



ROBOTICS | # 7435

AIR-WALKER



8+

AGES

75

PIECES

5

MODELS





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TIP!

You will find additional scientific information in the "Check It Out" sections on Pages 15 to 17.





Dear Parents and Adults,

Please read the instructions together with your child before starting and review the safety information with them. Stand by to assist your child in any particularly challenging parts of assembly or usage.

Do not let the robot model climb so high up a vertical surface that it goes out of reach. Prevent the robot from falling onto people or objects that might be damaged by it.

We hope you and your child have a lot of fun with the Air-Walker climbing robot!

SAFETY INFORMATION

Warning. Not suitable for children under 3 years.
Choking hazard — small parts may be swallowed or inhaled.
Strangulation hazard — long tubes may become wrapped around the neck.

Keep the packaging and instructions as they contain important information.

Store the experiment material, particularly the battery-powered motor, and assembled models out of the reach of small children.

SAFETY FOR EXPERIMENTS WITH BATTERIES

- » To operate the models, you will need two AA batteries (1.5-volt, type LR6), which could not be included in the kit due to their limited shelf life.
- » Different types of batteries or new and used batteries are not to be mixed.
- » Do not mix old and new batteries.
- » Do not mix alkaline, standard (carbon-zinc), or rechargeable (nickel-cadmium) batteries.
- » Batteries are to be inserted with the correct polarity. Press them gently into the battery compartments. See page 11.
- » Always close battery compartments with the lid.
- » Non-rechargeable batteries are not to be recharged. They could explode!
- » Rechargeable batteries are only to be charged under adult supervision.
- » Rechargeable batteries are to be removed from the toy before being charged.
- » Exhausted batteries are to be removed from the toy.
- » The supply terminals are not to be short-circuited.
- » Avoid a short circuit of the batteries. A short circuit can cause the wires to overheat and the batteries to explode.
- » Dispose of used batteries in accordance with environmental provisions, not in the household trash.
- » Be sure not to bring batteries into contact with coins, keys, or other metal objects.
- » Avoid deforming the batteries. As all of the experiments use batteries, have an adult check the experiments or models before use to make sure they are assembled properly. Always operate the motorized models under adult supervision. After you are done experimenting, remove the batteries from the battery compartments.
- » Note the safety information accompanying the individual experiments or models!
- » The toy is not to be connected to more than the recommended number of power supplies.

NOTES ON ENVIRONMENTAL PROTECTION/ NOTES ON DISPOSAL OF ELECTRICAL AND ELECTRONIC COMPONENTS:

The electronic components of this product are recyclable. For the sake of the environment, do not throw them into the household trash at the end of their lifespan. They must be delivered to a collection location for electronic waste, as indicated by the following symbol:

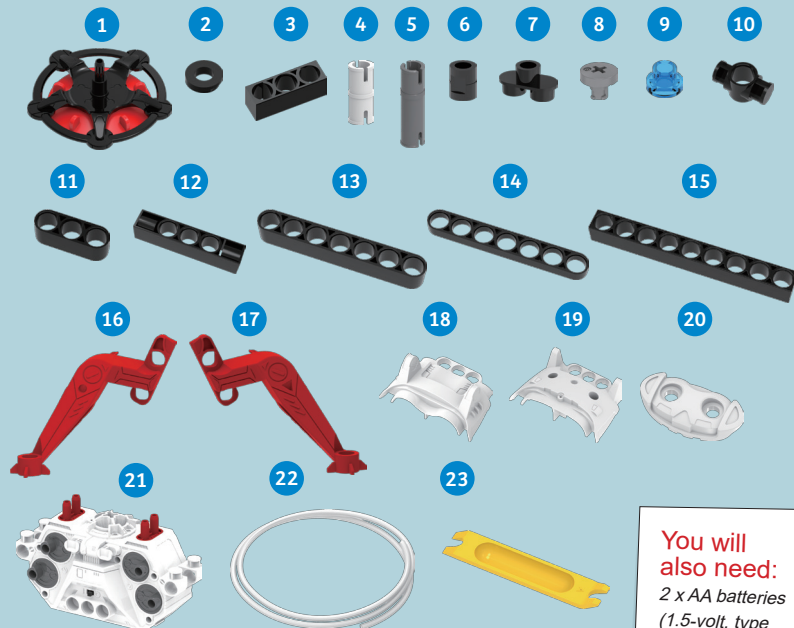


Please contact your local authorities for the appropriate disposal location.



KIT CONTENTS

What's inside your experiment kit:



You will also need:
2 x AA batteries
(1.5-volt, type LR6), scissors

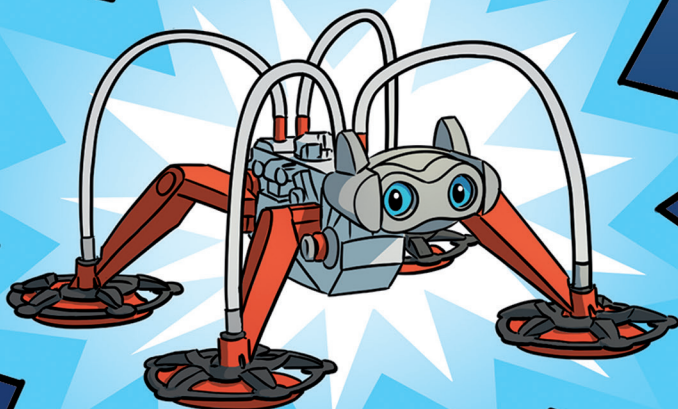
Checklist: Find — Inspect — Check Off

✓	No.	Description	Qty	ITEM NO.
☐	1	C-SUCTION PAD	4	7409-W85-E1D1
☐	2	C-CAP WITH HOLE	4	7409-W10-F1D
☐	3	C-3 HOLE ROD	1	7026-W10-Q2D
☐	4	C-20mm AXLE CONNECTOR	1	7413-W10-T1S2
☐	5	C-30mm AXLE CONNECTOR	2	7413-W10-U1S1
☐	6	B-SHORT PEG	20	7344-W10-C2D
☐	7	C-TWO-IN-ONE CONVERTER	2	7061-W10-G1D
☐	8	C-CAM SCREW	8	7435-W10-H1S
☐	9	C-SHORT BUTTON FIXER	2	7061-W10-W1TB
☐	10	C-1 HOLE CONNECTOR	6	7430-W10-B1D
☐	11	C-3 HOLE ROUND ROD	4	7404-W10-C1D
☐	12	C-5 HOLE ROD FRONT CLOSED	2	7413-W10-R1D
☐	13	C-7 HOLE ROUND ROD	4	7404-W10-C2D
☐	14	C-7 HOLE PROLATE ROD	4	7404-W10-C3D

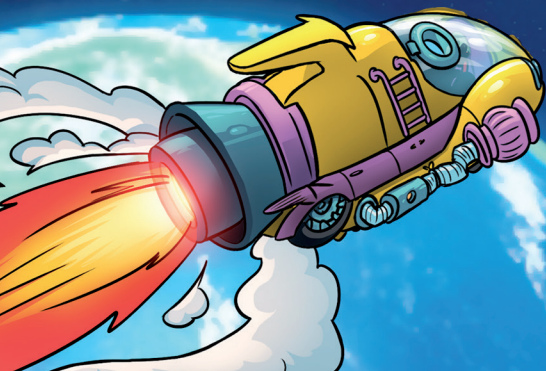
✓	No.	Description	Qty	ITEM NO.
☐	15	C-9 HOLE ROD	1	7407-W10-C1D
☐	16	C-LEG, LEFT (CIRCLE SYMBOL)	2	7435-W10-F1R
☐	17	C-LEG, RIGHT (TRIANGLE SYMBOL)	2	7435-W10-F2R
☐	18	C-HEAD BOTTOM	1	7435-W10-G2S
☐	19	C-HEAD TOP	1	7435-W10-G1S
☐	20	C-HEAD FRONT	1	7435-W10-G3S
☐	21	C-MOTOR BOX BODY	1	7435-W85-A
☐	22	C-1000mm TUBE A	1	7435-W85-100
☐	23	B-PEG REMOVER	1	7061-W10-B1Y

NEXO!

