Discovery™

AGES 12+

INSTRUCTIONS & TIPS

BEFORE YOU BEGIN ANY OF YOUR EXPERIMENTS...

- MAKE SURE TO READ ALL THE INSTRUCTIONS CAREFULLY.
- ADULT SUPERVISION IS RECOMMENDED FOR THIS ACTIVITY.

⚠**WARNING:** NEVER TOUCH THE ALUMINUM SHEET, CONTACTS, FABRIC SHEET, OR CARBON SHEETS WITH ANY METAL IN ORDER TO PREVENT POSSIBLE SHORT CIRCUITS.

CONTENTS

- 2 Arms
- 1 Battery Holder
- 1 Chassis
- 1 Battery Lid
- 1 Upright piece
- 1 Pivot gear
- 1 Battery Base
- 1 Axle with gear and wheels
- 1 Axle with wheels
- 1 Motor with wires and contacts
- 1 Water Dropper
- 2 Battery Sets – containing 2 metal sheets, 2 fabric sheets, 2 Air Cathode (Black)
- 2 Screws (Robot Eyes)

Note: You will need table salt and a small mixing cup (not included)

Prepare your Work Area

- Find a flat surface to use as your work area.
- Cover your work area with scrap paper, newspaper, or paper

Building the Robot

TIP: It is helpful to unattach all of the plastic parts from their frame and to lay them out in front of you before starting.

1


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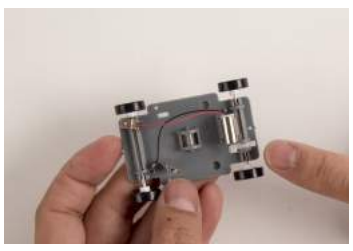

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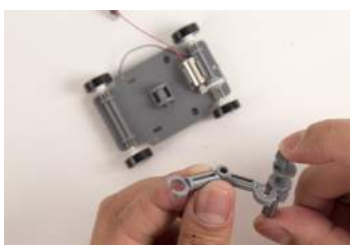

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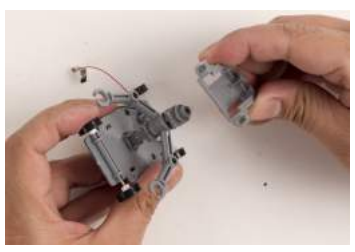

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Building Your Salt Water Battery

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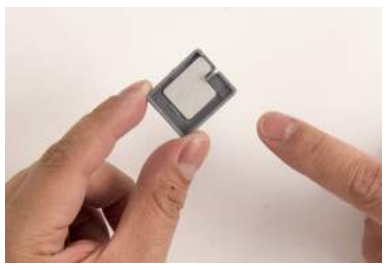

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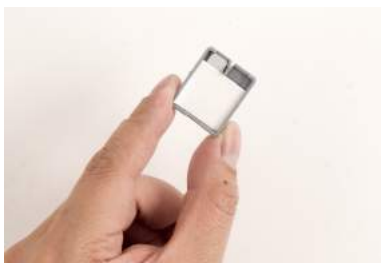

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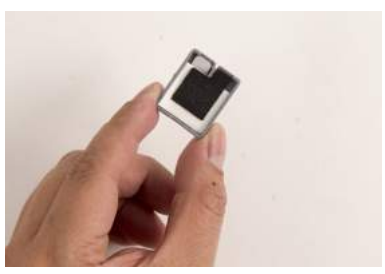

4


Putting your Robot into Action!

- Add 1 teaspoon salt to 5 teaspoons water and stir until the salt is dissolved.
- Using your eyedropper, carefully squeeze 3 drops of water onto the exposed fabric portion of the battery. You will see the water be soaked up by the fabric.
- Your robot will begin to move!
- The saltwater fuel will be exhausted after about 10 minutes, and the robot will begin to slow down. Add a few more drops of salt water solution to start it again.
- Each metal sheet can work for 4 hours before it breaks down and is no longer usable. Remove the battery box and replace the metal sheet and fabric square in order to use your robot again. Kit includes 2 refills.
- You will need to remove the robot's battery in order to make it stop moving.

Tip: When storing your robot, remember to remove the metal sheet and the black air cathode from the battery box, separate them, and let them dry.

What is Happening?

A chemical reaction occurs when the salt water is added. This is because the salt water acts as an electrolyte that shuttles electrons between the metal and the carbon-containing air cathode. This creates an electrical current that powers the robot.

Troubleshooting

If your robot does not begin to move within 15 seconds of adding the salt water, check the following:

- Make sure the gears are mating correctly.
- Make sure the battery box is pushed all the way in.
- Make sure the metal leads are both coming into contact with the battery. Check that the red cable is connected to the side with the R, and the black cable is connected to the side with the B.
- Make sure that the fabric piece is in between the metal sheet and the air cathode. If the metal and the air cathode are touching then a short circuit is created.

Salt-Powered Robot

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Please retain packaging for future reference. Colors and contents may vary.
Conforms to ASTM D4236. Questions or Comments?
Call Toll Free 800-651-0616 or email customerservice@hgusa.com

Printed in China.

Horizon Group USA, Inc.
Lot # 71905F
Date of Manufacture
Shanghai, China

ITEM # 71905F
HORIZON GROUP USA

Discovery™

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CONTENTS

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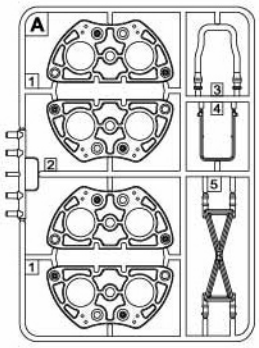

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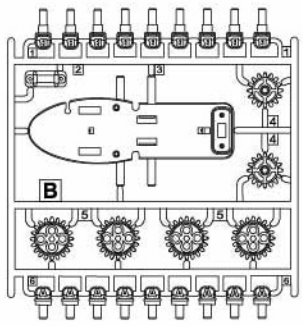

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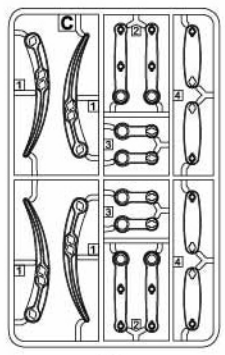

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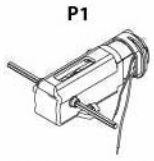


Gear Box

P2

Switch

P4

Terminal

P3

Terminal

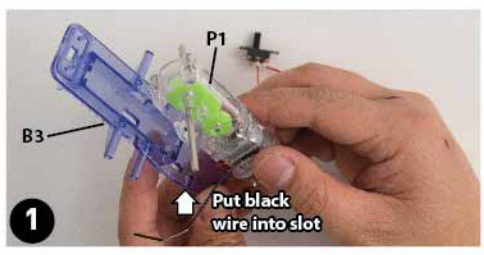
P5

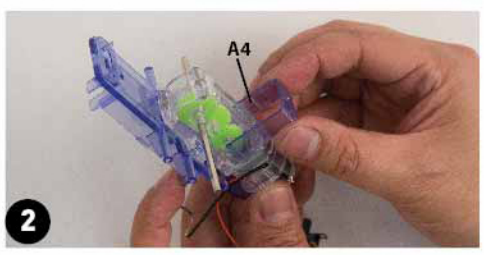
Rubbber Tube

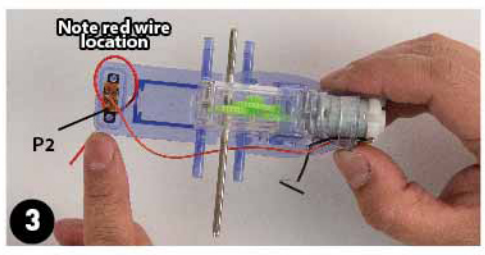
Tools you will need (not included): Cutters  Scissors 

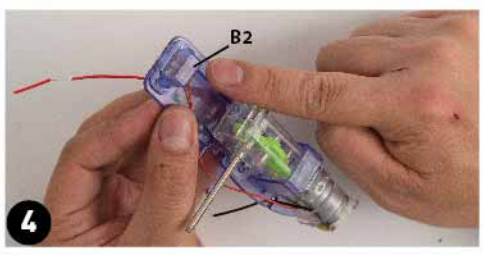
Building the Spider Robot

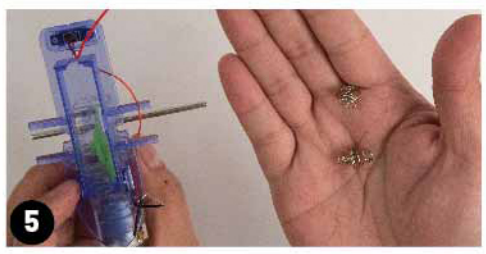
TIP: It is helpful to unattach all of the plastic parts from their frame and to lay them out in front of you before starting.

