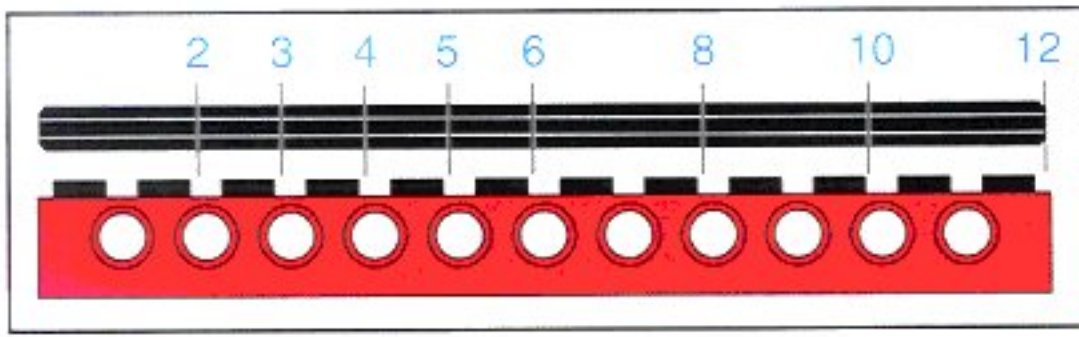


E L L A B

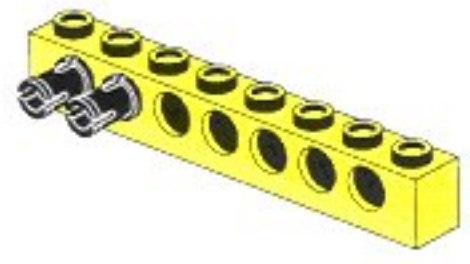
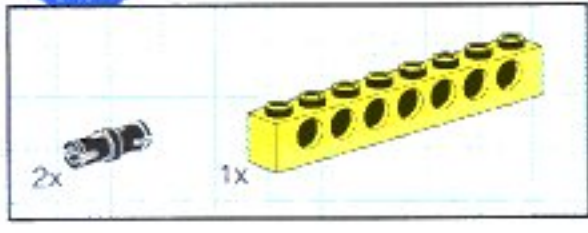


9684

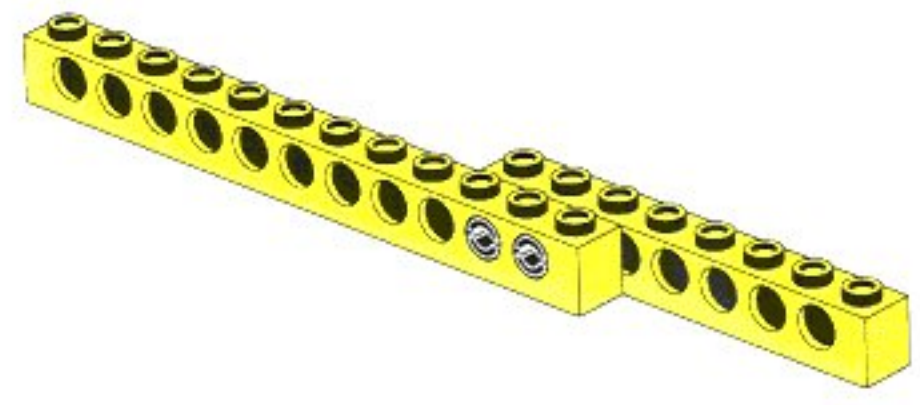
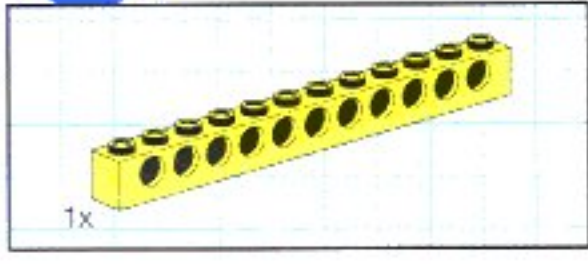
LEGO educational
division



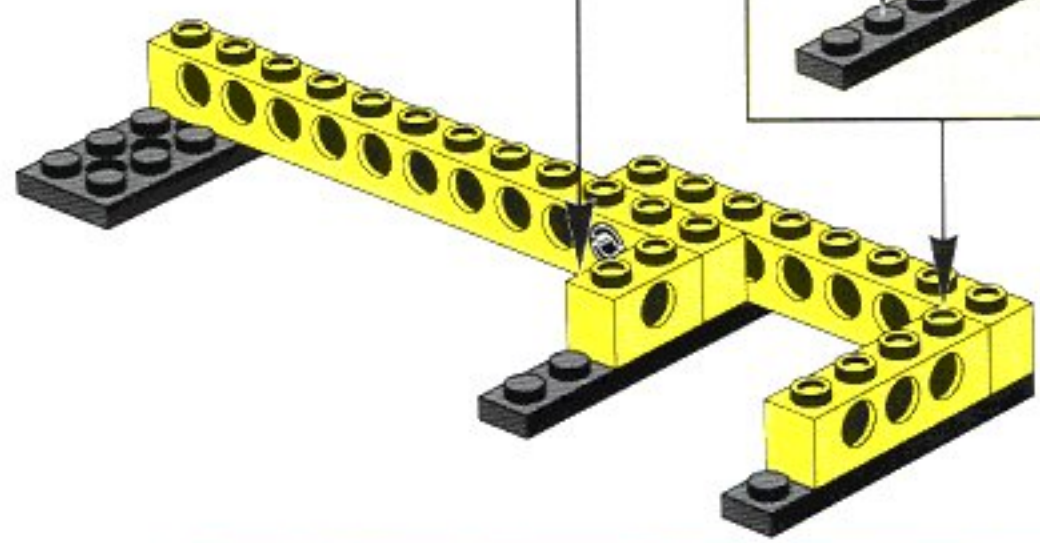
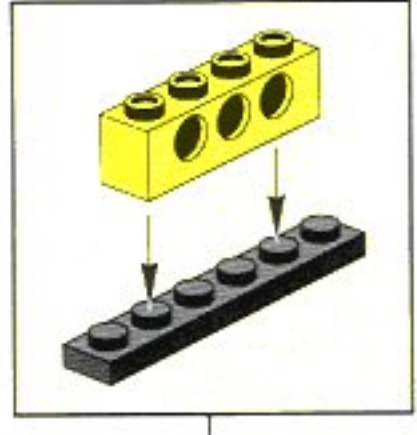
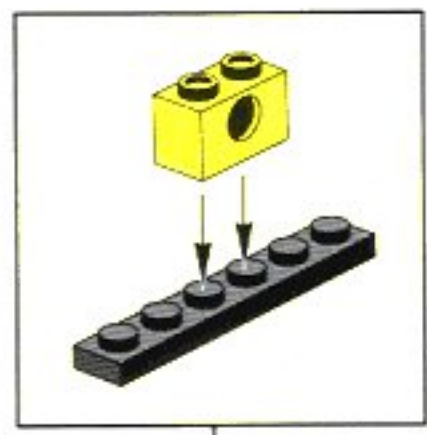
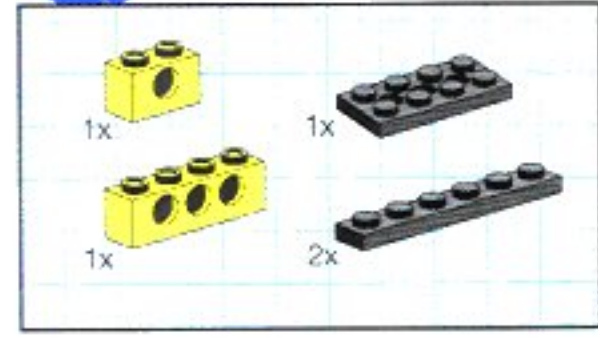
1



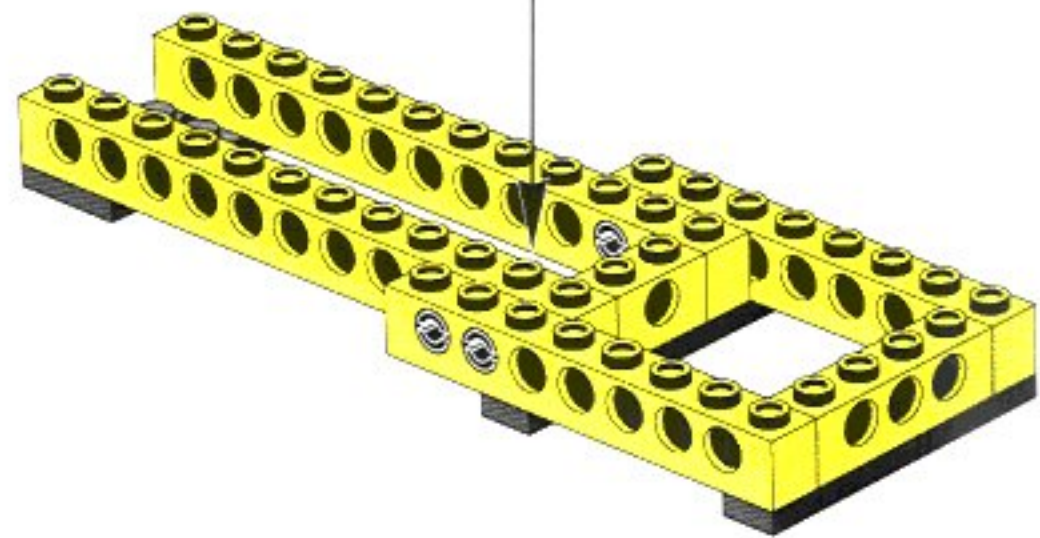
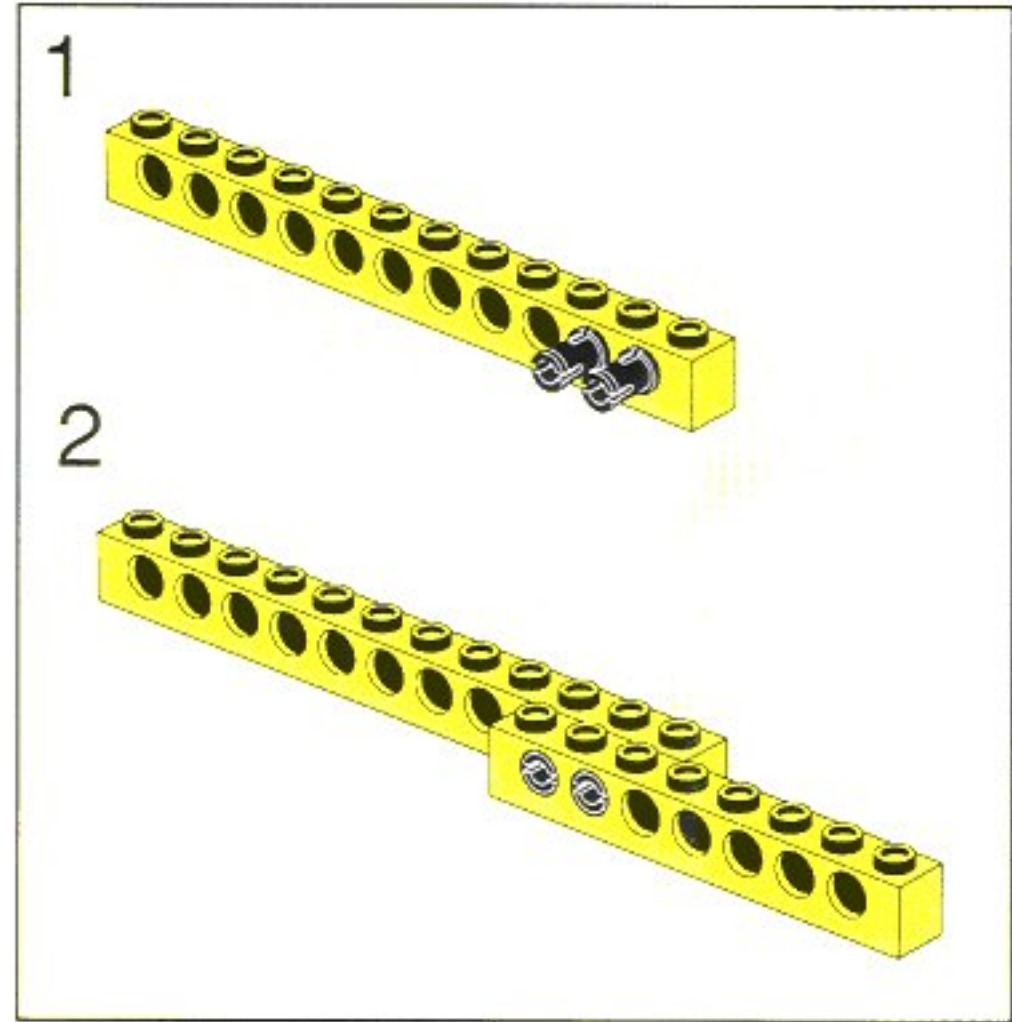
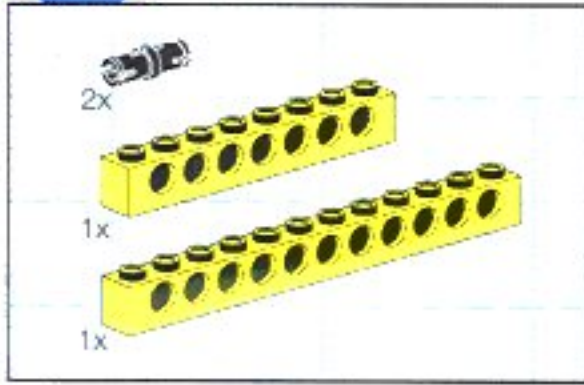
2



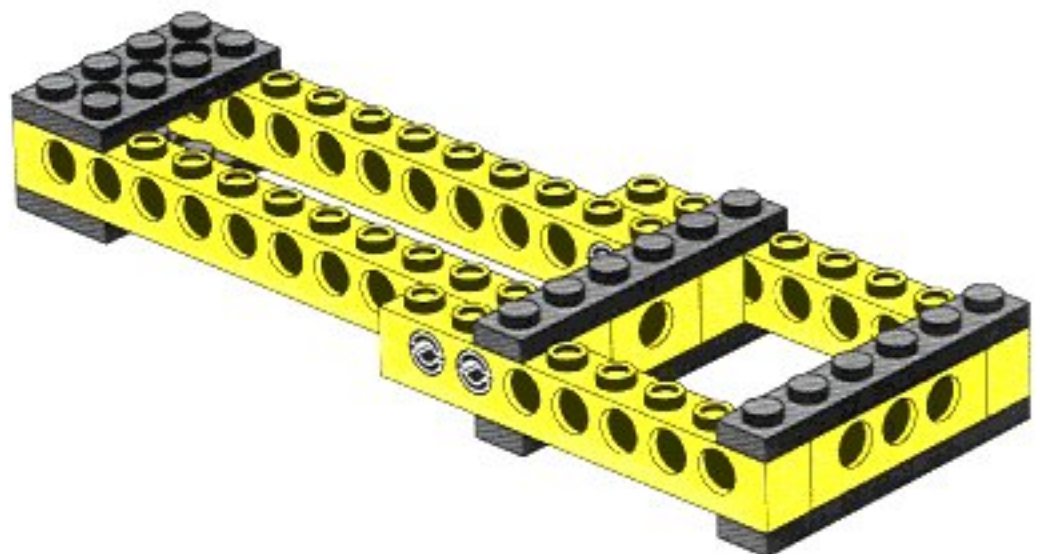
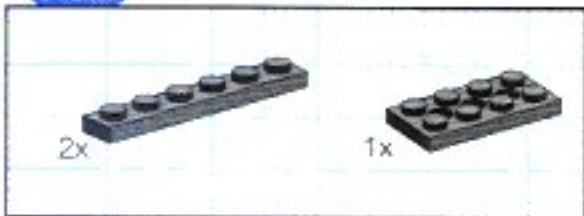
3

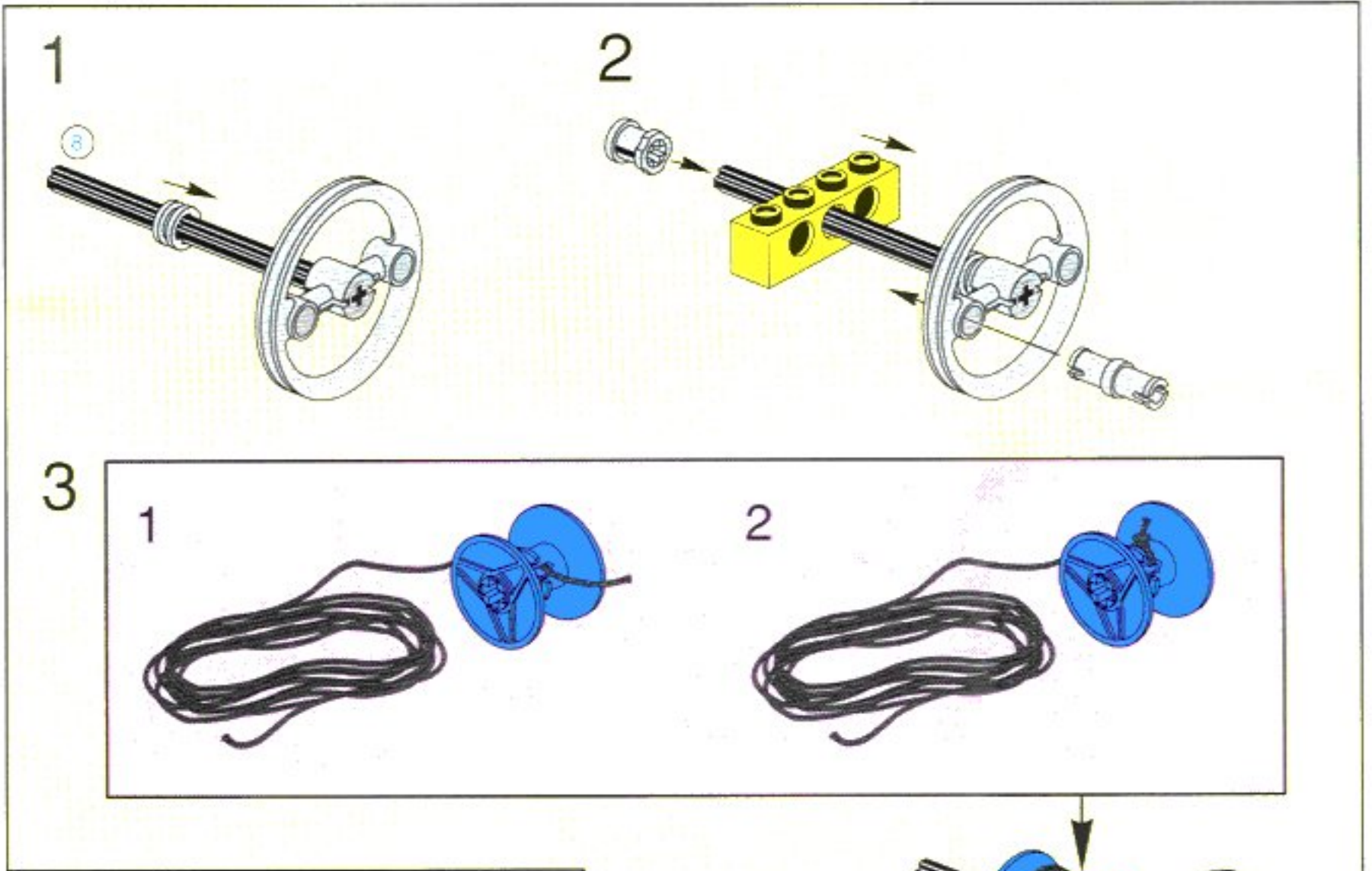


4

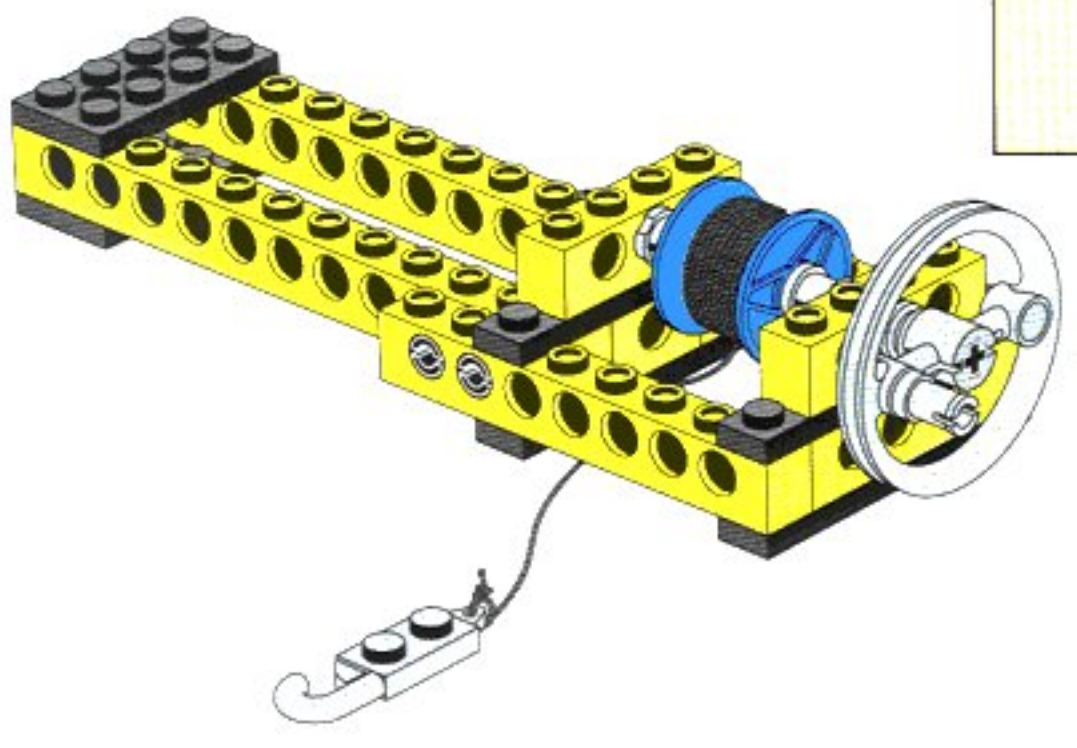
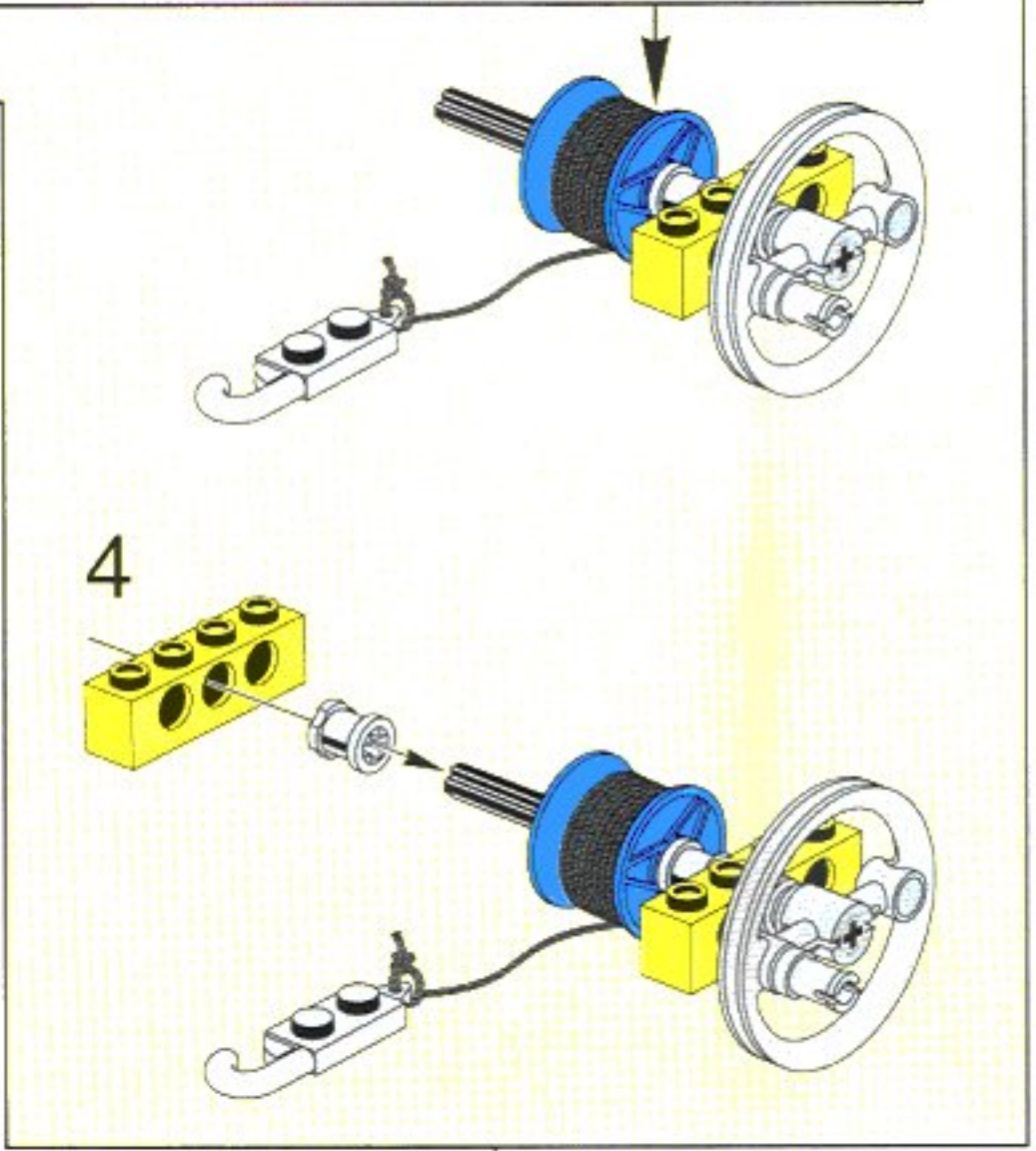
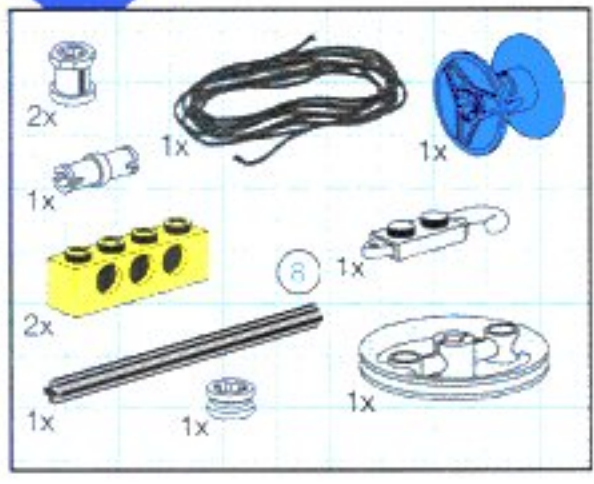