THE AIR-WALKER



... AND THE
CRYSTAL PLANET!

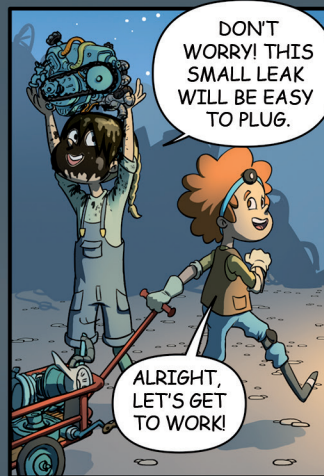
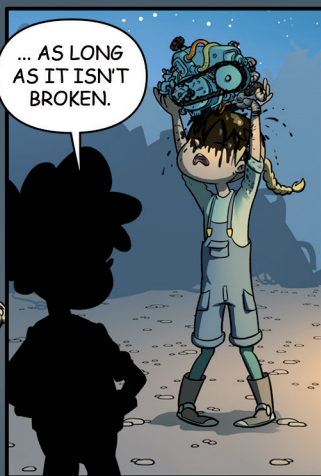
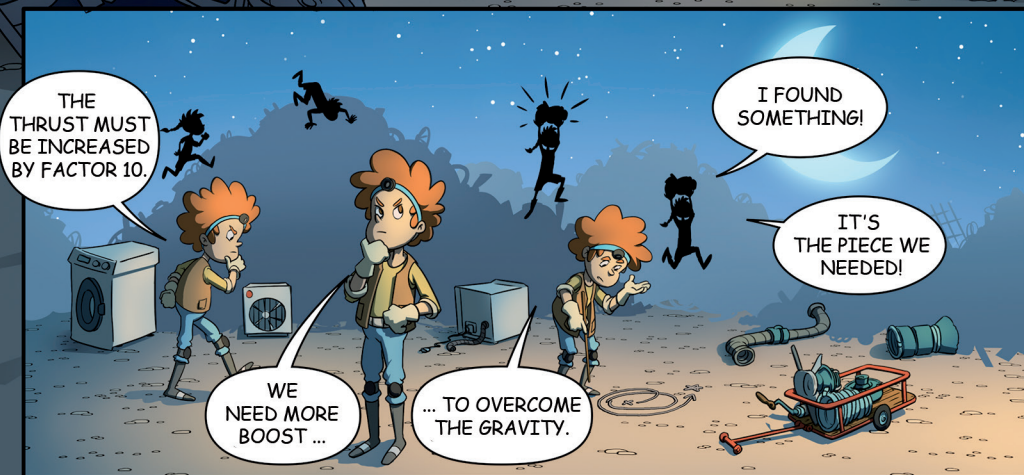


IT'S QUIET IN THE JUNKYARD.
EVERYONE HAS GONE TO SLEEP ...

... EXCEPT TOM AND IZZY.

HERE, WHERE OTHER PEOPLE
JUST SEE JUNK, HEROES SEE
ENDLESS POSSIBILITIES.

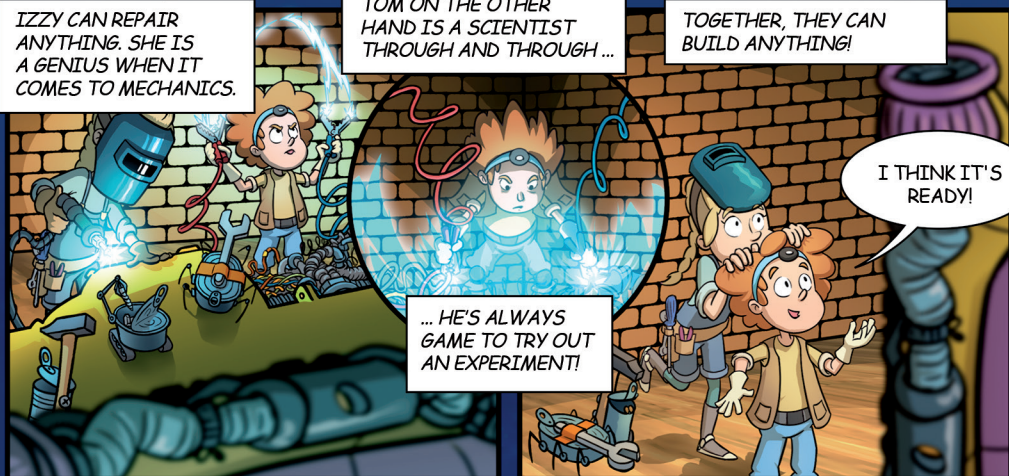
TOM & IZZY



IZZY CAN REPAIR ANYTHING. SHE IS A GENIUS WHEN IT COMES TO MECHANICS.

TOM ON THE OTHER HAND IS A SCIENTIST THROUGH AND THROUGH ...

TOGETHER, THEY CAN BUILD ANYTHING!



... HE'S ALWAYS GAME TO TRY OUT AN EXPERIMENT!



WHERE SHOULD WE FLY TO FIRST?

WHEREVER WE WANT!

WE CAN GO ANYWHERE!



WOW! THIS IS A COOL PLANET! IT SPARKLES SO BEAUTIFULLY. OOOOOH ... ESPECIALLY THAT BIG GEM OVER THERE! I WANT IT!

HMM. LET'S TAKE A CLOSER LOOK AT THIS GEOLOGICAL WONDER ...

SPARKLE, SPARKLE!

CRACK!

ON NO! THE GROUND IS COLLAPSING!

AAAH! I PREFER NON-COLLAPSING TERRAIN!

WEEEEEEEEEEEE!

AAAAAAHHH!

THAT WAS FUN! AGAIN! HMM. HOW DO WE GET OUT OF HERE THOUGH?

THE TEXTURE AND SLOPE OF THE VERTICAL SURFACE DO NOT PROVIDE SUFFICIENT TRACTION FOR US TO ASCEND SUCCESSFULLY.

WHAT?

IT'S TOO SMOOTH.

I HAVE AN IDEA! BOLT IT ON! BOLT IT ON!

LOOKS LIKE SOMEBODY ELSE WAS IN THIS PREDICAMENT ...

... AND LEFT BEHIND ALL SORTS OF MECHANICAL OBJECTS.

