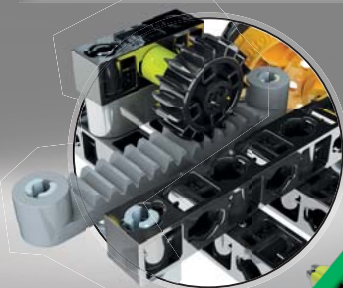


Atelier de MÉCANIQUE

MACHINES AGRICOLES

Constructions de **1 à 6**

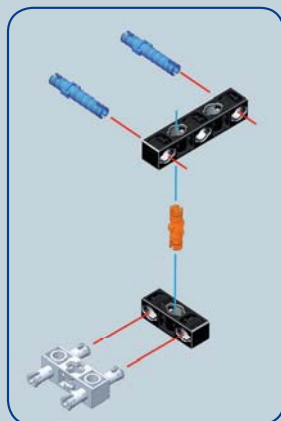
- 1 - Construis le tracteur à « boule chaude »
- 2 - Le tracteur
- 3 - Équipements agricoles : la faneuse
- 4 - Équipements agricoles : l'arroseur
- 5 - La vendangeuse
- 6 - La machine à récolter les tomates



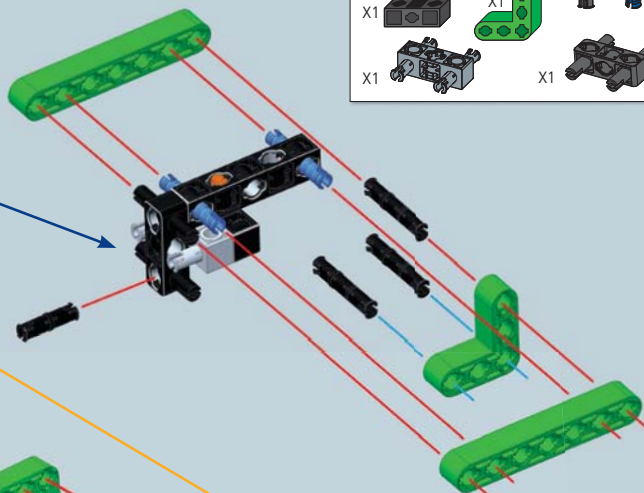
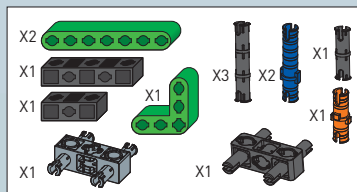
FILIALE FRANCE : CLEMENTONI FRANCE
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1 CONSTRUIS LE TRACTEUR À « BOULE CHAUDE »



1



2

18



Infos techniques et curiosités

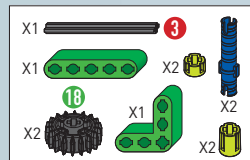
Les premiers moteurs à «boule chaude» sont apparus à la fin du 19ème siècle et ont été très répandus jusqu'à la moitié du 20ème siècle.

Pour l'allumage, il fallait tout d'abord chauffer la partie avant du tracteur (calotte) avec une lampe à pétrole ou un brûleur à gaz, jusqu'à une température de 400-700 °C.

Une fois que la calotte avait rougi, prenant une couleur « rouge foncé » caractéristique, on pouvait démarrer le moteur en exerçant une forte poussée sur le grand disque (volant) situé sur le côté.



3



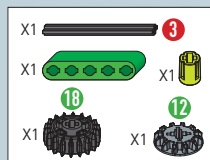
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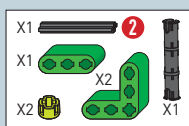
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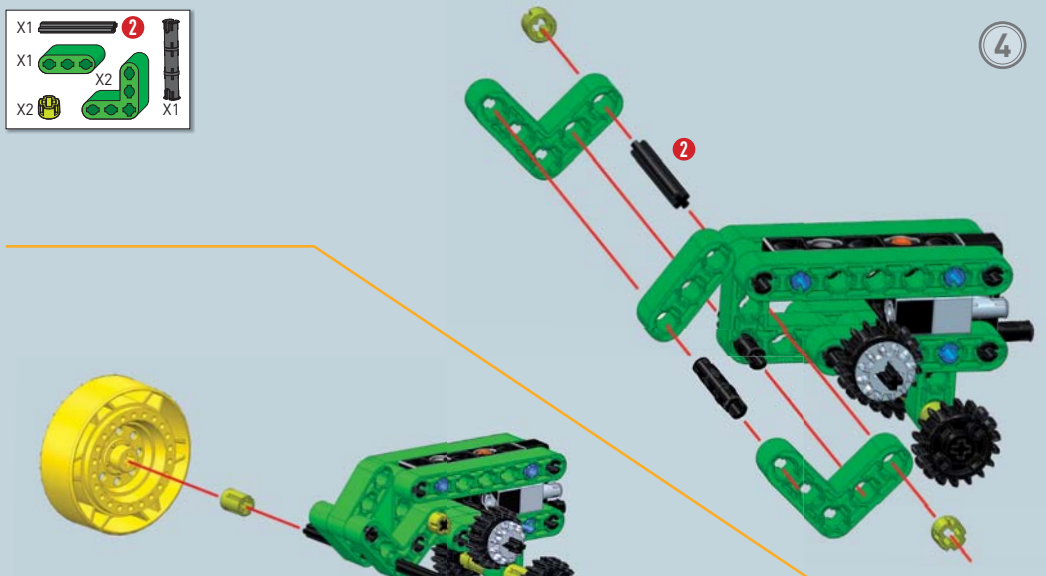


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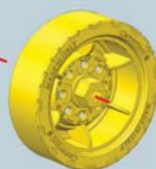


4



Modèle final

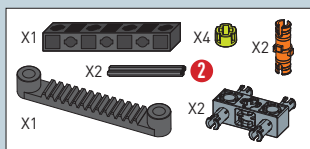
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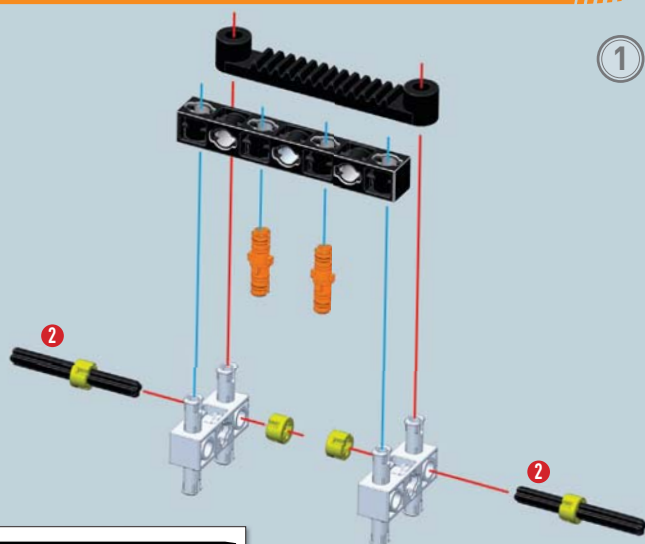
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2 LE TRACTEUR



1



Infos techniques et curiosités

Le tracteur est une machine motrice en mesure de développer la puissance nécessaire à la traction ou à l'actionnement des équipements agricoles qui lui sont reliés.

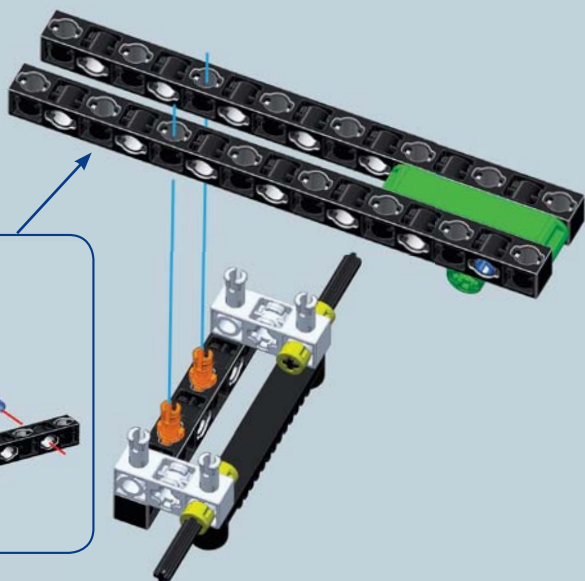
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1:1

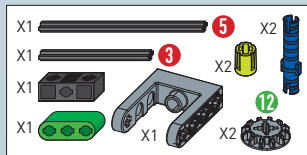
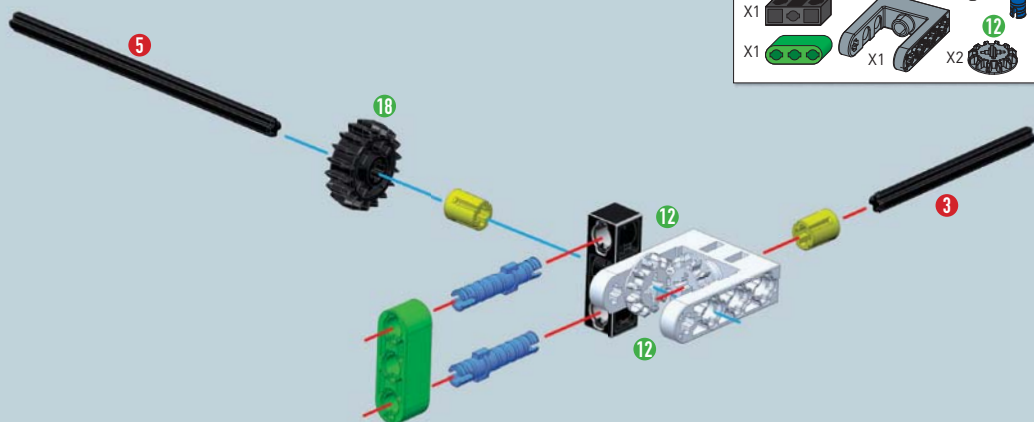
2

 x_2 

X1



3



X

X

X

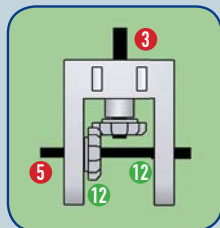
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5

42



八二



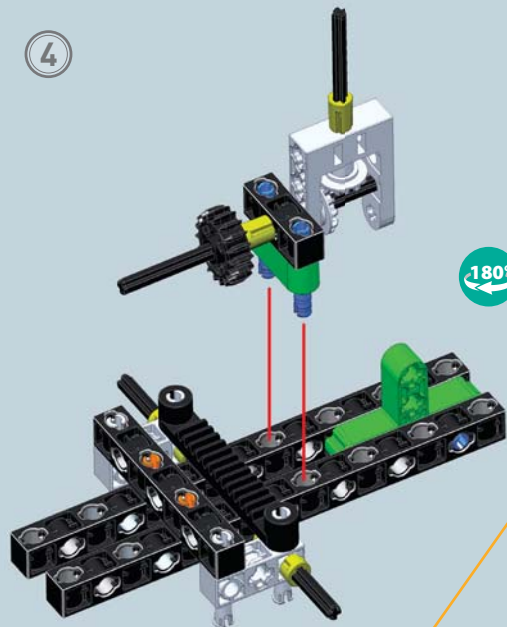
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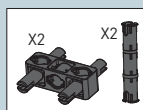
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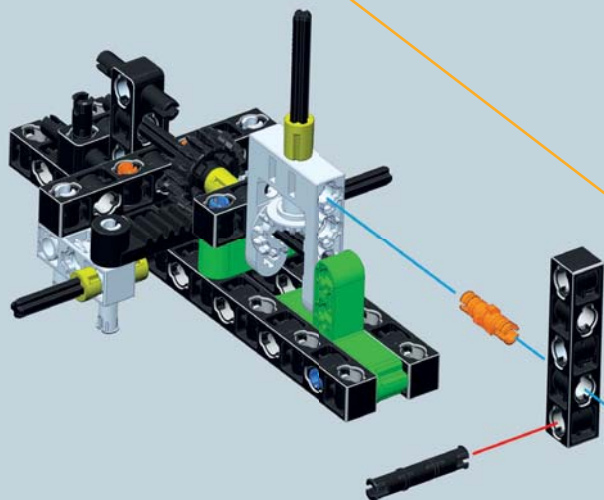
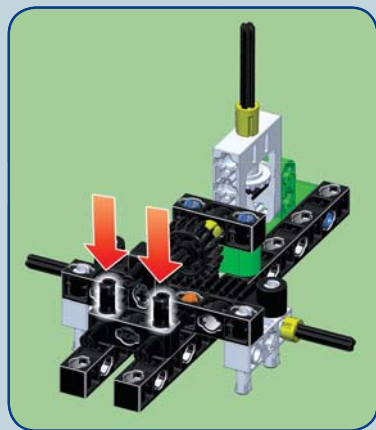
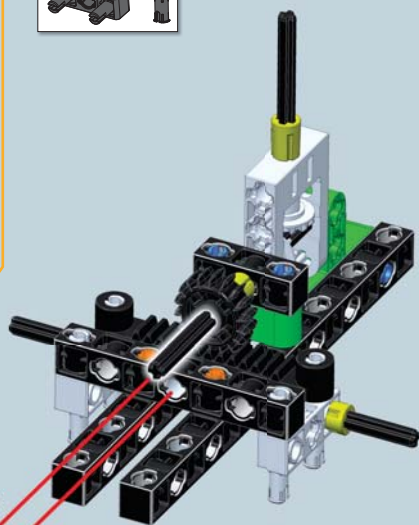
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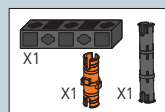
180°

