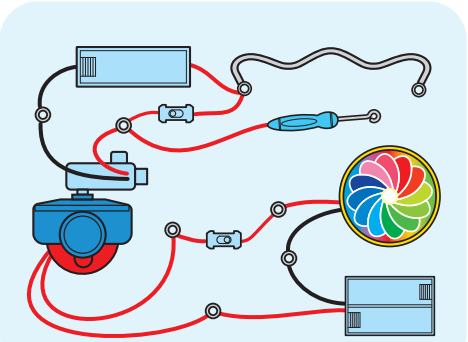


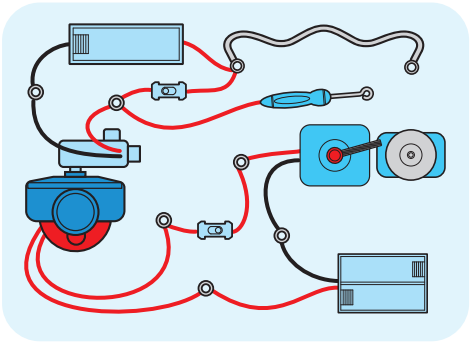


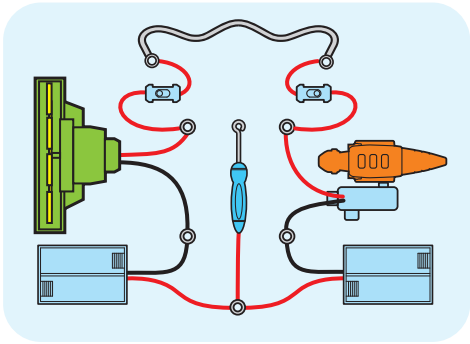


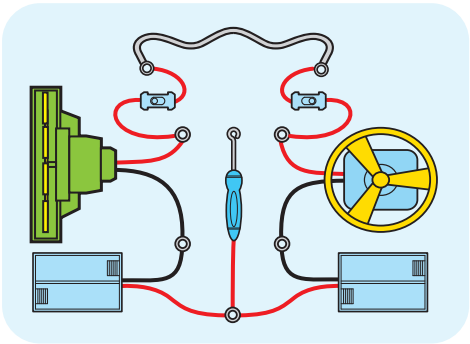


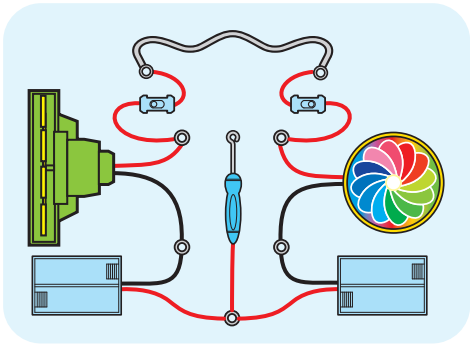


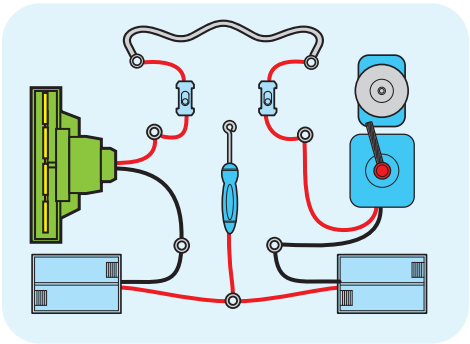


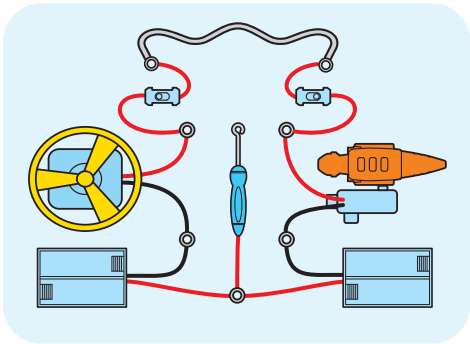


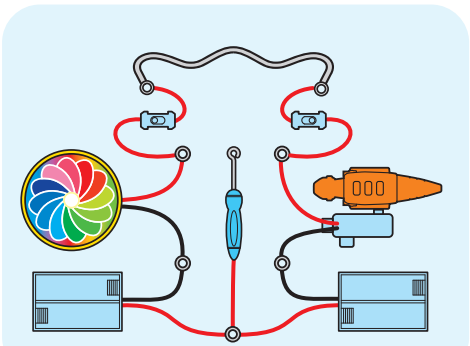


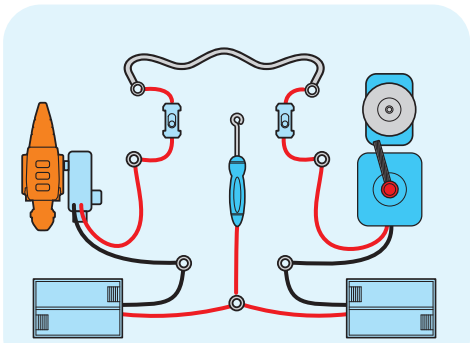


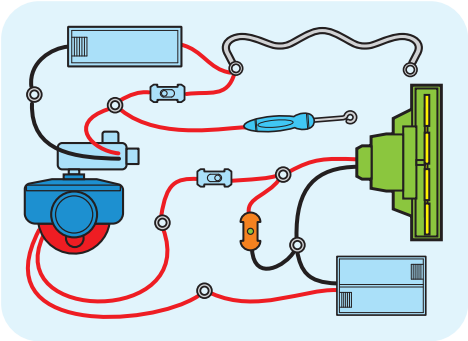


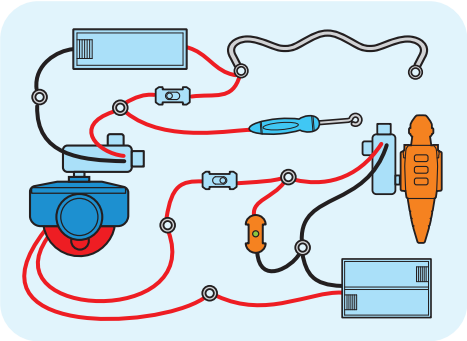


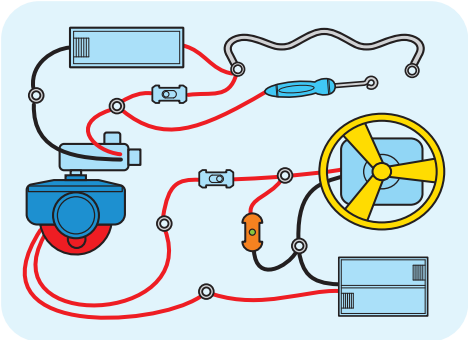


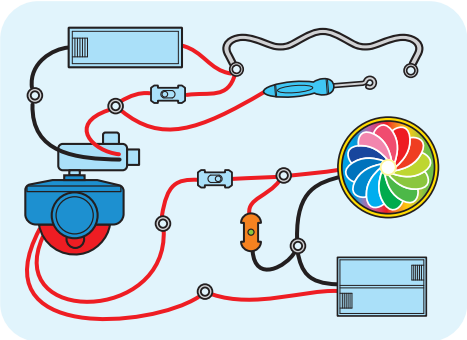


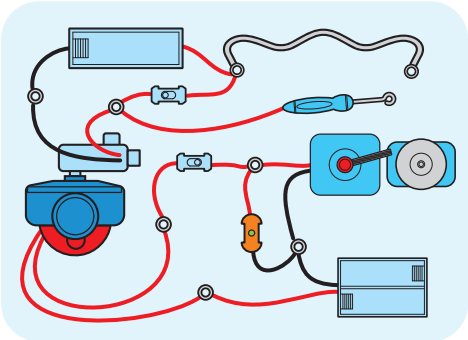


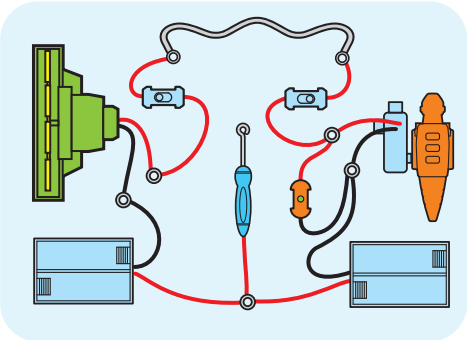


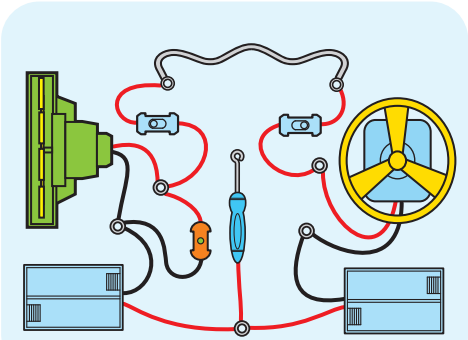


