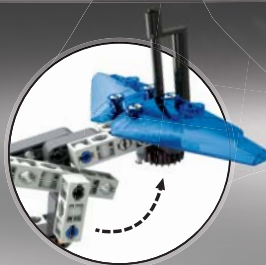


MECHANICS Laboratory

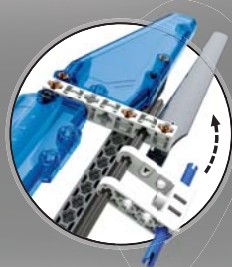
AEROPLANES AND HELICOPTERS

Constructions 19 to 20

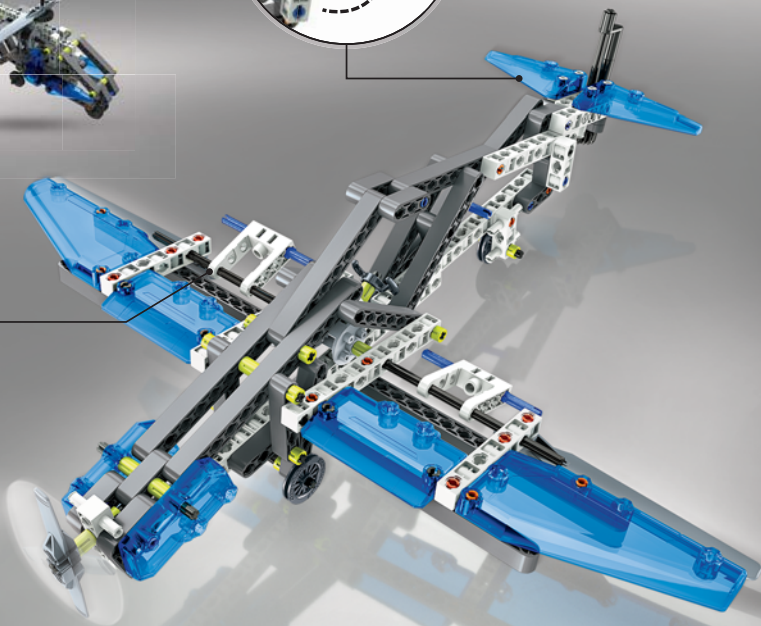
- 19 - The search and rescue helicopter
20 - The stunt plane



Adjustable
STABILIZERS



Movable
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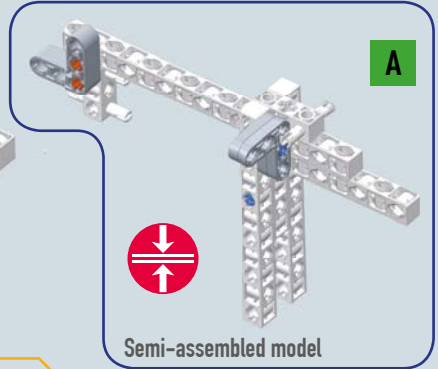
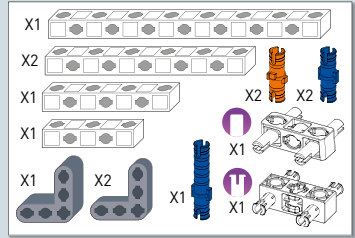
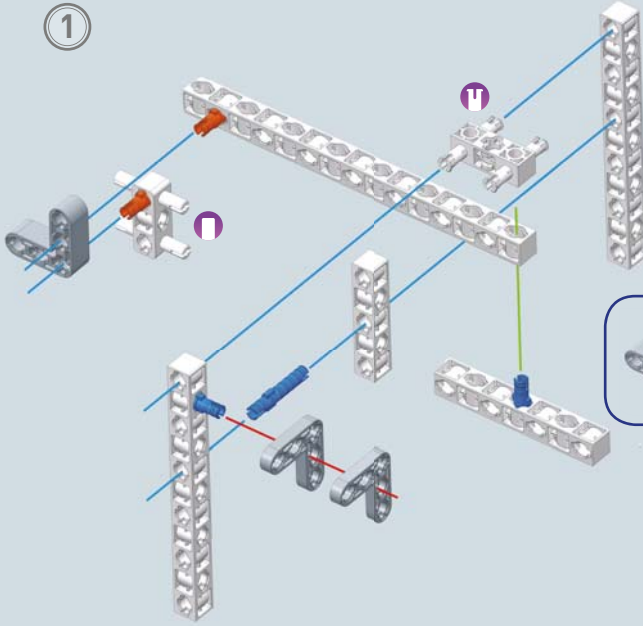
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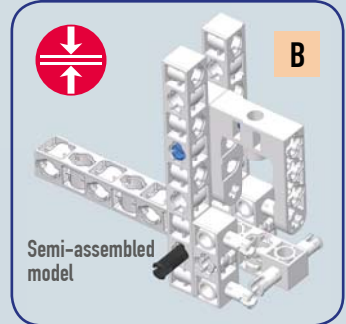
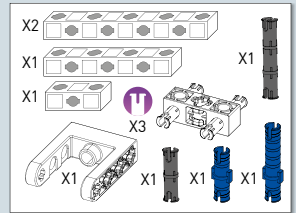
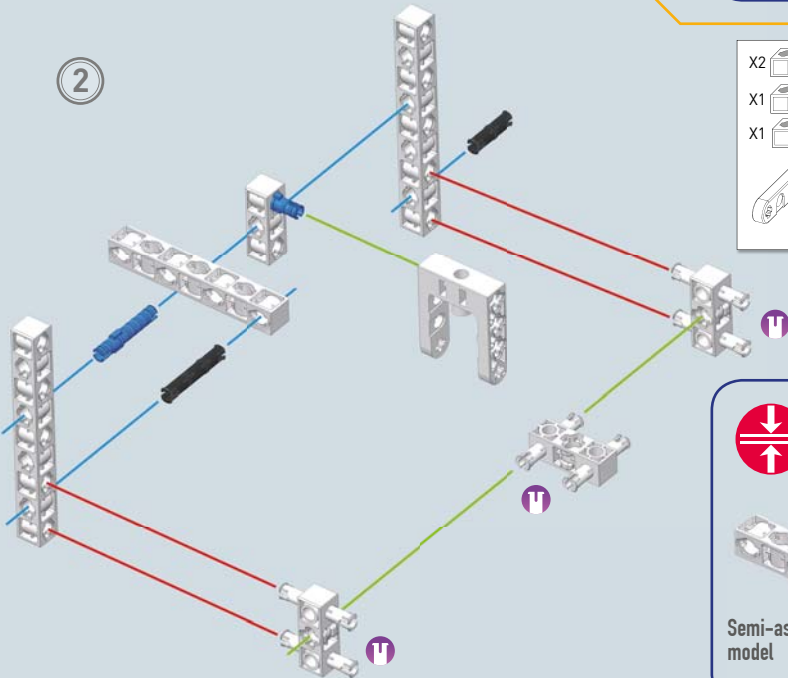
19 The search and rescue helicopter








