

# ECO-BATTERY VEHICLES





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Editing: Ted McGuire; Additional Graphics and Layout: Dan Freitas

Distributed in North America by Thames & Kosmos, LLC, Providence, RI 02903  
Phone: 800-587-2872; Web: [www.thamesandkosmos.com](http://www.thamesandkosmos.com)

Distributed in United Kingdom by Thames & Kosmos UK, LP, Goudhurst, Kent TN17 2QZ  
Phone: 01580 212000; Web: [www.thamesandkosmos.co.uk](http://www.thamesandkosmos.co.uk)

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Printed in Taiwan / Imprimé en Taïwan





## WARNING.

- Not suitable for children under 3 years. Choking hazard — small parts may be swallowed or inhaled. Strangulation hazard — long wires may become wrapped around the neck.
- This kit contains functional sharp pointed wires. Do not injure yourself!
- WARNING. Not suitable for children under 10 years. For use under adult supervision. Read the instructions before use, follow them and keep them for reference.
- WARNING. Only for use by children aged 10 years and older. Instructions for parents or other supervising adults are included and have to be observed. Keep packaging and instructions as they contain important information.
- Before proceeding with model assembly, read the instructions on this page and the notes accompanying the individual assembly steps, follow them, and keep them for reference. Keep young children and animals away from the experiments. Store the experimental material out of the reach of small children.

## Information about the metal-air cells

- Do not let the metal-air cells remain filled while they are not in use. Clean them after each use, as described in the instructions. Do not consume the tank contents or bring contents into contact with skin or eyes. In case of contact: Wash off or rinse out with plenty of water.

## Safety for experiments with batteries

- For operation without the metal-air cells, two 1.5-volt batteries (type AA / LR6 / penlight) will be required, which are not included in the kit due to their limited storage life.
- For some of the experiments, two rechargeable 1.2-volt batteries (type AA / penlight) will be needed.
- Refer to page 14 for instructions on how to insert and remove the batteries.
- Avoid short-circuiting the batteries. They could explode!
- Different types of batteries (rechargeable and non-rechargeable) or new and used batteries are not to be mixed.

- Batteries are to be inserted with the correct polarity. Press them gently into the battery compartment. Refer to the instructions on page 14.
- 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. A short circuit can cause the wires to overheat and the battery to explode.
- Be sure not to bring batteries into contact with coins, key chains, or other metal objects.
- Do not bend, warp, or otherwise deform batteries.
- Do not mix old and new batteries.
- Do not mix alkaline, standard (carbon-zinc), or rechargeable (nickel-cadmium) batteries.

## Disposal of electrical and electronic components

This product's electronic parts are reusable and, for the sake of protecting the environment, they should not be thrown into the regular household trash at the end of their lifespan. Instead, they must be delivered to a collection location for electronic waste, as indicated by the following symbol:

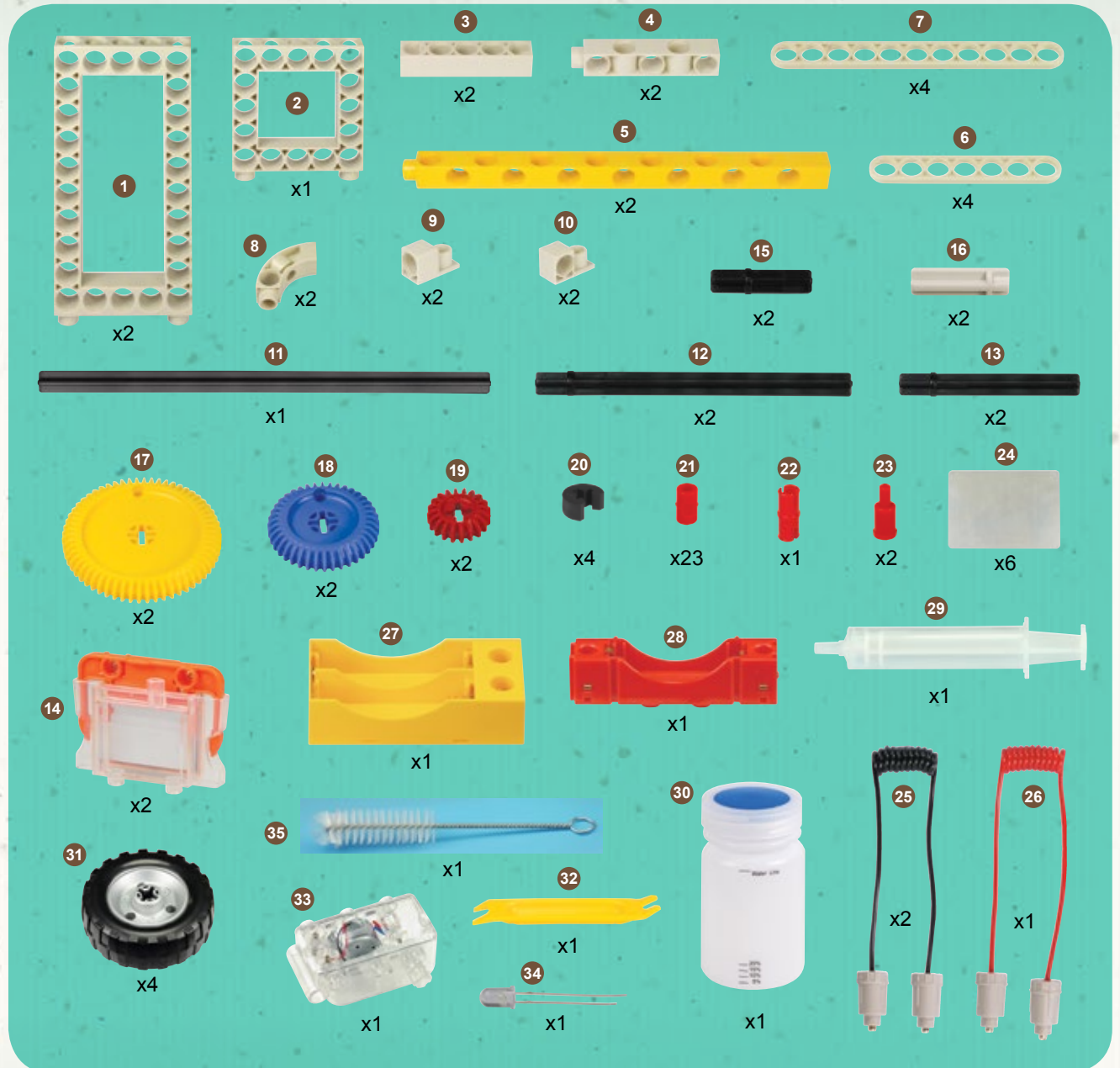


Please consult your local authorities for the appropriate disposal location.



# ECO-BATTERY VEHICLES | The parts inside your kit

No.	Description	Quantity	Item No.
1	SHORT FRAME	2	703232
2	SQUARE FRAME	1	705016
3	5-HOLE ROD	2	704063
4	3-HOLE DUAL ROD	2	705012
5	7-HOLE DUAL ROD (LONG ROD)	2	707046
6	7-HOLE FLAT ROD	4	712341
7	11-HOLE FLAT ROD	4	712340
8	CURVED ELBOW ROD	2	705013
9	90 DEGREE CONVERTER - R	2	704064
10	90 DEGREE CONVERTER - L	2	705017
11	EXTRA-LONG SHAFT	1	703518
12	LONG SHAFT	2	703234
13	MEDIUM SHAFT	2	703238
14	METAL-AIR CELL	2	712334
15	SHORT SHAFT	2	703236
16	MOTOR SHAFT	2	702801
17	LARGE GEAR WHEEL	2	711100
18	MEDIUM GEAR WHEEL	2	710061
19	SMALL GEAR WHEEL	2	710062
20	AXLE LOCK	4	702813
21	ANCHOR PIN	23	702527
22	JOINT PIN	1	702524
23	SHAFT PIN	2	702526
24	MAGNESIUM METAL PLATE	6	712335
25	BLACK CONNECTING WIRE	2	702593
26	RED CONNECTING WIRE	1	702592
27	YELLOW BATTERY HOLDER	1	712339
28	RED BATTERY RECHARGER	1	710115
29	SYRINGE	1	712343
30	SALT WATER BOTTLE	1	712342
31	WHEEL	4	712336
32	ANCHOR PIN LEVER	1	702590
33	MOTOR	1	702800
34	LIGHT-EMITTING DIODE (LED)	1	704072
35	BRUSH	1	712344
	TOTAL	91	







## FROM THE BATTERY...

Around 1800, the Italian scholar Alessandro Volta discovered that a copper and a zinc plate (called **electrodes**) would produce a slight electrical voltage when they were connected by a cloth moistened with salt water (called an **electrolyte**). This is also known as a **voltaic cell**.

A lot of voltaic cells stacked on top of one another were then used to produce the first usable continuous source of voltage. This voltaic pile was a significant achievement, since it enabled further electrical research and applications.

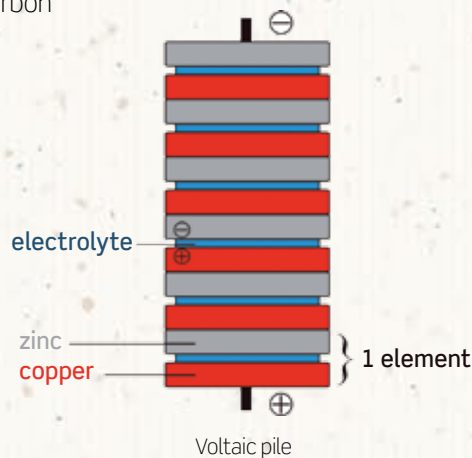
In Alessandro Volta's honor, electrical voltage is measured in **volts (V)** to this day. Volta was the pioneer of today's batteries.

In 1866, the French scholar Georges Leclanché was granted a patent for a battery equipped with a liquid electrolyte. What he had done was to replace the moistened cloth with a jellied electrolyte (made by thickening the liquid). These batteries were the precursors of today's dry batteries, such as the zinc-carbon battery and the alkali-manganese battery. Batteries like these can reliably supply a voltage of 1.5 volts.

During the 19th century, Leclanché cells were used to provide the voltage needed to send railway telegrams and to power home doorbells.



Alessandro Volta



## ...TO THE FUEL CELL

The first simple **fuel cell** was created in 1838. A battery and a fuel cell have something in common: They are both galvanic cells. That means that they have two electrodes (an anode and a cathode) that are connected by an electrolyte. Cells of this type convert chemical into electrical energy. So fuel cells neither produce nor store energy, they just convert it from one form to another.

With fuel cells, unlike batteries, the fuel is constantly supplied and resupplied. That enables them to be operated without time limits. A battery, by contrast, loses its charge after a certain period of time and is thereby rendered unusable.



Georges Leclanché





## ECO-BATTERY VEHICLES | Your metal-air cells

At first, the relatively complicated fuel cell was not developed any further, since Werner von Siemens had invented the electrical generator by that time. In combination with the steam engine, the generator was regarded as one of the simplest and most ingenious pieces of technology of the time.

Since then, however, many different types of fuel cells have been created. The most widespread and extensively researched is the **hydrogen-oxygen fuel cell**, which was already being used by 1960 as an energy converter in space travel.

There were also three fuel cells on board the Apollo 13 spaceship in 1970. After three days in space, there was an accident — one of the oxygen tanks exploded. That meant that the mission had to be aborted, and the crew never walked on the moon. All of the astronauts were able to return safely to Earth though. The cause of the accident was found to lie in technical oversights during mission preparation.

Since then, the technology has improved so much that fuel cells are now even being used in cars. In somewhat simplified terms, these fuel cells convert hydrogen directly into electrical energy through an interaction with oxygen. This in turn powers the electric engine.



In this experiment kit, you will find devices called **metal-air cells**.

The energy of metal-air cells comes from the kind of metal used — in this case, **magnesium**. This metal is simultaneously used as an electrode and as an energy source. In a chemical reaction between the electrolyte (a water and table salt solution) and oxygen from the air, the magnesium is consumed and electrons are released. Since they are distributed unevenly, they are available for use as electrical voltage. Current flows when a load such as a small motor or an LED is connected to the circuit.



Your metal-air cell uses a system that was designed to have its used metal electrodes continuously exchanged and replaced with new electrodes. That creates a system similar to that of a conventional fuel cell. Once the magnesium has been used up, the cell is considered dead. But once you insert a new magnesium plate, it is loaded and ready to go again.

This kind of metal-air cell produces a voltage of 1.4 volts, and supplies a current strength of 300–500 mA (mA = milliampere, a unit of electric current strength).





## THE CHEMICAL ELEMENTS

Here's an overview to help you understand what's happening inside your metal-air cell.

O = oxygen

H = hydrogen

H<sub>2</sub>O = water

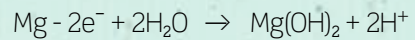
Mg = magnesium

Mg(OH)<sub>2</sub> = magnesium hydroxide

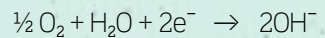
These are the reactions taking place in your metal-air cell.

Main reaction, which releases energy:

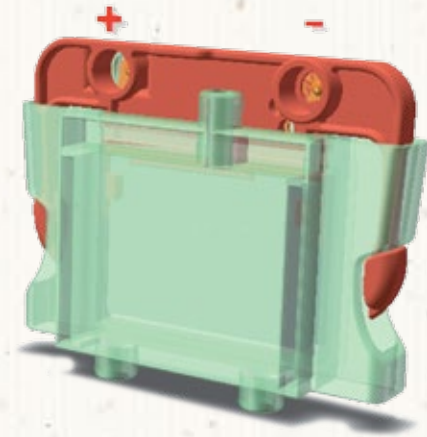
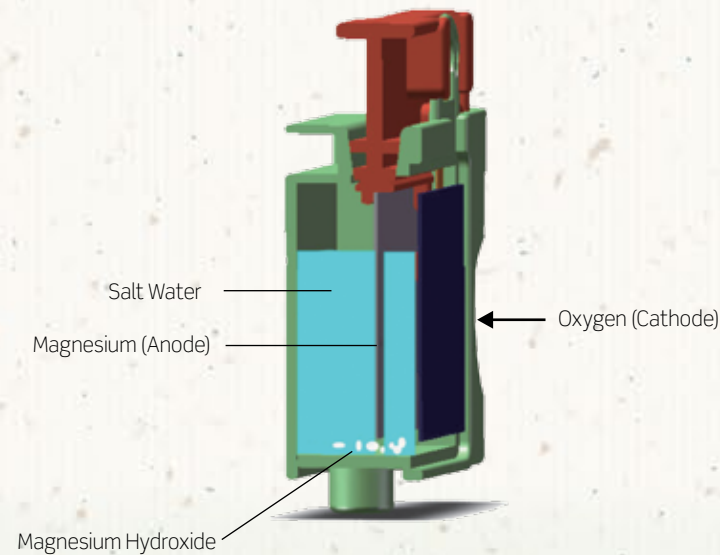
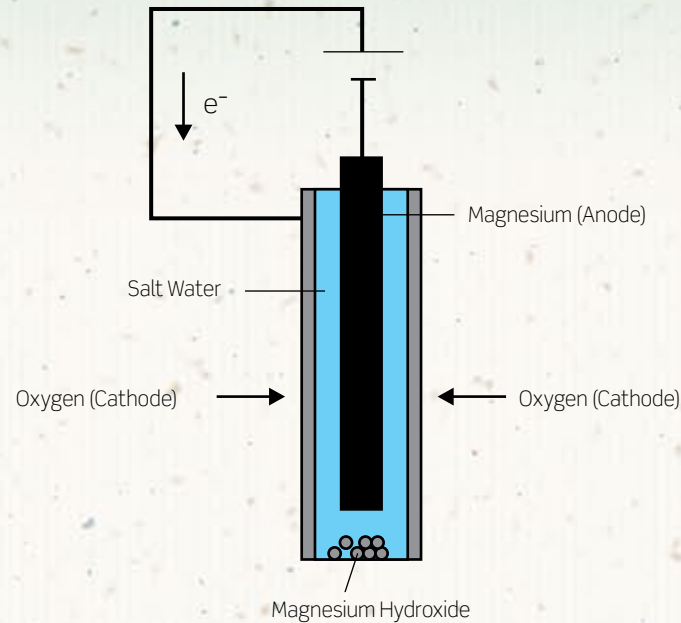
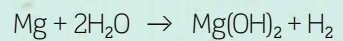
Reaction at the anode:



Reaction at the cathode:



Overall reaction:





### VOLTAGE

A voltage source (e.g., a battery) always has two poles, a positive one and a negative one. At the positive pole, there are very few electrons, while there are a lot of electrons at the negative pole. This difference in the quantity of electrons is known as **electrical voltage**, and is measured in volts (abbreviated “V”) in honor of Alessandro Volta.

If the positive and negative poles are connected, the electrons start to move. When that happens, there is a flow of **electric current**.



Electrical charge moves in a flash of lightning.



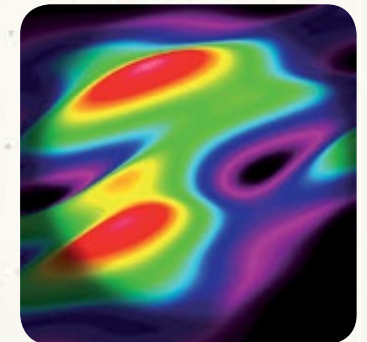
Electricity is delivered from the power plant to the outlet in your home via many kilometers of cables.

### CURRENT

When electrons move, electric current flows. The strength of the current is measured in **amperes** (abbreviated “A”). This term comes from the French physicist André-Marie Ampère, who explained the concept of electric current and determined its direction of flow.

### ELECTRON

An electron is a negatively charged particle, i.e. one that carries a negative electrical charge.



Here, scientists have attempted to photograph an electron.





## WOULD YOU LIKE TO KNOW...?

### Why is the energy from your metal-air cells considered “renewable energy”?

Renewable energy is energy that comes from a source that never gets used up. It could be energy from wind, water, or sun, for example. In the case of your metal-air cell, the sources are oxygen, salt water, and magnesium. There are practically limitless quantities of oxygen in the air, for example. The same goes for salt water from the ocean. Magnesium is also found in the ocean, with more than 1 kg/m<sup>3</sup> contained in seawater. Do you think that this kind of metal-air cell might be operated right by the ocean in the future?

### How can you make more salt water?

You can easily mix up a new supply of salt water by using the bottle supplied in your kit. For water with 15% salt, pour salt up to the bottle’s 15% mark. As you do that, gently tap the bottom of the bottle against the work surface to distribute the salt evenly. Then fill the bottle up to the top line (the water line) with water. Put the lid on and shake well to make the salt dissolve. For water with different salt concentrations, simply fill to the corresponding mark on the bottle.

### Why are the magnesium plates stained, and why won’t they work any longer?

As you know, the salt water reacts with the magnesium metal. In the process, deposits are formed. You should remove the deposits after each use if you want the magnesium plate to continue to work well. You will see on page 12 how to do that. This will help prolong the lifespan of the plates.

### Is it OK to pour the contents of the tank down the drain?

It’s also important to know that the “waste products” created in the process of generating the energy are not harmful to the environment. The basic “waste product” of magnesium hydroxide — the white powder that’s created — can be used as a medicine, among other things. Taken in tablet form, it neutralizes stomach acids and acts as a laxative. It is also used as an acid regulator or release agent in foods. So you can pour this powder down the drain without any worries.

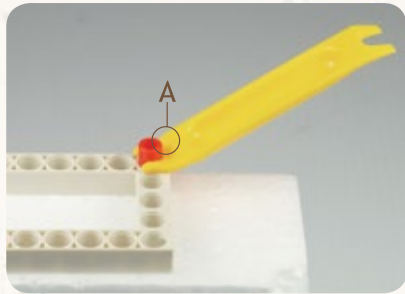
### What should you do when all the magnesium plates are used up?

If you take care of the plates properly, they will last a long time. But if you do eventually use them up, you can order replacement magnesium plates. The web site, telephone number, or e-mail address to use for ordering them is on the back side of the kit package.



## ANCHOR PIN LEVER

Use side A of the anchor pin lever to pull out an anchor pin.

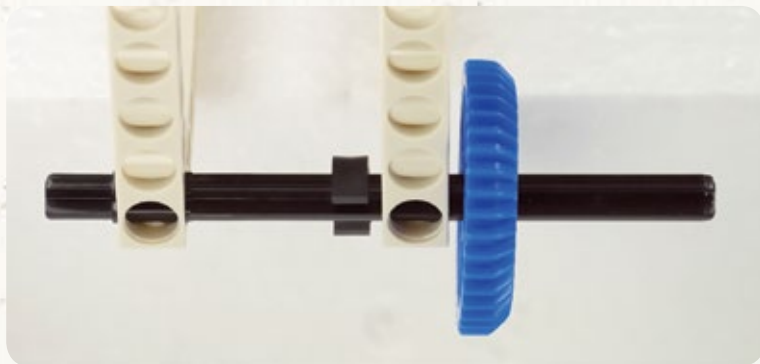


Use side B of the anchor pin lever to remove a battery from the battery holder.



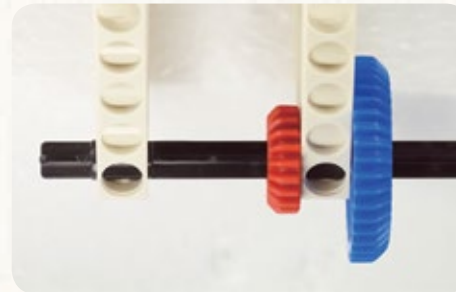
## AXLE LOCK

Axle locks prevent things like gears from slipping along an axle or shaft. You can easily mount or remove the axle locks without having to remove the wheel from the axle.

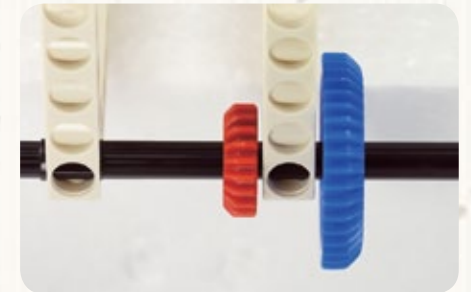


## MOUNTING FRAMES AND GEAR WHEELS

When you mount a gear wheel on an axle or shaft next to a frame, you should leave a gap of at least 1 mm between gear and frame. This will reduce the friction while operating the model, and it will help the model work well. Always check this before starting up one of your models by rotating the gear wheels.



**Wrong!** (no space)

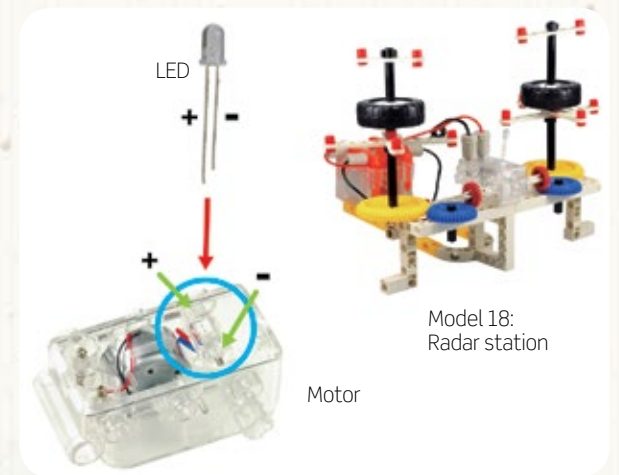


**Right!** (with space)

## LIGHT-EMITTING DIODE (LED)

The LED lights up when the motor runs.

If the LED doesn't come on when the motor runs, remove it, rotate it 180 degrees, and re-insert with the prongs in the opposite holes.



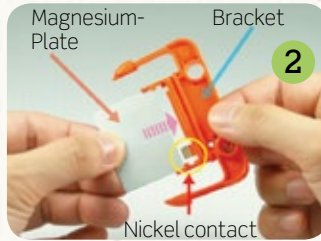




**1. First, prepare some salt water.** For water with 15% salt: Pour salt into the bottle up to the 15% mark, and then fill to the top line (the water line) with water. For water with other salt concentrations, simply fill to the corresponding mark on the bottle.



**2. Slide the magnesium plate into the holder.** Make sure that the plate touches the nickel contact.



**3. Click the holder with the magnesium plate into the tank.** Make sure the holder is fully inserted.



**4. Done!** Check one more time to be sure everything is properly assembled.



**5. Attach the metal-air cell to your car.** (You have to build one of the models following the instructions starting on page 17.)



**6. Connect the connection wire to the metal-air cells.**



**7. Draw salt water into the syringe.**



**8. Inject the salt water into the tank** (no higher than the top fill line), and your car takes off!





## ECO-BATTERY VEHICLES | How to clean your metal-air cells

It is important that you do not let your metal-air cells remain filled while they are not being used. They should be cleaned following every use. This will prevent the buildup of deposits and increase the lifespan of the plastic parts and the magnesium plates.

1. Press the two clamps together on the orange-colored holder. This way, you can easily release and remove the holder from the tank.



2. Once you have separated the parts, you can clean the magnesium plates with sandpaper. Ideally, do this outside and don't inhale the dust. As you clean them, lay the plates on a damp paper towel. You can also moisten the sandpaper, which will help control the dust.



3. Then clean the holder with the brush that comes with the kit. Clean it under cold running water. Pour the tank contents down the drain with water. Be careful not to let the tank contents come into contact with your skin or eyes. Thoroughly rinse the tank and sink with water. Place all the objects on paper towels and let them dry well. After cleaning the metal-air cells, wash your hands with soap.







You can run your cars directly from the metal-air cells. Or, you can charge rechargeable batteries with the metal-air cells and use those to power your models.

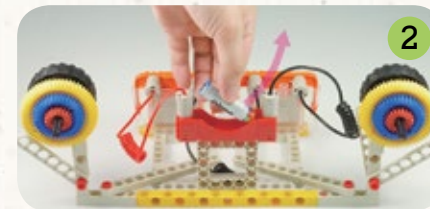
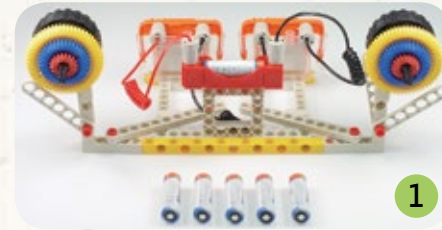
1. Assemble your charging station (Model 1). You can charge six batteries with two metal-air cells. Never charge a battery longer than three hours. If you charge a battery for one hour, it will power a model for one to five hours.

When you insert the rechargeable battery into the red charger, pay attention to the (+) and (-) symbols in the charger and on the battery. You will need two charged batteries for the yellow battery holder.

2. Remove the battery from the charger after you have charged it for one hour. Remember to clean the metal-air cells if you won't be charging any more batteries.

3. Insert two charged batteries into the yellow battery holder and connect the wire to the motor. The next page will explain exactly how to do that.

4. Now your car is ready to take off! The yellow battery holder can be attached to all the models in this kit.





## ECO-BATTERY VEHICLES | How to use the battery holder

As you have already seen, there are lots of ways you can supply your models with energy. The simplest way is to operate the models directly from the metal-air cells. But you can also use batteries or rechargeable batteries. Non-rechargeable batteries are the worst alternative, because they are the worst environmental polluters. Since you can't recharge them, you have to throw them away when they're used up. Here are the instructions for placing the batteries or the rechargeable batteries in the battery holder.

1. Take a careful look at the battery holder. On the inside, you will find a mark that shows you how to insert the batteries.



2. Attach the connecting wire to the battery holder.



3. Take a 1.5-volt battery (type AA / LR6 / penlight) and orient it so the positive terminal ((+) symbol) of the battery lines up with the (+) symbol in the battery holder. To insert the battery, start by pushing down on the spring in the holder with the other end of the battery (negative terminal, (-) symbol). Only then should you lower the battery's positive terminal into the compartment by exerting light downward pressure until the battery clicks into place. Proceed the same way with a 1.2-volt rechargeable battery (type AA / penlight).



4. Repeat this same procedure with the second battery. Always use either two non-rechargeable batteries or two rechargeable batteries. Never use rechargeable and non-rechargeable batteries together! Always be sure to pay attention to the polarity (plus and minus symbols) marked in the battery holder.



5. Attach the battery holder to your model.



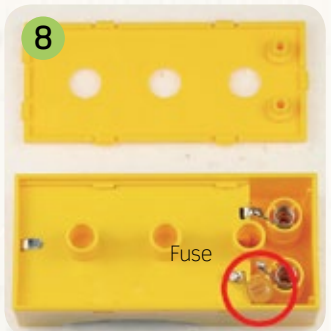
6. Connect the free wire ends to the motor.



7. Your model is ready to go!



While your battery holder does have a fuse, it's still important to avoid creating a short circuit. If a short circuit does happen to occur, however, the fuse will prevent the batteries and wire from overheating or exploding. The fuse will reset itself following a short circuit. It does not have to be replaced or repaired.







## EXPERIMENT 1

Does it make sense to you that the concentration of salt in the water and the fill level of the tank might determine how long your model will run?

This is exactly what we tested in our laboratory. You can perform the same experiment too. Off you go!

1. First, assemble Model 17 (Ballet dancer). In our lab, we just hooked up a single metal-air cell in order to avoid having to use a lot of magnesium plates.
2. Next, prepare a 5% salt water solution (see page 9 for instructions). Fill the tank 1/3 of the way with the solution. Note the time at which the dancer starts to spin. Now you just have to wait. How long will the model spin? Finally, note the time it stops and calculate the total duration. Clean the cells following each use.
3. Fill the cells all the way to the top line with the 5% salt water solution. Note the start and stop times again.
4. Now for part 2 of the experiment: Repeat steps 2 and 3 with a 15% salt water solution.
5. This table is for your research record. Enter how long the model ran with each salt water solution and each fill level.

Salt water solution: 5 %				Salt water solution: 15 %			
Tank level: 1/3		Tank level: full		Tank level: 1/3		Tank level: full	
START time	STOP time	START time	STOP time	START time	STOP time	START time	STOP time
Duration		Duration		Duration		Duration	

**Finding:** The concentration of salt in the water and the fill level in the tank influence the quantity of chemical energy that can be produced and converted into electrical energy.



## EXPERIMENT 2

Which has more power? Your metal-air cell or a charged battery? See for yourself!

1. Assemble Model 17 (Ballet dancer) again, but this time attach two metal-air cells.
2. Prepare a 15% salt water solution (instructions, page 9). Fill the tank 1/3 of the way with this solution. Note the time at which the dancer starts to spin. Now you just have to wait. How long will the model spin? Finally, note the time it stops and calculate how long it turned.
3. Now, instead of the metal-air cells, hook up the battery holder and insert two fully-charged rechargeable batteries (see page 14 for instructions). The dancer will start to spin. How long will the batteries keep the model turning?
4. Note the results in your research record:

Salt water solution: 15 %			Battery		
Tank Level: 1/3		Duration	Tank level: 1/3		Duration
START time	STOP time		START time	STOP time	

## IDEAS FOR MORE EXPERIMENTS

Try Experiments 1 and 2 with different models. Can you see a difference? What other factors influence how long a model runs?

