

CREATIVE engineering maker Master











HIGH TORQUE GEAR BOX

3XAAA BATTERIES (NOT INCLUDED)

FORWARD REVERSE SWITCH



• MOTOR POWER



3D INTERACTIVE INSTRUCTIONS

BUILD

PLAY

LEARN

INVENT STEM

ENABLED

8+
Appropriate Ages



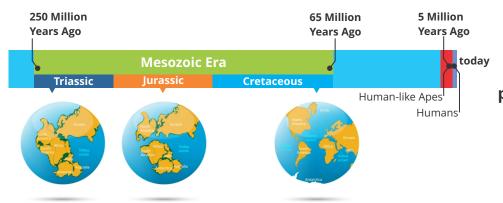






Dinosaurs were the biggest and probably the scariest animals that have ever lived on planet Earth. Some were small, but others were gigantic. Some were plant eaters and had long necks, and others had sharp teeth to eat meat. This extraordinary group of animals, dominated our planet for almost 200 million years and came to a mysterious sudden extinction. Have you ever wondered what types of dinosaurs existed? How was Earth during their era? What are fossils and what is the job of a paleontologist?





Dinosaurs lived very long time ago. During their era Earth's continents changed to their current shape.

The Era of Reptiles

Any event or fact that happened before humans appeared on Earth is called **prehistoric**. In fact, our planet has a very long history of about 4 billion years. Dinosaurs lived a long time ago, during a period named as **Mesozoic Era.** It is also called the "age of reptiles", and lasted from 250 million years ago to 65 million.



Triassic Period

The first of the Mesozoic period was the **Triassic** period, in which the whole landmass of Earth was contained in one single continent, called the **Pangea**. The continent was mostly dry like a desert with water sources to the coasts. The first dinosaurs appeared in this epoch and began to challenge primitive reptilians and amphibians.



Jurassic Period

The second period was the **Jurassic** period. It was the most active epoch in terms of dinosaur's growth. During the Jurassic period, dinosaurs diversified greatly and spread out to occupy land, sea and air, dominating the whole animal kingdom. Some of the most famous and gigantic species lived during this epoch such as the Brachiosaurus, the Stegosaurs and the Ankylosaurs.



Did you know?

The word Dinosaur means a terrible lizard. It comes from two Greek words. The word "dino" which means terrible or causing suffer and the word "saura" which means lizard. Hence, dinosaur means a terrible lizard or a lizard that causes suffering to otherd. This word is coined to Sir Richard Owen, when he assigned uncategorized bones to a totally new species called "dinosauria" in 1841.



A gigantic dinosaur could spread terror

Extinction of dinos

Dinosaurs disappeared suddenly from Earth by the end of the Mesozoic period. Along with the dinosaurs more than 50% of the species who lived on Earth at the time were also vanished. When such large numbers of species undergo global extinction in a short period of time, scientists call it a **mass extinction** event. Some drastic and catastrophic events should happen to cause such dramatic changes of earth's fauna. The dinosaur extinction is named as the **K-T extinction** event, however the exact reasons are still unknown to scientists. This mysterious event is challenging paleontologists and geologists to seek for facts in old rocks and fossils.

Impact theory

One explanation is that a massive **asteroid** hit the Earth millions years ago. Such an impact could have created dramatic changes to the atmosphere and global climate. Huge dust clouds could cover the Sun for months, blocking sunlight and disturbing the vital function of photosynthesis. Temperature could drop significantly while terrible infernos could last for years.



Volcanic eruptions

Another explanation can be the intensive volcanic activities that occurred on Earth during those times.

One of the largest volcanic features on Earth are the **Deccan Traps**, located in India. Geologists estimate that those gigantic "mountains of lava" were formed at the same time when the K–T extinction occurred. Such enormous eruptions could have created deadly conditions on Earth. Toxic gases should have made the atmosphere poisonous, causing a significant blocking of sunlight.



Triceratops

Triceratops are one of the most easily recognizable dinosaurs due to its large body, unique frill and the three horns. Its name comes from the Greek words, 'tri' meaning three 'keras' meaning horn and 'opsi' meaning face. So, a triceratops literally means a three horned face.



Triceratops is well distinguished by its very large skull, being longer than 2 metres sometimes. It also had between 400 and 800 teeth, however despite its large number of teeth triceratops were plant eaters.



Did you know?

A total of five mass extinctions have been recorded by studying fossils. Each one vanished more than 50% of the living species and plants on Earth. The Tardigrade, is a tiny animal which survived from all extinction events! It is so small that it can only be seen through a microscope. It can sustain extreme temperatures and pressures, and can live without food or water for more than 30 years!



The tardigrade has survived all 5 mass extinctions

Stegosaurus

Another legendary dinosaur who lived during the Jurassic period was the mighty Stegosaurus. Large and heavy, Stegosaurus is one of the most easily identifiable dinosaurs, due to its double row of kiteshaped plates. The plates were rising vertically along the rounded back and a pair of spikes extended at the end of its tail. The largest plates were found over its hips and could measure up to 60 cm.





Ankylosaurus

Ankylosaurus was one of the last dinosaurs remaining before the large extinction event that occurred at the end of the Mesozoic Era. The prominent feature of Ankylosaurus was its armour. It consisted of knobs, plates and spikes of a bone embedded in its skin.