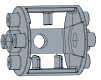


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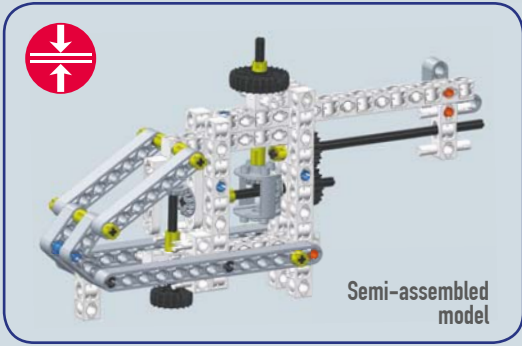
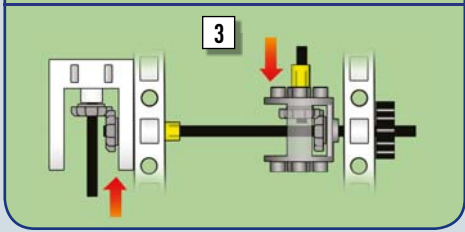
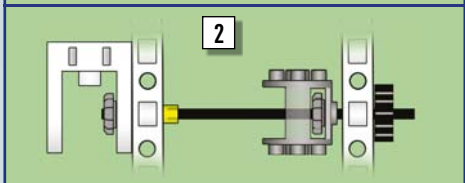
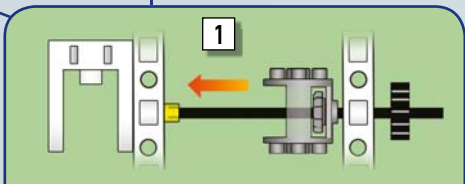
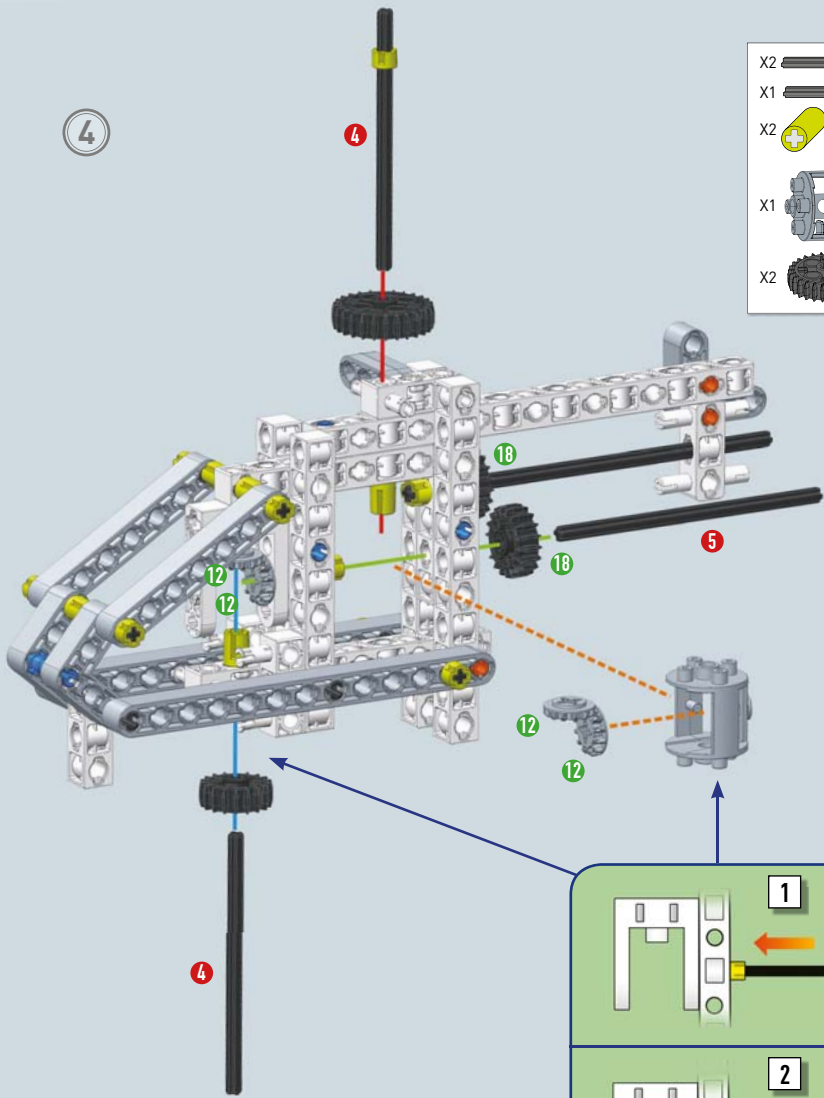