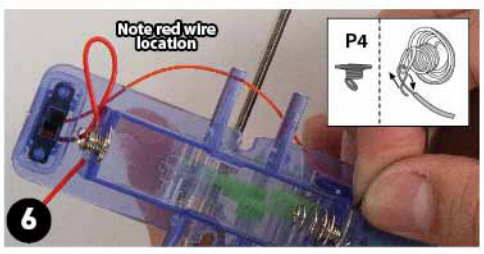


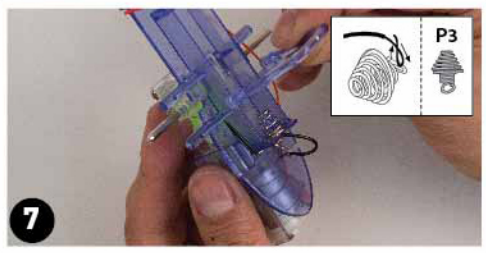


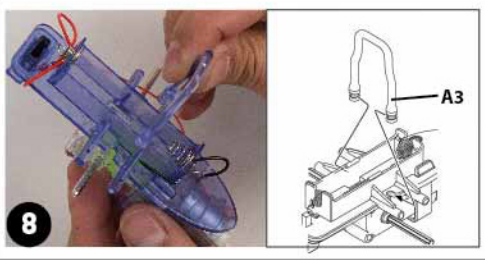


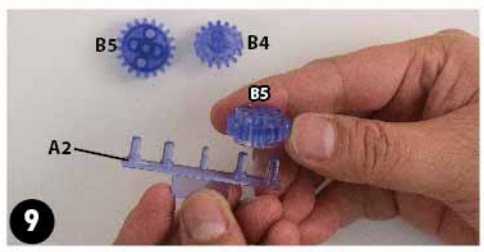


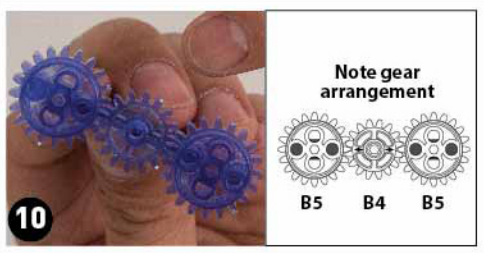


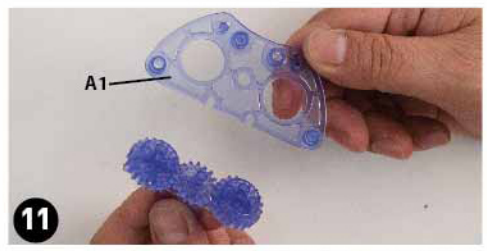


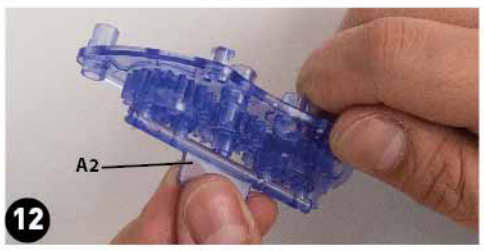


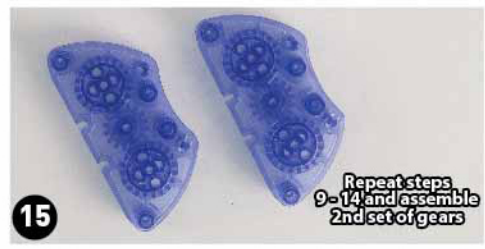


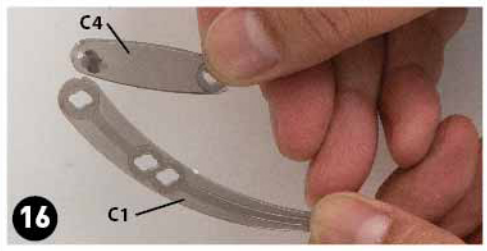


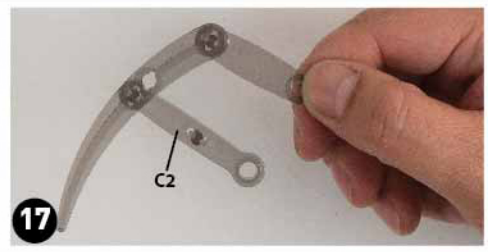


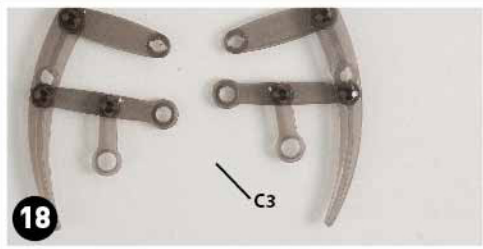


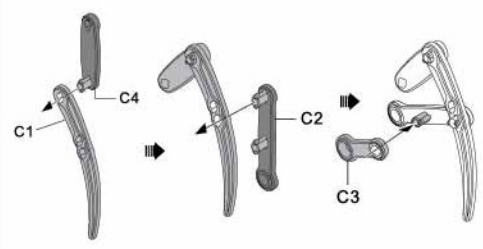


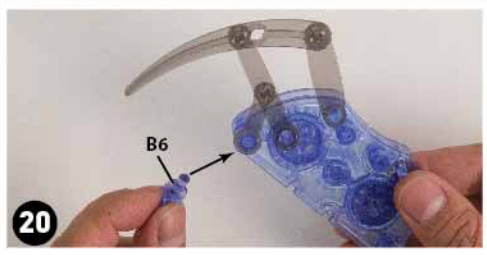


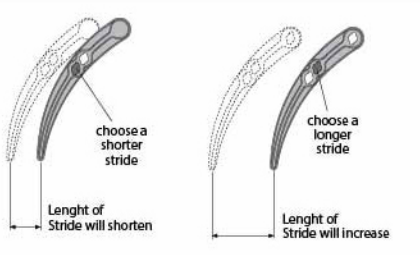


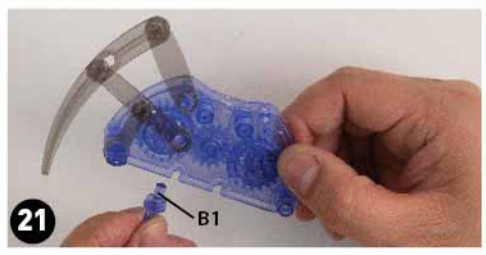


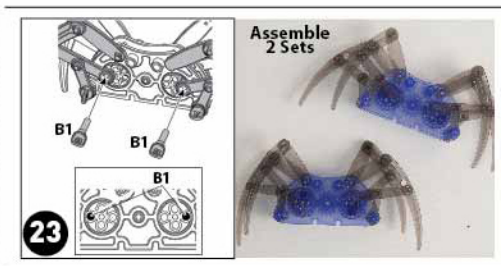


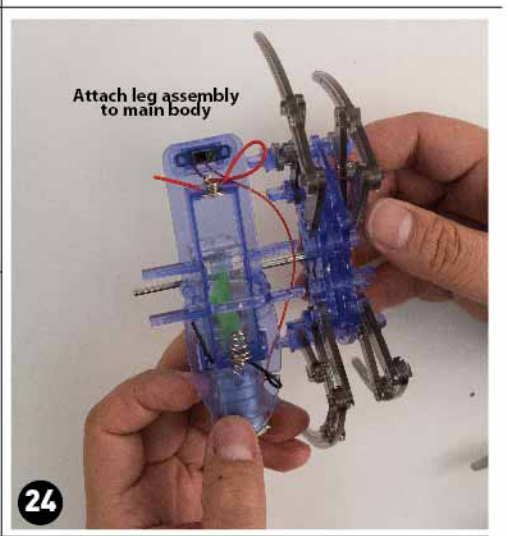


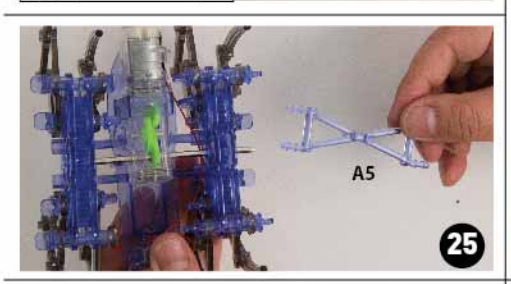


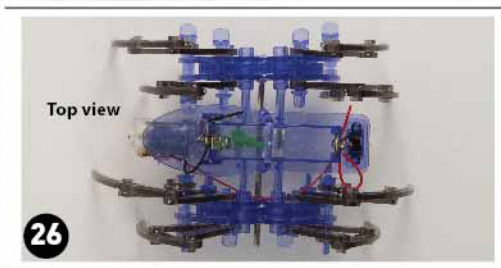


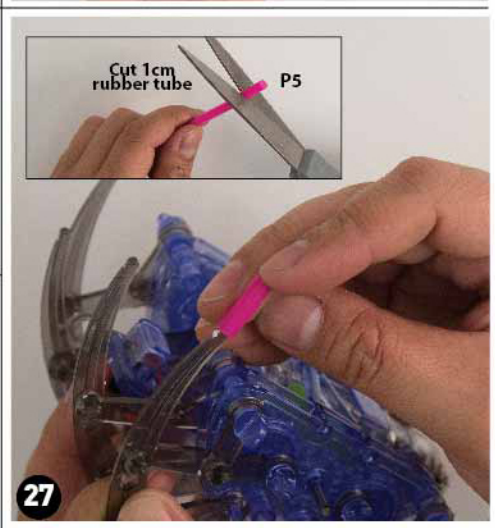












The Spider Robot is ready for action!

Spider Robot

Batteries Not Included
Spider Robot requires 1 AA Battery

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Questions or Comments?
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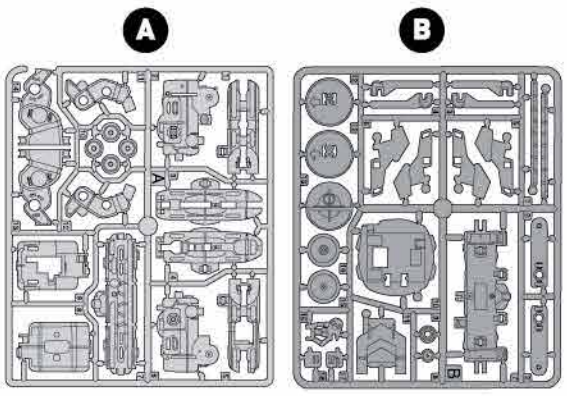
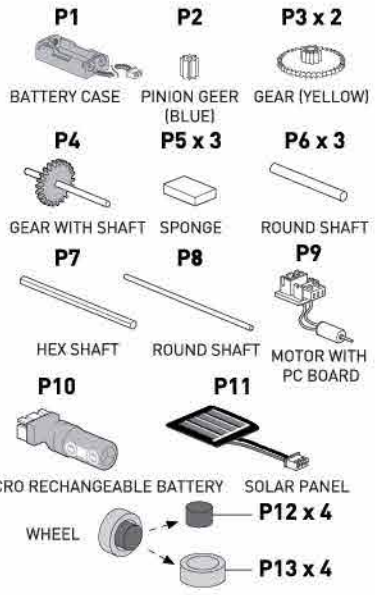
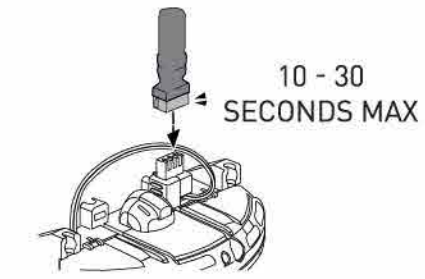