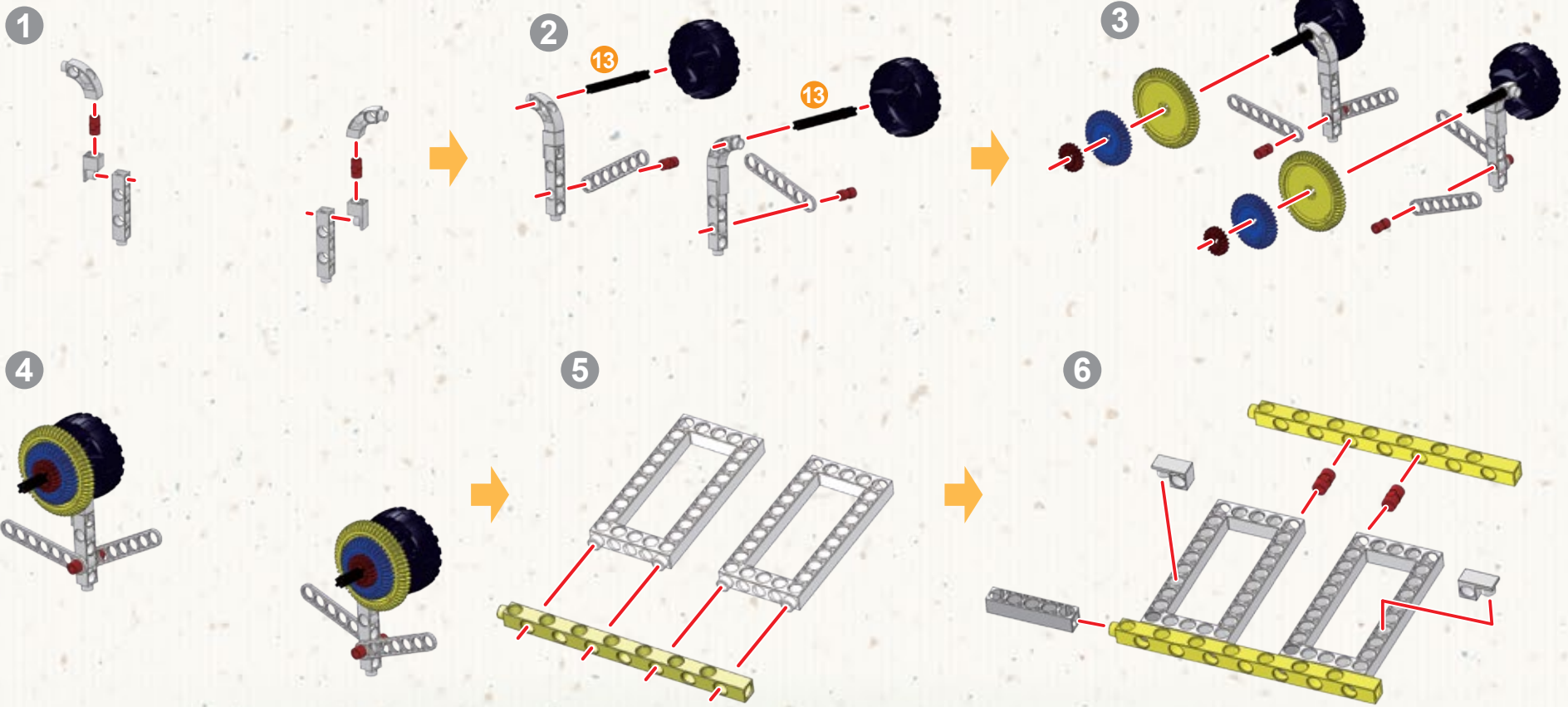
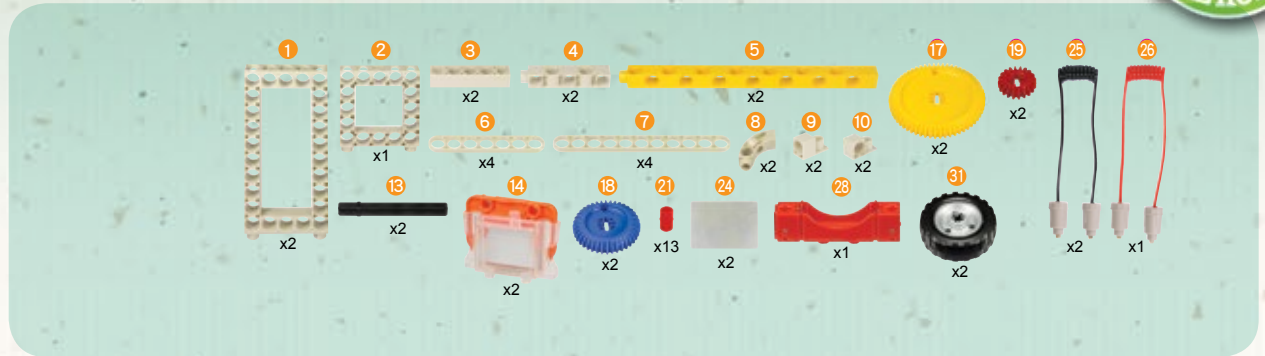
Does your vehicle have enough power to drive up an incline? Try seeing how it drives on different surfaces (carpet, tile, wood floor).

Attach the LED to your model's motor (see page 10 for instructions). Do your metal-air cells supply enough energy to make the vehicle drive and the LED light up at the same time?





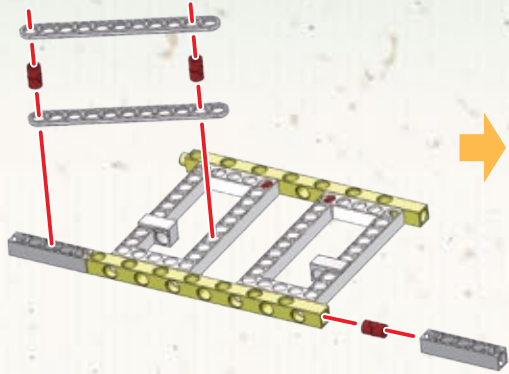
Charging Station



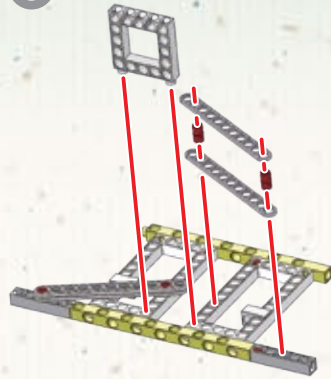


# ECO-BATTERY VEHICLES | Model 1 Charging Station

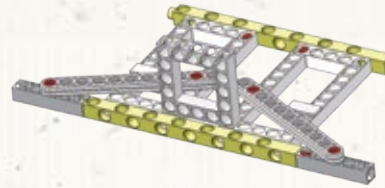
7



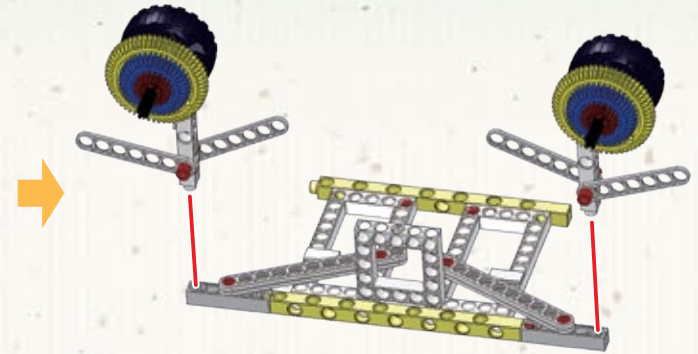
8



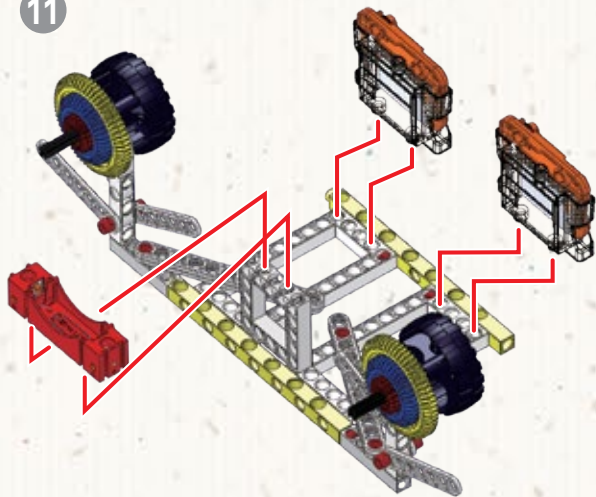
9



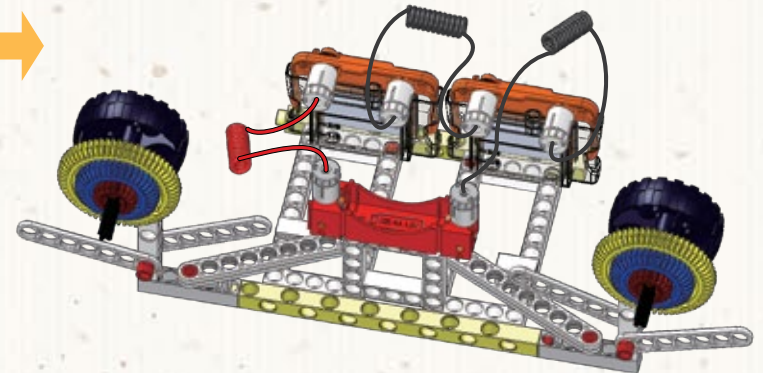
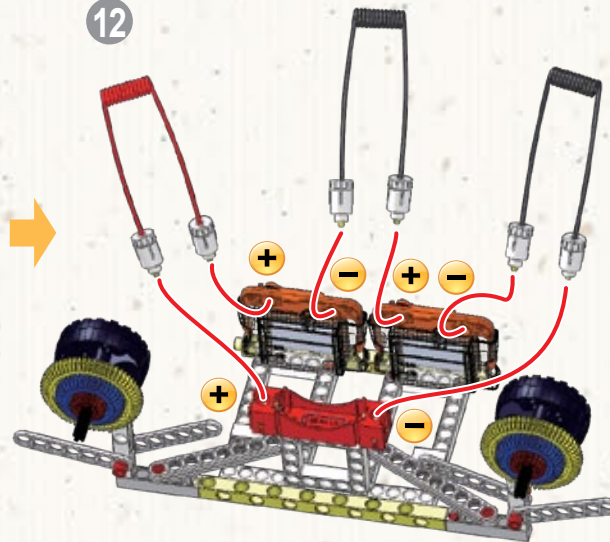
10



11



12

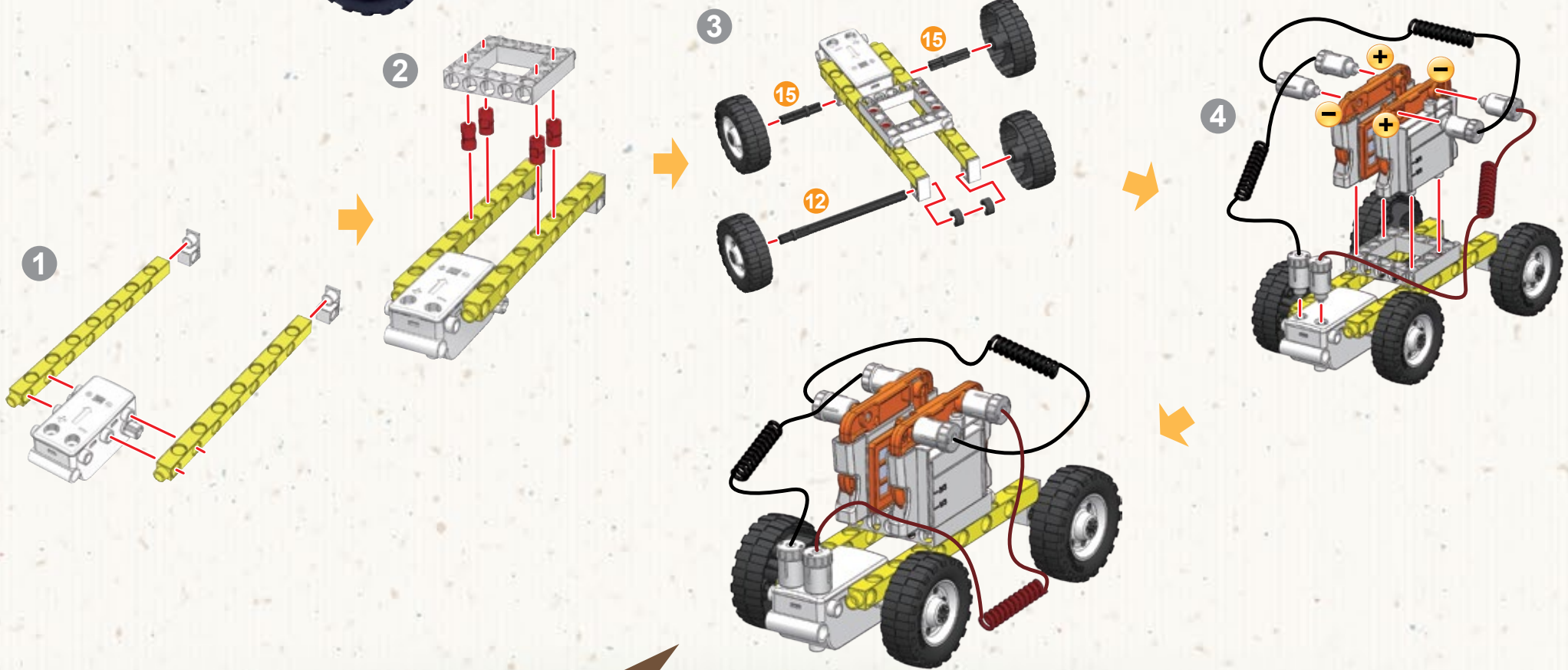
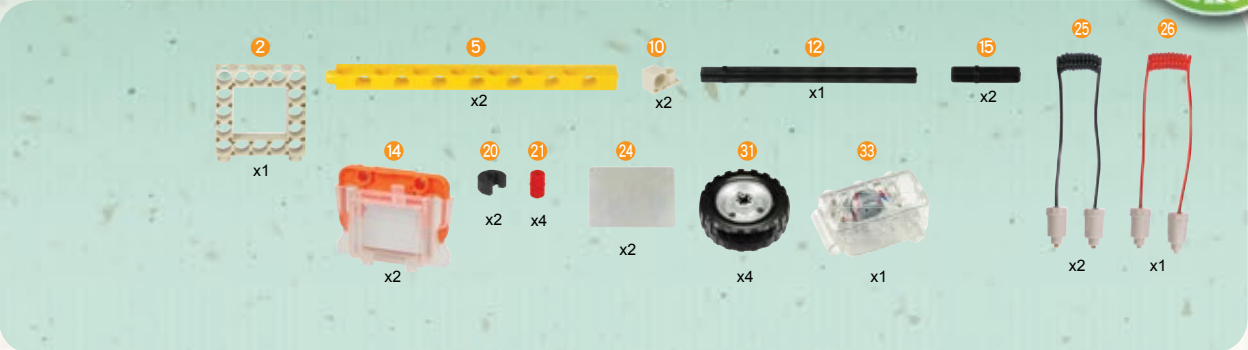


Completed





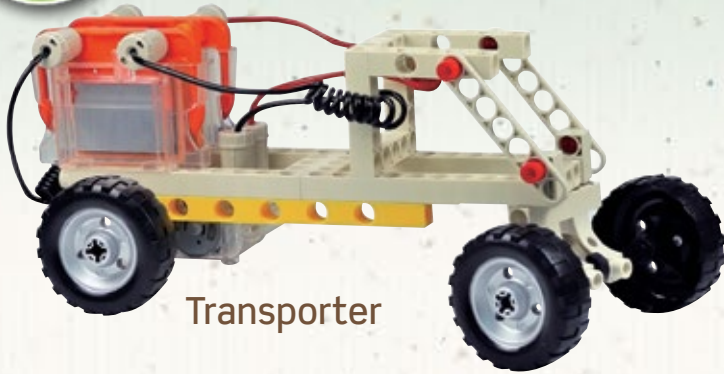
Taxi



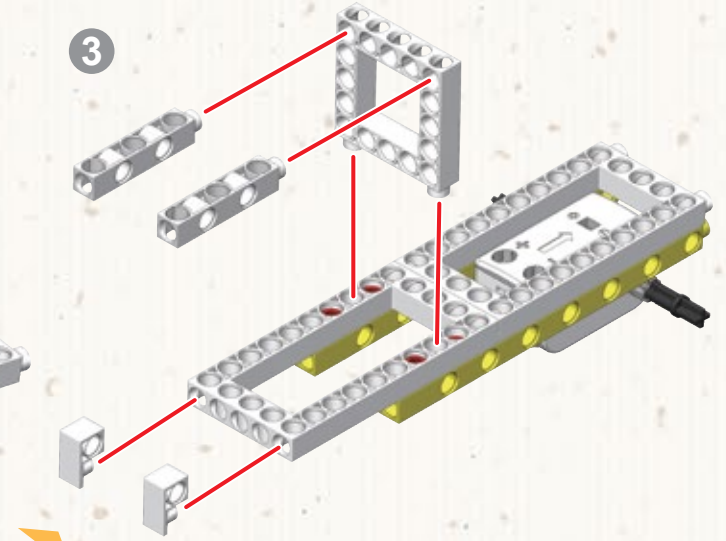
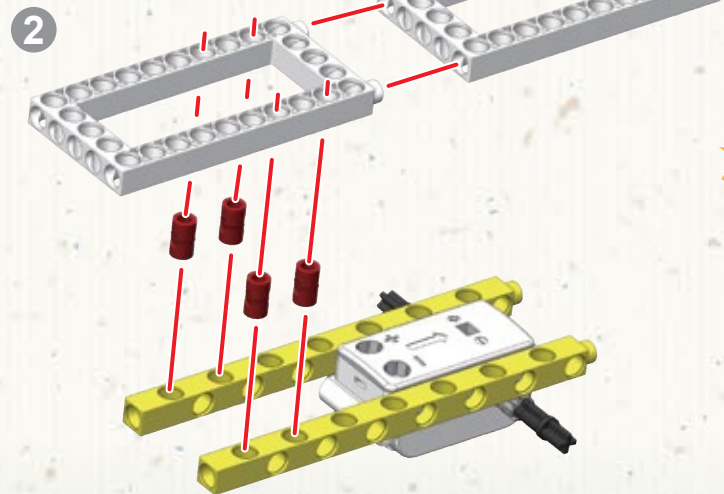
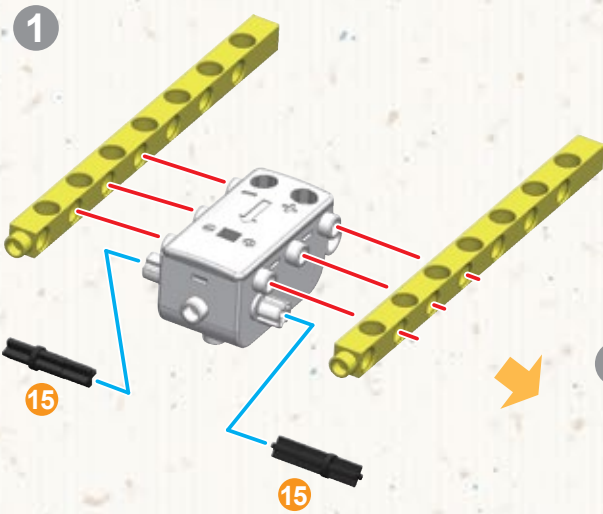
Completed



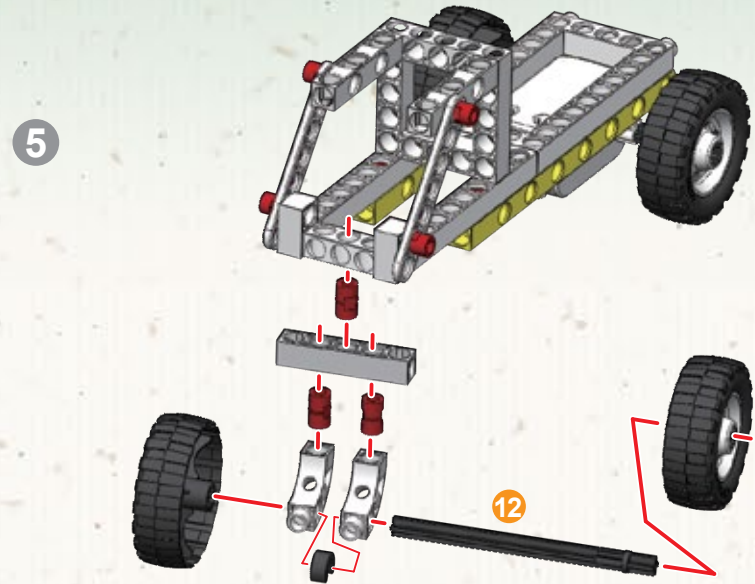
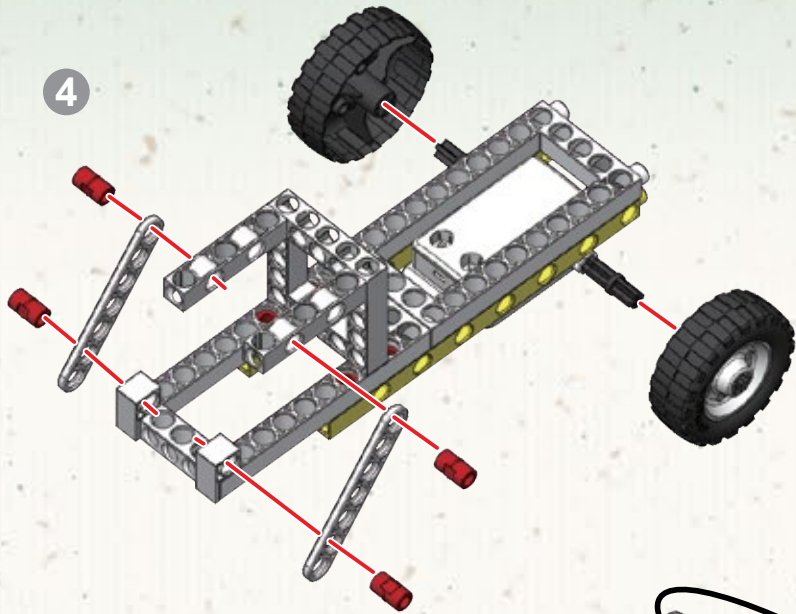
# ECO-BATTERY VEHICLES | MODEL 3 Transporter



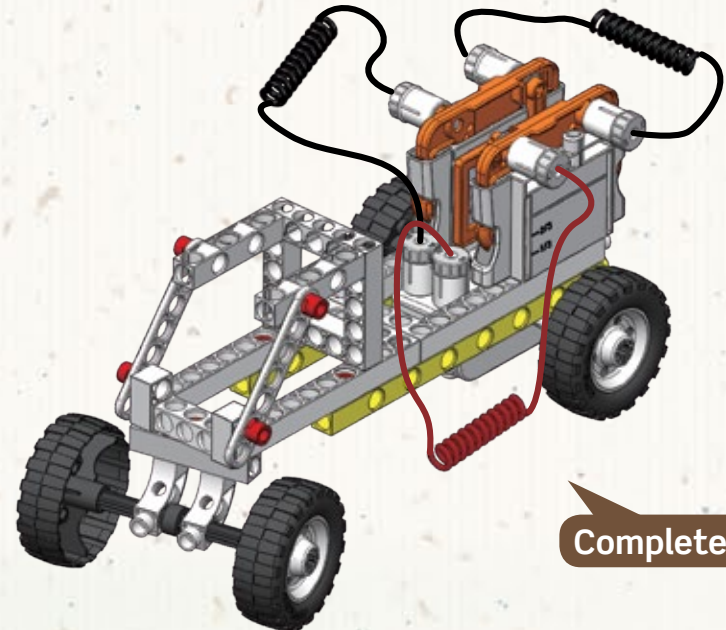
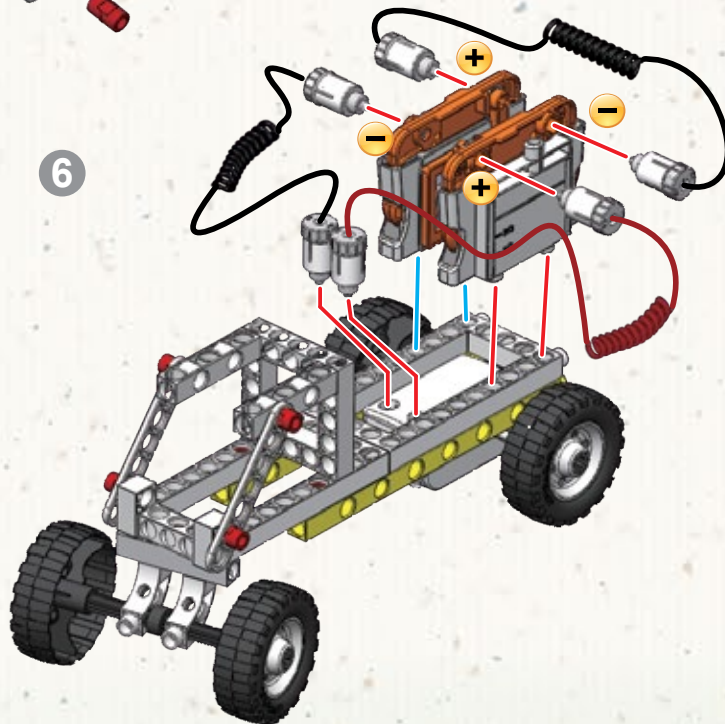
Transporter







Be sure that the quarter-wheel segments are mounted upright on the axle.



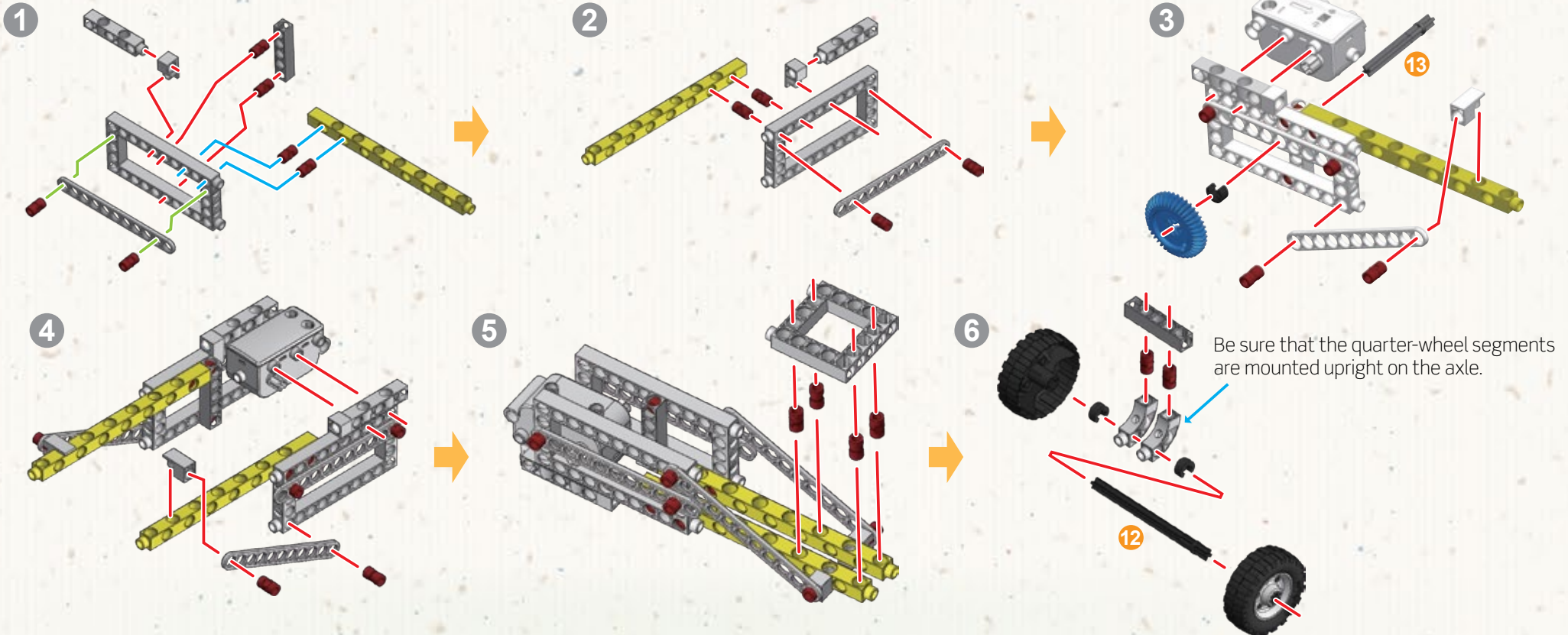
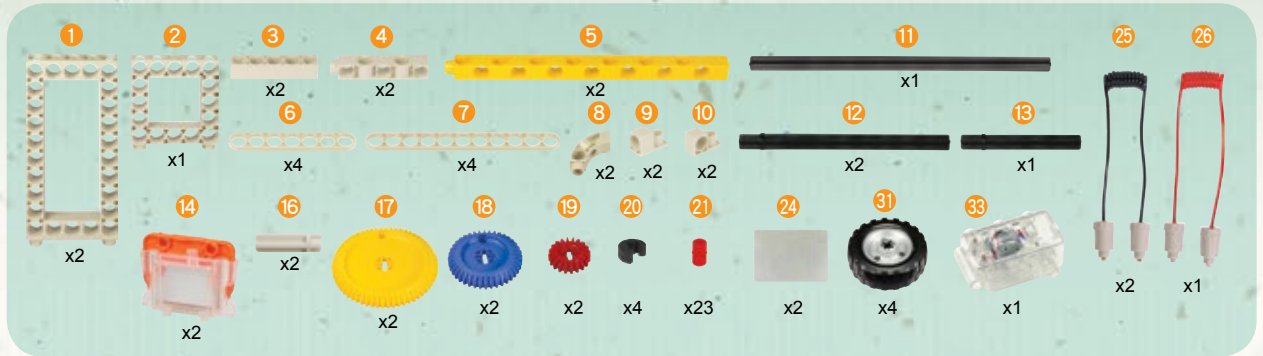
Completed



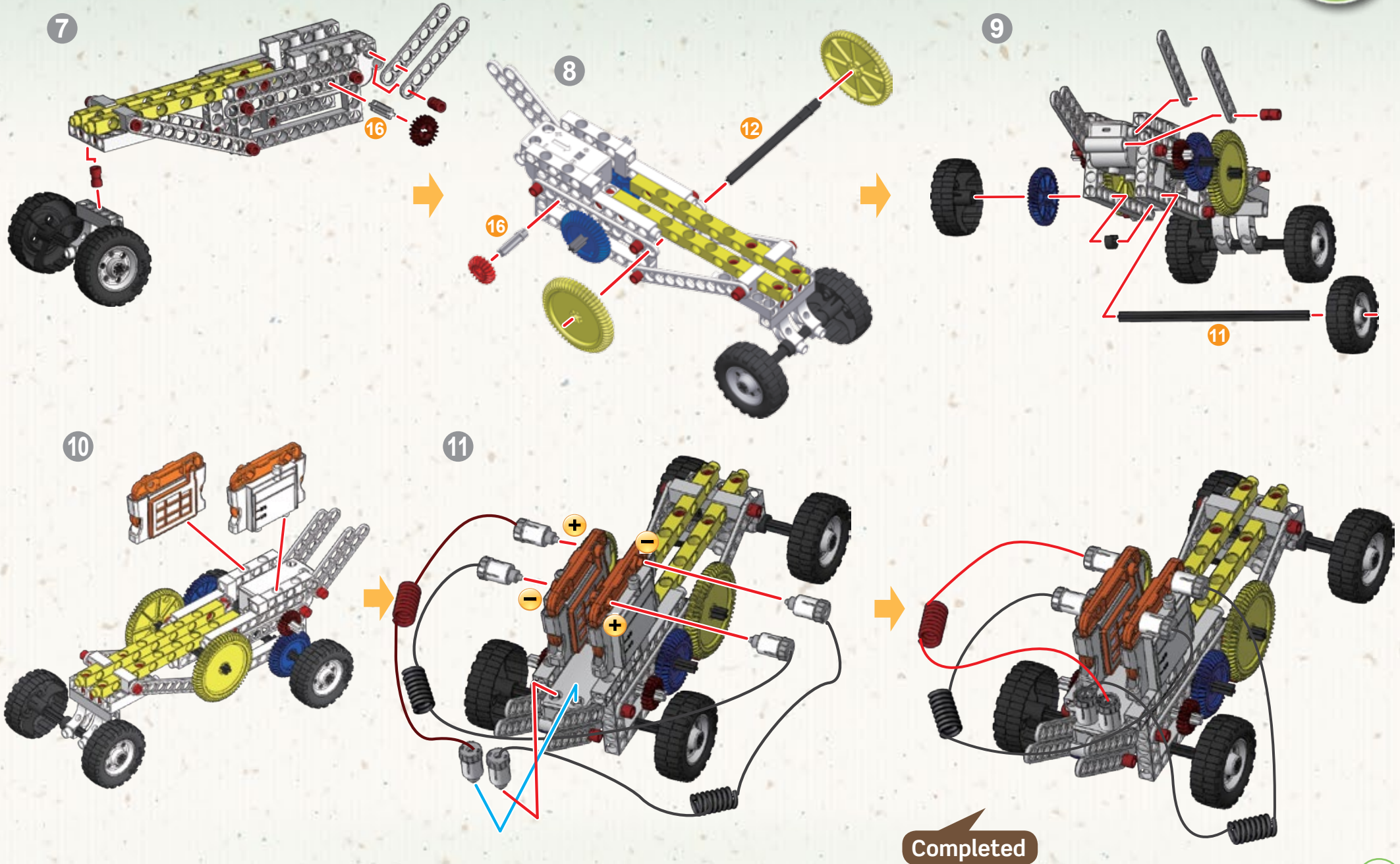
# ECO-BATTERY VEHICLES | MODEL 4 Roadster