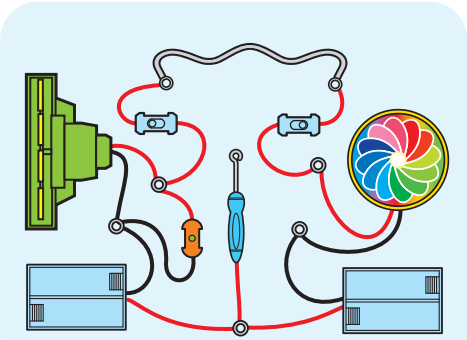


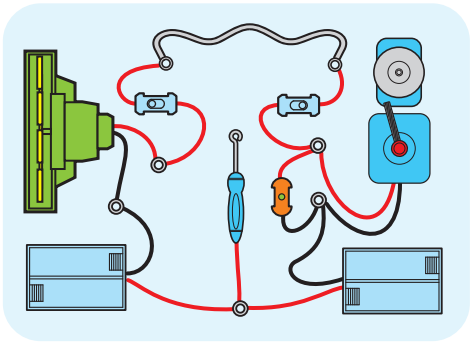


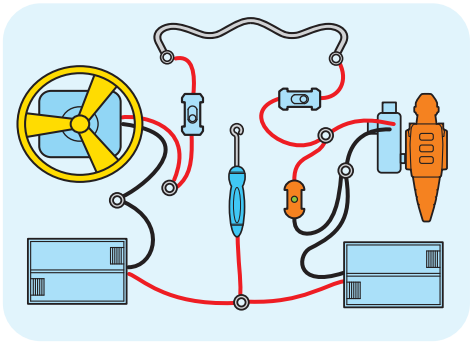


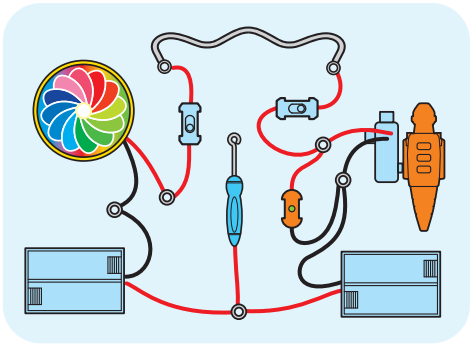


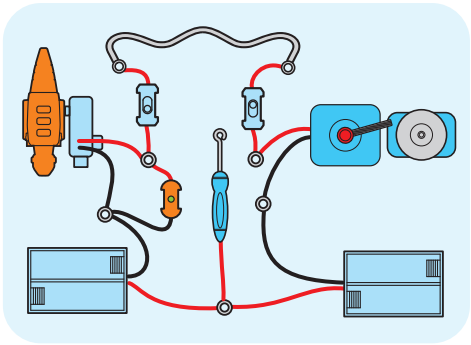


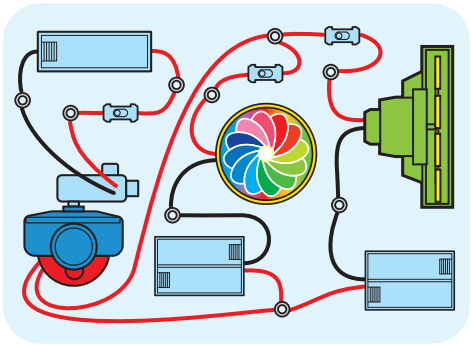


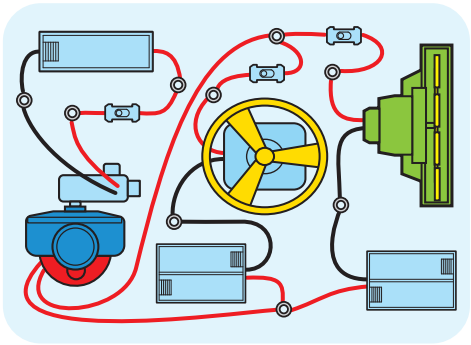


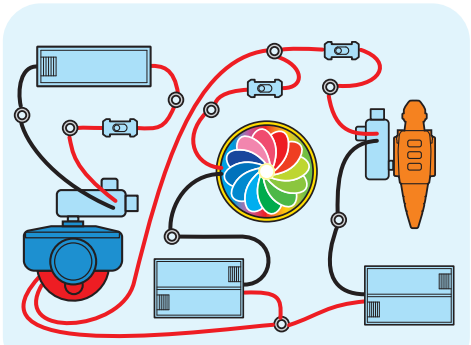


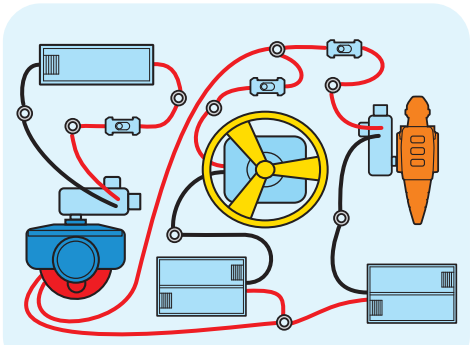


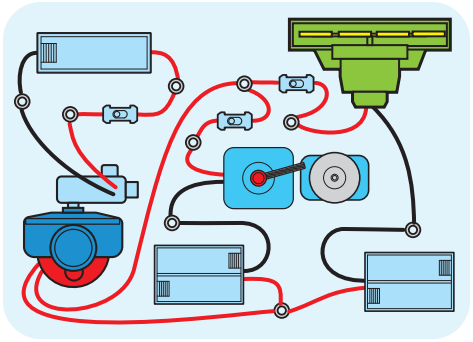
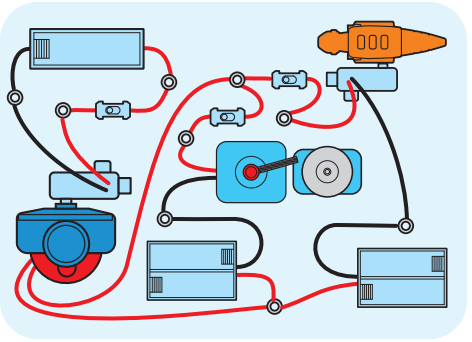
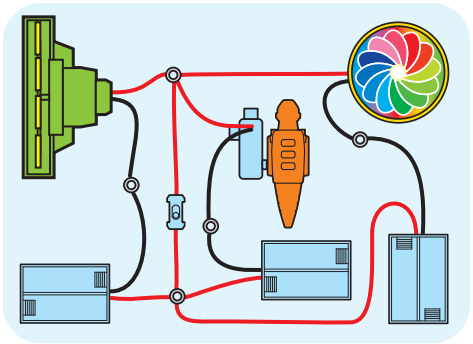
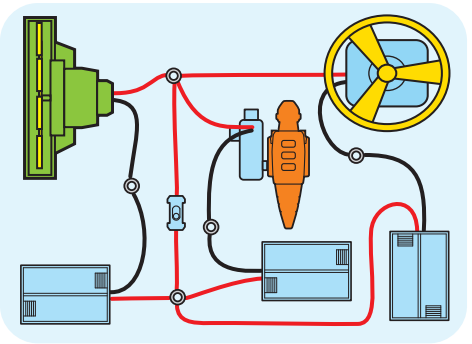
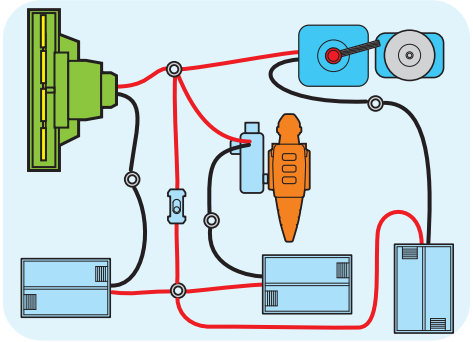
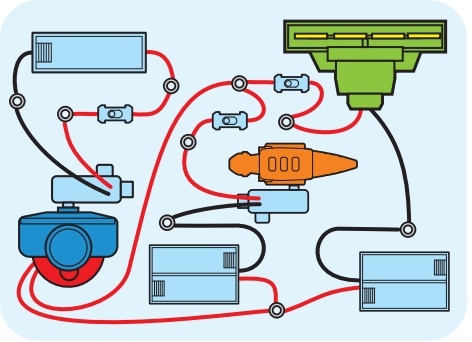
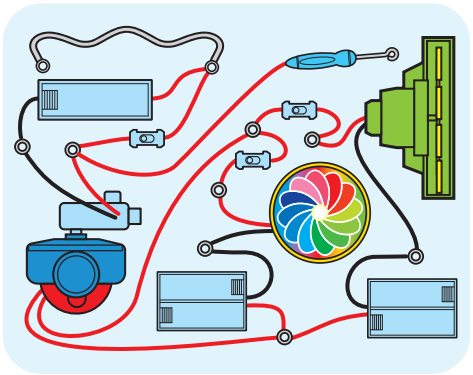
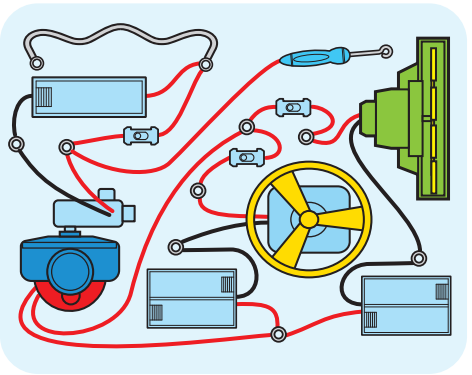