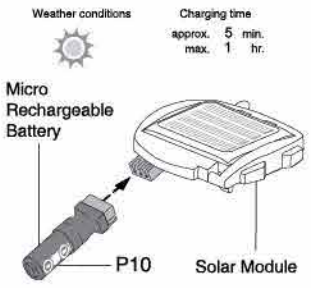


YOU WILL NEED:

POWER OPTION 1: CHARGE MICRO CHARGEABLE BATTERY

POWER OPTION 2: ASSEMBLE SOLAR CELL





Building the 7 in 1 Robot

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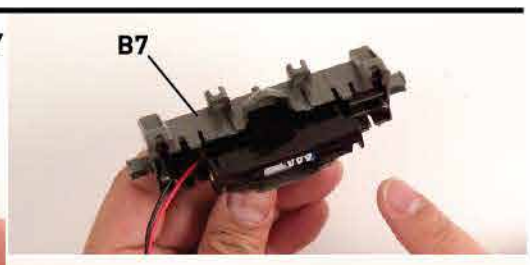
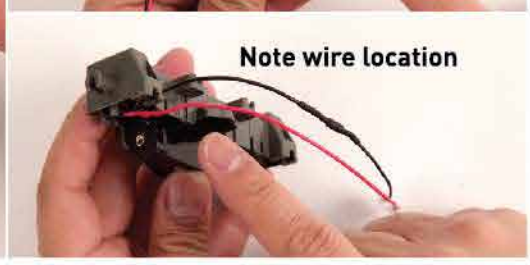
1 BATTERY POWER ASSEMBLY





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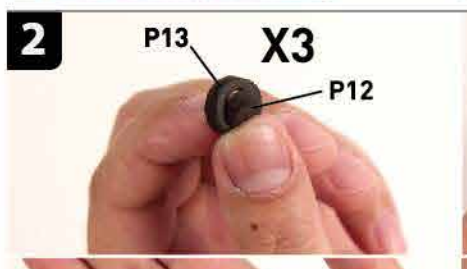

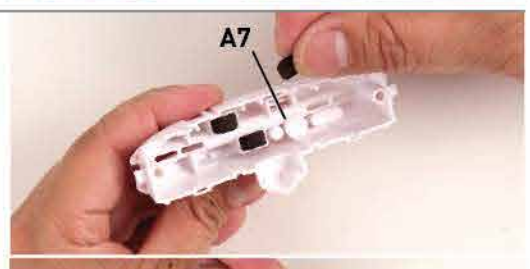

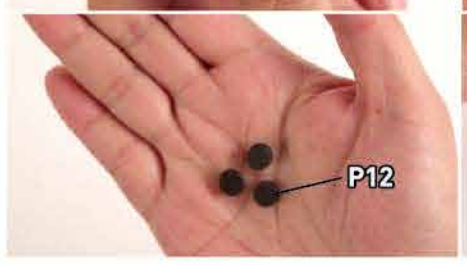

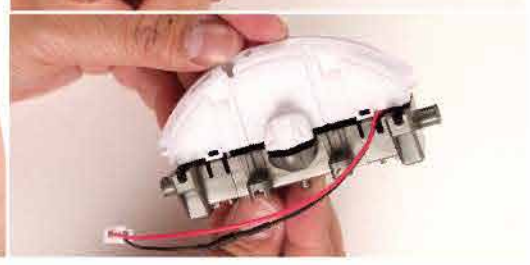

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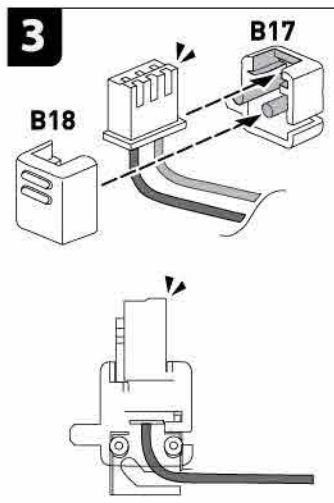

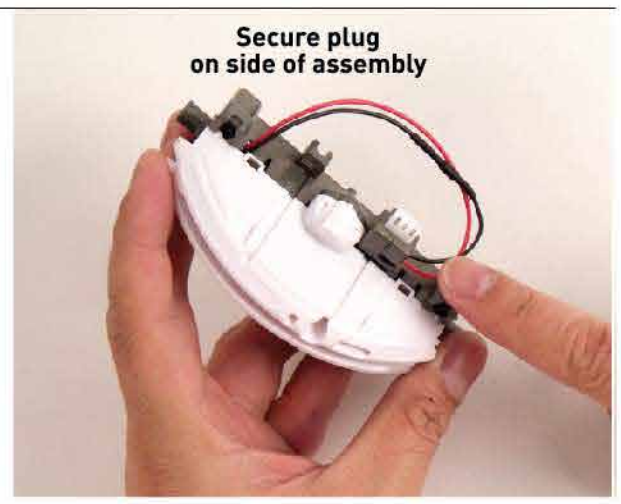

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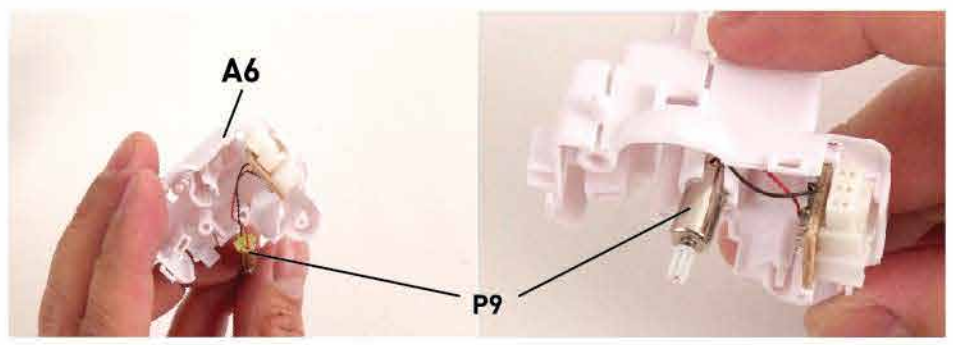

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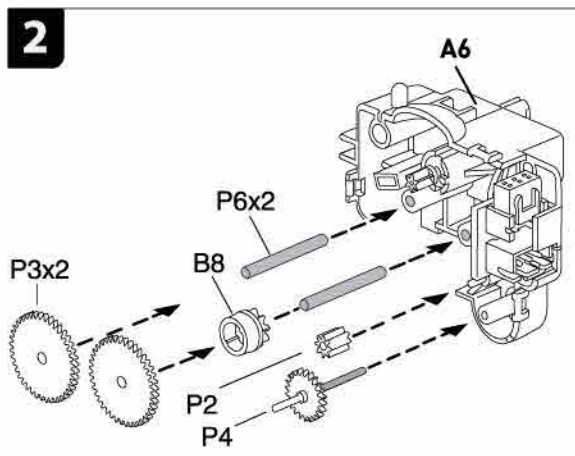

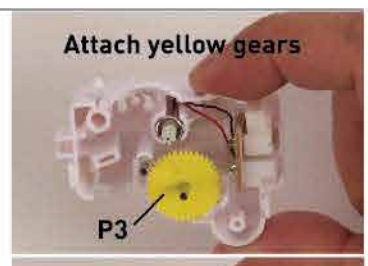

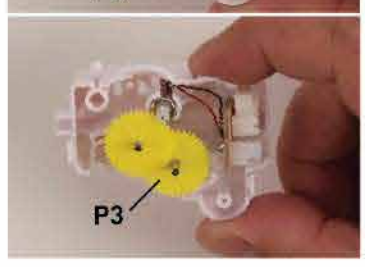

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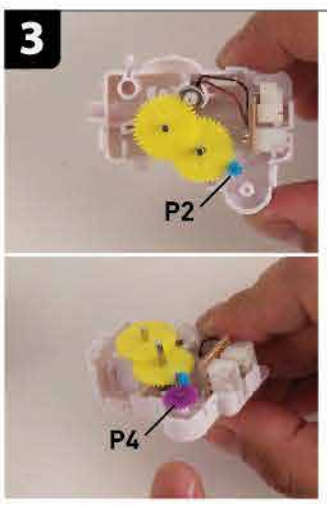

