

fischertechnik 

PROFI

Bauanleitung
Assembly instruction
Instructions de montage
Bouwhandleiding
Instrucciones de construcción
Manual de montagem
Istruzioni di montaggio
Инструкция по сборке
安装说明书



Optics

15 MODELS

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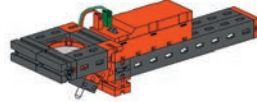
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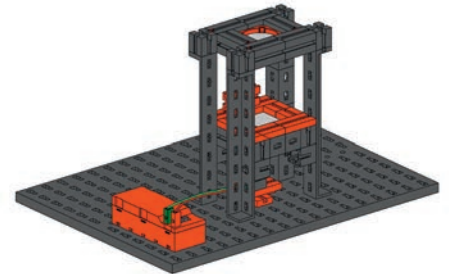
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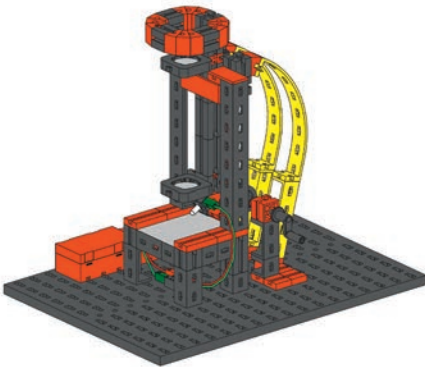
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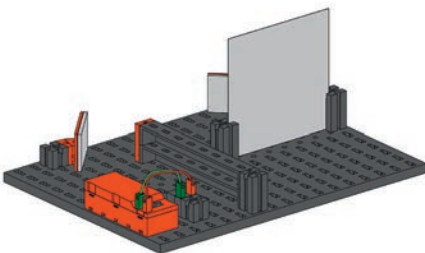
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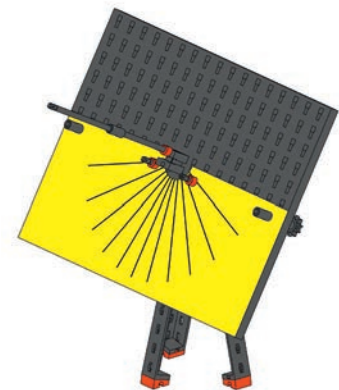
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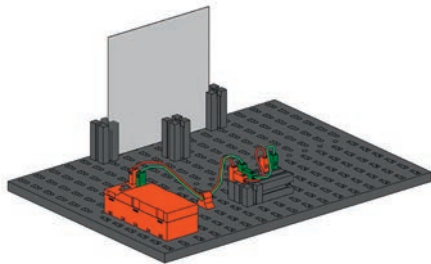


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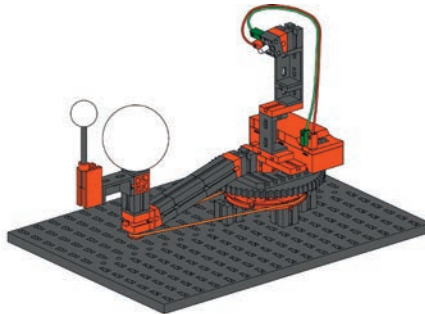
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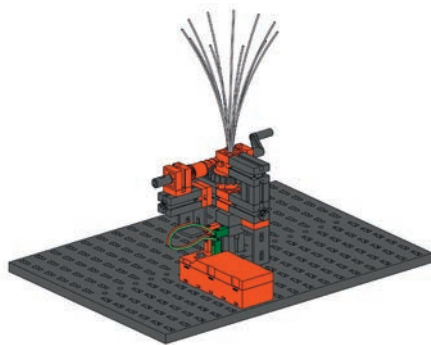
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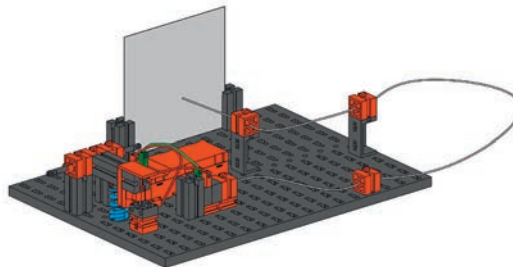
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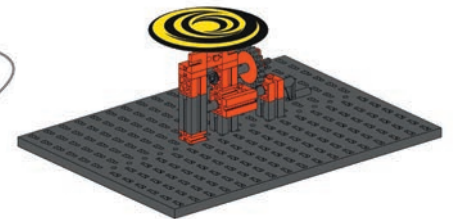
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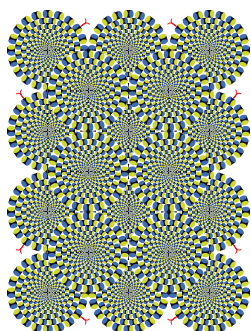
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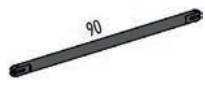









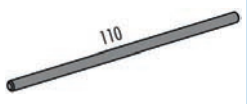




















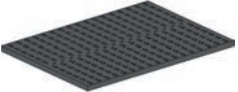


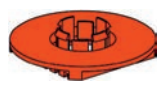

























Fantastische Kreise / Fantastic circles / Cercles
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Einzelteilübersicht
Spare parts list
Liste des pièces détachées

Onderdelenoverzicht
Lista da piezas
Resumo de peça individual

Singoli componenti
Перечень деталей
零件概览

	31 010 2 x		31 915 1 x		35 063 2 x		36 819 1 x
	31 011 28 x		31 918 1 x		35 064 2 x		36 920 8 x
	31 019 1 x		31 981 9 x		35 066 1 x		36 922 6 x
	31 021 1 x		31 982 12 x		35 072 1 x		36 950 5 x
	31 022 1 x		32 064 9 x		35 073 4 x		36 973 3 x
	31 031 1 x		32 850 6 x		35 087 1 x		36 977 1 x
	31 058 1 x		32 879 9 x		35 088 1 x		37 034 2 x
	31 060 1 x		32 880 1 x		35 945 2 x		37 237 11 x
	31 336 4 x		32 881 13 x		35 969 1 x		37 238 3 x
	31 337 4 x		32 882 1 x		35 973 1 x		37 468 3 x
	31 390 1 x		32 985 1 x		35 977 1 x		37 679 3 x
	31 391 1 x		35 031 1 x		36 293 3 x		37 858 1 x
	31 597 2 x		35 049 6 x		36 299 4 x		37 875 2 x
	31 674 4 x		35 054 2 x		36 323 11 x		37 925 1 x
	31 848 2 x		35 060 4 x		36 334 2 x		37 926 1 x
	31 891 1 x		35 061 1 x		36 443 1 x		38 216 4 x
	31 892 1 x		35 062 1 x		36 532 1 x		38 240 12 x

Einzelteilübersicht
Spare parts list
Liste des pièces détachées

	38 241 2 x
	38 242 1 x
	38 246 1 x
	38 248 2 x
	38 416 1 x
	38 423 6 x

Onderdelenoverzicht
Lista da piezas
Resumo de peça individual

	38 428 2 x
	130 593 2 x
	135 719 1 x
	136 775 1 x
	137 103 1 x
	145 416 1 x

Singoli componenti
Перечень деталей
零件概览

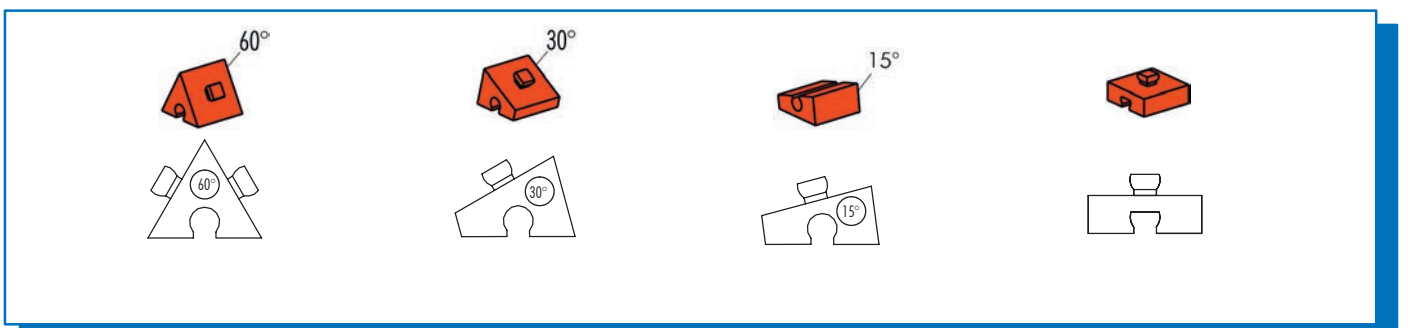
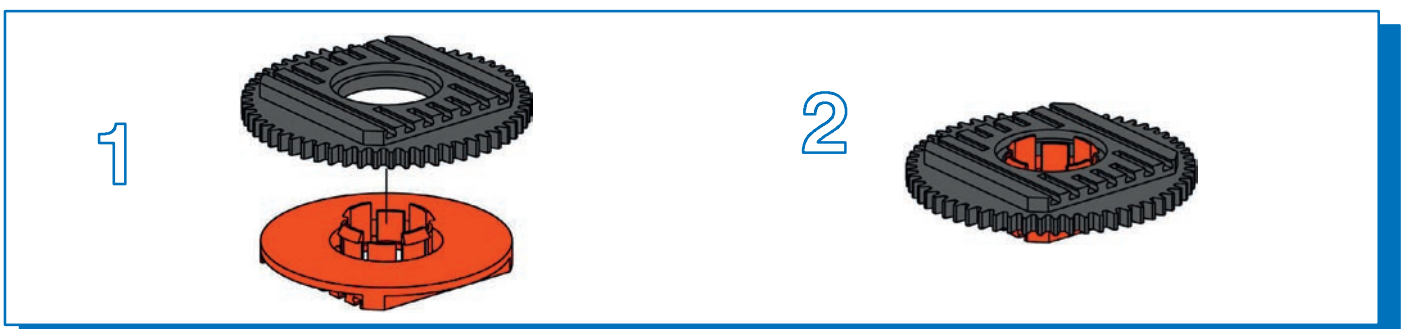
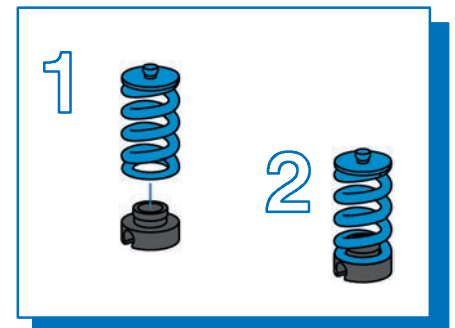
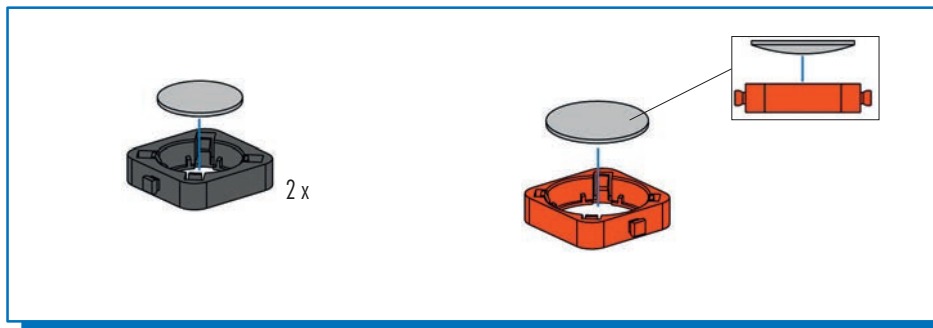
	145 860 2 x
	145 862 2 x
	145 863 1 x
	145 864 1 x
	146 373 2 x
	146 374 1 x

	146 375 1 x
	146 376 1 x
	146 377 1 x
	146 378 1 x
	146 876 1 x

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



Montagetipps
Tips for assembly
Tuyaux pour le montage

Montagetips
Consejos para el montaje
"Dicás" para montagem

Consigli per il montaggio
Советы по сборке
装配建议

<p>Kabel und Stecker Plugs and cables Fiches et des câbles</p>	<p>Stekkers en cables Enchufes en cables Cabos e contatos</p>	<p>Cavi e connettori Провода и штекеры 电缆和插头</p>	<p>1</p>	<p>4</p>
<p>2</p>	<p>3</p>	<p>5</p>		

<p>Lichtleiter Fiber Optics Fibres optiques</p>	<p>Lichtgeleiders Conductor de luz Fibras óticas</p>	<p>Fibre ottiche Световод 光导纤维</p>	
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<p>Linse Lampe Lens tip lamp Ampoule lentille Lenslampje Lampada lenticolare Lâmpada de formato lenticular Lampada lenticolare Лампа накаливания с линзой 透镜灯</p>		<p>≠</p>		<p>Rainbow LED Rainbow LED DEL Rainbow Rainbow-LED LED de arco iris Rainbow LED Rainbow LED Светодиод „радуга“ LED 彩灯</p>
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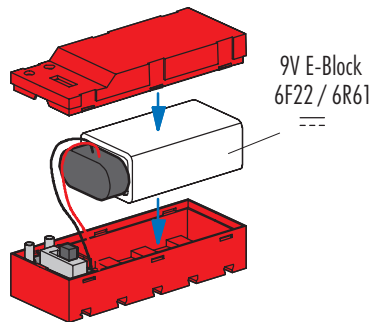
<p>Spielgelplatte Mirror plate Plaque miroitante</p>	<p>Spiegelplaat Placa de espejo Placa espelhada</p>	<p>Piastra a specchio Зеркальная пластина 镜子</p>	<p>Schutzfolie Protective foil Pellicule de protection Beschermfolie Película de protección</p>	<p>Filme de proteção Pellicola protettiva Защитная плёнка 保护膜</p>
<p>1</p>	<p>2</p>	<p>3</p>	<p>4</p>	<p>2 x</p>
<p>Schutzfolie abziehen Remove protective foil Retirer la pellicule de protection De beschermfolie verwijderen Desprender la película de protección</p>	<p>Remover o filme de proteção Togliere la pellicola protettiva Снять защитную плёнку 撕掉保护膜</p>			

Sicherheitshinweise Safety Information Consignes de sécurité

Veiligheidsrichtlijnen Indicaciones de seguridad Observações sobre segurança

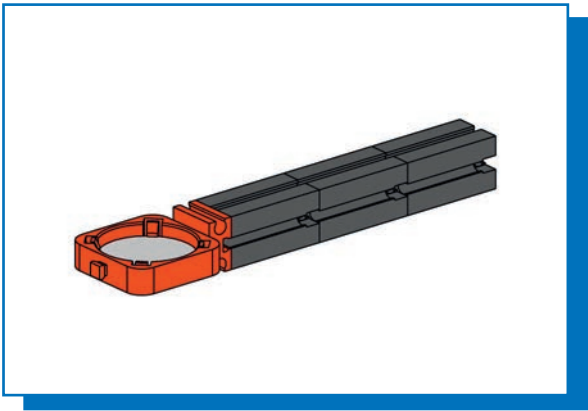
Informazioni per la sicurezza Указания по технике безопасности 安全指南

- 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 sjerpe randen of punten!
- Attenzione! Esiste il pericolo di lesione con i pezzi di costruzione che hanno bordi e punte spigolosi necessari per la funzionalità del pezzo!
- 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 limpiar y mantener en buen estado todas las diferentes piezas - especialmente las piezas móviles.
- Atenção! Perigo de ferimentos em peças componentes com cantos vivos e pontas obrigatórios 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！
- Caso necessário, todas as peças individuais, especialmente peças móveis, tem que ser submetidas à manutenção e ser limpas.
- 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。



Batterie ist nicht Inhalt der Packung
Battery not included
Batterie non comprise
De batterij wordt niet meegeleverd
La batería no está incluida en el suministro
A bateria não é o conteúdo da embalagem
La batteria non è inclusa nella confezione
Батарея в комплект не входит
包装中不含电池

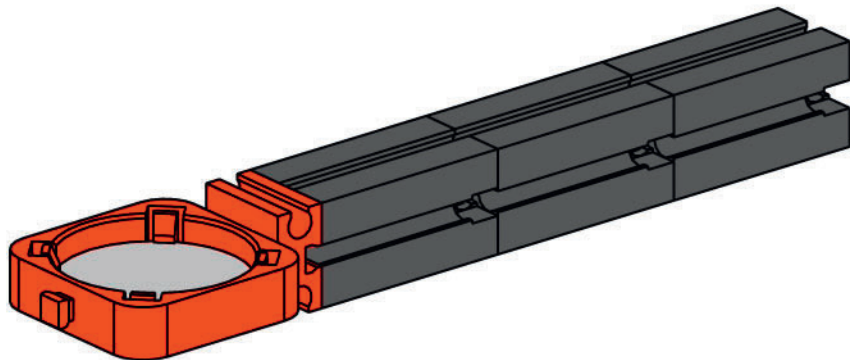
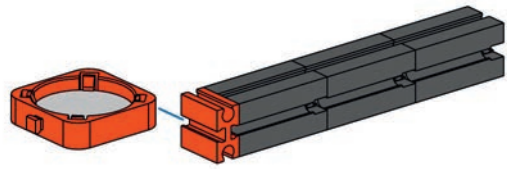
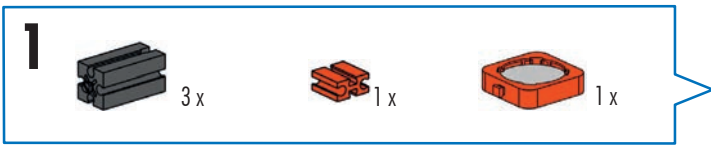
- 1 Batterie 9Volt-Block Alkaline oder 1 NiMH-Akku 9V
 - Nicht wiederaufladbare Batterien dürfen nicht geladen werden
 - Aufladbare Batterien dürfen nur von Erwachsenen geladen werden
 - Aufladbare Batterien sind aus dem Batteriehalter herauszunehmen, bevor sie geladen werden.
 - Batterien müssen mit der richtigen Polarität eingelegt werden.
 - Leere Batterien müssen aus dem Spielzeug herausgenommen werden
 - Die Anschlussklemmen dürfen nicht kurzgeschlossen werden.
 - Verbrauchte Batterien dem Sondermüll zuführen.
 - Drähte nicht in Steckdose einführen!
 - Ladegerät regelmäßig auf Schäden überprüfen. Bei einem Schaden darf das Ladegerät bis zur vollständigen Reparatur nicht mehr verwendet werden.
 - Alle elektrischen Bauteile (Motoren, Lampen) dürfen ausschließlich an Stromversorgungen von Fischertechnik angeschlossen werden.
- 9V rechargeable battery or 9V alkaline dry cell
 - Do not attempt to charge NON-rechargeable batteries.
 - Rechargeable batteries are only to be charged by adults.
 - Take rechargeable batteries out of the battery tray before charging them.
 - Insert batteries with the correct polarity.
 - Remove dead batteries from the toy.
 - Do not short circuit the connecting terminals!
 - Discard spent dry cells at special waste disposal centre.
 - Do not insert the wires into an outlet!
 - Regularly inspect battery charger for damage. If the battery charger has been damaged, it should not be used further until fully repaired.
 - No electrical components (motors, lamps) are to be connected to any other power supply than that provided by Fischertechnik.
- pile 9V ou accu 9V
 - Il est interdit de recharger des piles qui ne sont pas des accumulateurs
 - Le chargement des accumulateurs doit toujours se faire par des adultes
 - Retirer les accumulateurs du support de pile avant de les recharger.
 - Veiller à la polarité correcte lors de la mise en place des piles.
 - Retirer impérativement les piles ou accumulateurs vides du jouet.
 - Il est interdit de court-circuiter les bornes de raccordement.
 - Jeter les piles usagées dans un conteneur spécial réservé à cet effet.
 - Ne pas introduire les fils dans une prise !
 - Contrôlez régulièrement le chargeur en vue d'éventuelles détériorations
 - En cas de détérioration, il est interdit d'utiliser le chargeur jusqu'à ce qu'il ait été intégralement réparé
 - Tous les composants électriques (moteurs, lampes) ne doivent être branchés aux alimentations électriques uniquement que par la société Fischertechnik.
- alkaline batterij of oplaadbare batterij (9Volt)
 - Niet-oplaadbare batterijen mogen niet worden opgeladen.
 - Oplaadbare batterijen mogen uitsluitend door volwassenen worden opgeladen.
 - Oplaadbare batterijen moeten uit de batterijhouder worden verwijderd, voordat deze worden opgeladen.
 - De batterijen moeten met de juiste polariteit worden geplaatst.
 - Lege batterijen moeten uit het speelgoed worden verwijderd.
 - De aansluitklemmen mogen niet worden kortgesloten.
 - Afgeleverde gebruikte batterijen bij het klein chemisch afval (KCA).
 - Geen draden in de contactdoos steken!
 - Laadtoestel regelmatig controleren op schade. Bij schade mag het laadtoestel niet meer gebruikt worden tot het volledig hersteld is.
 - Alle elektrische componenten (motoren, lampen) mogen uitsluitend op stroomvoorzieningen van Fischertechnik worden aangesloten.
- pila alcalina bloque de 9 Voltios o acumulador NiMH- de 9 Voltios
 - Las pilas no recargables no pueden ser cargadas
 - Las pilas recargables sólo pueden ser cargadas por un adulto
 - Las pilas recargables deben ser extraídas del compartimiento de pilas antes de que sean cargadas.
 - Las pilas deben ser colocadas con la polaridad correcta.
 - Las pilas descargadas deben ser extraídas del juguete
 - Los bornes de conexión no pueden ser puestos en cortocircuito.
 - Retirar las baterías viejas, desechándolas en un depósito de basuras especiales.
 - No introducir hilos en la toma de corriente!
 - Comprobar con regularidad si el cargador presenta daños. En caso de presentar daños, el cargador no debe volver a ser utilizado hasta que esté completamente reparado.
 - Todos los componentes eléctricos (motores, luces) deben conectarse a la alimentación de corriente de la técnica Fischer exclusivamente.
- Bateria alcalina de bloco de 9 V ou acumulador NiMH- de 9 V
 - As pilhas não recarregáveis não devem ser novamente carregadas.
 - Pilhas recarregáveis somente devem ser recarregadas por adultos.
 - Pilhas recarregáveis devem ser retiradas do compartimento de pilhas antes de serem carregadas.
 - As pilhas devem ser colocadas com a polaridade correta.
 - As pilhas descarregadas devem ser retiradas do brinquedo.
 - Os terminais de conexão não devem ser curto-circuitados.
 - Eliminar as baterias esgotadas como desperdício perigoso
 - Nunca introduzir fios na tomada!
 - Verificar regularmente se o carregador apresenta danos. Em caso de dano, o carregador não deverá ser utilizado enquanto não estiver plenamente consertado.
 - Todas as peças componentes elétricas (motores, lâmpadas) só podem ser exclusivamente conectadas em abastecimentos de corrente da Fischertechnik.
- 1 batteria alcalina da 9 V o 1 batteria NiMH- ricaricabile da 9V
 - Le batterie non ricaricabili non devono essere ricaricate
 - Le batterie ricaricabili devono essere ricaricate da persone adulte
 - Le batterie ricaricabili si devono estrarre dal supporto prima di ricaricarle.
 - Le batterie si devono inserire rispettando la polarità.
 - Togliere le batterie dal giocattolo quando sono scariche
 - I morsetti di allacciamento non devono essere cortocircuitati.
 - Smaltire le batterie usate negli appositi contenitori per la raccolta differenziata.
 - Non inserire i fili nella presa elettrica.
 - Controllare periodicamente se il caricabatterie presenta dei danni. In caso di danni, il caricabatterie non deve più essere utilizzato fino alla riparazione.
 - Tutti i componenti elettrici (motori, lampadine) devono essere collegati esclusivamente ad alimentatori Fischertechnik.
- 1 алкалиновая батарейка на 9 В или 1 никель-кадмиевый аккумулятор, 9 В
 - Не пытайтесь заряжать неперезаряжаемые батарейки.
 - Зарядку перезаряжаемых аккумуляторов разрешается выполнять только взрослым.
 - Перед зарядкой перезаряжаемых аккумуляторов извлеките их из аккумуляторного отсека.
 - При установке аккумуляторов на место соблюдайте полярность.
 - Разряженные батарейки необходимо извлекать из игрушки.
 - Не замыкайте коротко соединительные клеммы.
 - И использованные батареи утилизируйте как спецотходы.
 - Не вставляйте в розетку провода!
 - Регулярно проверяйте зарядное устройство на отсутствие повреждений. При наличии повреждений использовать зарядное устройство до выполнения его полного ремонта не разрешается.
 - Все электрические детали (электромоторы, лампочки.) можно подключать только к источникам электропитания от Fischertechnik.
- 1 个 9V 的碱性方电池或 1 个 9V 的 NiMH- 蓄电池
 - 不得给非充电电池充电
 - 只允许由成年人给充电电池充电
 - 在充电前必须将充电电池从电池夹中取出。
 - 必须按照正负极正确放入电池。
 - 必须从玩具中取出没有电的电池
 - 接线柱不允许被短路。
 - 用完了的电池应作为特种垃圾处理。
 - 禁止将金属丝插入插座！
 - 经常检查充电器是否有损坏情况。如果充电器有损，直到完全修好为止不可以再使用。
 - 只允许将所有电气部件（传感器，电机，灯泡）与慧鱼技术产品的电源装置相连接

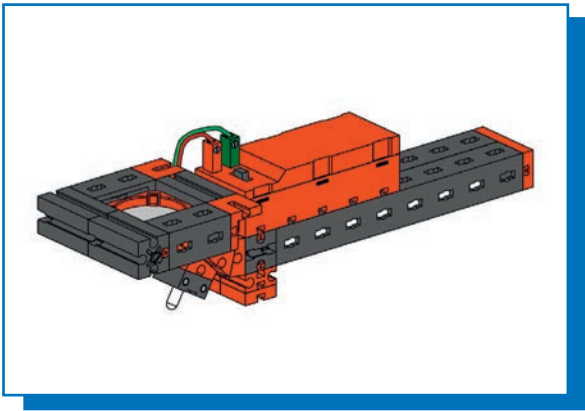


Lupe
Magnifier
Loupe

Loep
Lupa
Lupa

Lente d'ingrandimento
Лупа
放大镜



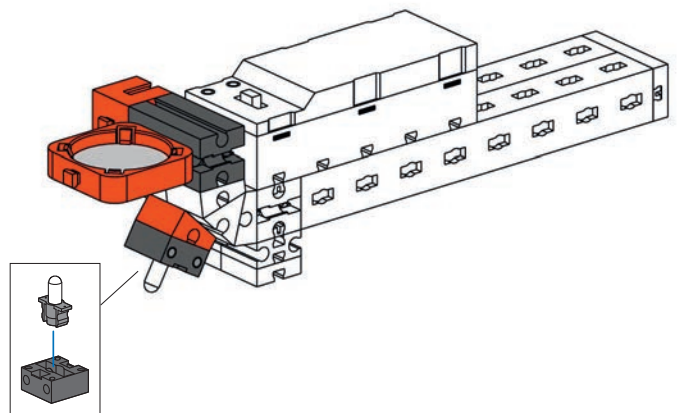
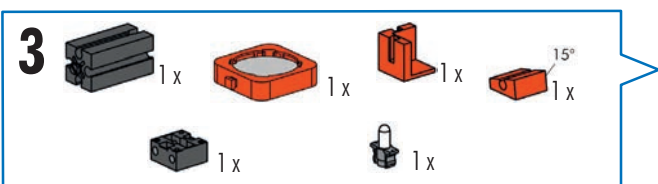
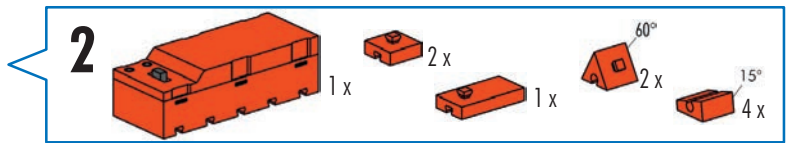
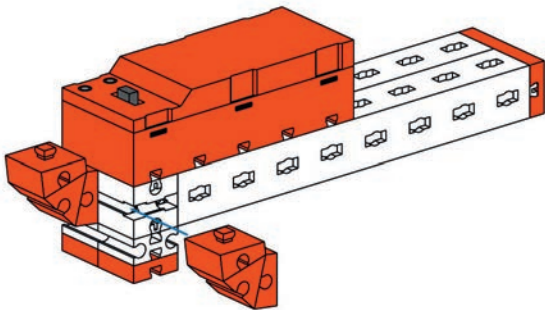
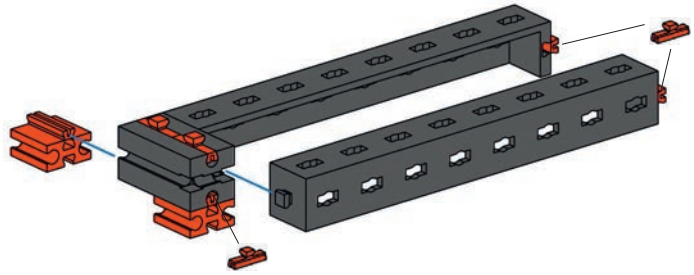
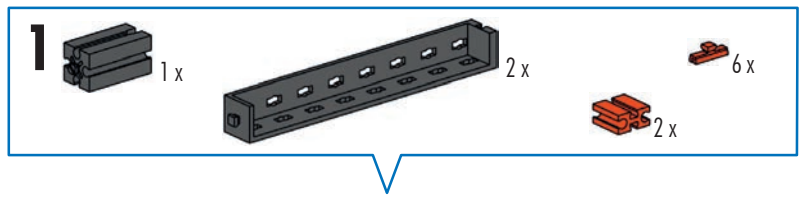


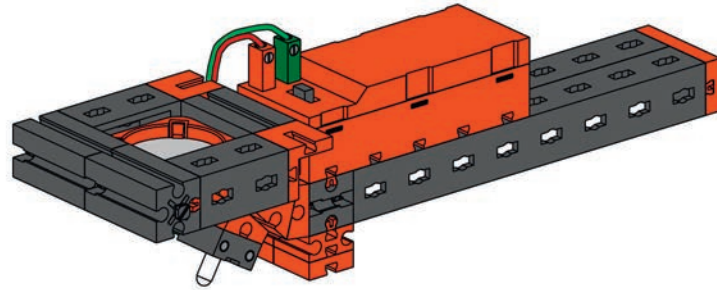
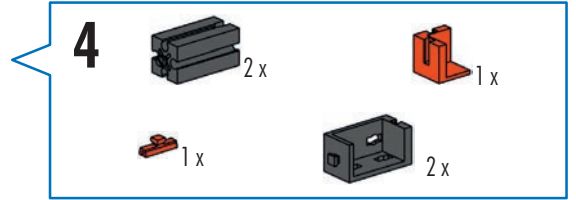
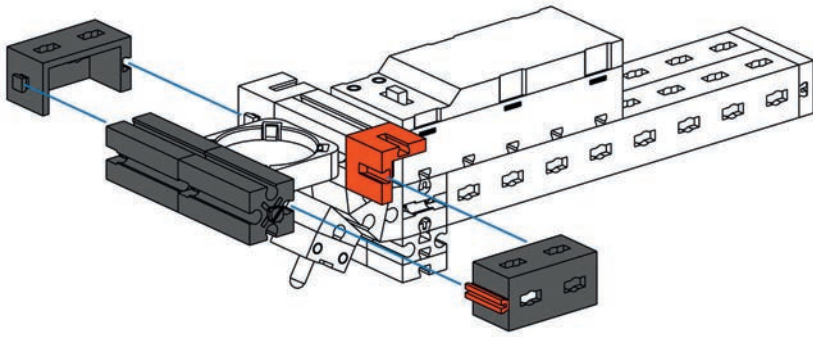
Lupe mit Licht
Magnifier with light
Loupe à éclairage