5

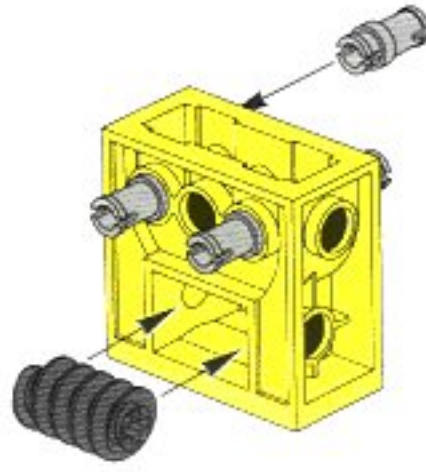
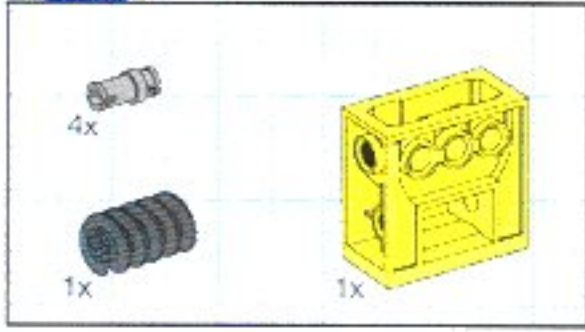




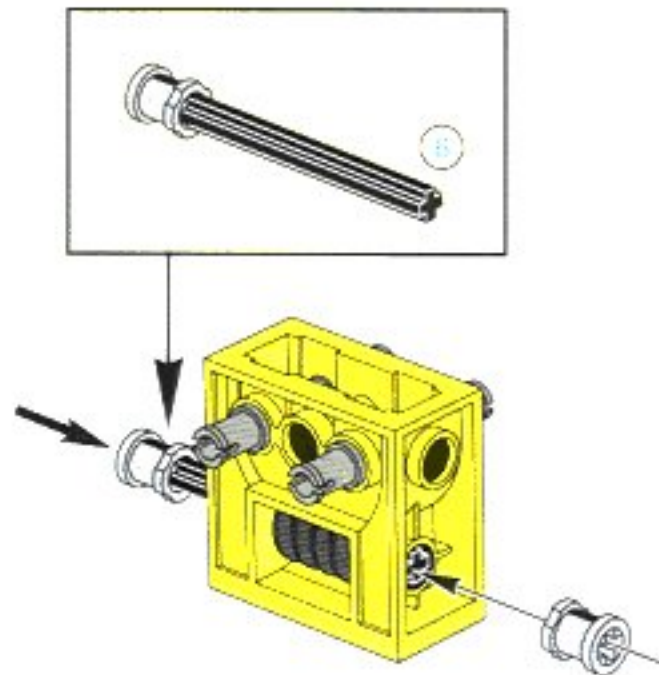
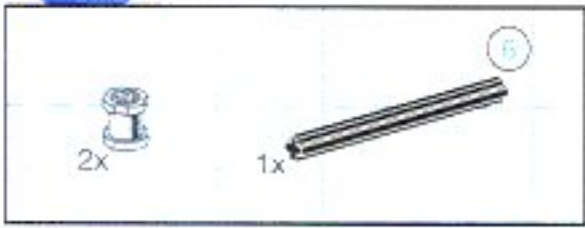
6



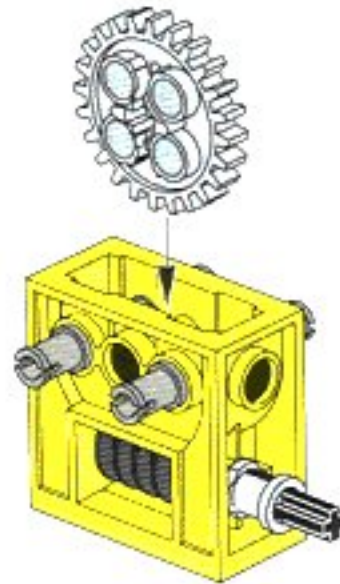
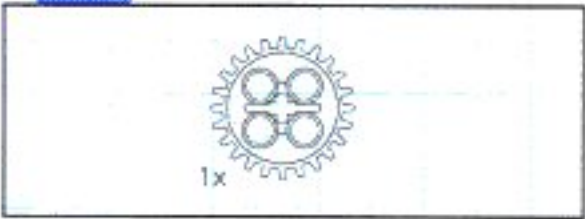
1



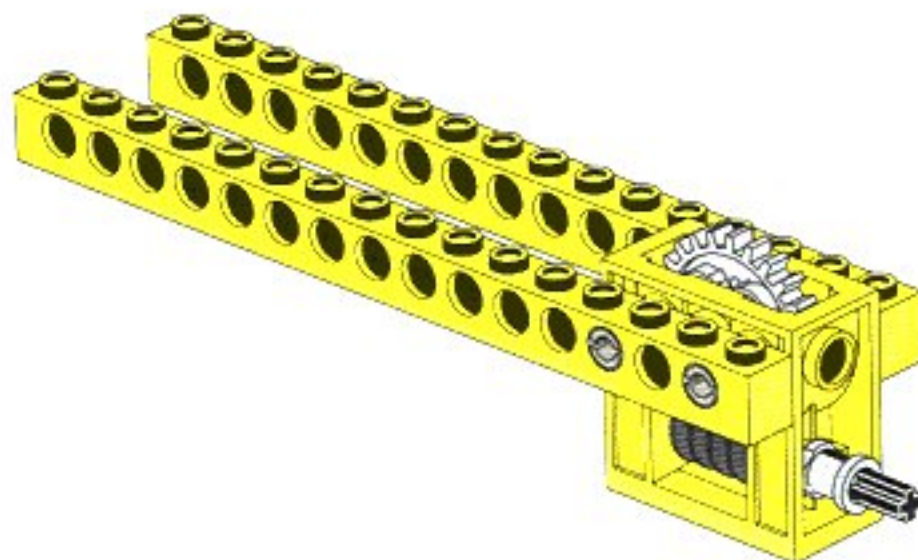
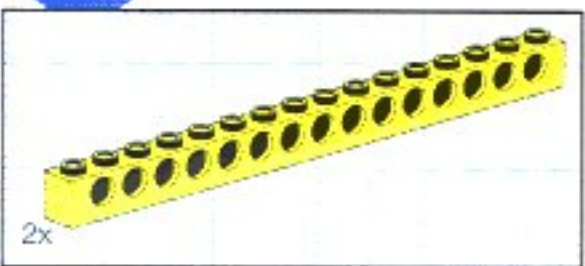
2



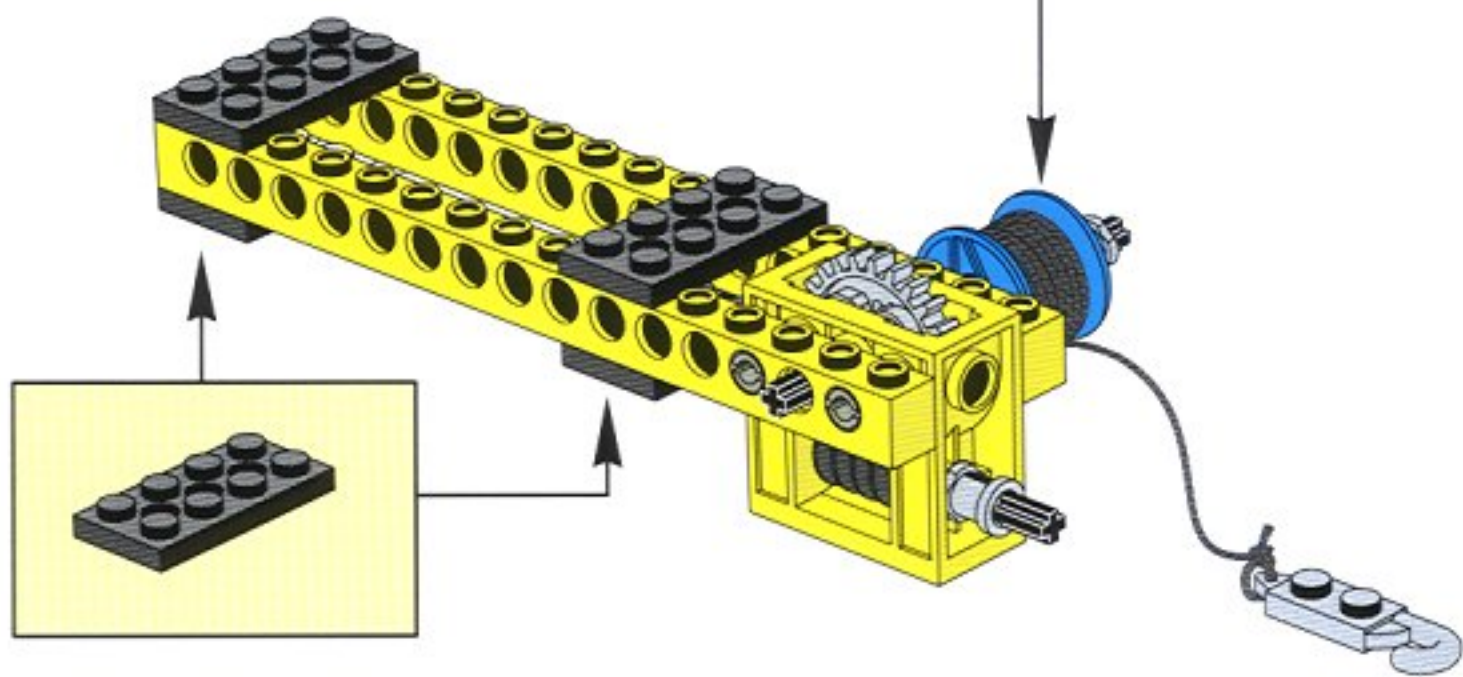
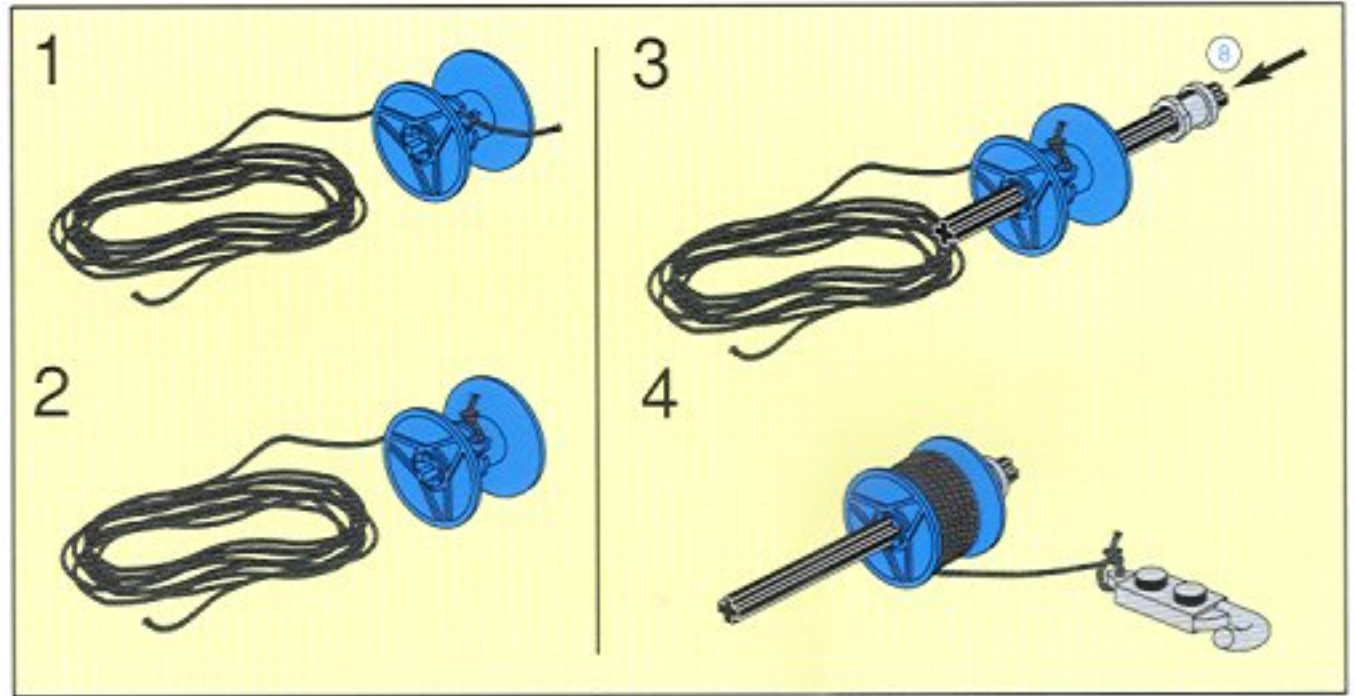
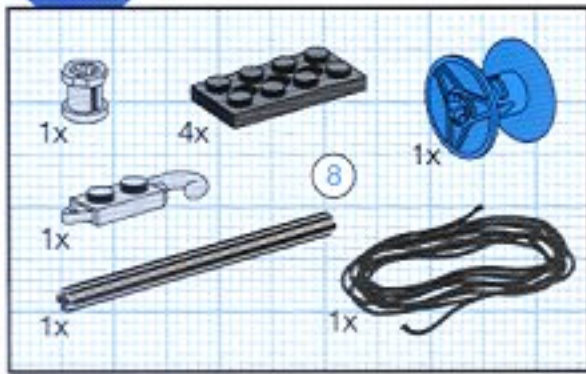
3



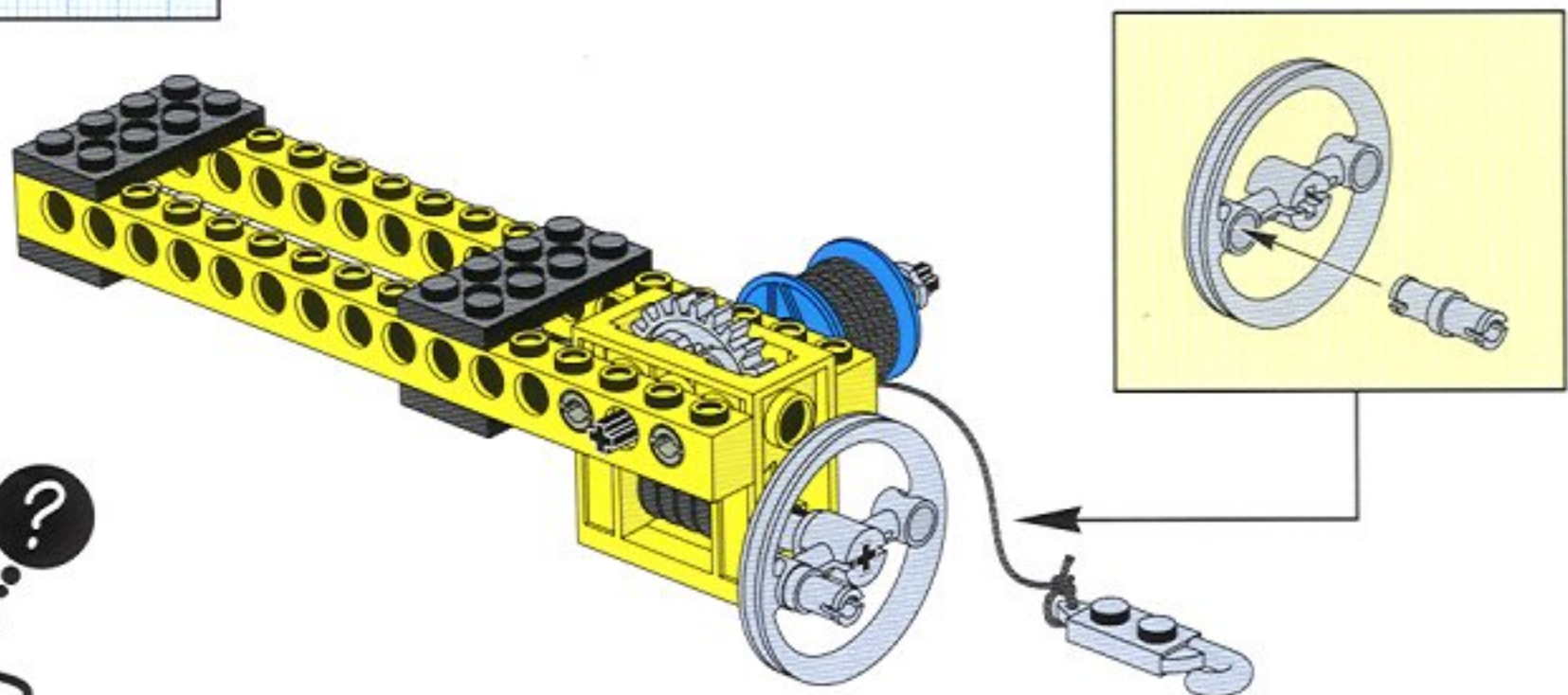
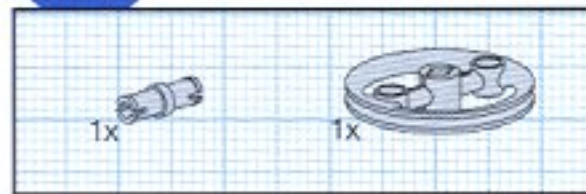
4



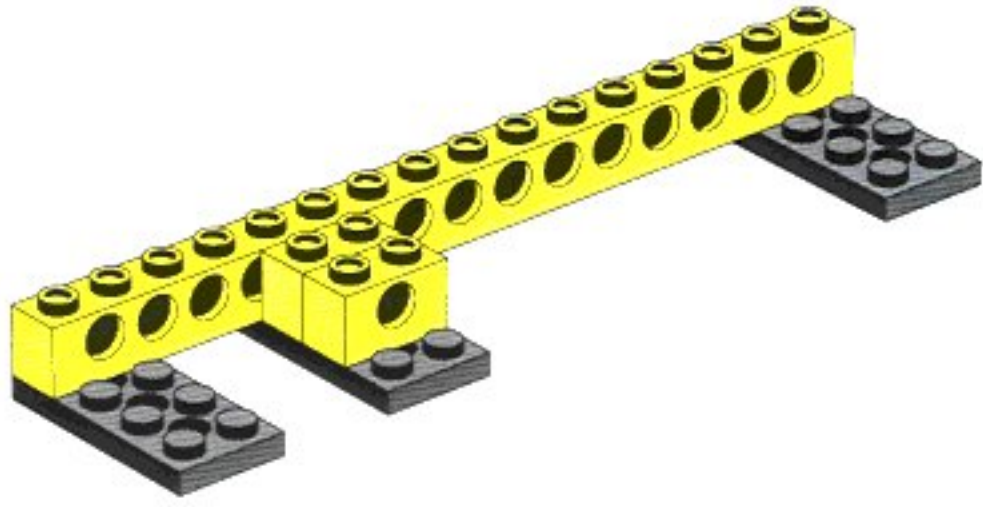
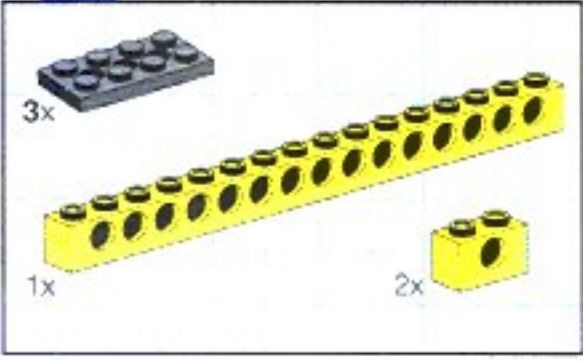
5



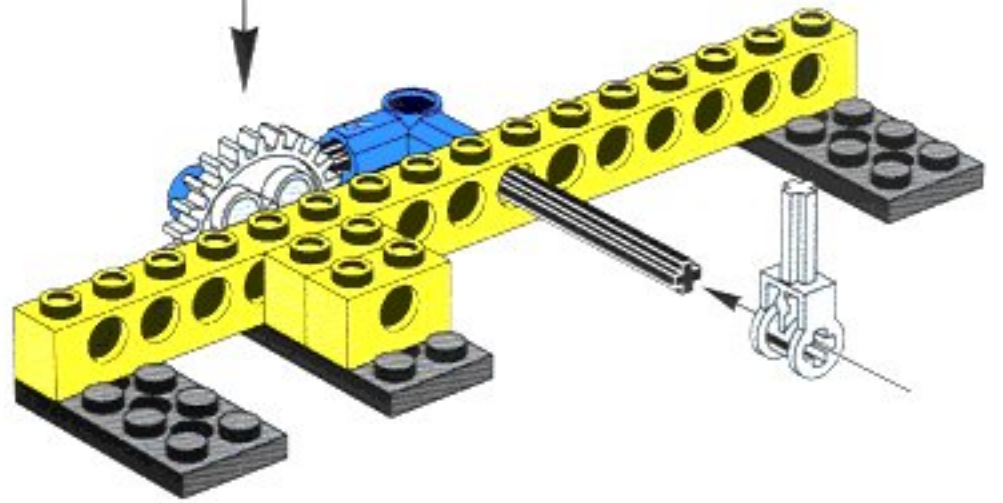
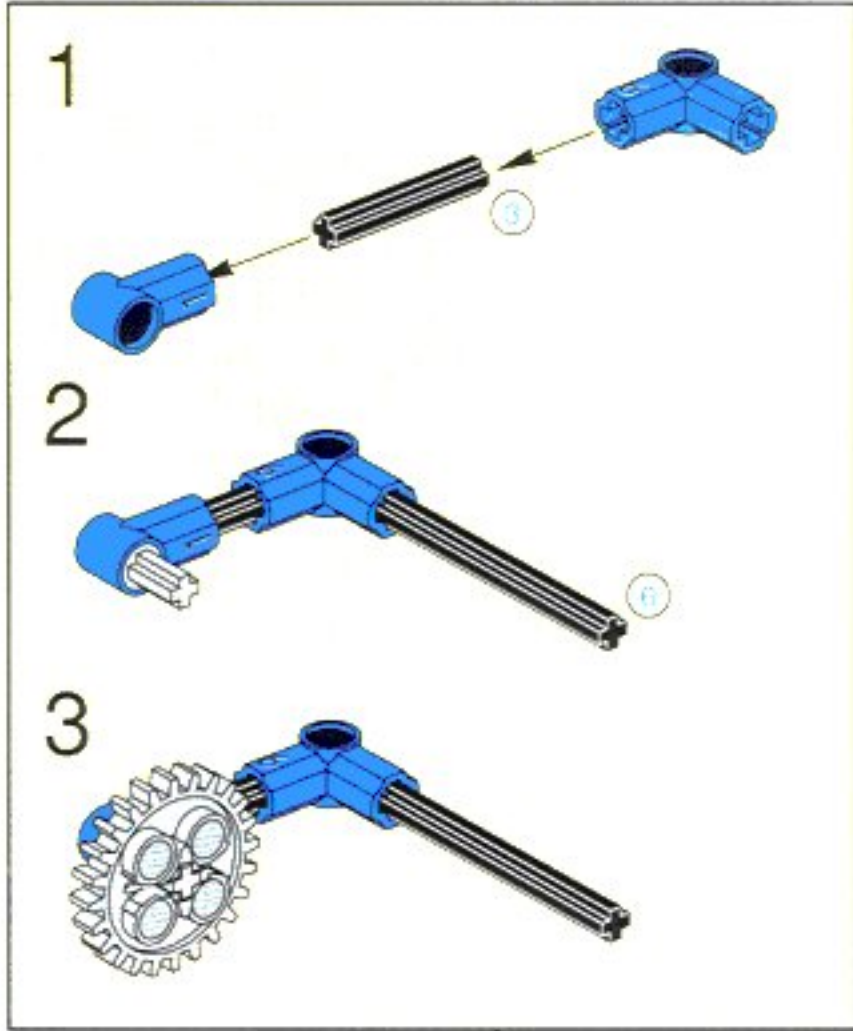
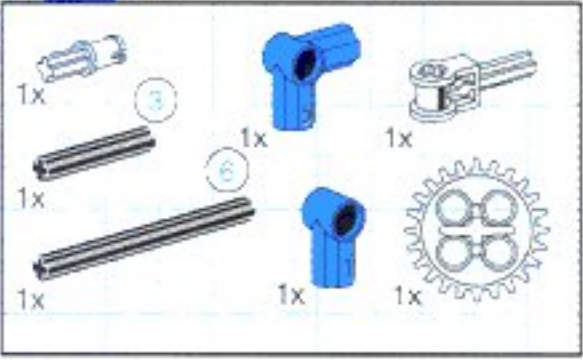
6