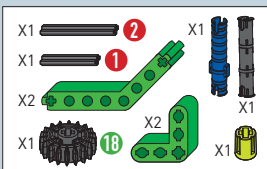
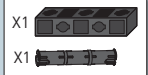
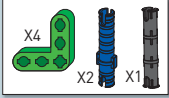


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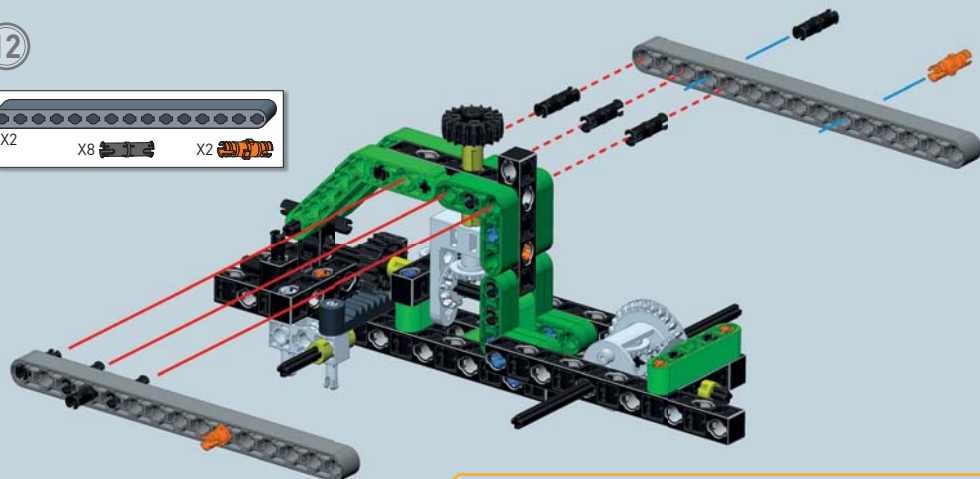
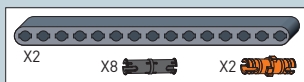


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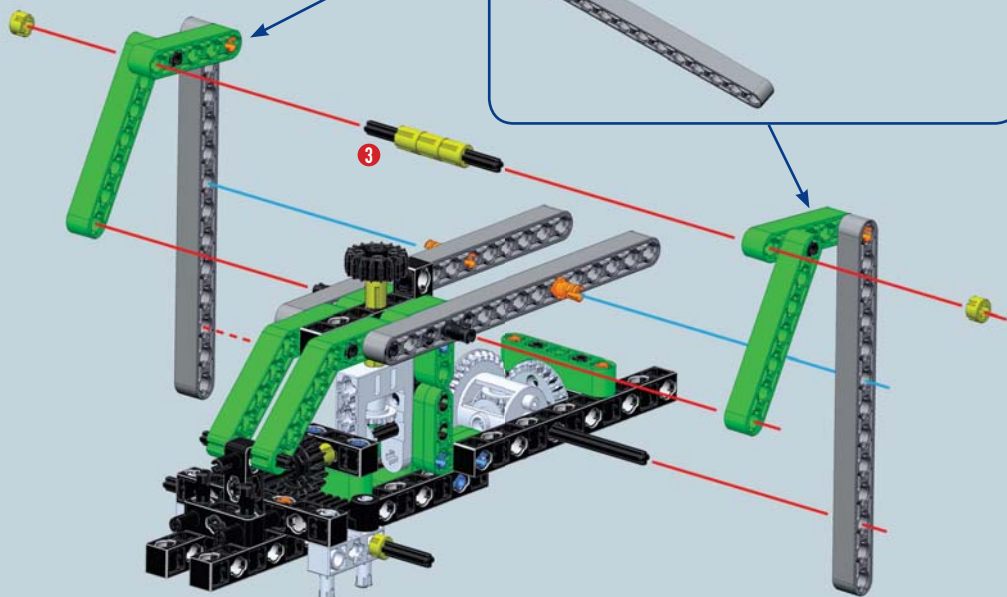
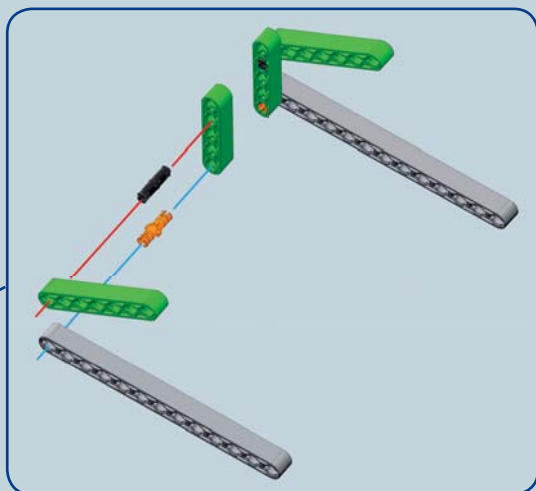
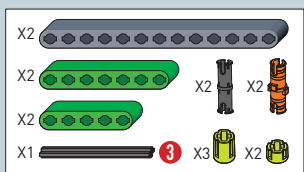




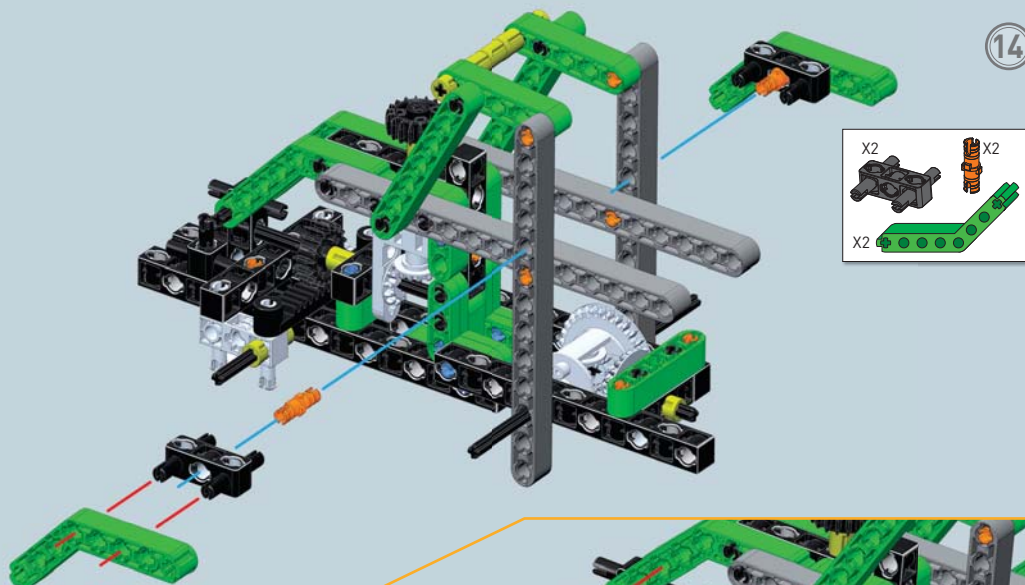
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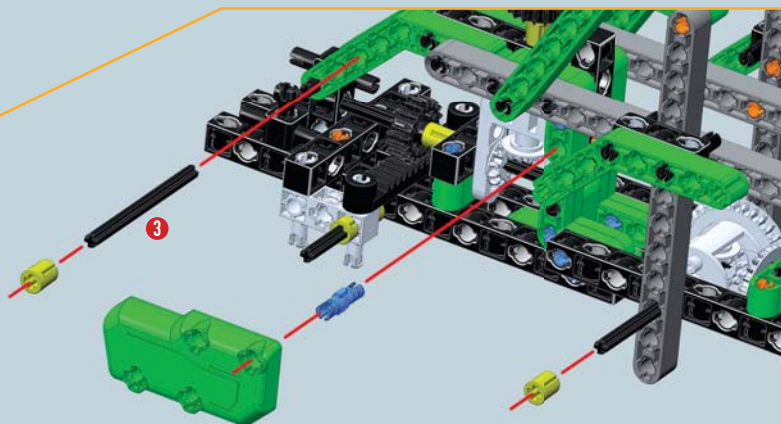
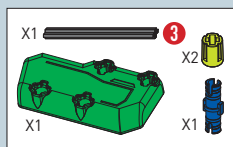
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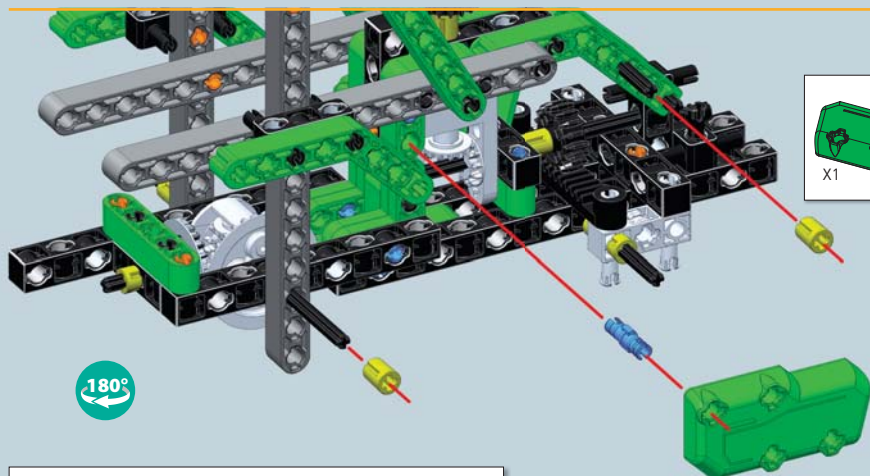
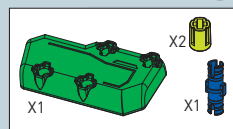
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15



16

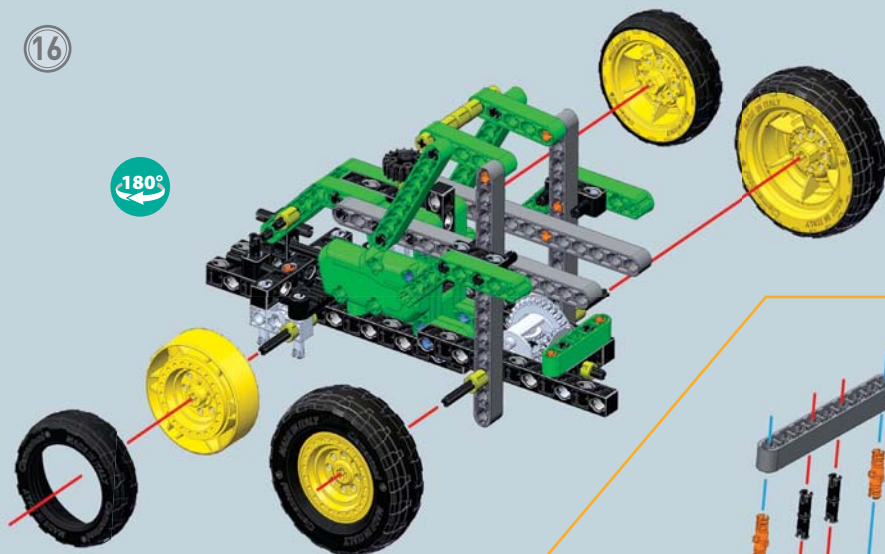


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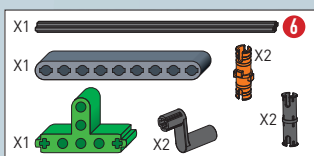
3

16

180°



17



Modèle final

1:1

6

LE DIFFÉRENTIEL

Approfondissement technique et scientifique

Le différentiel est un organe mécanique en mesure de transférer la puissance développée par le moteur à la paire de roues motrices.

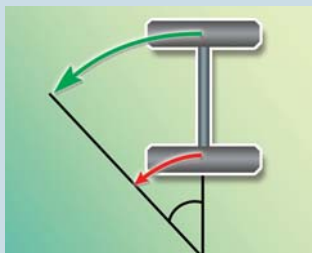


- 1 - **Pignon** : il transfère la puissance du moteur à la couronne et, en dernier, aux roues motrices.
- 1 - **Couronne** : reliée à la cage porte-satellites, elle est couplée au pignon de manière fixe.
- 3 - **Cage porte-satellites** : c'est la boîte qui renferme les engrenages.
- 4 - **Satellites** : engrenages reliés à la cage.
- 5 - **Planétaires** : engrenages reliés aux demi-essieux.
- 6 - **Demi-essieu** : essieu qui raccorde les roues motrices aux planétaires.

Il est conçu pour permettre aux deux roues de tourner à des vitesses différentes dans les virages : en effet, sur les portions non rectilignes, la roue extérieure à la courbe parcourt une plus grande distance que la roue intérieure, c'est pourquoi la roue extérieure devra tourner plus vite.



Le pignon transfère la puissance du moteur au différentiel et par conséquent aux demi-essieux, actionnant ainsi les roues.