Roadster

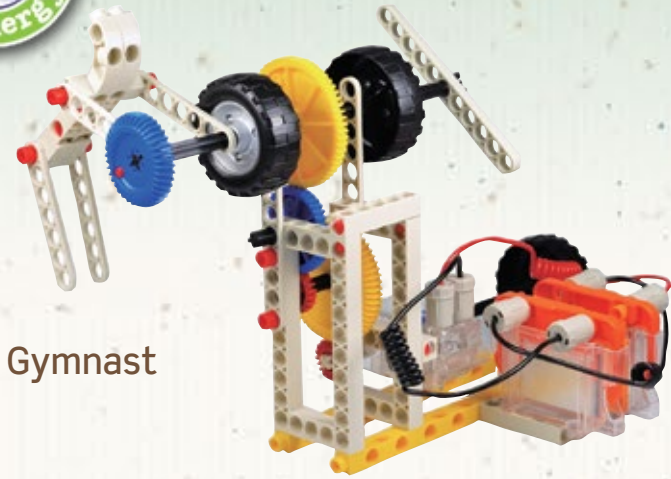




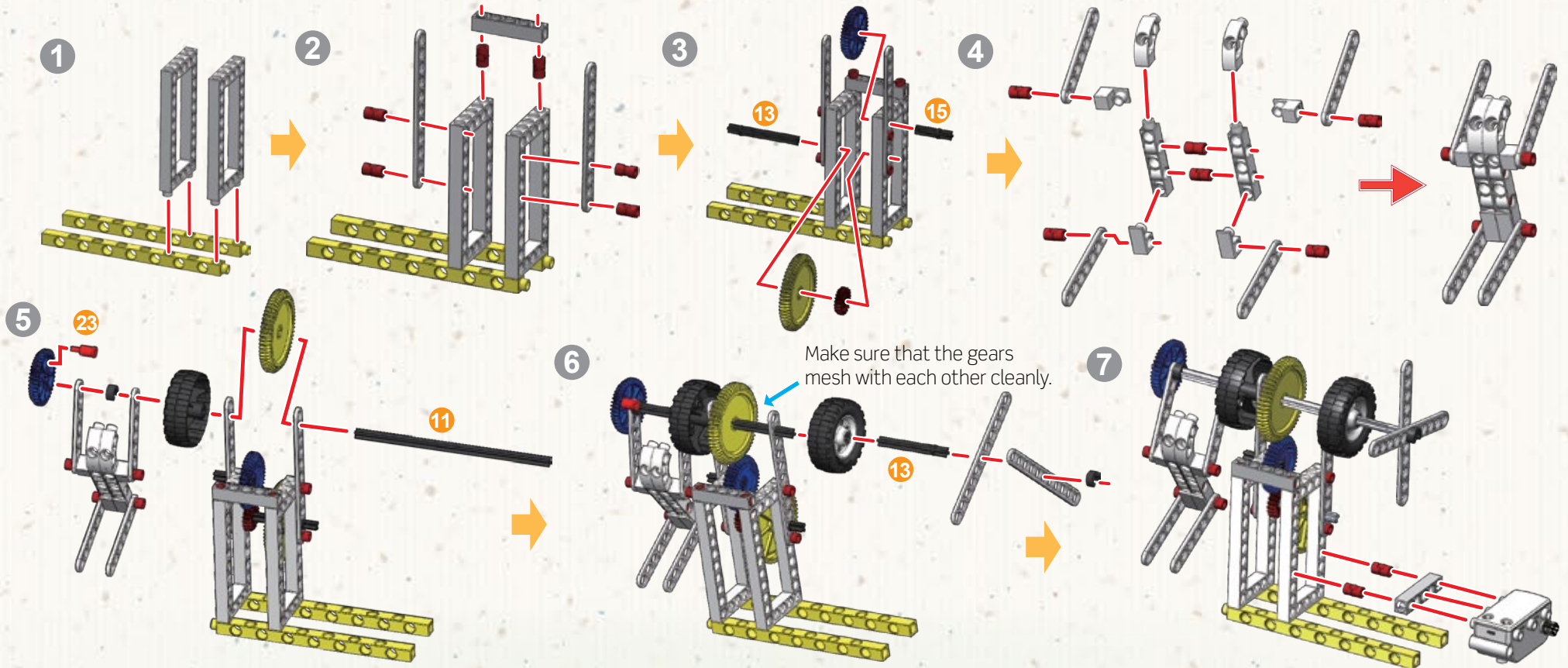
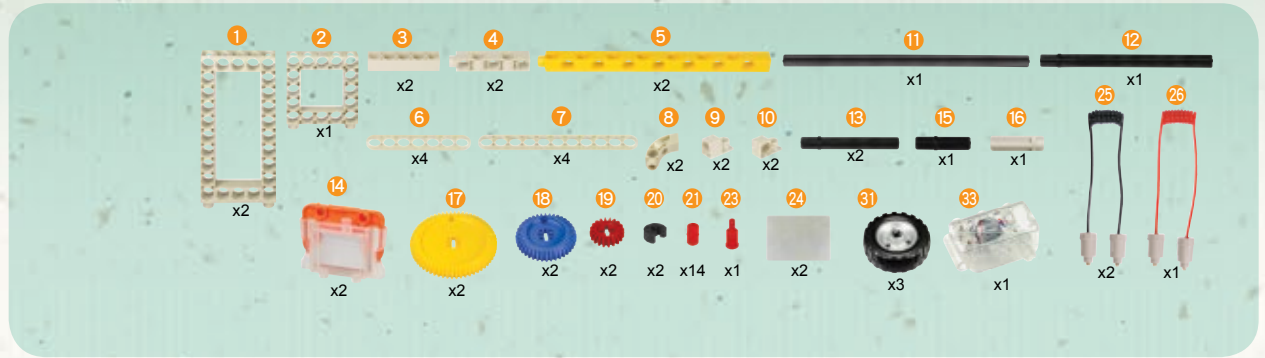




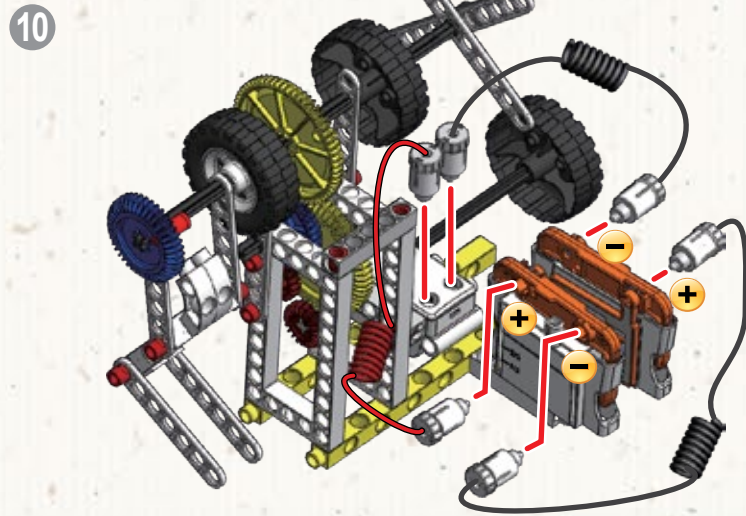
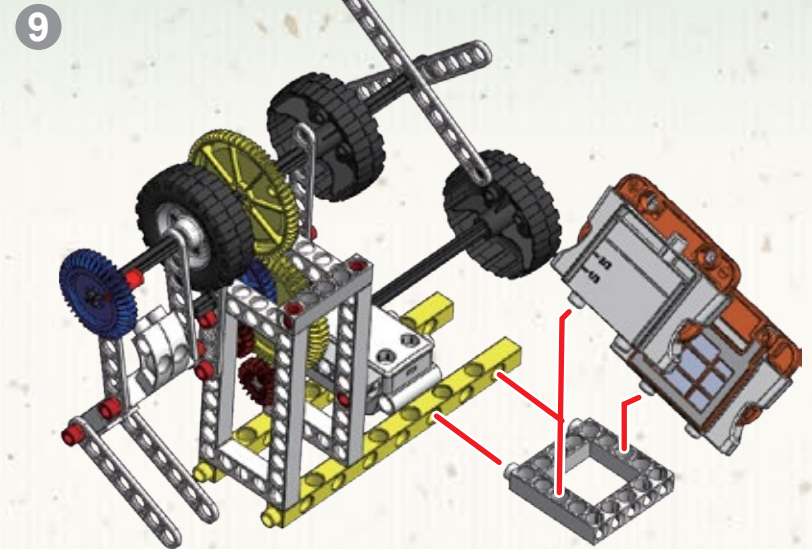
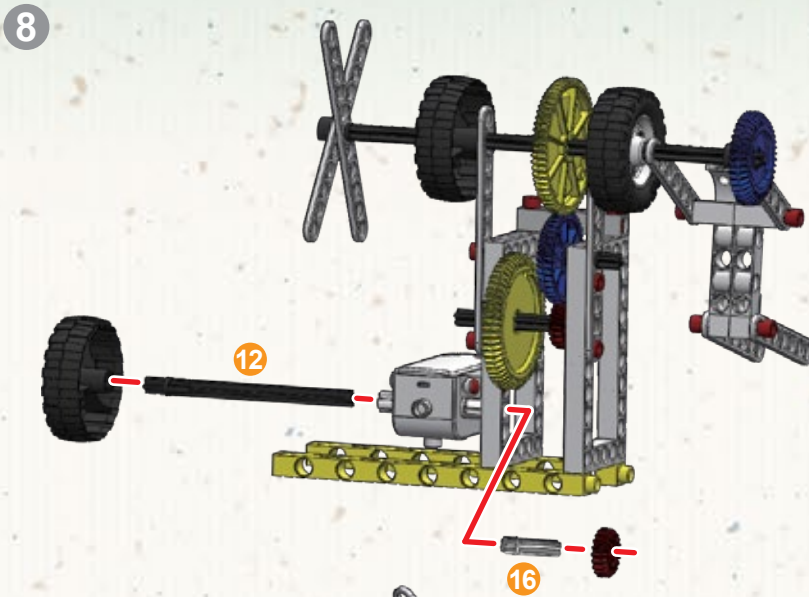
# ECO-BATTERY VEHICLES | MODEL 5 Gymnast



Gymnast







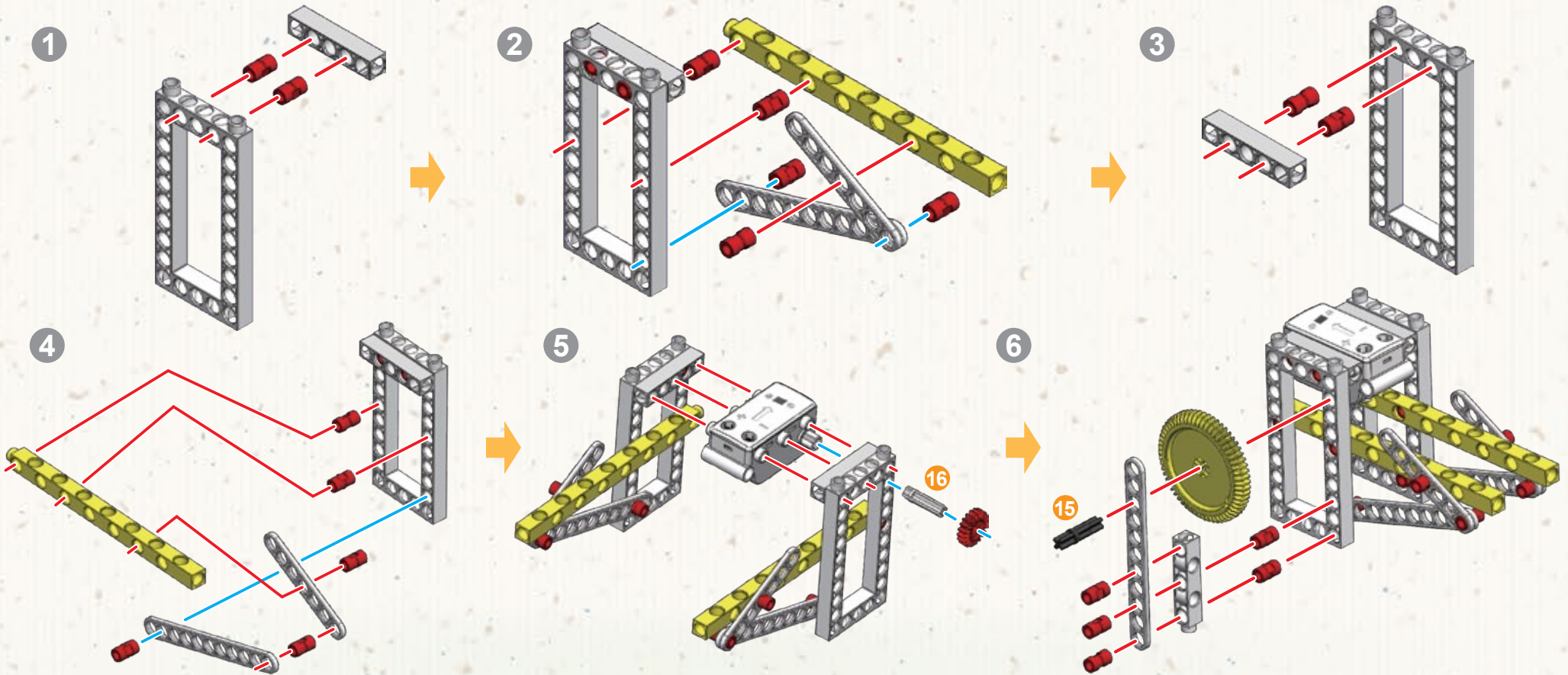
Completed



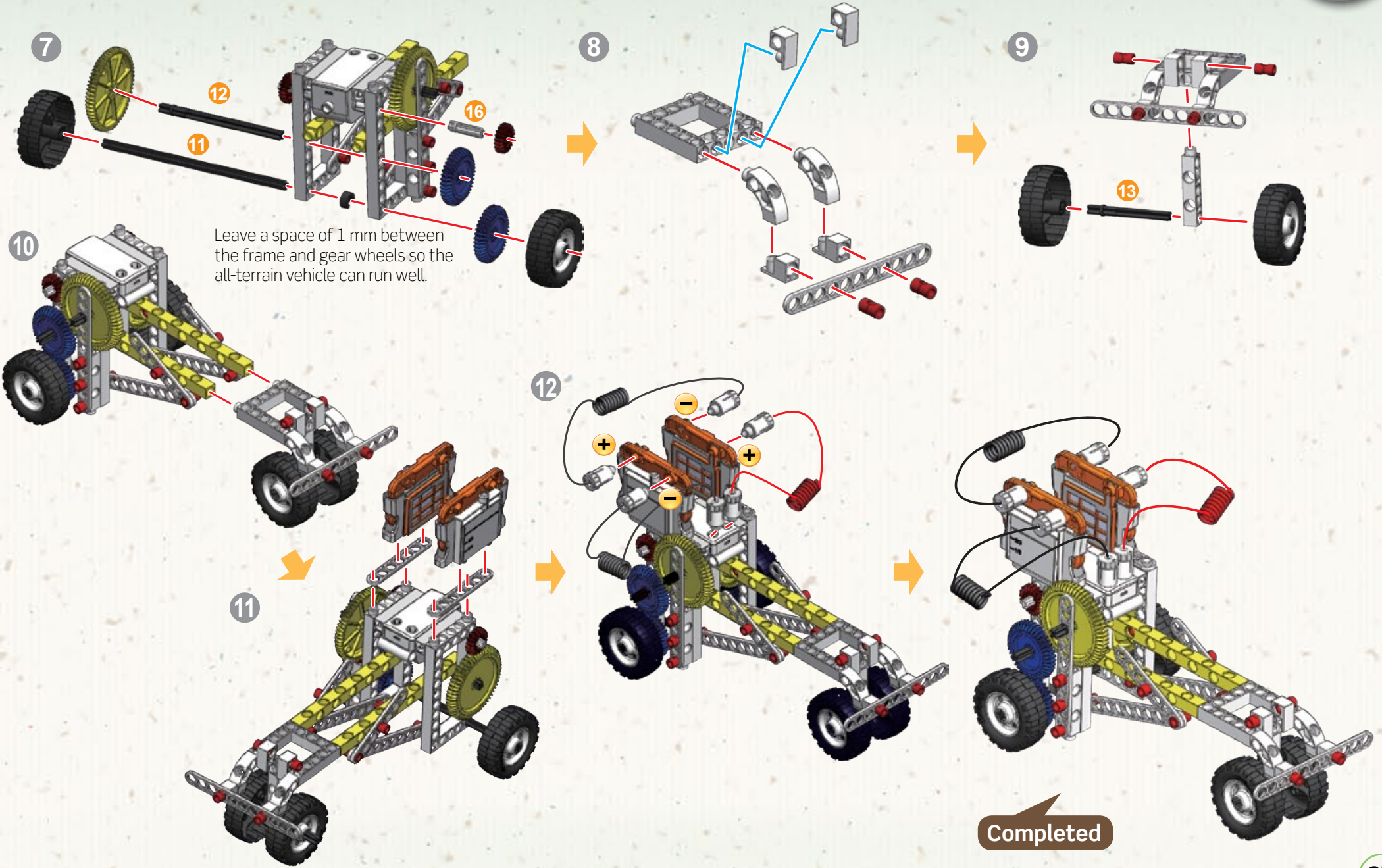
# ECO-BATTERY VEHICLES | MODEL 6 All-terrain vehicle



All-terrain vehicle





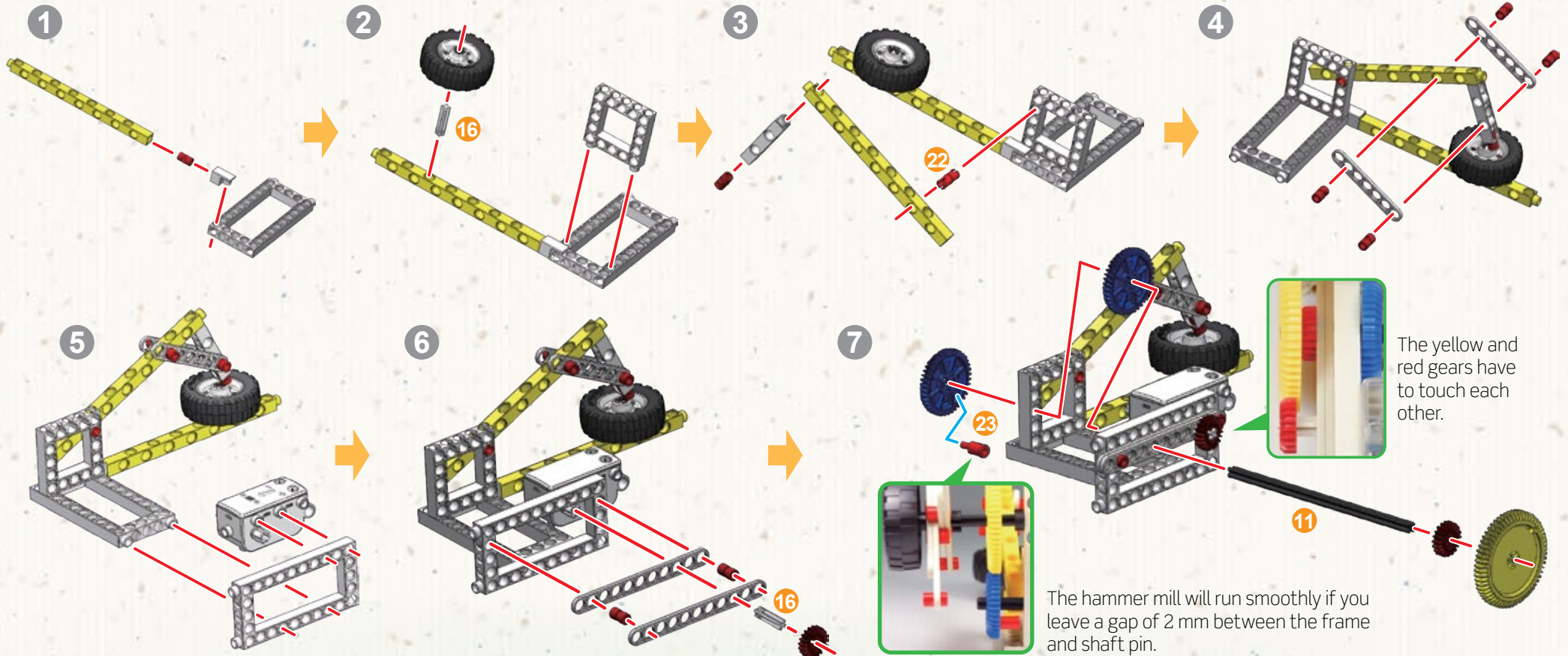
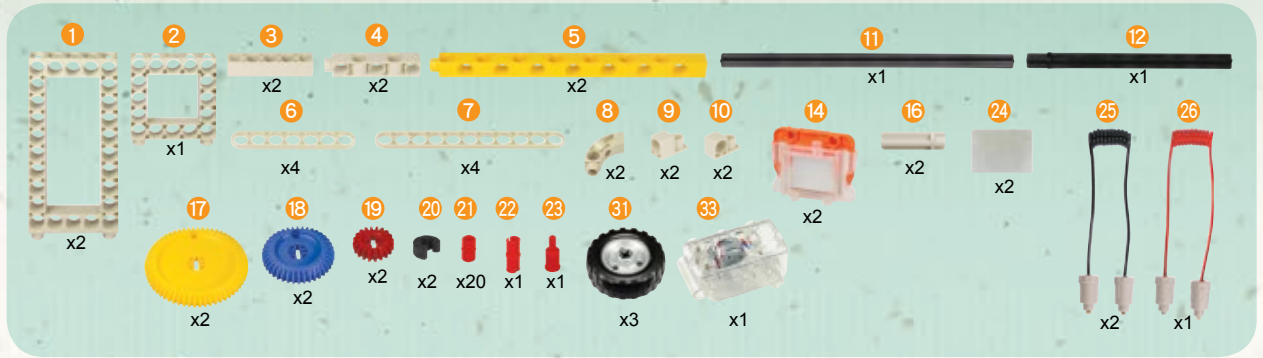


Leave a space of 1 mm between the frame and gear wheels so the all-terrain vehicle can run well.

