



# PROFI Green Energy

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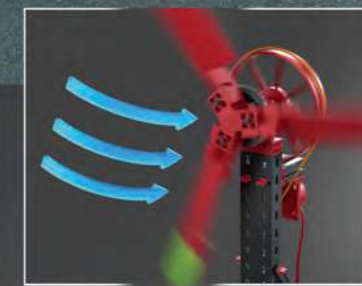
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Bauanleitung  
Assembly instruction  
Instructions de montage  
Bouwhandleiding  
Instrucciones de construcción

Manual de montagem  
Istruzioni di montaggio  
Инструкция по сборке  
安装说明书

# PROFI Green Energy

MODELS

**14**

- Mit dem fischertechnik eLearning Portal geben wir dir die Möglichkeit, noch mehr Hintergrundwissen zum Thema des Baukastens zu erhalten. Über <https://www.fischertechnik.de/elearning-greenenergy> gelangen Sie direkt zum eLearning Portal.
- The fischertechnik eLearning Portal provides even more background knowledge on the topic of the building set. You can access the portal directly at <https://www.fischertechnik.de/elearning-greenenergy>
- Avec le portail e-learning fischertechnik, nous t'offrons la possibilité d'acquérir encore plus de connaissances de base au sujet du kit de construction. Tu peux accéder directement au portail via le lien <https://www.fischertechnik.de/elearning-greenenergy>
- Met het fischertechnik eLearning portaal geven wij jou de mogelijkheid, nog meer achtergrondkennis over het thema van de bouwdoos te verkrijgen. Via <https://www.fischertechnik.de/elearning-greenenergy> kom je rechtstreeks naar het portaal.
- Con el portal de eLearning de fischertechnik, te damos la posibilidad de obtener aún más conocimientos básicos sobre el tema del kit de montaje. Para acceder al portal, ingresa a <https://www.fischertechnik.de/elearning-greenenergy>
- Com o portal de eLearning da fischertechnik damos lhe a possibilidade de obter ainda mais conhecimentos aprofundados sobre os kits de construção. Em <https://www.fischertechnik.de/elearning-greenenergy> pode aceder diretamente ao portal de eLearning.
- Com o portal de aprendizagem virtual da fischertechnik, oferecemos a oportunidade de receber ainda mais informações contextuais sobre o tema kits de construção. Acesse o portal diretamente através do endereço <https://www.fischertechnik.de/elearning-greenenergy>
- На обучающем интернет-портале компании fischertechnik вы получите еще больше базовых знаний по теме конструирования. Ссылка <https://www.fischertechnik.de/elearning-greenenergy> ведет прямо на портал.
- 通过 fischertechnik 线上学习门户，我们让您能有机会了解更多有关该模块主题的背景知识。可通过 <https://www.fischertechnik.de/elearning-greenenergy> 直接前往该门户。



- Werde Mitglied im kostenlosen fischertechnik Fan Club und nutze die Vorteile. Melde dich hierzu einfach unter [www.fischertechnik.de/FanClub](http://www.fischertechnik.de/FanClub) an.
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- Word lid van de gratis fischertechnik Fan Club en maak gebruik van de voordelen. Meldt u hiervoor aan op [www.fischertechnik.de/FanClub](http://www.fischertechnik.de/FanClub).
- Hazte miembro del club de aficionados gratuito de fischertechnik y disfruta de todas las ventajas. Regístrate en [www.fischertechnik.de/FanClub](http://www.fischertechnik.de/FanClub).
- Torne-se um membro do fã-clube gratuito da Fischertechnike aproveite-a. Basta registrar-se em [www.fischertechnik.de/FanClub](http://www.fischertechnik.de/FanClub).
- Diventa membro del fan club gratuito di fischertechnik e sfrutta tutti i vantaggi. Basta registrarsi a [www.fischertechnik.de/FanClub](http://www.fischertechnik.de/FanClub).
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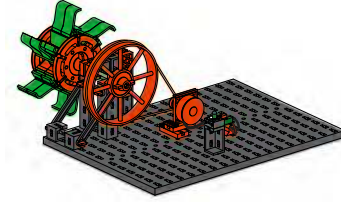
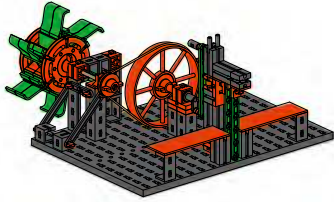
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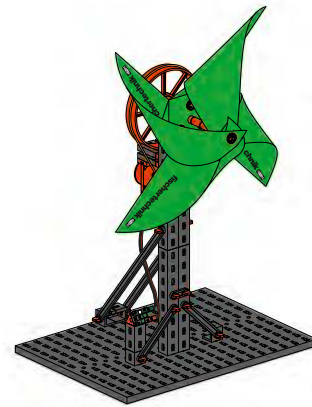
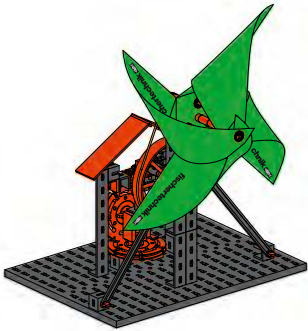
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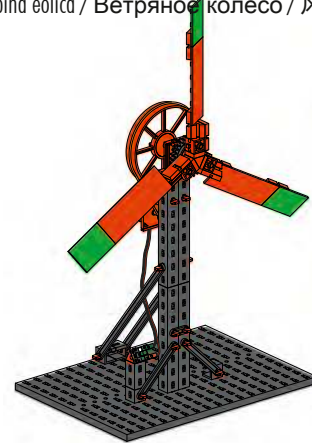
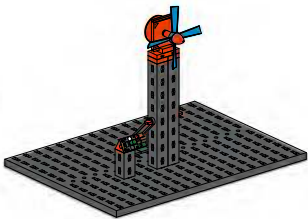
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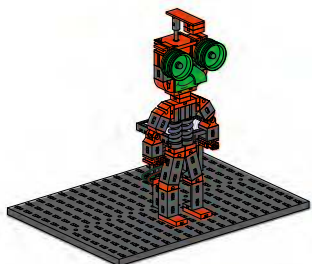
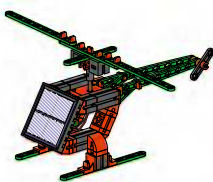
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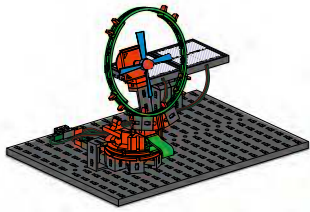
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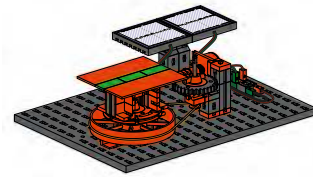


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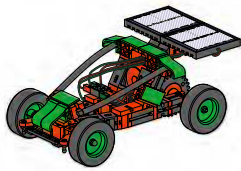
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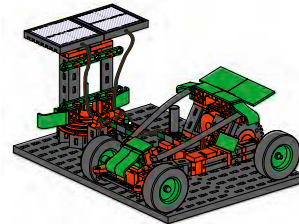
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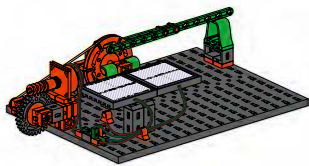
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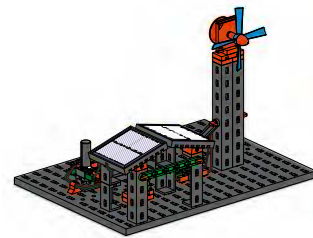
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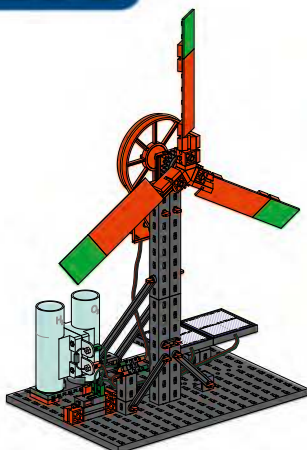
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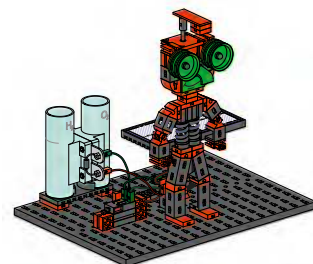
## H<sub>2</sub> Fuel Cell Car



Windkraftanlage + Brennstoffzelle / Wind turbine + fuel cell / Centrale éolienne + pile à combustible / Windenergiezentrale + brandstofcel / Planta de energía eólica + pila de combustible / Usina de energia eólica + célula de combustível / Centrale eolica + cella a combustibile / Ветрогенератор + топливный элемент / 风力发电站+燃料电池 .....38





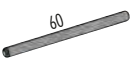
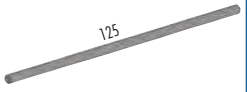













H<sub>2</sub> Fuel Cell Car 559 880















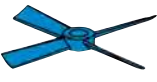



Wackelmann + Brennstoffzelle / Nodding man + fuel cell / Pile à combustible + robot hocheur de tête / Knikkebollende man + brandstofcel / El hombre que asiente con la cabeza + Célula de combustible / Homem que Consente + Célula de combustível / L'uomo che annuisce + Cella a combustibile / Танцующий человек + Топливный элемент / 点头人 + 燃料电池 .....50

**Einzelteilübersicht**  
**Spare parts list**  
**Liste des pièces détachées**


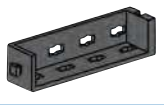















	19 317 1 x
	31 010 4 x
	31 011 6 x
	31 019 2 x
	31 032 1 x
	31 036 1 x
	31 058 5 x
	31 060 1 x
	31 061 4 x
	31 426 2 x
	31 436 2 x
	31 597 8 x
	31 674 6 x
	31 760 2 x
	31 843 2 x
	31 848 2 x
	31 891 2 x


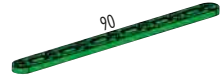



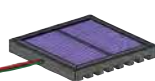


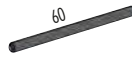
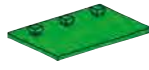

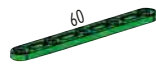
















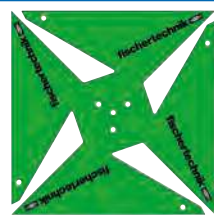
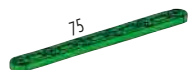



**Onderdelenoverzicht**  
**Lista da piezas**  
**Resumo de peça individual**

	31 915 1 x
	31 918 1 x
	31 981 10 x
	31 982 16 x
	31 983 4 x
	32 064 6 x
	32 850 2 x
	32 870 2 x
	32 879 5 x
	32 881 4 x
	32 913 4 x
	32 985 1 x
	35 031 5 x
	35 033 1 x
	35 049 5 x
	35 061 2 x
	35 065 1 x

	35 068 2 x
	35 073 2 x
	35 088 1 x
	35 608 1 x
	35 969 3 x
	35 998 2 x
	36 227 1 x
	36 264 1 x
	36 293 4 x
	36 323 15 x
	36 324 2 x
	36 334 5 x
	36 337 1 x
	36 370 2 x
	36 912 1 x
	36 913 1 x
	36 914 1 x

**Singoli componenti**  
**Перечень деталей**  
**零件概览**

	36 920 6 x
	36 921 2 x
	36 922 6 x
	36 950 4 x
	36 973 2 x
	37 237 10 x
	37 238 5 x
	37 468 7 x
	37 636 1 x
	37 679 3 x
	37 681 1 x
	37 783 1 x
	37 858 1 x
	38 216 3 x
	38 237 1 x
	38 240 12 x
	38 242 1 x

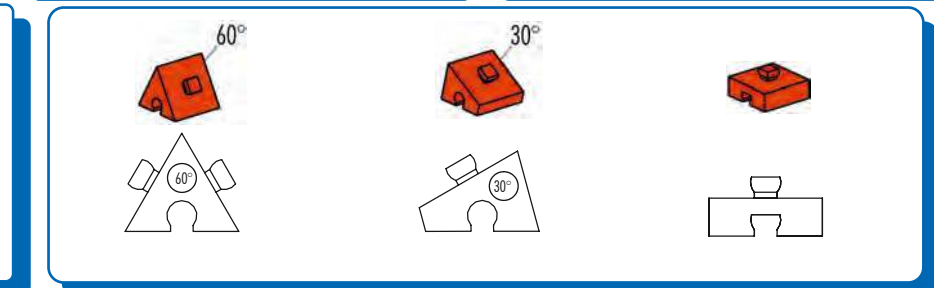
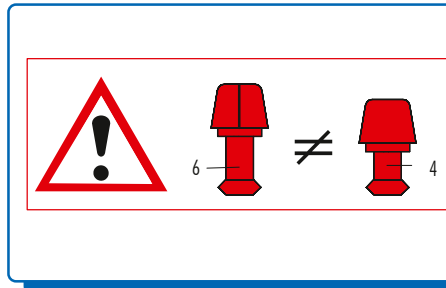
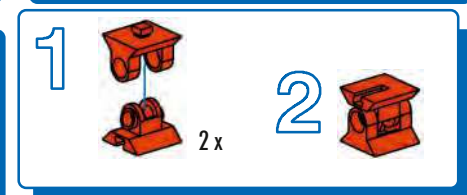
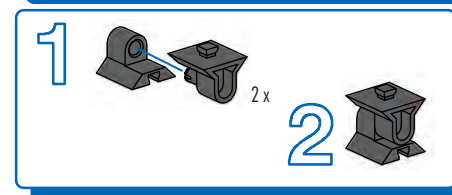
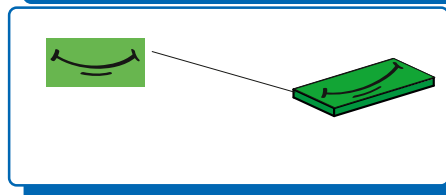
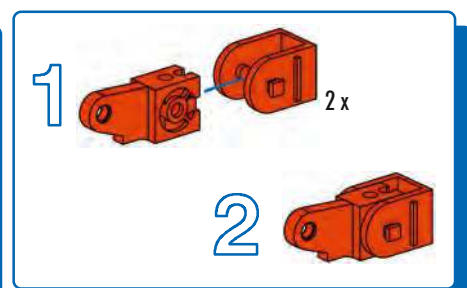
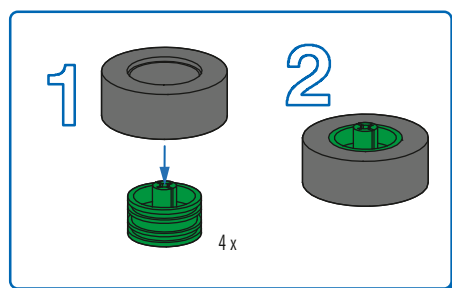
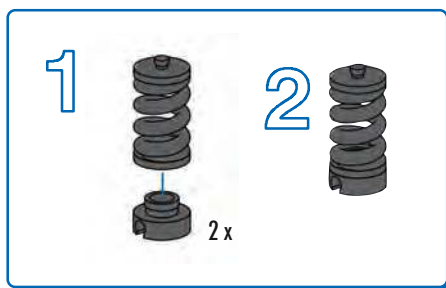
	38 251 3 x		143 236 3 x		156 511 1 x		172 805 2 x
	38 413 1 x		146 142 2 x		159 781 4 x		181 581 1 x
	38 416 2 x	1 V $\dots$ / 440 mA			163 042 3 x	2,7 V / 10 F	
	38 428 10 x		146 532 3 x		163 200 12 x		181 582 1 x
	119 753 2 x		146 533 2 x		163 201 2 x	1,5 - 2 V $\dots$ / 0,01 A	
	130 593 1 x		147 009 1 x		163 203 4 x		181 583 11 x
	136 775 1 x		154 454 1 x		163 518 2 x		181 584 9 x
	137 103 1 x		156 494 1 x		165 364 4 x		
	137 357 1 x		156 502 4 x		172 541 3 x		
			156 504 7 x		172 804 2 x		



**Montagetipps**  
**Tips for assembly**  
**Tuyaux pour le montage**

**Montagetipps**  
**Consejos para el montaje**  
**"Dicas" para montagem**

**Consigli per il montaggio**  
**Советы по сборке**  
**装配建议**



**Montagetipps**  
**Tips for assembly**  
**Tuyaux pour le montage**

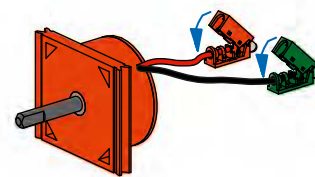
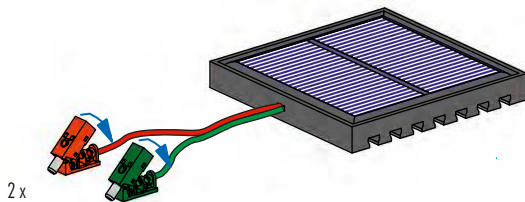
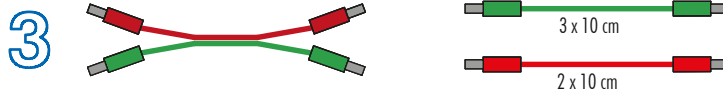
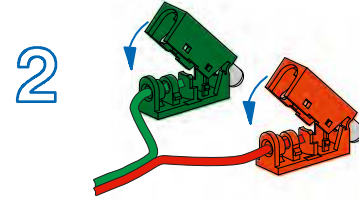
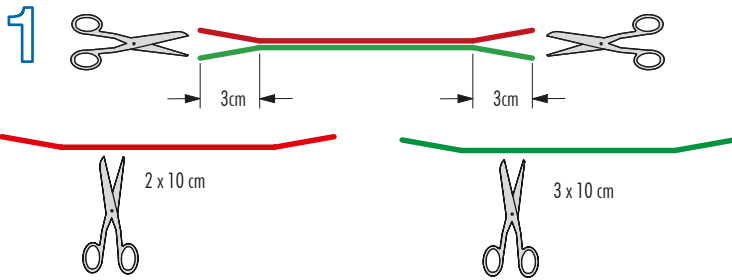
**Montagetips**  
**Consejos para el montaje**  
**"Dicas" para montagem**

**Consigli per il montaggio**  
**Советы по сборке**  
**装配建议**

Kabel und Stecker  
 Plugs and cables  
 Fiches et des câbles

Stekkers en cables  
 Enchufes en cables  
 Cabos e contatos

Cavi e connettori  
 Провода и штекеры  
 电缆和插头



**Sicherheitshinweise**  
**Safety Information**  
**Consignes de sécurité**

**Veiligheidsrichtlijnen**  
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**Observações sobre segurança**

**Informazioni per la sicurezza**  
**Указания по технике безопасности**  
**安全指南**

- Achtung! Verletzungsgefahr an Bauteilen mit funktionsbedingten scharfen Kanten und Spitzen!
- Caution! Be careful not to hurt yourself on components with sharp or pointed edges!
- Attention! Risque de blessure sur les éléments comportant des arêtes et o pointes vives indispensables au bon fonctionnement!
- Let op! U kunt zich bezeren aan bouwstenen met sherpe randen of punten!
- Atención! ¡cuidado, no te hagas daño con los componentes con bordes afilados o puntiagudos!
- Atenção! Perigo de ferimentos em peças componentes com cantos vivos e pontas obrigatórias para o funcionamento !
- Attenzione! Pericolo di lesioni dovute a componenti con spigoli vivi e punte per motivi funzionali!
- Будьте осторожны! Об острые края деталей и и наконечники можно порезаться!
- 注意！因功能需要而带有锋利的棱边和尖角的部件可能会带来受伤危险！

- Alle Einzelteile, insbesondere bewegliche Teile sind falls notwendig zu warten und zu reinigen.
- All components, especially moving parts, should be maintained and cleaned as necessary.
- Toutes les pièces détachées et en particulier les pièces mobiles, sont, si nécessaire, à entretenir et à nettoyer.
- Alle onderdelen, vooral de bewegende delen, kunnen, indien noodzakelijk, onderhouden en gereinigd worden.
- Es necesario mantener limpio y en buen estado cada una de las piezas. Particularmente las piezas móviles.
- Todas as peças individuais, especialmente peças móveis, devem ser submetidas à manutenção e limpas se necessário.
- Se necessario, tutti i singoli componenti, soprattutto le parti mobili, si devono eventualmente sottoporre a manutenzione e pulizia.
- Все детали, особенно подвижные, требуют ухода и чистки.
- 必要时应保养和清洁所有零件，尤指运动部件。

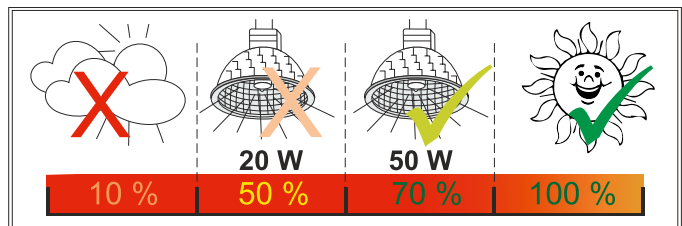
**Sicherheitshinweise**  
**Safety Information**  
**Consignes de sécurité**

**Veiligheidsrichtlijnen**  
**Indicaciones de seguridad**  
**Observações sobre segurança**

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- Die Solarzellen funktionieren bei Sonnenlicht oder mit einer Halogenlampe. Energiesparlampen oder Leuchtstoffröhren sind nicht geeignet.
- The solar cells work with sunlight or with a halogen light. CFL bulbs or fluorescent lights are not suitable.
- Les cellules solaires fonctionnent si elles sont exposées aux rayons du soleil ou à la lumière d'une lampe halogène. Les lampes à faible consommation d'énergie ou les tubes fluorescents ne sont pas appropriés.
- De zonnecellen werken op zonlicht of met behulp van een halogeenlamp. Spaarlampen of TL-lampen zijn niet geschikt.
- Las celdas solares funcionan con luz solar o una lámpara halógena. Lámparas de ahorro de energía o tubos fluorescentes no son apropiados.
- As células solares funcionam com luz solar ou uma lâmpada de halogênio. Lâmpadas economizadoras de energia ou lâmpadas fluorescentes não são adequadas.

- Le celle solari funzionano con la luce del sole o con una lampada alogena. Le lampade a risparmio energetico e i tubi fluorescenti non sono adatti.
- Солнечные элементы работают от солнечного света или галогенной лампы. Энергосберегающие и люминесцентные лампы не подходят.
- C太阳能电池在太阳光下或用卤素灯工作。不适合使用节能灯或荧光灯管。

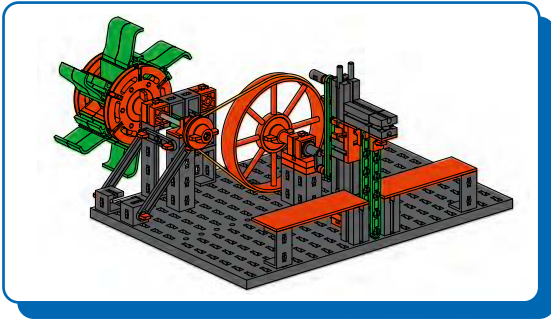


- Achtung!**  
Die elektrischen Bauteile Solar-Micromotor, LED und Goldcap dürfen nur mit der vorgeschriebenen Spannung von max. 3 V betrieben werden. Auf keinen Fall an andere 9V-fischertechnik-Stromversorgungen anschließen.
- Caution!**  
The Solar Micromotor electric components, LED and Goldcap may only be operated with the prescribed voltage of 3 V. Do not ever connect them to other 9V fischertechnik power supplies.
- Attention !**  
Les composants électriques micromoteur solaire, LED et Goldcap ne doivent fonctionner que sous la tension prescrite de 3 V. Ne les raccorder en aucun cas aux autres systèmes d'alimentation électriques de 9 V de fischertechnik.
- Pas op!**  
De elektrische componenten zonne-energie-micromotor, LED en Goldcap mogen alleen worden gebruikt met de voorgeschreven spanning van 3 V. Sluit ze in geen geval aan op andere 9V-fischertechnik-stroomvoorzieningen.
- ¡Atención!**  
Los componentes eléctricos Micromotor solar, LED y Goldcap sólo deben ser operados con la tensión prescrita de 3 V. En ningún caso deben conectarse a otras fuentes de alimentación de 9 V de fischertechnik.
- Atenção!**  
Os componentes elétricos Solar-Micromotor, LED e Goldcap só podem ser operados com a tensão prescrita de 3 V. Nunca ligar a outras fontes de alimentação de 9V da fischertechnik.
- Attenzione!**  
I componenti elettrici: micromotore solare, LED e goldcap devono funzionare soltanto con la tensione prevista di 3 V. Non eseguire assolutamente l'allacciamento ad altri alimentatori fischertechnik da 9V.
- Внимание!**  
Такие электрические детали, как микродвигатель, светодиод и конденсатор Goldcap могут работать только с напряжением 3В. Категорически запрещается подключать их к источникам электропитания fischertechnik с напряжением 9В.
- 注意!**  
只允许用规定的3V 的电压来运行电气部件如太阳能微型电机，LED 和 Goldcap。无论如何不得与其他的 9V 慧鱼技术电源部件相连接。



Hinweise zum Umweltschutz / Instructions for Environmental Protection / Remarques de protection de l'environnement / Bescherming van het milieu / Notas con respecto a la protección del medio ambiente / Instruções para a proteção do meio ambiente / Indicazioni sulla tutela ambientale / Указания по охране окружающей среды / 有关环保的提示 :

[www.fischertechnik.de/environment](http://www.fischertechnik.de/environment)



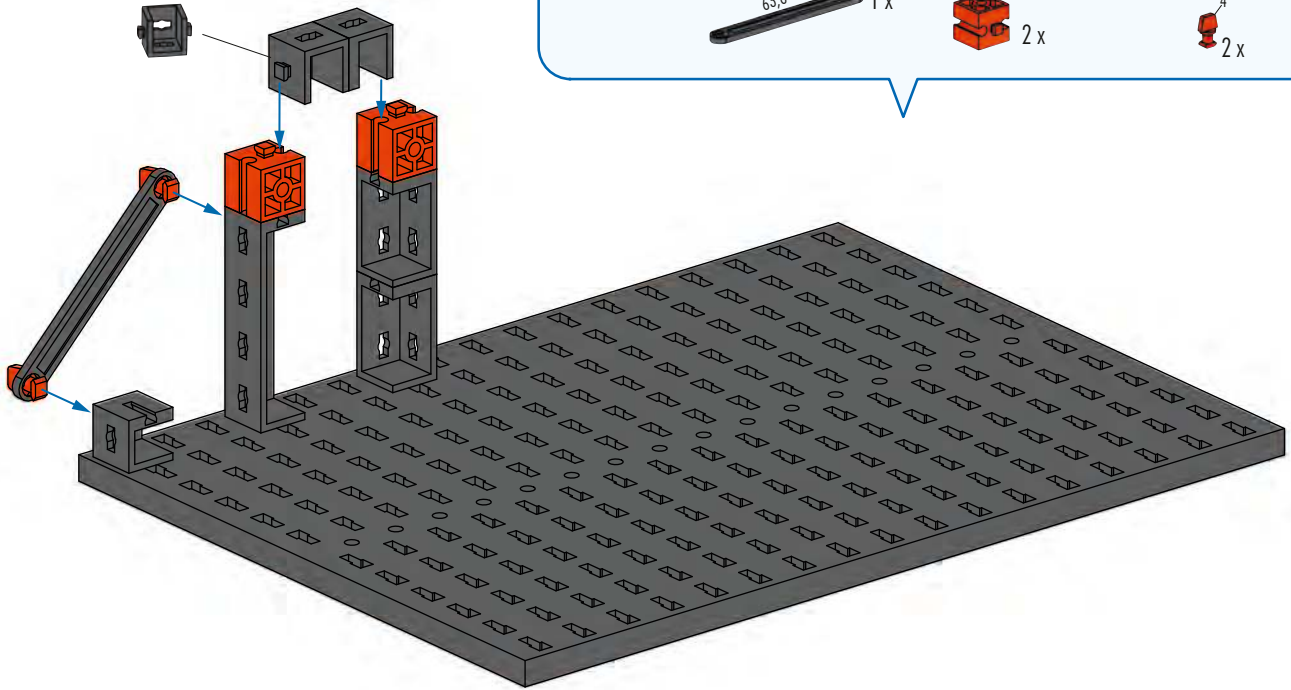
**Gattersäge**  
Gang saw  
Scie industrielle

**Bendezaag**  
La sierra de la pandilla  
Serra de bancada

**Sega a nastro**  
Пилорама  
钢锯

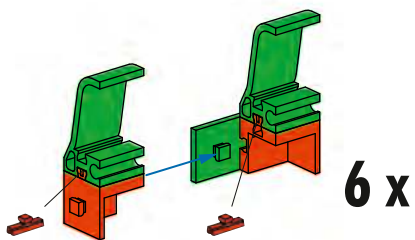
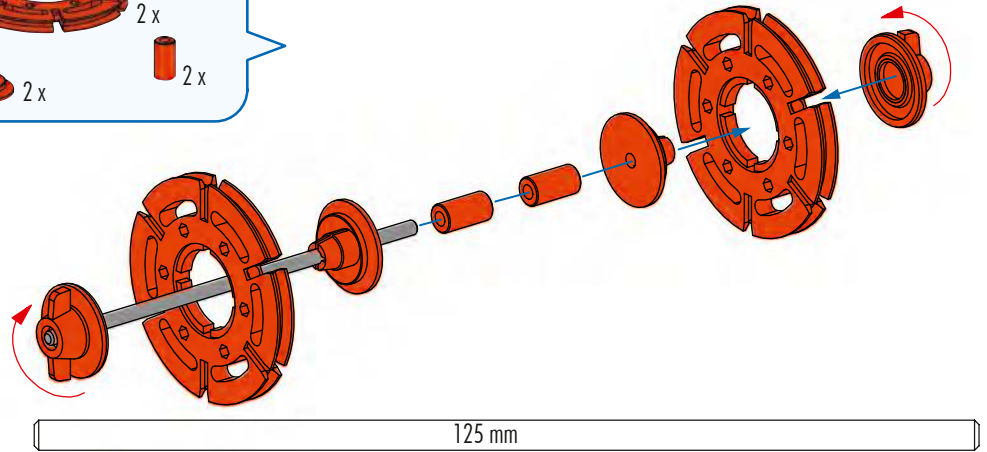
**1**

1x 10-hole grey Technic plate  
1x 1x6 grey Technic beam  
1x 1x2 grey Technic connector  
2x 1x2 grey Technic connector  
2x 1x2 grey Technic connector  
1x 1x6 grey Technic beam with 2 holes  
2x 1x2 orange Technic connector  
2x 1x2 orange Technic connector  
2x 1x2 red Technic connector



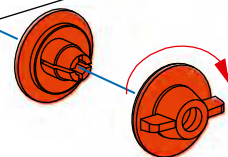
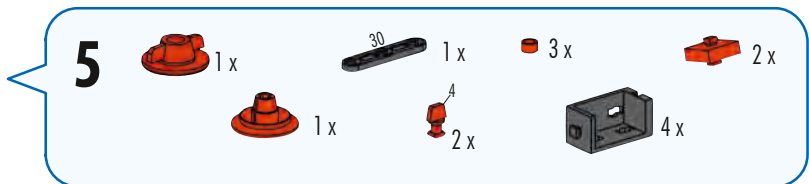
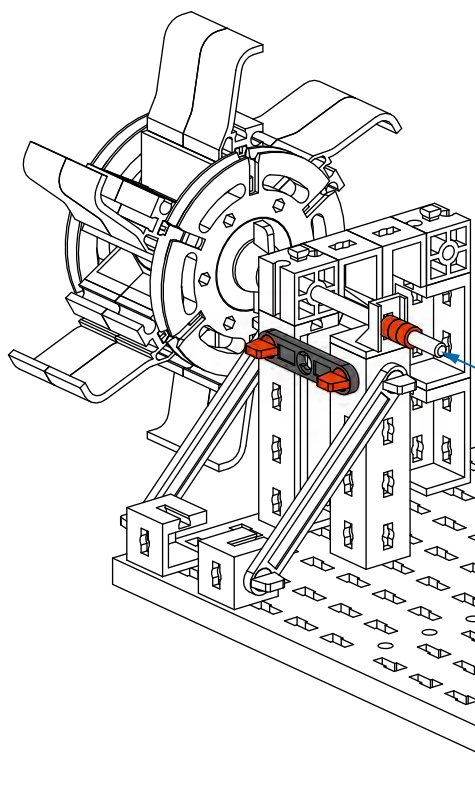
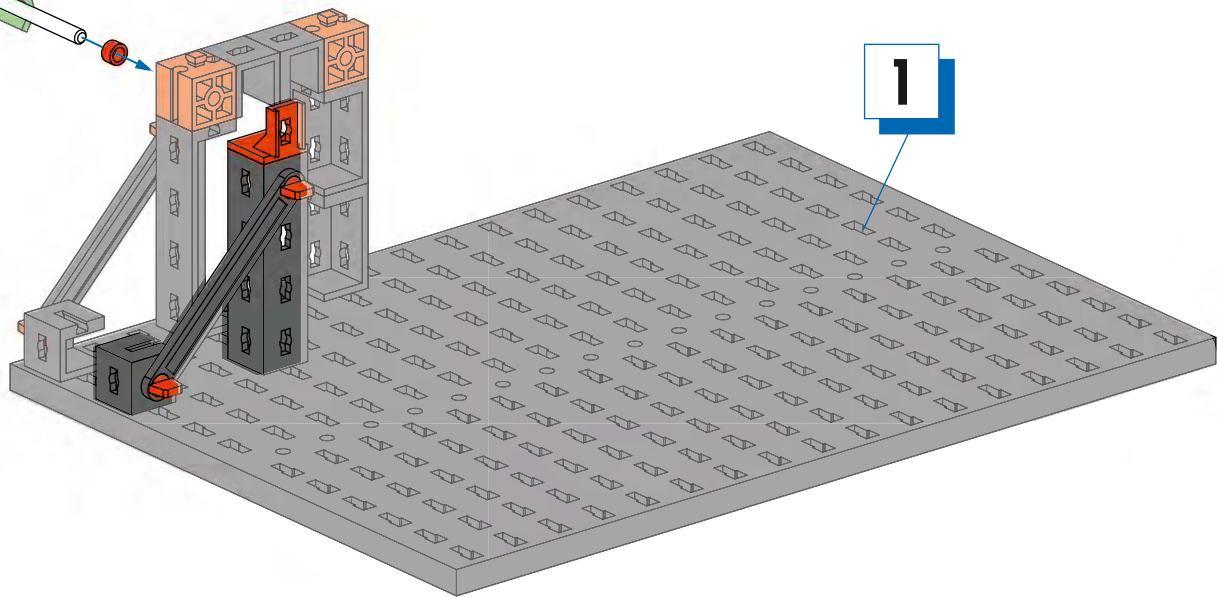
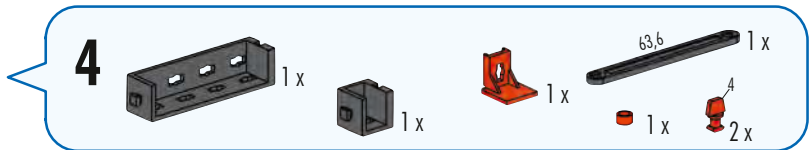
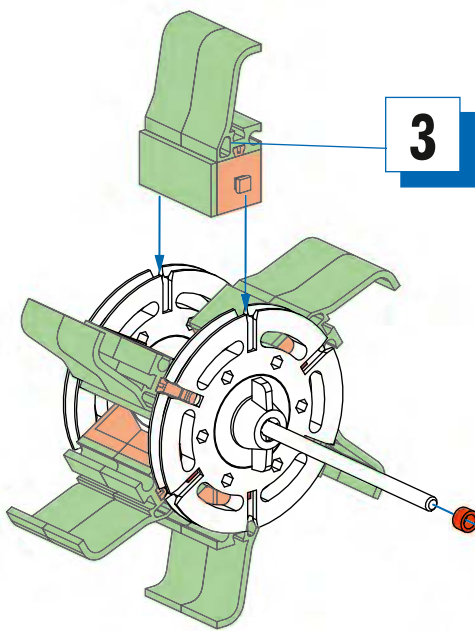
**2**

1x 125mm grey axle  
2x 1x2 red Technic connector  
2x 1x2 red Technic connector  
2x 1x2 red Technic connector  
2x 1x2 red Technic connector



**3**

12x 1x2 red Technic connector  
12x 1x2 red Technic connector  
12x 1x2 green Technic connector  
6x 1x2 green Technic connector

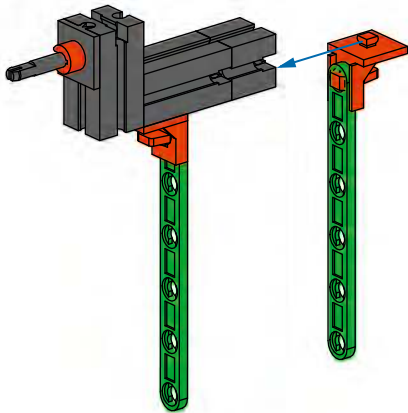
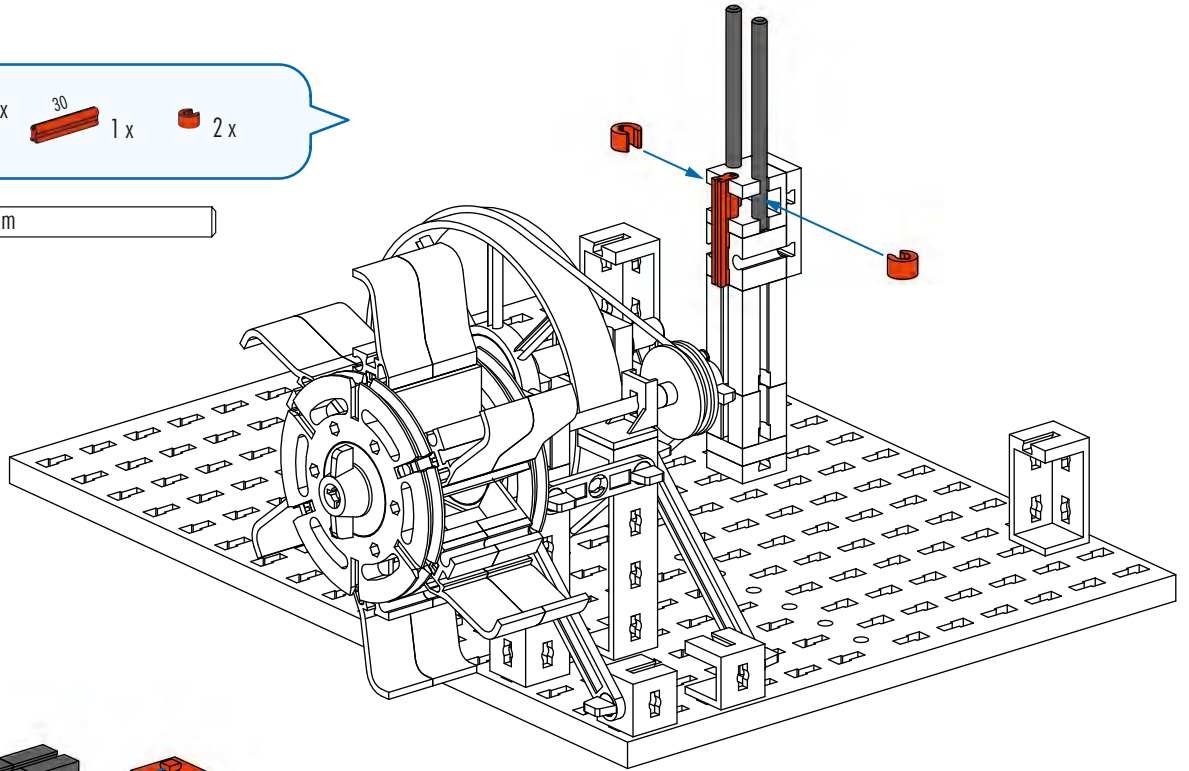




8

60 2x 30 1x 2x

60 mm

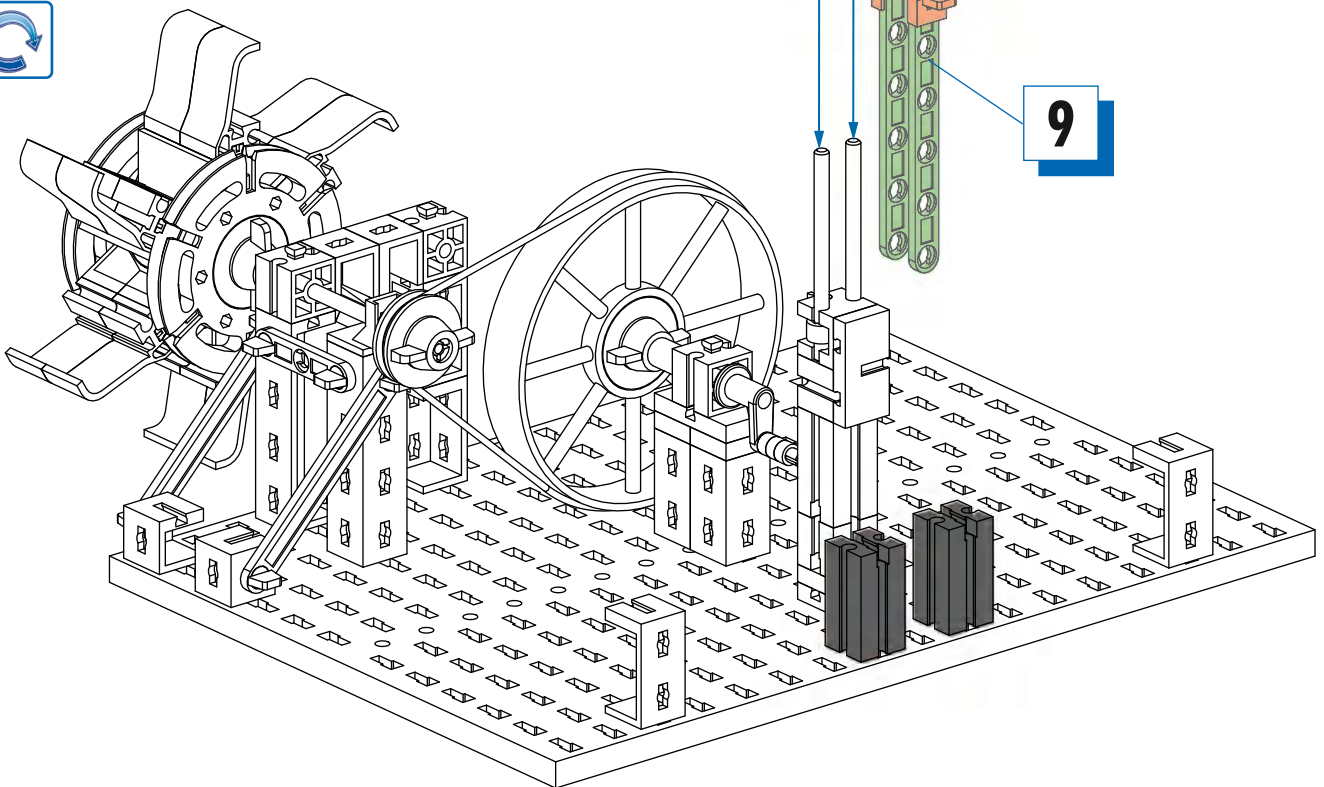


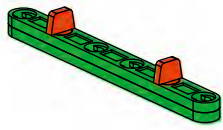
9


1x 2x 1x 1x  
2x 75 2x A 2x




10

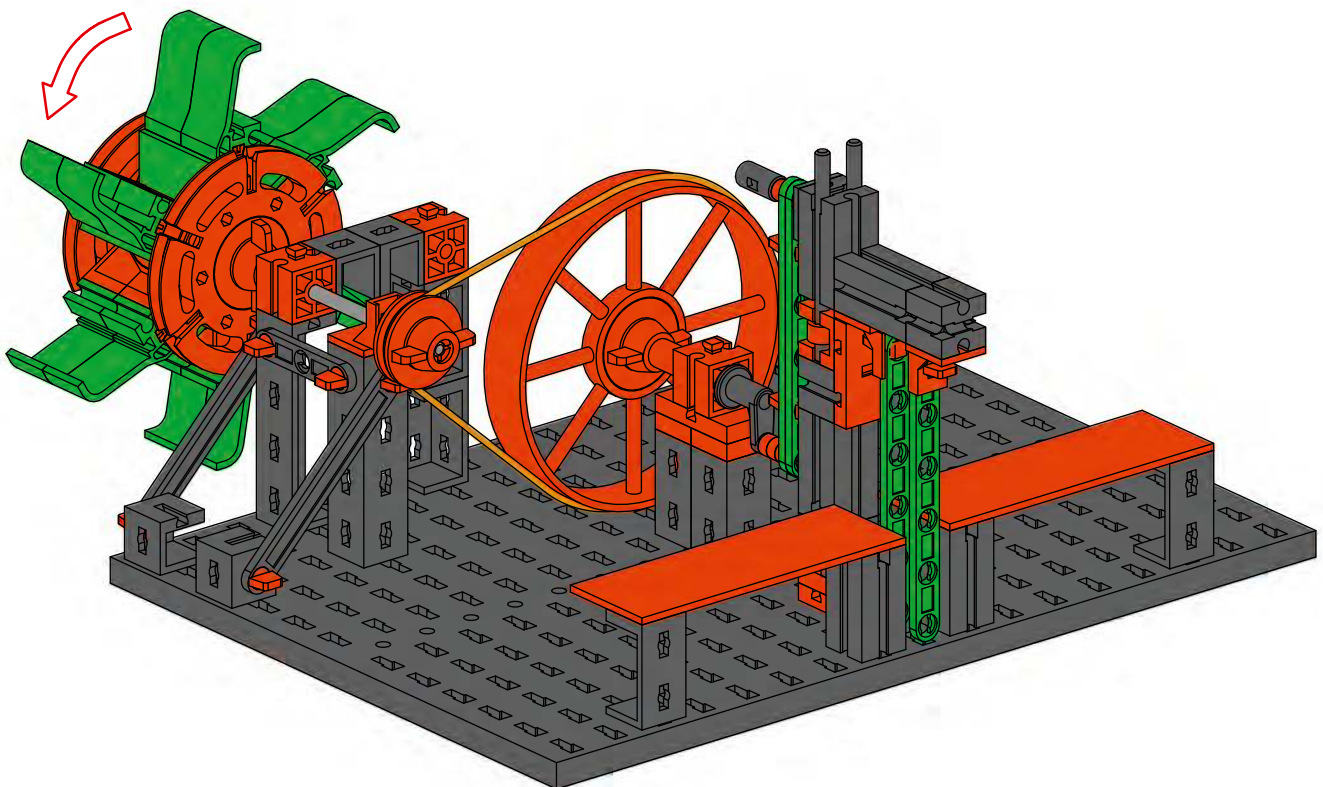
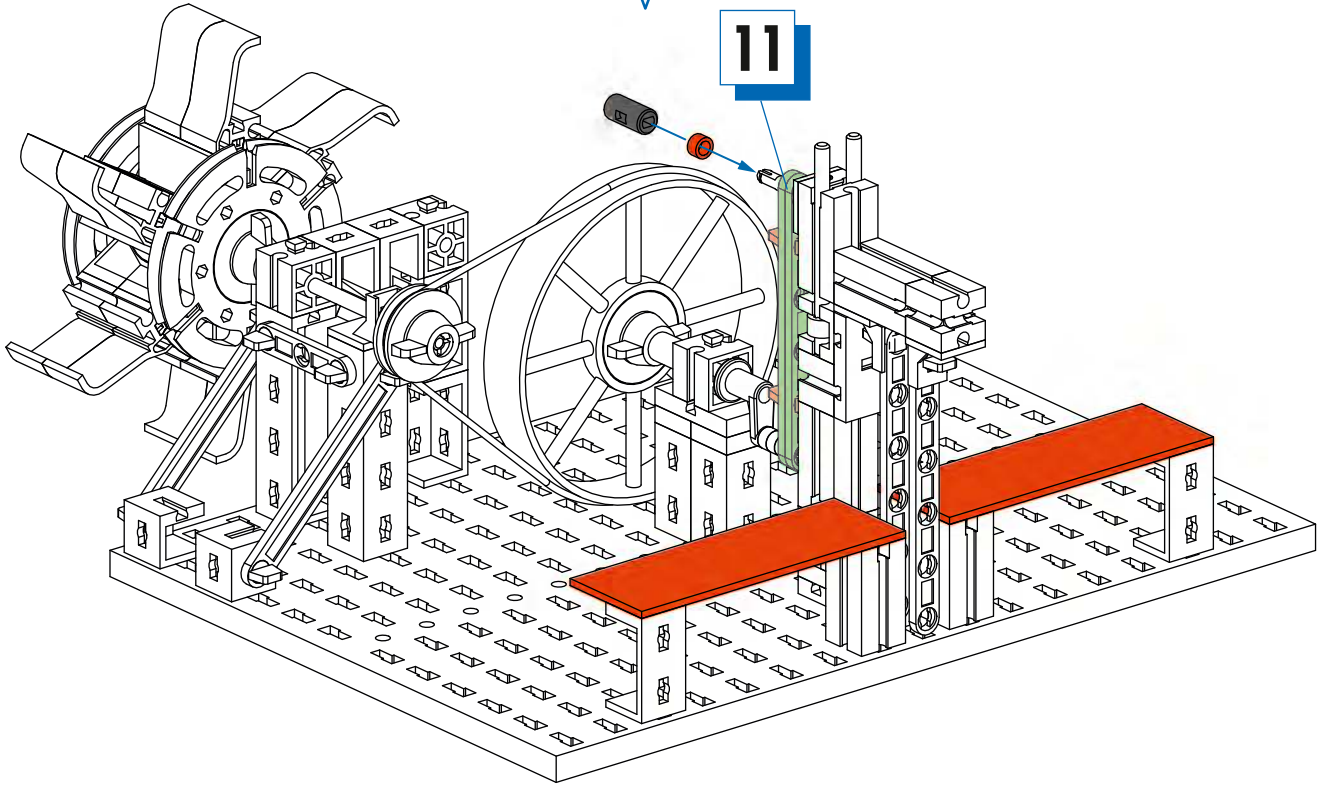
2x