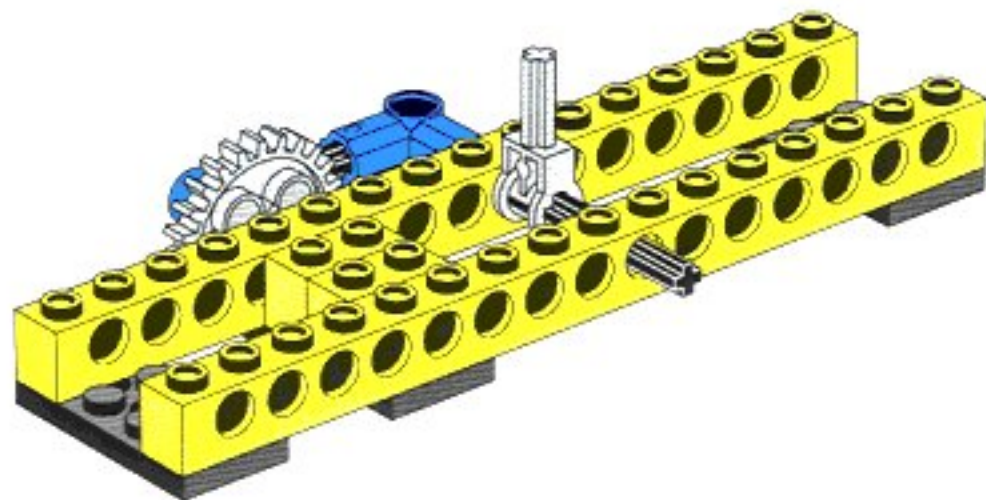
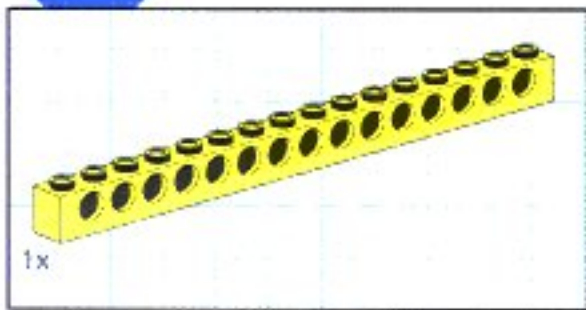
1



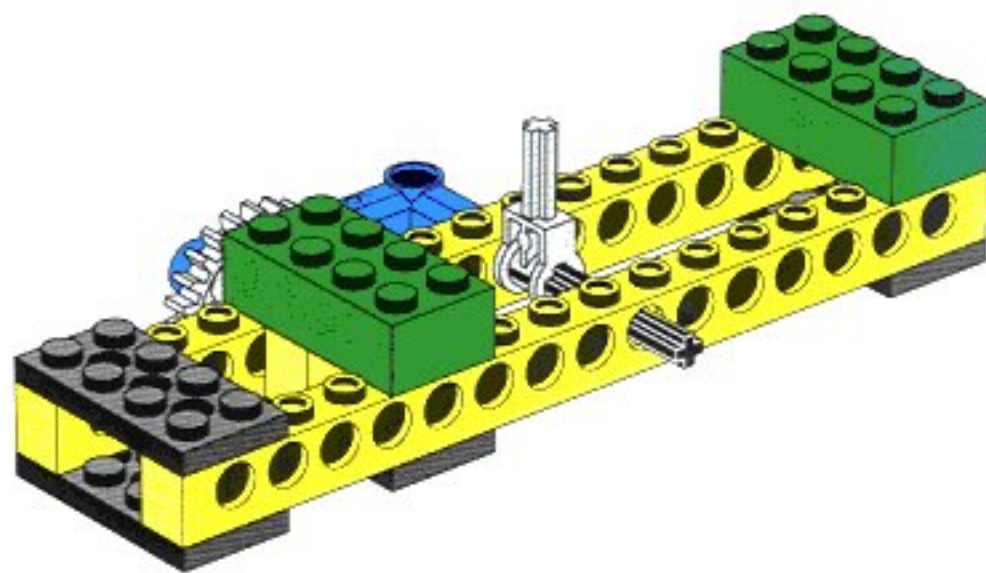
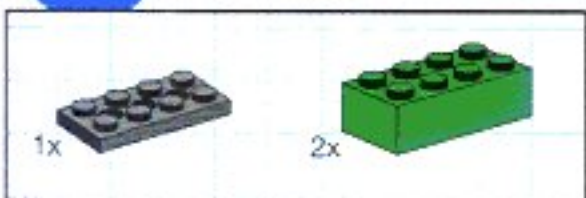
2



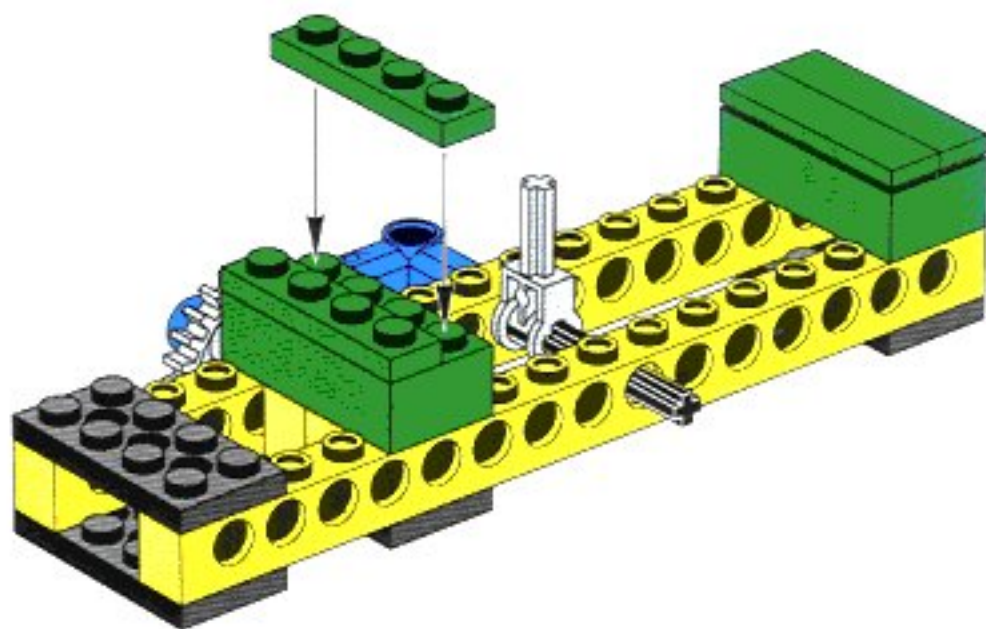
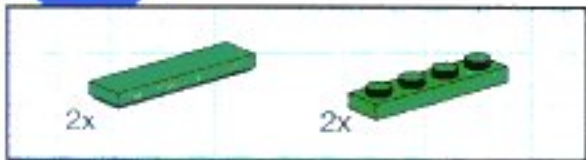
3



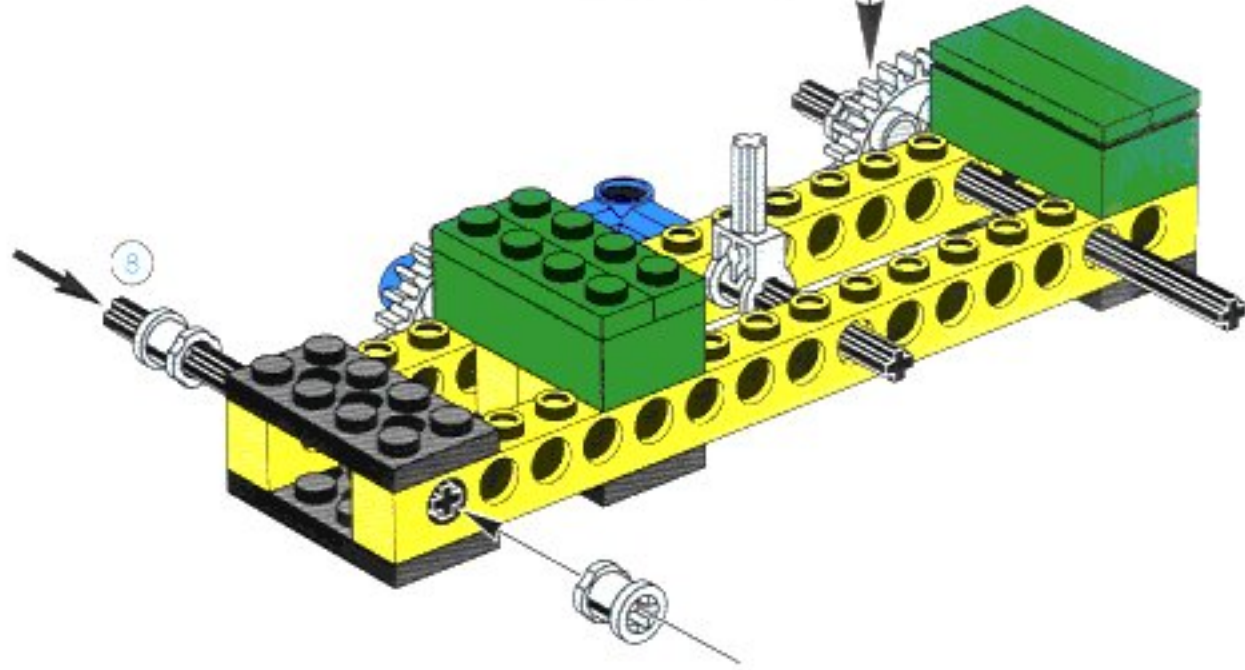
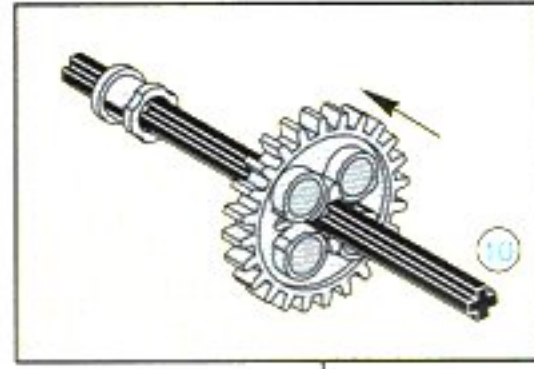
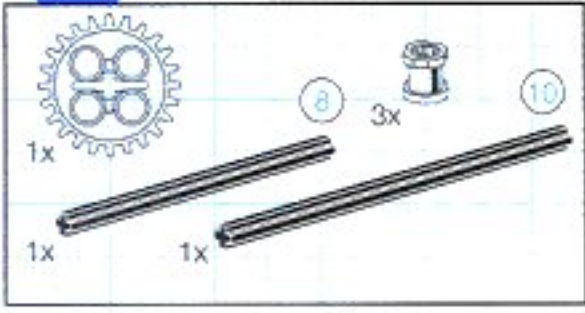
4



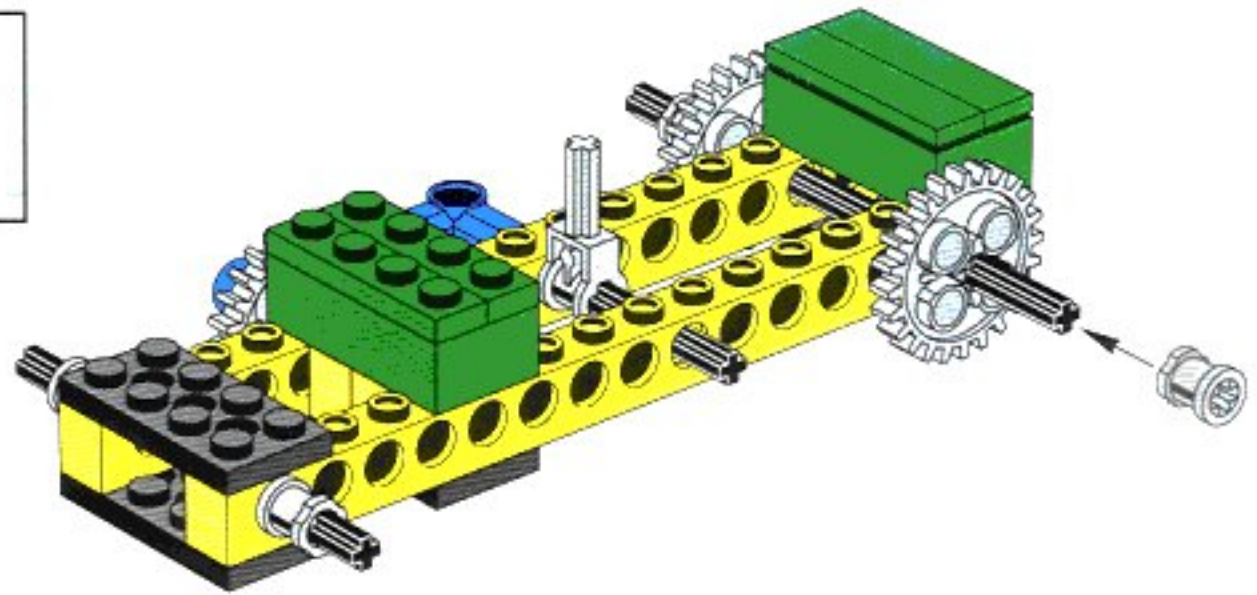
5



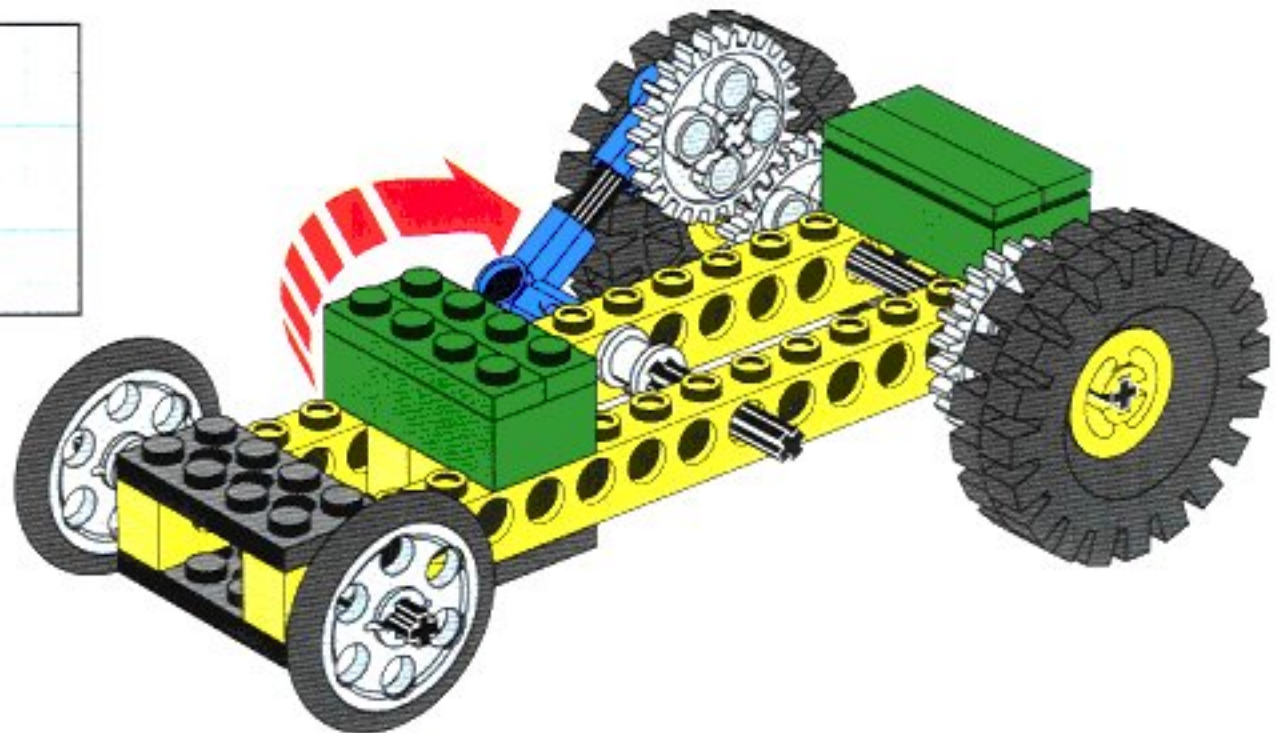
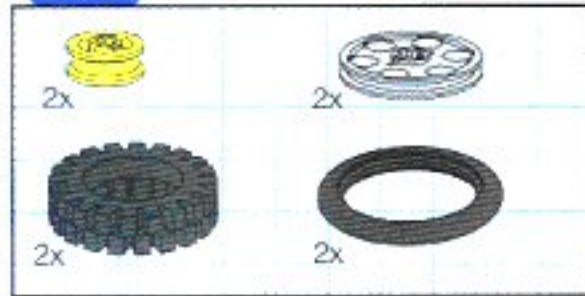
6



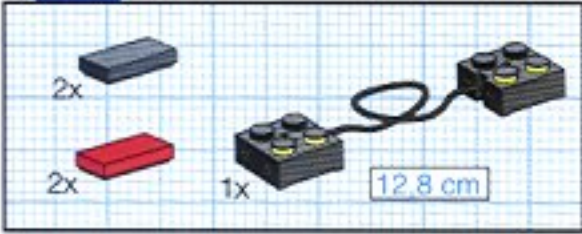
7



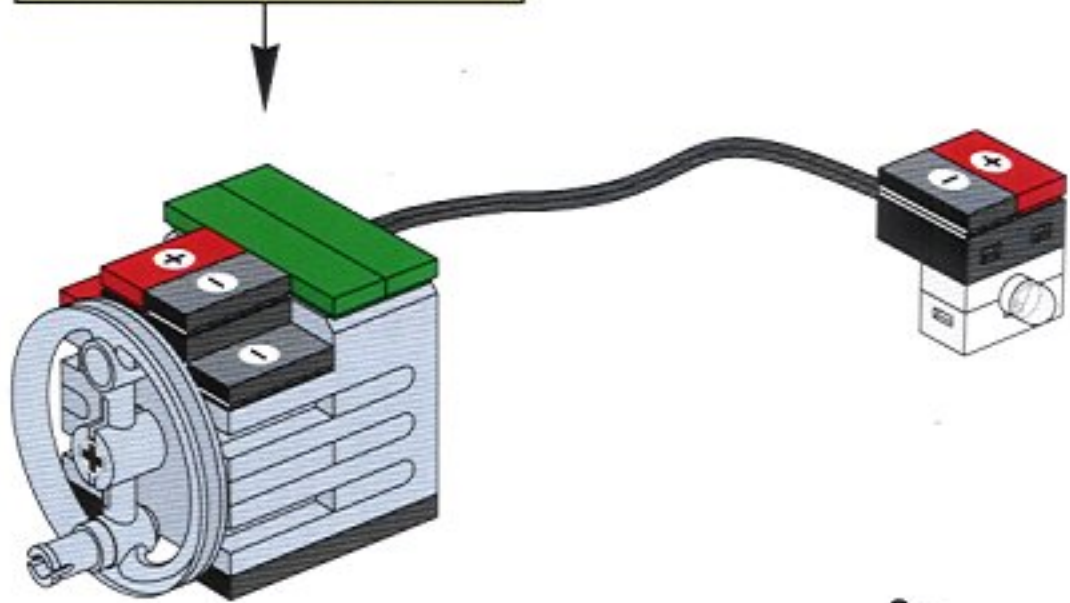
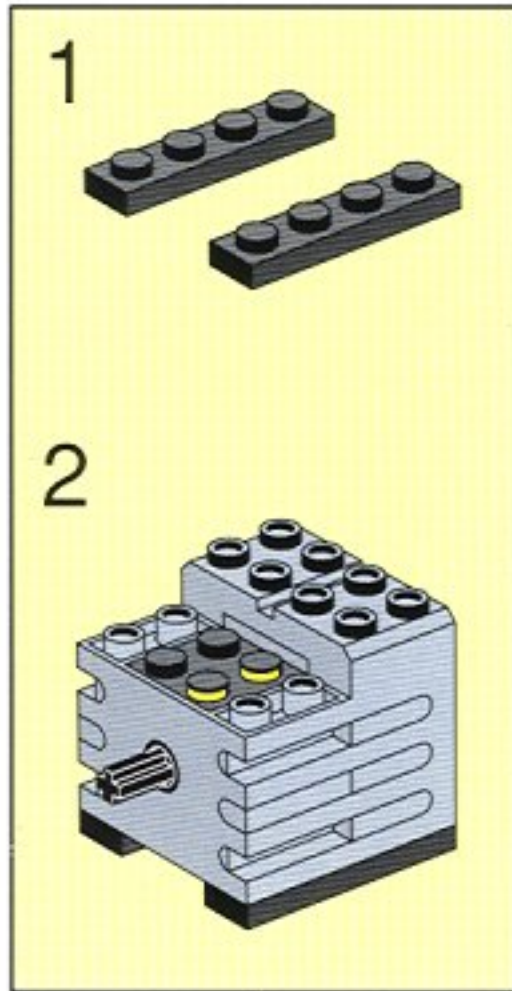
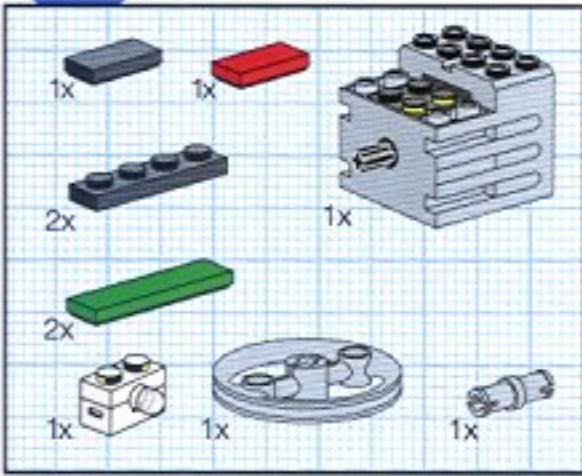
8



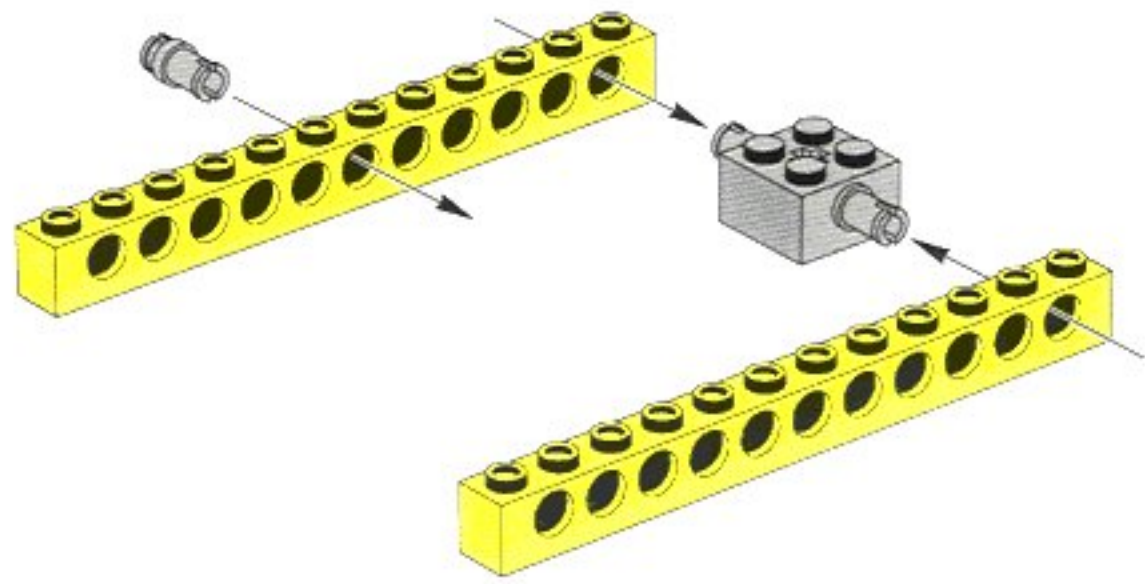
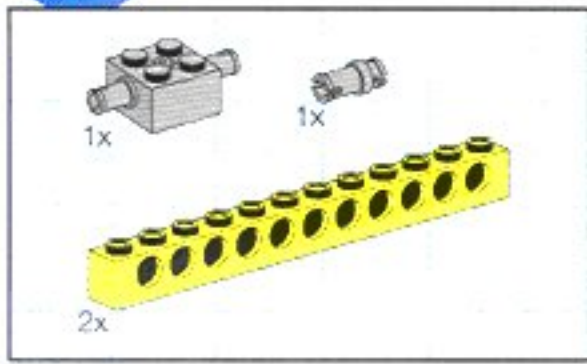
1