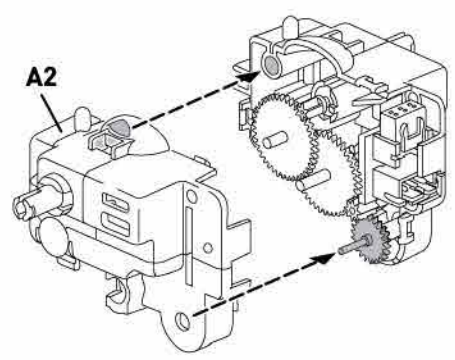

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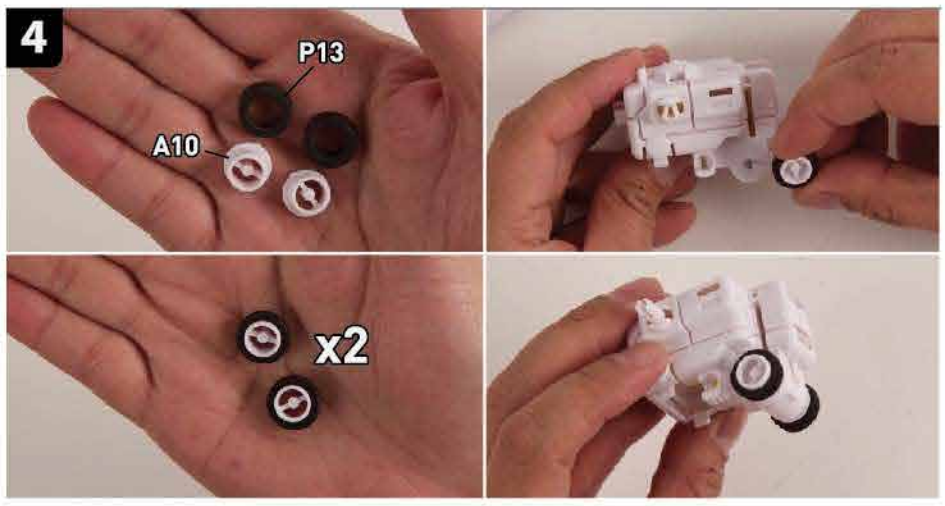
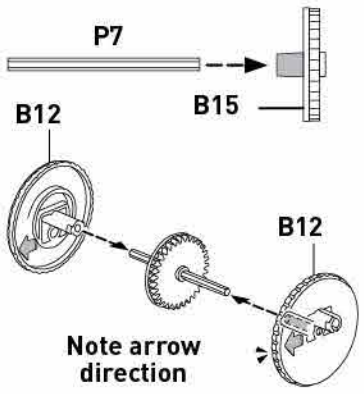
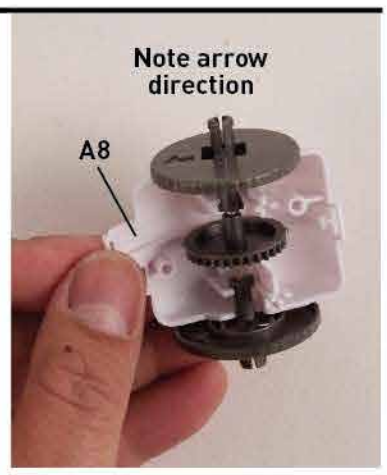


Building the 7 in 1 Robot (continued)

1 LOWER GEAR BOX ASSEMBLY





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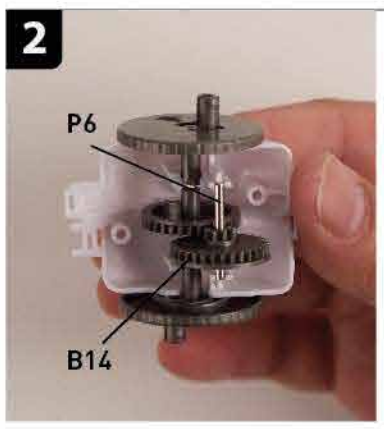

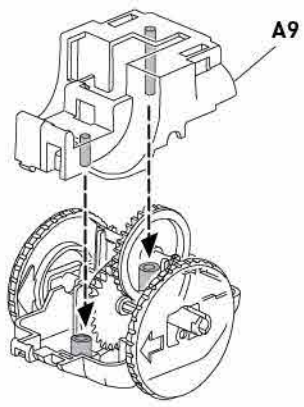

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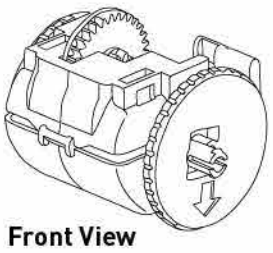
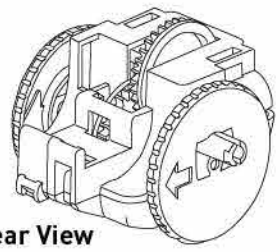


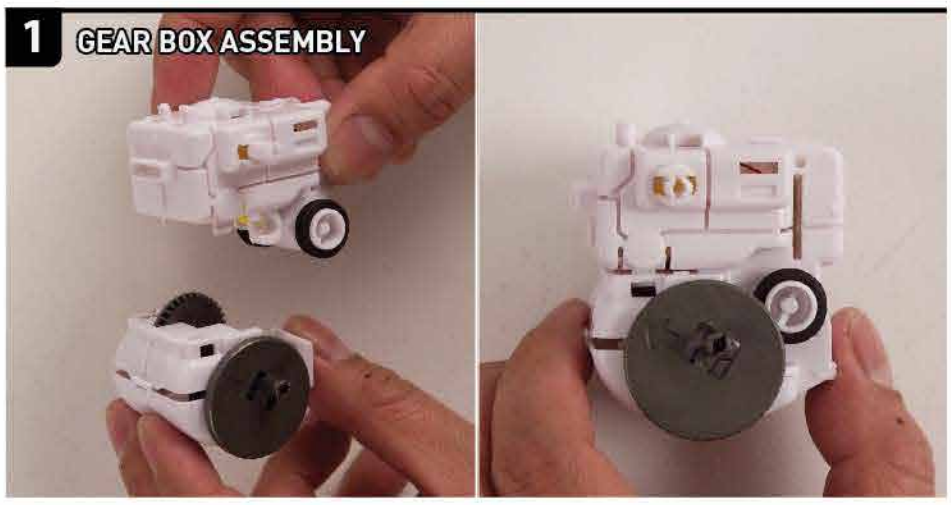
Front View

Note Wheel Arrow Direction



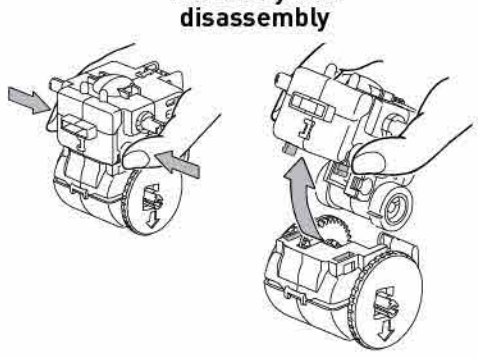
Rear View

1 GEAR BOX ASSEMBLY



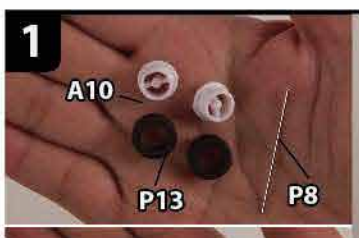
2 Test run gear box by plugging in power

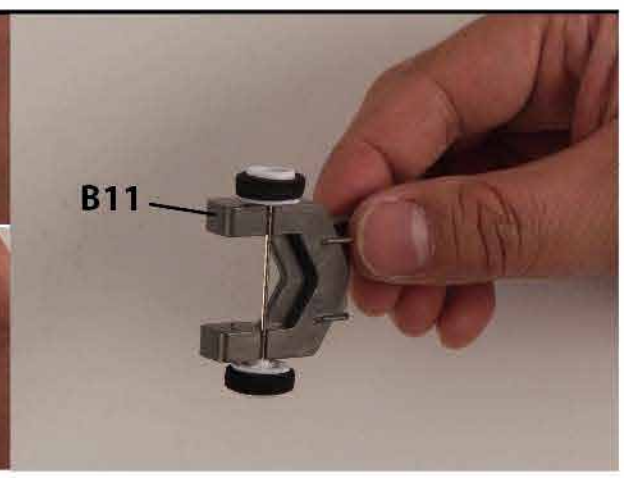
Assembly and disassembly



Space Rover - Assembly & Play

1





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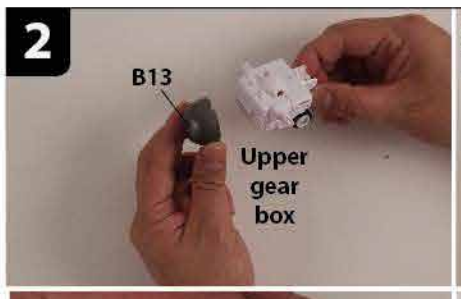
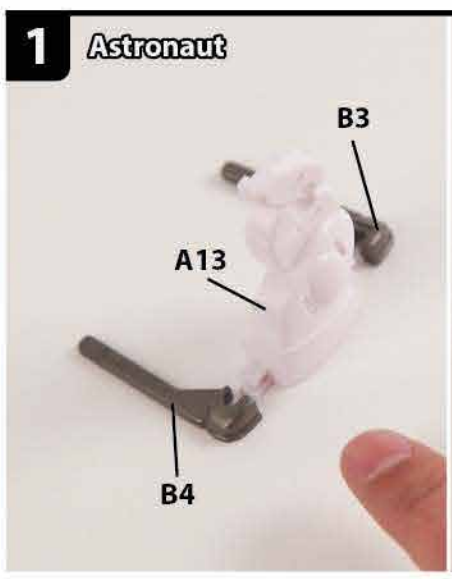