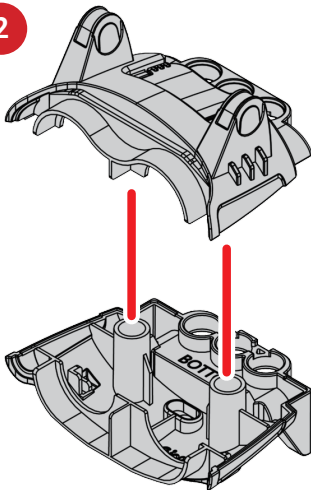
1

Model 1 Air-Walker

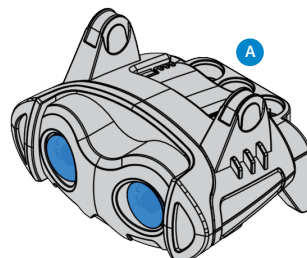
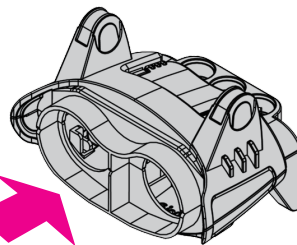
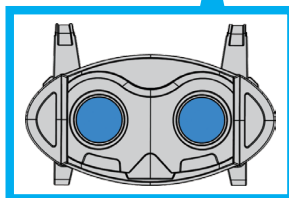
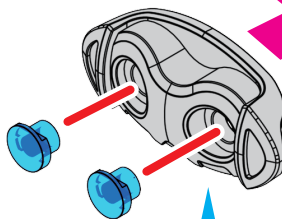


Using a pair of scissors, cut 4 pieces OF TUBE with a Length OF 25 CM EACH!

2



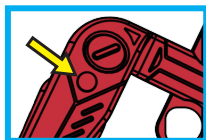
3



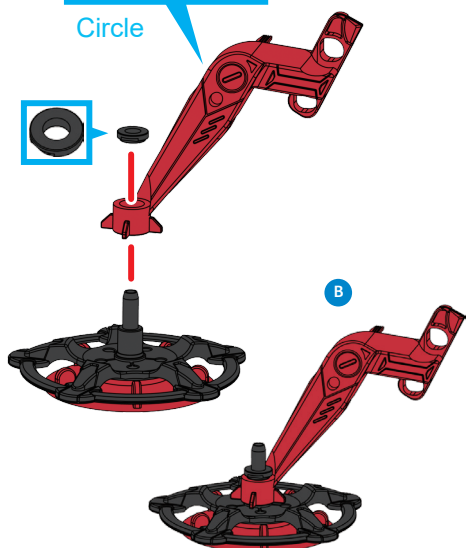


Air-Walker 1 Model

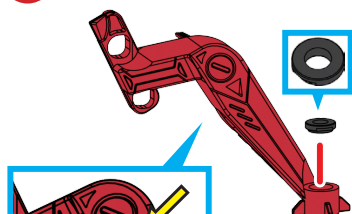
4 x2



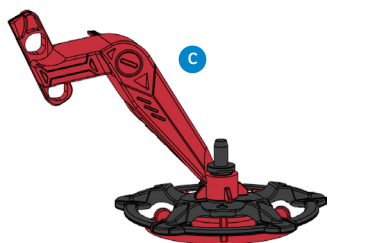
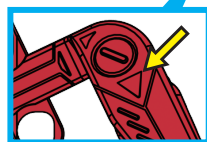
Circle



5 x2

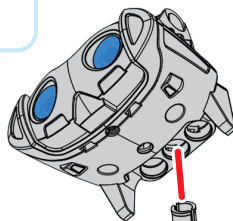


Triangle

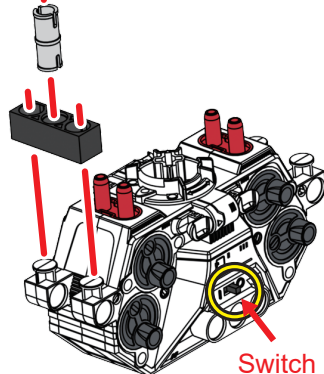


The switch must be on the right!

6

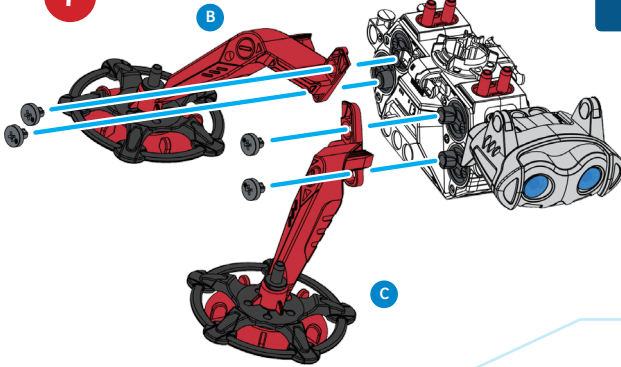


A

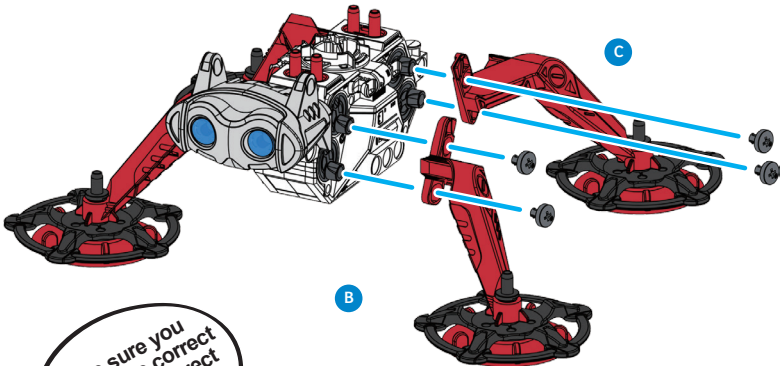


Model 1 Air-Walker

7



8



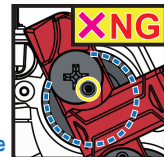
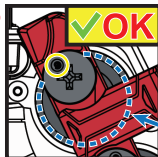
Make sure you connect the correct legs in the correct locations!

How to insert the cam screw in the right way:

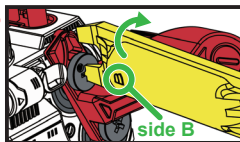
Step1: Place the circle image of cam screw on the edge of bottom circle, and insert the screw.

Step2: Use tool (side B) and rotate clockwise just a little bit until a clicking sound is heard, then the screw is fixed.

Step1



Step2

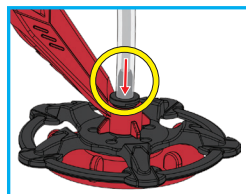
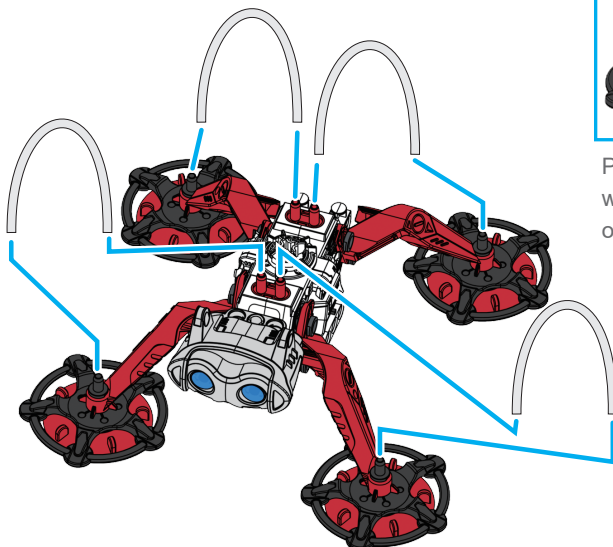


Operation Video



Air-Walker 1 Model

9



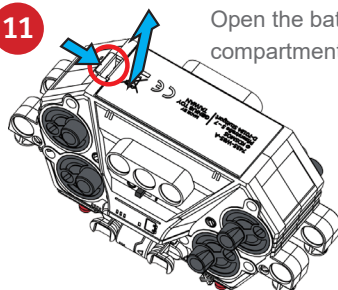
Push the tubes all the way onto the nozzle tips on each foot.