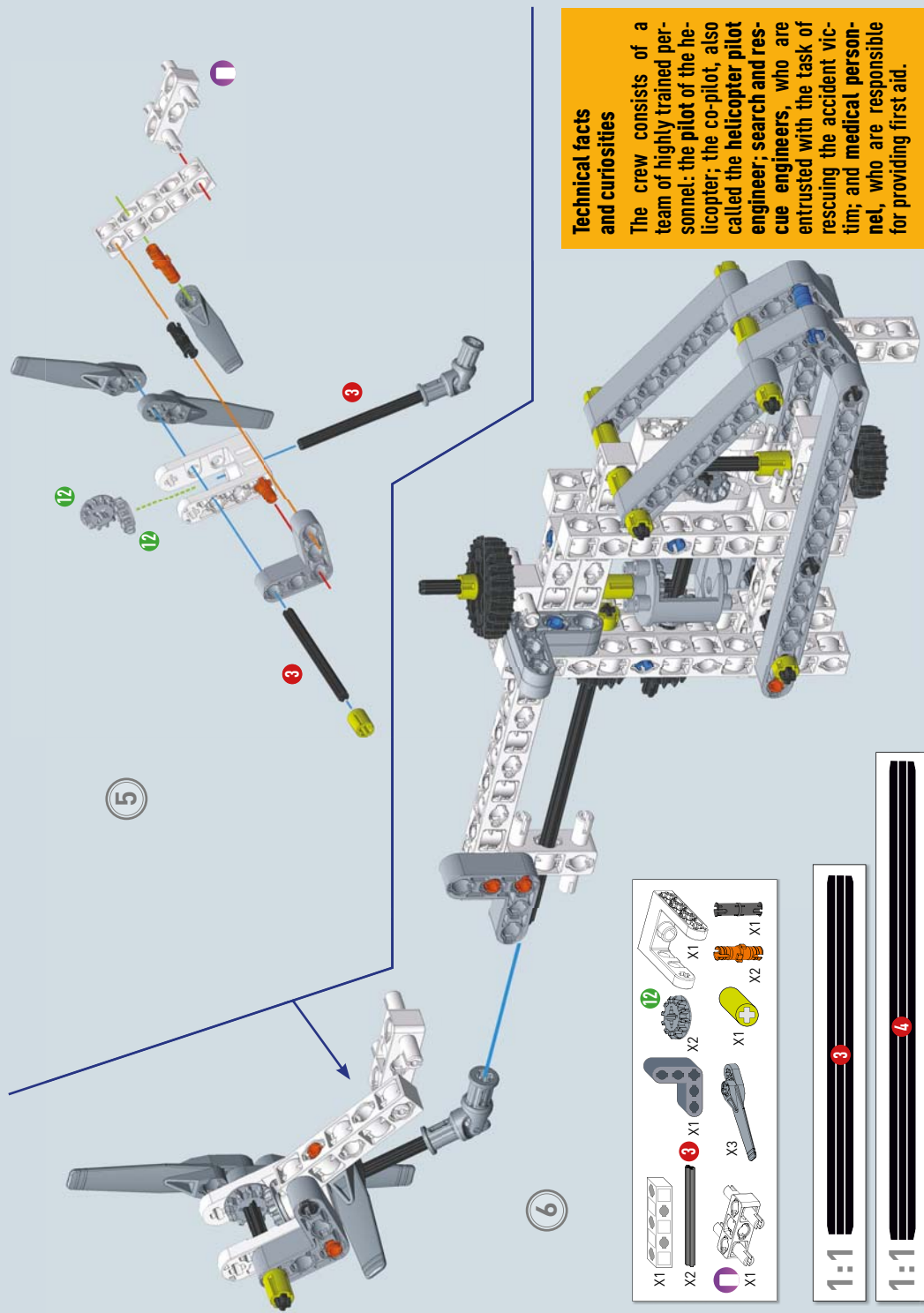
2



4

- X2  4
- X1  5
- X2  X2  X4  12
- X1  X2  18
- X2  26

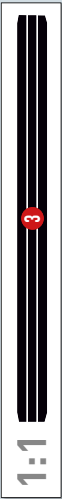




Technical facts and curiosities

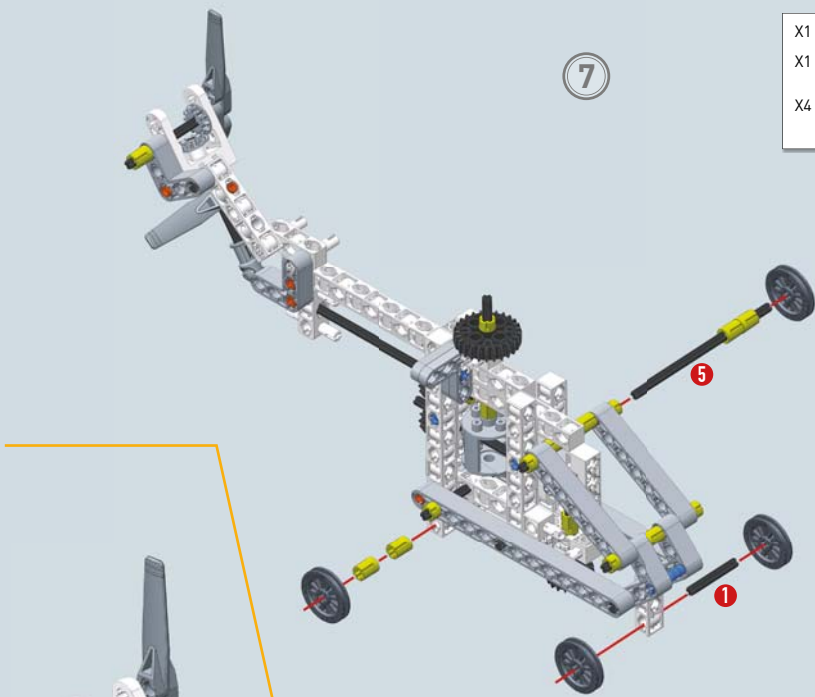
The crew consists of a team of highly trained personnel: the pilot of the helicopter; the co-pilot, also called the **helicopter pilot engineer**; search and rescue engineers, who are entrusted with the task of rescuing the accident victim; and medical personnel, who are responsible for providing first aid.

- X1
- X2
- X3
- X1
- X2
- X1
- X2
- X1
- X1
- X1



7

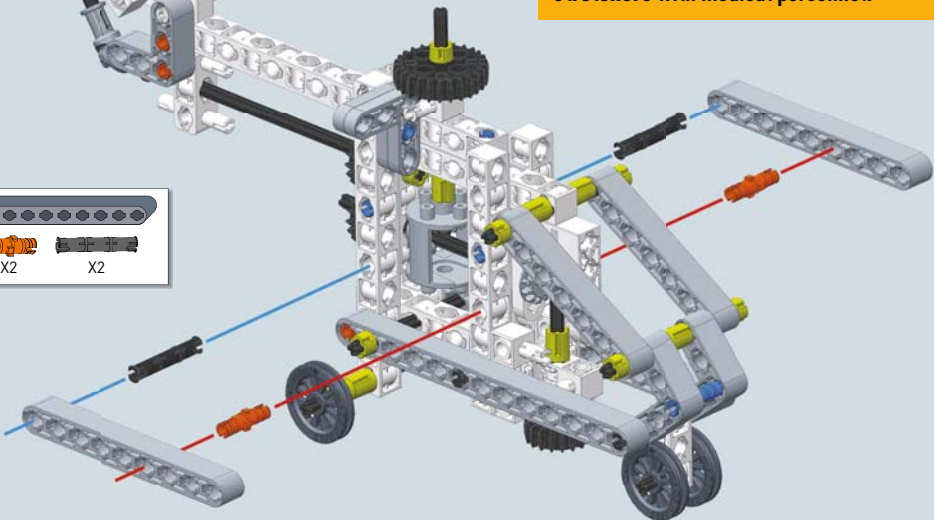
X1		1
X1		5
X4		
X4		



8

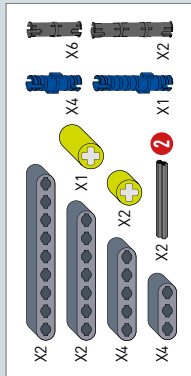
Technical facts and curiosities
 Larger models are equipped with a cargo door for accessing the cargo hold and can hold huge amounts of cargo. They can carry up to 30 people seated, or 16 stretchers with medical personnel.

X2	
X2	
X2	



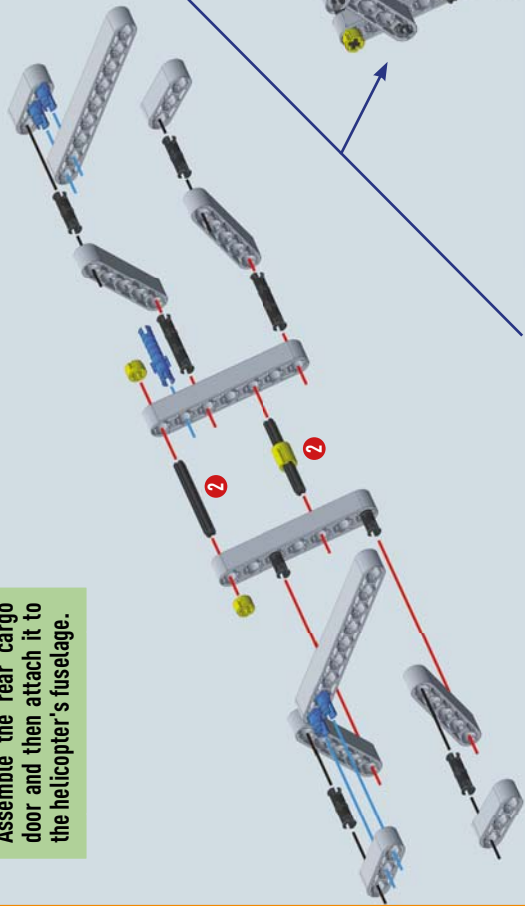
1:1  **2**

1:1  **3**



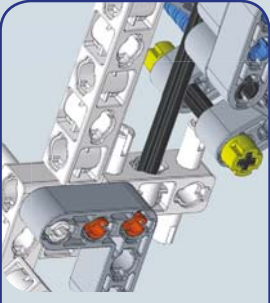
9

Assemble the rear cargo door and then attach it to the helicopter's fuselage.