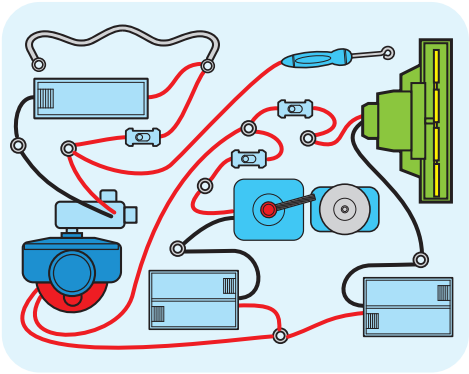
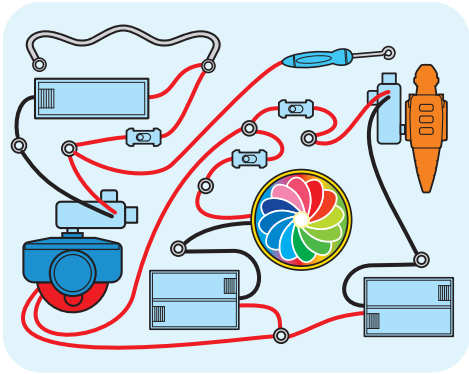
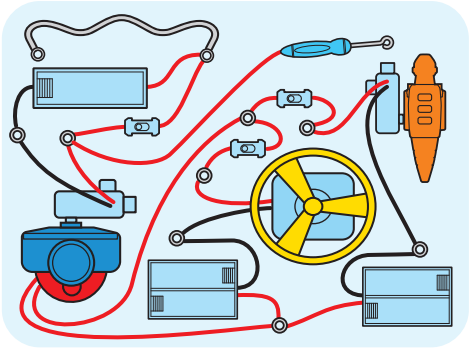
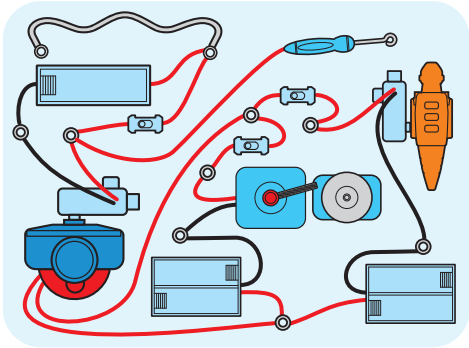
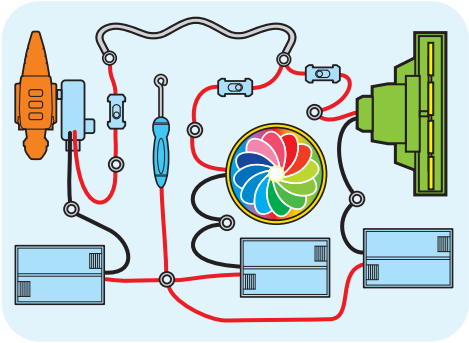
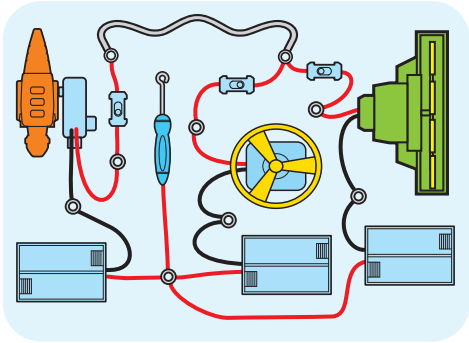
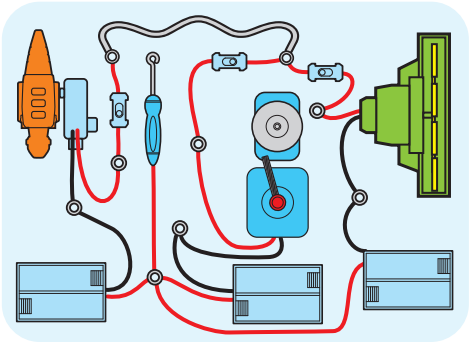
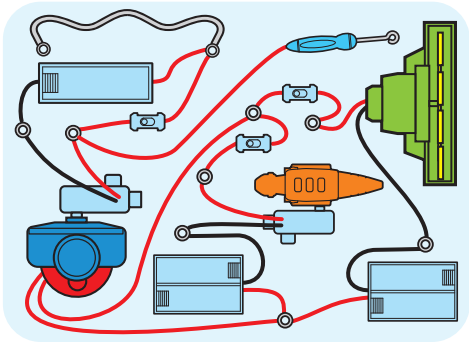


