

# k'nex® EDUCATION®

## REAL BRIDGE BUILDING RÉEL DE CONSTRUCTION DE PONTS

Book 1  
Livre/Buch/Boek



**WARNING:**

CHOKING HAZARD - Small parts.  
Not for children under 3 years.



**ATTENTION :**

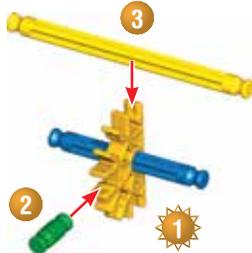
RISQUE D'ÉTOUFFEMENT. Pièces de petite taille.  
Ne convient pas aux enfants de moins de 3 ans.

78680

**10+**  
AGE/ÂGE/  
ALTER/LEEFTIJD

## EN Start Building

To begin your model, find the **1** and follow the numbers. Each piece has its own shape and color. Just look at the pictures, find the pieces in your set that match and then connect them together. Try to face your model in the same direction as the instructions while you build.

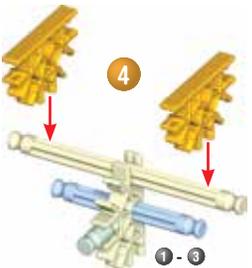


## FR Préparer vous construire

Pour commencer le modèle, trouve le numéro **1** et suis les chiffres. Chaque pièce a sa propre forme et couleur. Il suffit de regarder l'illustration, trouver les morceaux dans votre série qui égale que vous voyez. Essayer de tenir votre modèle dans la direction pareille comme dans l'image si vous attachez vos morceaux au bon endroit. Ainsi, vos pièces seront attachés correctement.

## EN Next Step

The arrows show you where the parts connect, but not all connection points have arrows. The faded color parts are the ones you have already put together.

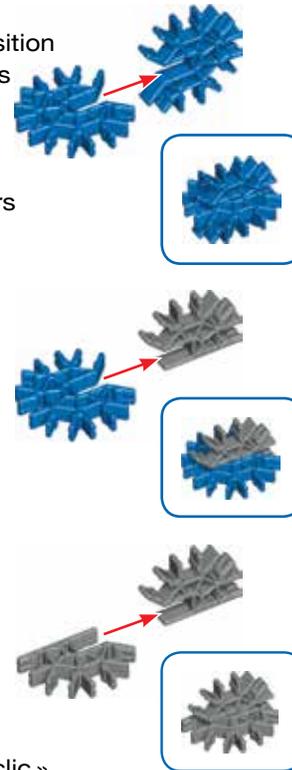


## FR Continuation

Les flèches t'indiquent où les pièces s'assemblent, mais les points de raccordement n'ont pas tous des flèches. Les pièces de couleur délavée sont celles que tu as déjà assemblées.

## EN Connectors

It's very important to position blue and gray connectors in a specific direction. Pay close attention to the instructions, and position these connectors horizontally or vertically exactly as they are shown. Push together tightly until you hear a "click".



## FR Connecteurs

Vous trouveras des connecteurs bleues et grises comportant des fentes extra-longues. Ils se glissent l'un dans l'autre tel qu'illustré. Pousse les pièces ensemble jusqu'à ce que tu entendes un « déclic ».

## EN Spacers

There are places in your model where you need to add blue and silver spacers. Be sure to count them carefully.

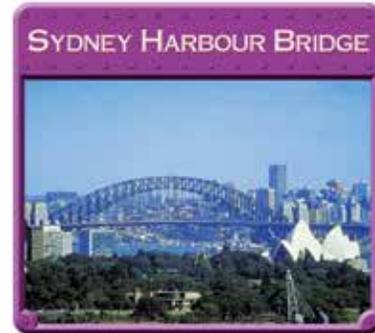


## FR Pièces d'Écartement

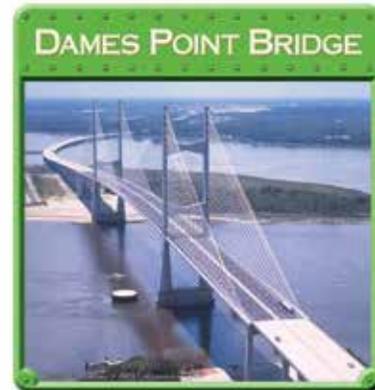
Il y a des endroits dans ton modèle où tu dois ajouter des pièces d'écartement bleues et argentées. Assure-toi d'utiliser la couleur exacte et de compter les pièces avec soin.



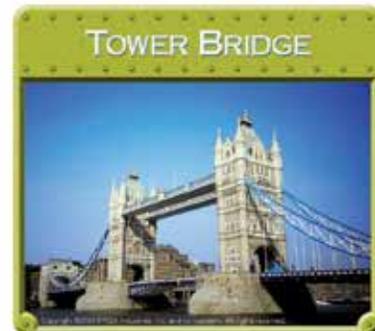
Page 4



Page 10



Page 18



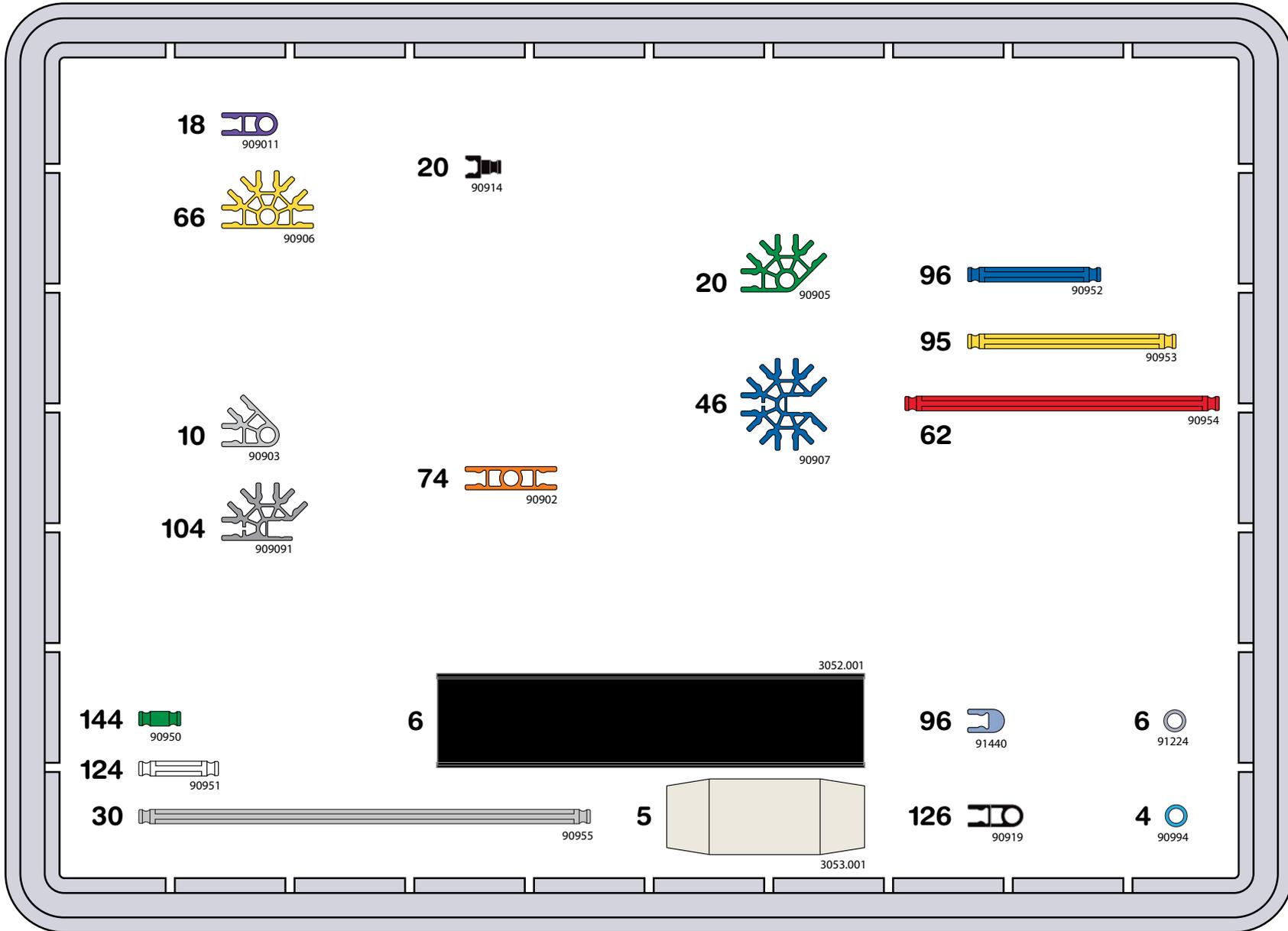
Page 30

**EN Parts List**

One half of the parts in the set are listed below. They can be organized in one of the plastic storage cases as shown below.

**FR Liste des Pièces**

Une moitié des parties pour la série sont énumérées au dessous. Les parties ajustent dans le cas d'emmagasinage comme indiqué.



# CHESAPEAKE BRIDGE SPAN



Photo Courtesy of the Chesapeake Bay Bridge-Tunnel

## Vital Statistics:

**Location:** Crosses the Chesapeake Bay from Cape Charles to Virginia Beach, Virginia, U.S.A.

**Completion Date:** 1964

**Cost:** \$200 million

**Length:** Bridge length - 79,200 feet or 15 miles (24,140 meters)  
Total length - 89,760 feet or 17 miles (27,359 meters)

**Type:** Beam, tunnel

**Purpose:** Roadway

**Materials:** Steel, concrete

**Longest Single Span:** 100 feet (31 meters)

## Fast Facts:

- Following its opening in 1964, the Bridge-Tunnel was selected as "One of the Seven Engineering Wonders of the Modern World" in a worldwide competition that included more than 100 major projects.
- Since it opened in 1965, more than 67 million vehicles have crossed the Chesapeake Bay Bridge-Tunnel.
- One artificial island built along the span of the bridge has a gift shop, restrooms, and a parking lot to allow drivers to stretch, relax, and enjoy the scenic view.

 **WARNING: CHOKING HAZARD** – Small parts.  
Not for children under 3 years.

**ATTENTION : RISQUE D'ÉTOUFFEMENT** – Pièces de petite taille.  
Ne convient pas aux enfants de moins de 3 ans.

**ACHTUNG: ERSTICKUNGSGEFAHR** – Kleinteile.  
Nicht geeignet für Kinder unter 3 Jahren.

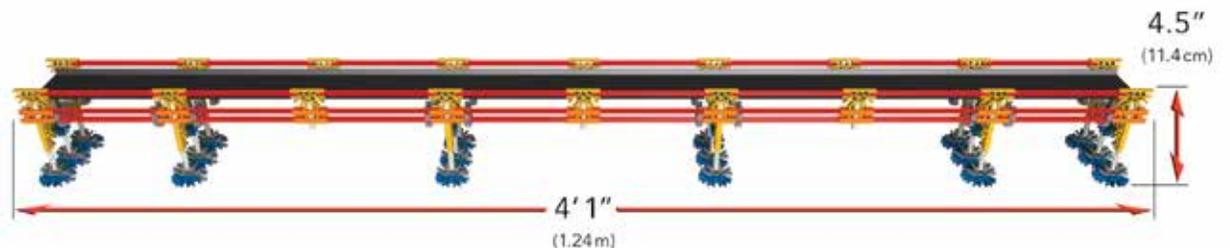
**WAARSCHUWING: VERSTIKKINGSGEVAAR** – Kleine onderdelen.  
Niet geschikt voor kinderen jonger dan 3 jaar.



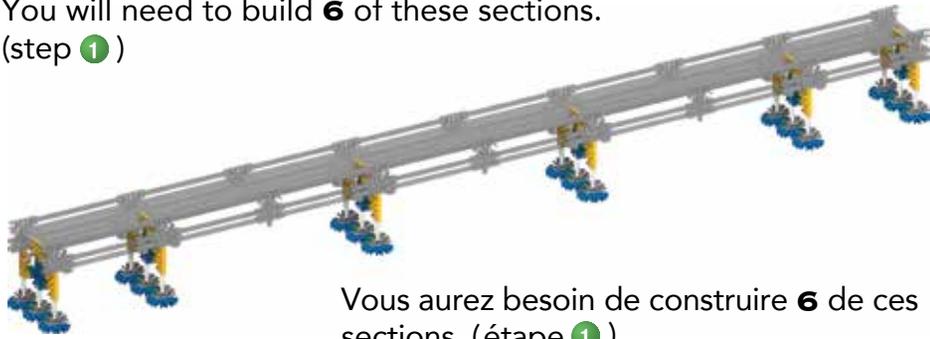
The K'NEX Chesapeake Bridge Span

## K'NEX Statistics/Statistiques:

K'NEX Parts/Pièces = 267



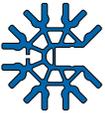
You will need to build **6** of these sections.  
(step **1**)

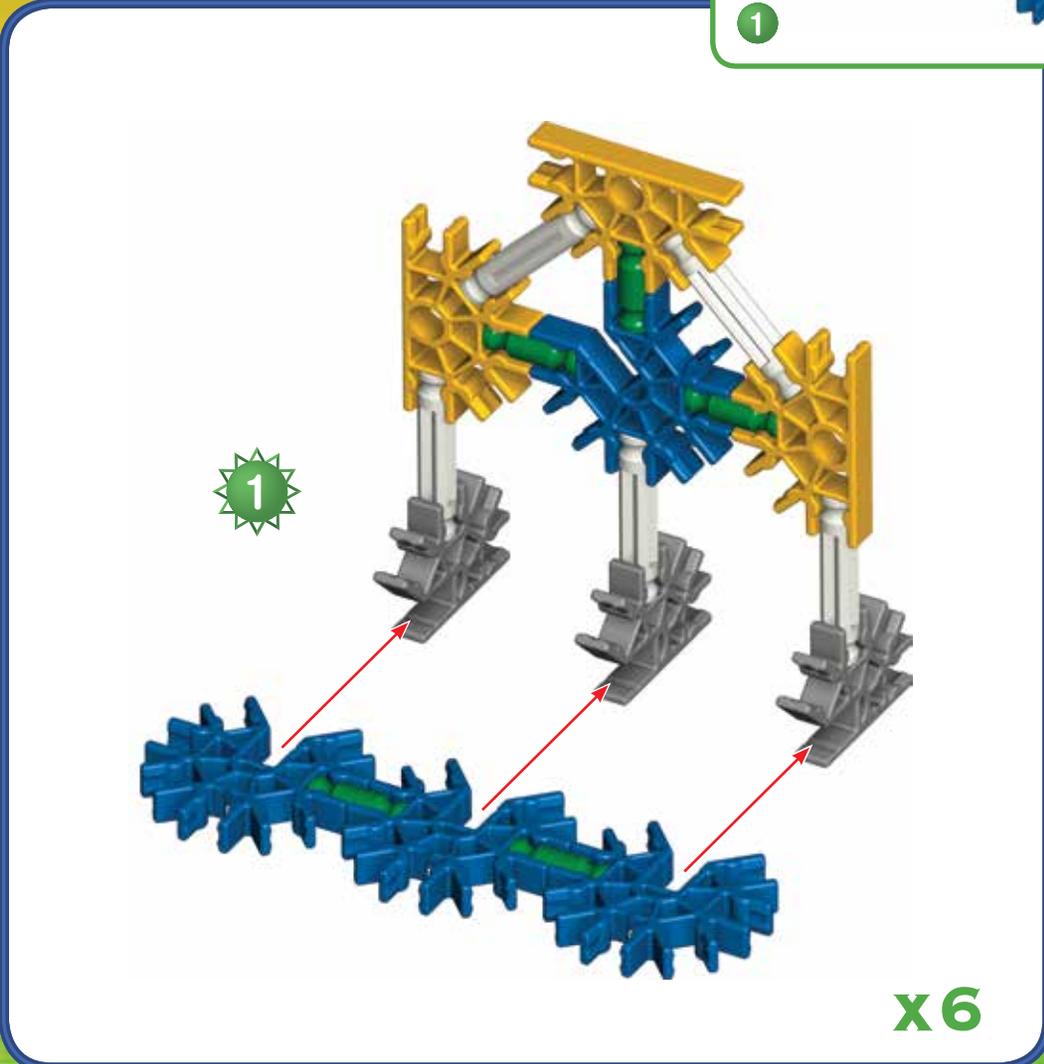


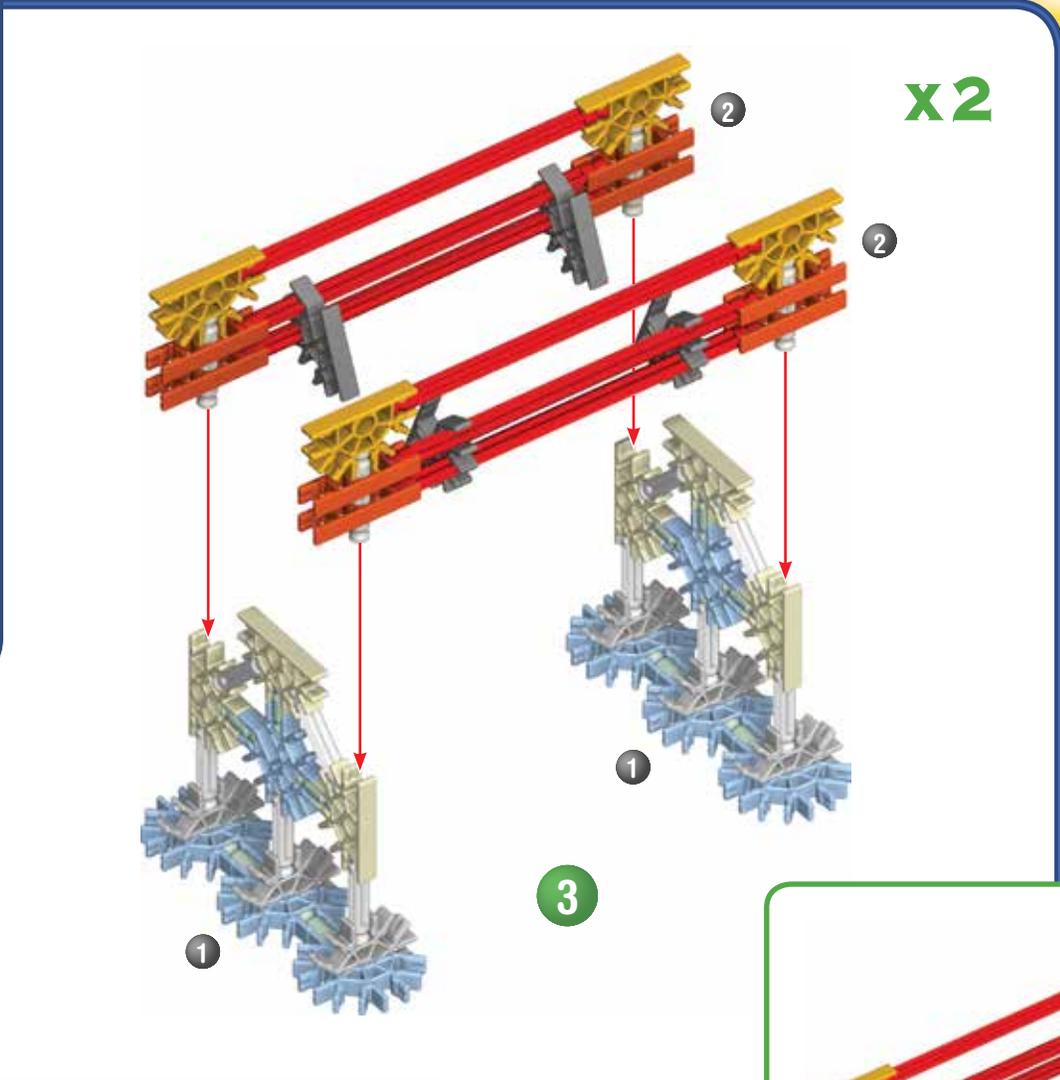
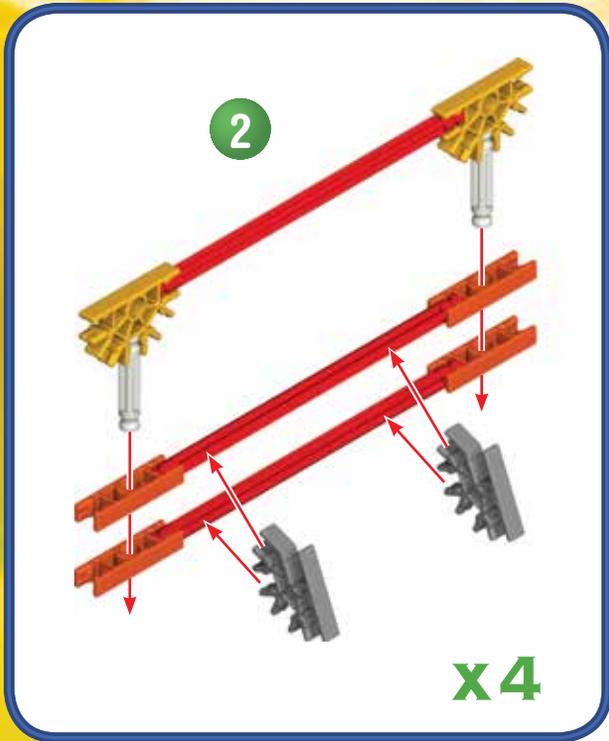
Vous aurez besoin de construire **6** de ces sections. (étape **1**)



### Chesapeake Bridge Span

- 36 
- 36 
- 30 
- 48 
- 48 
- 3 
- 4 
- 38 
- 24 

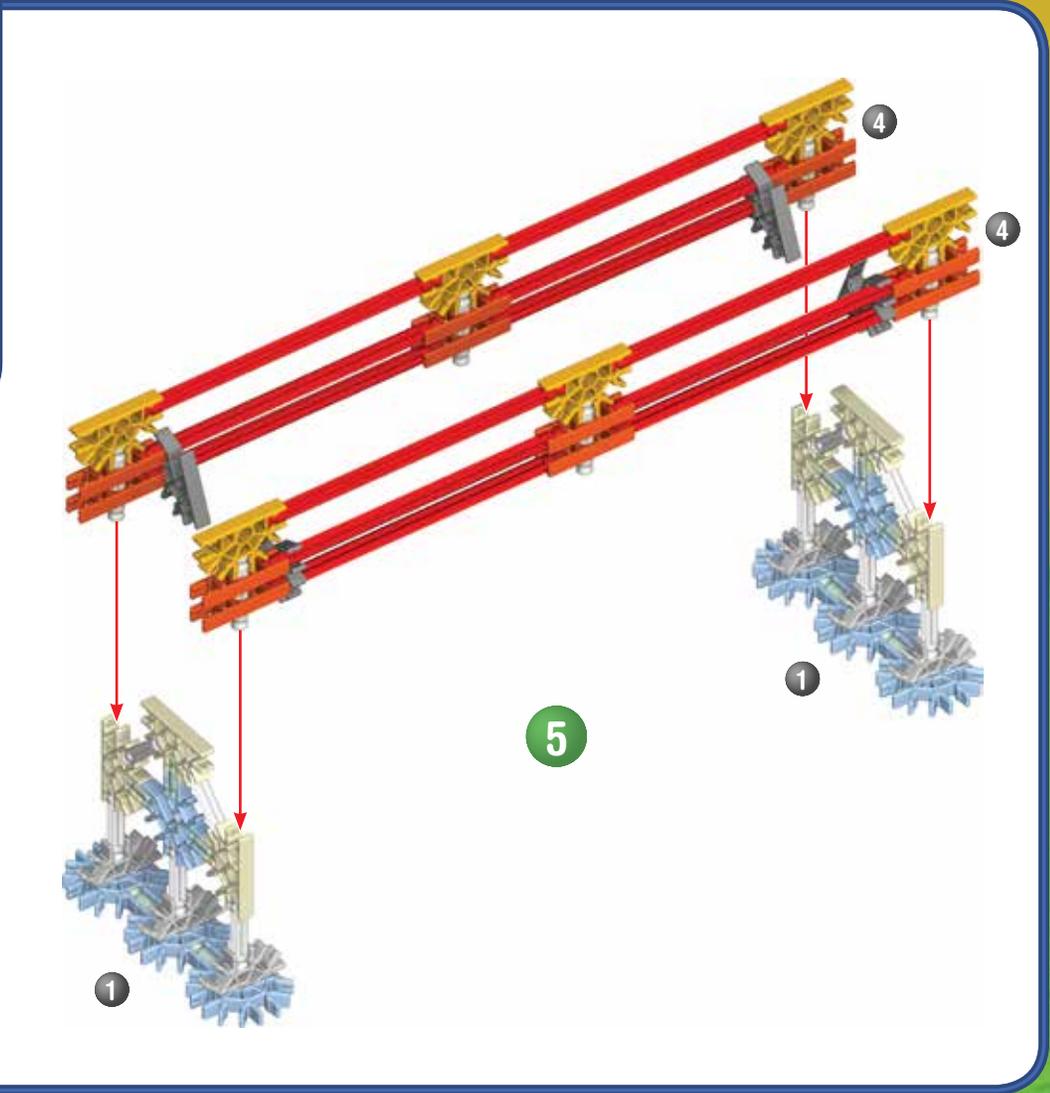
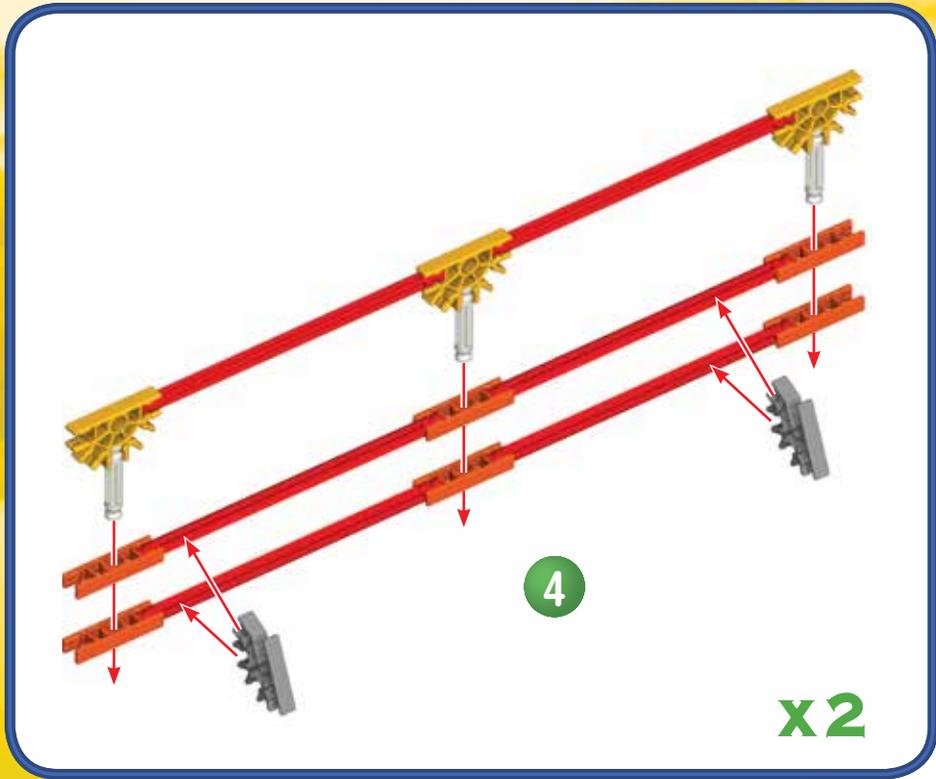