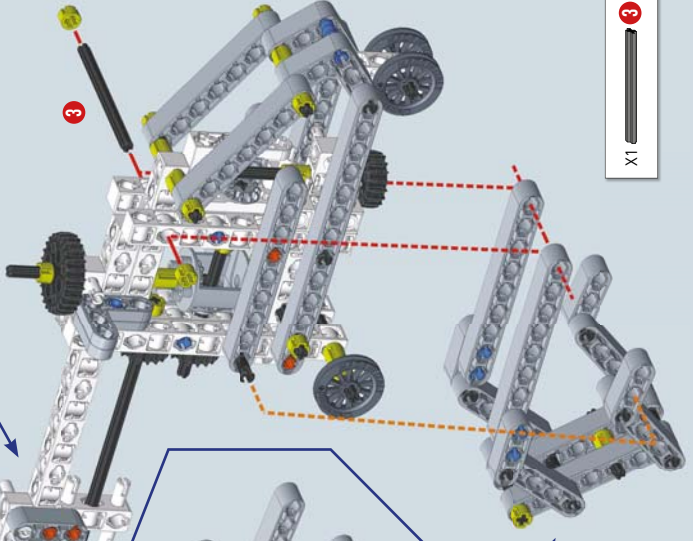


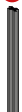

Once you have attached the cargo door to the fuselage, use the blue double peg to raise and lower it. You can lock it in position by clamping it to the bar with pins.

10

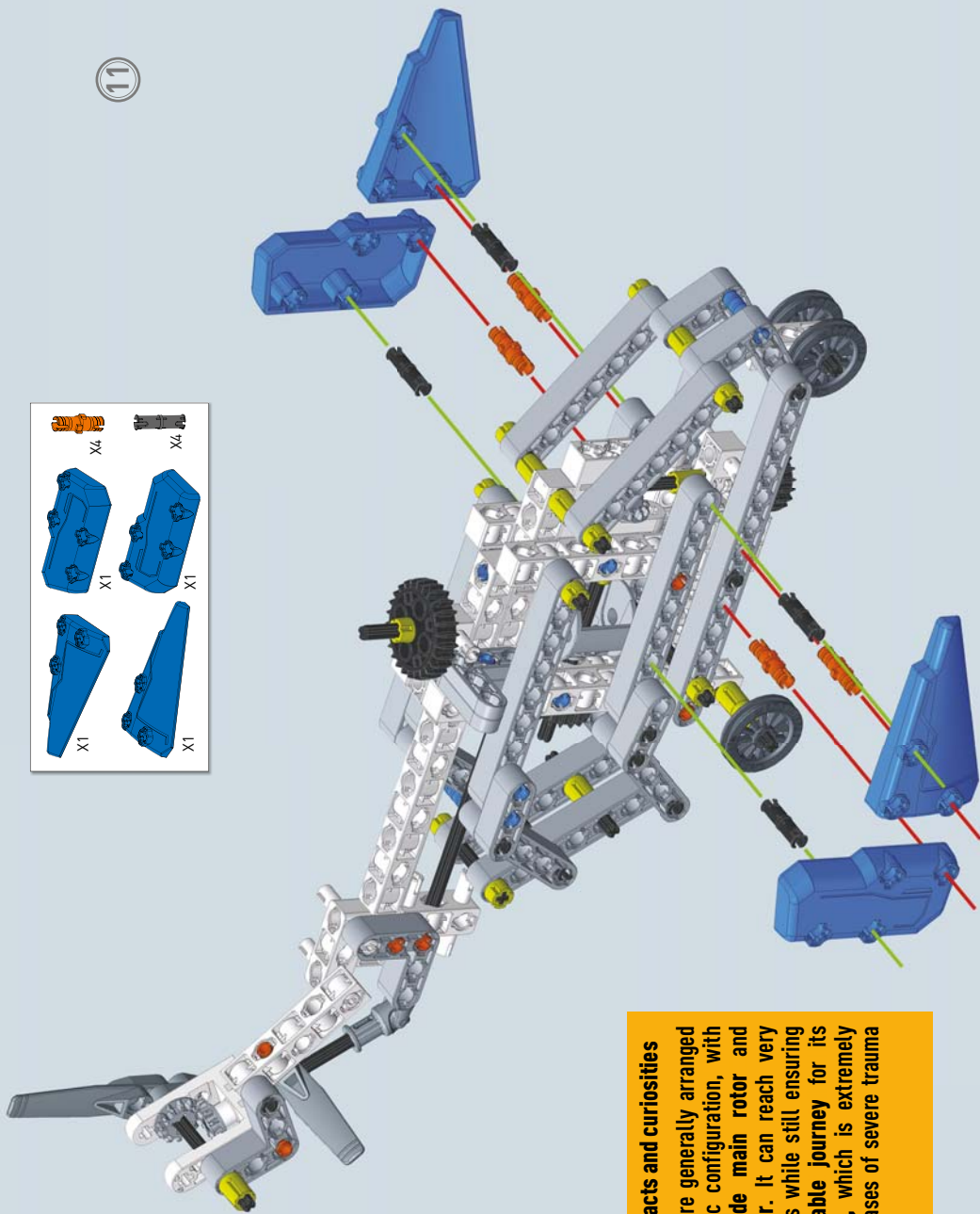
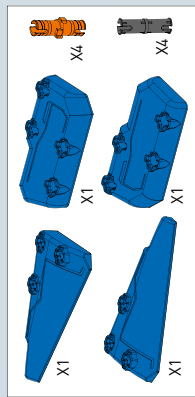