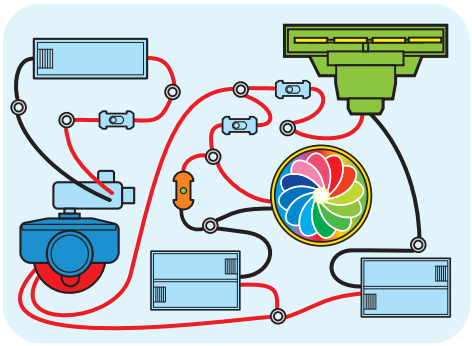
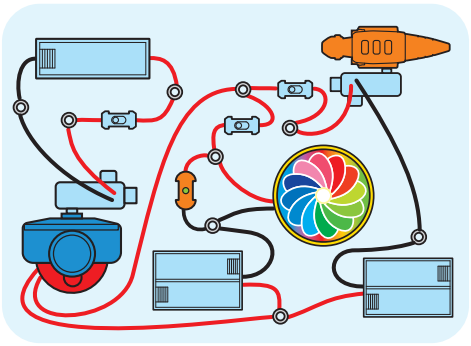
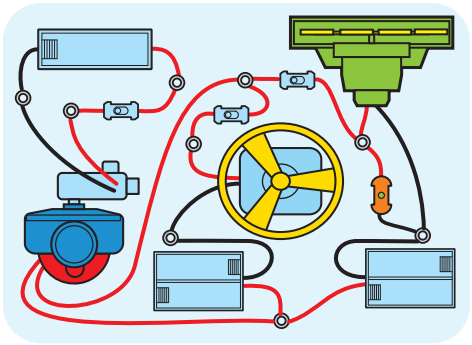
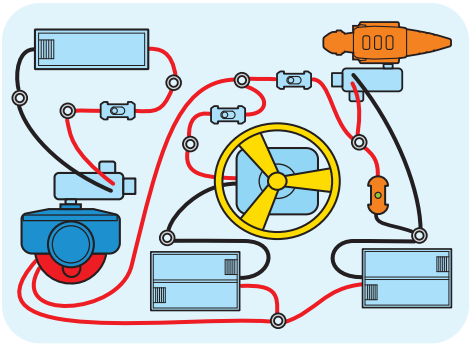
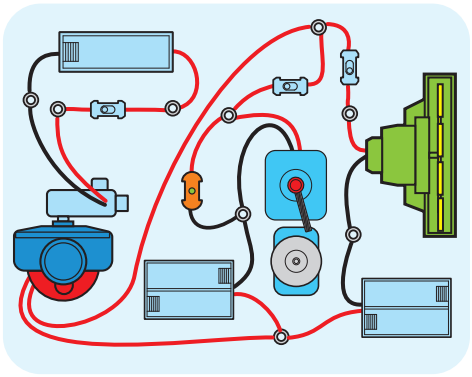
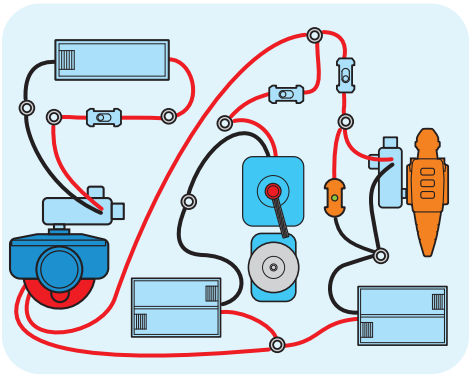
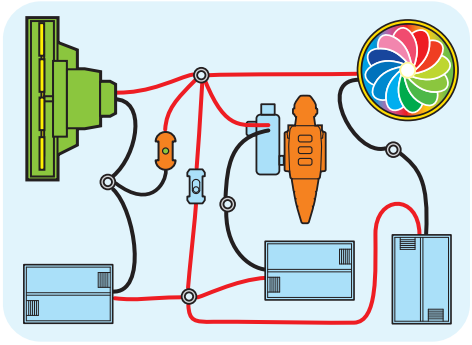
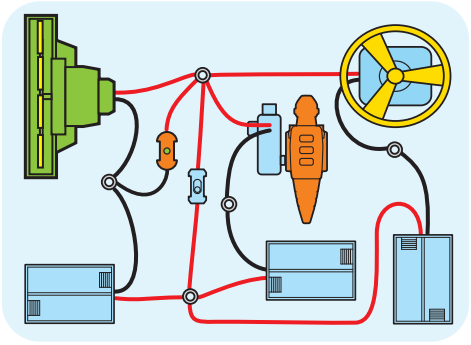