Loep met verlichting
Lupa con luz
Lupa com luz

Lente d'ingrandimento con luce

Лупа с подсветкой
 带照明的放大镜

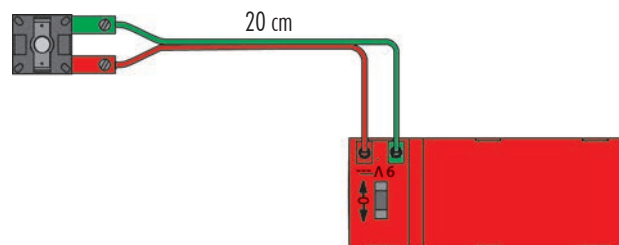


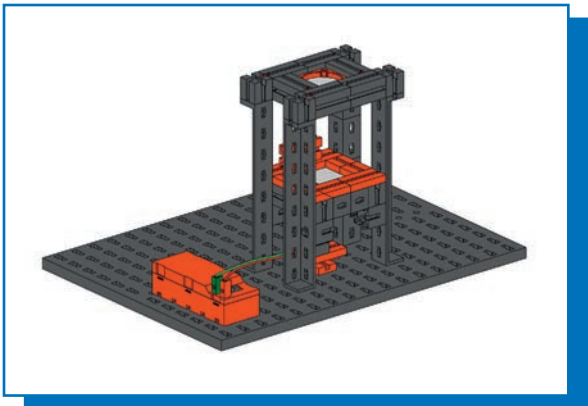


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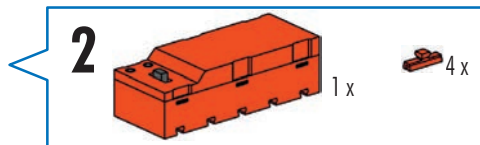
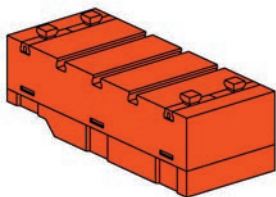
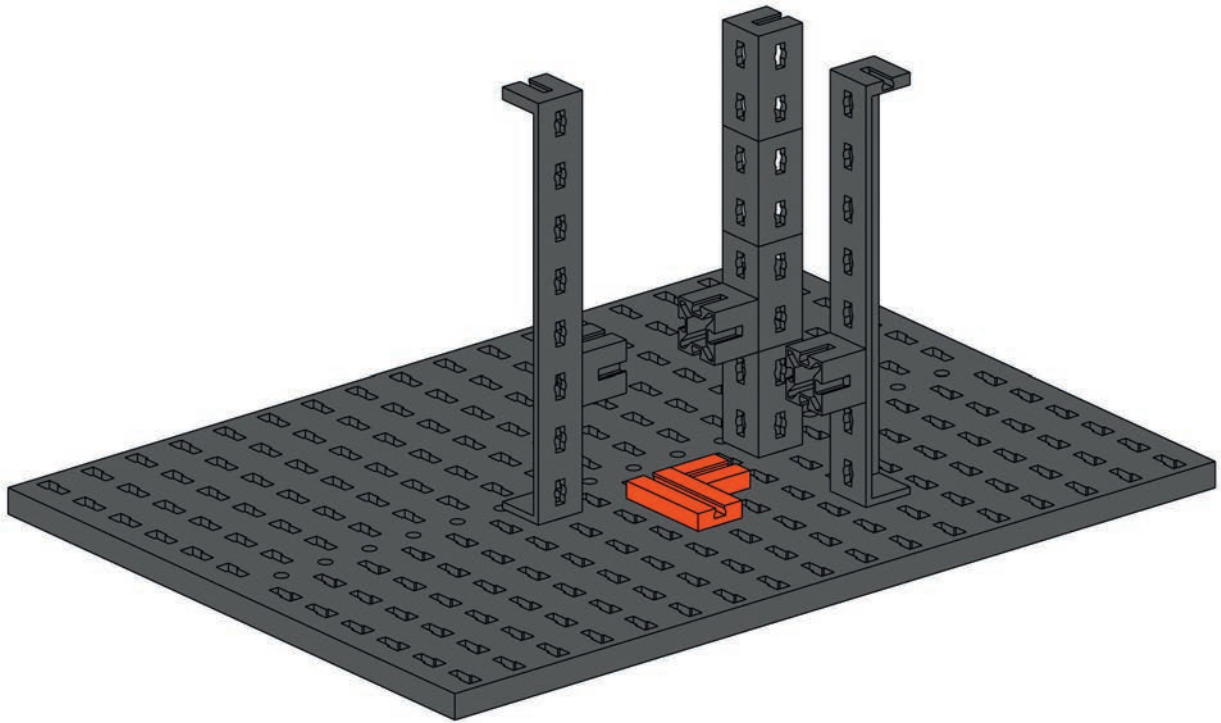
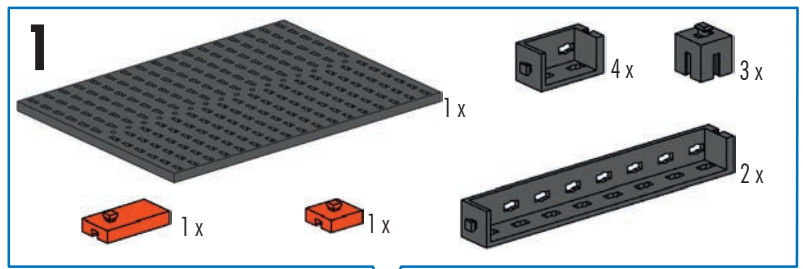


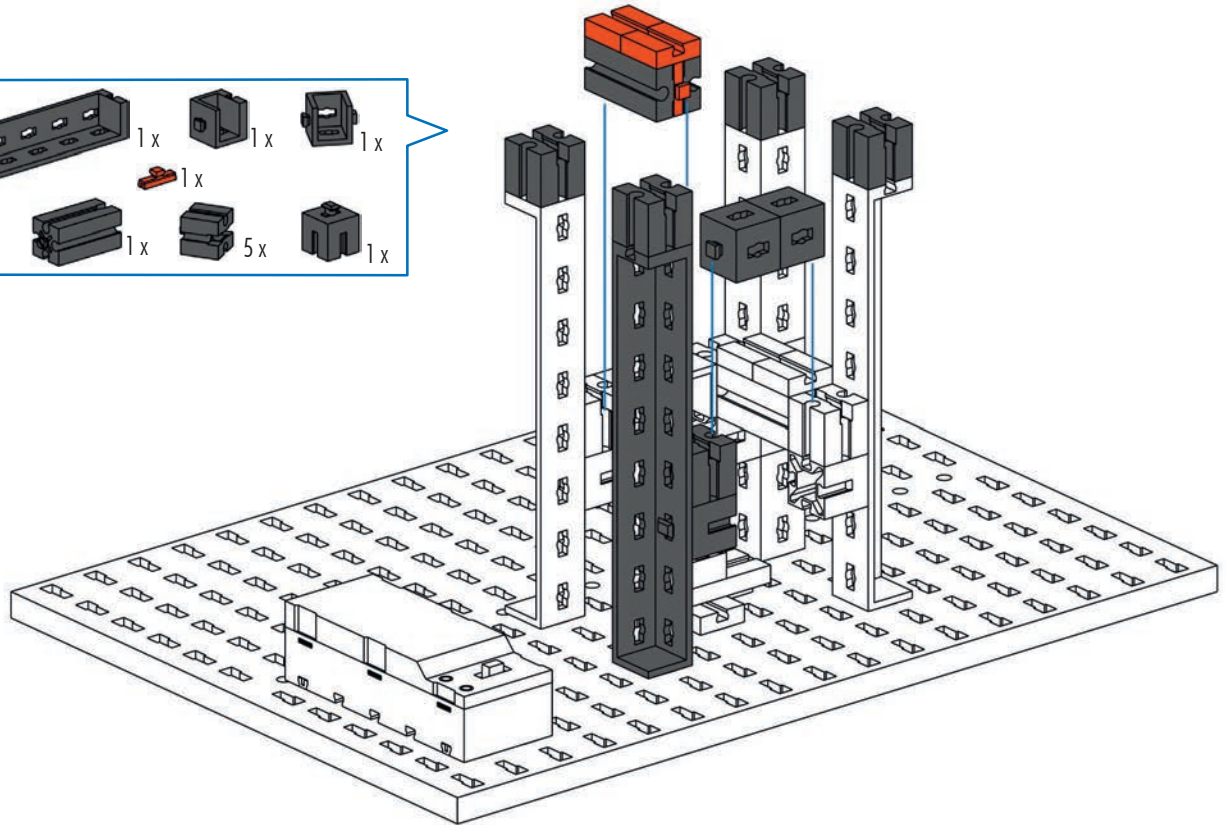
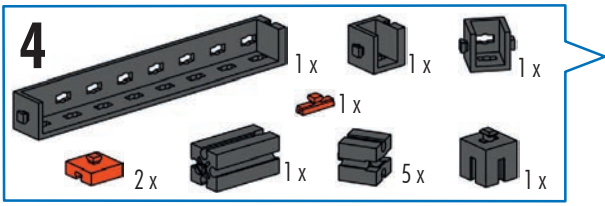
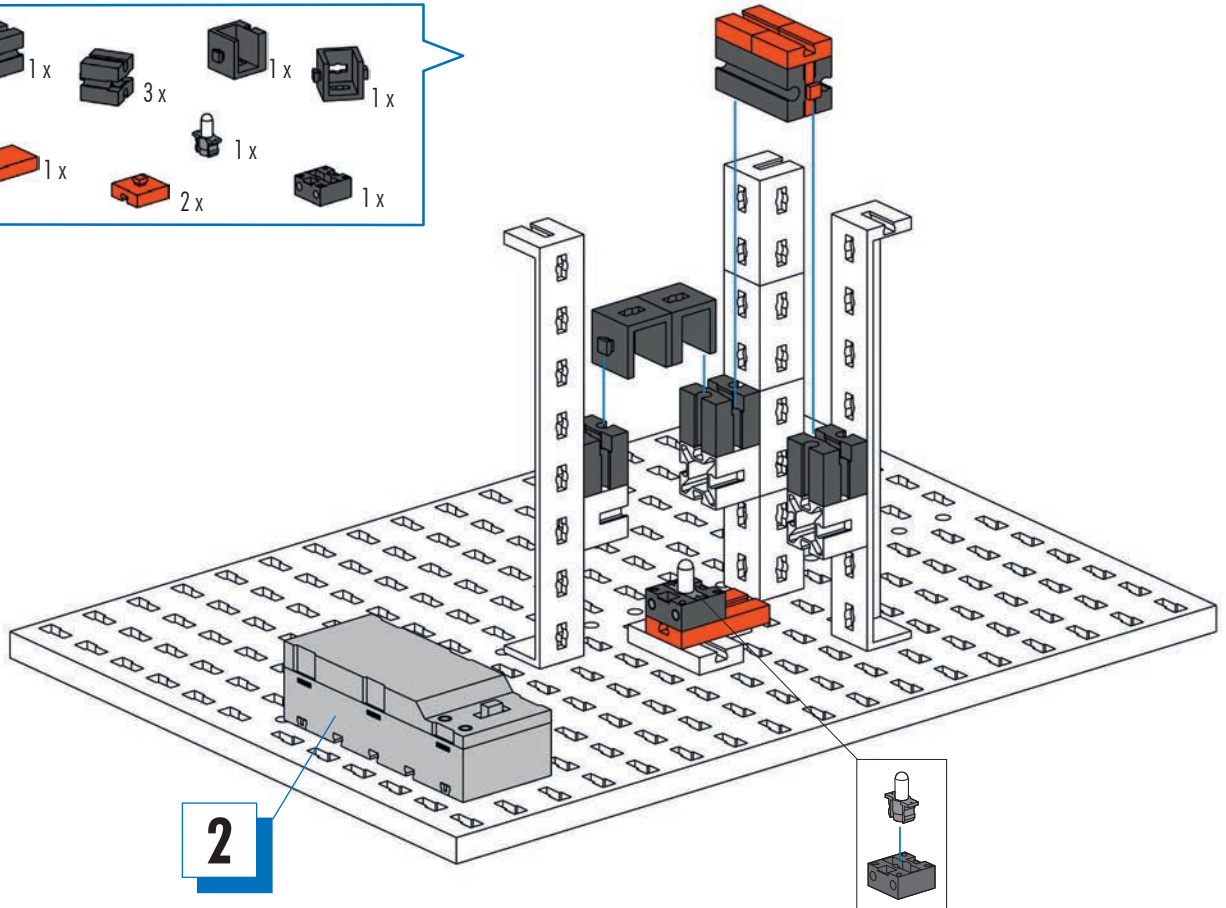
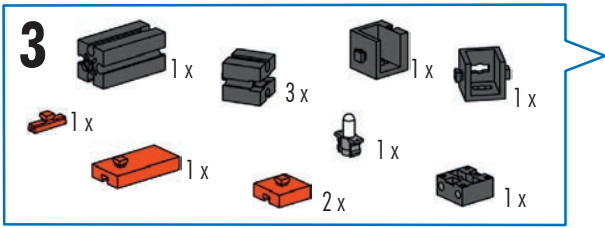


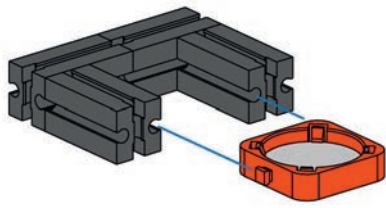
Diabetrachter
Slide viewer
Visionneuse



Diaviewer
Visor de diapositivas
Visualizador de slides

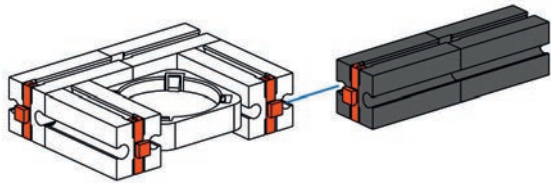
Visore per diapositive
Диаскоп
幻灯片观像器





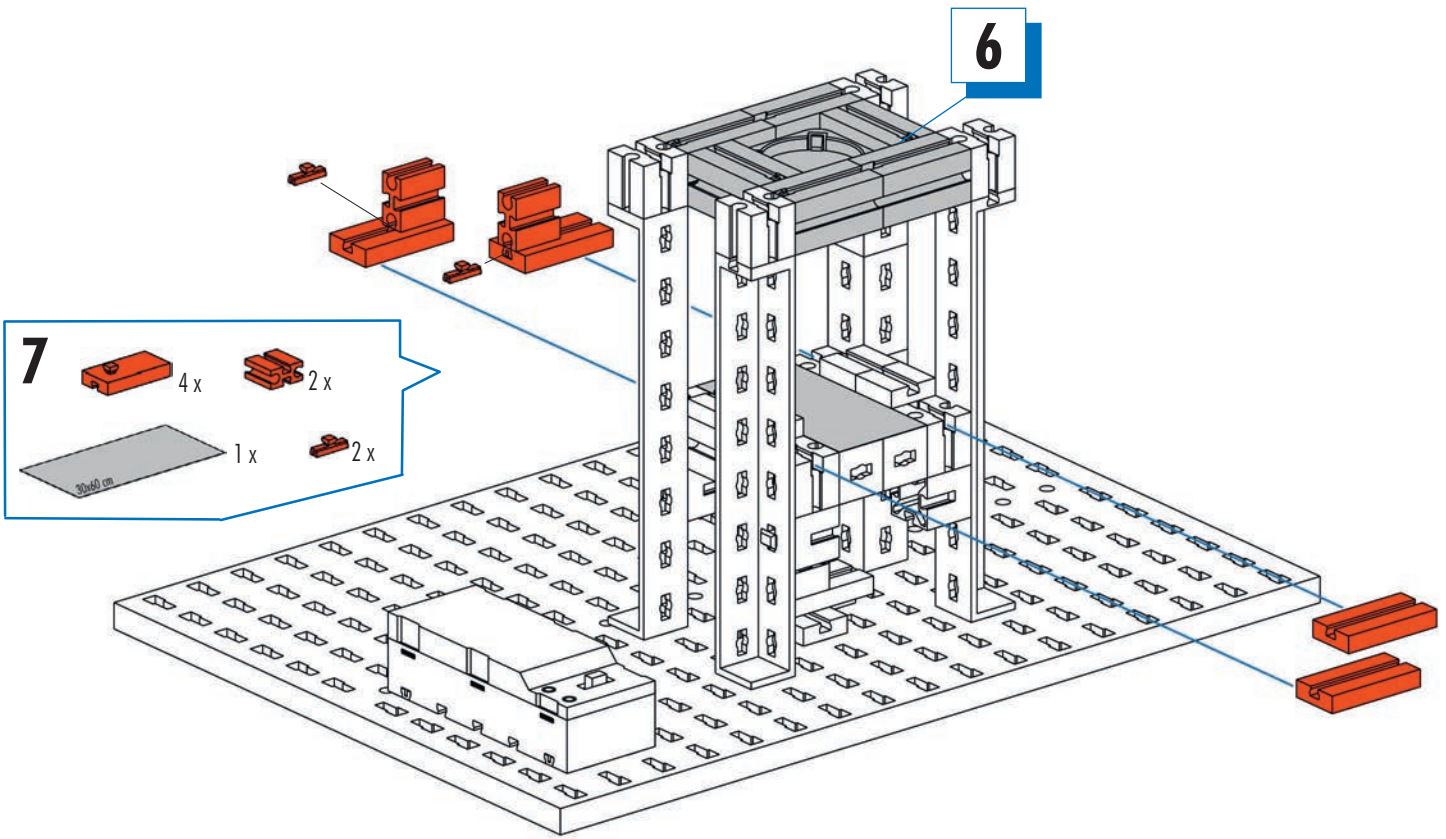








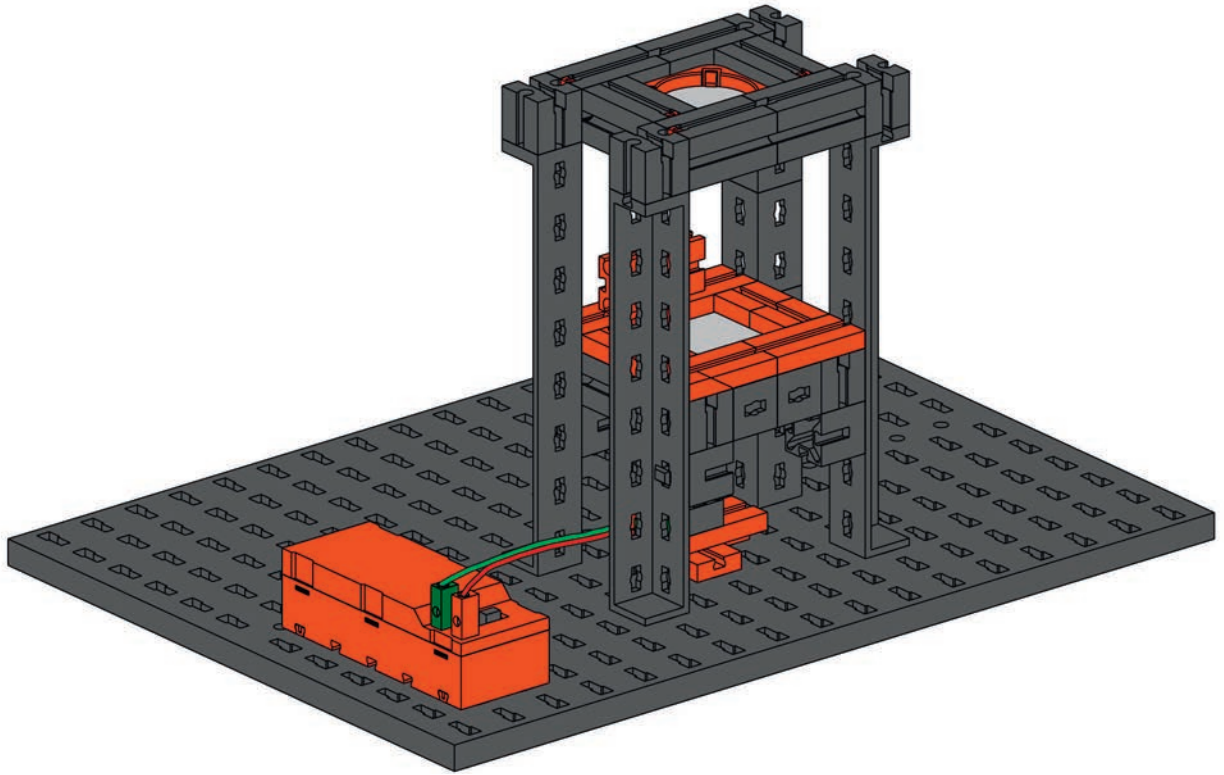
5  4x  1x



6  2x  4x



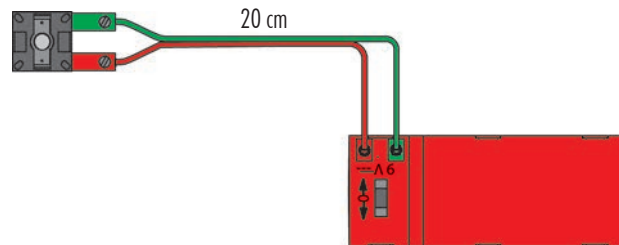
7  4x  2x
 1x  2x

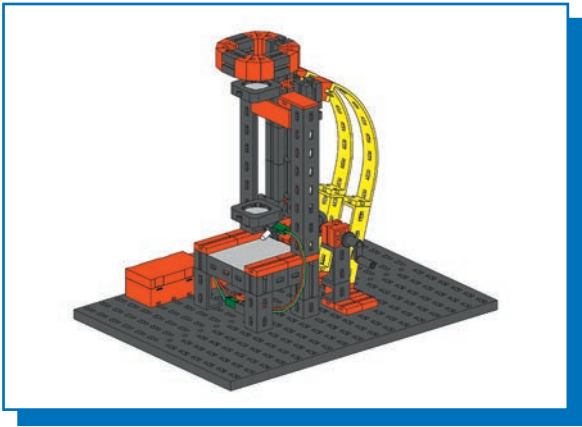


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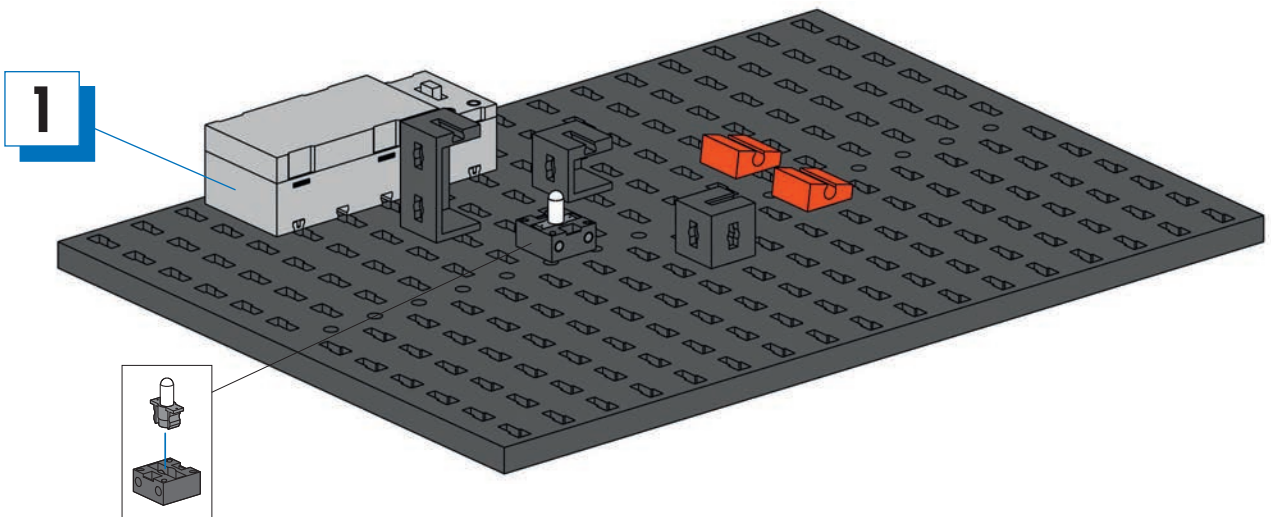
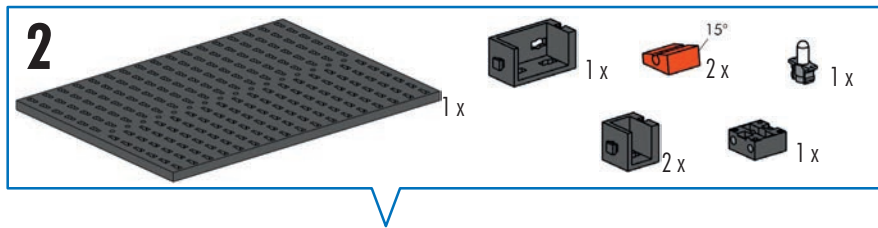
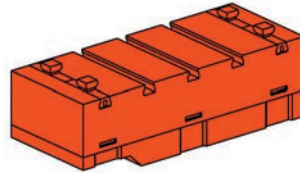
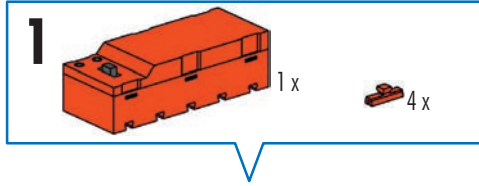




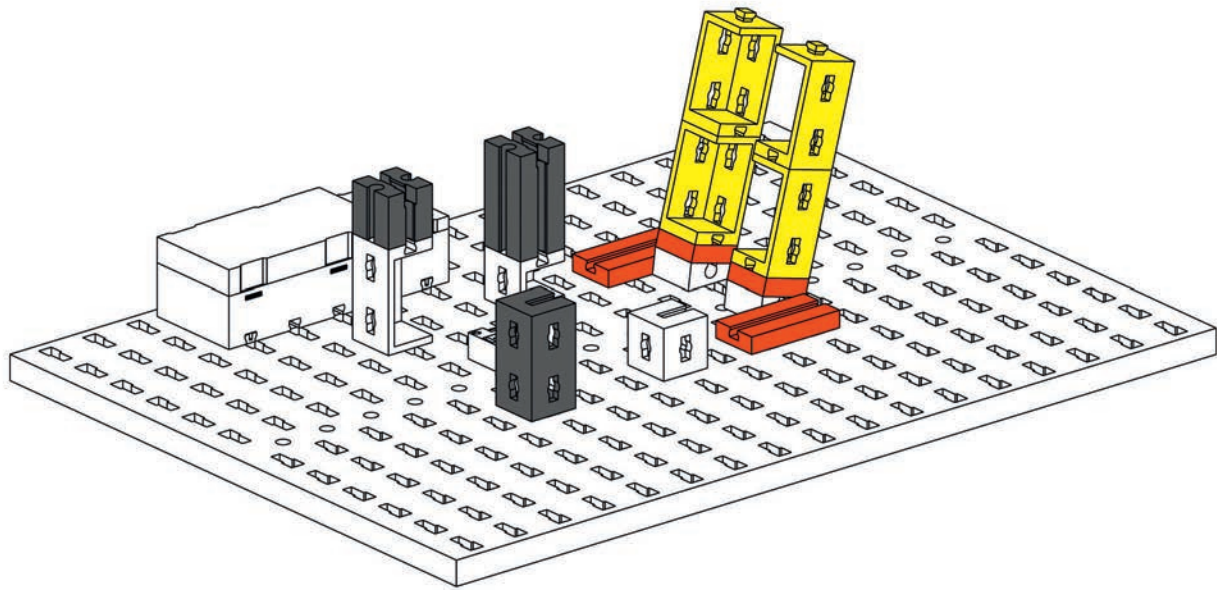
Mikroskop
Microscope
Microscope

Microscop
Microscopio
Microscópio

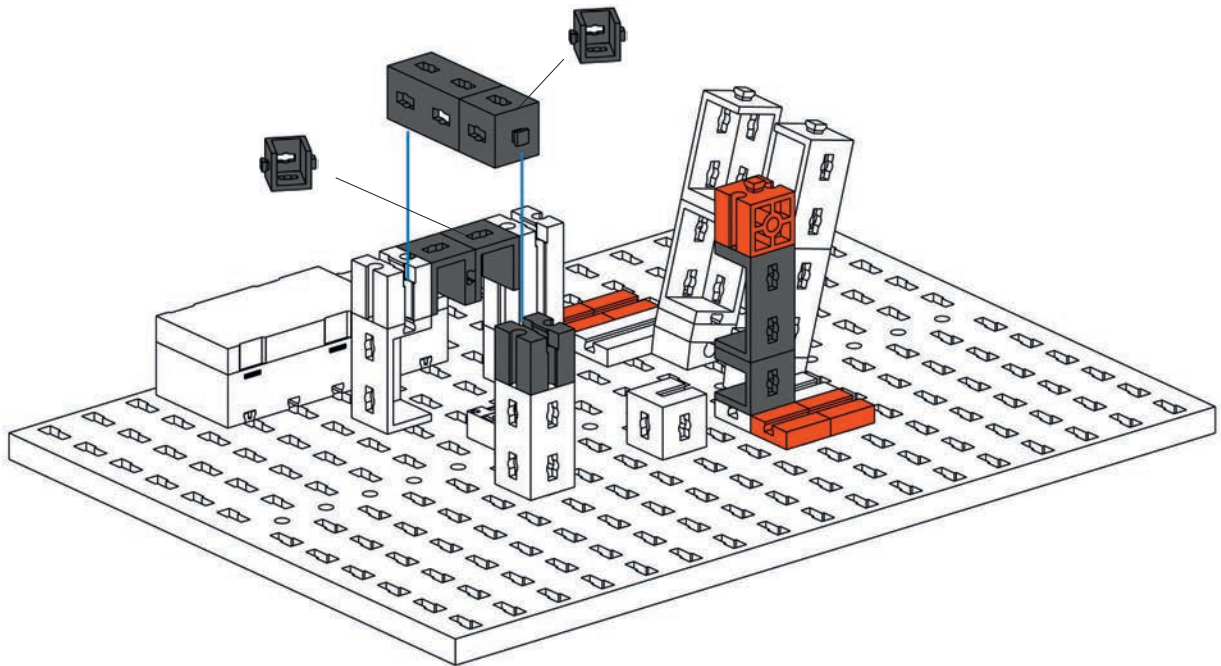
Microscopio
Микроскоп
显微镜




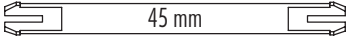
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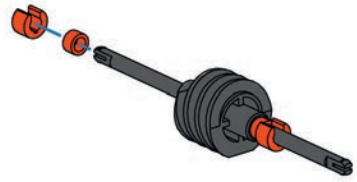


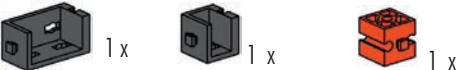
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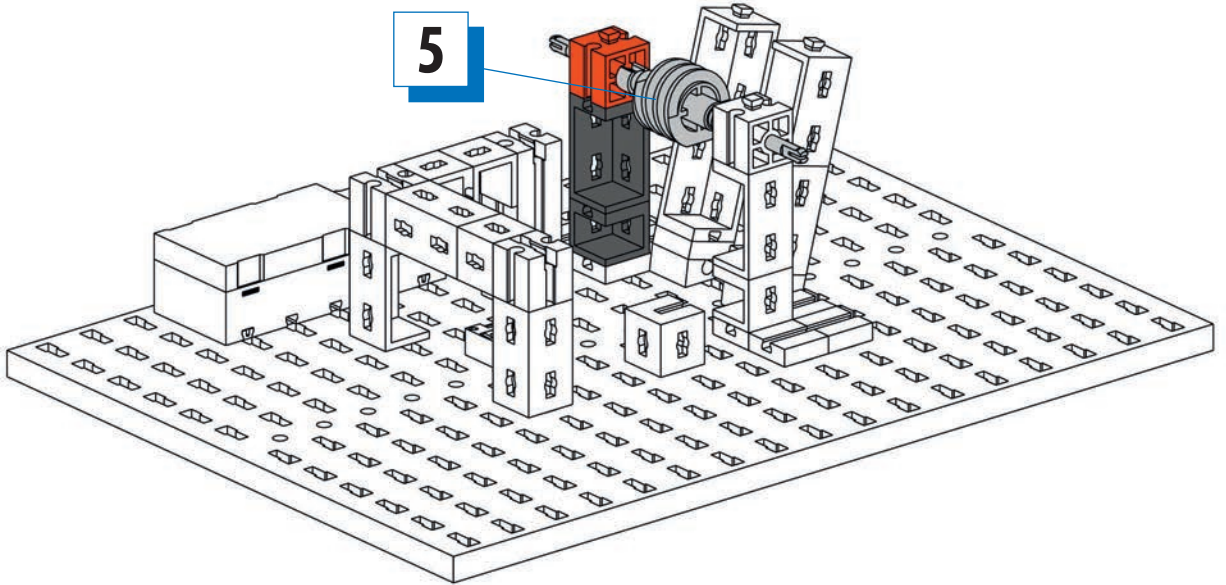