Quiz

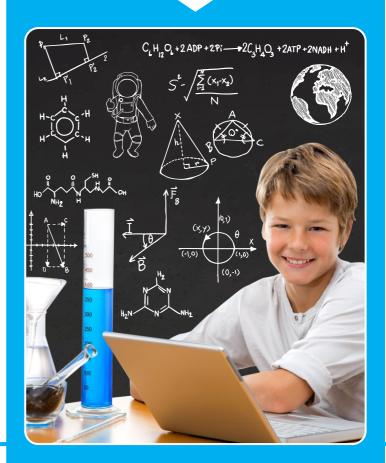
Can you discover the following words inside the box? Search horizontal, vertical and diagonal to find them!

REPTILES, JURASSIC, DINOSAUR, PANGEA, EXTINCTION, FOSSIL

Α	R	Т	U	D	F	L	Q	J	U
S	E	D	I	N	0	S	Α	U	R
Т	Р	0	L	А	S	Р	U	R	I
ı	Т	Α	V	R	S	0	С	Α	G
С	I	Т	N	J	I	М	Е	S	Н
Р	L	Α	D	G	L	I	R	S	Е
W	E	X	U	0	Е	X	Т	I	Z
М	S	U	R	Т	Υ	Α	U	С	Α
Н	V	R	В	0	Т	0	F	U	0
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More theory & experiments online!

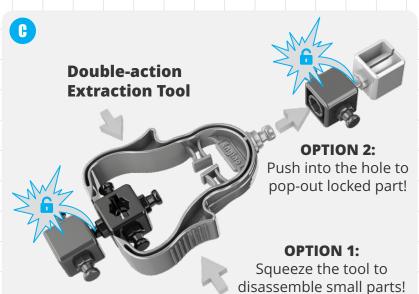
www.engino.com/theory/ce401mm-a



X Building Tips







Free App

Use your PC or tablet and go to the following link for more models:

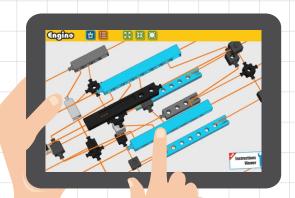
www.engino.com/instructions/ce401mm-a

B Download the app to discover step-by-step instructions in 3D view!

Engino kidCAD (3D Viewer) app:



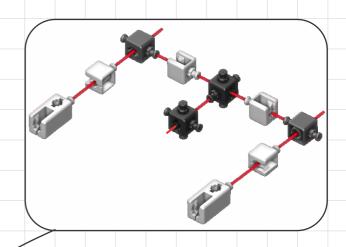


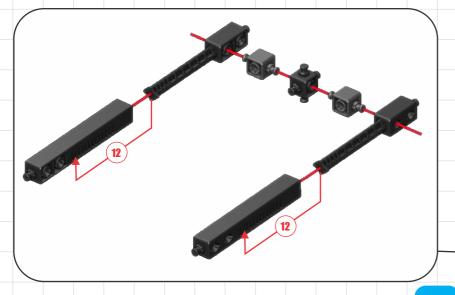


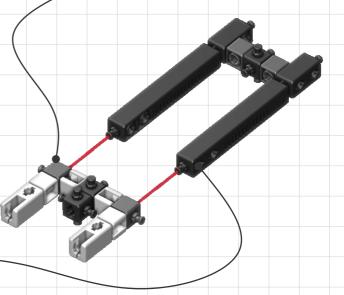
X Building Instructions

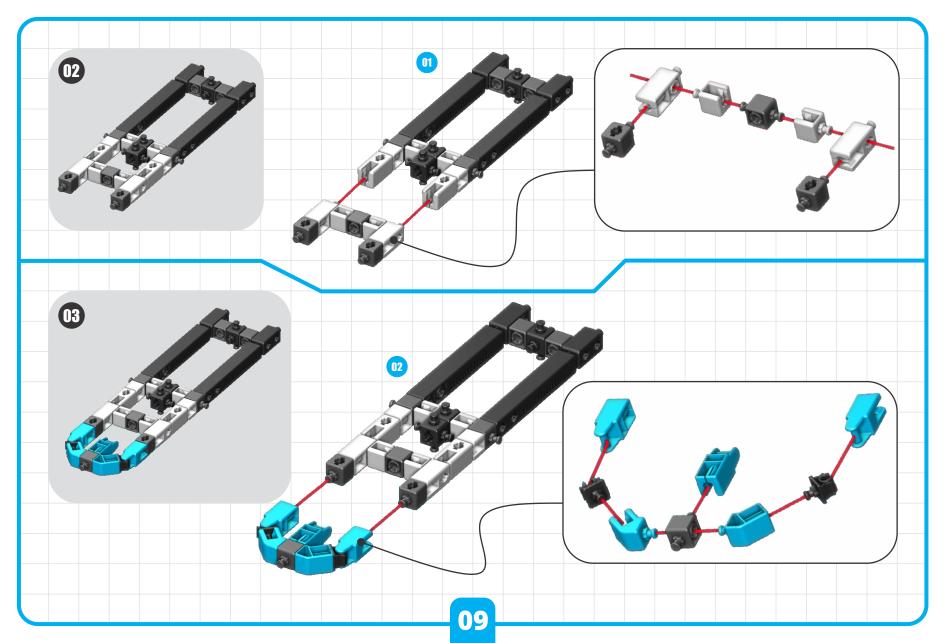