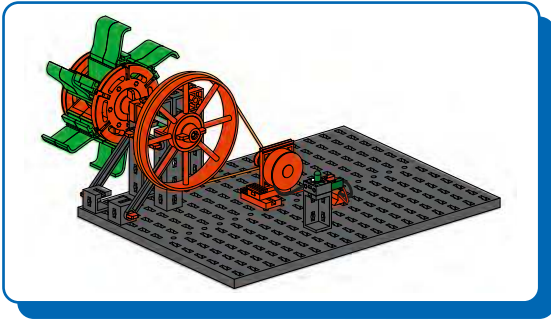




**11** 75 2x  2x

**12**  2x  1x  1x





Wasserturbine  
Water turbine  
Turbine hydraulique

Waterturbine  
Turbina de agua  
Turbina hidráulica

Turbina idraulica  
Гидротурбина  
水轮机

**1**

63,6 1 x

1 x

1 x

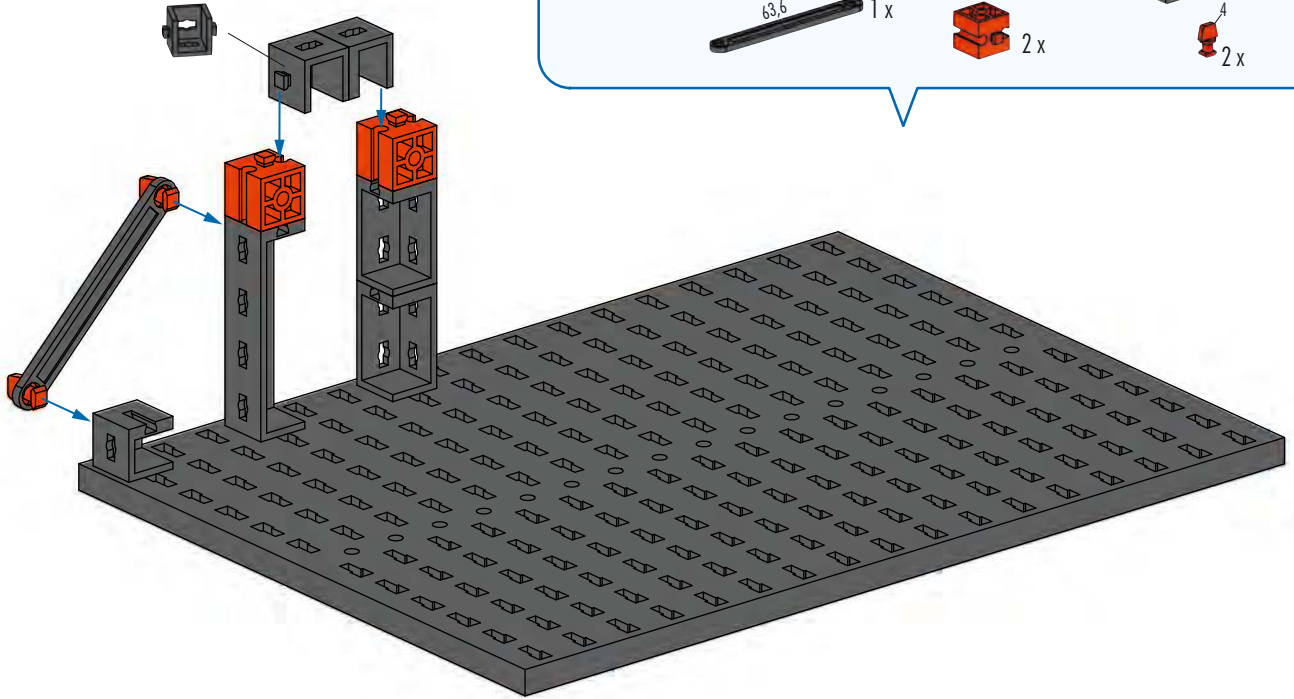
2 x

2 x

1 x

2 x

2 x



**2**

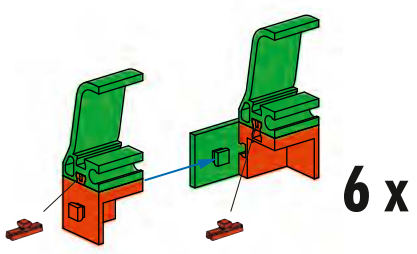
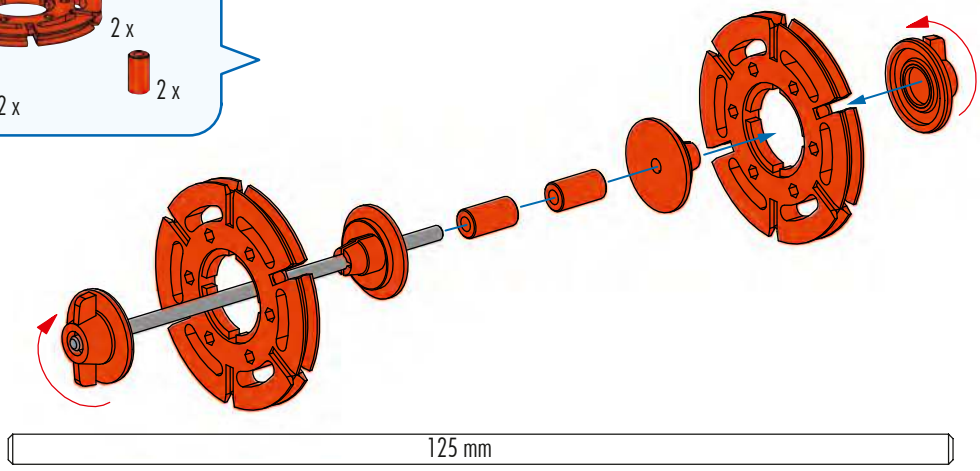
125 1 x

2 x

2 x

2 x

2 x



**3**

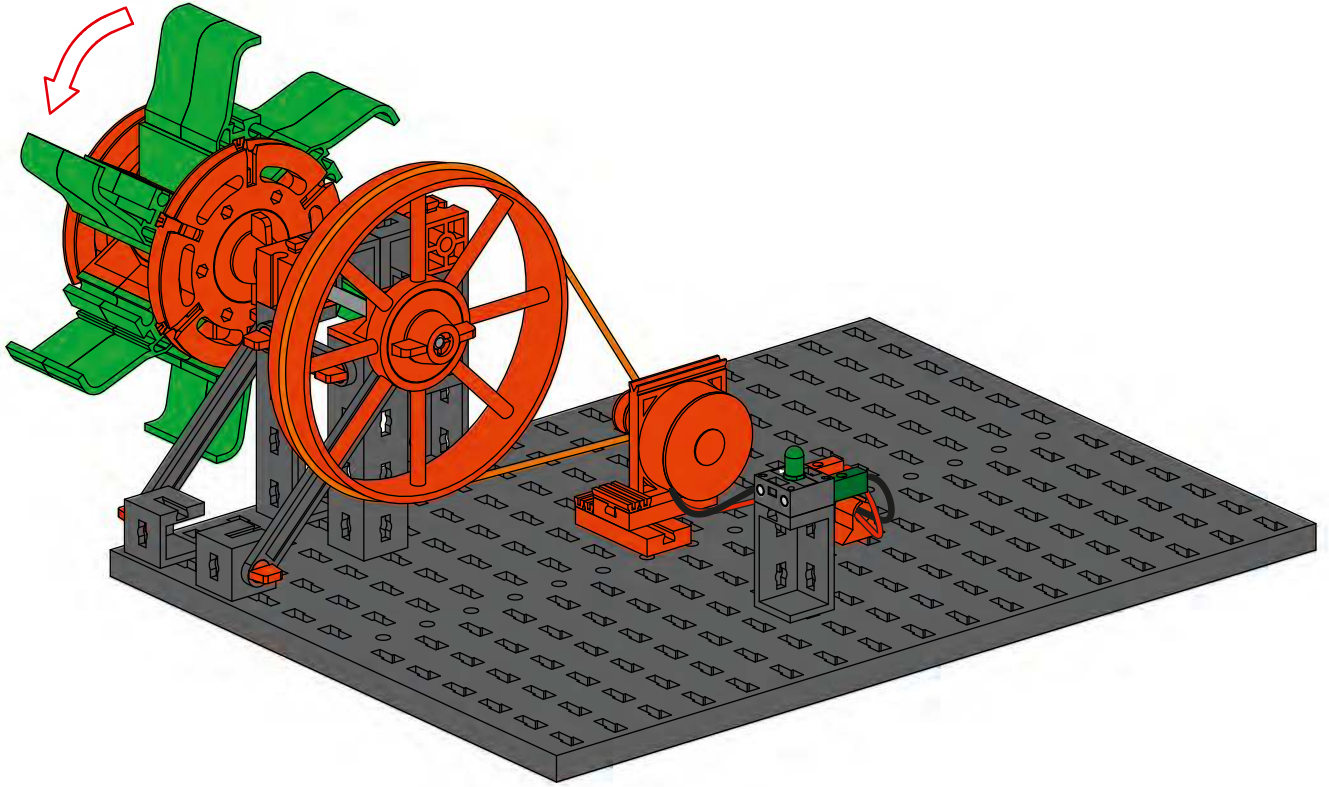
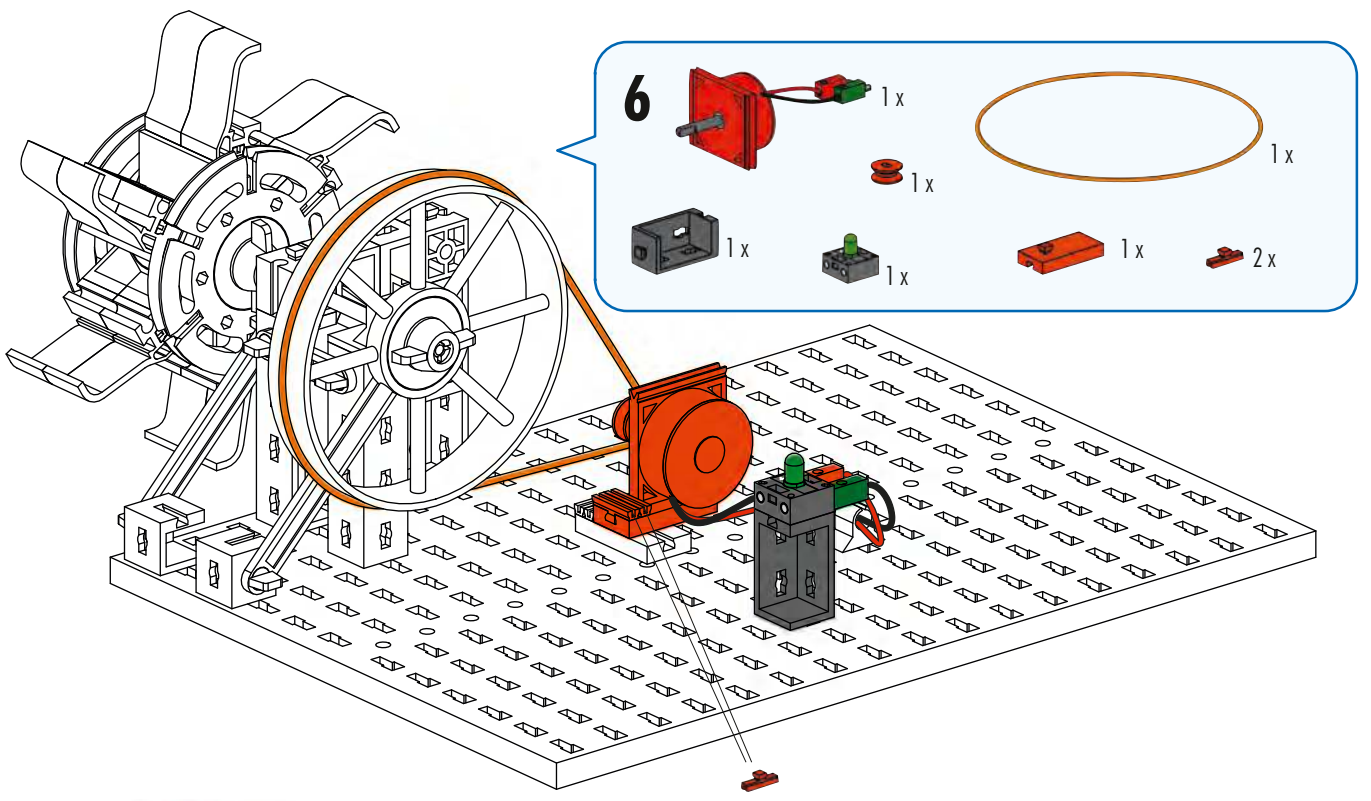
12 x

12 x

12 x

6 x

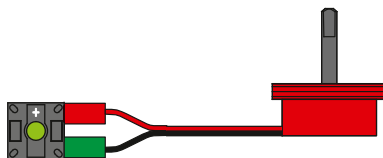


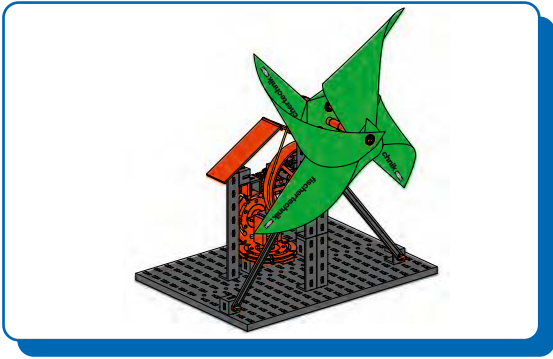


Schaltplan  
Circuit diagram  
Plan électrique

Schakelschema  
Diagrama de circuitos  
Plano elétrico de ligação

Schema elettrico  
Схема подключения  
电路图

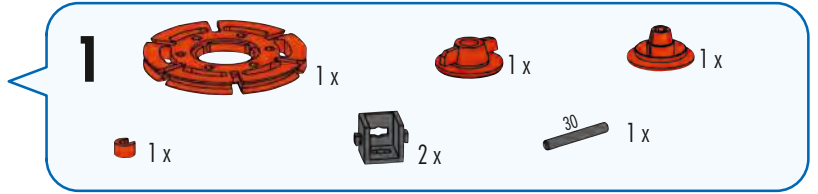
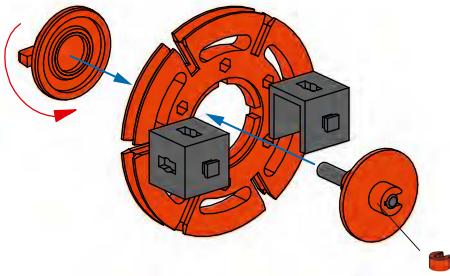




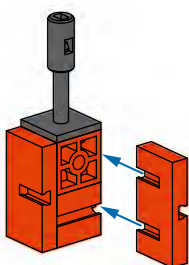
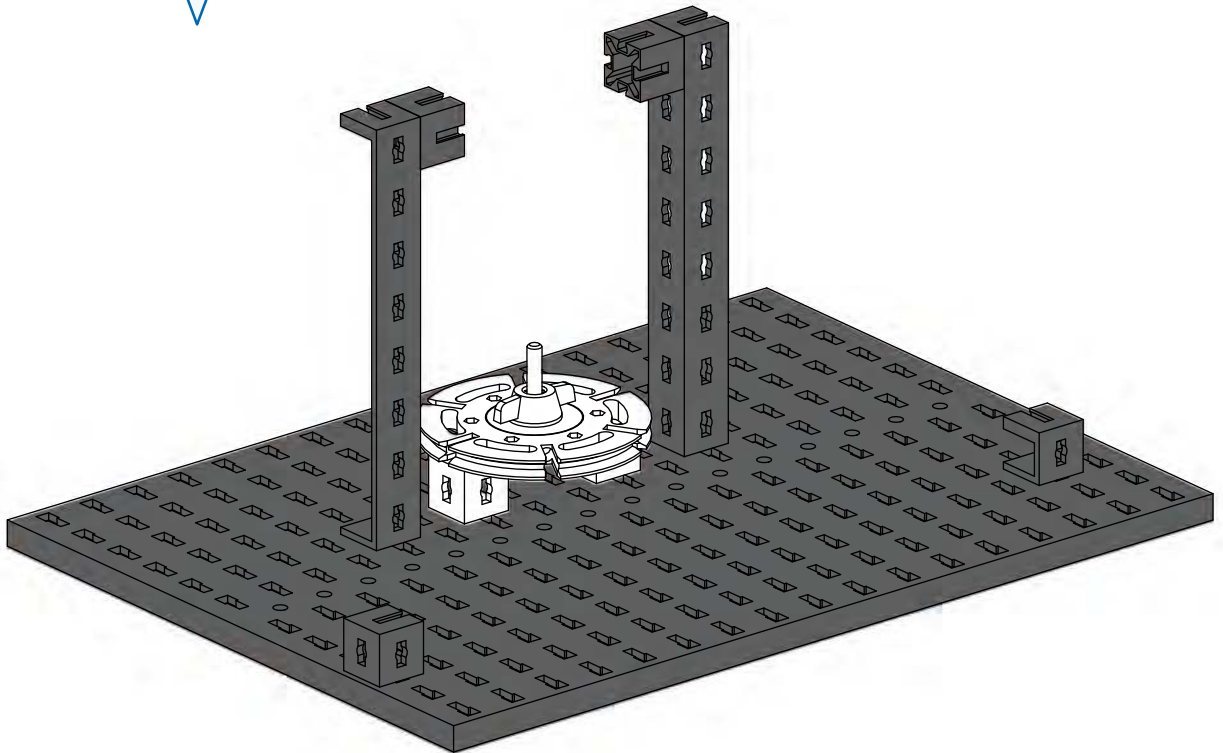
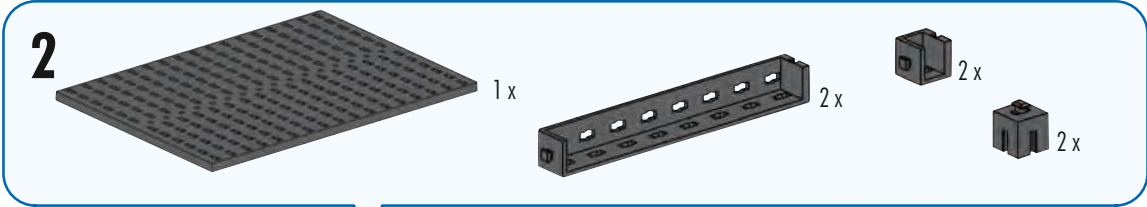
Windmühle  
Windmill  
Moulin à vent

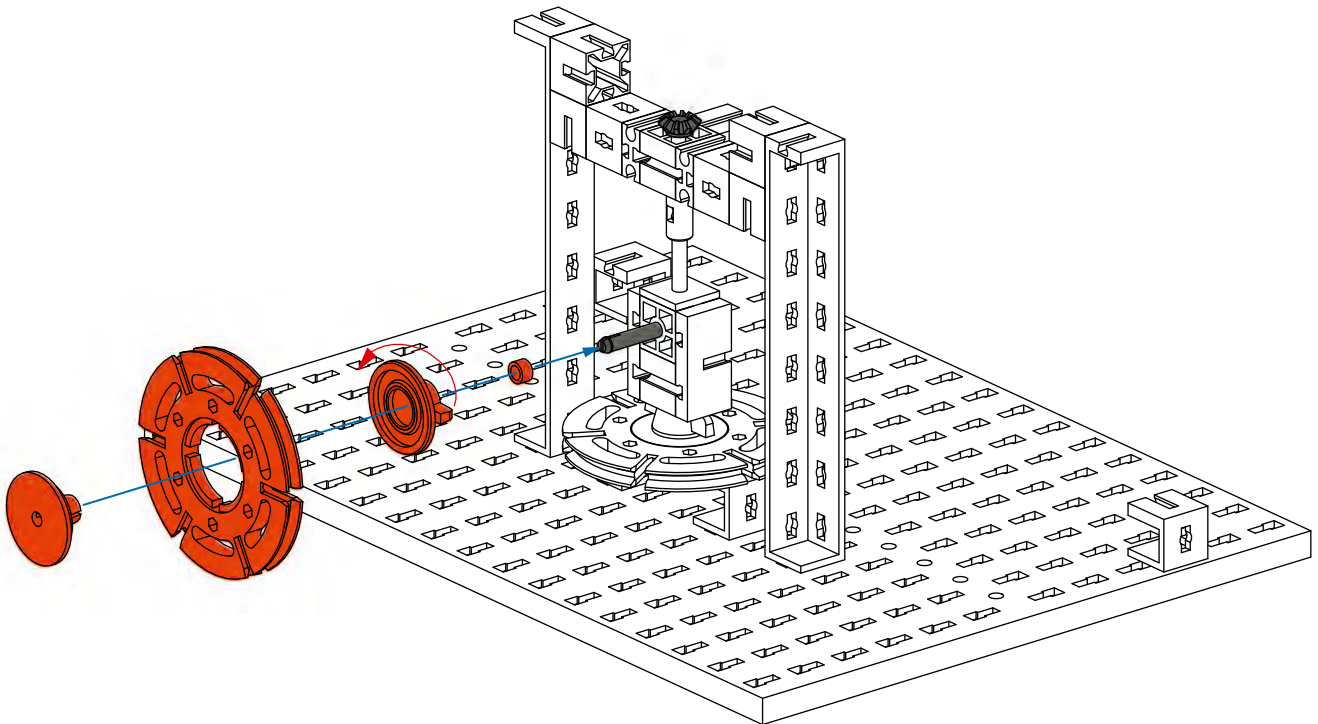
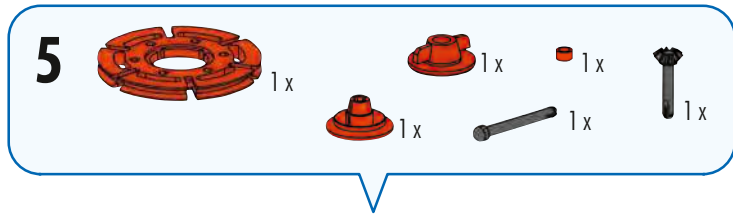
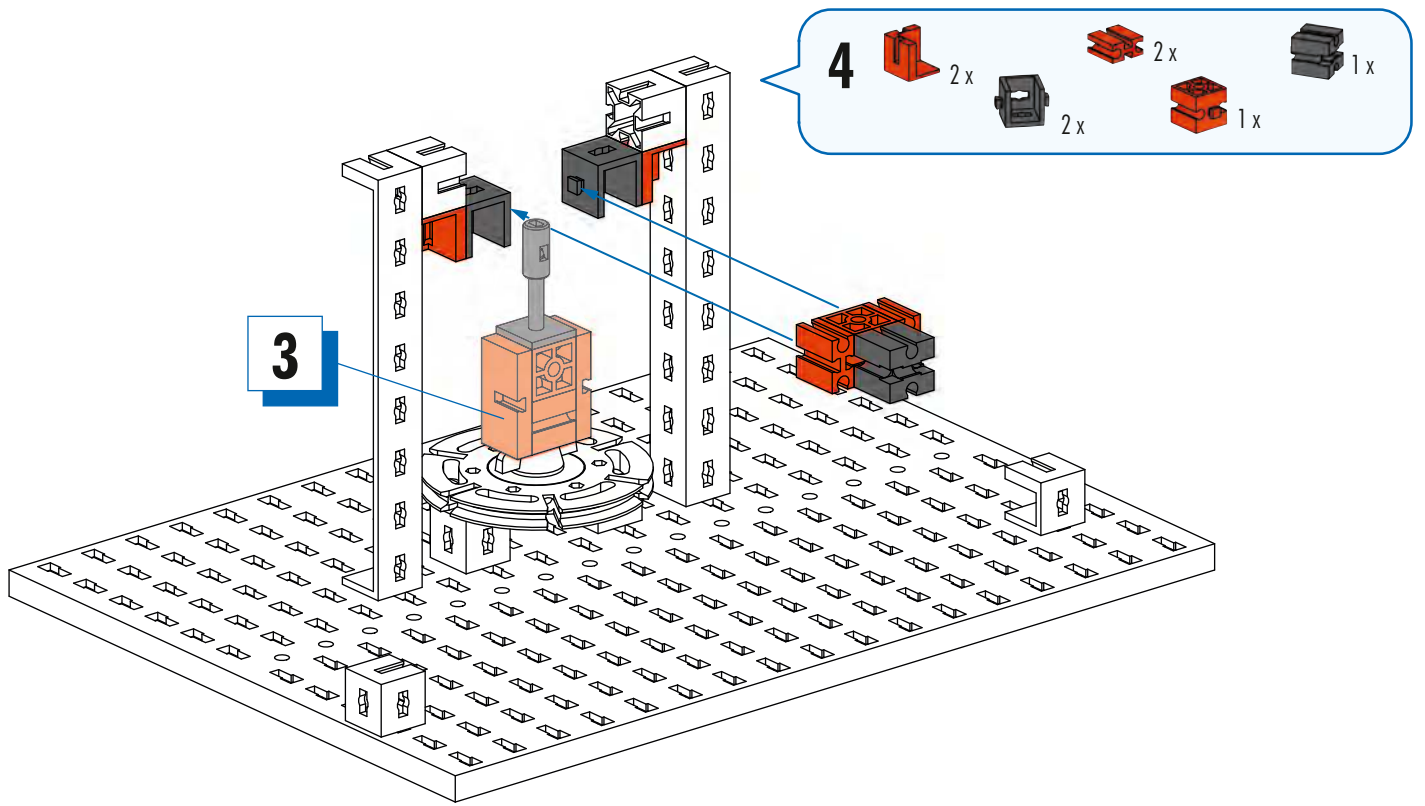
Windmolen  
Molino de viento  
Moinho de vento

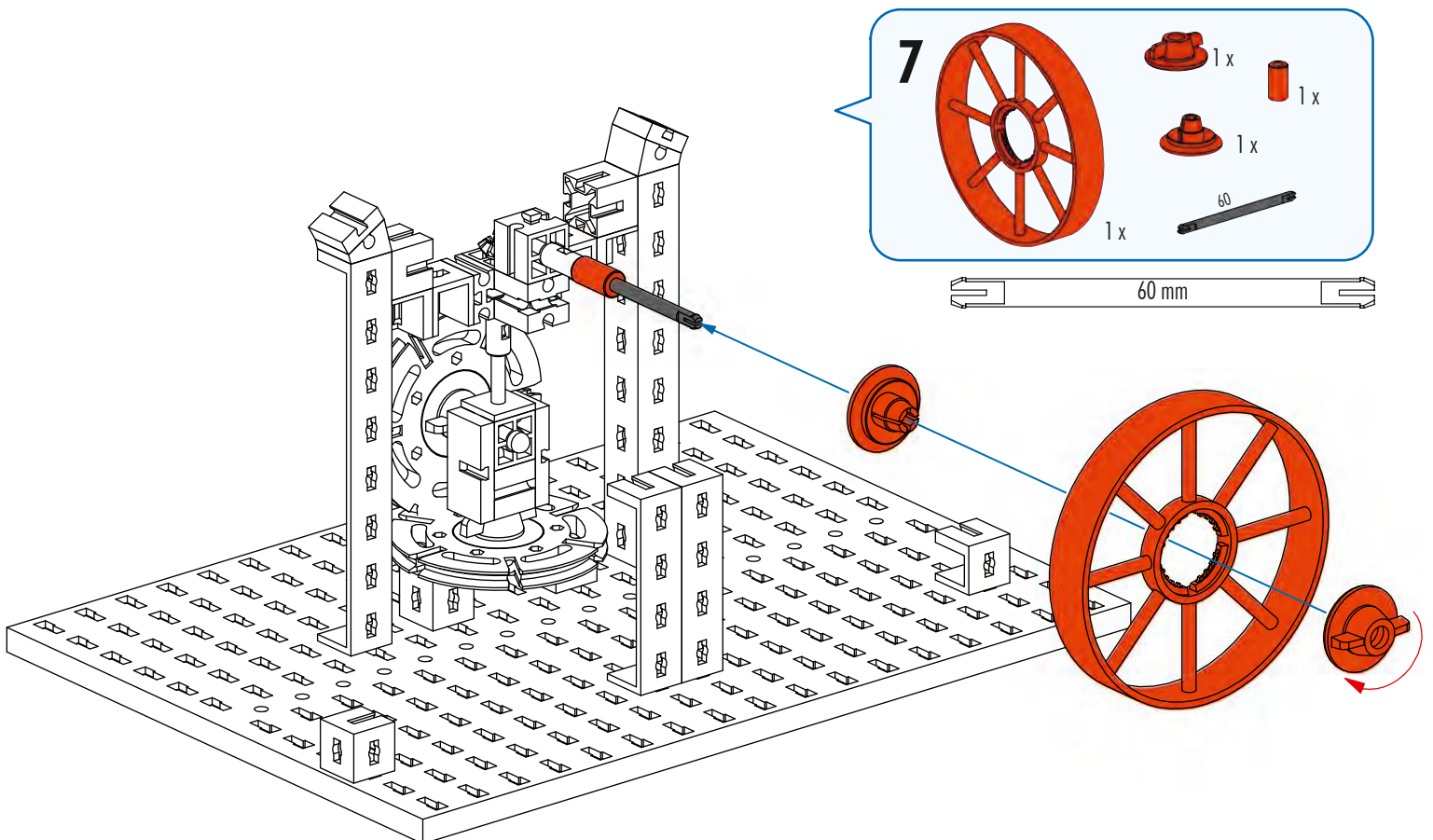
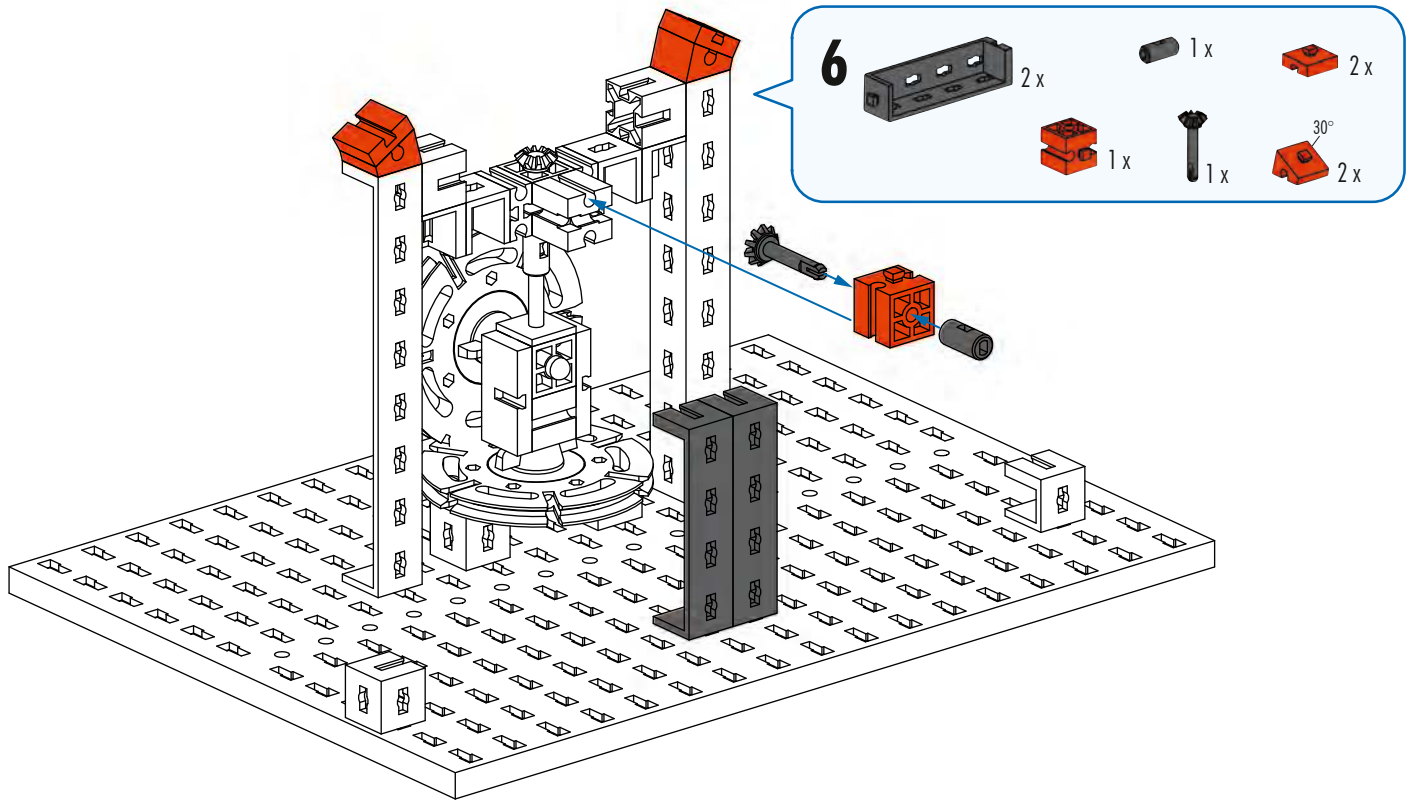
Molino a vento  
Ветряная мельница  
风车

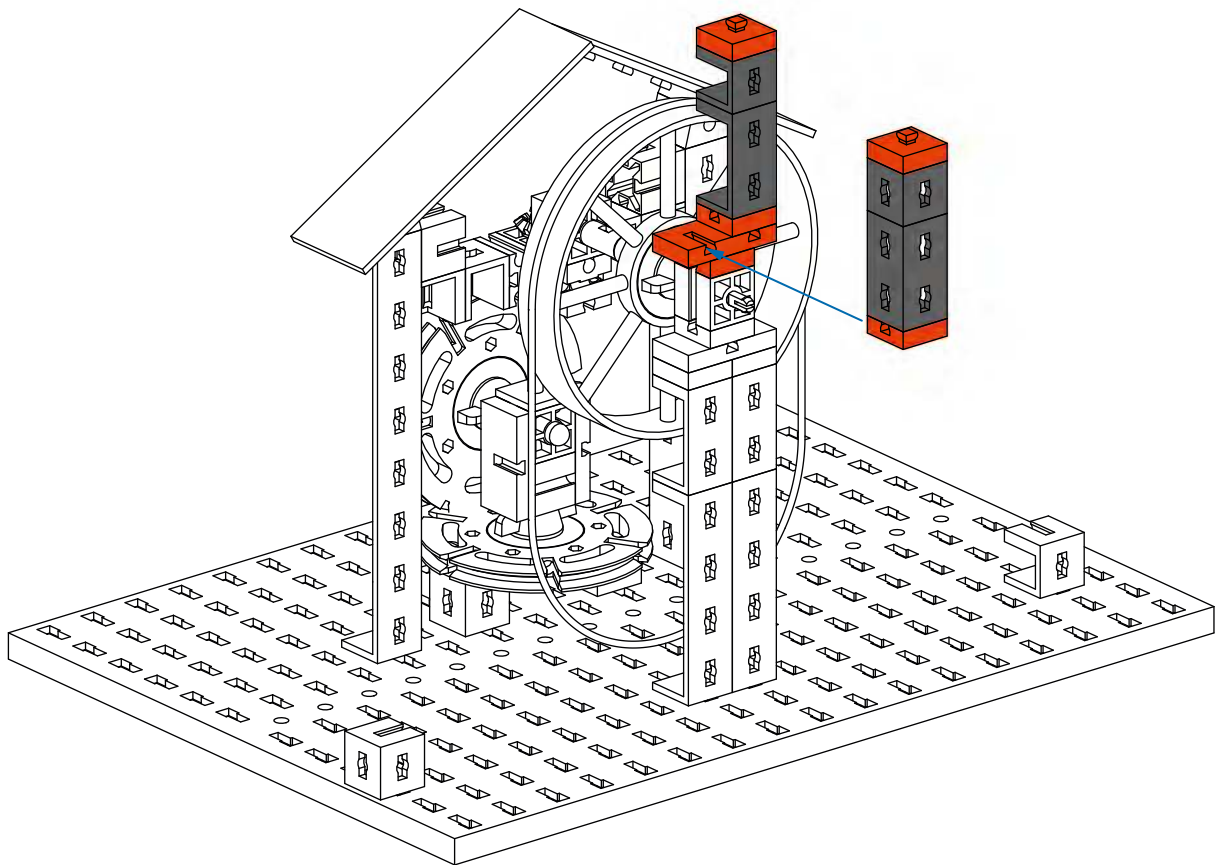
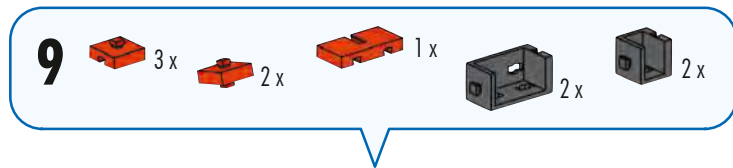
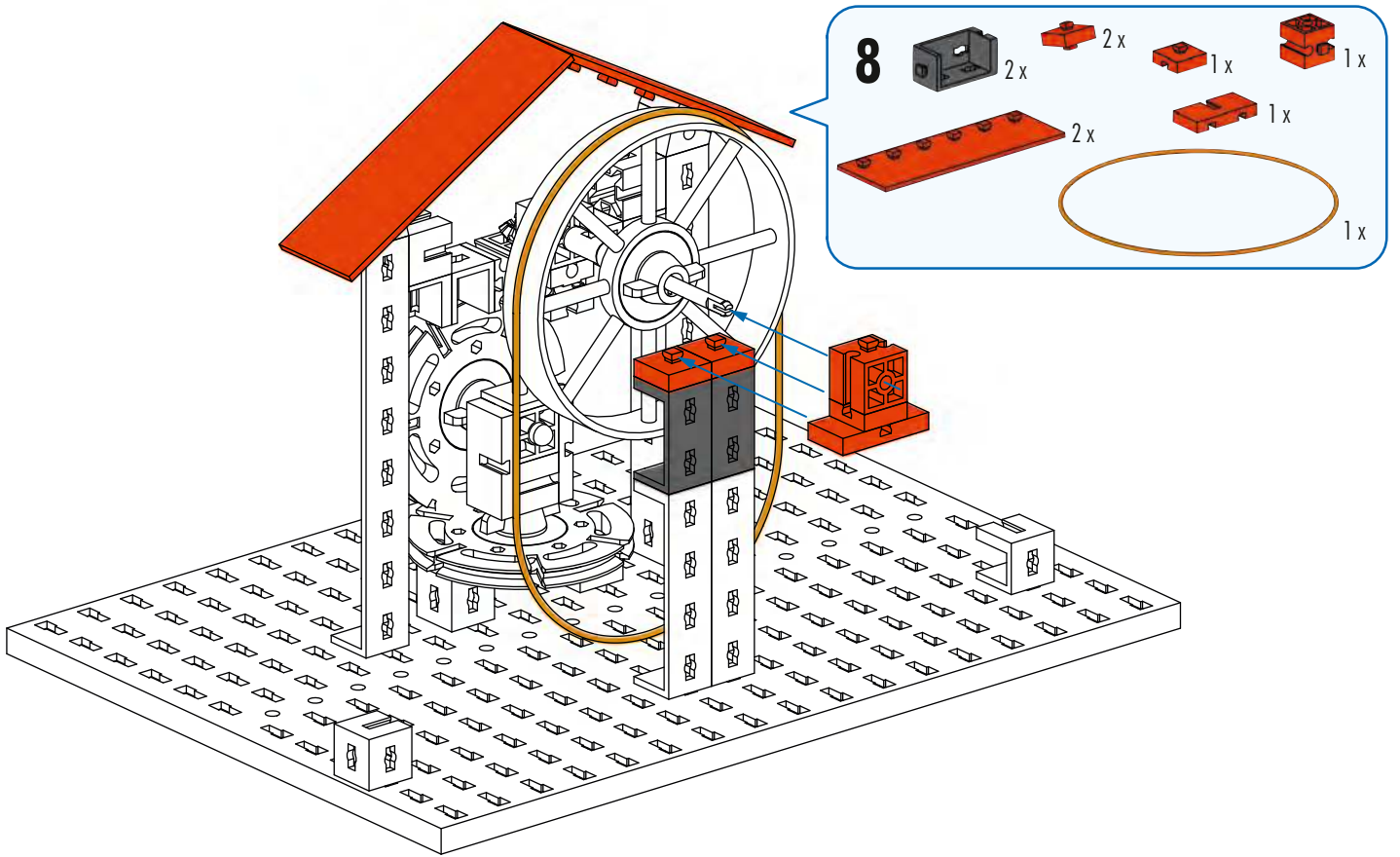


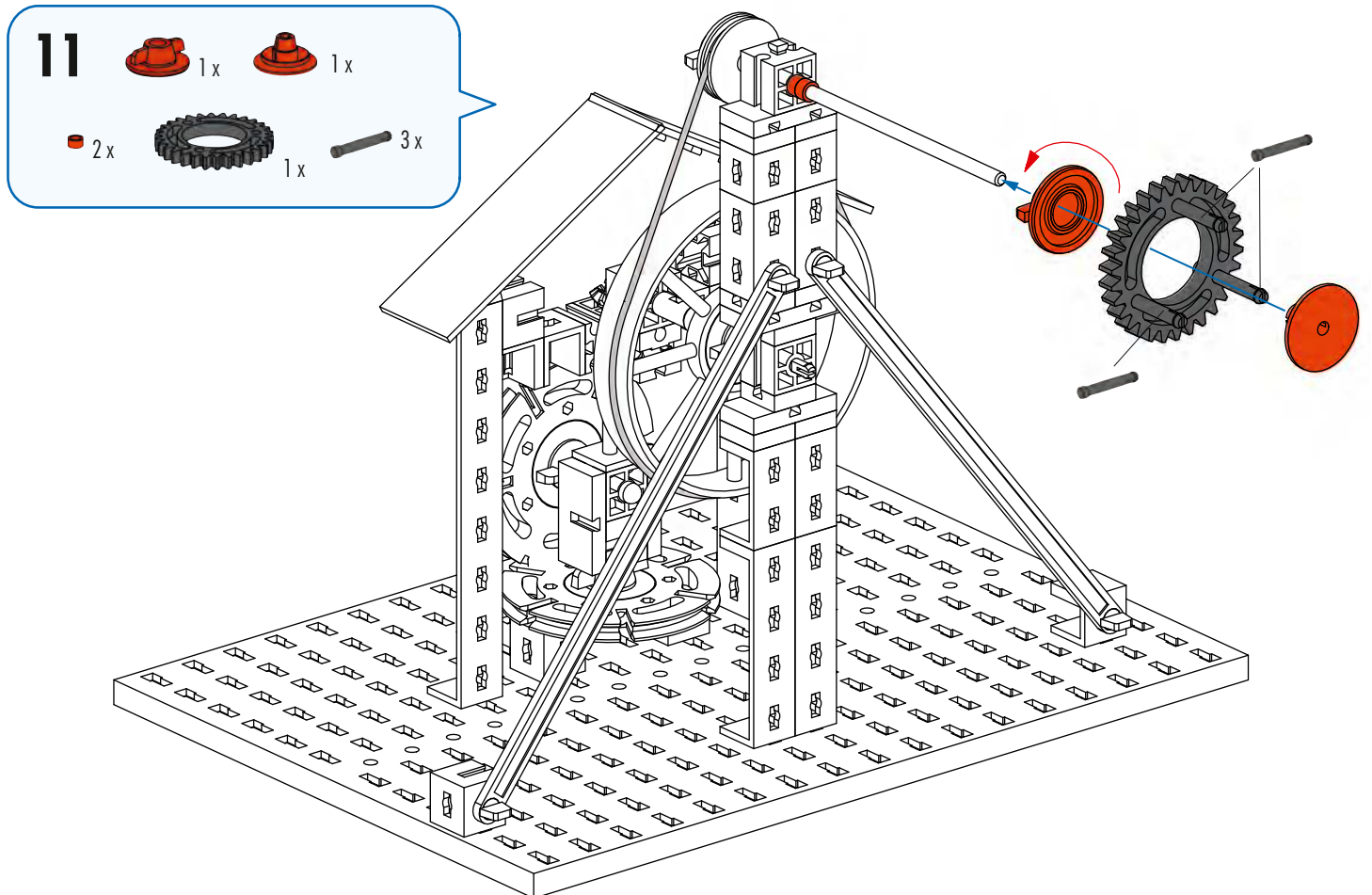
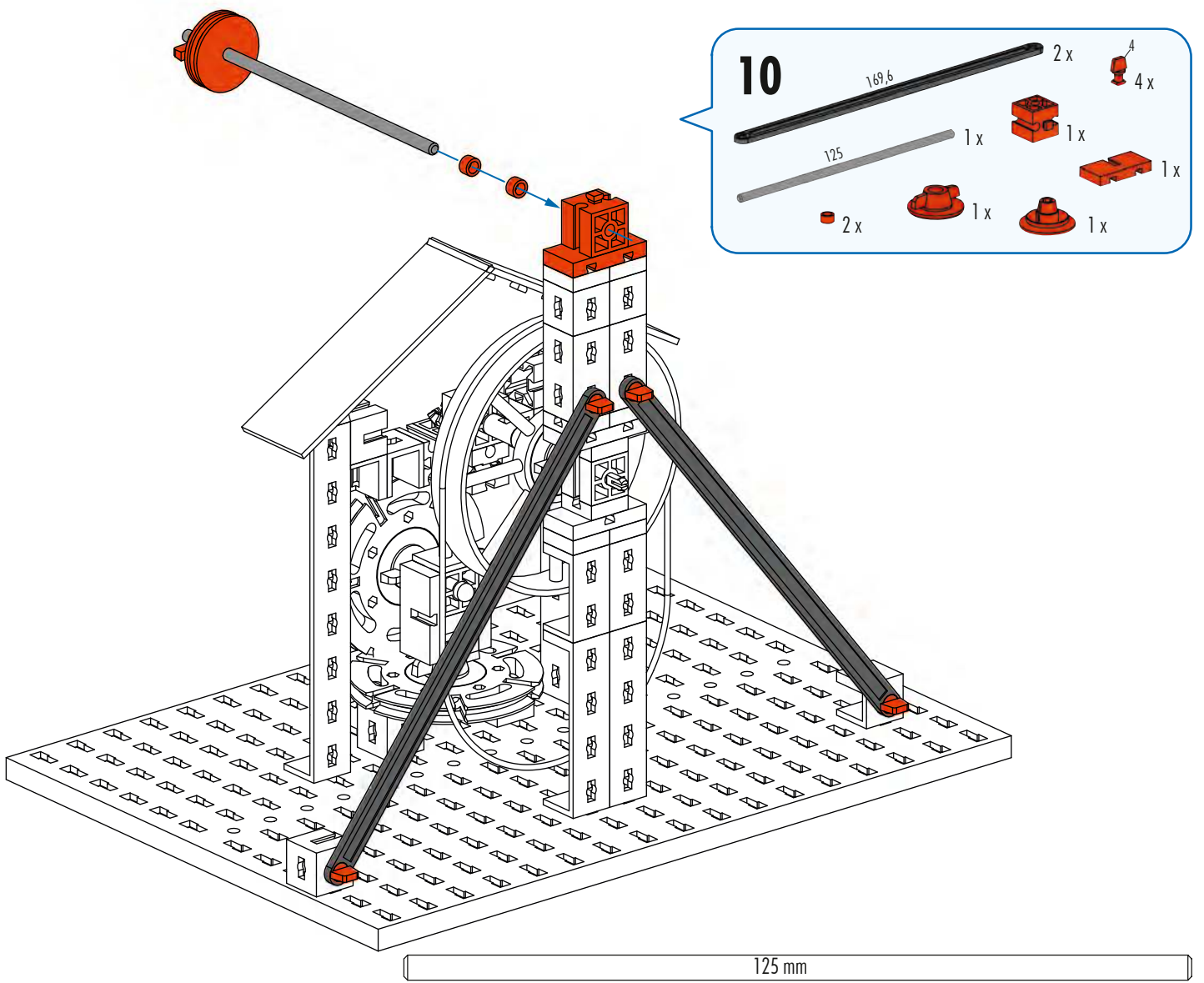
30 mm