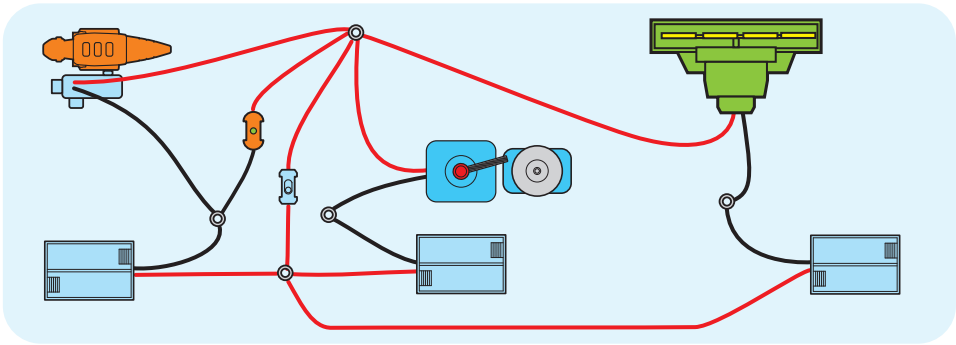


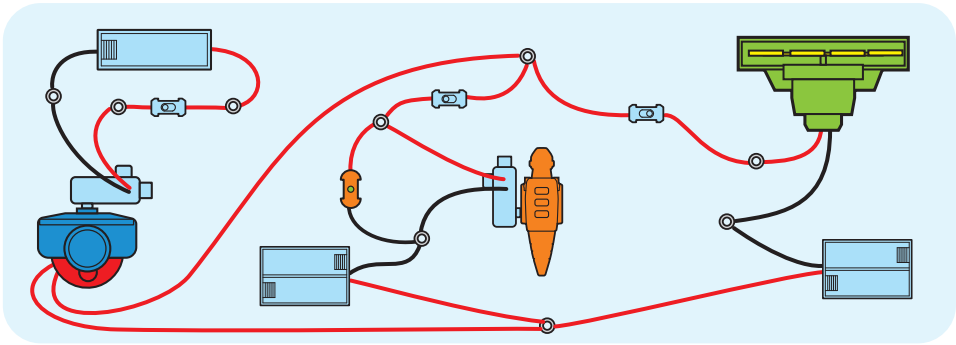


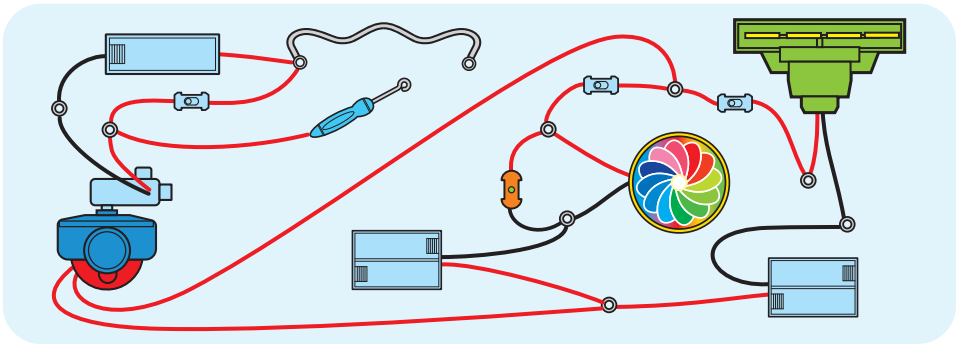









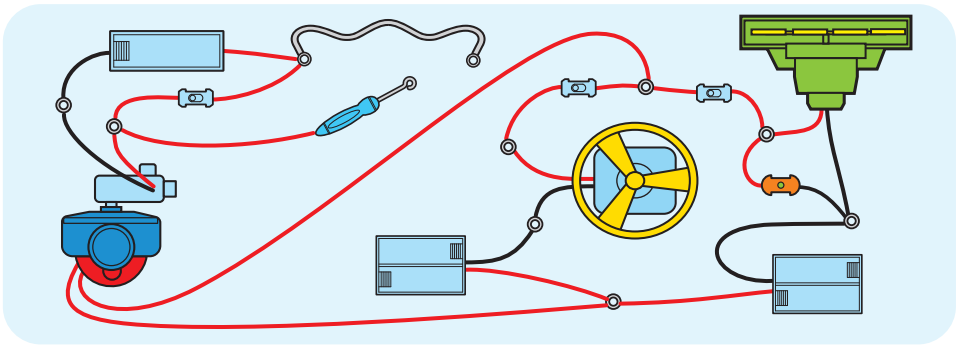









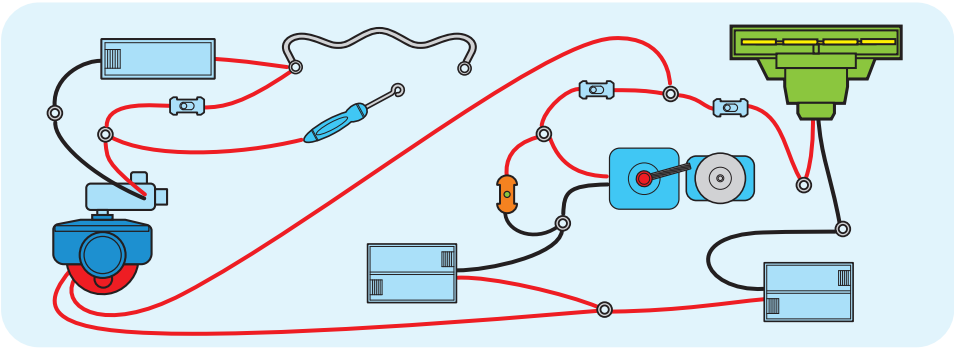









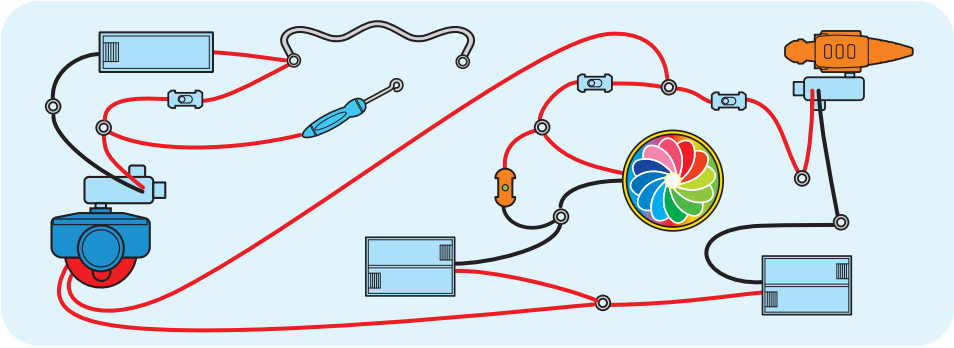


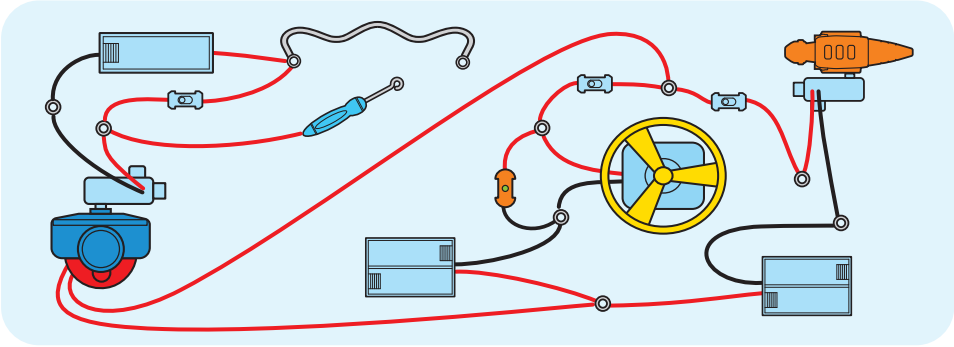


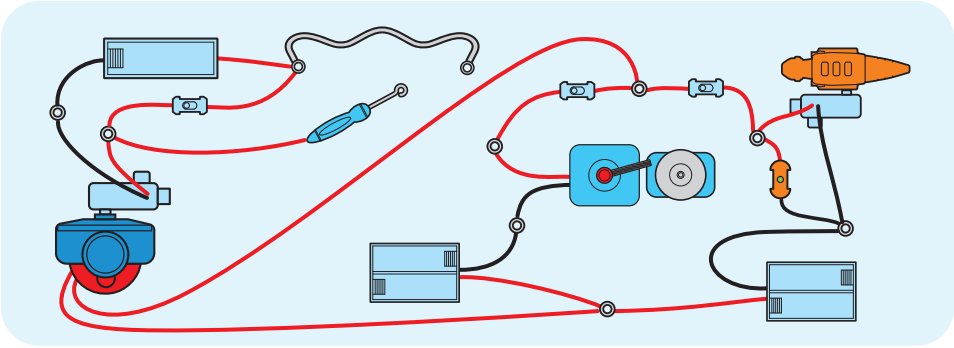


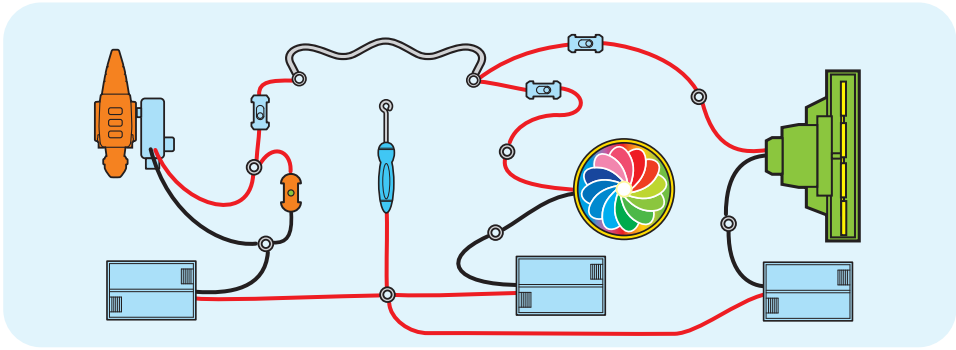


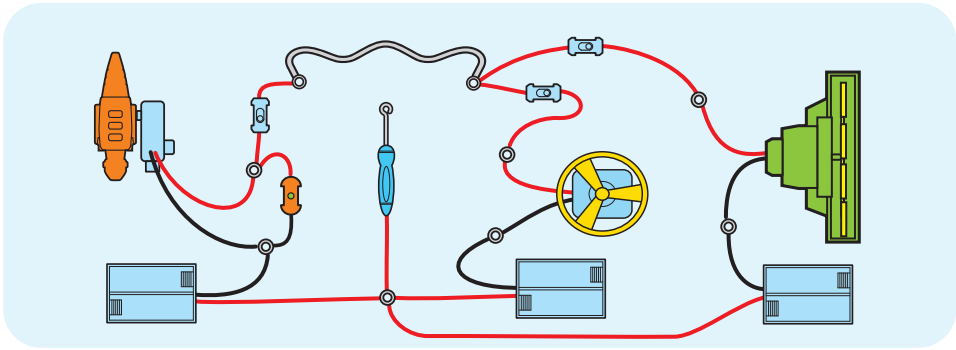


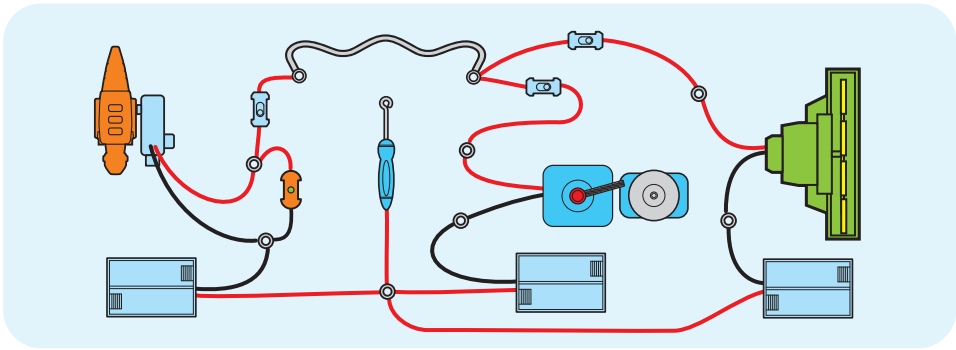


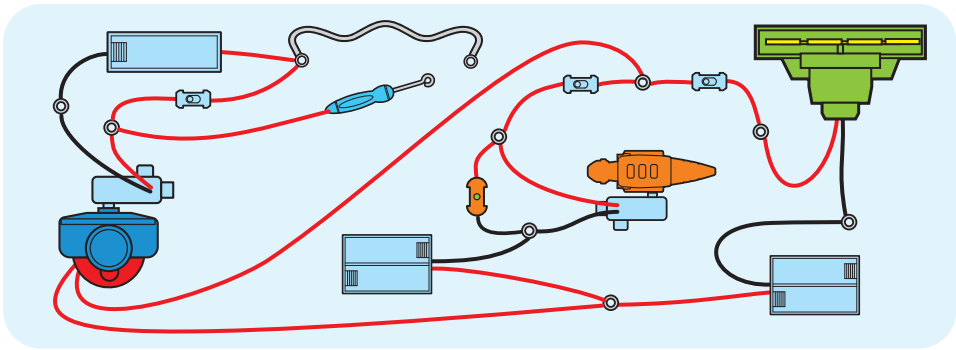


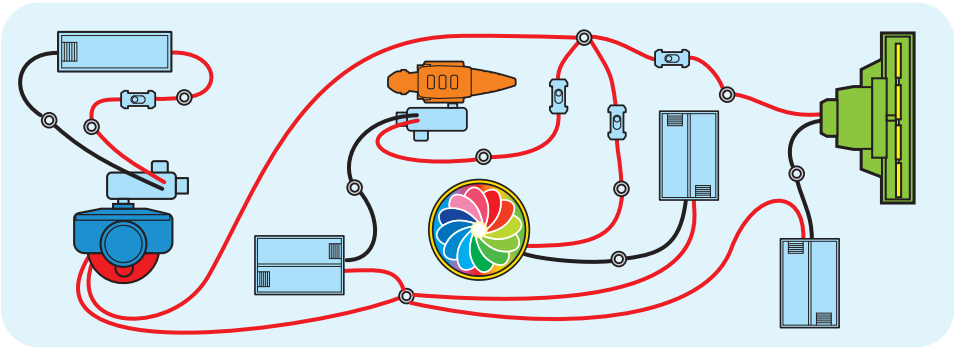