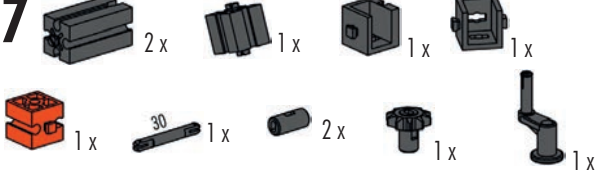
5  1x ⁴⁵ 2x 2x 2x

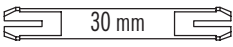
 30 mm

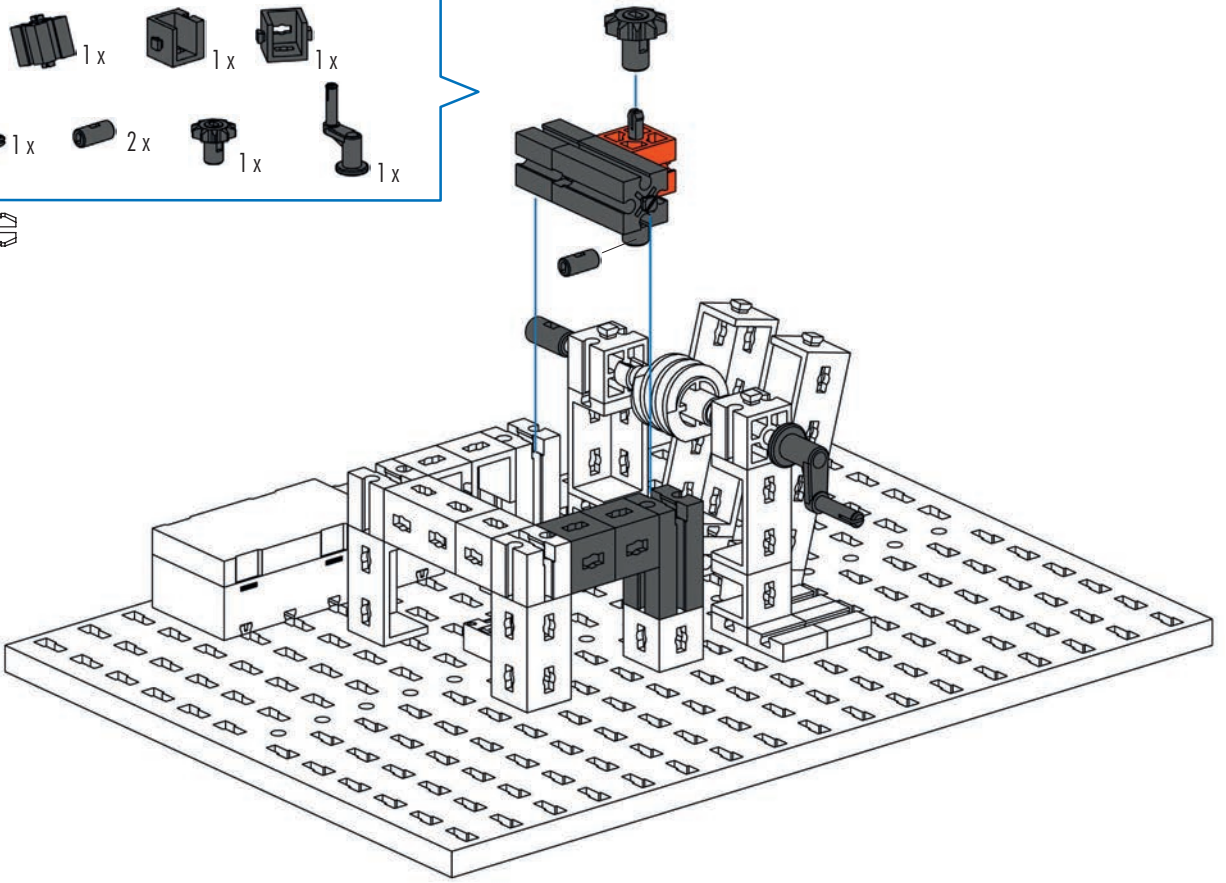


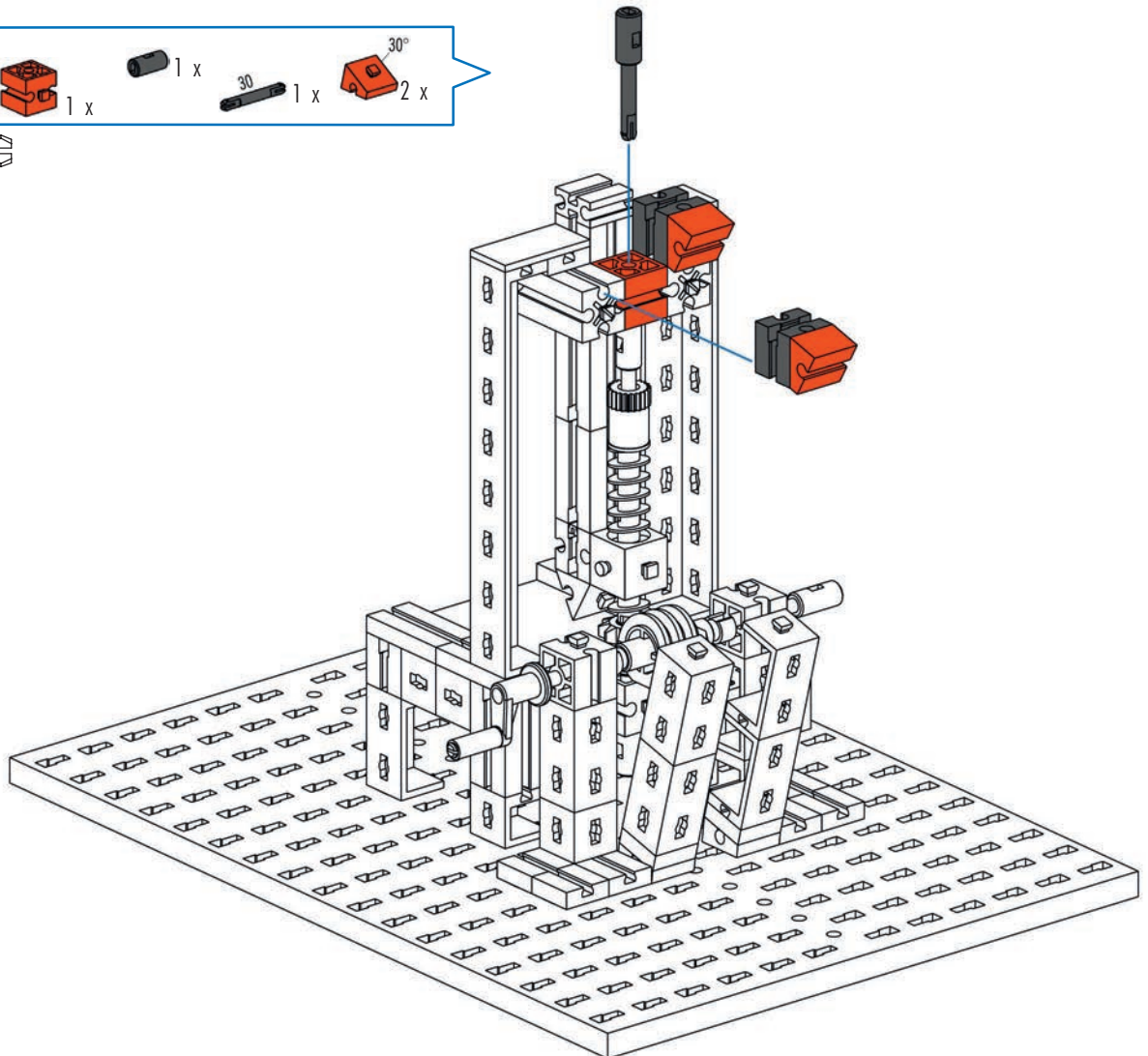
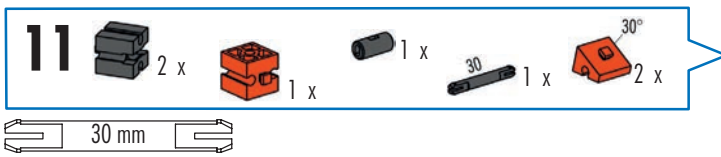
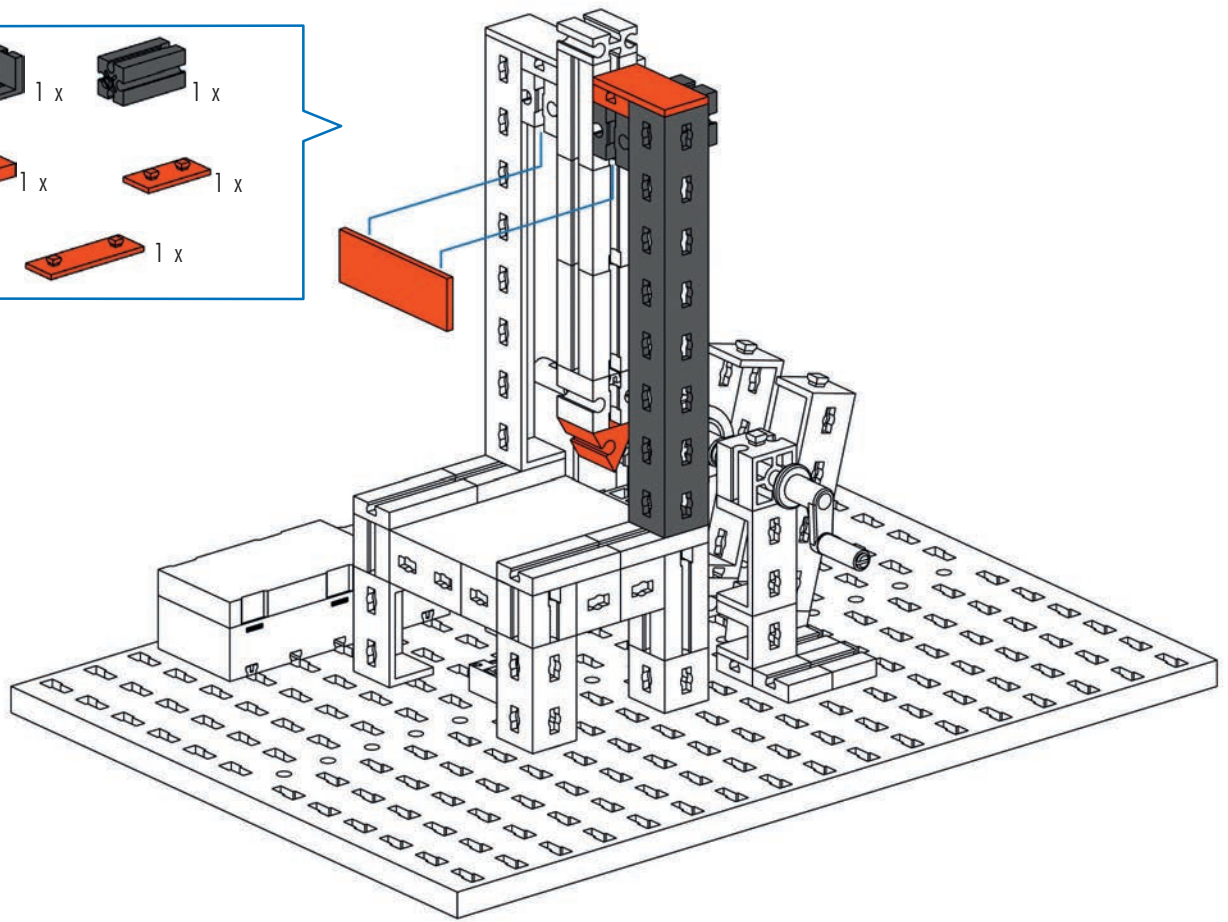
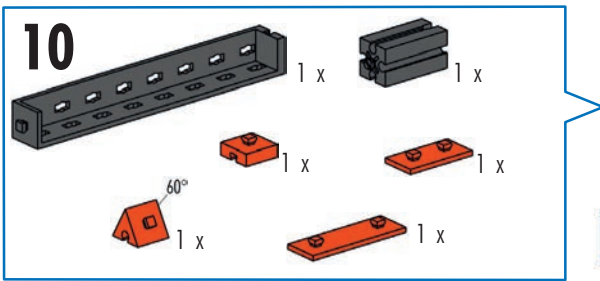
6  1x 1x 1x

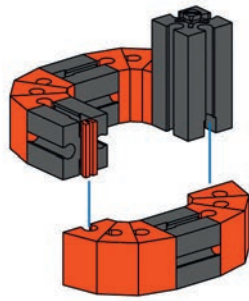


7  2x 1x 1x 1x 1x 1x 2x 1x 1x

 30 mm







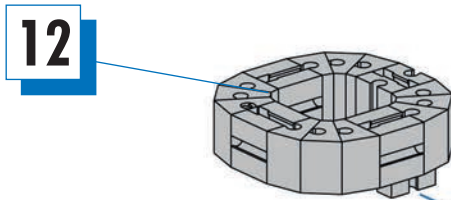
12

- 1 x [Grey Technic Brick]
- 3 x [Grey Technic Brick]
- 12 x [Red Technic Brick]
- 1 x [Red Technic Brick]

Version 1: Vergrößerung 3-5fach
 Version 1: Magnification factor 3-5x
 Version 1: Grossissement de 3 à 5 fois

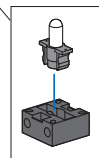
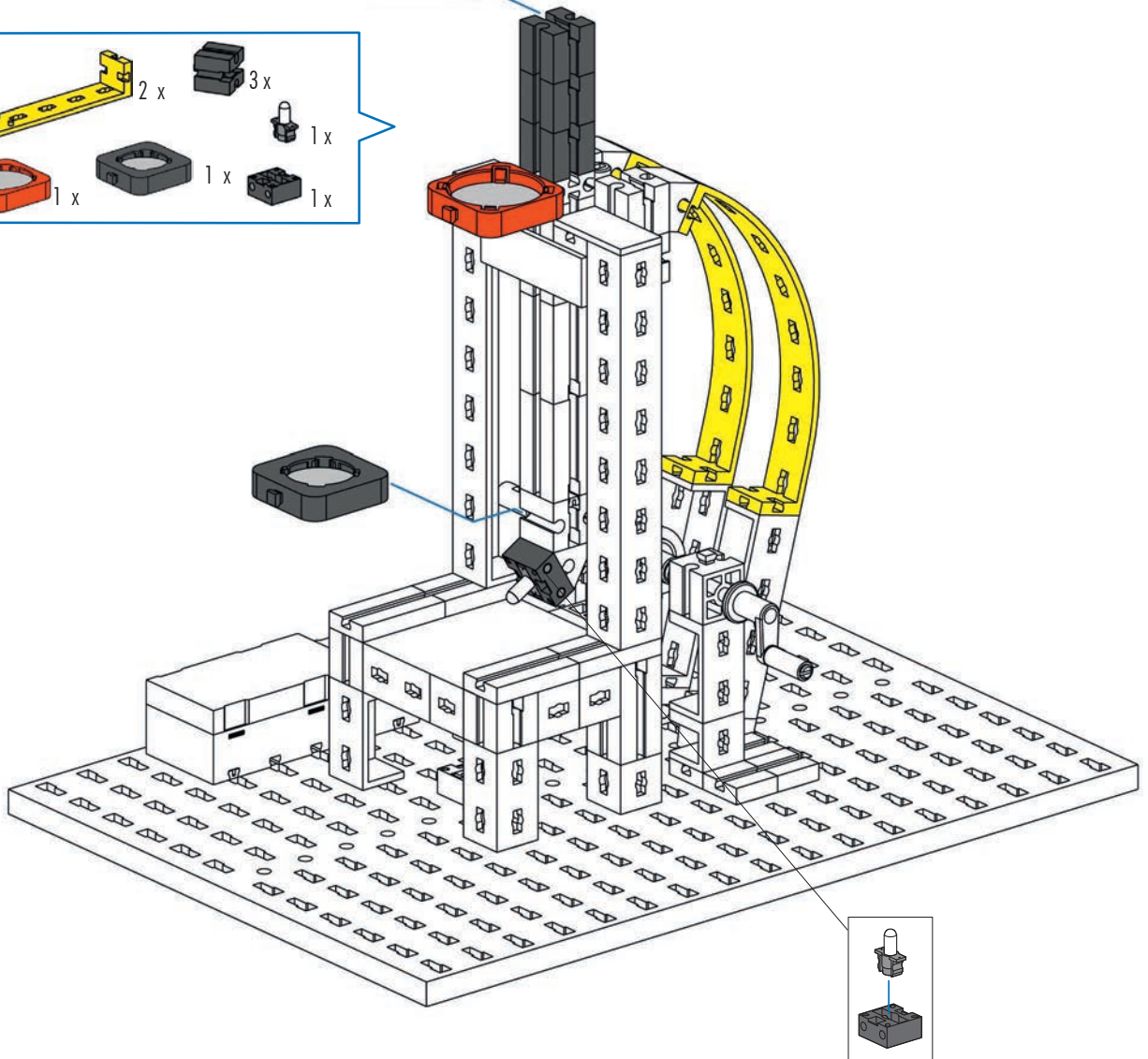
Versie 1: Vergroting 3- tot 5-voudig
 Versión 1: 3 a 5 aumentos
 Versão 1: Aumento de 3 a 5 vezes

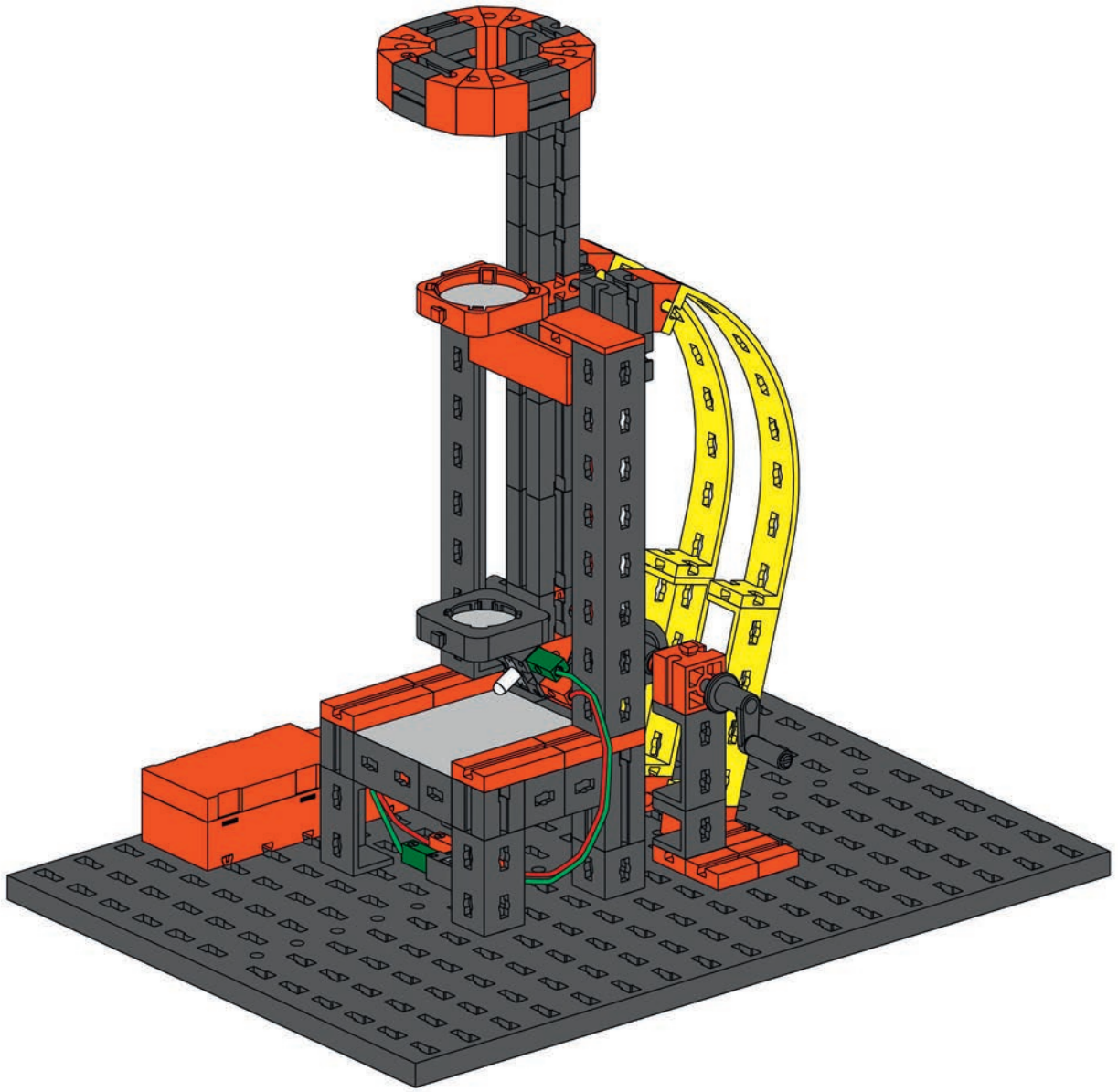
Versione 1: Ingrandimento 3-5x
 Версия 1: 3-5 кратное увеличение
 版本 1: 放大 3 至 5 倍



13

- 2 x [Yellow Technic Beam]
- 3 x [Grey Technic Brick]
- 1 x [Red Technic Brick]
- 1 x [Grey Technic Ring]
- 1 x [Grey Technic Pin]
- 1 x [Grey Technic Brick]

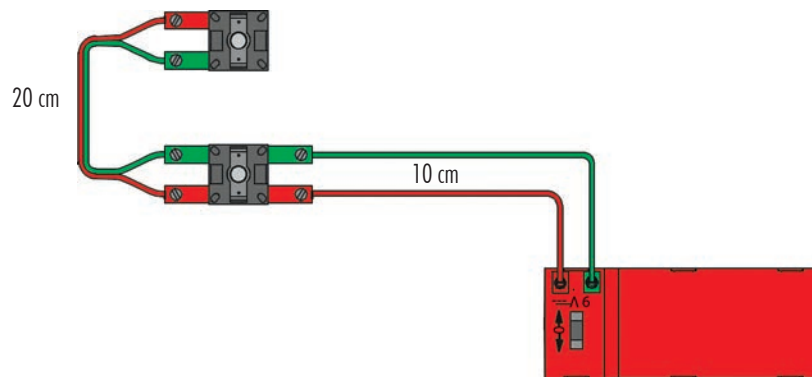




Schaltplan
Circuit diagram
Plan électrique

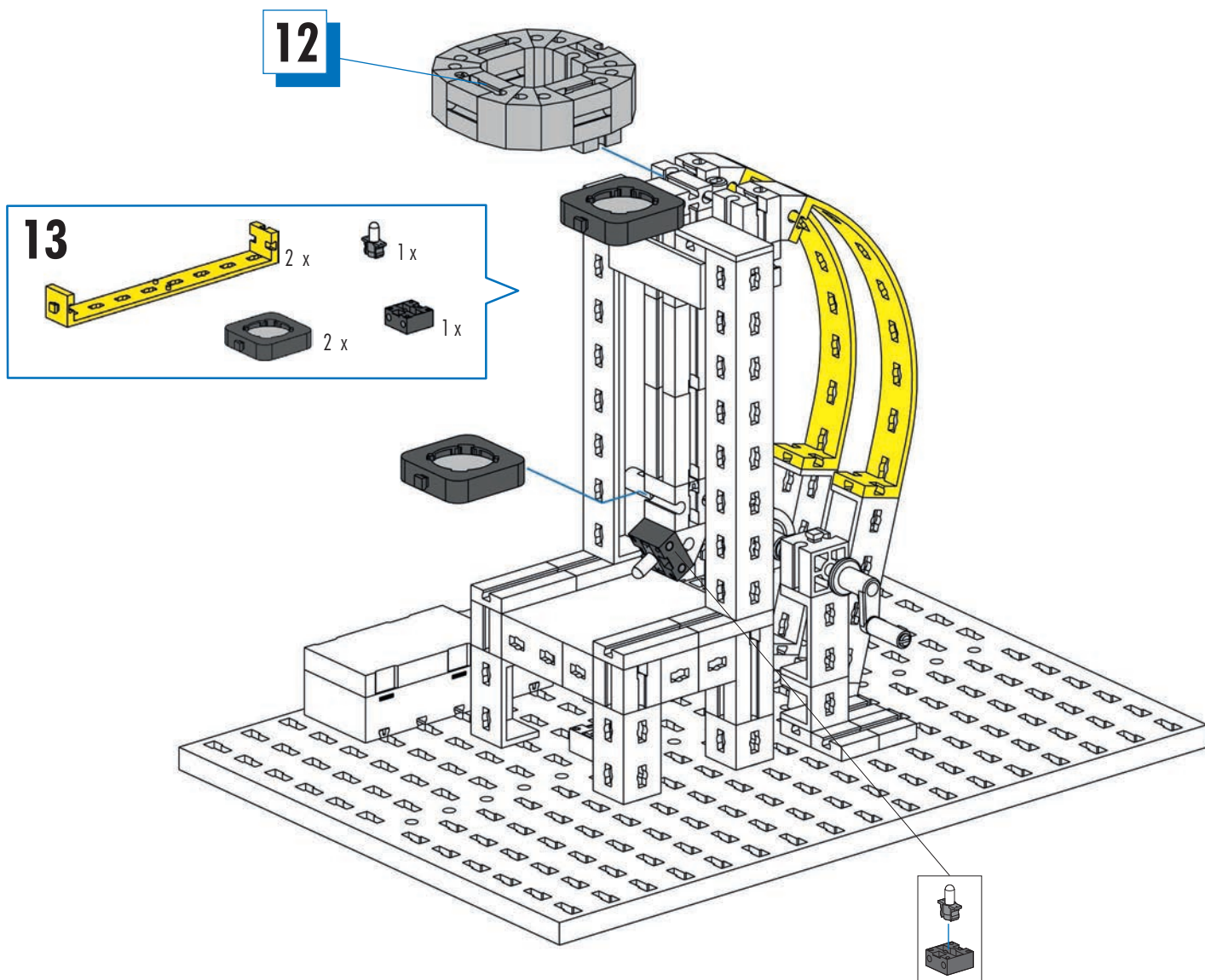
Schakelschema
Diagrama de circuitos
Plano elétrico de ligação

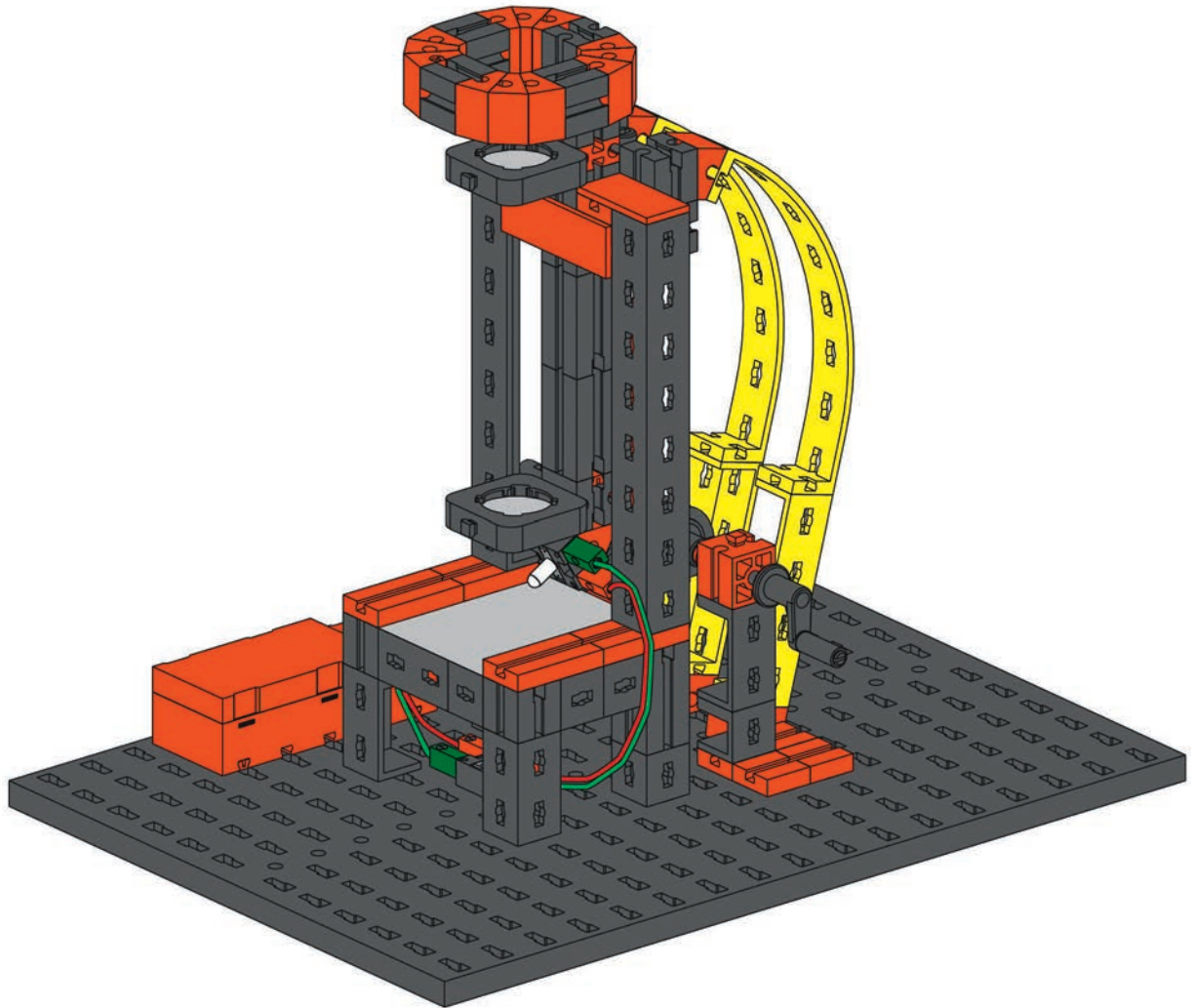
Schema elettrico
Схема подключения
电路图



1-12

Seite	13
Page	13
Page	13
Bladzijde	13
Página	13
Página	13
Página	13
Страница	13
頁次	13

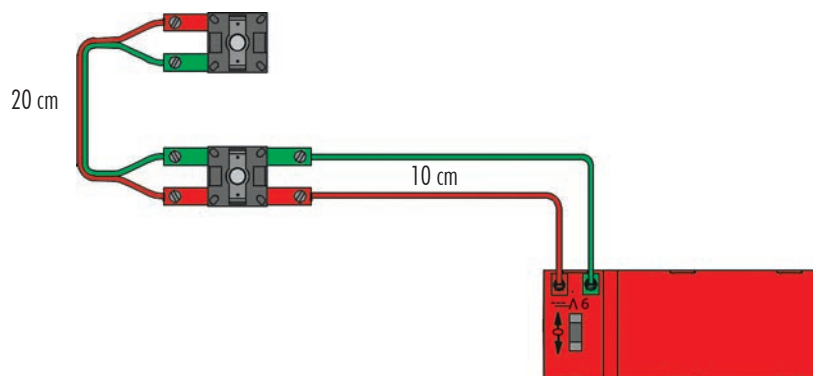




Schaltplan
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 电路图

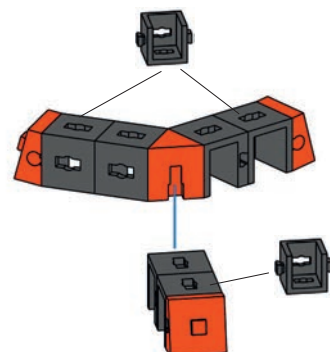
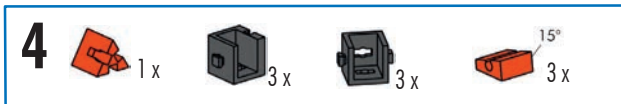
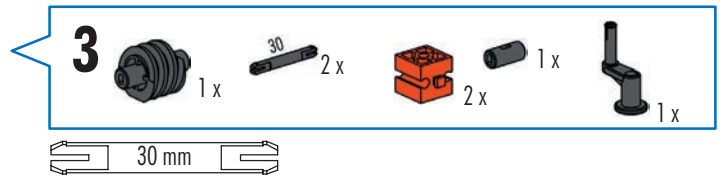
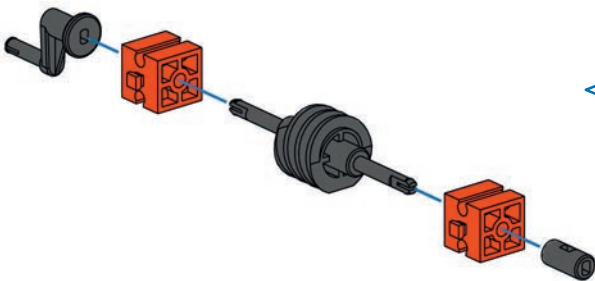
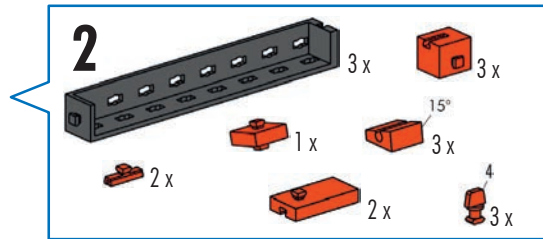
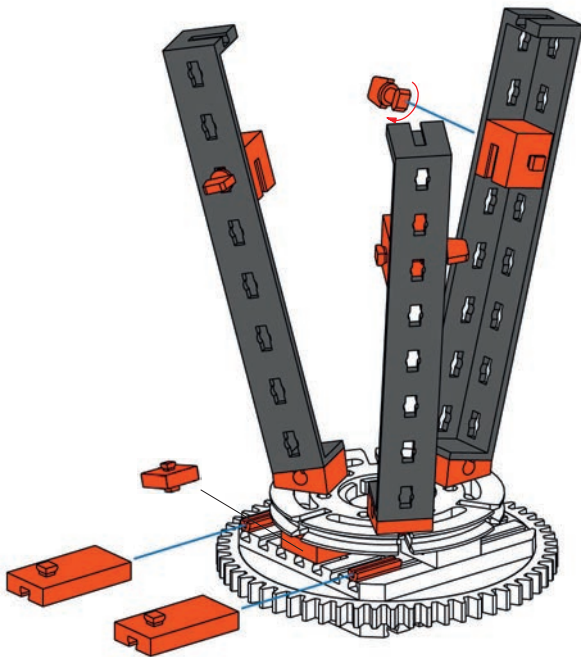
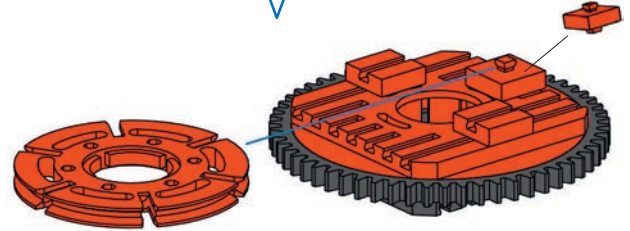