3



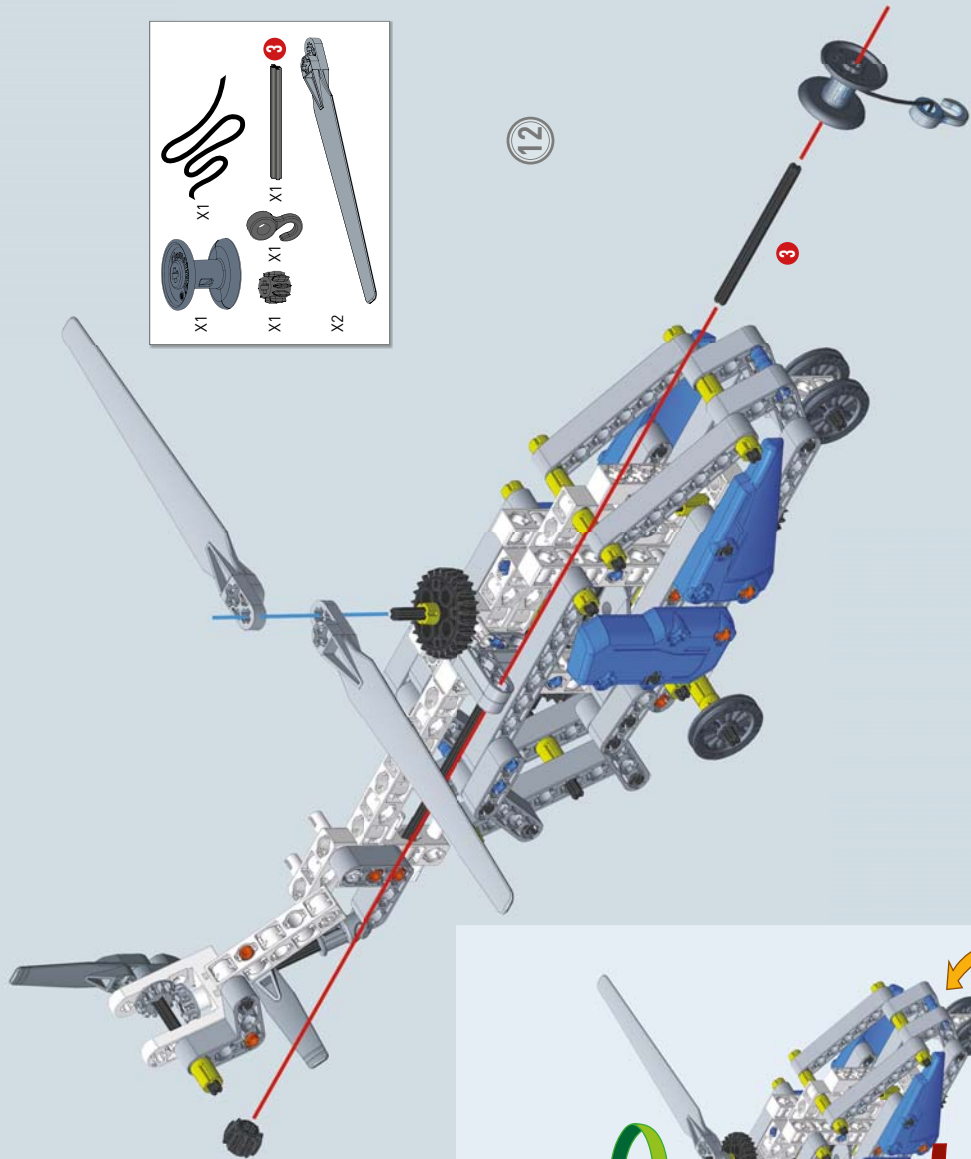
X1  **3** X2 

11



Technical facts and curiosities

Its rotors are generally arranged in a classic configuration, with a **four-blade main rotor** and a **tail rotor**. It can reach very high speeds while still ensuring a **comfortable journey** for its passengers, which is extremely useful in cases of severe trauma patients.

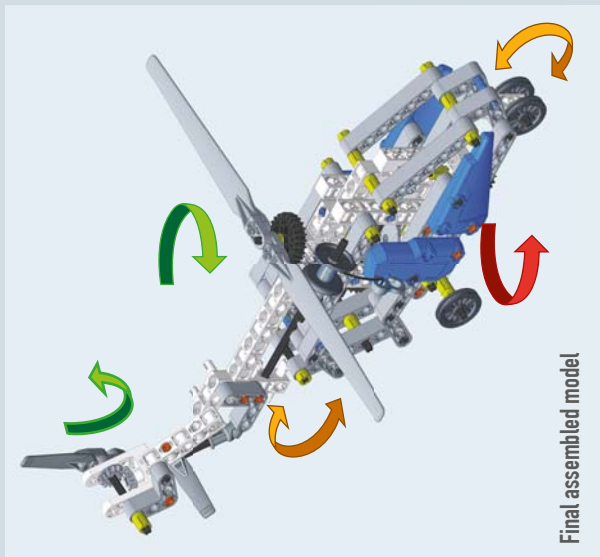


- X1
- X1
- X1
- X1
- X1
- X2

12

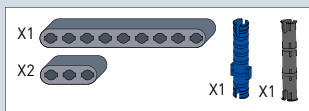
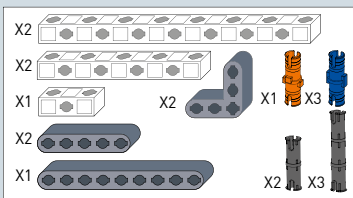
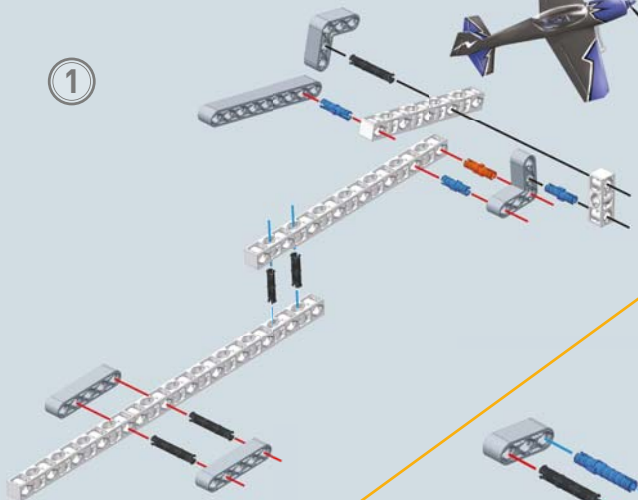