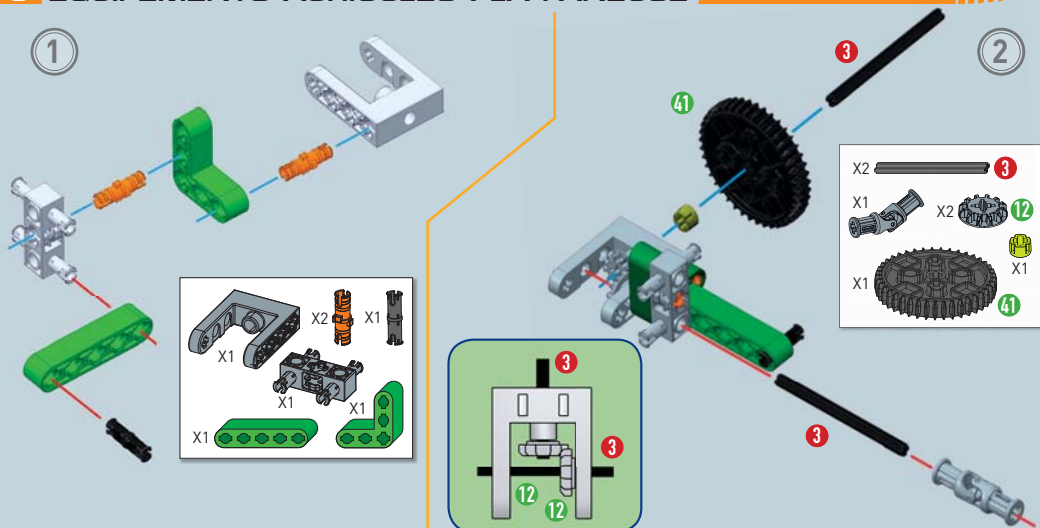


Dans les virages, la roue intérieure, parcourant une distance moindre, se déplace à une vitesse inférieure; la roue extérieure, parcourant une distance supérieure, se déplace à une vitesse supérieure.



Grâce au différentiel, dans les virages, les roues d'un véhicule tournent à des vitesses différentes.

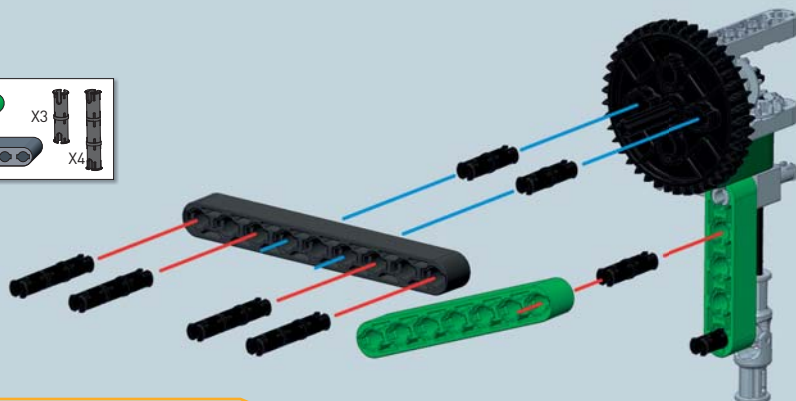
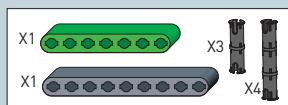
3 ÉQUIPEMENTS AGRICOLES : LA FANEUSE



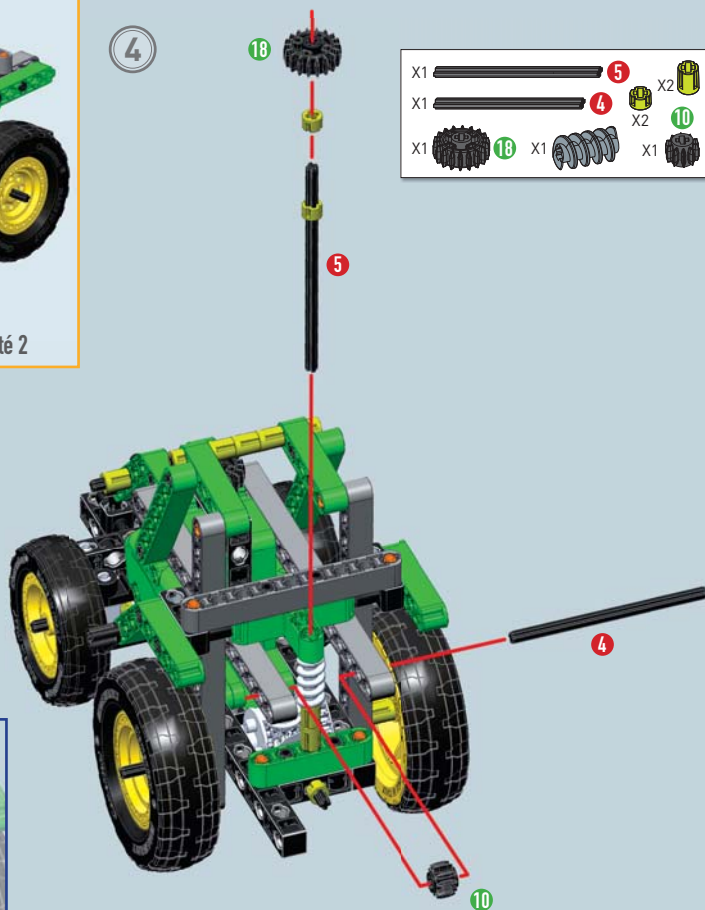
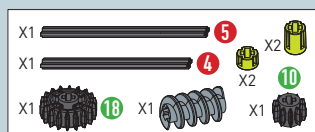
1:1 3

Pour l'assemblage du cardan, suis les instructions imprimées sur la fiche illustrée des avertissements, qui se trouve dans la boîte.

3



4



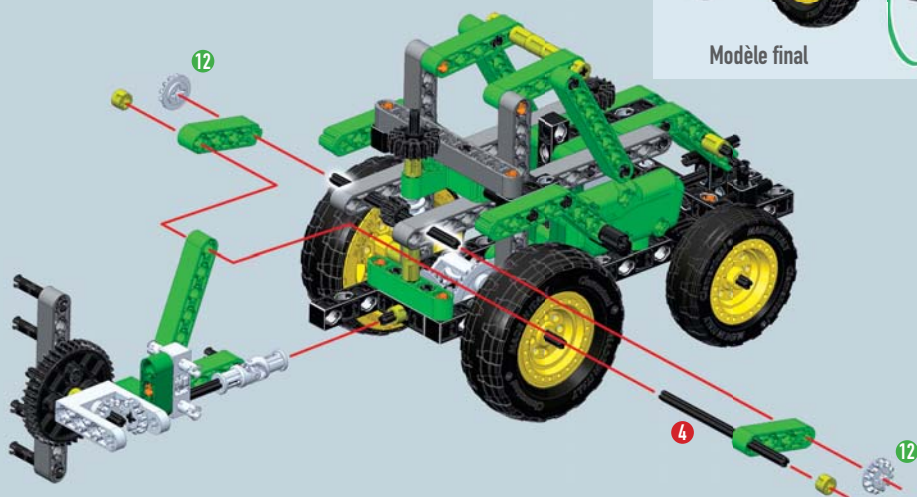
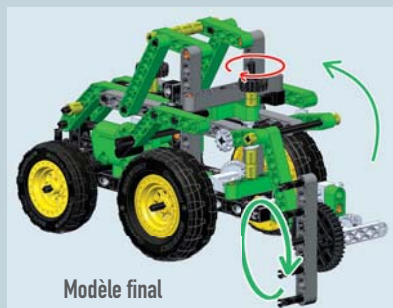
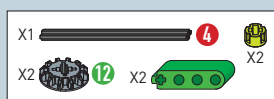
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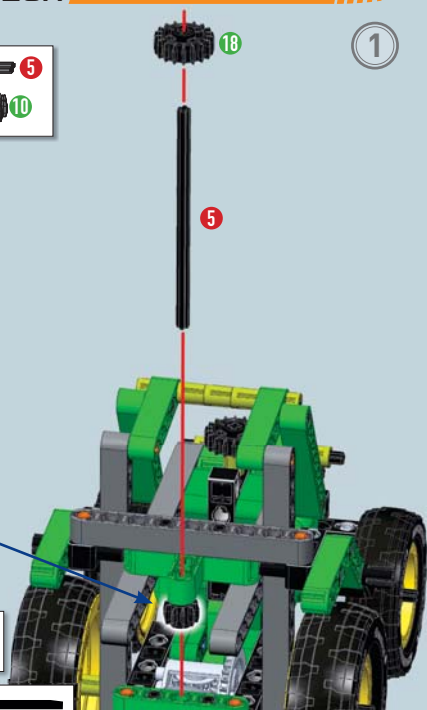
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5



4 ÉQUIPEMENTS AGRICOLES : L'ARROSEUR



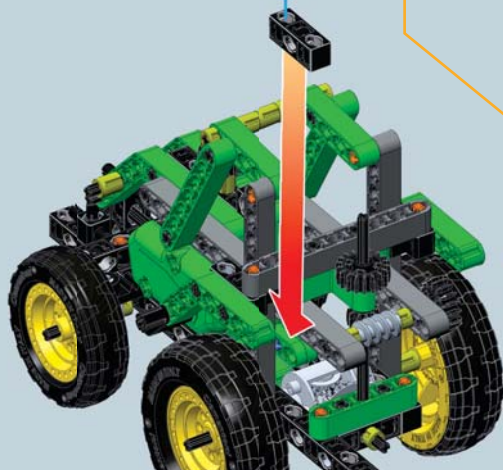
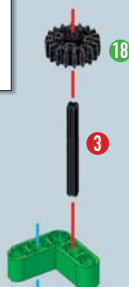
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X1		X3	X2	
X1		X18	X1	

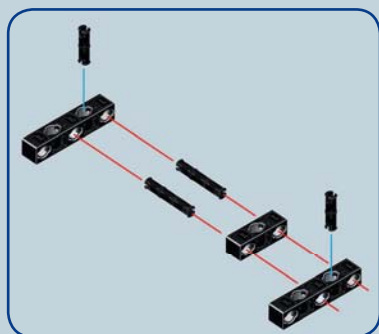
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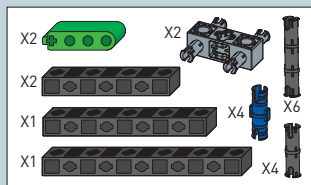
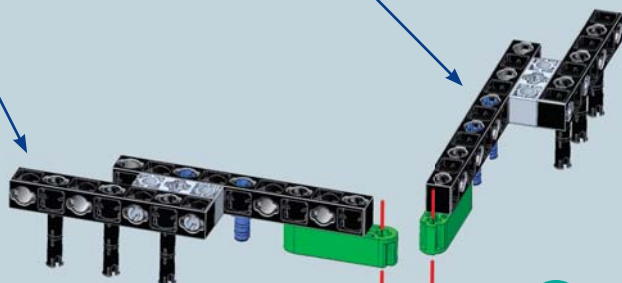
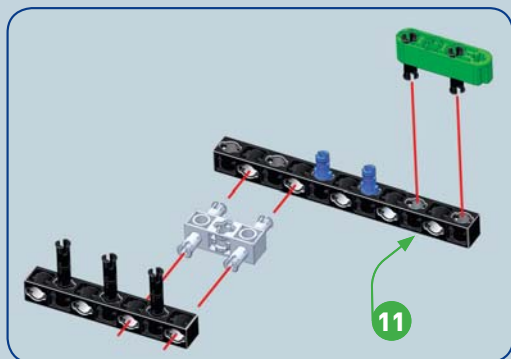
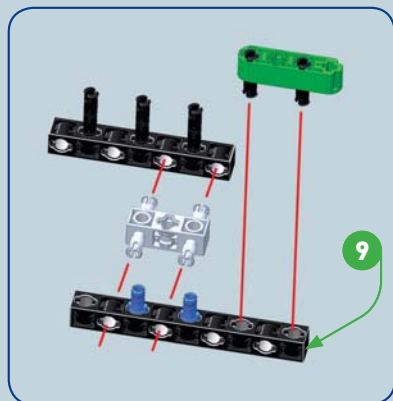
X1		X3		X1
X1		X18	X1	
X1				



4

X2		X2		X2
X1		X2		X2

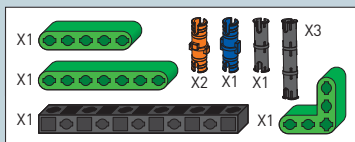
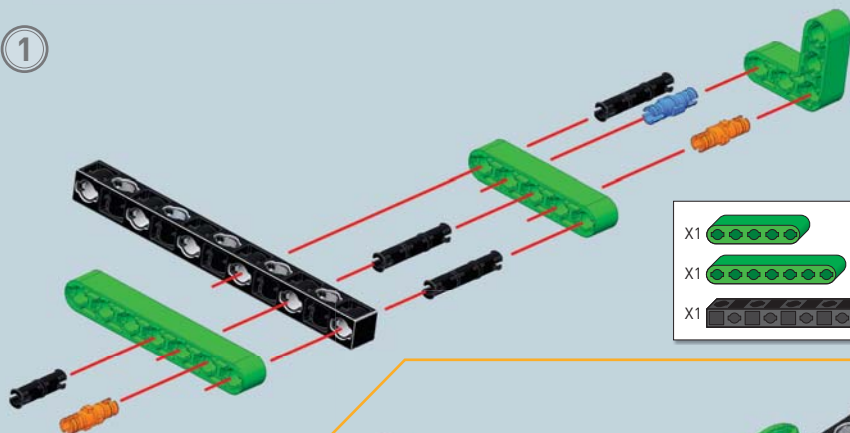