Astronaut - Assembly & Play

1 Astronaut



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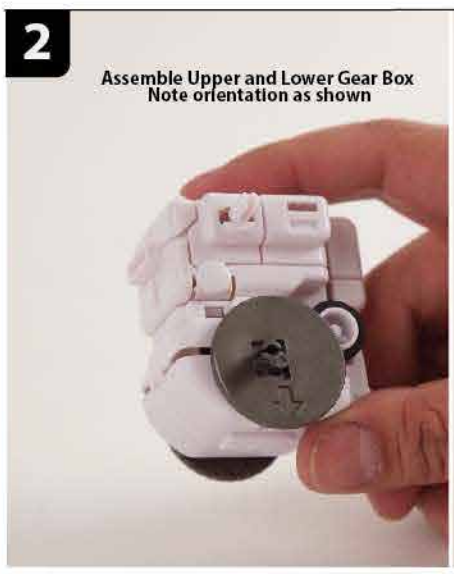
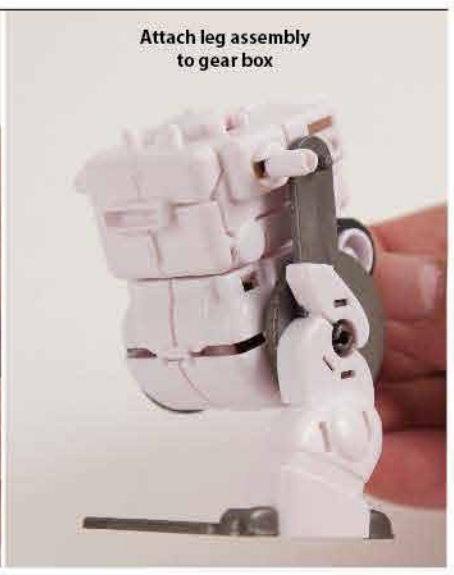
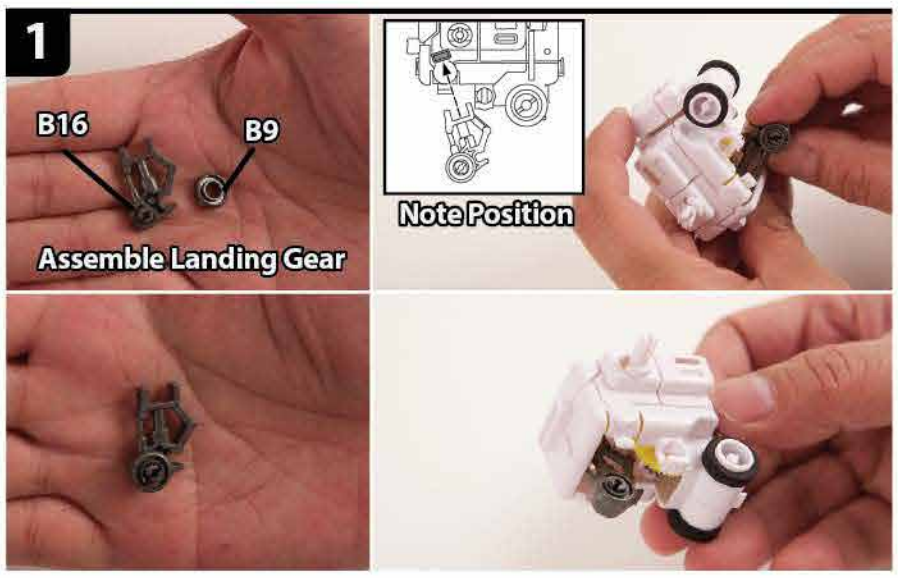