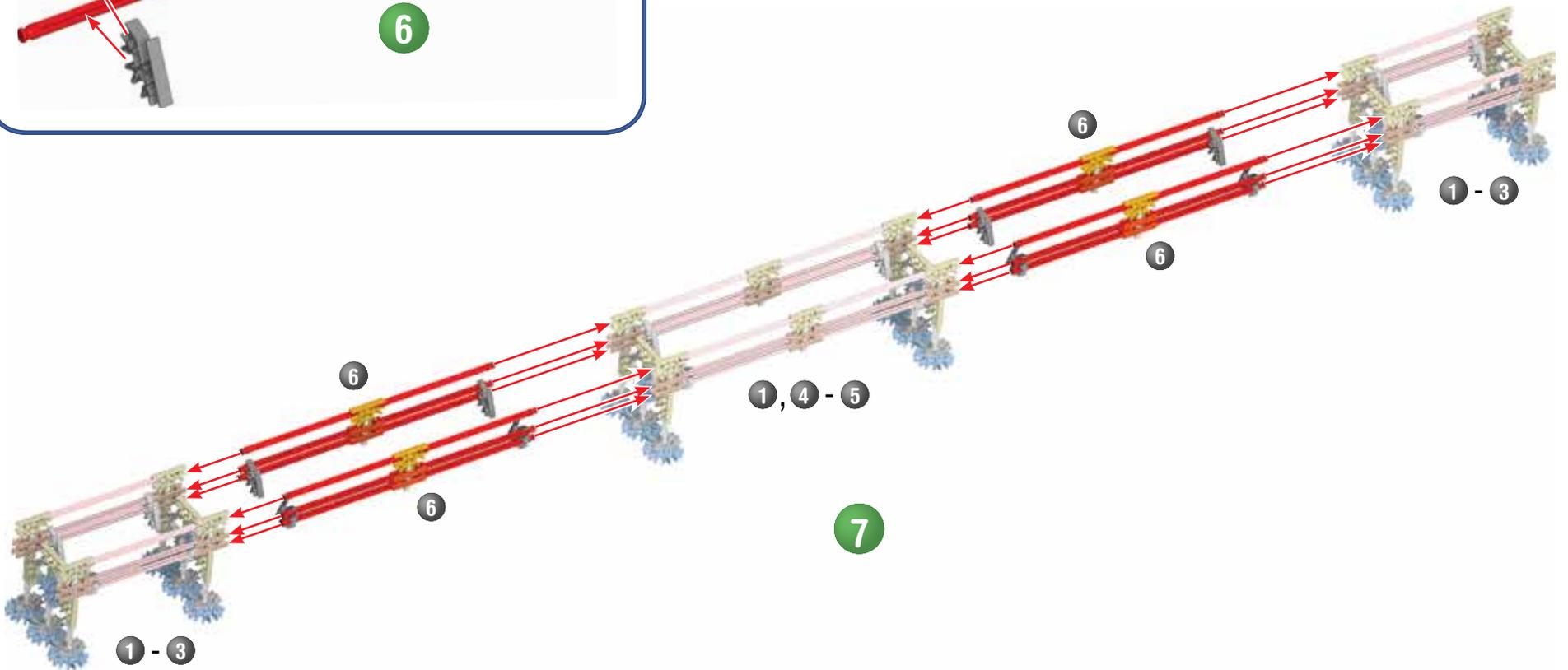
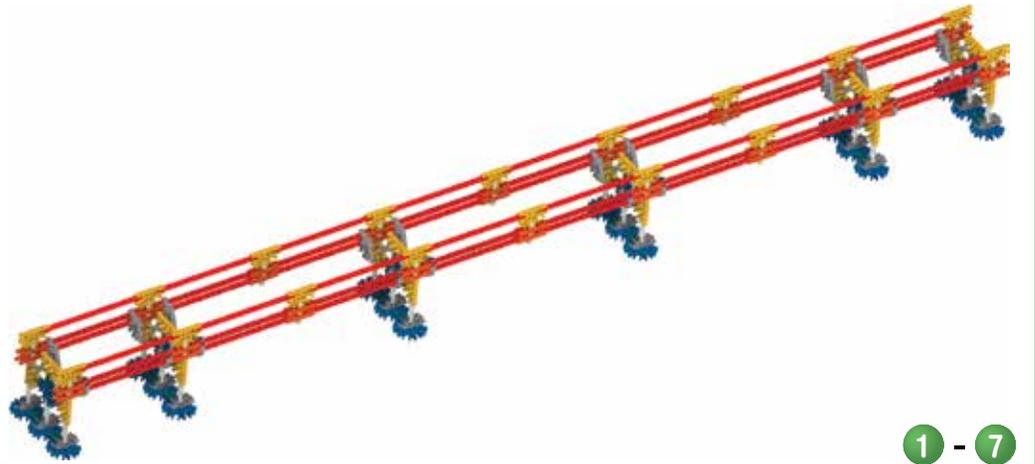
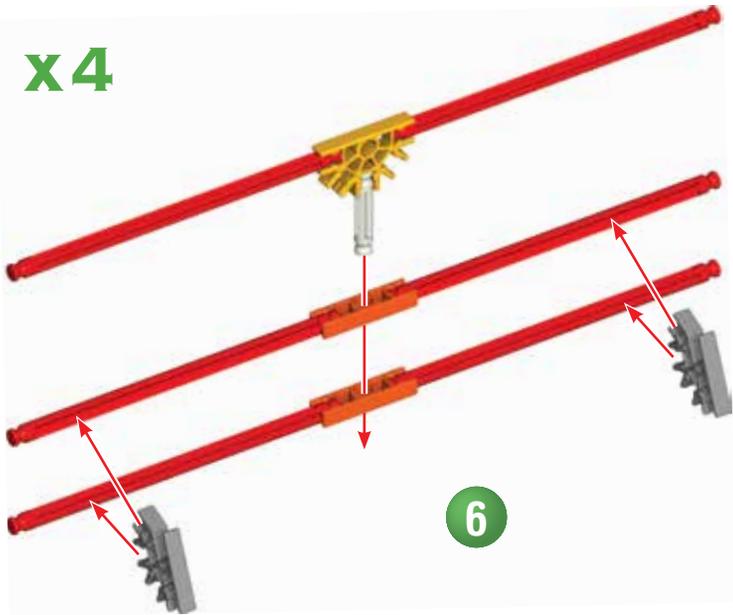
You will need to build **2** of these sections.  
(steps **1** - **3**)



Vous aurez besoin de construire **2** de ces sections. (étapes **1** - **3**)

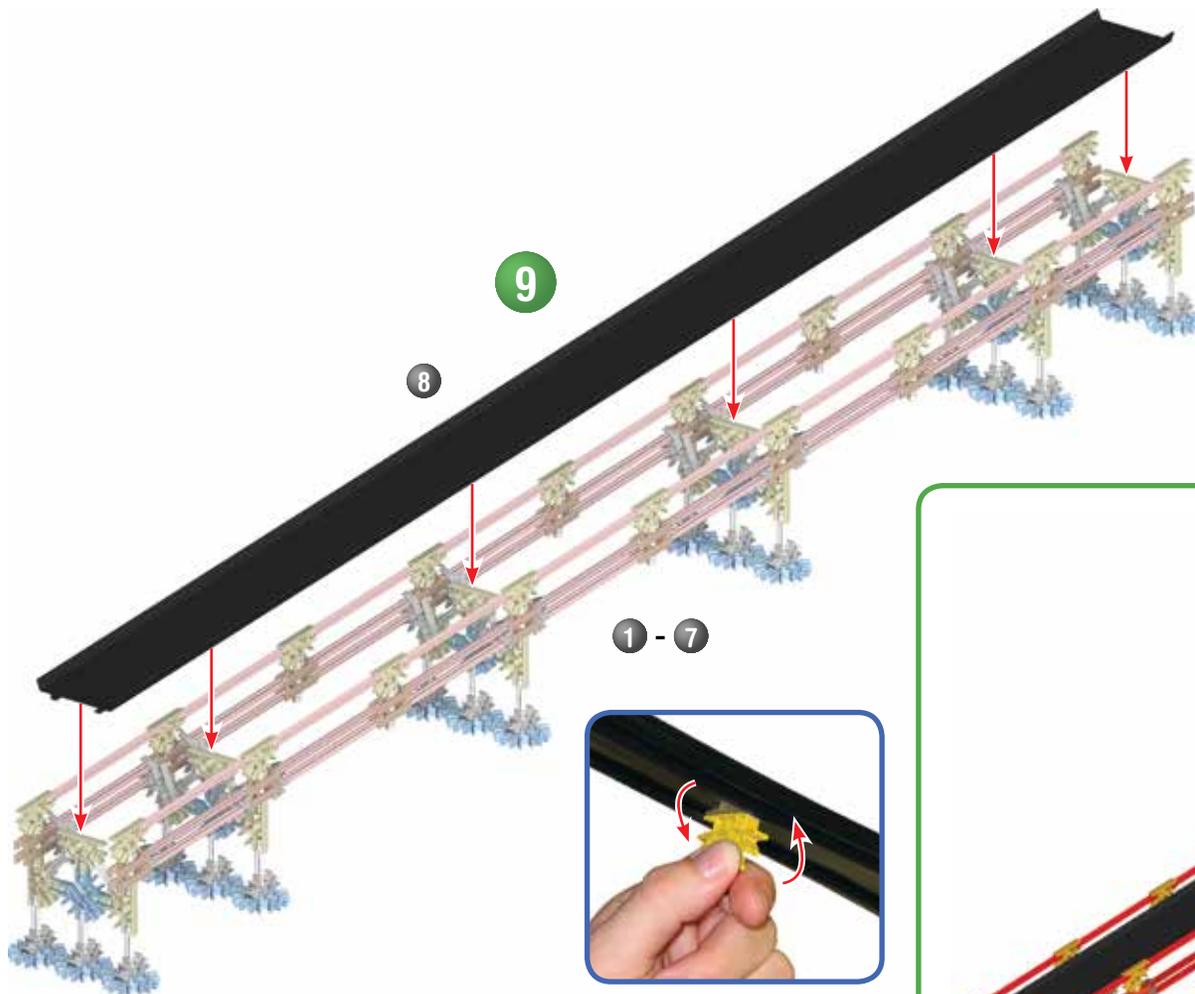


x4

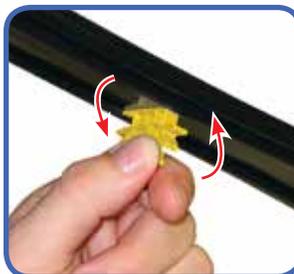




8

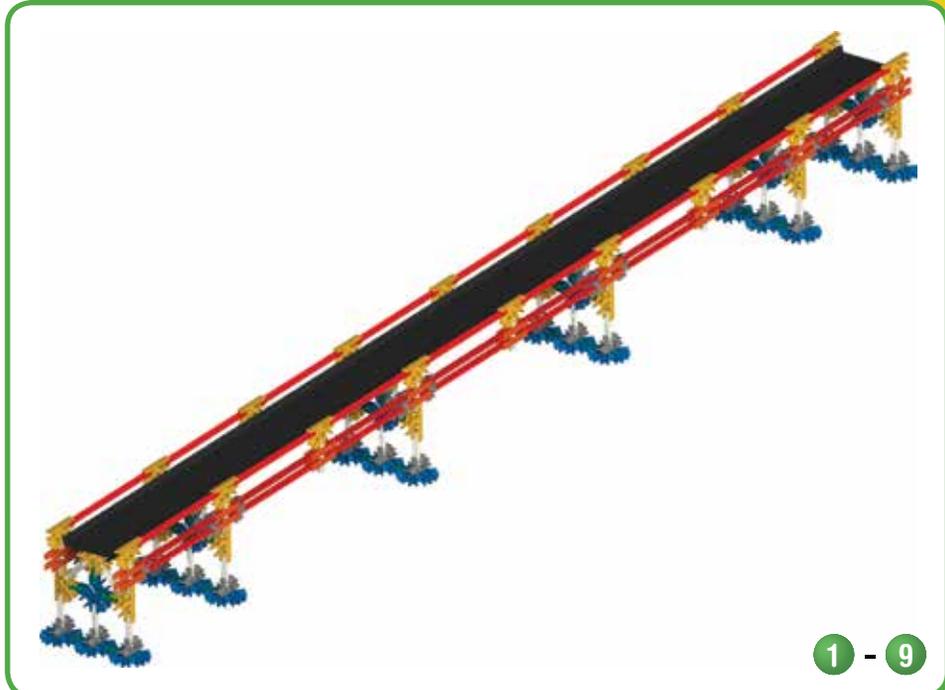


1 - 7



Underneath View  
Vue de dessous

TIP: SUGGESTION :



1 - 9

# SYDNEY HARBOUR BRIDGE



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## Vital Statistics:

**Location:** The Bradfield Highway crosses the Sydney Harbour in Sydney, Australia

**Completion Date:** 1932

**Cost:** \$13.5 million

**Length:** 3,770 feet (1,149 meters)

**Type:** Arch

**Purpose:** Roadway

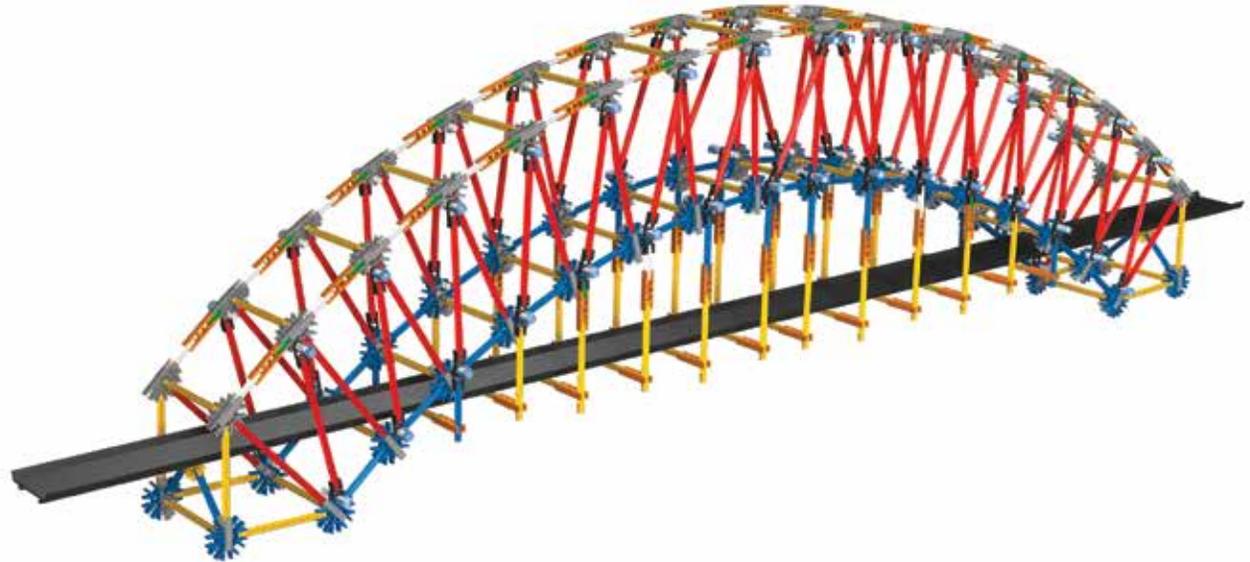
**Materials:** Steel

**Longest Single Span:** Arch span - 1,650 feet (503 meters)

## Fast Facts:

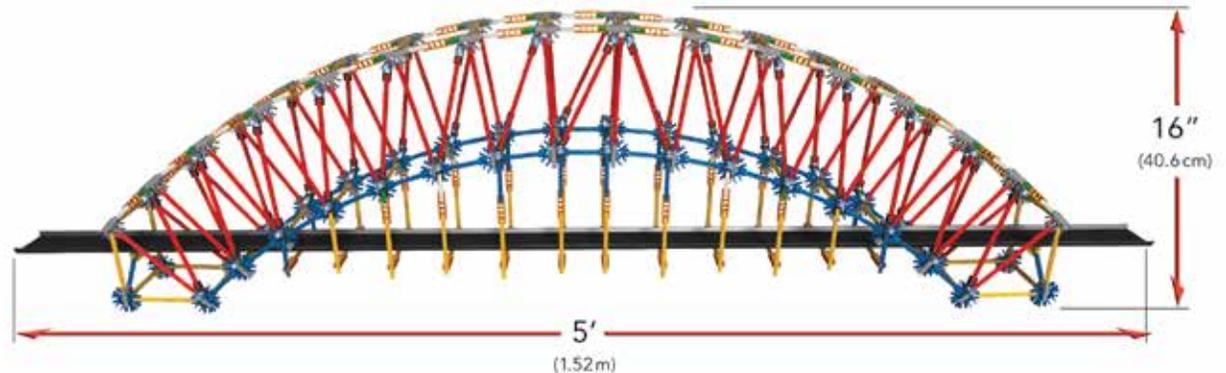
- Prior to the bridge being built, the only links between the center of the city in the south and the residential north were by ferry or by a 12 mile (20 kilometer) road route that involved five bridge crossings.
- The bridge was built by 1,400 workers, 16 of whom were killed in accidents during construction.
- The 161 foot (49 meter) wide deck makes Sydney Harbour Bridge the widest longspan bridge in the world.

## The K'NEX Sydney Harbour Bridge

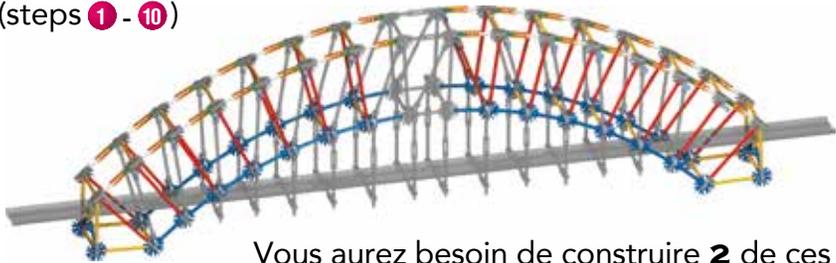


## K'NEX Statistics/Statistiques:

K'NEX Parts/Pièces = 673



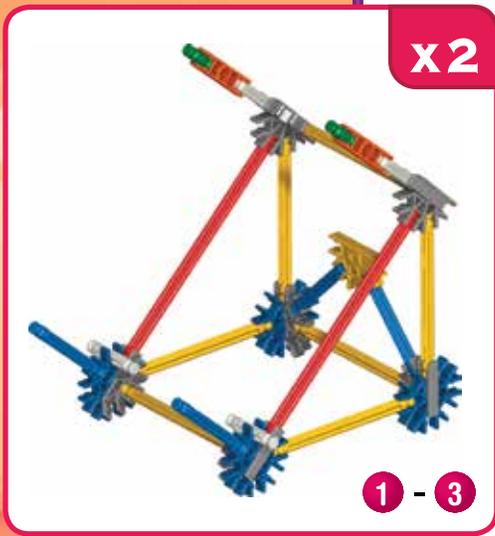
You will need to build **2** of these sections.  
(steps **1** - **10**)



Vous aurez besoin de construire **2** de ces sections. (étapes **1** - **10**)

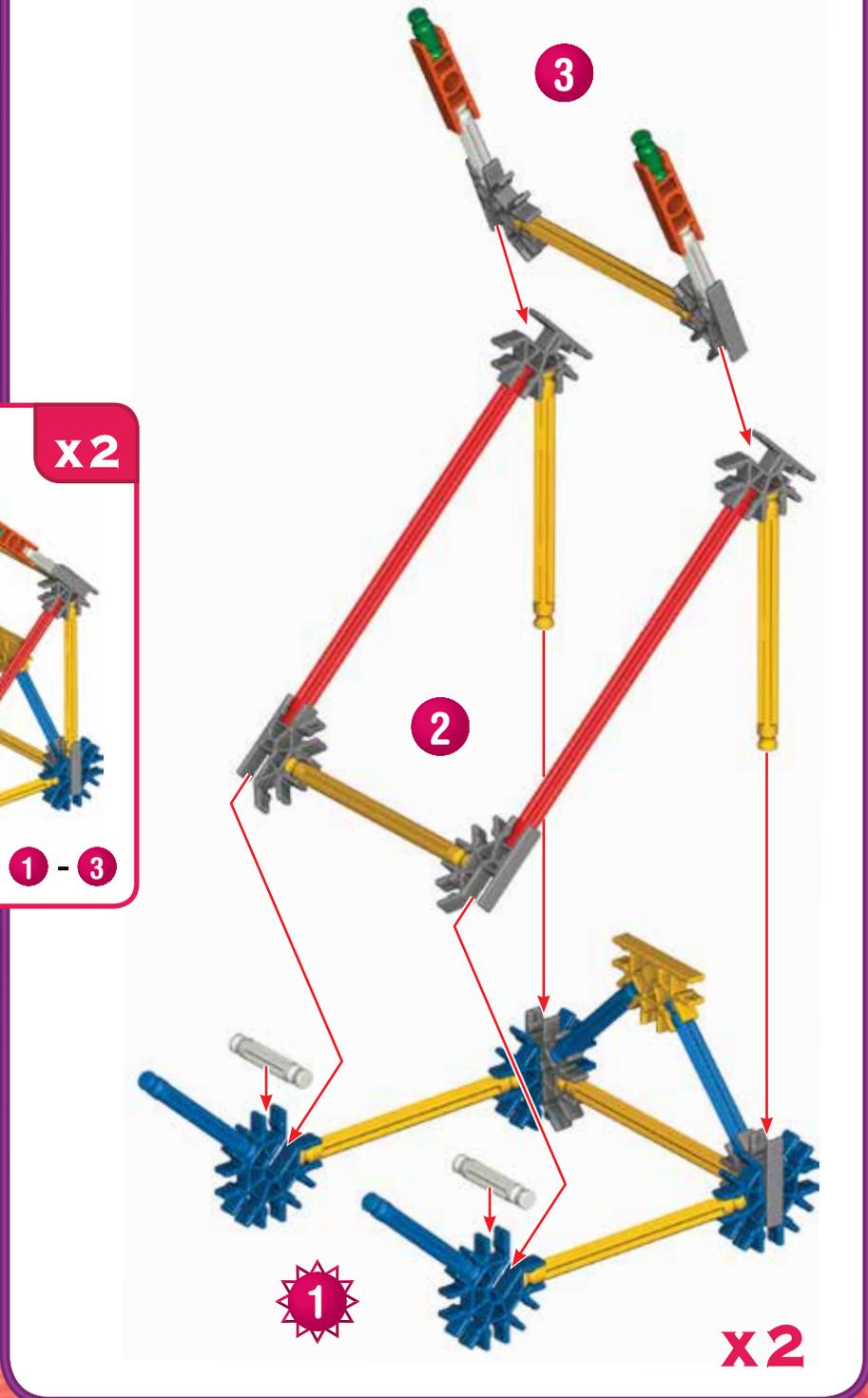
### Sydney Harbour Bridge

- 62  70  100 
- 84  2  36 
- 34 
- 96 
- 46 
- 72 
- 62 
- 4 
- 5 



**1 - 3**

**x2**

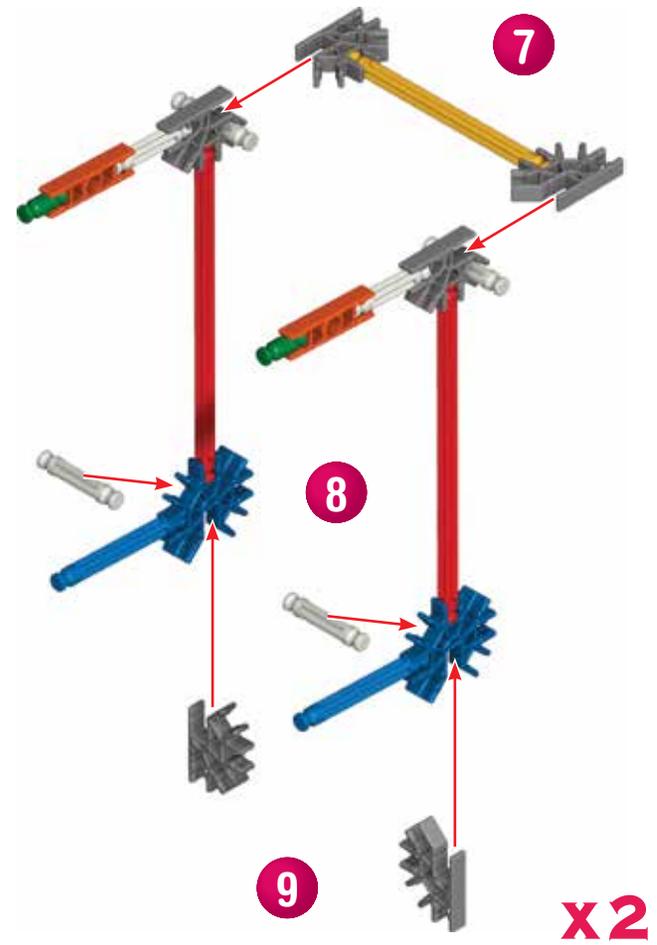
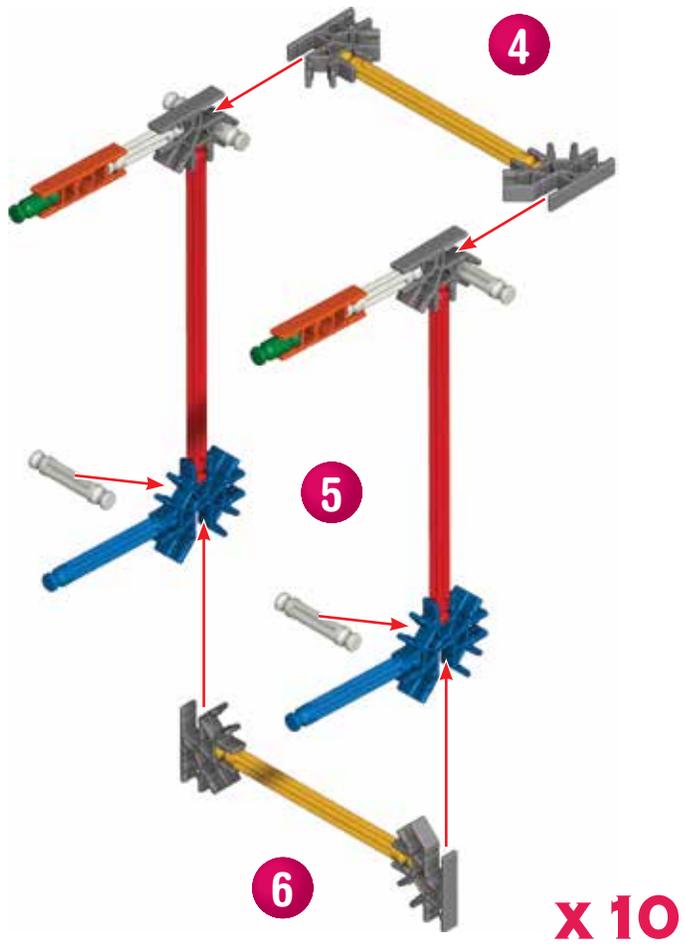