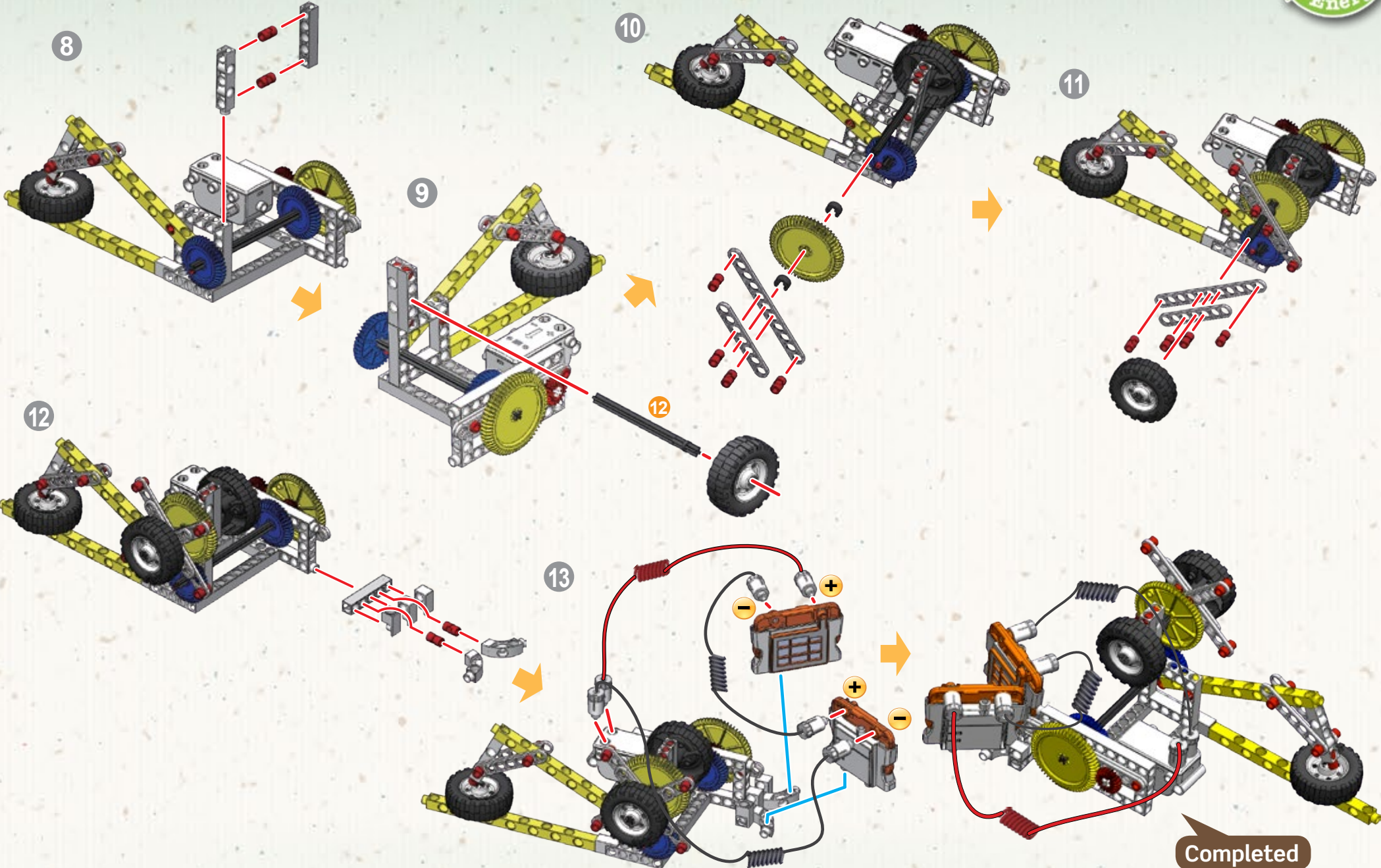


# ECO-BATTERY VEHICLES | MODEL 7 Hammer mill

## Hammer mill

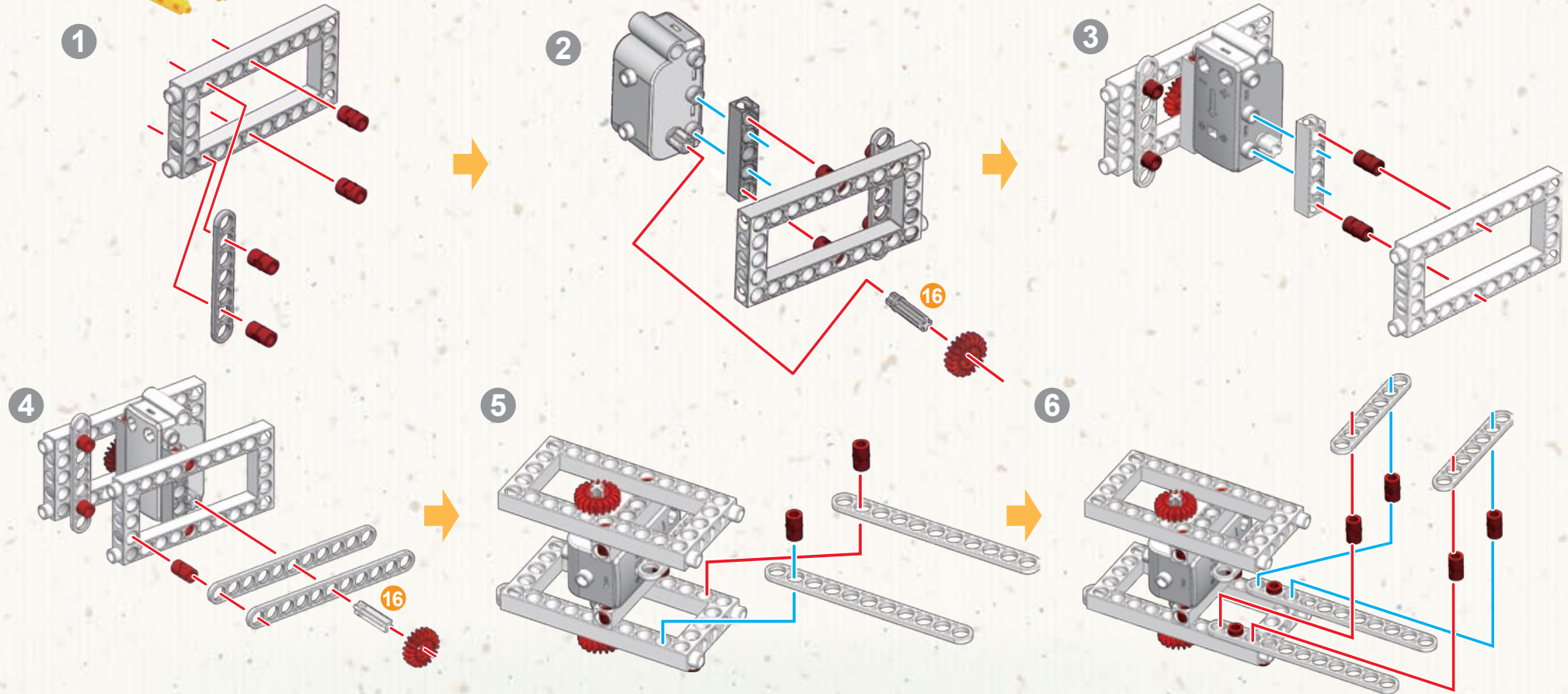




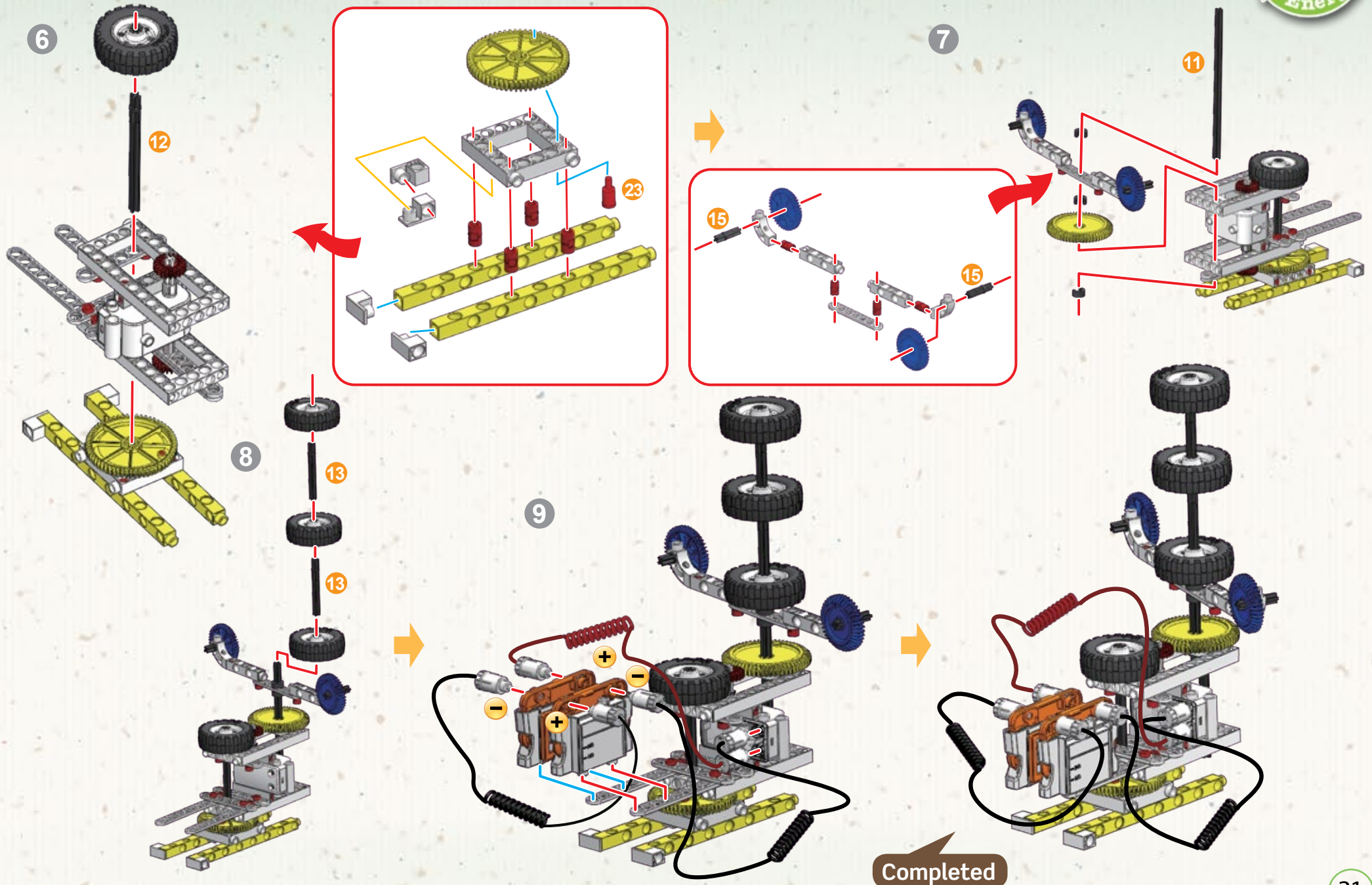




# ECO-BATTERY VEHICLES | MODEL 8 Carousel





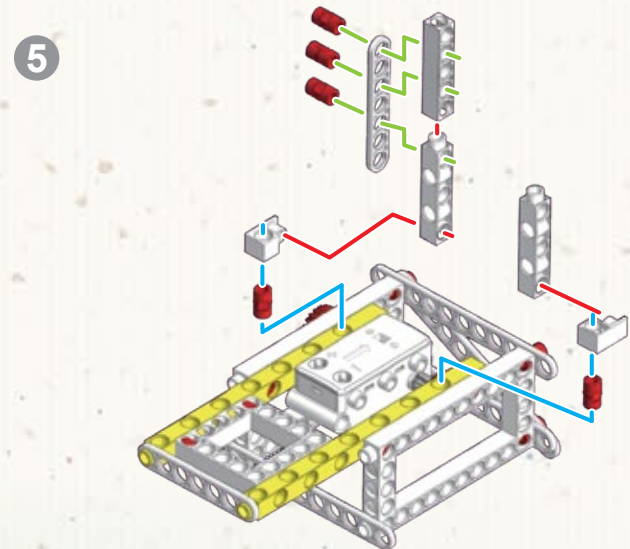
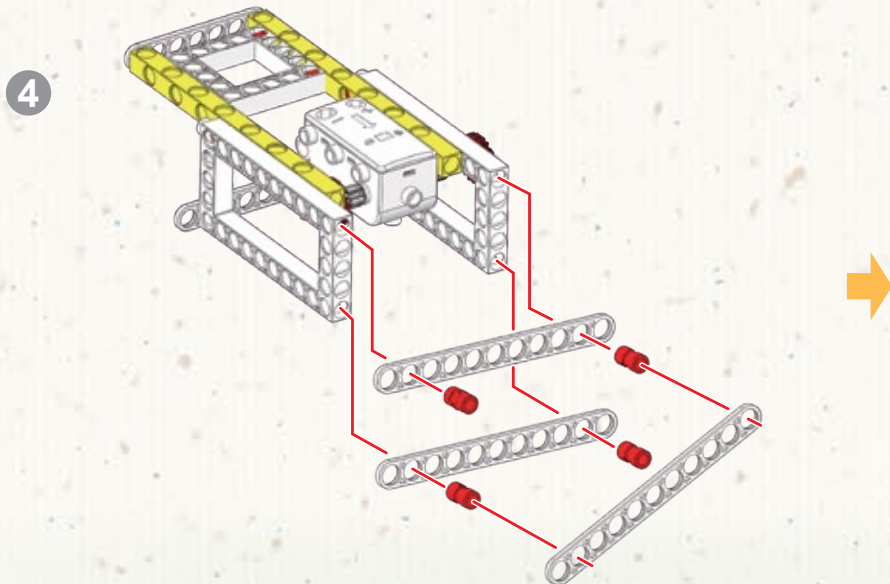
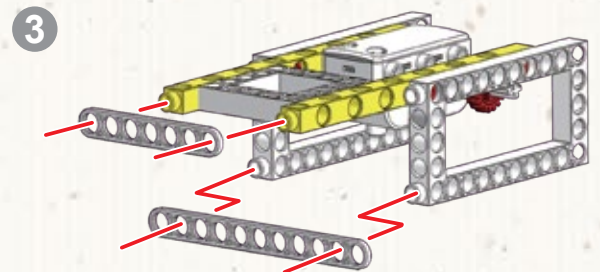
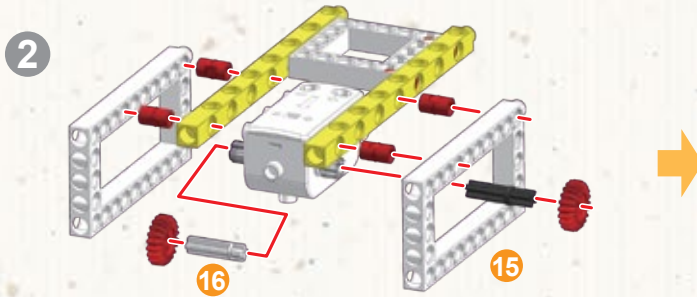
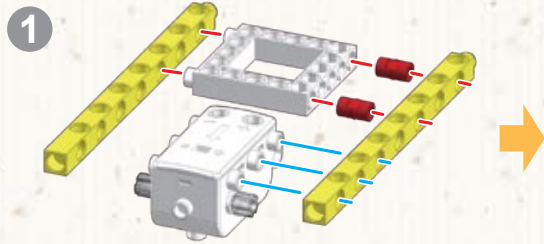


Completed

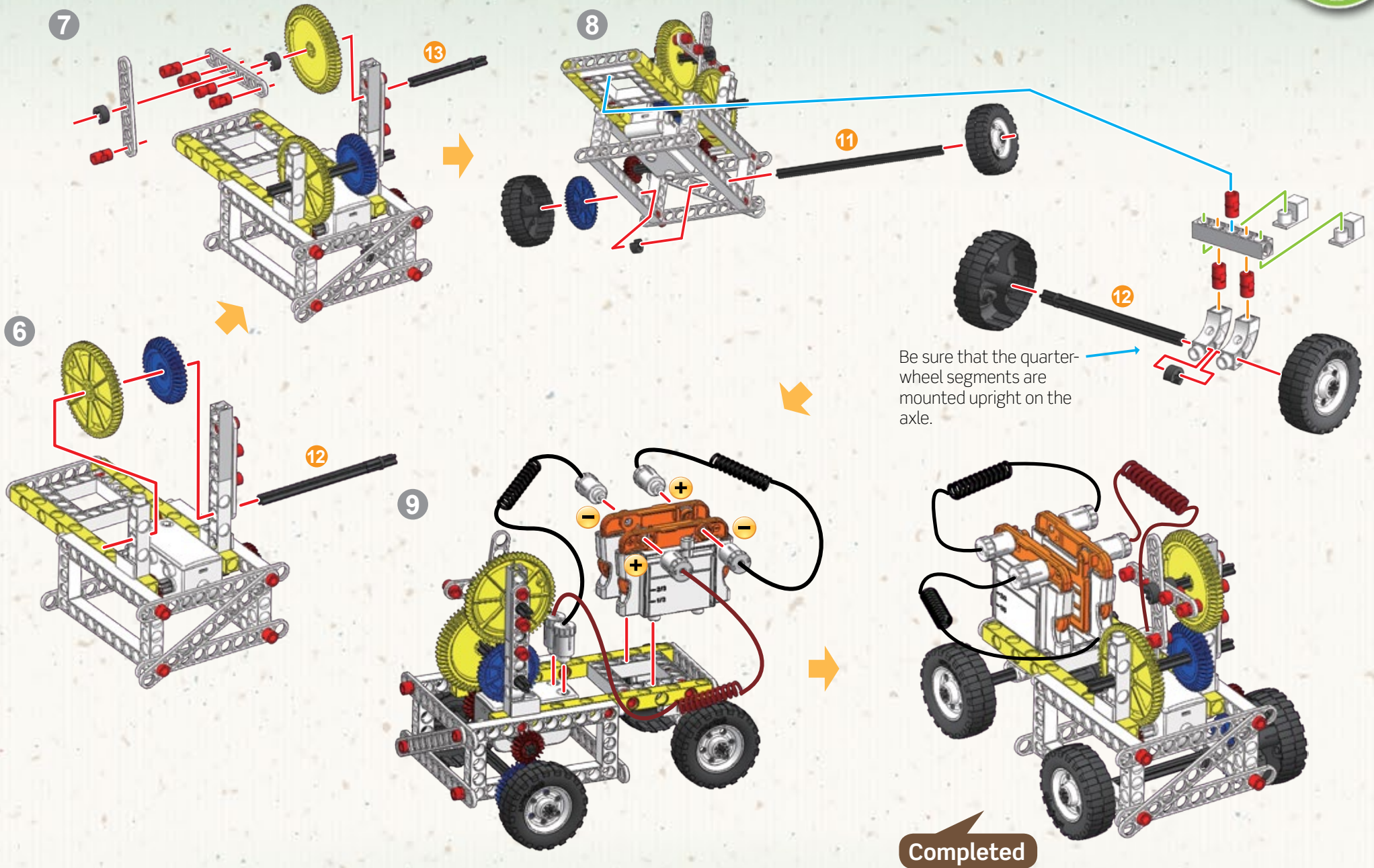


# ECO-BATTERY VEHICLES | MODEL 9 Jeep

Jeep



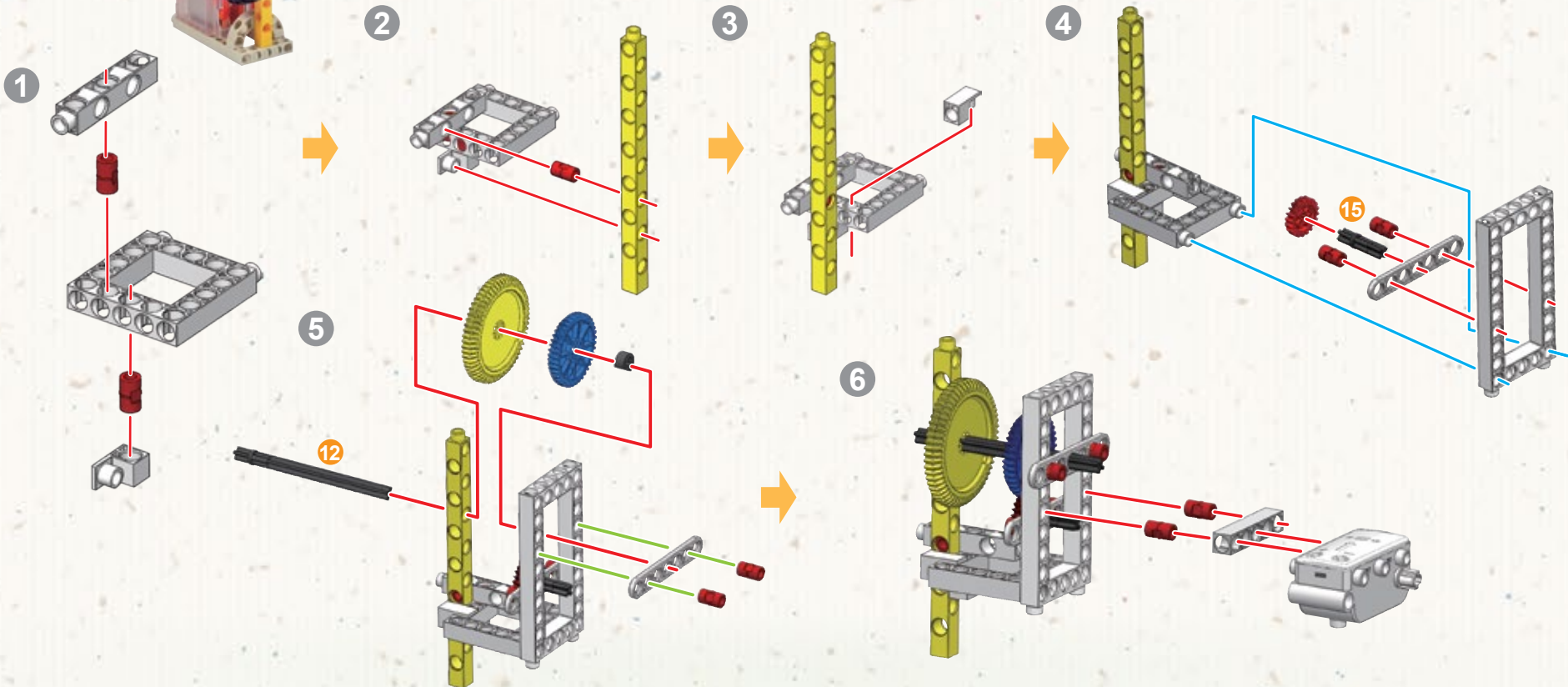




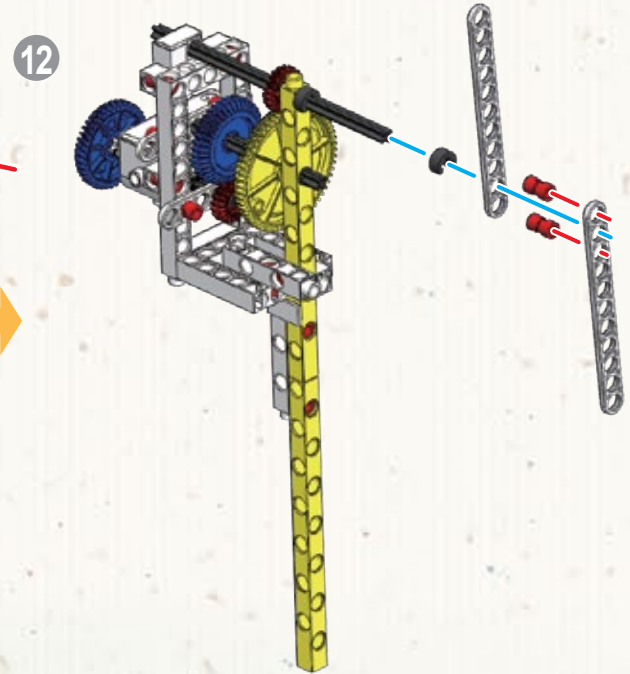
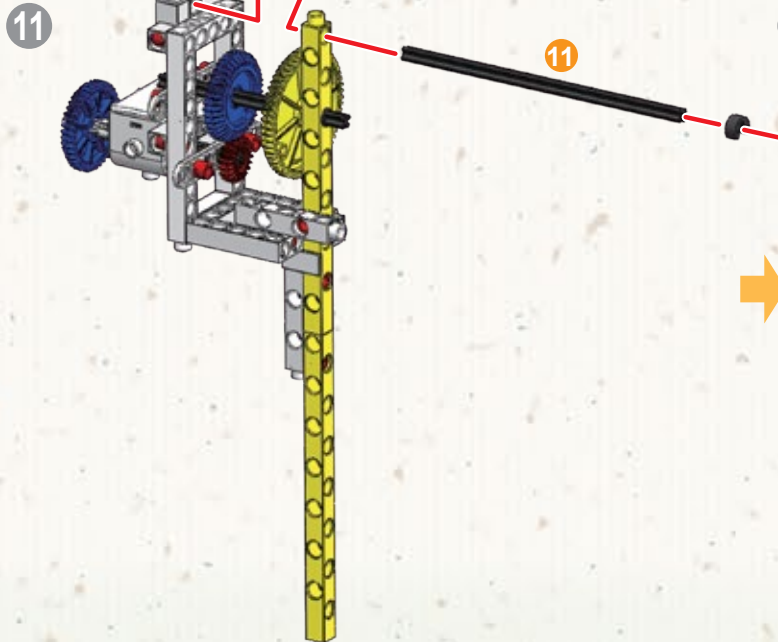
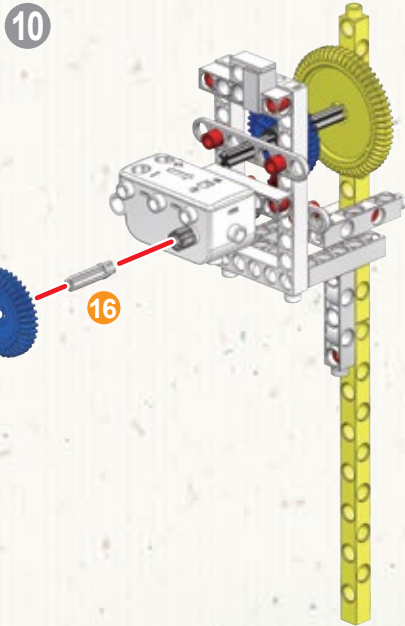
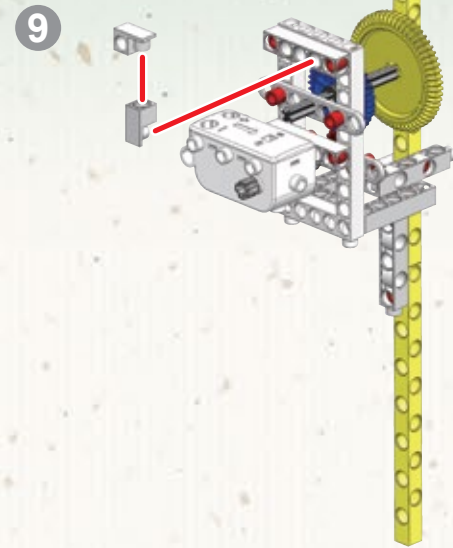
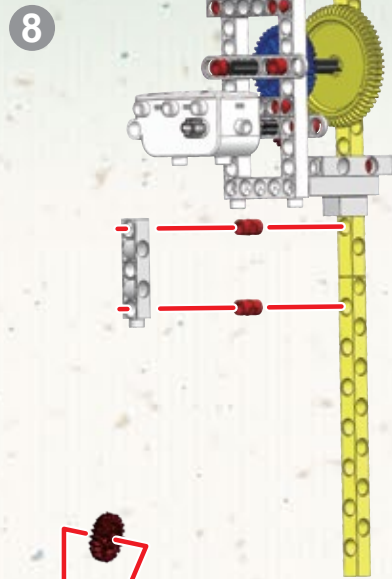
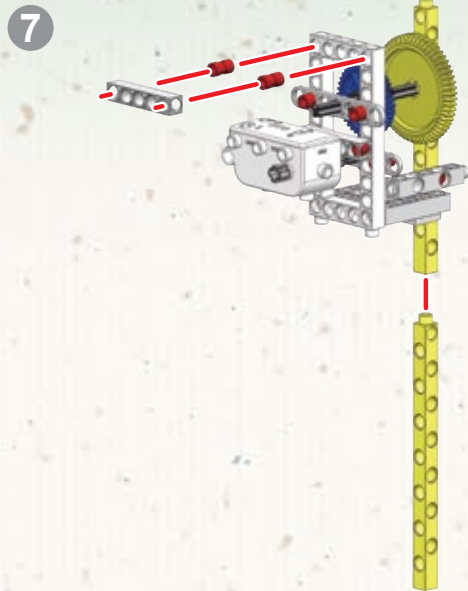


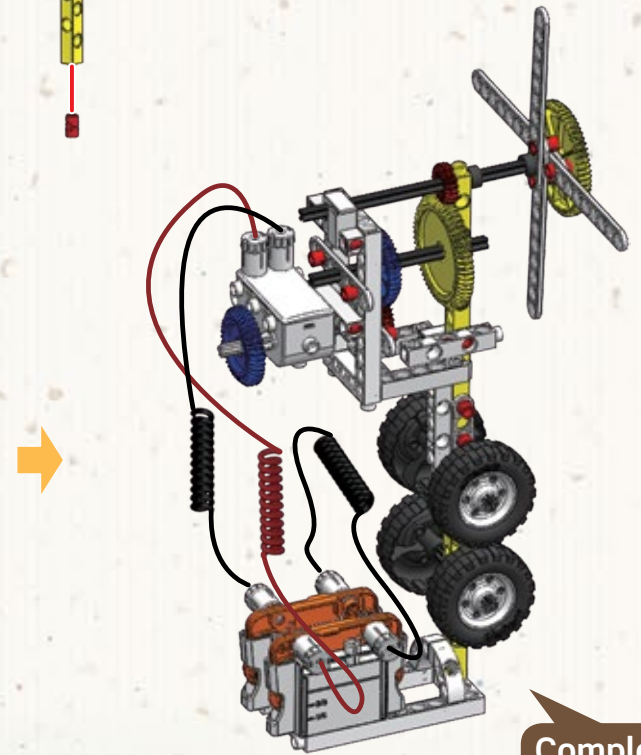
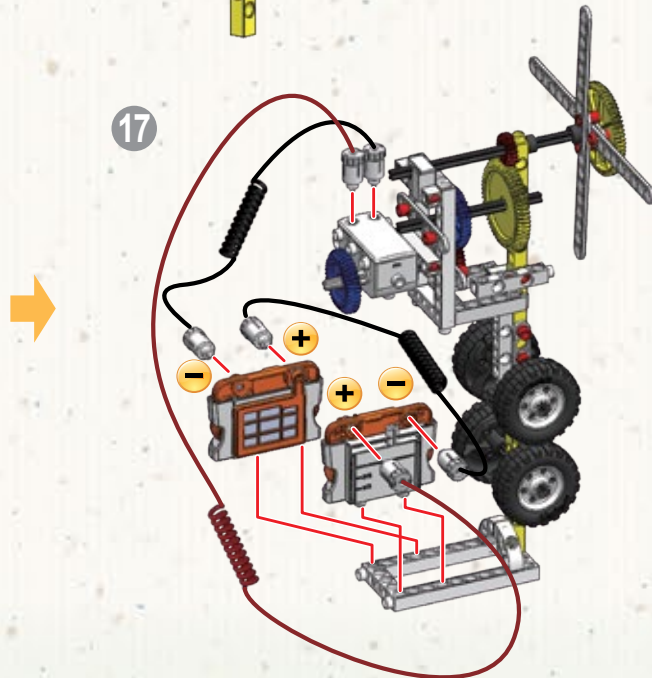
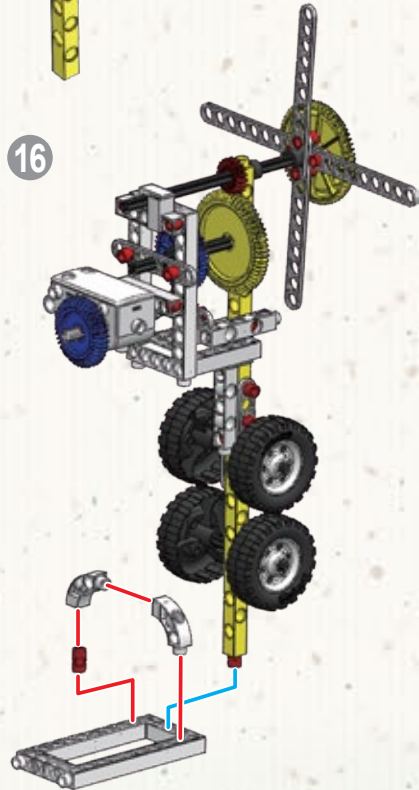
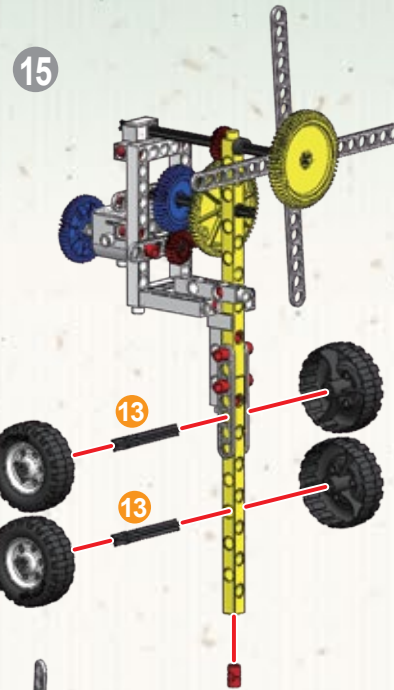
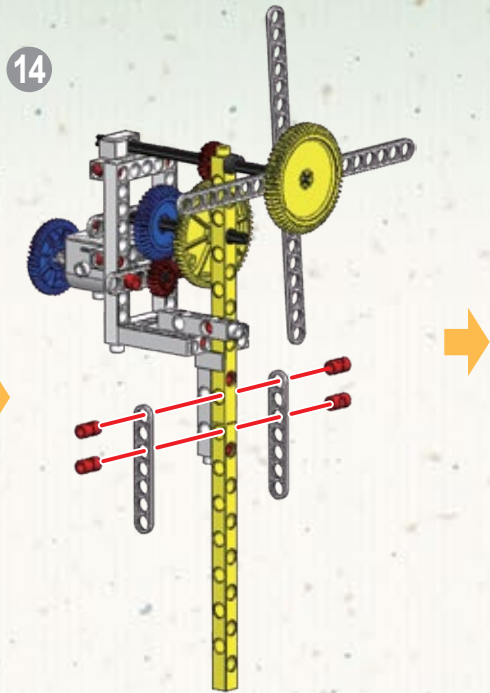
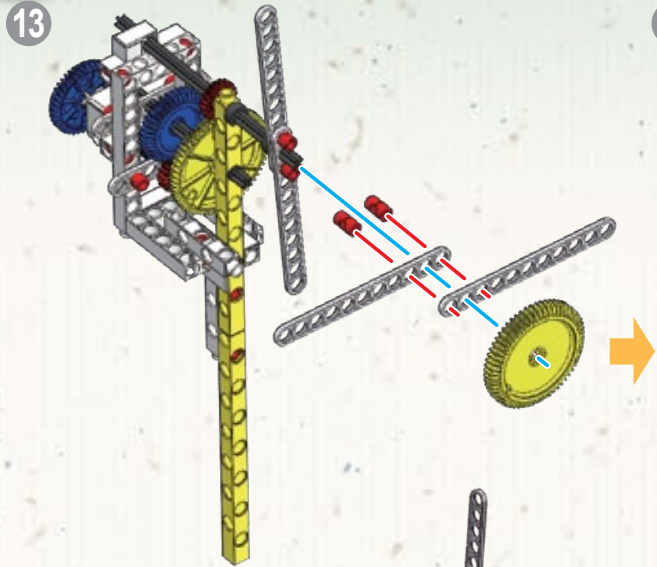
# ECO-BATTERY VEHICLES | MODEL 10 Windmill