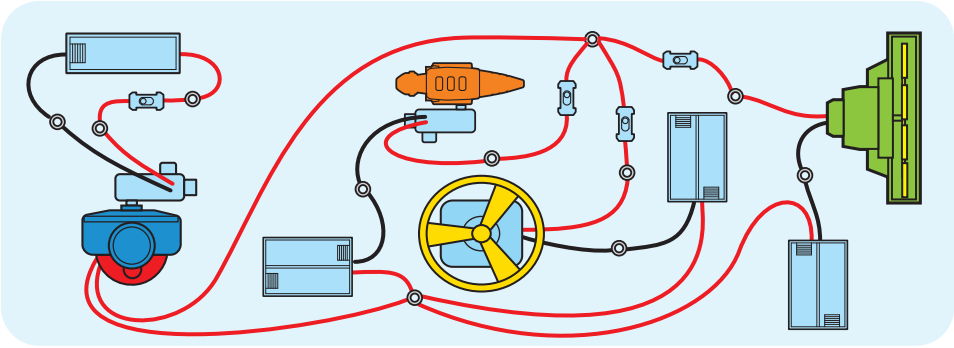


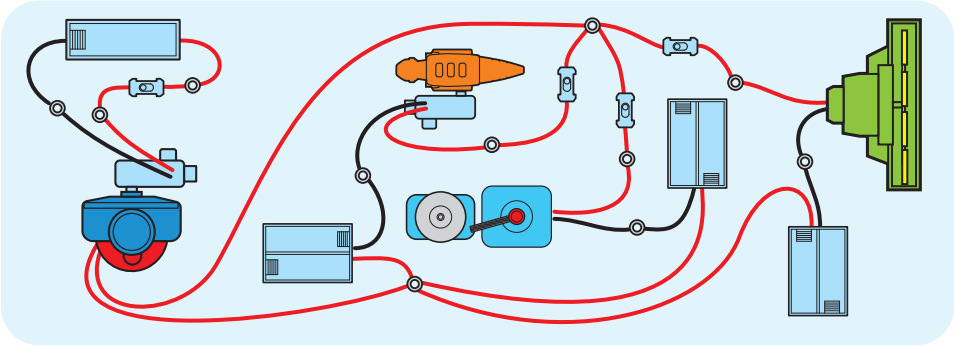


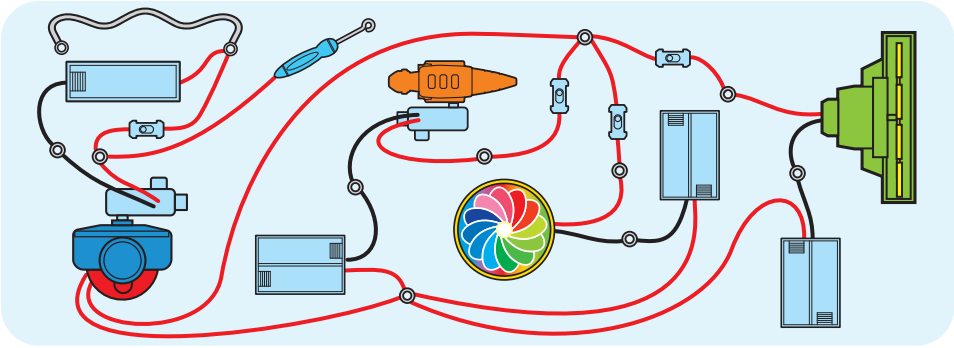


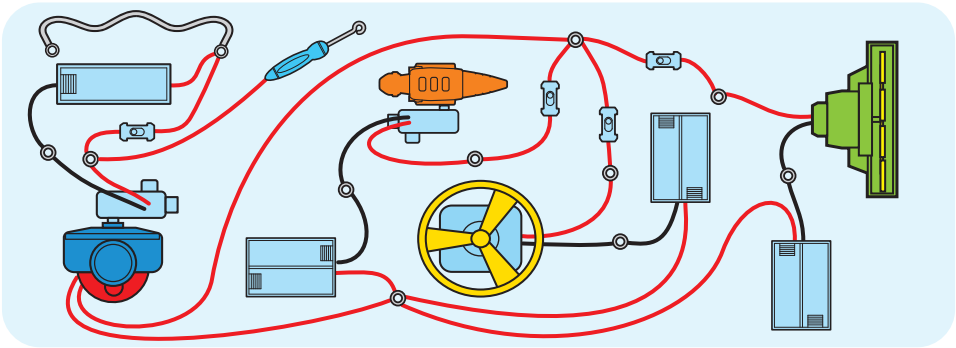


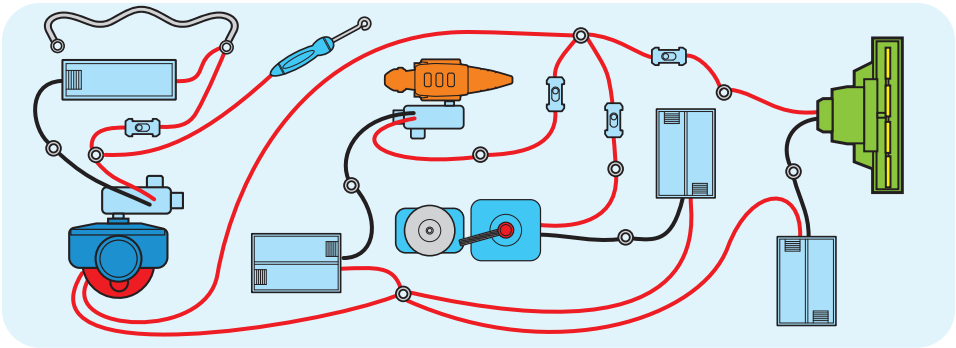


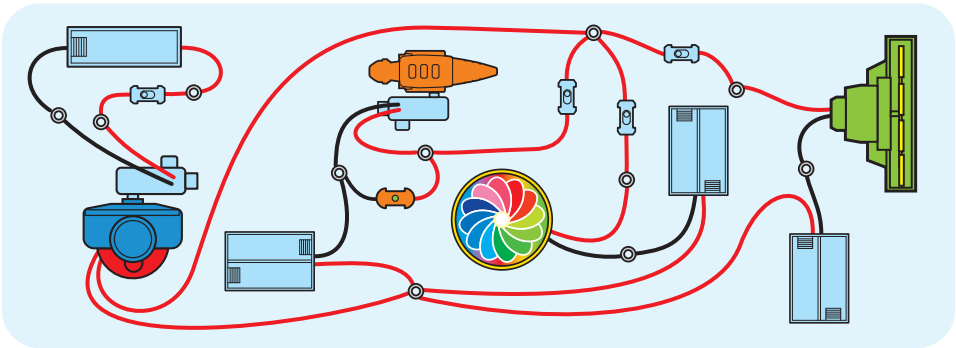


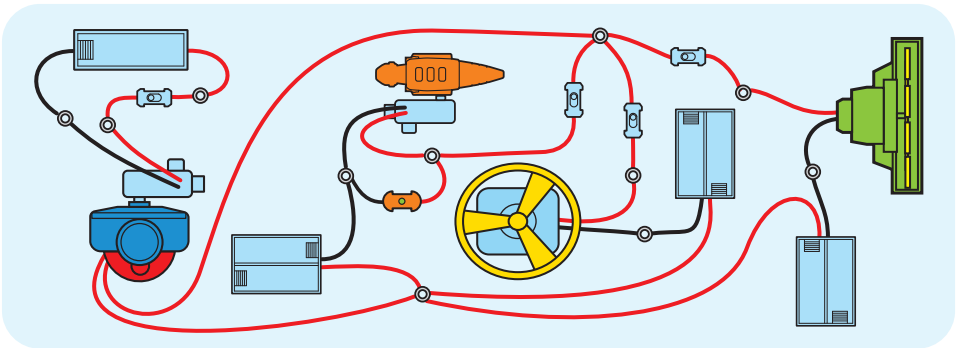


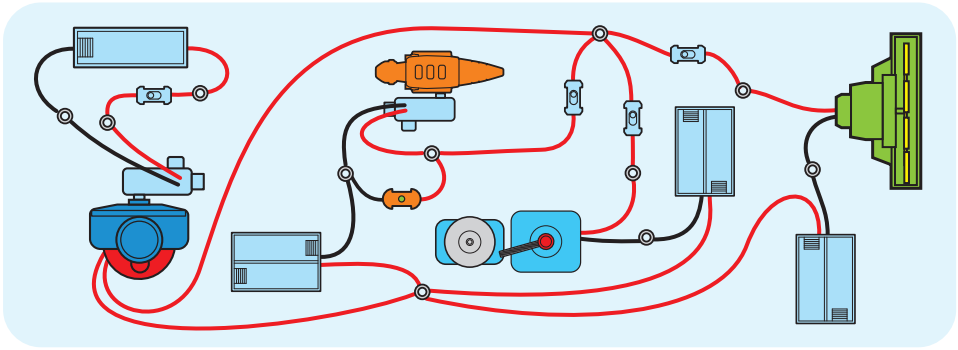


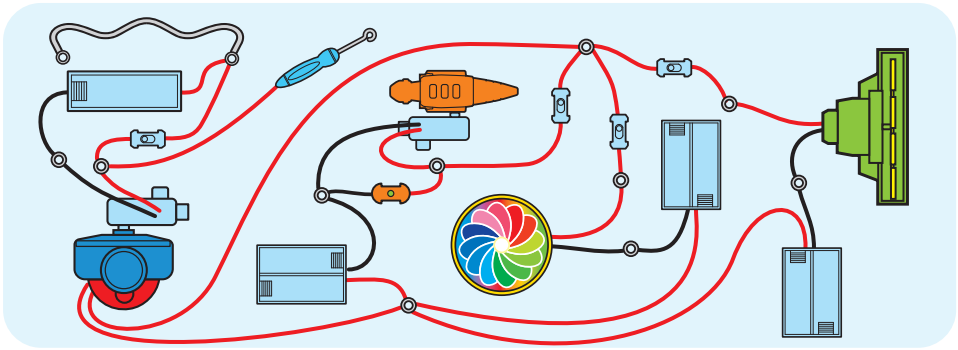


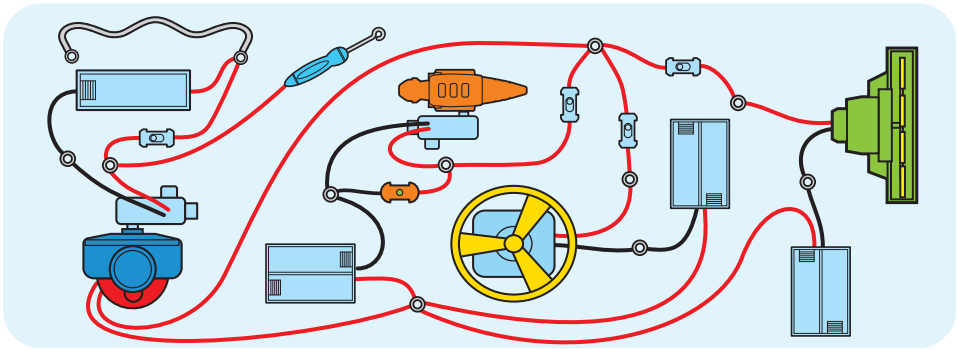


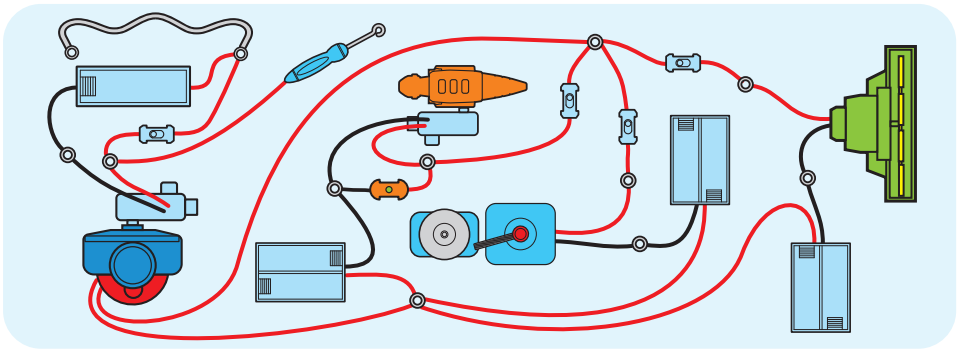












EDUCATIONAL HINTS

Series and Parallel Connection