**1**

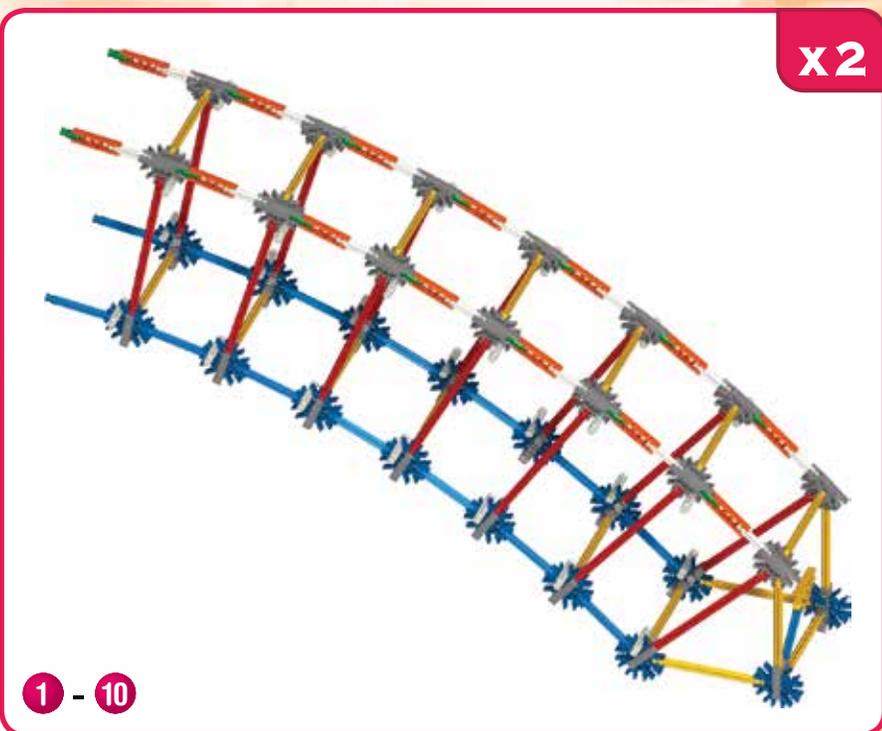
**2**

**3**

**x2**



x2



1 - 10

10

4 - 6

4 - 6

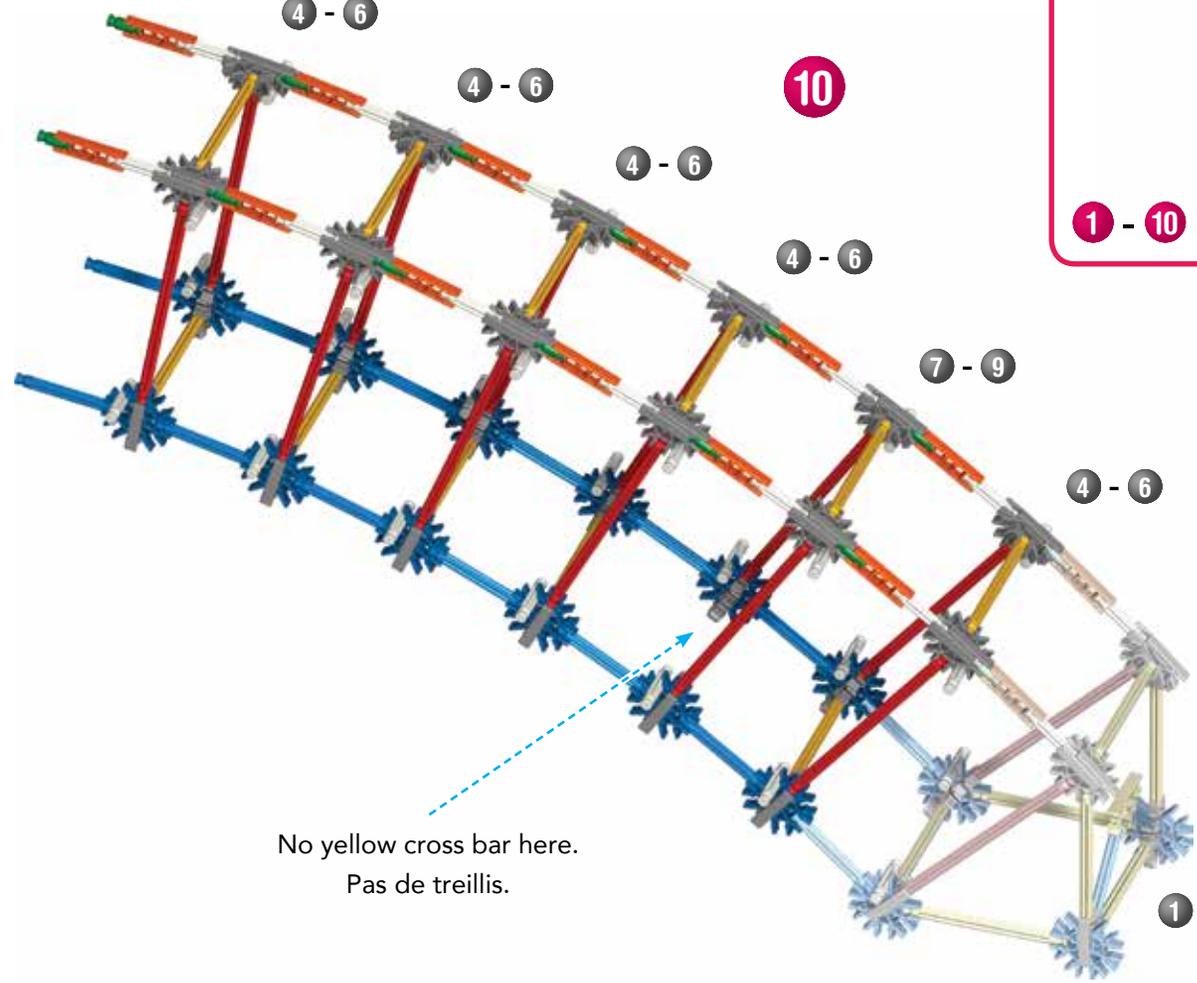
4 - 6

4 - 6

7 - 9

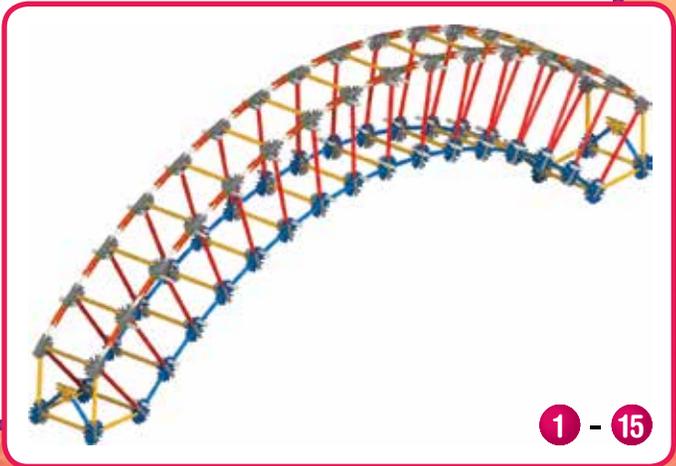
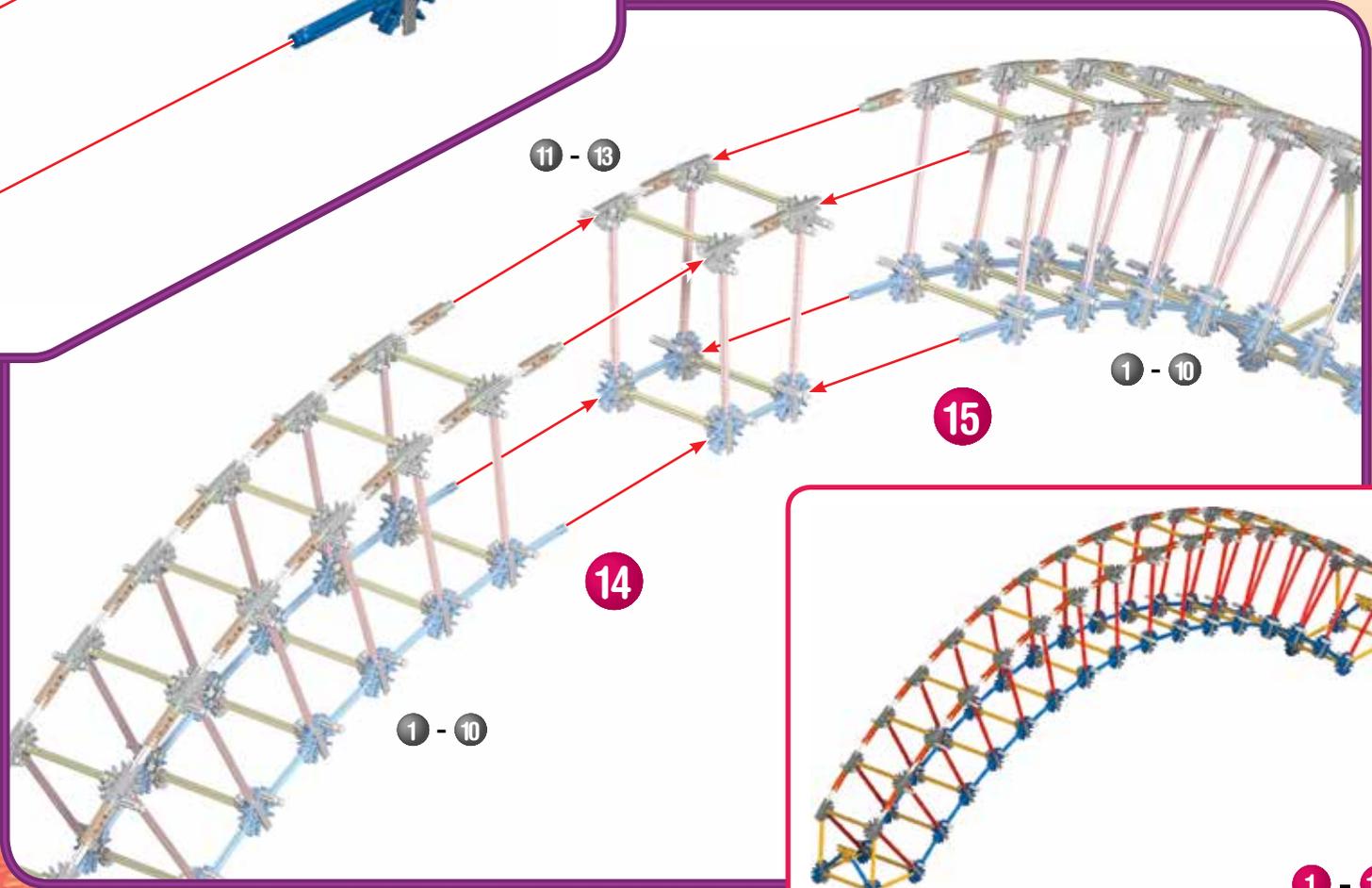
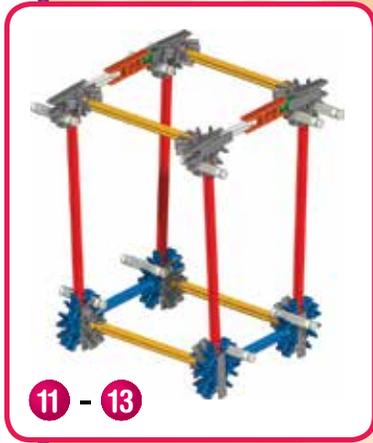
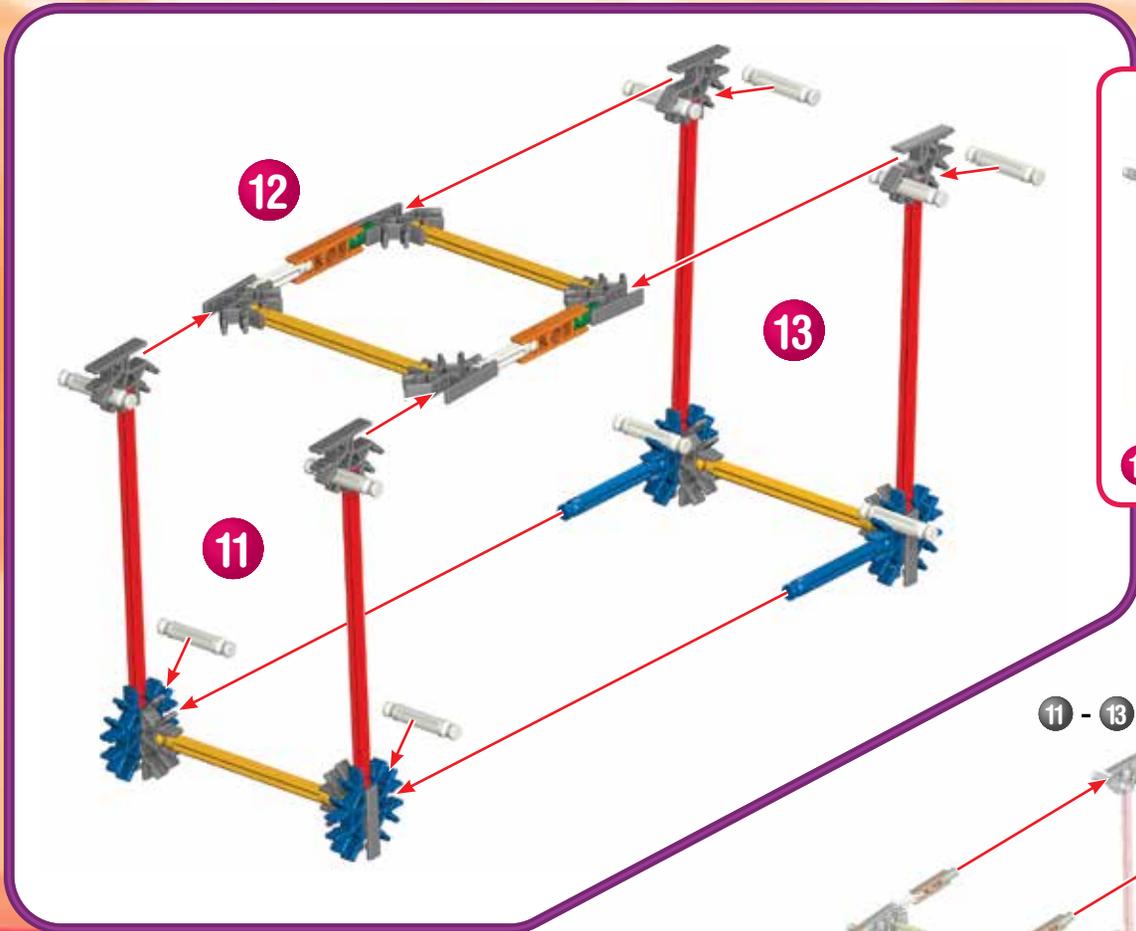
4 - 6

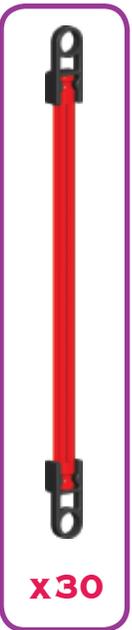
1 - 3



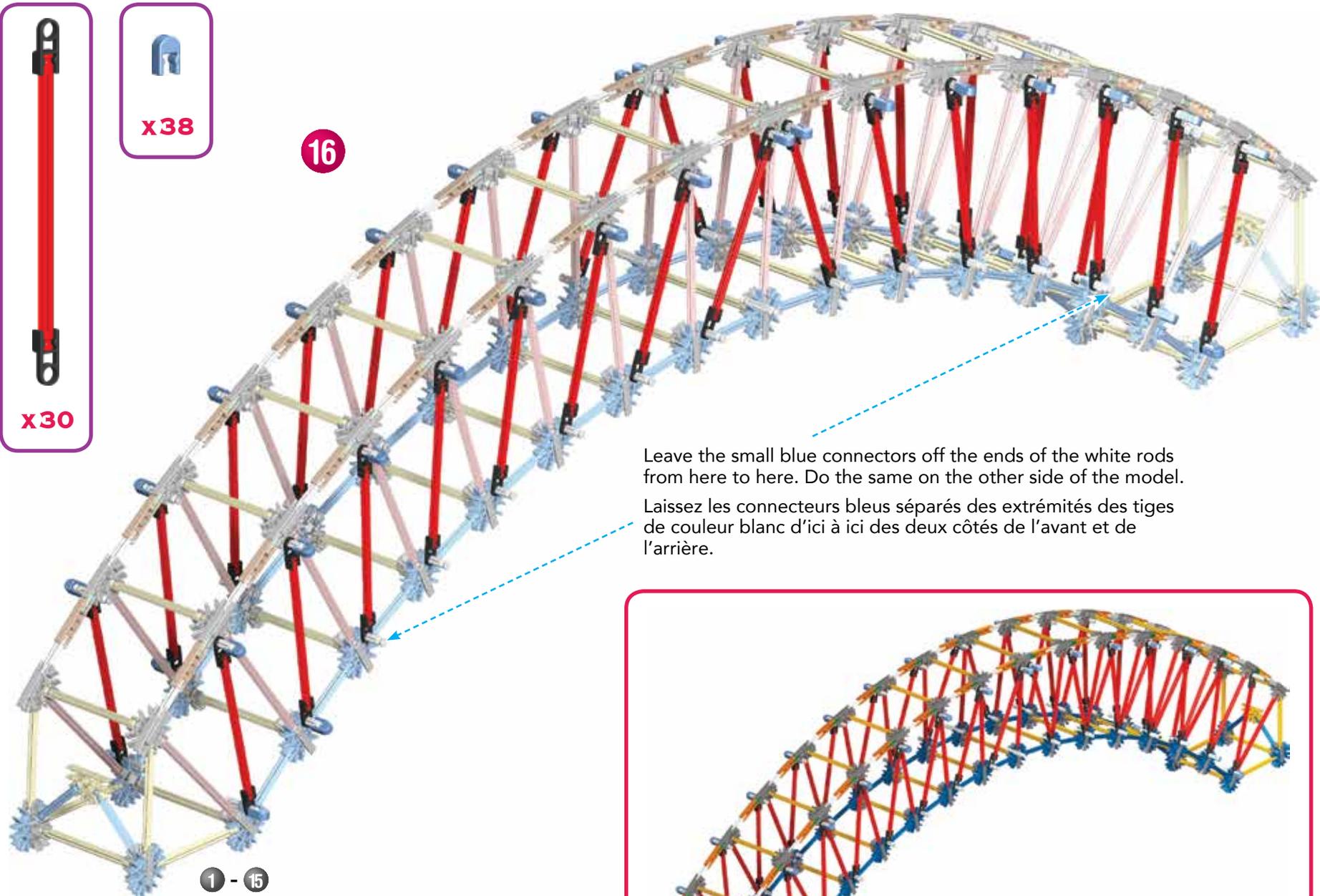
No yellow cross bar here.  
Pas de treillis.

x2

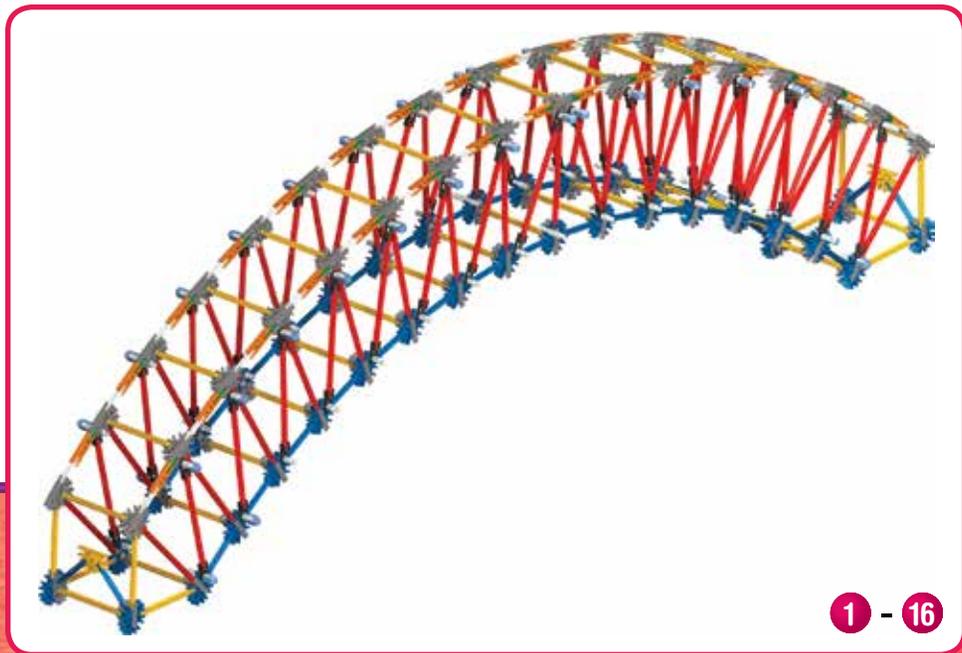




16

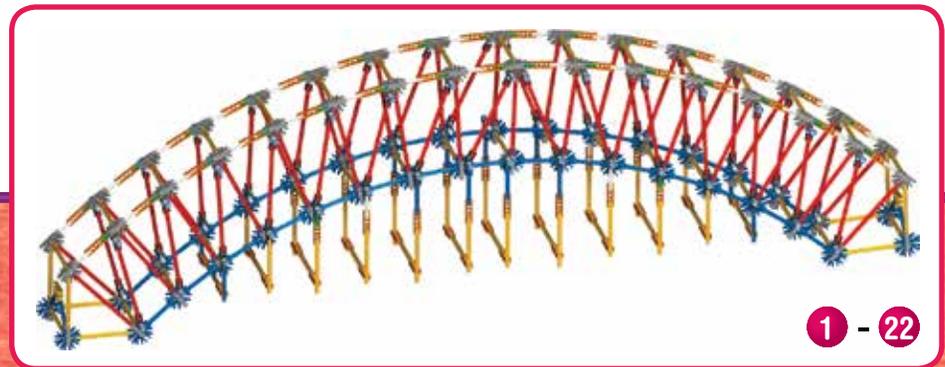
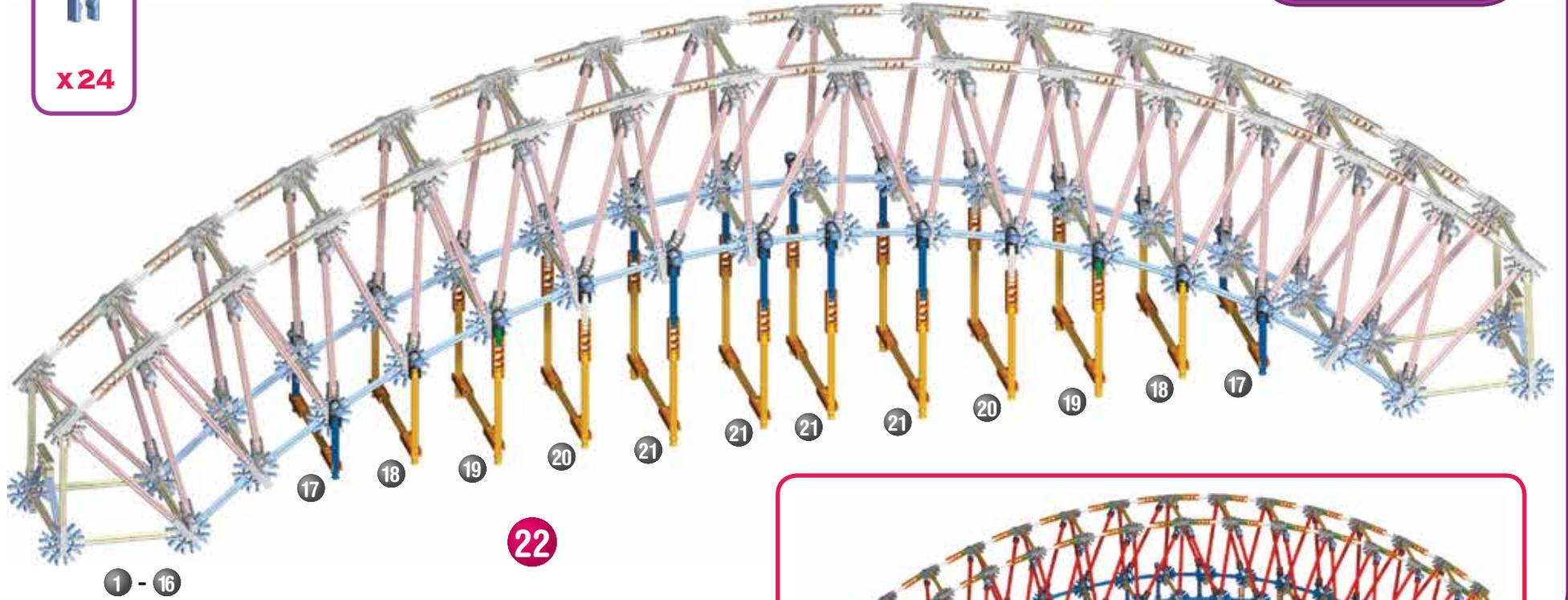


Leave the small blue connectors off the ends of the white rods from here to here. Do the same on the other side of the model.  
Laissez les connecteurs bleus séparés des extrémités des tiges de couleur blanc d'ici des deux côtés de l'avant et de l'arrière.



1 - 15

1 - 16





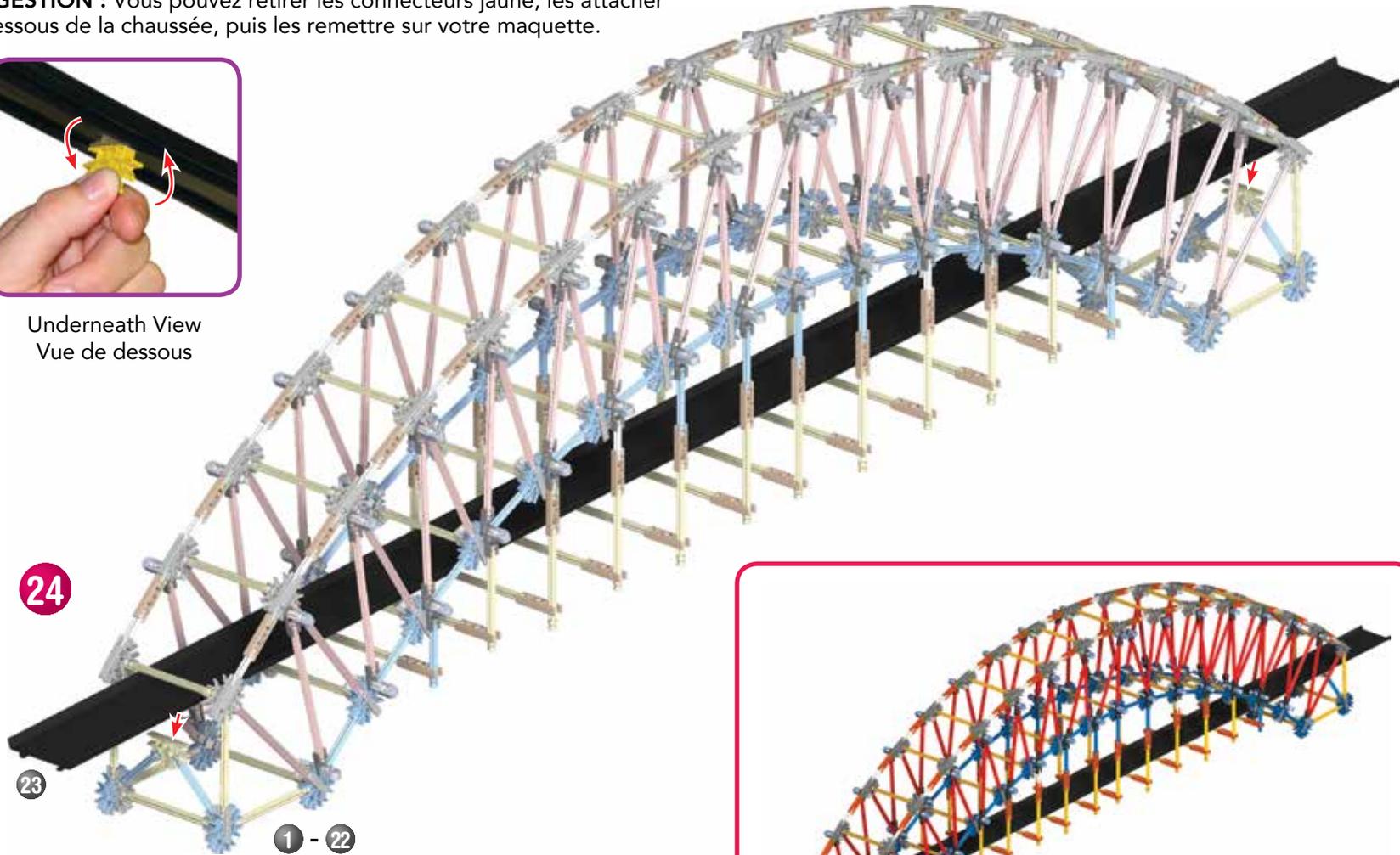
23

**TIP:** You can remove the yellow connectors, attach them to the underside of the roadway, then put them back onto your model.

**SUGGESTION :** Vous pouvez retirer les connecteurs jaune, les attacher au-dessous de la chaussée, puis les remettre sur votre maquette.