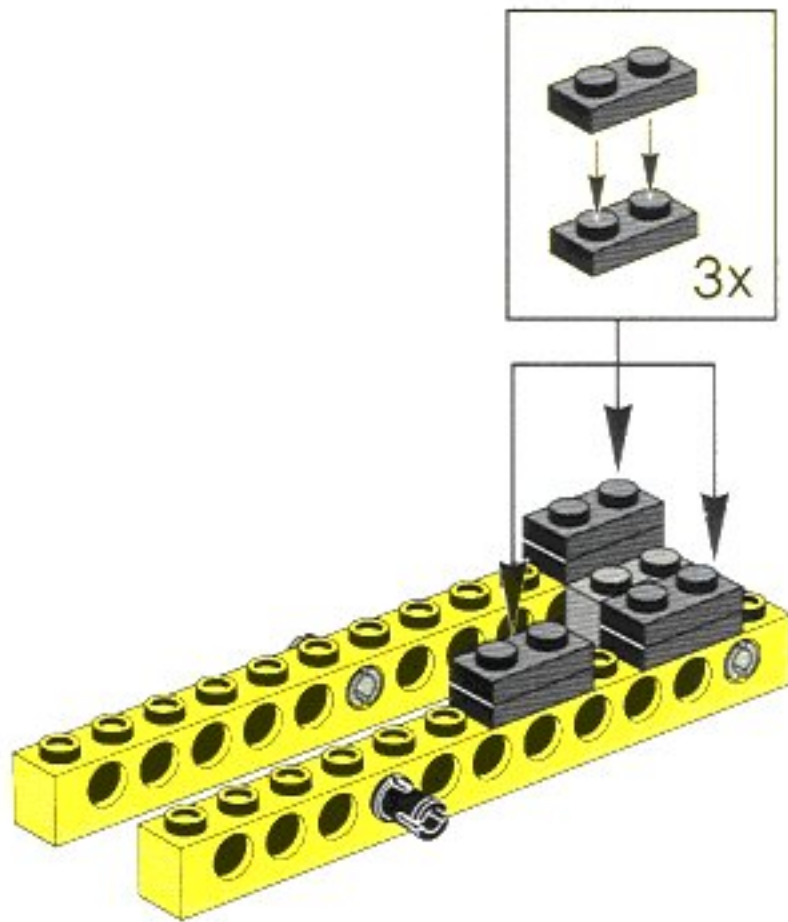
2



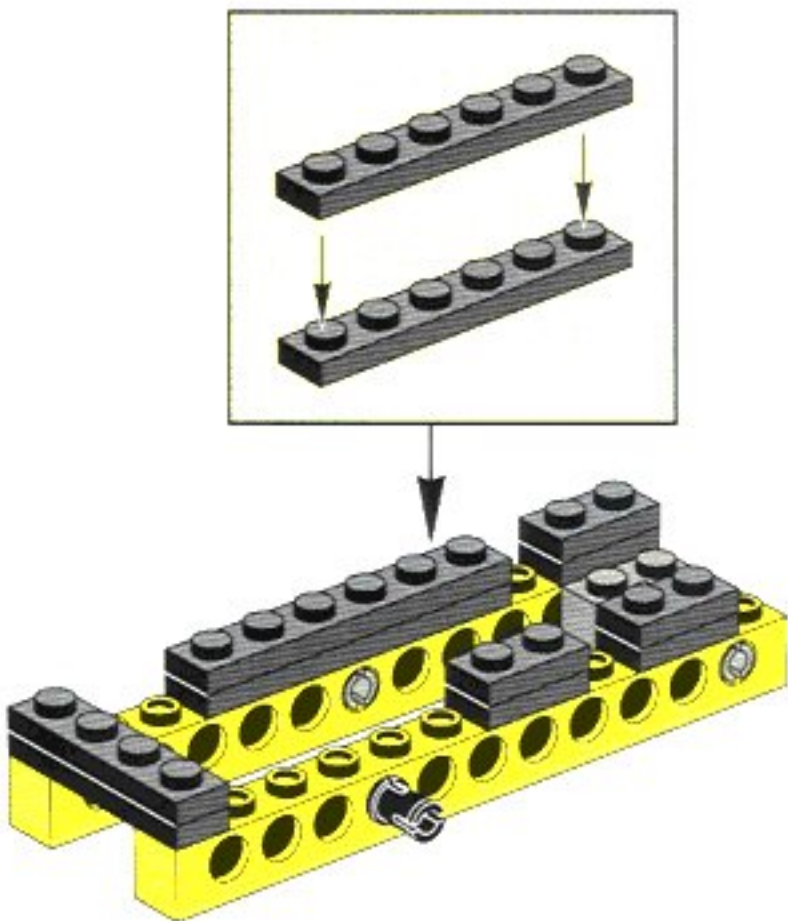
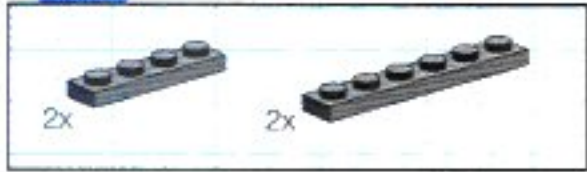
1



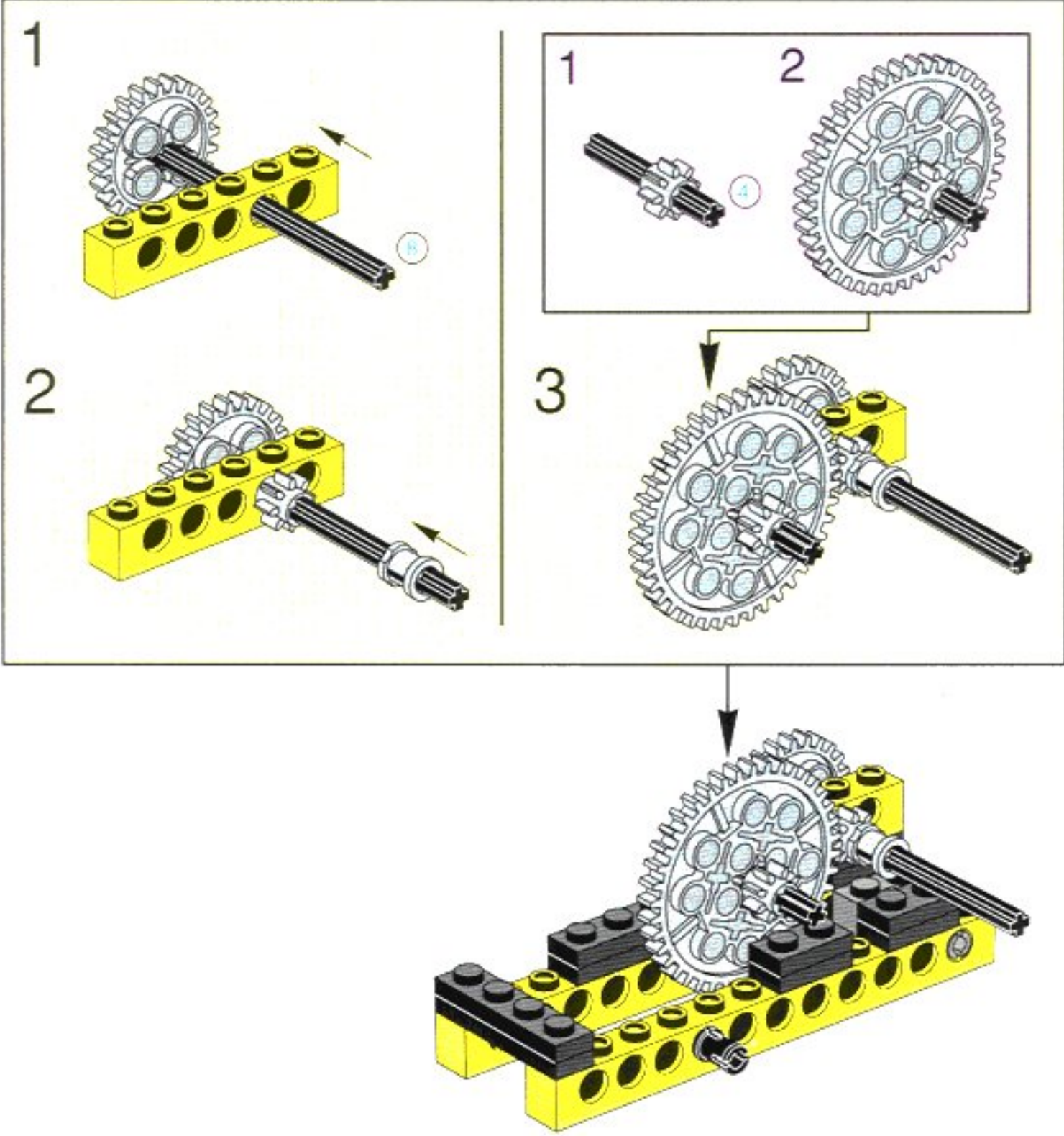
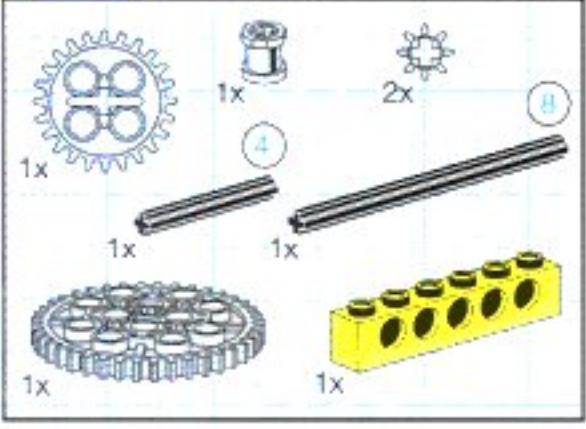
2



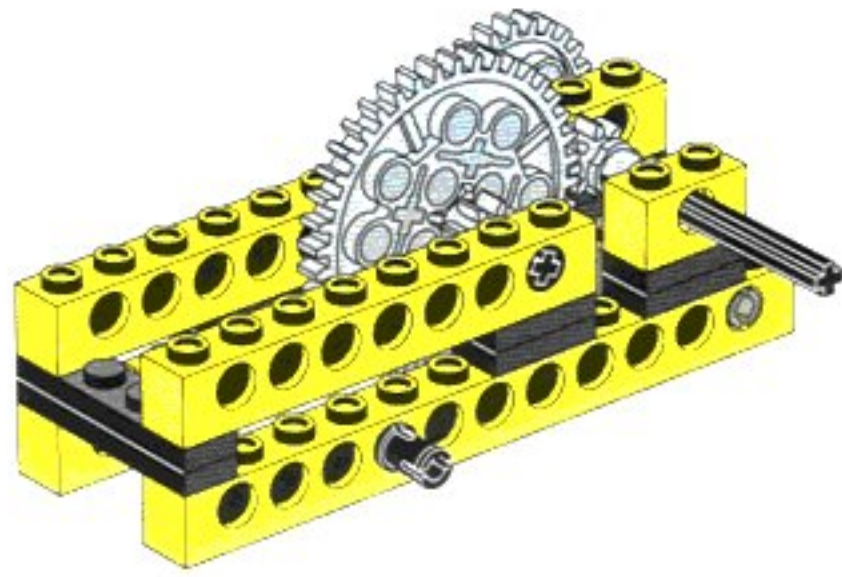
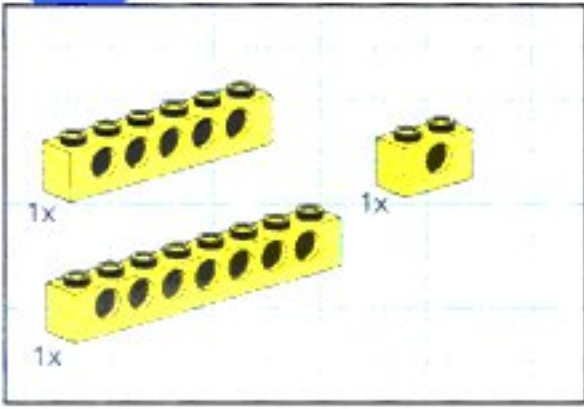
3



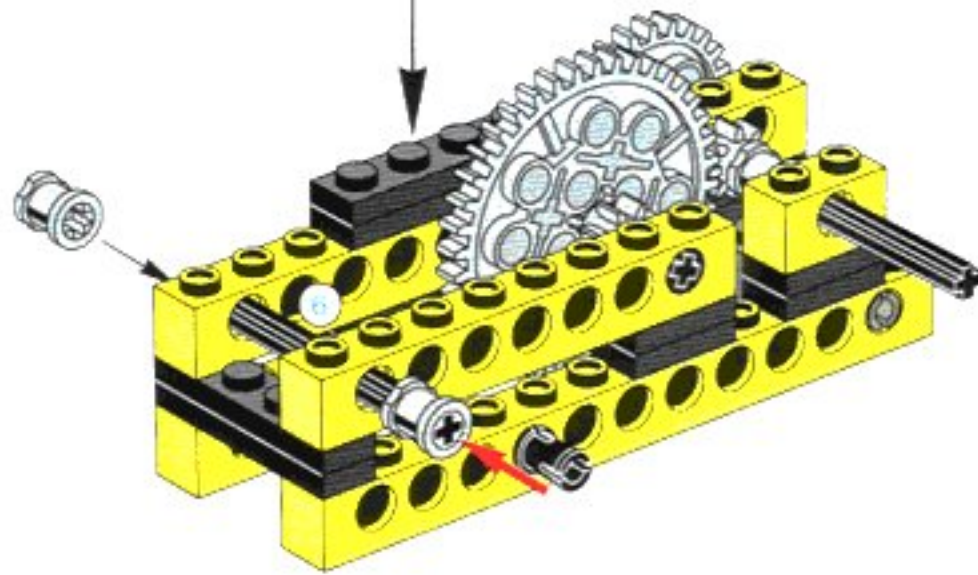
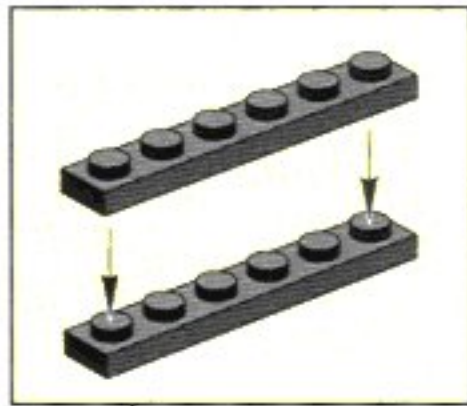
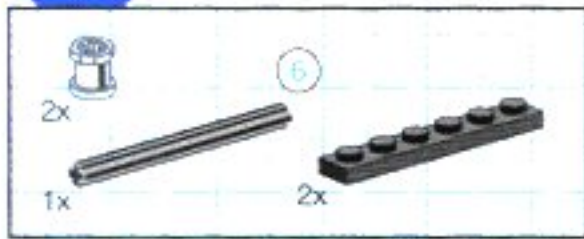
4



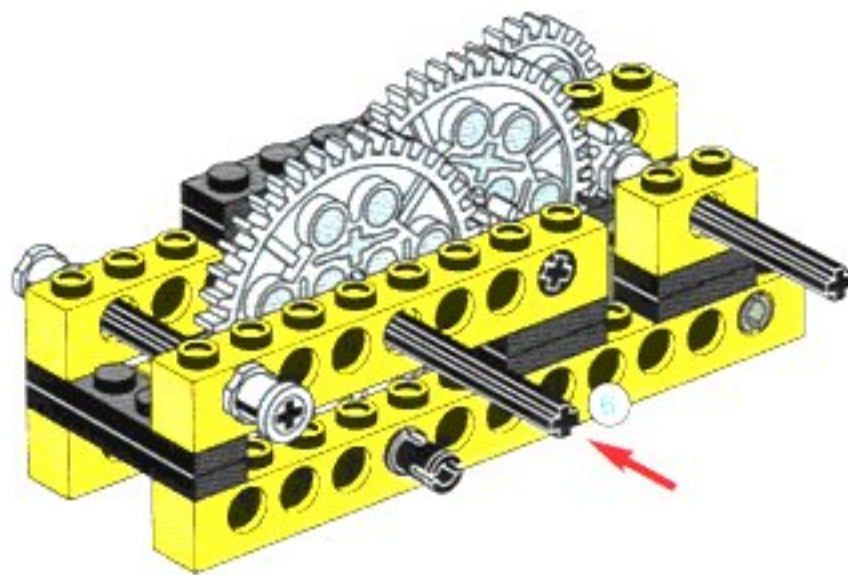
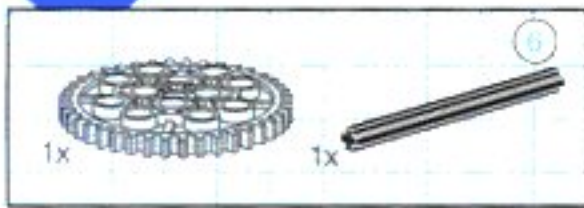
5



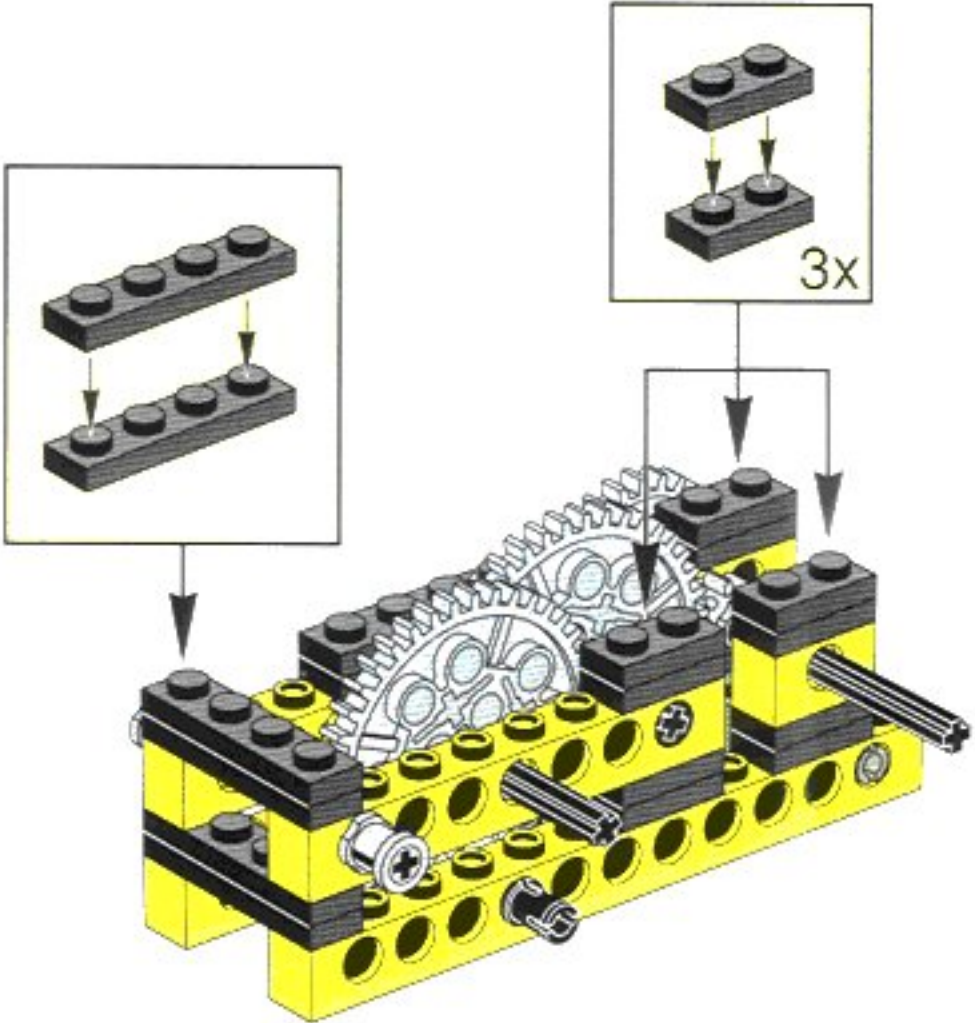
6



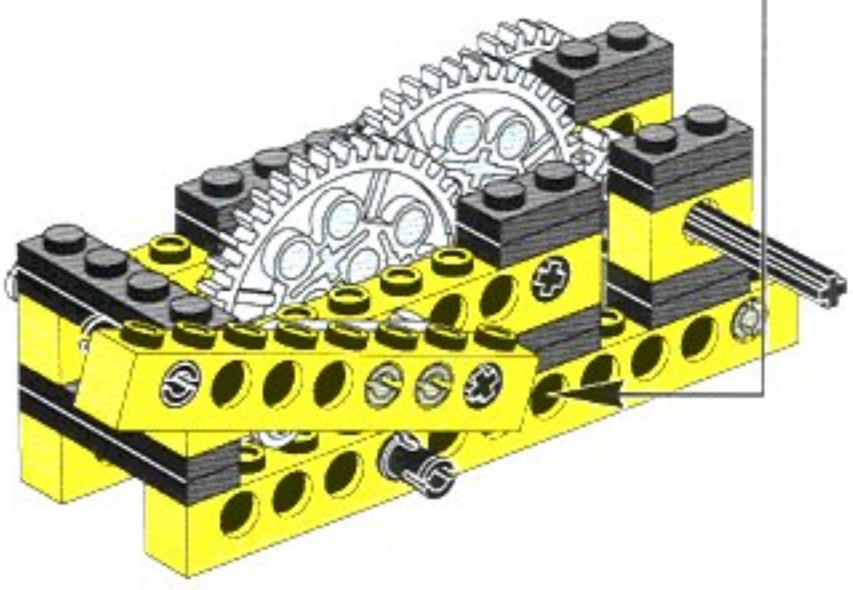
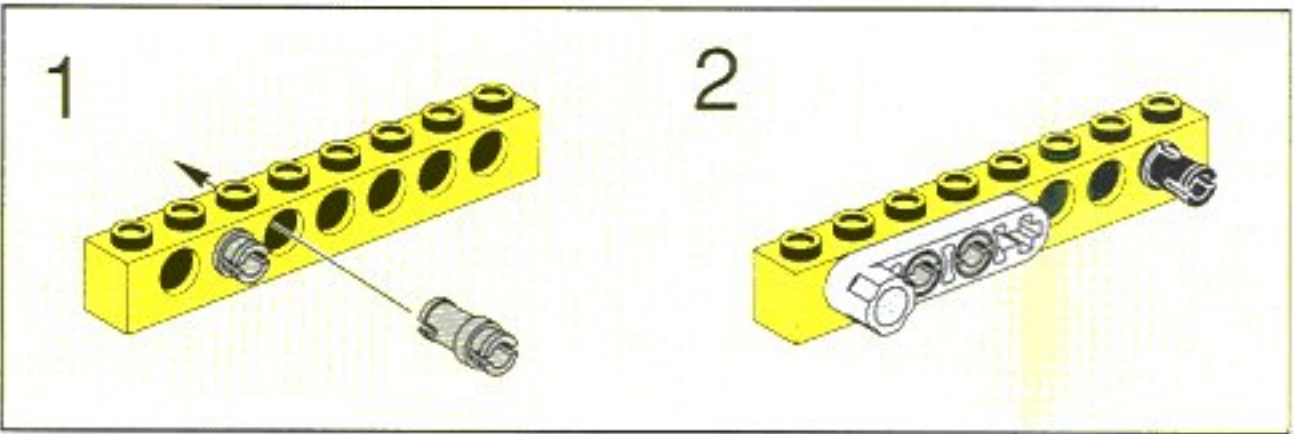
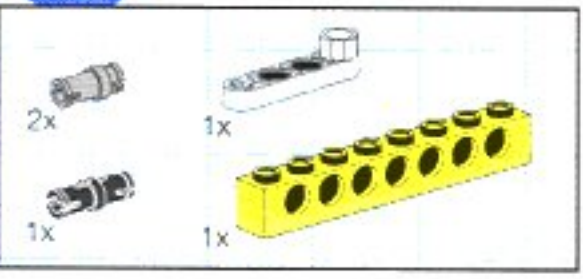
7