The circuit shows in fig.1 is a series circuit. It involves series connection. As electricity flows in a single path, the current flow through each device will be the same. However, if any one of the device is broken, the circuit will be disconnect and cannot function. The circuit shows in fig.2 is a parallel circuit. It involves parallel connection. Each electricial device is connected in parallel. If one device is broken, the other devices can still work.

FIG.1

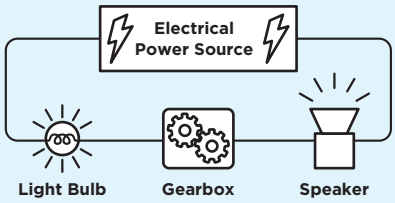
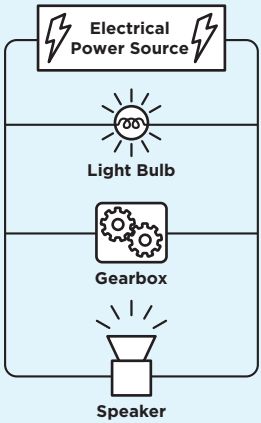
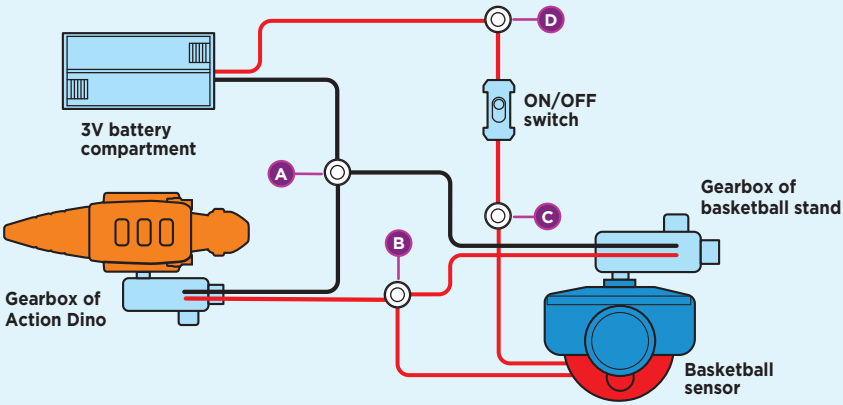