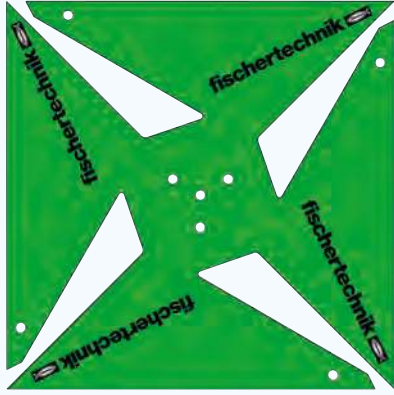








12



1 x



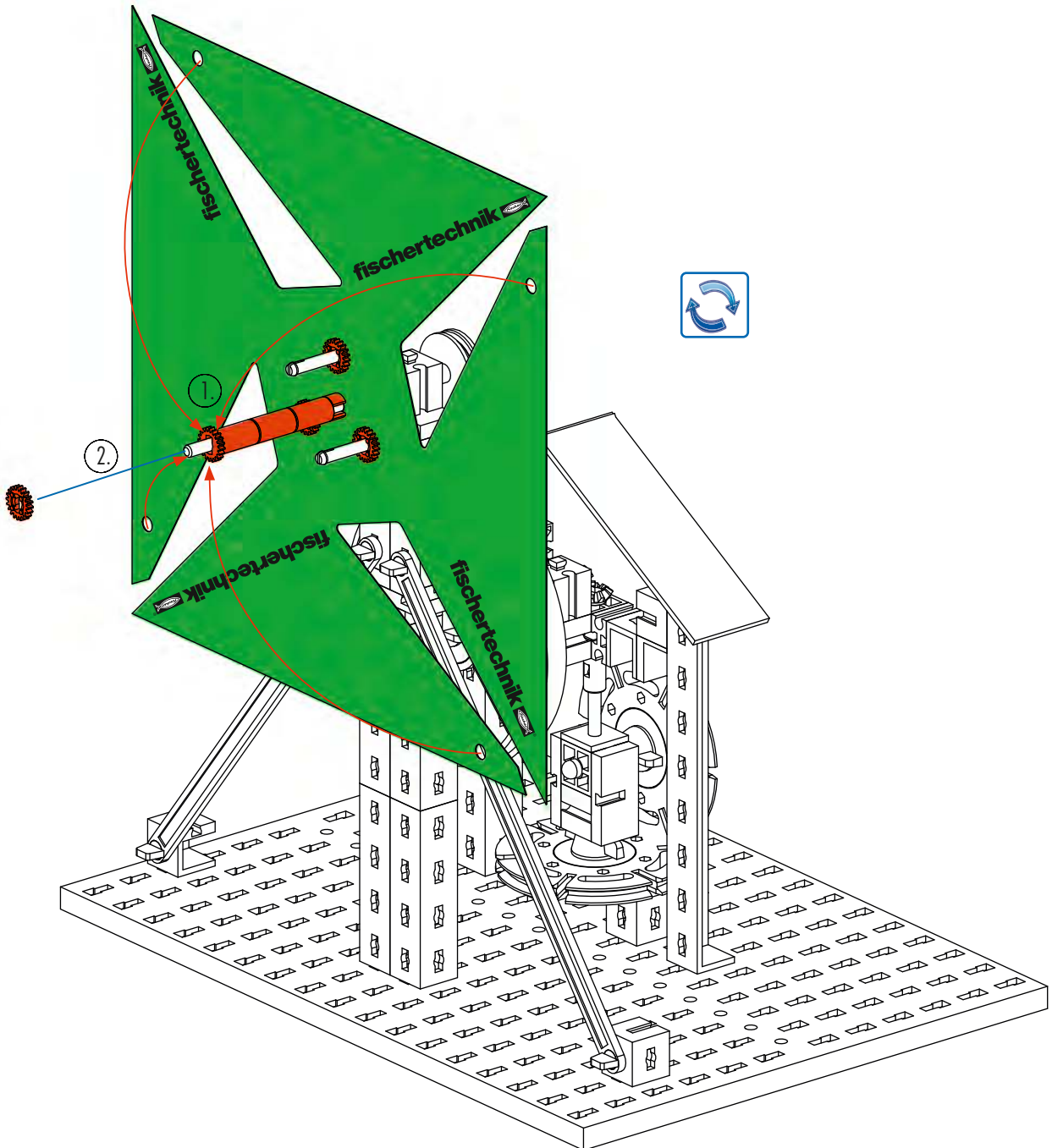
3 x

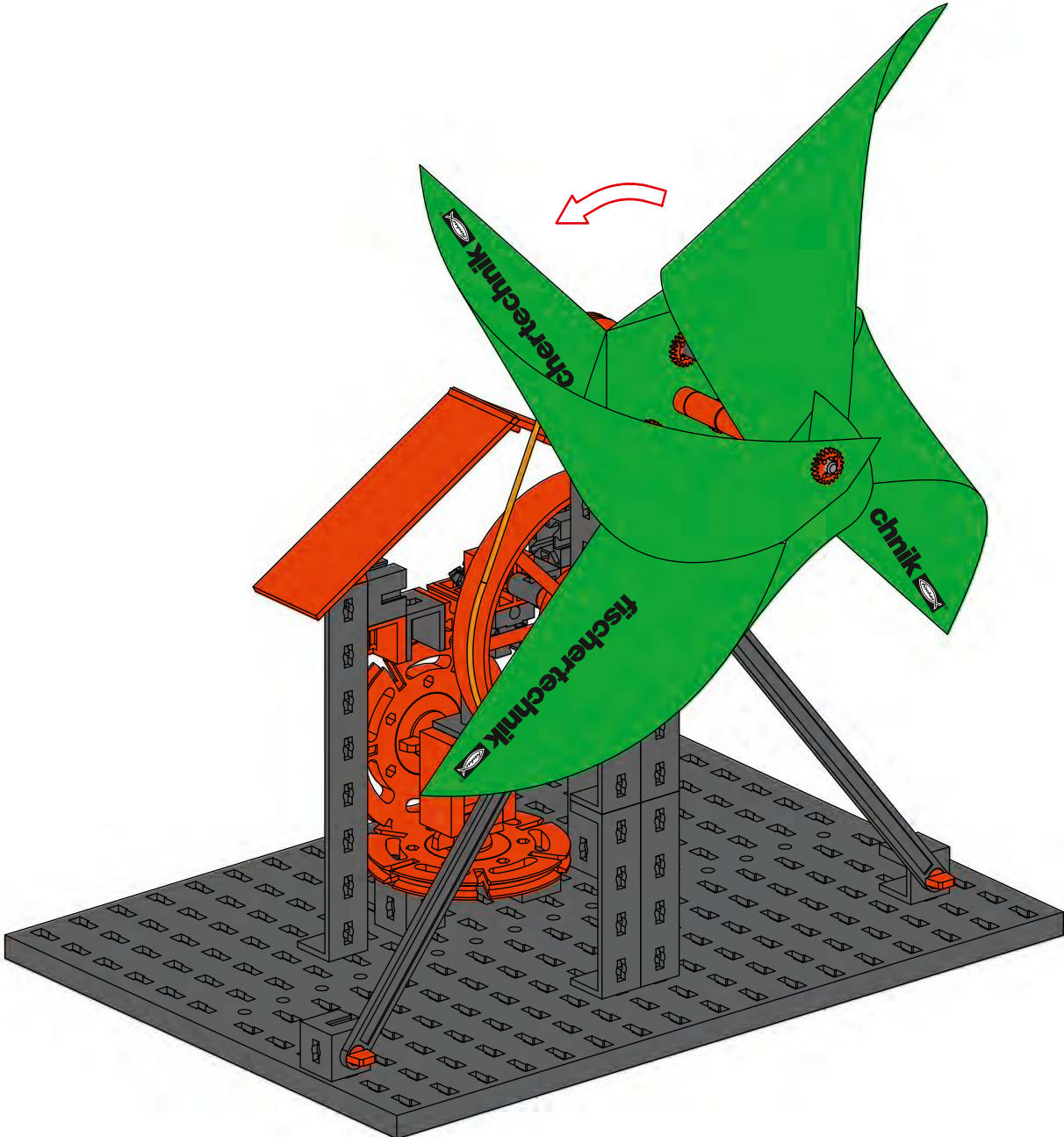


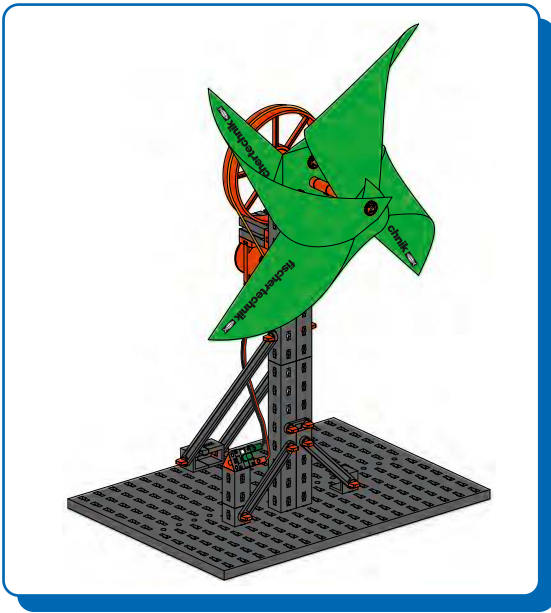
1 x



5 x



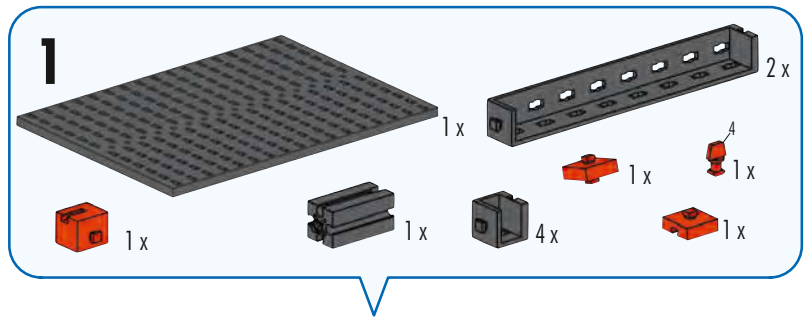




Windrad  
Wind wheel  
Éolienne

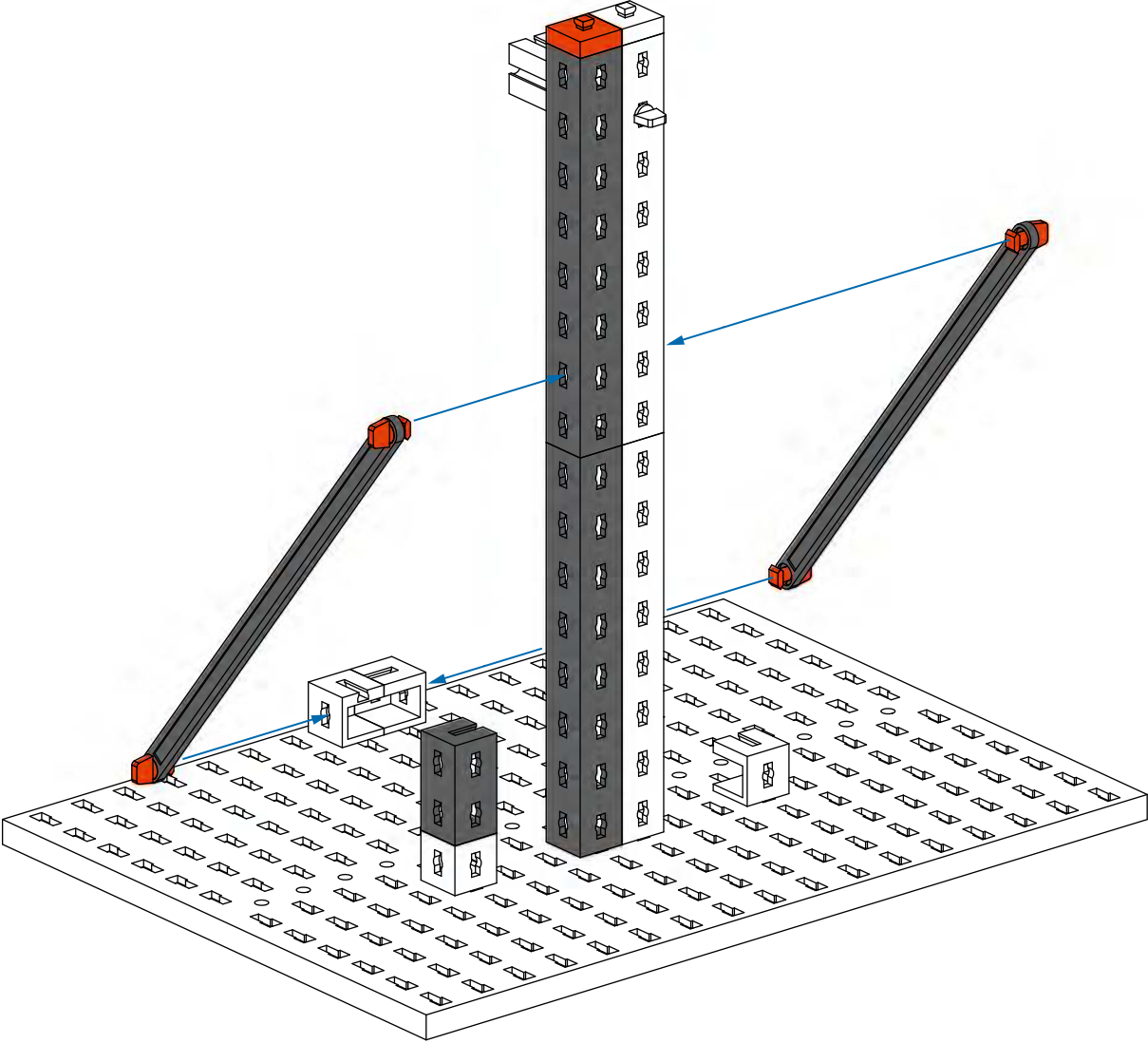
Windturbine  
Turbina de viento  
Turbina eólica

Turbina eolica  
Ветряное колесо  
风力发电机



**2**

- 2 x
- 1 x
- 2 x
- 4 x
- 1 x





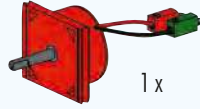
5

1x

2x

1x

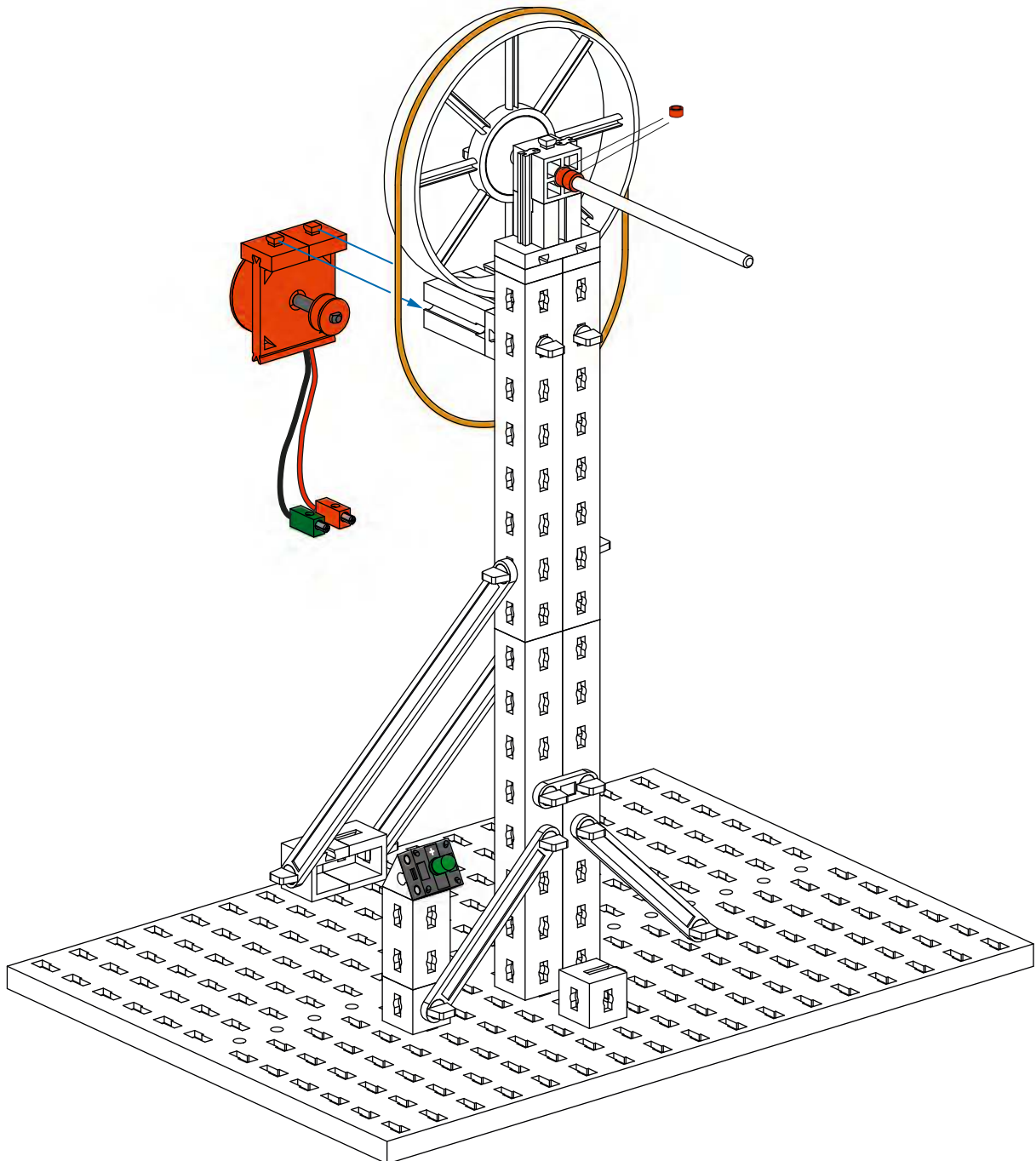
2x







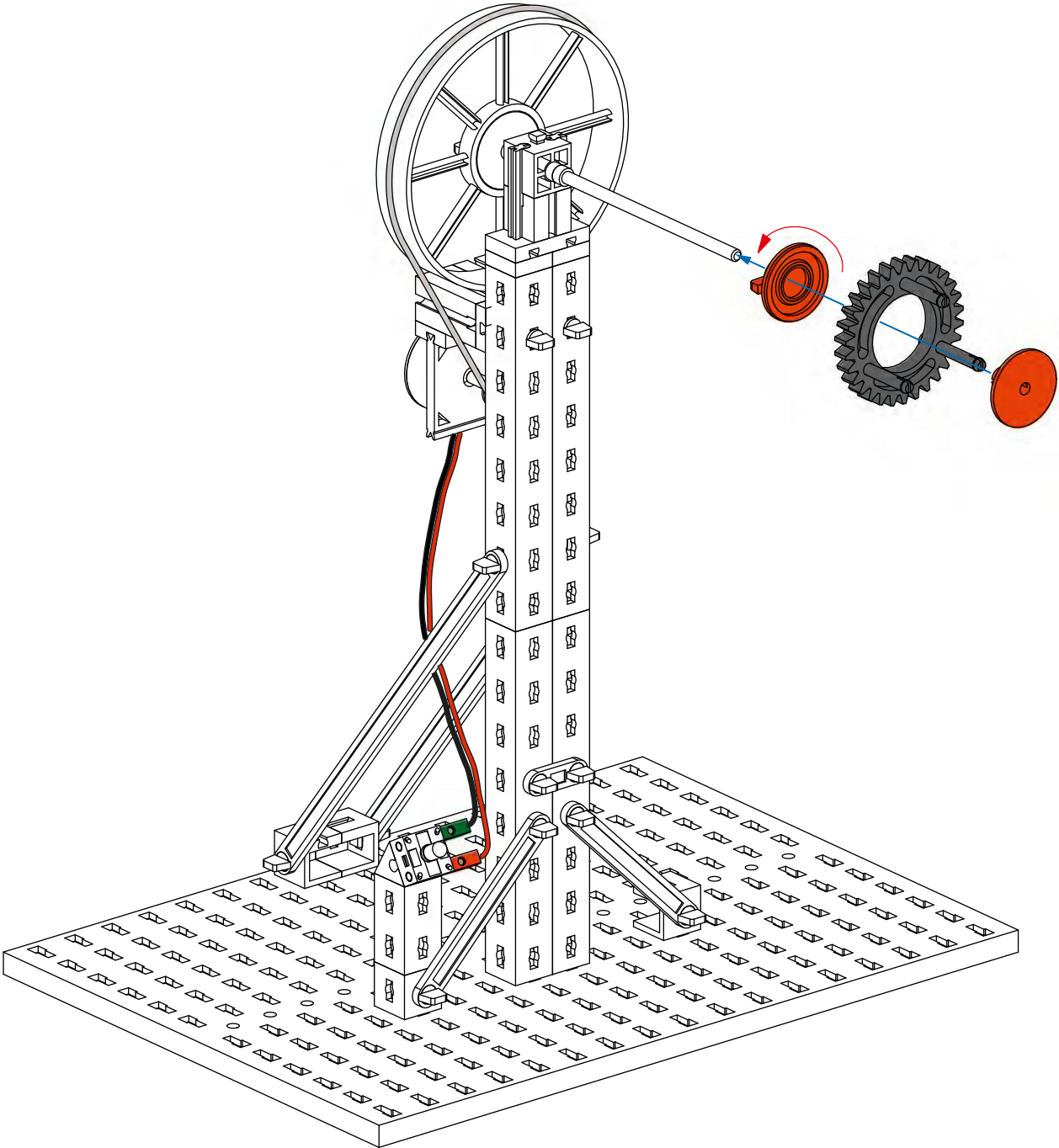
1x



1x



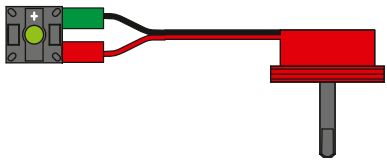
**6**  1x  1x  1x  3x



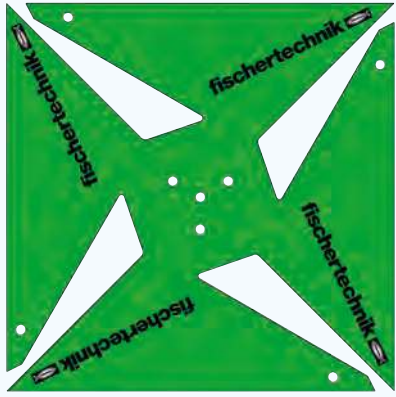
Schaltplan  
Circuit diagram  
Plan électrique

Schakelschema  
Diagrama de circuitos  
Plano elétrico de ligação

Schema elettrico  
Схема подключения  
电路图



7



1 x



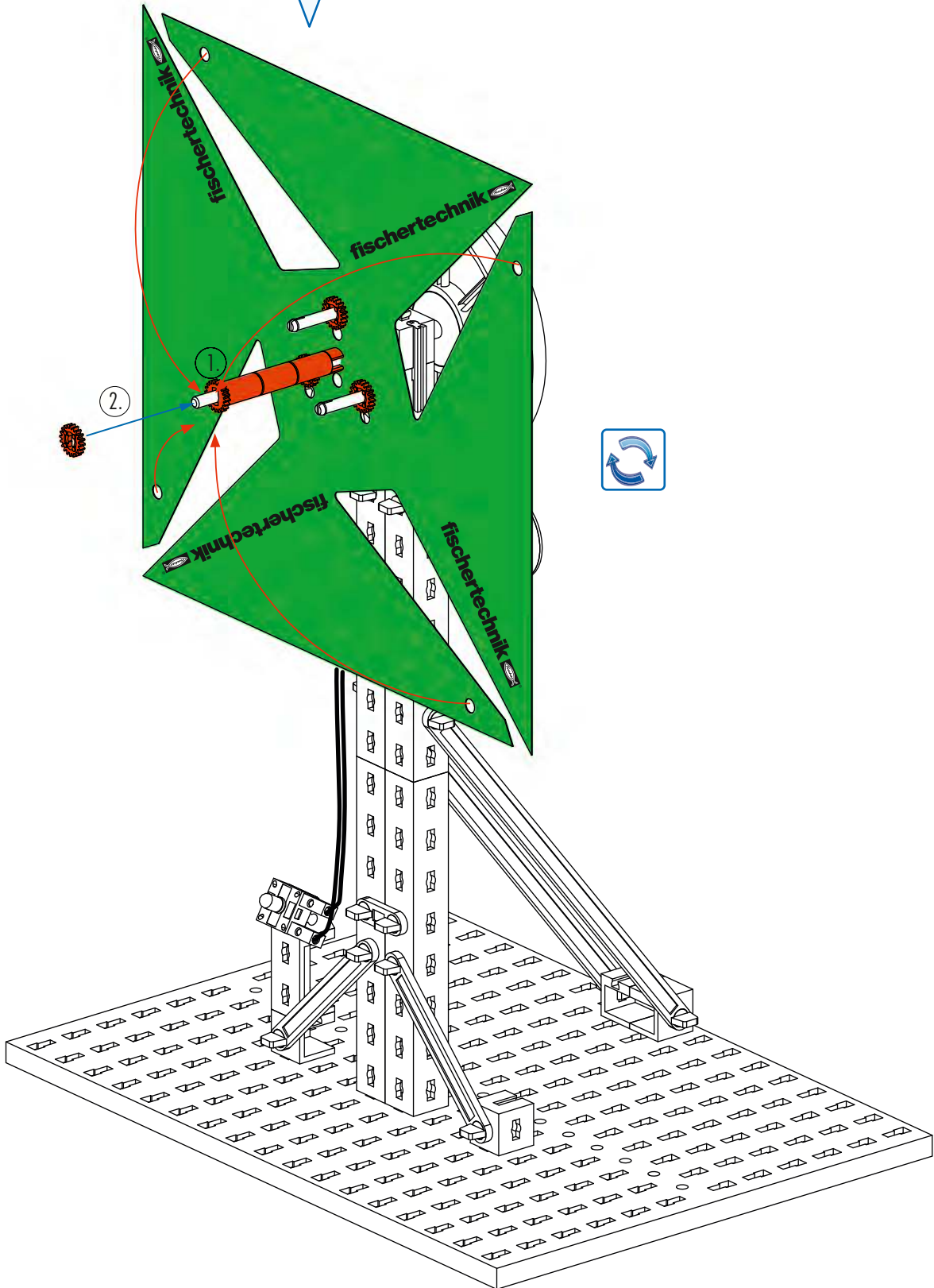
3 x

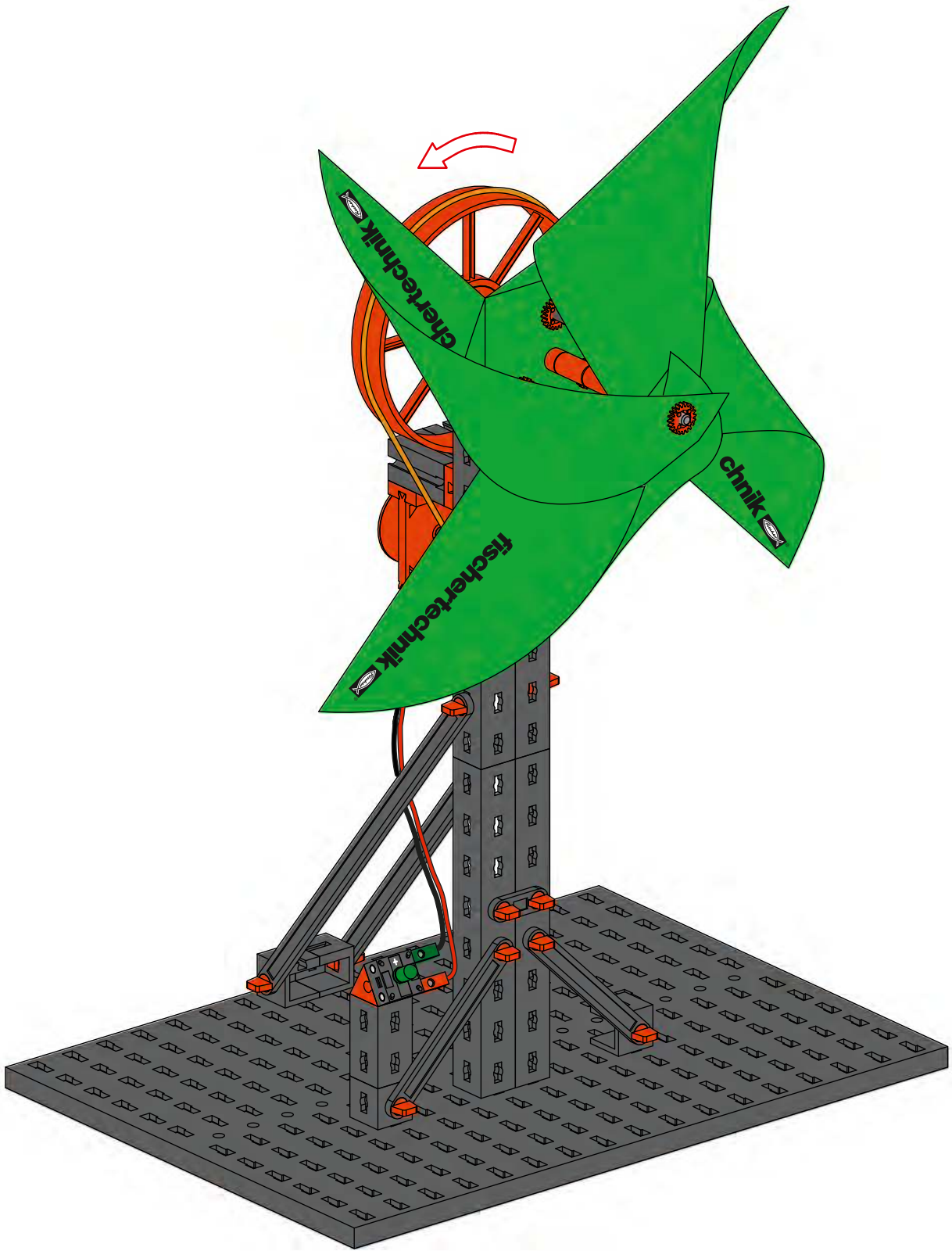


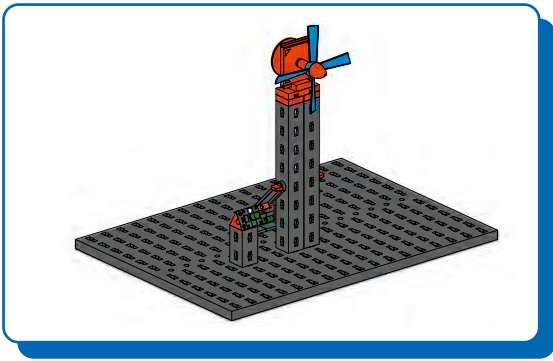
1 x



5 x



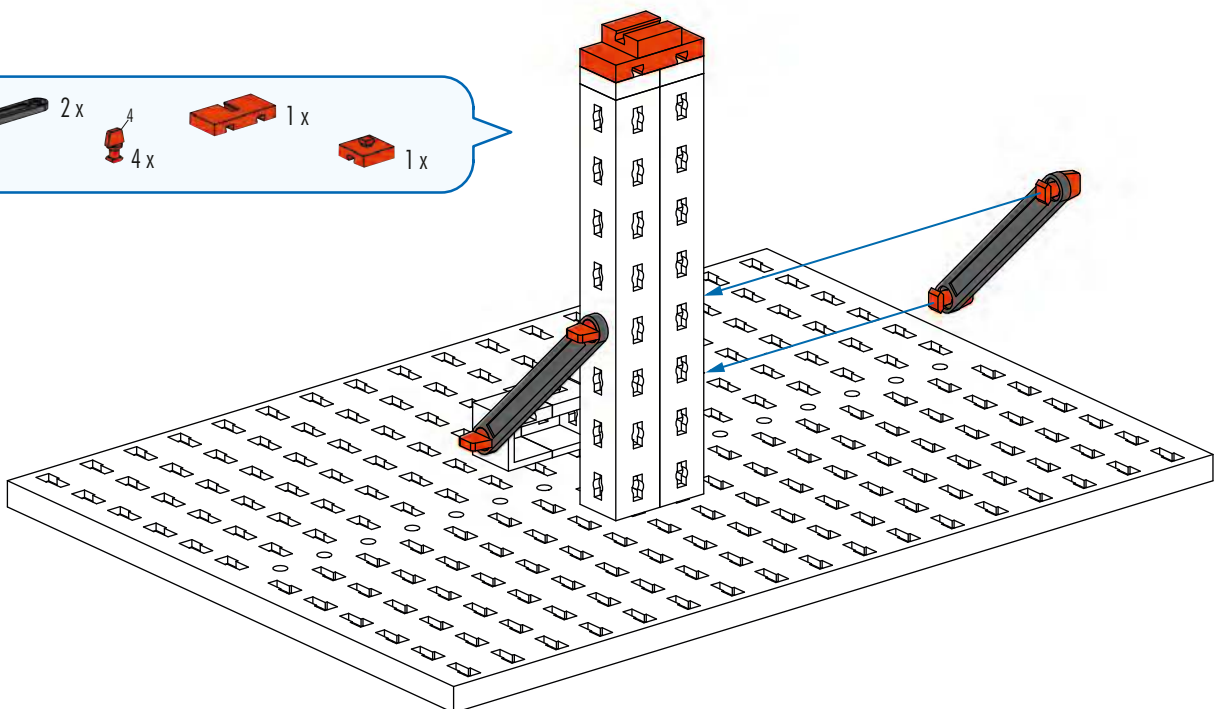
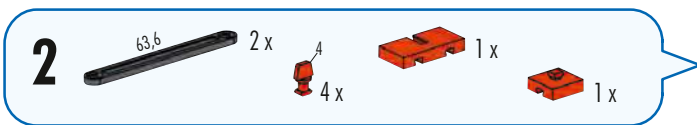
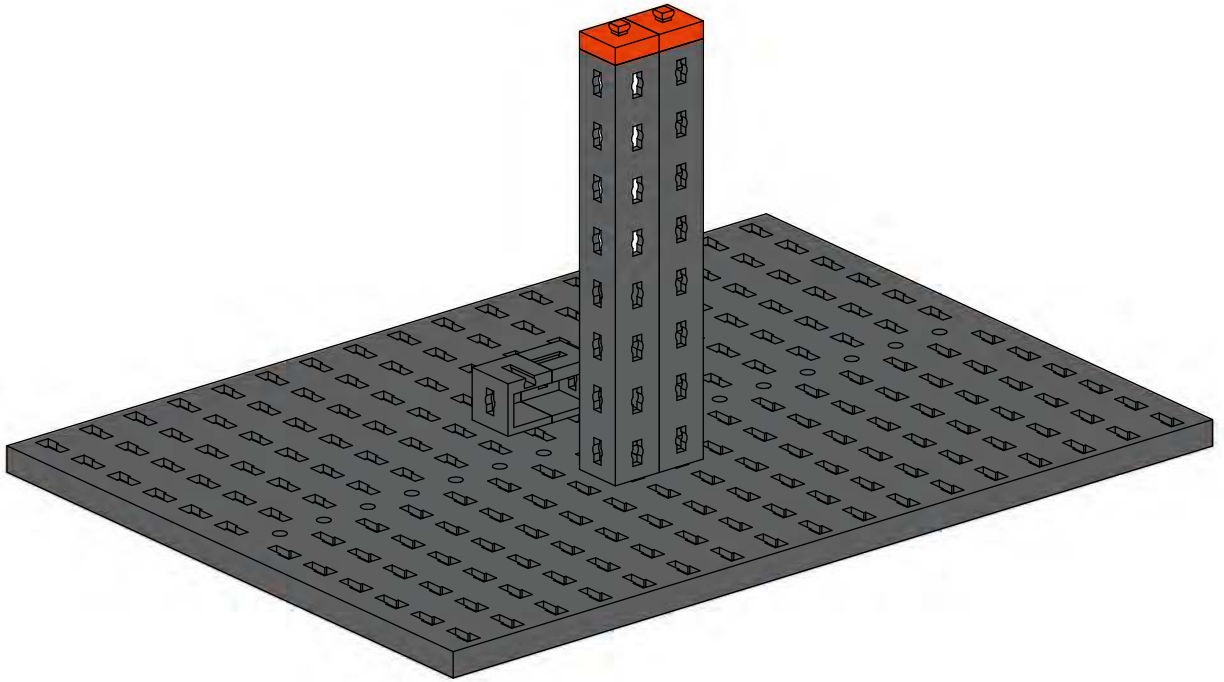
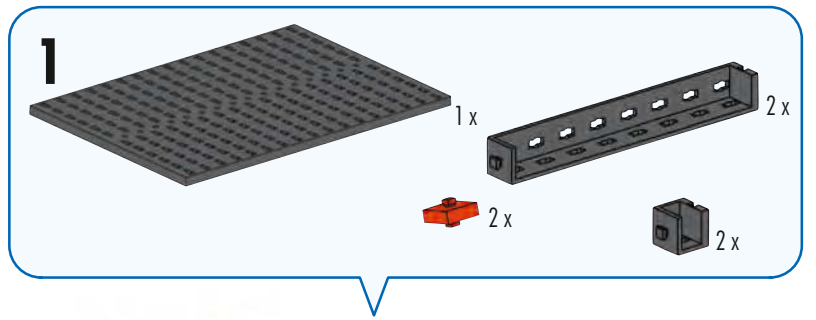


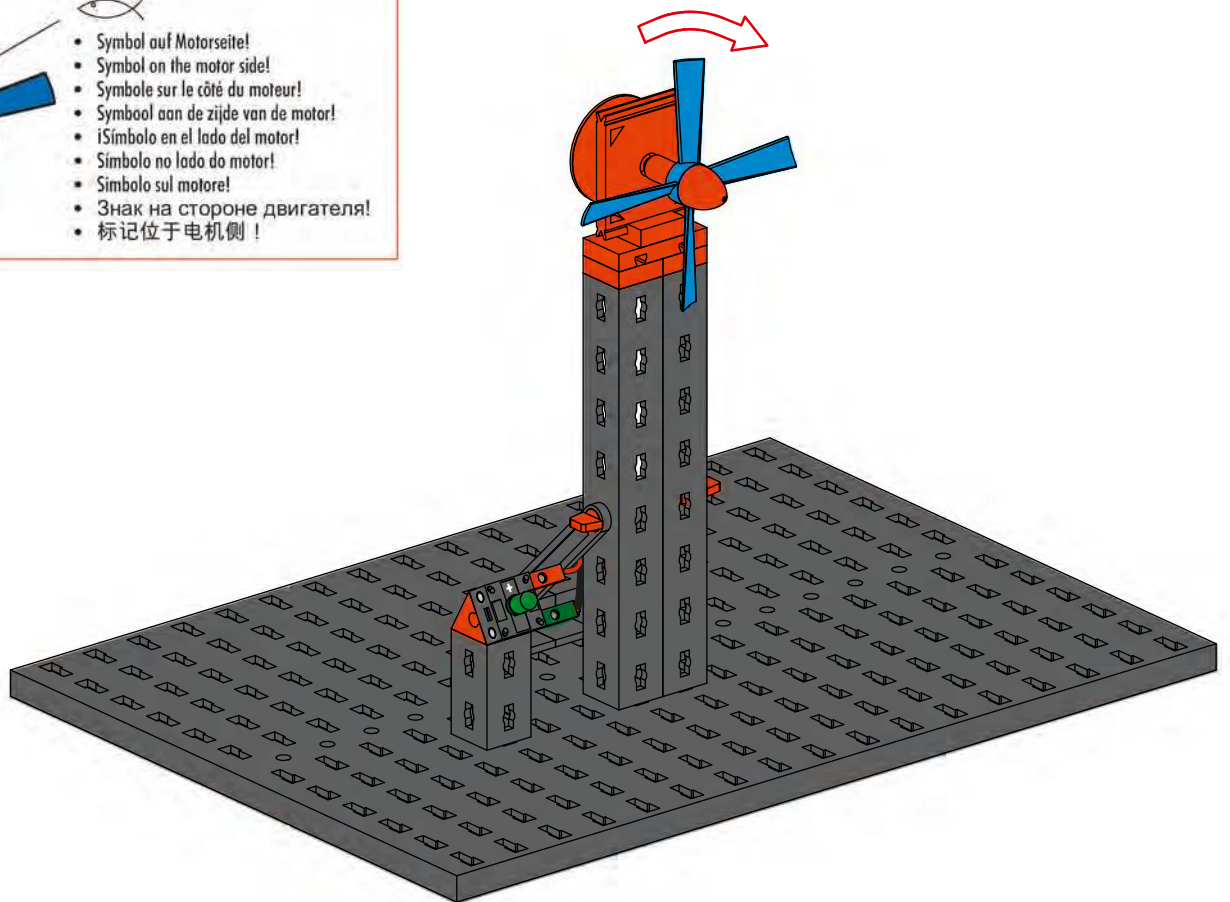
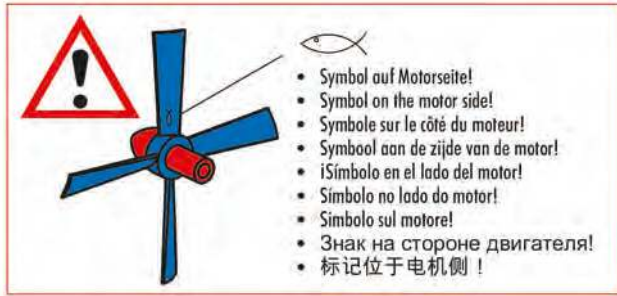
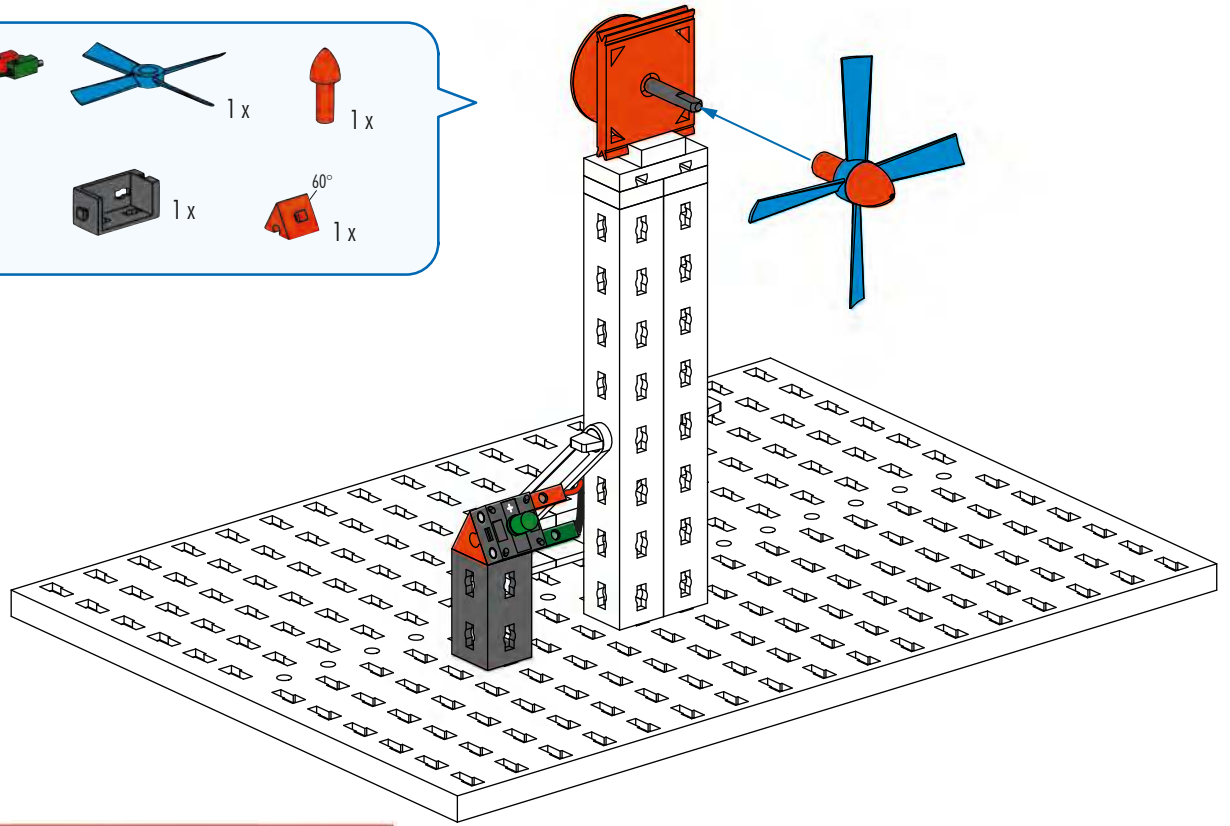
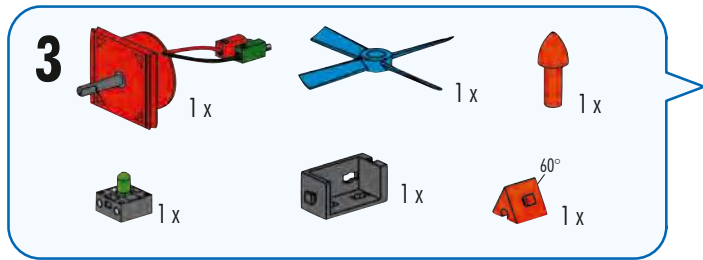


Windturbine  
Wind turbine  
Éolienne

Windturbine  
Turbina de viento  
Turbina eólica

Turbina eolica  
Ветрогенератор / 风力发电  
电机

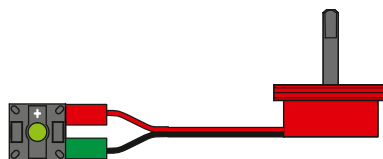




Schaltplan  
Circuit diagram  
Plan électrique

Schakelschema  
Diagrama de circuitos  
Plano elétrico de ligação

Schema elettrico  
Схема подключения  
电路图

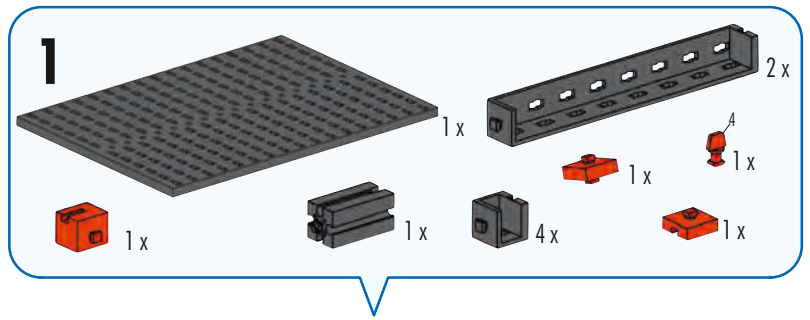


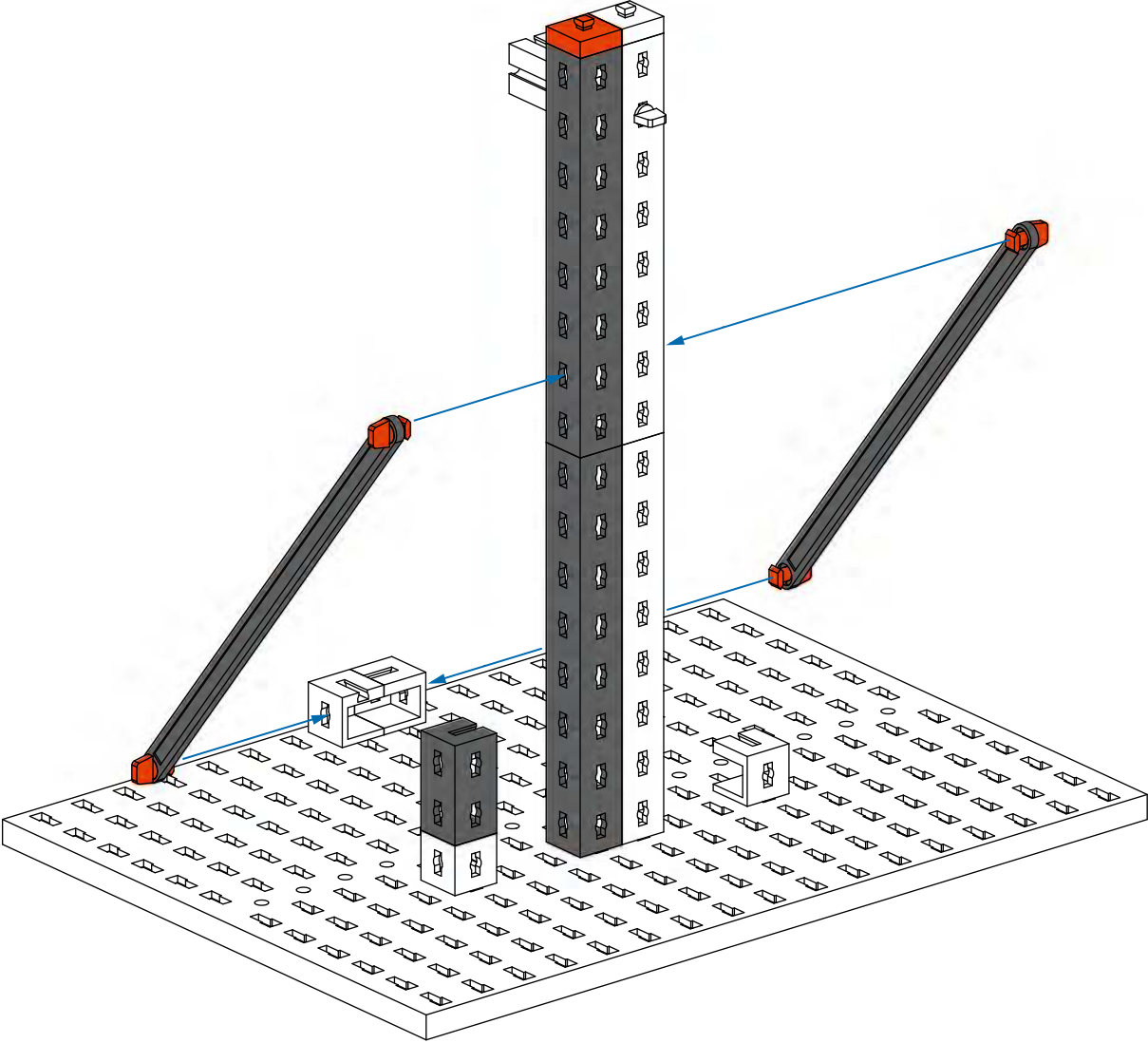
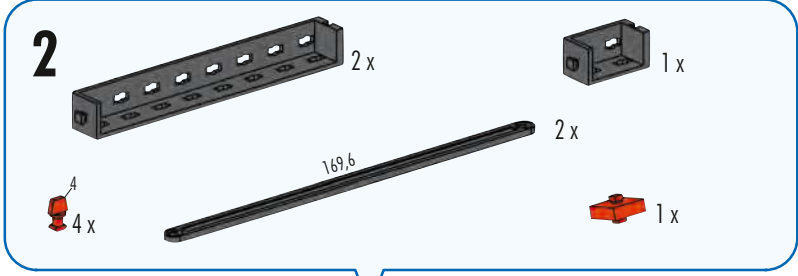