Windmill









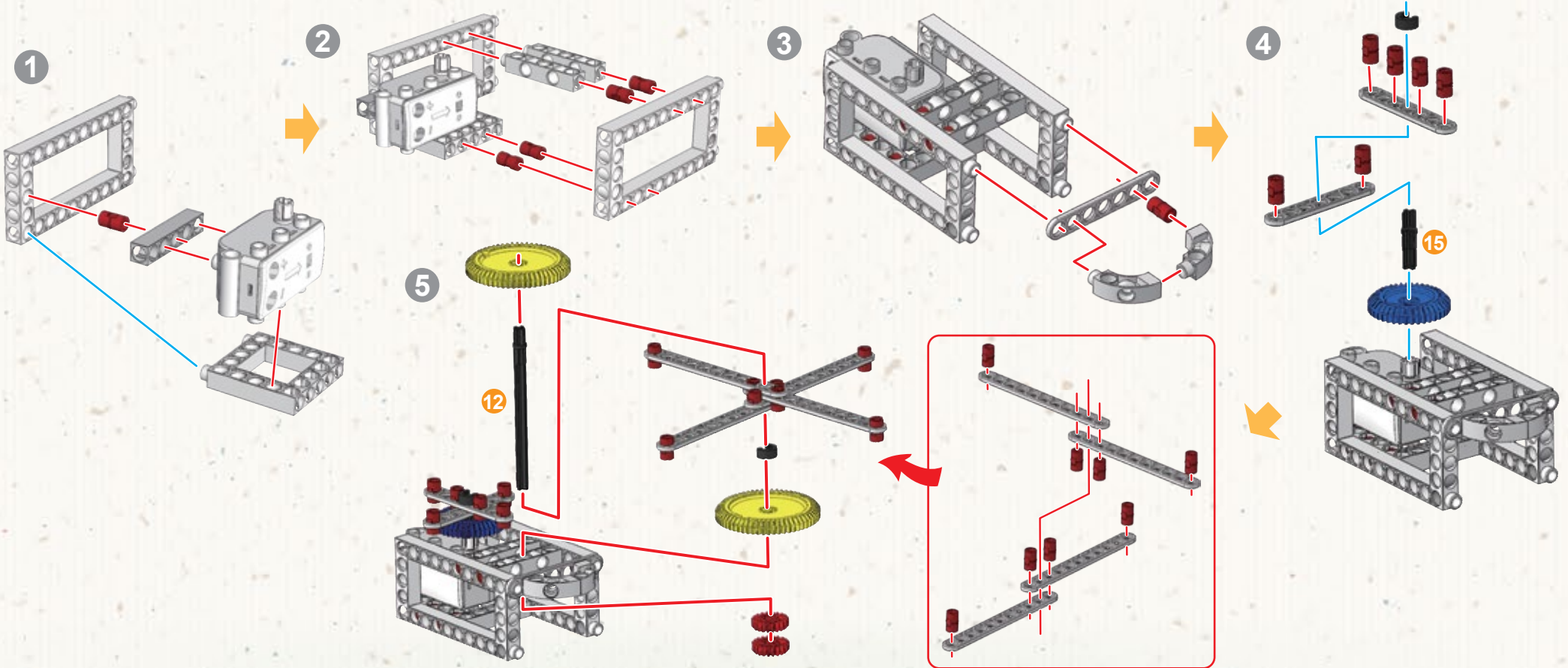
Completed

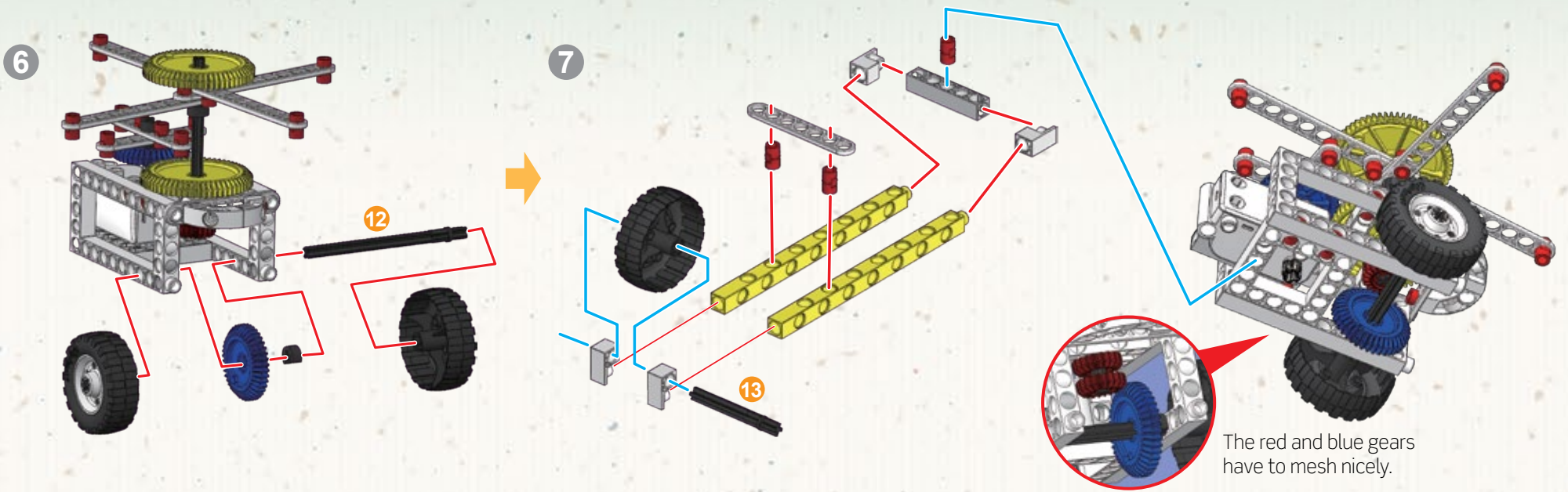


# MODEL 11 Helicopter | ECO-BATTERY VEHICLES



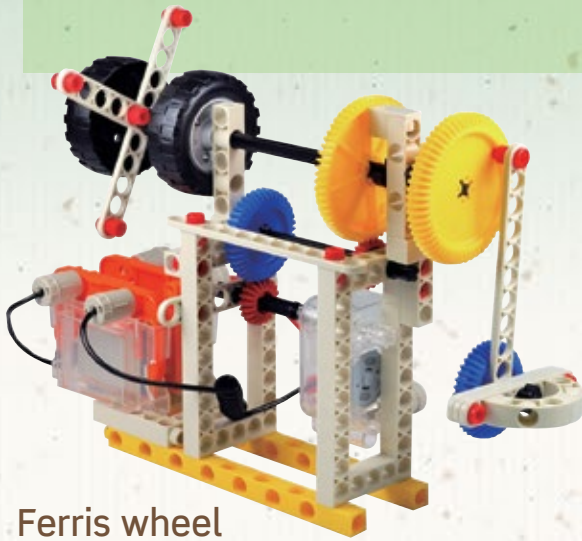
Helicopter



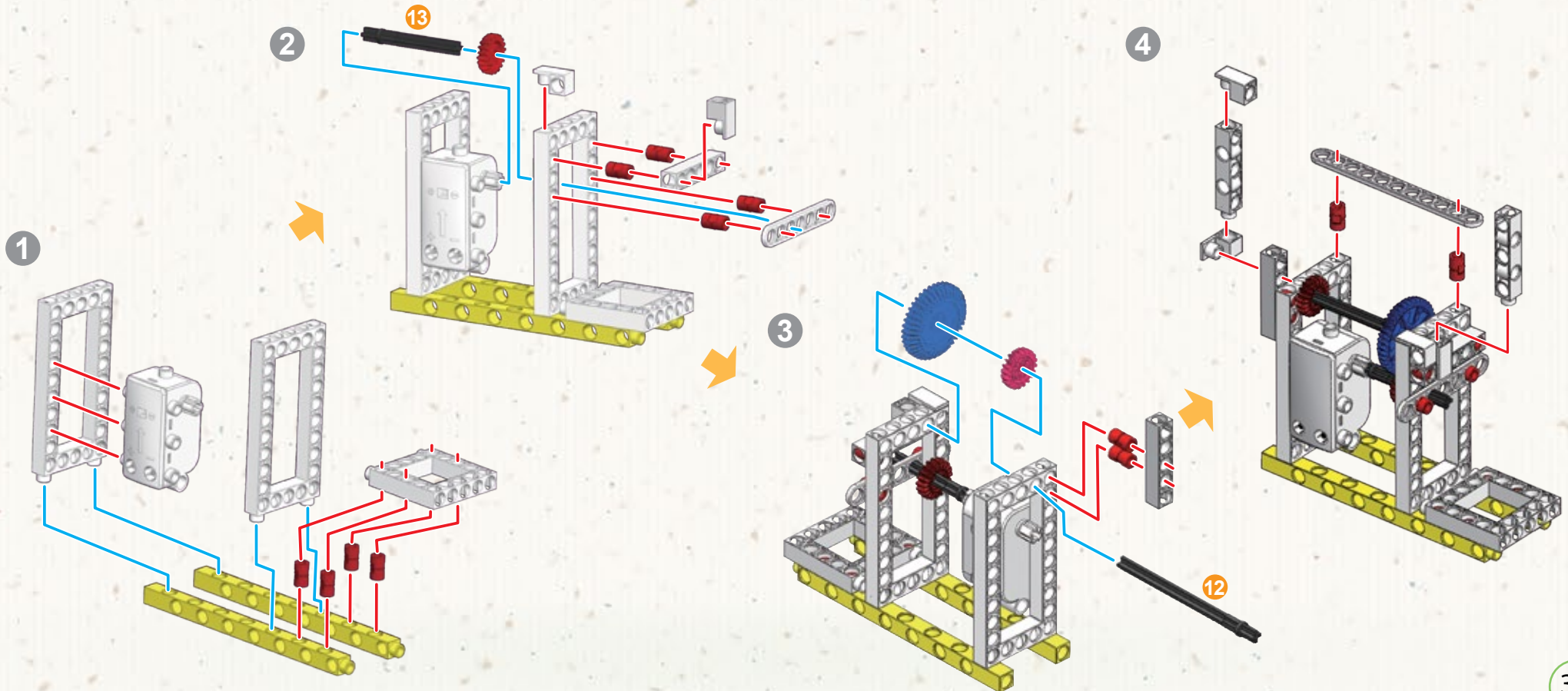




# MODEL 12 Ferris wheel | ECO-BATTERY VEHICLES

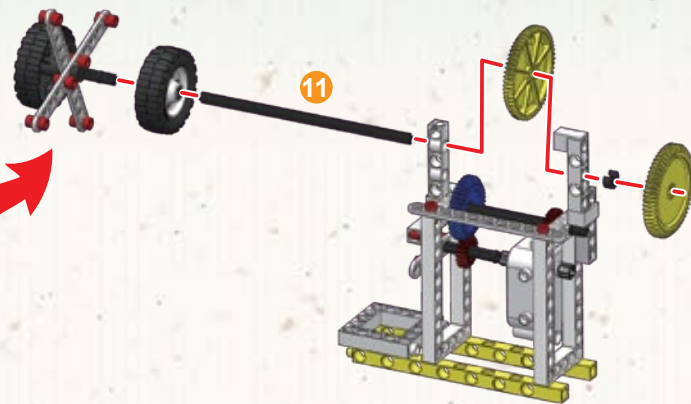
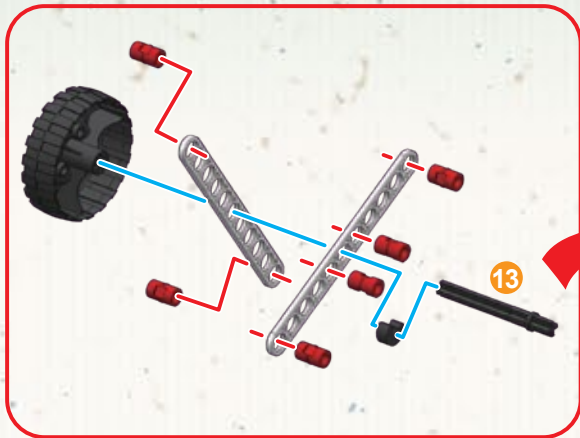


Ferris wheel

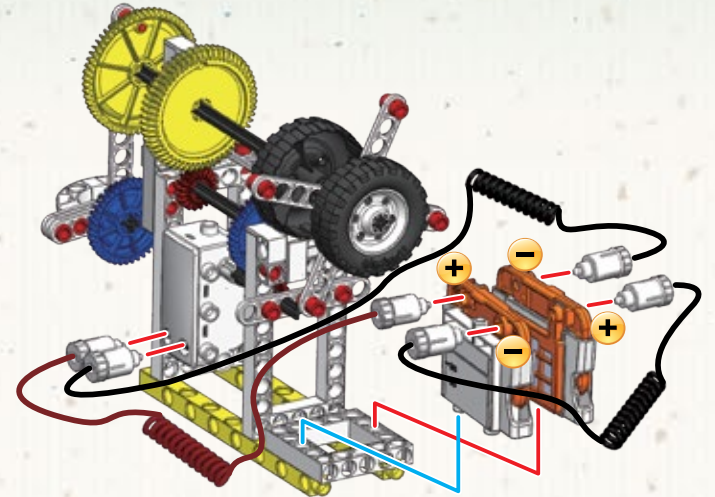




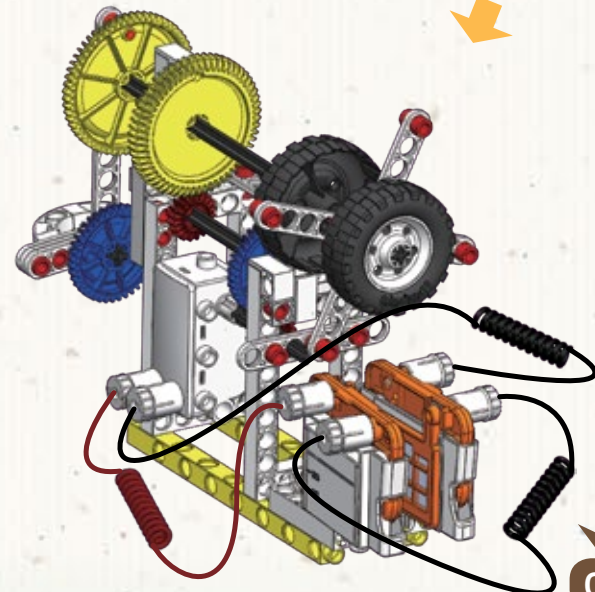
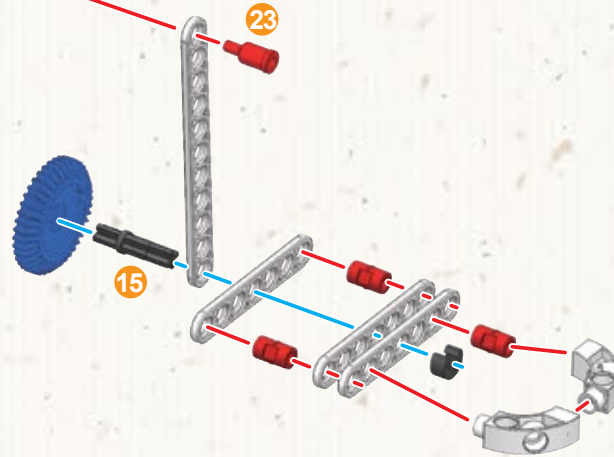
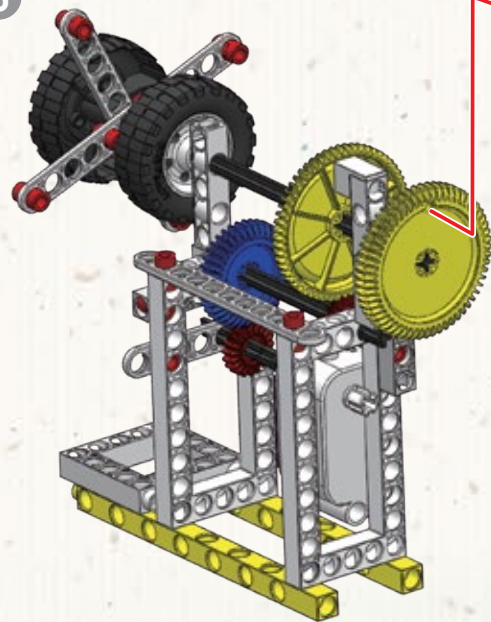
5



7



6



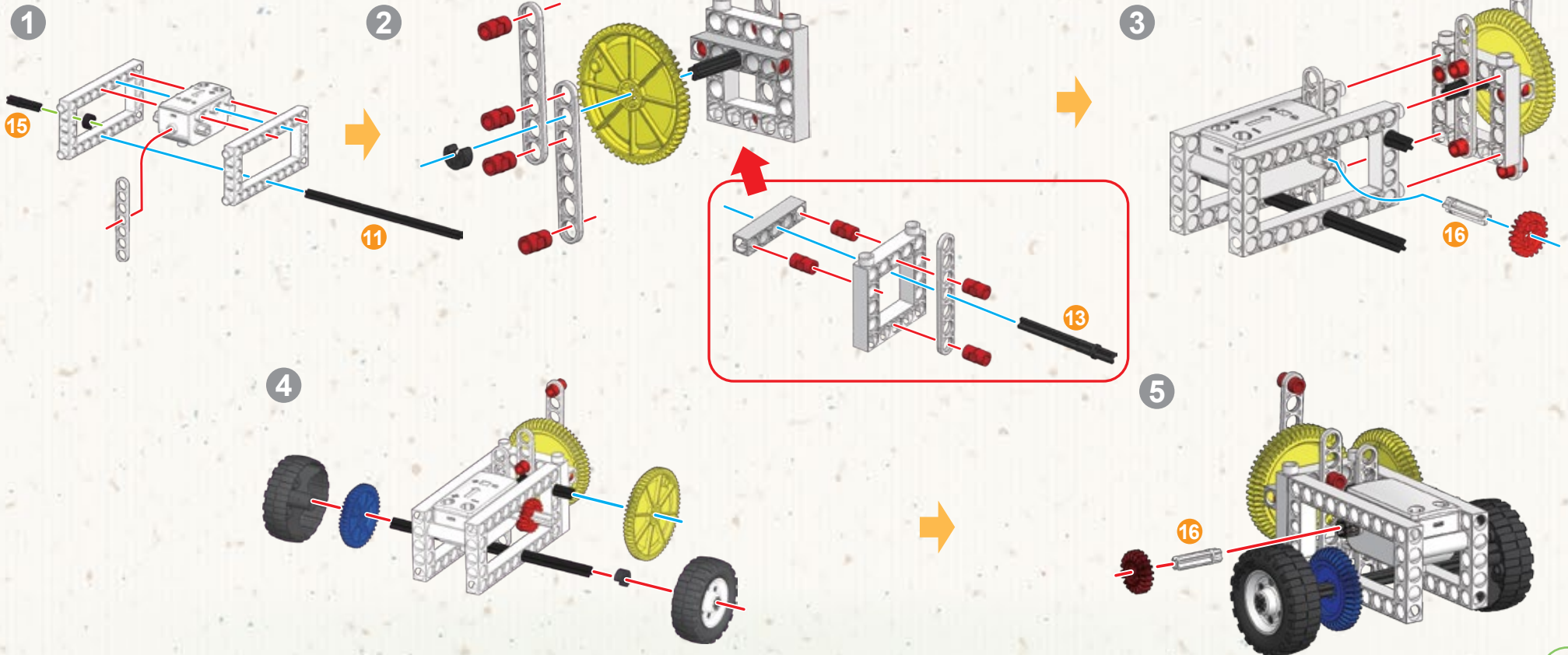
Completed

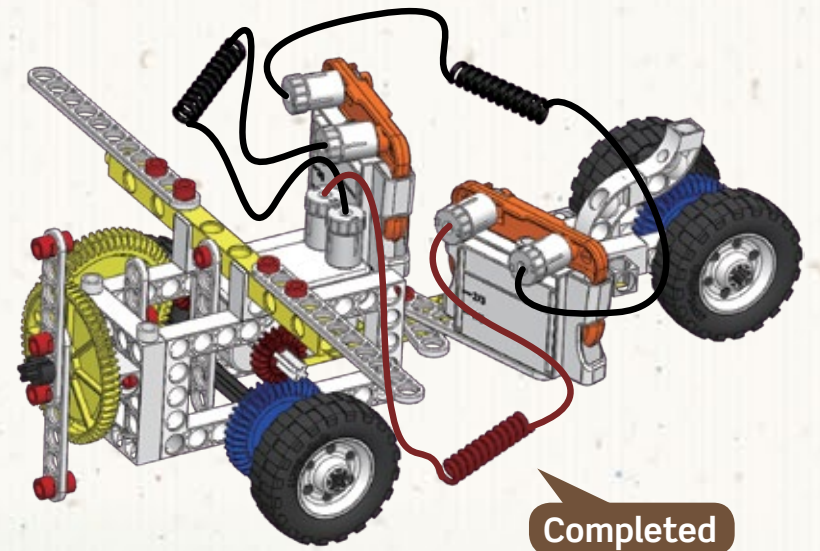
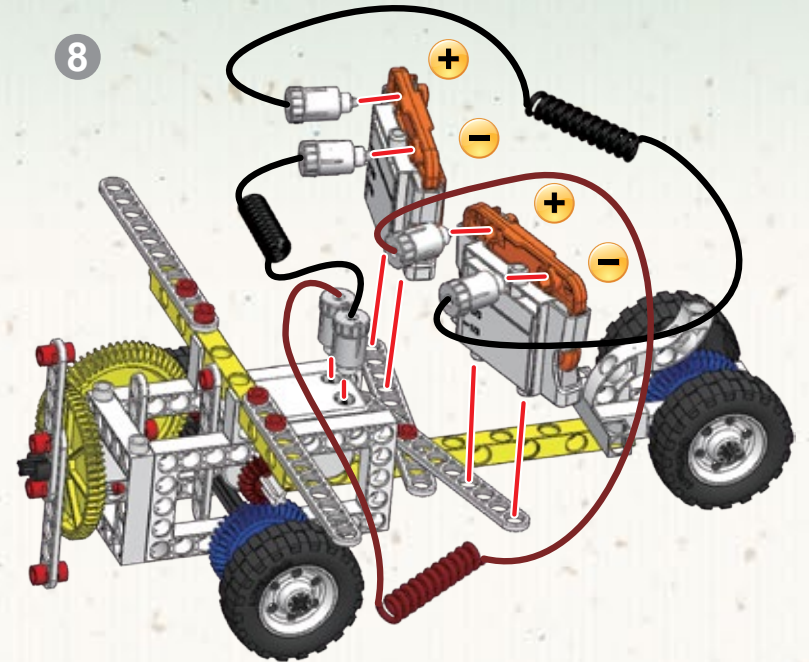
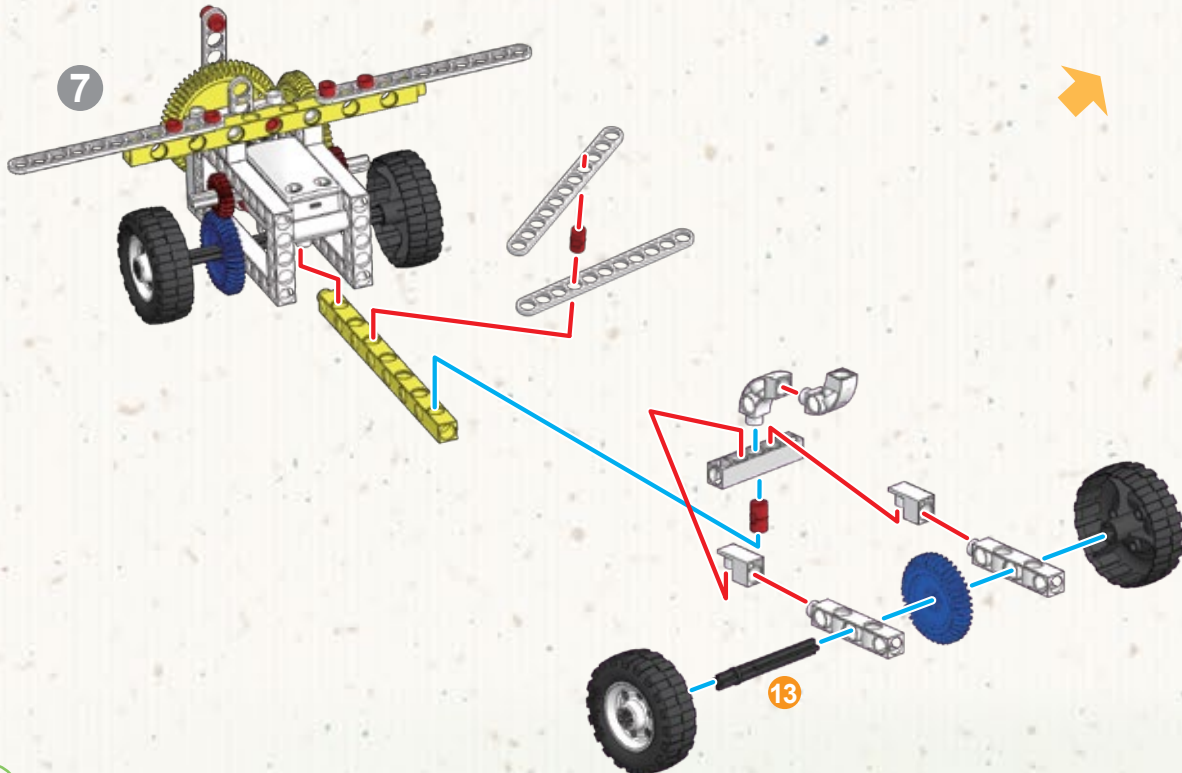
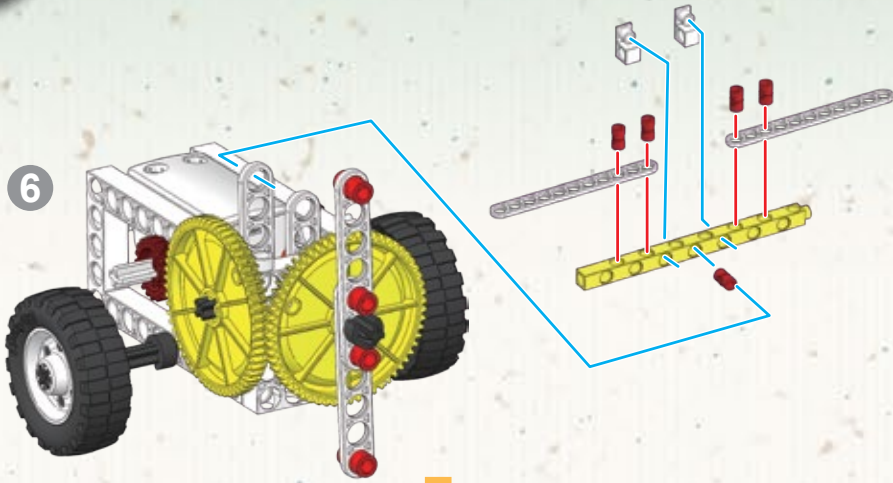


# MODEL 13 Propeller Plane | ECO-BATTERY VEHICLES



Propeller Plane



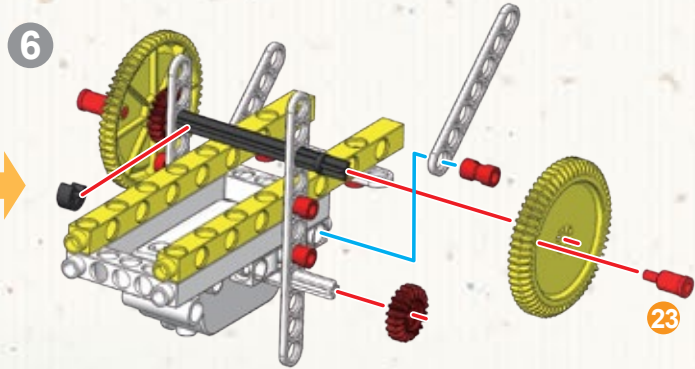
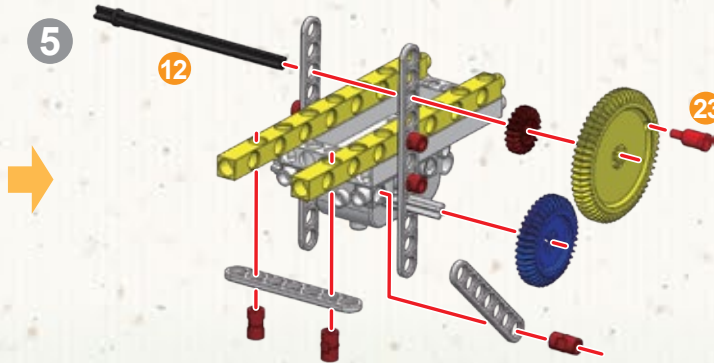
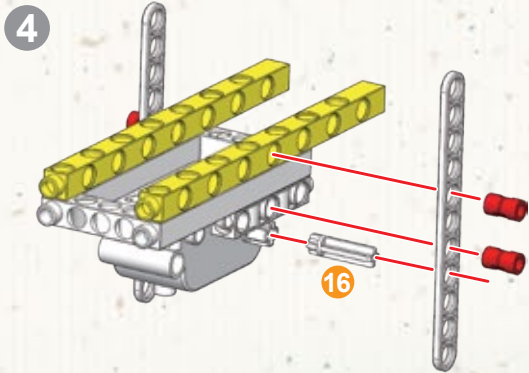
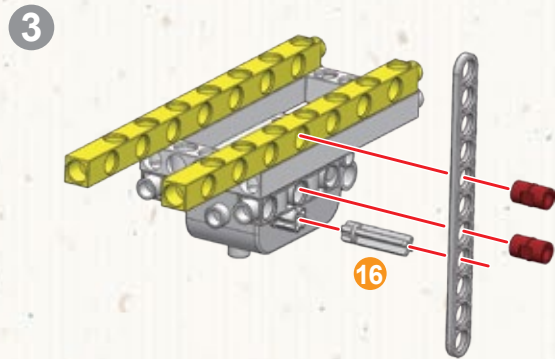
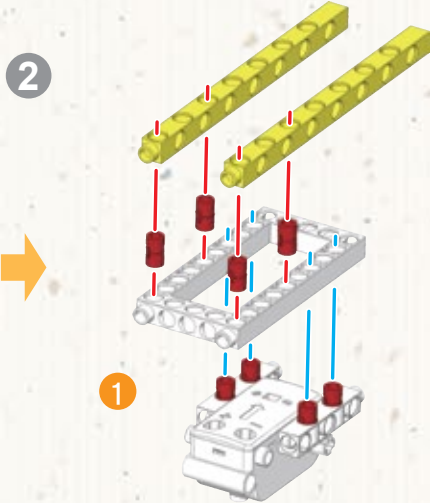
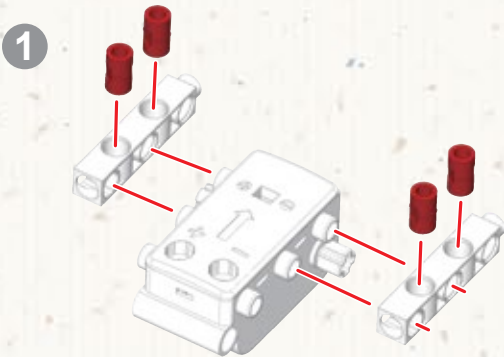