Underneath View  
Vue de dessous



# DAMES POINT BRIDGE



Photograph Courtesy of HNTB Corporation

## Vital Statistics:

**Location:** Route 9A crosses the St. Johns River in Jacksonville, Florida, U.S.A.

**Completion Date:** 1989

**Cost:** \$47 million

**Length:** 10,560 feet (3,219 meters)

**Type:** Cable-stayed

**Purpose:** Roadway

**Materials:** Concrete

**Longest Single Span:** 1,300 feet (396 meters)

## Fast Facts:

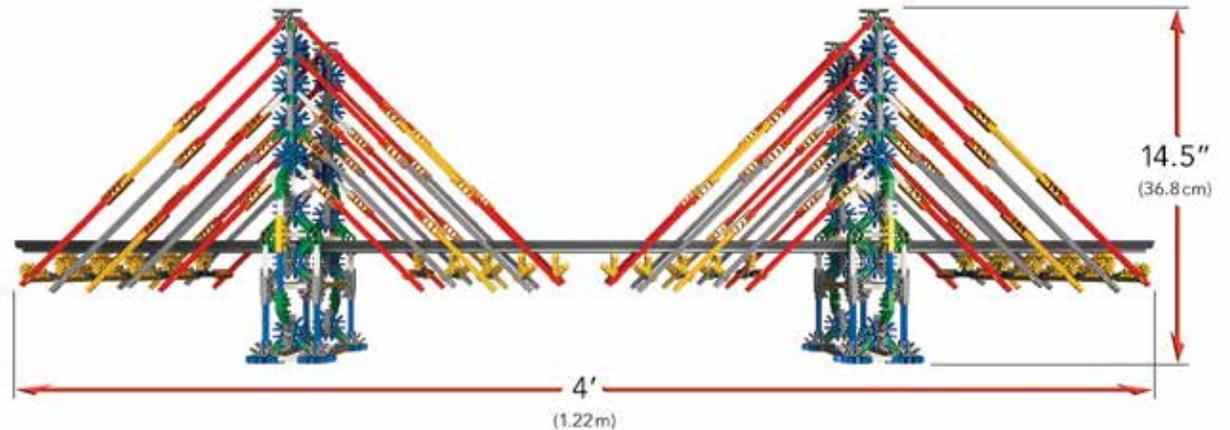
- Also known as the Napoleon Bonaparte Broward Bridge, the Dames Point Bridge is America's longest concrete cable-stayed bridge.
- It is the only bridge in the United States to feature the harp (parallel) stay arrangement on two vertical planes, a design which rivals suspension bridges for strength and beauty.
- A concrete pouring milestone was set during the construction of the northern pier foundation, as almost 19,000 cubic yards (14,527 cubic meters) of concrete were continuously poured for 47 straight hours.

## The K'NEX Dames Point Bridge



## K'NEX Statistics/Statistiques:

K'NEX Parts/Pièces = 515



You will need to build **2** of these sections.  
(steps 1 - 29)

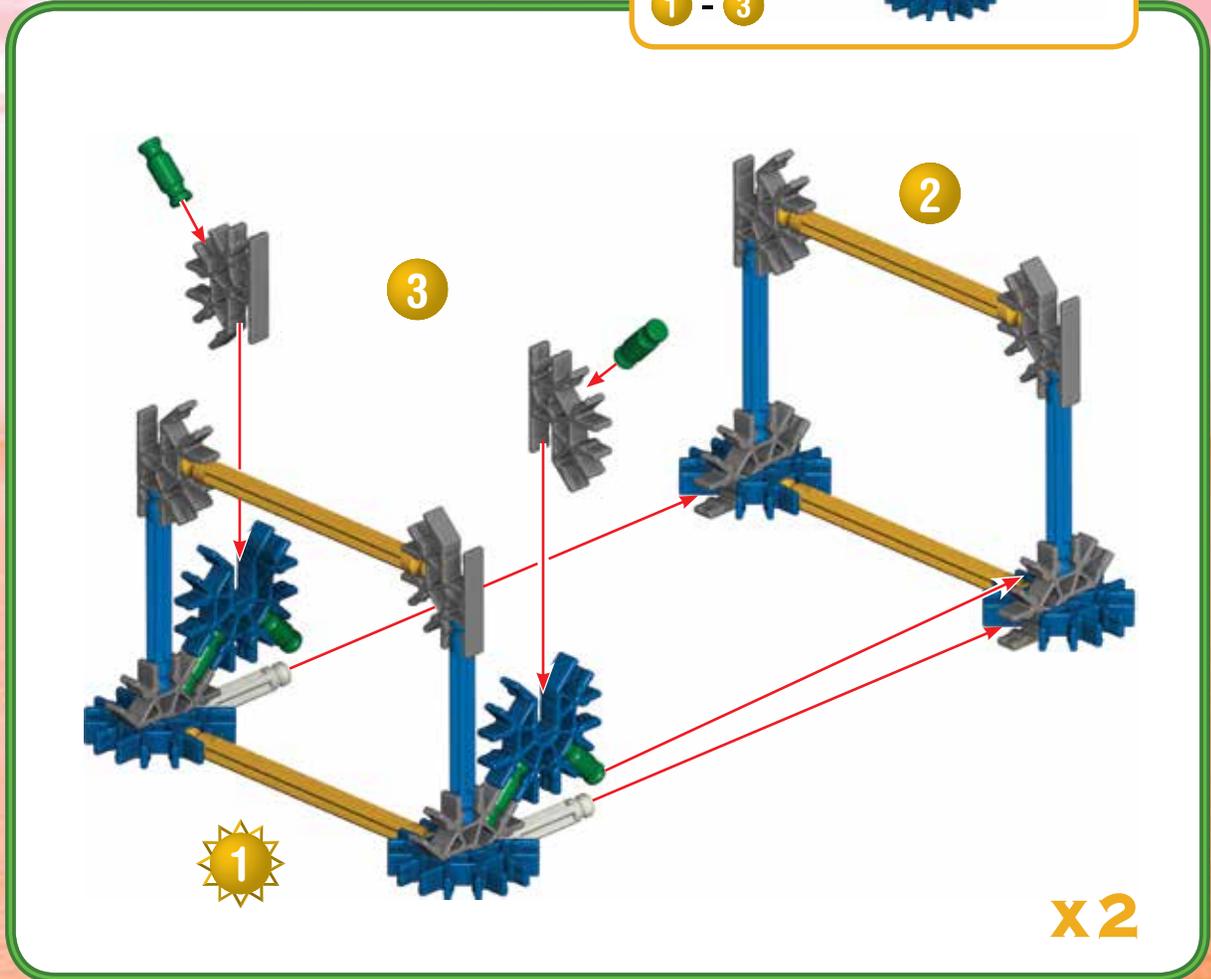


Vous aurez besoin de construire **2** de ces sections.  
(étapes 1 - 29)

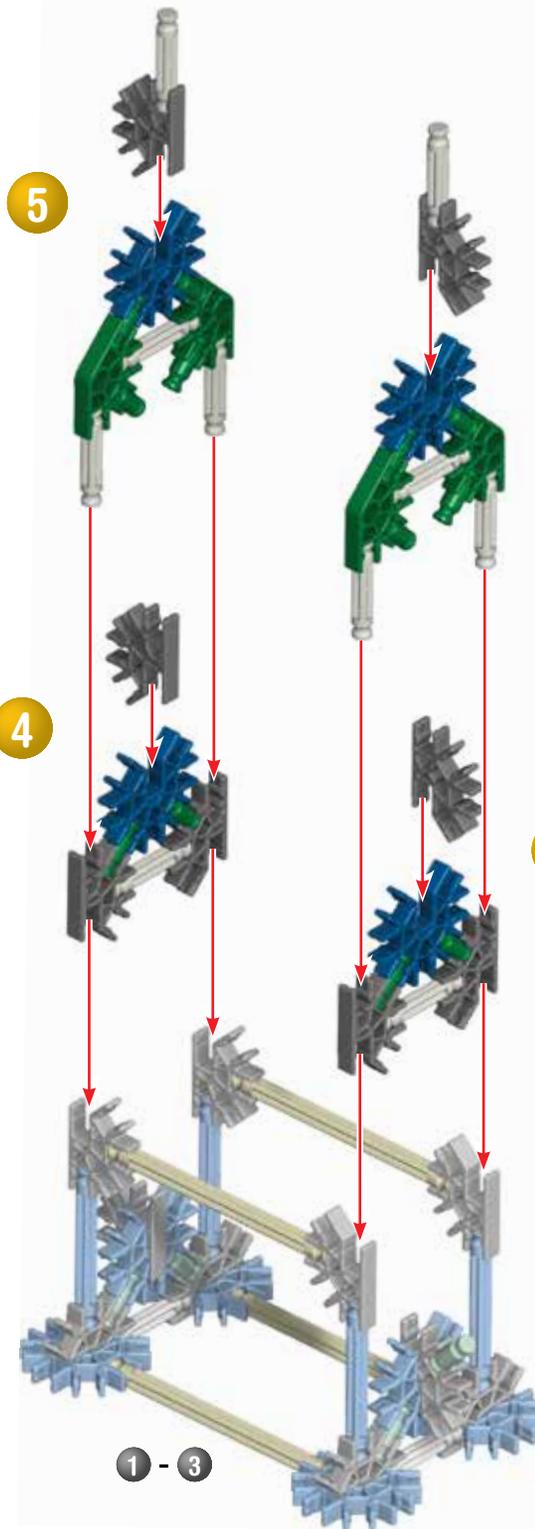


### Dames Point Bridge

- |    |  |    |  |    |  |
|----|--|----|--|----|--|
| 8  |  | 16 |  | 16 |  |
| 20 |  | 64 |  | 52 |  |
| 76 |  | 56 |  | 40 |  |
| 44 |  |    |  |    |  |
| 32 |  |    |  |    |  |
| 28 |  |    |  |    |  |
| 40 |  |    |  |    |  |
| 16 |  |    |  |    |  |
| 3  |  |    |  |    |  |
| 4  |  |    |  |    |  |



x2



7

6

4

5



x2

1 - 7

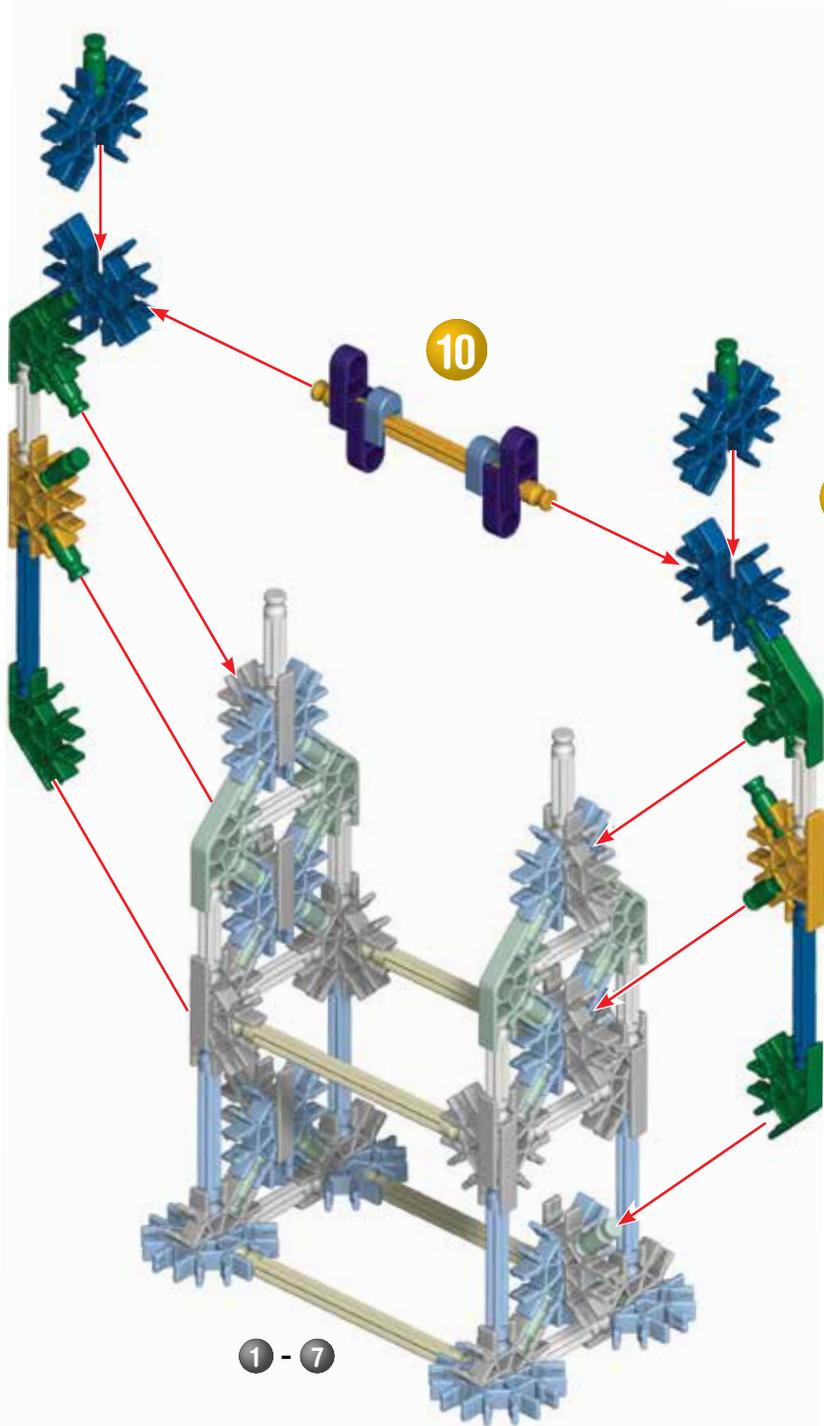
x2

8

10

9

1 - 7

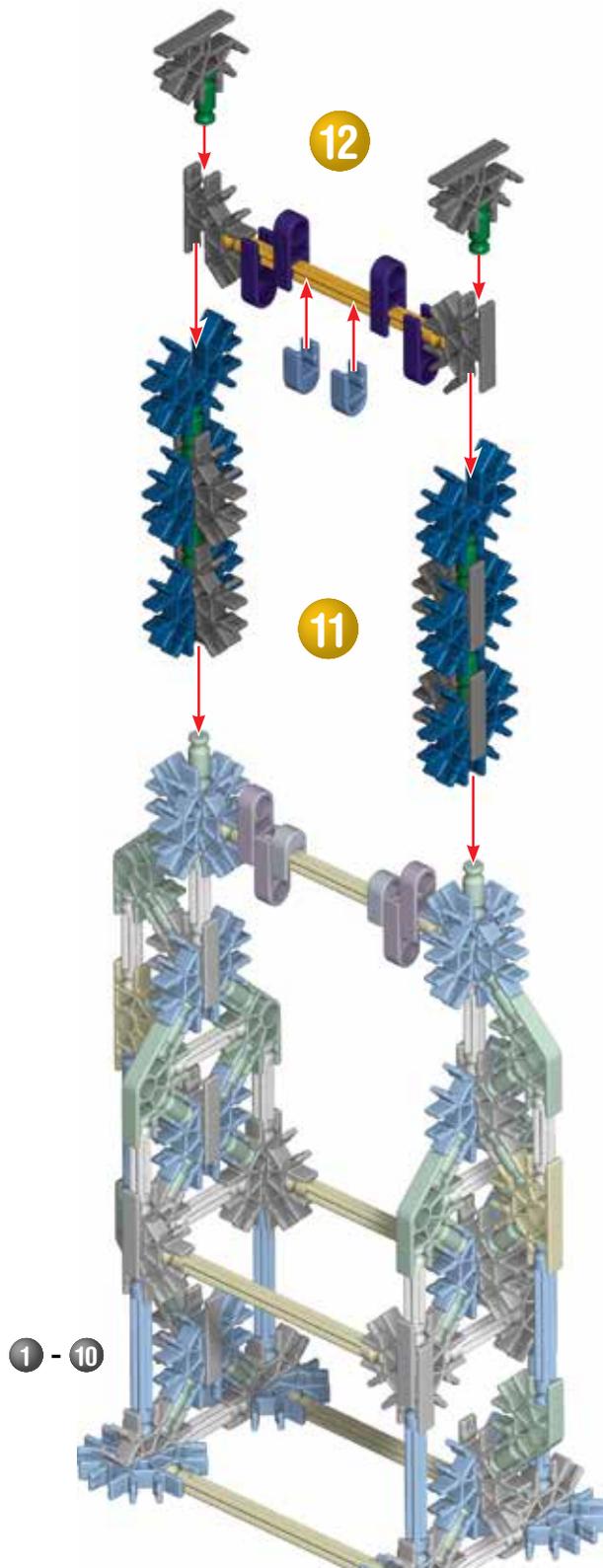


x2

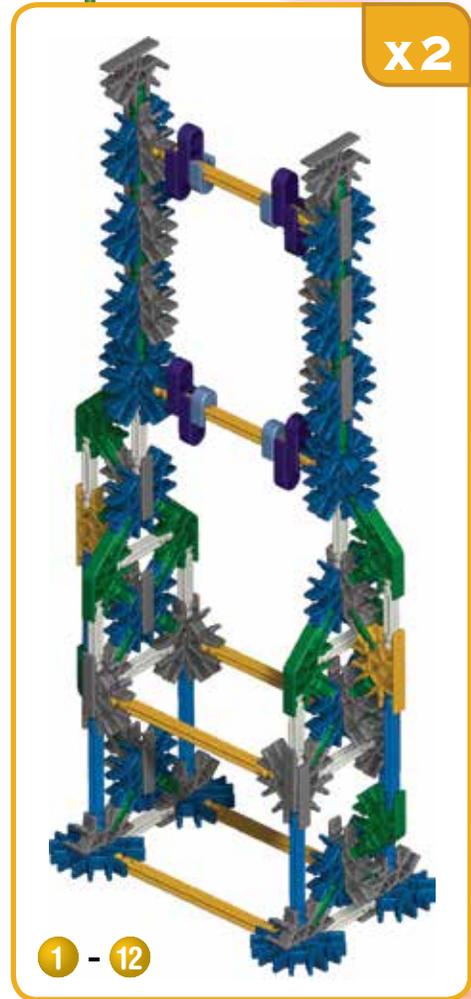
1 - 10

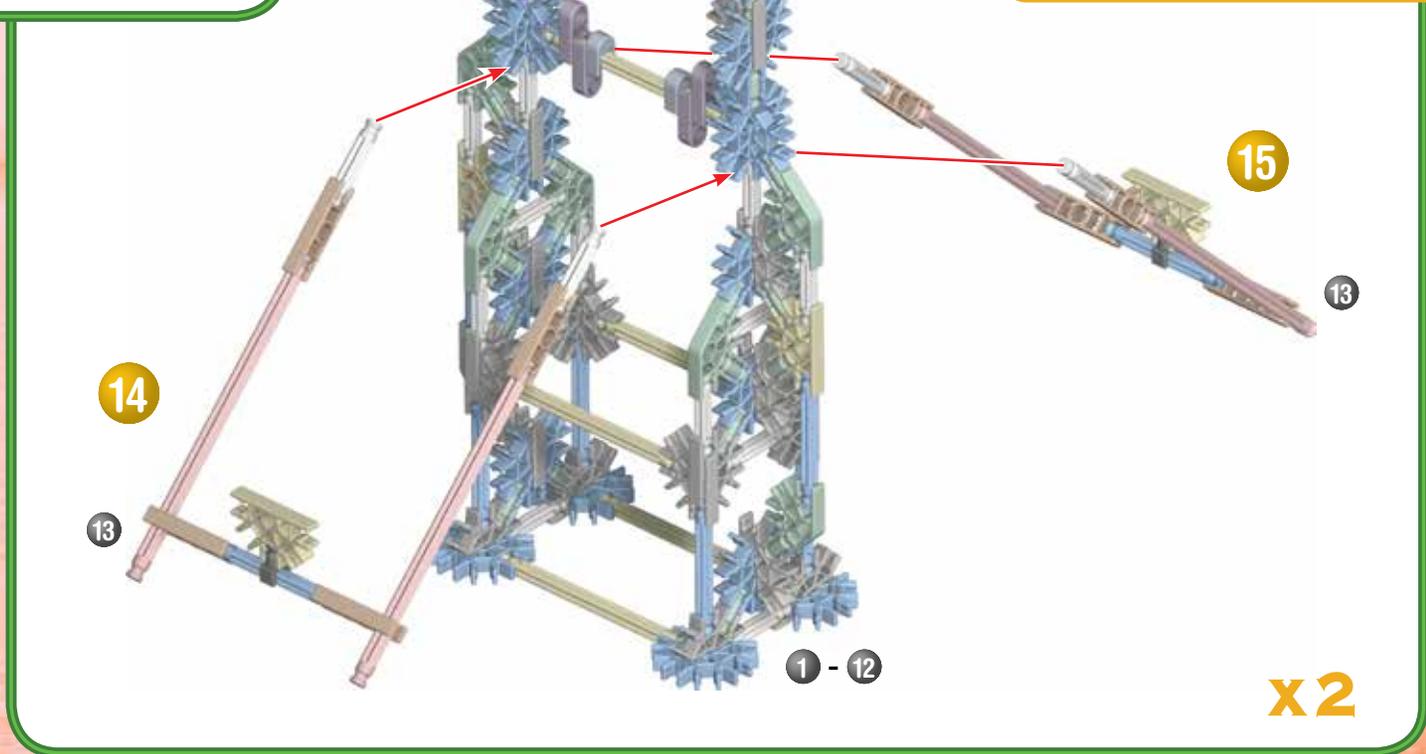
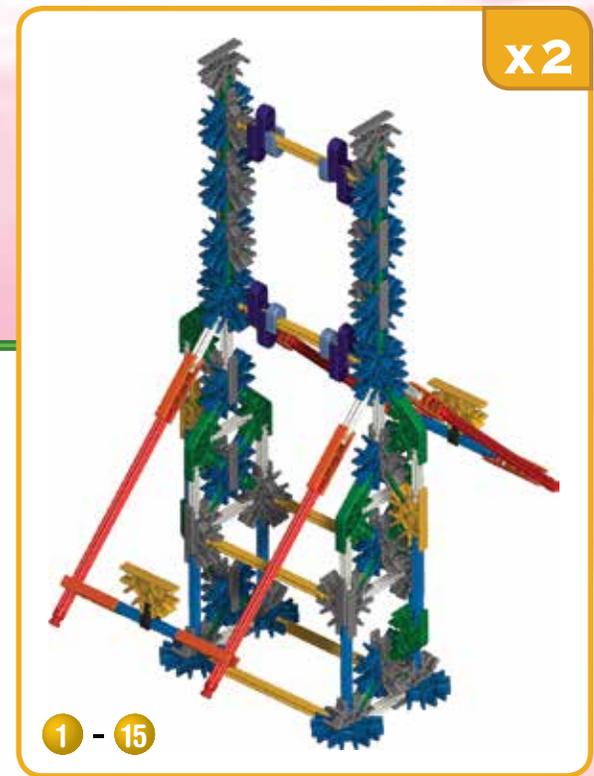