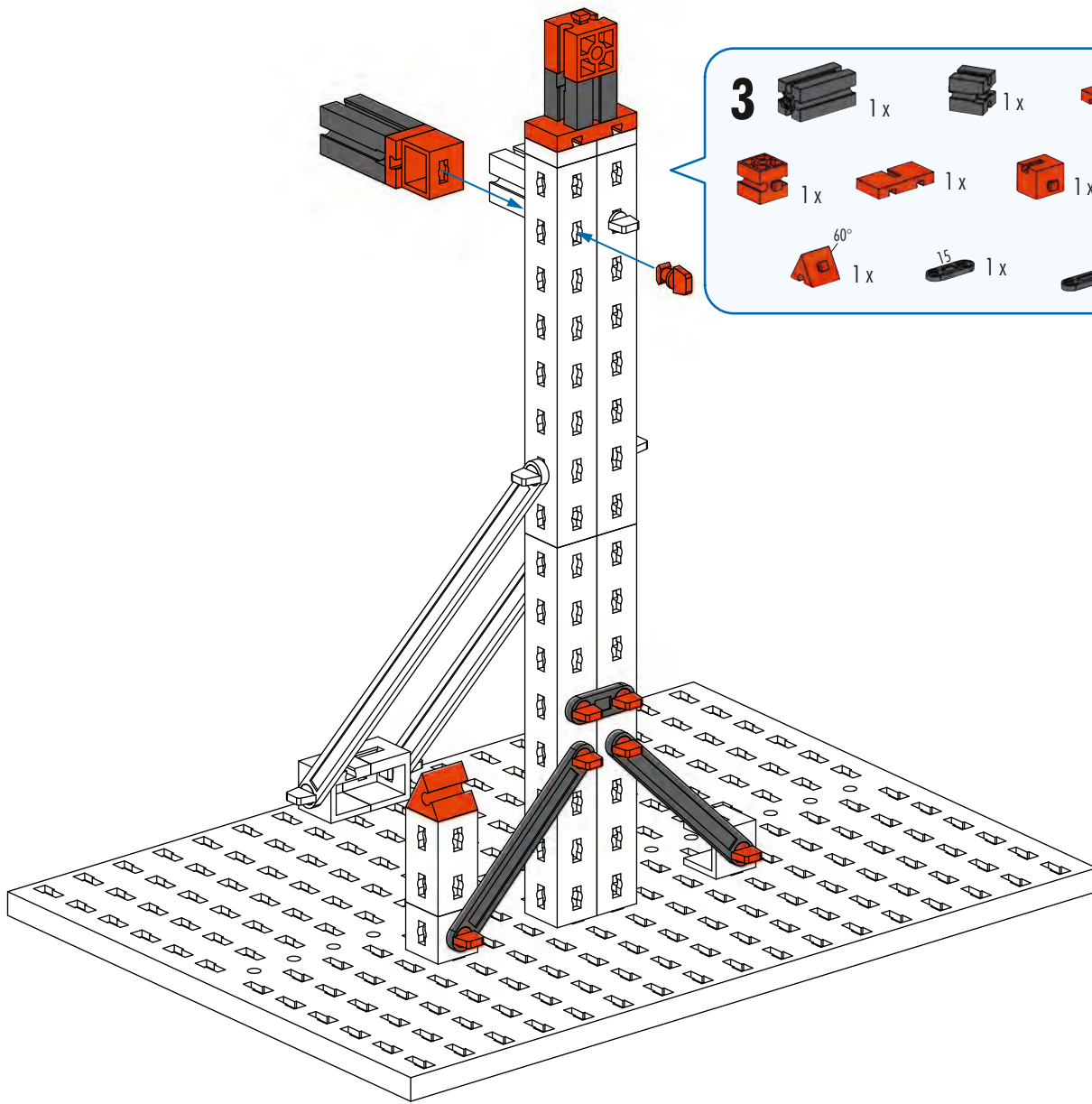
Windkraftanlage  
Windpower Station  
Éolienne

Windkrachtinstallatie  
Instalación eólica  
Estación eólica

Impianto eolico  
Ветросиловая  
установка / 风力发电机

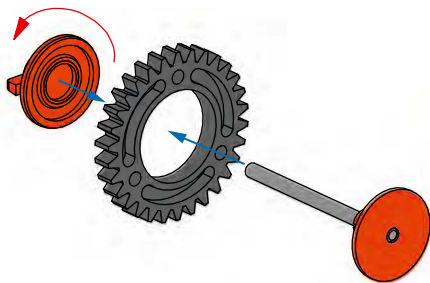






**3**

- 1x (Grey Technic Beam 1x3)
- 1x (Grey Technic Beam 1x3)
- 1x (Red Technic Beam 1x3)
- 1x (Red Technic Beam 1x3)
- 1x (Red Technic Beam 1x3)
- 1x (Red Technic Beam 1x3)
- 7x (Red Technic Pin)
- 1x (Red Technic Pin 60°)
- 1x (Grey Technic Pin 15)
- 2x (Grey Technic Pin 63.6)



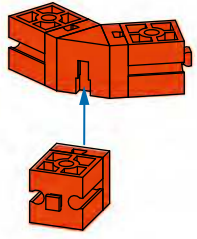
**4**

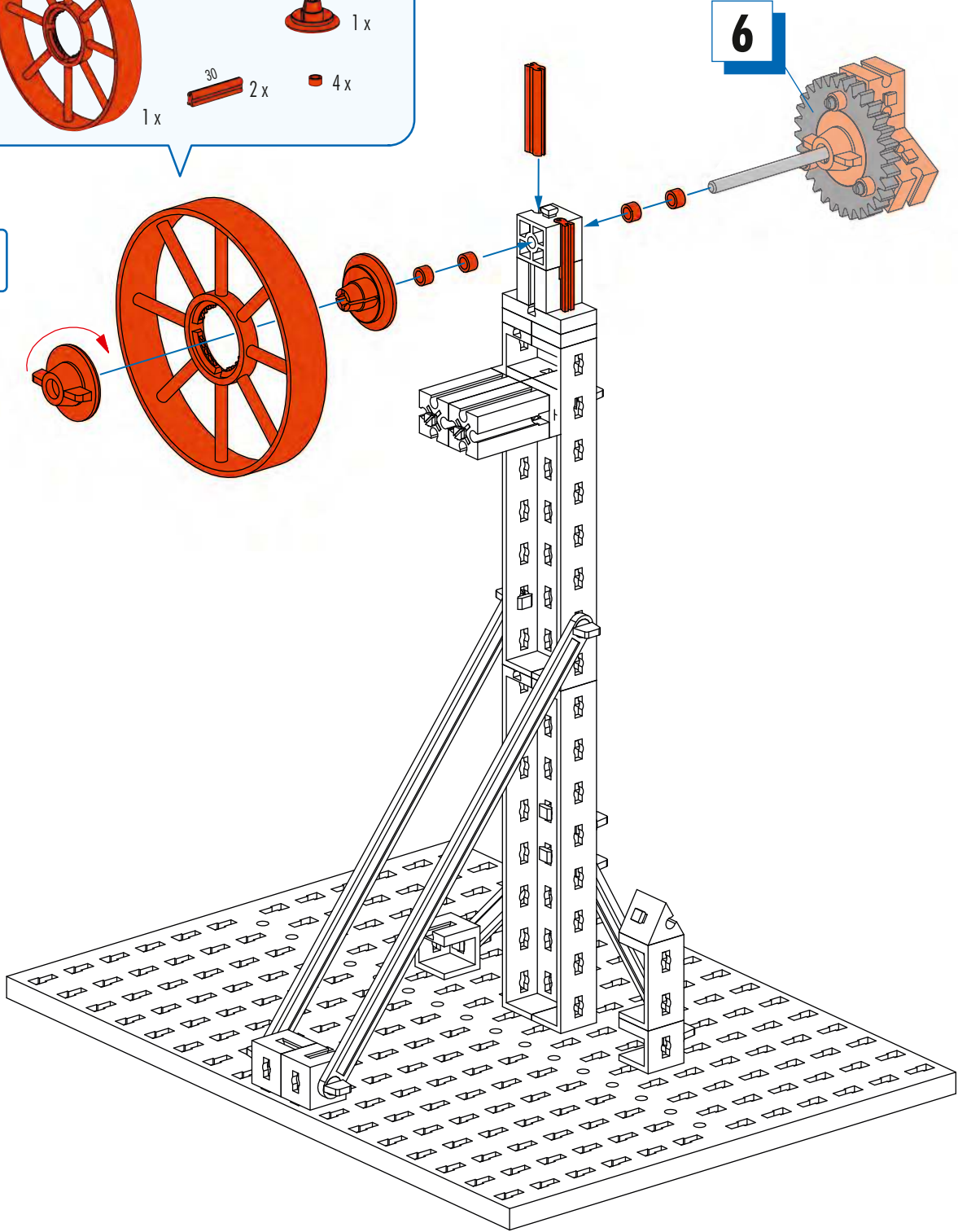
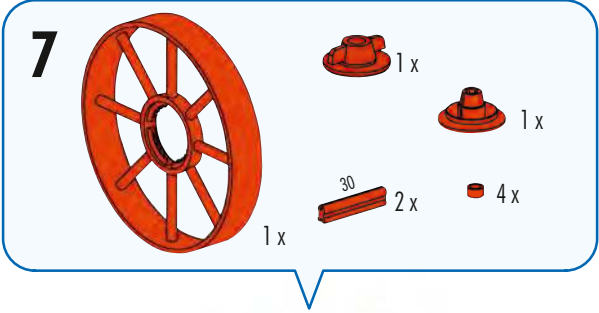
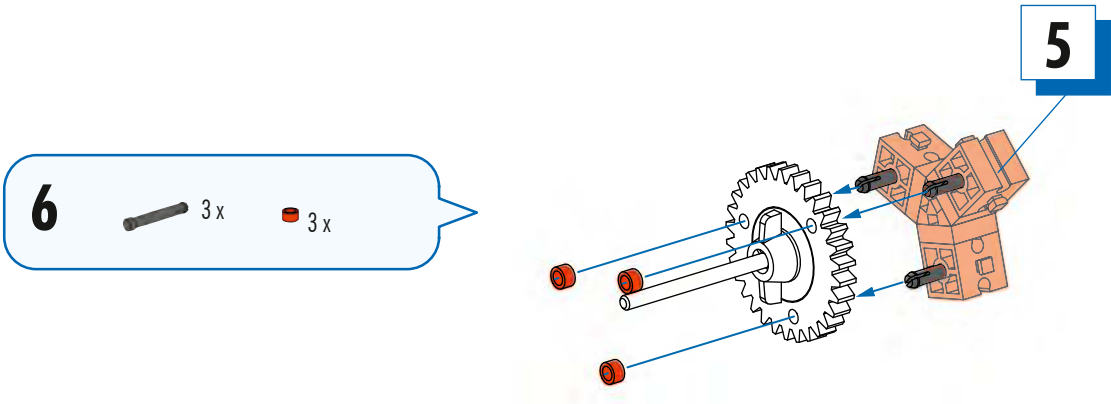
- 1x (Grey Gear 24)
- 1x (Red Technic Bush)
- 1x (Red Technic Cap)
- 1x (Grey Technic Pin 60)

60 mm




**5**




- 1x (Red Technic Pin 60°)
- 3x (Red Technic Pin)
- 3x (Red Technic Pin)

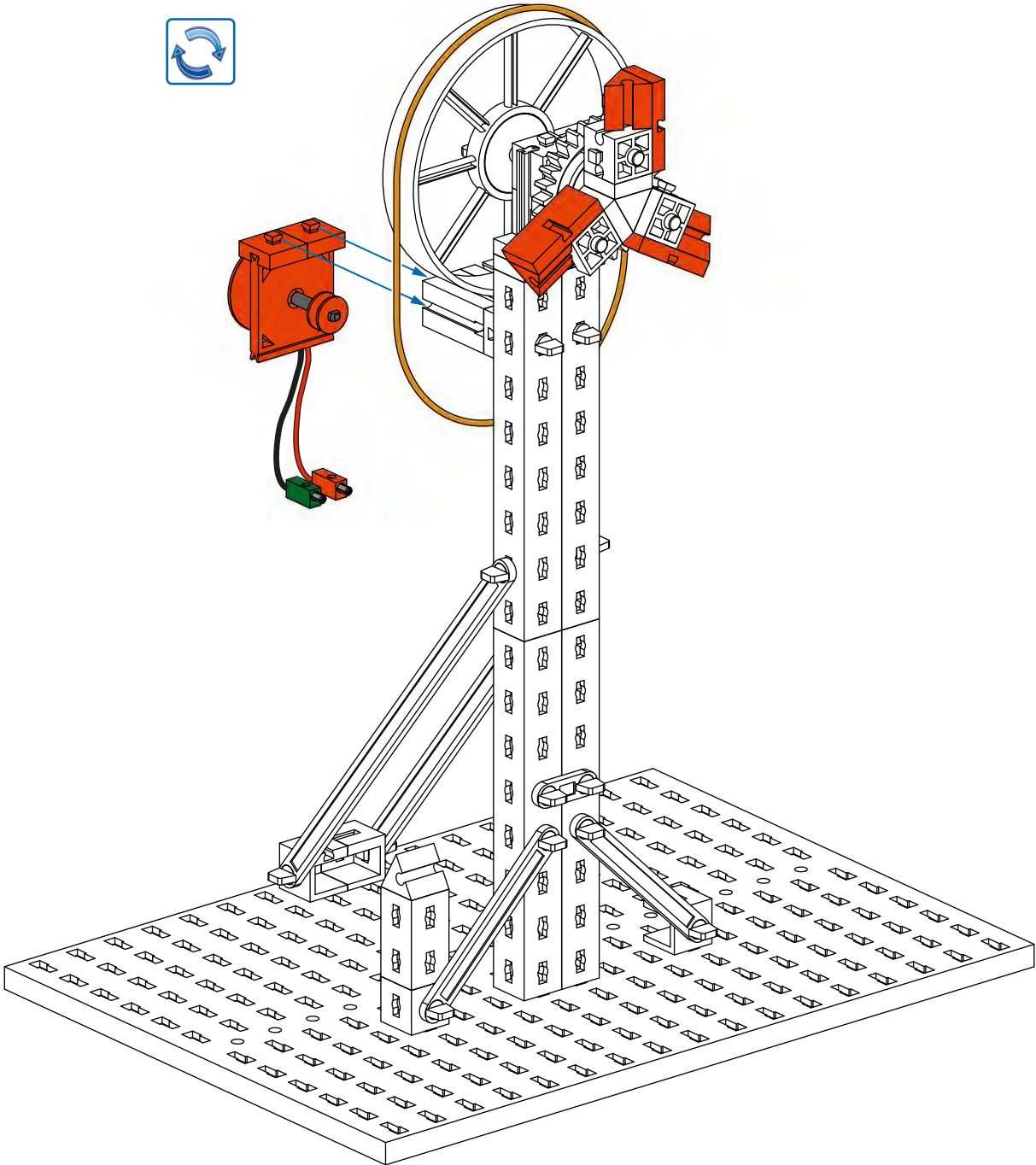




**8**

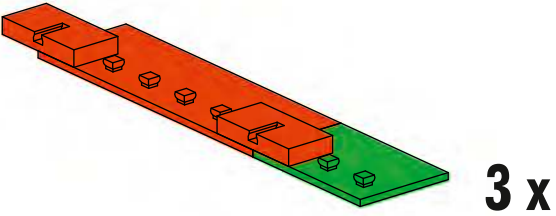
1 x  1 x  3 x 

2 x  1 x  3 x 



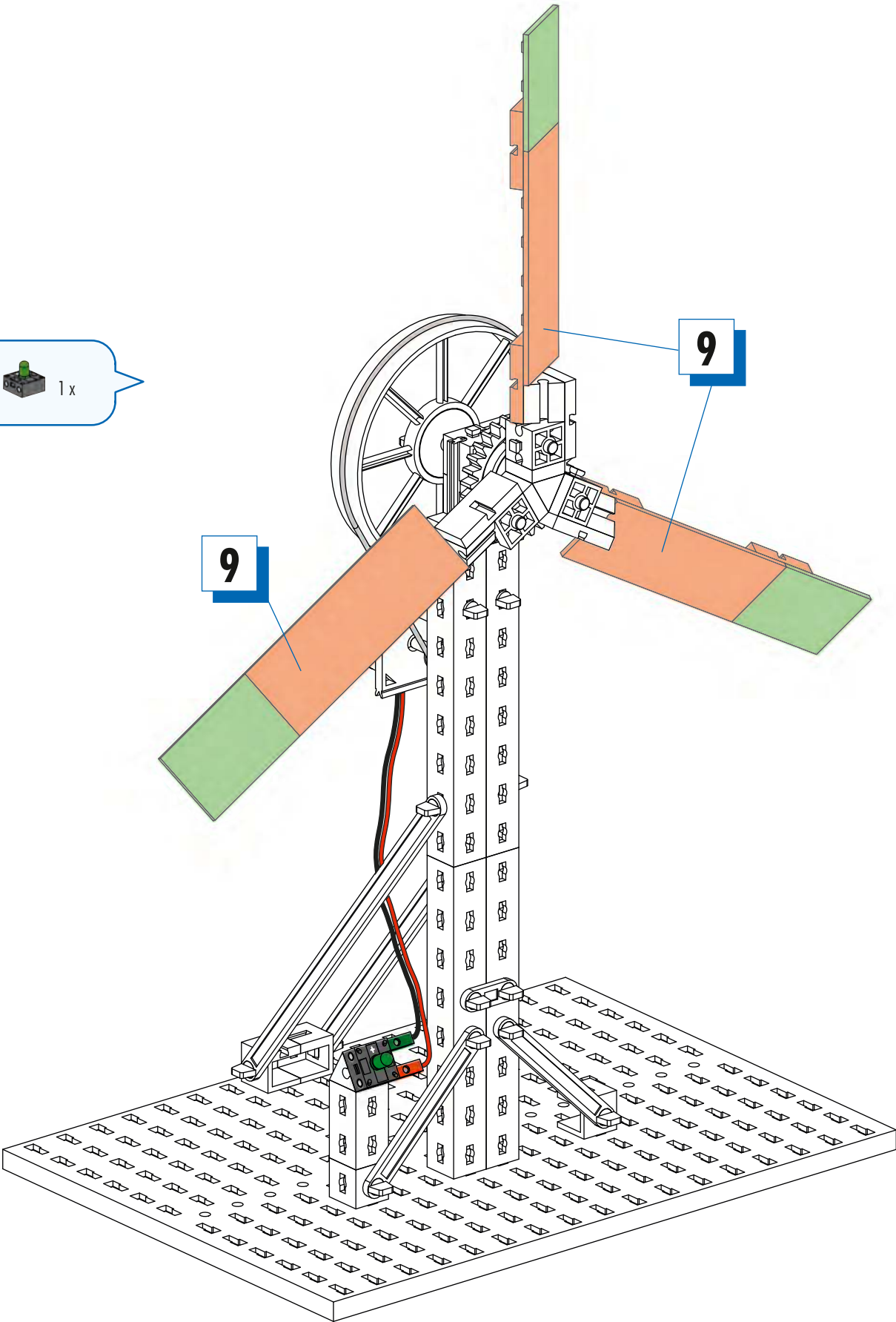
**9**

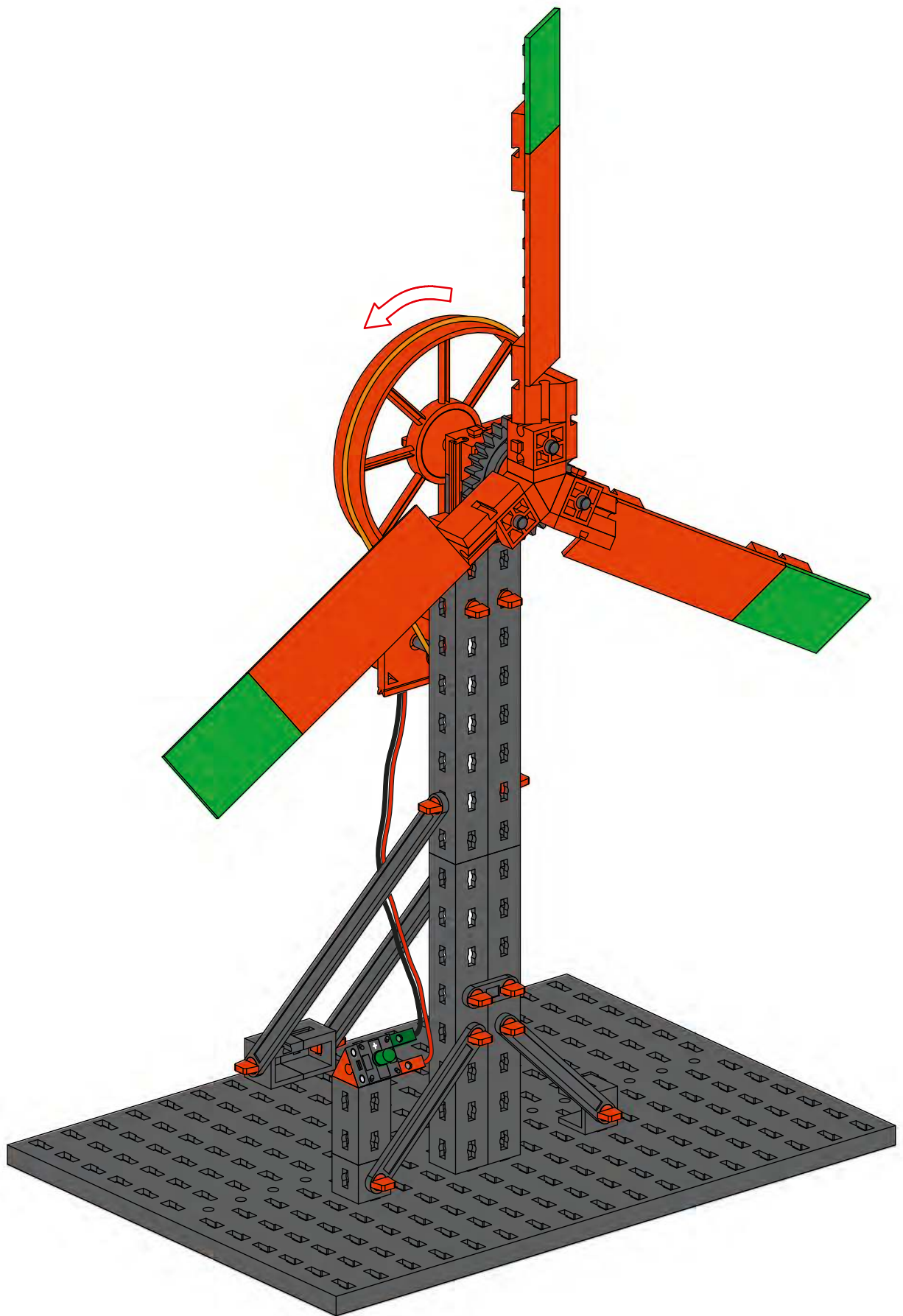
3x  
3x  
6x



**10**

1x

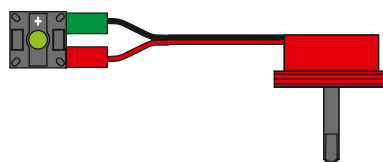


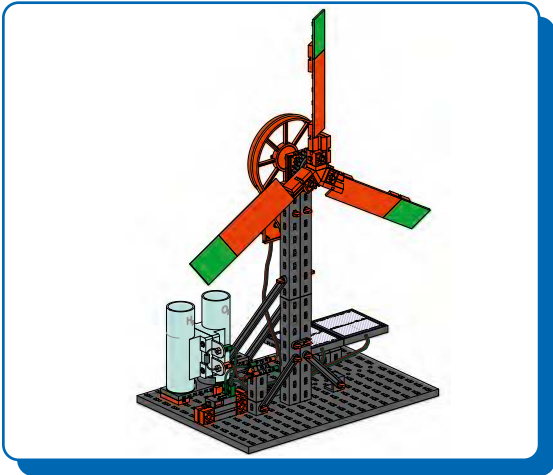


Schaltplan  
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电路图





Windkraftanlage +  
Brennstoffzelle  
Wind turbine + fuel cell  
Centrale éolienne + pile à  
combustible

Windenergiecentrale +  
brandstofcel  
Planta de energía eólica +  
pila de combustible  
Usina de energia eólica +  
célula de combustível




Centrale eolica + cella a  
combustibile  
Ветрогенератор + топливный  
элемент  
风力发电站+燃料电池

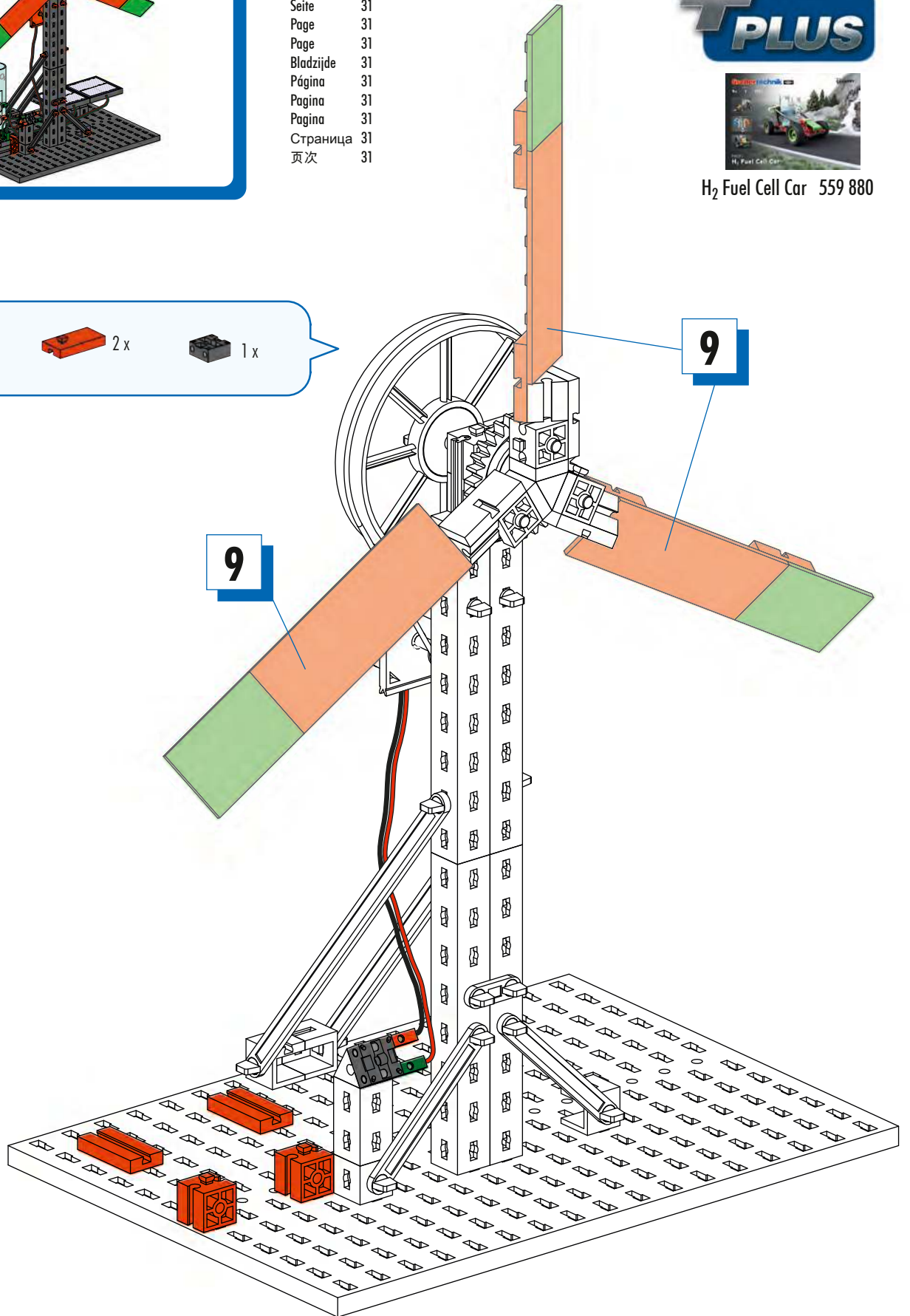
# 1-9





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Page	31
Bladzijde	31
Página	31
Página	31
Página	31
Страница	31
页次	31

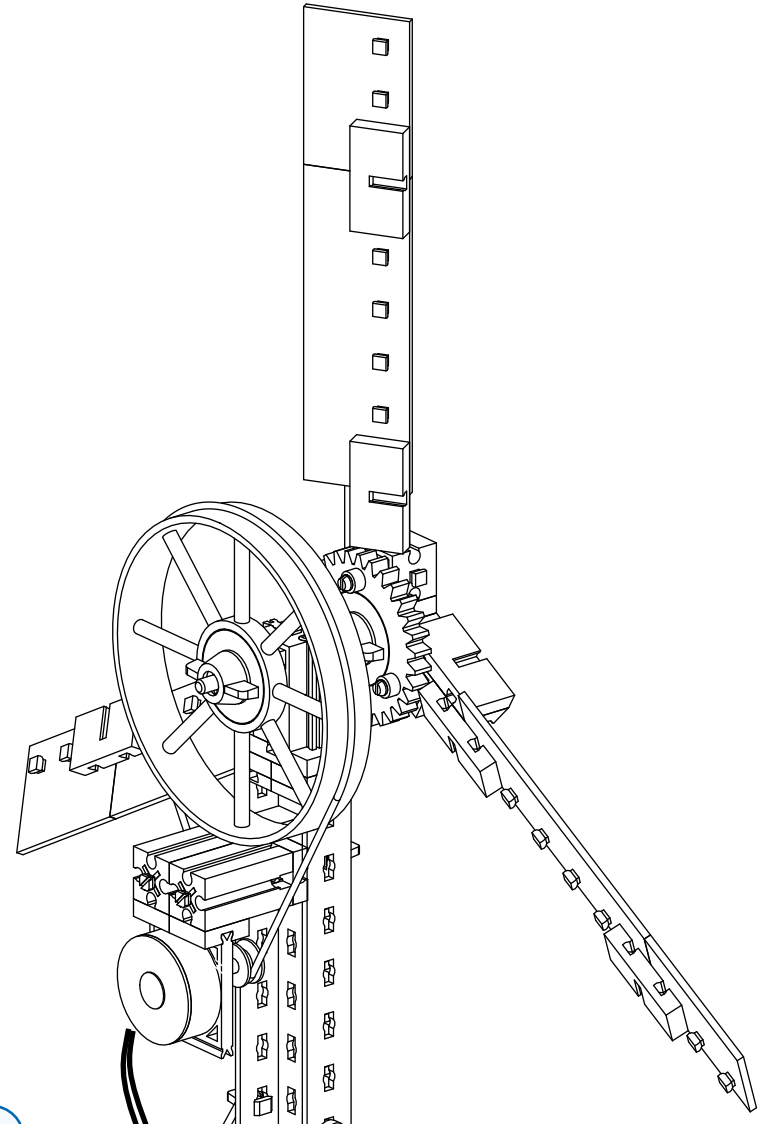
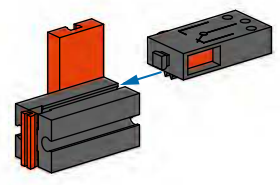








H<sub>2</sub> Fuel Cell Car 559 880

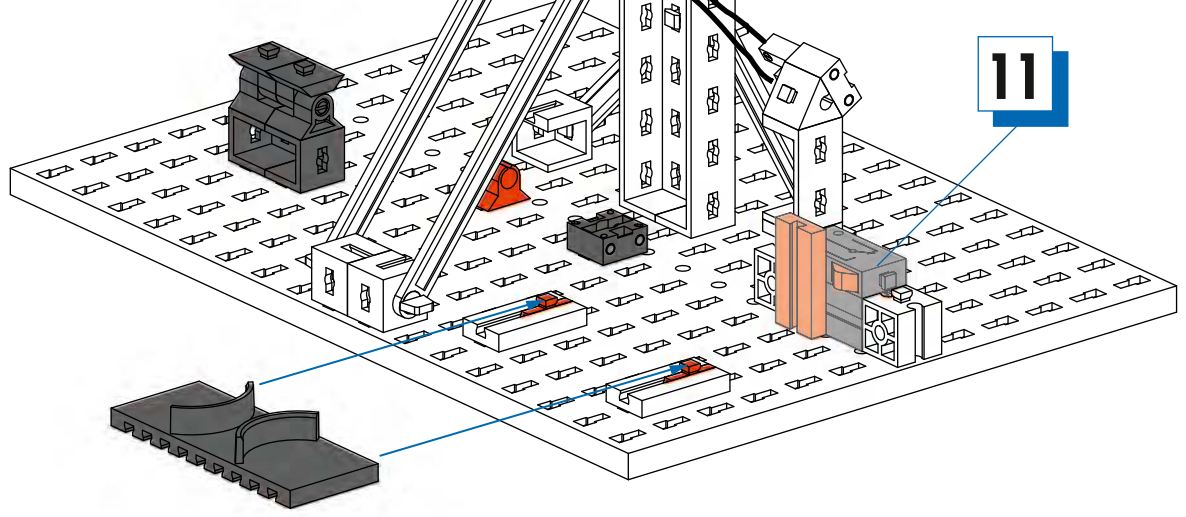
**10**  2x  2x  1x



- 11**  1x  1x  1x  1x

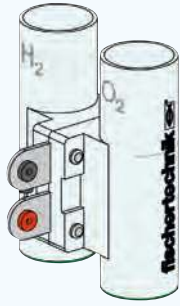


- 12**  1x  2x  
 2x  1x  1x  2x



**11**

13



1 x



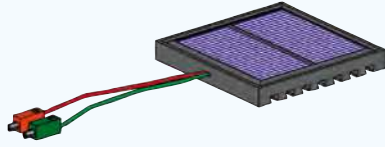
1 x



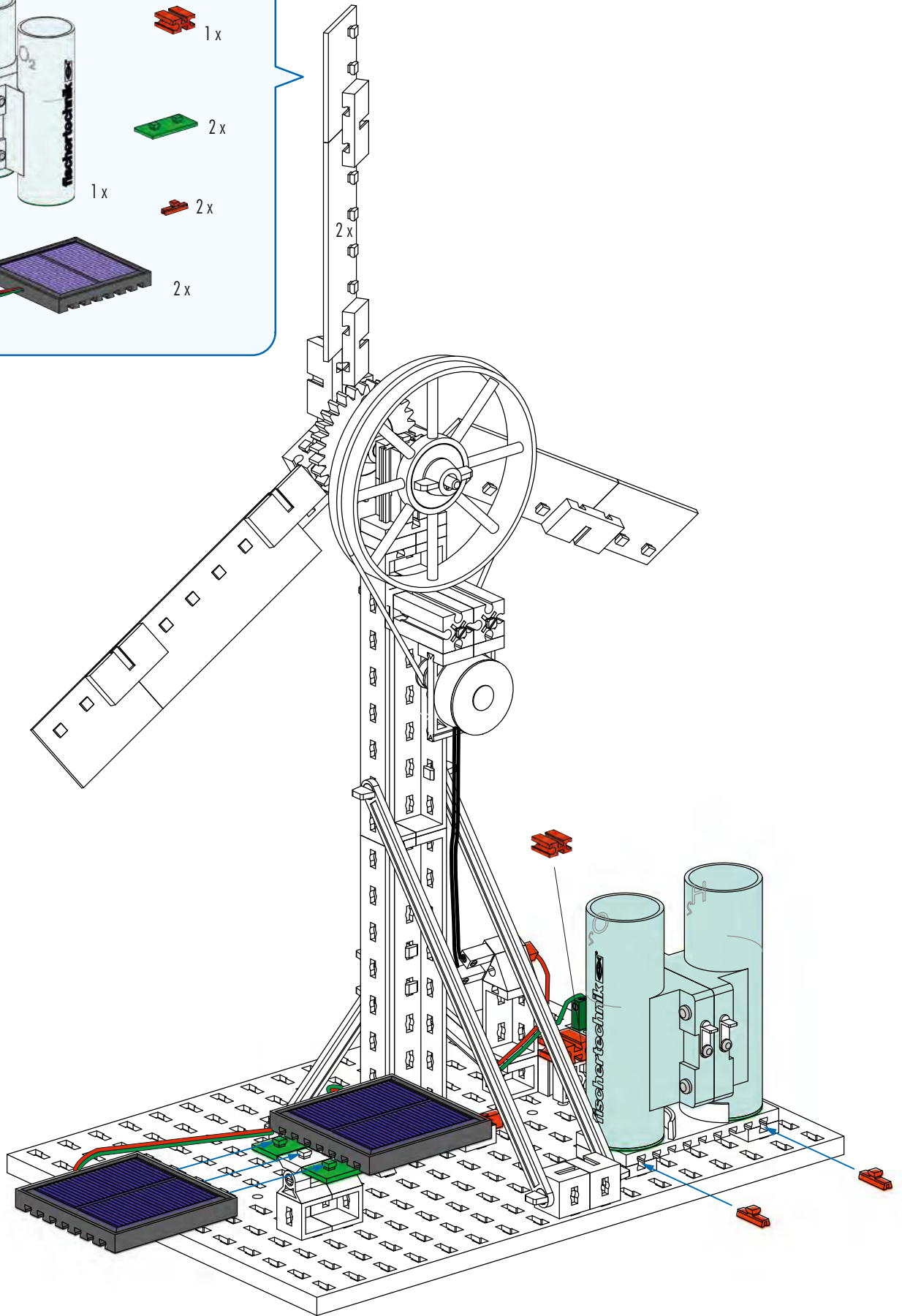
2 x

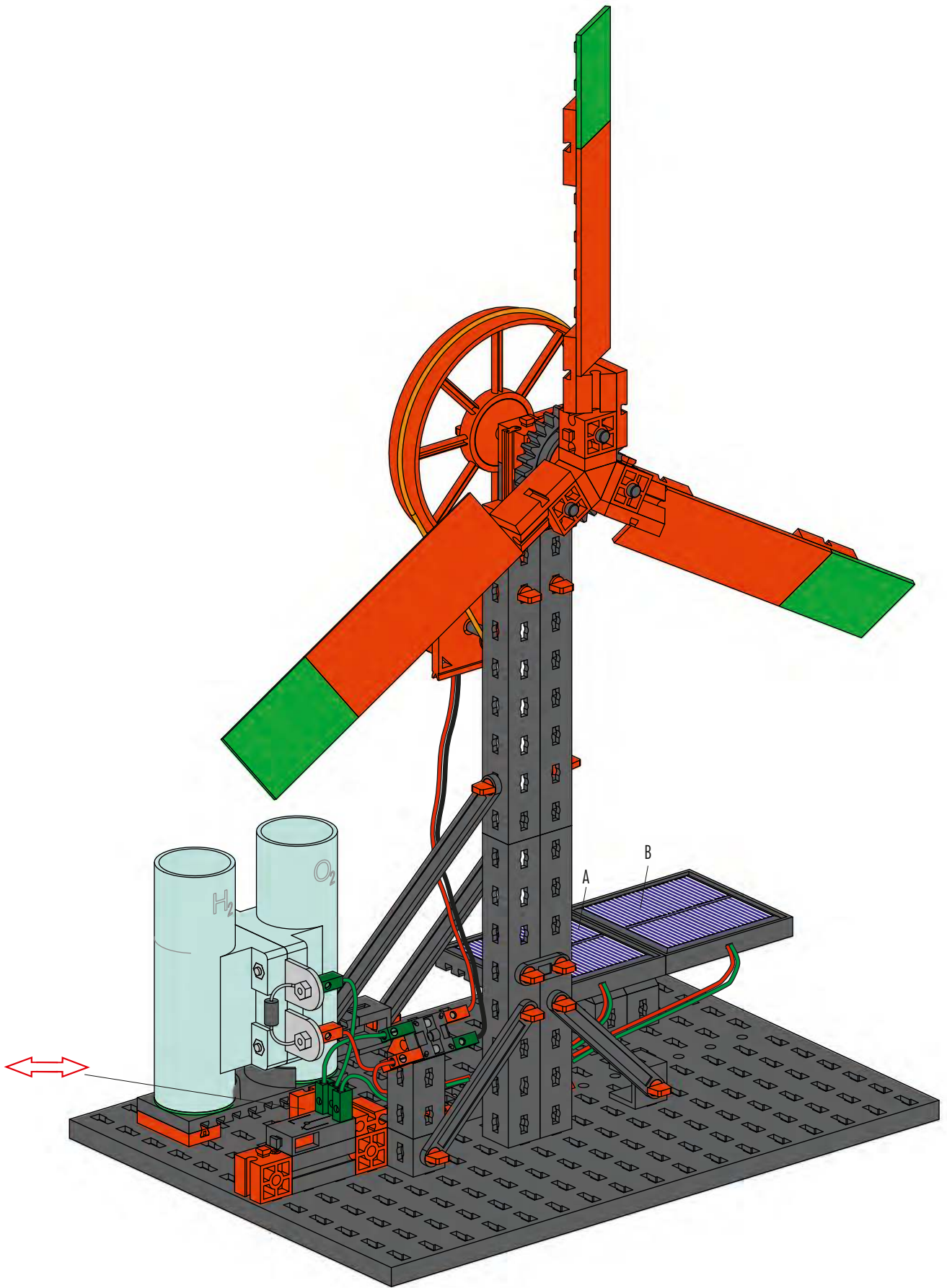


2 x



2 x





Schaltplan  
Circuit diagram  
Plan électrique

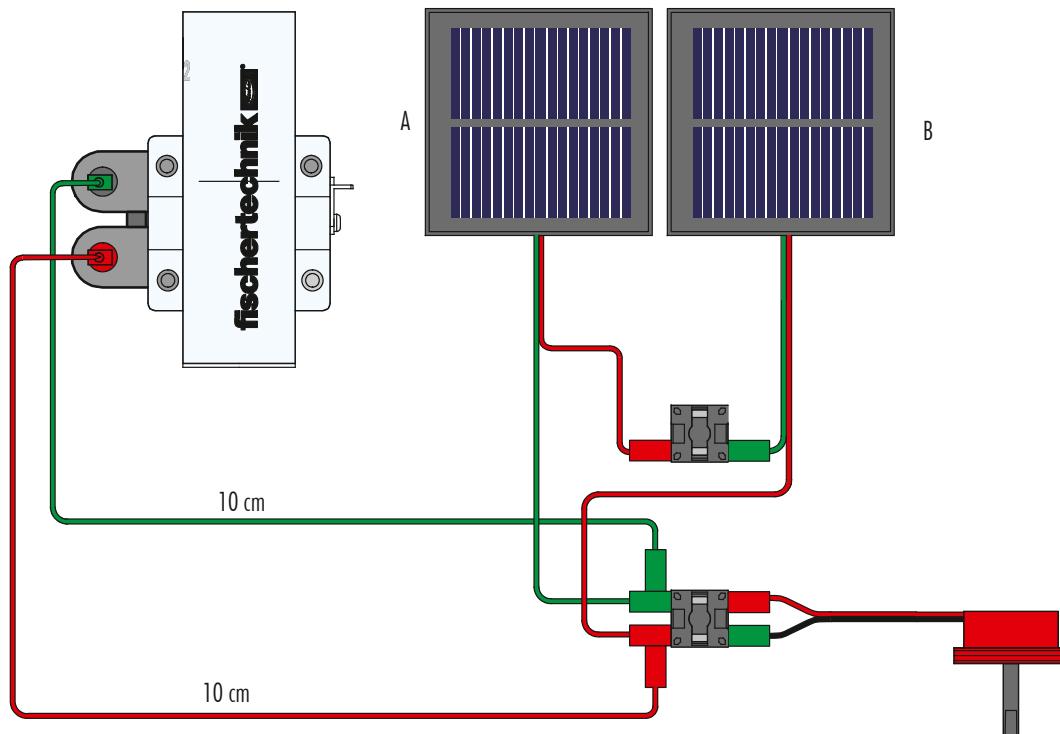
Schakelschema  
Diagrama de circuitos  
Plano elétrico de ligação

Schema elettrico  
Схема подключения  
电路图

Aufgabe 1  
Task 1  
Exercice 1

Taak 1  
Tarea 1  
Tarefa 1

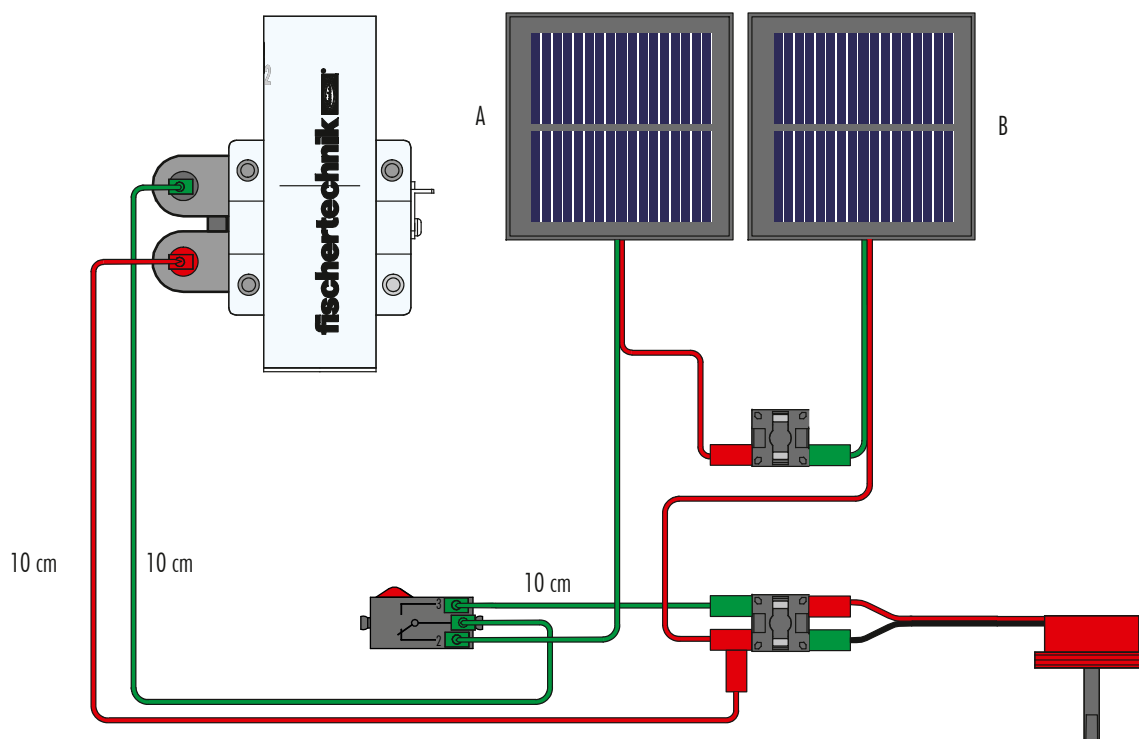
Compito 1  
Задание 1  
任务 1

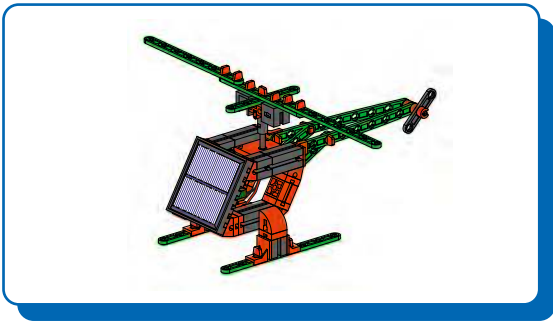


Aufgabe 2  
Task 2  
Exercice 2

Taak 2  
Tarea 2  
Tarefa 2

Compito 2  
Задание 2  
任务 2

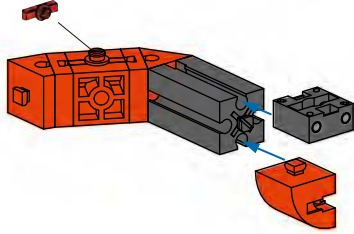




Helikopter  
Helicopter  
Hélicoptère

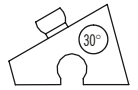
Helikopter  
Helicóptero  
Helicóptero

Elicottero  
Вертолет  
直升机



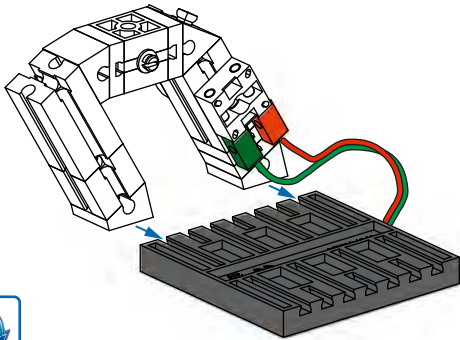
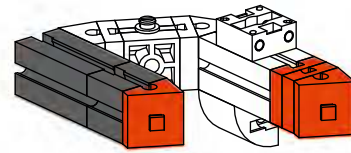
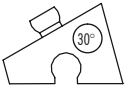
**1**

- Grey axle: 1x
- Red 1x2 Technic brick: 1x
- Grey 1x2 Technic brick: 1x
- Red axle pin: 1x
- Red 1x2 Technic brick with hole: 1x
- Red 1x2 Technic brick: 2x
- Red 60° Technic bush: 1x
- Red 30° Technic bush: 1x



**2**

- Grey axle: 1x
- Grey 1x2 Technic brick: 1x
- Red 1x2 Technic brick: 2x
- Red 30° Technic bush: 2x

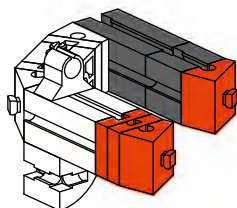
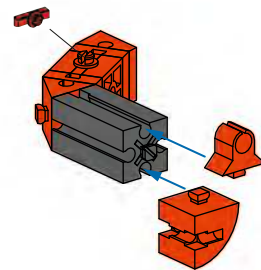


**3**

- Purple motor unit: 1x

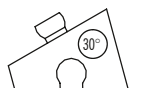
**4**

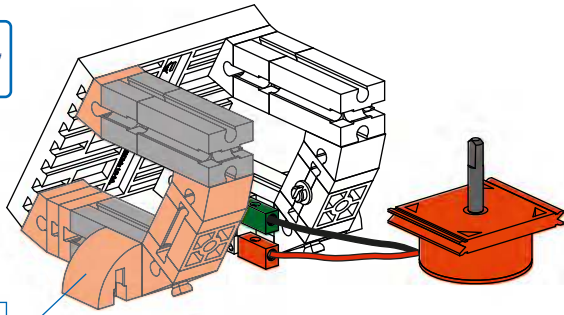
- Grey axle: 1x
- Red 1x2 Technic brick: 1x
- Red 1x2 Technic brick with hole: 1x
- Red axle pin: 1x
- Red 1x2 Technic brick with hole: 1x
- Red 1x2 Technic brick: 2x
- Red 60° Technic bush: 1x
- Red 30° Technic bush: 1x