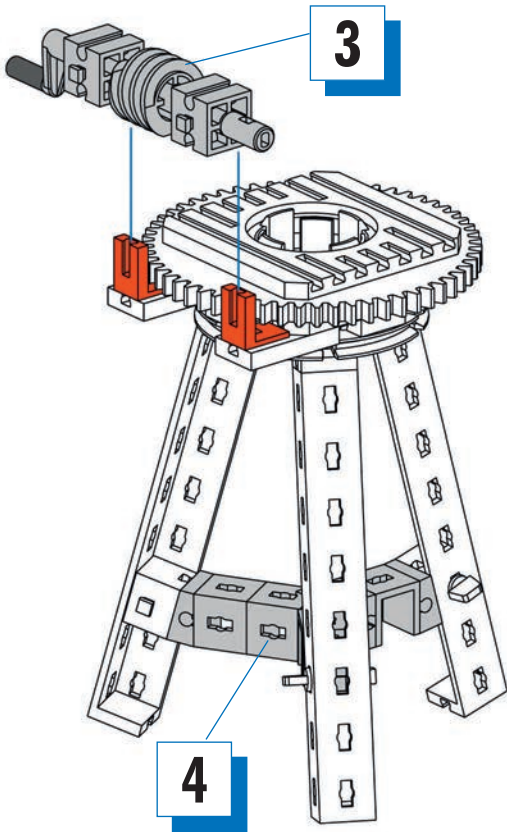


Astronomisches Fernrohr
Astronomical telescope
Télescope astronomique

Telescop
Telescopio astronómico
Telescópio astronômico

Telescopio astronomico
Астрономический
телескоп
天文望远镜



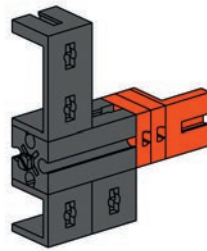


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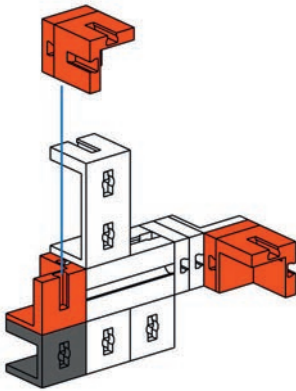
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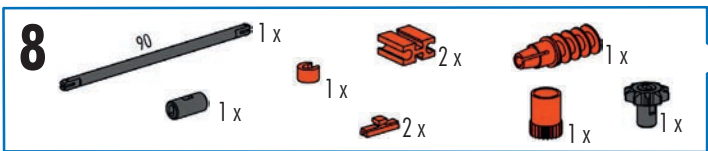
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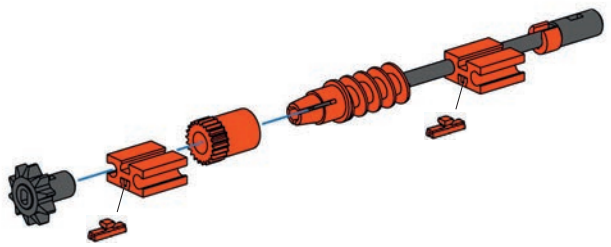
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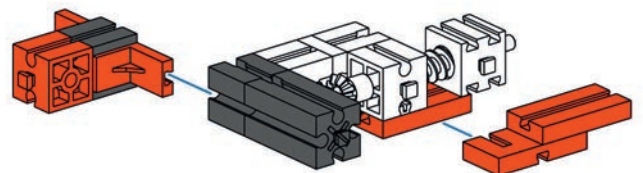
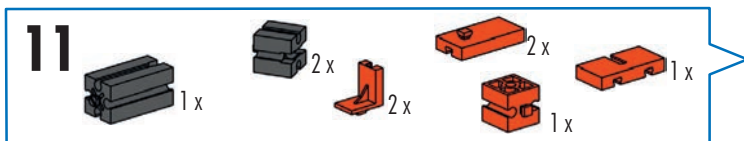
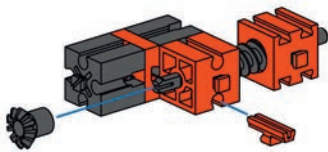
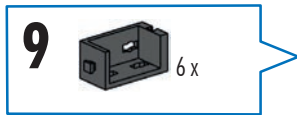
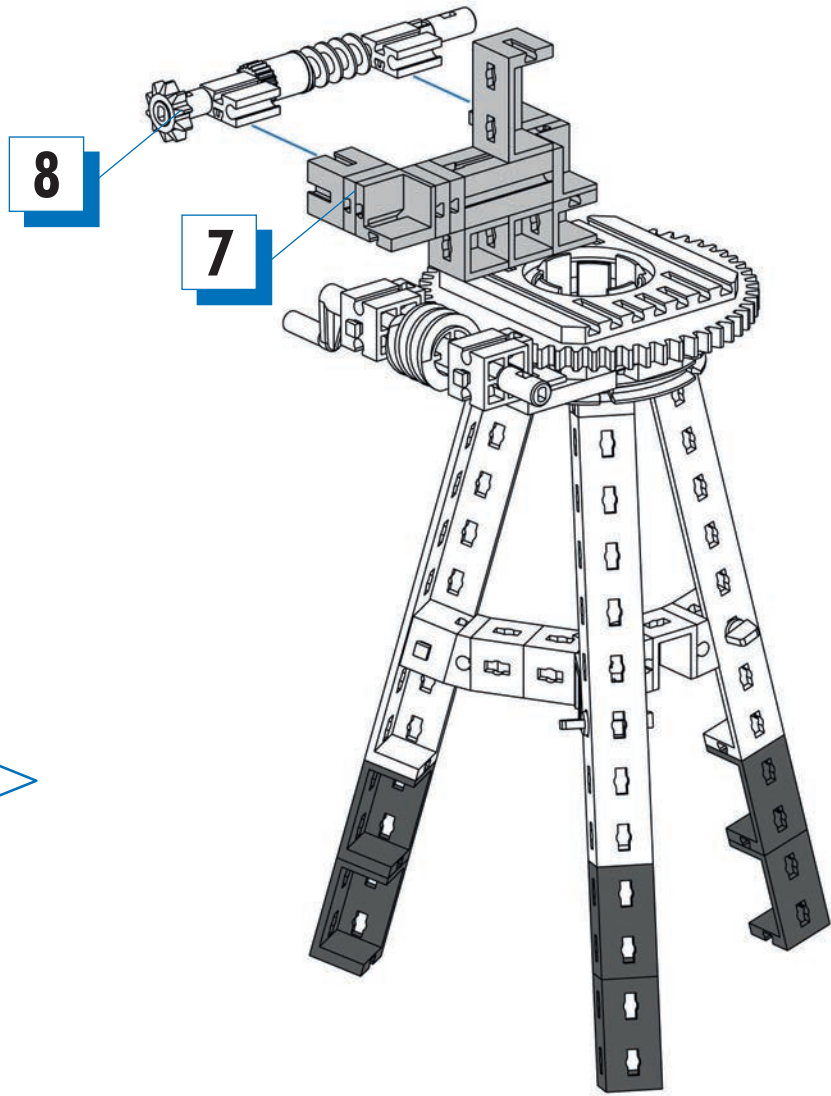


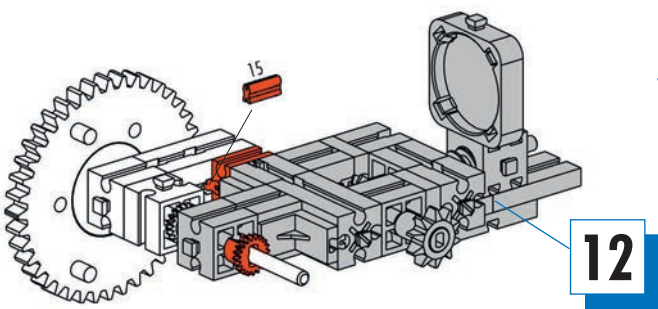
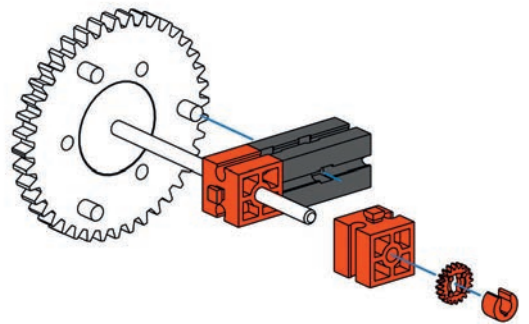
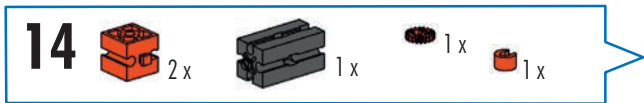
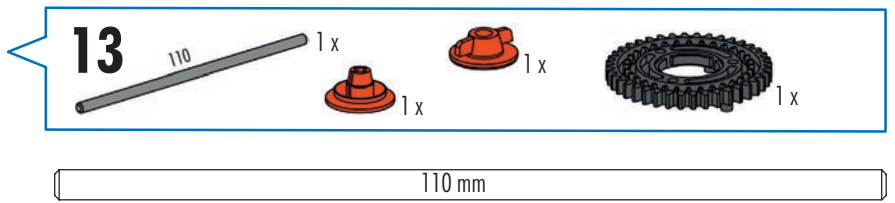
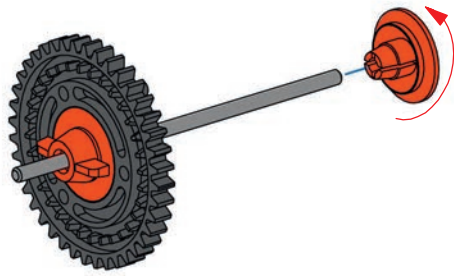
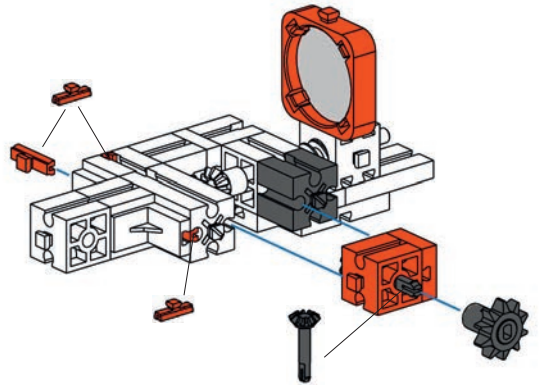
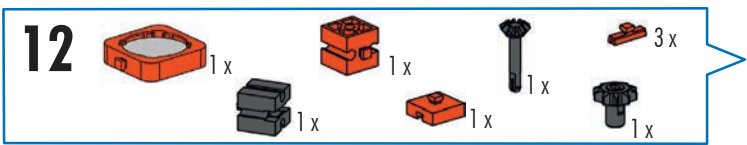
7



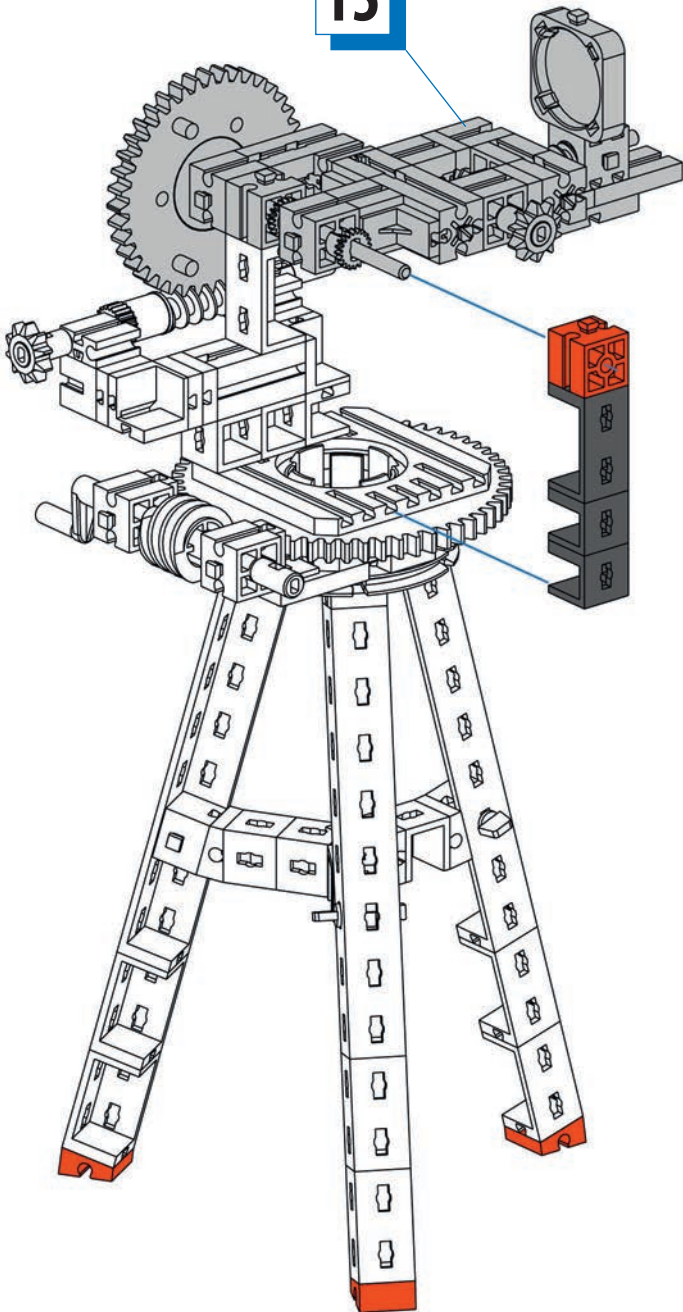
8







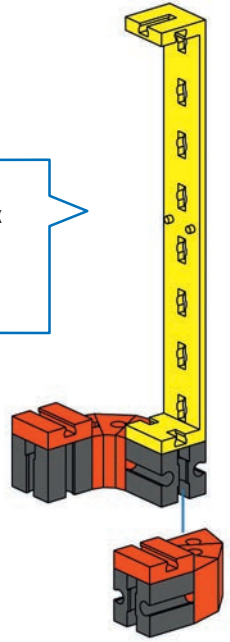
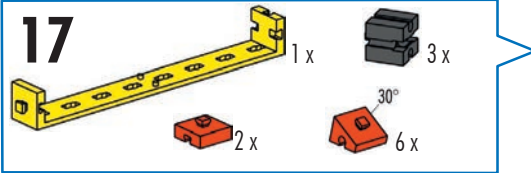
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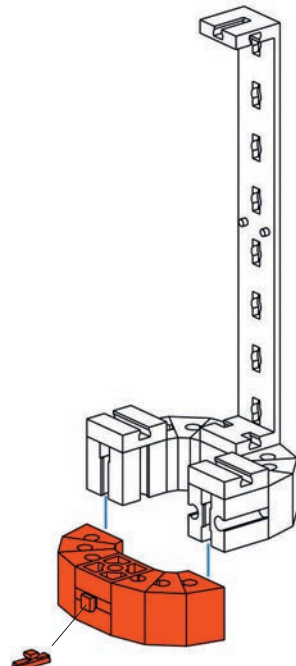
16

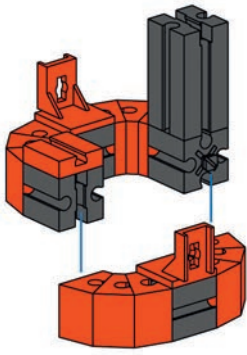







17

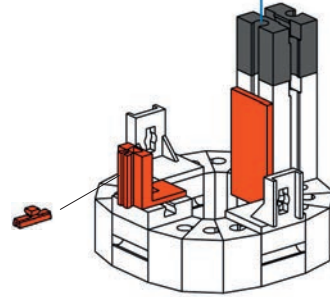
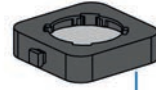


18

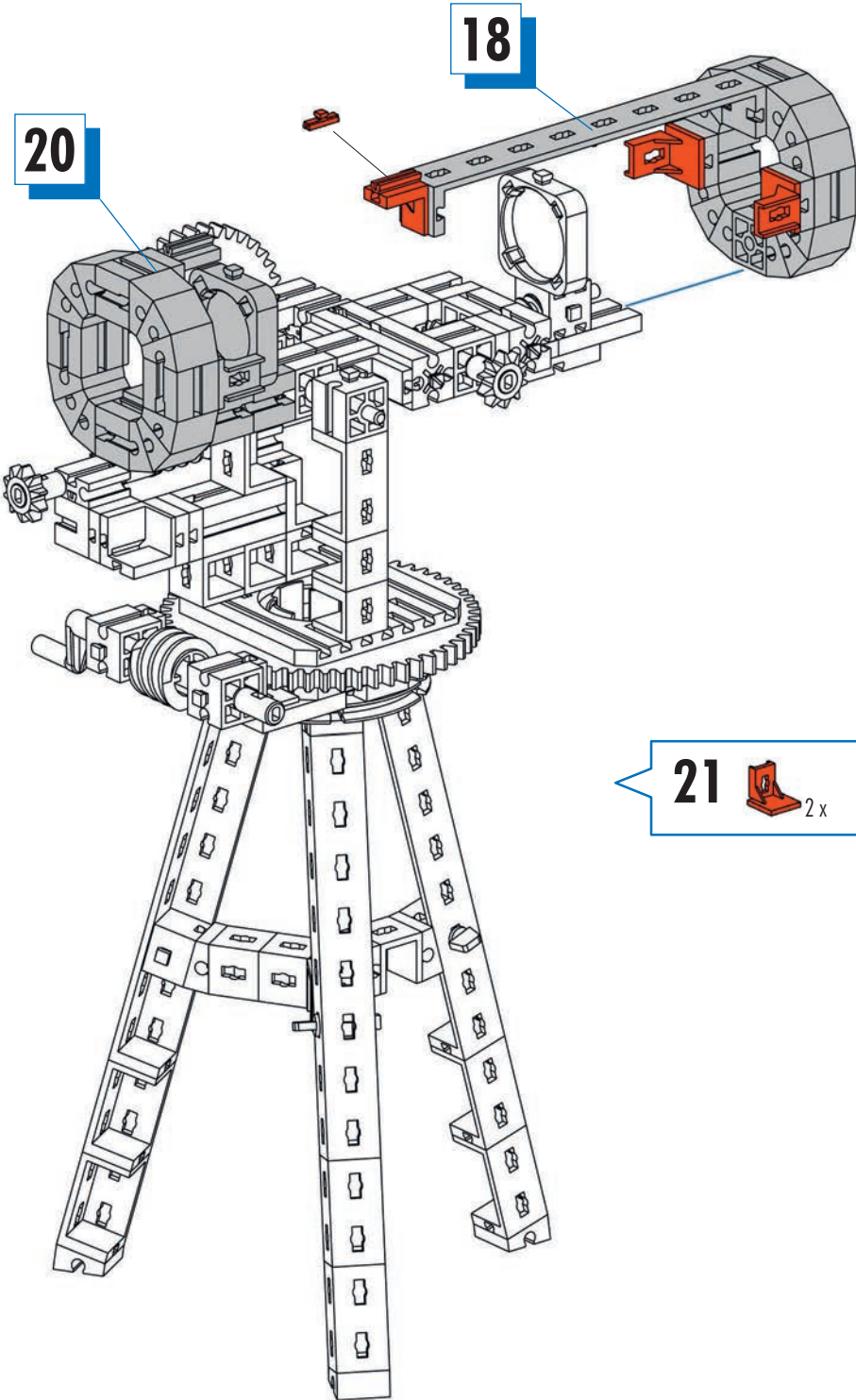




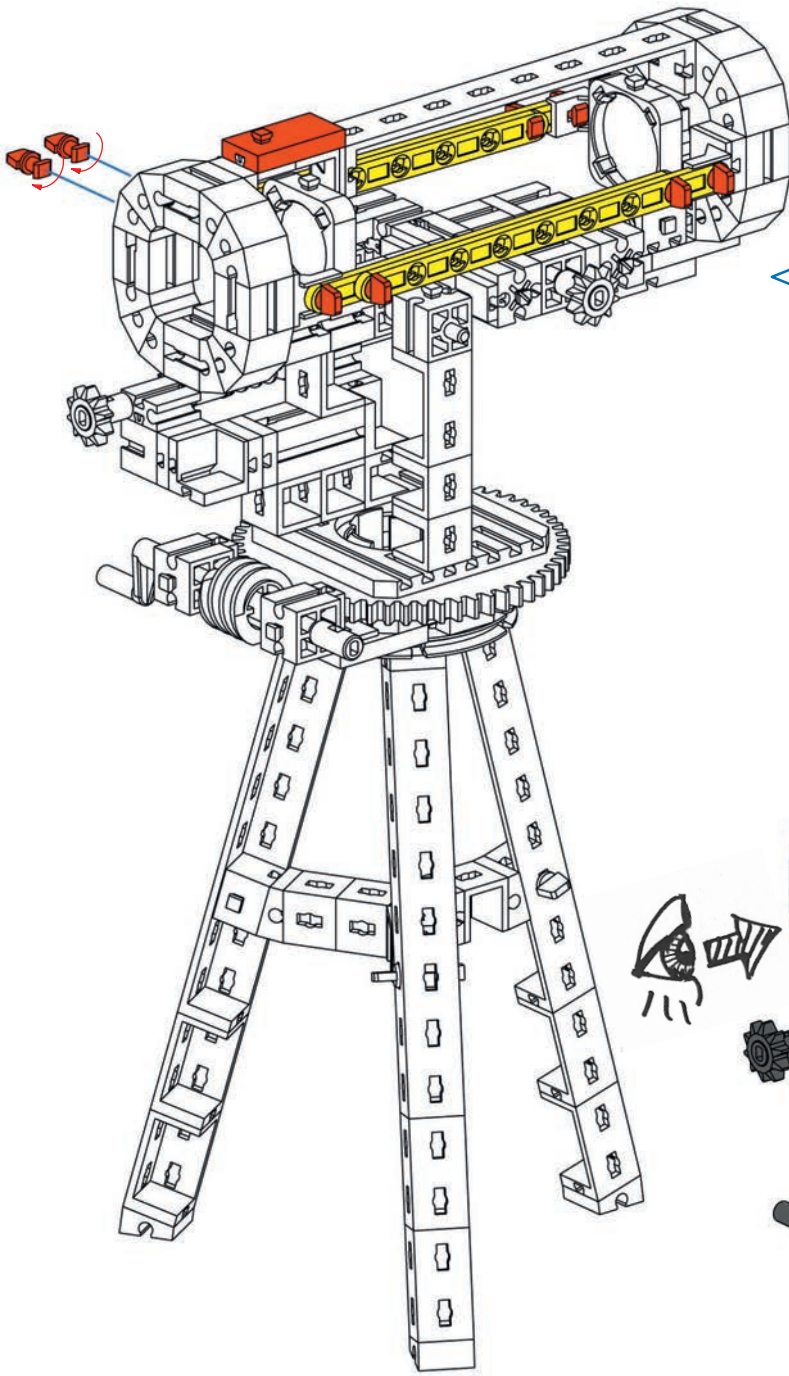
19  1x  4x  12x  2x  1x



20  1x  1x  1x  1x  1x

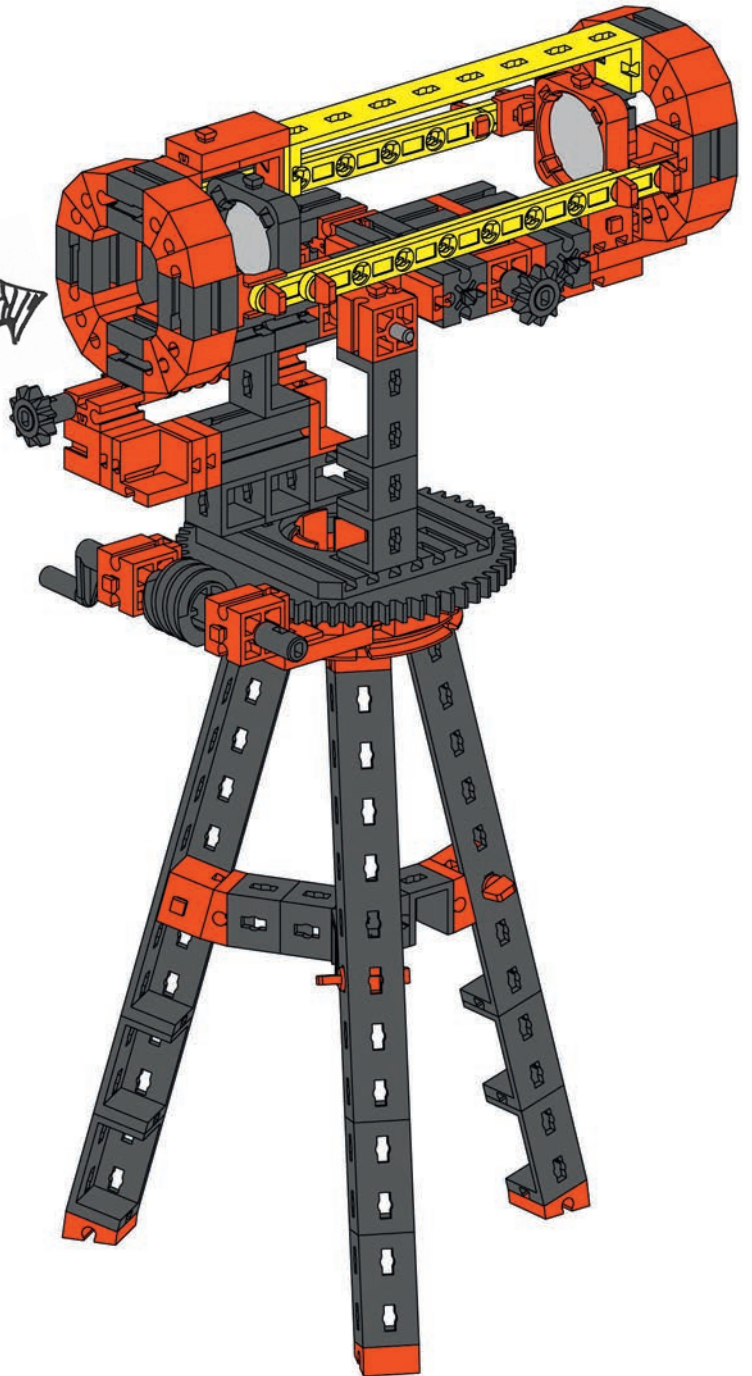


21  2x  1x  1x



22

	4 x		4		1 x
			8 x		

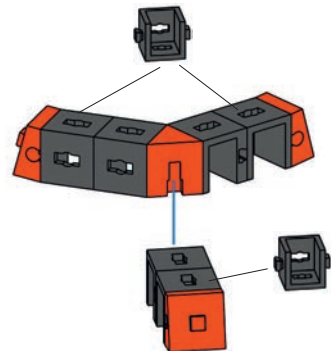
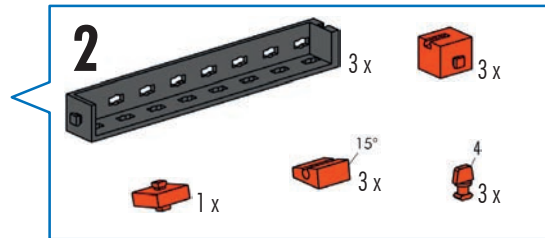
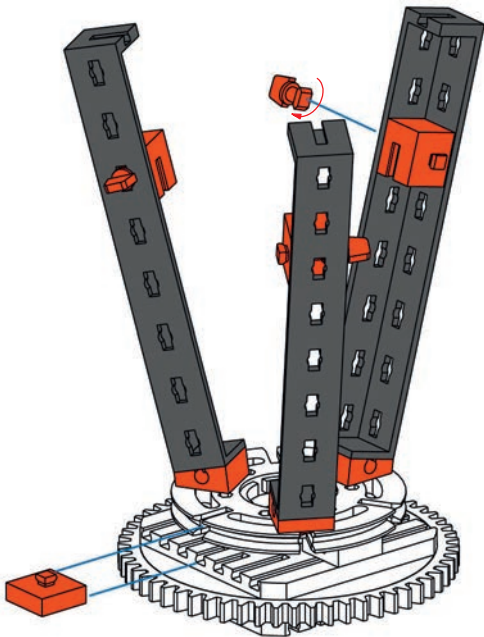
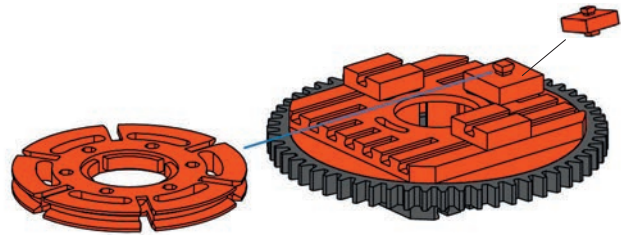


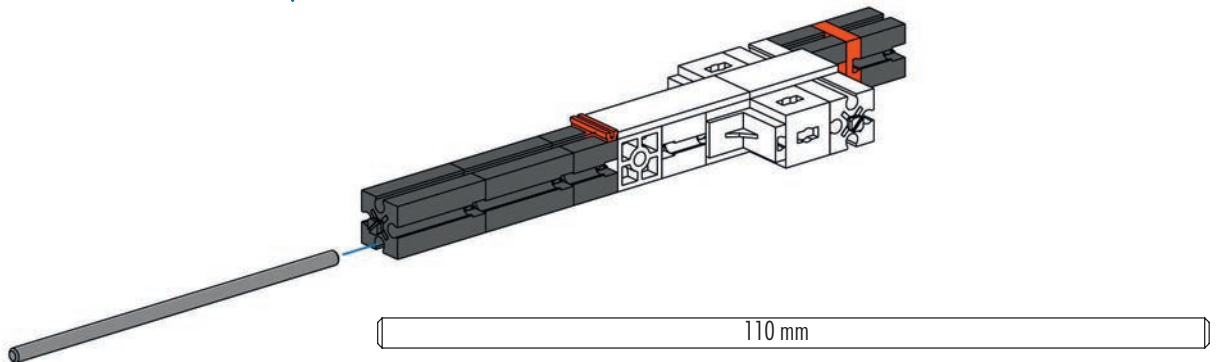
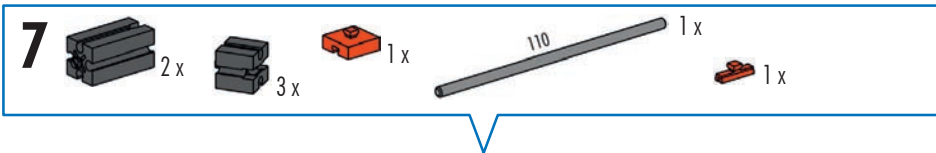
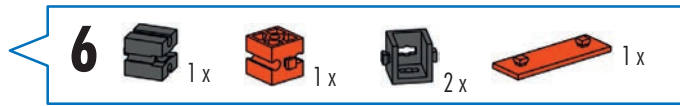
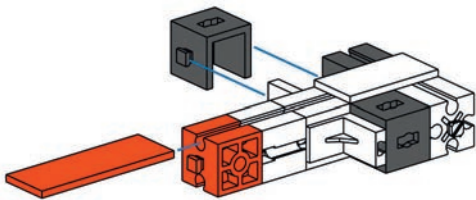
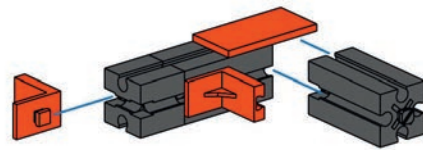
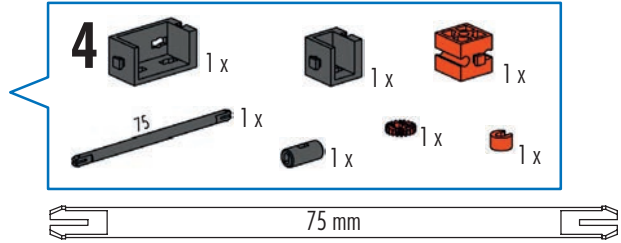
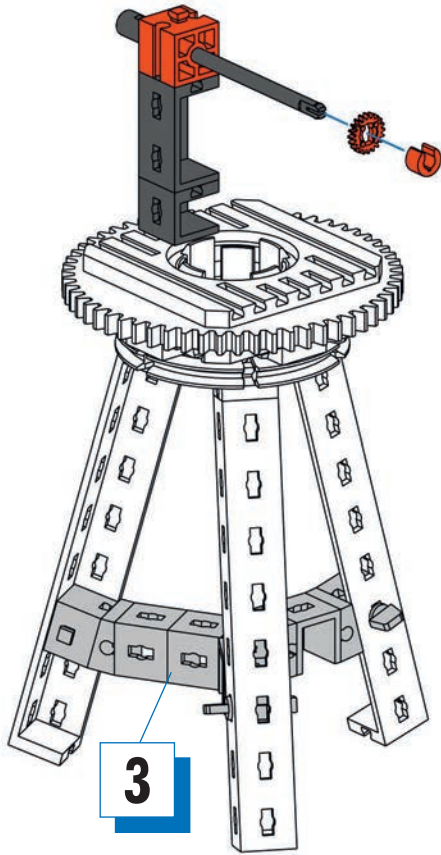


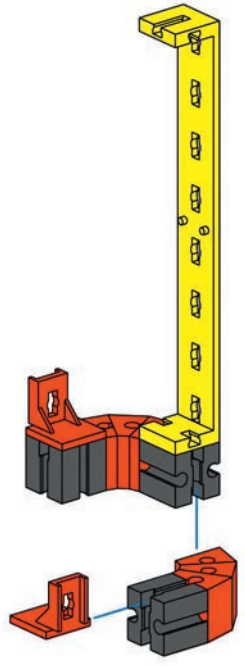
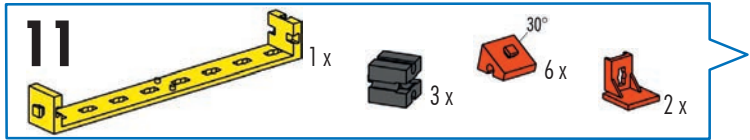
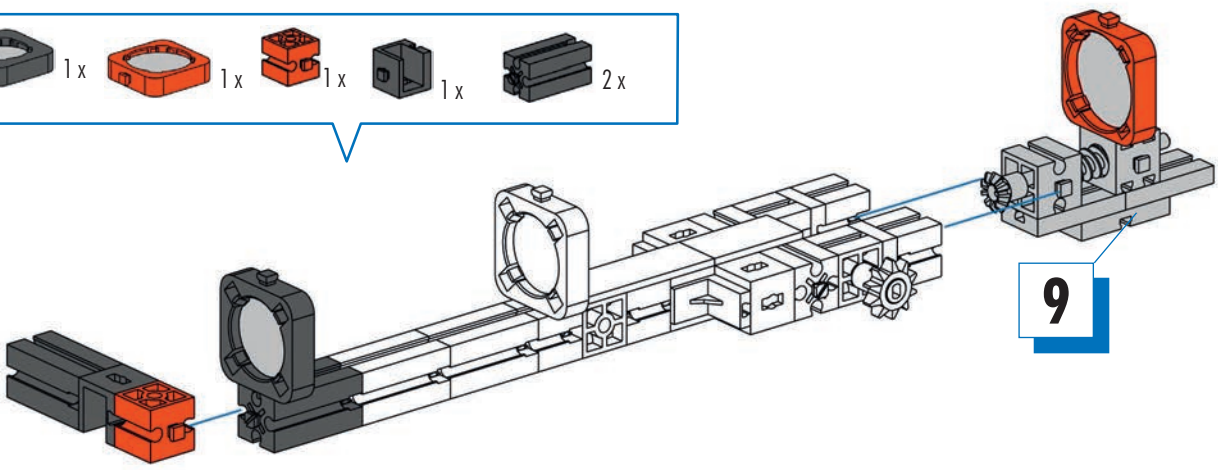
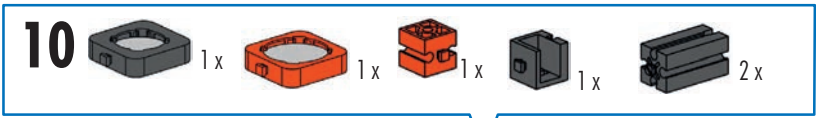
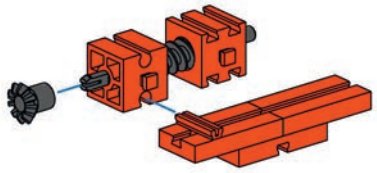
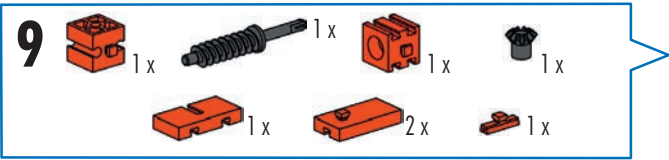
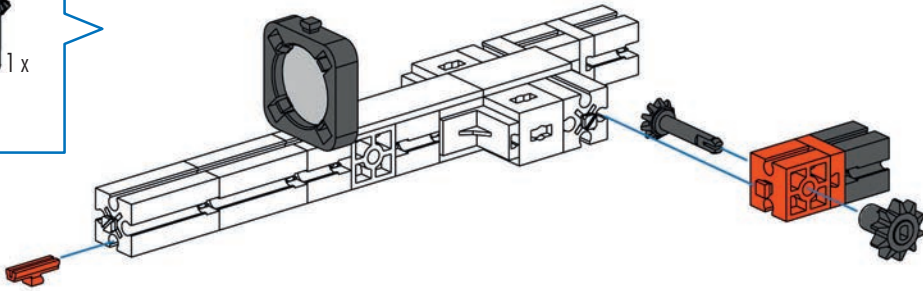
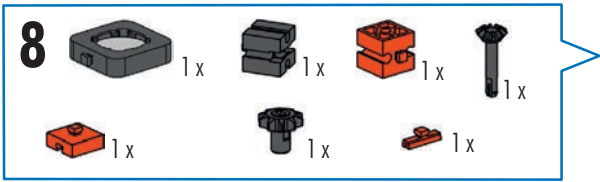
Erdfernrohr
Erecting telescope
Télescope terrestre