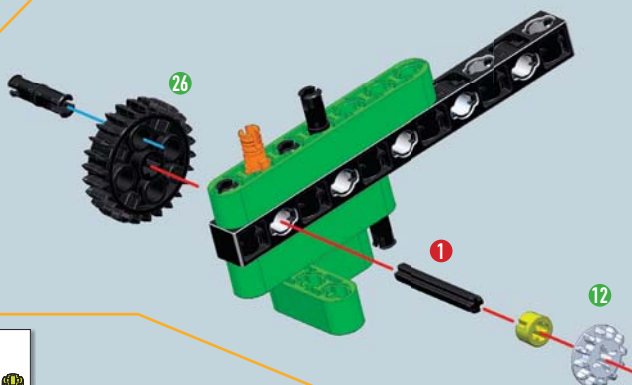
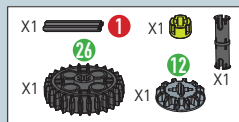
Modèle final



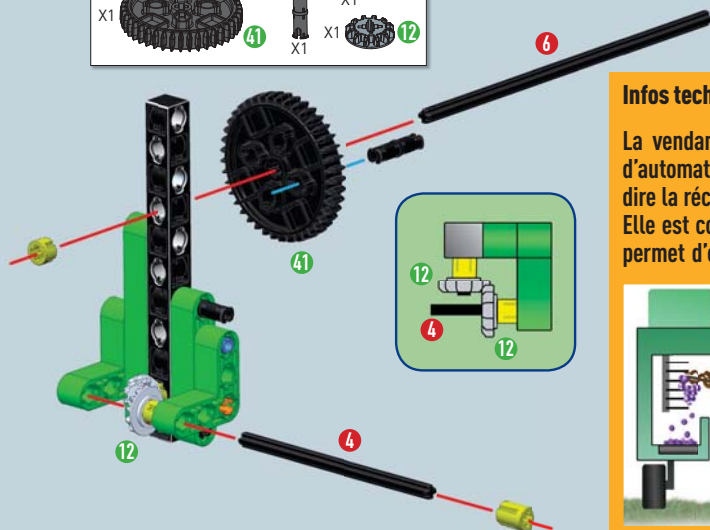
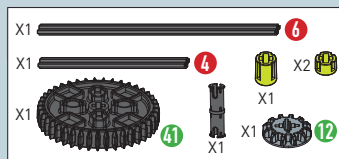
1



2



3



Infos techniques et curiosités

La vendangeuse est une machine qui permet d'automatiser le processus de vendange, c'est à dire la récolte des raisins servant à faire le vin. Elle est constituée d'un châssis porteur qui lui permet d'enjamber des rangs de vigne plantés spécialement sur des structures rectilignes et de récolter le raisin grâce à l'action oscillante des batteurs intérieurs.

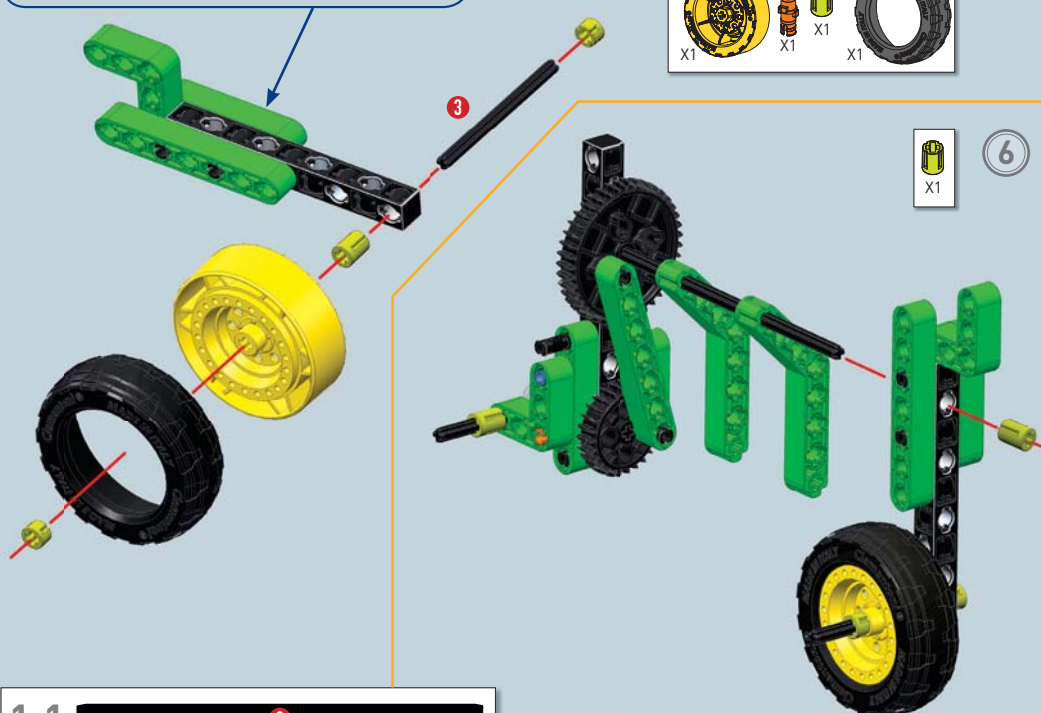
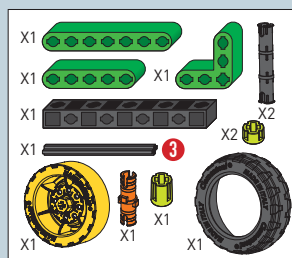
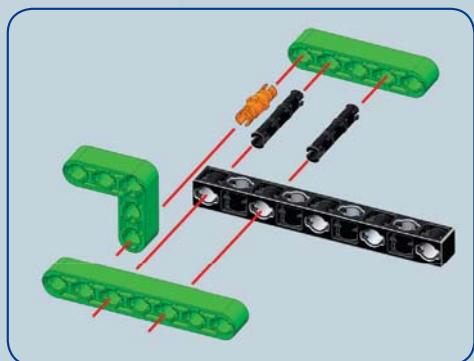
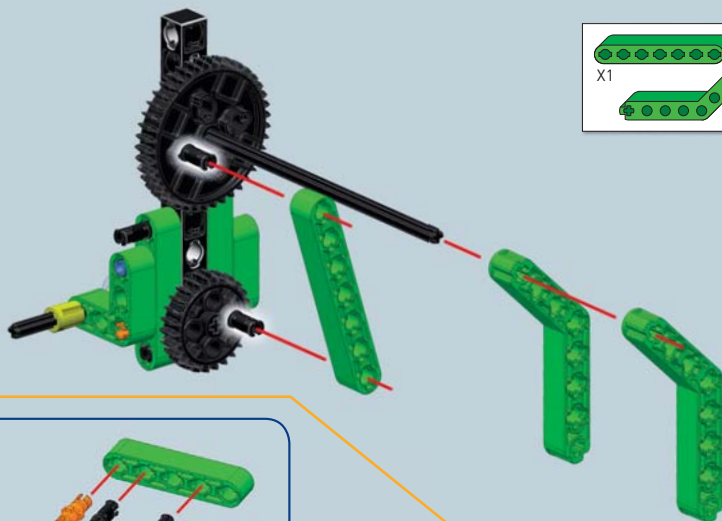


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1:1

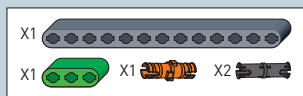
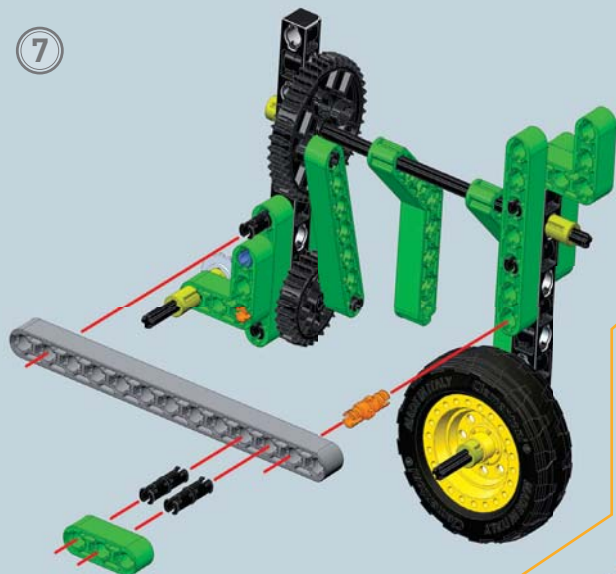
1:1

The diagram shows two types of green beams. The first is a straight beam labeled 'X1' with five circular holes along its length. The second is an L-shaped beam labeled 'X2' with five circular holes along its horizontal section and two along its vertical section, for a total of seven holes.

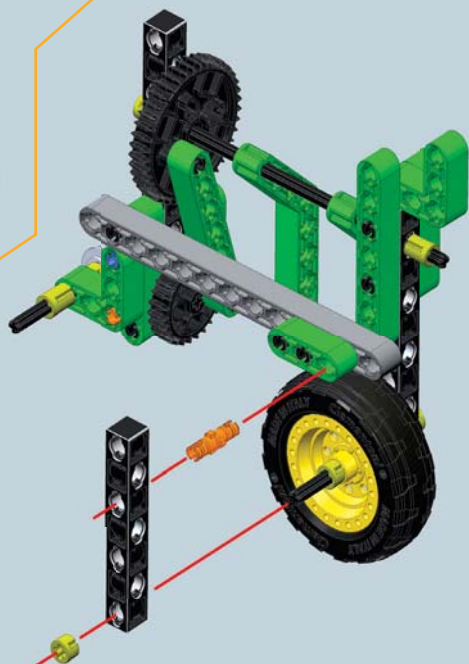
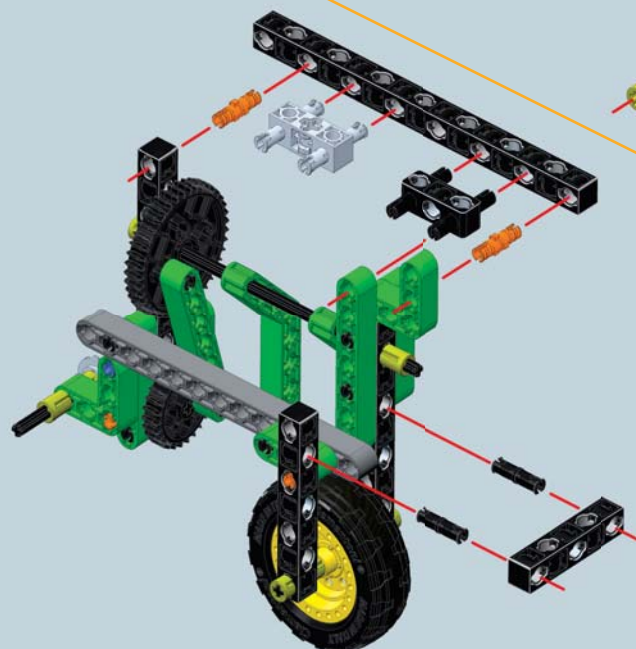