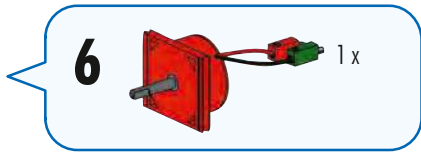
**5**

- Grey axle: 1x
- Grey 1x2 Technic brick: 1x
- Red 1x2 Technic brick: 2x
- Red 30° Technic bush: 2x





**5**



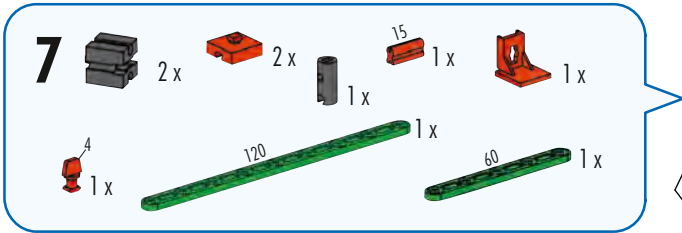
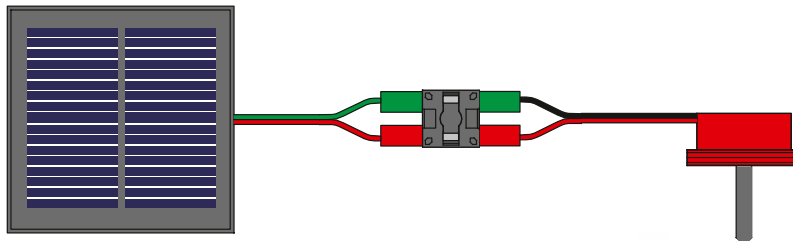
**6**



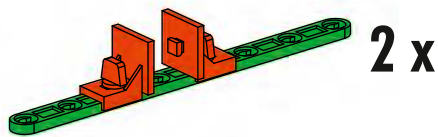
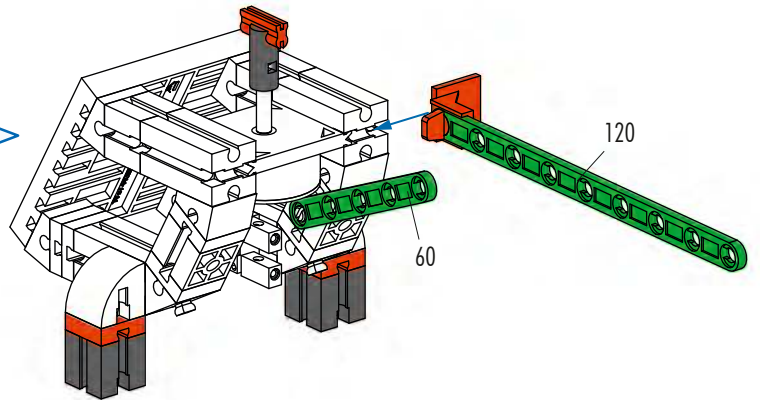
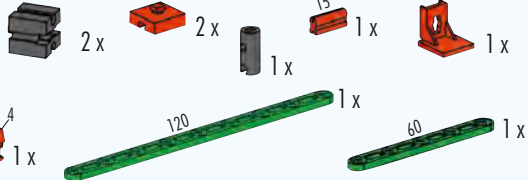
Schaltplan  
Circuit diagram  
Plan électrique

Schakelschema  
Diagrama de circuitos  
Plano elétrico de ligação

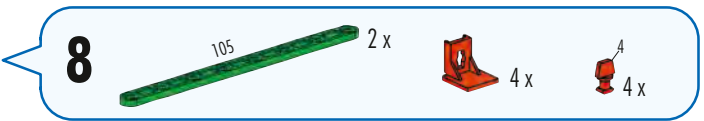
Schema elettrico  
Схема подключения  
电路图



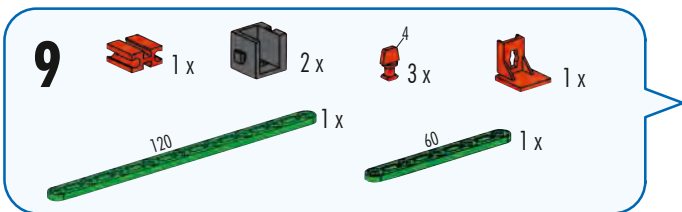
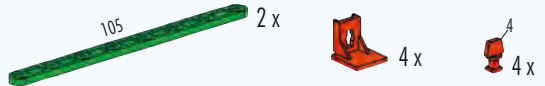
**7**



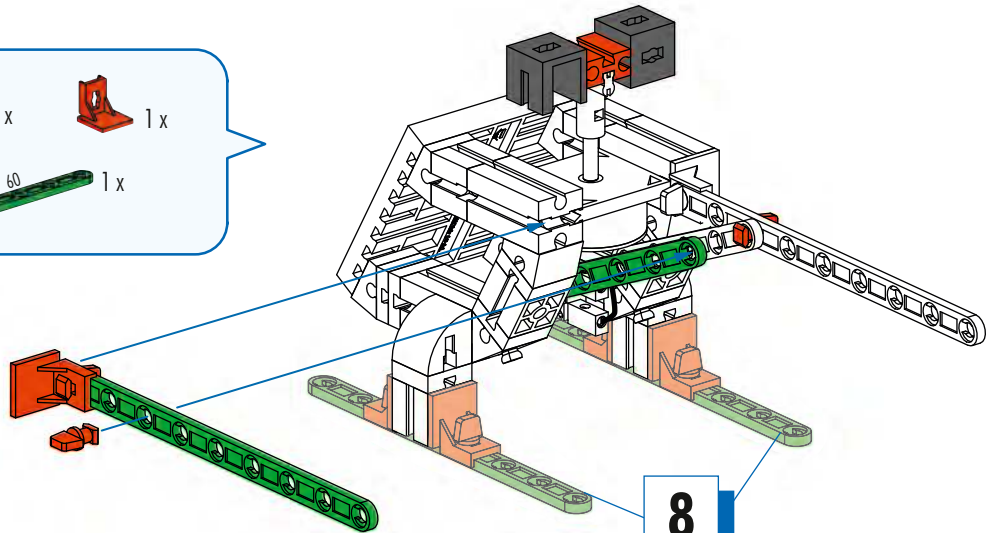
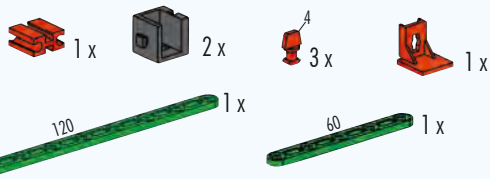
**2 x**



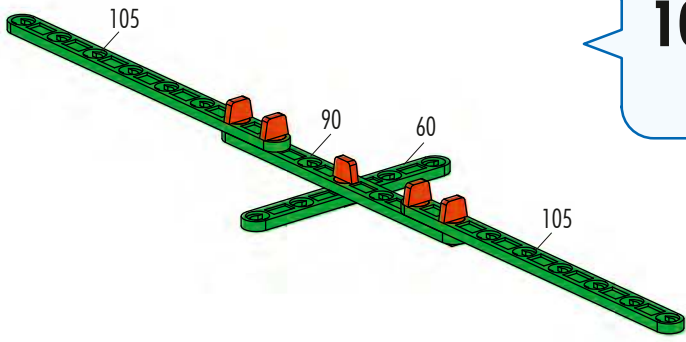
**8**



**9**

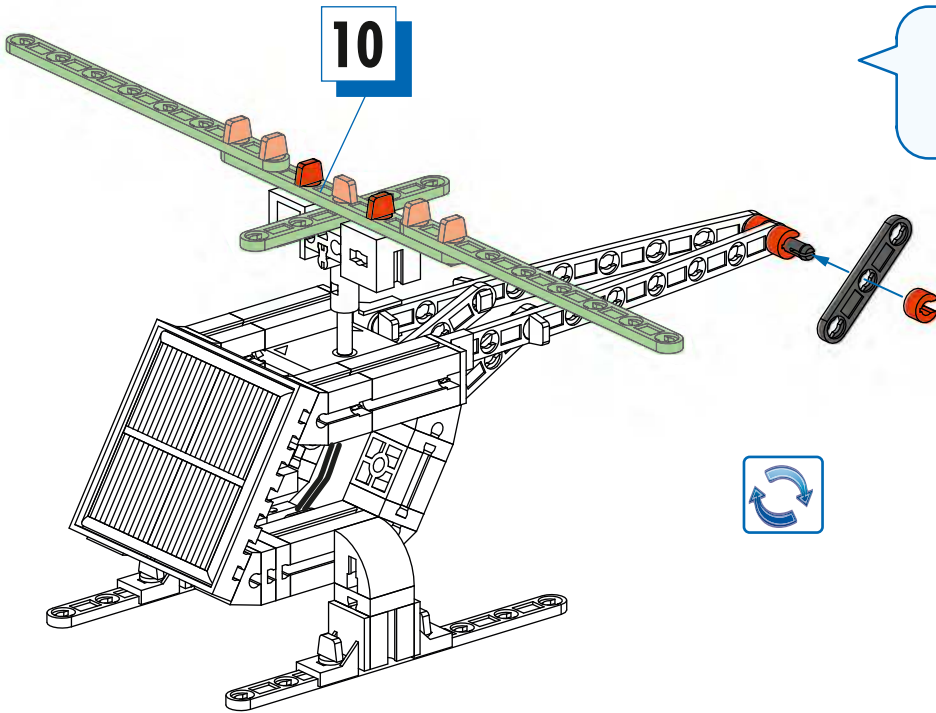


**8**



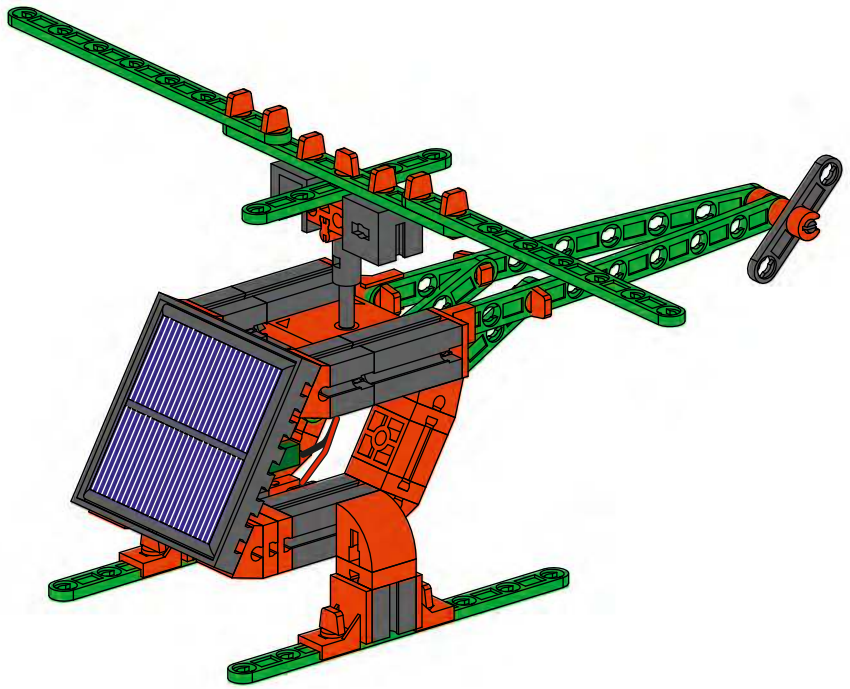
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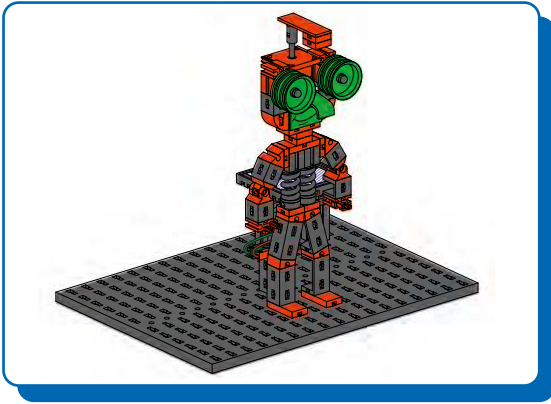
- 105 2 x
- 90 1 x
- 60 1 x
- A 5 x



**11**

- 1 x
- A 2 x
- 30 1 x
- 3 x





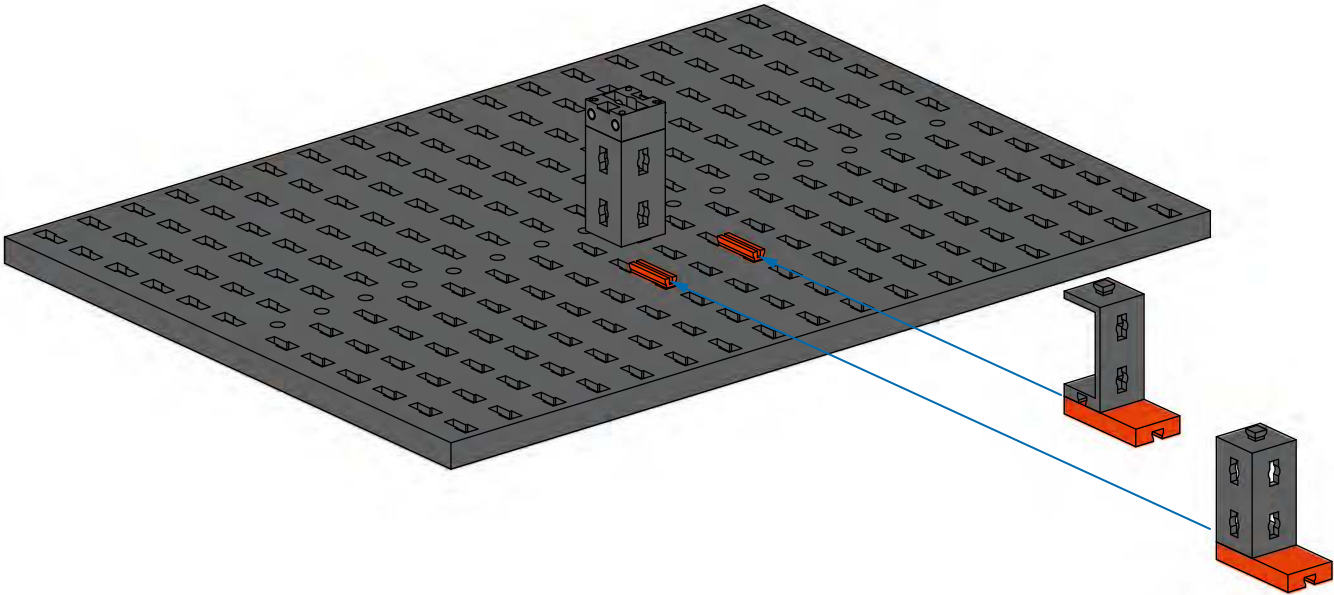
Wackelmann  
Nodding man  
Robot hocheur de tête

Knikbollende man  
El hombre que asiente con  
la cabeza  
Homem que Consente

L'uomo che annuisce  
Танцующий человек/  
点头人

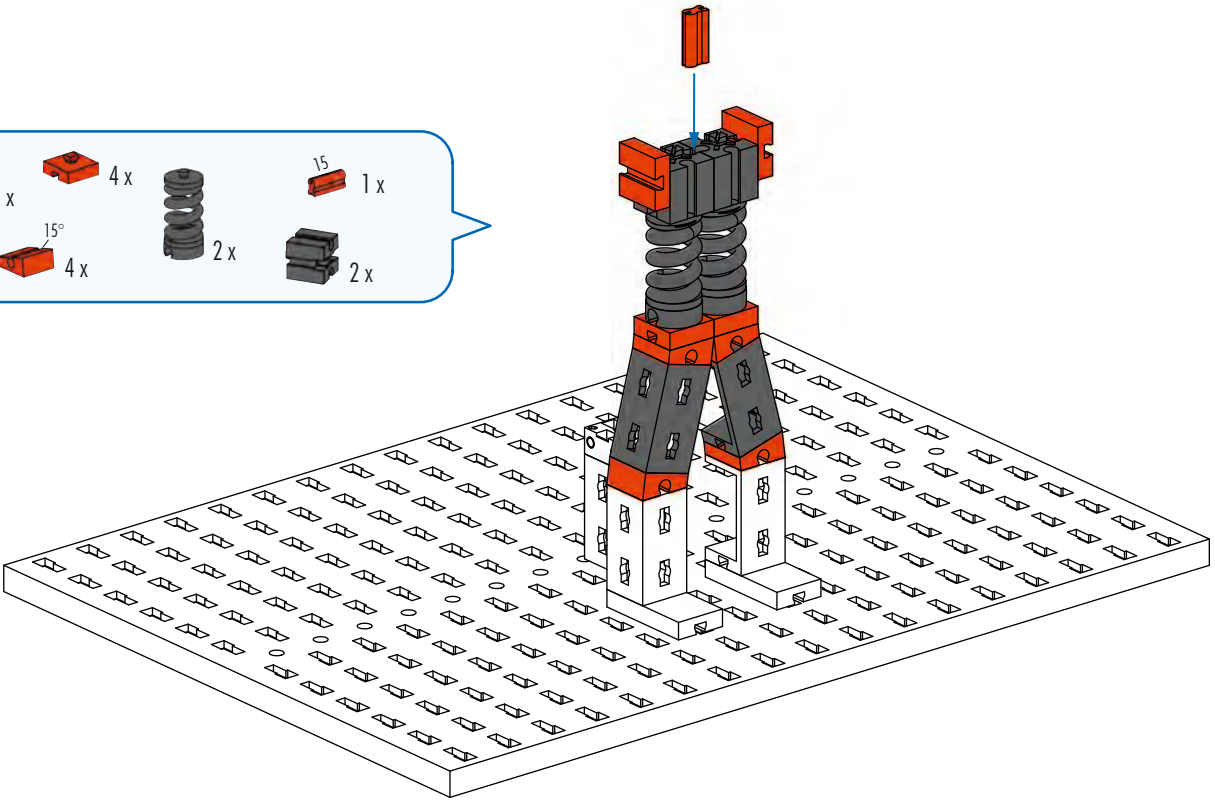
**1**

1x  
2x  
2x  
3x



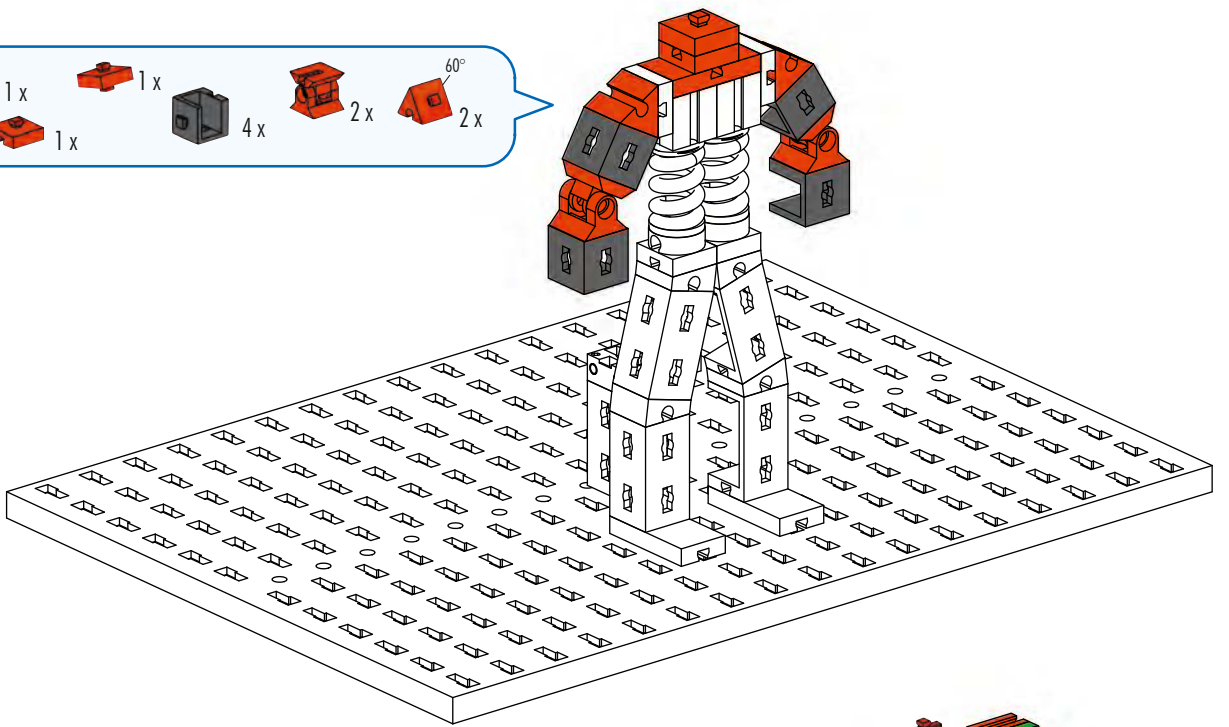
**2**

2x  
4x  
15°  
4x  
2x  
15  
1x  
2x



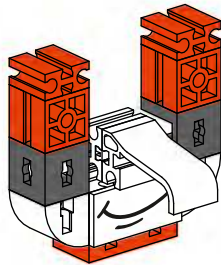
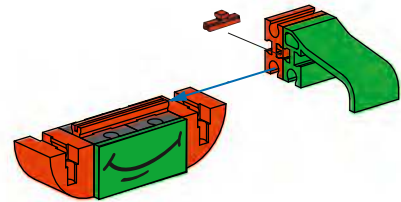
3

- 1x (orange 1x3 Technic brick)
- 1x (orange 1x2 Technic brick)
- 1x (orange 1x1 Technic brick)
- 4x (grey 1x2 Technic Technic connector)
- 2x (orange 1x2 Technic Technic connector)
- 2x (orange 60° Technic Technic connector)



4

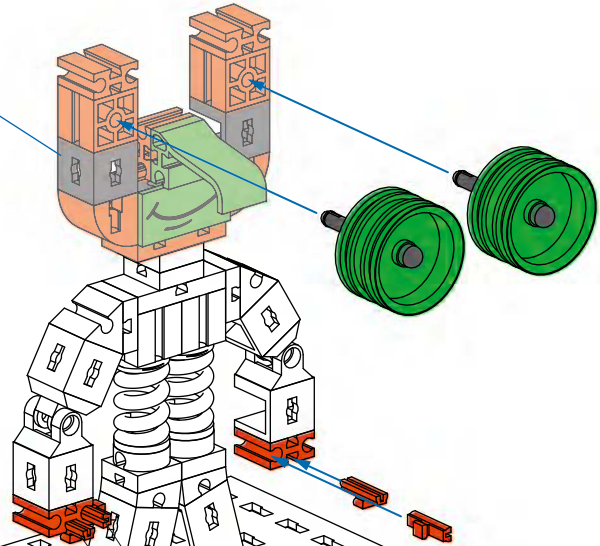
- 2x (grey 1x2 Technic Technic connector)
- 1x (orange 30-length Technic axle)
- 1x (green 1x2 Technic Technic connector)
- 1x (green 1x2 Technic Technic connector)
- 2x (orange 1x2 Technic Technic connector)
- 1x (orange 1x1 Technic Technic connector)
- 1x (orange 1x2 Technic Technic connector)



5

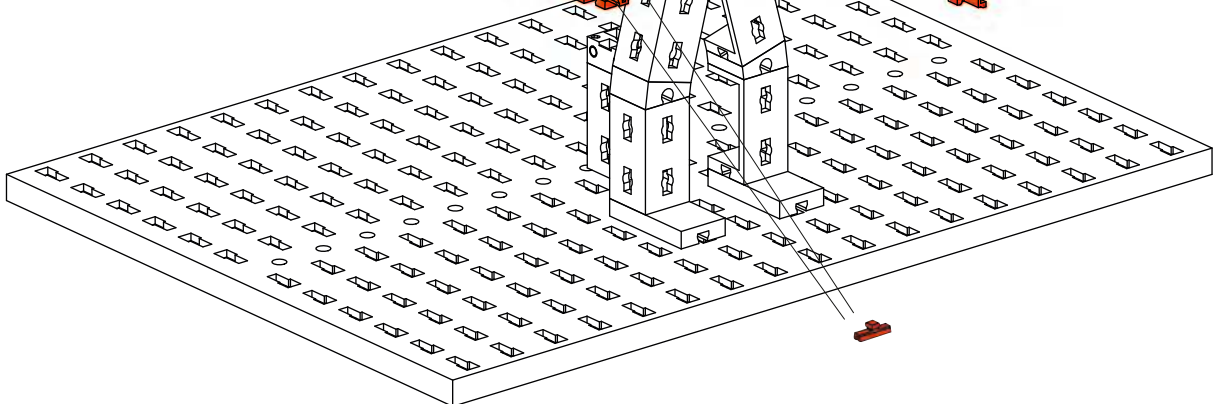
- 2x (grey 1x2 Technic Technic connector)
- 2x (orange 1x2 Technic Technic connector)
- 2x (orange 1x2 Technic Technic connector)
- 1x (orange 1x2 Technic Technic connector)

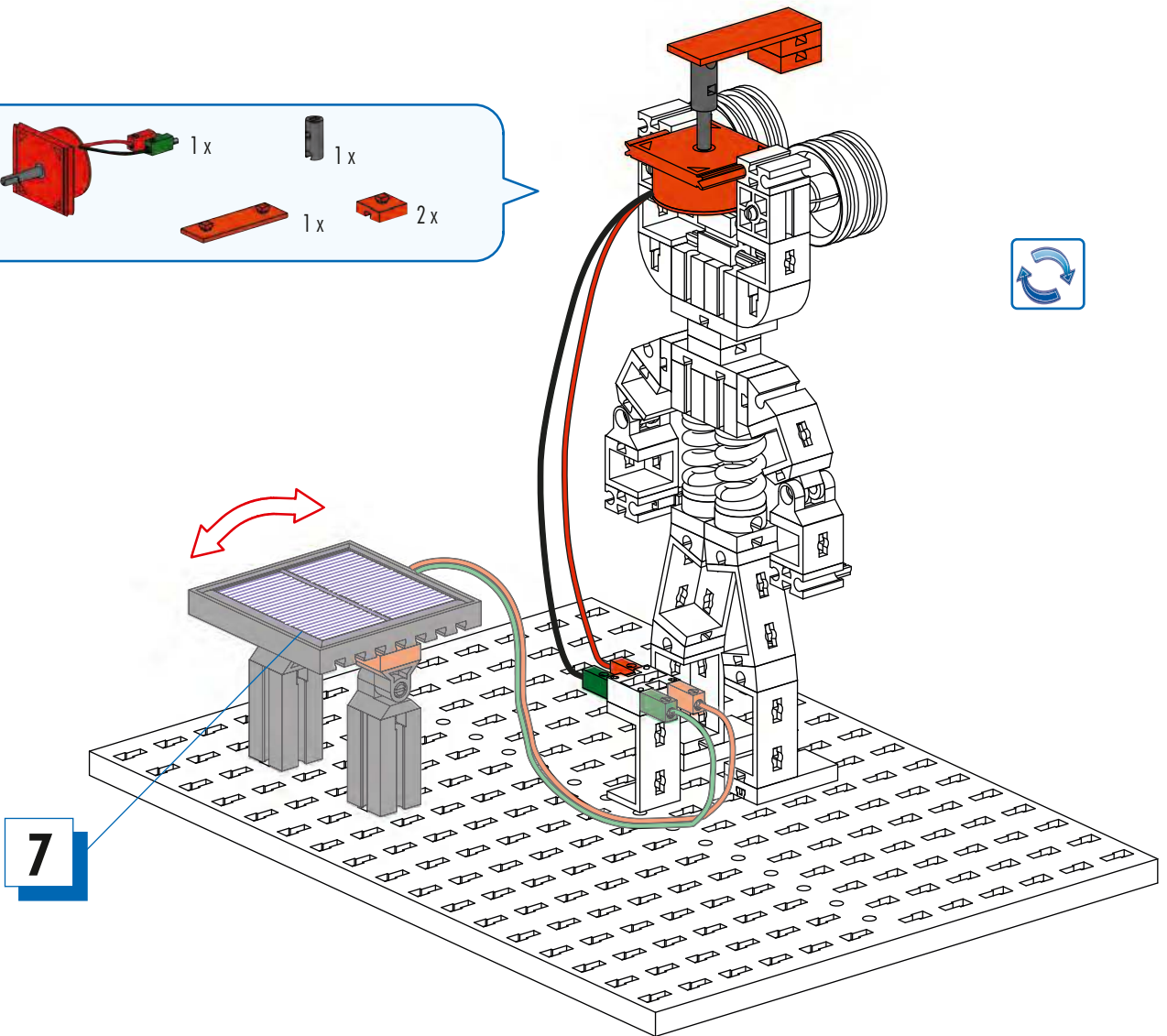
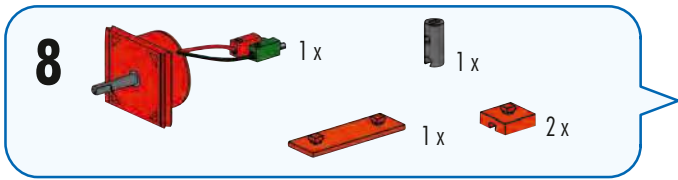
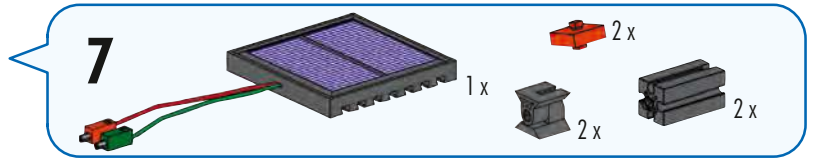
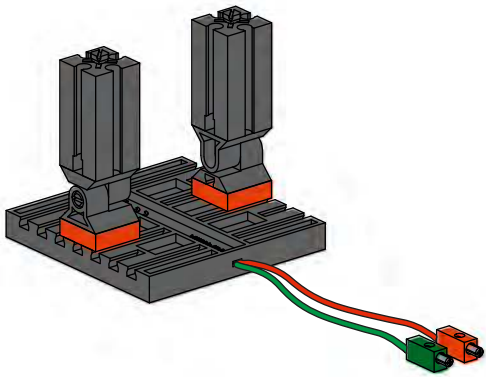
4

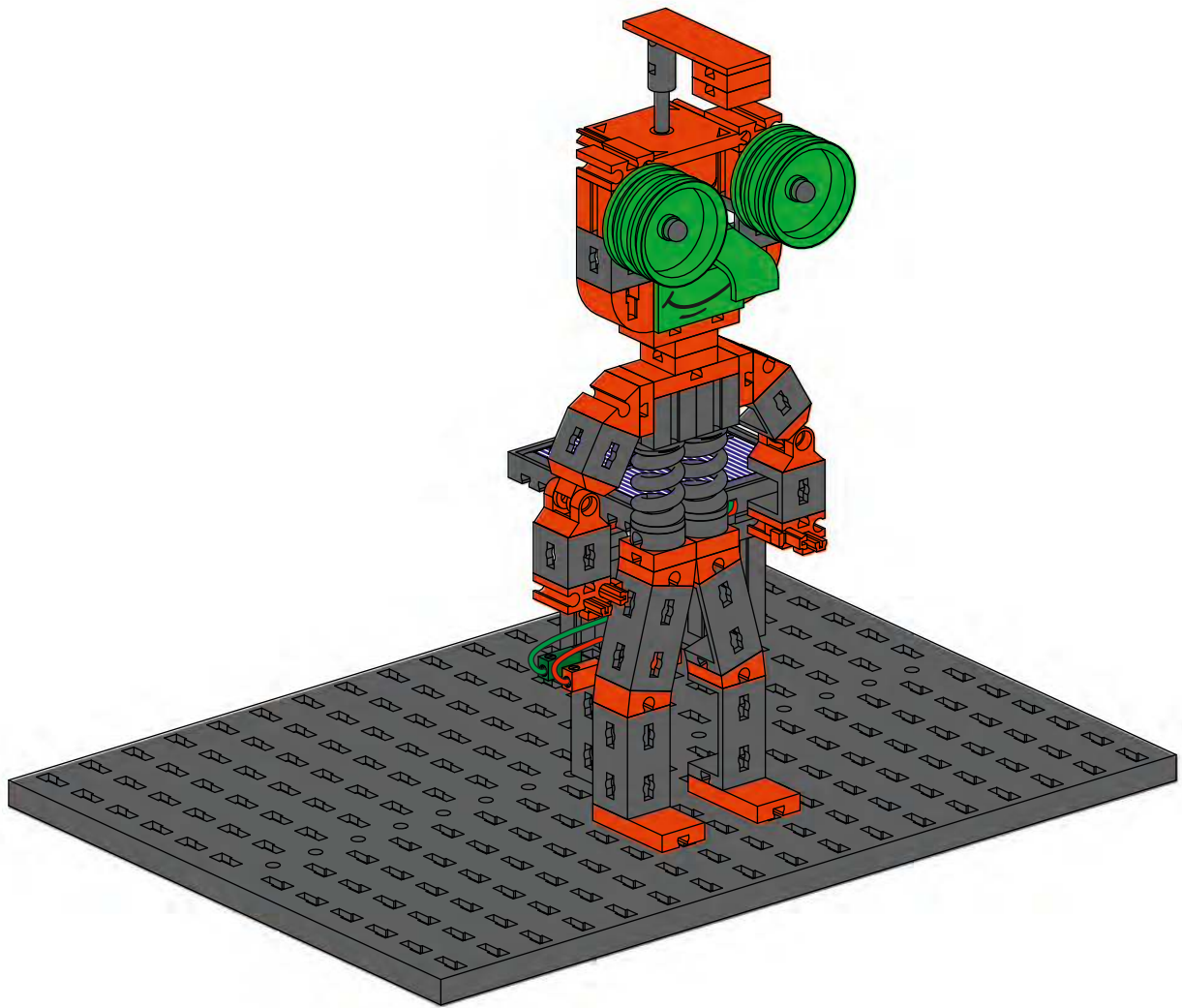


6

- 2x (orange 1x2 Technic Technic connector)
- 4x (orange 1x1 Technic Technic connector)
- 2x (green Technic pulley)
- 2x (grey Technic axle)



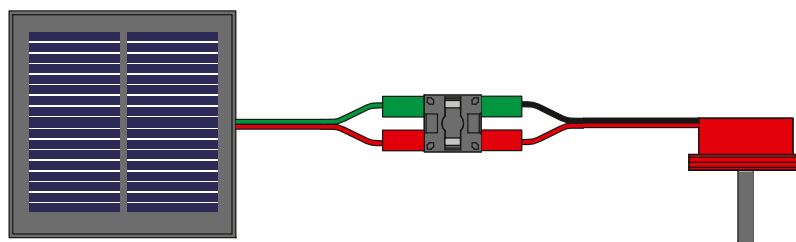


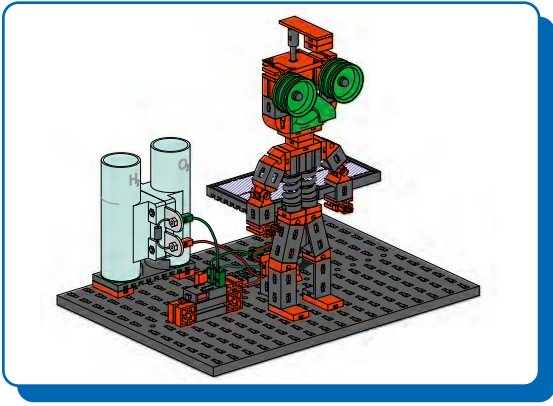


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Diagrama de circuitos  
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Схема подключения  
电路图





Wackelmann +  
Brennstoffzelle  
Nodding man + fuel cell  
Pile à combustible  
+ robot hocheur de tête

Knikkebollende man +  
brandstofcel  
El hombre que asiente con la  
cabeza + Célula de combustible  
Homem que Consente + Célula  
de combustível

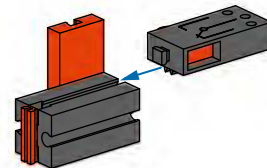
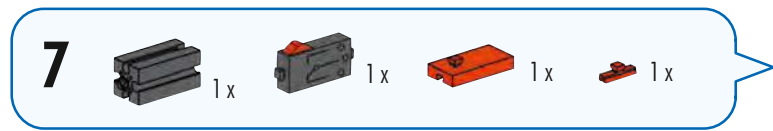
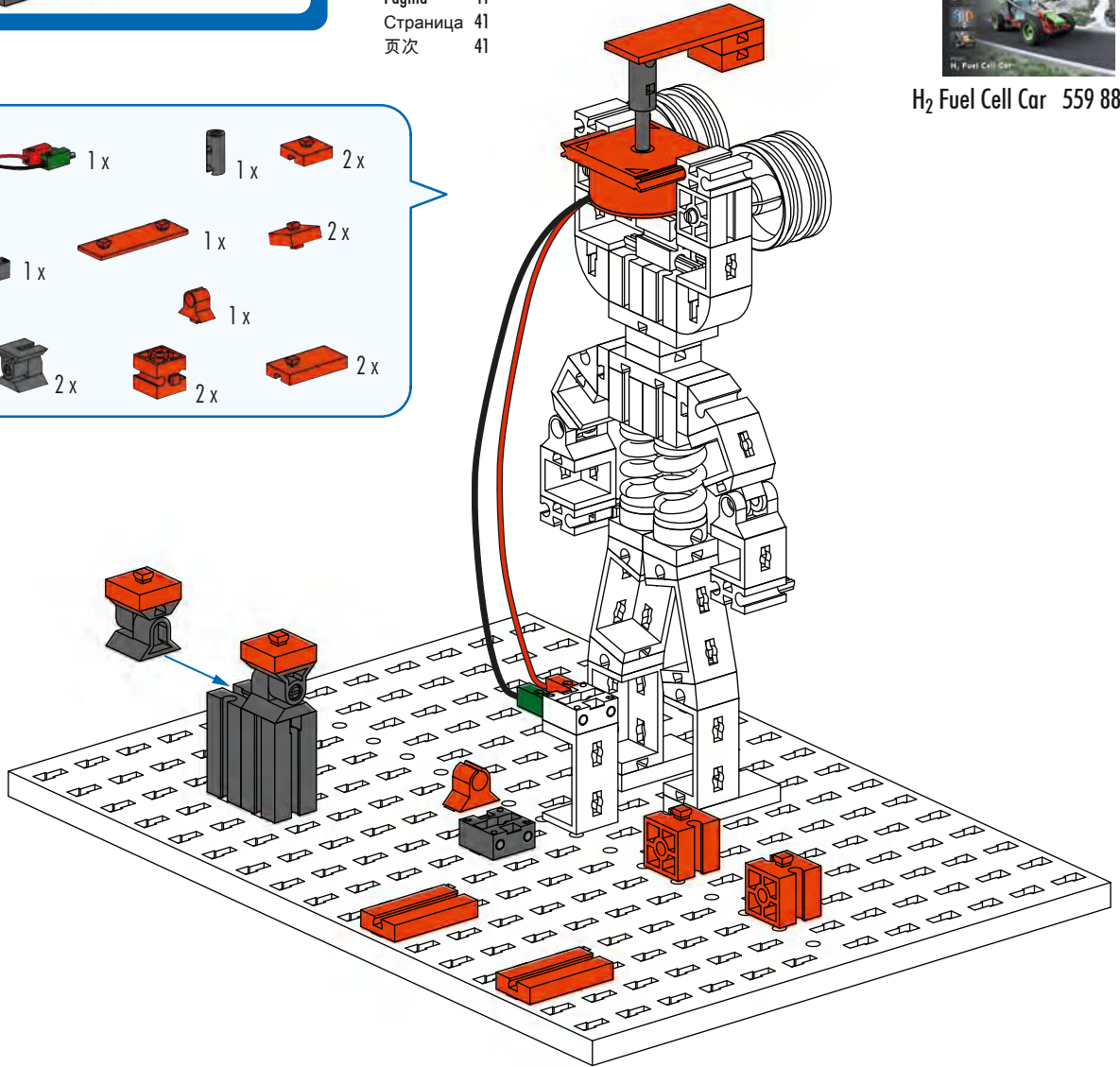
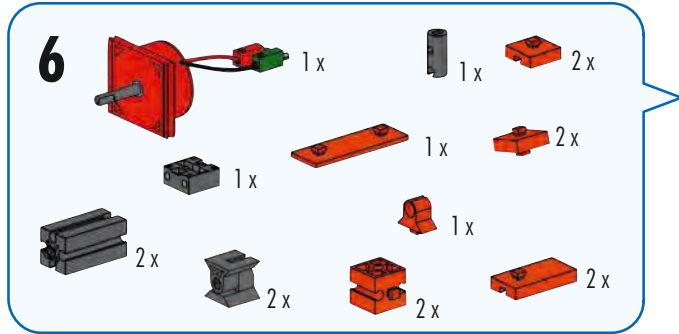
L'uomo che annuisce +  
Cella a combustibile  
Танцующий человек +  
Топливный элемент  
点头人 + 燃料电池

# 1-6

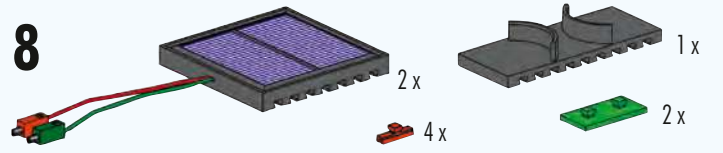
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Page	41
Page	41
Bladzijde	41
Página	41
Pagina	41
Pagina	41
Страница	41
页次	41



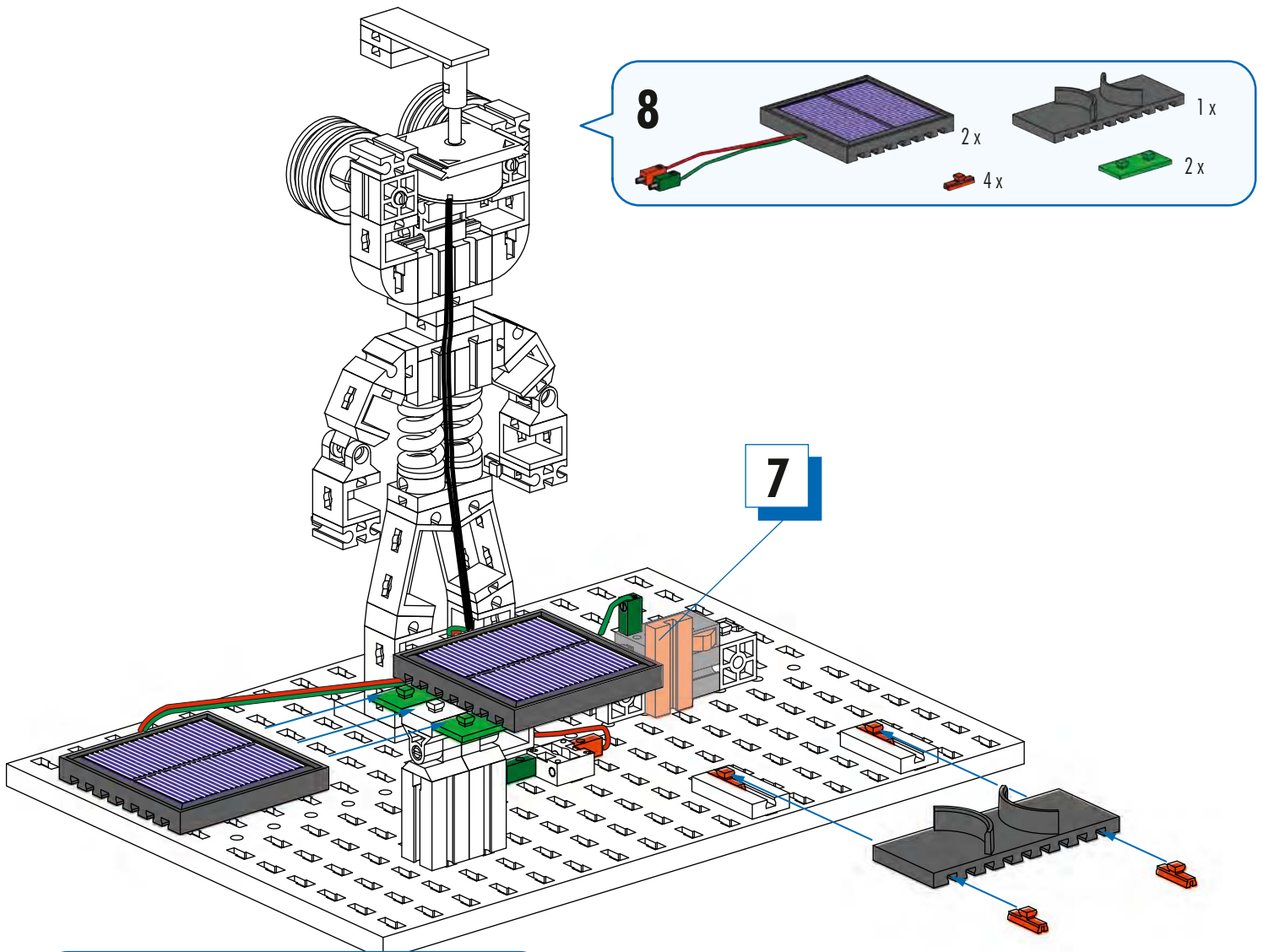
H<sub>2</sub> Fuel Cell Car 559 880



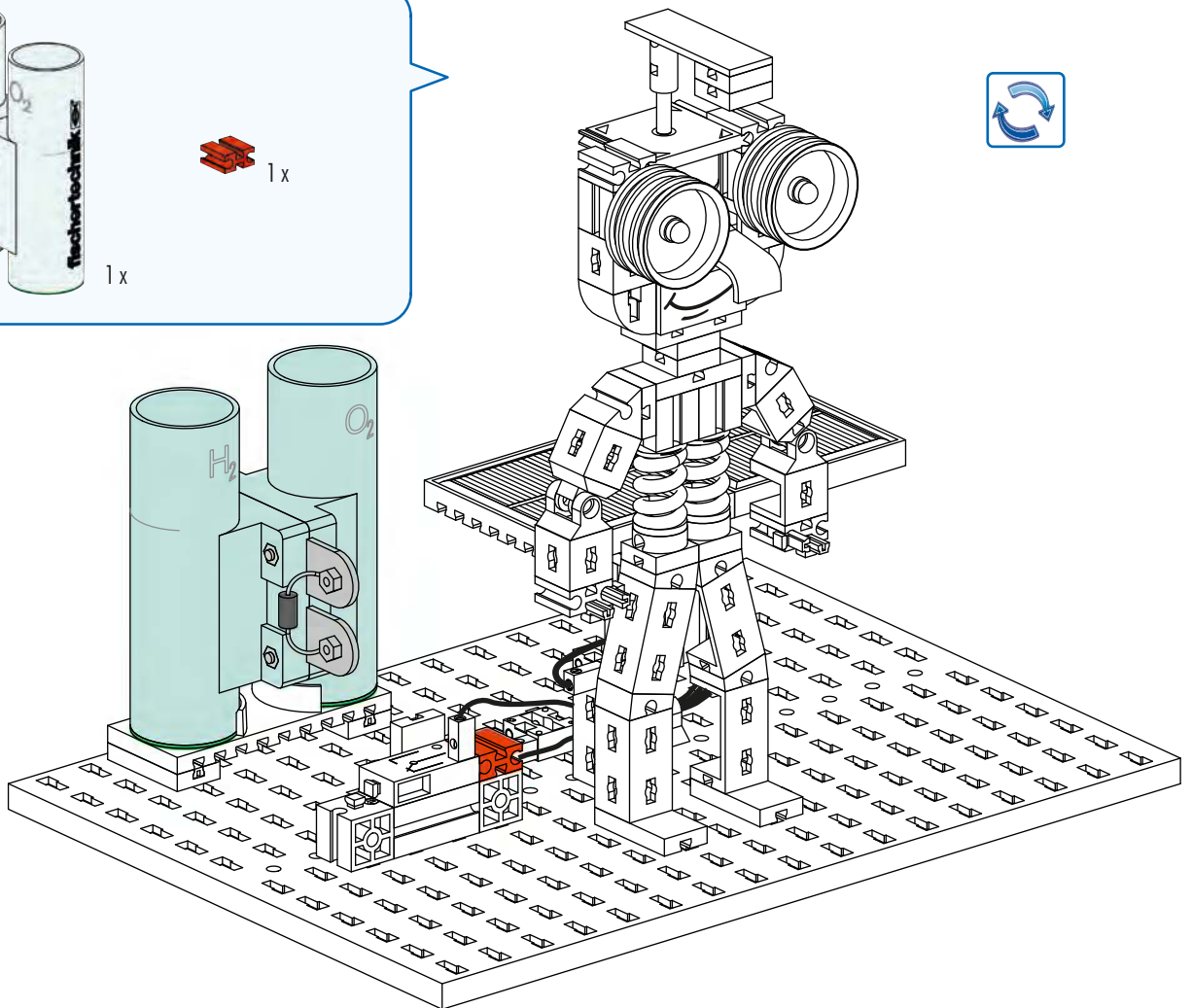
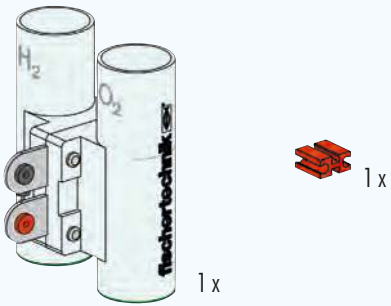
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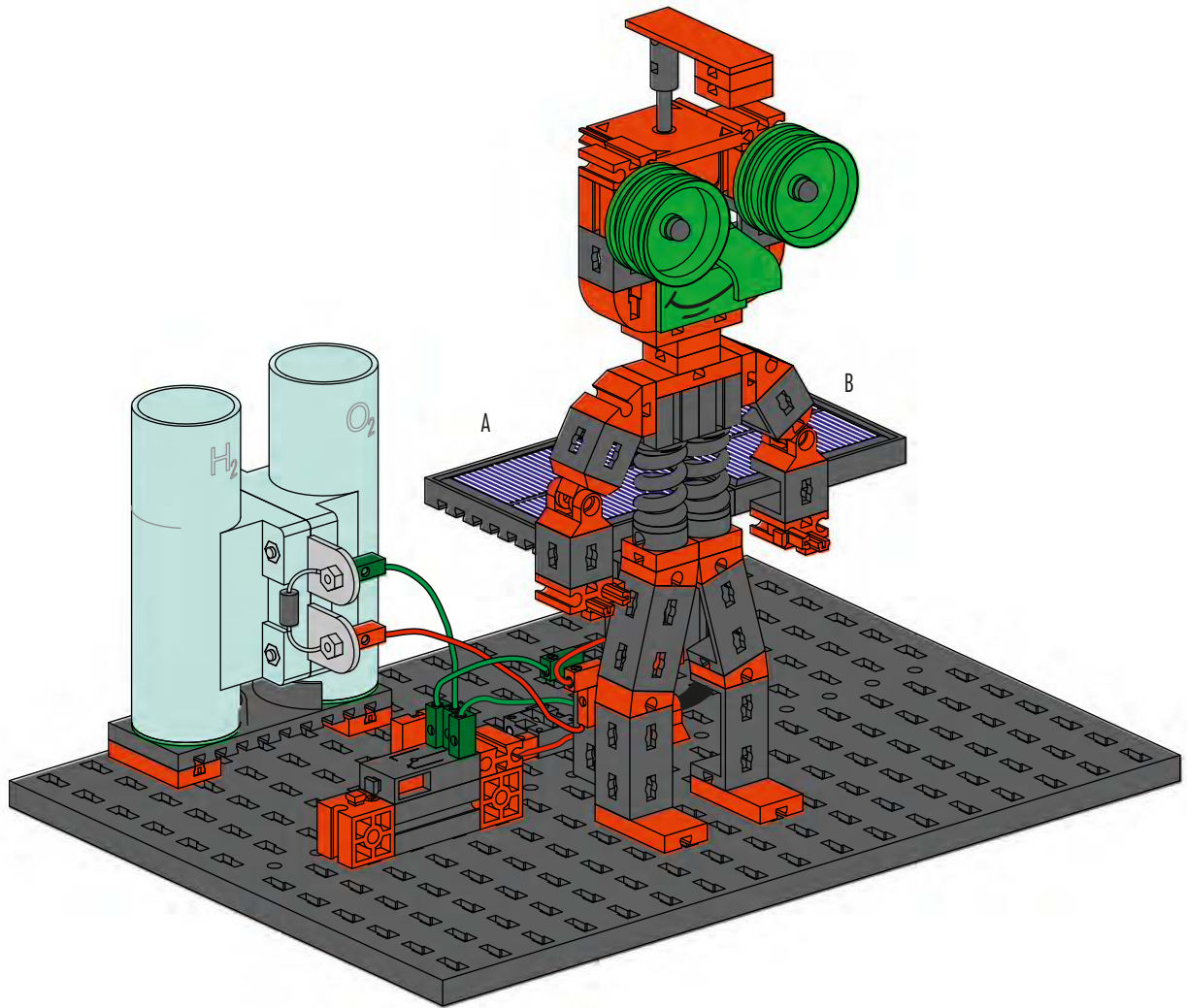