Terrestrische telescoop
Telescopio terrestre
Telescópio terrestre

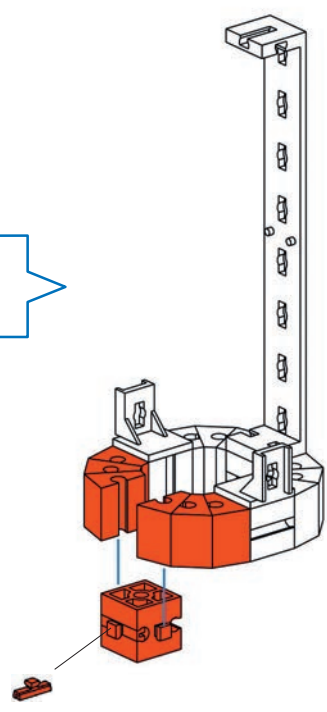
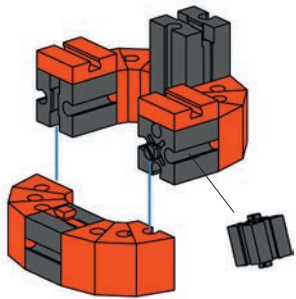
Telescopio terrestre
Подзорная труба
折射望远镜









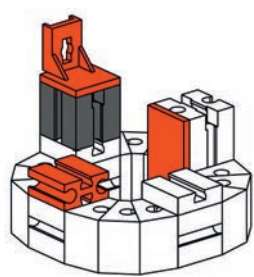








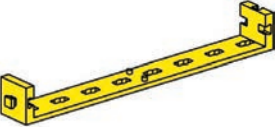


- 12**  1x  1x  6x

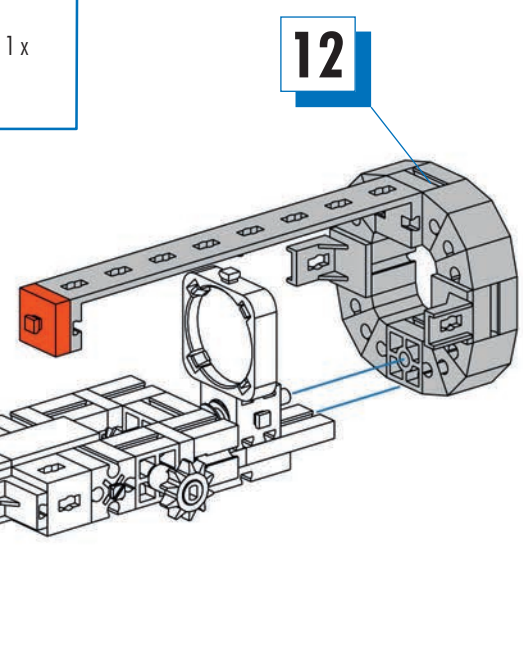
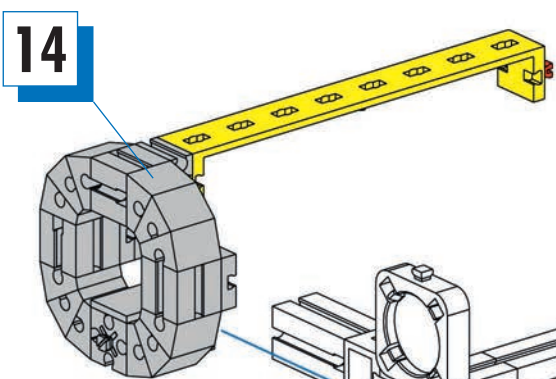


- 13**  1x  2x  1x  12x  2x  1x

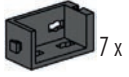


- 14**  1x  1x  1x  1x

- 15**  1x  1x  1x



16



7x



1x



15°

3x



1x



1x



1x



1x



1x



1x



1x



120

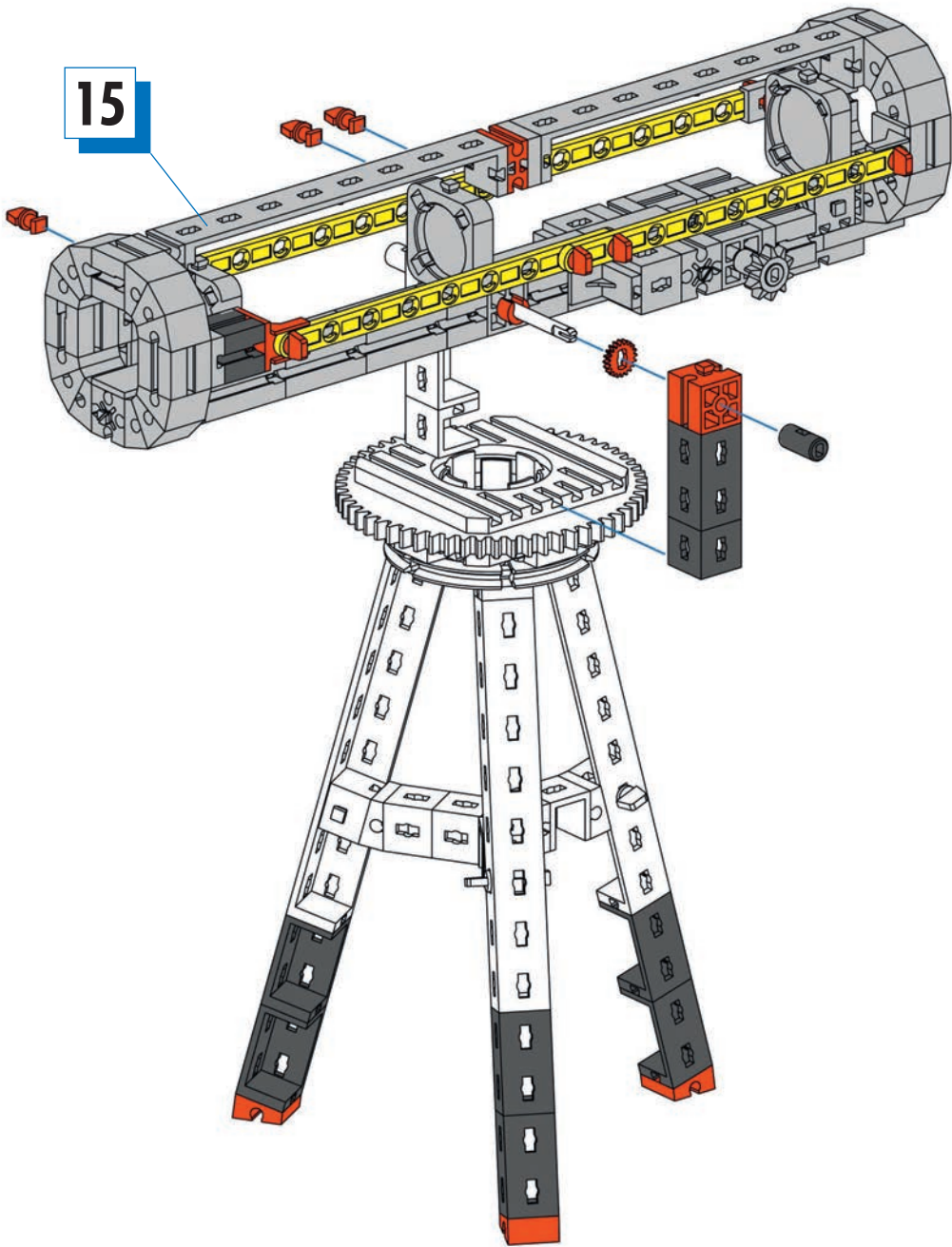
4x

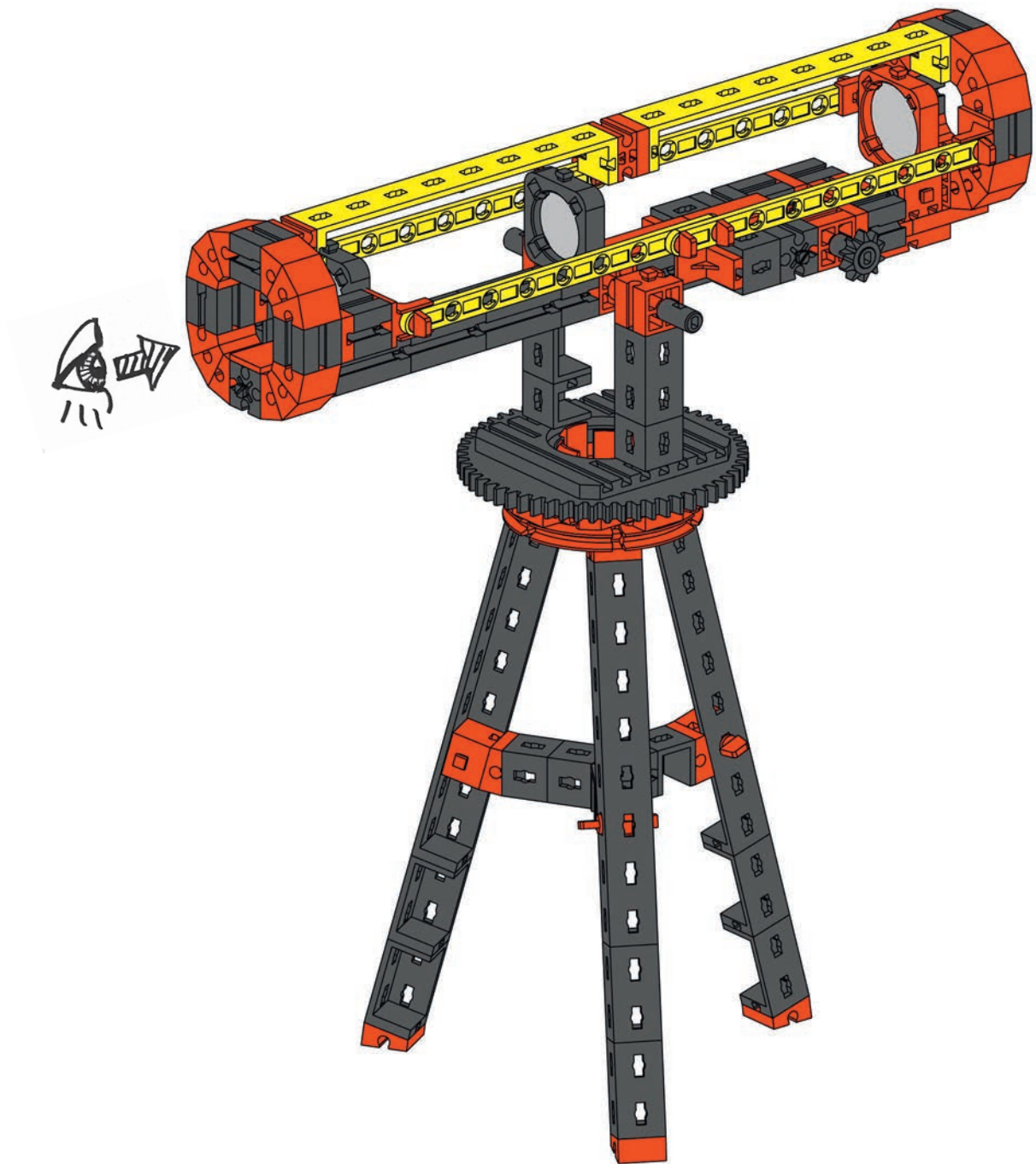


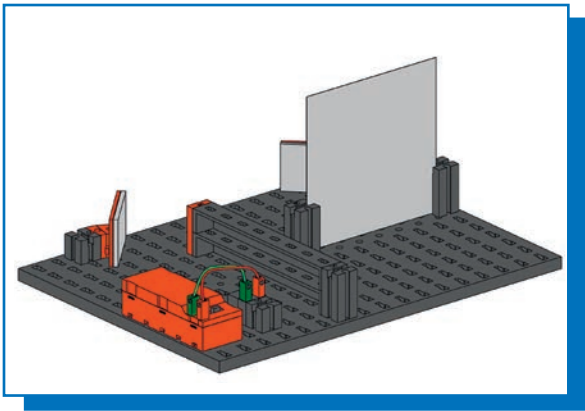
4

8x

15



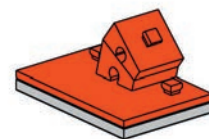
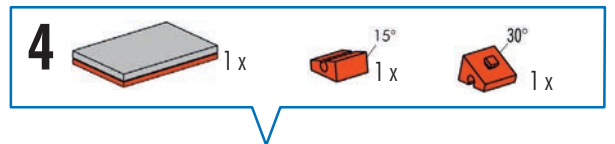
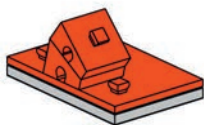
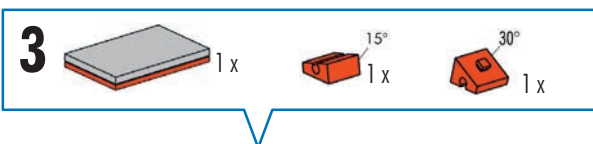
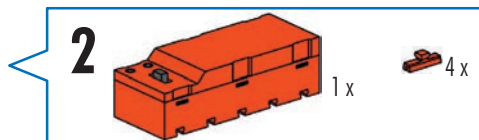
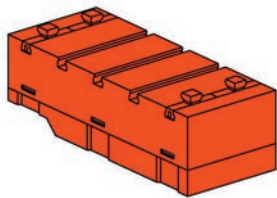
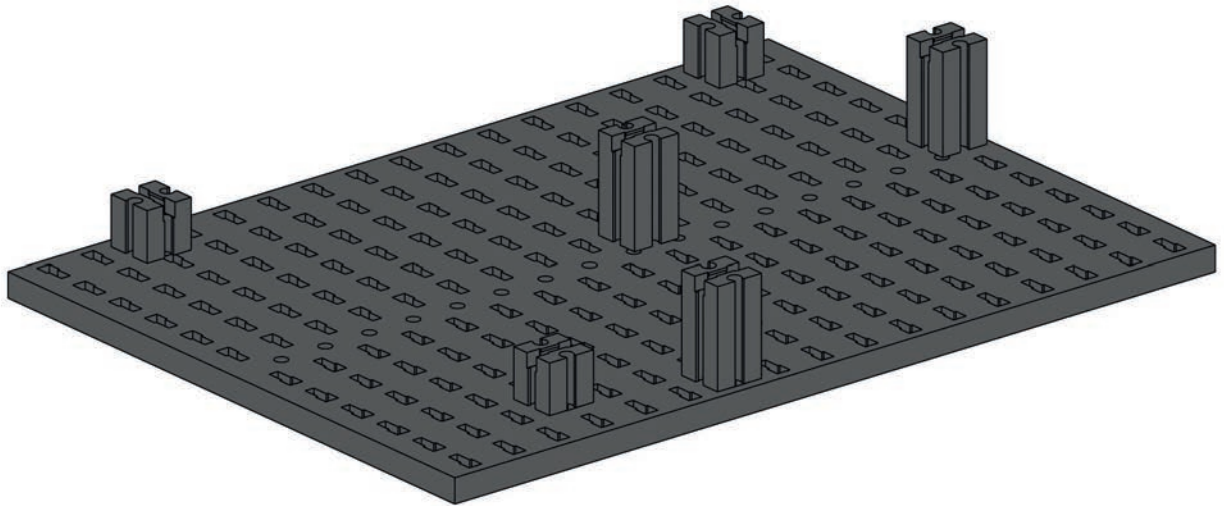
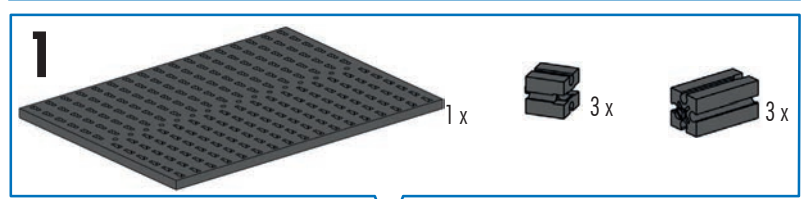


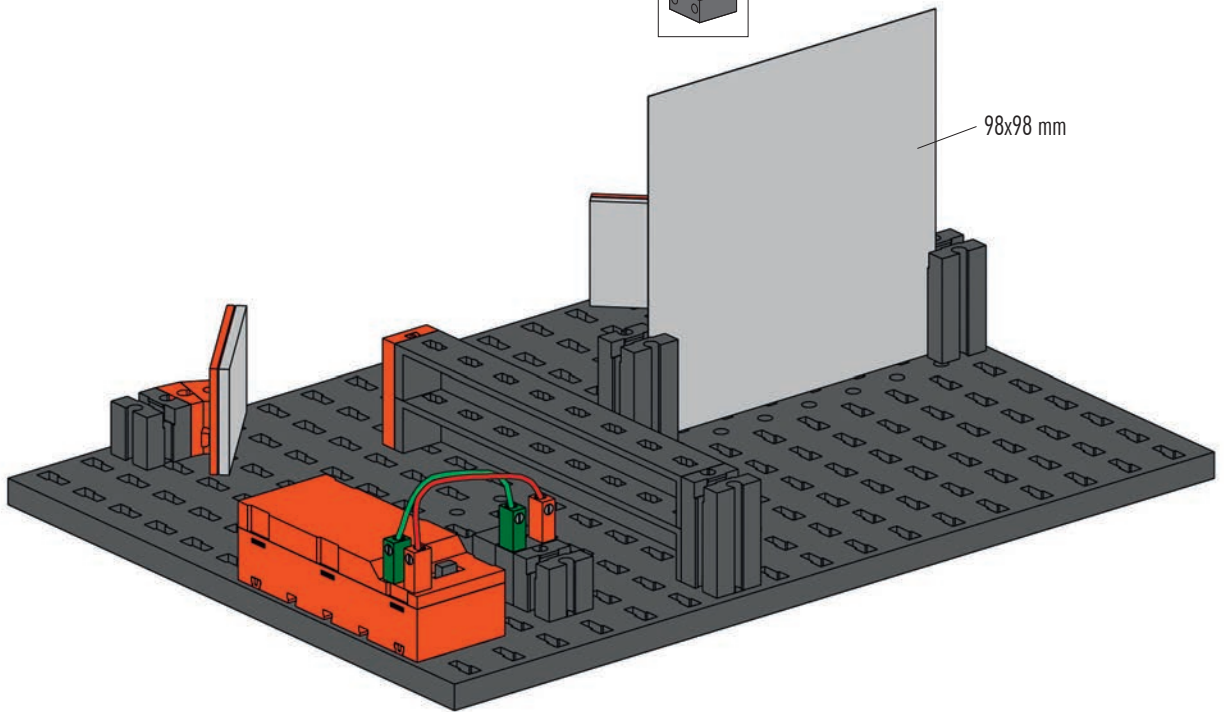
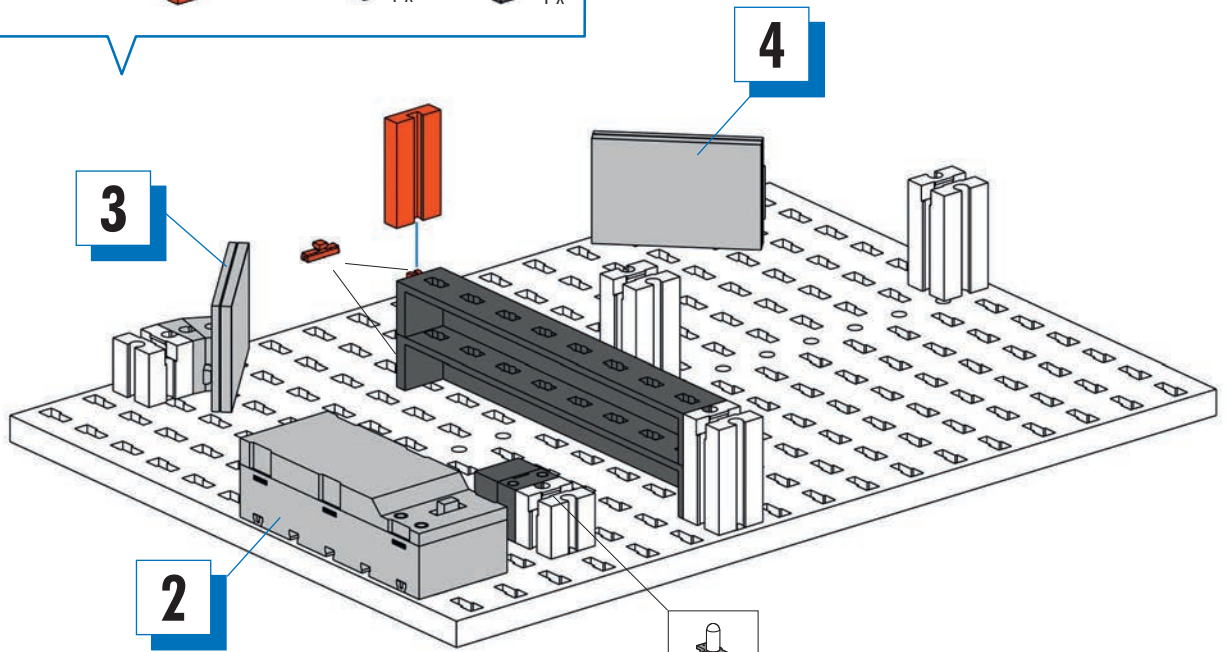
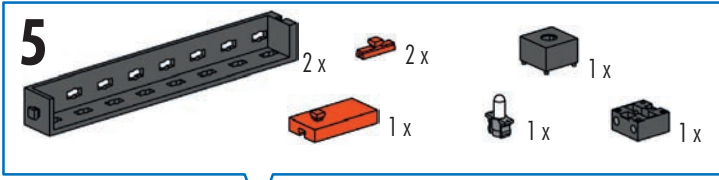


Spiegelparcours
Mirror course
Parcours à miroir

Spiegelparcours
Pista de recorrido de
espejo
Percurso de espelhos

Percorso specchio
Зеркальный маршрут
镜子障碍物跑道

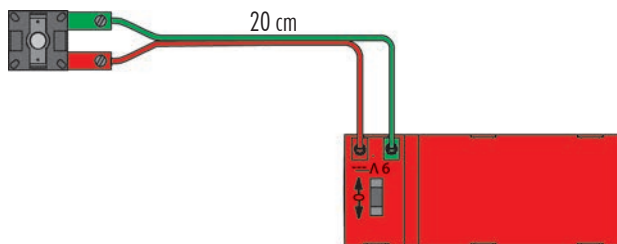




Schaltplan
Circuit diagram
Plan électrique

Schakelschema
Diagrama de circuitos
Plano elétrico de ligação

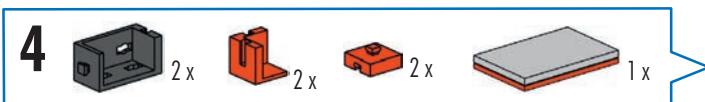
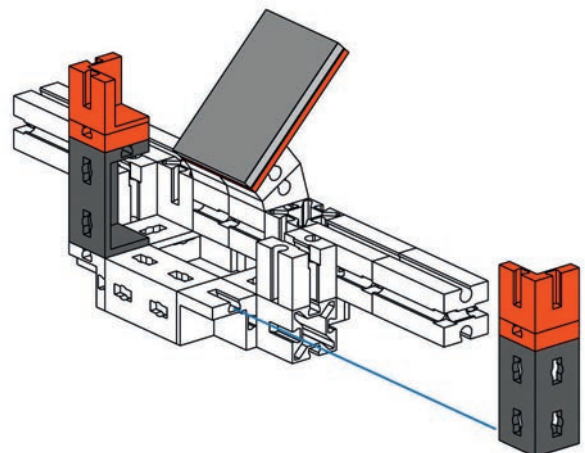
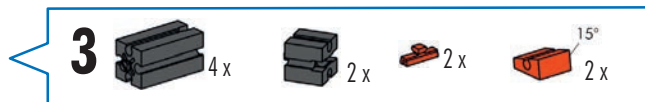
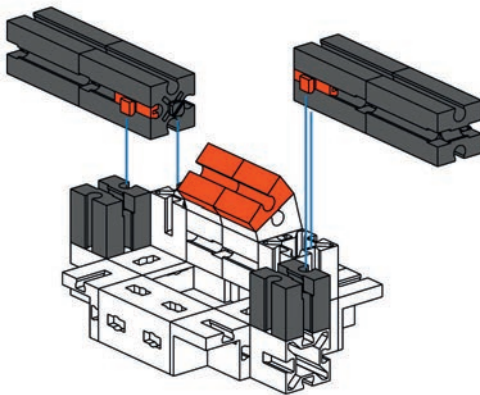
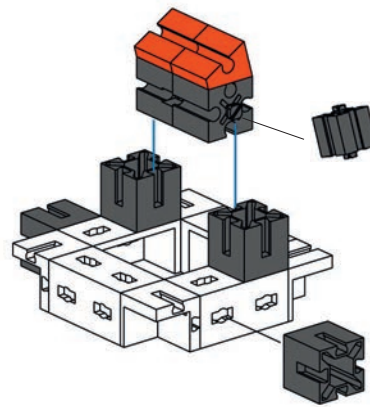
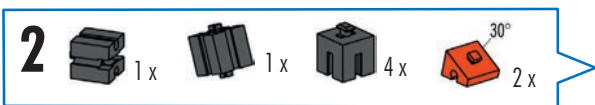
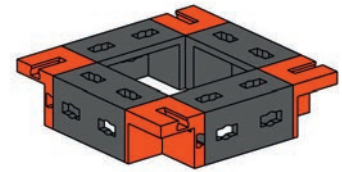
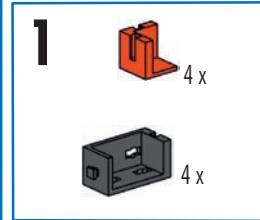
Schema elettrico
Схема подключения
电路图






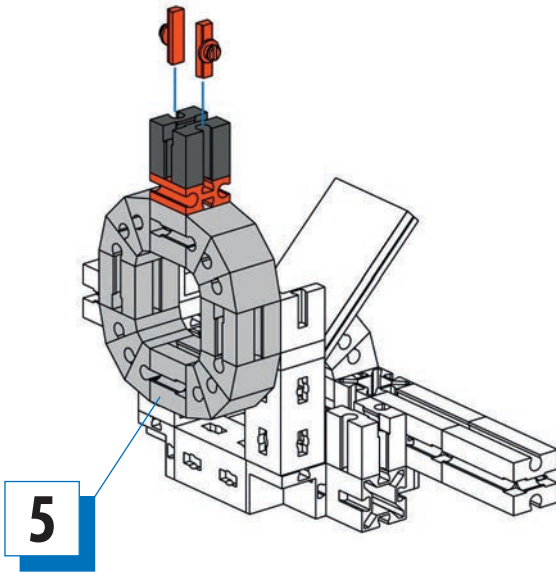
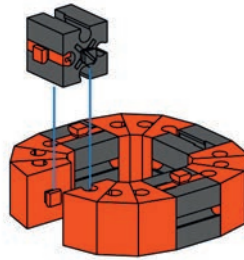
Periskop
Periscope
Périscop




Periscoop
Periscopio
Periscópio



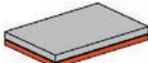



Periscopio
Перископ
潜望镜

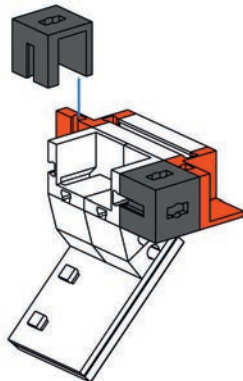
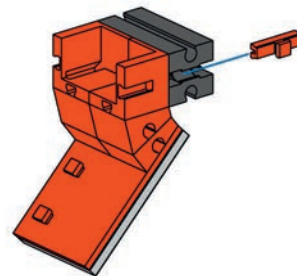




- 5**  4 x  12 x  3 x



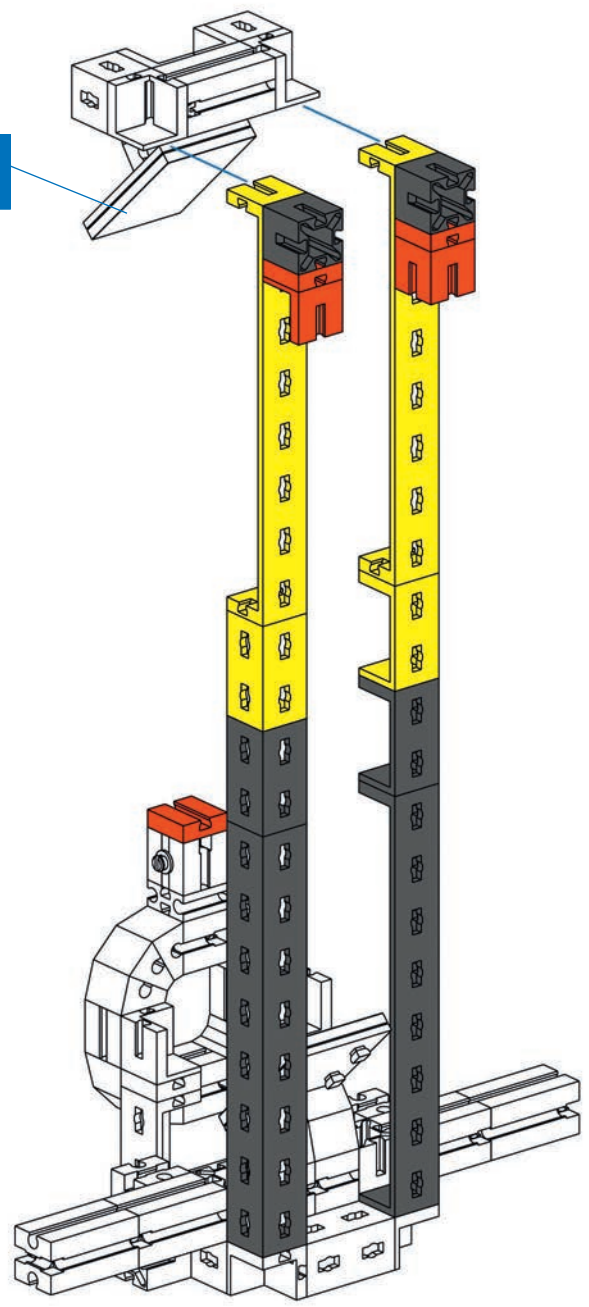
- 6**  1 x  1 x  2 x

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

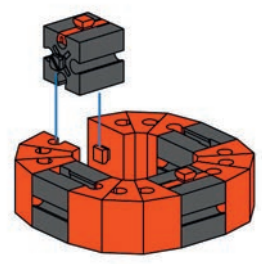
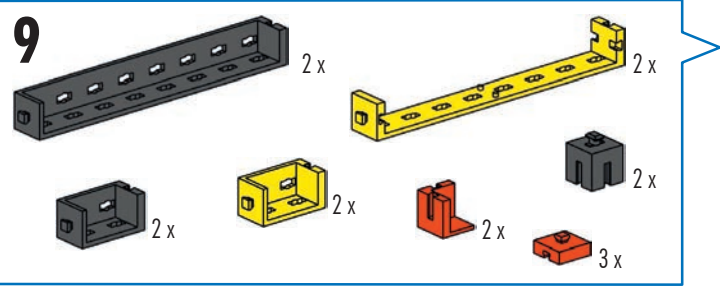