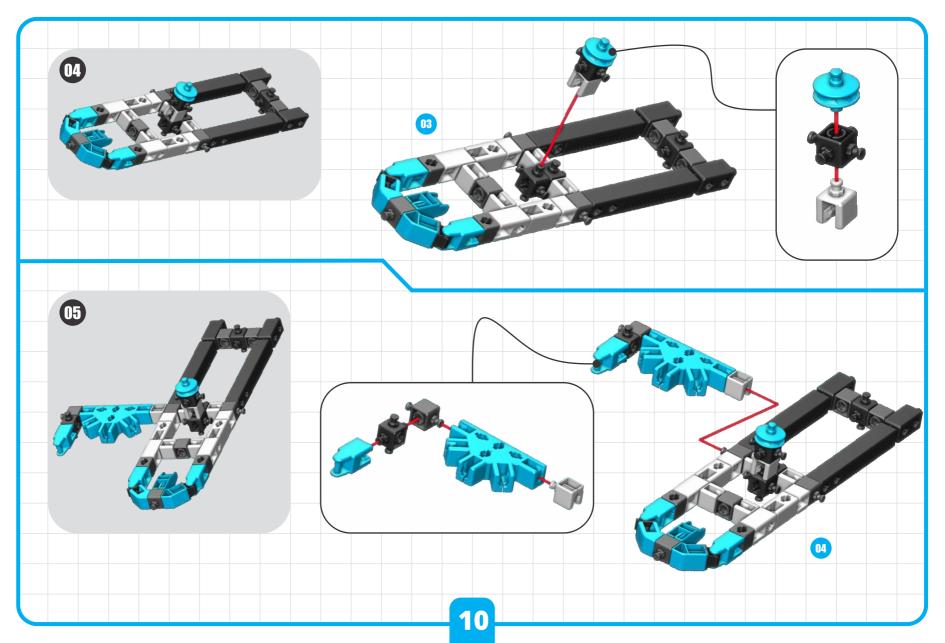


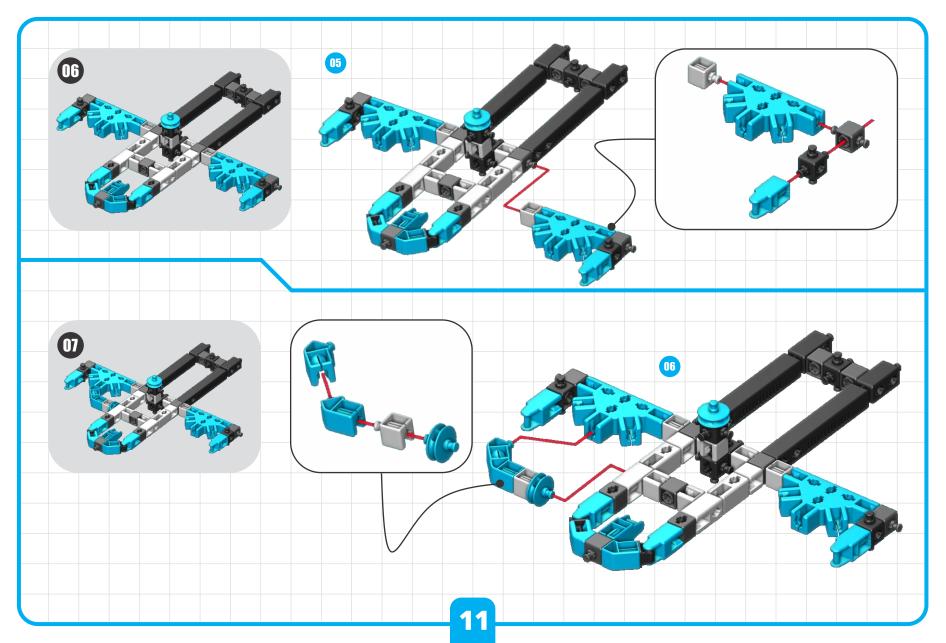


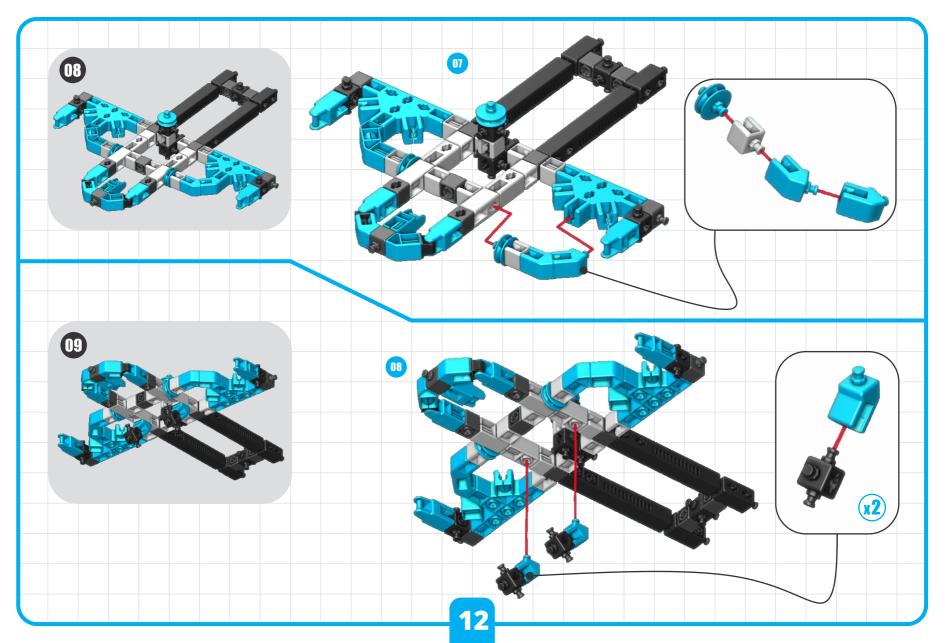


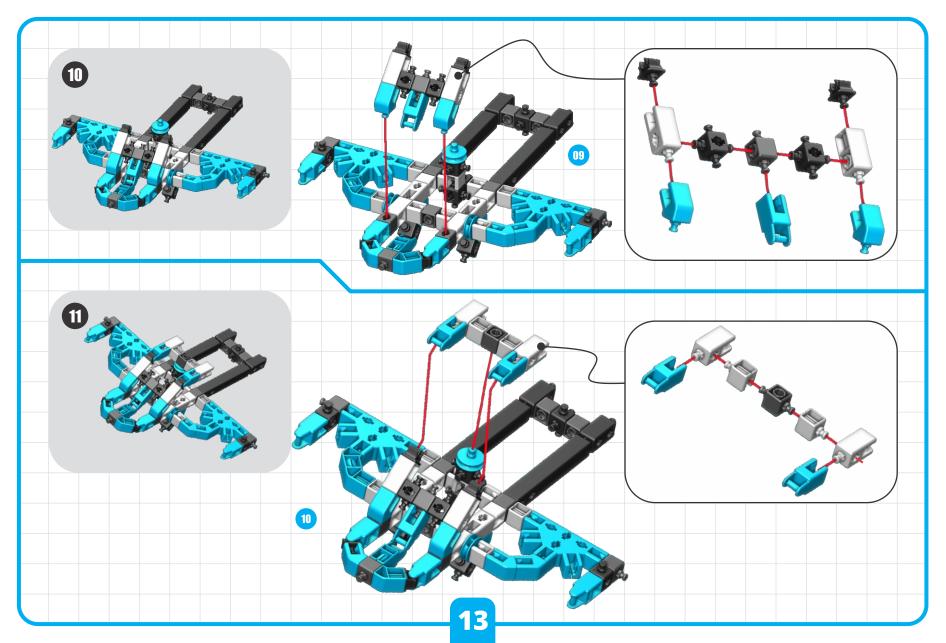


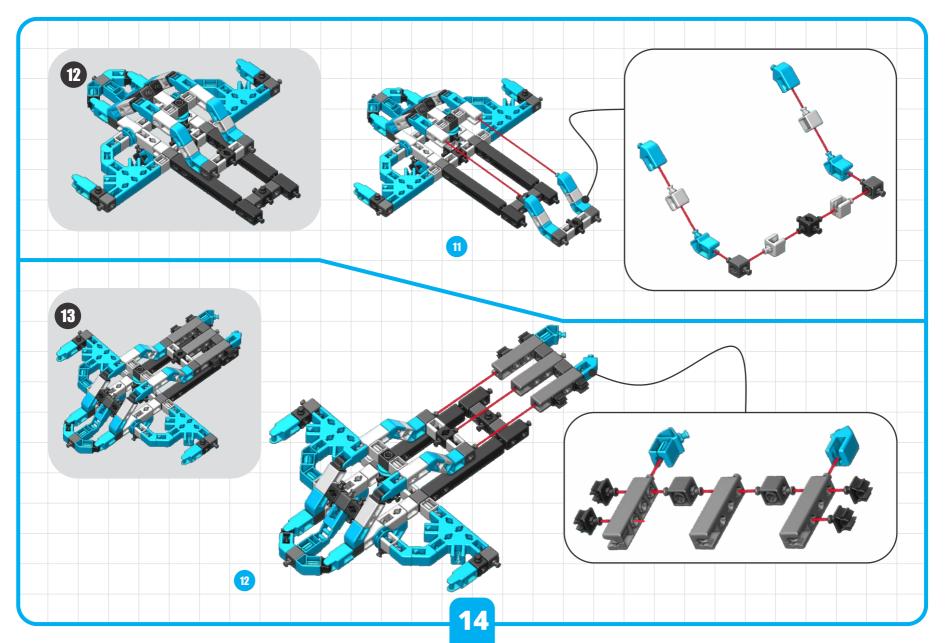