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9

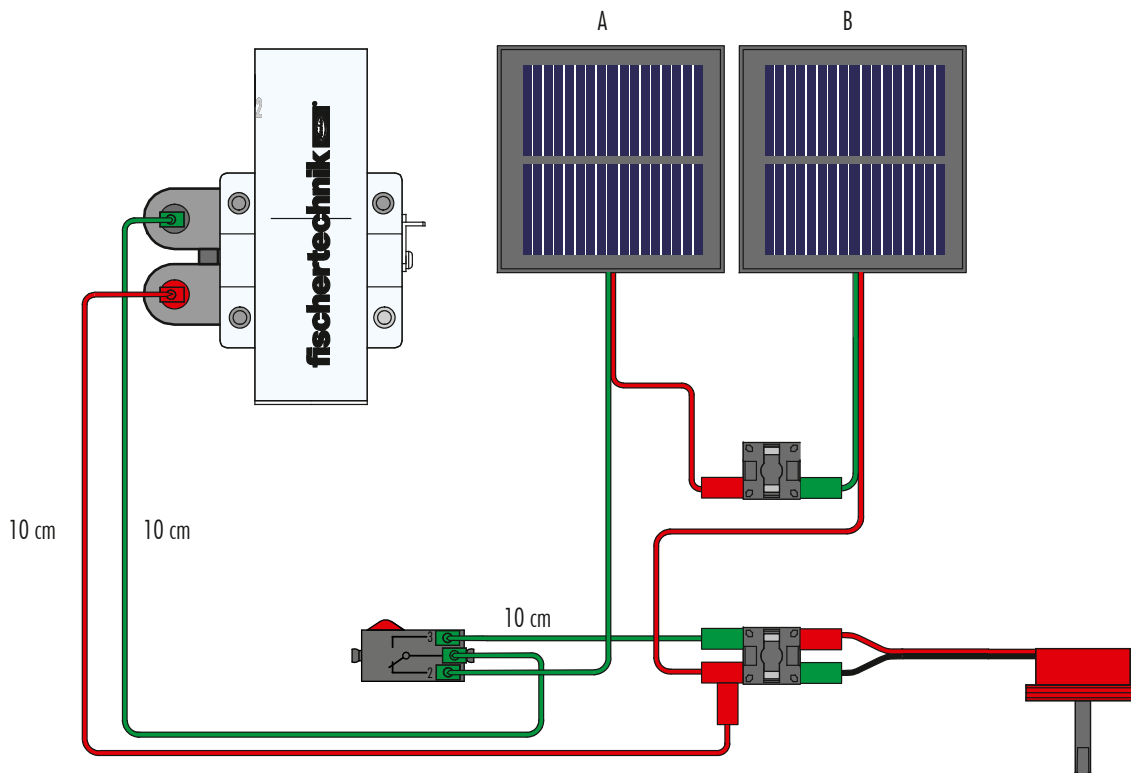


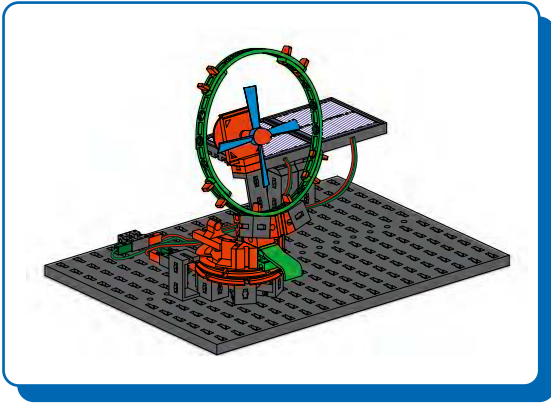


Schaltplan  
Circuit diagram  
Plan électrique

Schakelschema  
Diagrama de circuitos  
Plano elétrico de ligação

Schema elettrico  
Схема подключения  
电路图

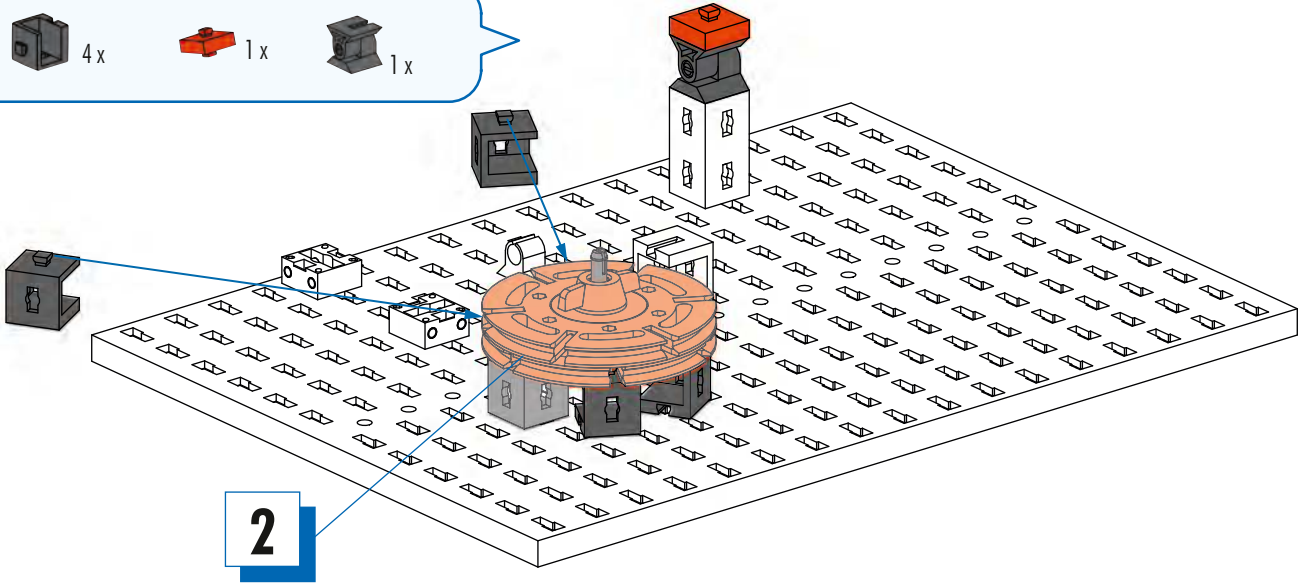
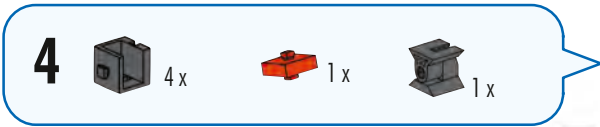
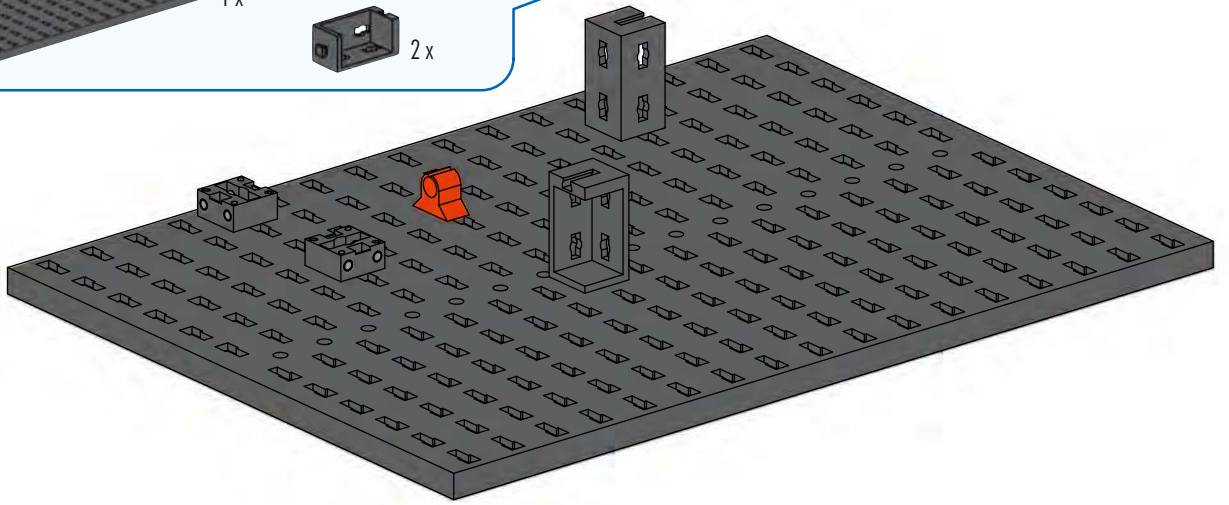
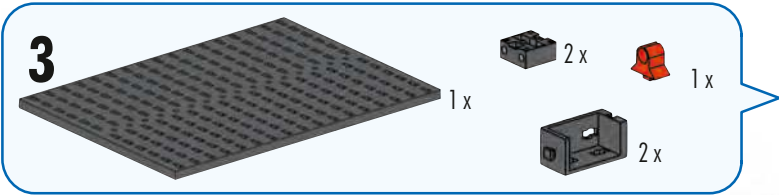
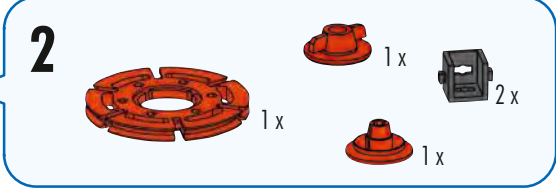
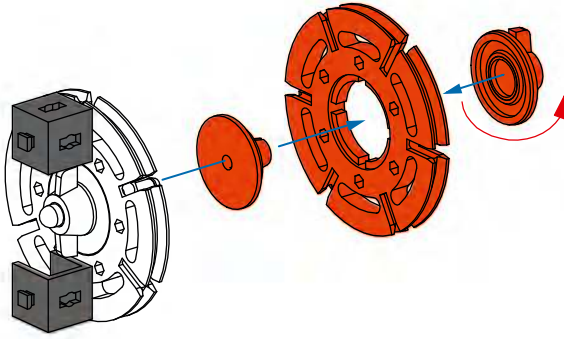
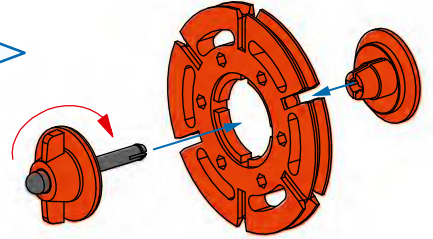
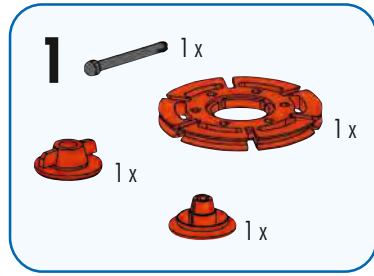




Ventilator  
Ventilating fan  
Ventilateur

Ventilator  
Ventilador  
Ventilador

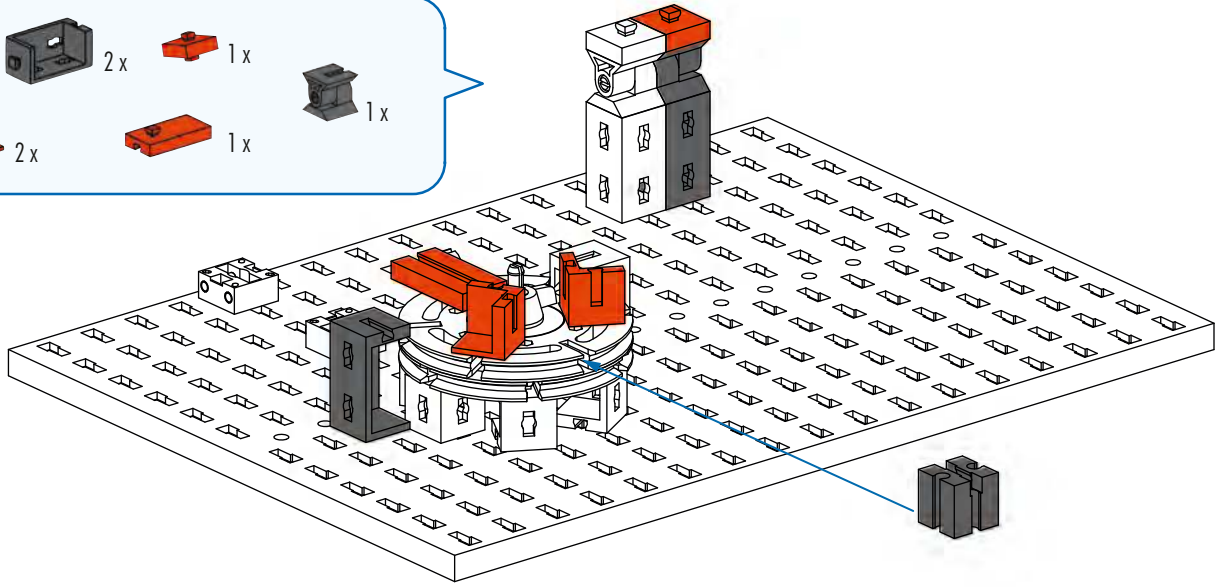
Ventilatore  
Вентилятор  
风扇



**2**

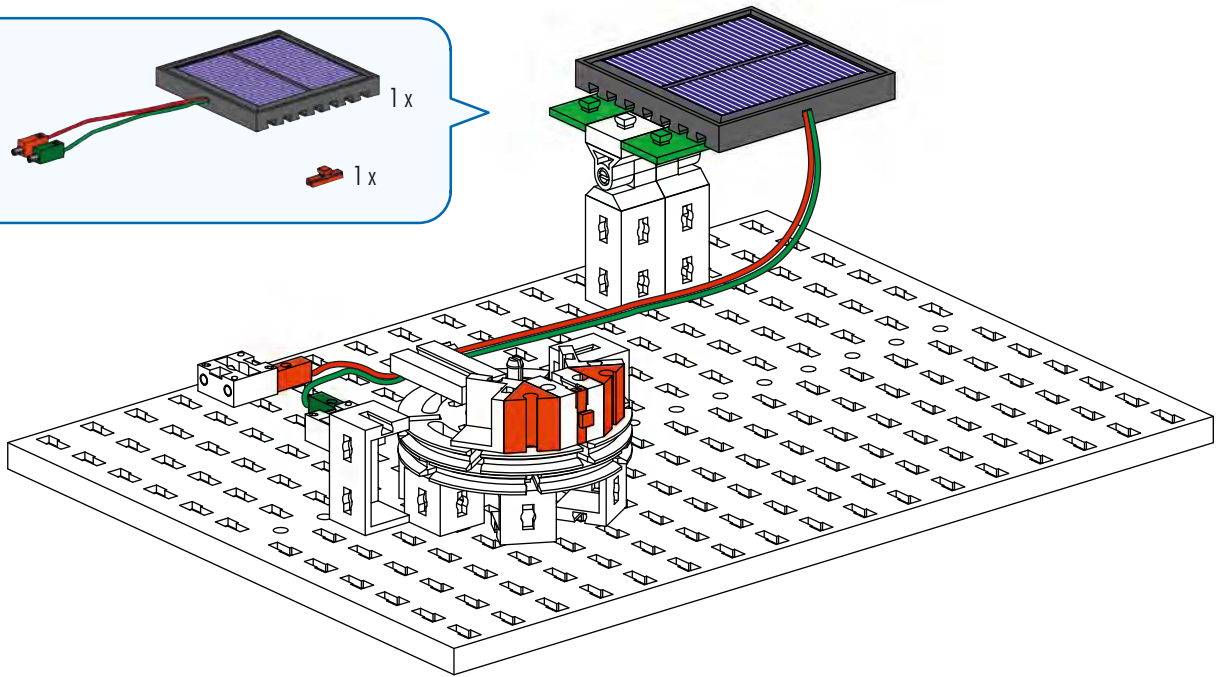
5

- 1x [grey 1x2 connector]
- 2x [grey 1x2 connector]
- 1x [orange 1x2 connector]
- 1x [grey 1x2 connector]
- 2x [orange 1x2 connector]
- 1x [orange 1x2 connector]
- 1x [grey 1x2 connector]



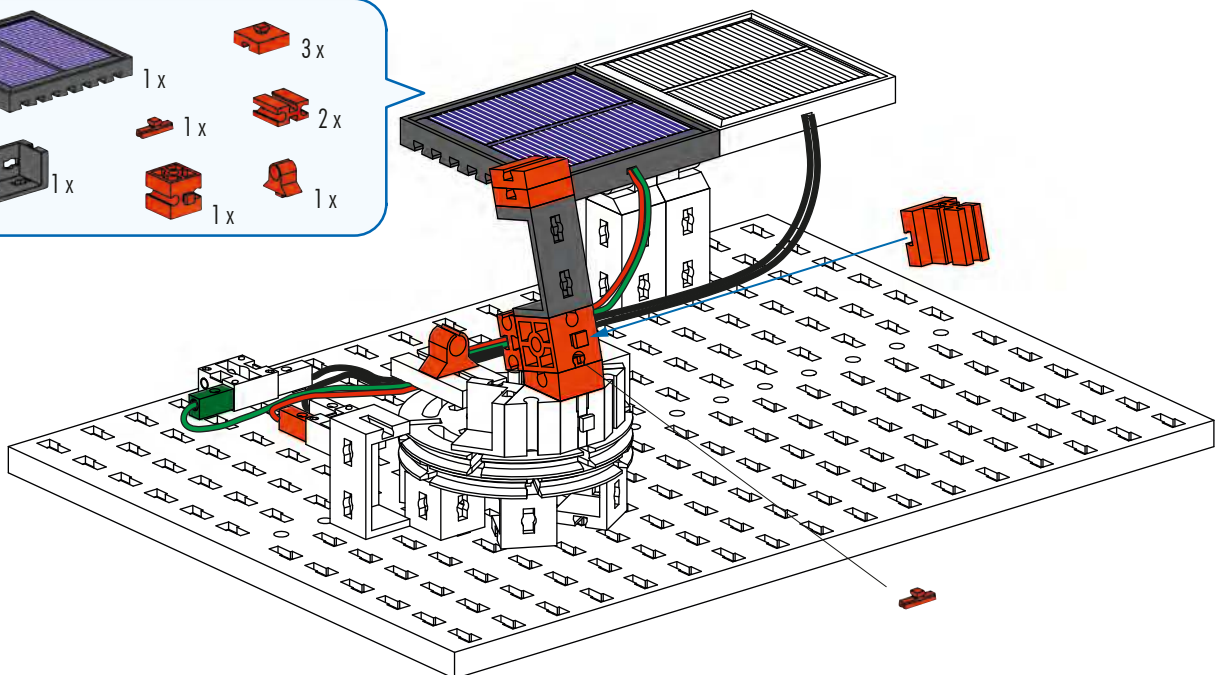
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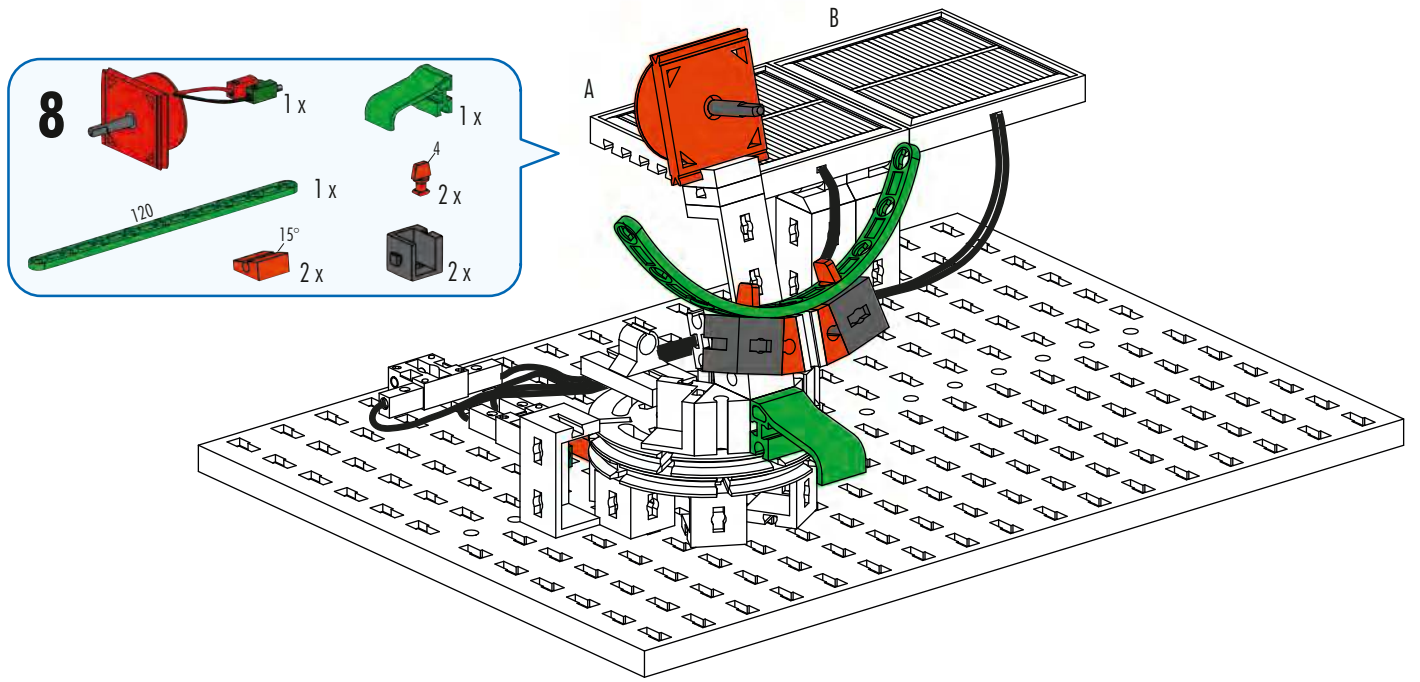
- 2x [orange 60° angled connector]
- 1x [purple PCB]
- 2x [green 1x2 connector]
- 1x [orange 1x2 connector]



7

- 1x [purple PCB]
- 3x [orange 1x2 connector]
- 1x [orange 15° angled connector]
- 1x [grey 1x2 connector]
- 1x [orange 1x2 connector]
- 2x [orange 1x2 connector]
- 1x [orange 1x2 connector]
- 1x [orange 1x2 connector]

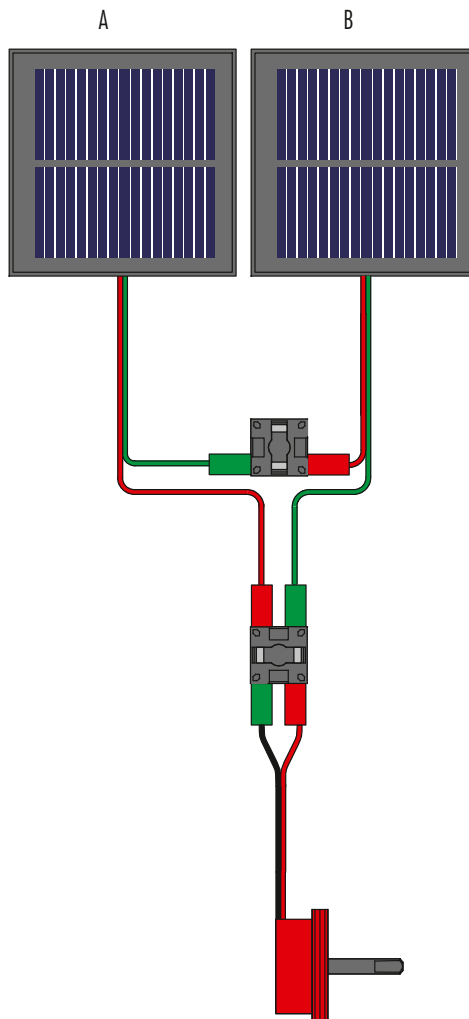




Schaltplan  
 Circuit diagram  
 Plan électrique

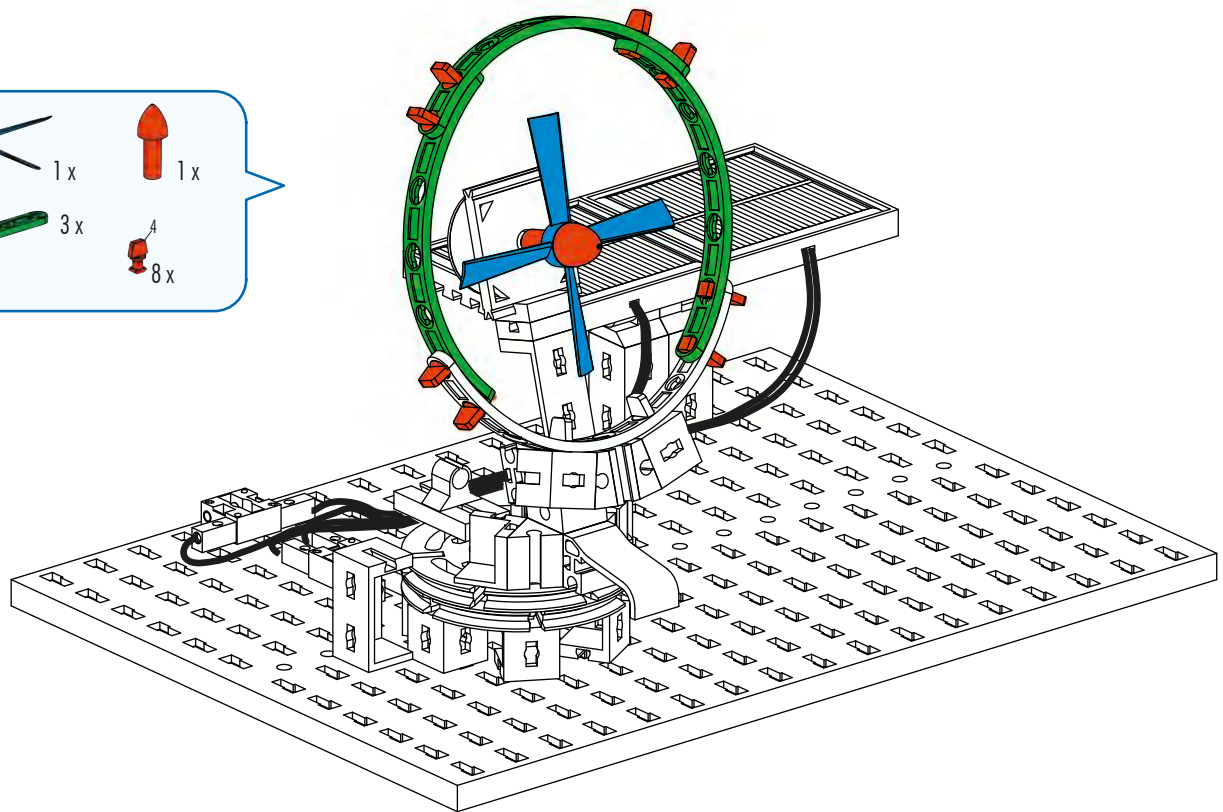
Schakelschema  
 Diagrama de circuitos  
 Plano elétrico de ligação

Schema elettrico  
 Схема подключения  
 电路图

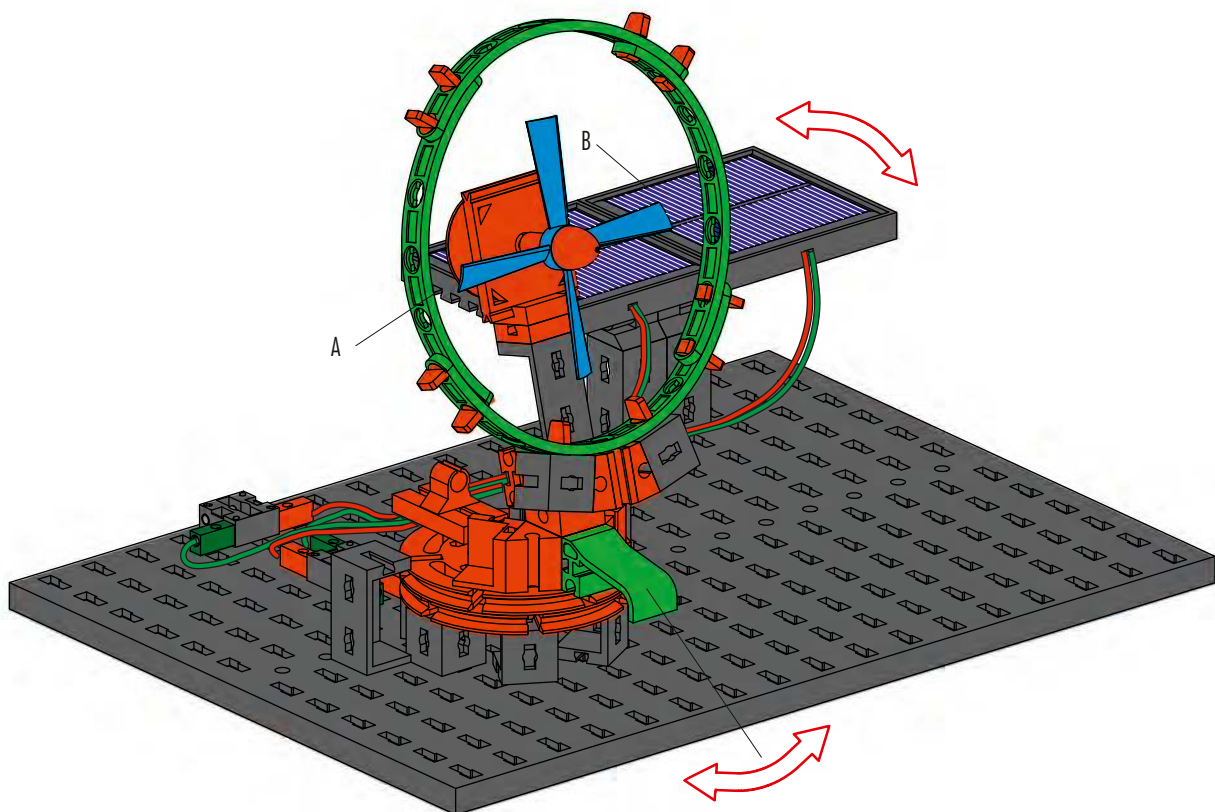


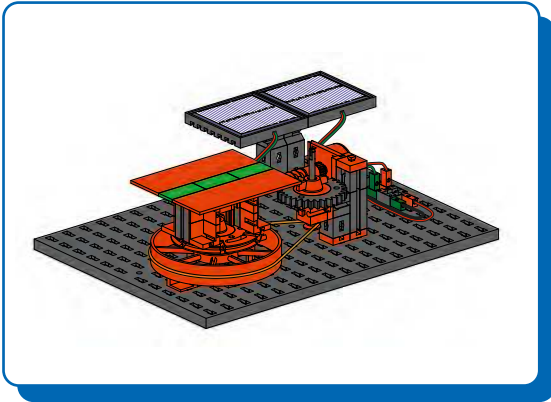
**9**

1 x  
1 x  
90 3 x  
4 8 x



- Symbol außen
- Symbol outside
- Symbole à l'extérieur
- Symbol buiten
- Símbolo en el exterior
- Símbolo exterior
- Símbolo all'esterno
- Символ снаружи
- 外面的符号





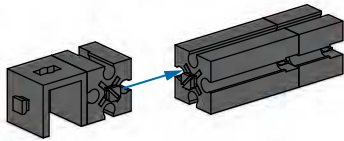
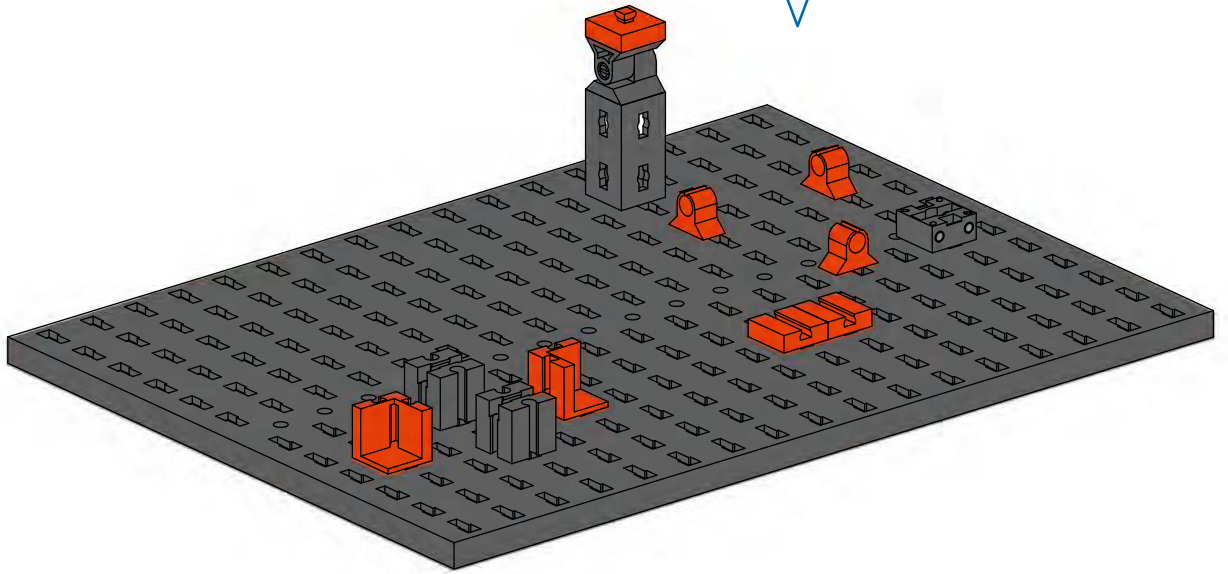
**Drehtisch**  
Turntable  
Plateau tournant

**Draaitafel**  
Mesa giratoria  
Plataforma giratória

**Giradisci**  
Piattaforma rotante  
Поворотный стол  
转盘

**1**

- 2x Orange 1x2 Technic pins
- 1x Orange 1x2 Technic pin with a hole
- 2x Orange 1x2 Technic pins with a hole
- 3x Orange 1x2 Technic pins with a hole
- 1x Grey 1x2 Technic pin with a hole
- 1x Grey 1x2 Technic pin with a hole
- 1x Grey 1x2 Technic pin with a hole
- 1x Grey 1x2 Technic pin with a hole

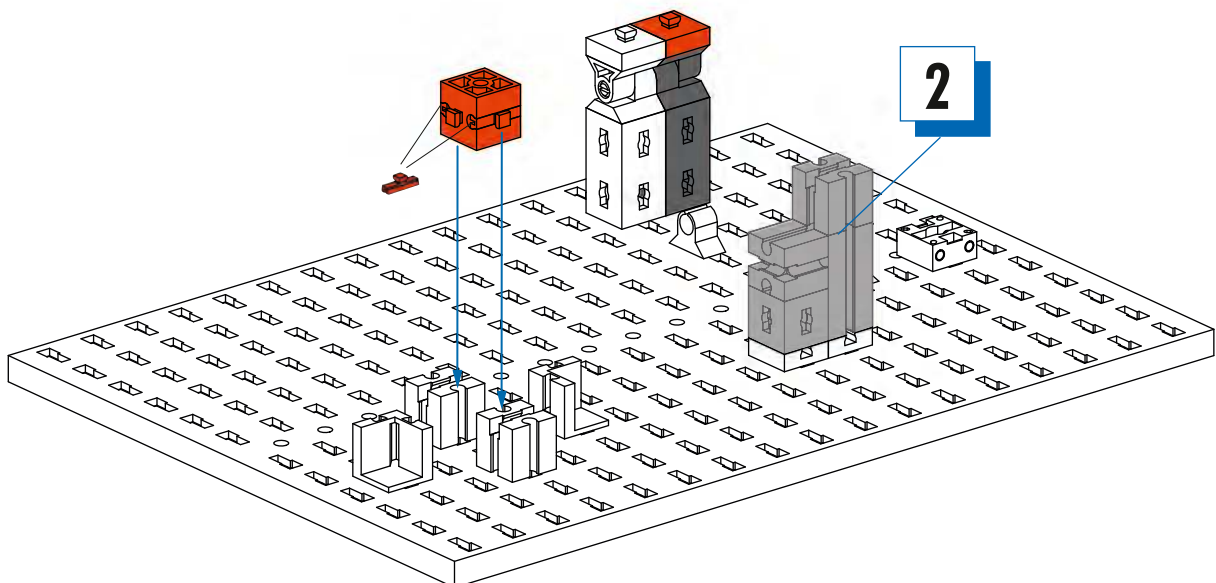


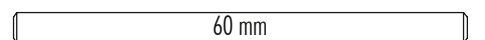
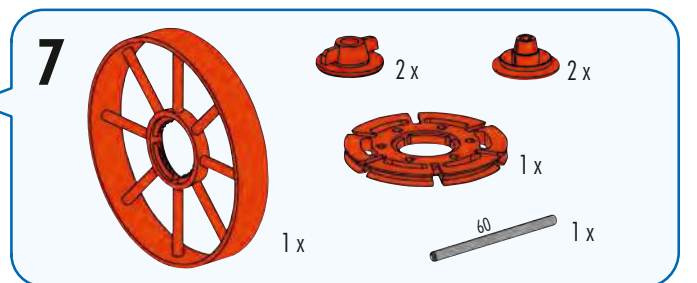
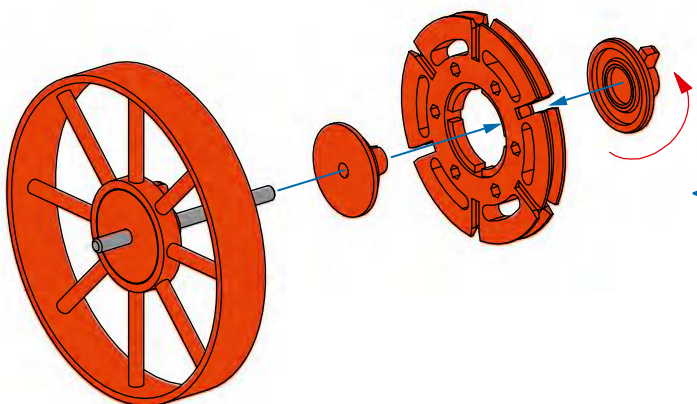
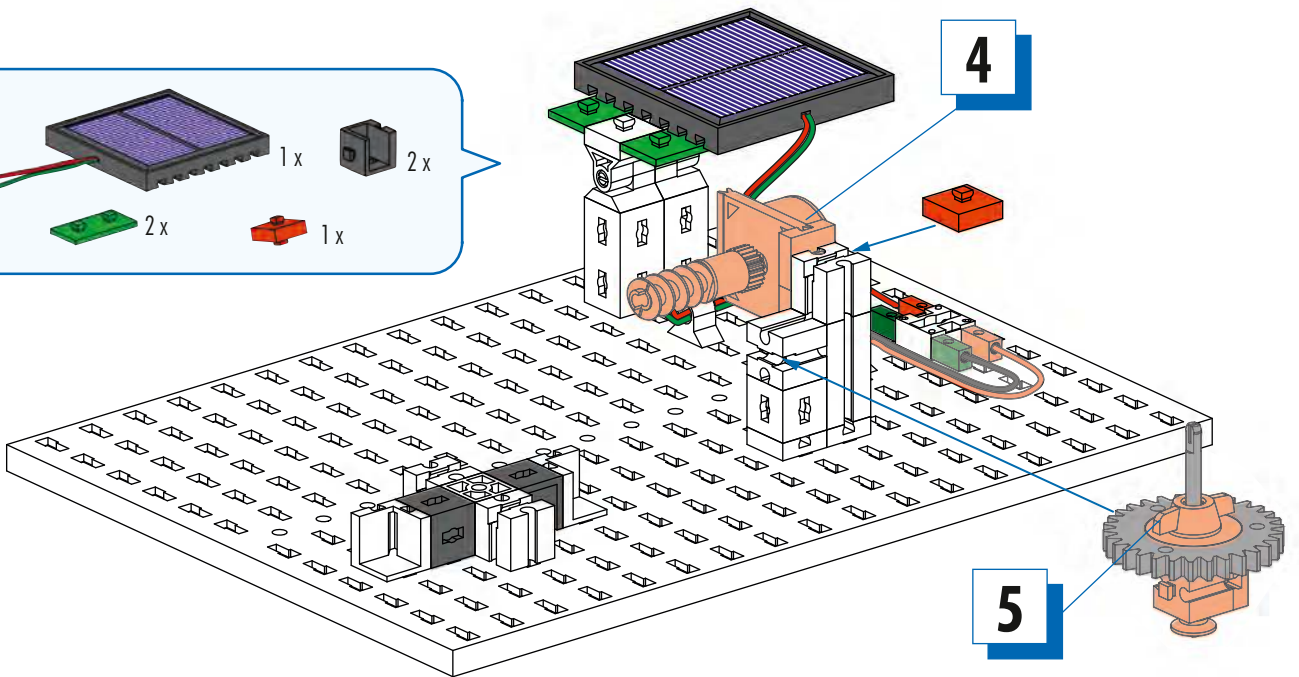
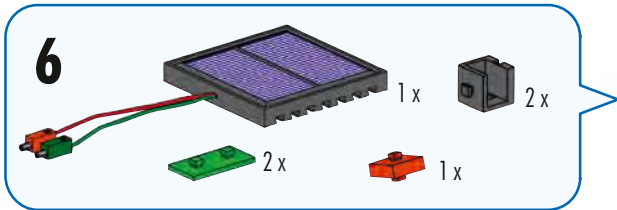
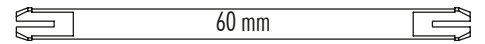
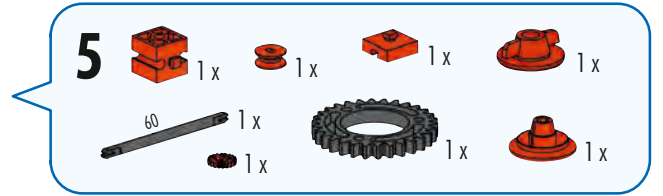
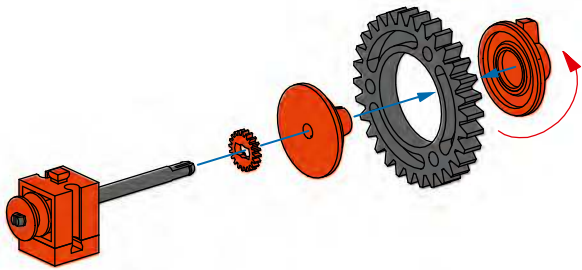
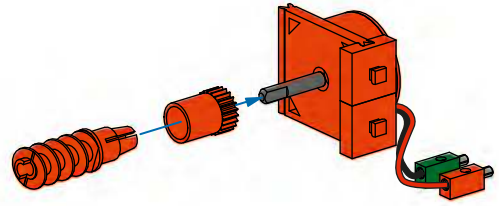
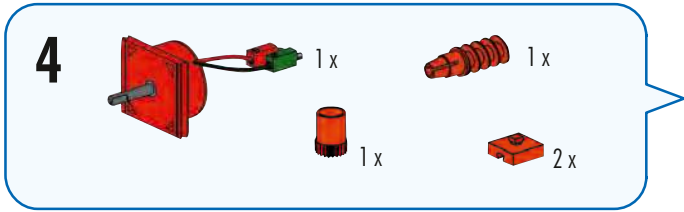
**2**

- 1x Grey 1x2 Technic pin with a hole
- 2x Grey 1x2 Technic pin with a hole
- 1x Grey 1x2 Technic pin with a hole

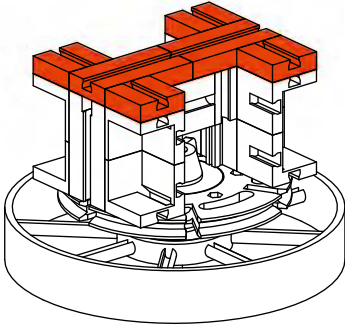
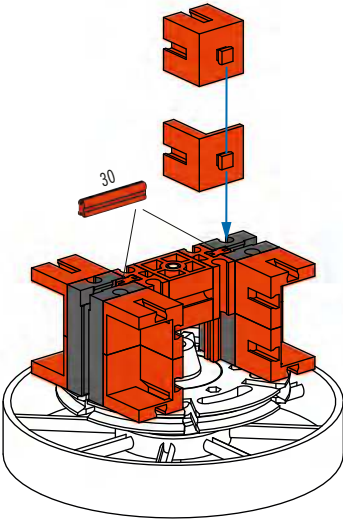
**3**

- 1x Grey 1x2 Technic pin with a hole
- 1x Orange 1x2 Technic pin with a hole
- 1x Grey 1x2 Technic pin with a hole
- 1x Orange 1x2 Technic pin with a hole
- 2x Orange 1x2 Technic pins