10



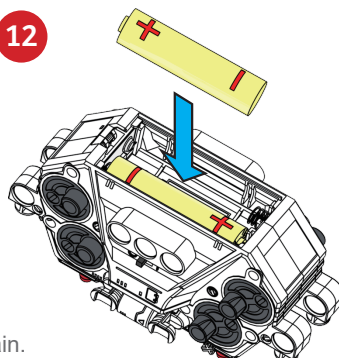
Done!

11



Open the battery compartment.

12



Insert two AA batteries with the correct polarity and close the compartment again.

13

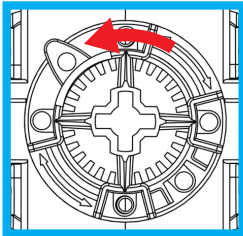
Watch this video!

If you are having trouble getting your Air-Walker to climb. Scan this QR Code to watch an online video containing many helpful tips.

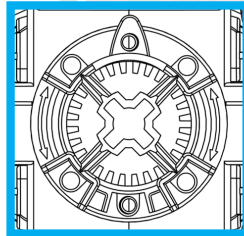


You can control the direction of the Air-Walker by turning this wheel.

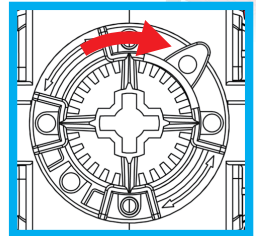
USING THE AIR-WALKER



Robot turns left



Robot moves straight



Robot turns right

First, test out your Air-Walker on a smooth, horizontal surface, like a tabletop. It should walk forward.

Then, stick it to a smooth, vertical surface like a large glass window. Press the suction pads firmly to the surface. The surface must be extremely smooth.

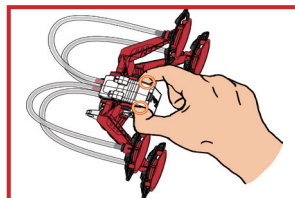
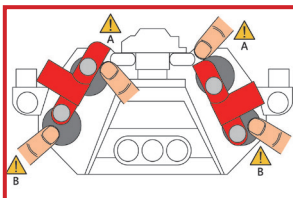
Make sure the surface is clean and dust-free. Moistening the suction pads or the surface with water can also improve the robot's grip.

Turn on the switch and watch the robot climb. Keep your hands below the robot at first to catch it in case it falls.

To remove the suction pads from the surface, simply pull on one of the tabs to release the suction.



Tabs



Avoid placing fingers as shown in the illustration, injury or entanglement may occur.

NEXO!

CLIMB?

THE INVENTIVENESS
THAT IS HIDDEN INSIDE
YOU NEVER CEASES TO
AMAZE ME.

CLIMB!

CLIMB,
CLIMB!

THIS IS
FUUUUNNI!

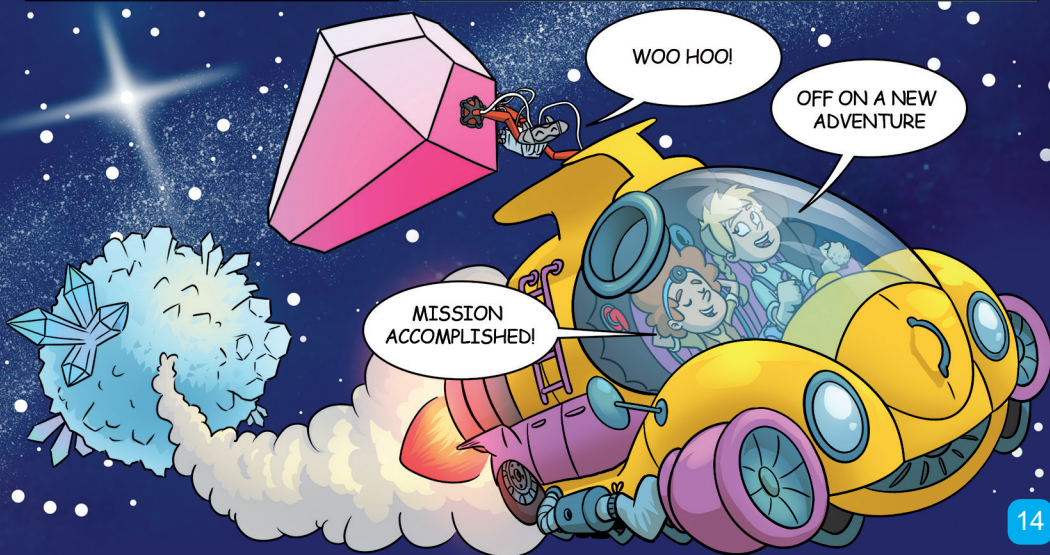
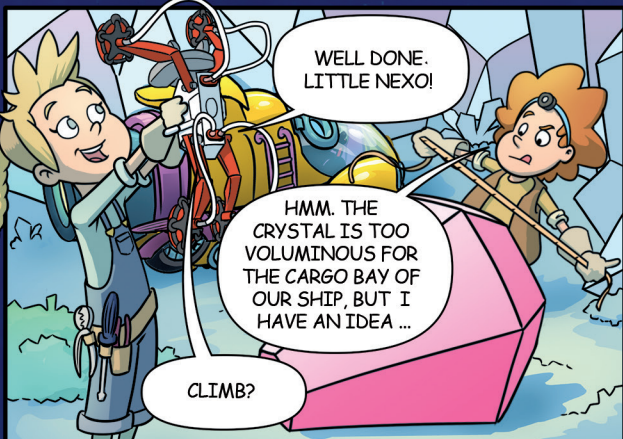
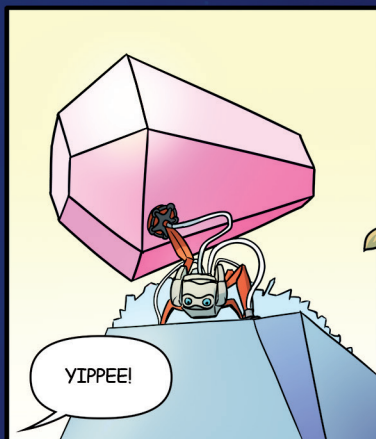
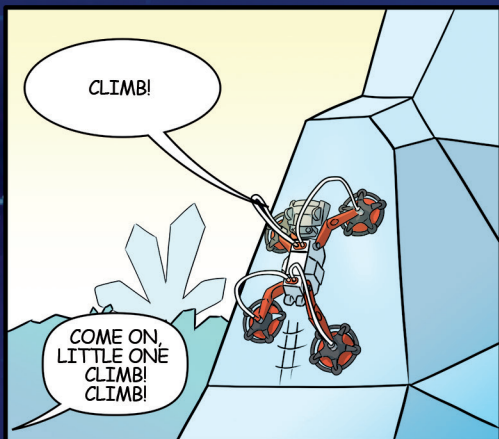
CLIMBING!

LESS TALKING,
MORE GRIPPING
IZZY!

SLIDE
DOWN AGAIN!
SLIDE, SLIDE!

HMPF. THEN
AT LEAST LET'S
GET THAT JEWEL!

I SEE
MYSELF OBLIGED
TO WITHHOLD
MY CONSENT.