Completed



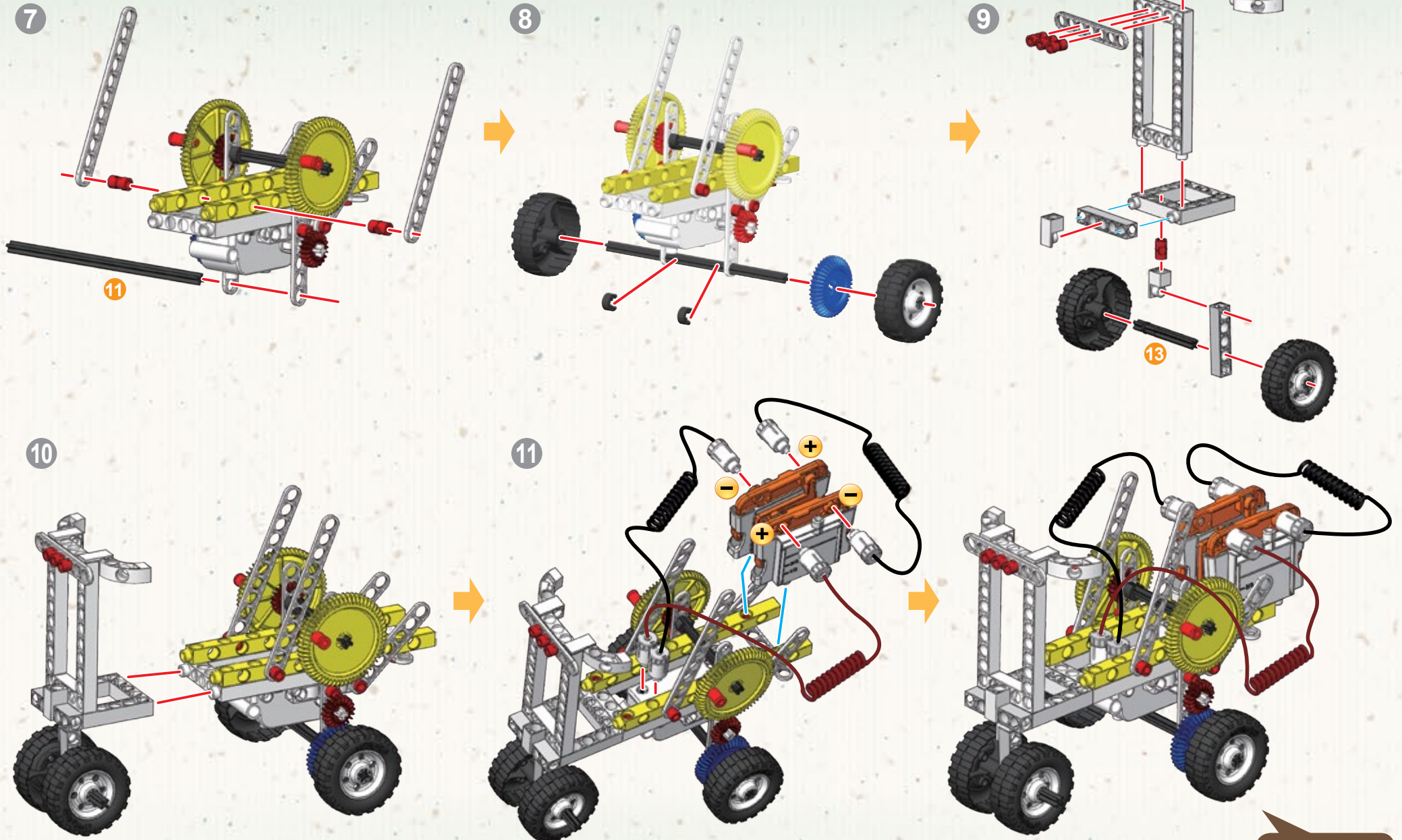


Motorcycle





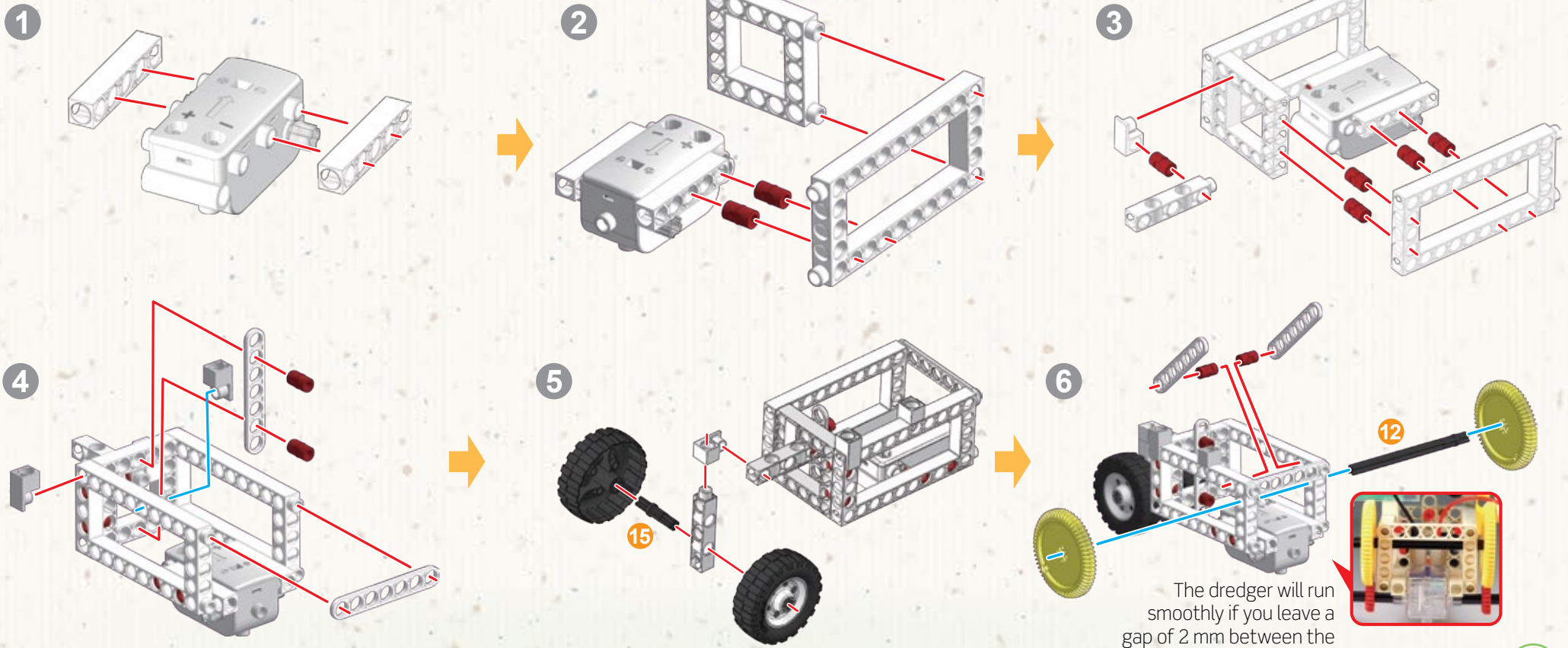
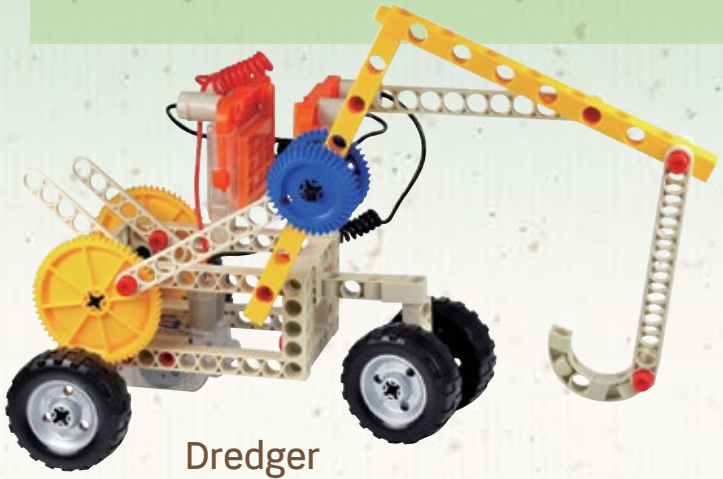
# ECO-BATTERY VEHICLES | MODEL 14 Motorcycle



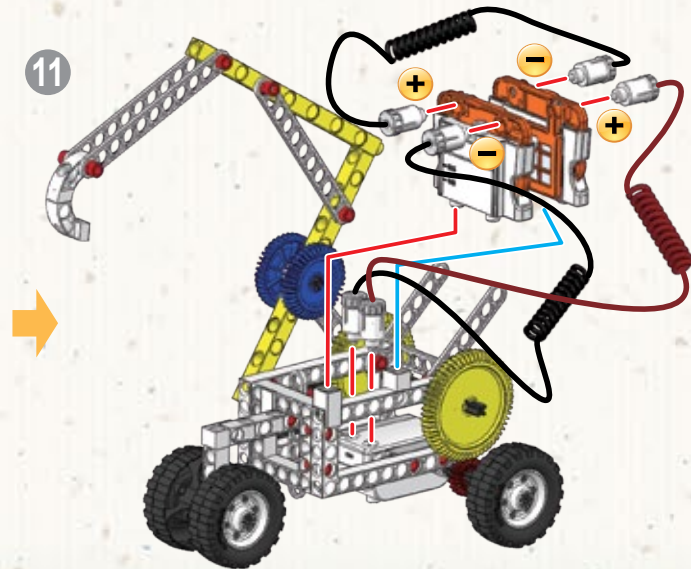
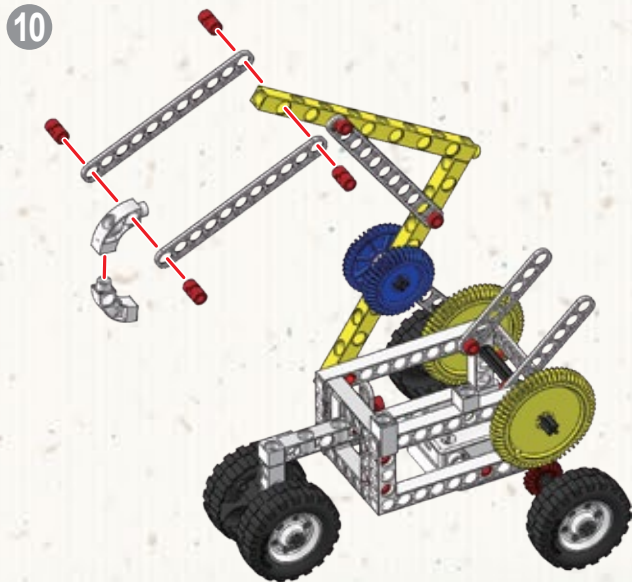
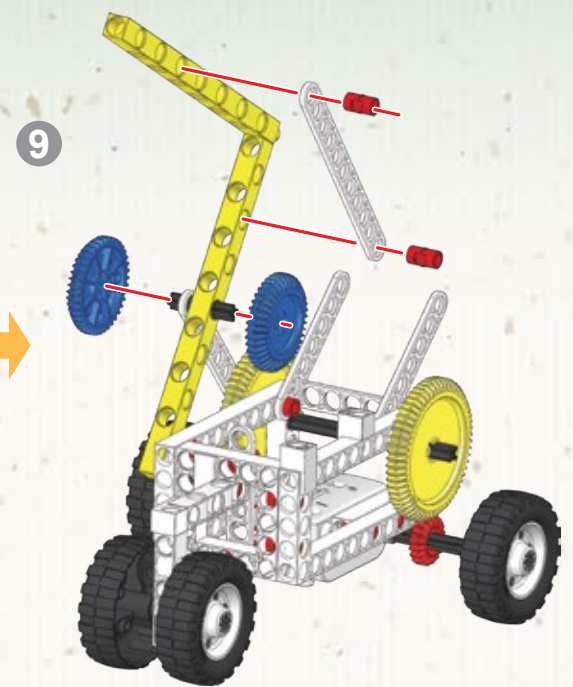
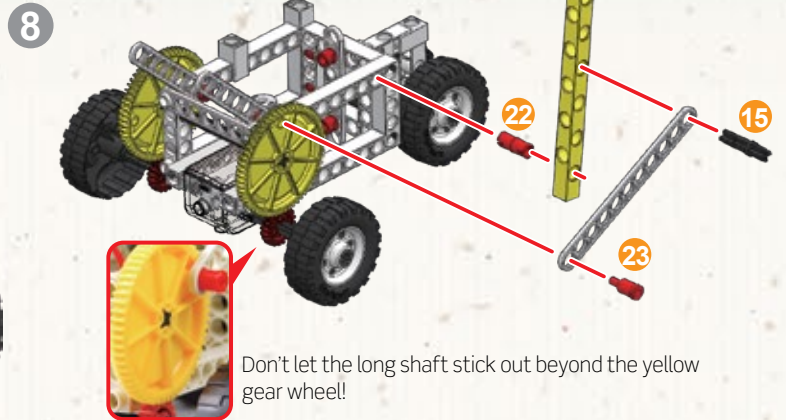
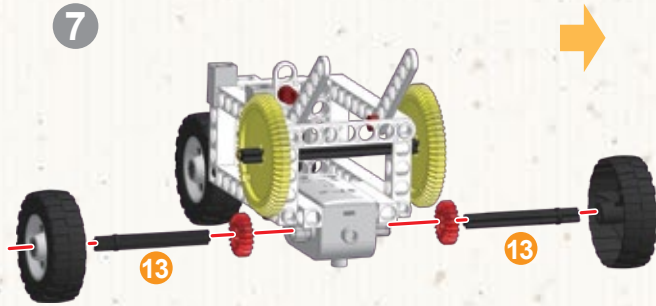
Completed



# MODEL 15 Dredger | ECO-BATTERY VEHICLES



The dredger will run smoothly if you leave a gap of 2 mm between the frame and yellow gears.

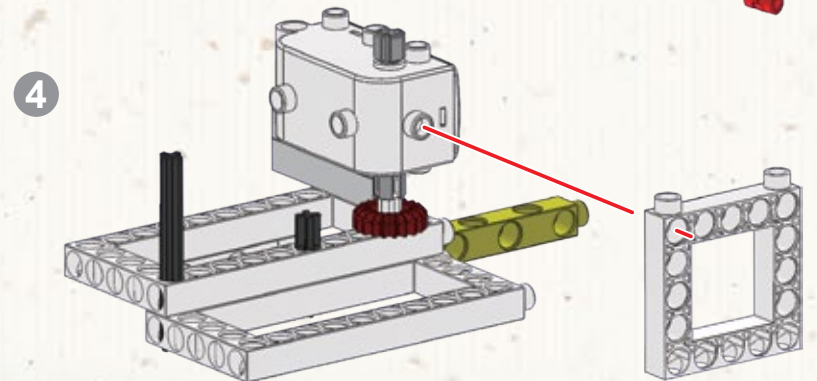
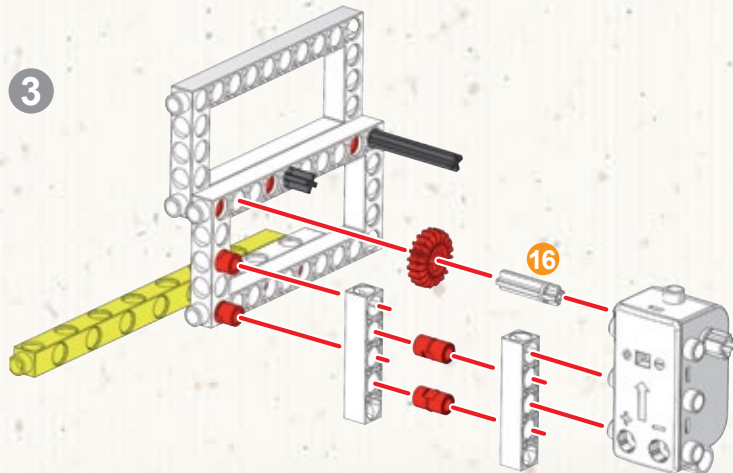
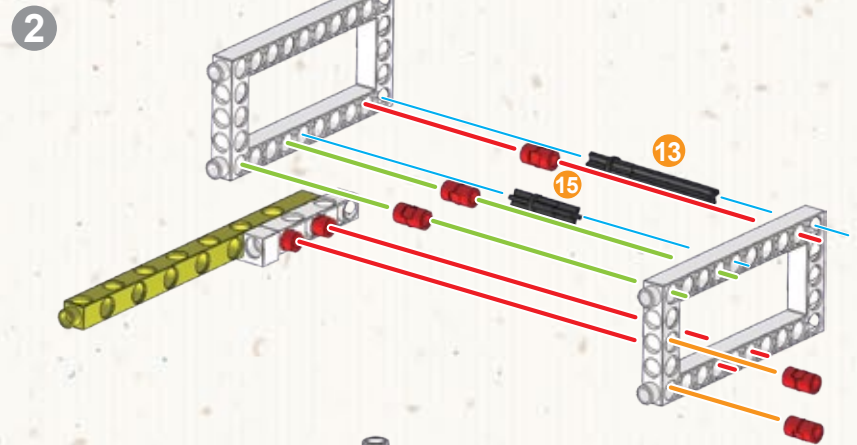
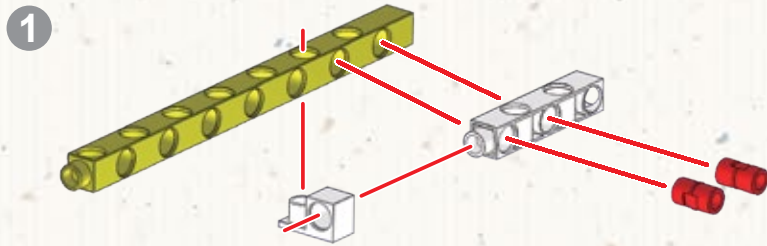
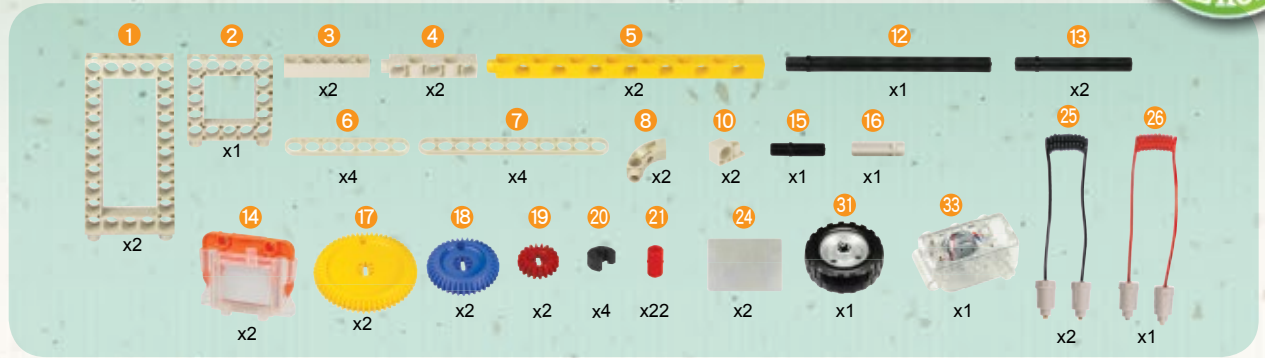


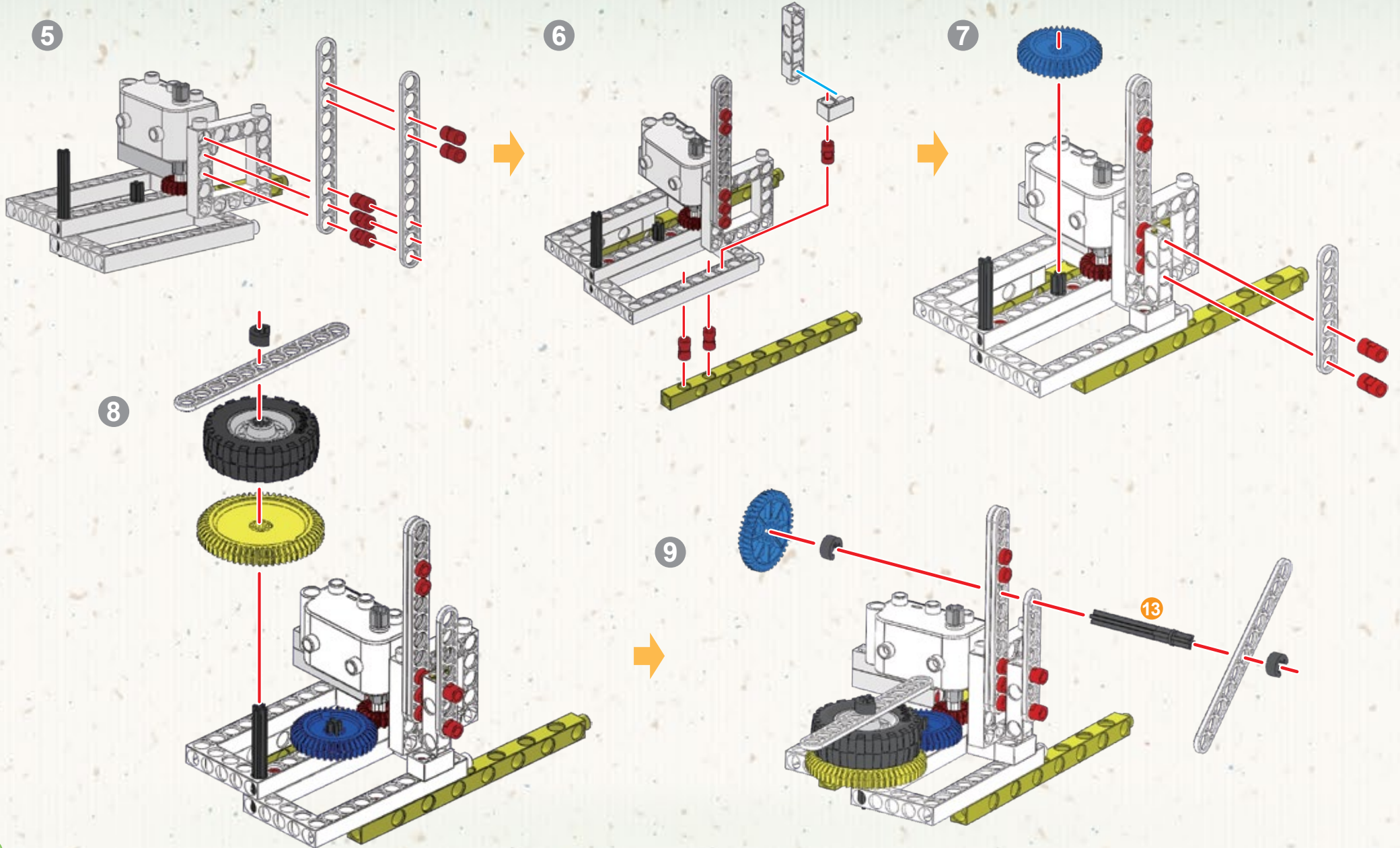


# MODEL 16 Propeller | ECO-BATTERY VEHICLES

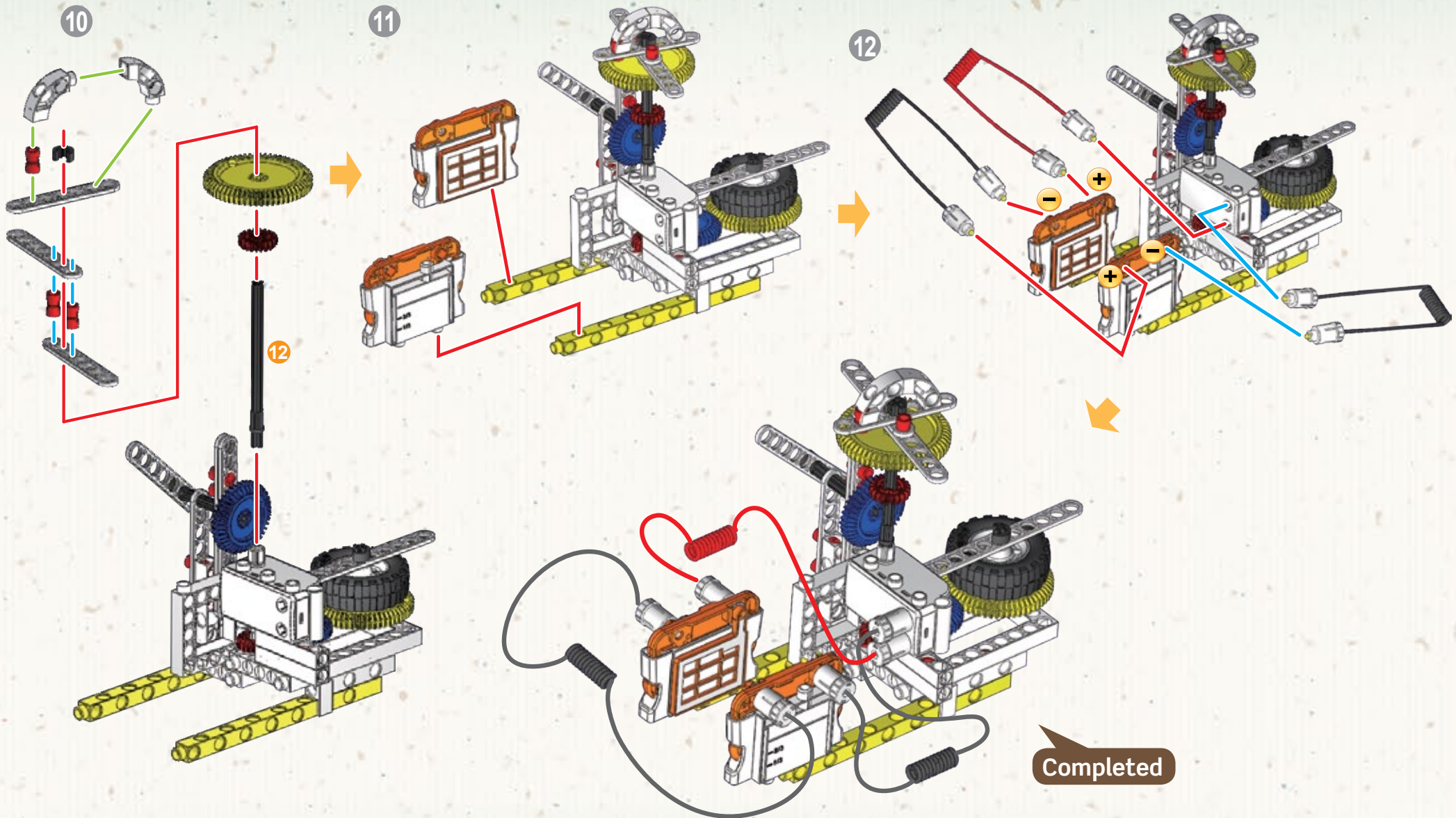


Propeller





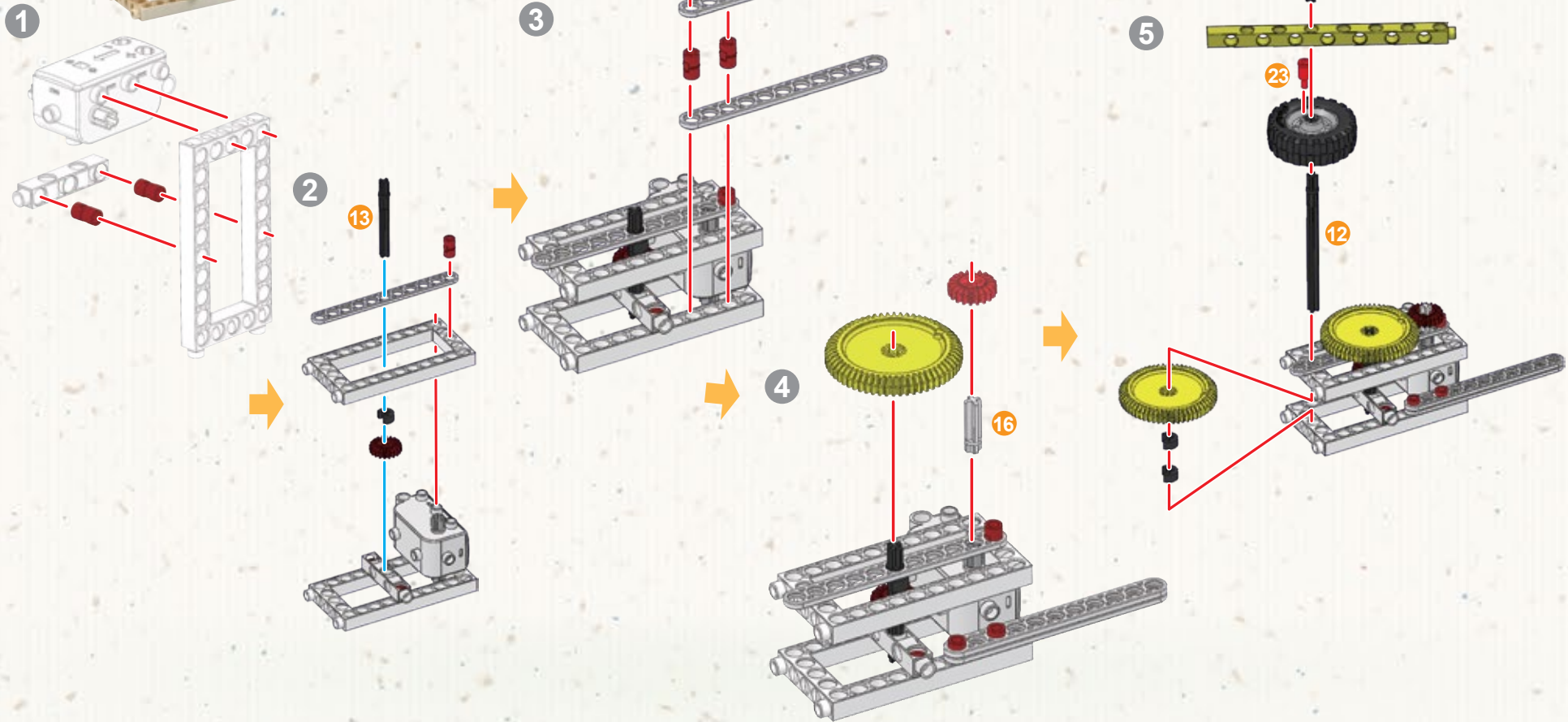
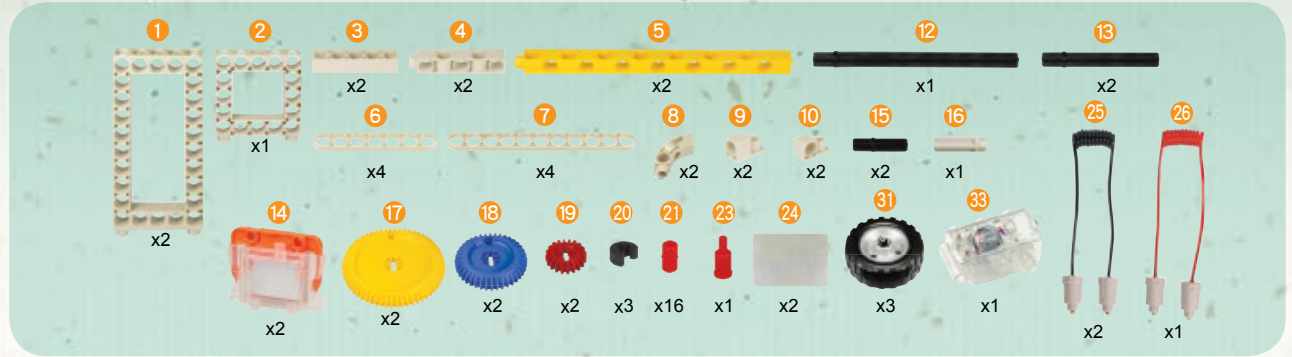