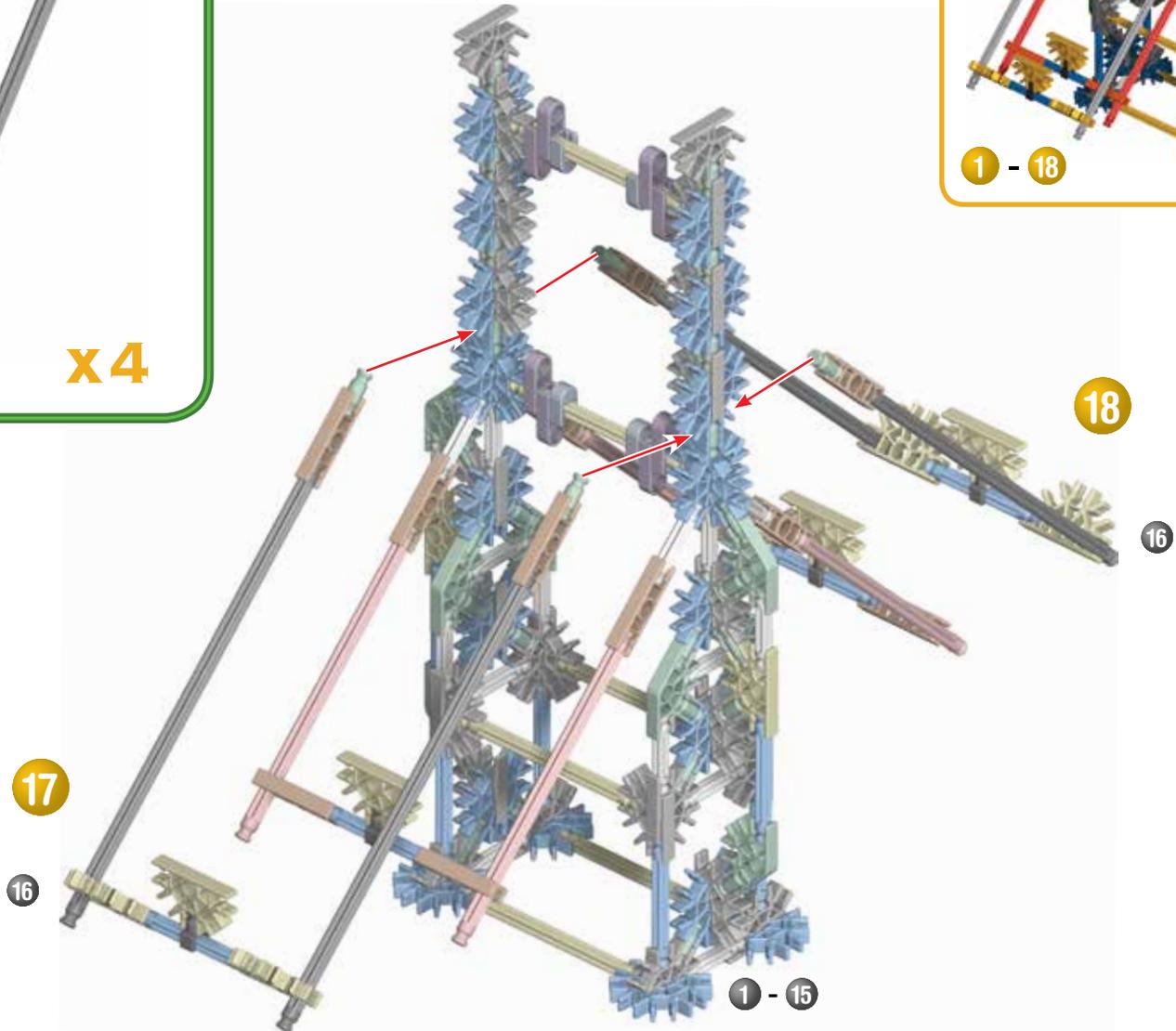
x2



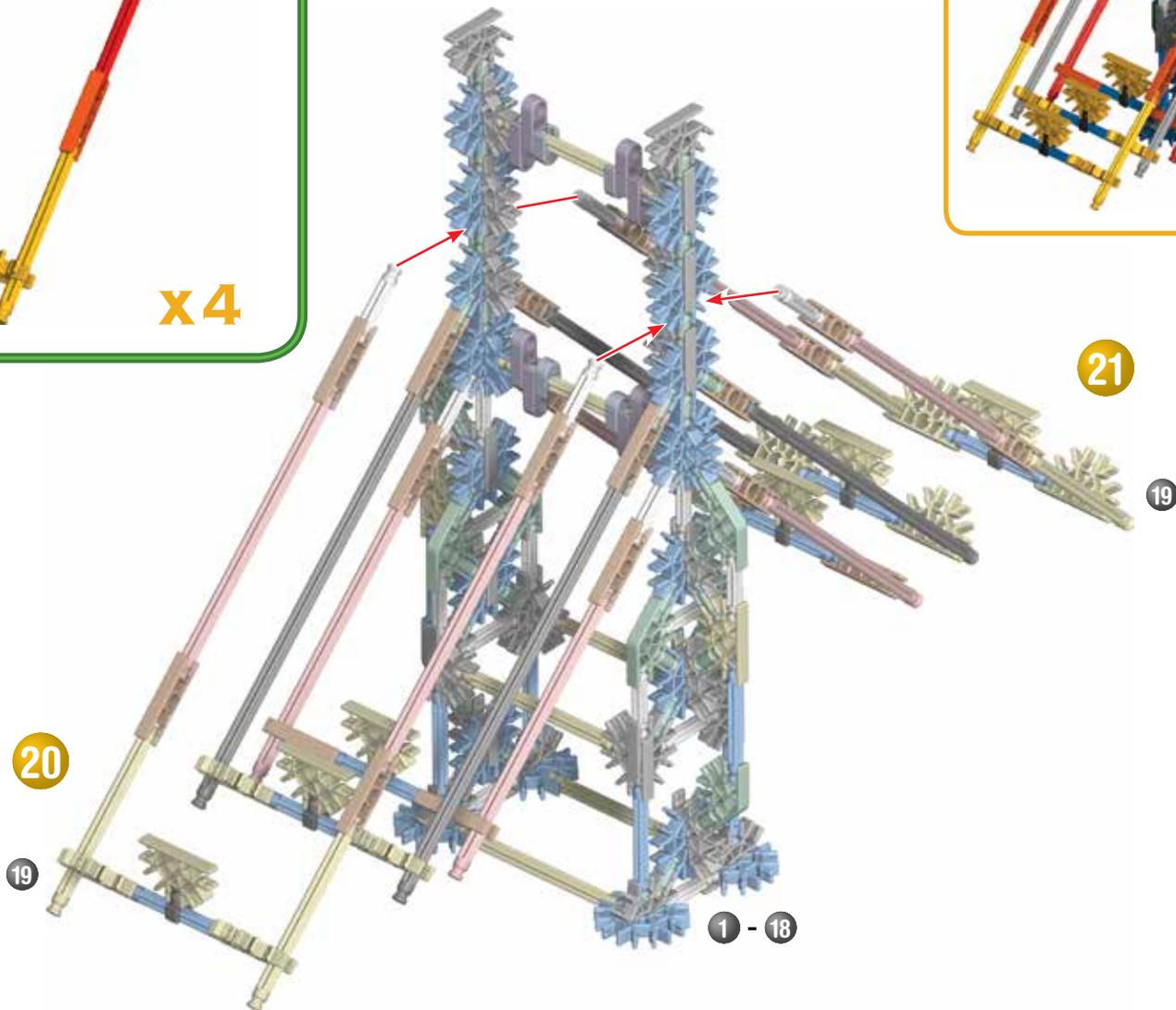
x2



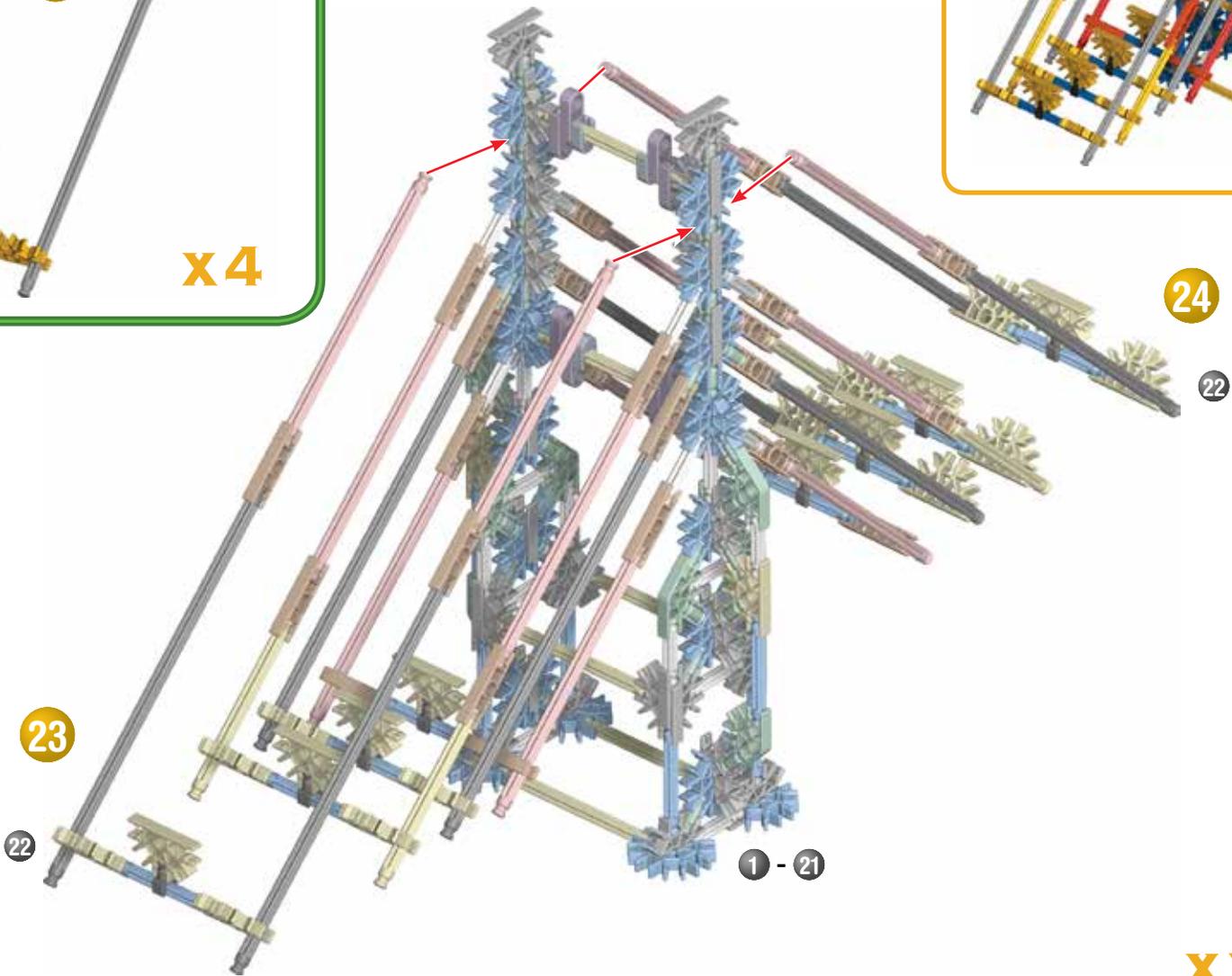
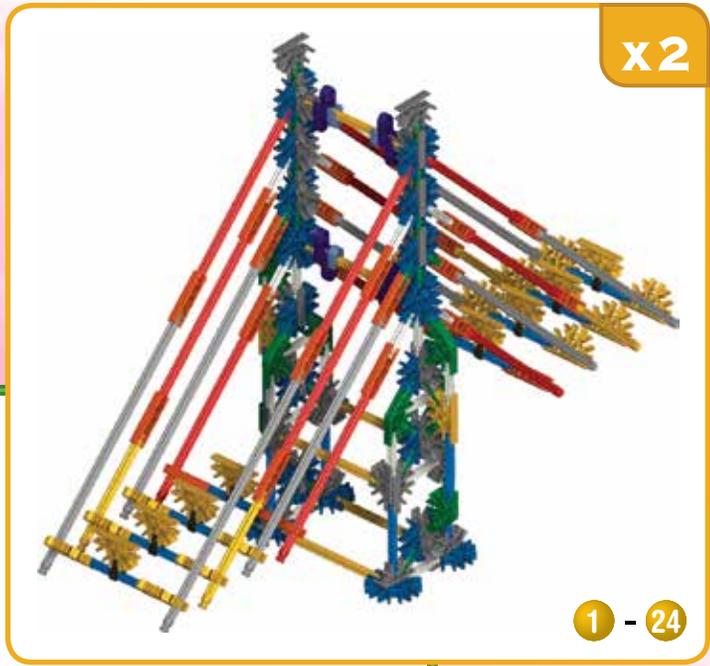




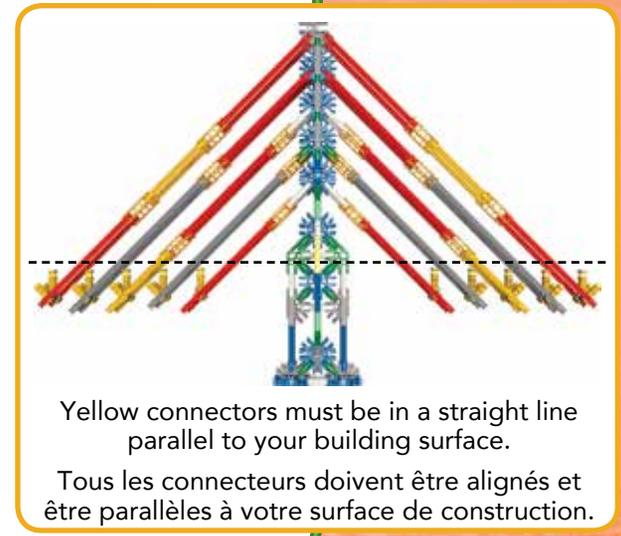
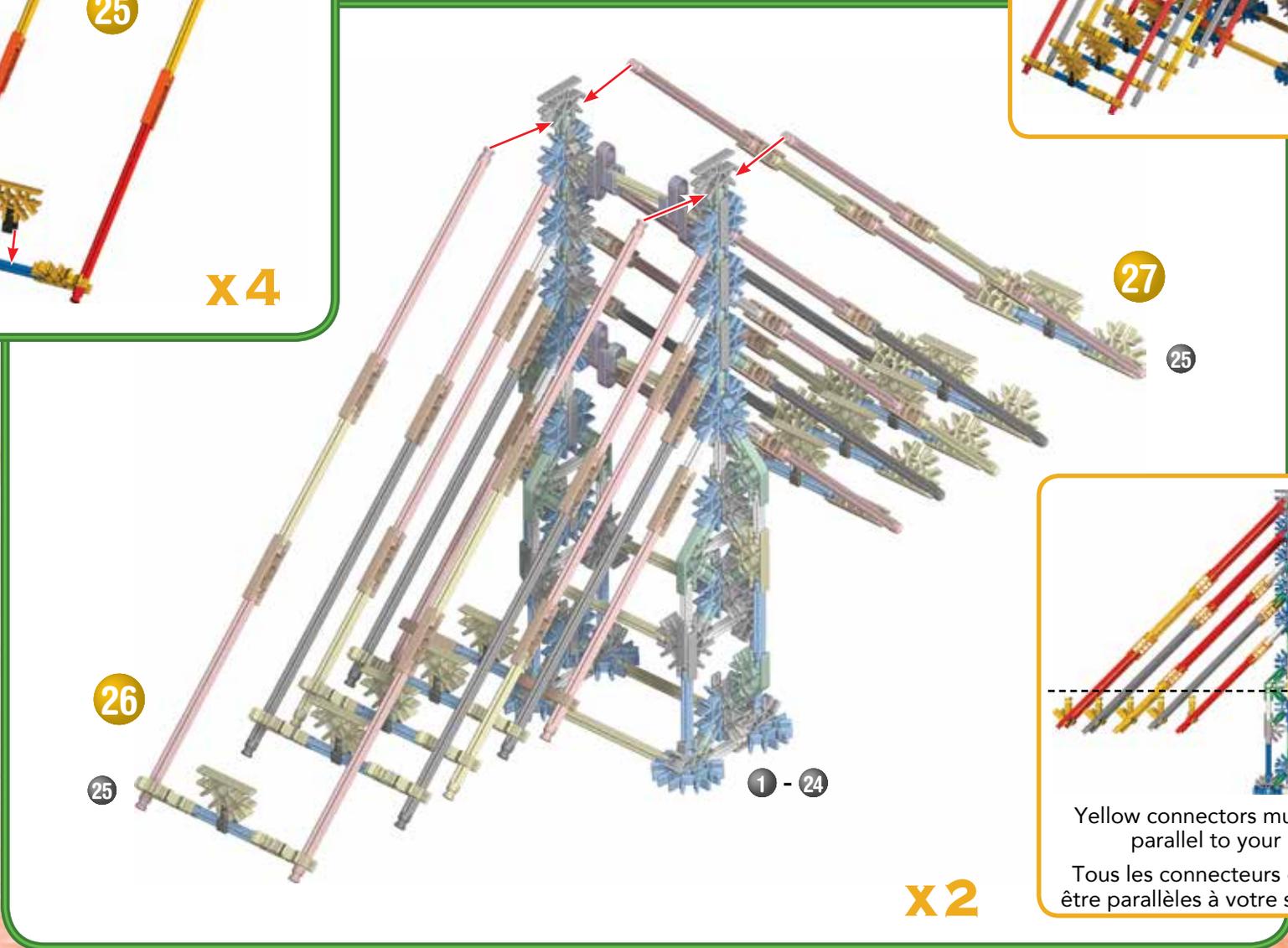
x2

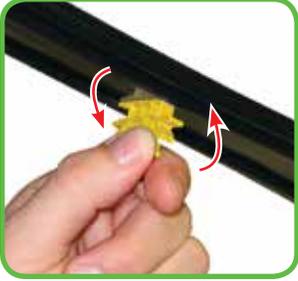


x2

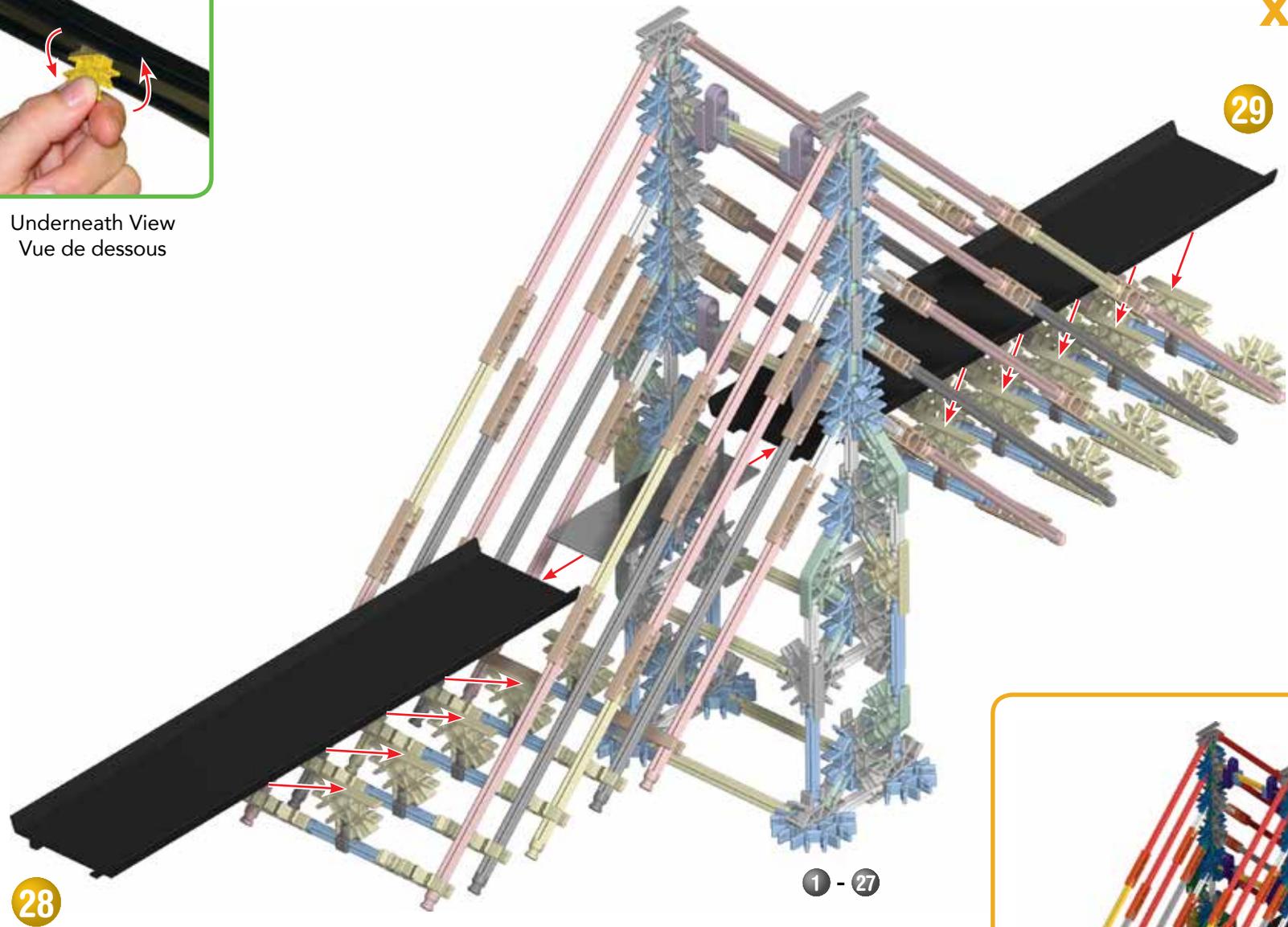


x2





Underneath View  
Vue de dessous



x2

29

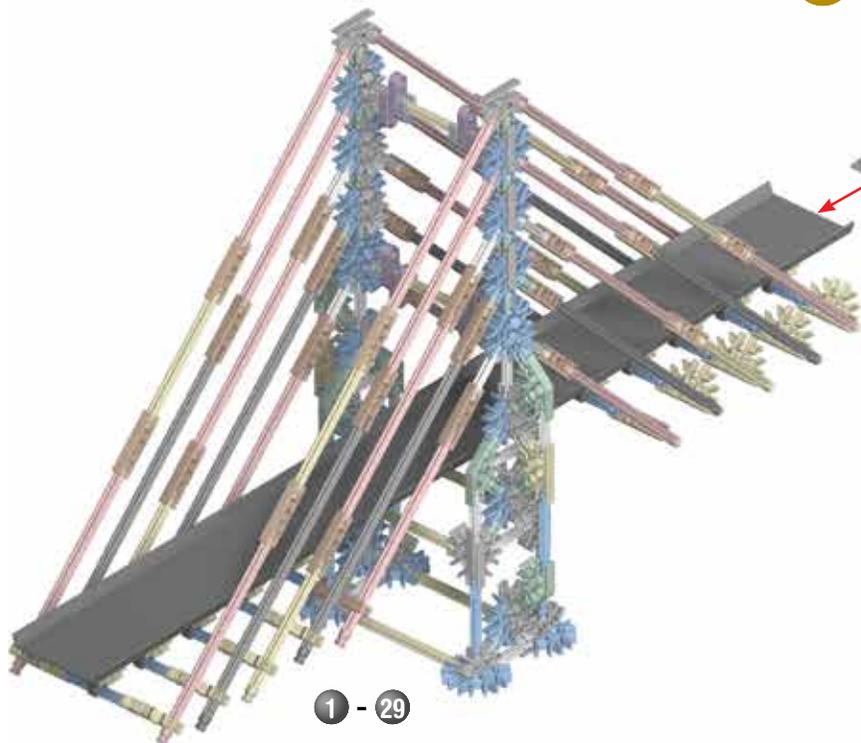
28

1 - 27

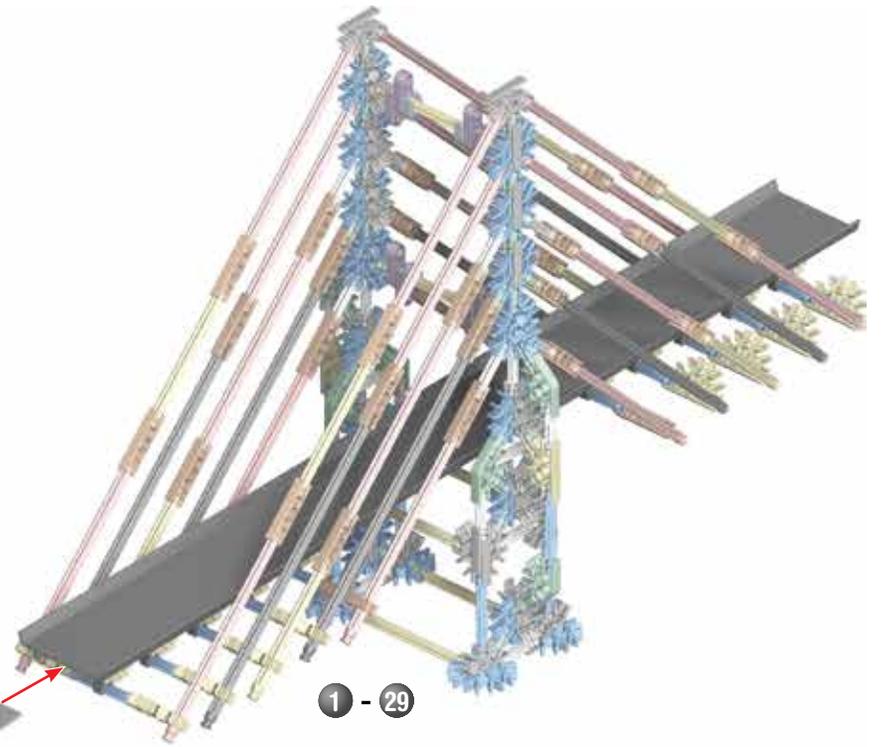


x2

1 - 29



30



# TOWER BRIDGE



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## Vital Statistics:

**Location:** Tower Bridge crosses the River Thames in London, England

**Completion Date:** 1894

**Cost:** N/A

**Length:** 880 feet (268 meters)

**Type:** Movable (bascule), suspension

**Purpose:** Roadway, pedestrian

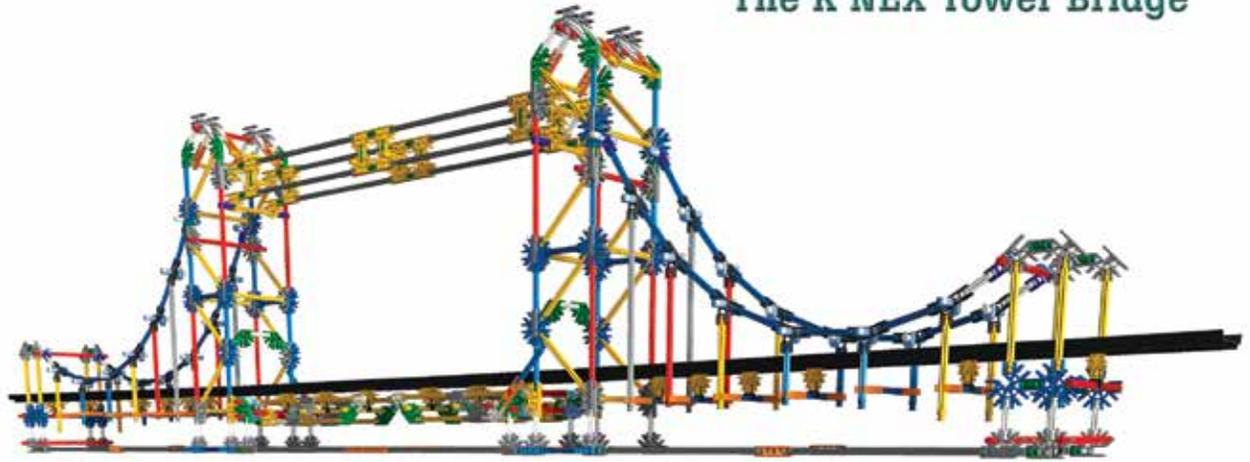
**Materials:** Steel, masonry

**Longest Single Span:** 200 feet (61 meters)

## Fast Facts:

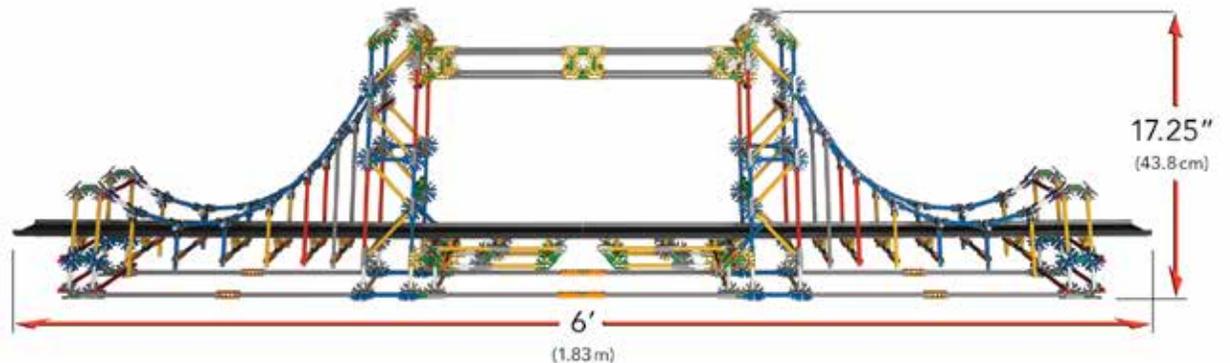
- The Tower Bridge is the only movable bridge of the 29 bridges on the Thames River.
- When the bridge opened to river traffic in 1894, it was raised and lowered 1,000 times per year. Today, few ships actually travel on the Thames, so the bridge opens less than 100 times per year.
- In 1952, a London bus had to leap from one bascule to the other when the bridge began to rise with the bus still on it. Luckily, no one was injured.