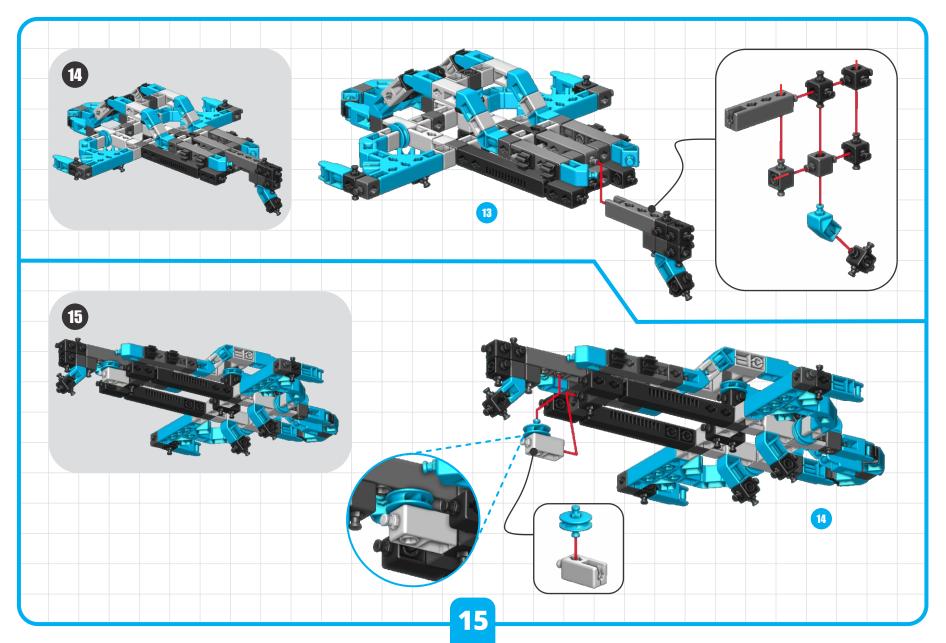


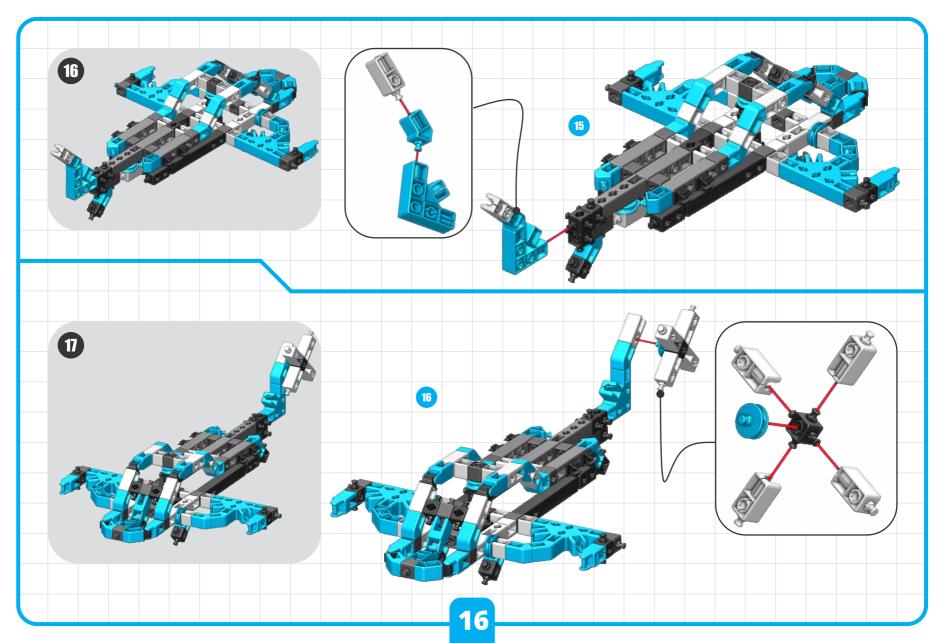


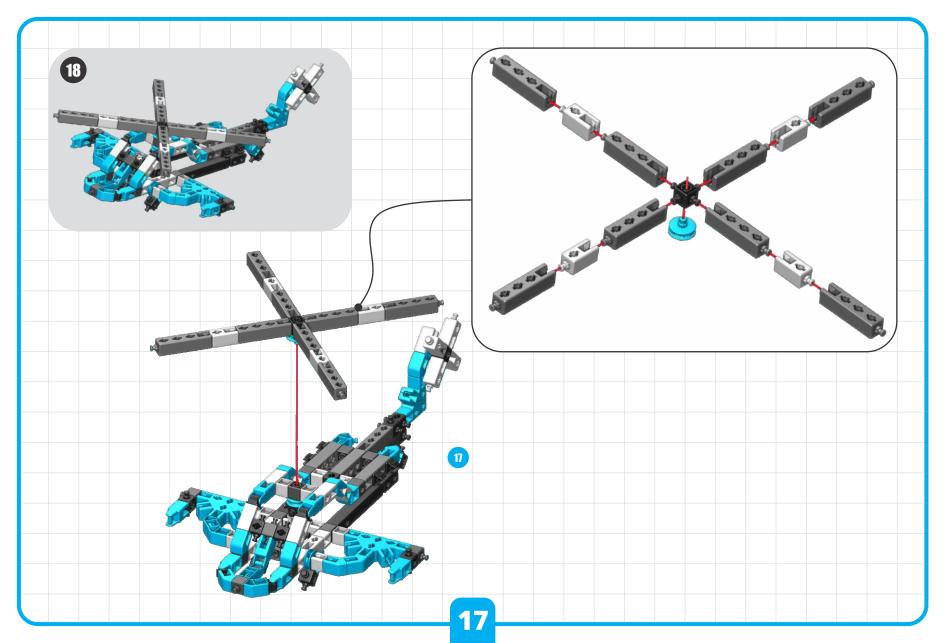


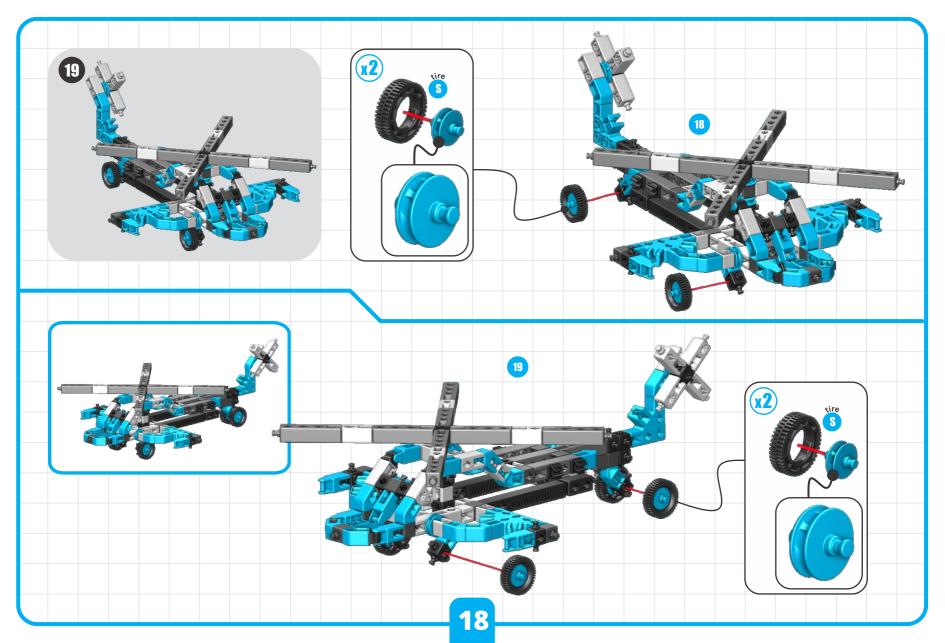


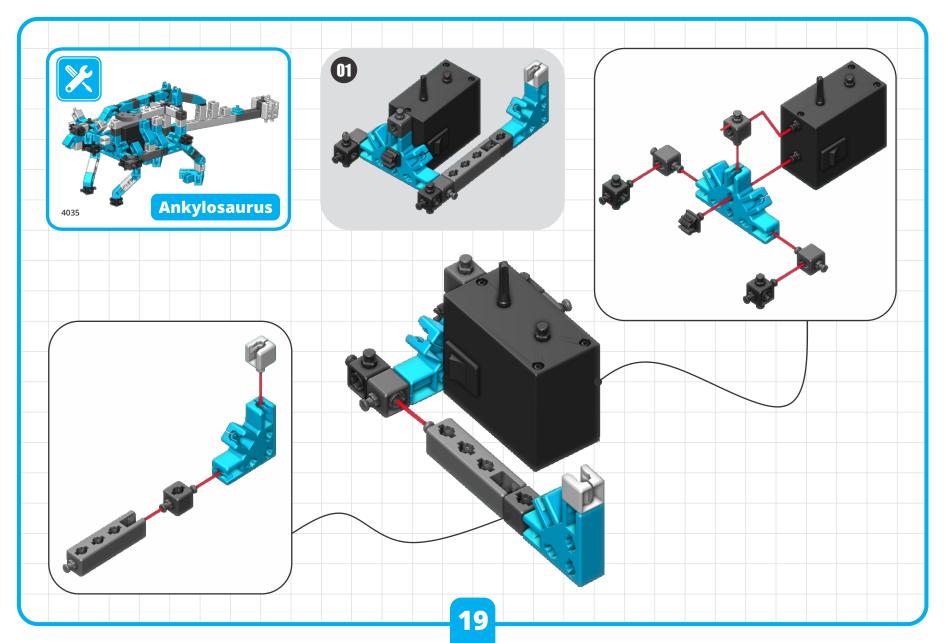