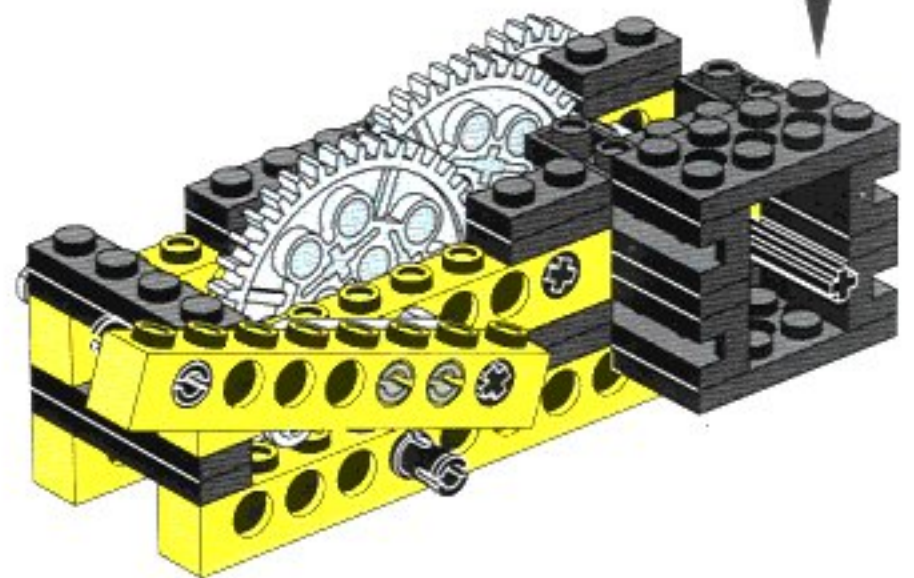
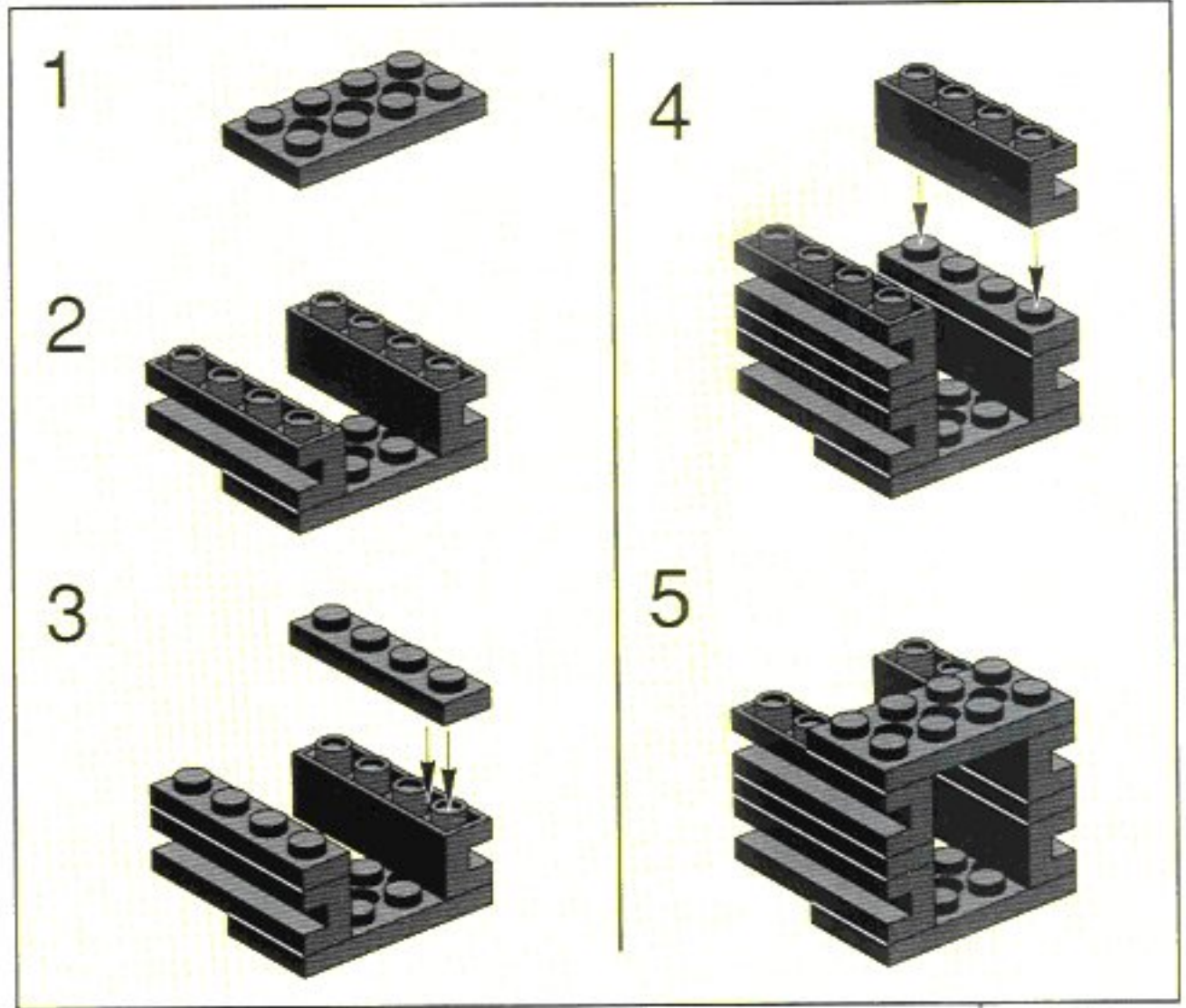
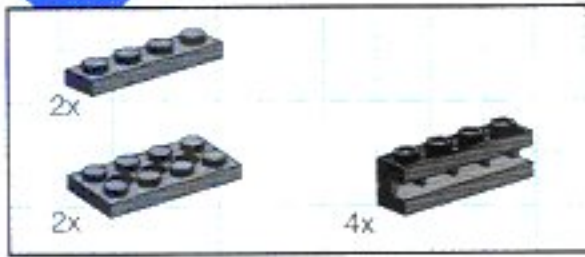
8

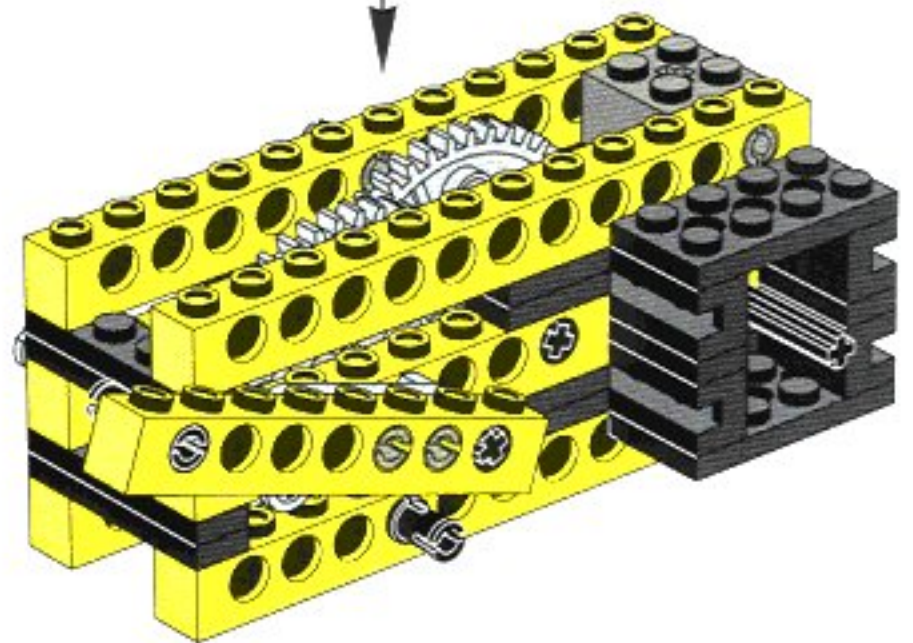
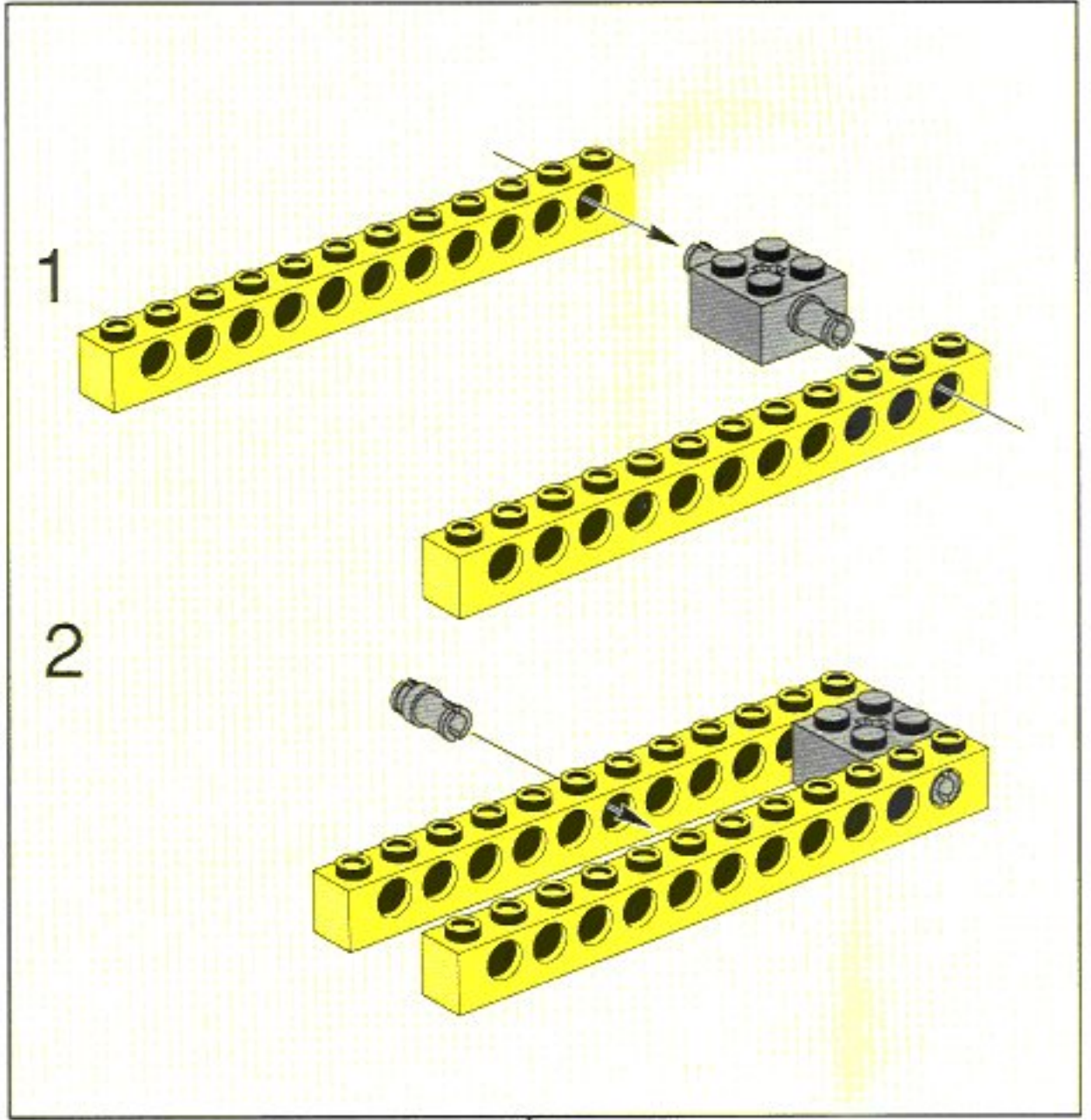
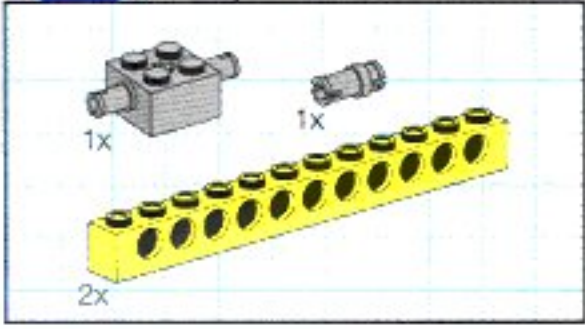


9

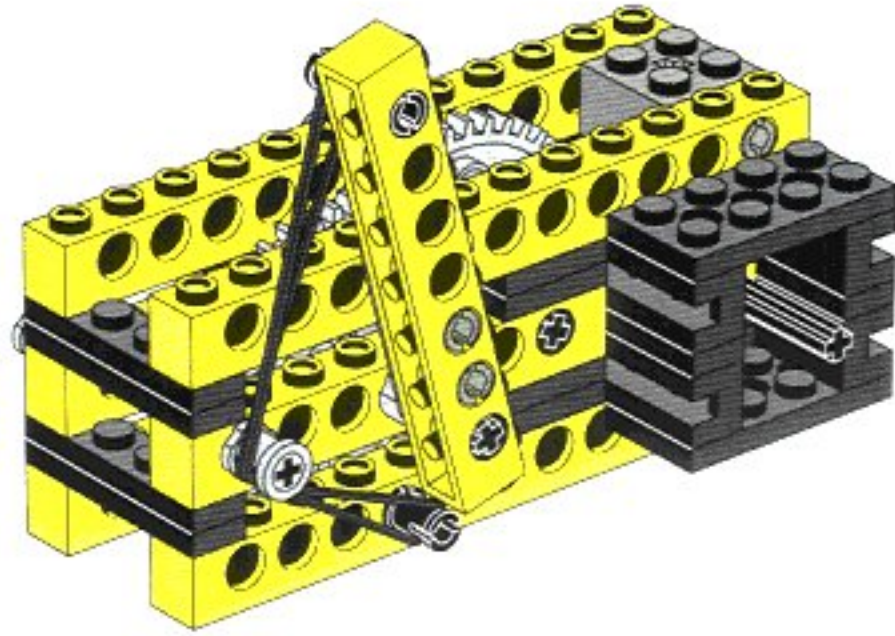
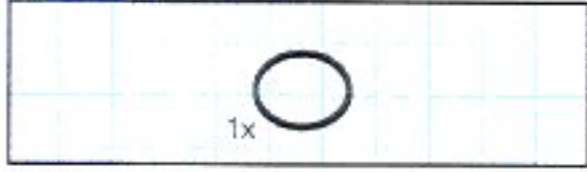


10

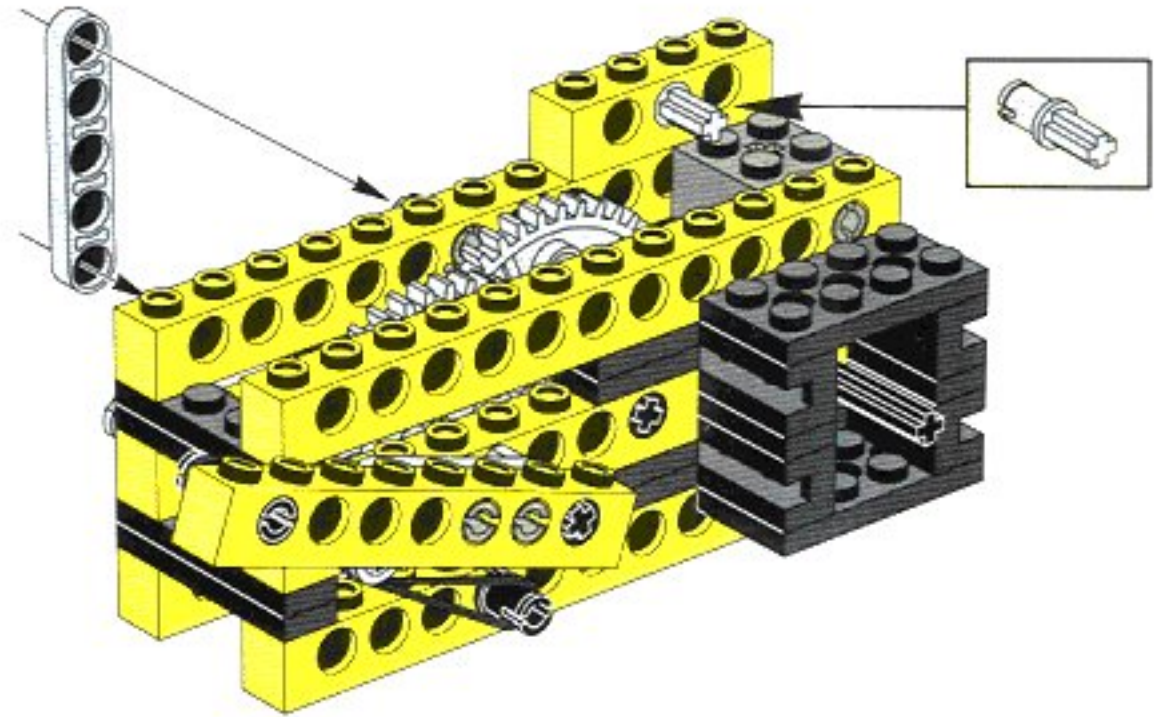
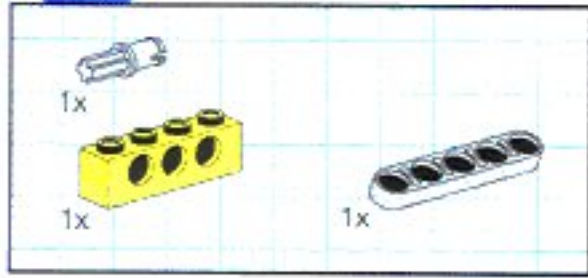




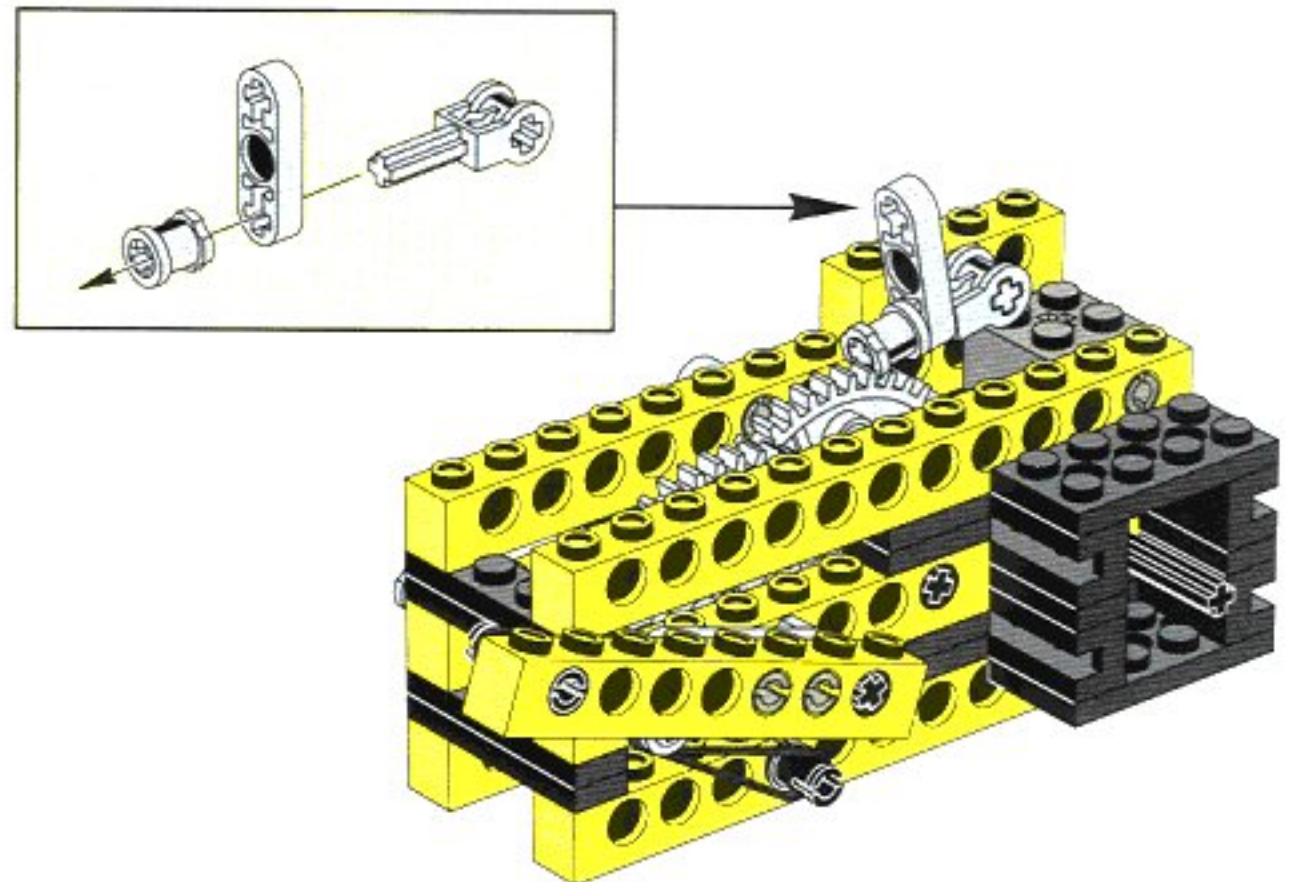
12



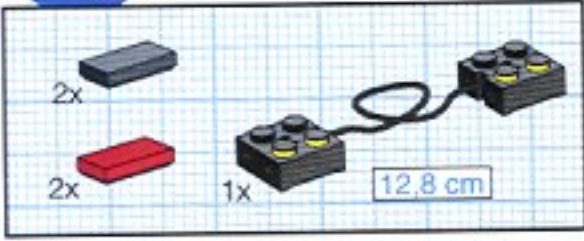
13



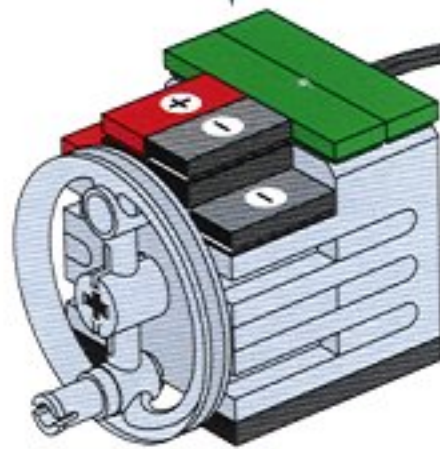
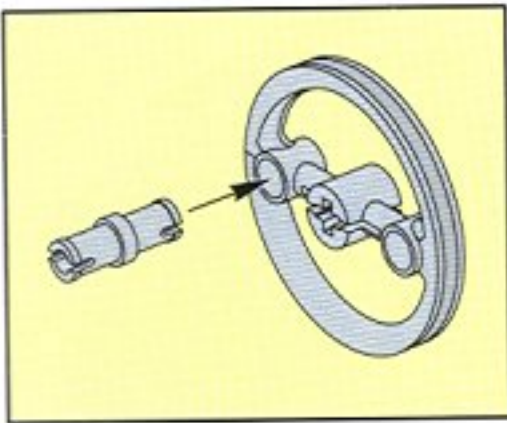
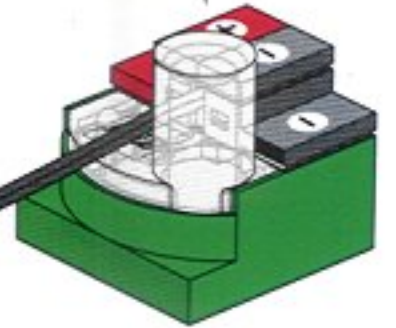
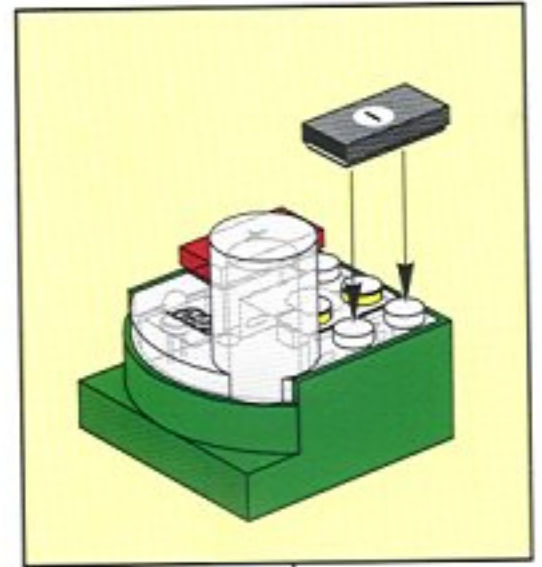
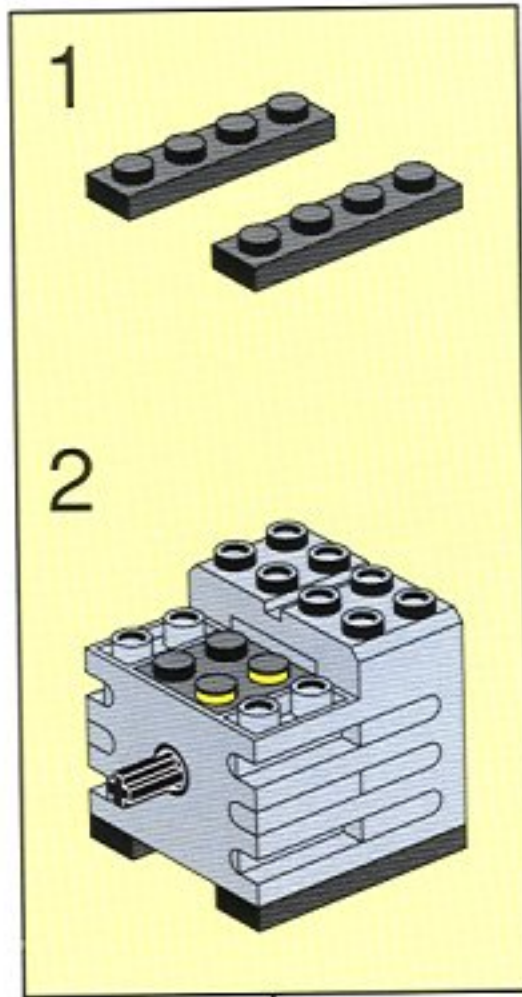
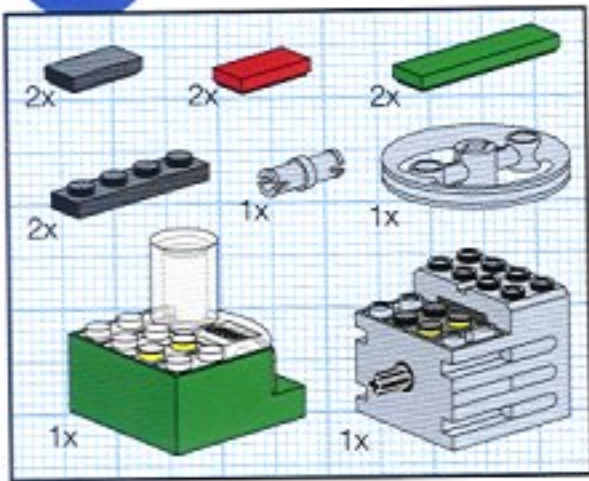
14