CHECK IT OUT

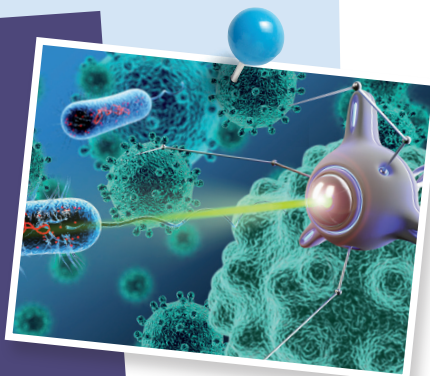
ROBOTICS

The field of robotics has been exciting people for over a century. After all, who wouldn't want to avoid having to perform boring, unpleasant, or even dangerous work and instead spend their time doing something nice? Never having to tidy up, take out the trash, or empty the dishwasher ever again! But robots can help us humans with so much more than that:

MEDICINE

For some years now, doctors have been assisted by robots during operations. They help to make the procedure calmer, more controlled, and more precise.

There is also the hope of developing tiny small-scale medical robots called **nanobots**, that can find their own way to the diseased parts of the body and provide them with targeted medication.



HUMANOID ROBOTS

Humanoid robots are modeled after humans and sometimes are even able to speak. You might soon find them in shops, hotels, nursing care homes, and hospitals. Because they are particularly patient and do not need to take breaks, they could provide information to customers or assist staff in caring for the sick and injured. The **Care-O-Bot® 4** from the Fraunhofer Institute for Manufacturing Engineering and Automation is already capable of perceiving the moods of people in front of it and also expressing its own moods. It is a particularly polite robot!



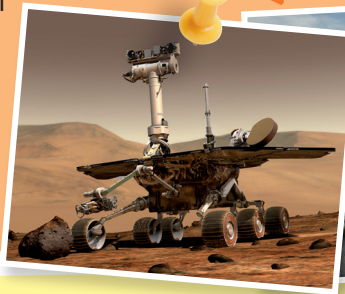


CHECK IT OUT

EXPLORATION ROBOTS

Airborne exploration uses special flying robots, called **drones**. The underwater world, on the other hand, can be accessed with the help of **diving robots**. These also help people lay deep cables and look for sunken ships.

Robots are also very useful in space exploration. The **Mars Rover** provides us with many new insights about the composition of the planet Mars and its formation.



EVERYDAY LIFE

Today, some types of robots are already at work inside homes. Maybe you know somebody who owns a **robotic vacuum** or a robotic lawnmower.



In contrast to the original devices they replace, these robots are not controlled by humans, but instead by computer programs.

Some robots not only perform the tasks for which they have been specifically prepared, but are also able to learn independently. The ability of a robot to do this is called

Artificial Intelligence, or **AI** for short. Research of AI has a lot of potential: With their help, movie heroes like Wall-E, Baymax, C-3PO and R2-D2 are not only visible on the big screens, but may become a real part of our lives. Until then, we still have to clean up our own room.





CHECK IT OUT

HOW DOES THE AIR-WALKER CLIMB?

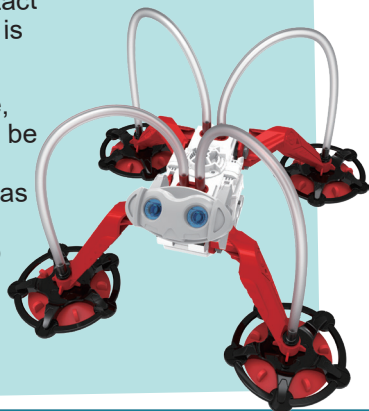
By sucking the air from between the climbing surface and the suction pads, the Air-Walker creates a negative pressure there. This means that the air pressure existing there is lower than the environmental air pressure all around it. This negative pressure ensures the Air-Walker stays stuck to a smooth surface, because basically the entire pressure of the atmosphere above the suction pads is pushing them toward the surface, while there is virtually no pressure pushing them away.

It is important that the contact between the suction pad and the climbing surface is free of gaps and as airtight as possible. Gaps caused by dust or dirt cause leaks that allow additional air to enter, destroying the negative pressure.

Moistening the suction pads can improve the grip. The thin film of water fills in the small gaps and makes for a better seal.

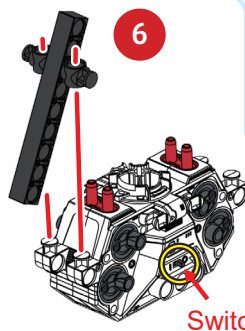
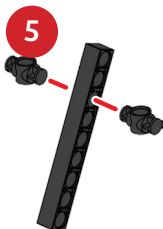
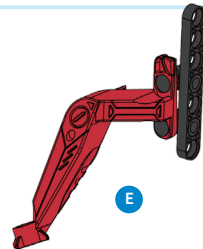
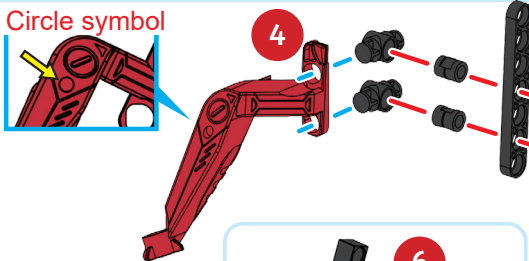
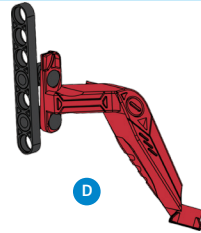
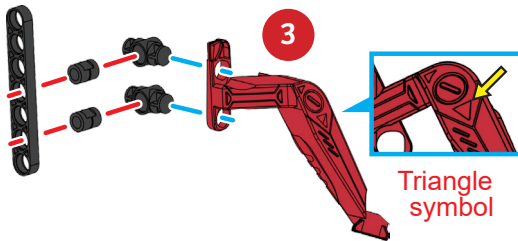
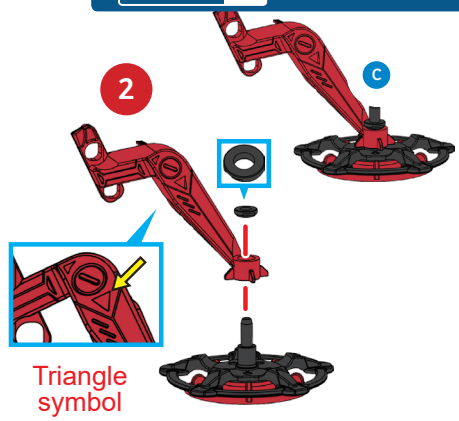
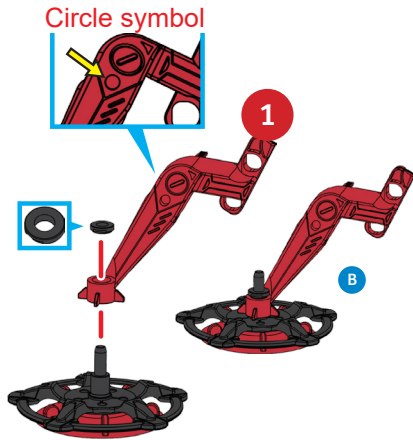
You can create a negative pressure by gently sucking air from an empty water bottle with your mouth. You feel the negative pressure as soon as your lips are pressed against the bottle opening. The force that you can feel is the reason why the Air-Walker sticks to vertical surfaces. Again, it is important to ensure that the contact between the bottle and your lips is airtight.

In contrast to negative pressure, there is overpressure. This can be seen, for example, when opening a bottle of soda that has been shaken up. The water shoots out of the bottle due to the increased pressure (compared to the ambient air pressure).