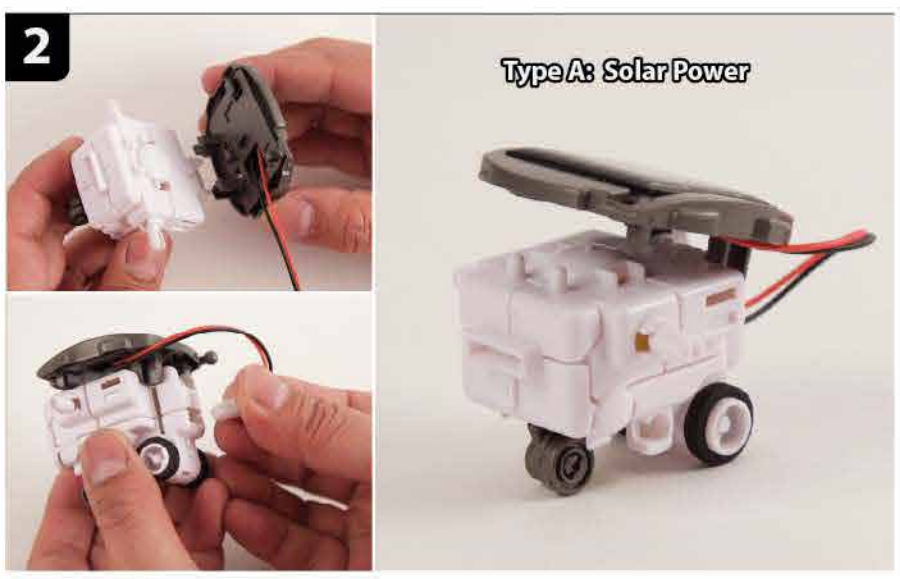


3

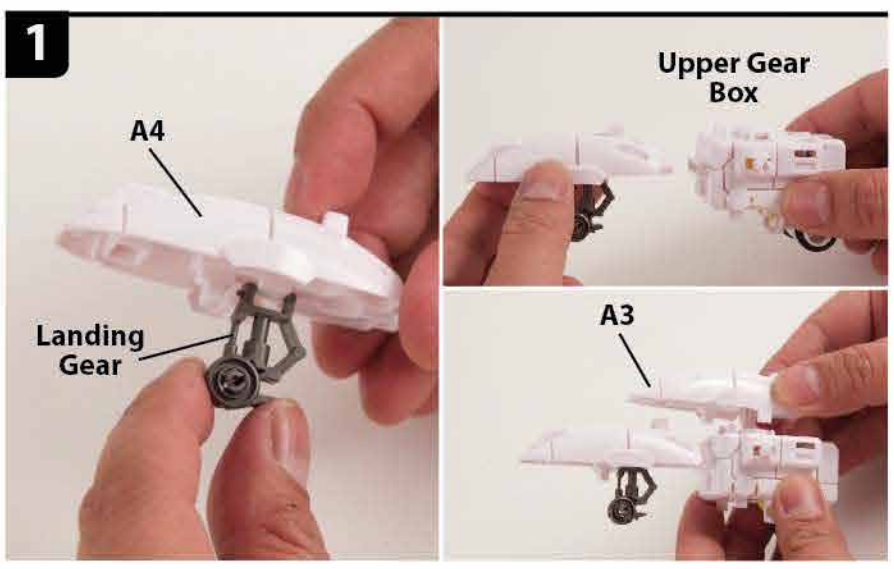
4

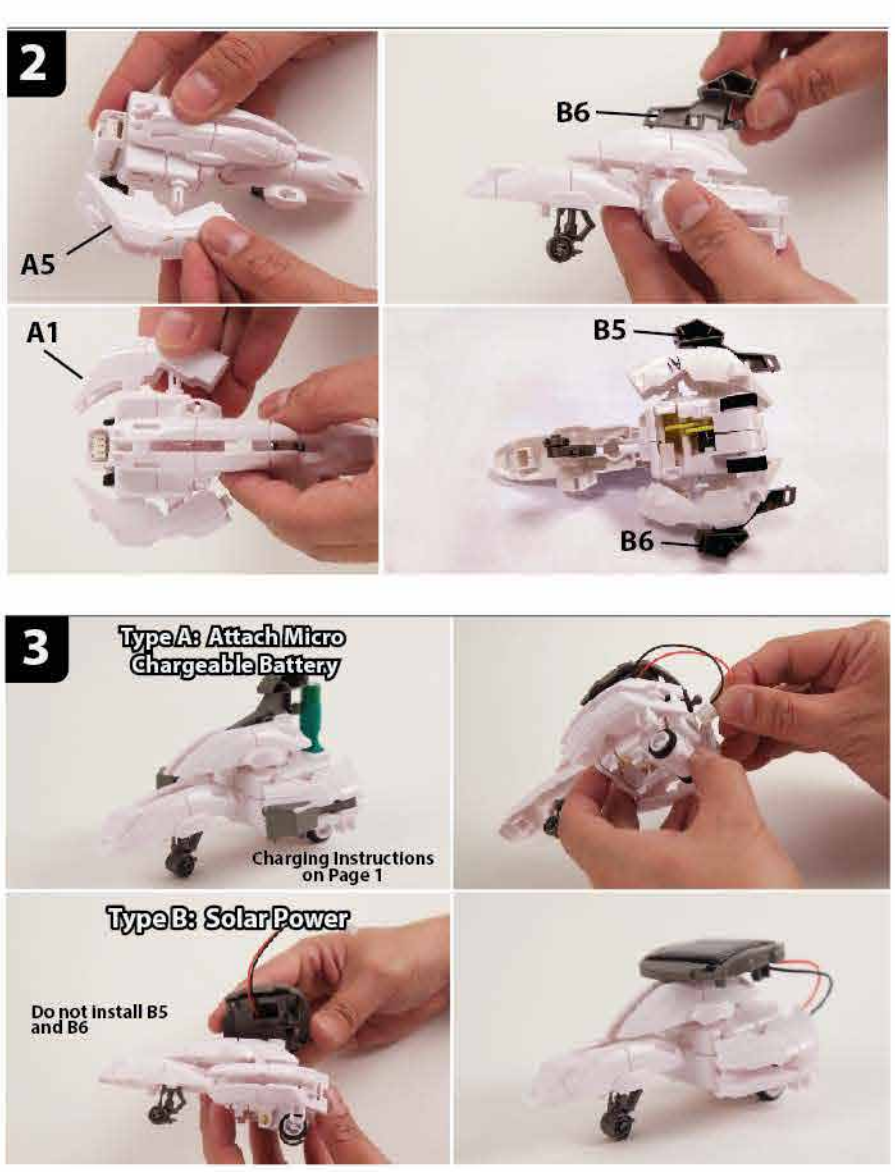
Space Explorer - Assembly & Play



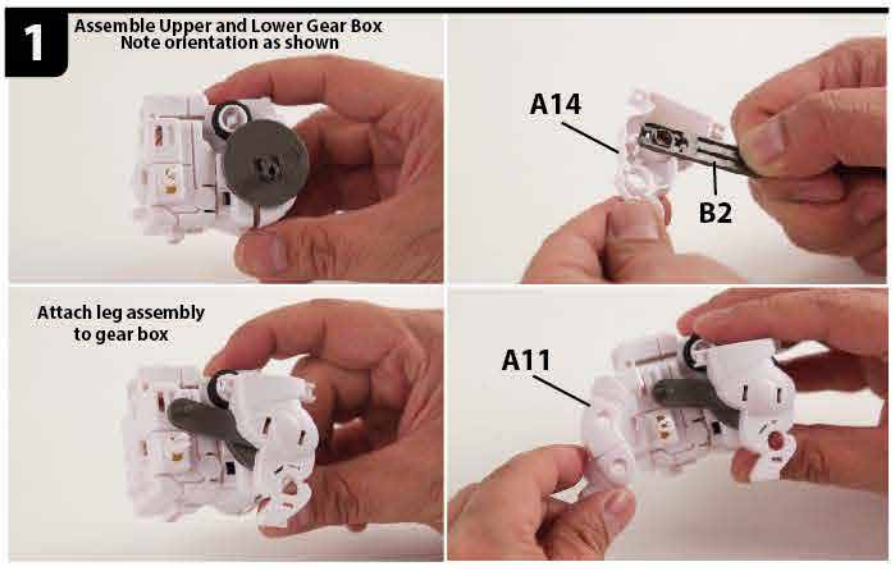


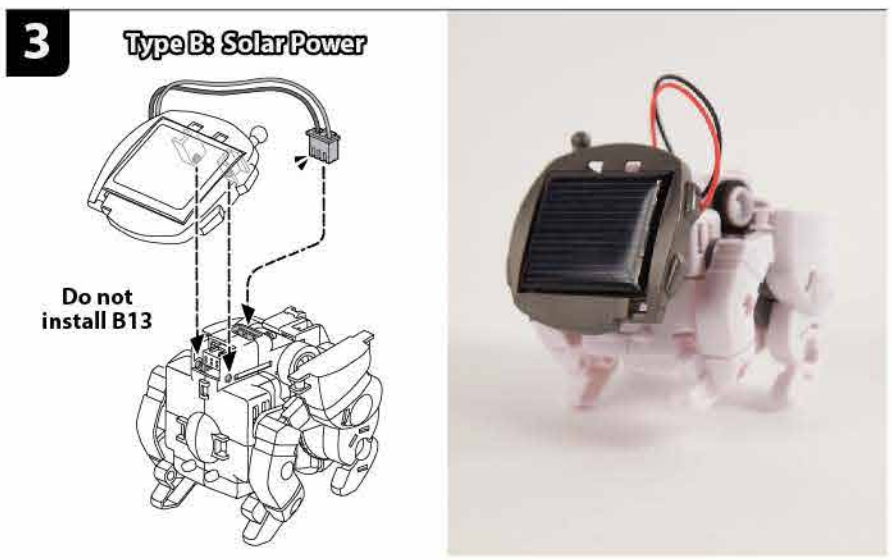
Space Shuttle - Assemble & Play



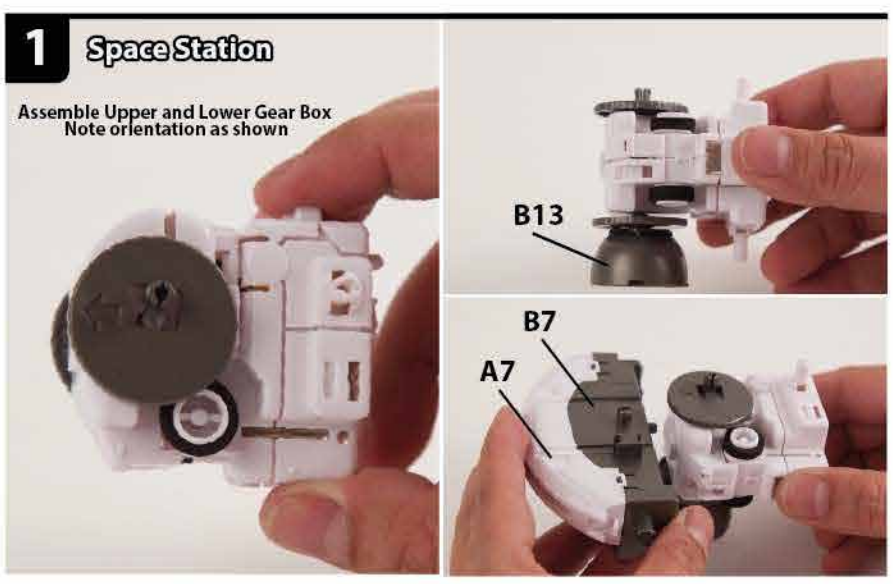