## The K'NEX Tower Bridge

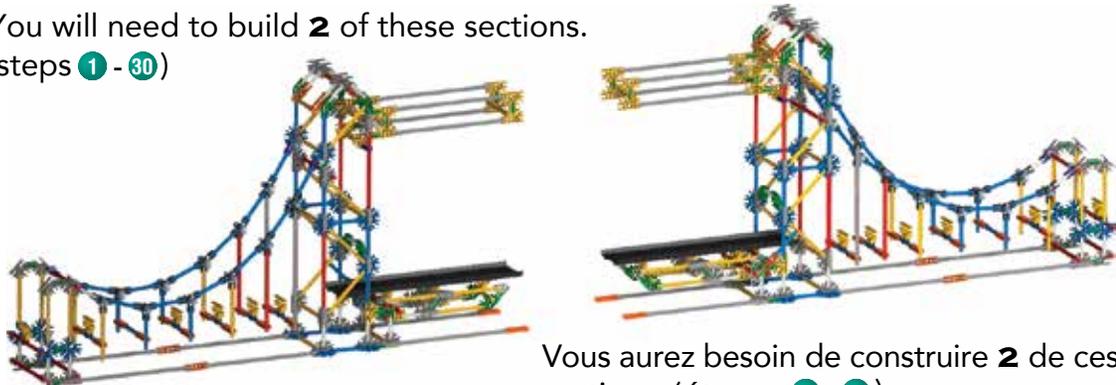


## K'NEX Statistics/Statistiques:

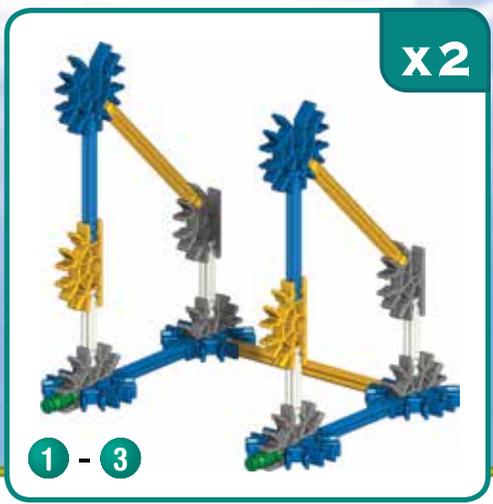
K'NEX Parts/Pièces = 790



You will need to build **2** of these sections.  
(steps 1 - 30)

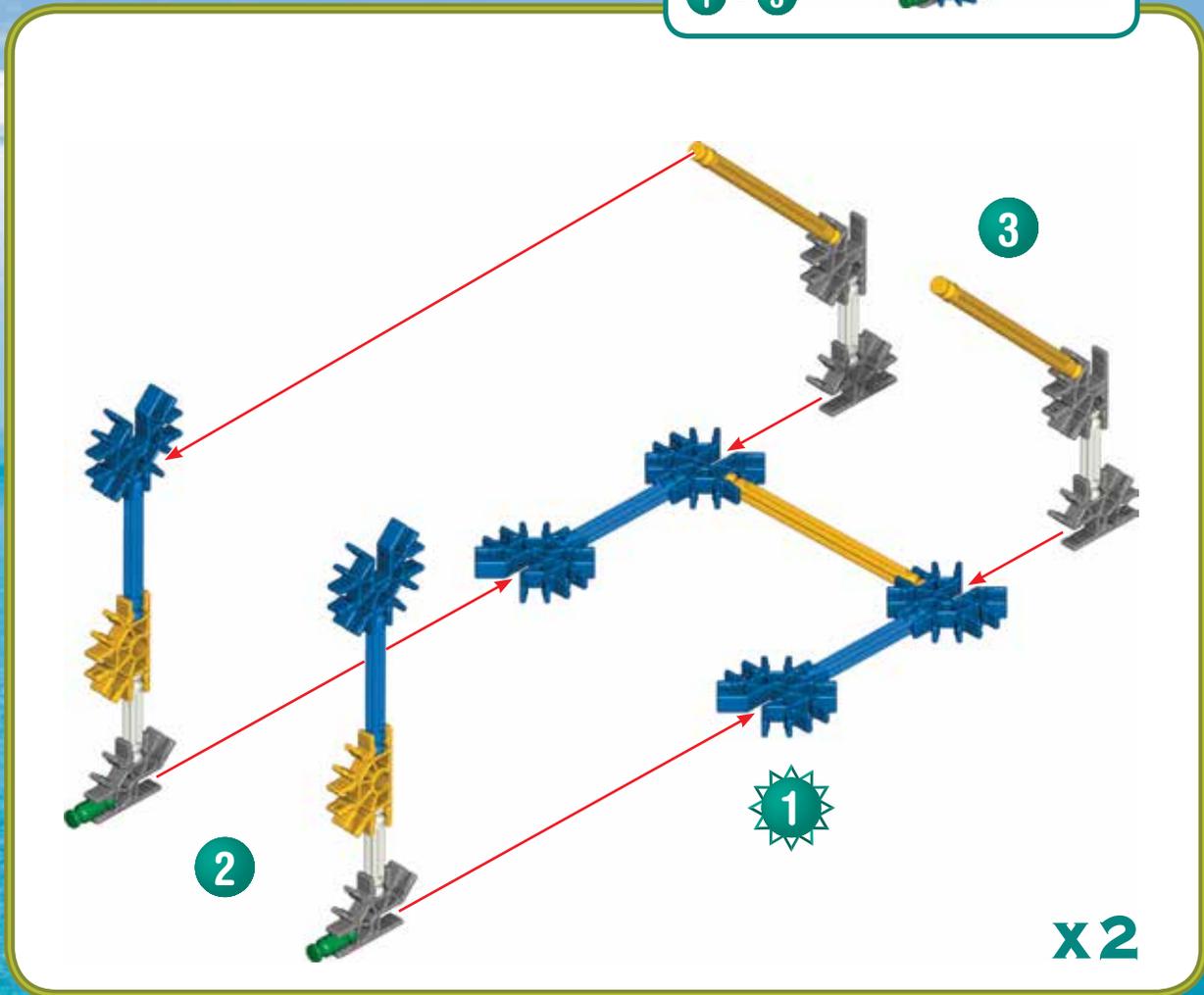


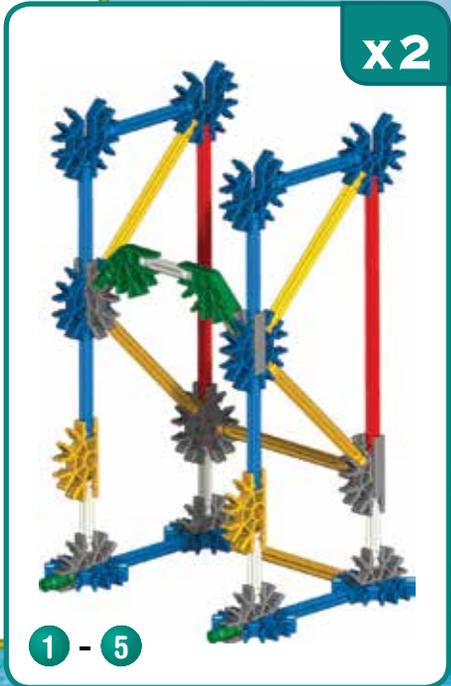
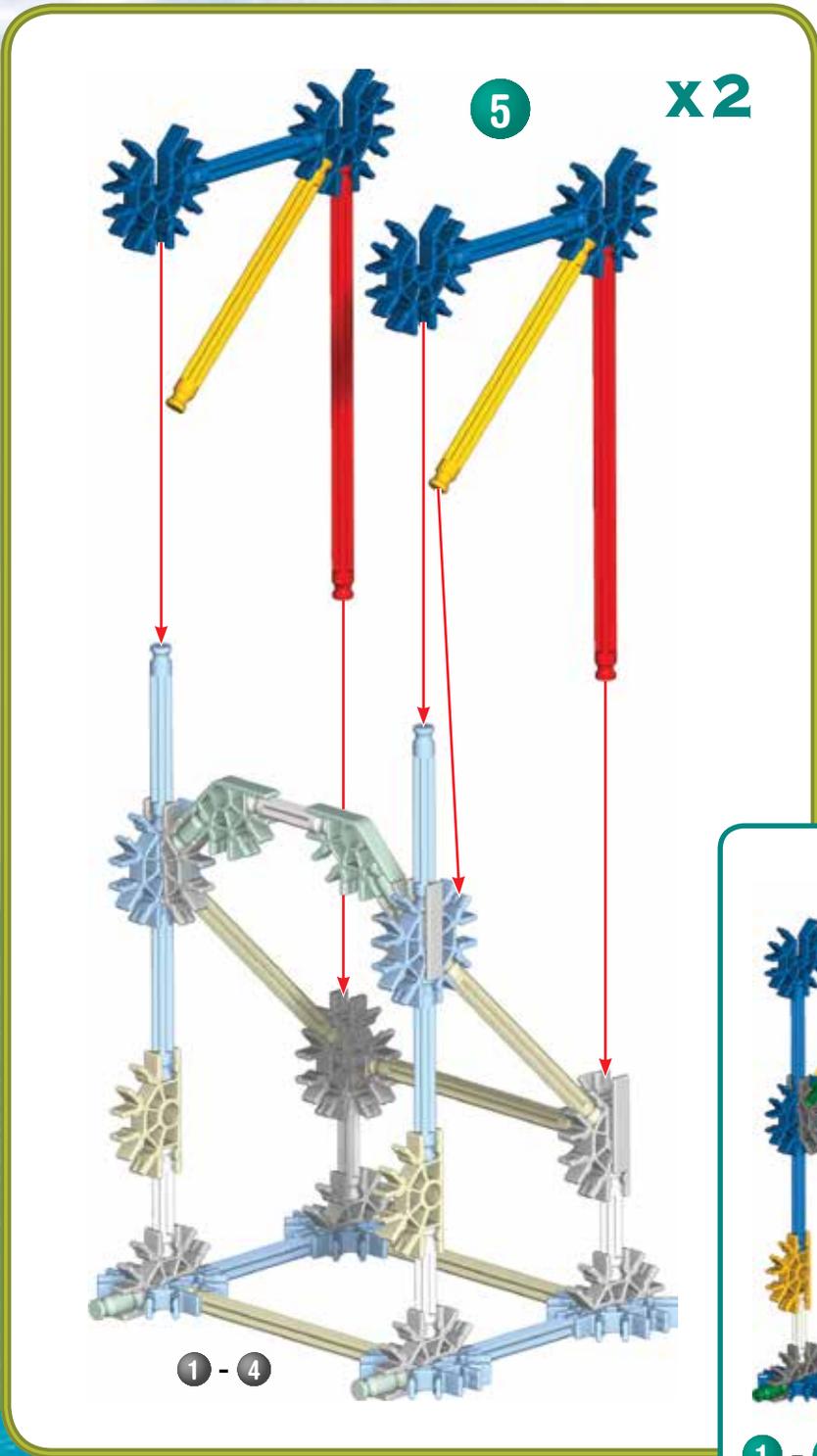
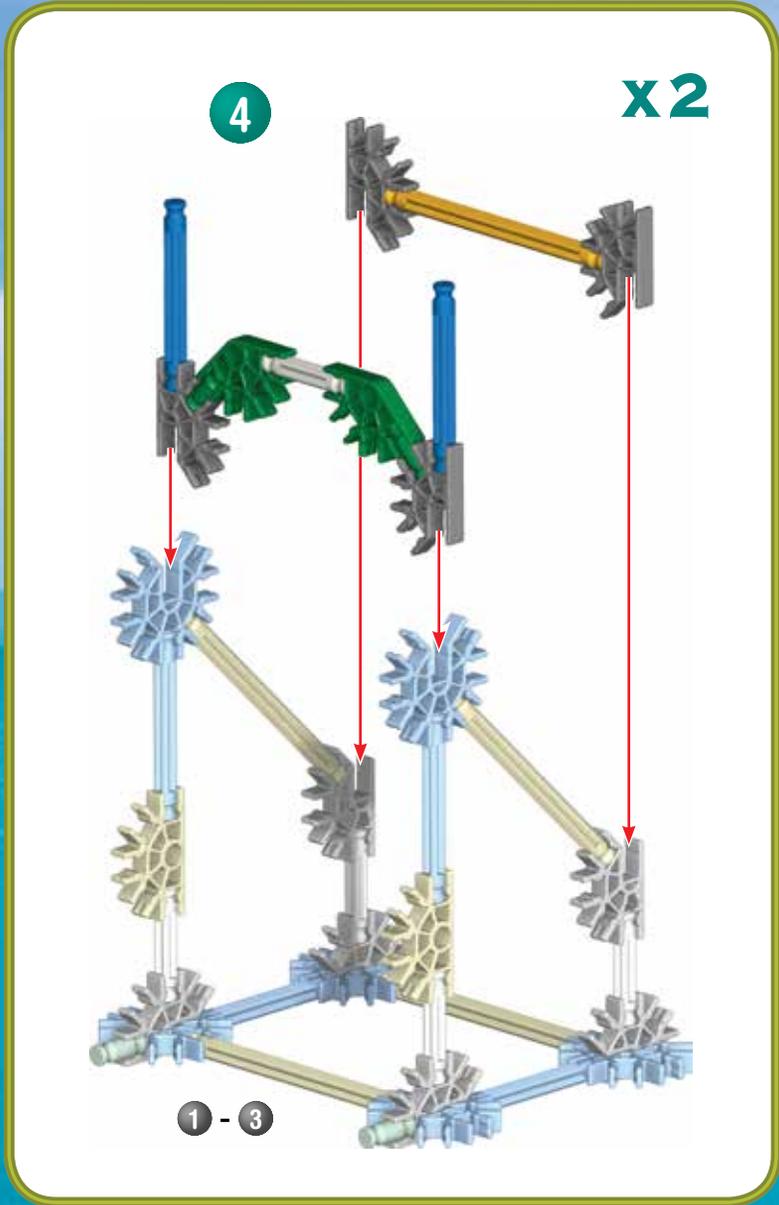
Vous aurez besoin de construire **2** de ces sections. (étapes 1 - 30)

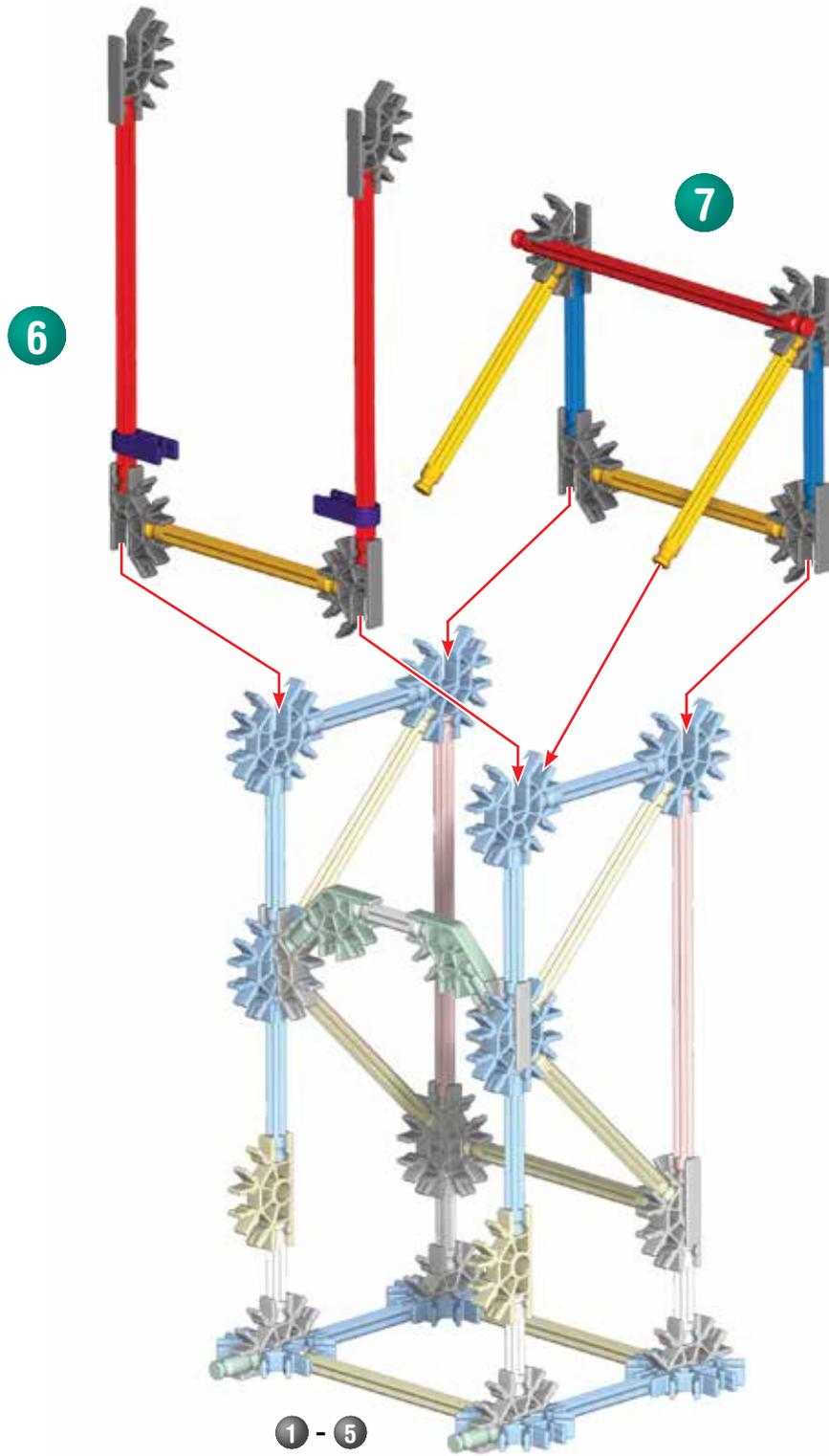


### Tower Bridge

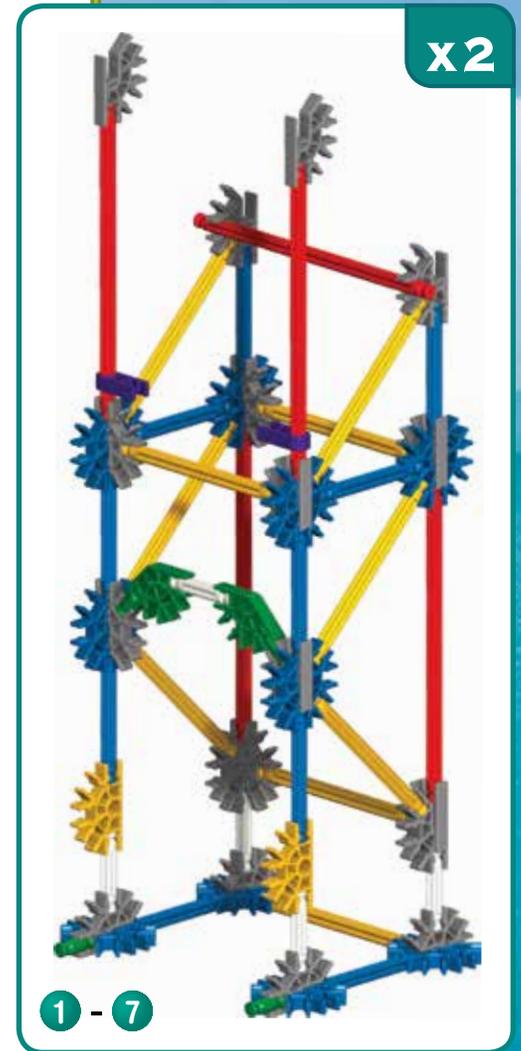
- |    |    |     |
|----|----|-----|
| 72 | 42 | 20  |
| 72 | 10 | 100 |
| 12 | 50 | 32  |
| 18 | 4  |     |
| 72 | 6  |     |
| 78 |    |     |
| 70 |    |     |
| 70 |    |     |
| 30 |    |     |
| 24 |    |     |
| 2  |    |     |
| 6  |    |     |