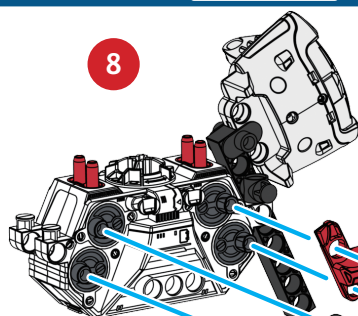


Model 2 Crawler

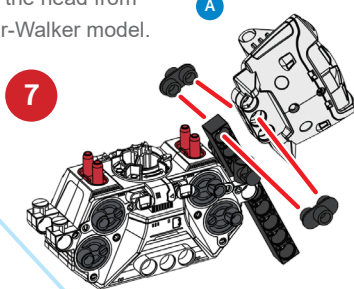




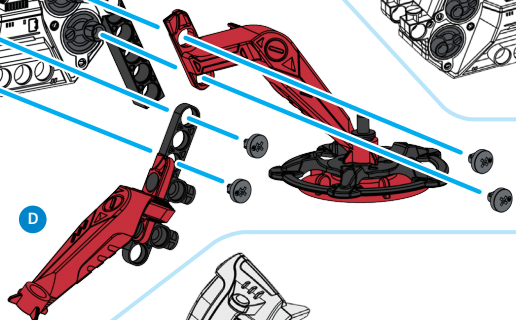
Crawler 2 Model



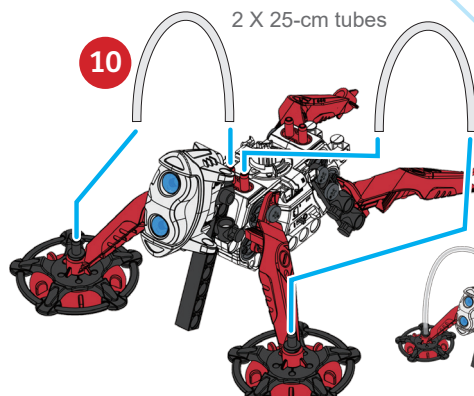
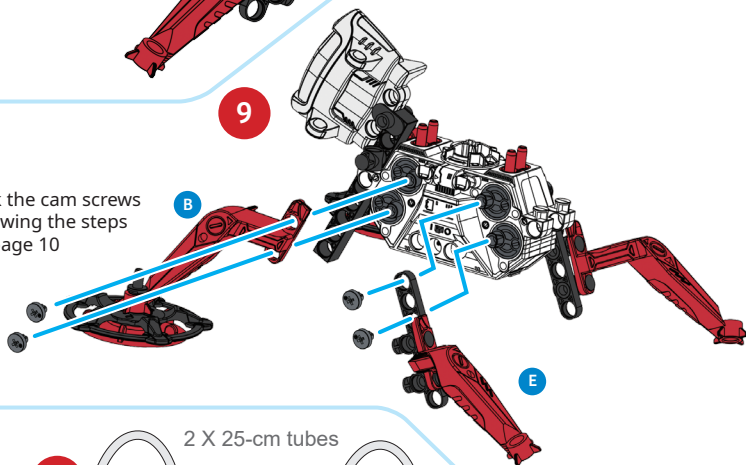
Use the head from the Air-Walker model.



Lock the cam screws following the steps on page 10

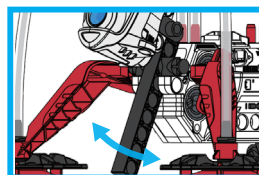


Lock the cam screws following the steps on page 10



Done!

TIP

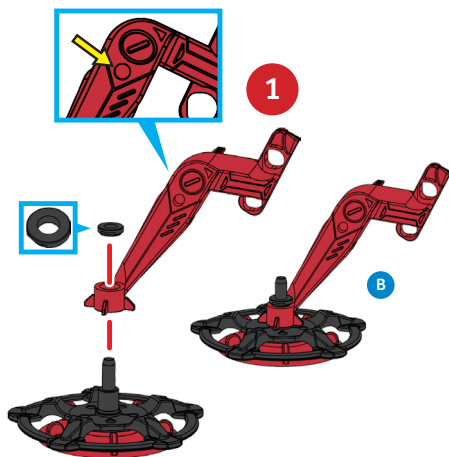


Adjust the long rod so that the model will crawl better.

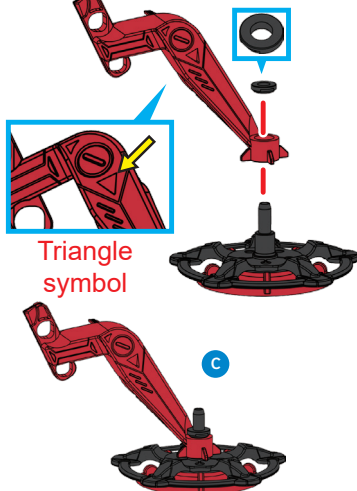


Model 3 Simple Walker

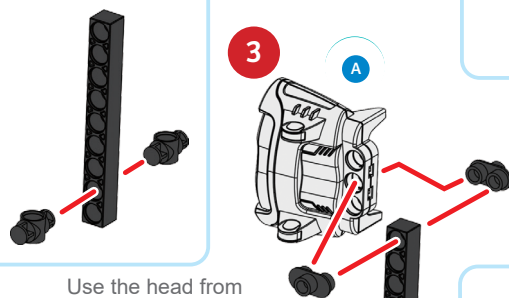
Circle symbol



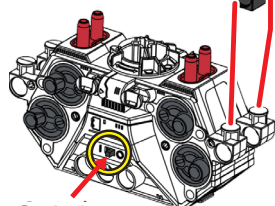
2



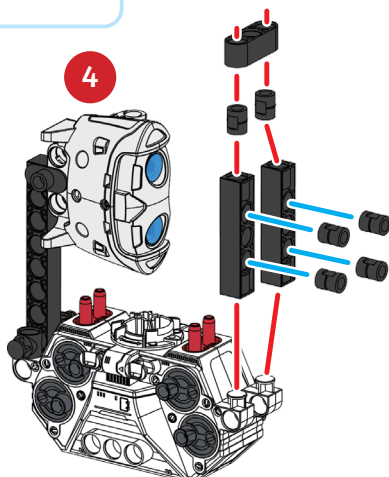
Triangle symbol



Use the head from the Air-Walker model.