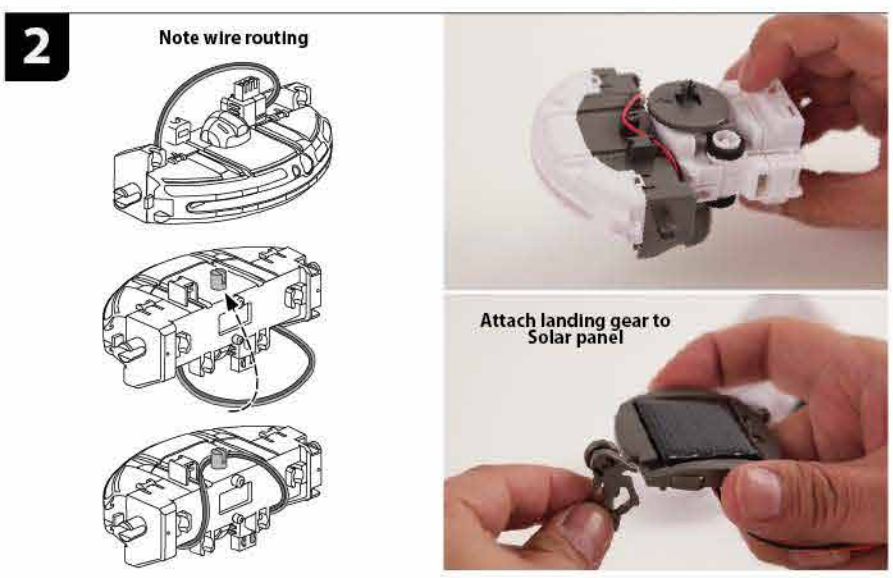
Space Dog - Assemble & Play



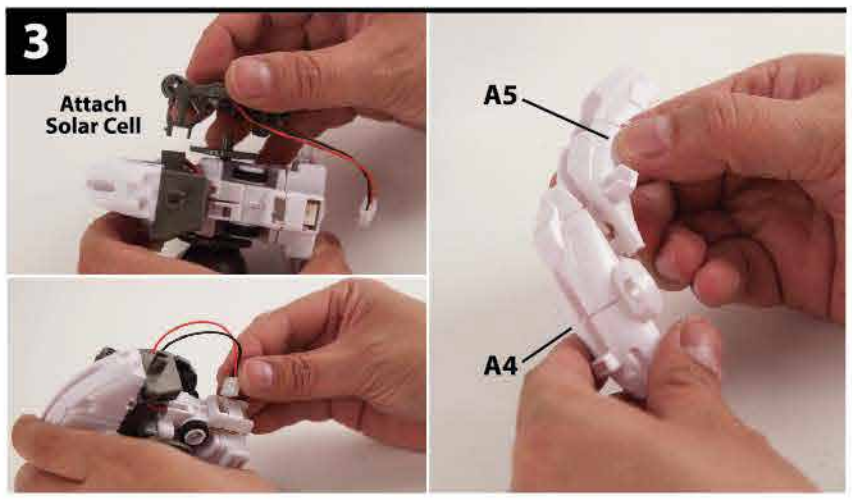


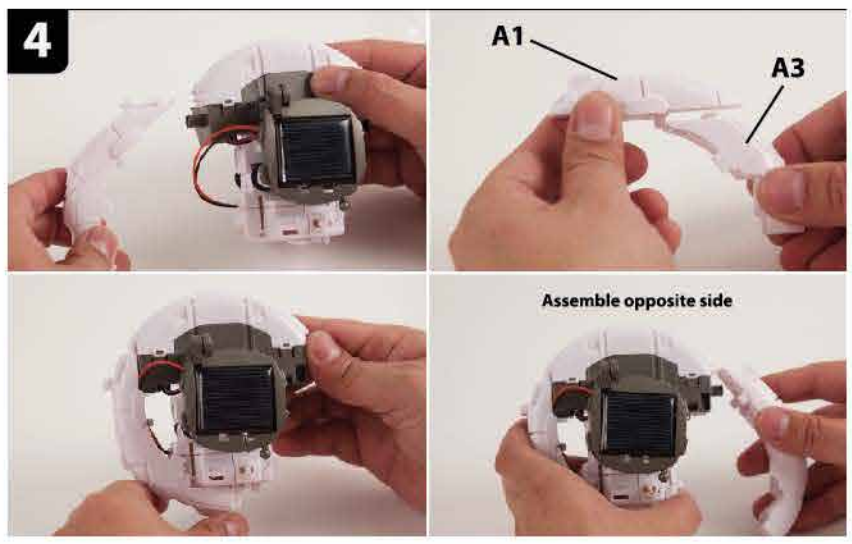
Space Station - Assembly & Play

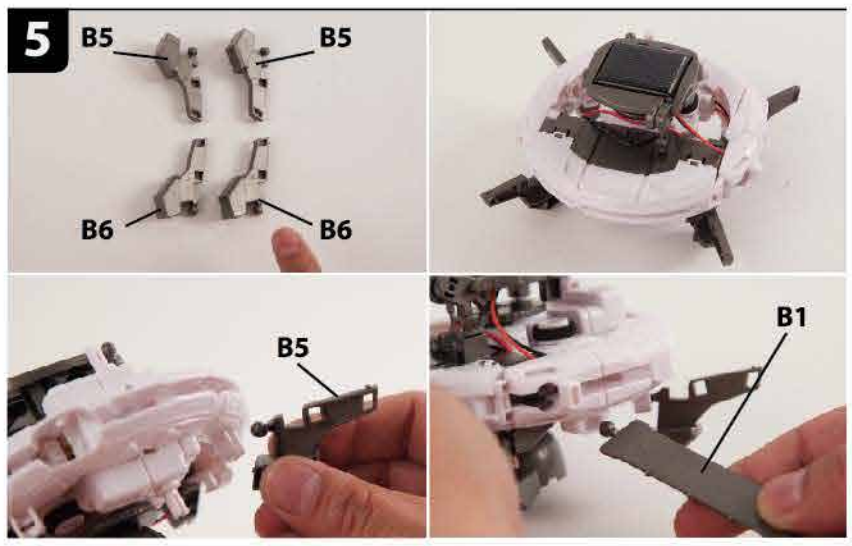


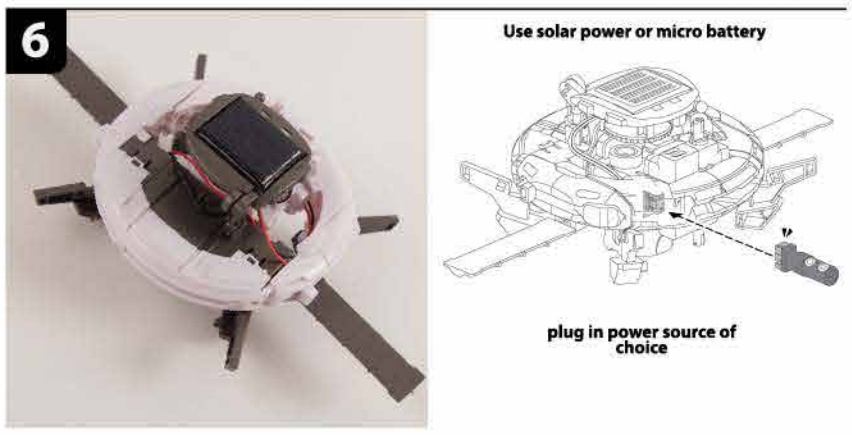


Space Shuttle - Assemble & Play (continued)