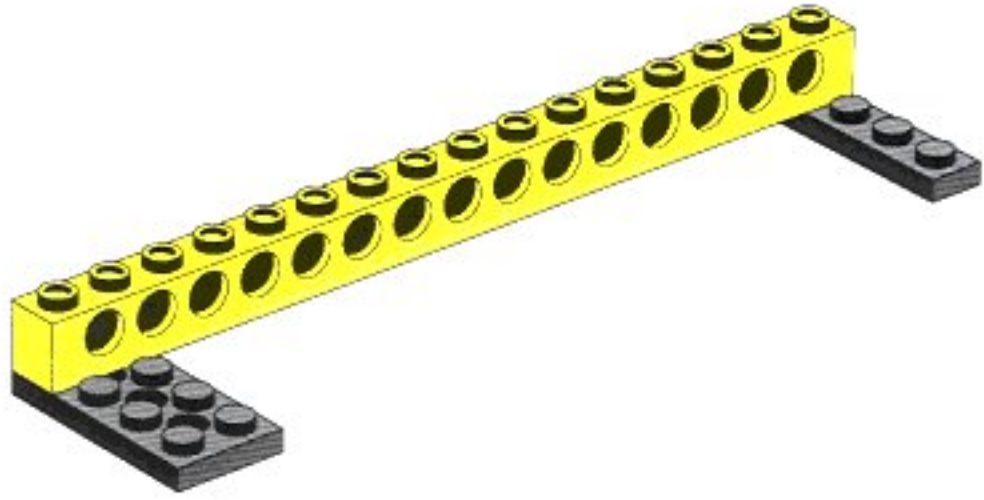
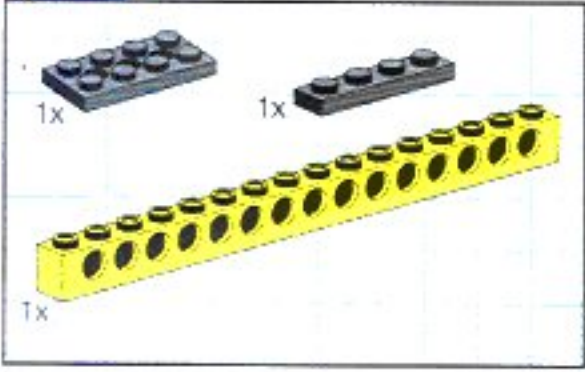
1



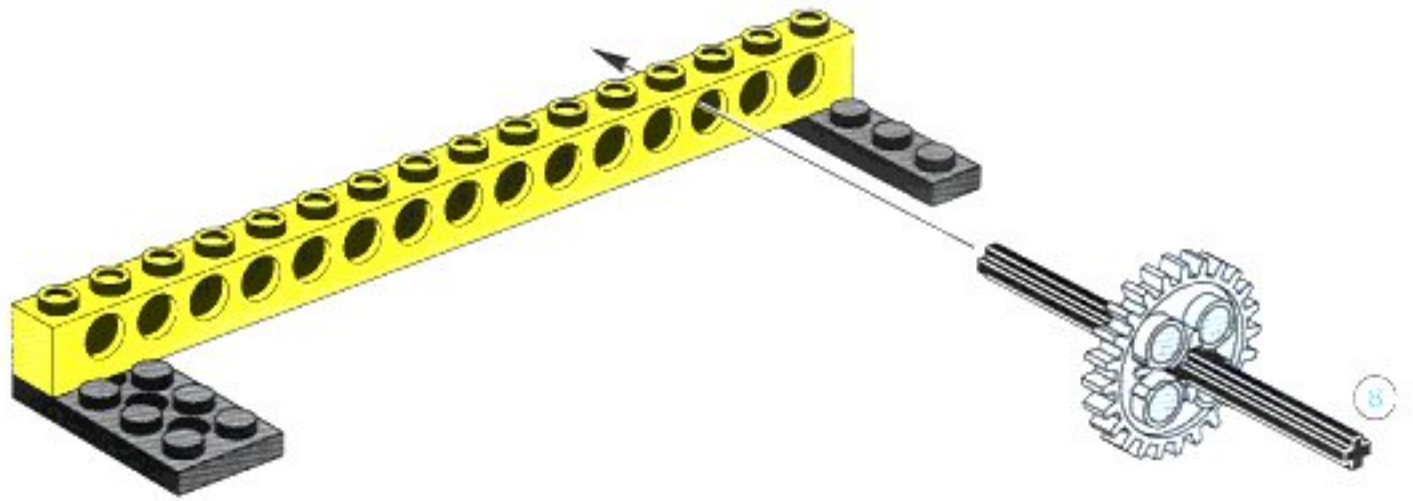
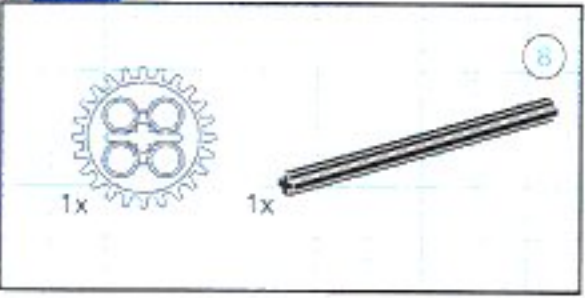
2



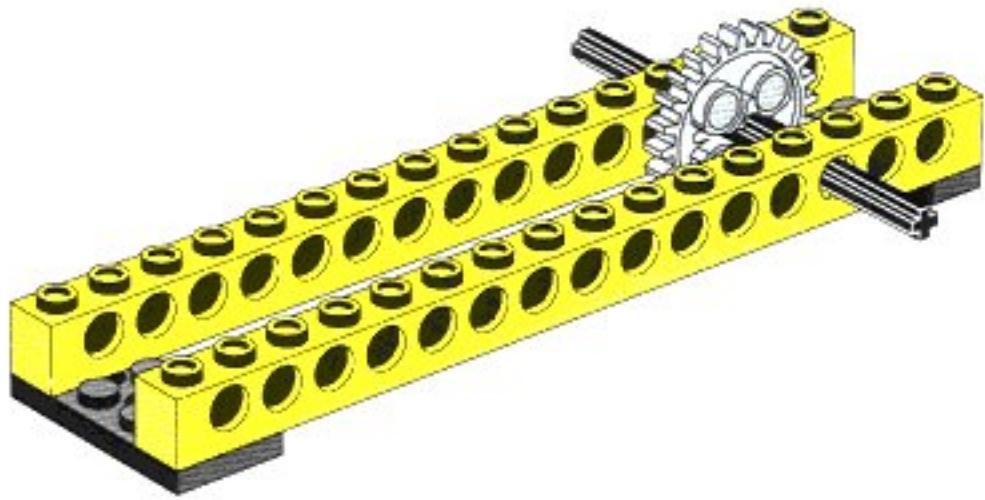
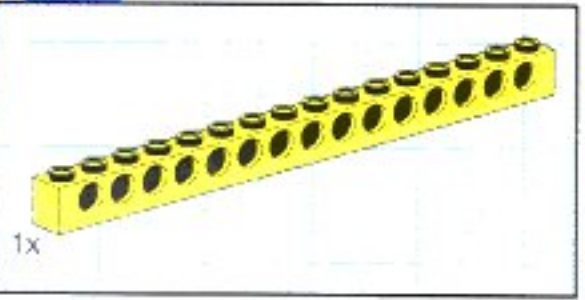
1



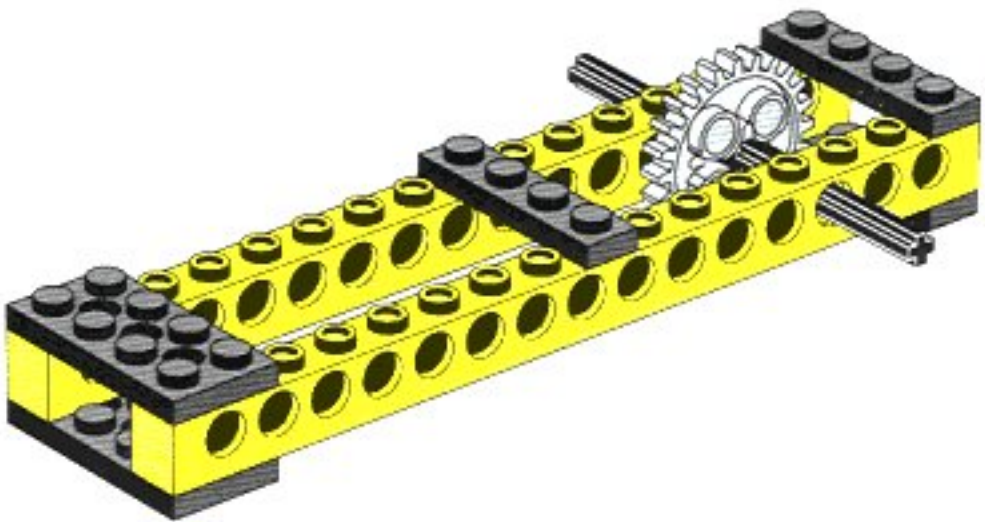
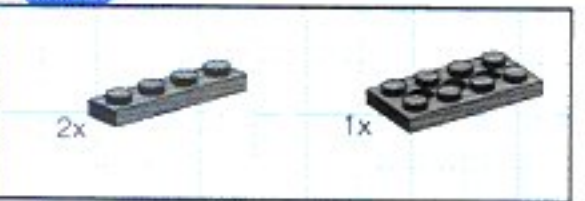
2



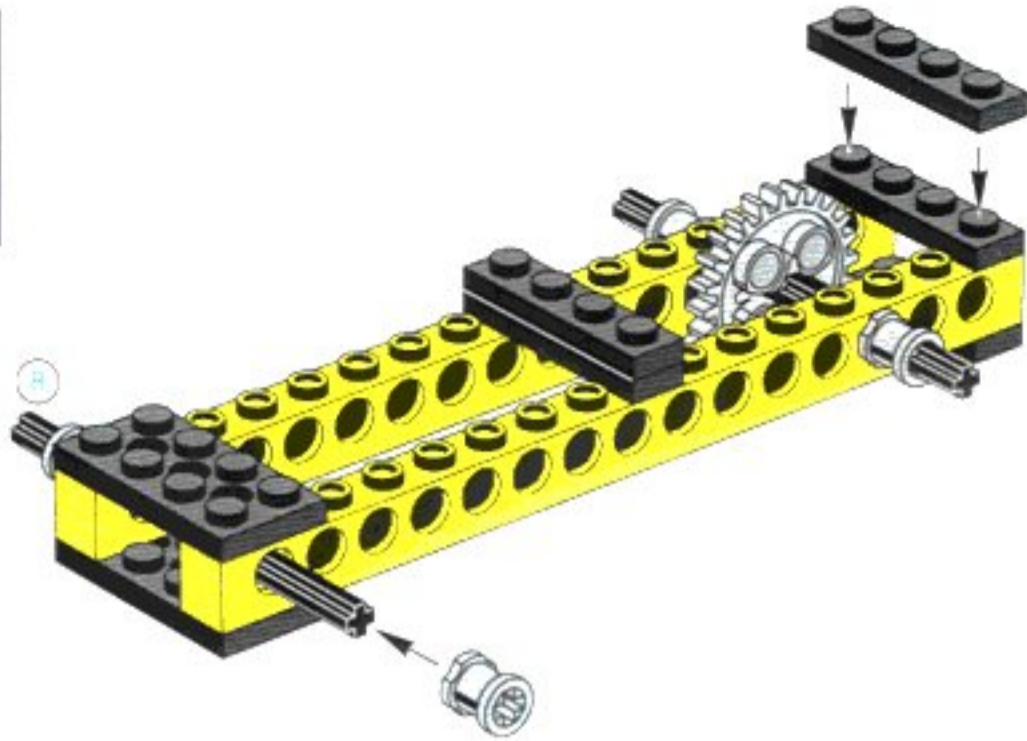
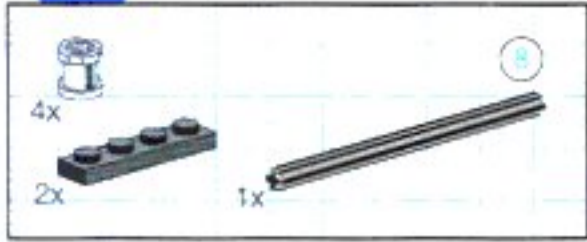
3



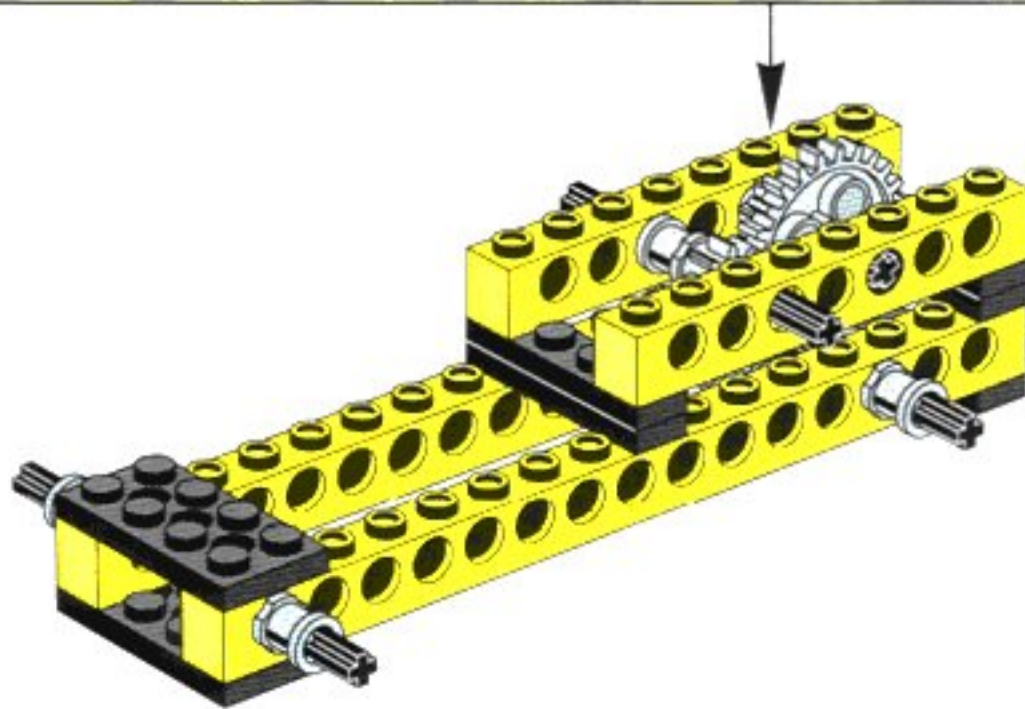
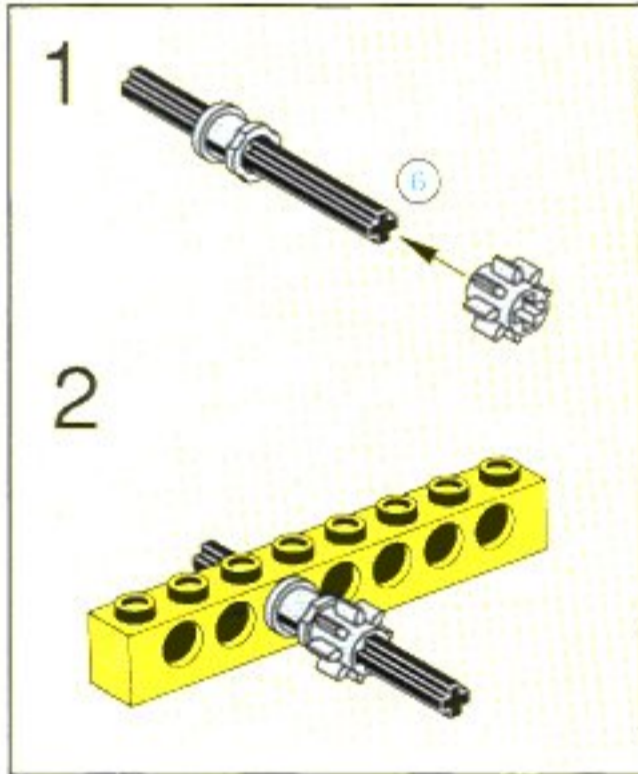
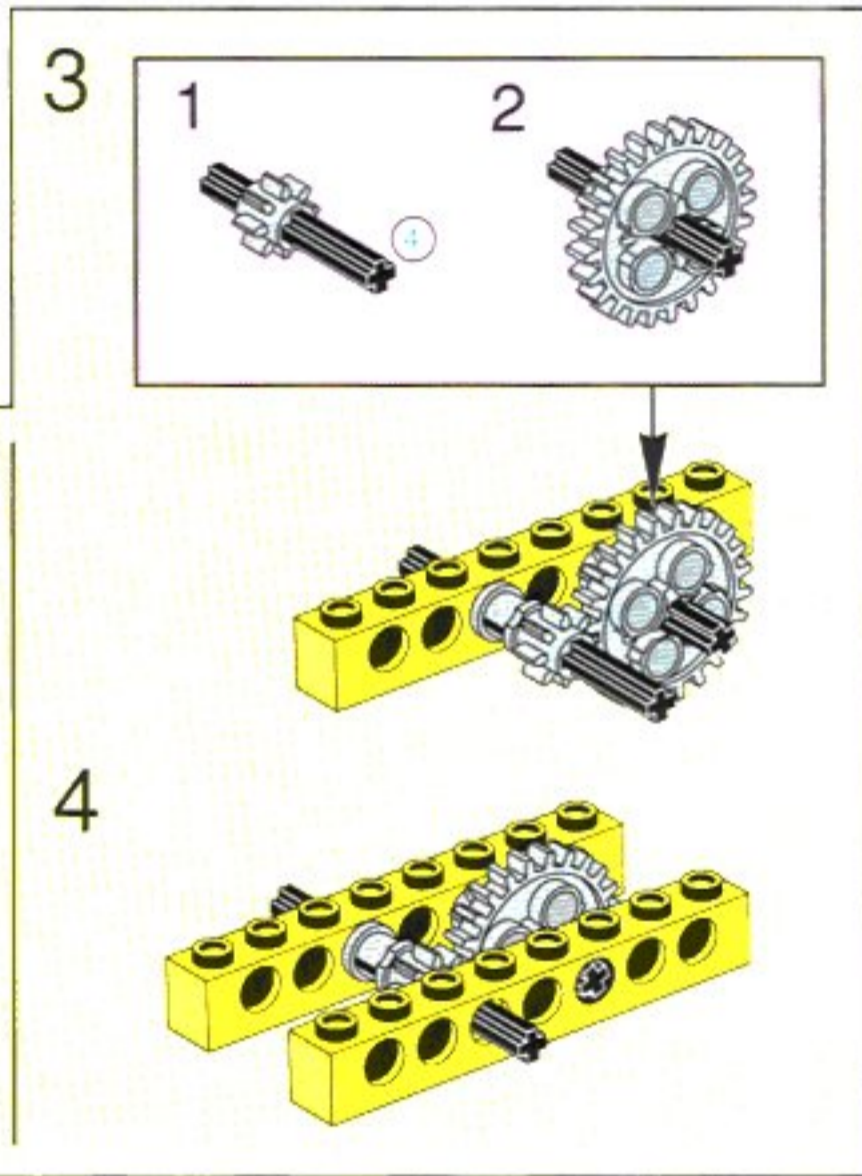
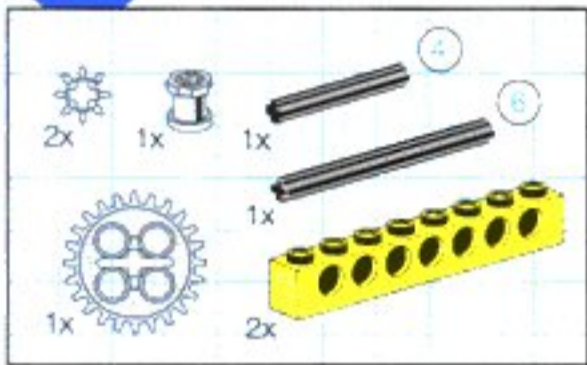
4



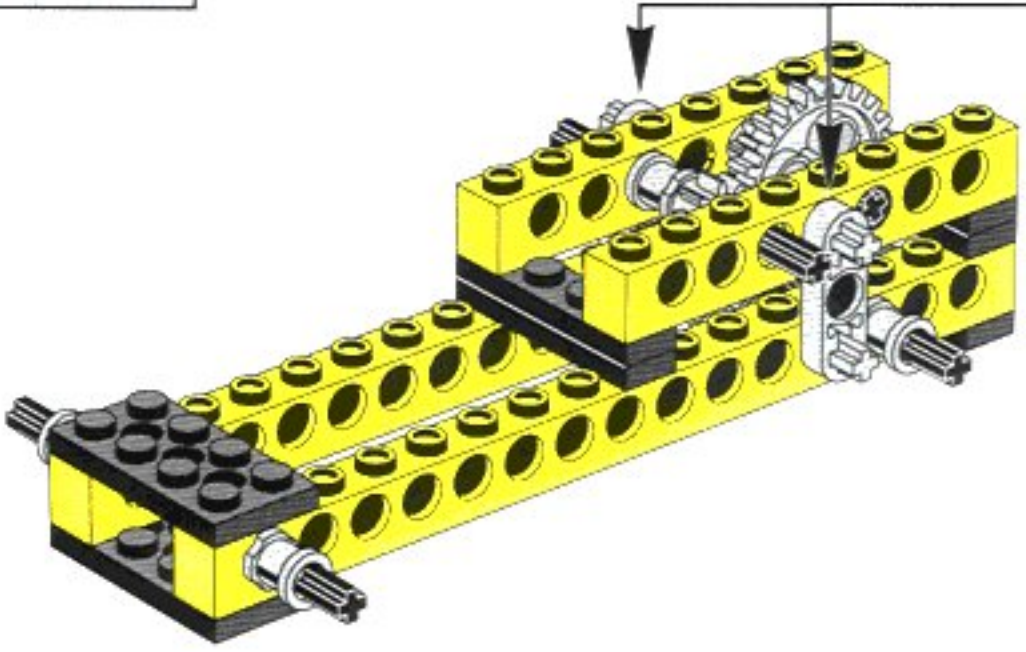
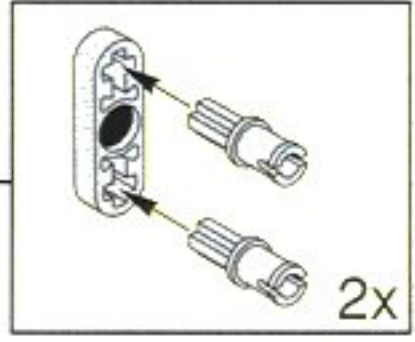
5