1:1

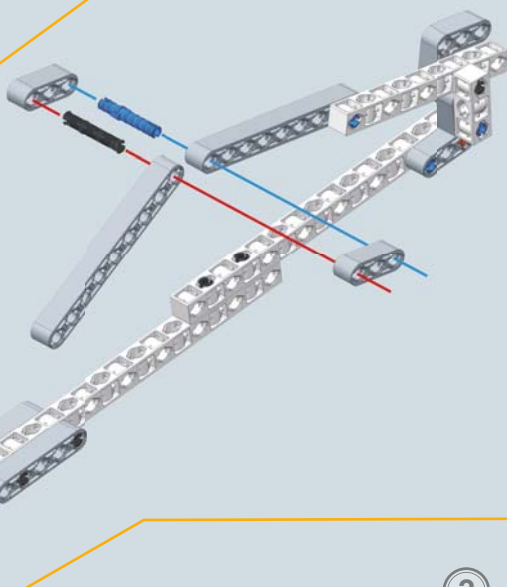


Final assembled model

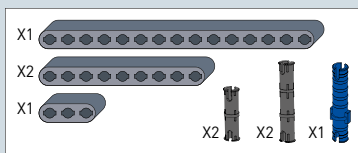
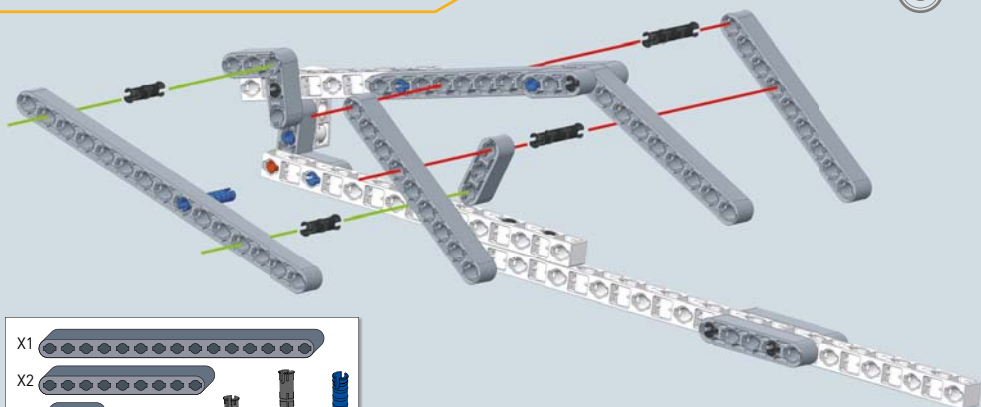
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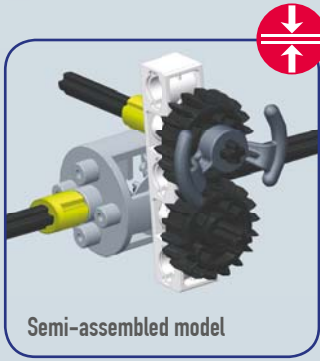
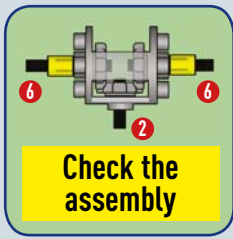


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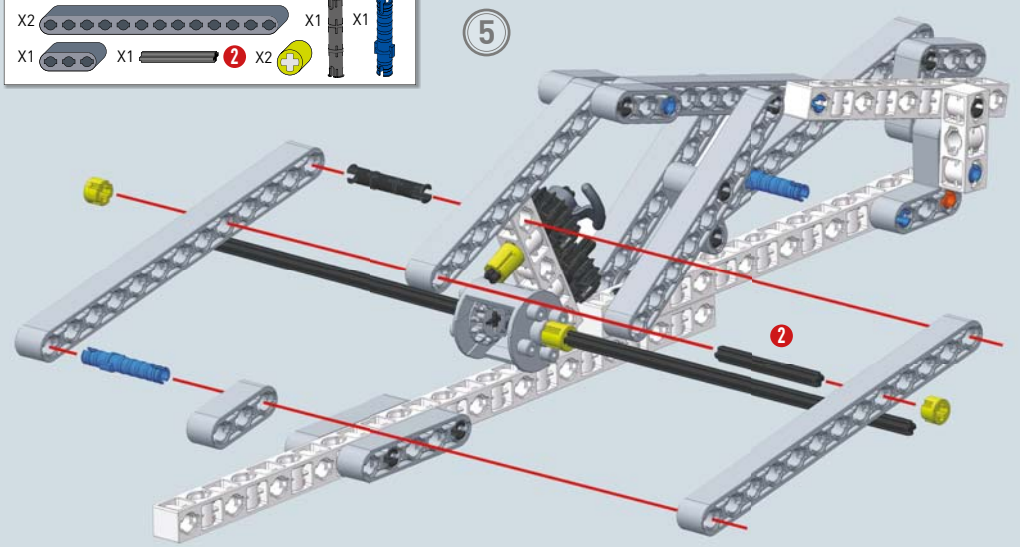
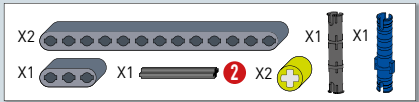
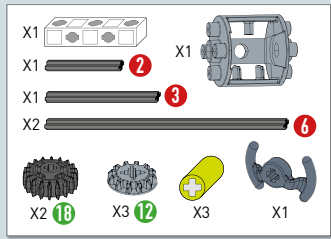
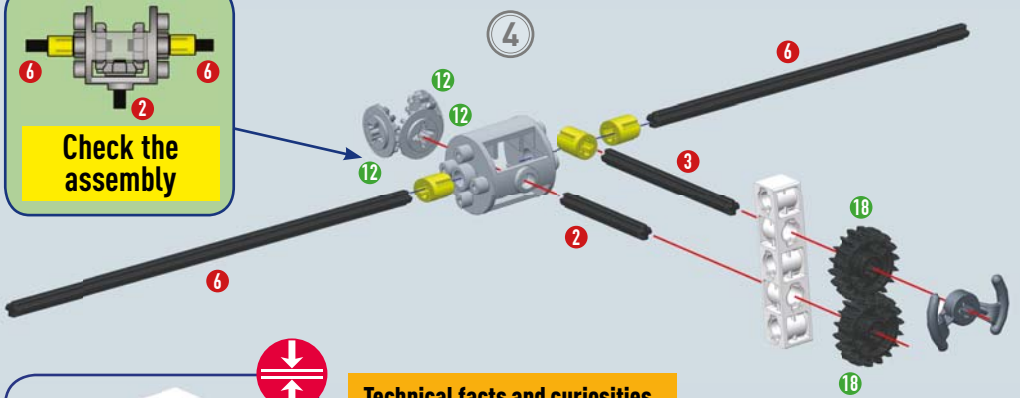


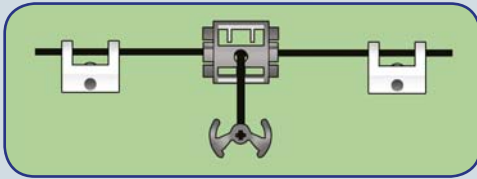
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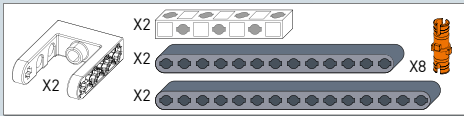
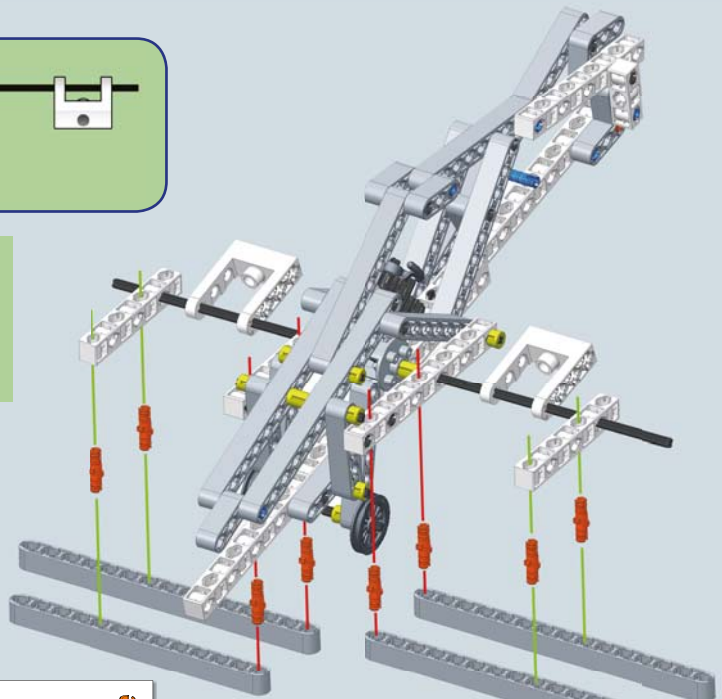
Technical facts and curiosities
Aerial acrobatics call for extraordinary maneuvering skills on the part of the pilot. Aerial acrobatics are usually carried out as part of a sporting competition by one or more aeroplanes, but they can also be used for training purposes or for military displays.