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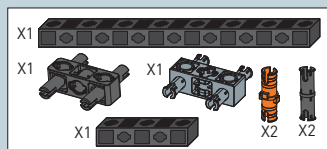
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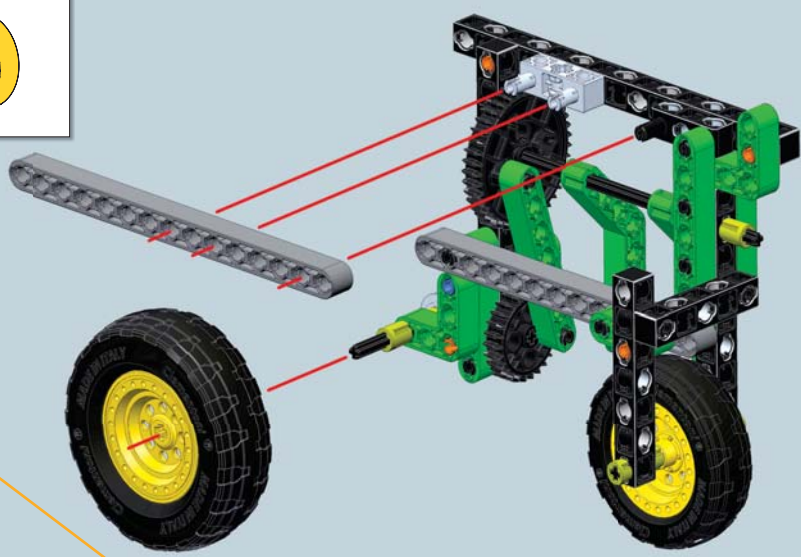
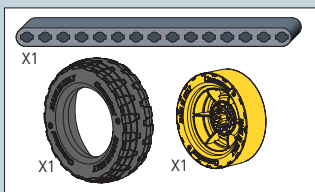
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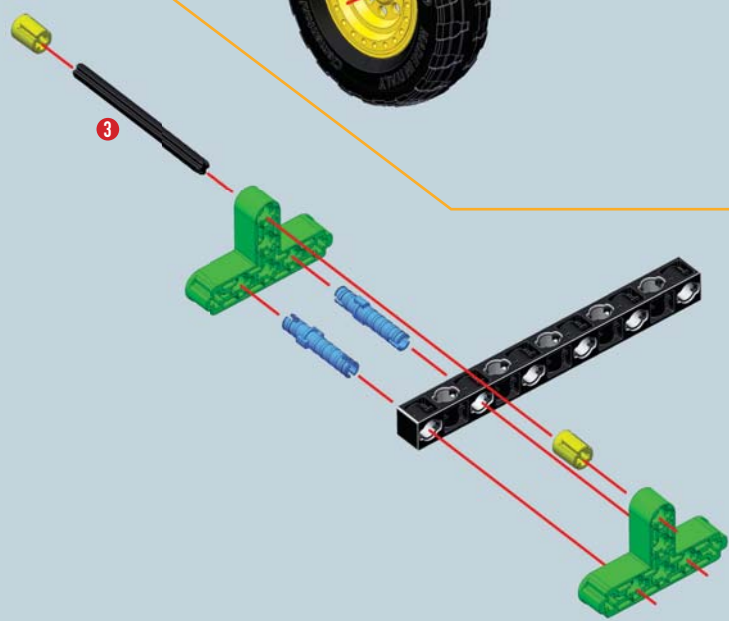
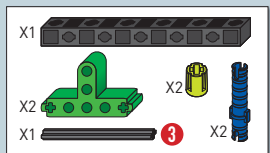
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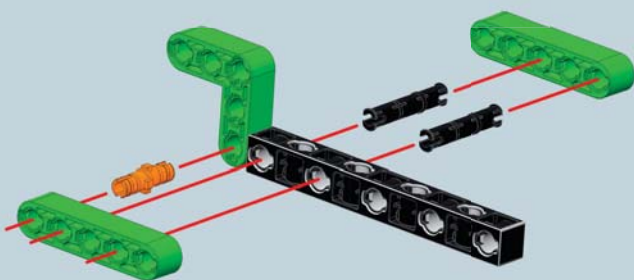
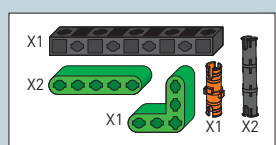
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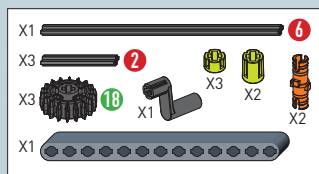
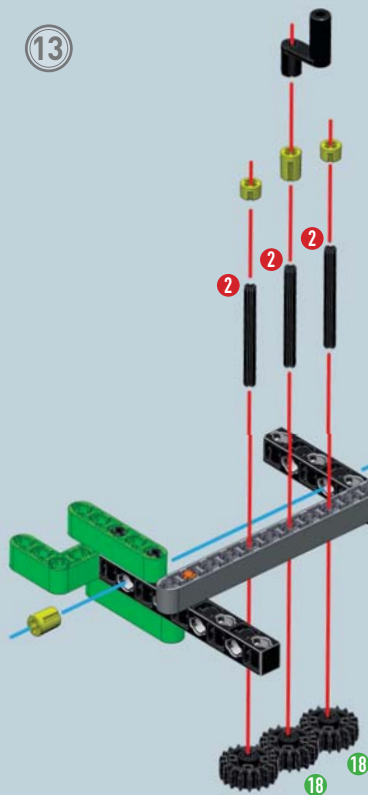
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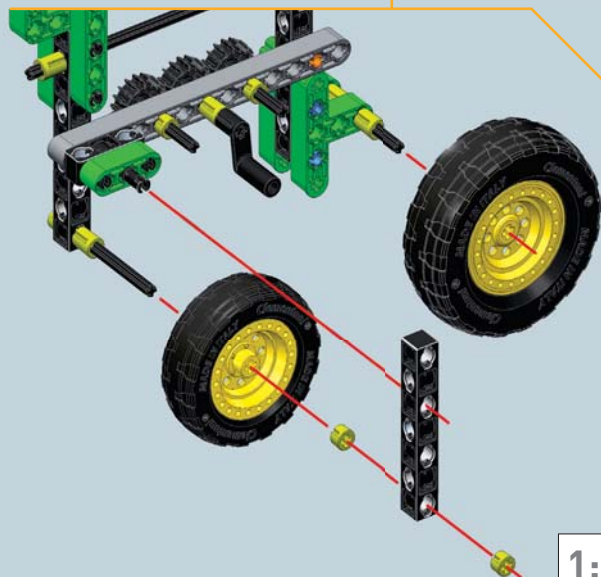
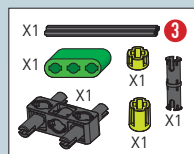
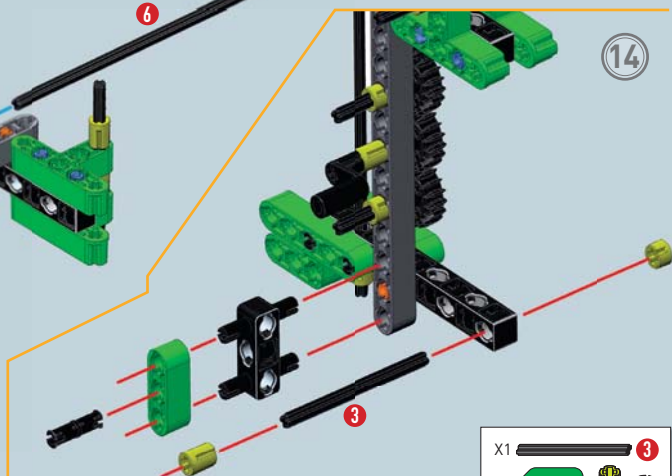
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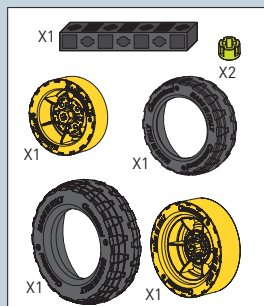
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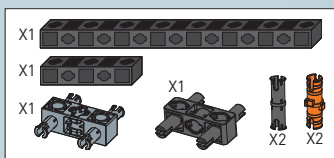


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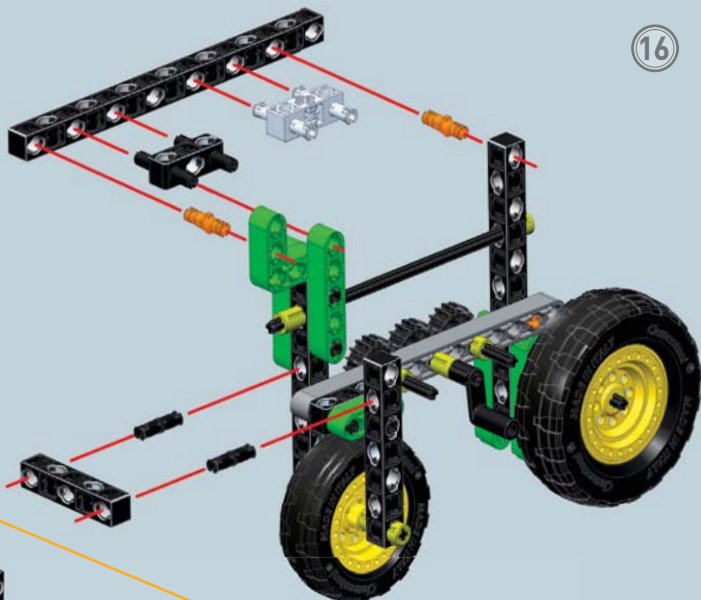


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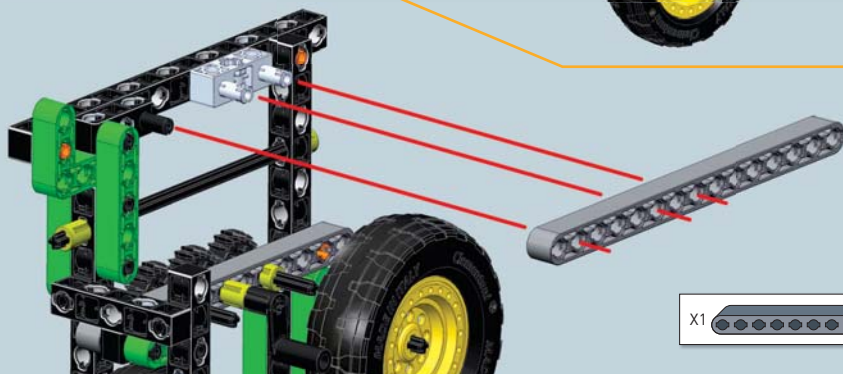




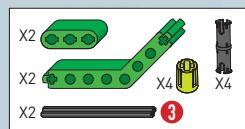
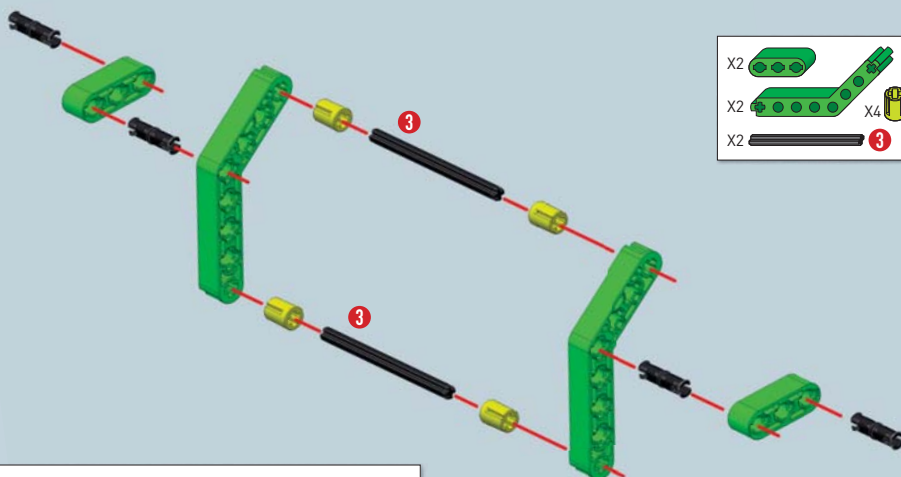
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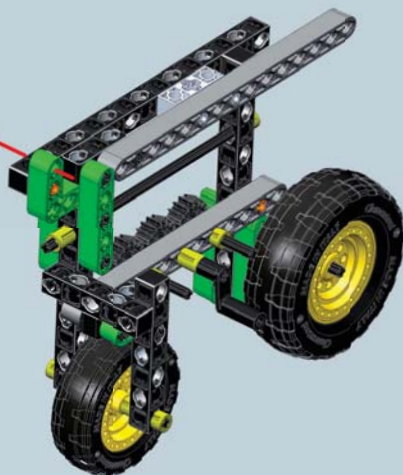
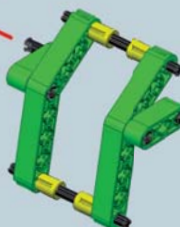
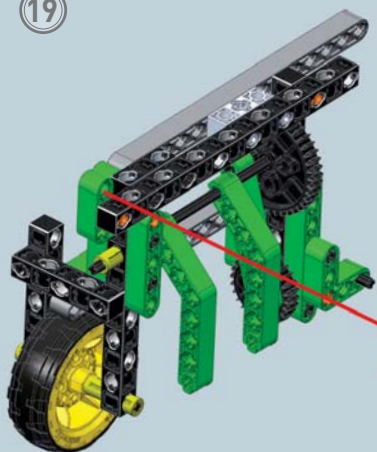


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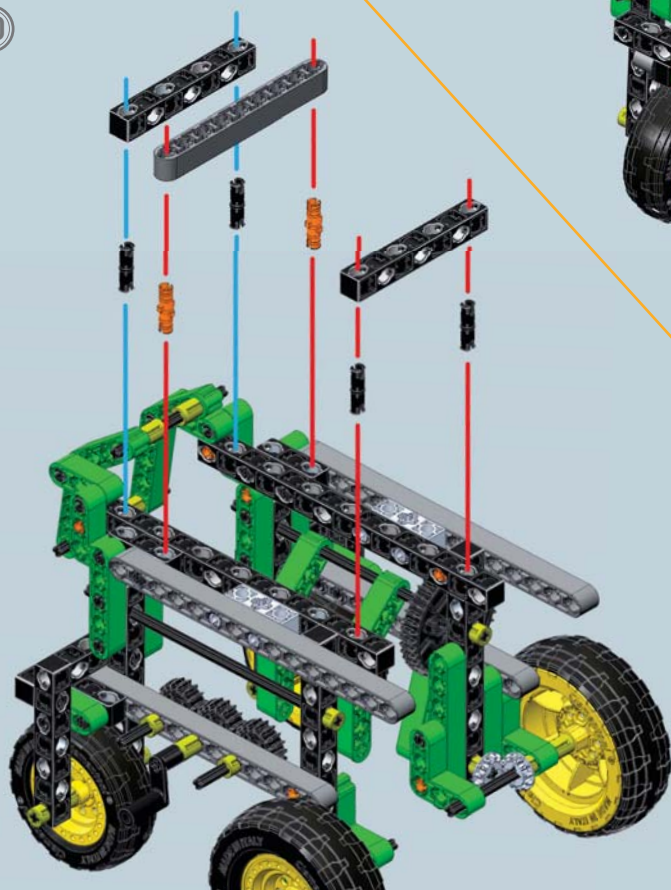
Infos techniques et curiosités

Sur la tête de secouage intérieure sont montés des batteurs oscillants qui peuvent être de forme rectiligne ou incurvée.

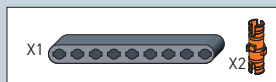
Leur action mécanique cause le détachement du raisin, qui tombe sur des tapis convoyeurs spéciaux. Les tapis permettent le nettoyage et le transport de la récolte jusqu'au stockage dans des réservoirs prévus à cet effet.