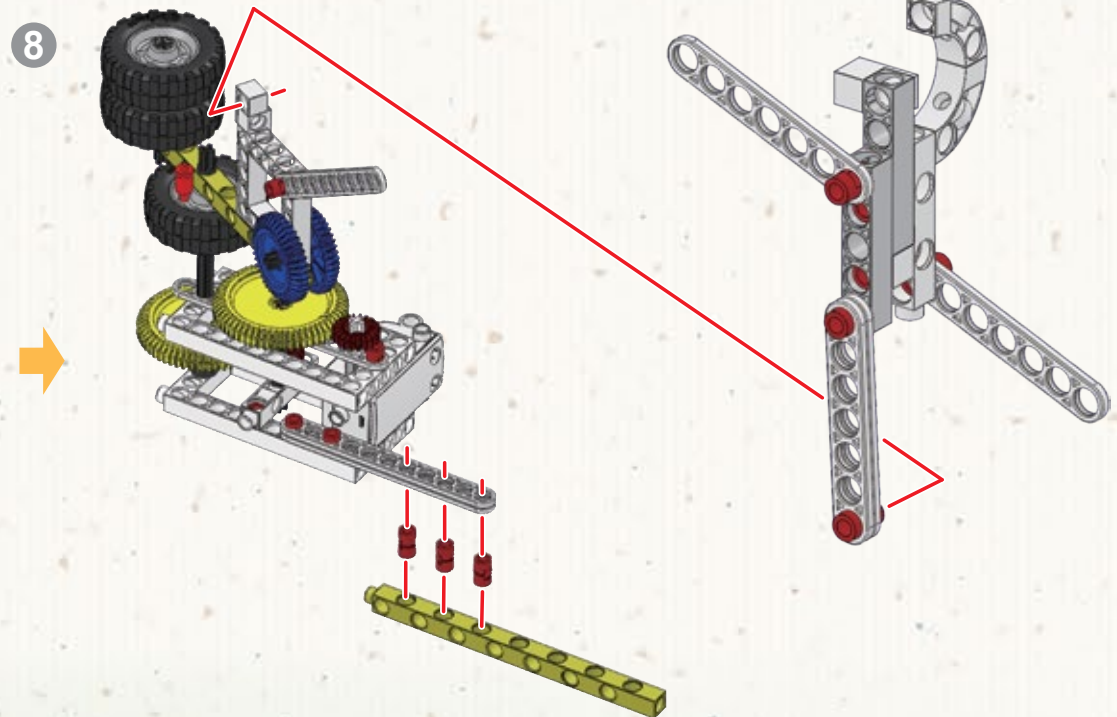
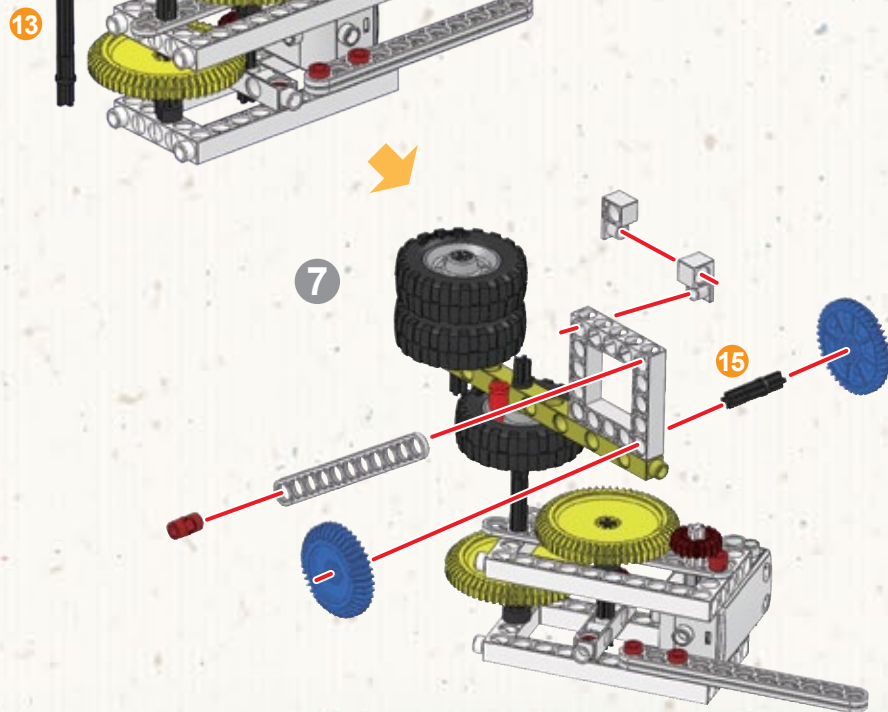
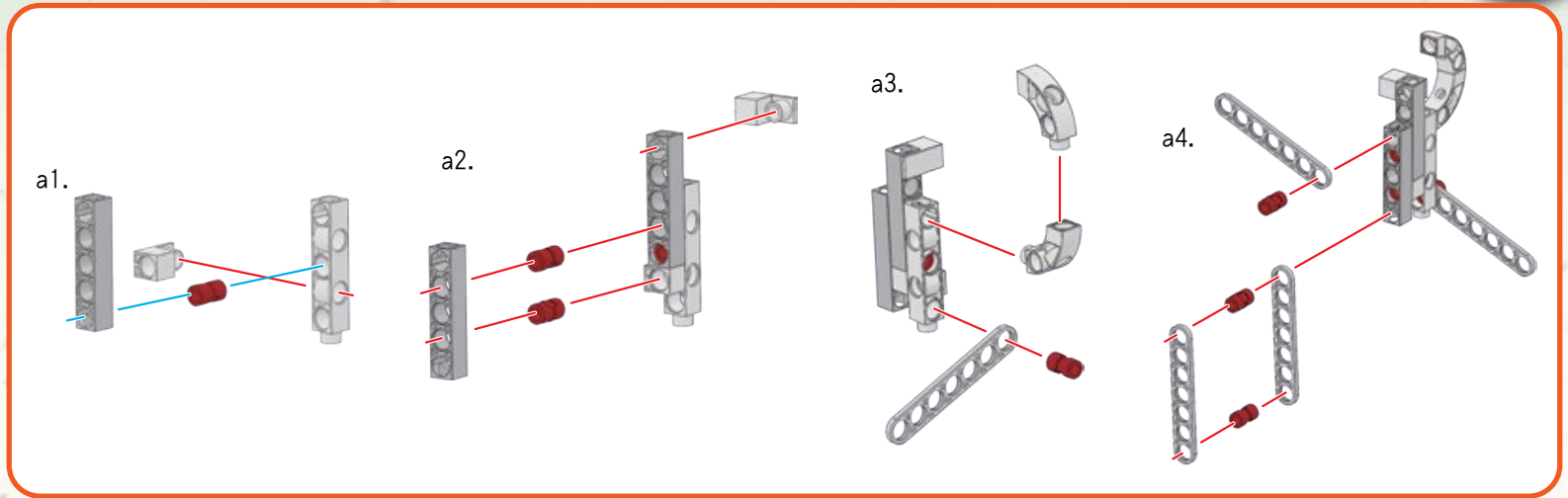
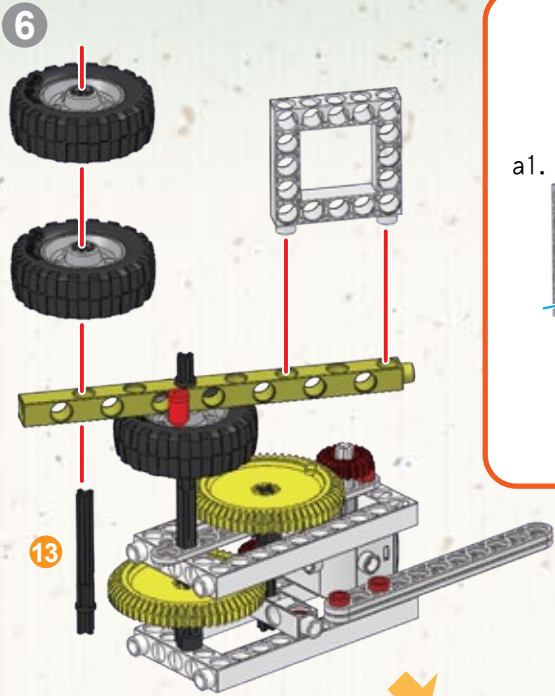


# ECO-BATTERY VEHICLES | MODEL 17 Ballet dancer

## Ballet Dancer

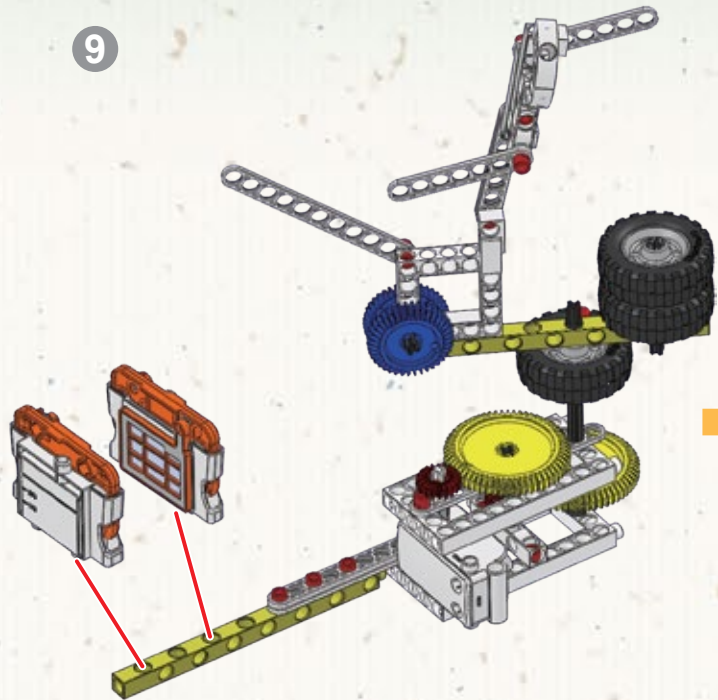




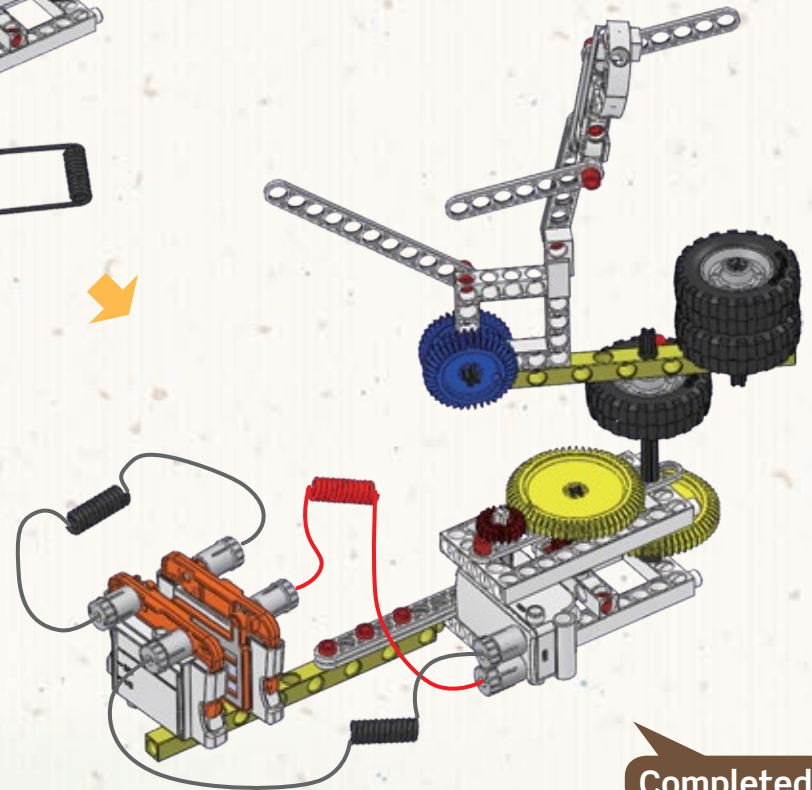
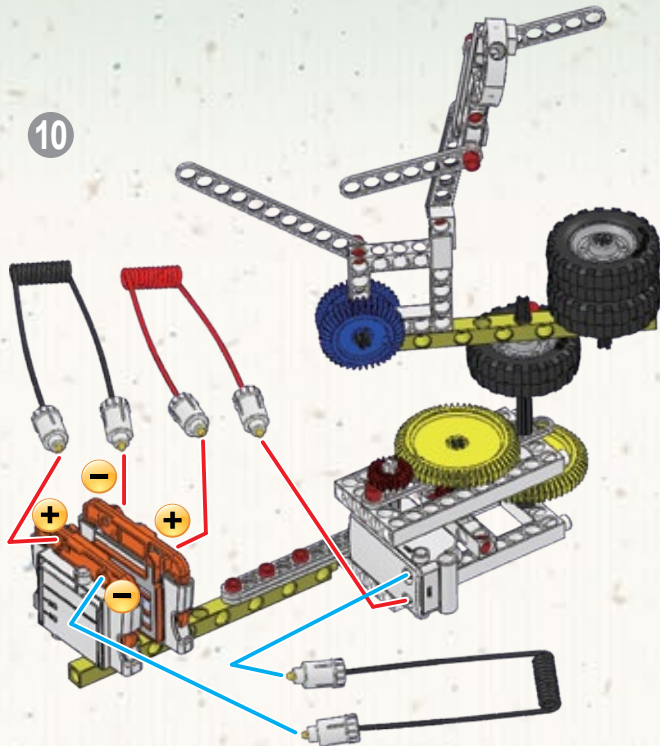




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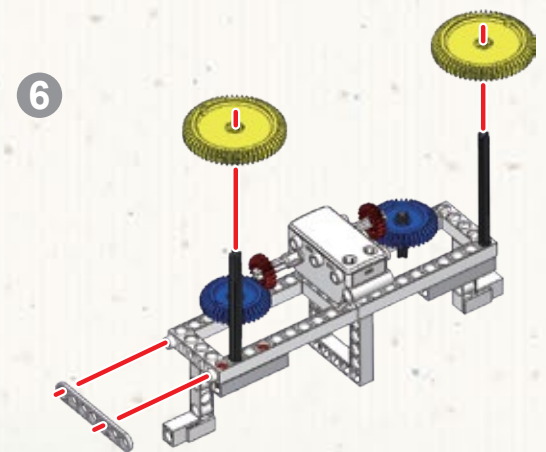
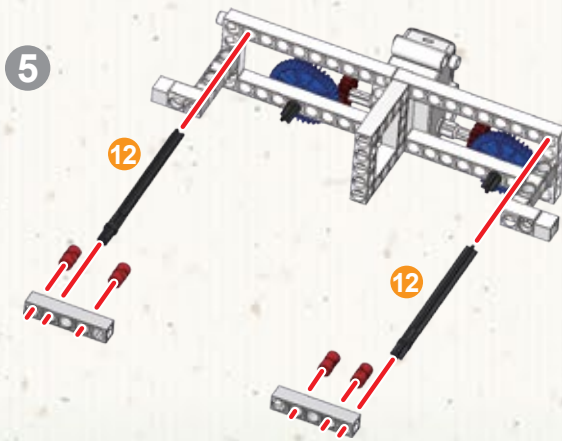
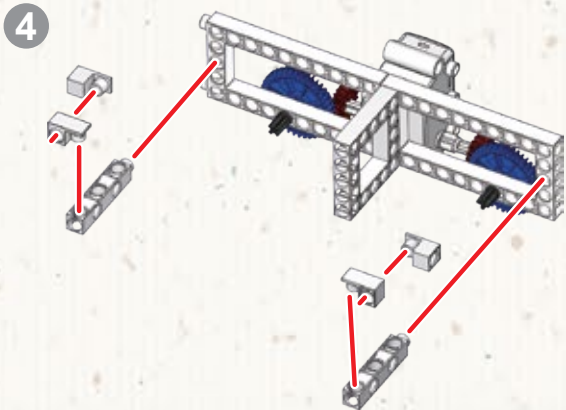
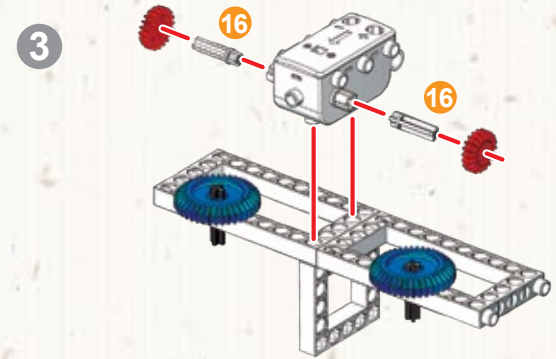
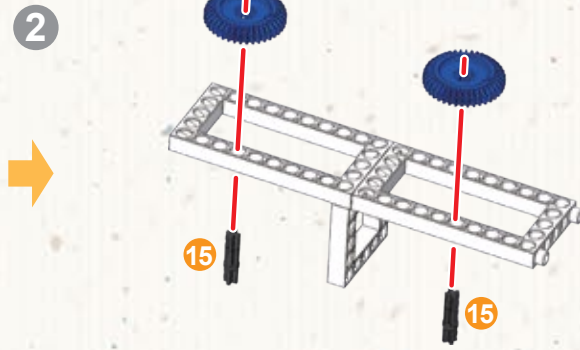
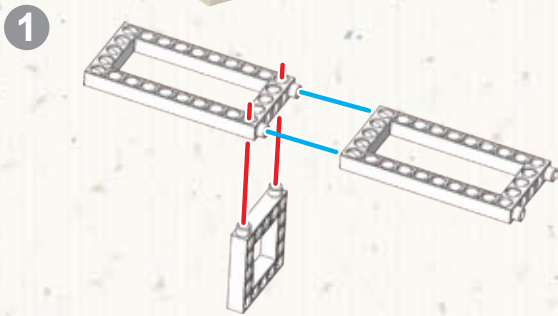
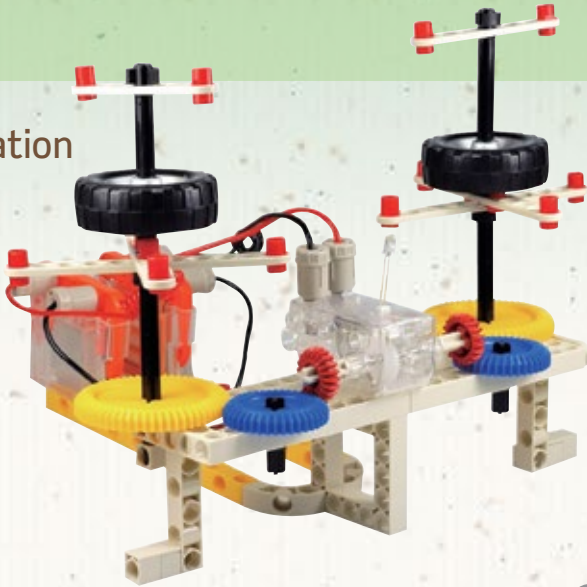
Completed





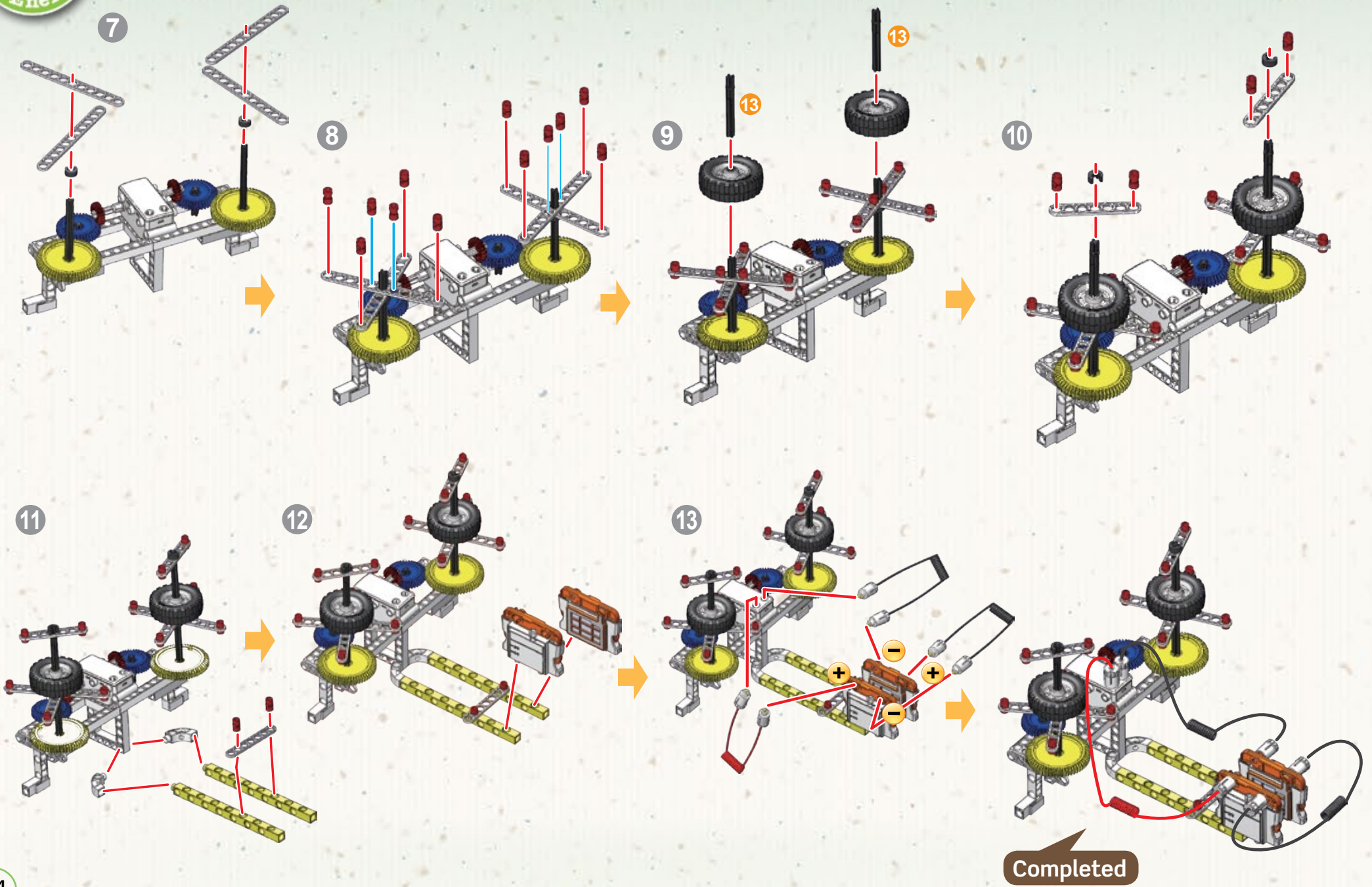
# MODEL 18 Radar station | ECO-BATTERY VEHICLES

## Radar Station





# ECO-BATTERY VEHICLES | MODEL 18 Radar Station

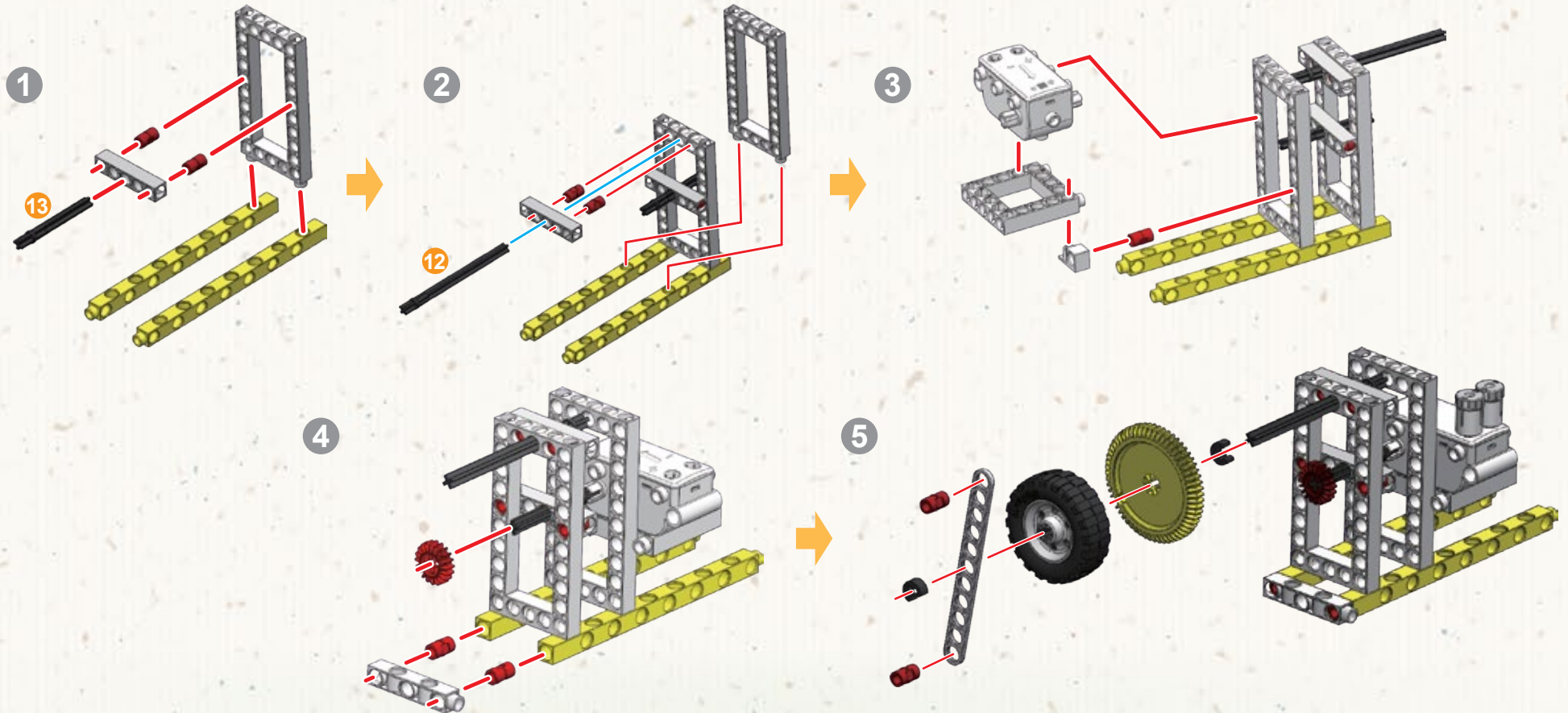
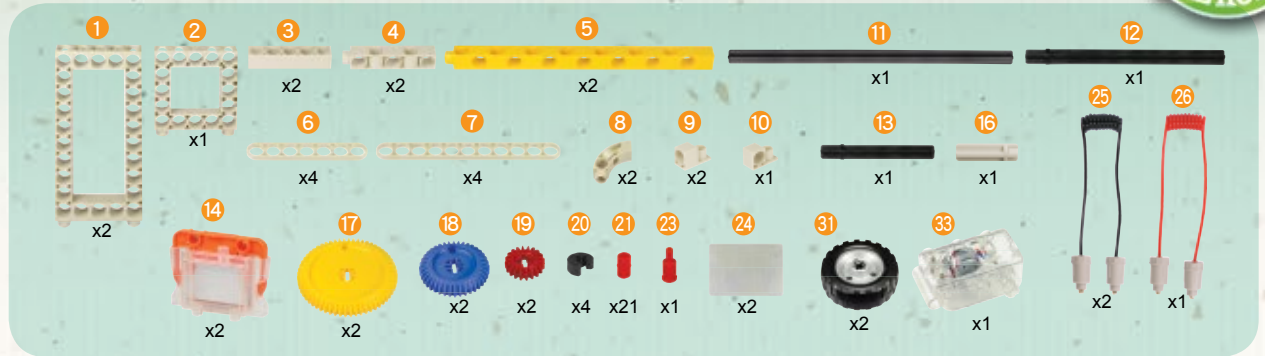




# MODEL 19 Mill | ECO-BATTERY VEHICLES

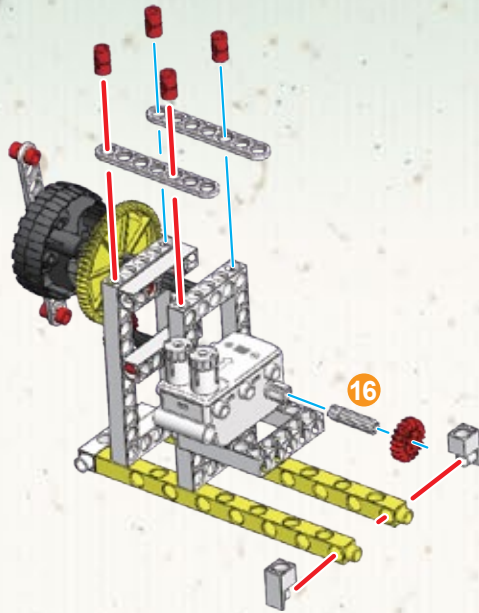


Mill

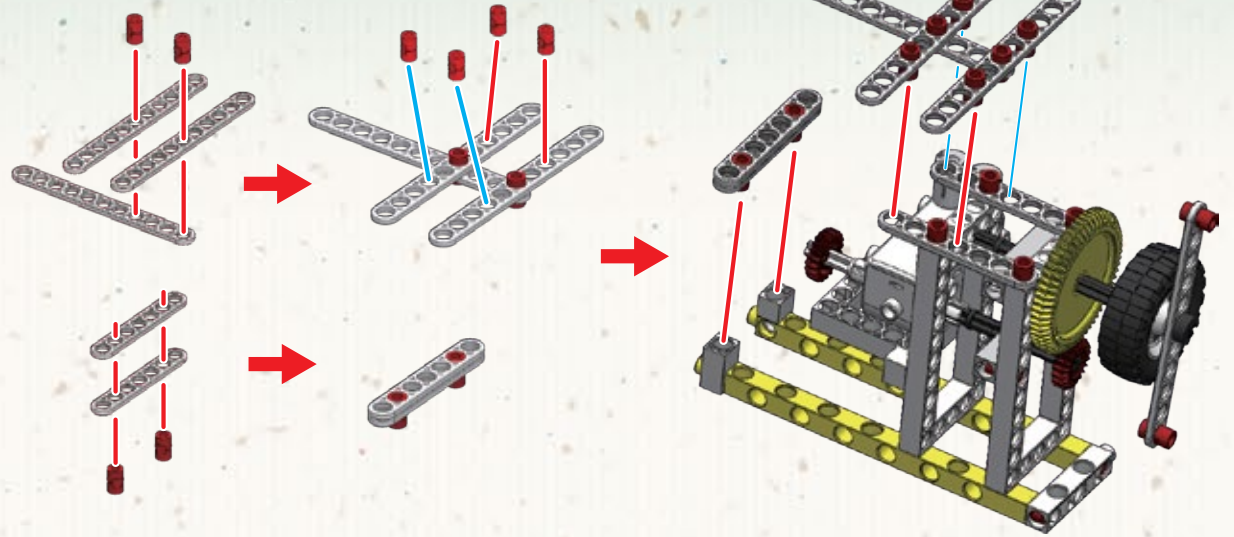




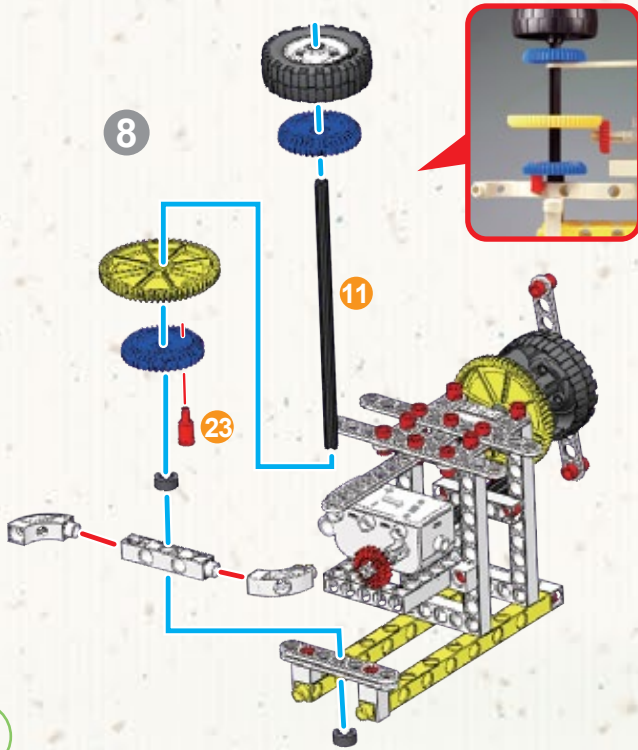
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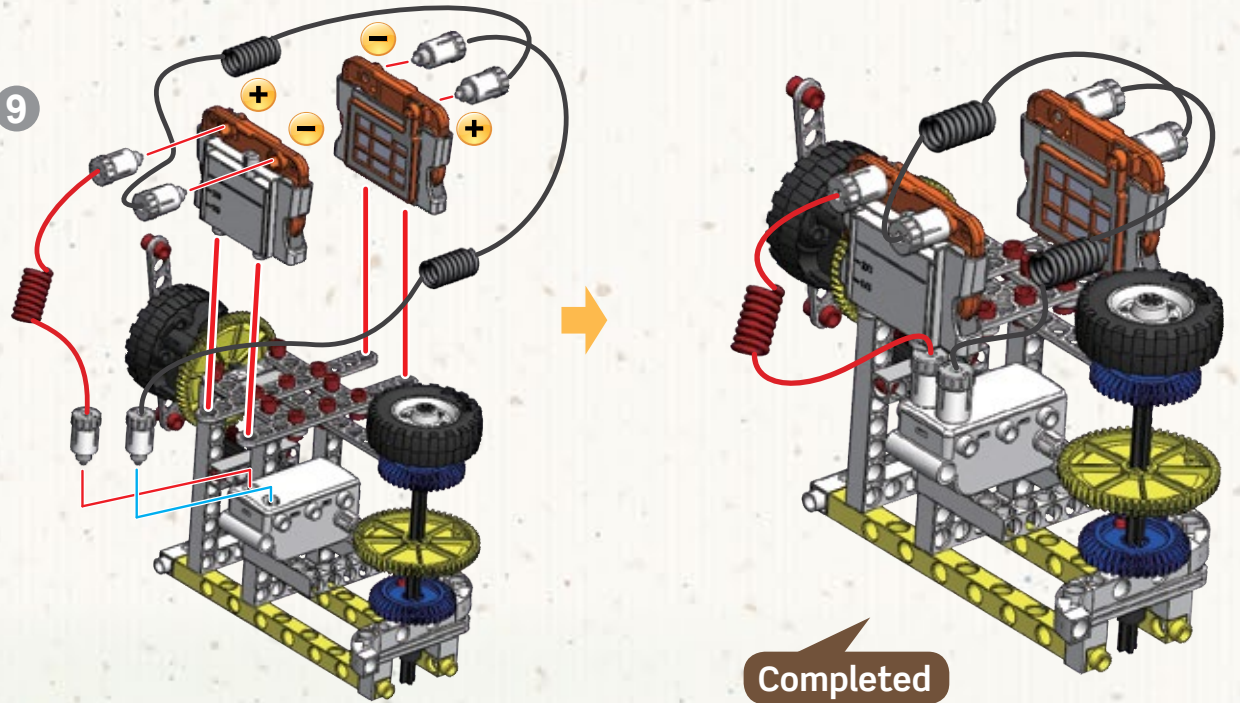
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8