FIG.2



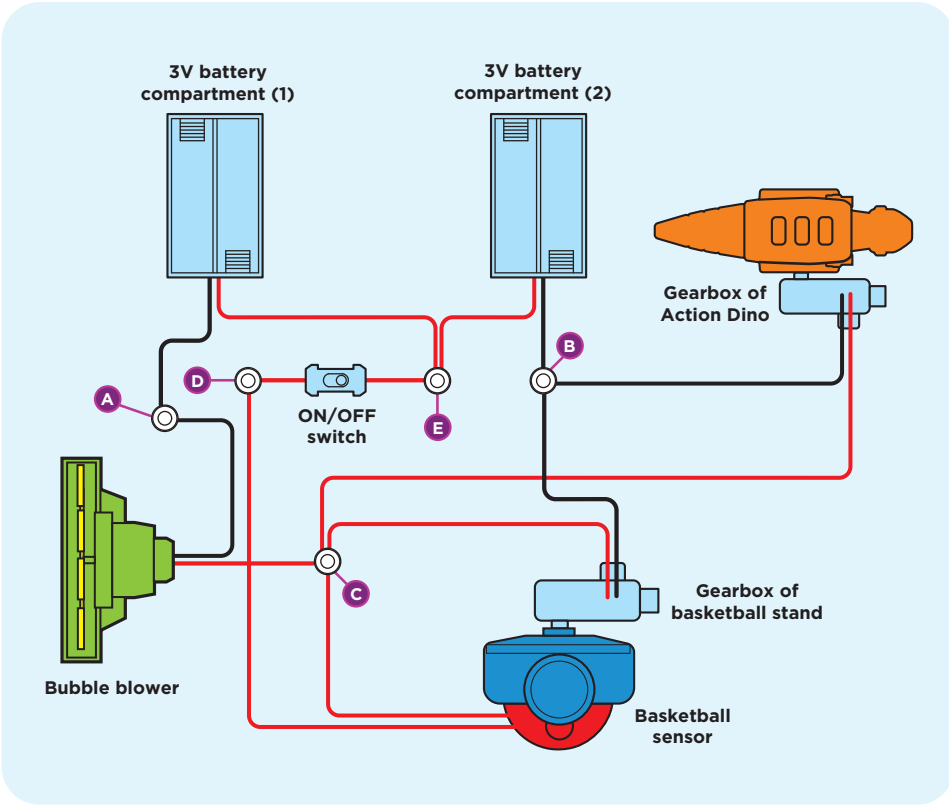
When you have skilled through this set, you can even design your own circuit to have different interesting play! Below is an example of creating an alternate 2in1 circuit for an alternate play effect:



Wiring connections	Spring (A)	Spring (B)	Spring (C)	Spring (D)
3V battery compartment	black			red
ON/OFF switch			red	red
Basketball sensor		red	red	
Gearbox of basketball stand	black	red		
Gearbox of Action Dino	black	red		

Insert 2pcs AA batteries and switch on the ON/OFF switch. It seems that nothing happens. Now you have to aim at the basket and shoot! If you make a successful shot, then the Action Dino and the basketball stand will be triggered to move! See? The whole world is lighting up celebrating your triumph shot!

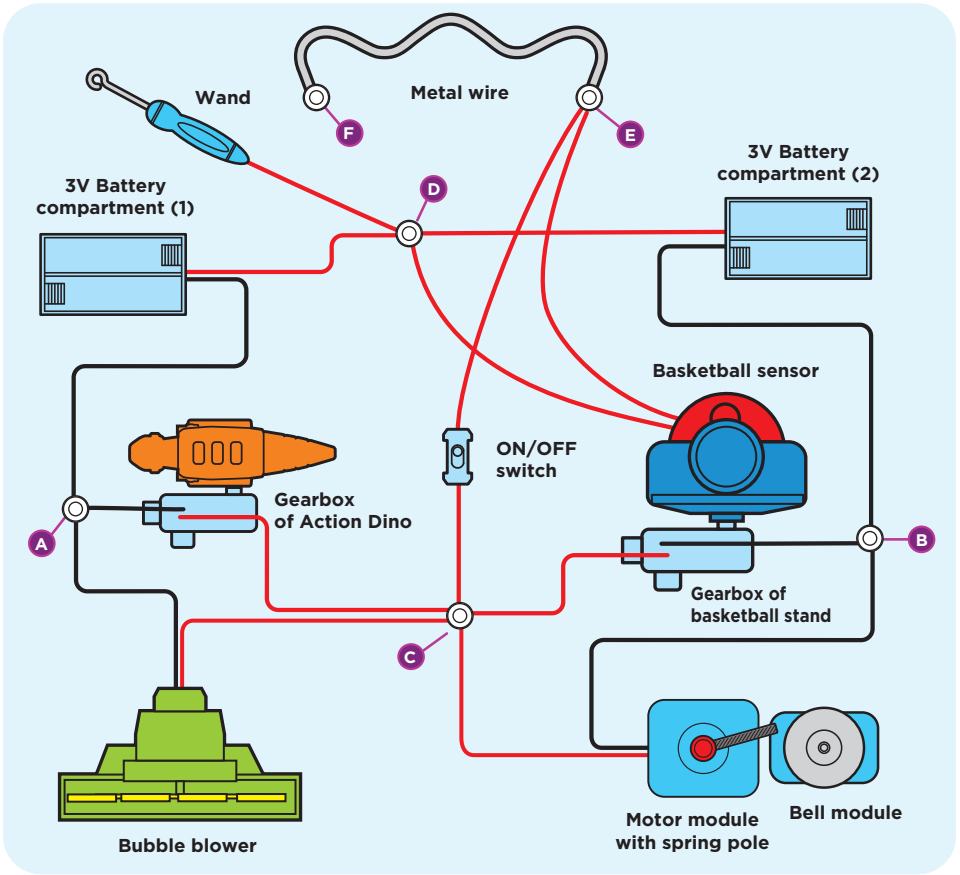
Below is an example of creating an alternate 3in1 circuit for an alternate play effect: Note: Only batteries of the same or equivalent types are to be used. Different types of batteries are not to be mixed, and do not mix old and new batteries. Otherwise batteries may get overheated.



Wiring connections	Spring (A)	Spring (B)	Spring (C)	Spring (D)	Spring (E)
3V battery compartment (1)	black				red
3V battery compartment (2)		black			red
ON/OFF switch				red	red
Basketball sensor			red	red	
Gearbox of basketball stand		black	red		
Gearbox of Action Dino		black	red		
Bubble blower	black		red		

Insert 4pcs AA batteries and switch on the ON/OFF switch. It seems that nothing happens. Now you have to aim at the basket and shoot! If you make a successful shot , then the Action Dino, bubble blower and the basketball stand will be triggered to move! See? The whole world is lighting up celebrating your triumph shot!

The following is an example of creating an alternate 4in1 circuit for an alternate play effect:
Note: Only batteries of the same or equivalent types are to be used. Different types of batteries are not to be mixed, and do not mix old and new batteries. Otherwise batteries may get overheated.



Wiring connections	Spring (A)	Spring (B)	Spring (C)	Spring (D)	Spring (E)	Spring (F)
3V battery compartment (1)	black			red		
3V battery compartment (2)		black		red		
ON/OFF switch			red		red	
Basketball sensor				red	red	
Gearbox of basketball stand		black	red			
Gearbox of Action Dino	black		red			
Bubble blower	black		red			
Motor module with spring pole		black	red			
Metal wire					silver	silver
Wand				red		

Insert 4pcs AA batteries and switch on the ON/OFF switch. It seems that nothing happens. Now you have to aim at the basket and shoot! If you make a successful shot, then the Action Dino, bubble blower and the basketball stand will be triggered to move! The bell will also ring at the same time! See? The whole world is celebrating your triumph shot! You can also play an alternate game. Take the wand and challenge the metal wire maze. If the wand touches the metal wire, then everything will be triggered to move! This time, their actions do not mean success but failure!

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If at any time in the future you should need to dispose of this product please note that waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check with your local authority or retailer for recycling advice. (Waste Electrical and Electronic Equipment Directive)