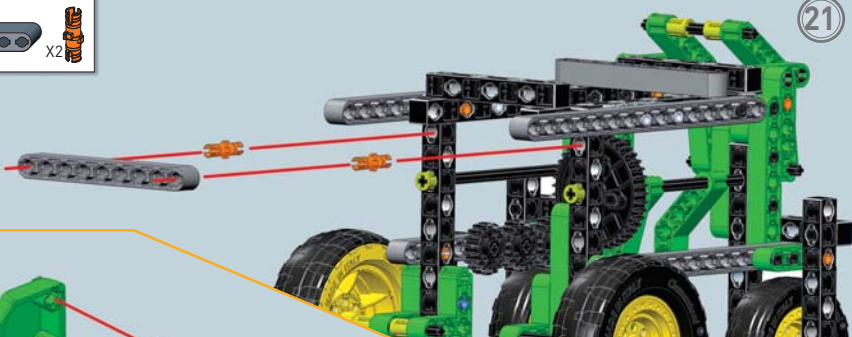
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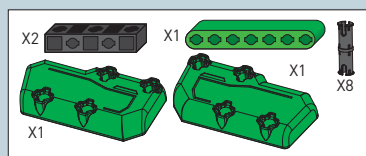
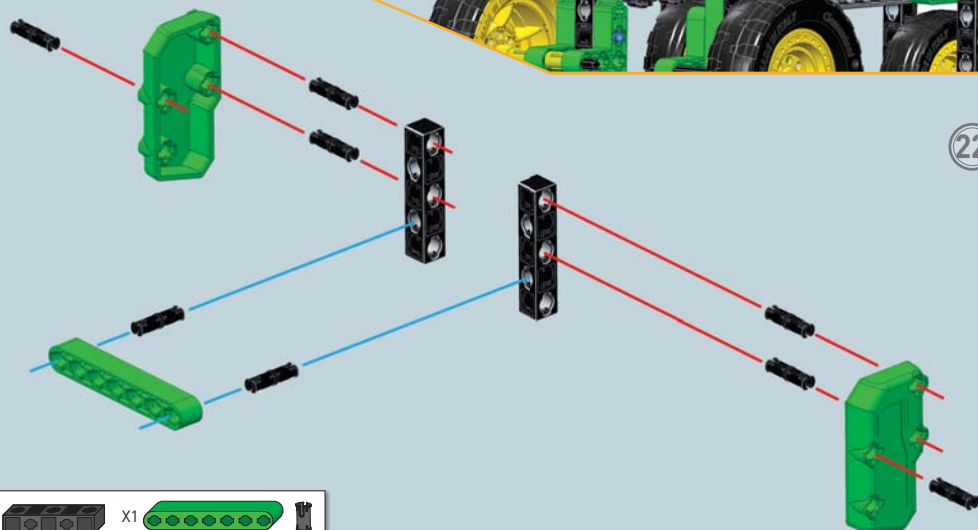
X1			
X2			



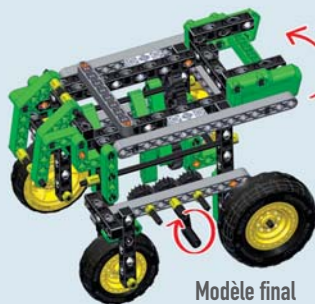
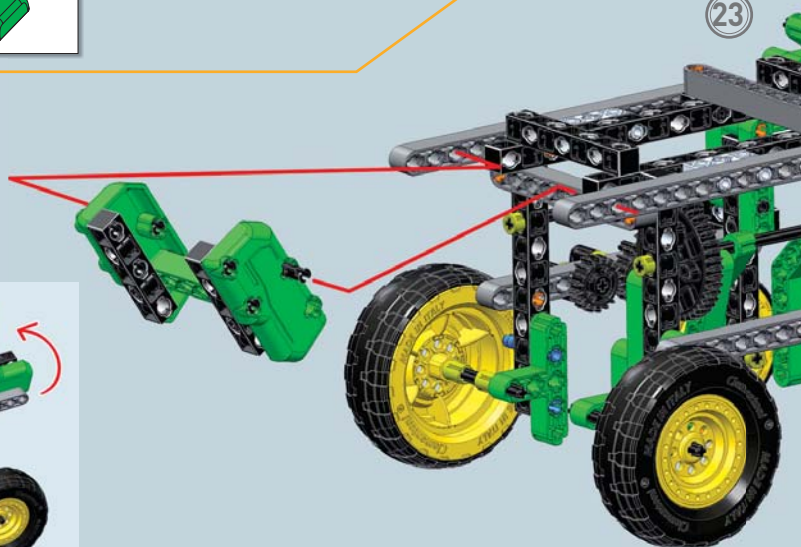
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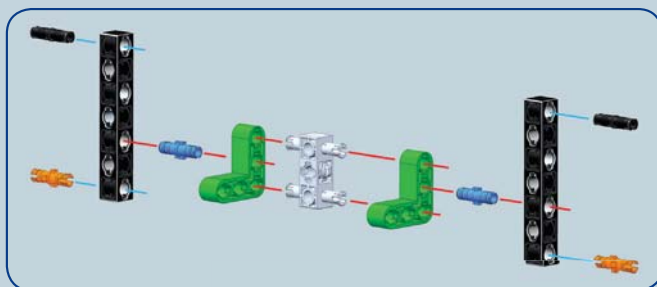


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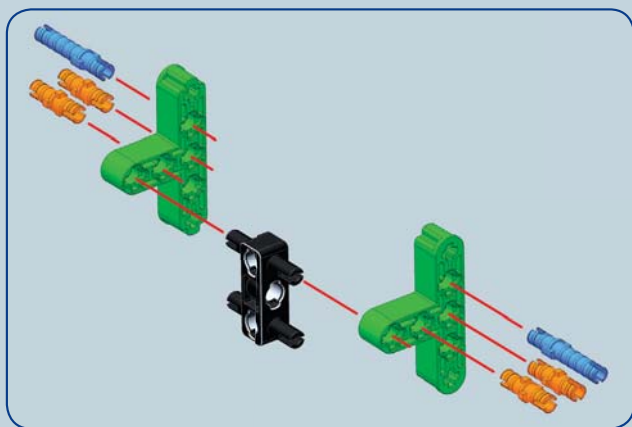
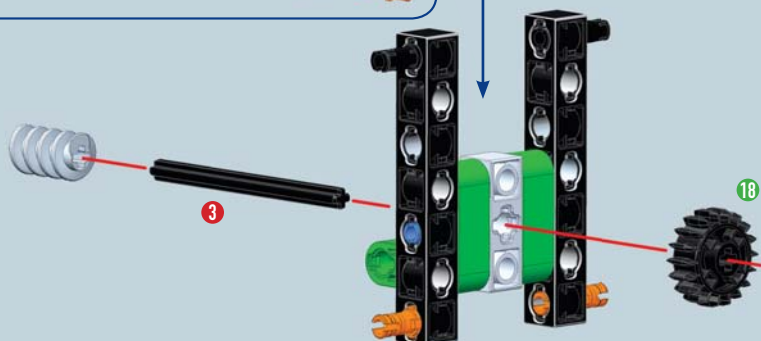
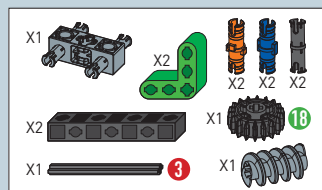


Modèle final

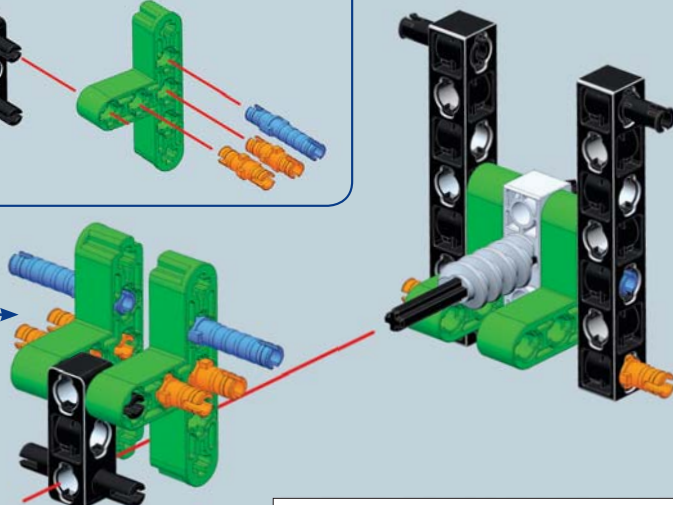
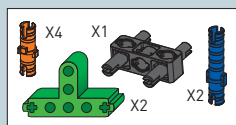
6 LA MACHINE À RÉCOLTER LES TOMATES



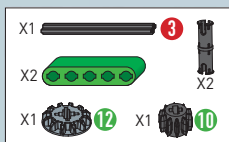
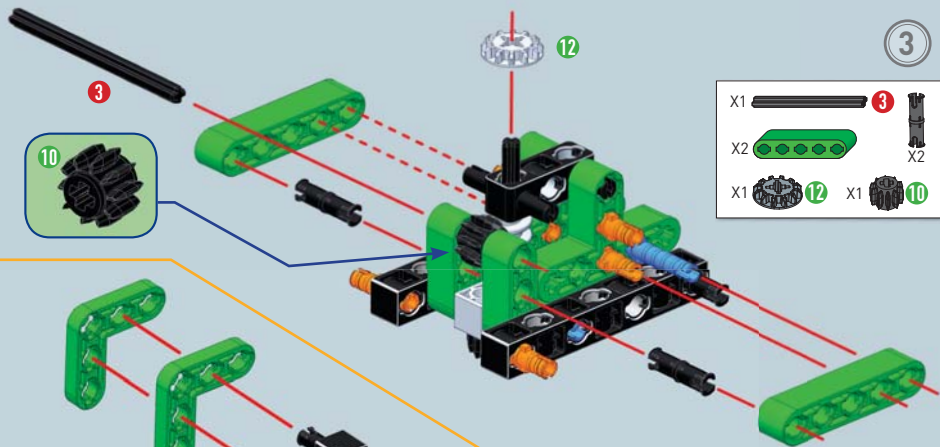
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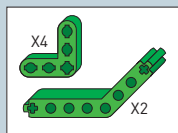
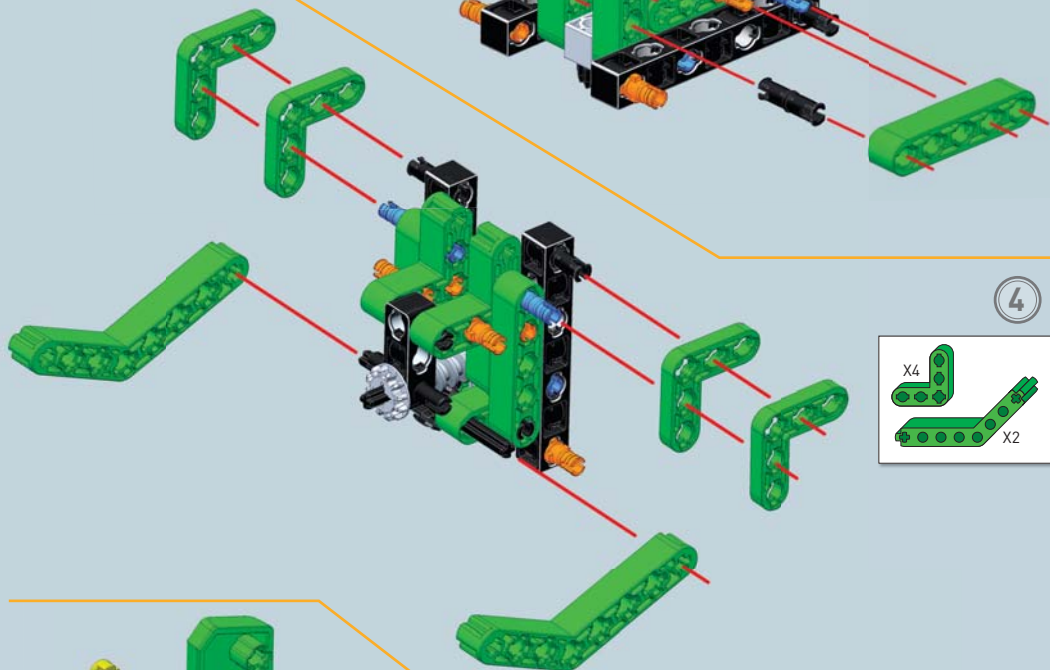
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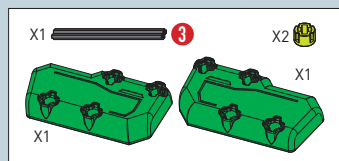
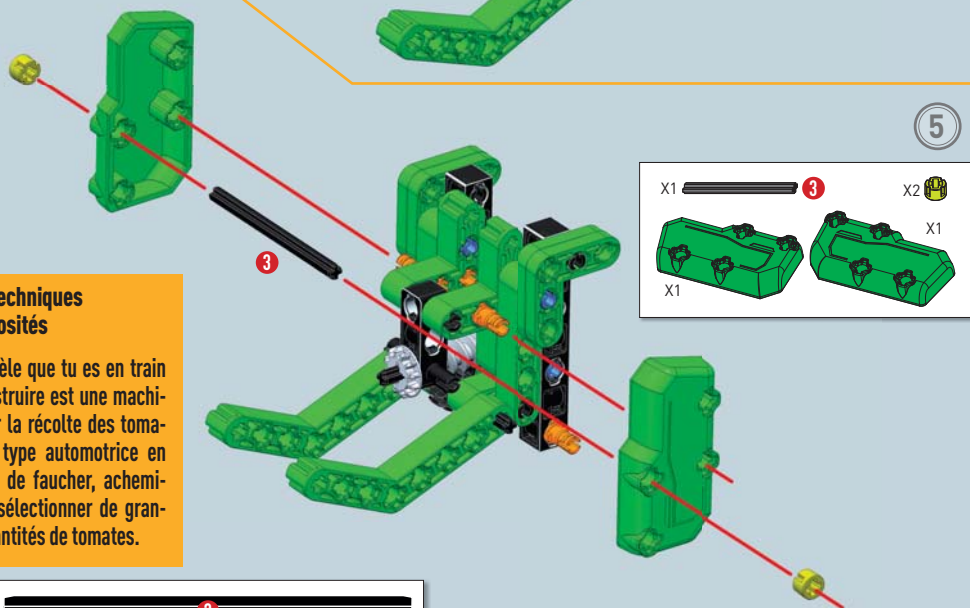
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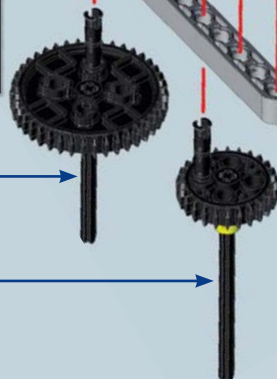
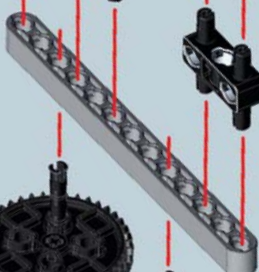
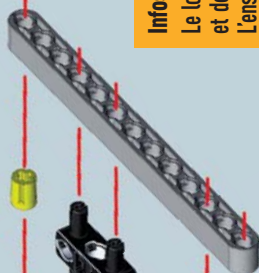
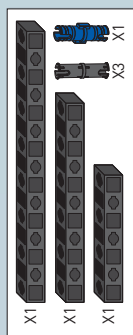
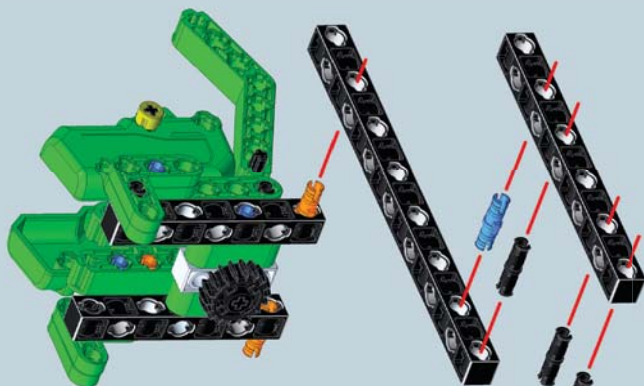
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Infos techniques et curiosités