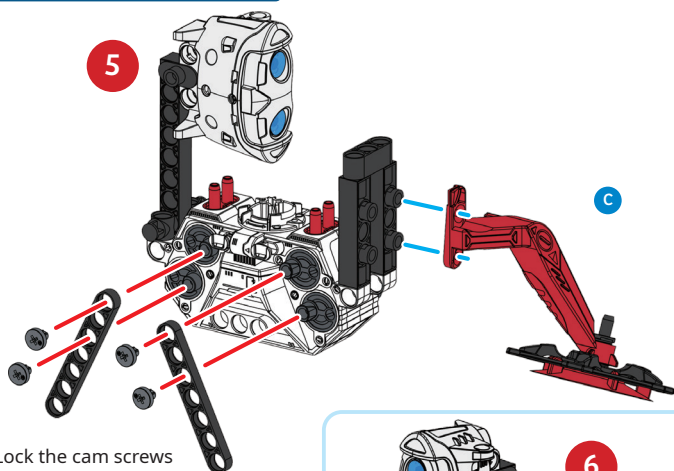


Switch

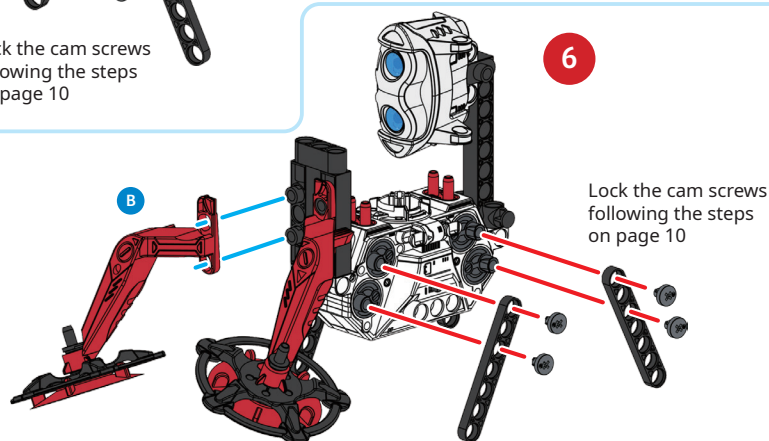




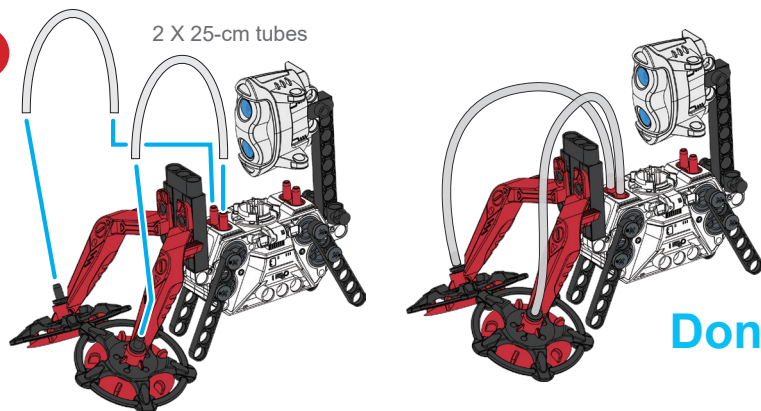
Simple Walker 3 Model



Lock the cam screws following the steps on page 10



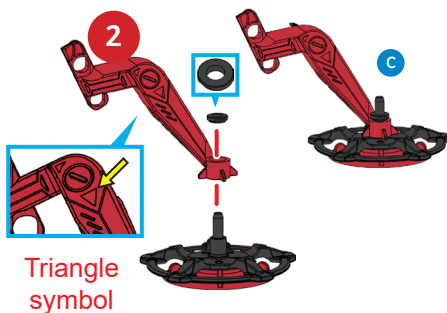
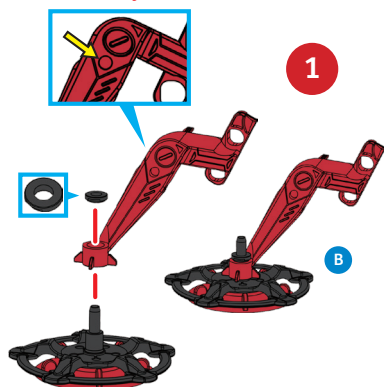
Lock the cam screws following the steps on page 10



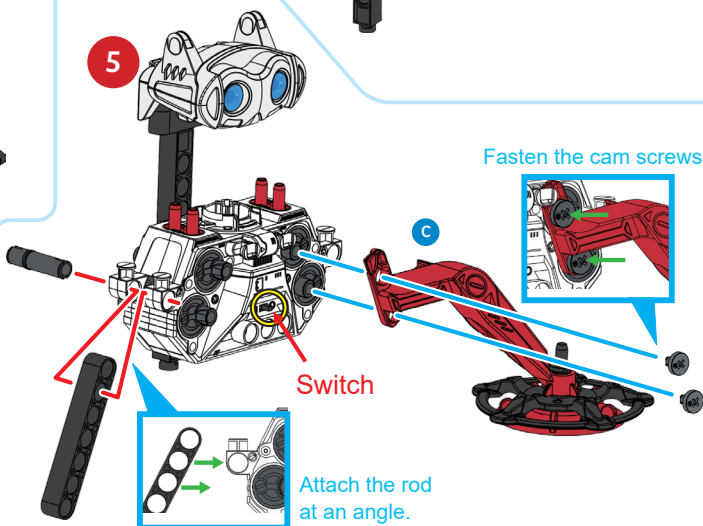
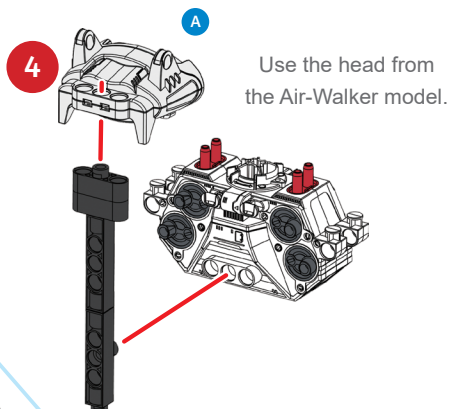
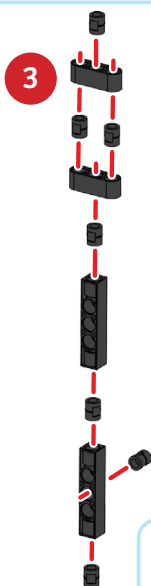
Done!

Model 4 Eways Walker

Circle symbol



Triangle symbol

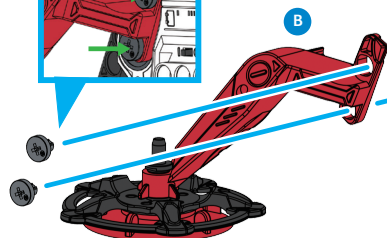
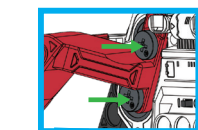




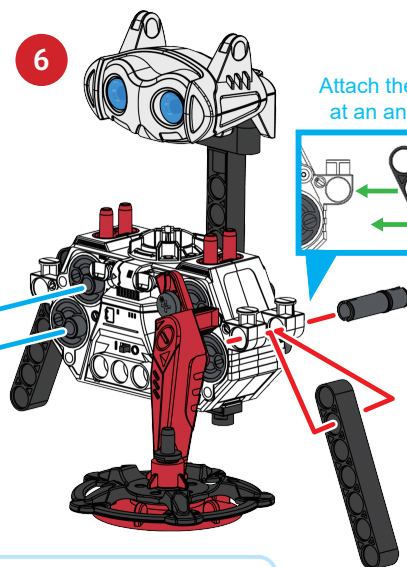
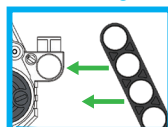
Eways Walker 4 Model

6

Fasten the cam screws

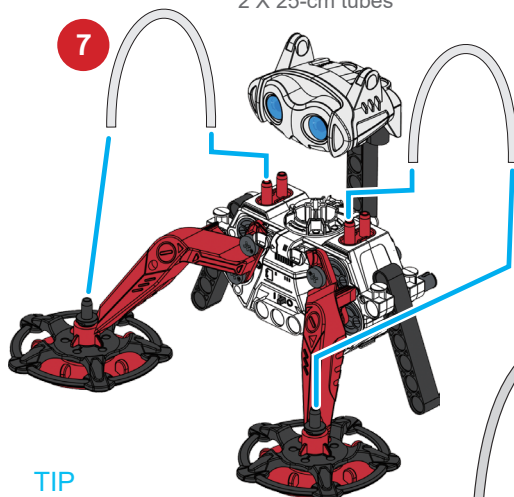


Attach the rod at an angle.