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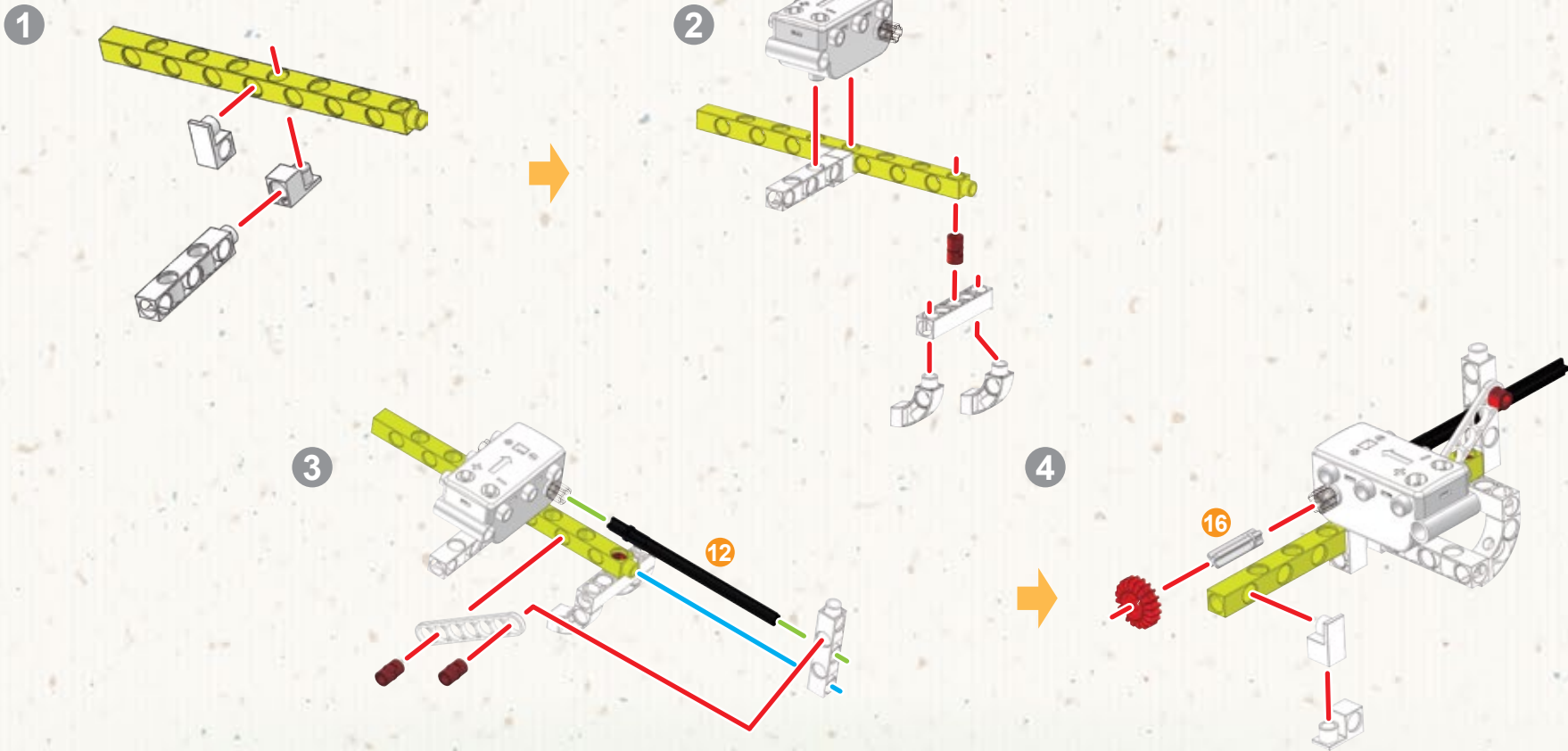
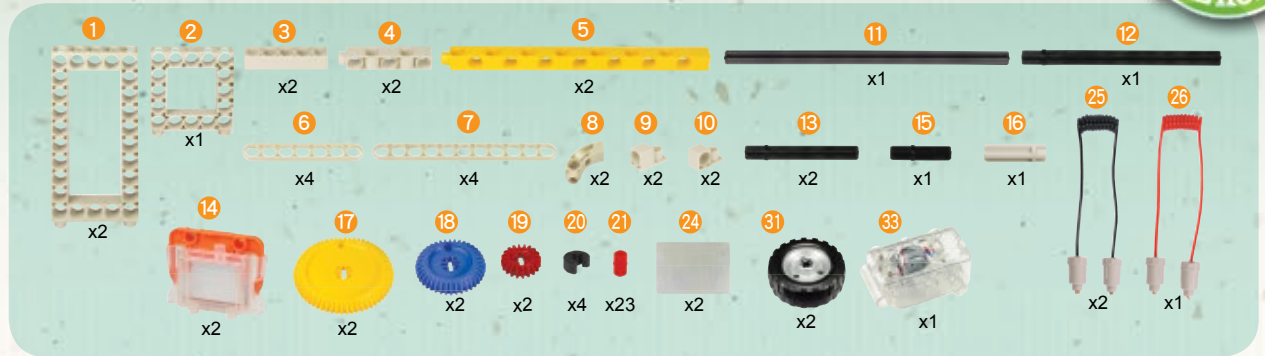


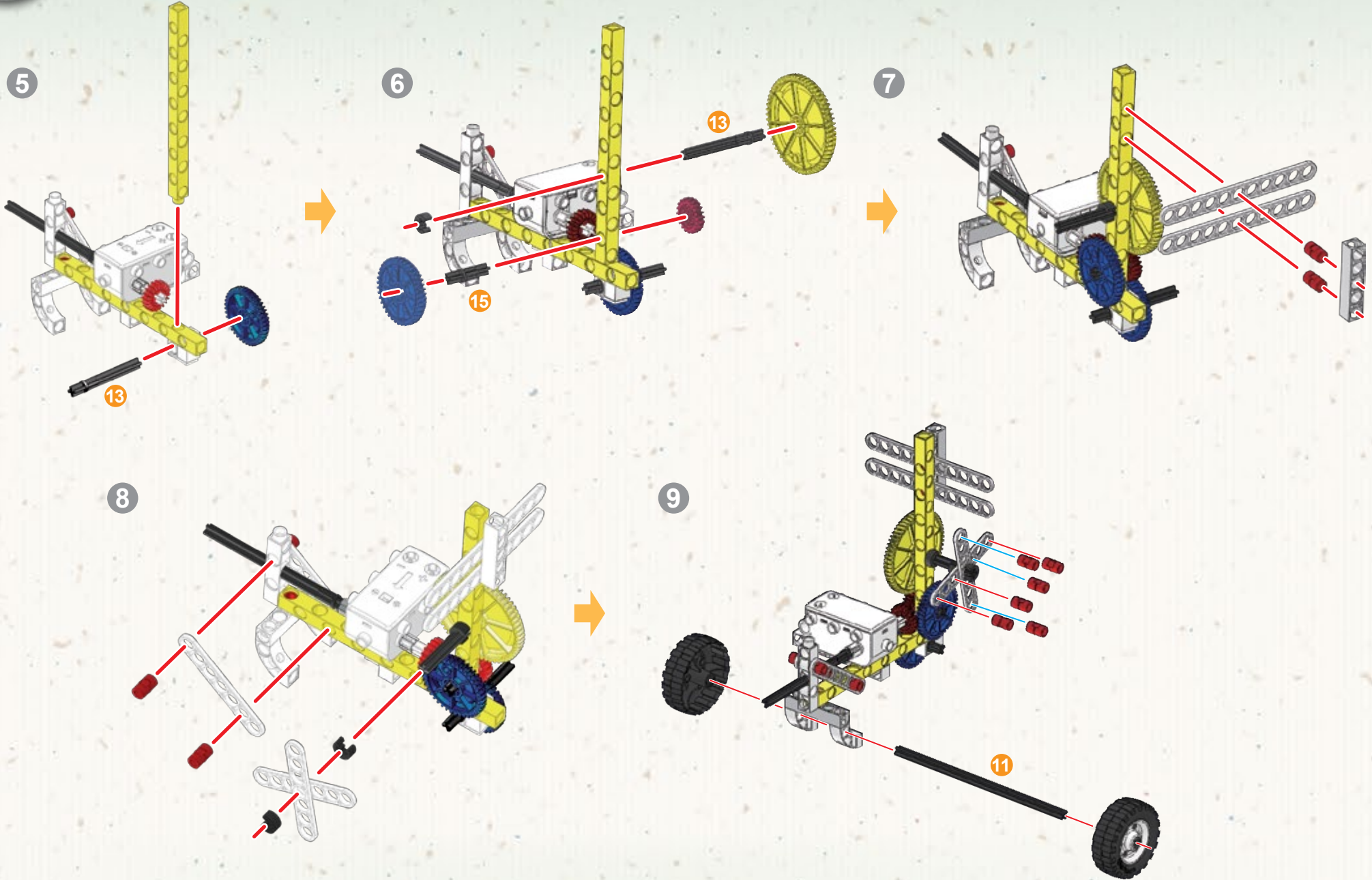
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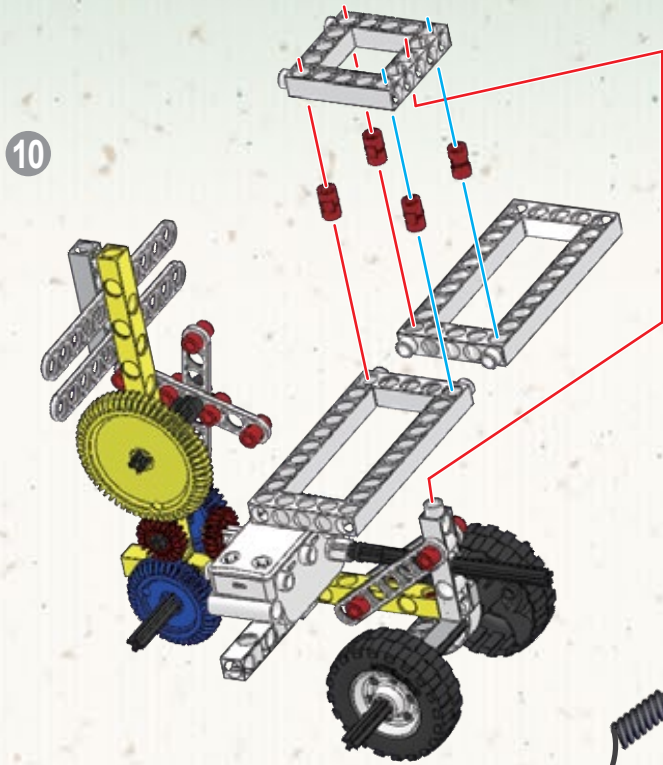


Airplane

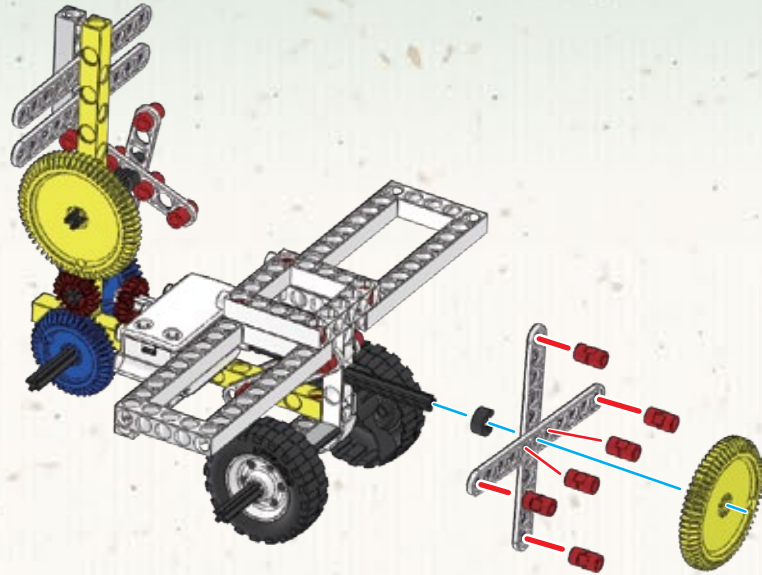




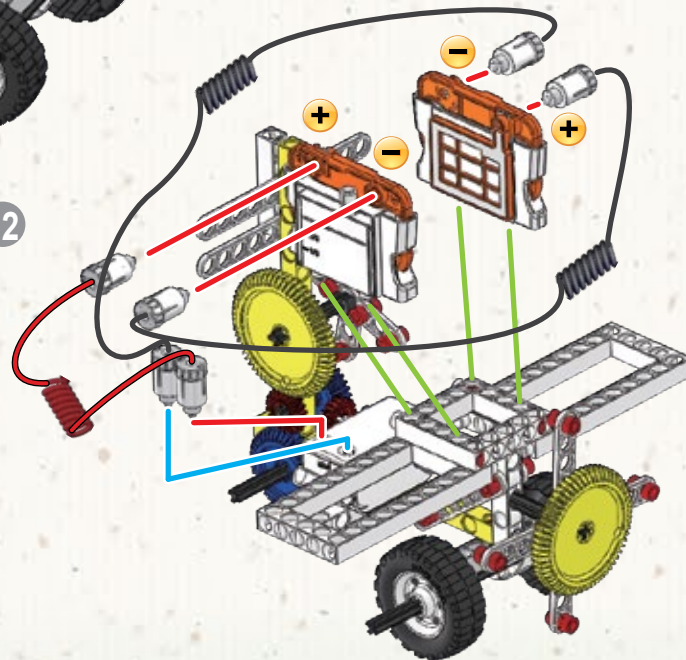




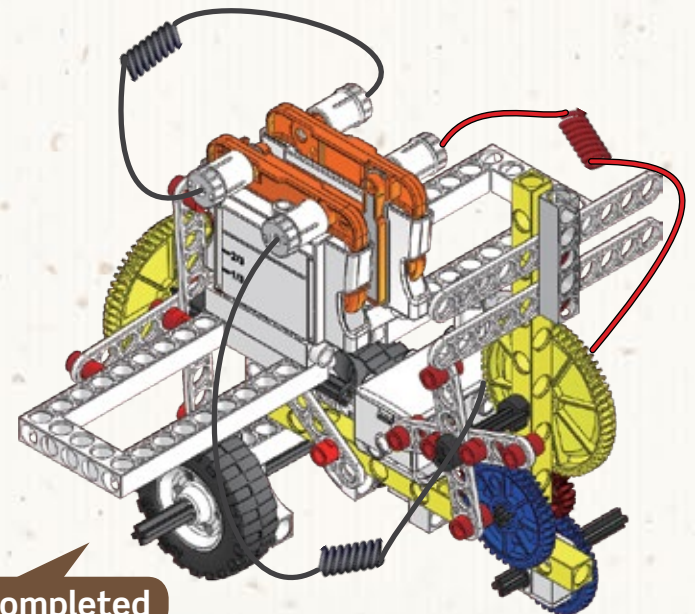
11



12

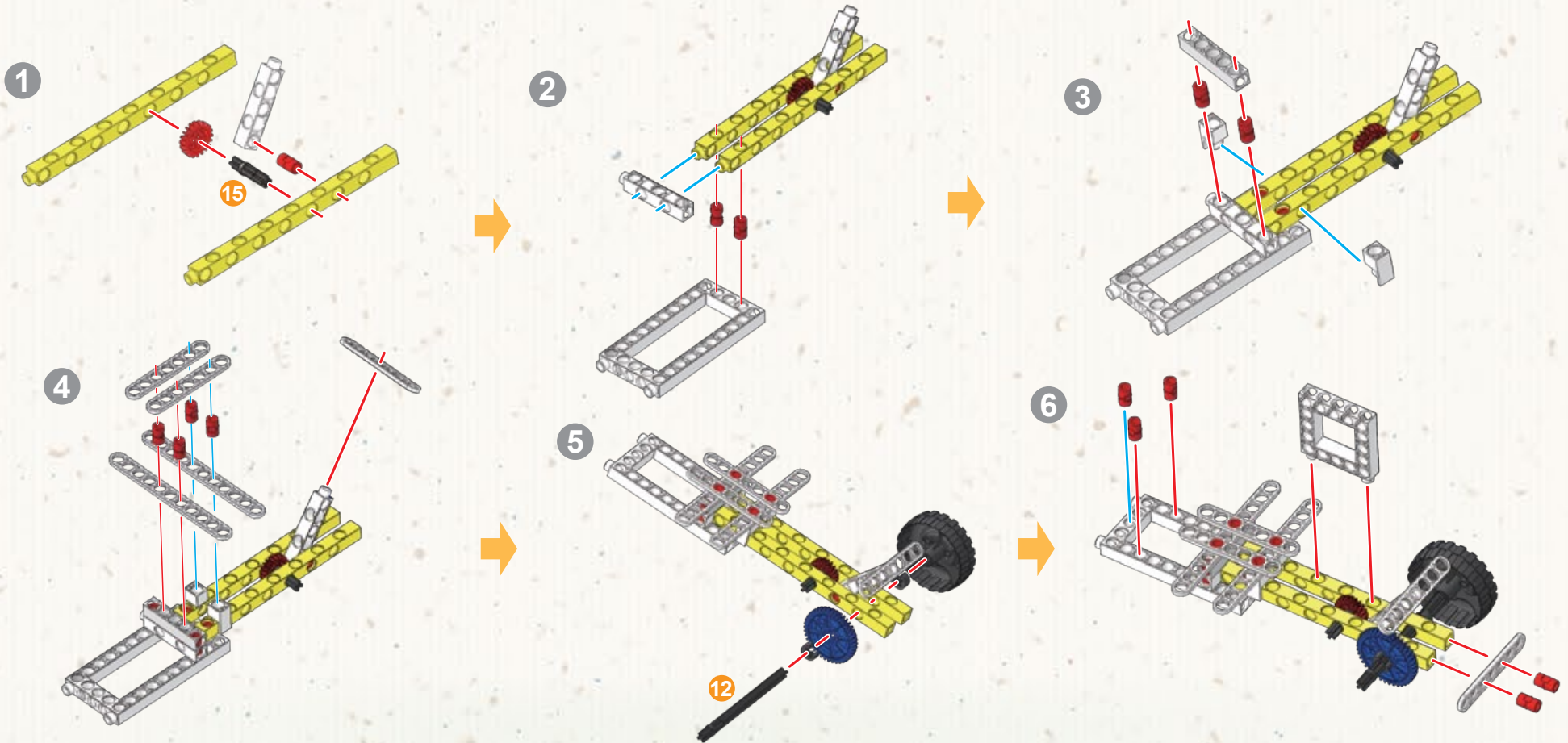


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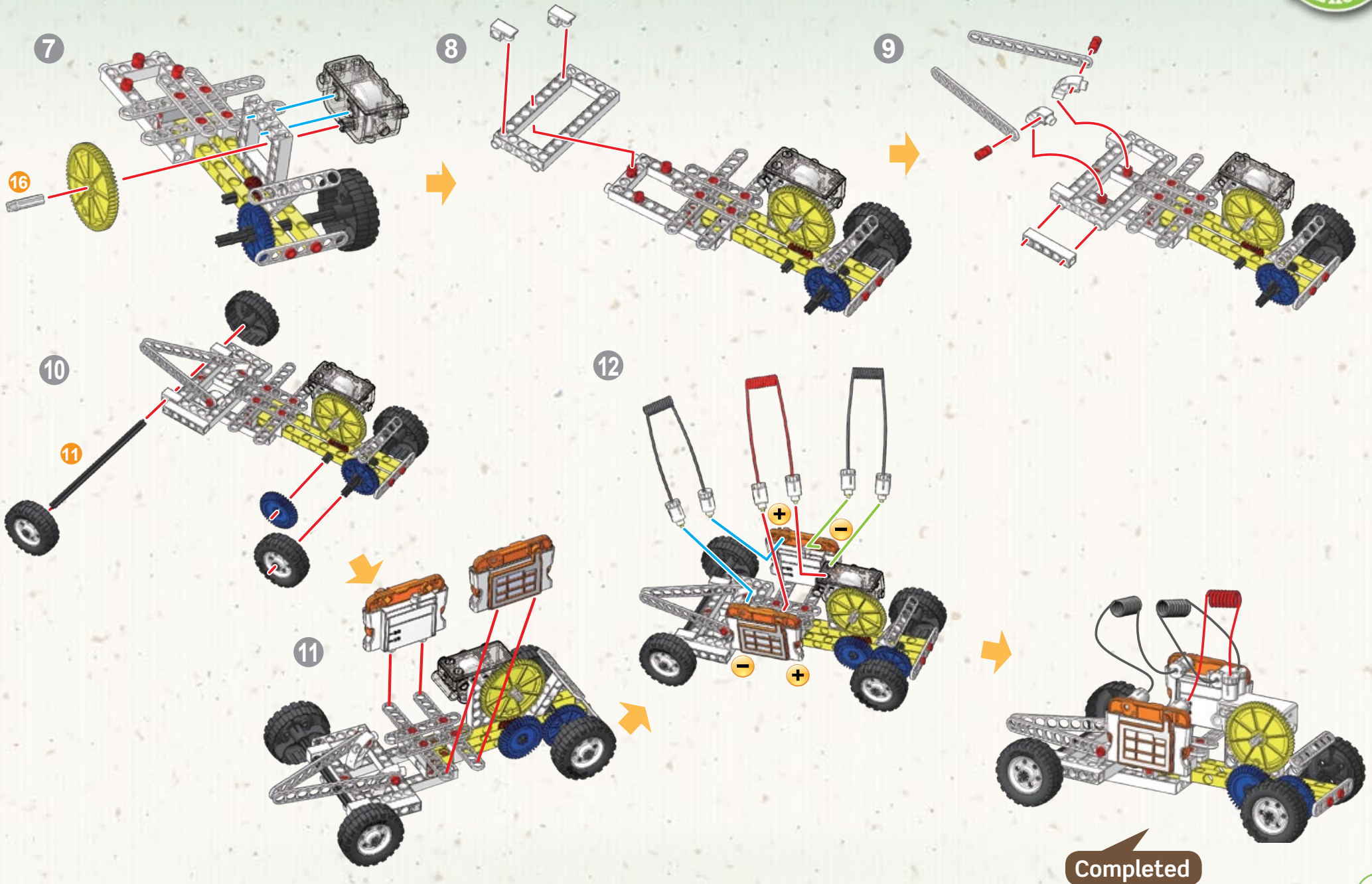




# ECO-BATTERY VEHICLES | MODEL 21 Sports Car





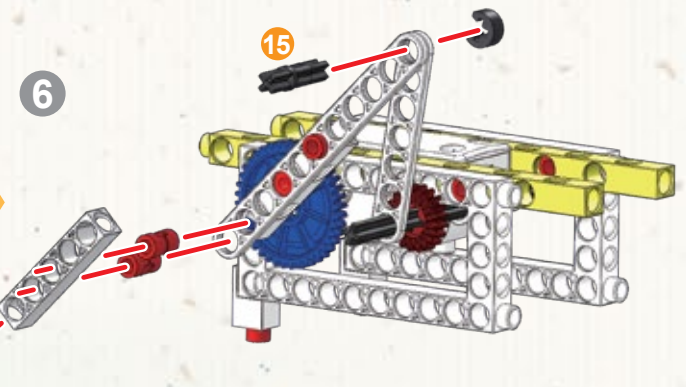
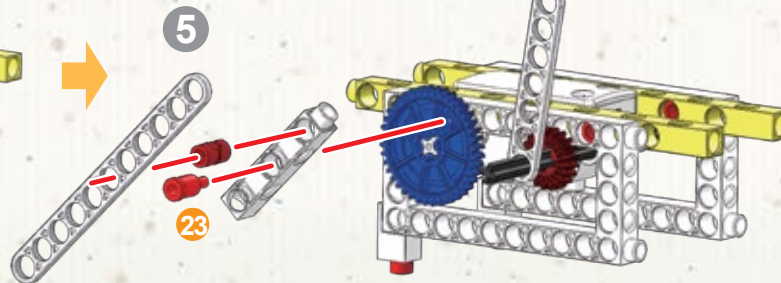
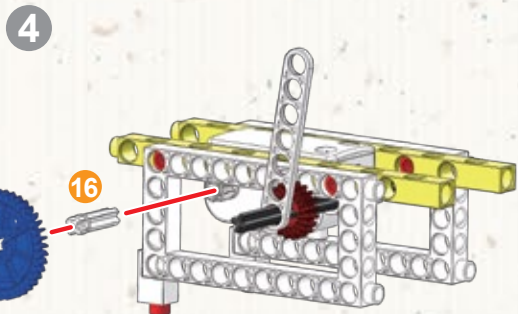
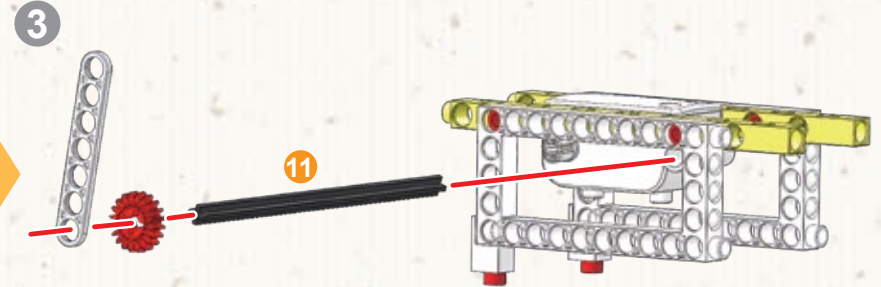
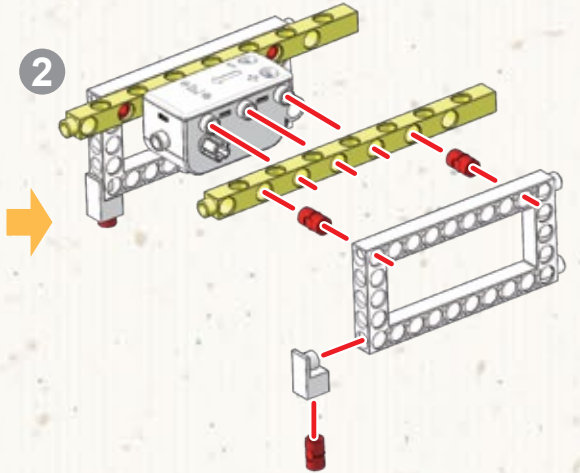
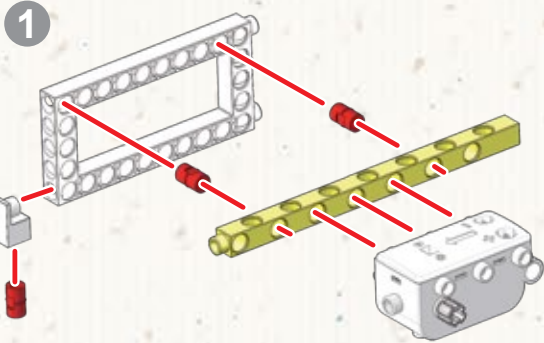


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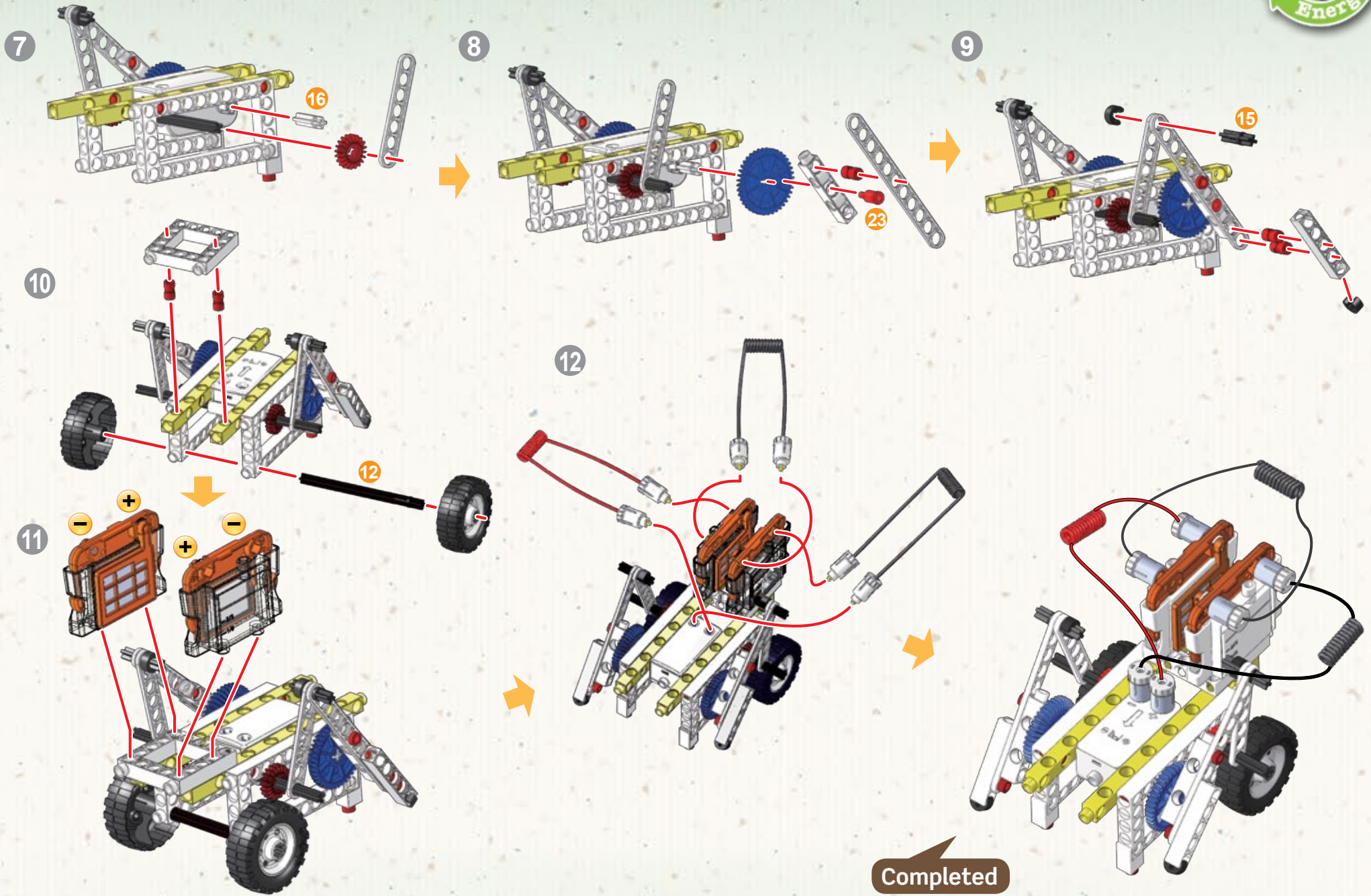


# ECO-BATTERY VEHICLES | MODEL 22 Crab

Crab









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