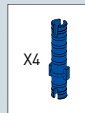
When you insert the ailerons, (transmission modules), check that they are correctly aligned with the position of the steering wheel, as shown.

7

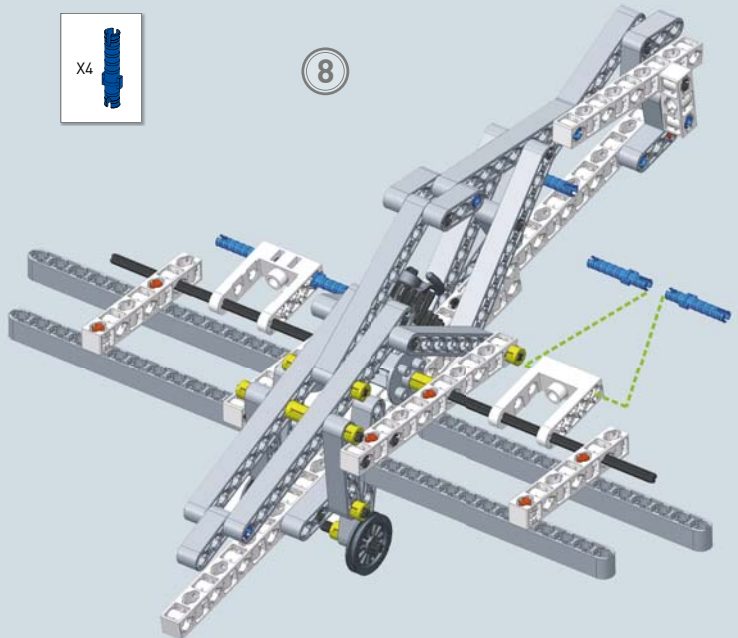


Technical facts and curiosities

The aeroplanes that take part in competitions or air shows are specially designed to perform stunts, and are usually equipped with a very powerful single engine. They are built using a low-wing configuration, i.e. a wing mounted at the bottom of the fuselage. This gives the aircraft less stability but the greater maneuverability needed to perform the most spectacular stunts.

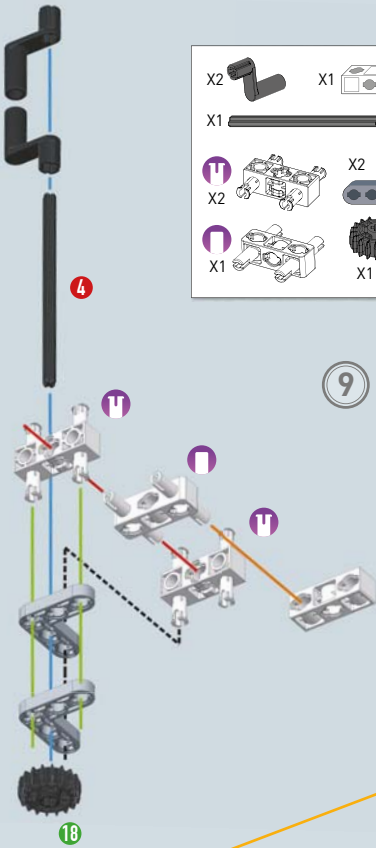
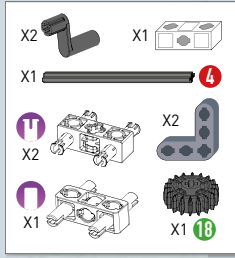


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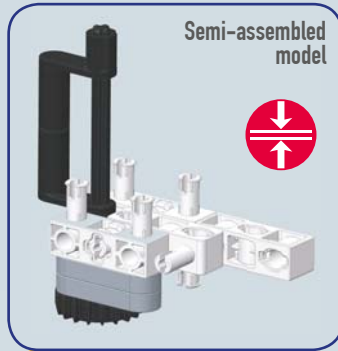


Technical facts and curiosities

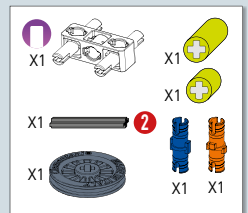
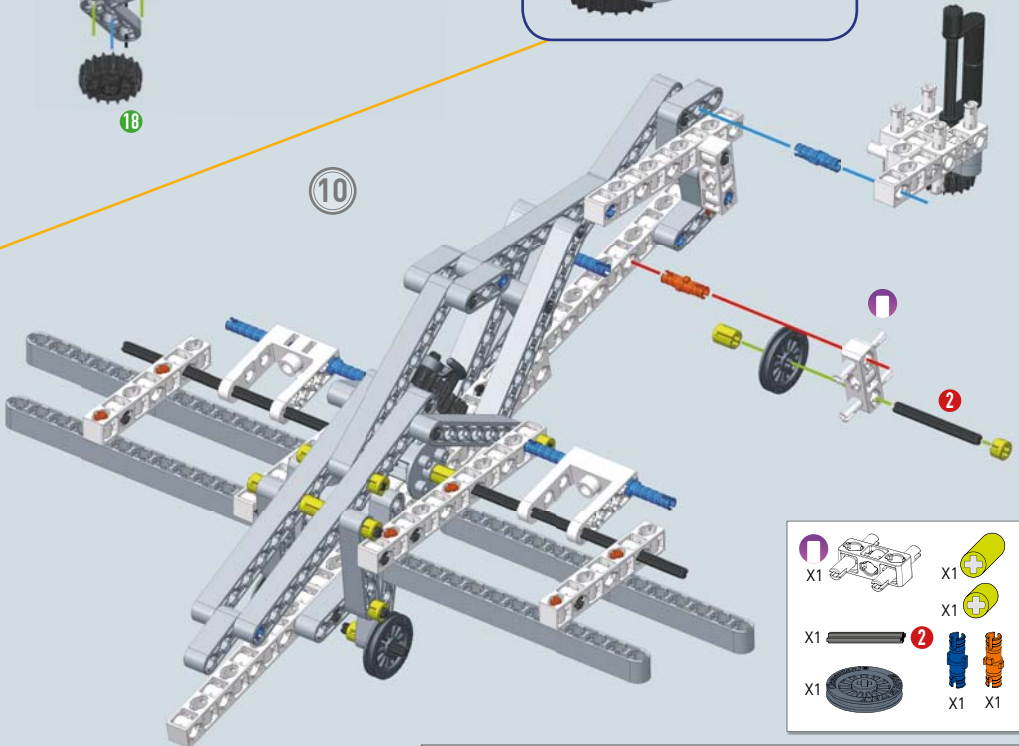
Stunt planes have two long ailerons that take up the entire length of the wing. By correctly maneuvering the ailerons and the tail rudder, it is possible to perform spectacular acrobatic maneuvers, such as the roll, or horizontal spin.