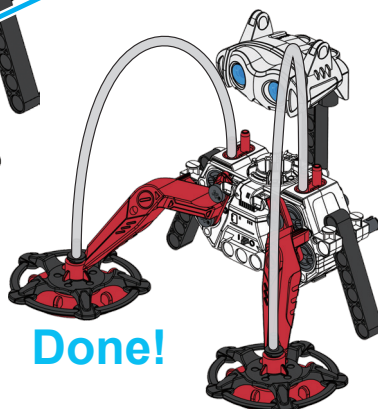
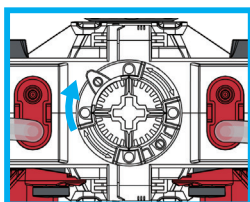


2 X 25-cm tubes

7

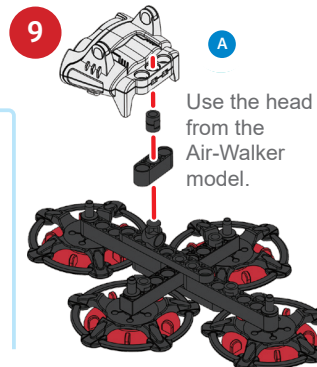
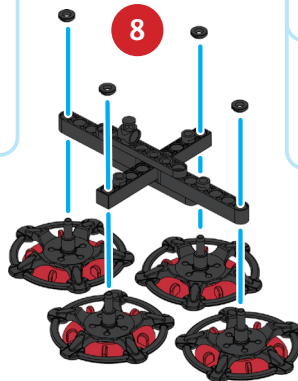
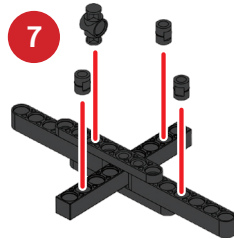
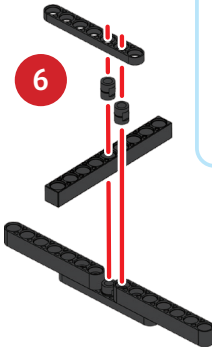
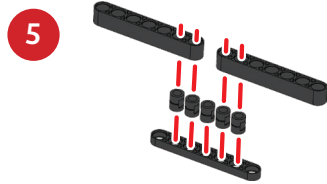
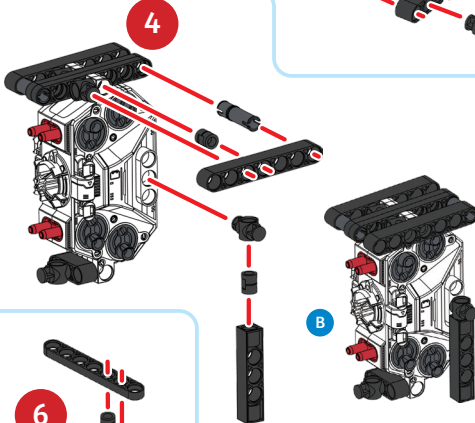
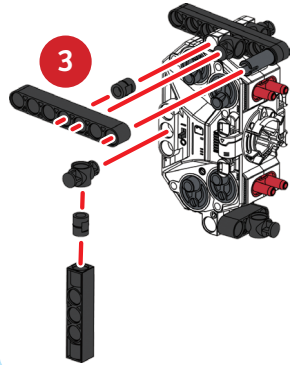
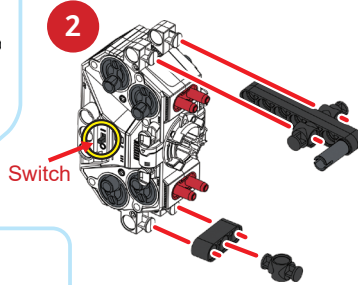
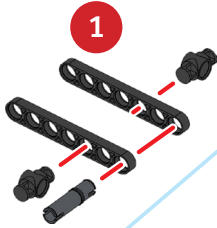


TIP



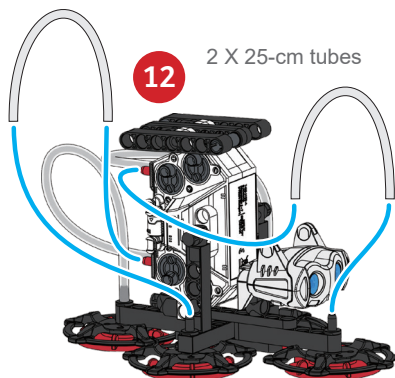
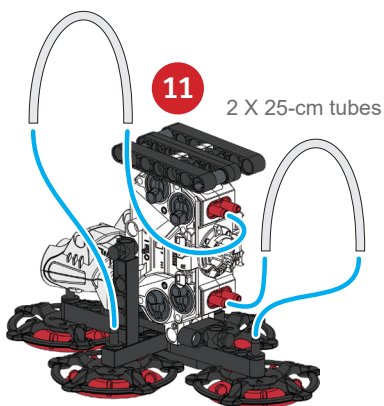
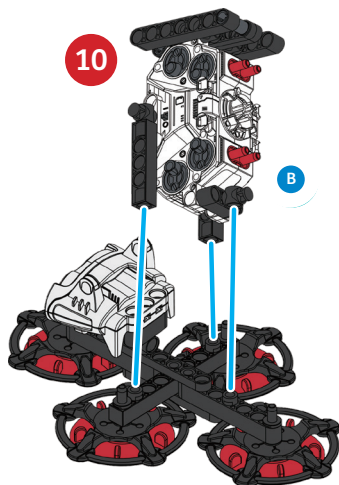


Model 5 Suction Lifter

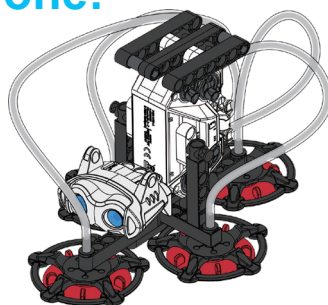




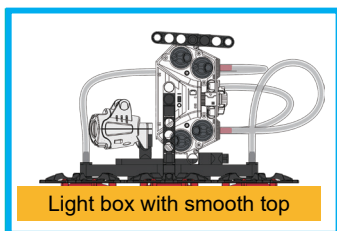
Suction Lifter 5 Model



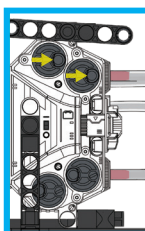
Done!



How to Use



1. Put the suction pads on a light box with a smooth surface, like the kit box.



2. Turn on the switch. The wheels on one side of the body must be pointing toward the tube plugs. Then turn off the switch. You can then lift up the light box with the suction lifter.



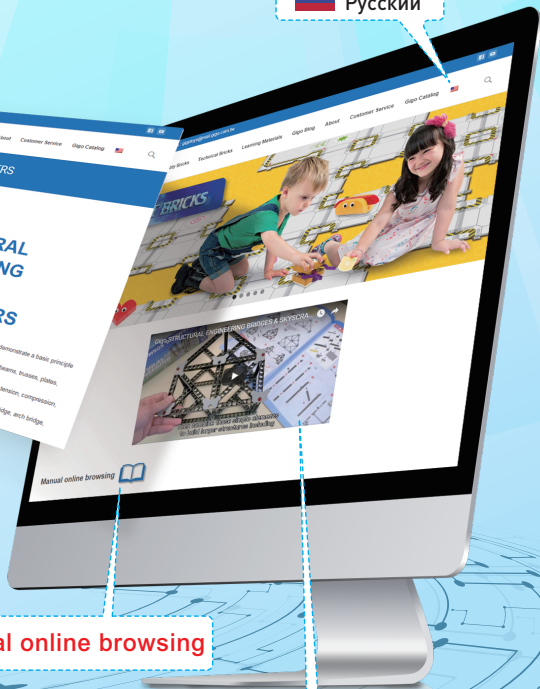
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