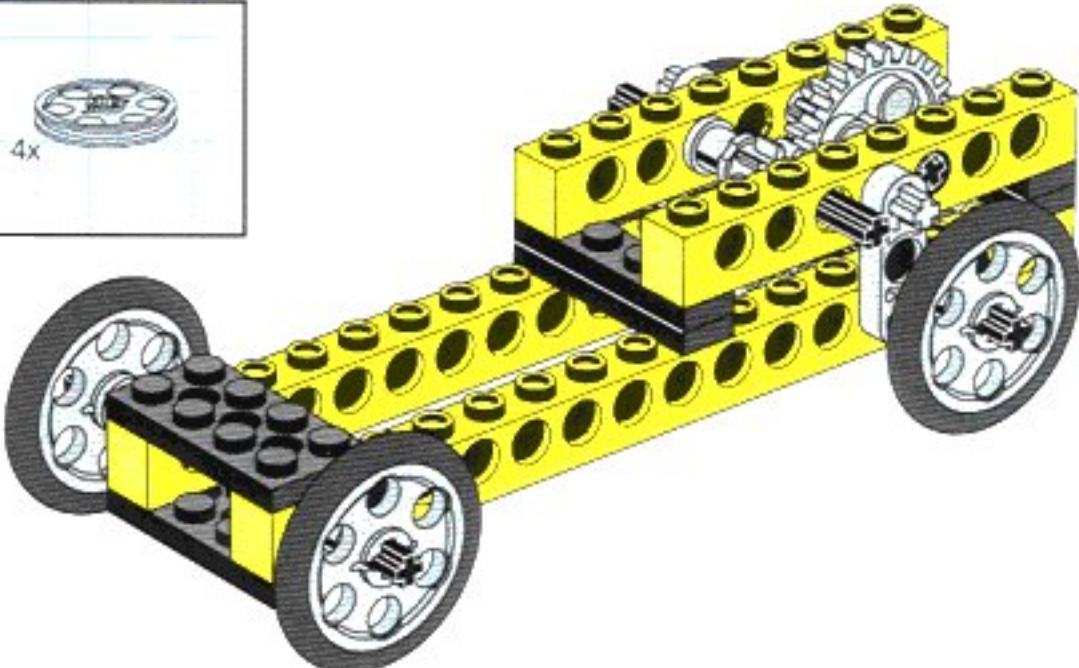
6



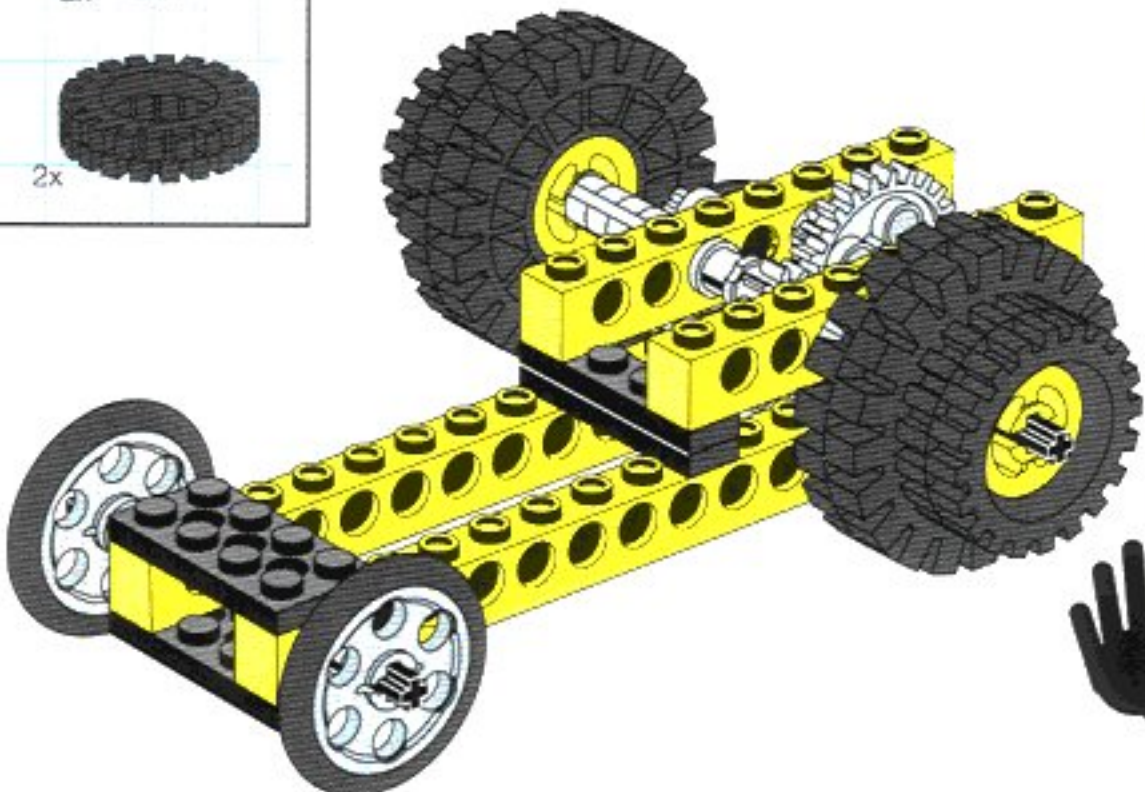
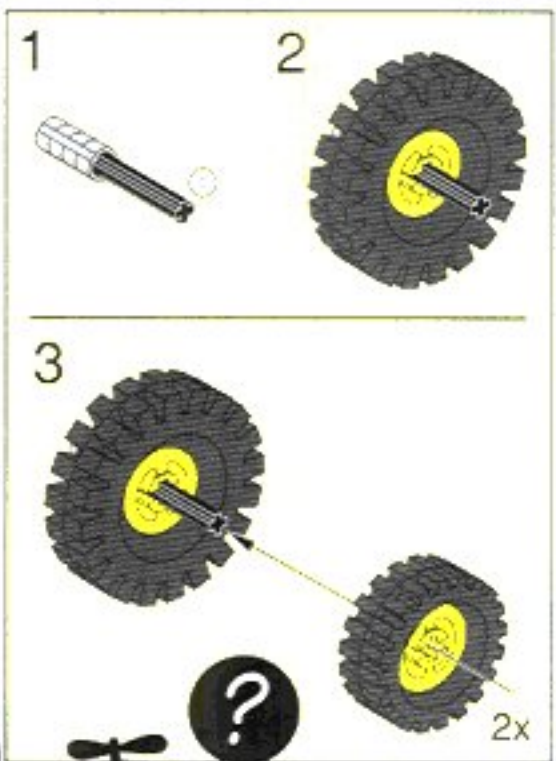
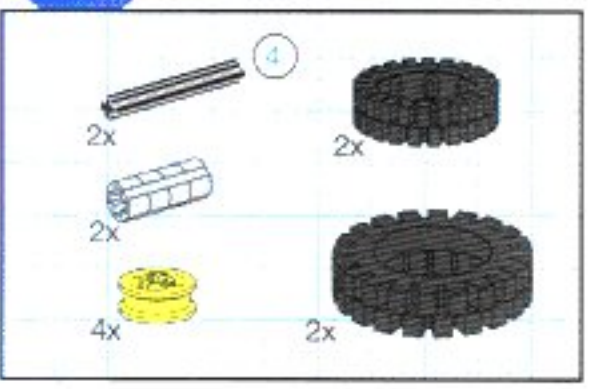
7



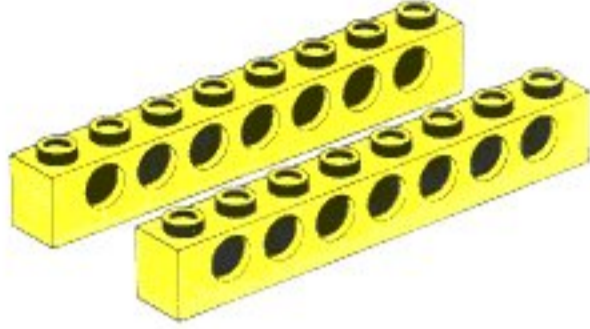
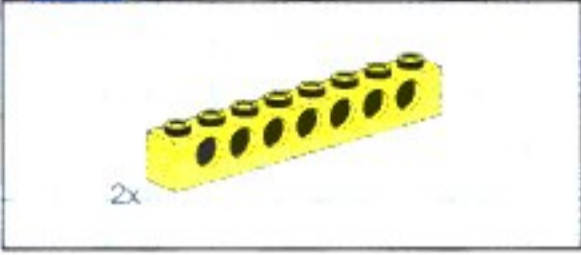
8



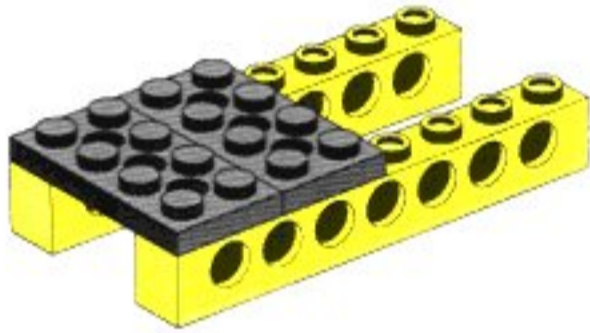
9



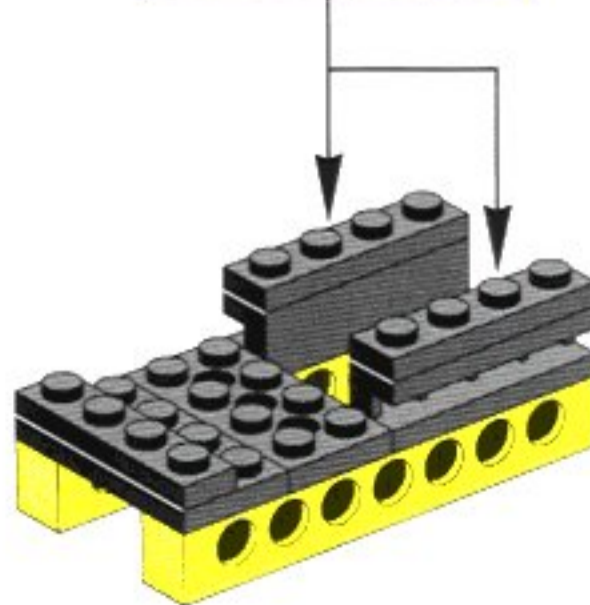
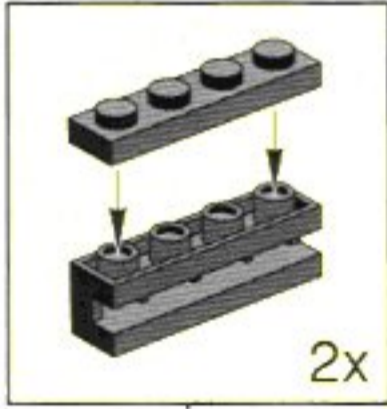
1



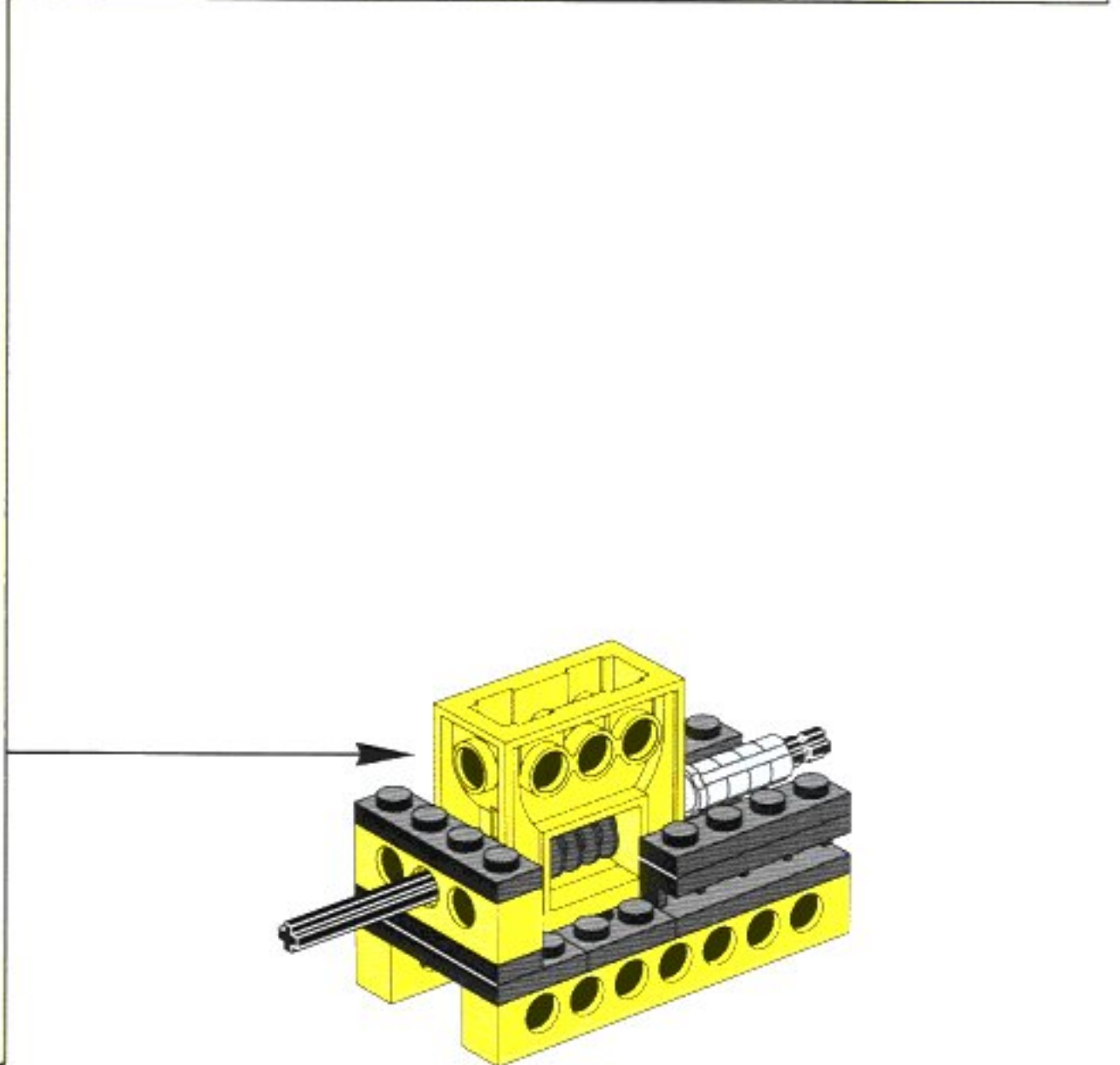
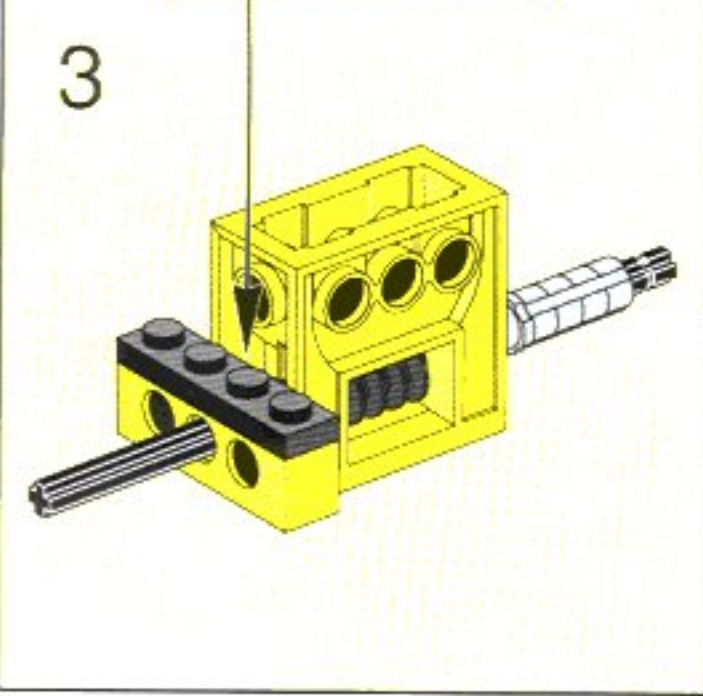
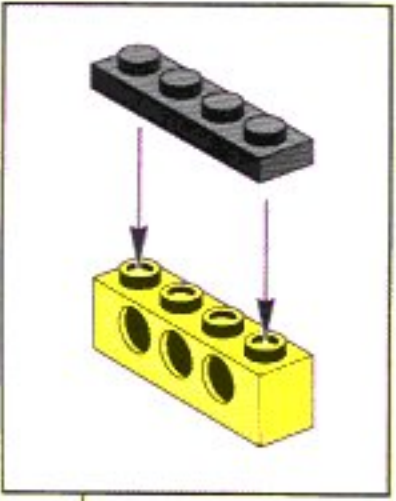
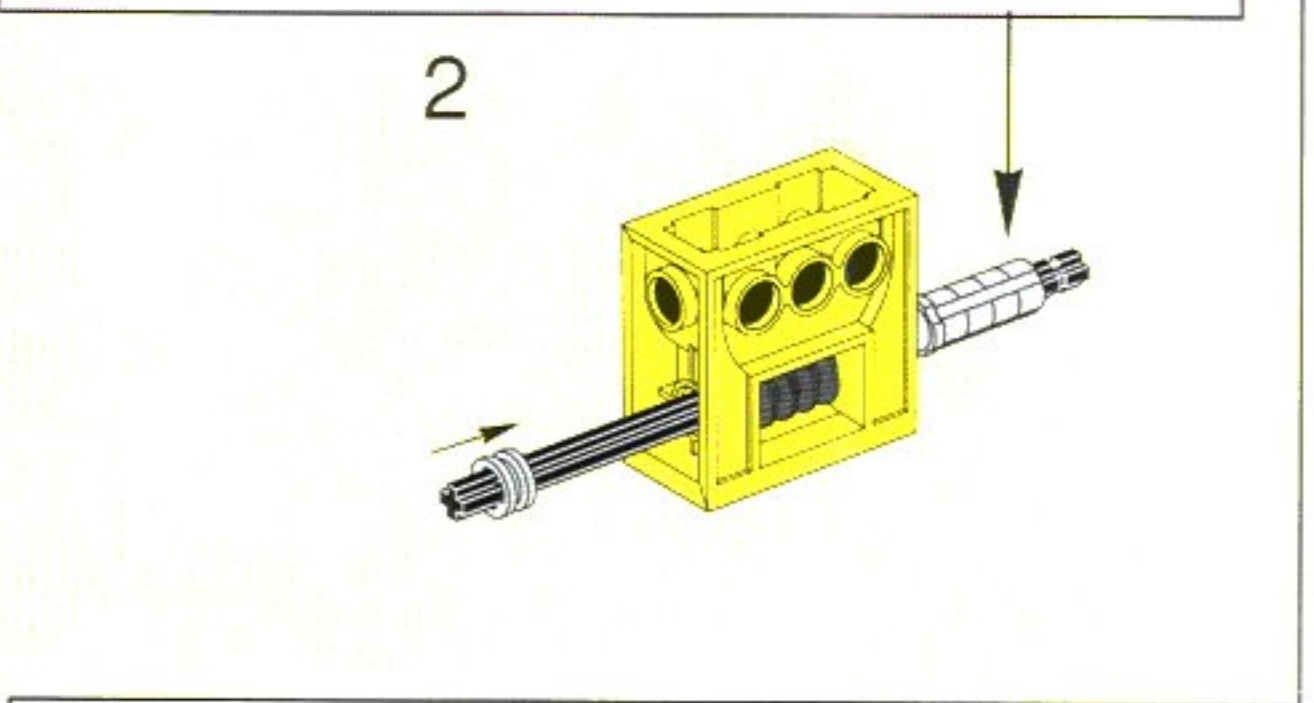
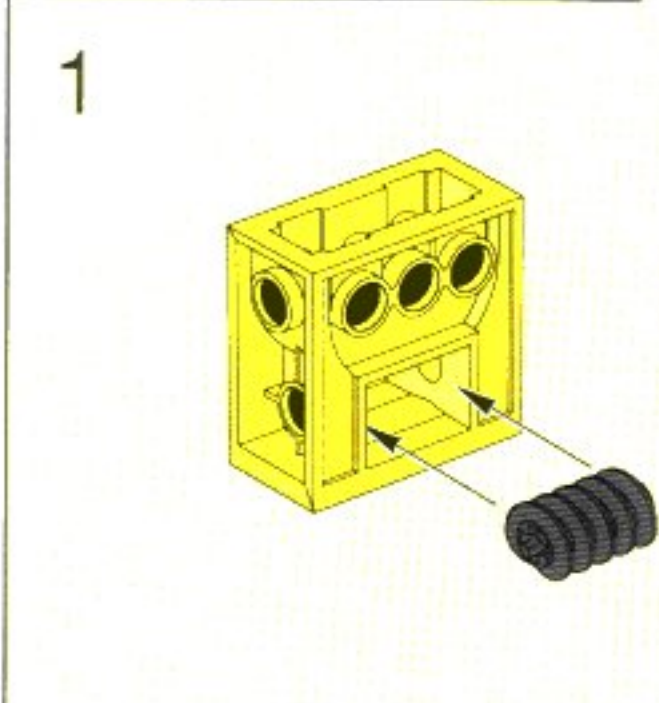
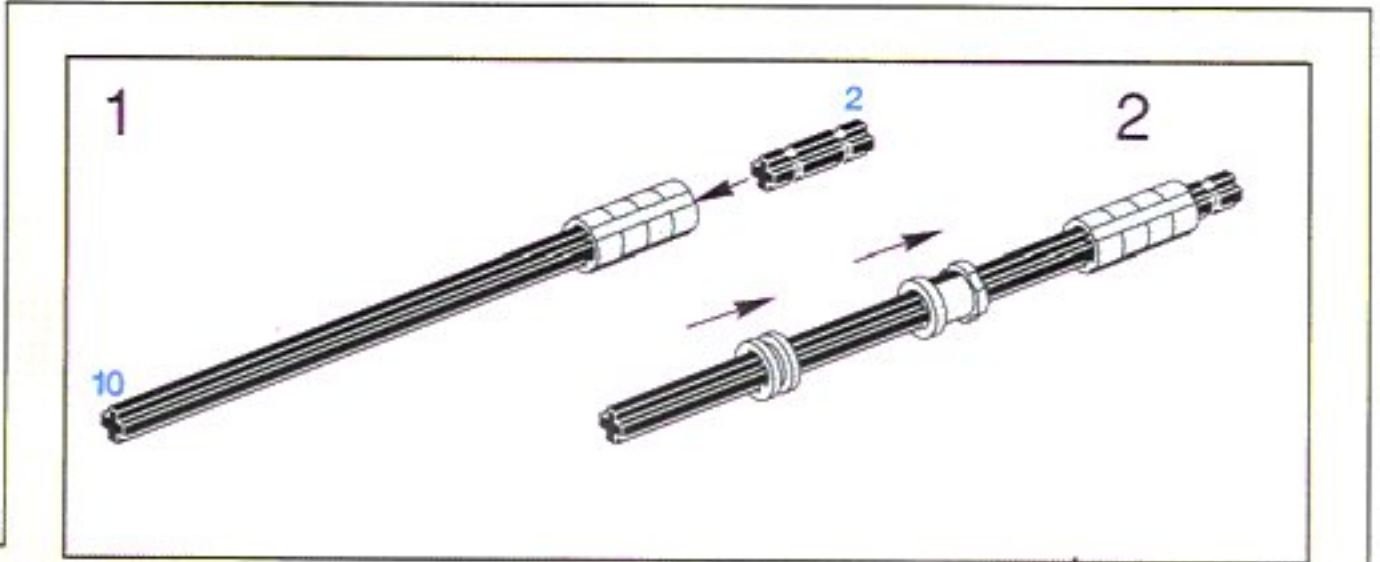
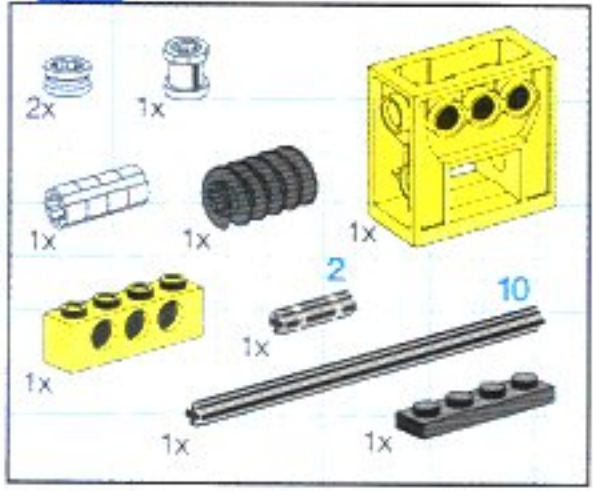
2



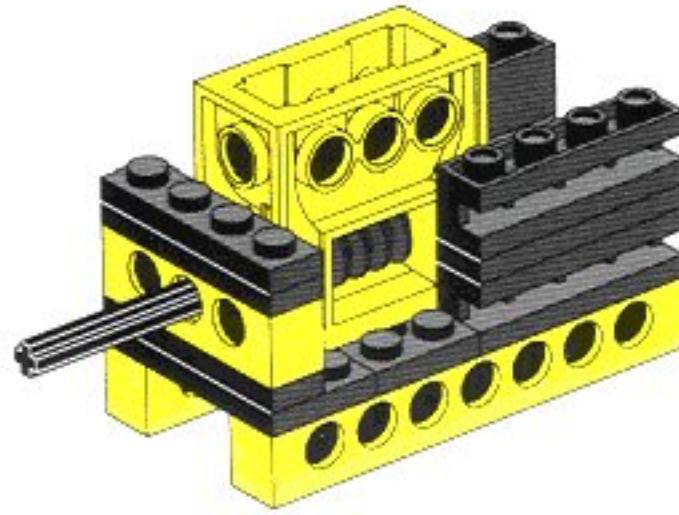
3



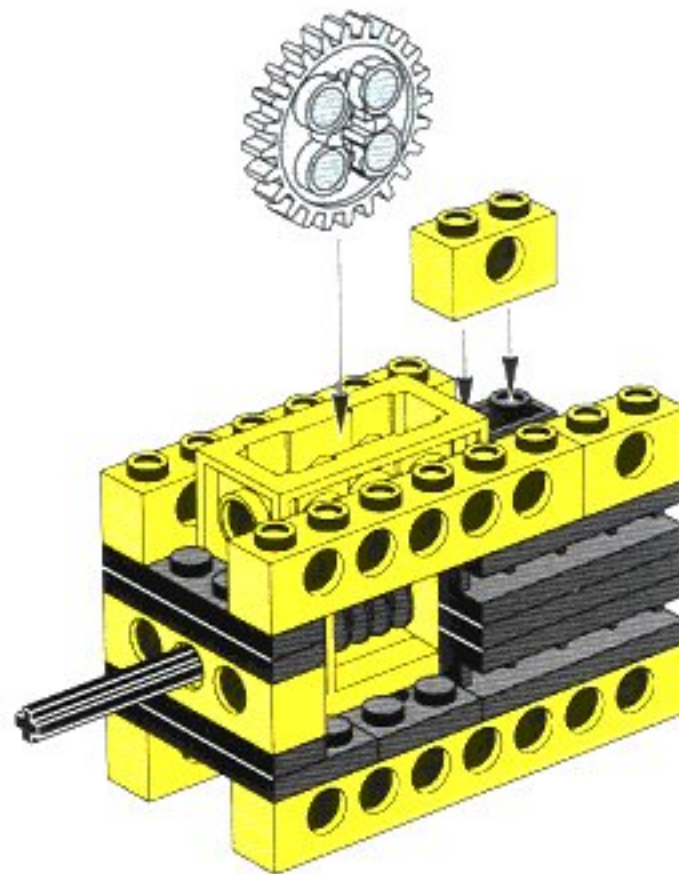
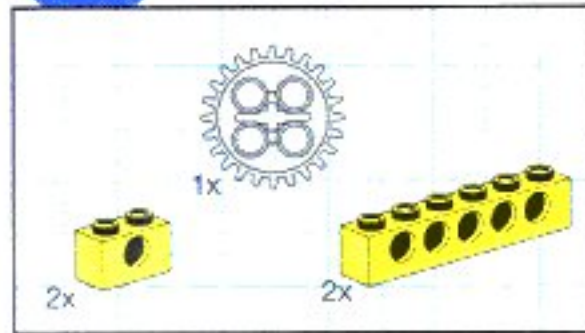
4