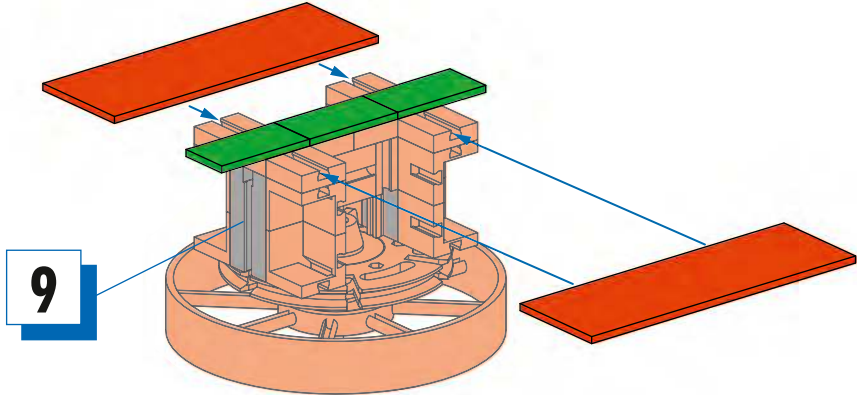




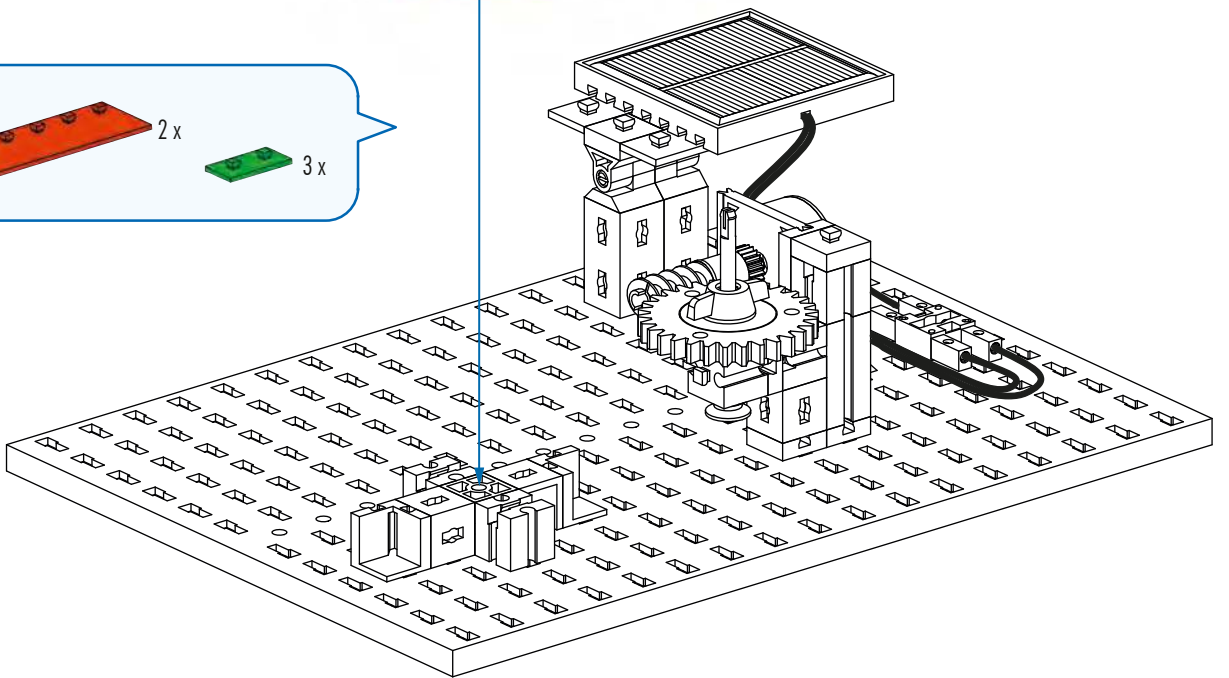
- 8**
- 2 x [Grey Technic Beam 1x3]
  - 2 x [Red Technic Beam 1x3]
  - 2 x [Red Technic Beam 1x3]
  - 2 x [Red Technic Beam 1x3]
  - 8 x [Red Technic Beam 1x3]
  - 1 x [Red Technic Connector]

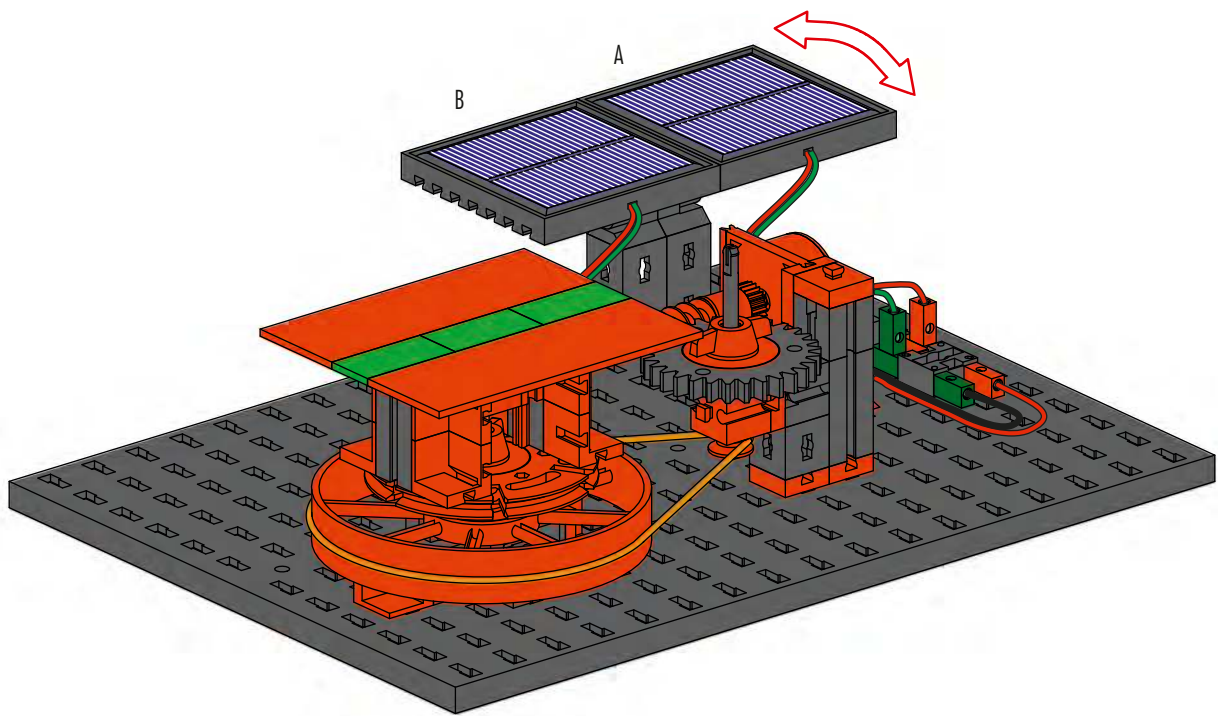
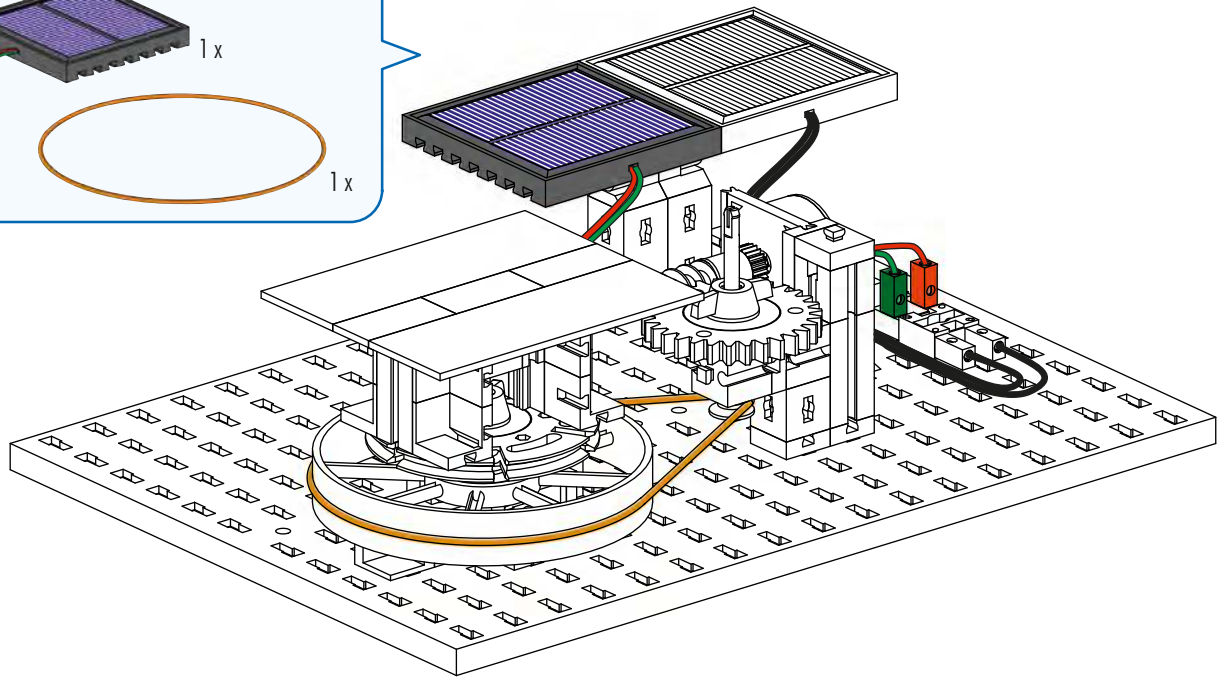
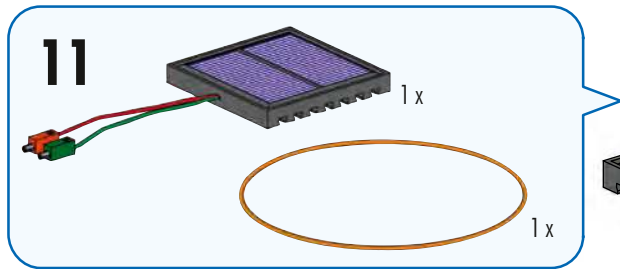


- 9**
- 2 x [Red Technic Beam 1x10]
  - 4 x [Red Technic Connector]



- 10**
- 2 x [Red Technic Beam 1x10]
  - 3 x [Green Technic Beam 1x3]

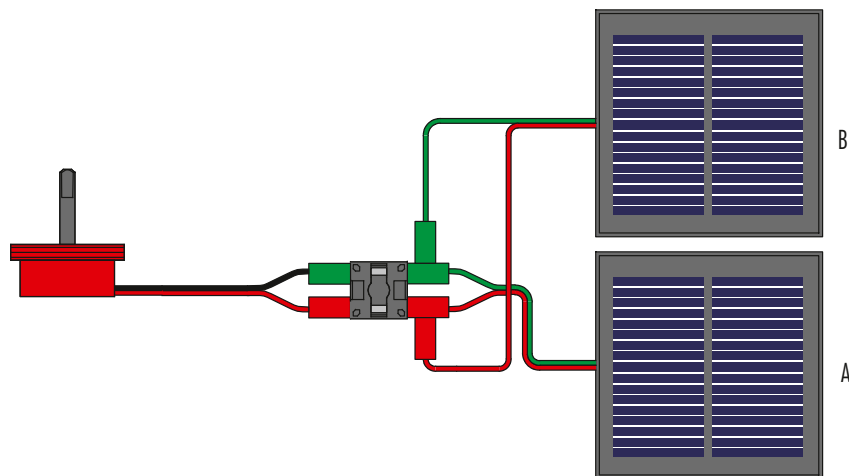




Schaltplan  
Circuit diagram  
Plan électrique

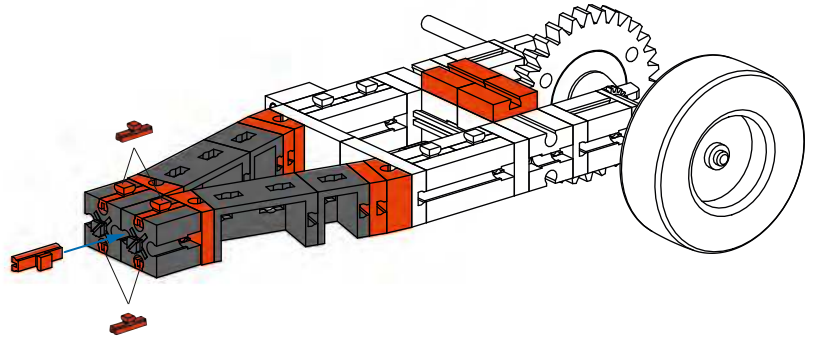
Schakelschema  
Diagrama de circuitos  
Plano elétrico de ligação

Schema elettrico  
Схема подключения  
电路图

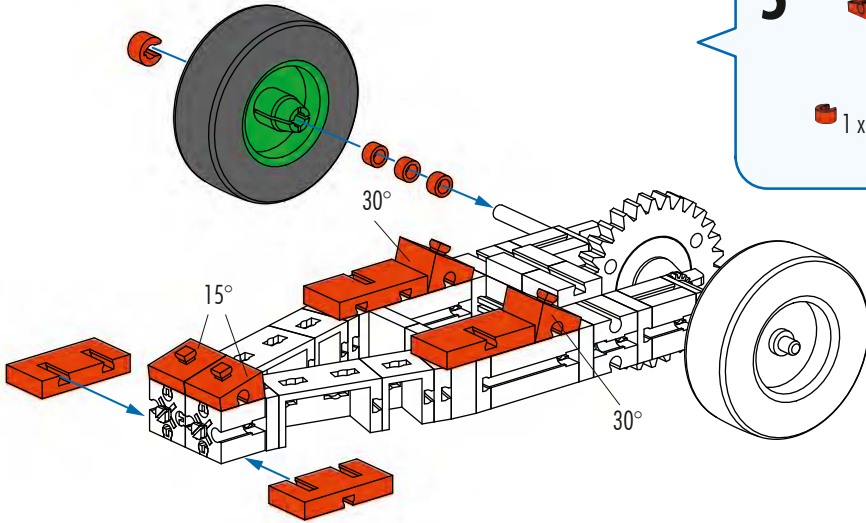
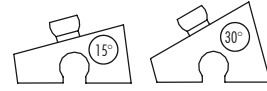




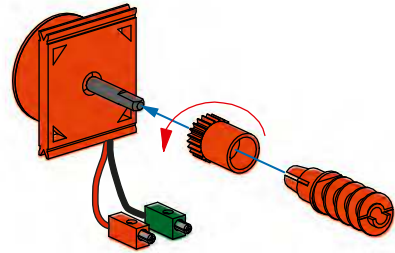
- 4**
- 2x [Grey Technic Beam 1x3]
  - 2x [Grey Technic Beam 1x4]
  - 2x [Grey Technic Beam 1x5]
  - 4x [Red Technic Brick 1x2 with 15° angle]
  - 4x [Red Technic Brick 1x3 with 15° angle]
  - 5x [Red Technic Brick 1x4 with 15° angle]



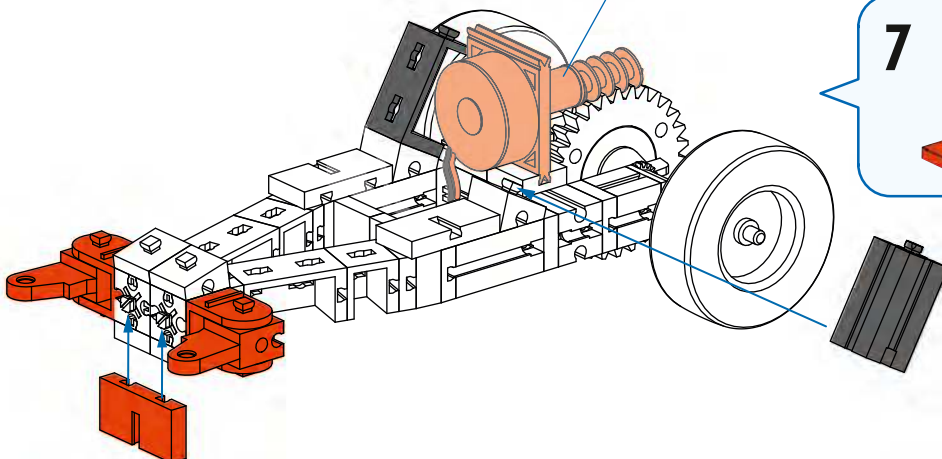
- 5**
- 2x [Red Technic Brick 1x2 with 15° angle]
  - 2x [Red Technic Brick 1x3 with 30° angle]
  - 4x [Red Technic Brick 1x4 with 30° angle]
  - 1x [Red Technic Pin]
  - 3x [Red Technic Pin]
  - 1x [Grey Technic Wheel with Green Hub]



- 6**
- 1x [Red Motor]
  - 1x [Red Cable]
  - 1x [Red Pin]
  - 1x [Red Pin]

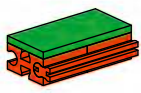
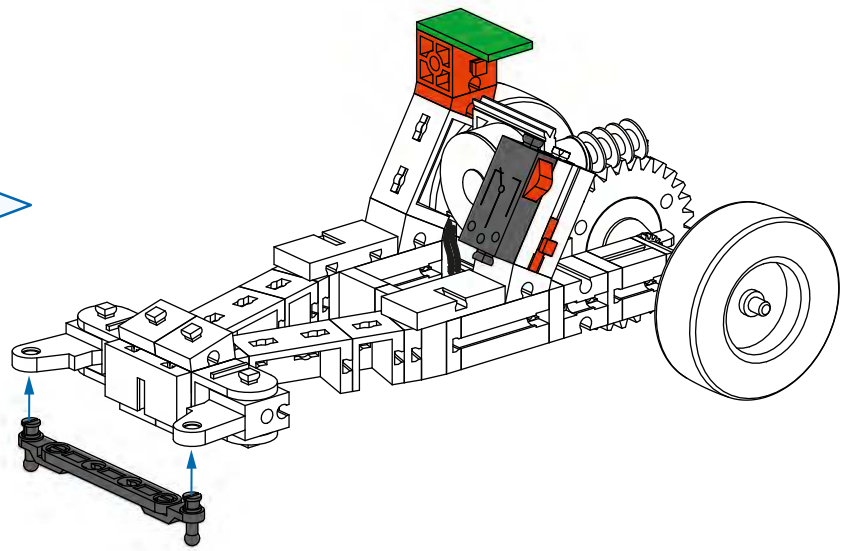
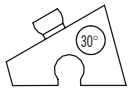


**6**



- 7**
- 1x [Grey Technic Beam 1x3]
  - 1x [Grey Technic Beam 1x4]
  - 1x [Red Technic Brick 1x2 with 15° angle]
  - 2x [Red Technic Brick 1x4 with 30° angle]

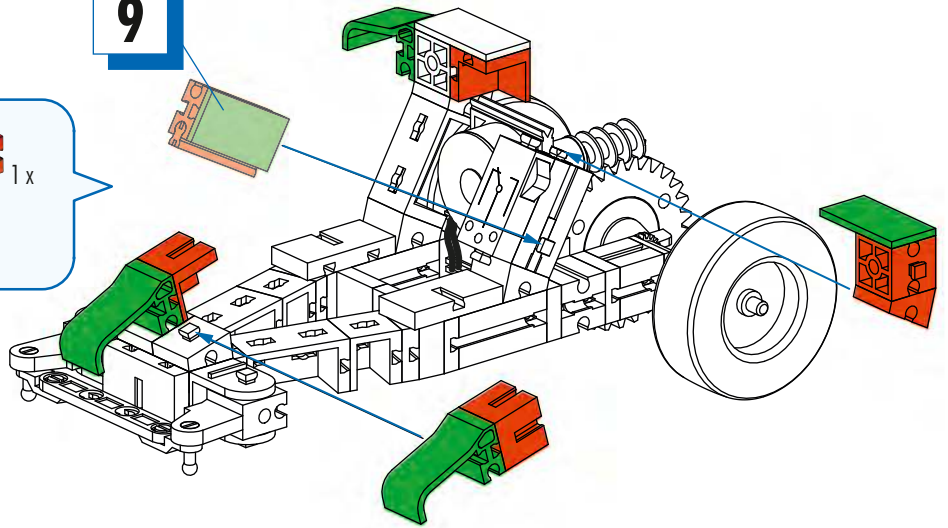
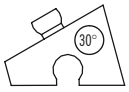
- 8**
- 1x [Grey Technic Pin]
  - 1x [Green Technic Plate 1x4]
  - 1x [Red Technic Pin]
  - 1x [Red Technic Pin 30°]
  - 2x [Black Technic Pin]
  - 1x [Red Technic Pin]
  - 1x [Black Technic Pin 45]



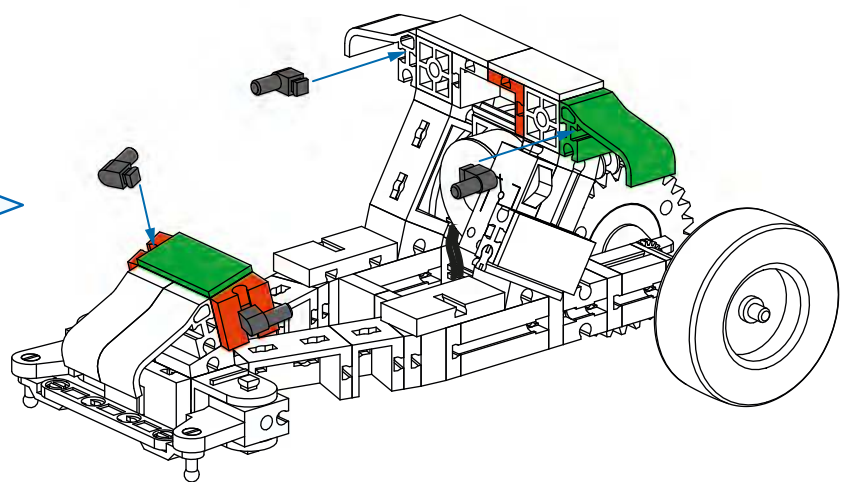
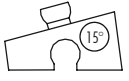
- 9**
- 2x [Red Technic Pin]
  - 1x [Red Technic Pin 30]
  - 1x [Green Technic Plate 1x4]

**9**

- 10**
- 3x [Green Technic Pin]
  - 3x [Red Technic Pin]
  - 1x [Red Technic Pin]
  - 1x [Red Technic Pin 30°]
  - 1x [Green Technic Plate 1x4]



- 11**
- 1x [Green Technic Pin]
  - 1x [Red Technic Pin]
  - 4x [Black Technic Pin]
  - 2x [Red Technic Pin 15°]
  - 1x [Green Technic Plate 1x4]

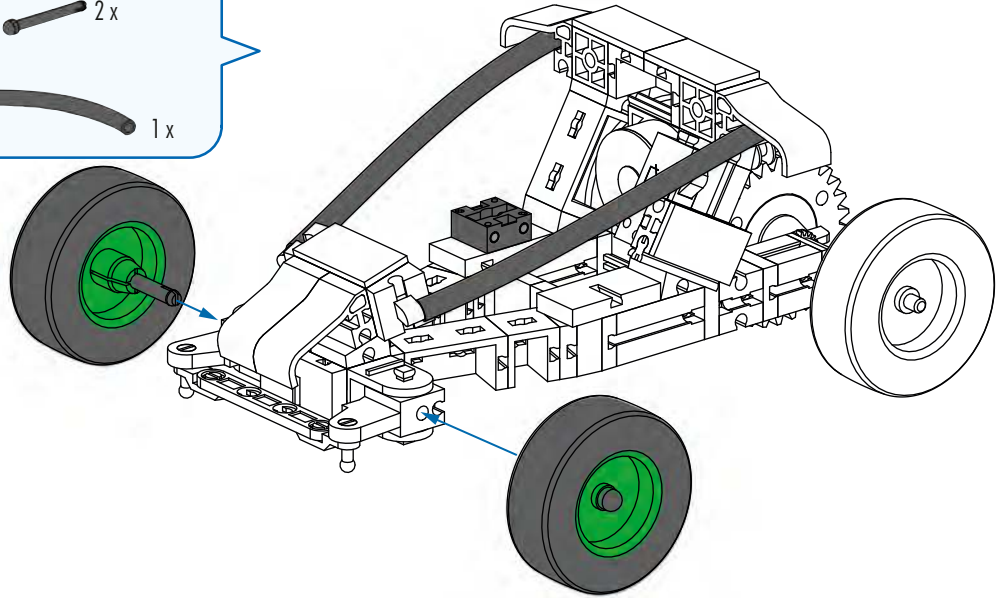


Elektroauto mit Solarladestation / Electric car with solar charging station /  
 Voiture électrique avec station de recharge solaire / Elektrische auto met zonne-  
 energie laadstation / Coche eléctrico con estación de carga solar / Carro eléctrico  
 com estação de carga solar / Auto elettrica con stazione di ricarica solare /  
 Электромобиль и зарядная станция / 带太阳能充电站的电动汽车

→ S./p. 67

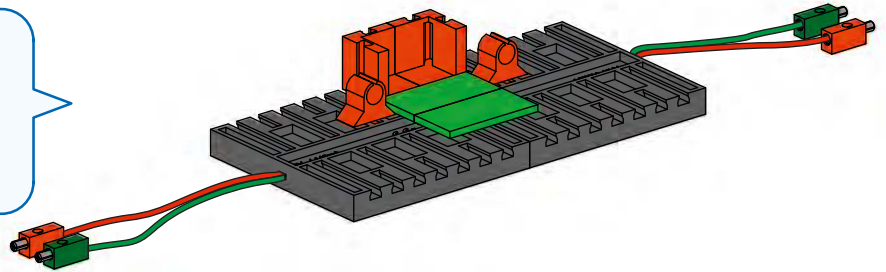
**12**

- 1 x [black 1x2 Technic brick]
- 2 x [grey 1x2 Technic axle with hole]
- 2 x [grey 1x2 Technic axle with hole]
- 1 x [grey curved Technic axle]



**13**

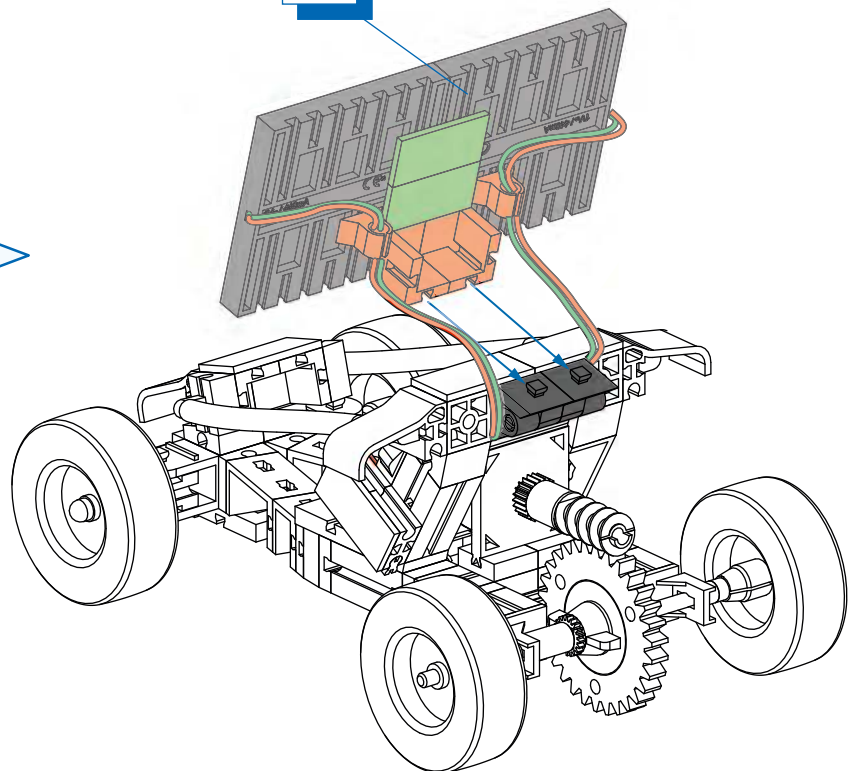
- 2 x [purple solar panel]
- 2 x [orange Technic connector]
- 2 x [orange Technic connector]
- 2 x [green Technic connector]

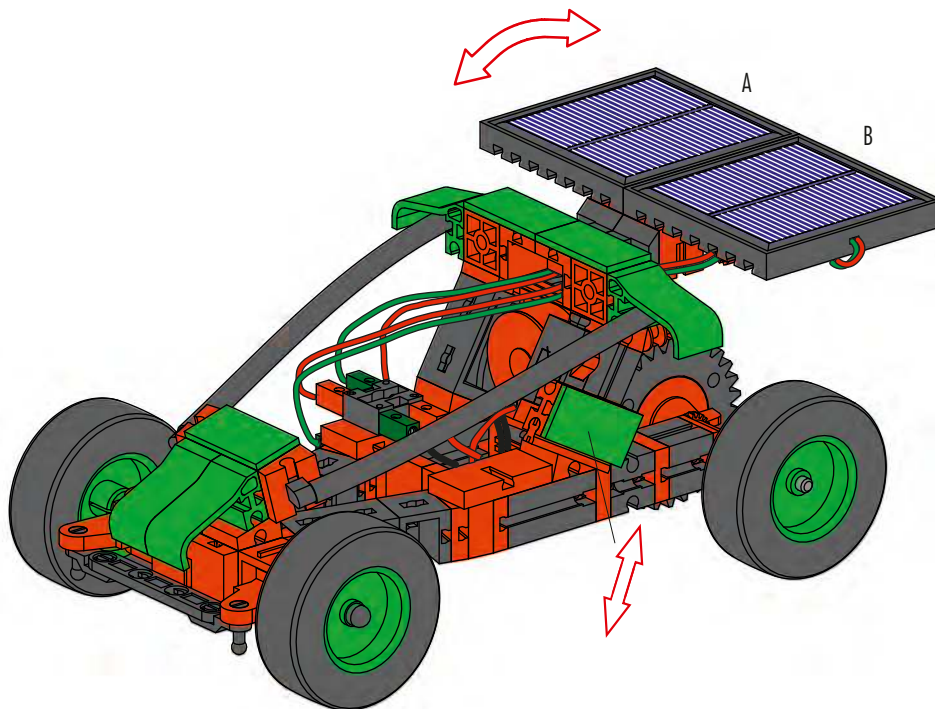


**13**

**14**

- 2 x [grey Technic connector]





Schaltplan  
Circuit diagram  
Plan électrique

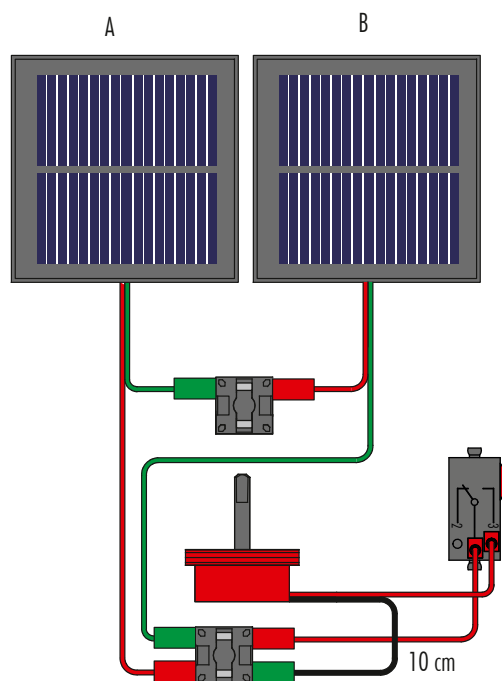
Schakelschema  
Diagrama de circuitos  
Plano elétrico de ligação

Schema elettrico  
Схема подключения  
电路图

Aufgabe 1  
Task 1  
Exercice 1

Taak 1  
Tarea 1  
Tarefa 1

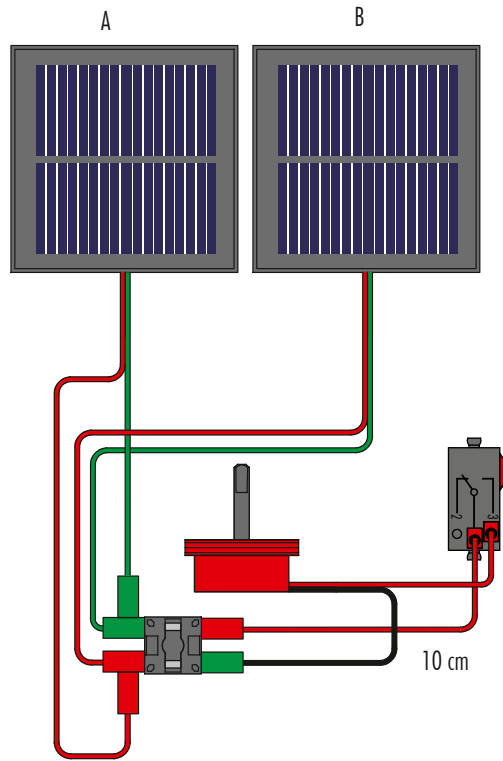
Compito 1  
Задание 1  
任务 1



Aufgabe 2  
Task 2  
Exercice 2

Task 2  
Tarea 2  
Tarefa 2

Compito 2  
Задание 2  
任务 2



Elektroauto mit Solarladestation

Electric car with solar charging station

Voiture électrique avec station de recharge solaire

Elektrische auto met zonne-energie laadstation

Coche eléctrico con estación de carga solar

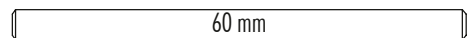
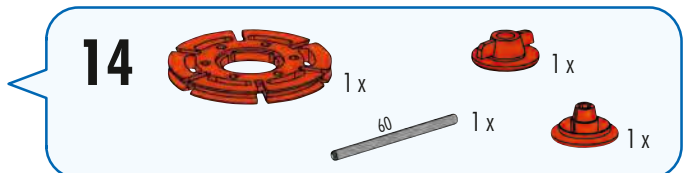
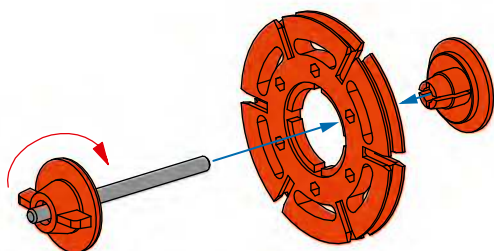
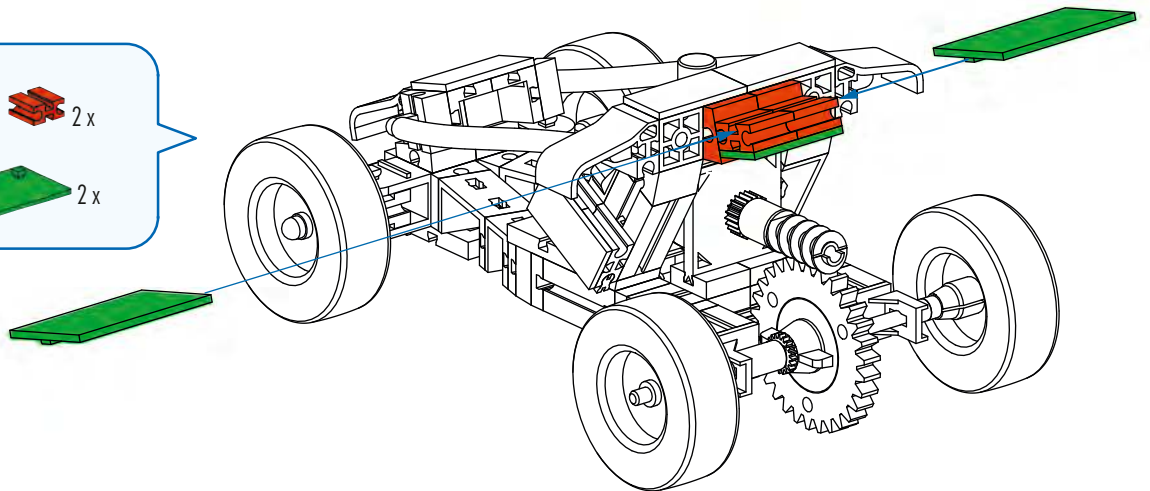
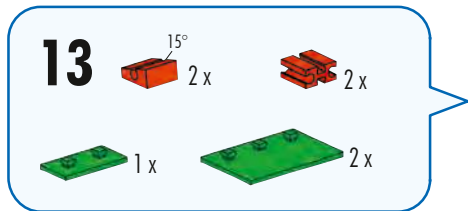
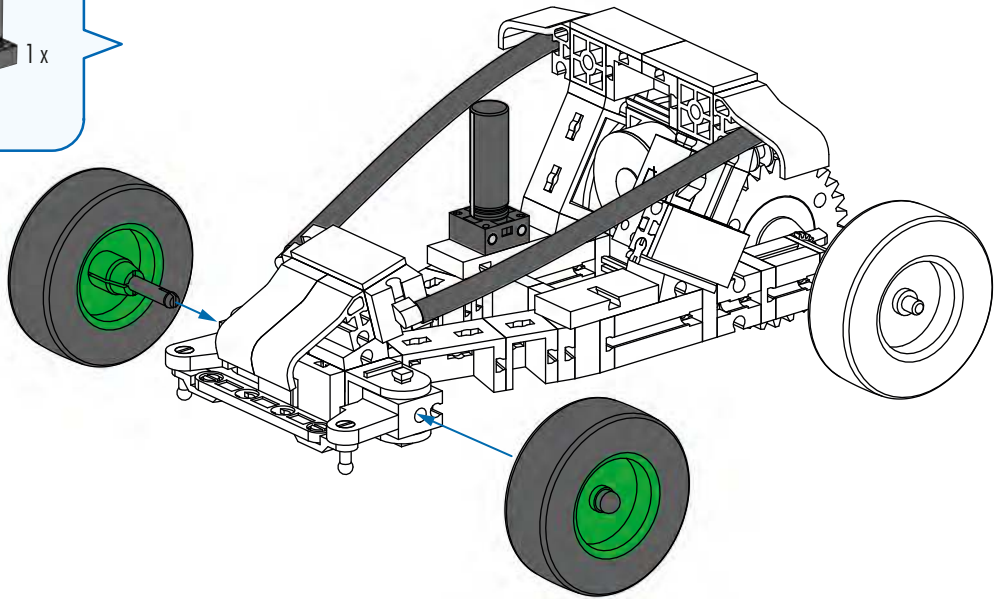
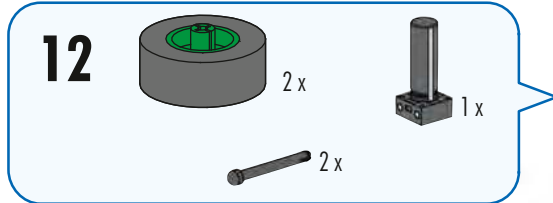
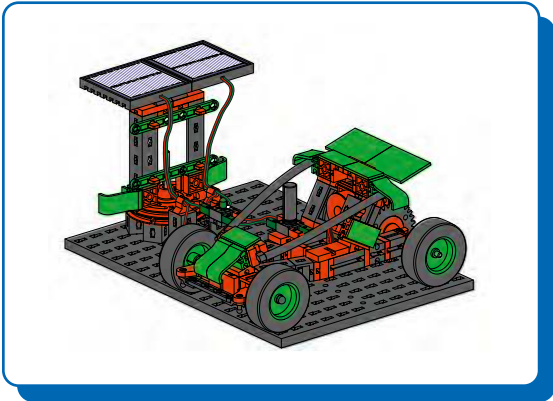
Carro eléctrico com estação de carga solar

Auto elettrica con stazione di ricarica solare

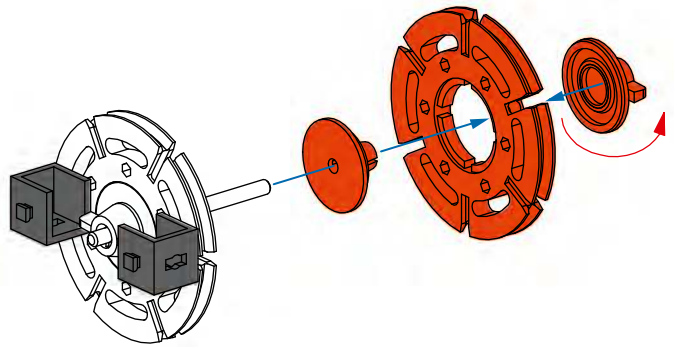
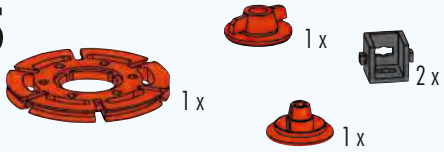
Электромобиль и зарядная станция  
带太阳能充电站的电动汽车

# 1-11

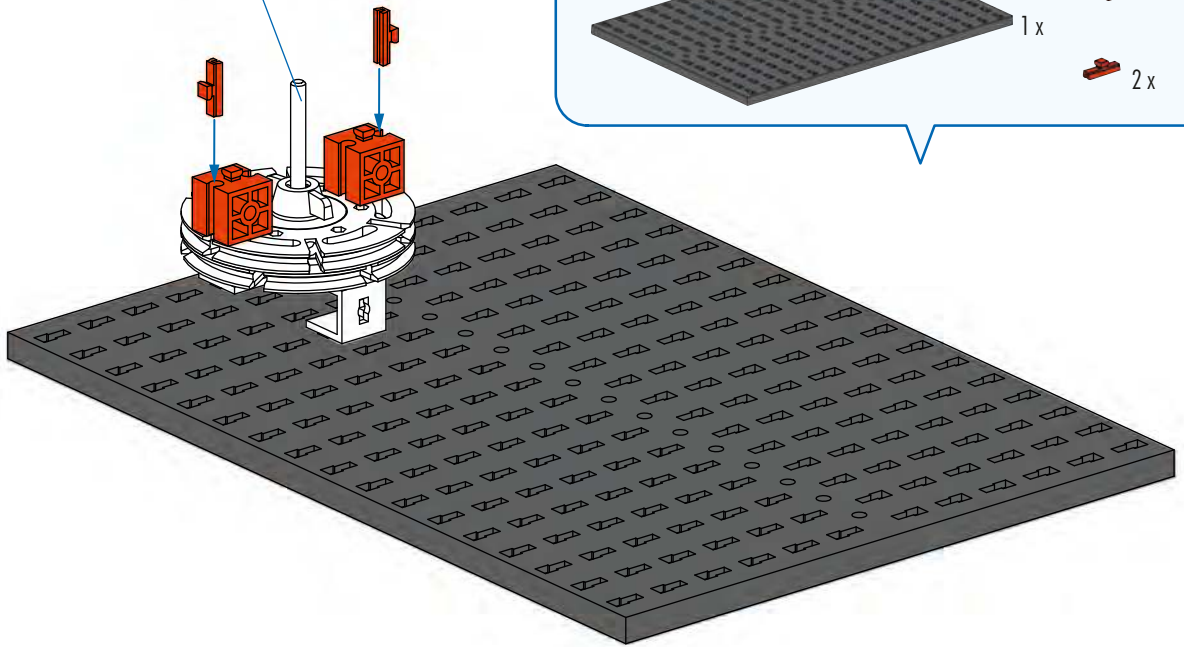
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页次	61



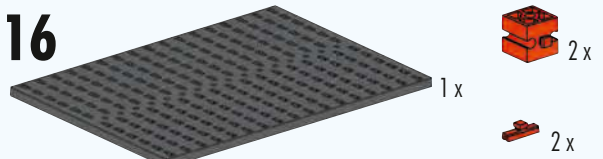
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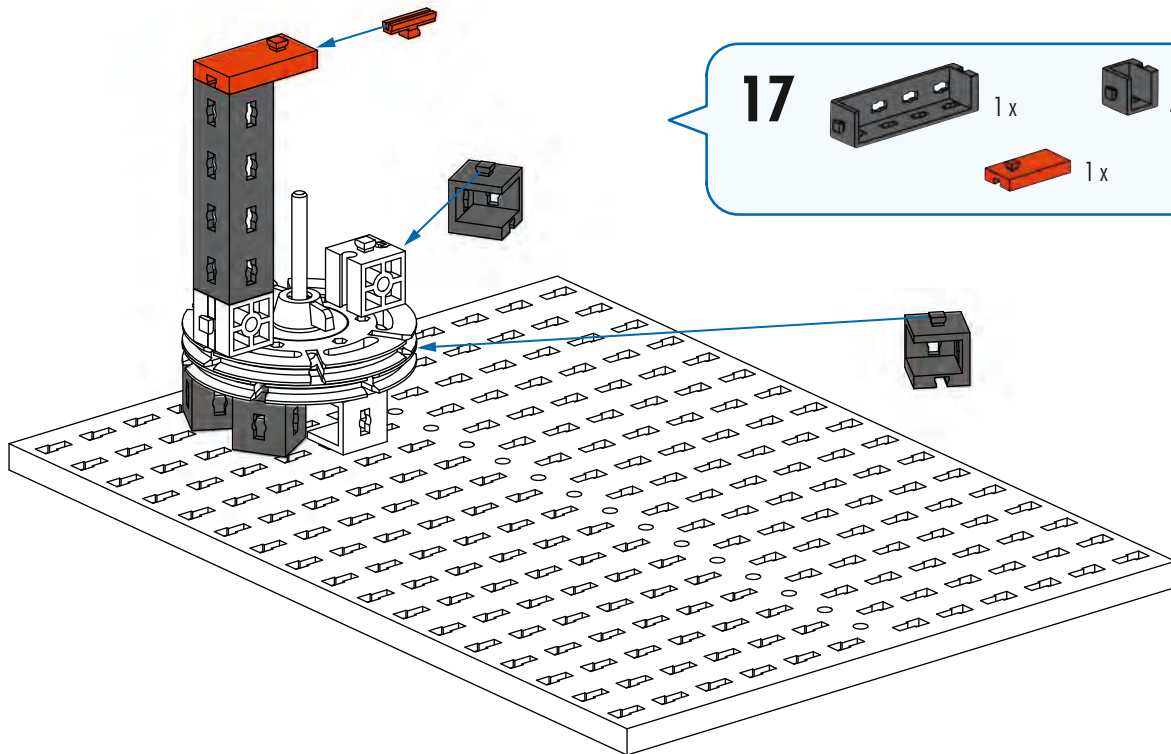
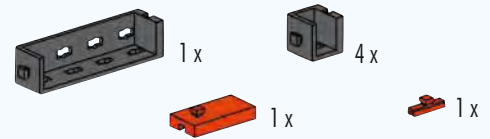
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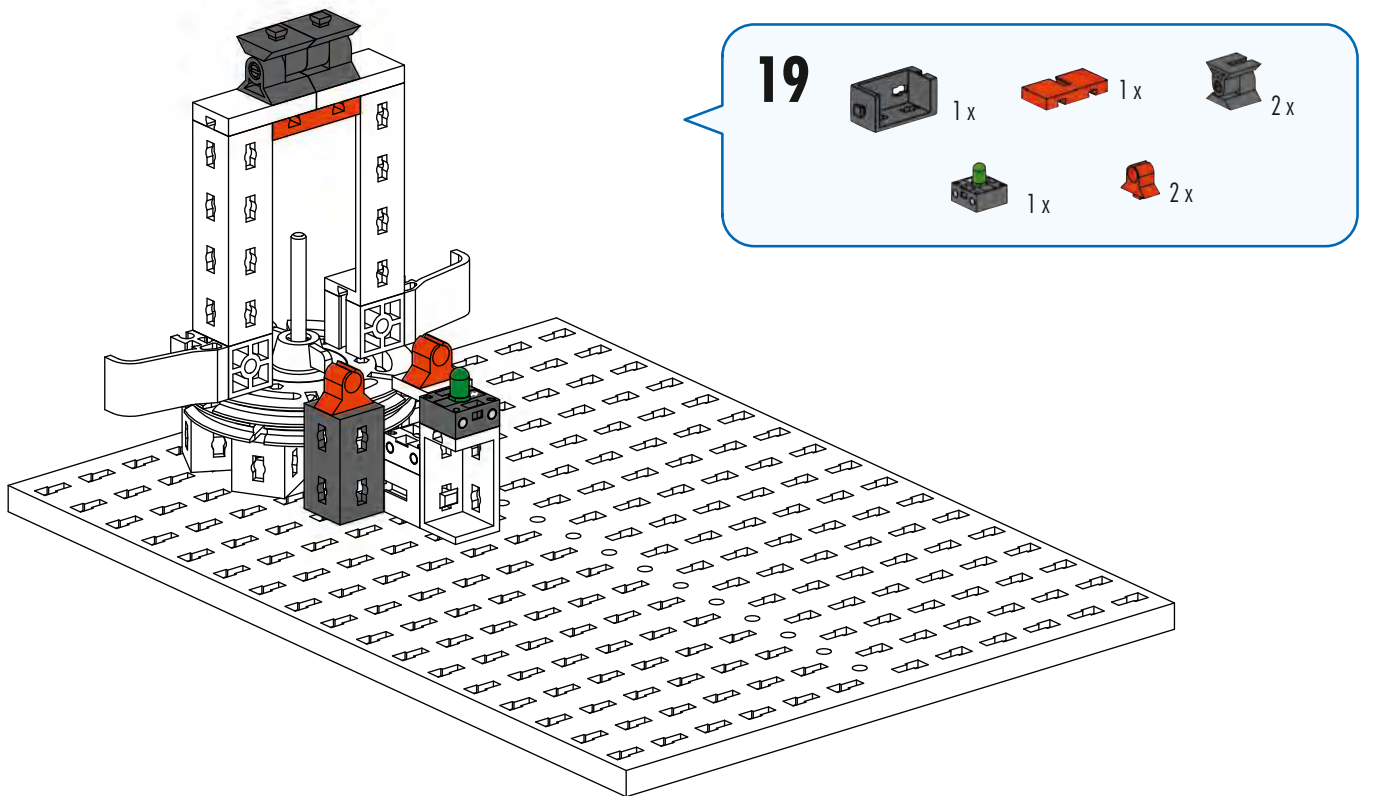
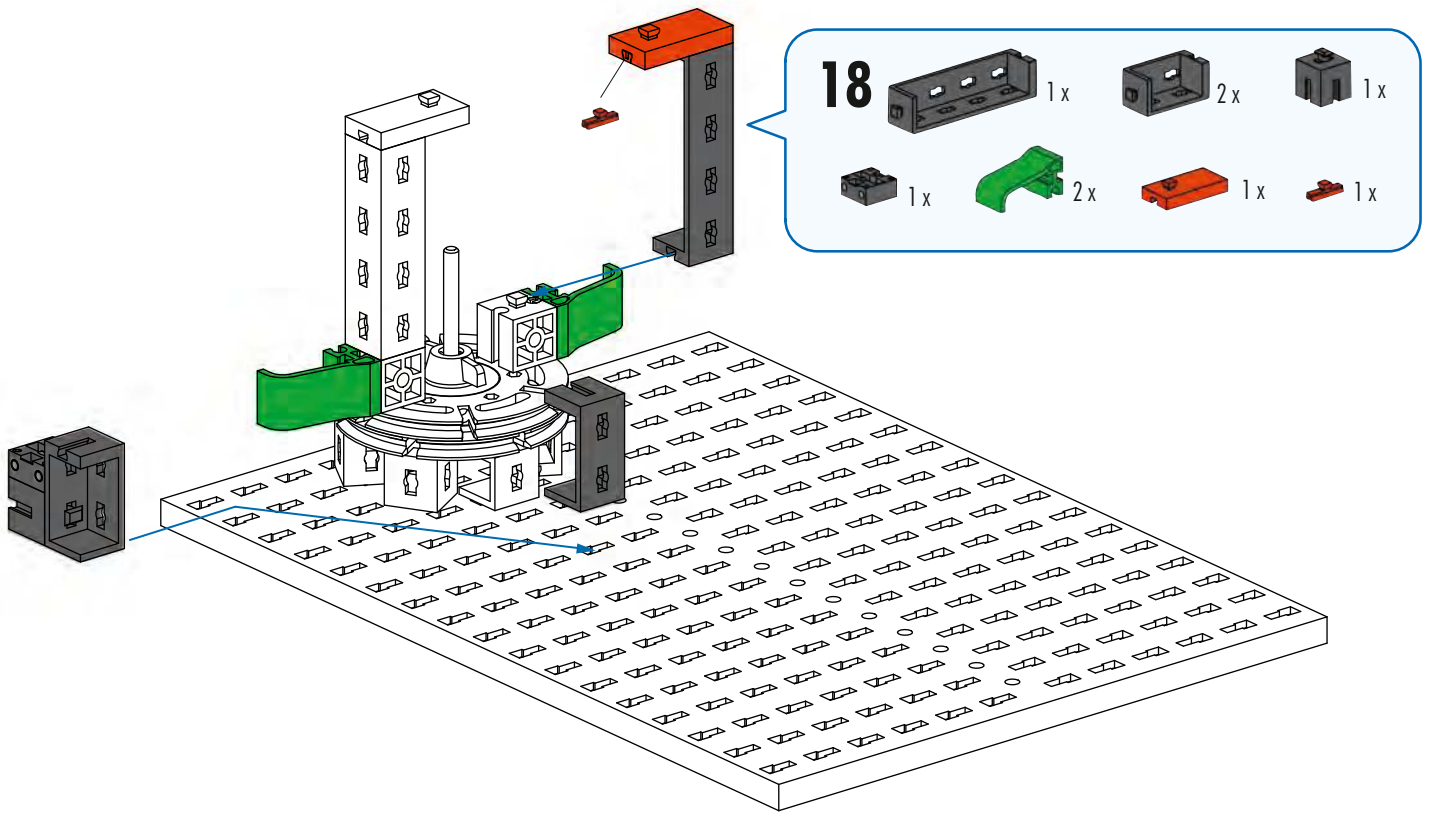