9



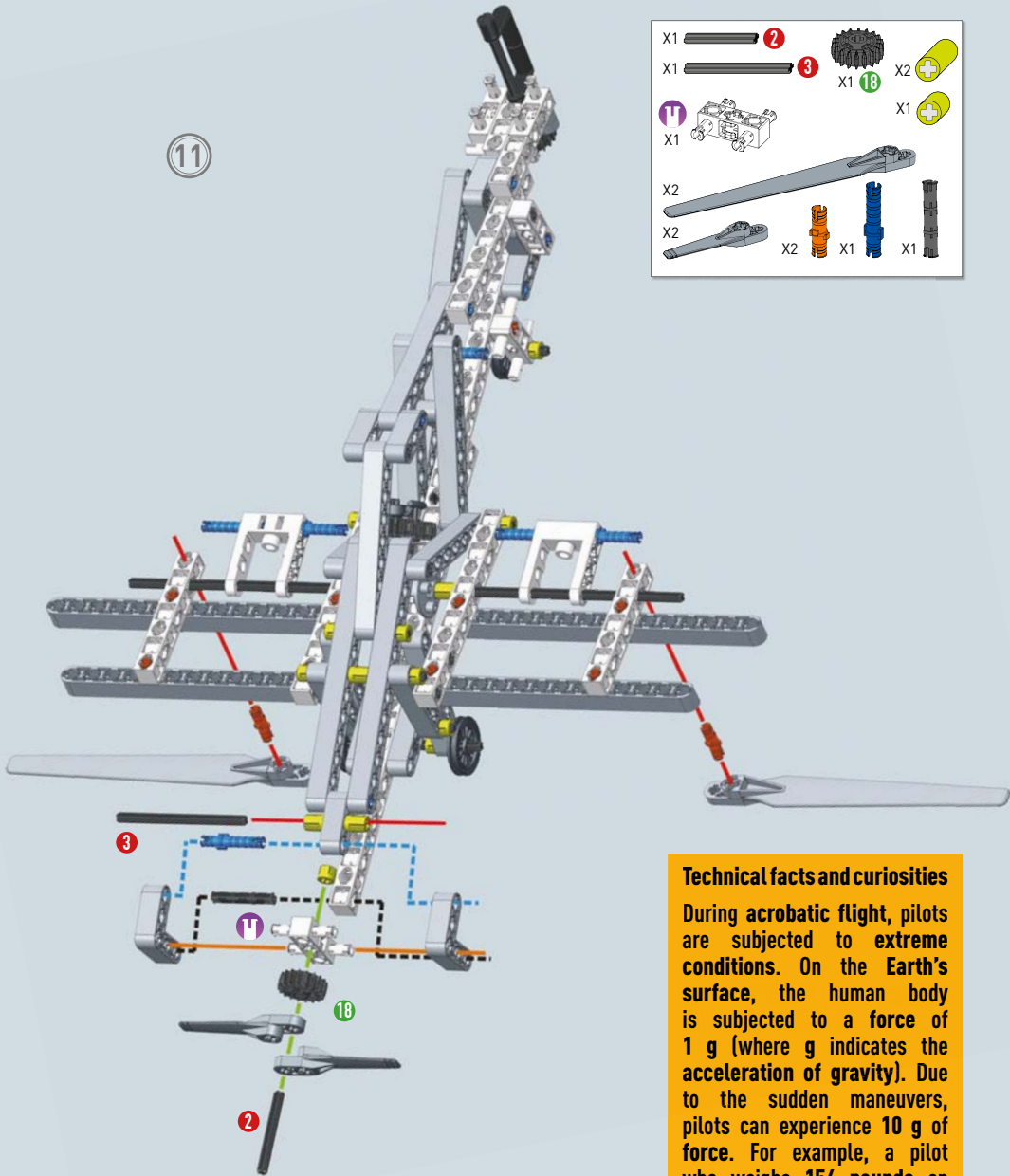
10



1:1

4

11



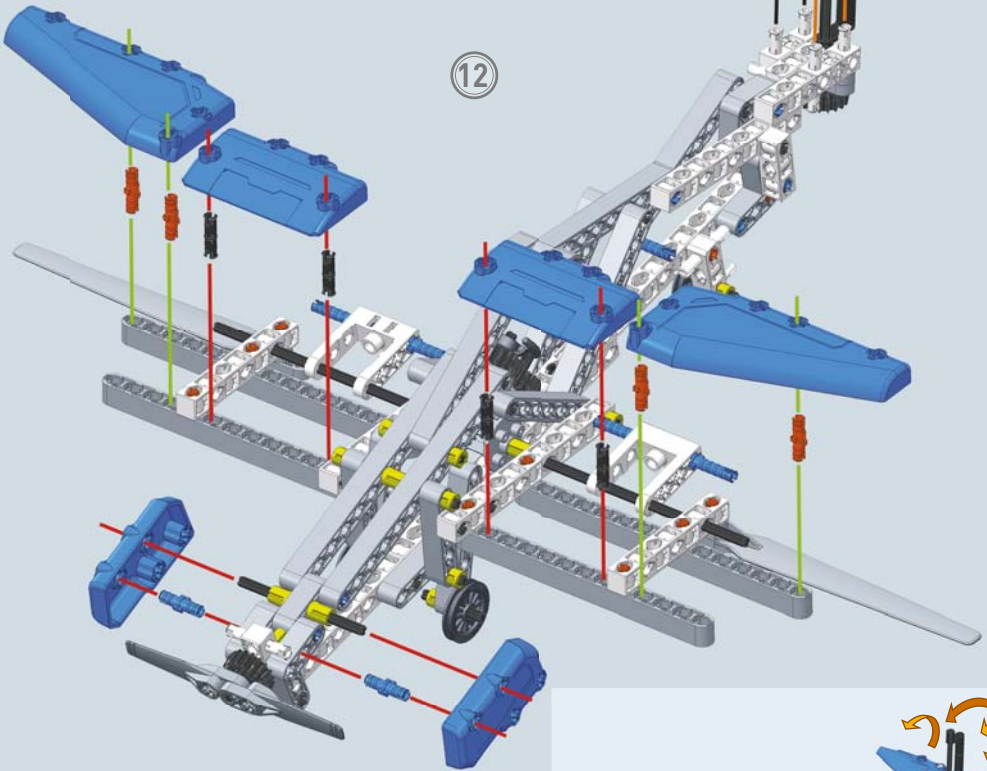
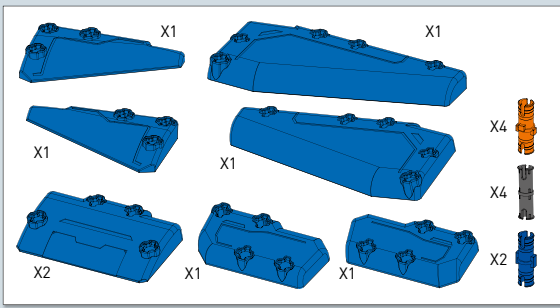
X1		2		X1					
X1		3	X1	18	X2				
X1					X1				
X2									
X2									
				X2		X1		X1	

1:1

1:1

Technical facts and curiosities

During **acrobatic flight**, pilots are subjected to extreme conditions. On the Earth's surface, the human body is subjected to a force of 1 g (where g indicates the acceleration of gravity). Due to the sudden maneuvers, pilots can experience 10 g of force. For example, a pilot who weighs 154 pounds on the ground, experiences 1 g of force. During a turn, because of the **acceleration**, this same pilot can experience his weight increase 10 times, and therefore weigh up to 1,543 pounds!



Technical facts and curiosities

A stunt plane can reach speeds of 225 knots. The knot (denoted by kn) is the unit of measure used for aerial and nautical navigation. 1 knot is equal to 1.15 miles/hour. Therefore 225 knots corresponds to about 259 miles/hour.