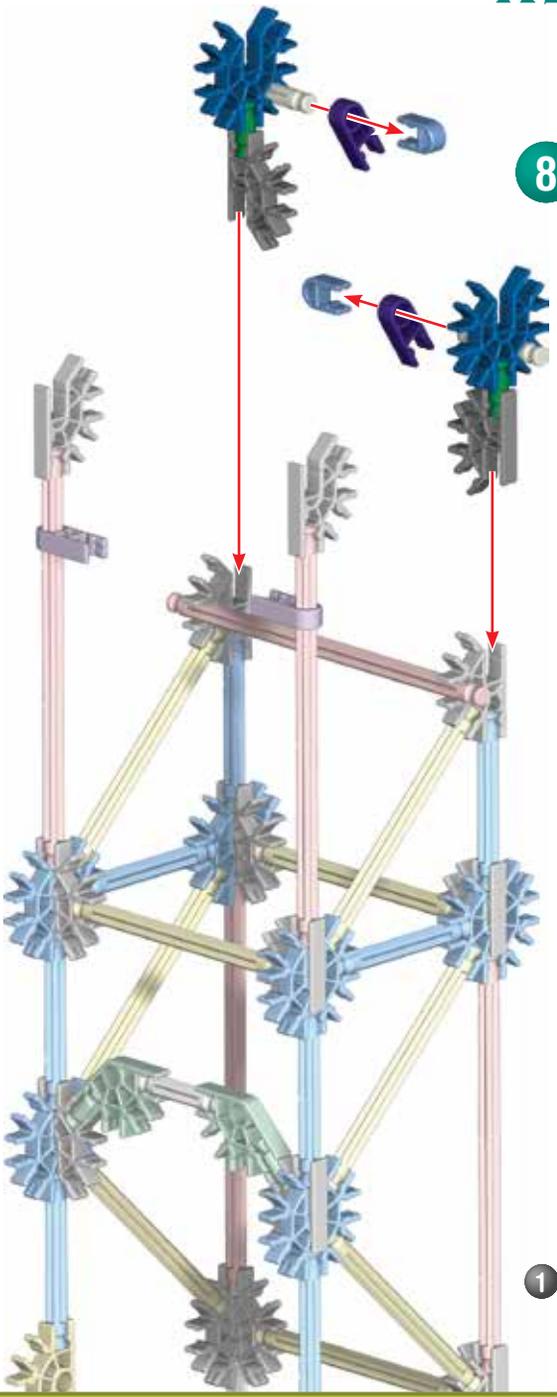


x2



x2

8

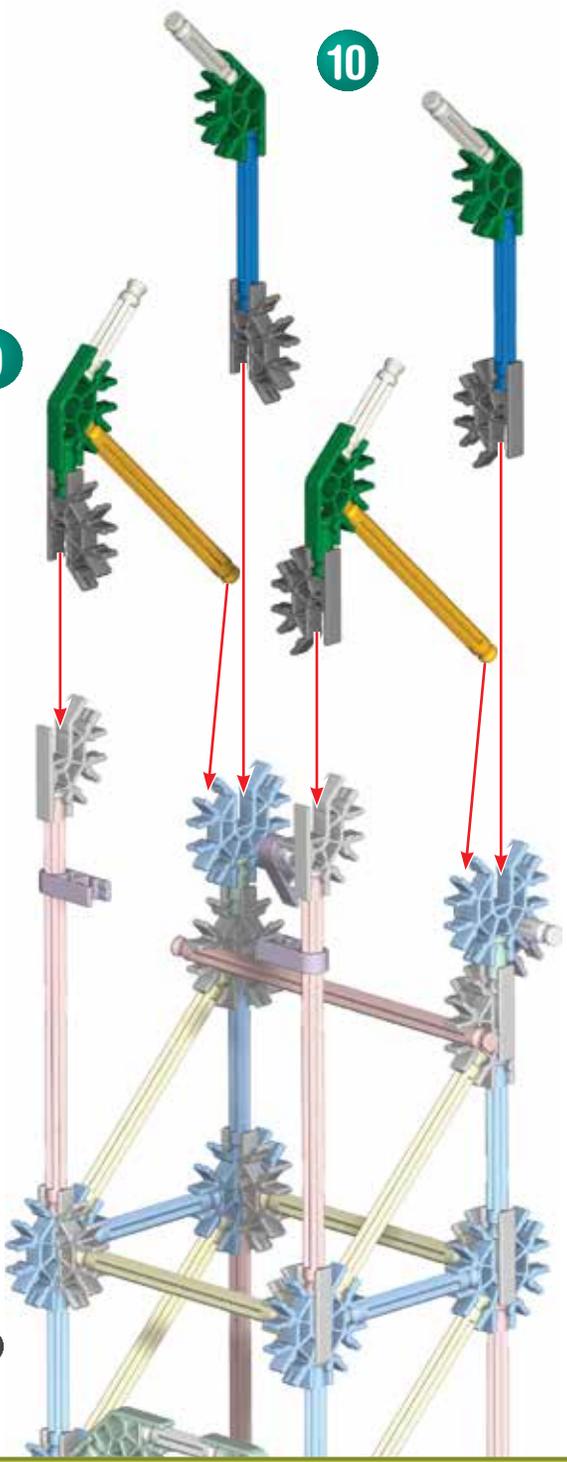


1 - 7

10

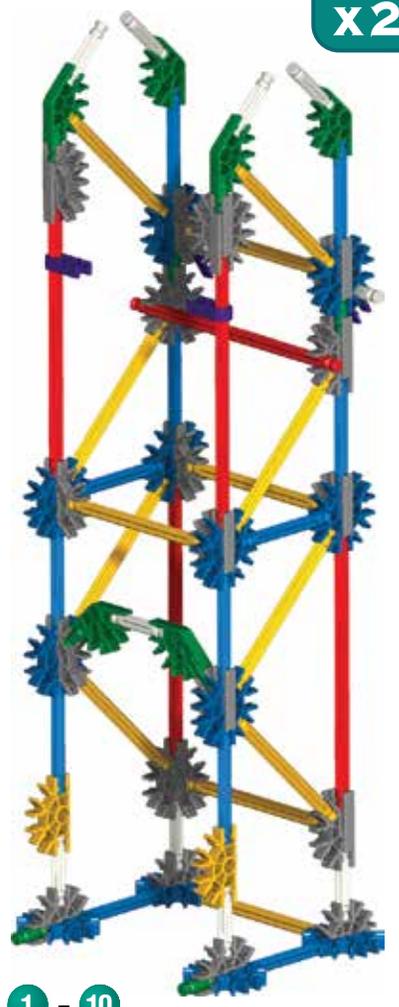
x2

9



1 - 8

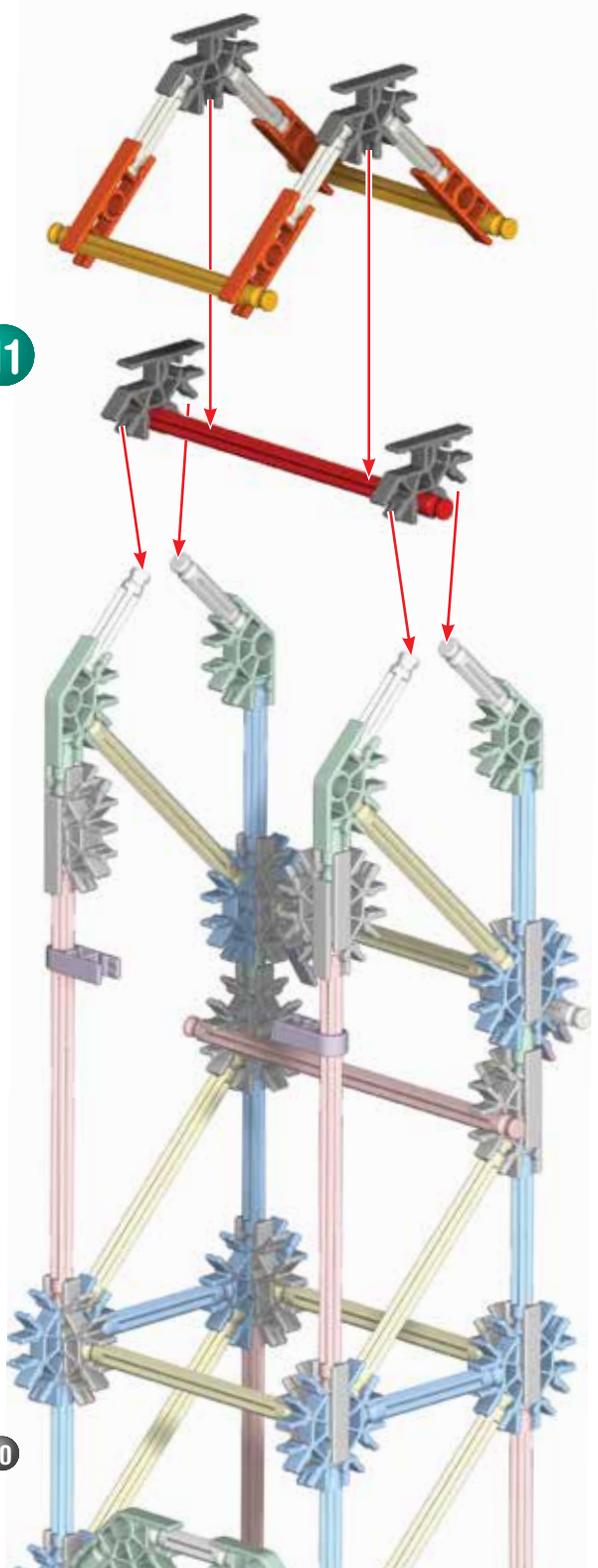
x2



1 - 10

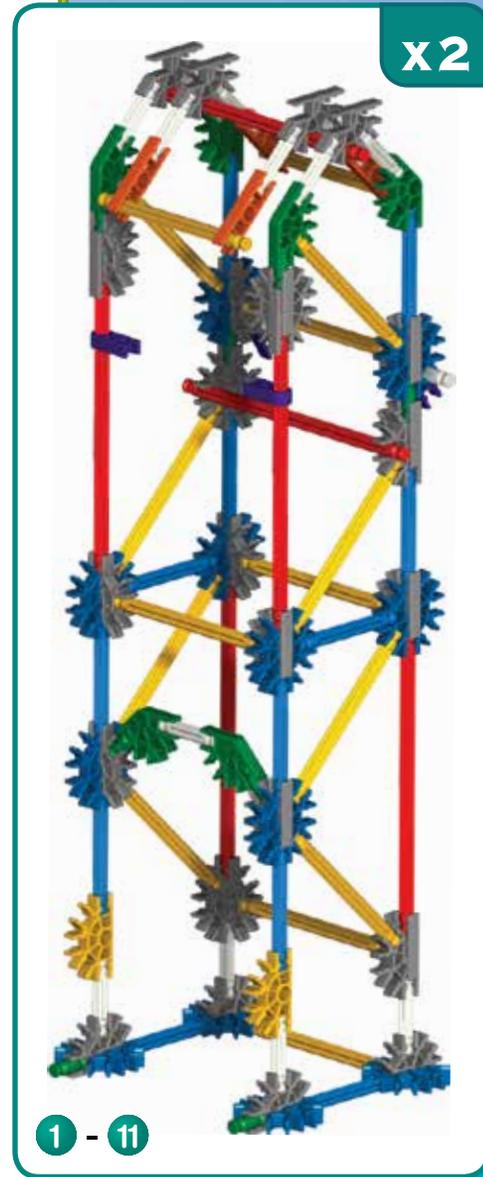


11



x2

1 - 10

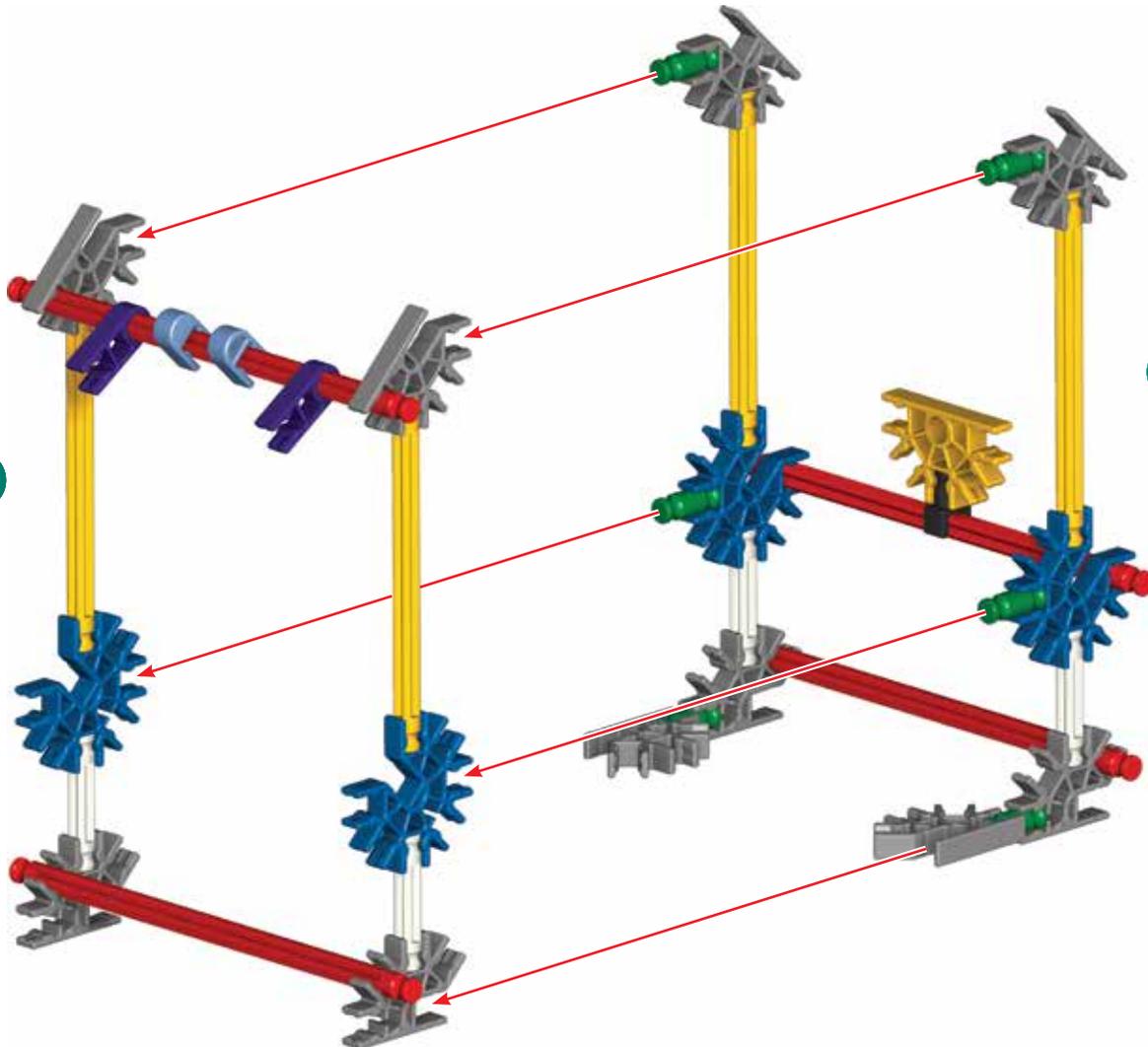


1 - 11

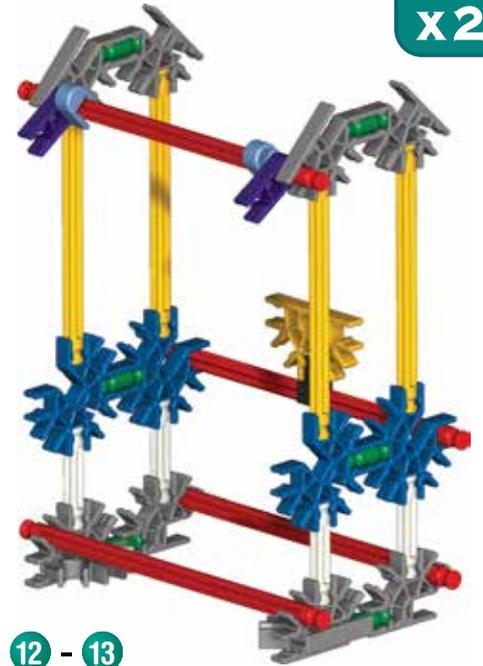
x2

12

13



x2



12 - 13

x2

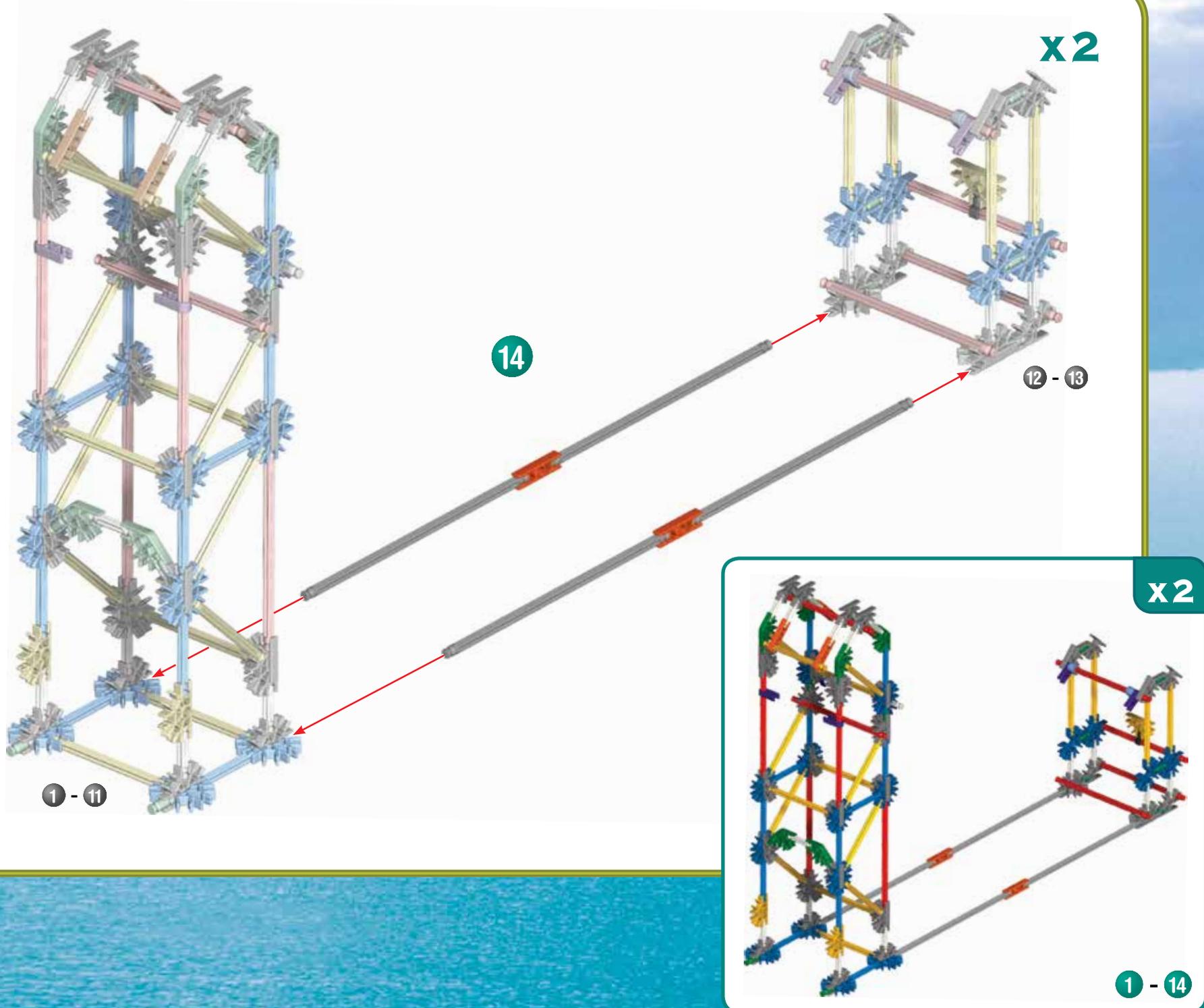
14

12 - 13

1 - 11

x2

1 - 14



**15**

**x 24**

**x 24**   **x 4**

**x 2**

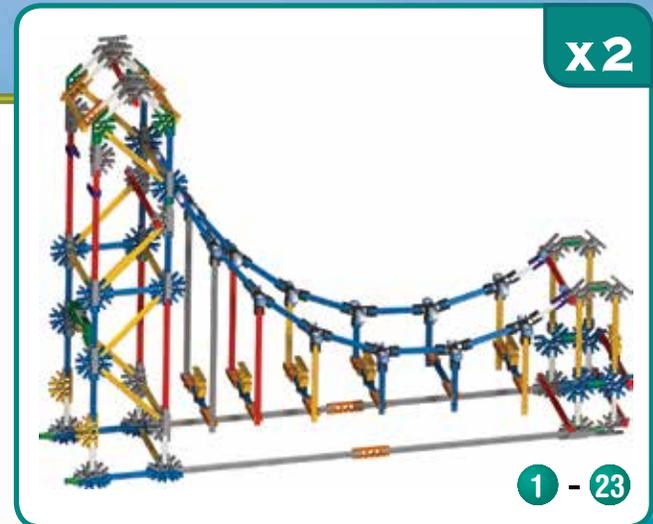
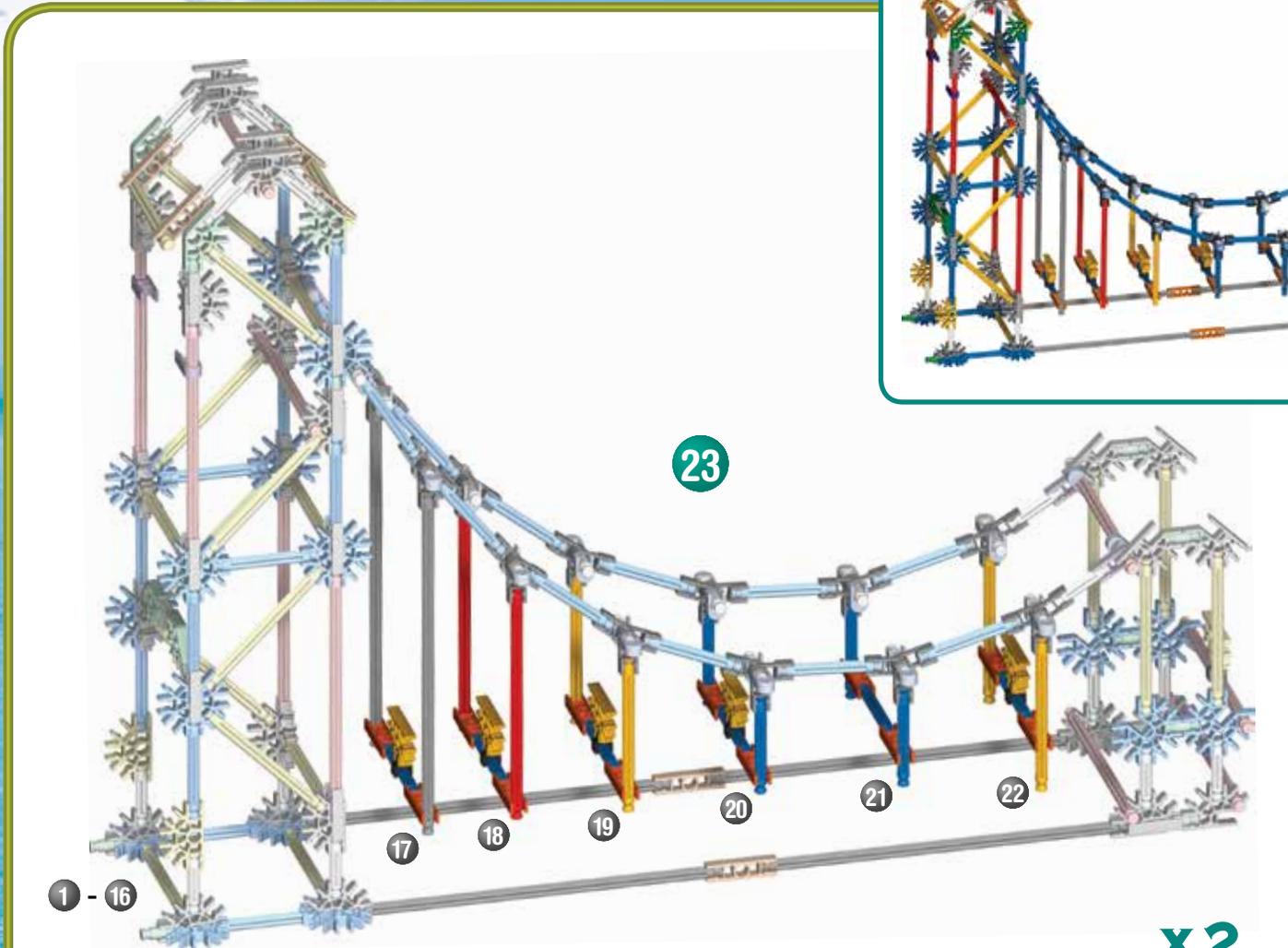
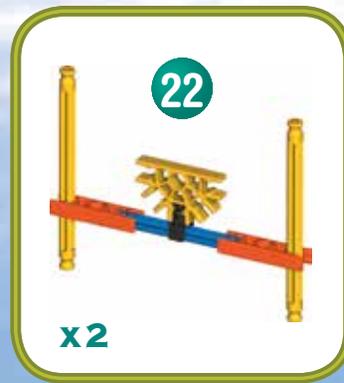
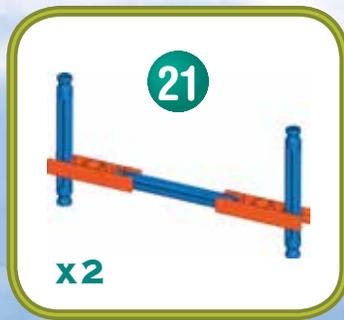
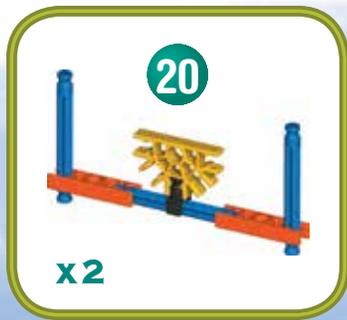
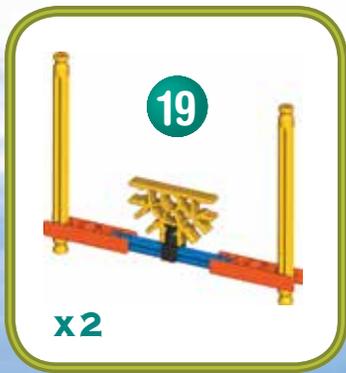
**1 - 16**

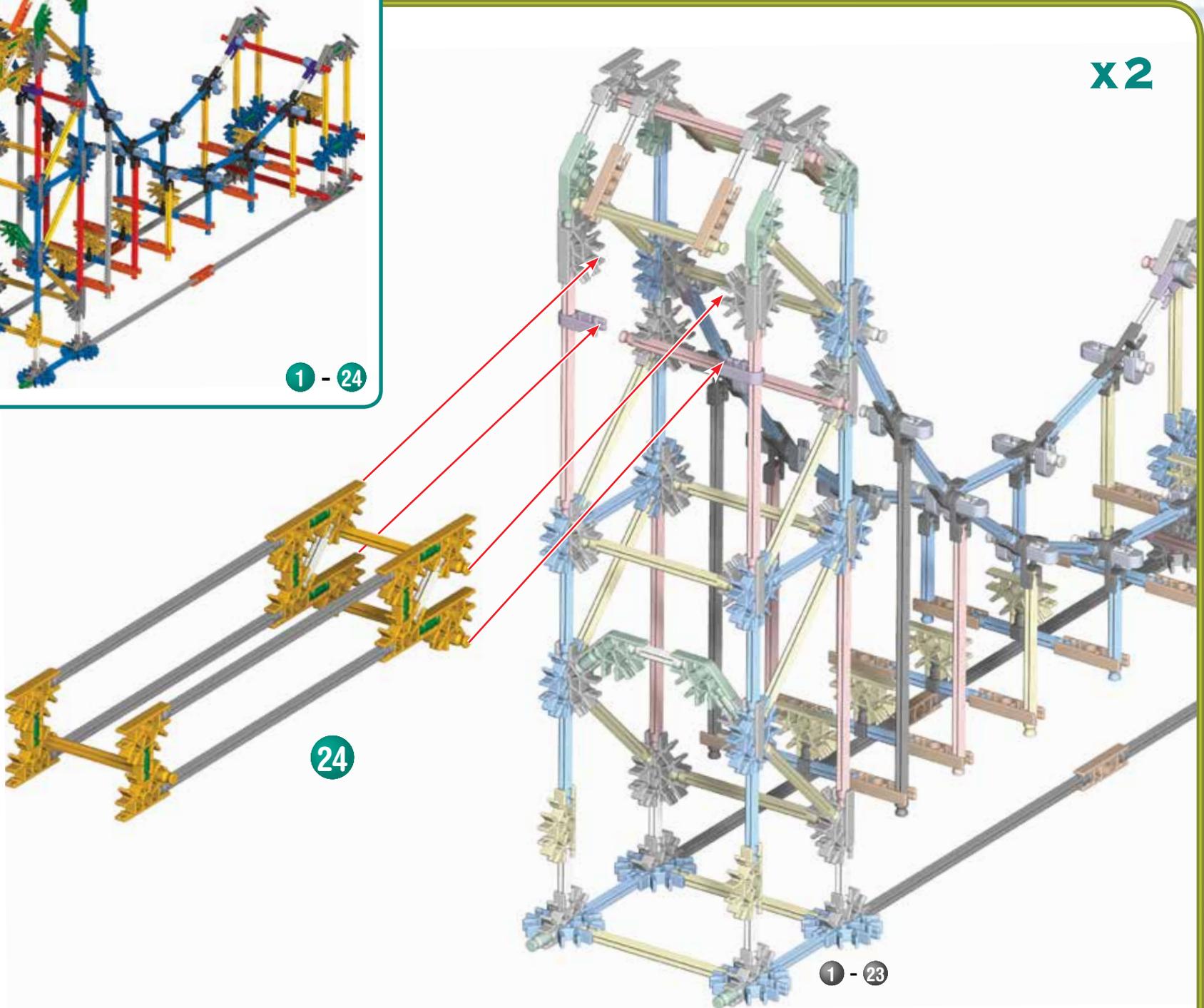
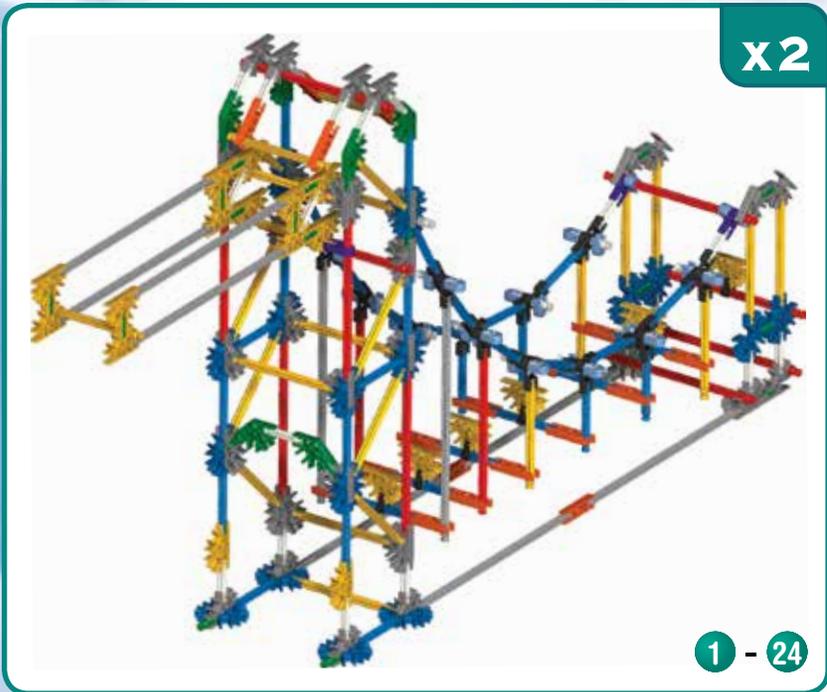
**16**