- 8**  2 x  2 x

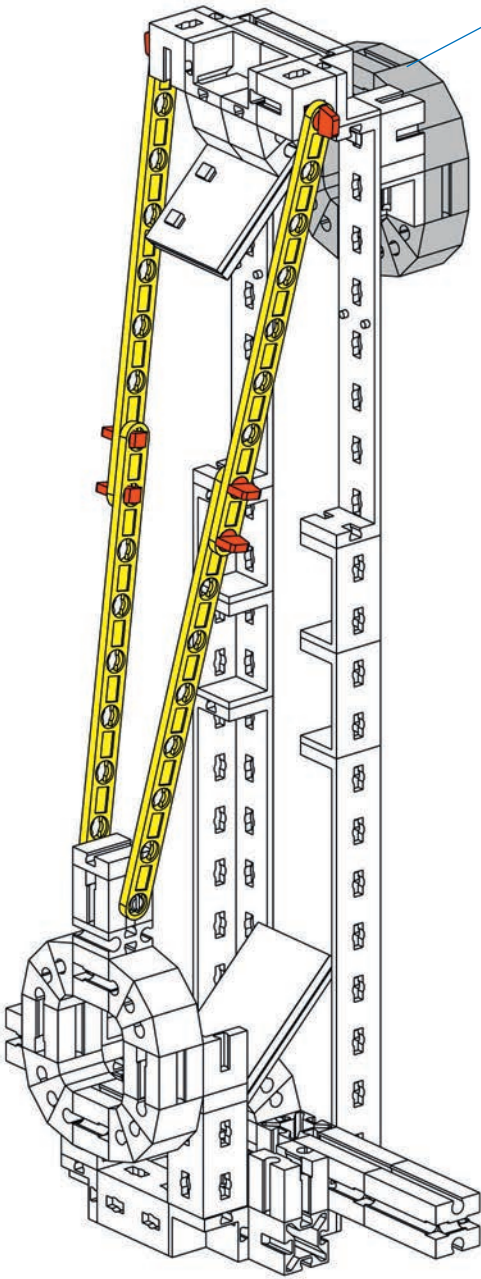
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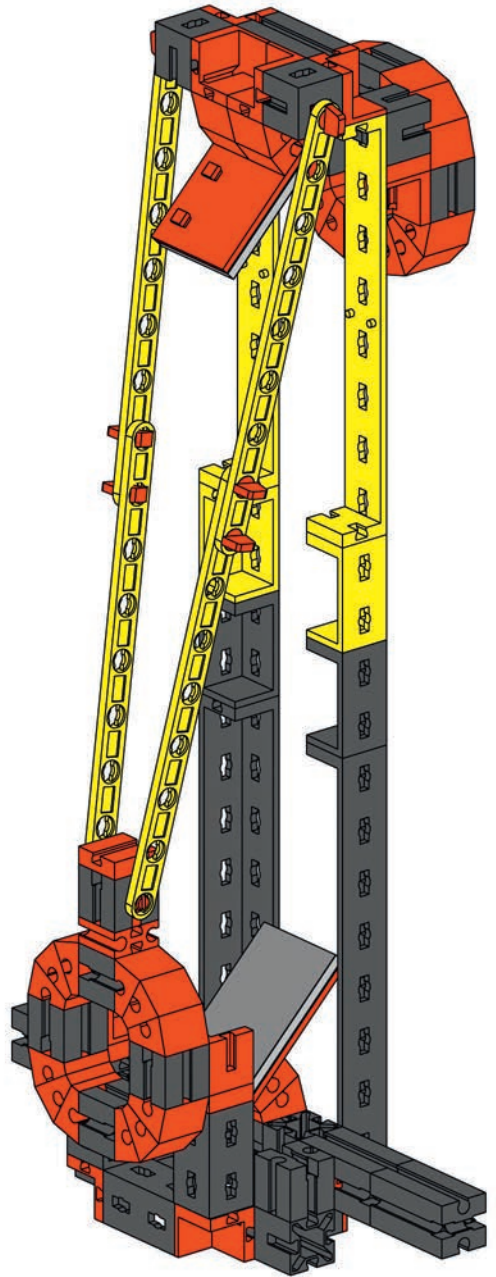
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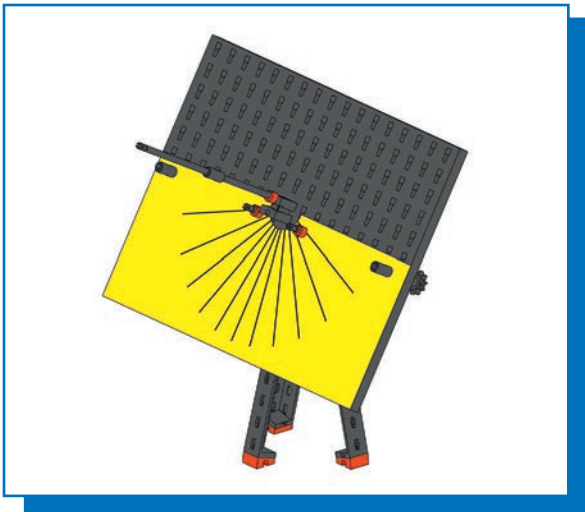


10



11

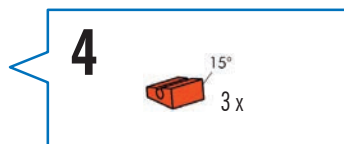
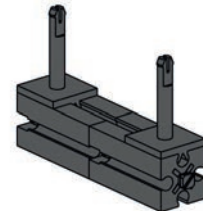
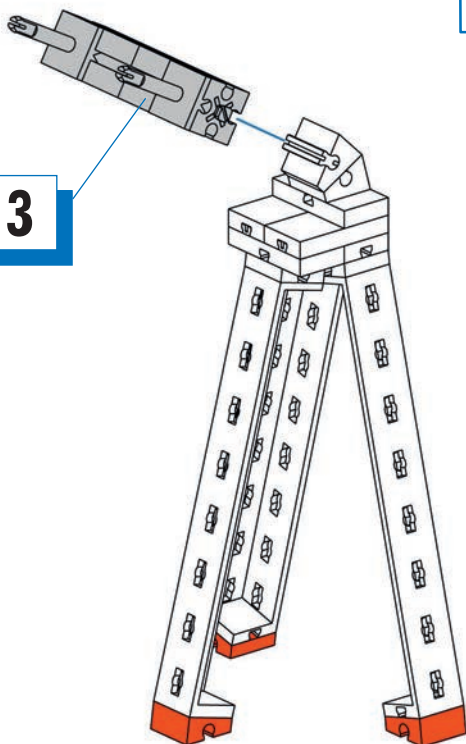
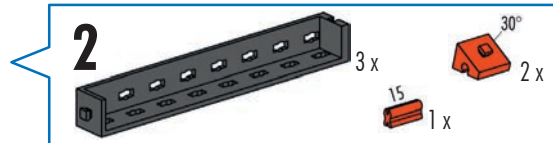
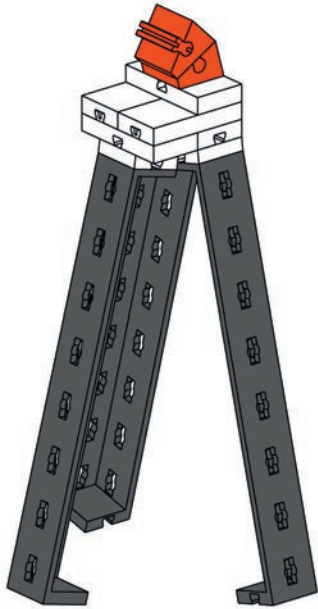
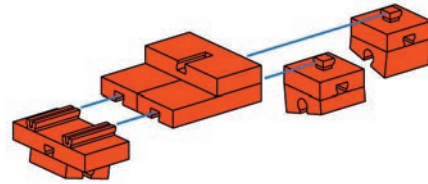
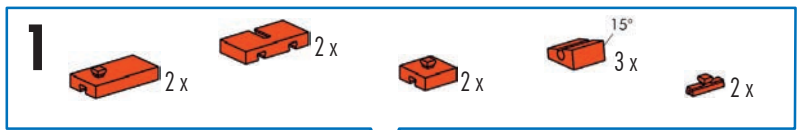


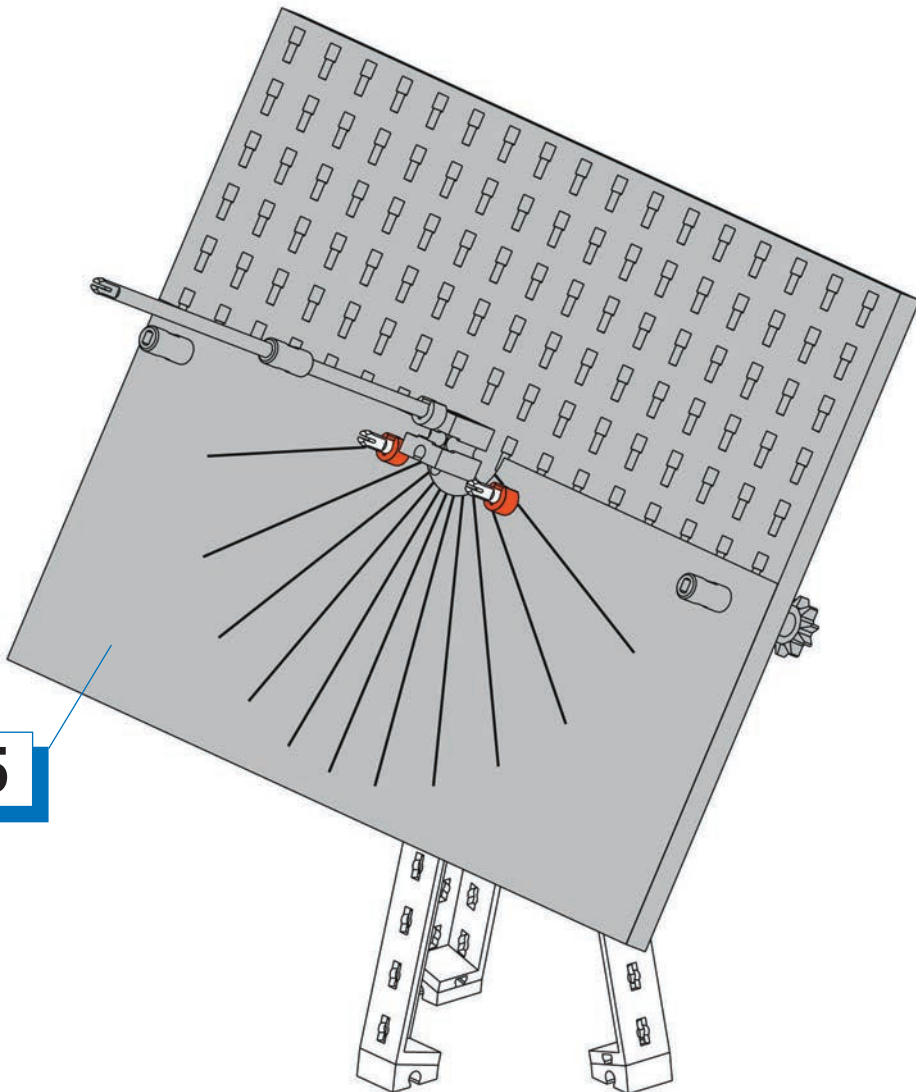
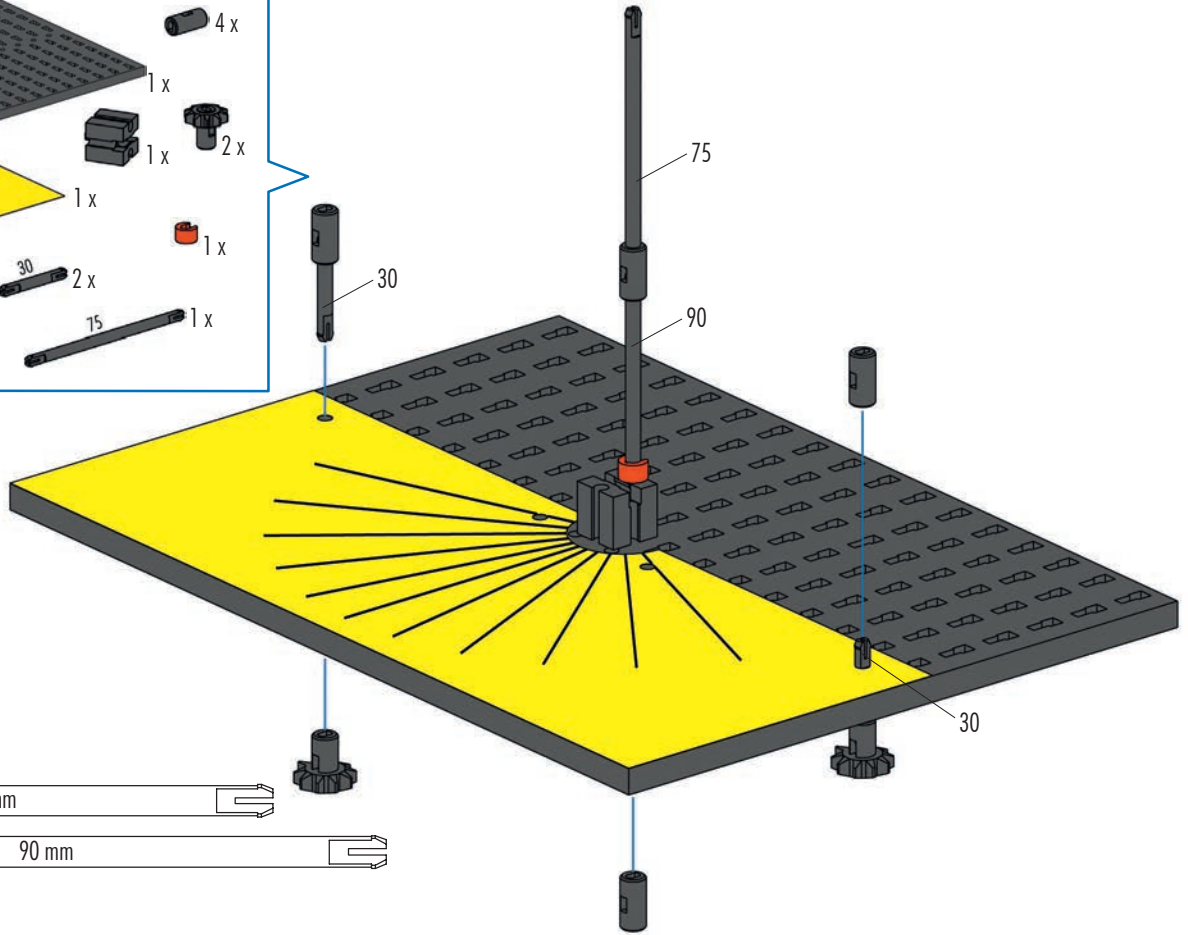
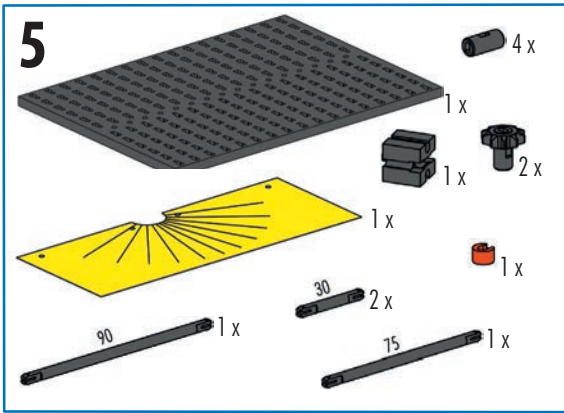


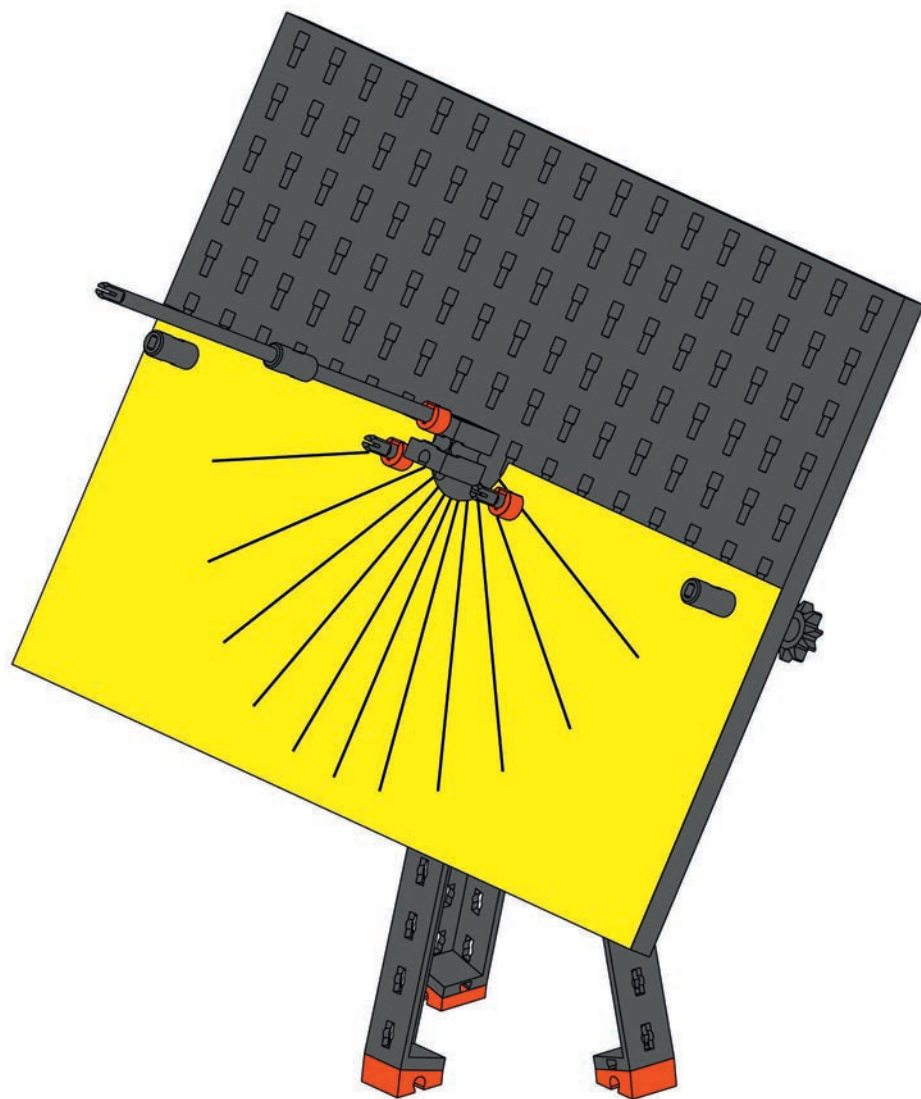
Sonnenuhr
Sun dial
Cadran solaire

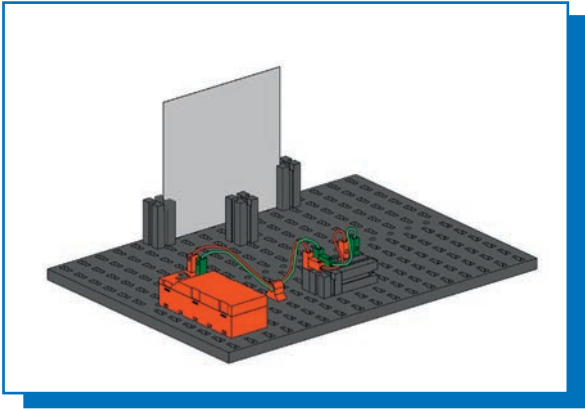
Zonnewijzer
Reloj de sol
Relógio de sol

Meridiana
Солнечные часы
日规





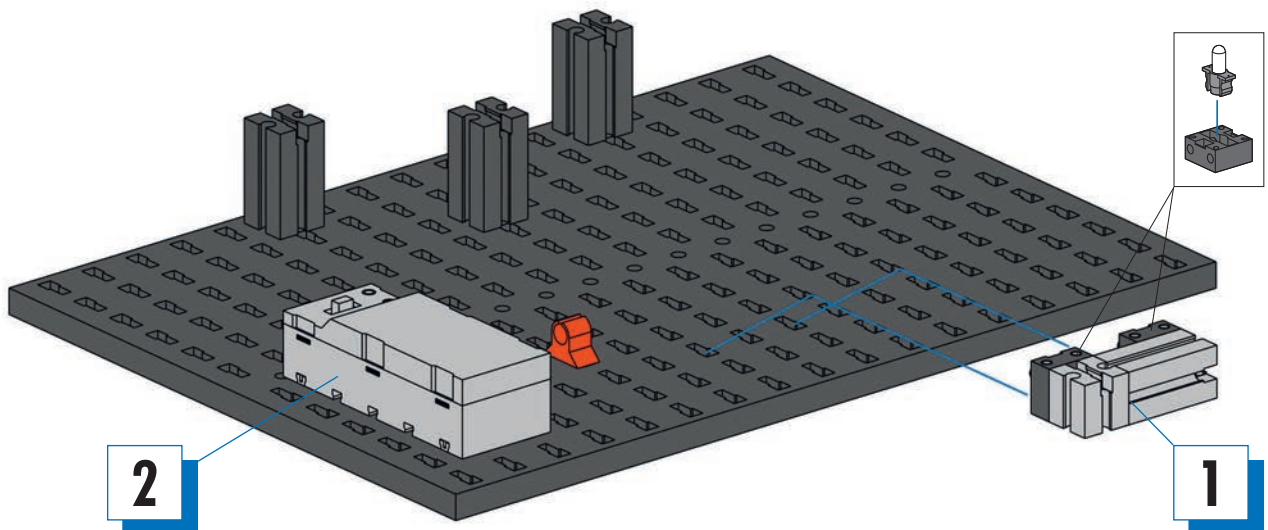
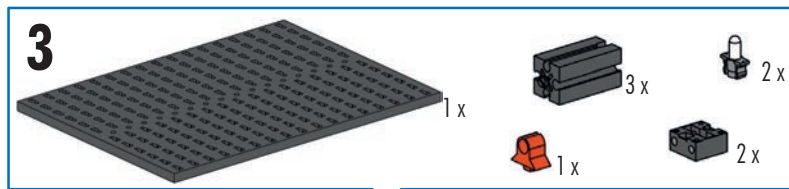
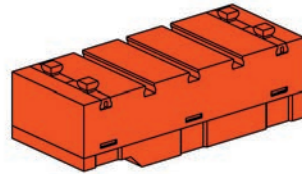
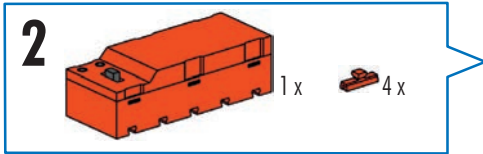
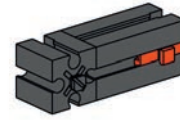
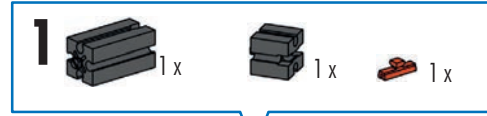


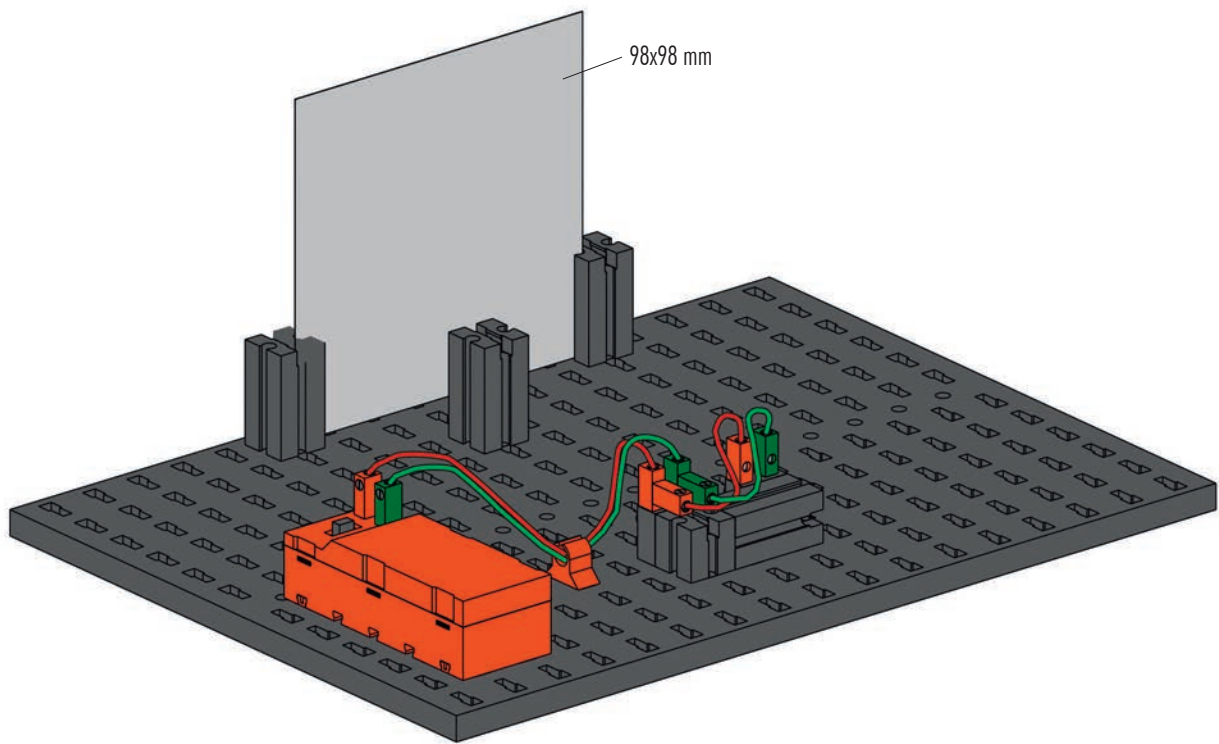


Halb- und Kernschatten
Partial and full shade
Ombre pure et
pénombre

Half- en kernschaduw
Semisombra y sombra
absoluta
Penumbra e umbra

Ombra e penombra
Полутени и полные
тени
半影和本影

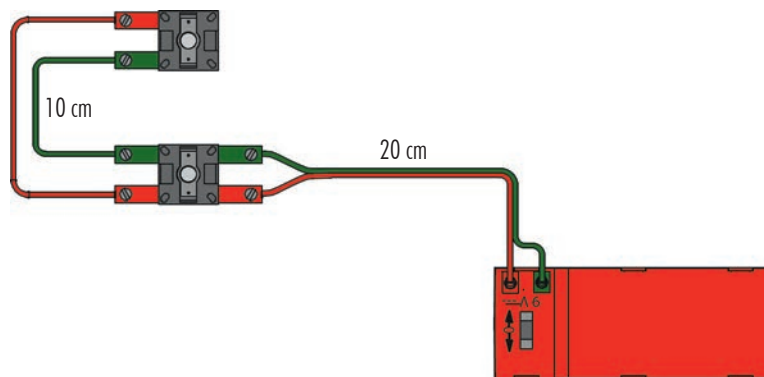




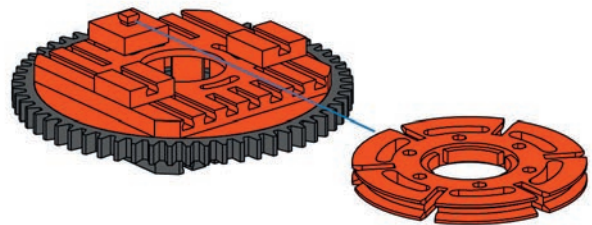
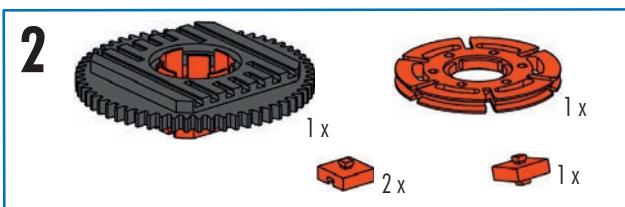
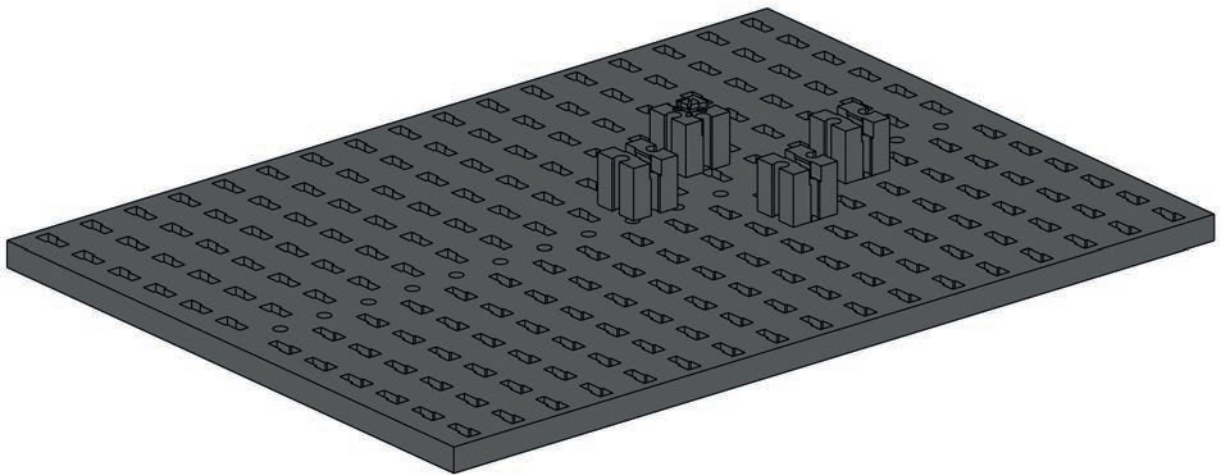
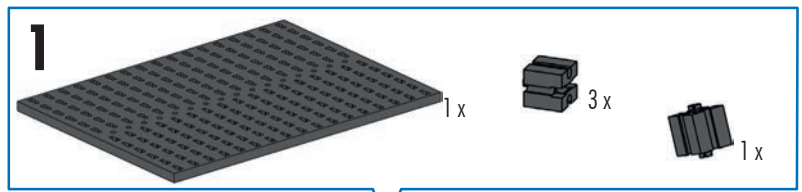
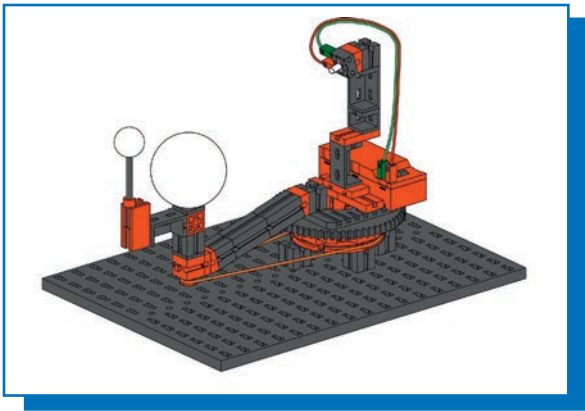
Schaltplan
Circuit diagram
Plan électrique

Schakelschema
Diagrama de circuitos
Plano elétrico de ligação

Schema elettrico
Схема подключения
电路图



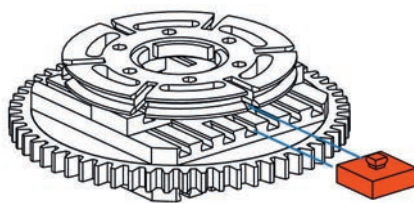
Planetenmodell **Model van planeten** **Modello planetario**
Planetary model **Modelo de planetas** **Модель планет**
Modèle planétaire **Modelo planetário** **行星模型**