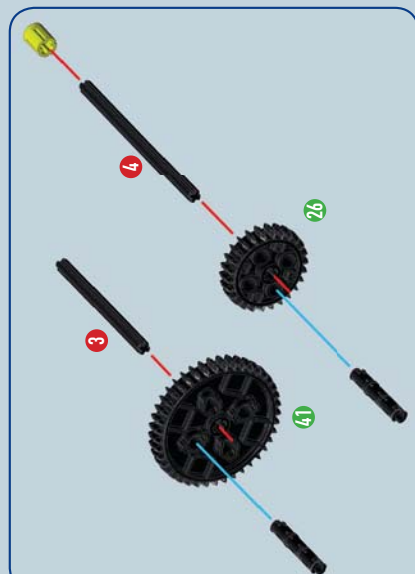
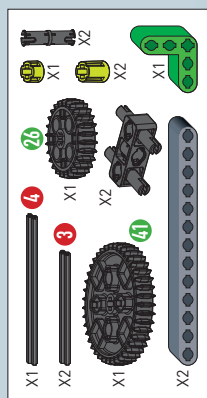
Le modèle que tu es en train de construire est une machine pour la récolte des tomates de type automotrice en mesure de faucher, acheminer et sélectionner de grandes quantités de tomates.

1:1

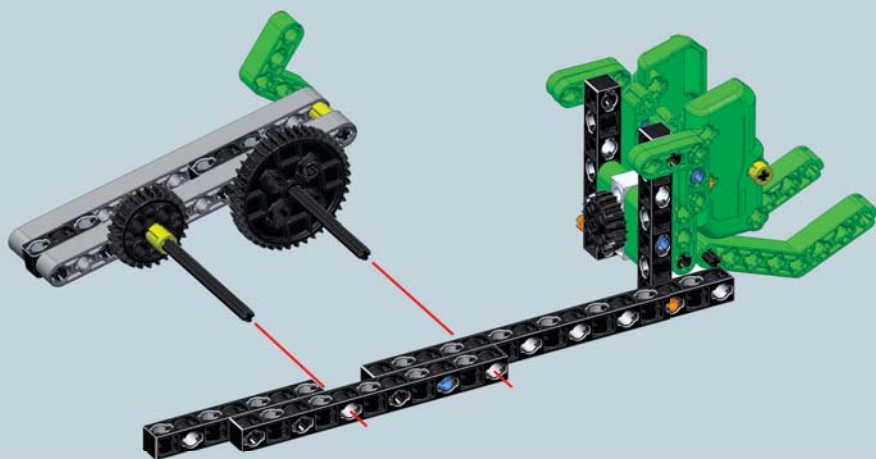


Infos techniques et curiosités

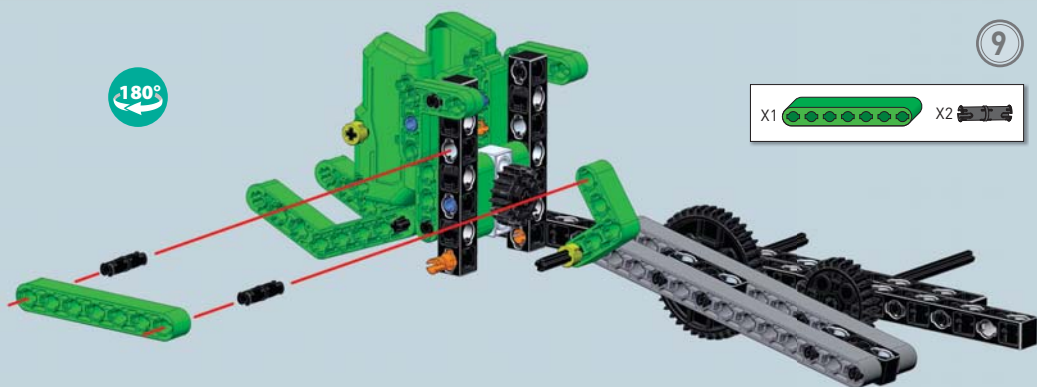
Le long corps central de la machine est doté de mécanismes vibrants spéciaux et de systèmes rotatifs, dotés à leur tour de rayons plus ou moins élastiques. L'ensemble de la vibration et de l'action mécanique permet l'élimination de la terre et le décrochage des fruits de la plante.



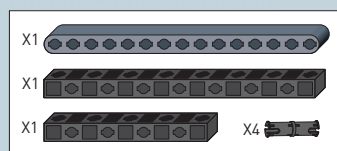
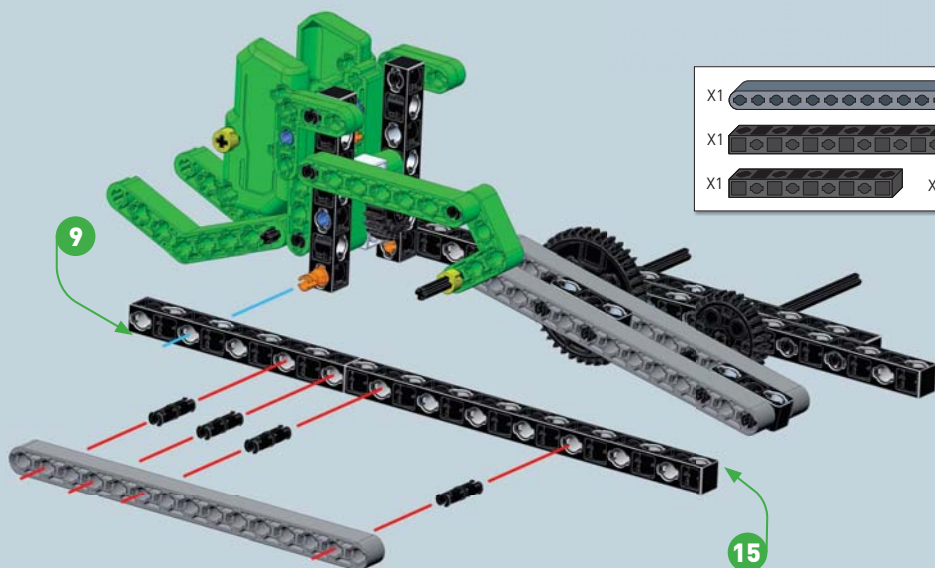
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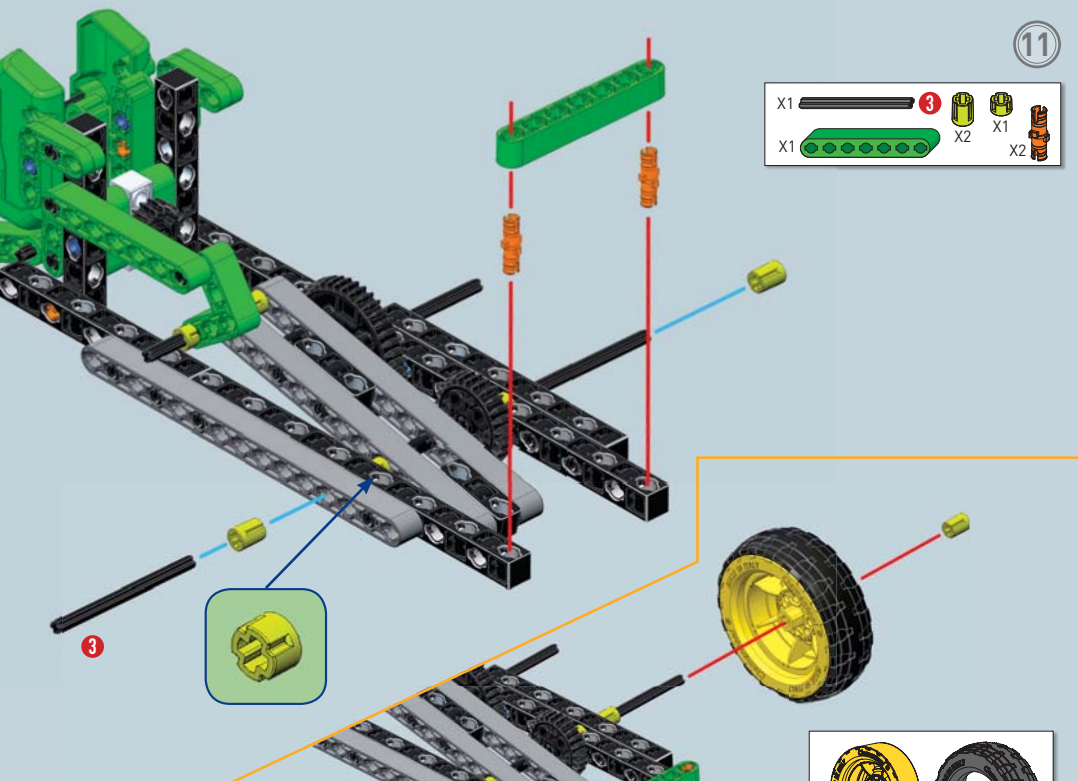
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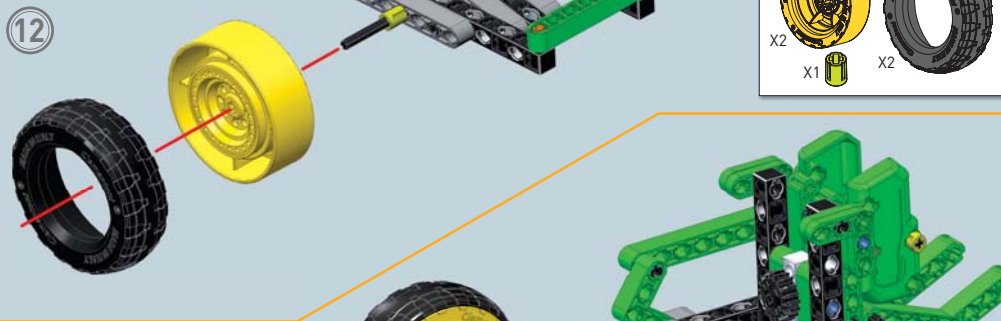
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11