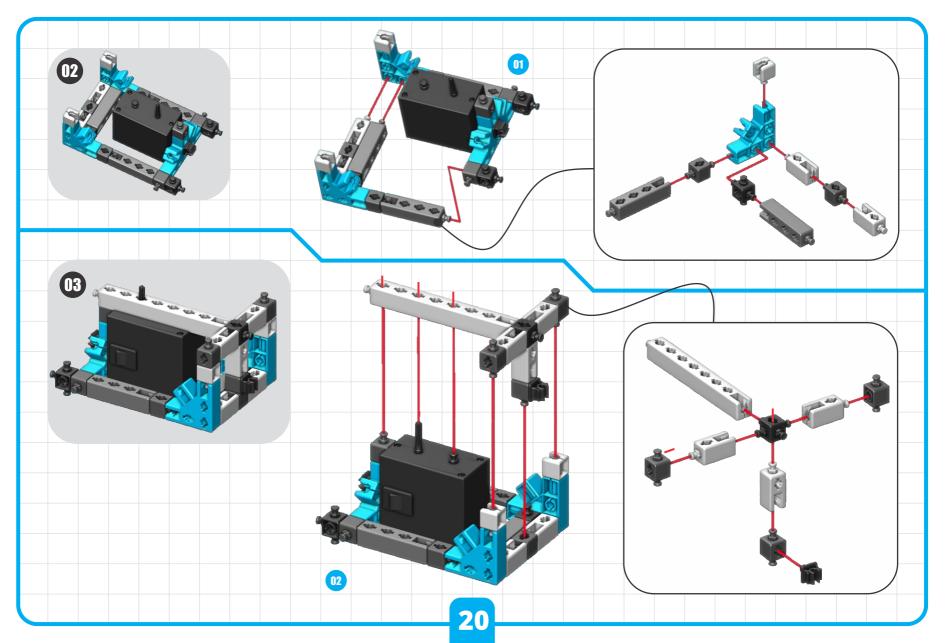


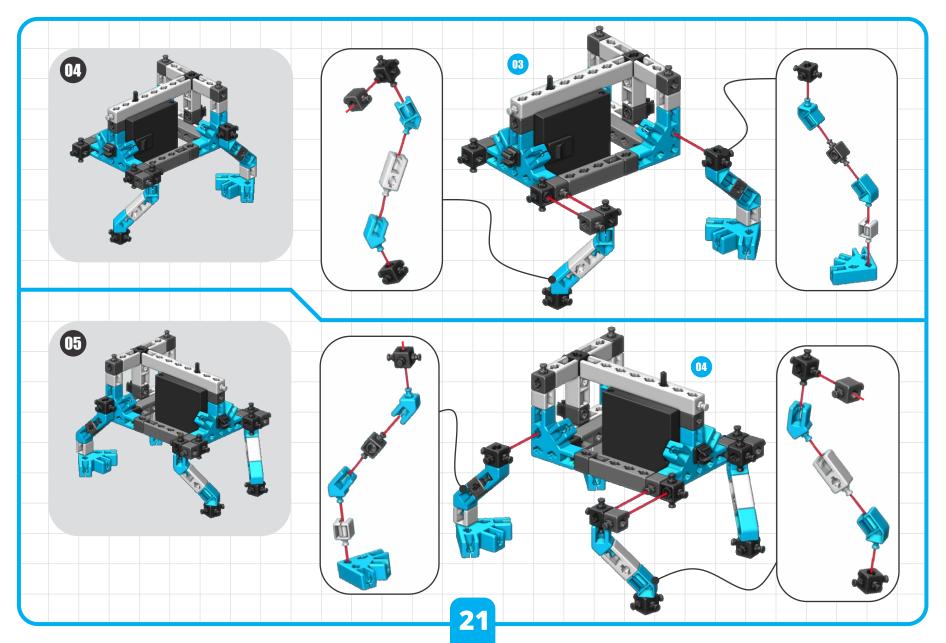


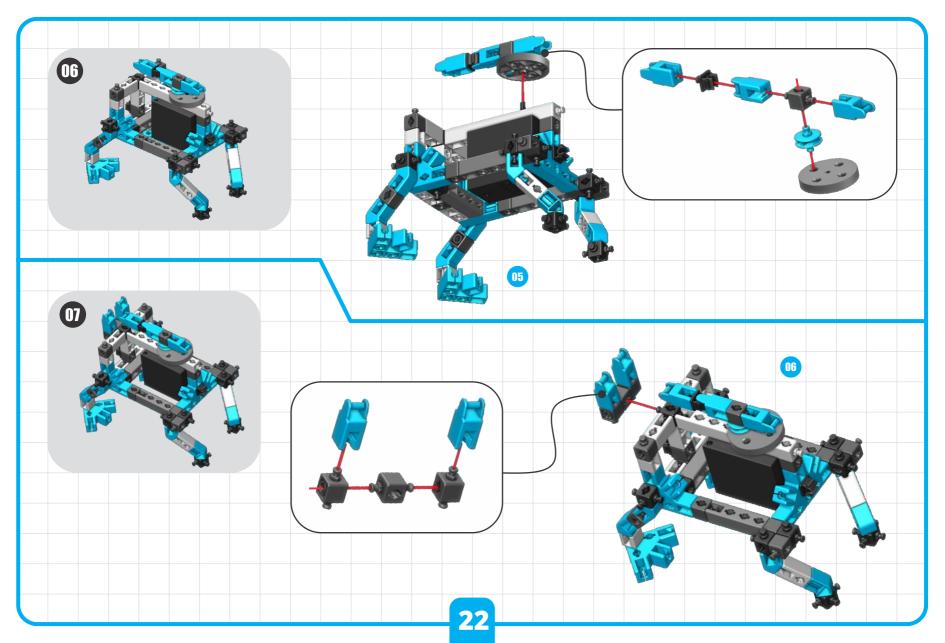


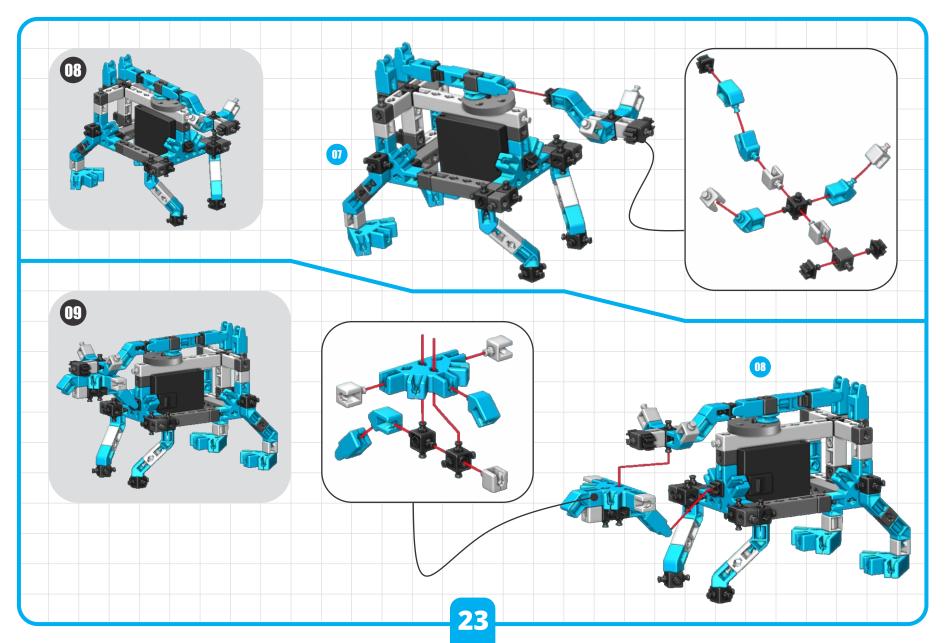


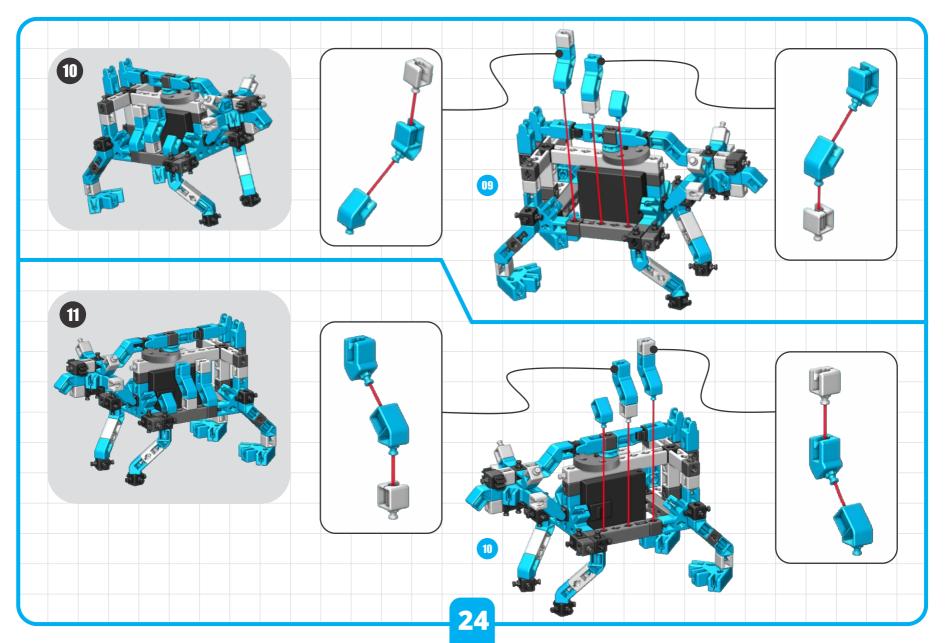