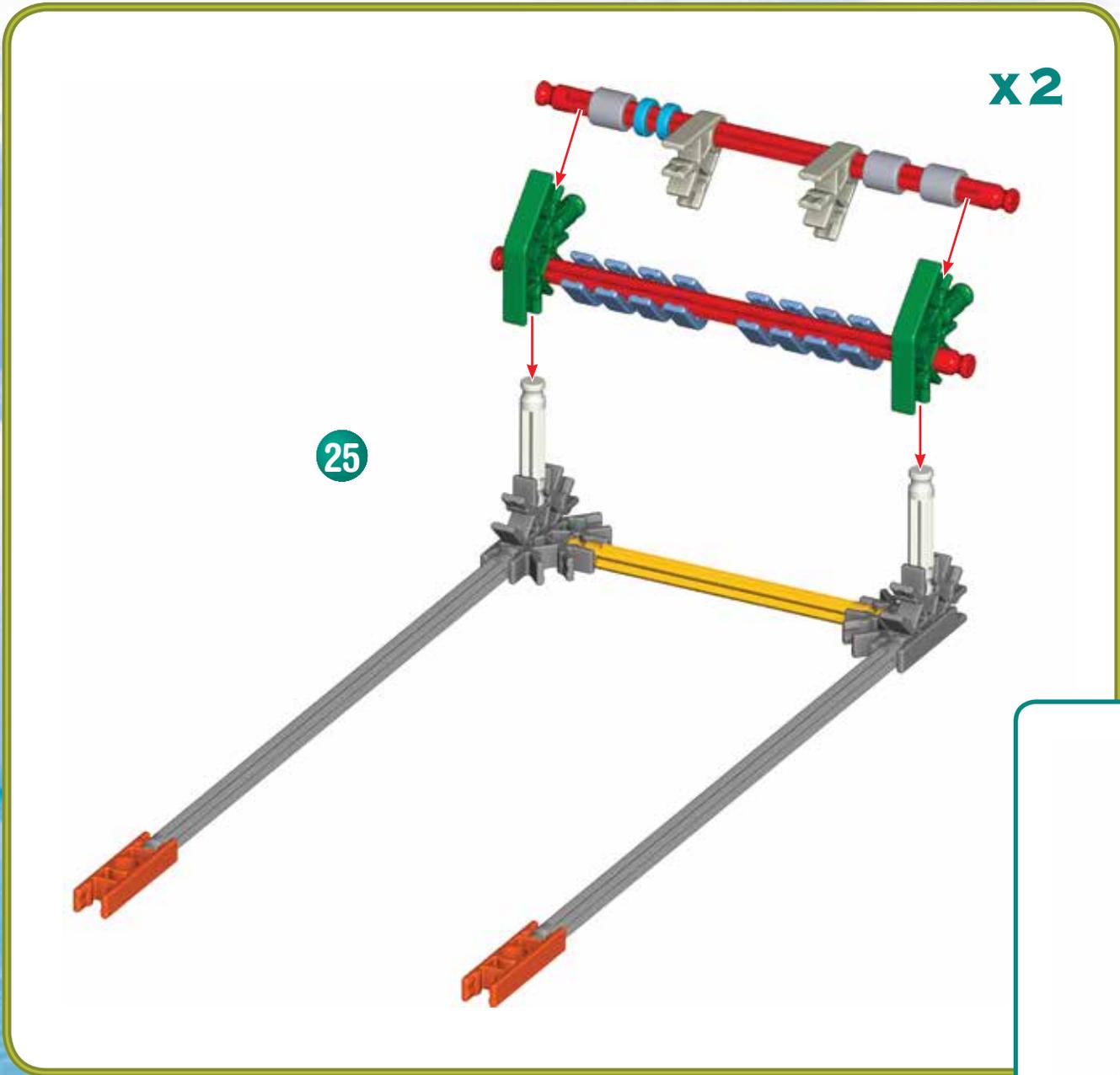
**15**   **15**

**1 - 14**

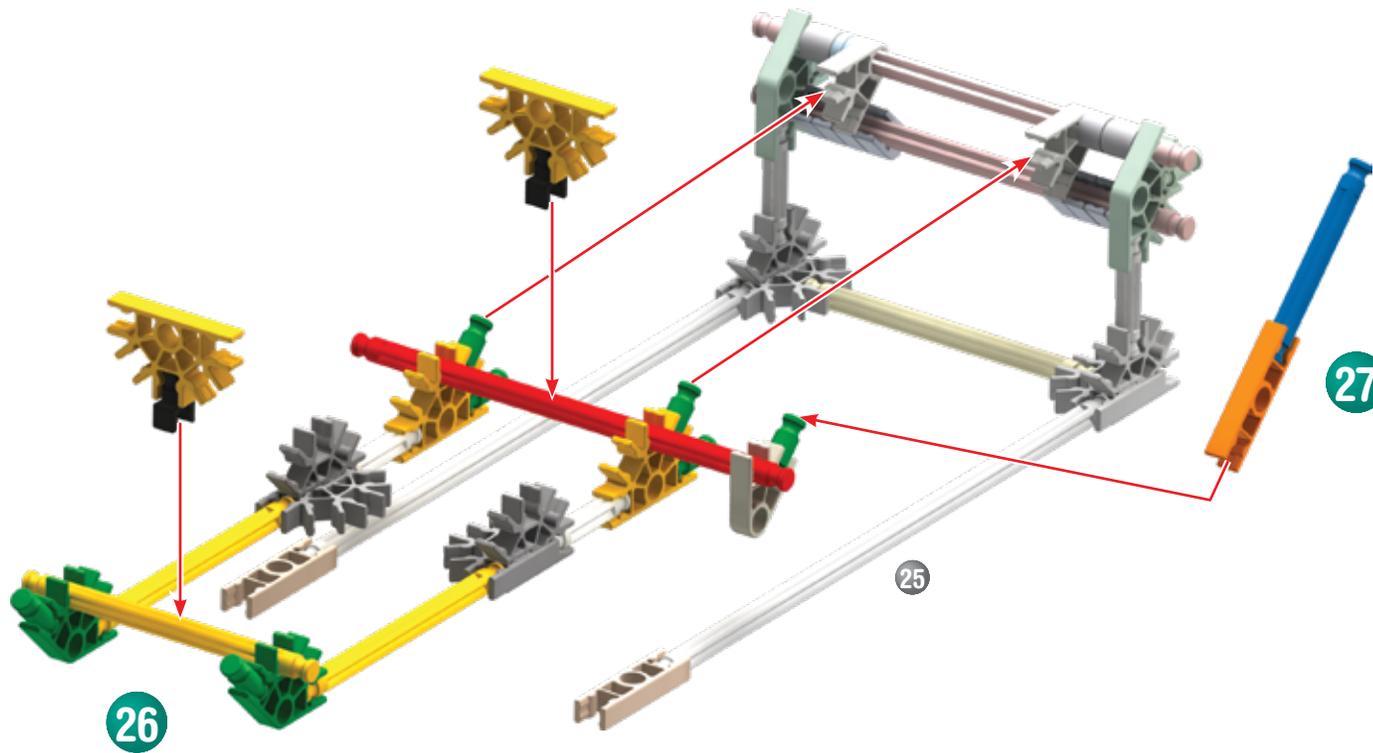
**x 2**







x2

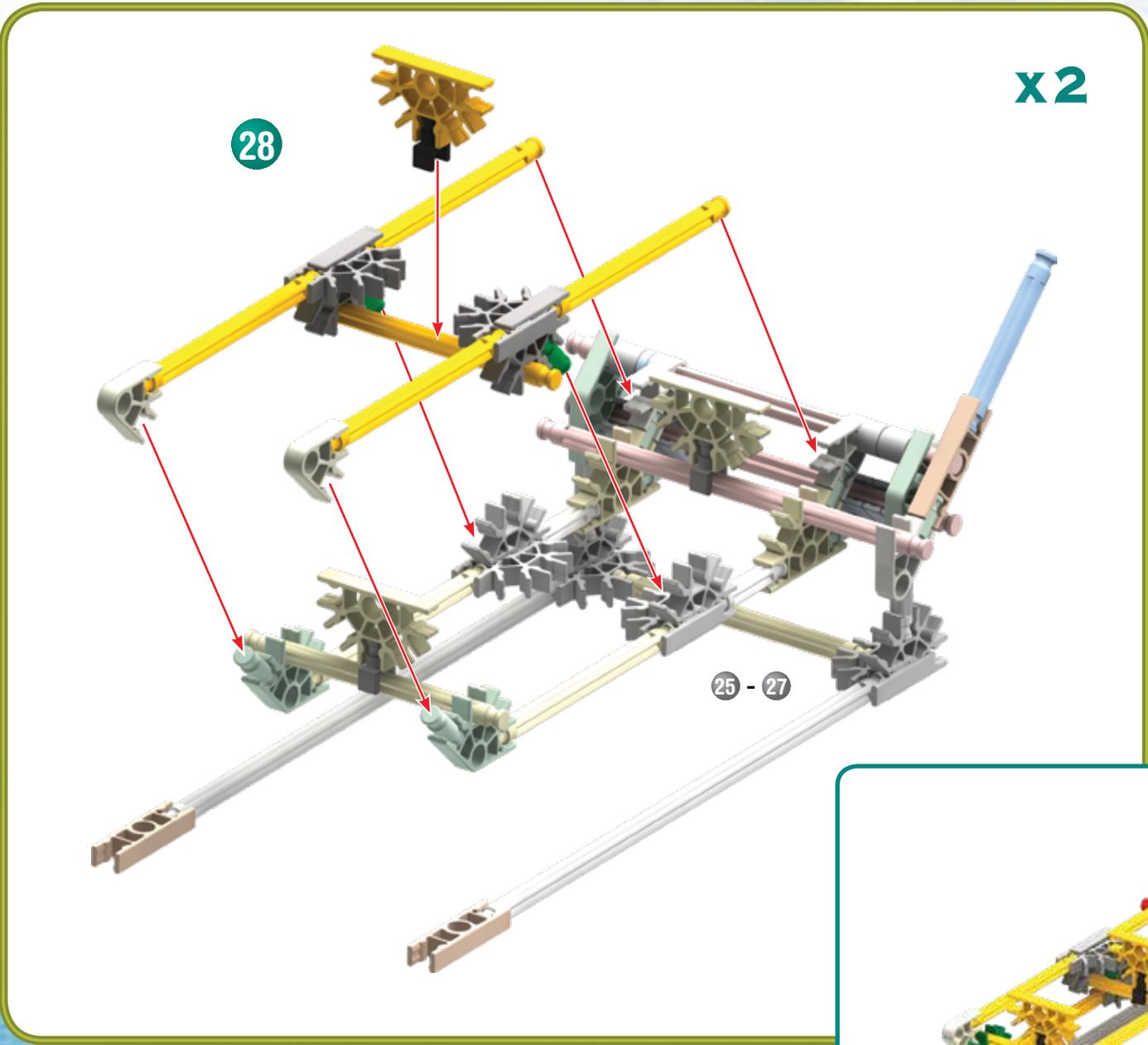


Use this blue rod to raise and lower the bridge.  
Utilisez ceci pour ouvrir le pont levant.

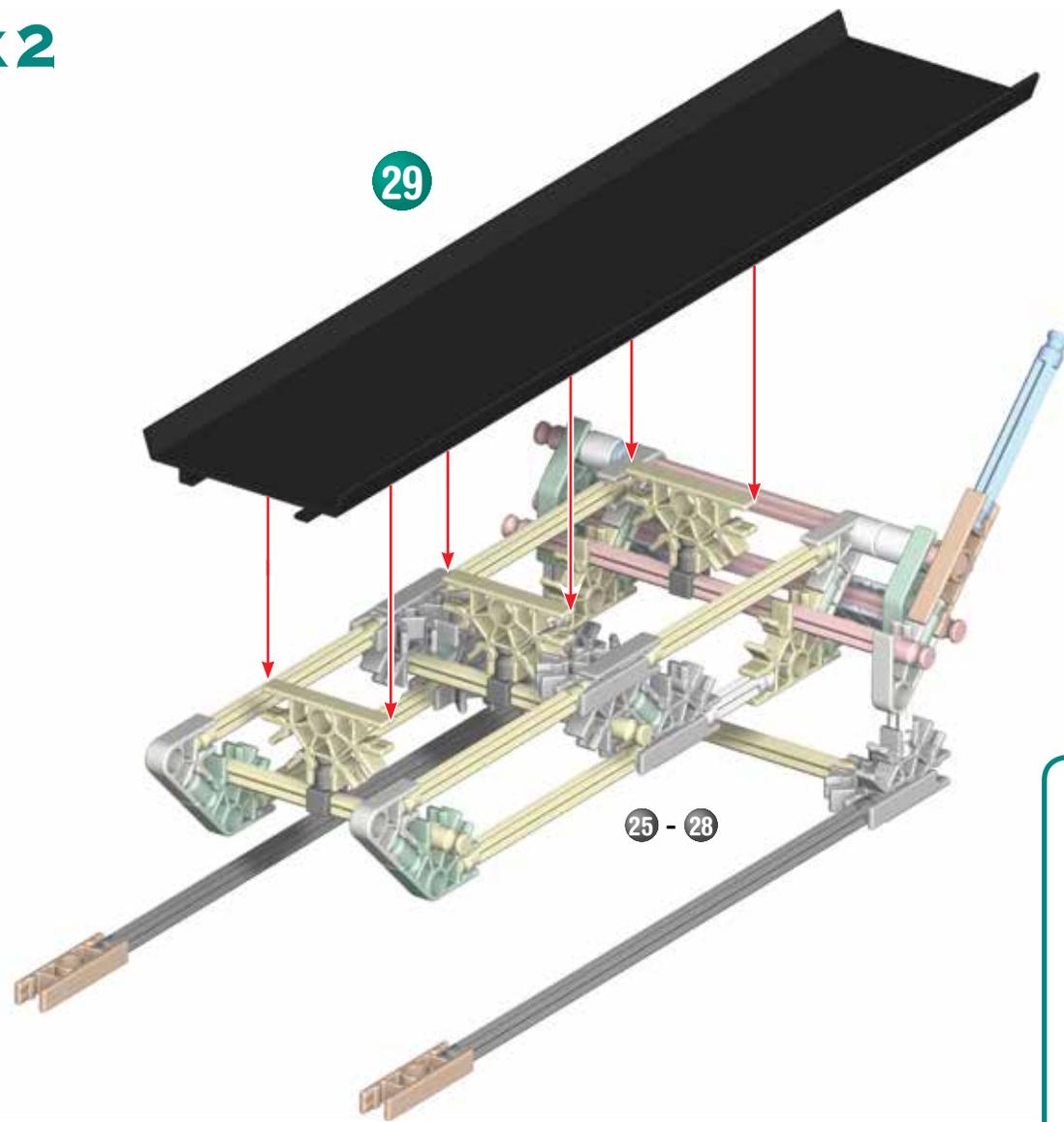


x2

25 - 27



x2



Underneath View  
Vue de dessous

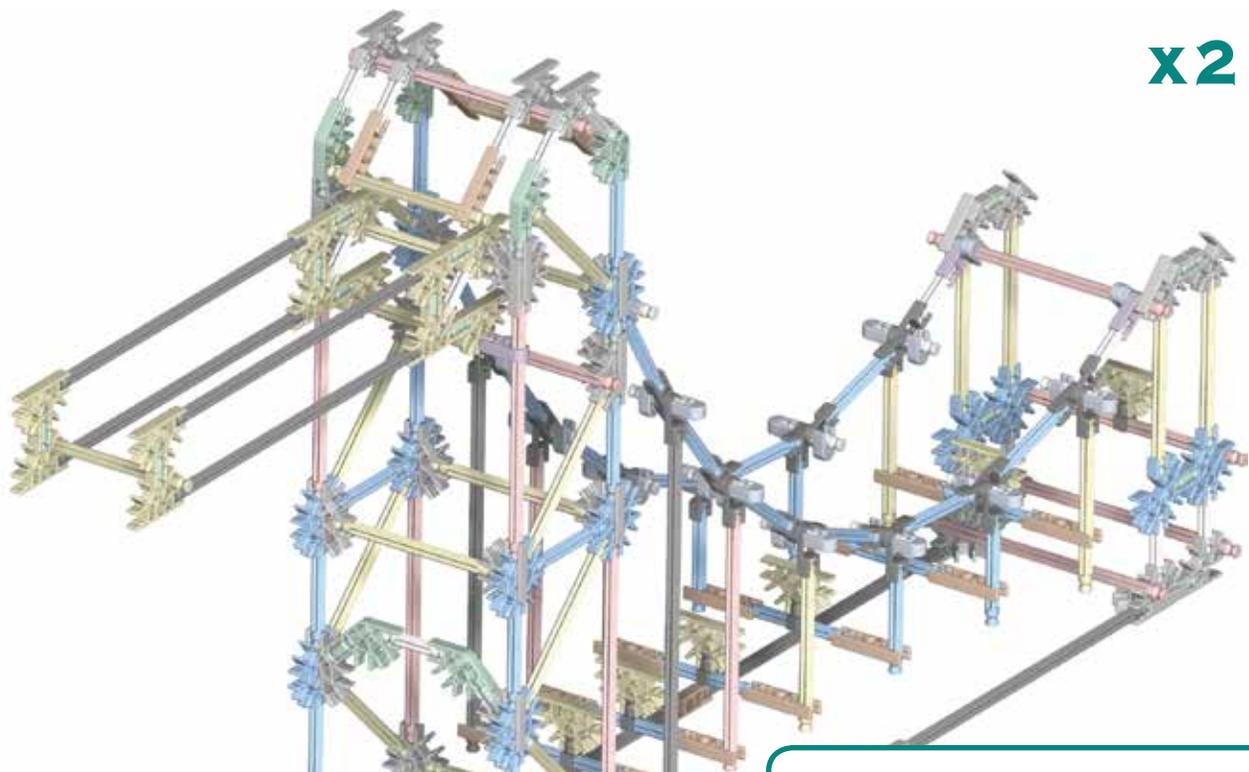
25 - 28

x2



25 - 29

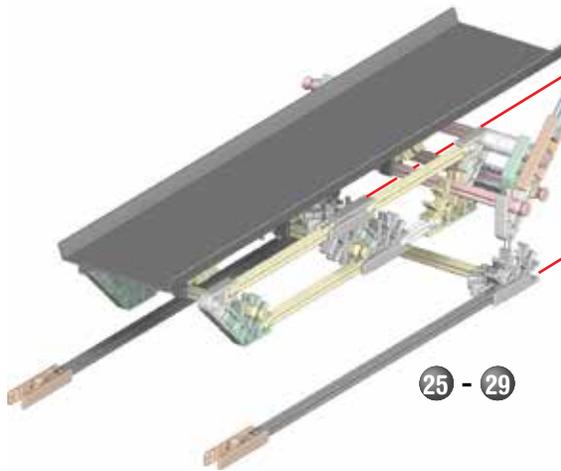
x2



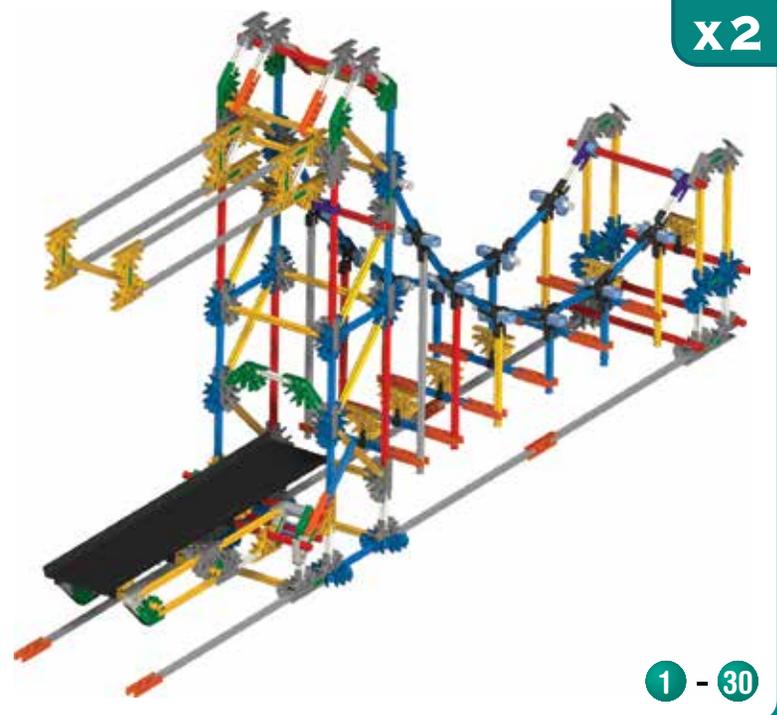
30

1 - 24

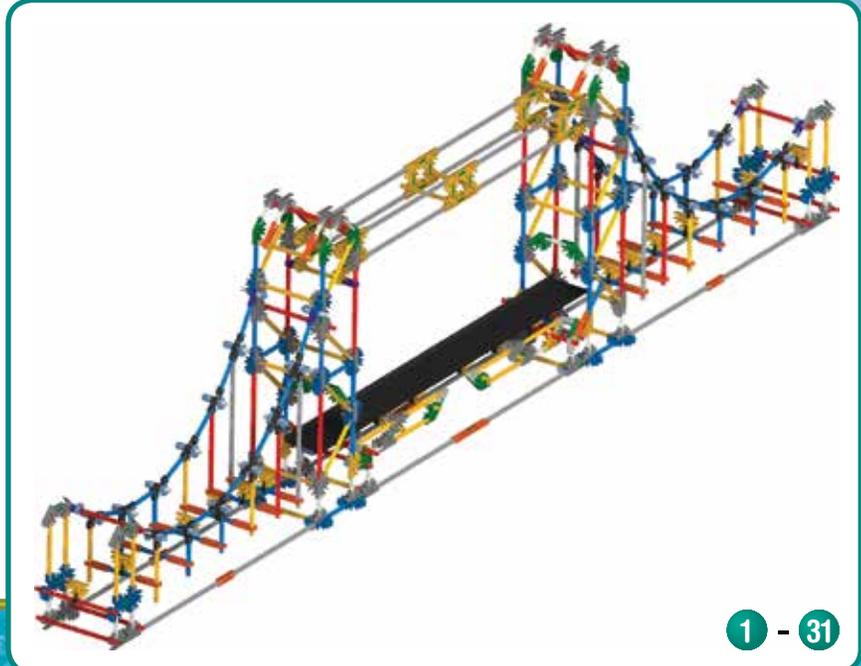
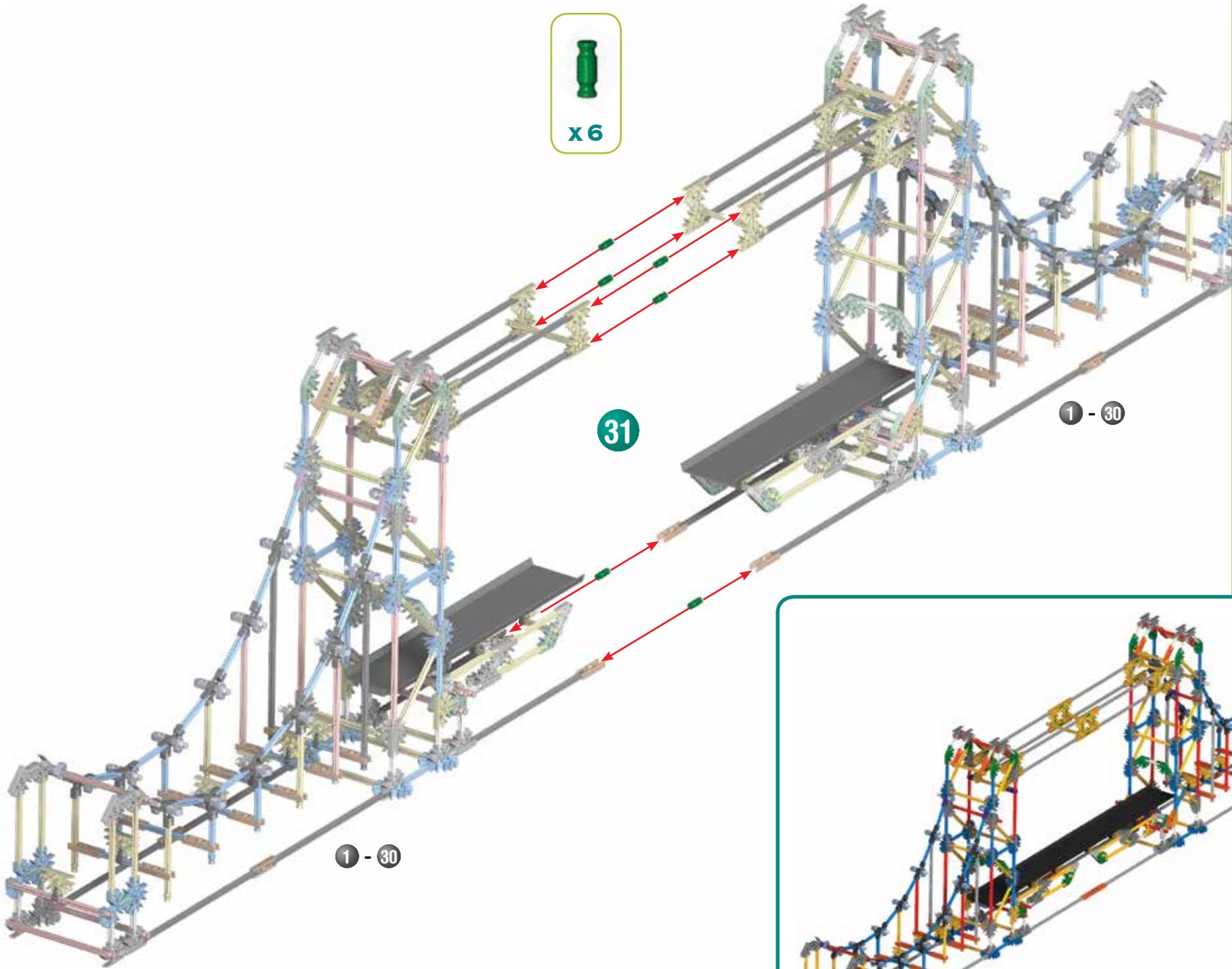
25 - 29



x2

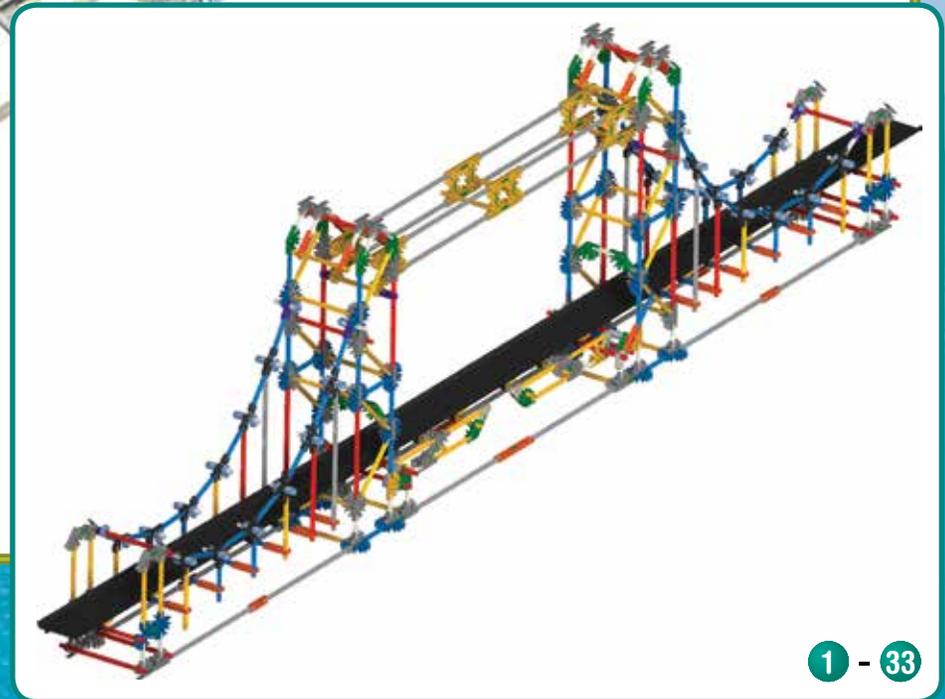
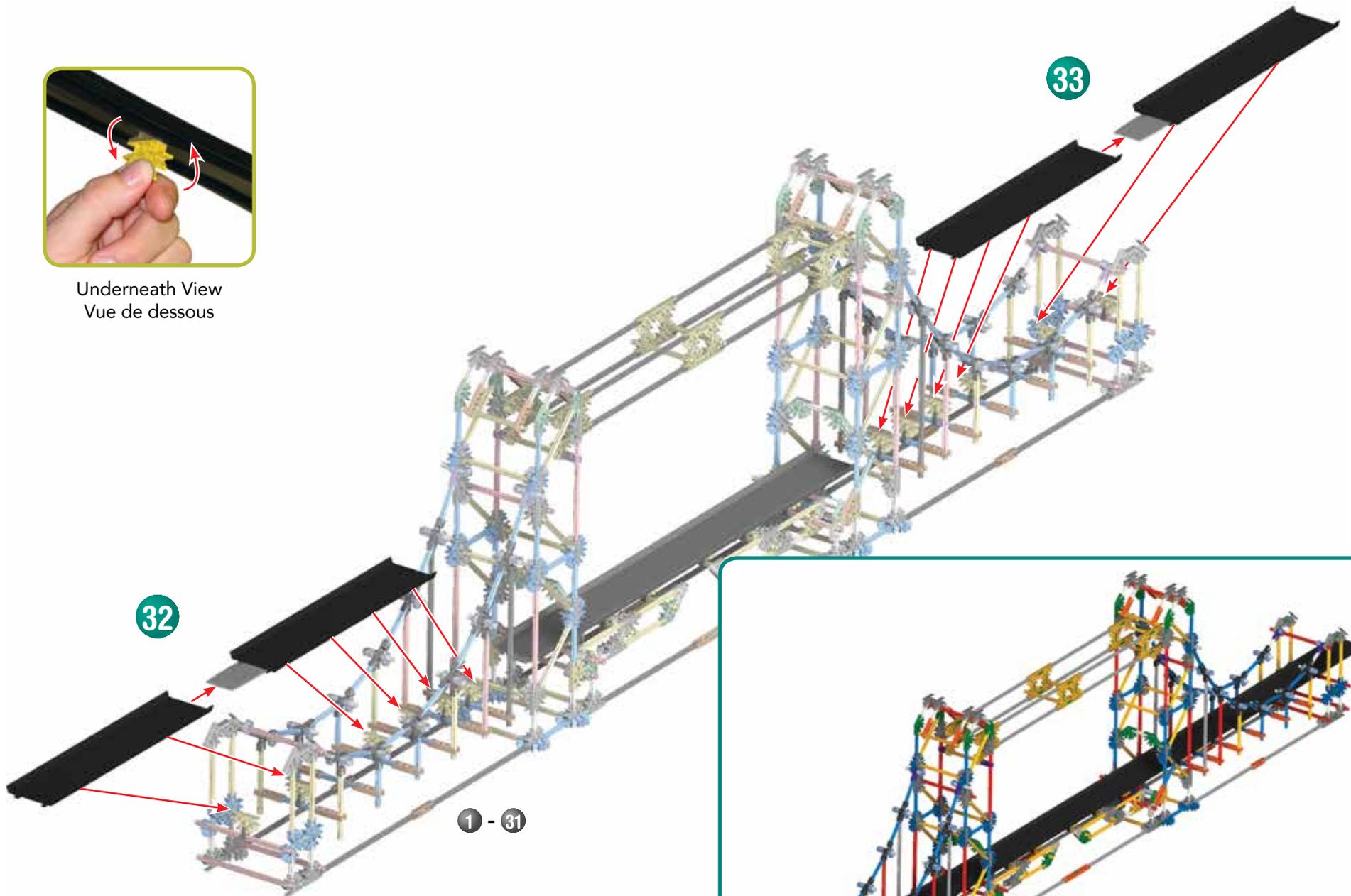


1 - 30



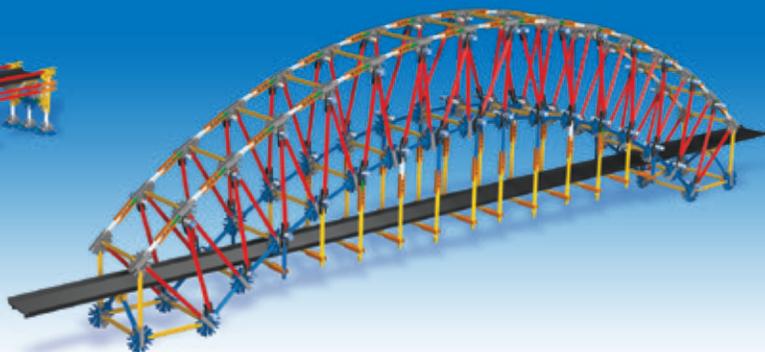
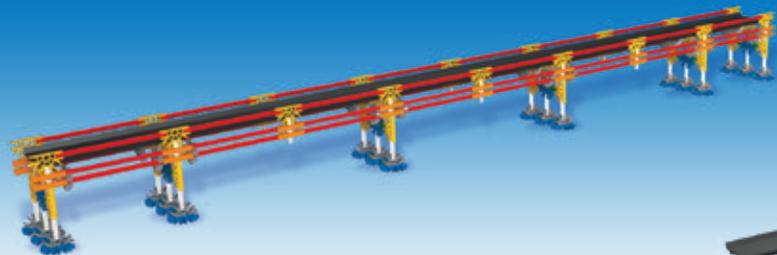


Underneath View  
Vue de dessous



# knex

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The Teacher's Guide for this set can be downloaded from the following website:  
[basicfun.com/knex-instructions](http://basicfun.com/knex-instructions).  
Click on the name of your set to automatically download a PDF document of the guide.

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[basicfun.com/knex-instructions](http://basicfun.com/knex-instructions).  
Cliquez sur le nom de votre ensemble pour télécharger automatiquement un document PDF du guide.<sup>5</sup>

\*(DE) Der Lehrplan für diesen Set kann von der folgenden Webseite heruntergeladen werden  
[basicfun.com/knex-instructions](http://basicfun.com/knex-instructions) Klicken Sie auf den Namen des Sets um automatisch ein PDF-Dokument des Lehrplans herunter zu laden.

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[basicfun.com/knex-instructions](http://basicfun.com/knex-instructions). Klik op de naam van de set voor het automatisch downloaden van een PDF-document van de Guide.



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