3



1x



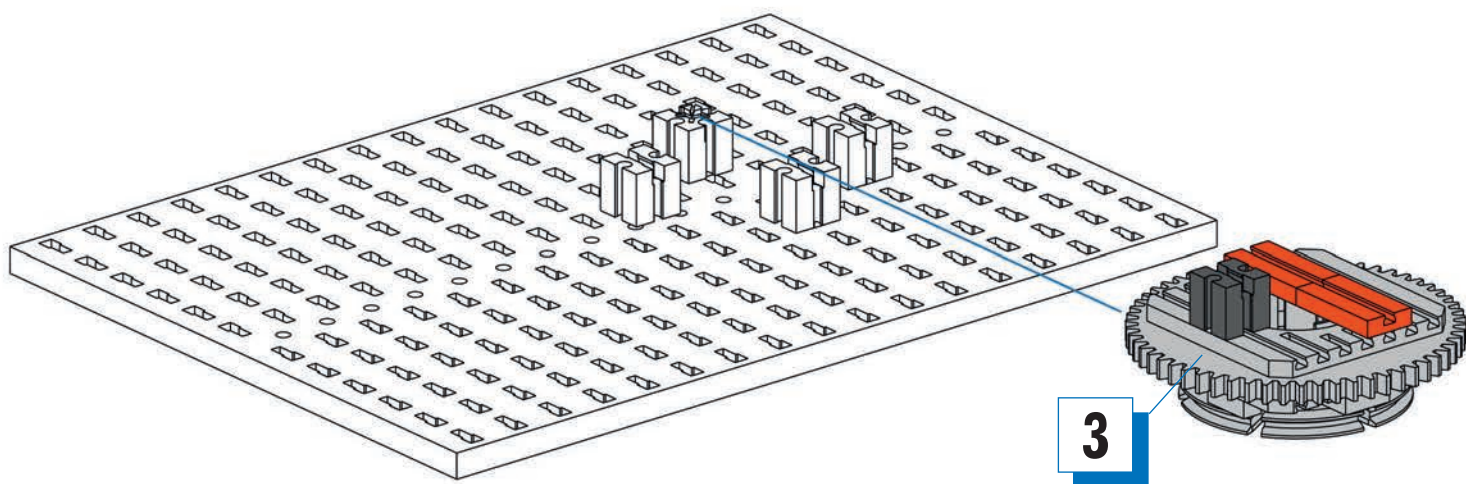
4



1x



2x



3

5



2x



1x



2x

15°



1x



1x



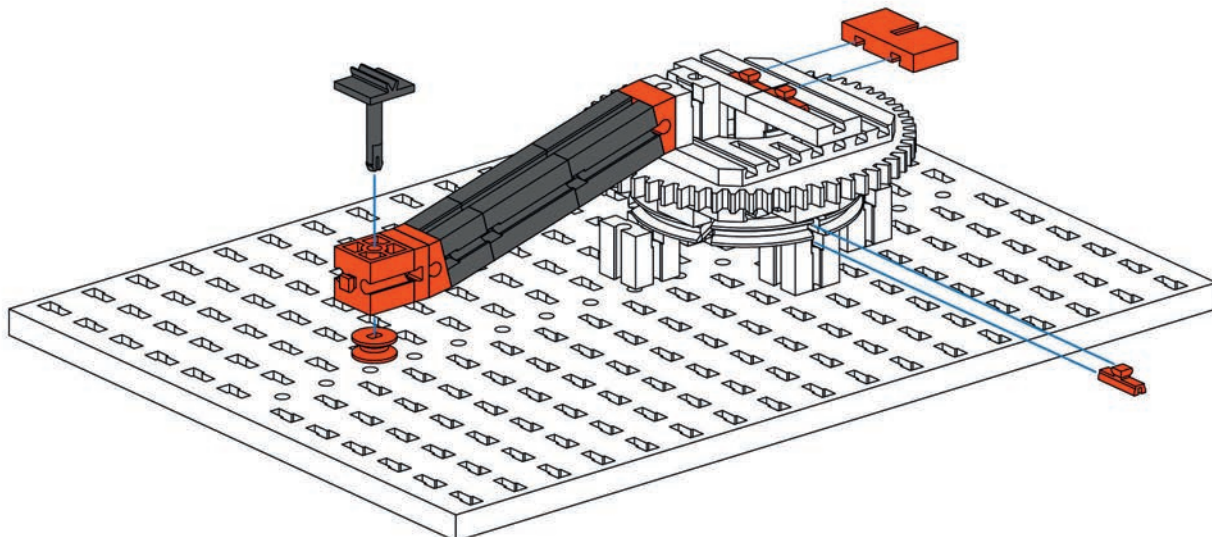
1x

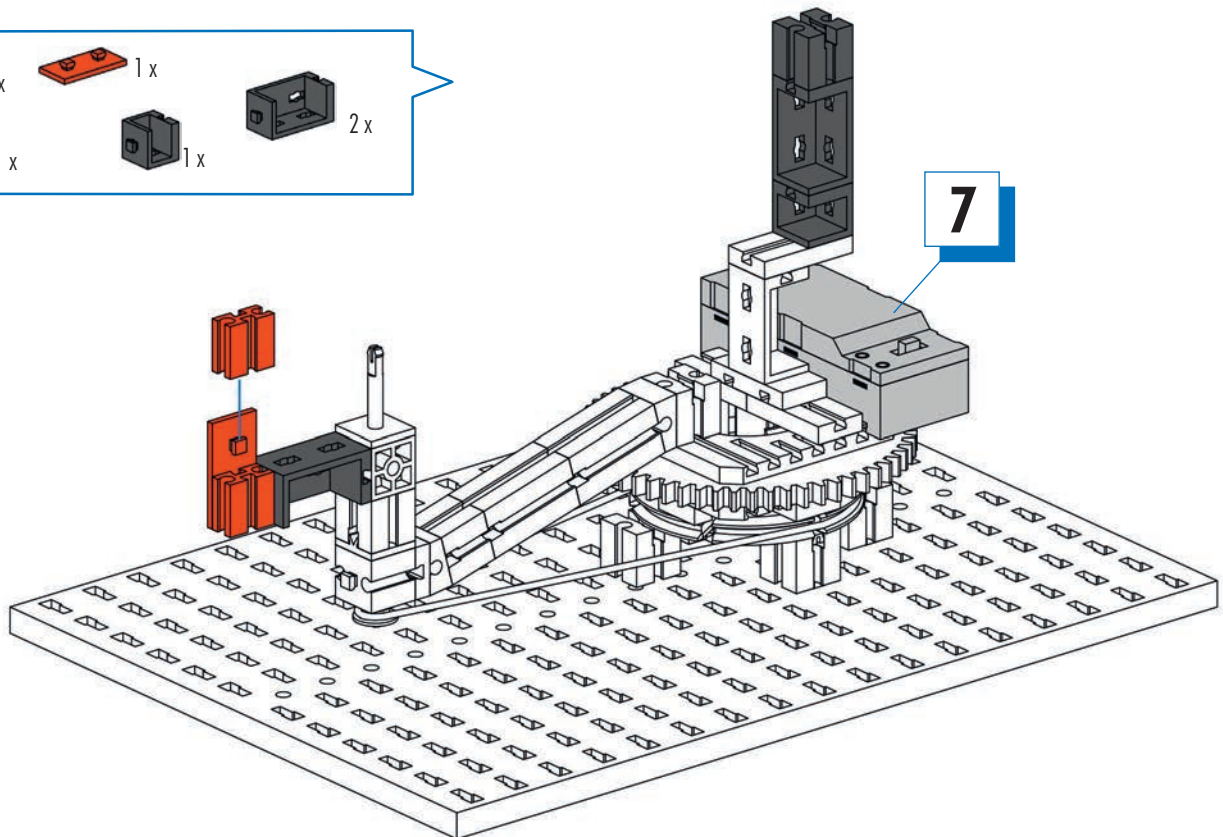
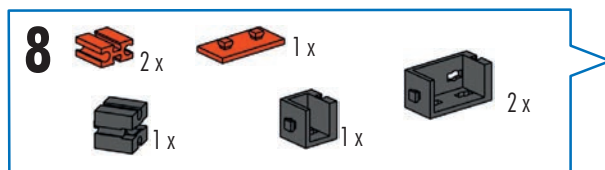
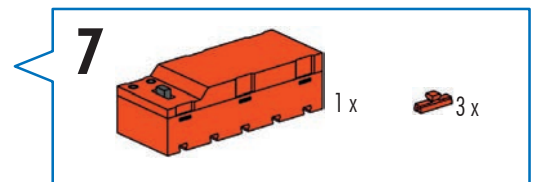
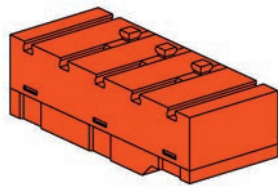
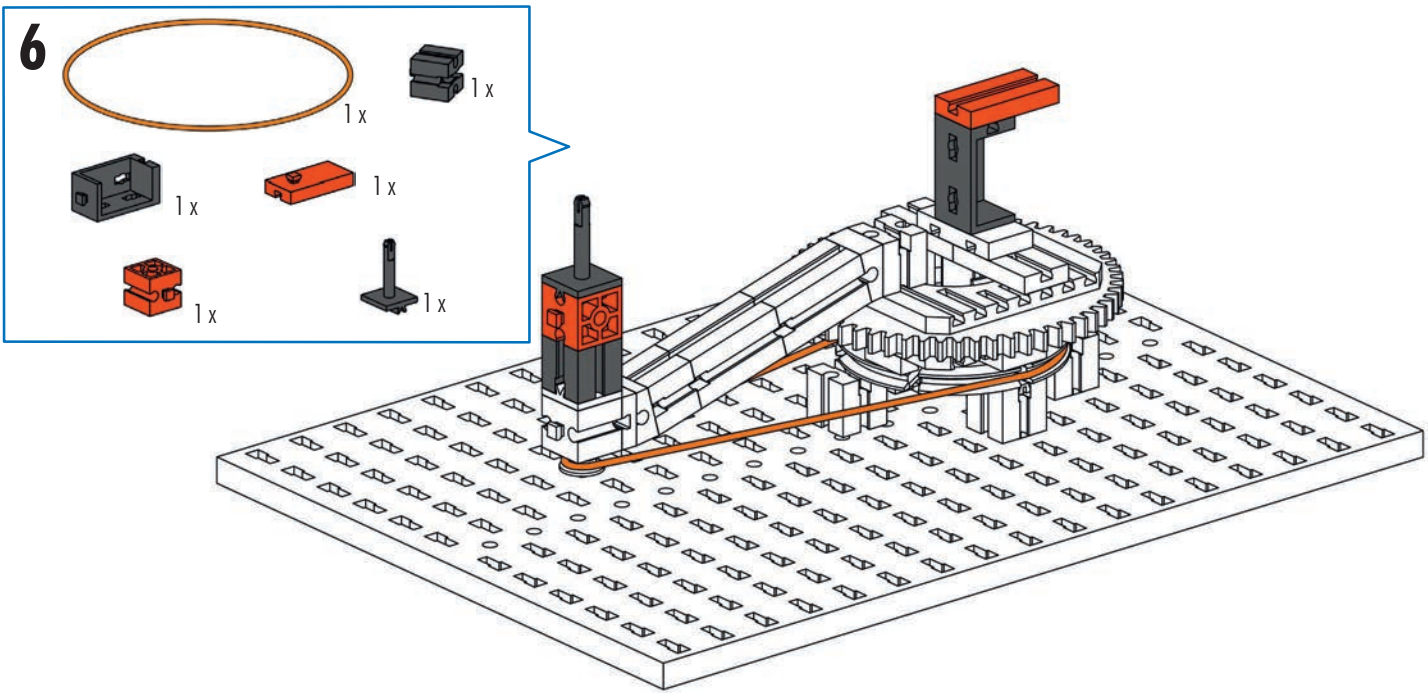


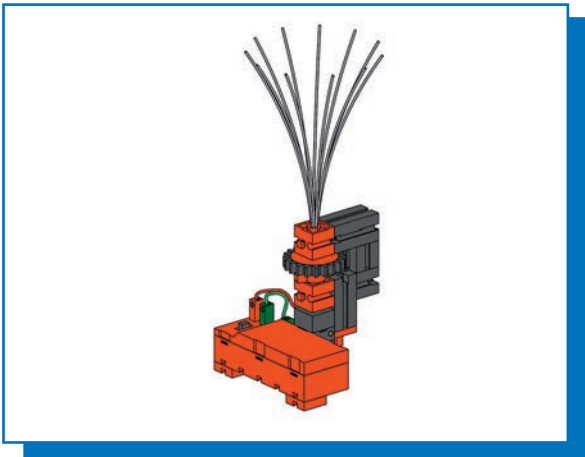
1x



3x



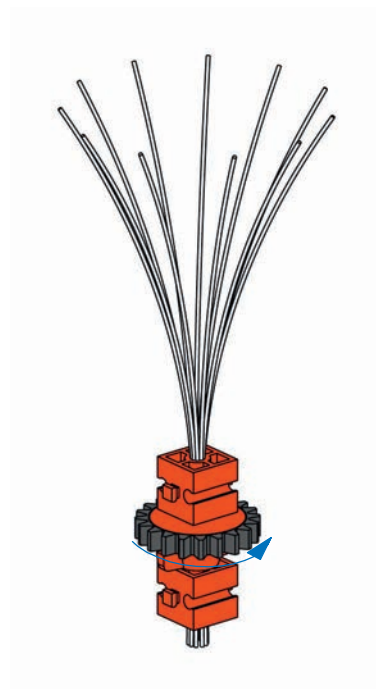
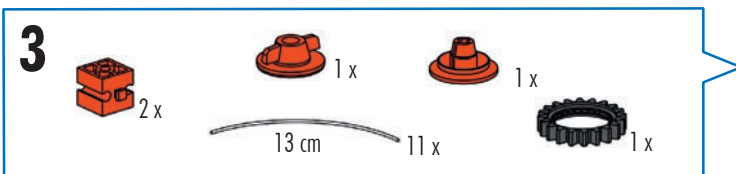
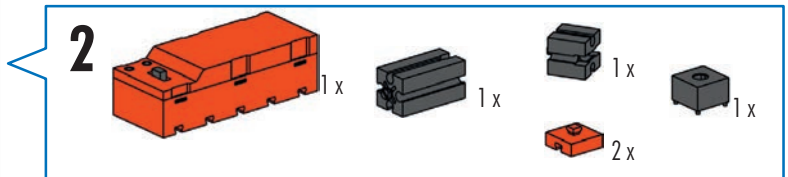
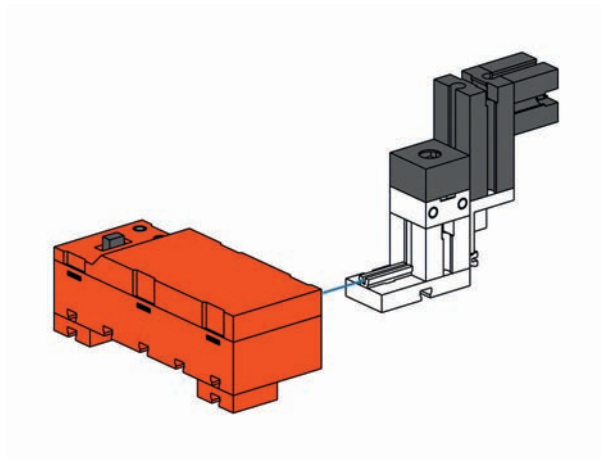
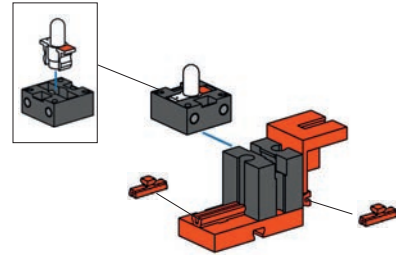


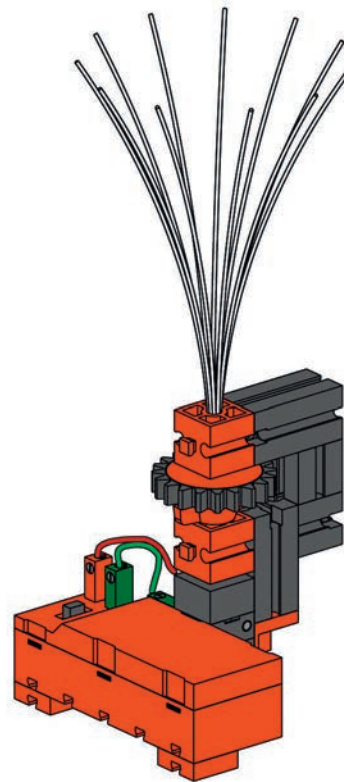
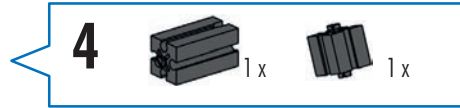
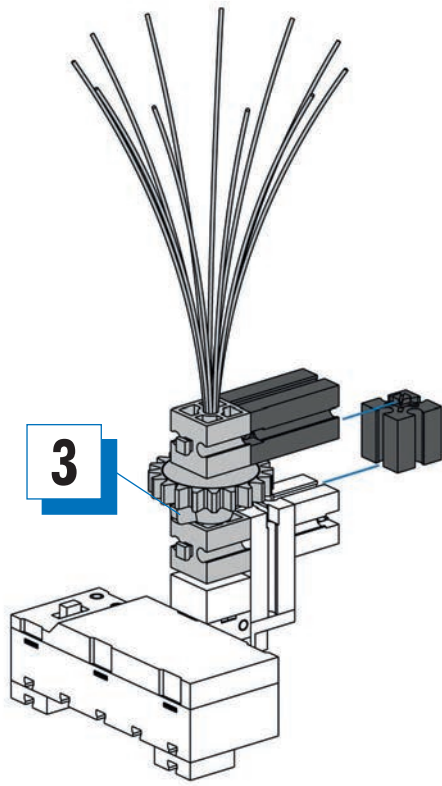


Lichtspiel
Light effects
Jeu de lumière

Lichtspel
Juego de luces
Jogo de luz

Gioco di luci
Игра света
光表演

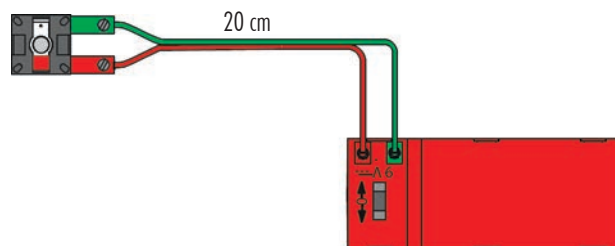


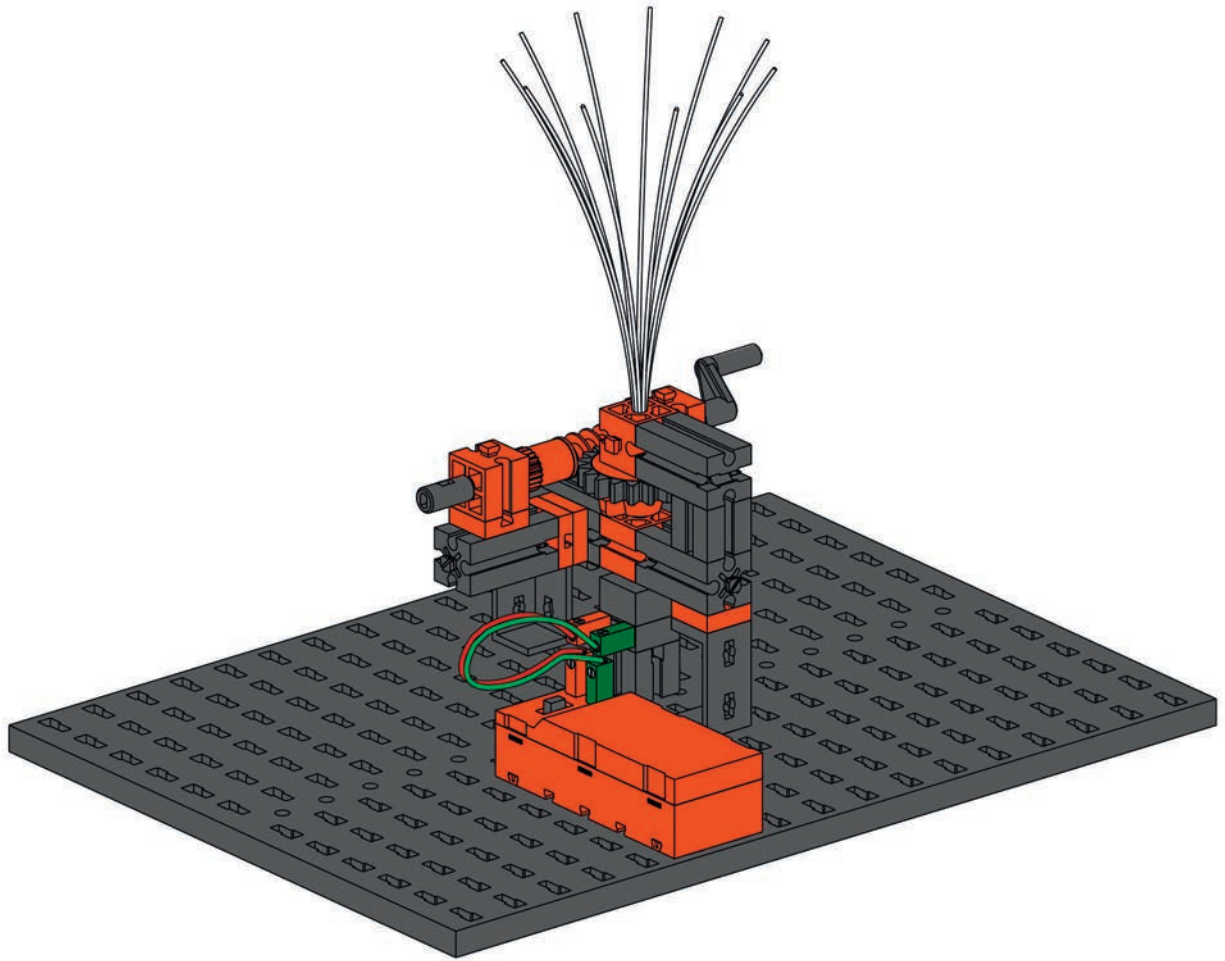


Schaltplan
Circuit diagram
Plan électrique

Schakelschema
Diagrama de circuitos
Plano elétrico de ligação

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Схема подключения
电路图

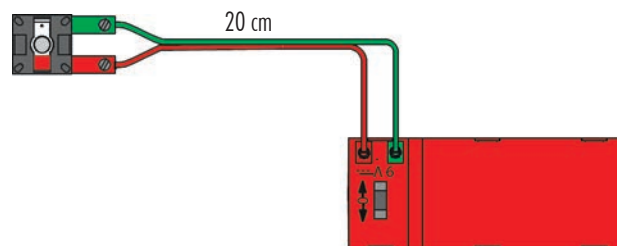




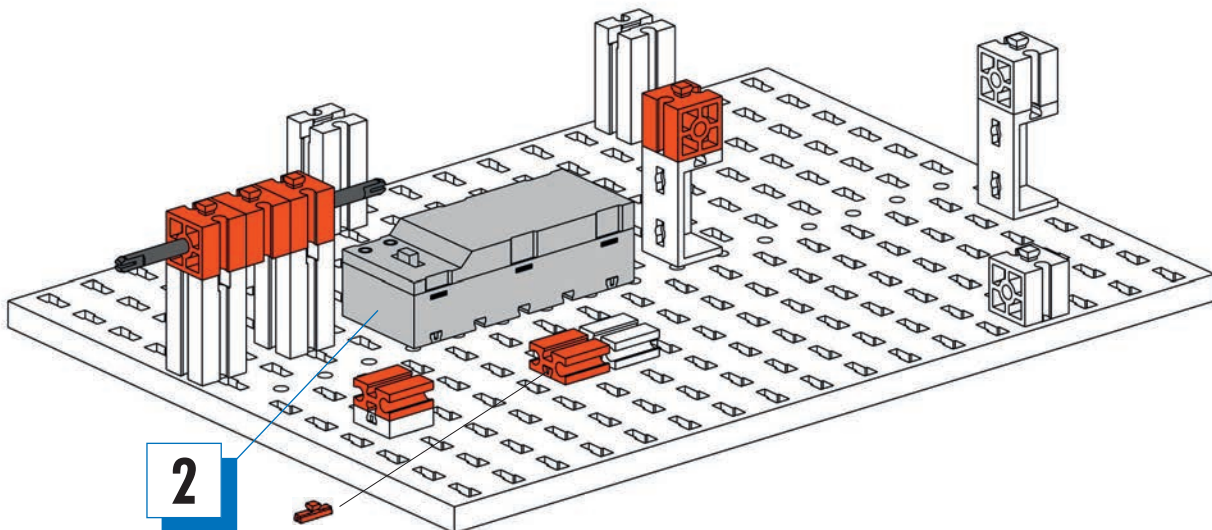
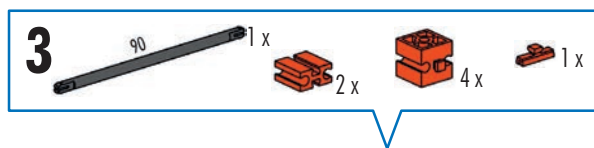
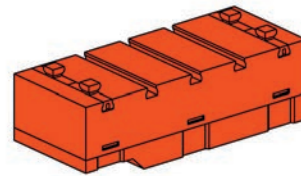
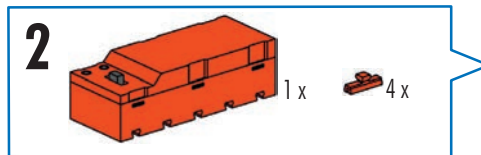
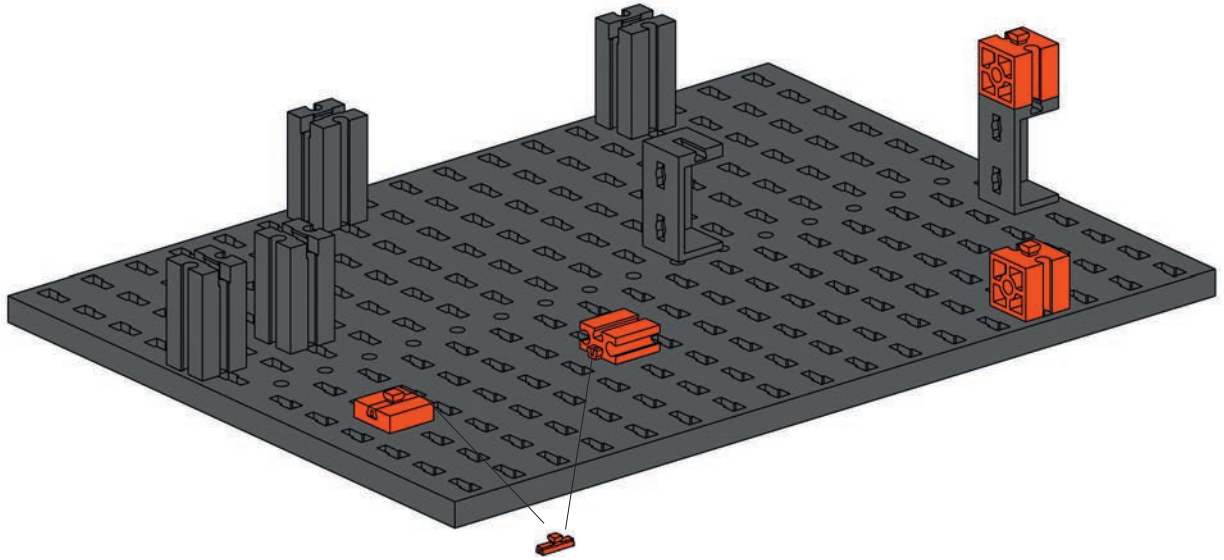
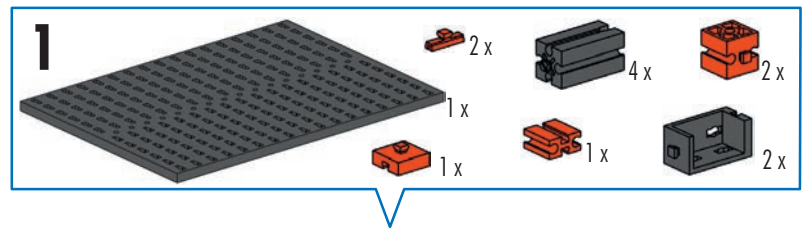
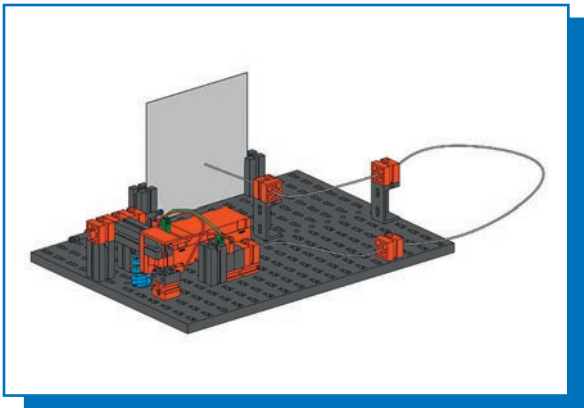
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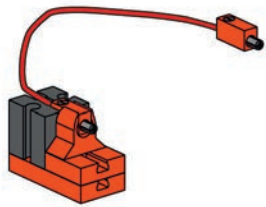
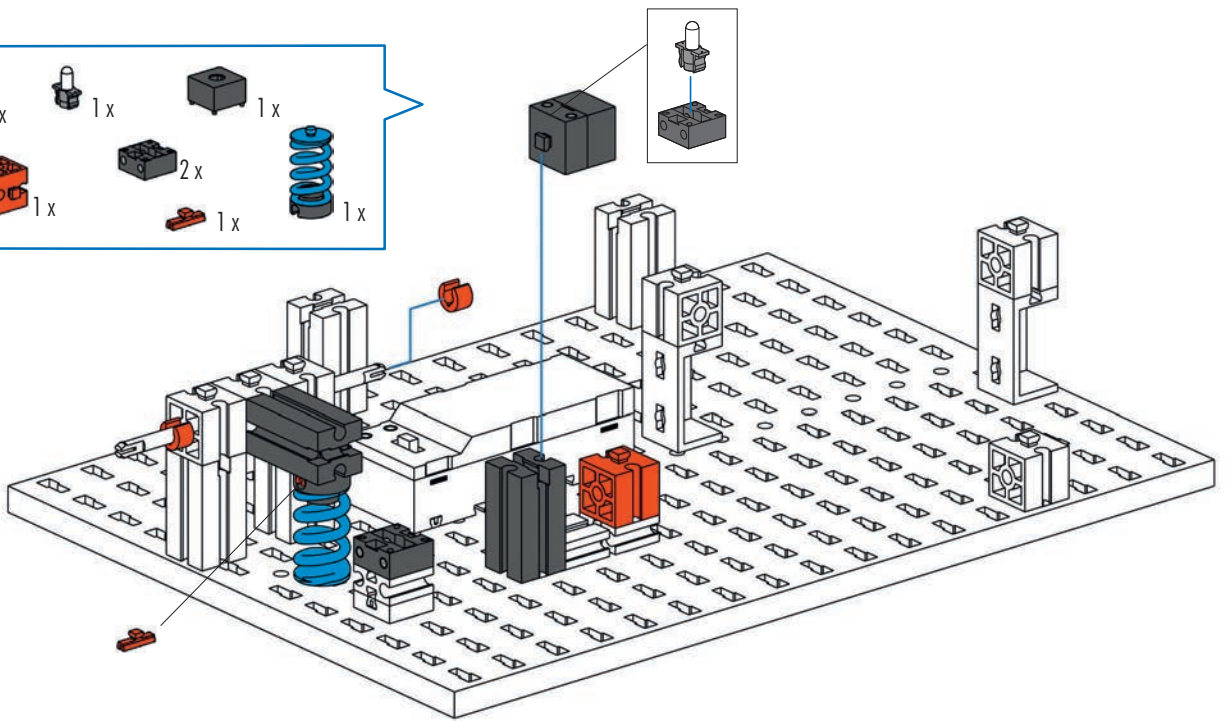
Schema elettrico
Схема подключения
电路图



Optischer Morseapparat Optisch morseapparaat Apparechio Morse ufficio
 Optical morse telegraph Telégrafo Morse óptico Оптический аппарат
 Manipulateur de morse à Aparelho Morse ótico Морзе
 fonctionnement optique 光的摩尔斯电报机

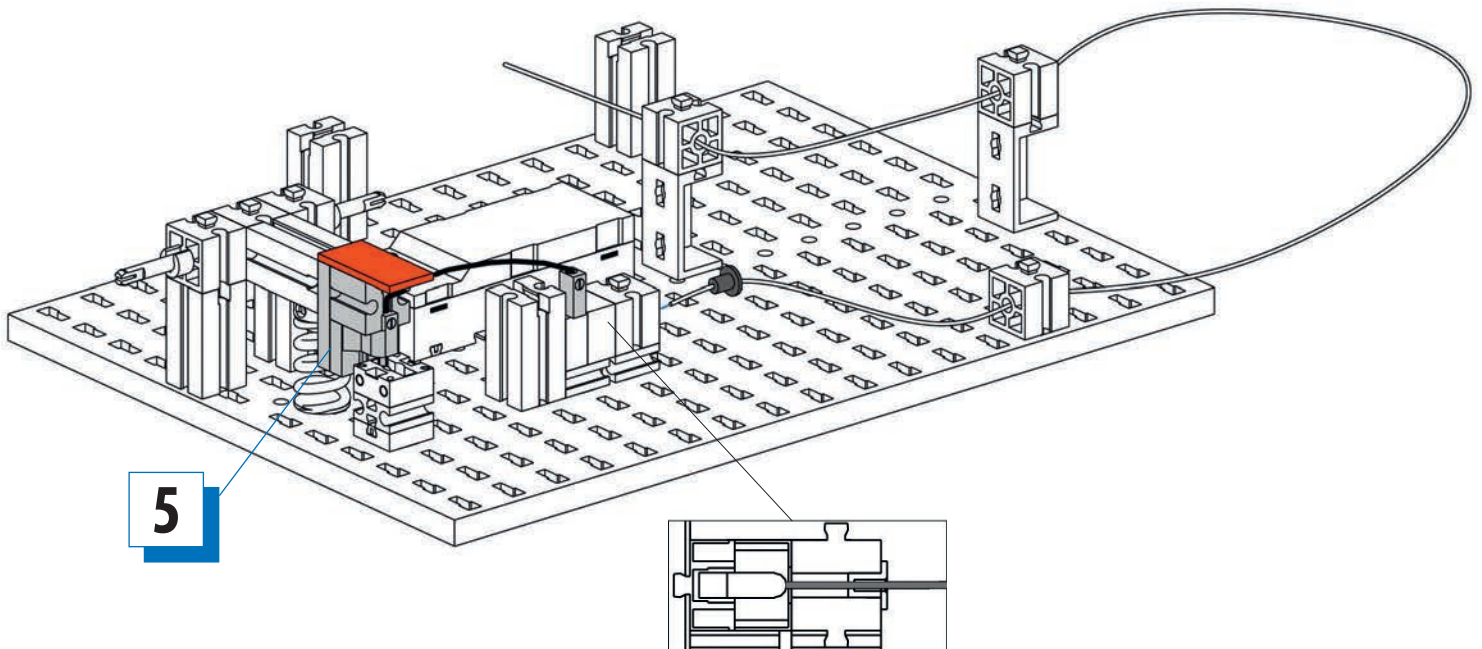


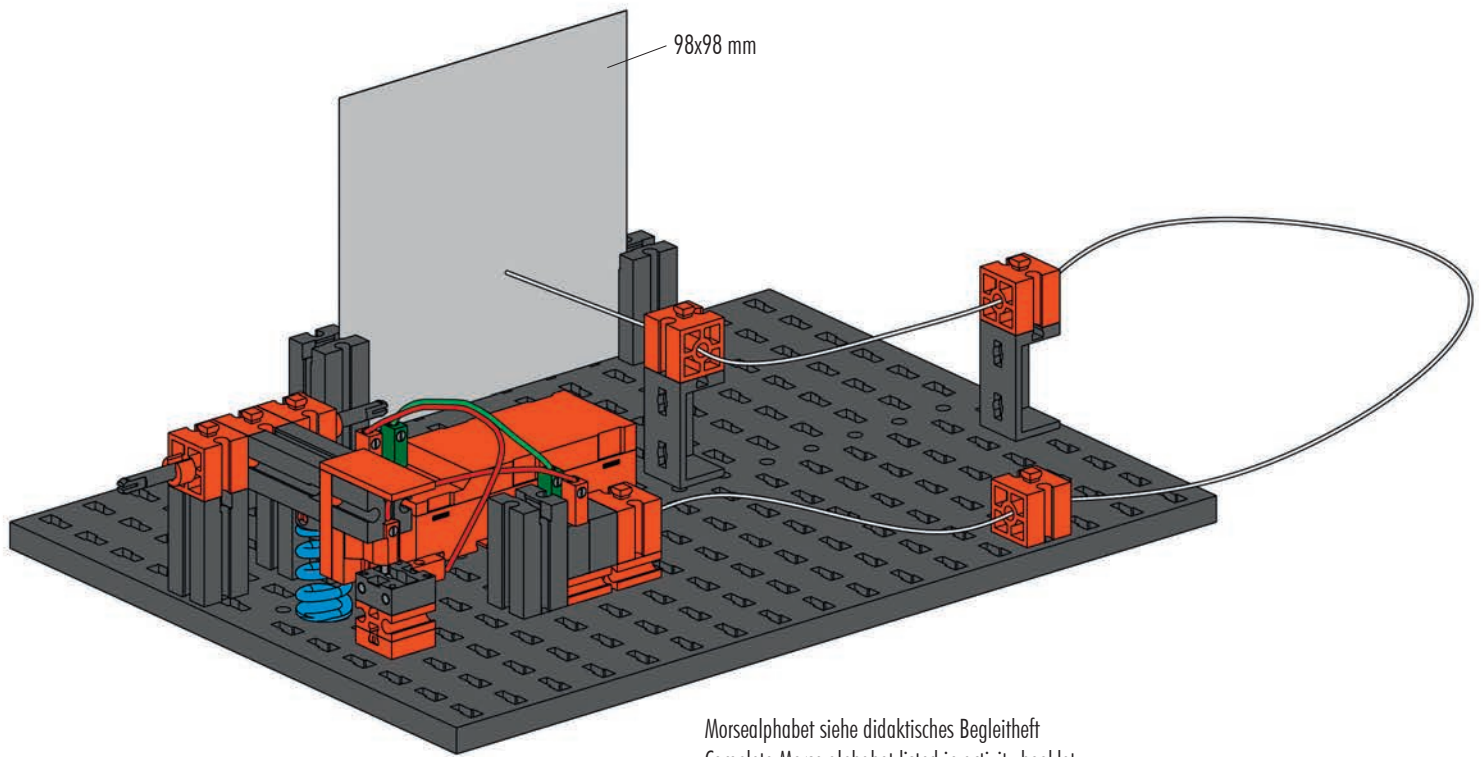
- 4**
- 2x [Grey Technic Beam 1x3]
 - 1x [Grey Technic Pin]
 - 1x [Grey Technic Bush]
 - 2x [Grey Technic Pin]
 - 1x [Red Technic Pin]
 - 2x [Red Technic Pin]
 - 1x [Red Technic Pin]
 - 1x [Blue Spring]