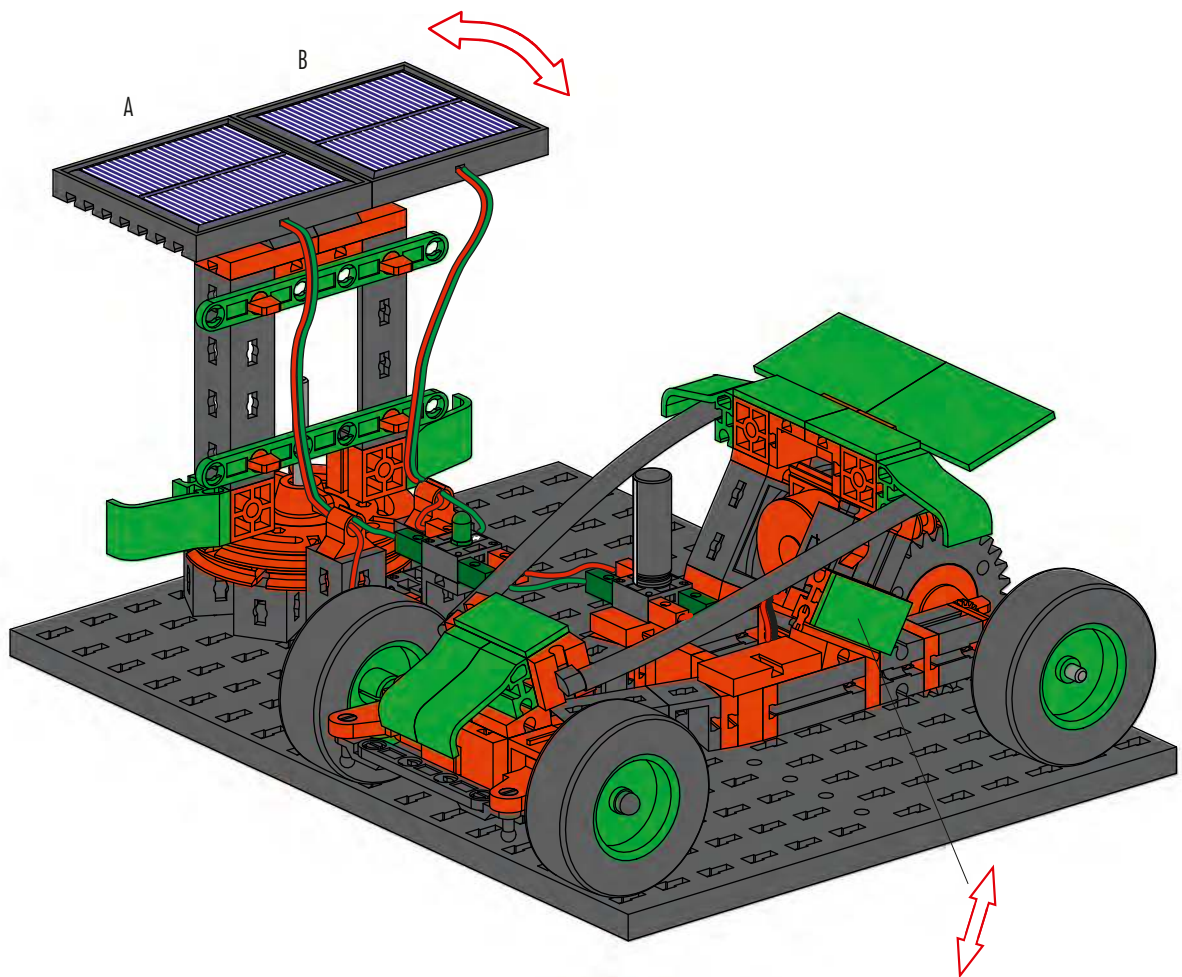
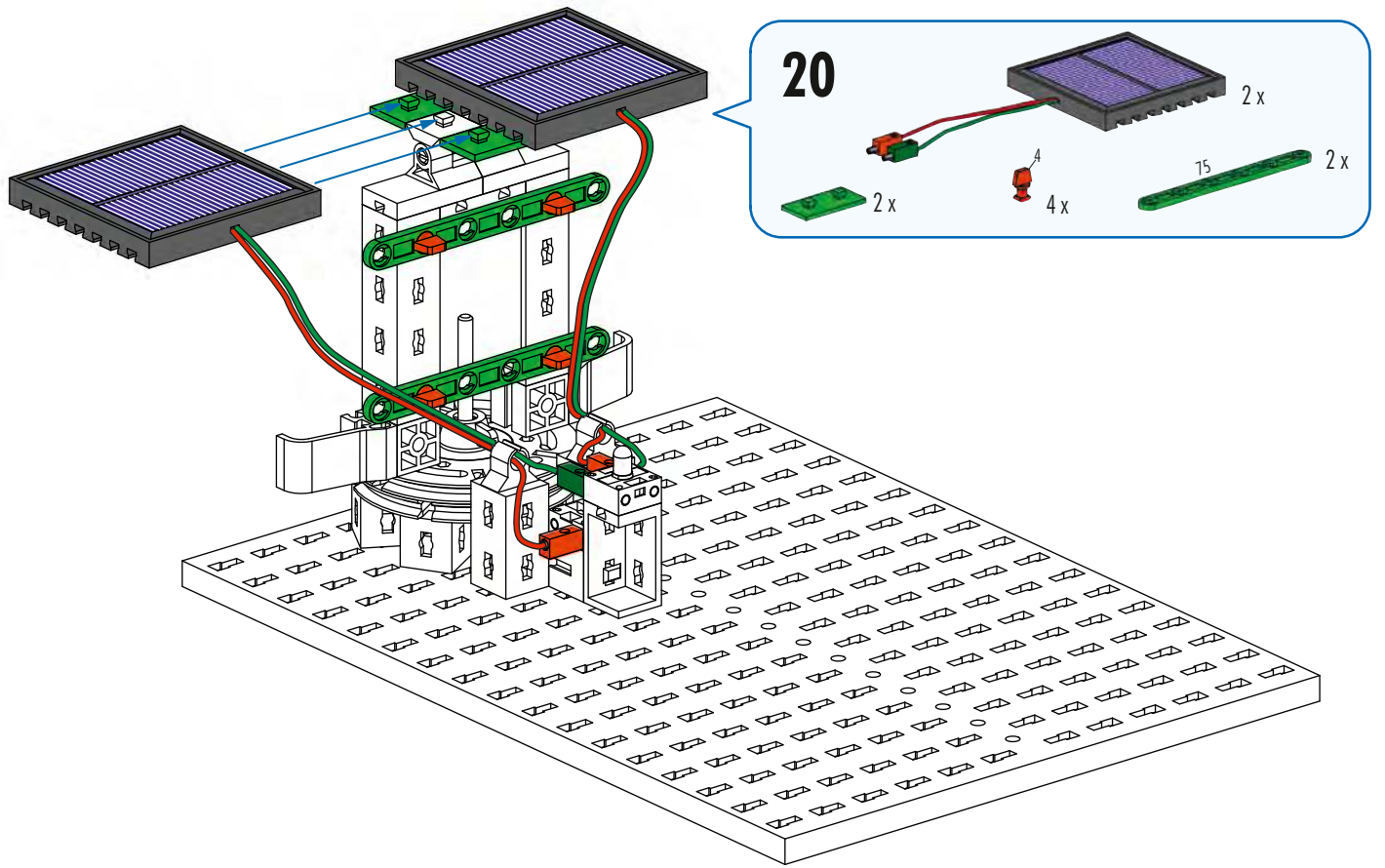
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17







Schaltplan  
Circuit diagram  
Plan électrique

Schakelschema  
Diagrama de circuitos  
Plano elétrico de ligação

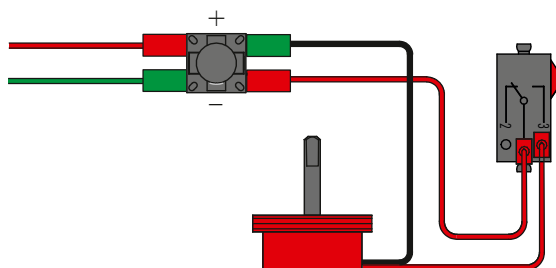
Schema elettrico  
Схема подключения  
电路图

Elektroauto  
Electric car  
Voiture électrique

Elektrische auto  
Coche eléctrico  
Carro eléctrico

Auto elettrica  
электромобиль  
电动车

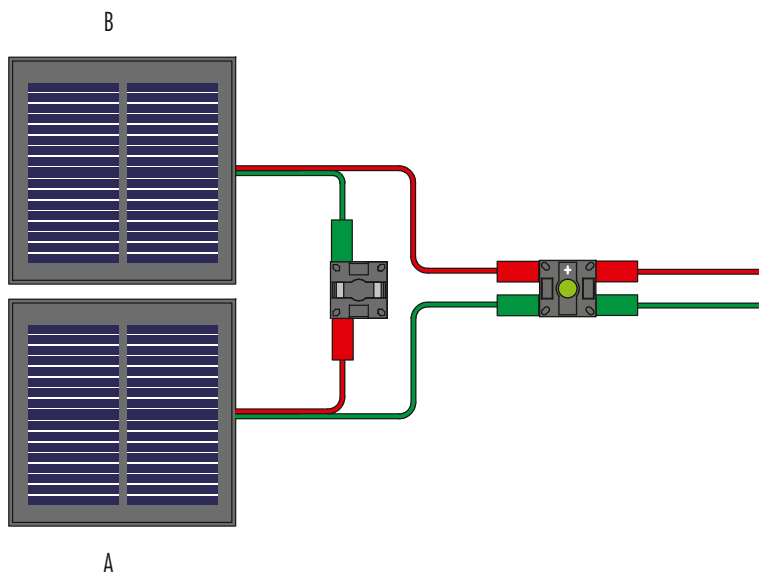
Solarladestation  
Solar charging station  
Station de recharge solaire  
Zonne-energie laadstation  
Estación de carga solar  
Estação de carga solar  
Stazione di ricarica solare  
солнечная зарядная станция  
太阳能充电站



Solarladestation  
Solar charging station  
Station de recharge solaire

Zonne-energie laadstation  
Estación de carga solar  
Estação de carga solar

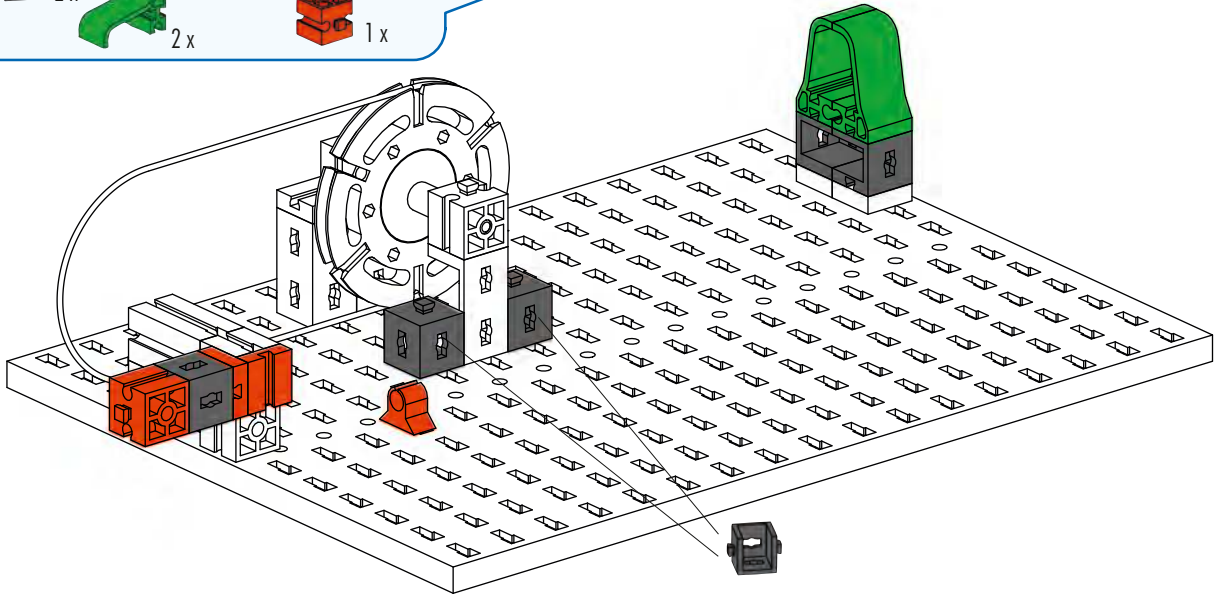
Stazione di ricarica solare  
солнечная зарядная станция  
太阳能充电站



Elektroauto  
Electric car  
Voiture électrique  
Elektrische auto  
Coche eléctrico  
Carro eléctrico  
Auto elettrica  
электромобиль  
电动车

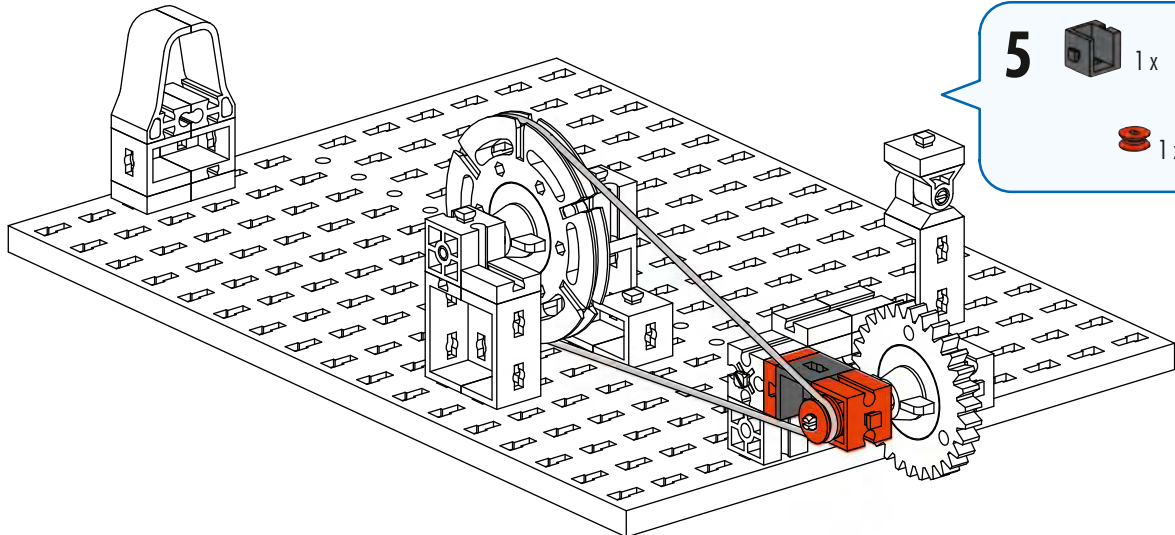
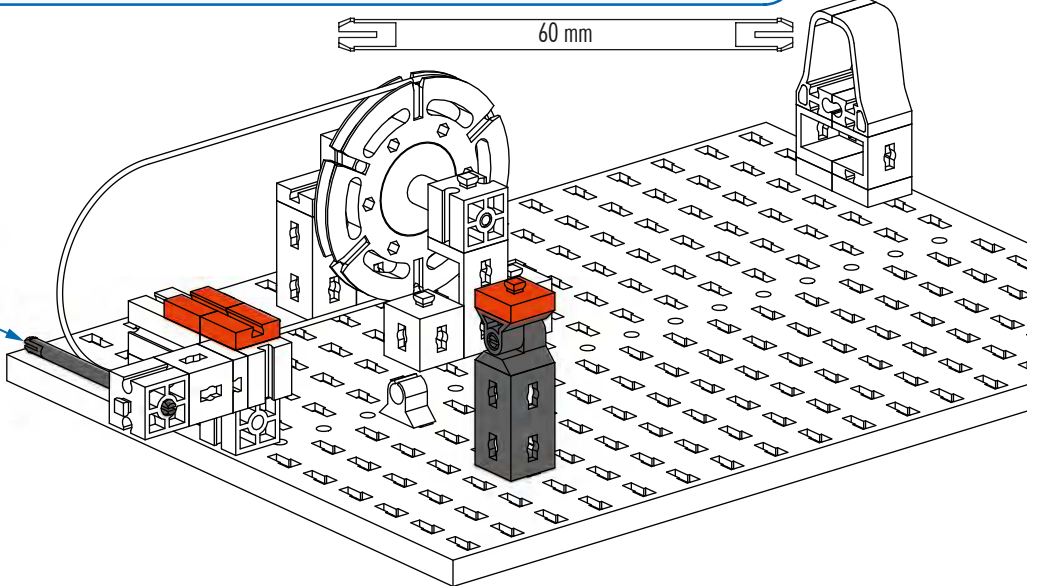
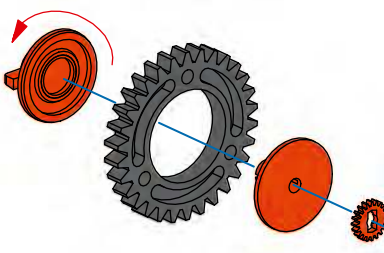


- 3** 3x 2x 2x 2x 1x 1x


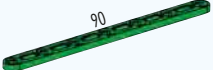


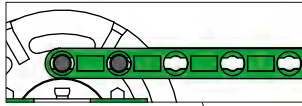
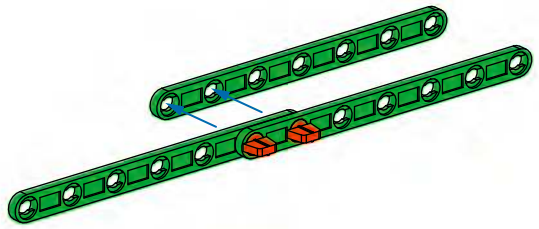
- 4** 1x 1x 1x 1x 1x 1x 1x 60 1x








60 mm



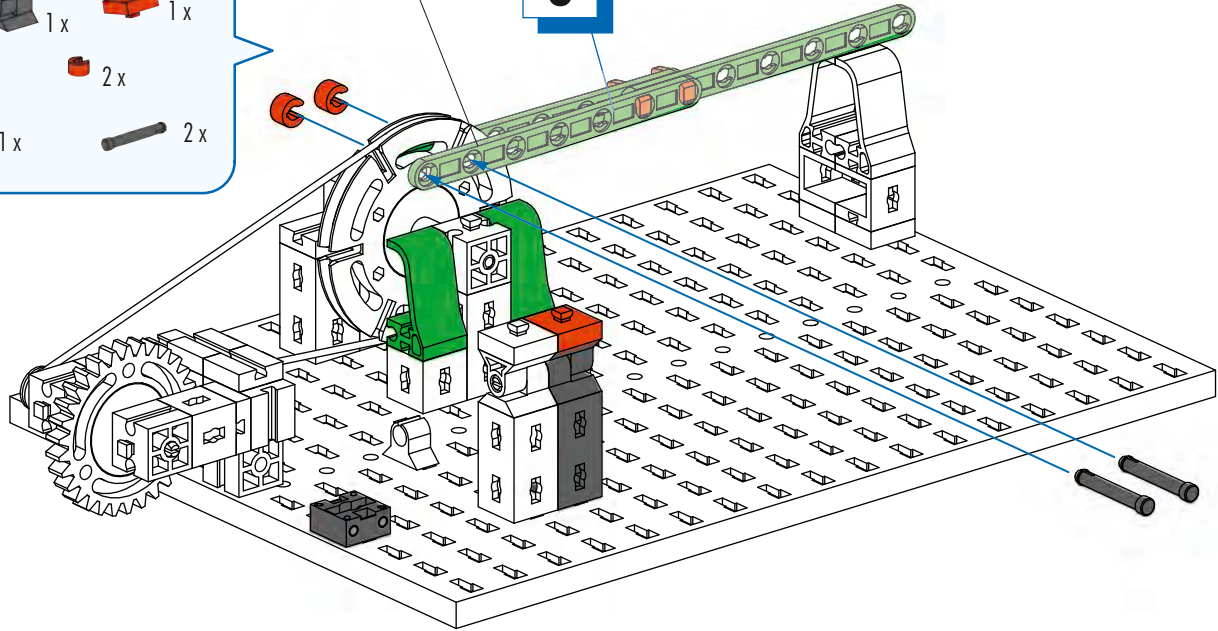
- 5** 1x 1x 1x 1x

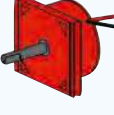


**6**  2x  90 3x

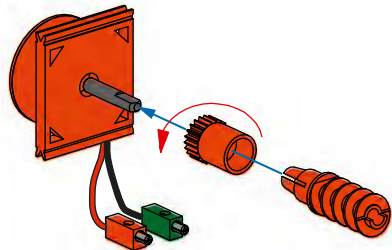



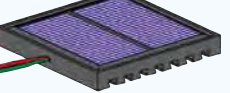
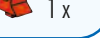
**7**  1x  1x  1x  
 2x  1x  2x  
 2x

**6**

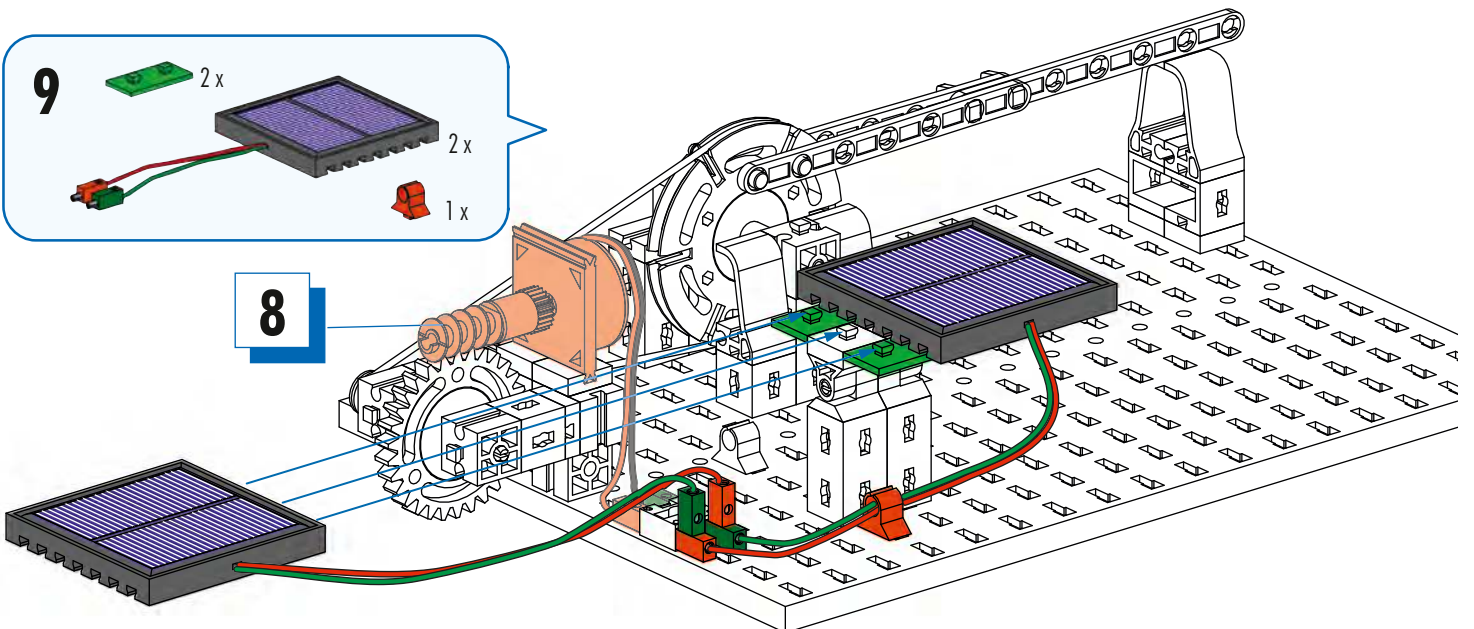


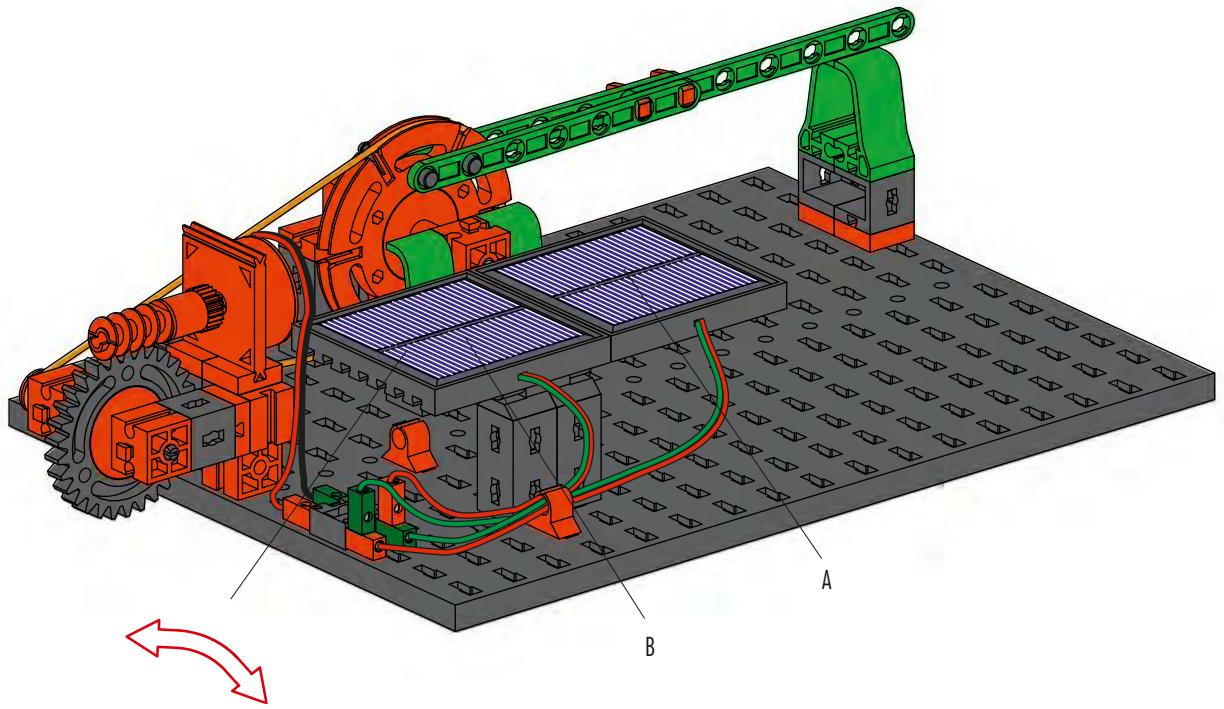
**8**  1x  1x  1x



**9**  2x  2x  1x

**8**

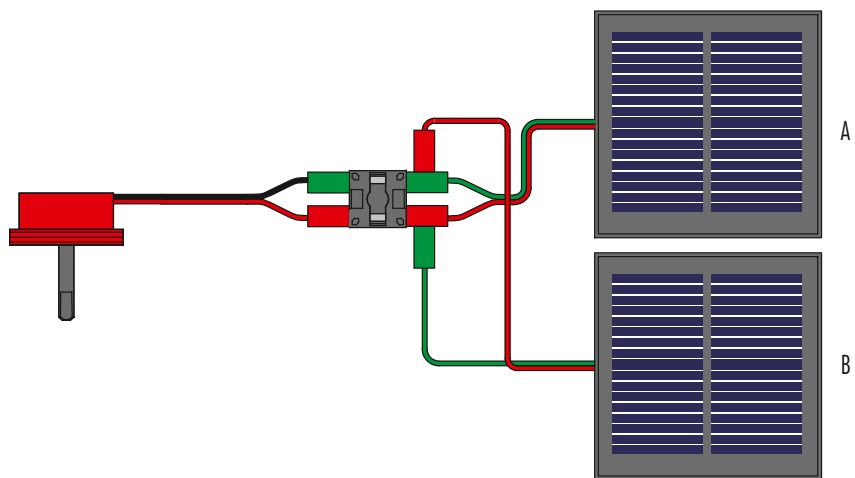


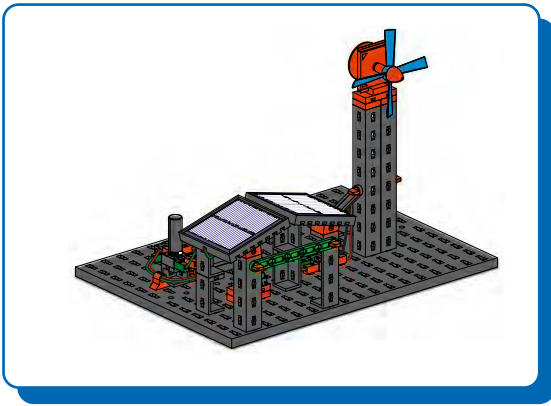


Schaltplan  
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电路图





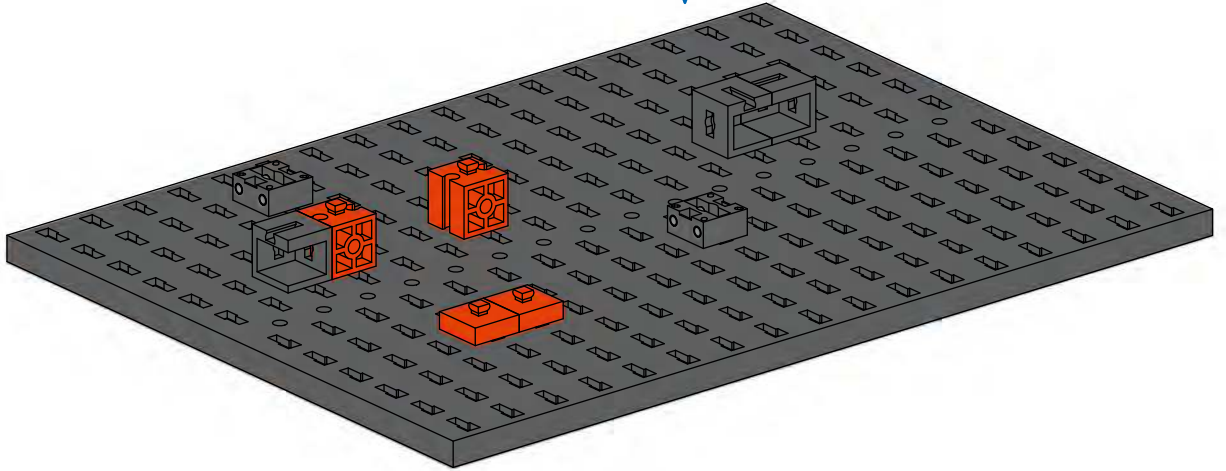
Oecohaus  
Eco-house  
Maison écologique

Ecologisch huis  
Casa ecológica  
Casa ecológica

Casa ecologica  
ЭКО-ДОМ  
生态房屋

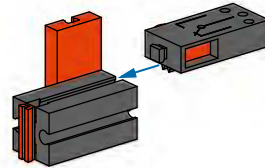
**1**

1x  
3x  
2x  
2x  
2x



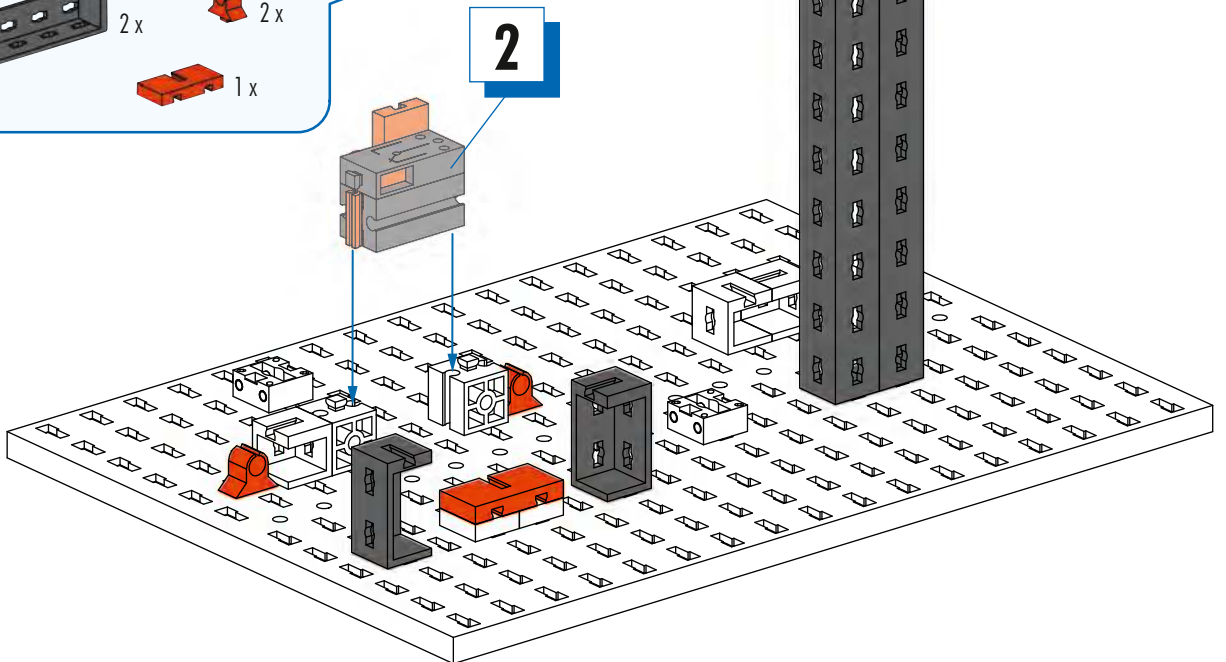
**2**

1x  
1x  
1x  
1x



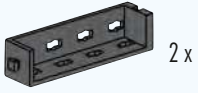
**3**

2x  
2x  
2x  
2x  
1x





6



2x



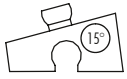
2x



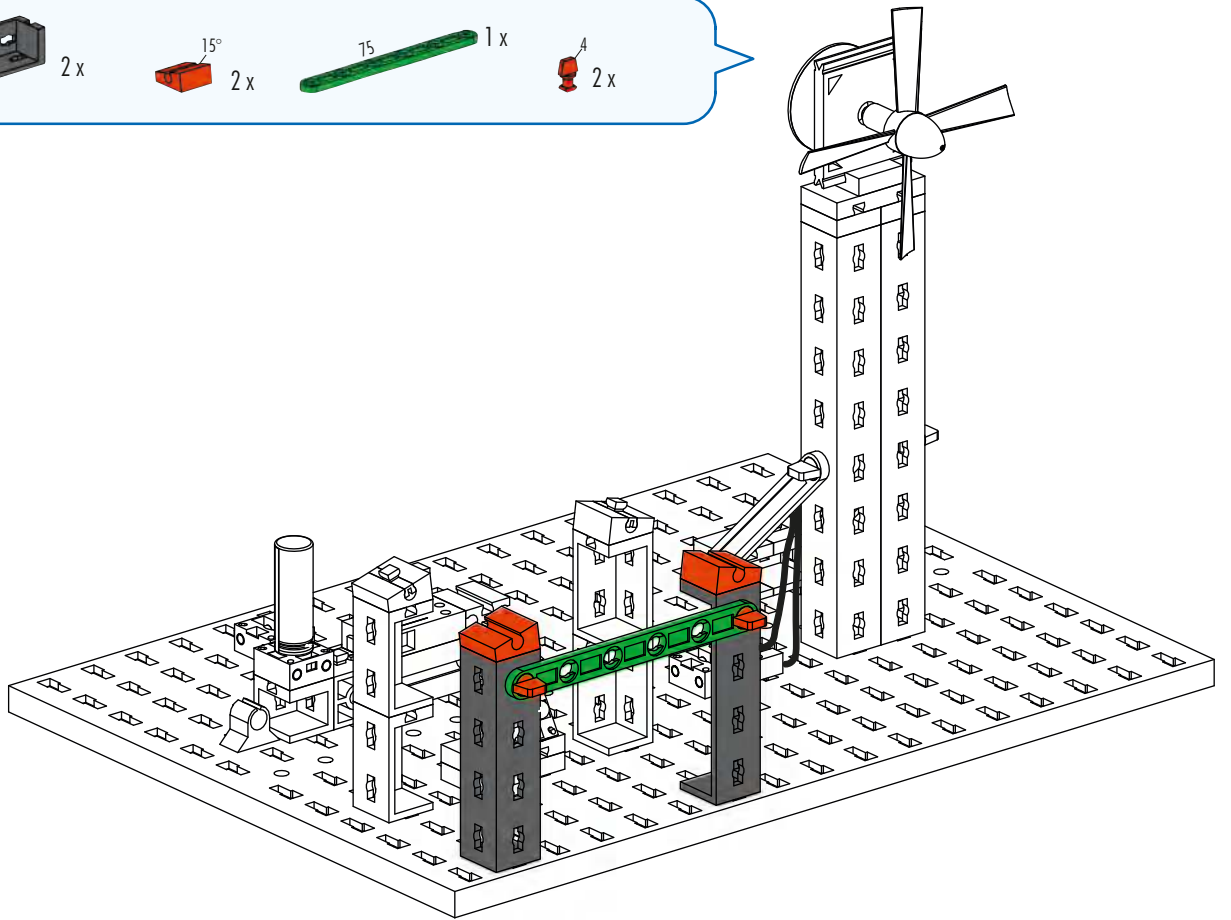
1x



2x



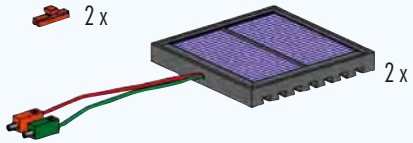
1x



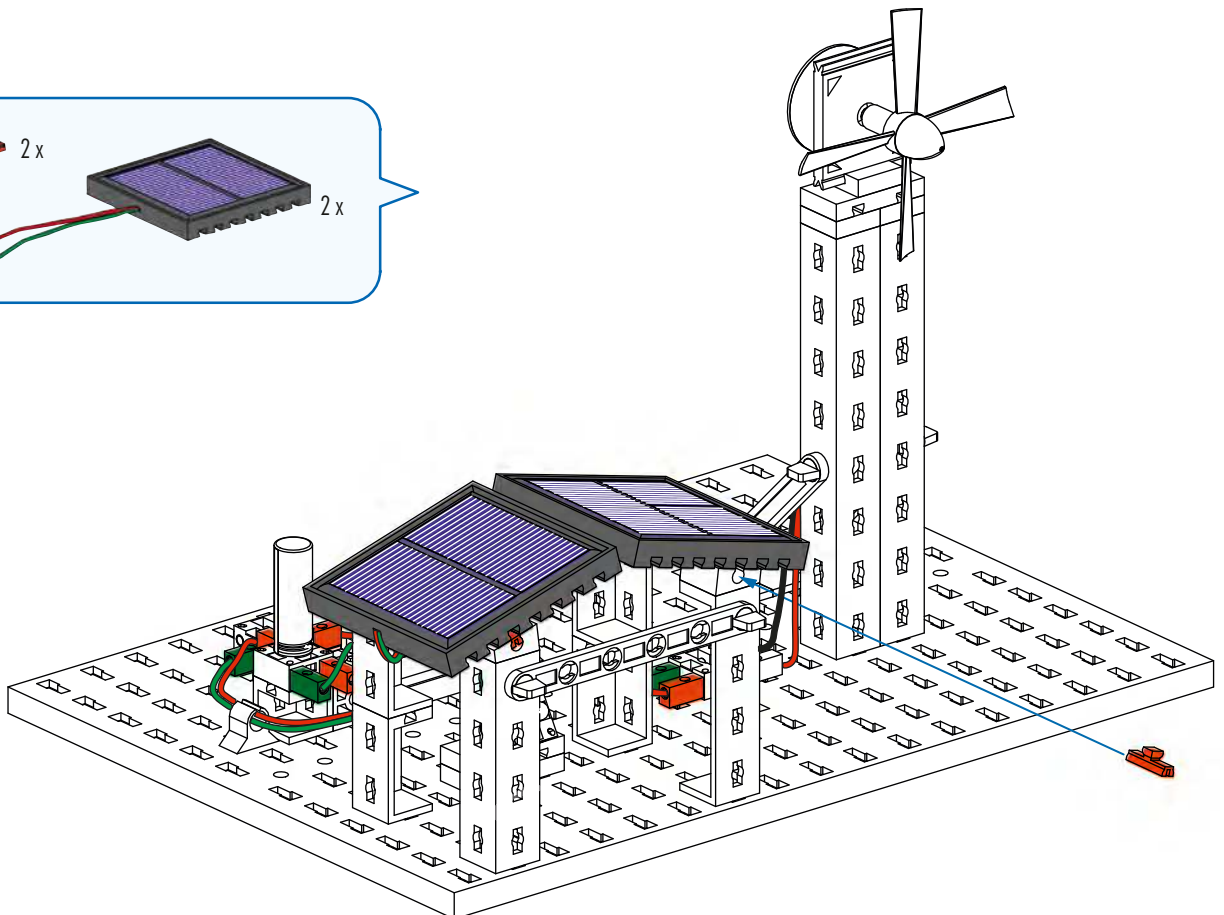
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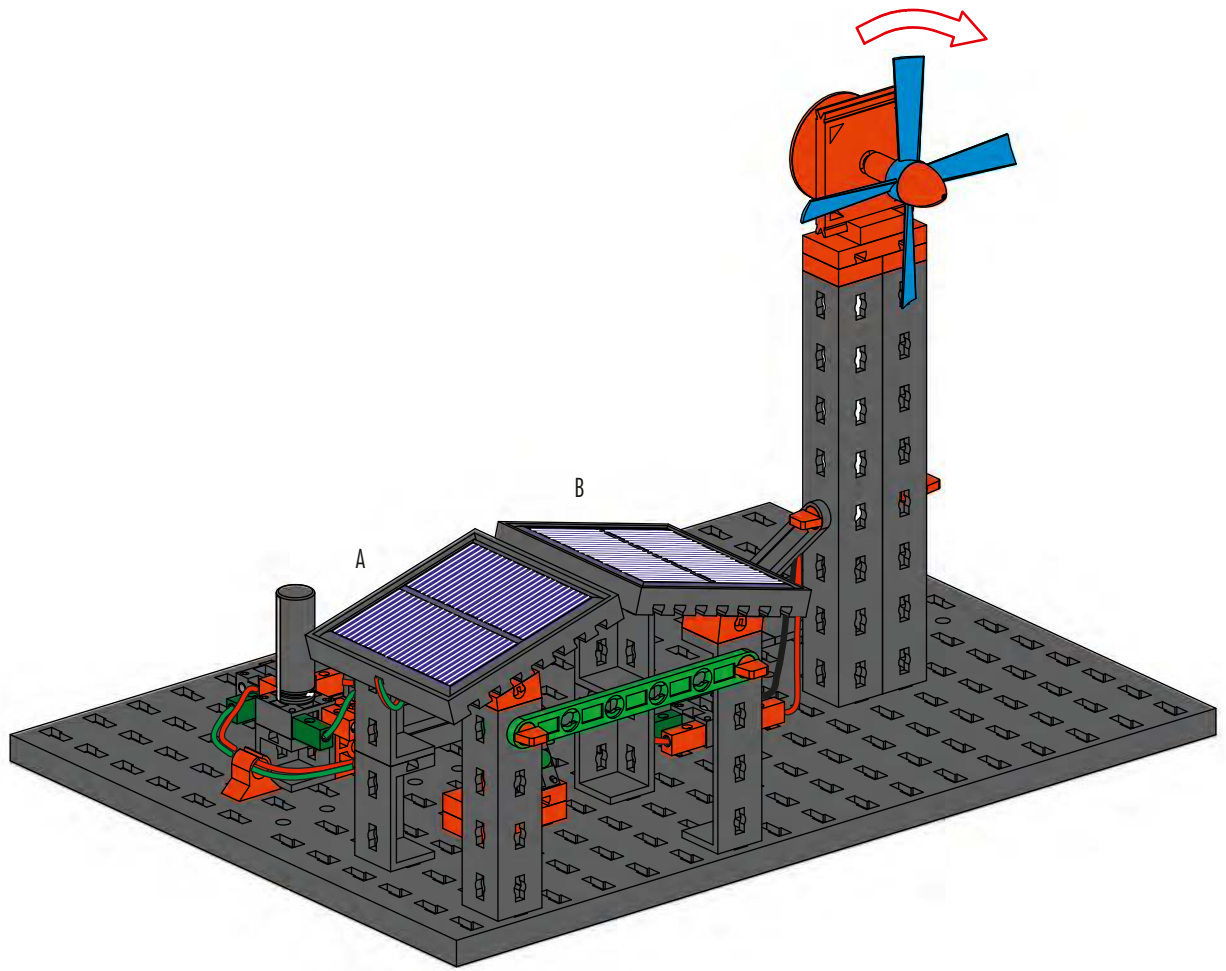


2x



2x

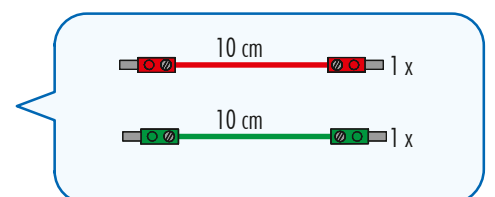
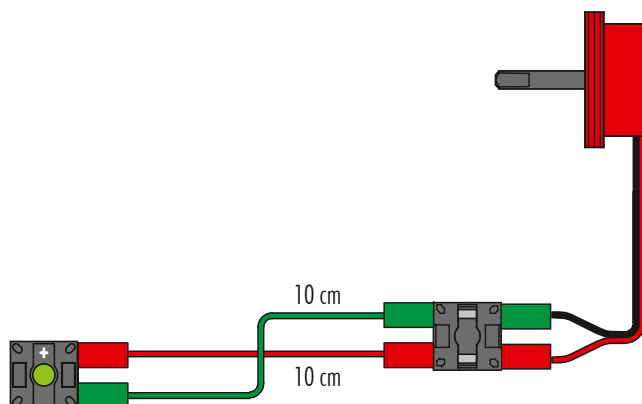




Aufgabe 1  
Task 1  
Exercice 1

Task 1  
Tarea 1  
Tarefa 1

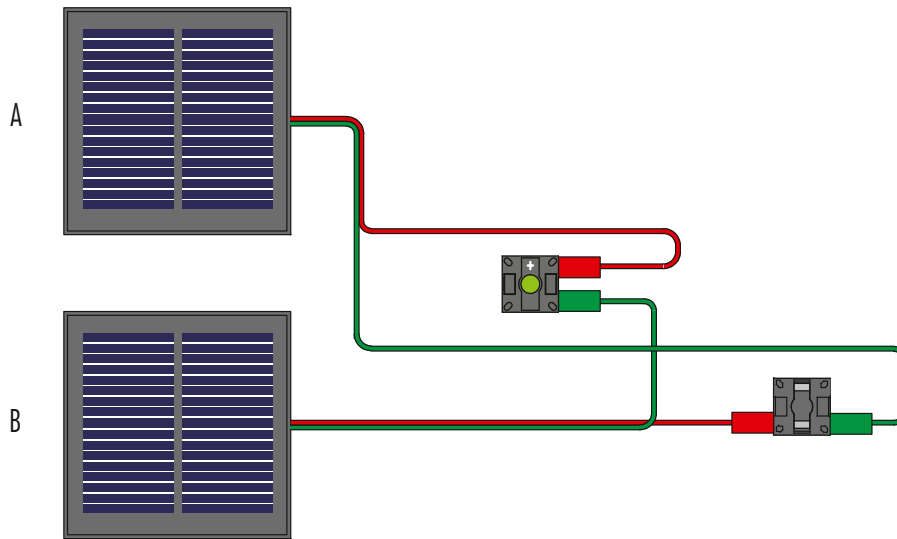
Compito 1  
Задание 1  
任务 1



Aufgabe 2  
Task 2  
Exercise 2

Taak 2  
Tarea 2  
Tarefa 2

Compito 2  
Задание 2  
任务 2



Aufgabe 3  
Task 3  
Exercise 3

Taak 3  
Tarea 3  
Tarefa 3

Compito 3  
Задание 3  
任务 3