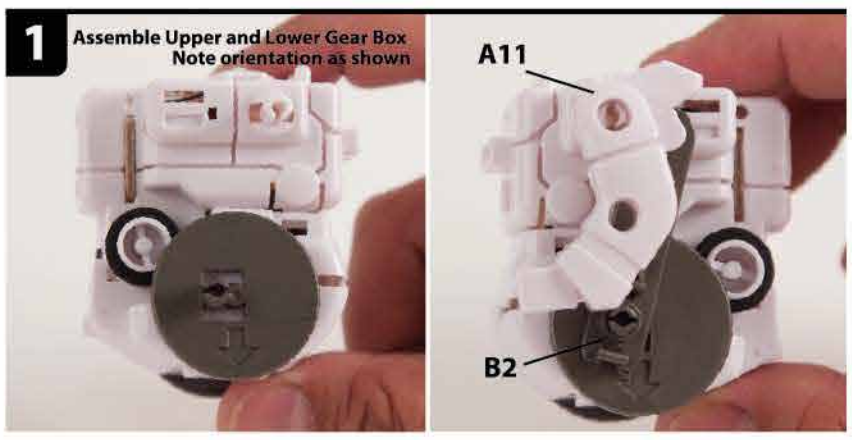


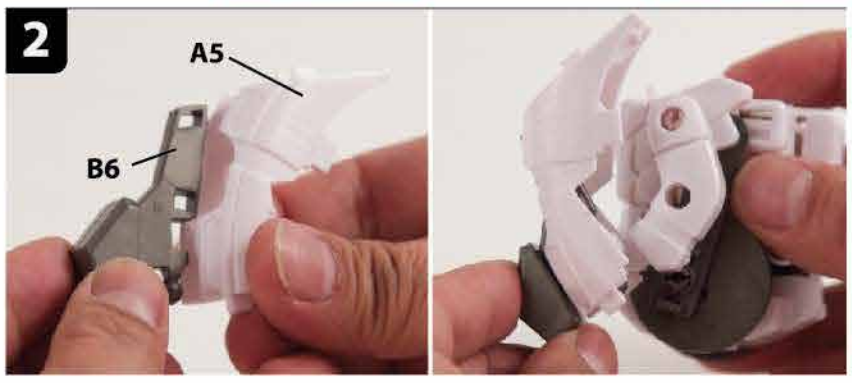


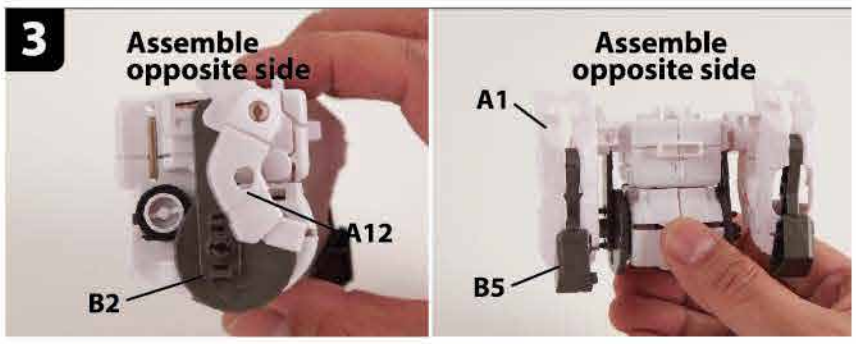


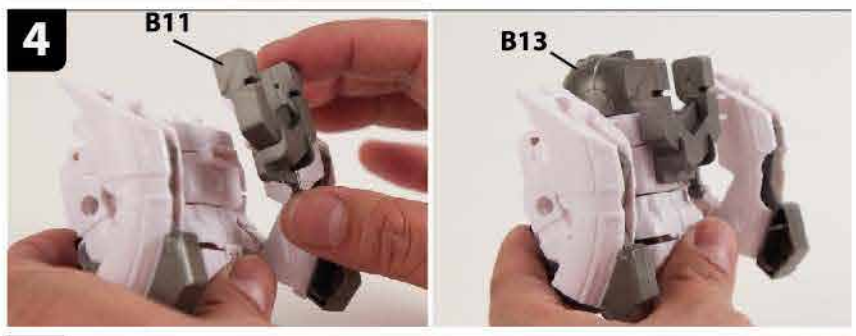


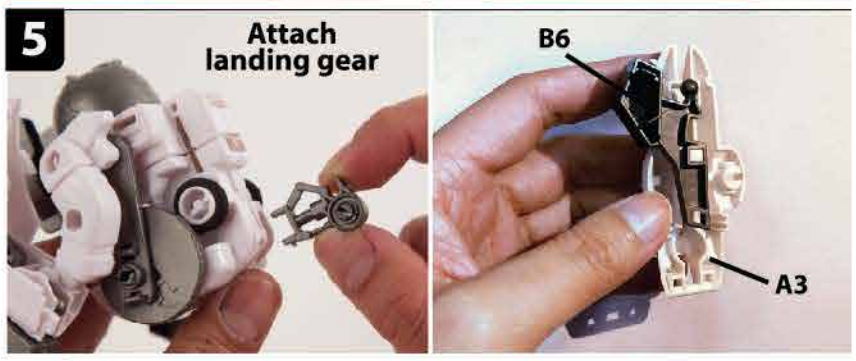
Space Mech - Assembly & Play

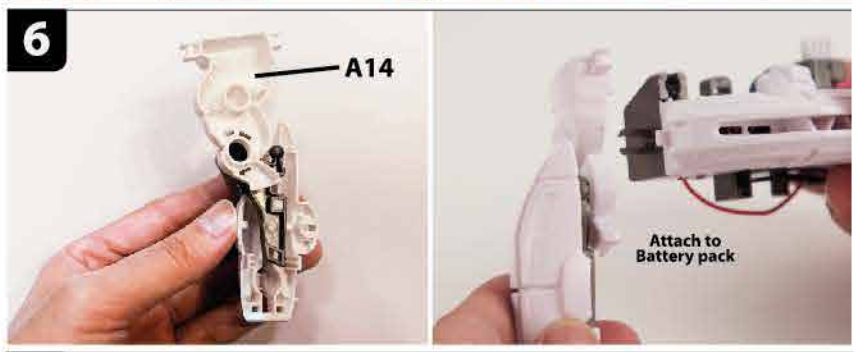


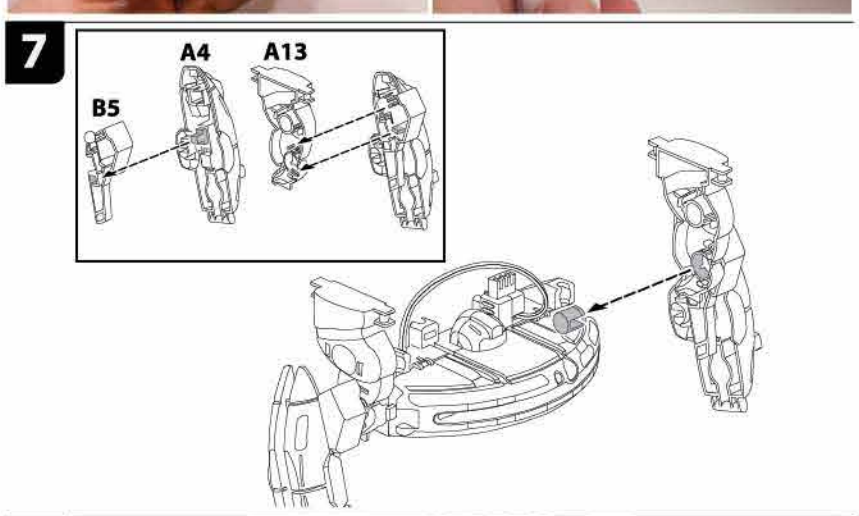


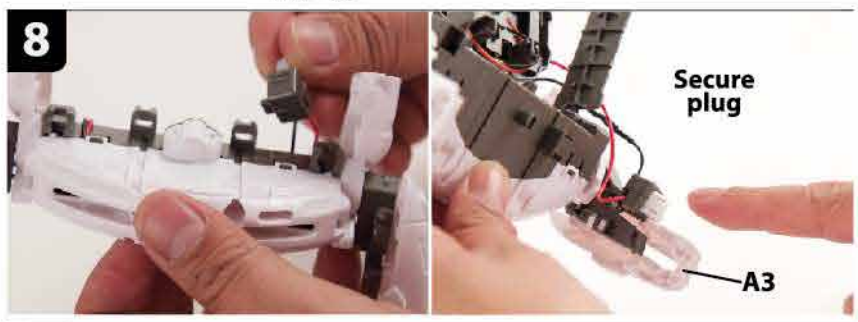


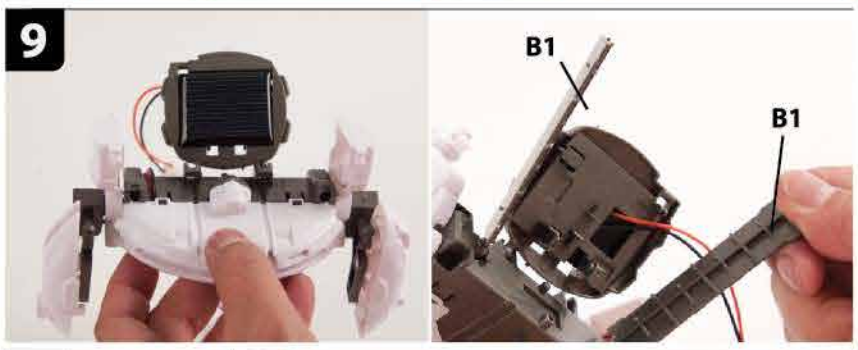


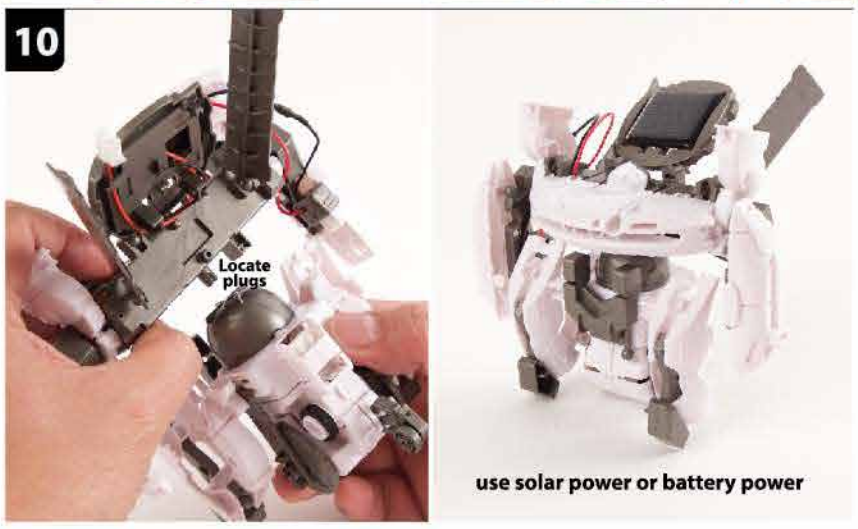








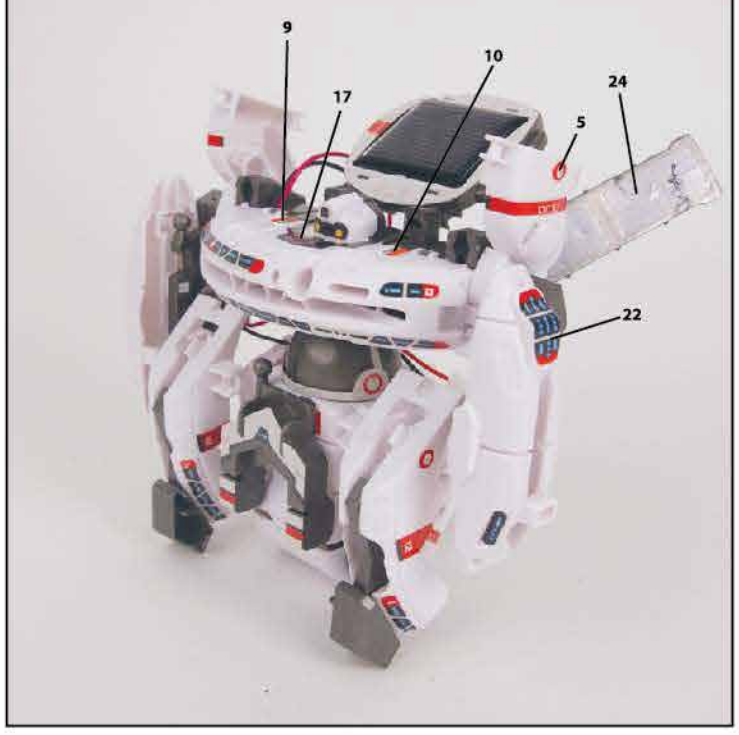




Decal Guide

Space Mech

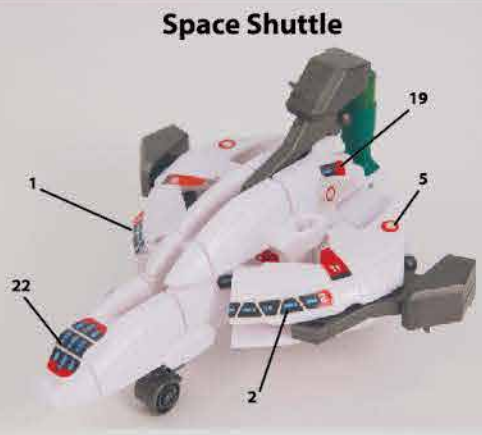
Space Mech



Space Explorer

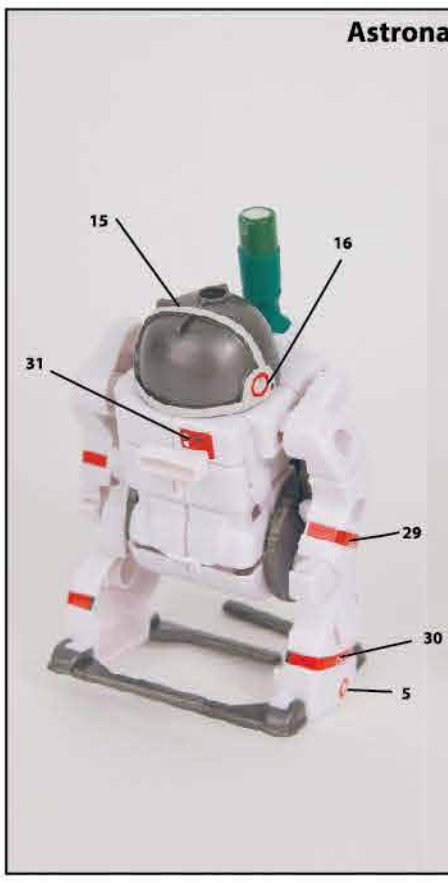
Space Dog

Space Shuttle

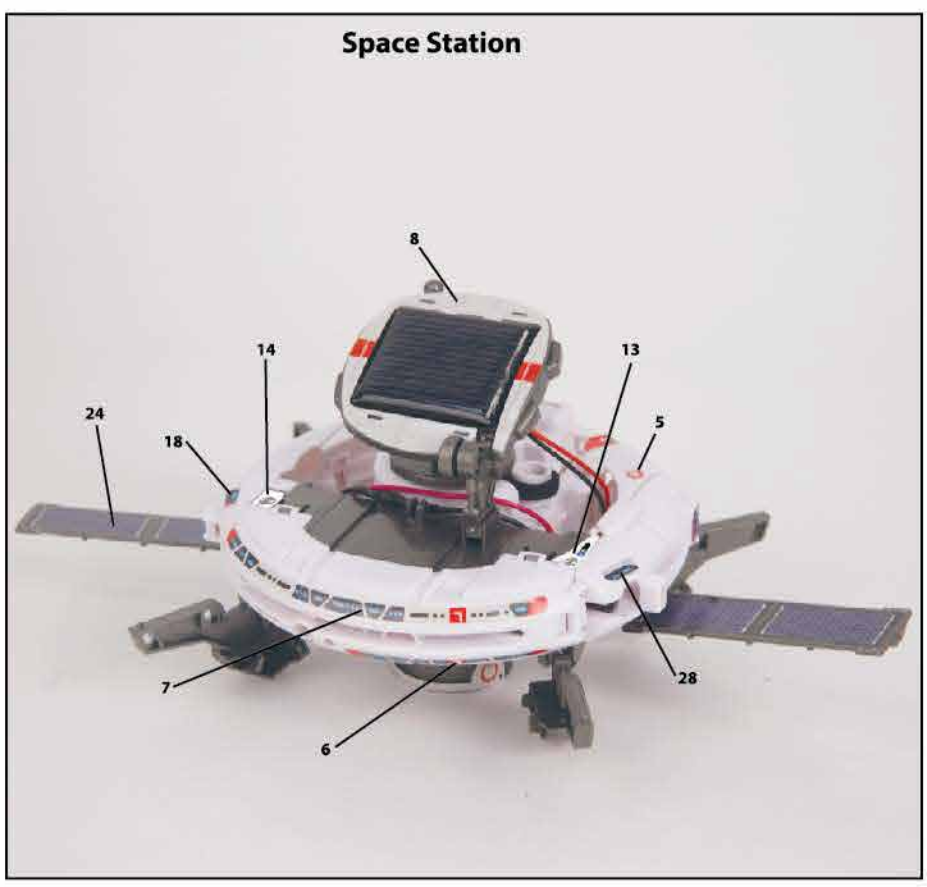


Space Rover

Astronaut



Space Station



7 in 1 Robot

Batteries Not Included
7 In 1 Robot requires 2 AAA Batteries
Do not mix old and new batteries
Do not mix alkaline, standard (carbon-zinc), or rechargeable (nickel-cadmium) batteries.

Please retain packaging for future reference. Colors and contents may vary.
Questions or Comments?
Call Toll Free 800-651-0616 or email customerservice@hgusa.com

Printed in China.

Horizon Group USA, Inc.
Lot # 71905F
Date of Manufacture:07/16
Shanghai, China

ITEM # 71905F
HORIZON GROUP USA