- 5**
- 1x [Red Technic Beam 1x3]
 - 1x [Grey Technic Pin]
 - 1x [Red Technic Pin]
 - 1x [Red Technic Pin]
 - 1x [Red Cable with 10 cm length]

- 6**
- 1x [Red Technic Beam 1x3]
 - 1x [Red Cable with 50 cm length]
 - 1x [Grey Technic Pin]



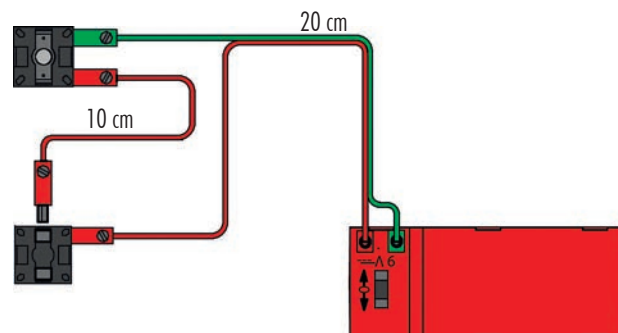


Morsealphabet siehe didaktisches Begleitheft
 Complete Morse alphabet listed in activity booklet
 Voir le manuel d'accompagnement en ce qui concerne l'alphabet morse
 Zie het didactisch begeleidend boekje voor het morse-alfabet
 Véase alfabeto Morse en el cuaderno didáctico adjunto
 Alfabeto Morse ver folheto didático
 Alfabeto Morse, vedi libretto didattico delle attività
 Азбуку Морзе см. в обучающей сопроводительной брошюре
 摩尔斯电码见随附的指导性说明书

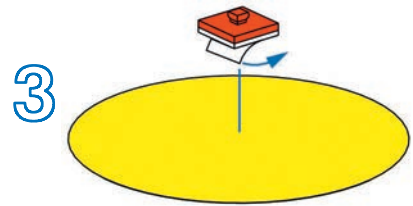
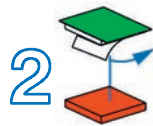
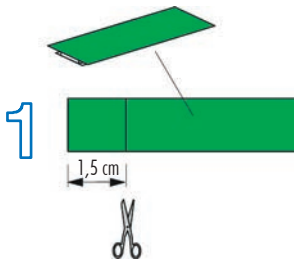
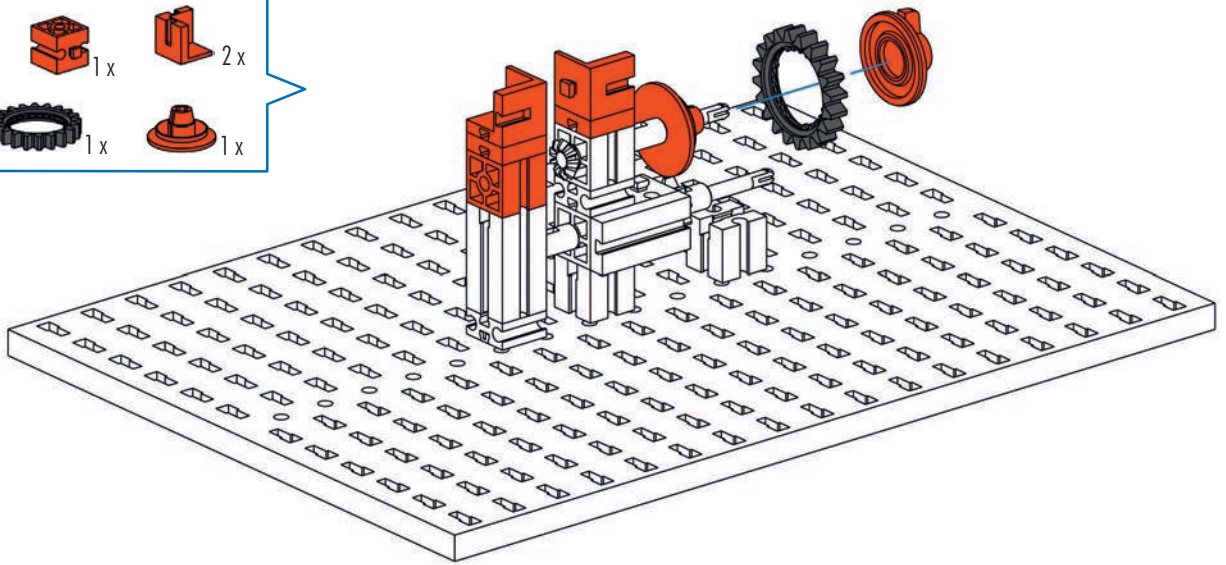
Schaltplan
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Schakelschema
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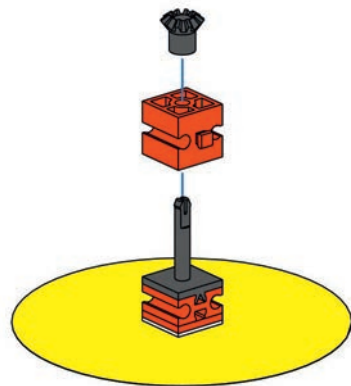
Schema elettrico
 Схема подключения
 电路图

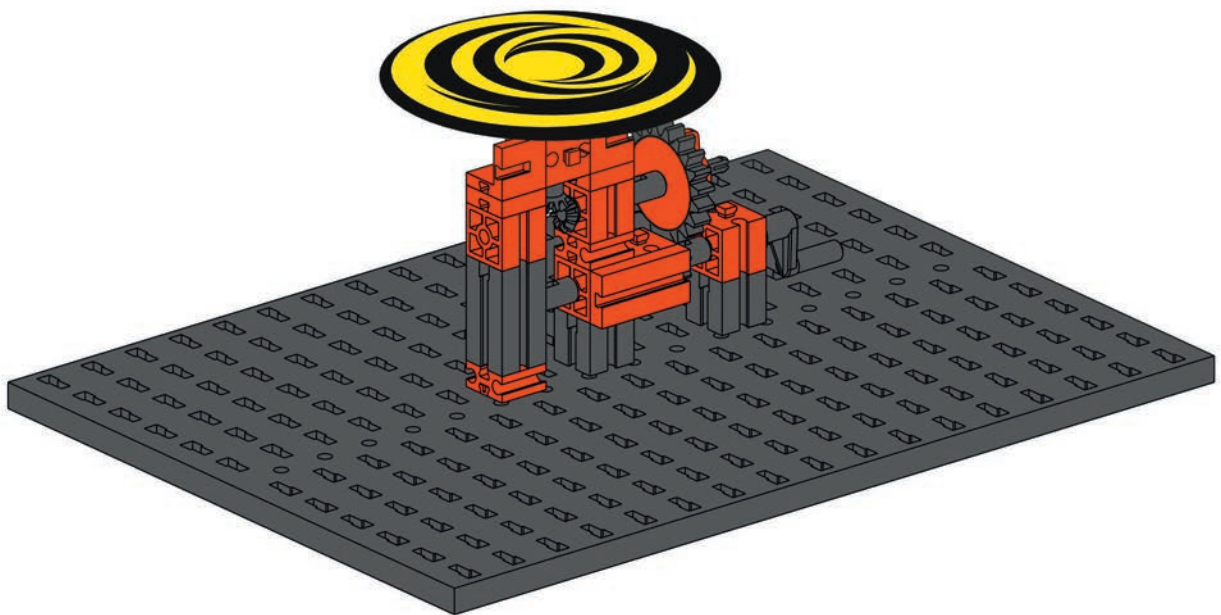
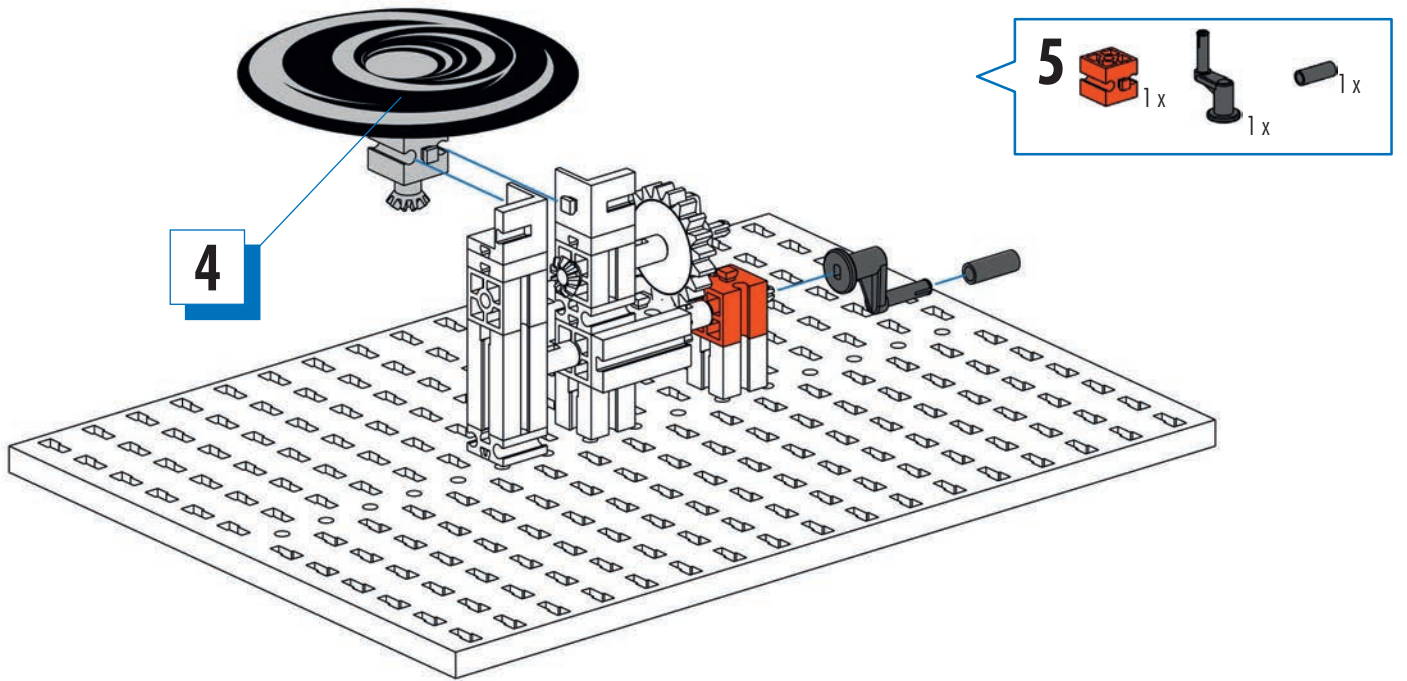


- 3**
- 2 x [Red 1x2 Technic Brick]
 - 1 x [Red 1x2 Technic Brick with Hole]
 - 2 x [Red L-shaped Technic Brick]
 - 1 x [Red Technic Pin]
 - 1 x [Black Technic Gear]
 - 1 x [Red Technic Pin with Friction Ridge]



- 4**
- 1 x [Red 1x2 Technic Brick]
 - 1 x [Red 1x2 Technic Brick with Hole]
 - 1 x [Red Technic Pin]
 - 1 x [Red Technic Pin with Friction Ridge]
 - 1 x [Black and Yellow Concentric Circle Sticker]
 - 1 x [Black Technic Pin]
 - 1 x [Black Technic Pin with Friction Ridge]

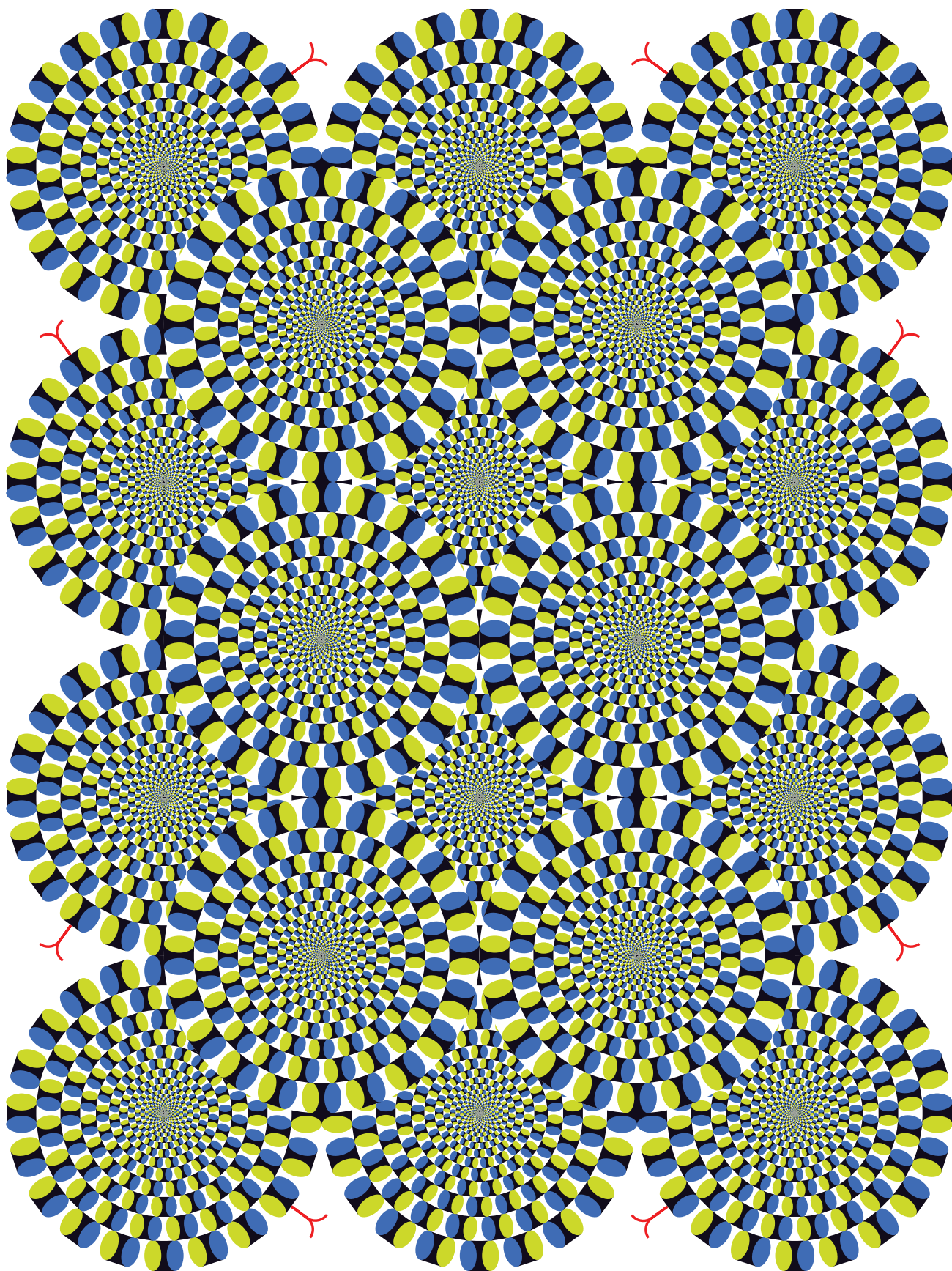




Fantastische Kreise
Fantastic circles
Cercles fantastiques

Fantastische cirkels
Círculos fantásticos
Círculo fantástico

Illusione ottica
Оптический обман
视错觉



Sortiervorschlag Box 1 für Aufbewahrungssystem Art.-Nr. 94828

Storage suggestion box 1 for storage system Art No. 94828

Suggestion de classement Boîte 1 pour le système de stockage Art n° 94828

Sorteervoorstel box 1 voor bewaarsysteem art.-nr. 94828

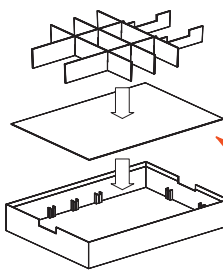
Propuesta de clasificación Caja 1 para almacenamiento Art. N° 94828

Proposta de divisão caixa 1 para sistema de conservação n.º de art. 94828

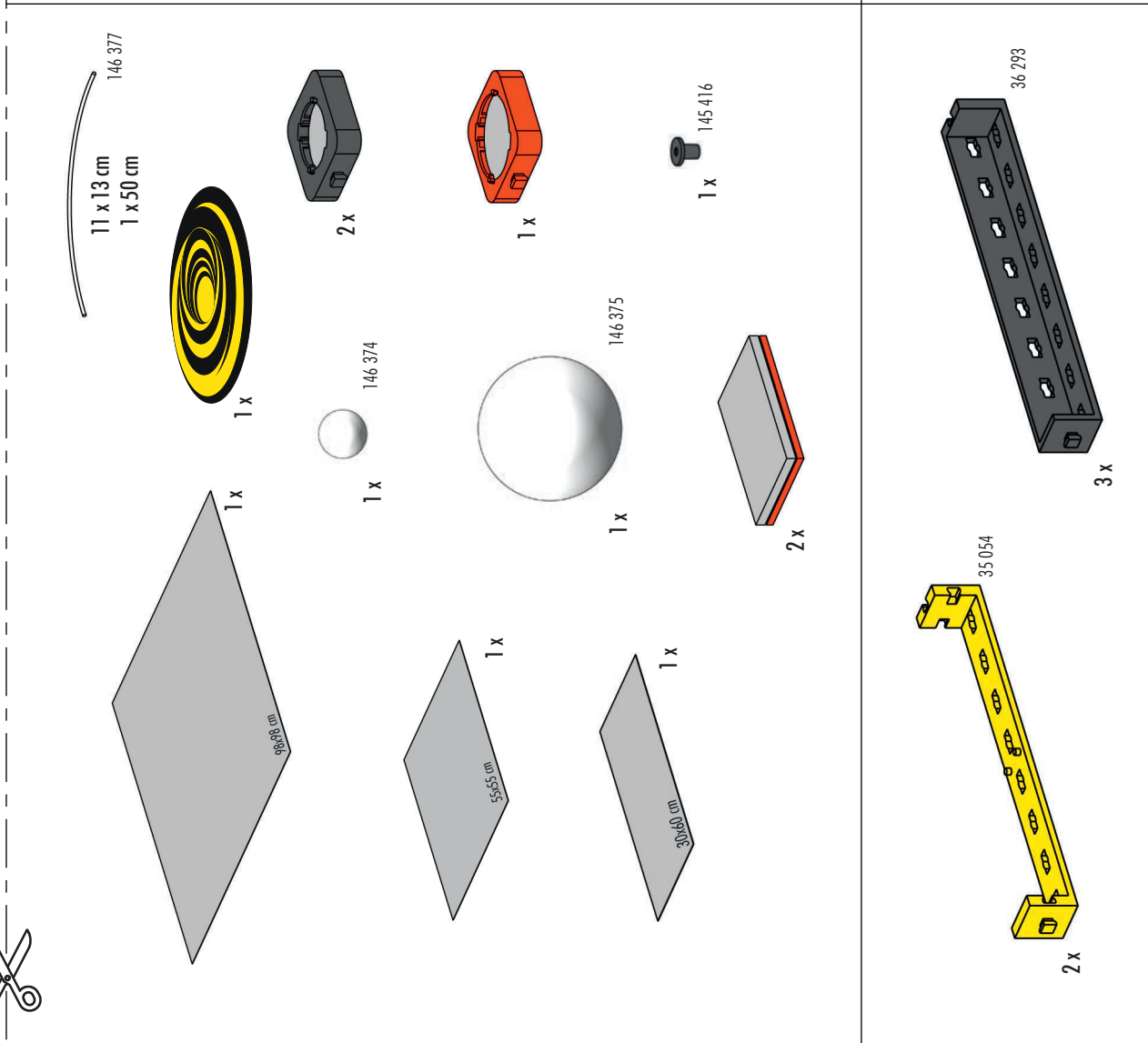
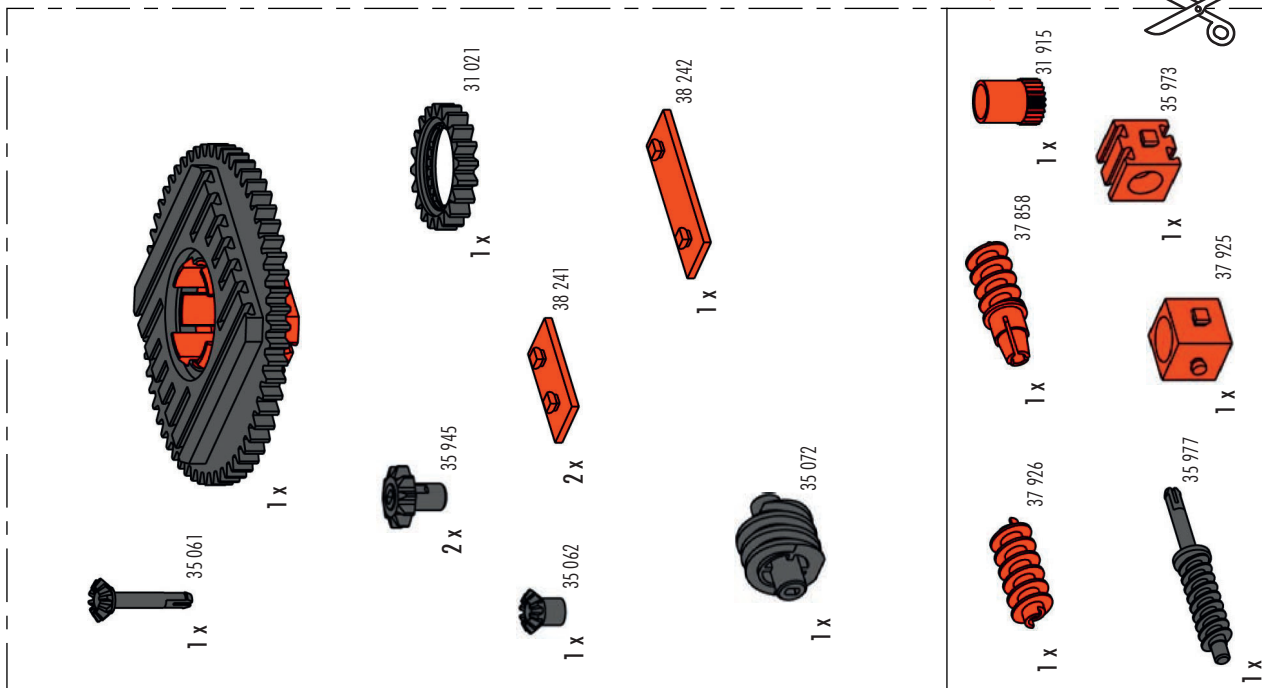
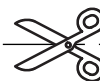
Proposta di sistemazione Box 1 per il sistema di conservazione, cod. prod. 94828

Рекомендации по сортировке: Бокс 1 для хранения арт. № 94828

用于产品号为94828的保存系统的1号盒分类建议



Zum Ausschneiden und Einlegen
For cutting out and inserting
A découper et à poser
Uitknippen en aanbrengen
Para cortar y montar
Para cortar e colocar
Da tagliare e inserire
Вырезать и вложить
用于剪下和放入



Box / Коробка / 号盒 1 Profi Optics

Sortiervorschlag Box 2 für Aufbewahrungssystem Art.-Nr. 94828

Storage suggestion box 2 for storage system Art No. 94828

Suggestion de classement Boîte 2 pour le système de stockage Art n° 94828

Sorteervoorstel box 2 voor bewaarsysteem art.-nr. 94828

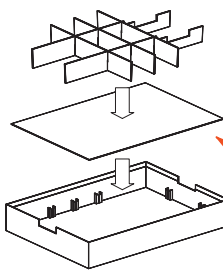
Propuesta de clasificación Caja 2 para almacenamiento Art. N° 94828

Proposta de divisão caixa 2 para sistema de conservação n.º de art. 94828

Proposta di sistemazione Box 2 per il sistema di conservazione, cod. prod. 94828

Рекомендации по сортировке: Бокс 2 для хранения арт. № 94828

用于产品号为94828的保存系统的2号盒分类建议



Zum Ausschneiden und Einlegen
For cutting out and inserting
A découper et à poser
Uitknippen en aanbrengen
Para cortar y montar
Para cortar e colocar
Da tagliare e inserire
Вырезать и вложить
用于剪下和放入





Sortiervorschlag Box 3 für Aufbewahrungssystem Art.-Nr. 94828

Storage suggestion box 3 for storage system Art No. 94828

Suggestion de classement Boîte 3 pour le système de stockage Art n° 94828

Sorteervoorstel box 3 voor bewaarsysteem art.-nr. 94828

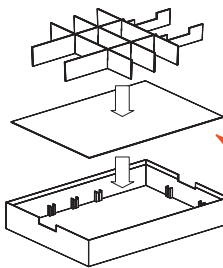
Propuesta de clasificación Caja 3 para almacenamiento Art. N° 94828

Proposta de divisão caixa 3 para sistema de conservação n.º de art. 94828

Proposta di sistemazione Box 3 per il sistema di conservazione, cod. prod. 94828

Рекомендации по сортировке: Бокс 3 для хранения арт. № 94828

用于产品号为94828的保存系统的3号盒分类建议

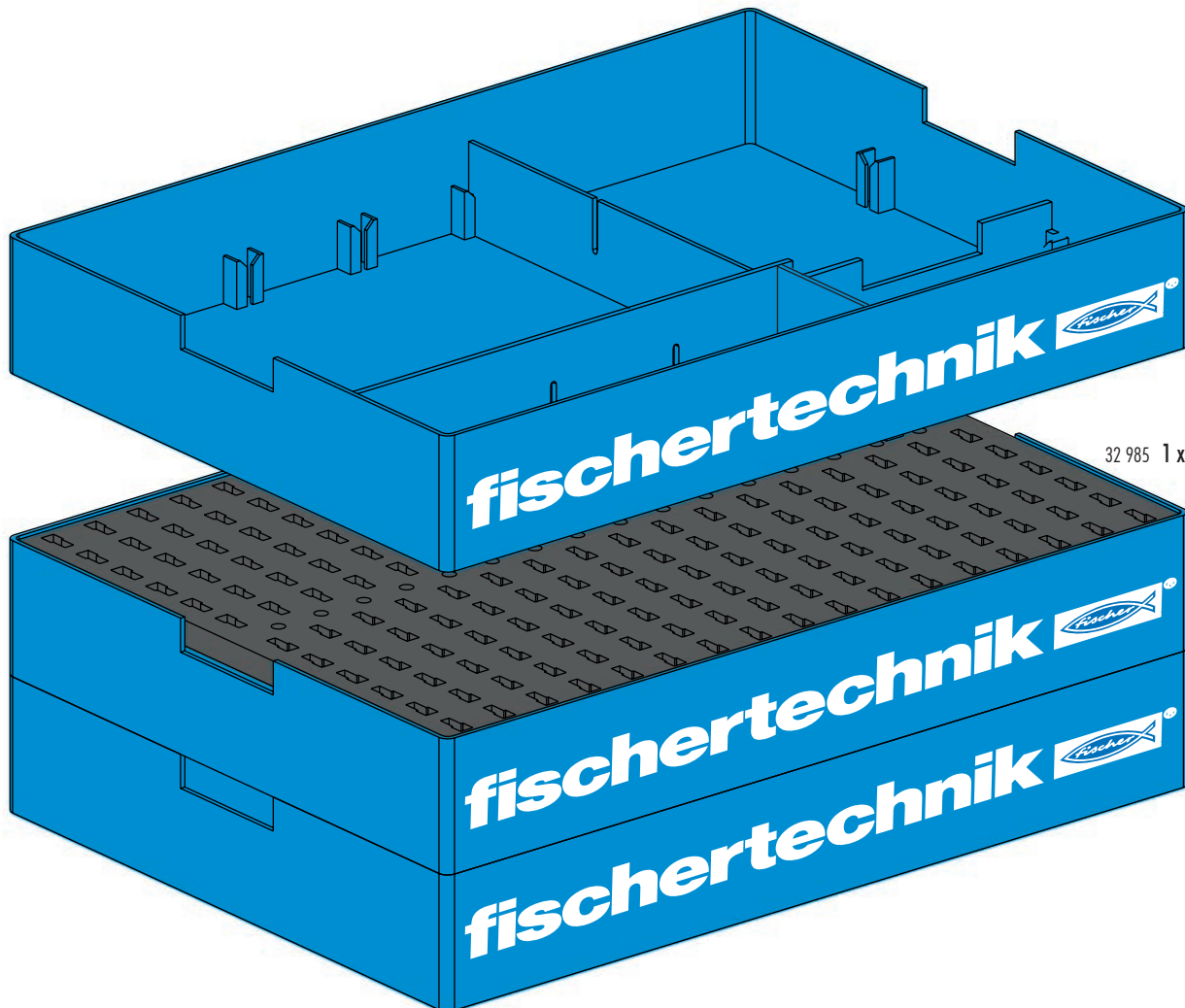


Zum Ausschneiden und Einlegen
For cutting out and inserting
A découper et à poser
Uitknippen en aanbrengen
Para cortar y montar
Para cortar e colocar
Da tagliare e inserire
Вырезать и вложить
用于剪下和放入





Empfohlene Aufbewahrung:	3 x Aufbewahrungssystem Art.-Nr. 94828
Recommended storage:	3 x storage system Art No. 94828
Stockage conseillé :	3 x système de stockage Art n° 94828
Bewaarsadvies:	3 x bewaarsysteem art.-nr. 94828
Consejos para guardar el producto:	3 x almacenamiento Art. Nº 94828
Conservação recomendada:	3 x sistema de conservação n.º de art. 94828
Conservazione consigliata:	3 sistemi di conservazione, cod. prod. 94828
Рекомендуемое хранение:	3 x бокса для хранения. Арт.№ 94 828
推荐的保存方式 :	3 个产品号为 94 828 的保存系统



■ Hinweise zum Umweltschutz

Die elektrischen und elektronischen Bauteile dieses Baukastens (z. B. Motoren, Lampen, Sensoren) gehören nicht in den Hausmüll. Sie müssen am Ende ihrer Lebensdauer an einem Sammelpunkt für das Recycling von elektrischen und elektronischen Geräten abgegeben werden. Das Symbol auf dem Produkt, der Verpackung oder der Anleitung weist darauf hin.

■ Instructions for Environmental Protection

Do not put the electrical and electronic components of this construction kit such as motors, lights and sensors in the household waste. At the end of their service life, take them to a collection point for the recycling of electrical and electronic devices. The symbol on the product, packaging or the instructions shows this.

■ Remarques de protection de l'environnement

Les composants électriques et électroniques de ce coffret (par ex. moteurs, lampes, capteurs) ne doivent pas être jetés avec les ordures ménagères. Lorsqu'elles ne sont plus utilisables, il faut les remettre auprès d'un centre de collecte spécialisé dans le recyclage des appareils électriques et électroniques. Le symbole sur le produit, l'emballage ou la notice d'instructions le signale.

■ Bescherming van het milieu

De elektrische en elektronische onderdelen van deze module (bijv. motoren, lampen, sensoren) behoren niet bij het huisvuil. Aan het einde van hun levensduur moeten ze worden ingeleverd bij een verzamelplaats voor de recycling van elektrische en elektronische apparaten. Het symbool op het product, de verpakking of de gebruiksaanwijzing wijst je daar ook op.

■ Notas con respecto a la protección del medio ambiente

Los componentes eléctricos y electrónicos de esta unidad modular (p. ej. motores, lámparas, sensores) no han de tirarse a la basura casera. Al final de su vida útil tienen que ser entregados en un puesto colector para el reciclaje de aparatos eléctricos y electrónicos. El símbolo sobre el producto, el embalaje o las instrucciones lo señala.

■ Instruções para a proteção do meio ambiente

Os componentes elétricos e eletrônicos deste módulo (p.ex. motores, lâmpadas, sensores) não pertencem ao lixo doméstico. Eles devem ser entregues, no final da sua vida útil, num posto de coleta para a reciclagem de aparelhos elétricos e eletrônicos. O símbolo no produto, na embalagem ou no manual indica isto.

■ Indicazioni sulla tutela ambientale

I componenti elettrici ed elettronici di questa scatola di montaggio (ad es. motori, lampadine, sensori) non vanno smaltiti tra i rifiuti domestici. Alla fine della loro durata di utilizzo devono essere consegnati a un centro di raccolta adibito al riciclaggio di apparecchi elettrici ed elettronici. Ciò viene indicato dal simbolo che si trova sul prodotto, sull'imballo o sul manuale d'istruzioni.

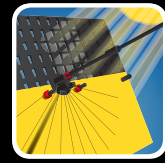
■ Указания по охране окружающей среды

Электрические и электронные детали этого комплекта (датчики, электромоторы, лампочки и др.) нельзя выбрасывать с бытовым мусором. После того как они отслужат свой срок, их нужно сдать для переработки на сборный пункт электрических и электронных приборов. На это указывает знак на изделии, на упаковке или на инструкции.

■ 有关环保的提示

不得将本组件中的电气和电子部件 (如电机, 灯泡, 传感器) 当作家庭垃圾扔掉。等它们的使用寿命结束后, 应将它们送抵电气和电子器材回收站。产品、包装或说明书上的标记也说明这一规定。





fischertechnik 

PROFI

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www.fischertechnik.de



146 400 - Printed in Germany - Technische Änderungen vorbehalten - Subject to technical modifications

Optics

15 MODELS