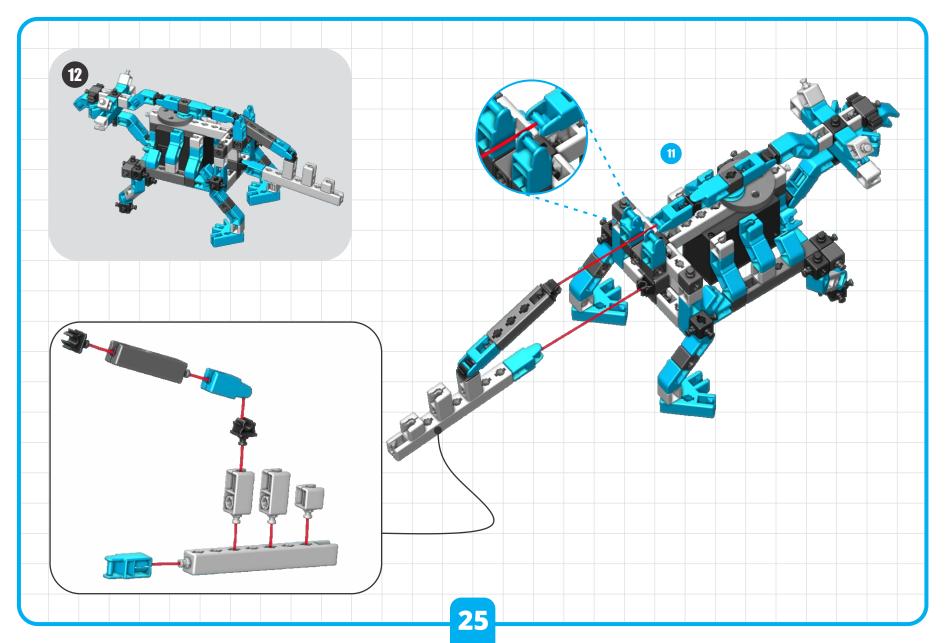


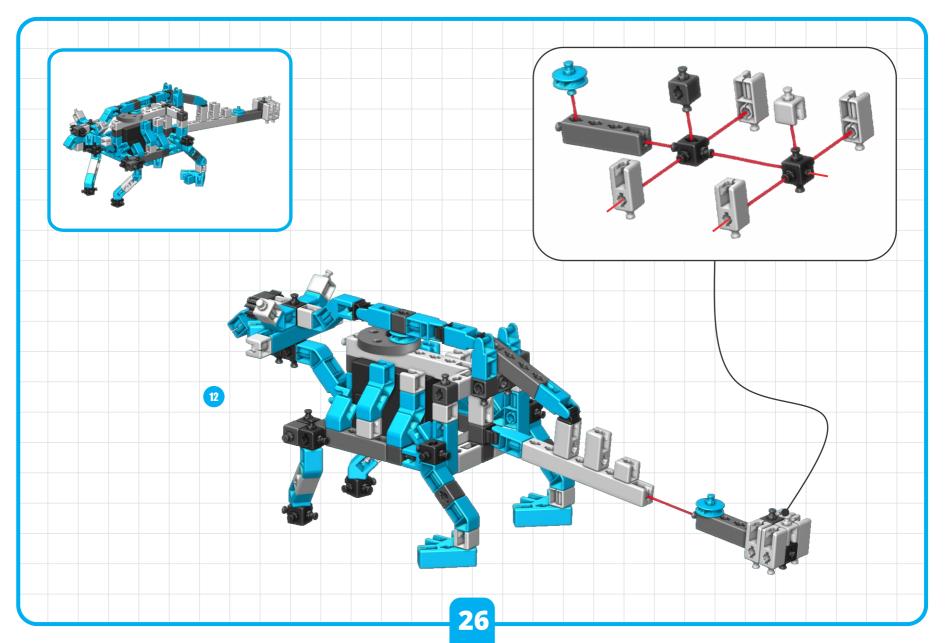












Bill of materials







S005-03



S006-03



S010-05



S007-06



























x8

x24

x10 S012-28

x4 S015-28

x2 S016-28

M008-04

X1 M009-04

x1 M011-04

M010-04

M012-04

x1 M013-04



S018-04



x2 S017-06



x4 S019-06



х4 S020-06



x8 S011-06



х1 E003-06



E005-06





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