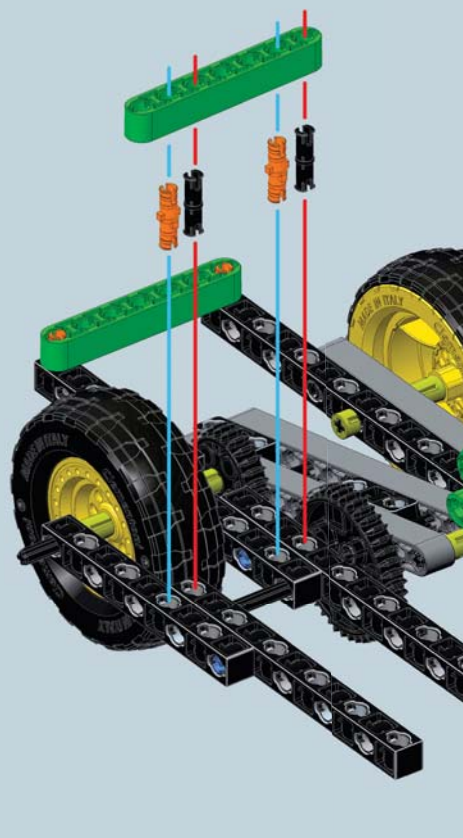


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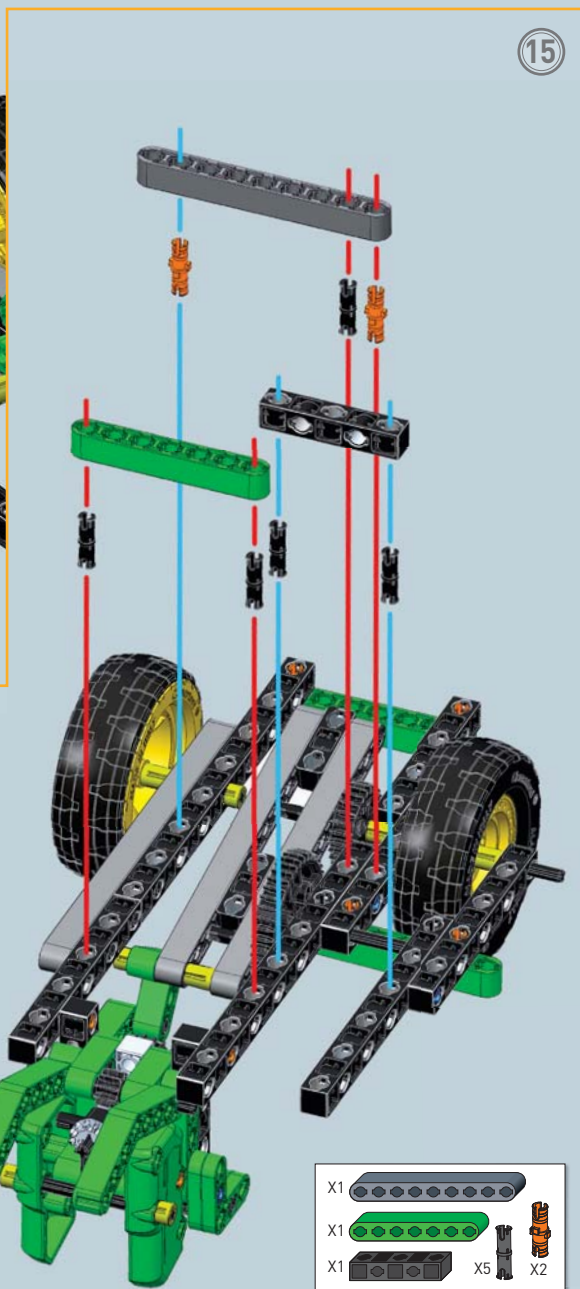


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14

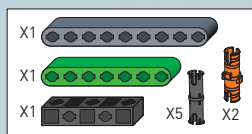


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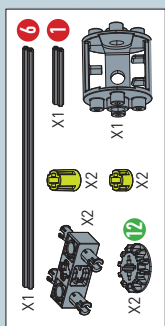
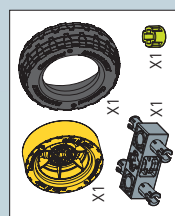
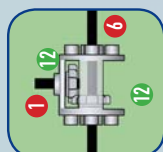
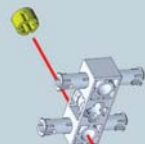
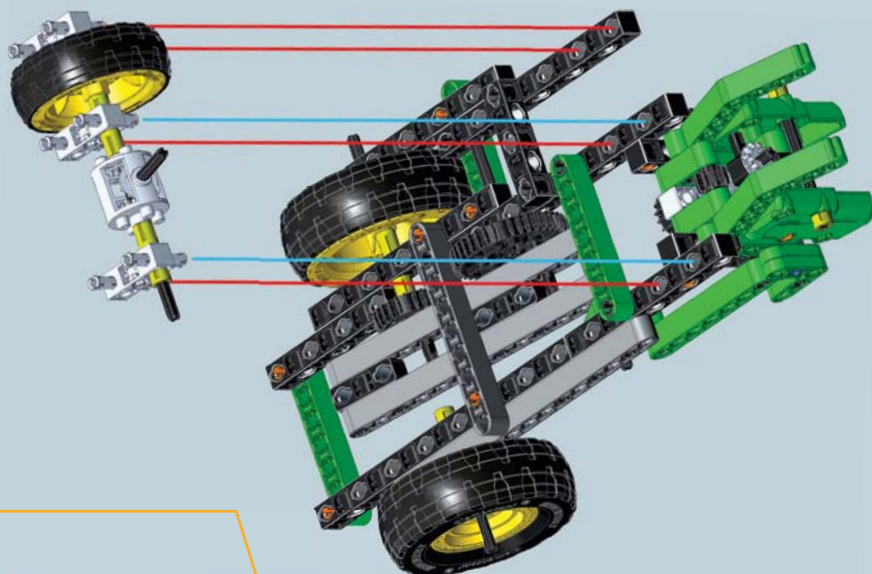


Infos techniques et curiosités

Sur les machines plus modernes, la sélection des tomates peut être effectuée de manière électronique, la forme et la couleur de chaque tomate étant évaluées par le biais de cellules photo-électriques prévues à cet effet. Ces dernières permettent également d'écarter les éventuels corps étrangers présents dans la récolte.



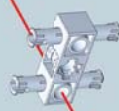
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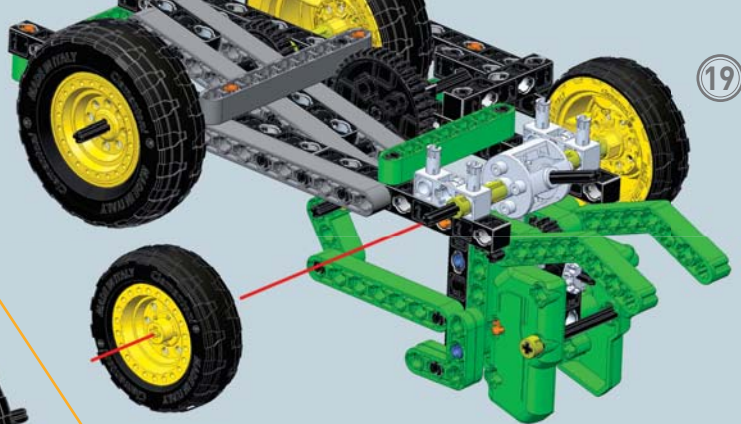


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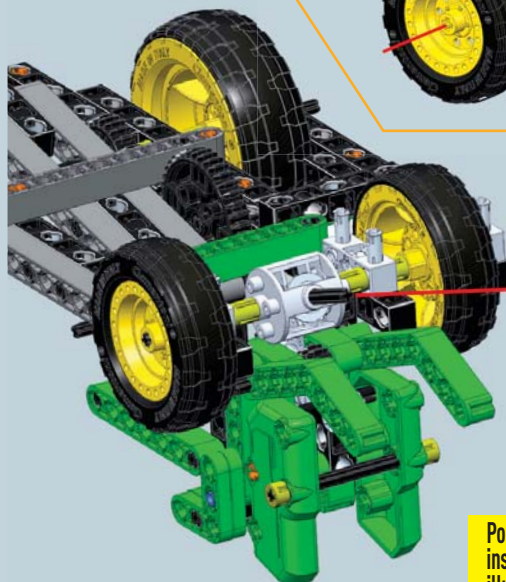


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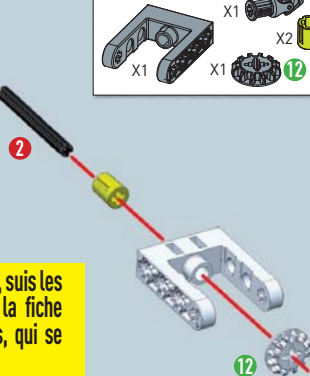
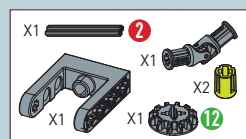




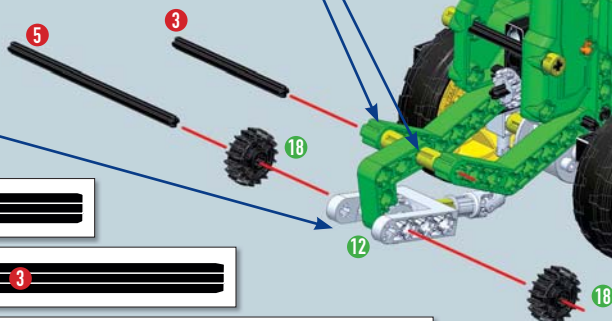
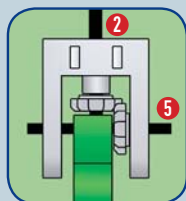
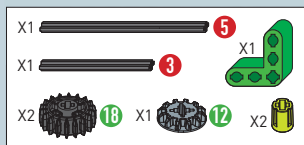
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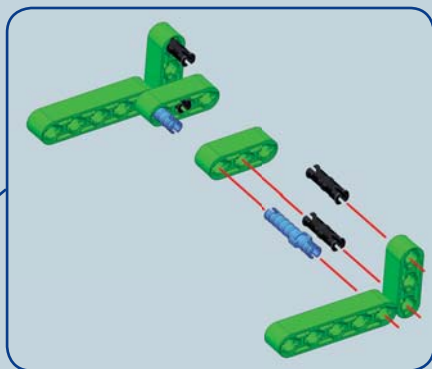
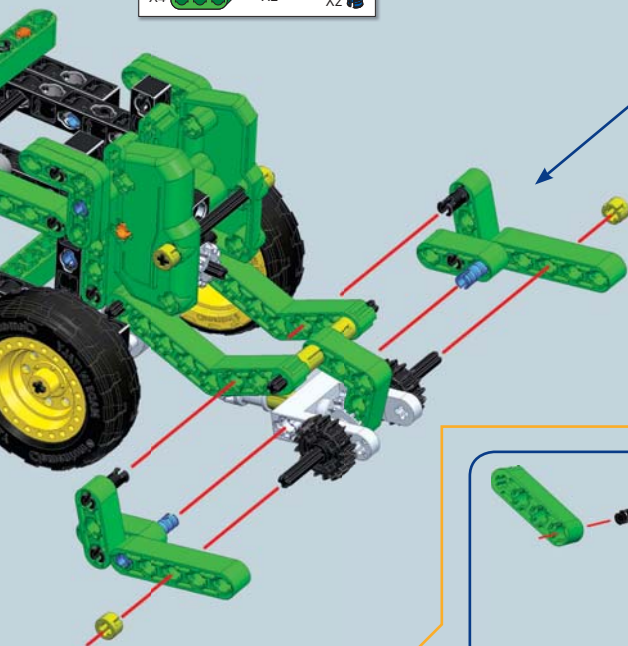
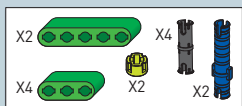


Pour l'assemblage du cardan, suis les instructions imprimées sur la fiche illustrée des avertissements, qui se trouve dans la boîte.

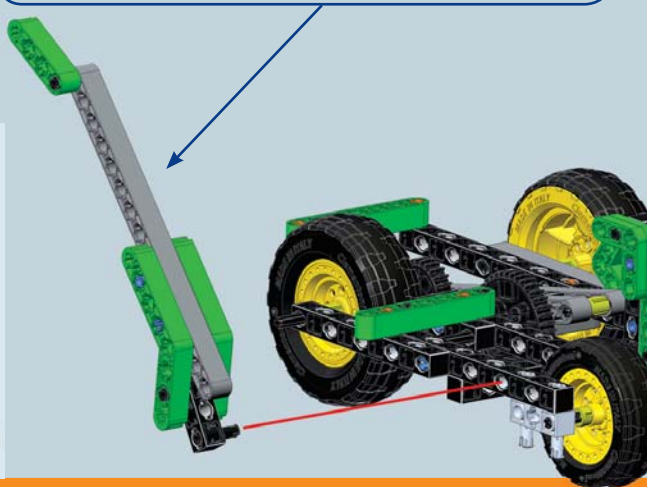
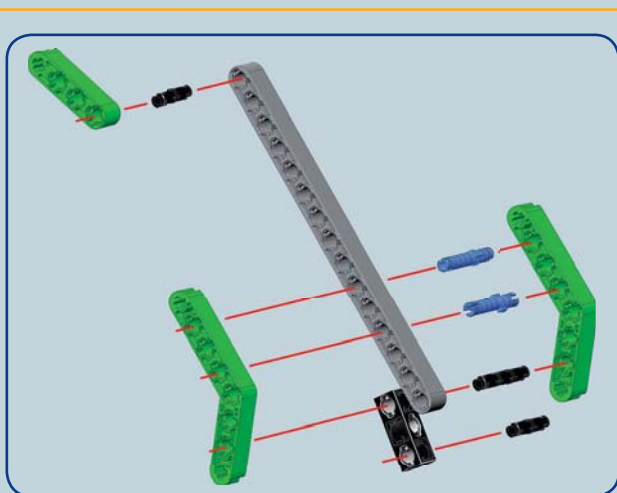
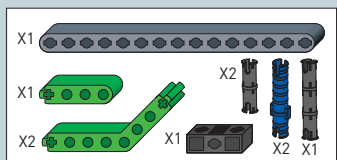


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23



Modèle final