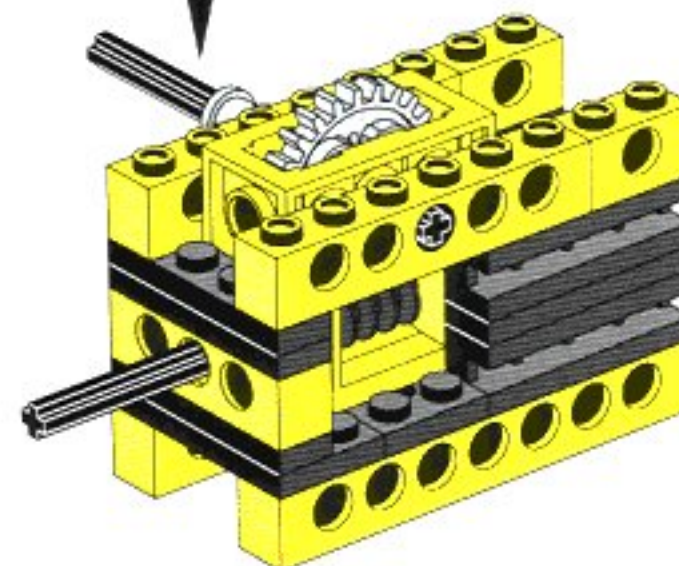
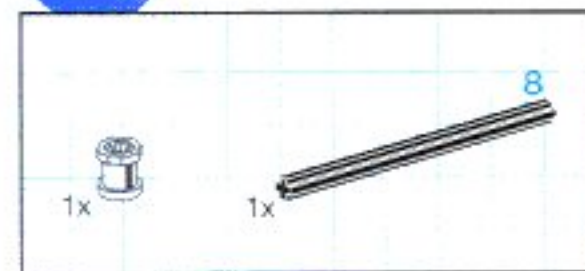
5



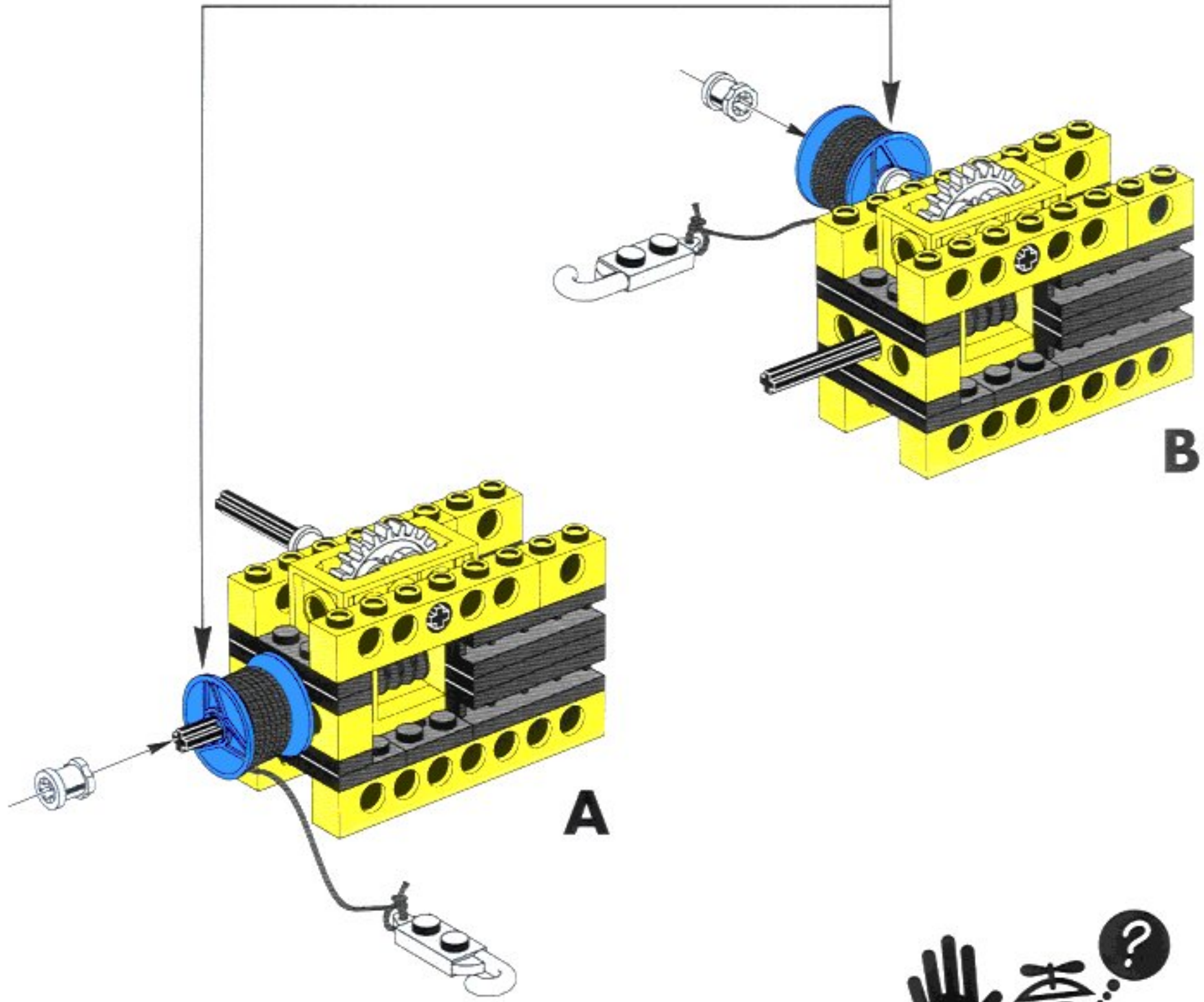
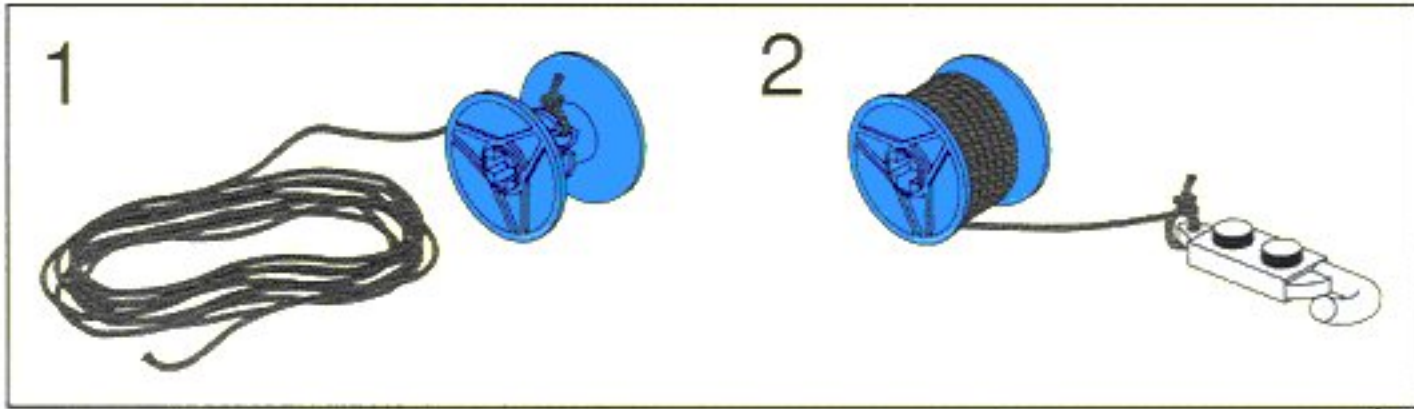
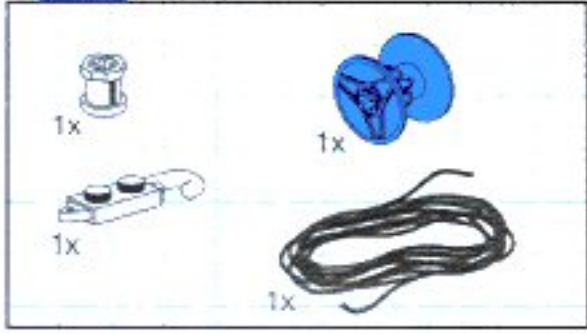
6

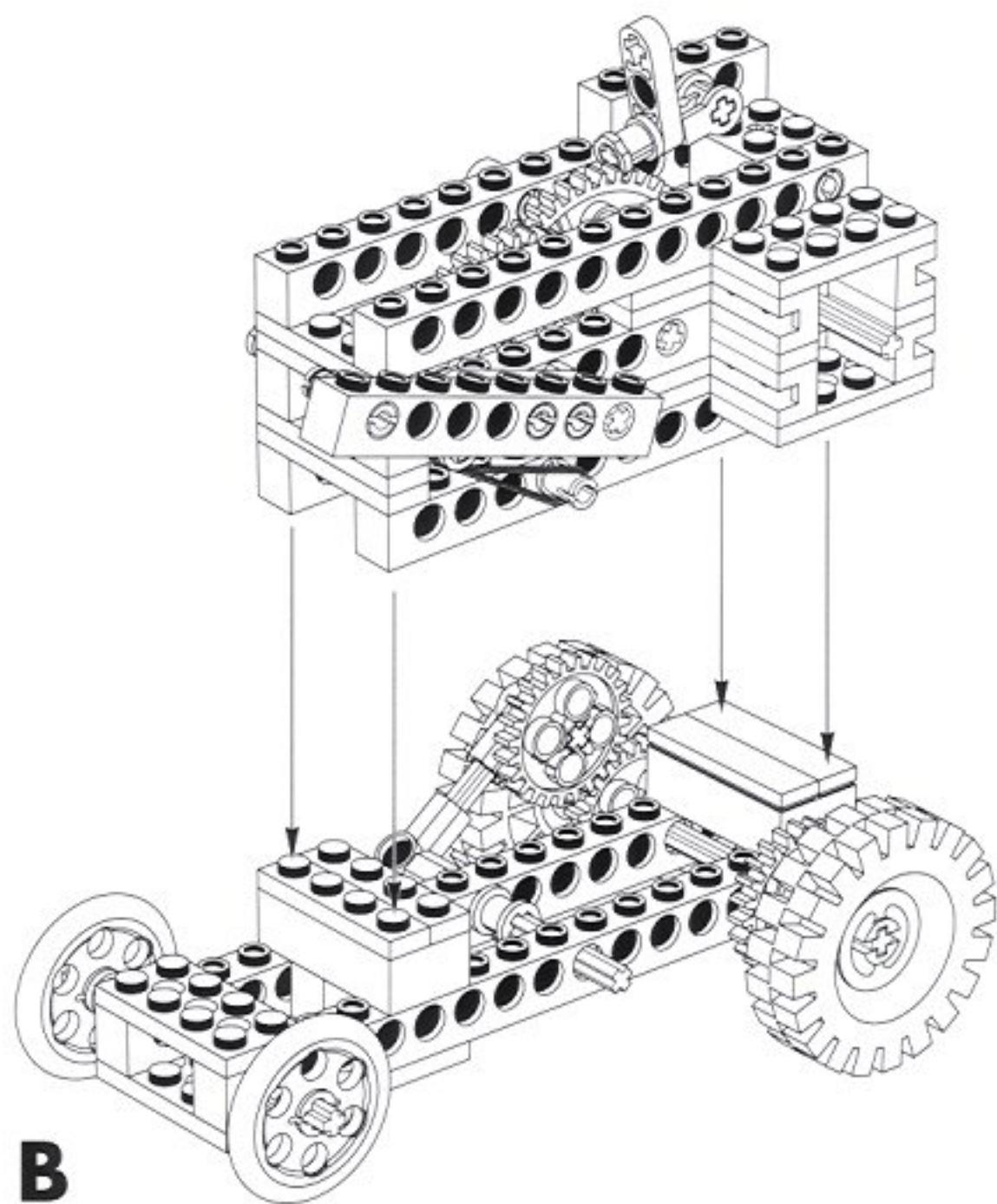
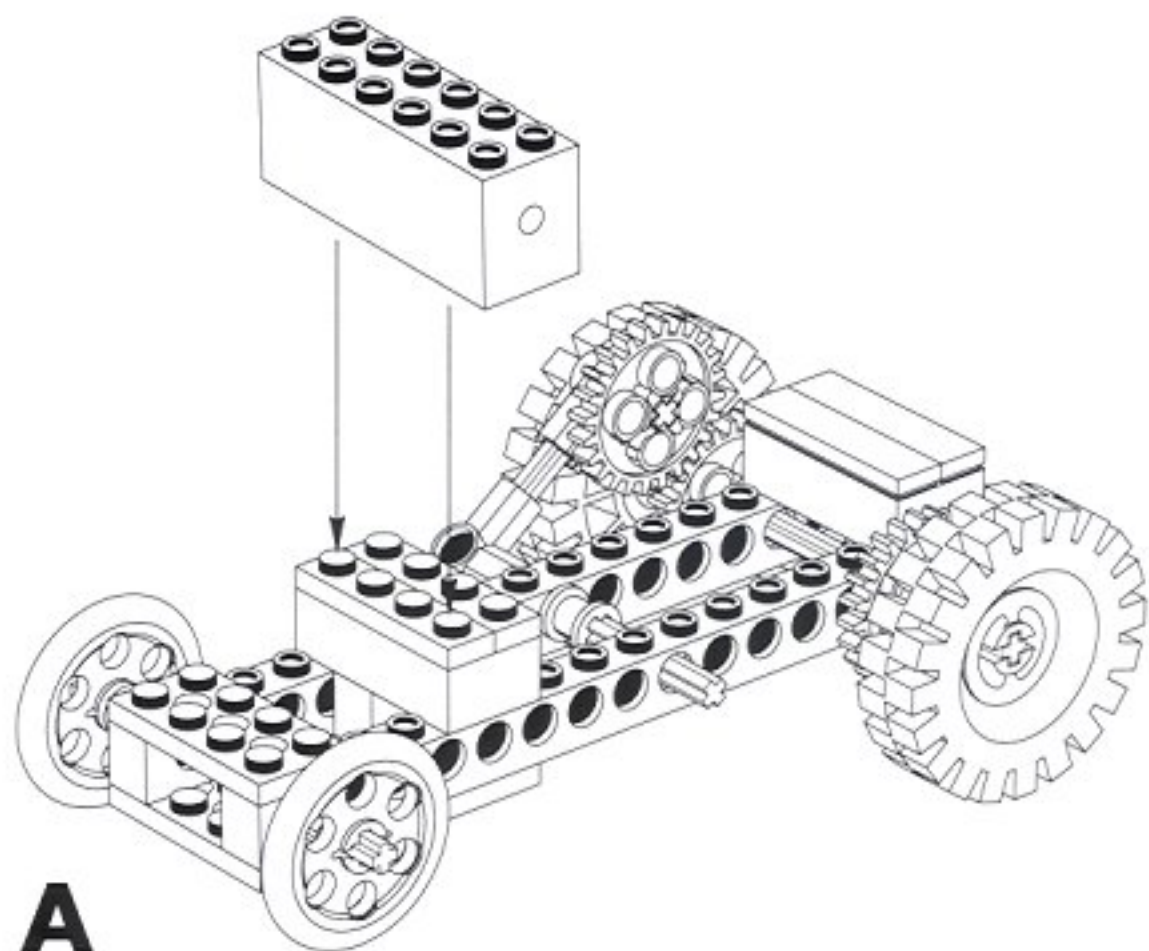


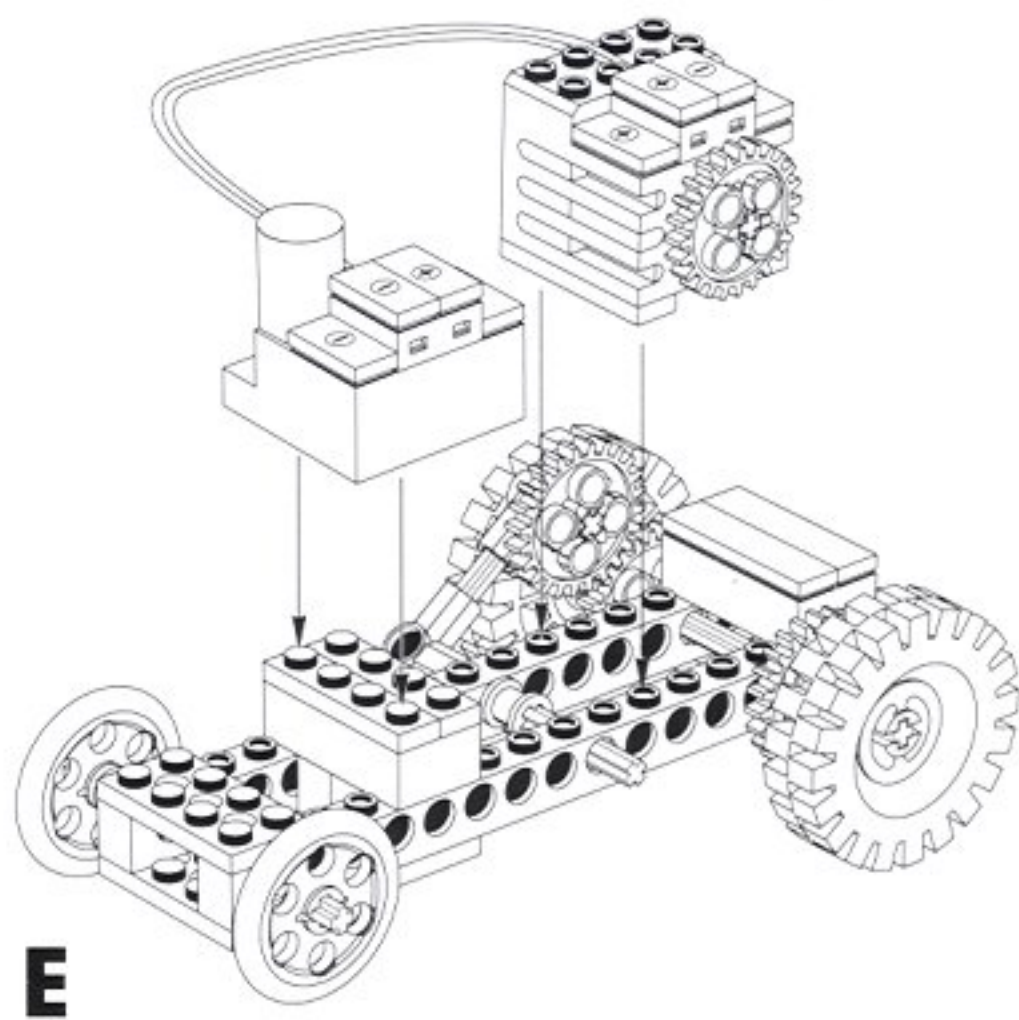
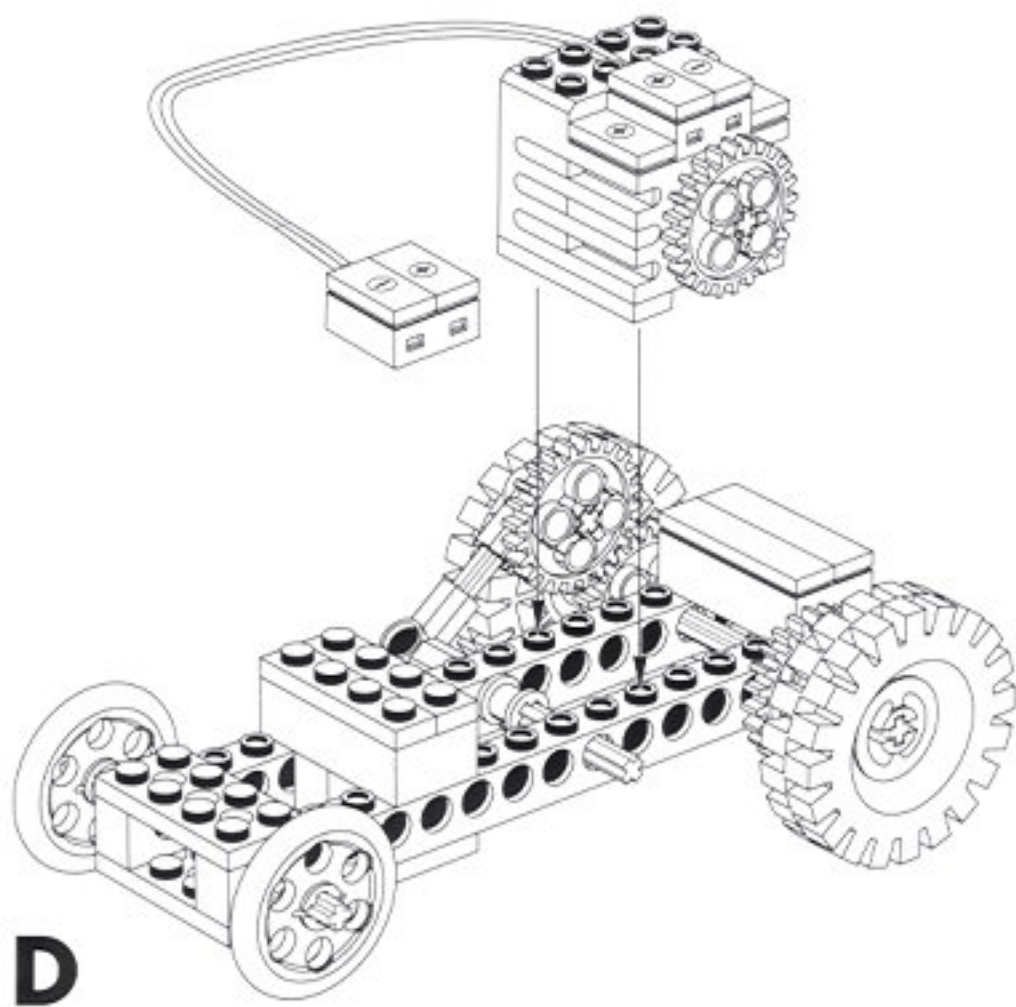
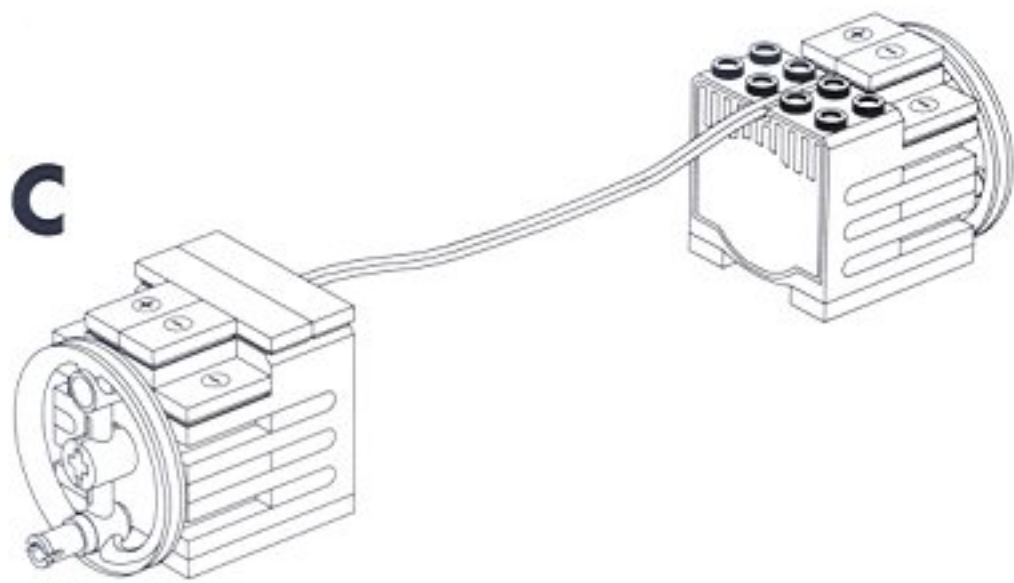
7

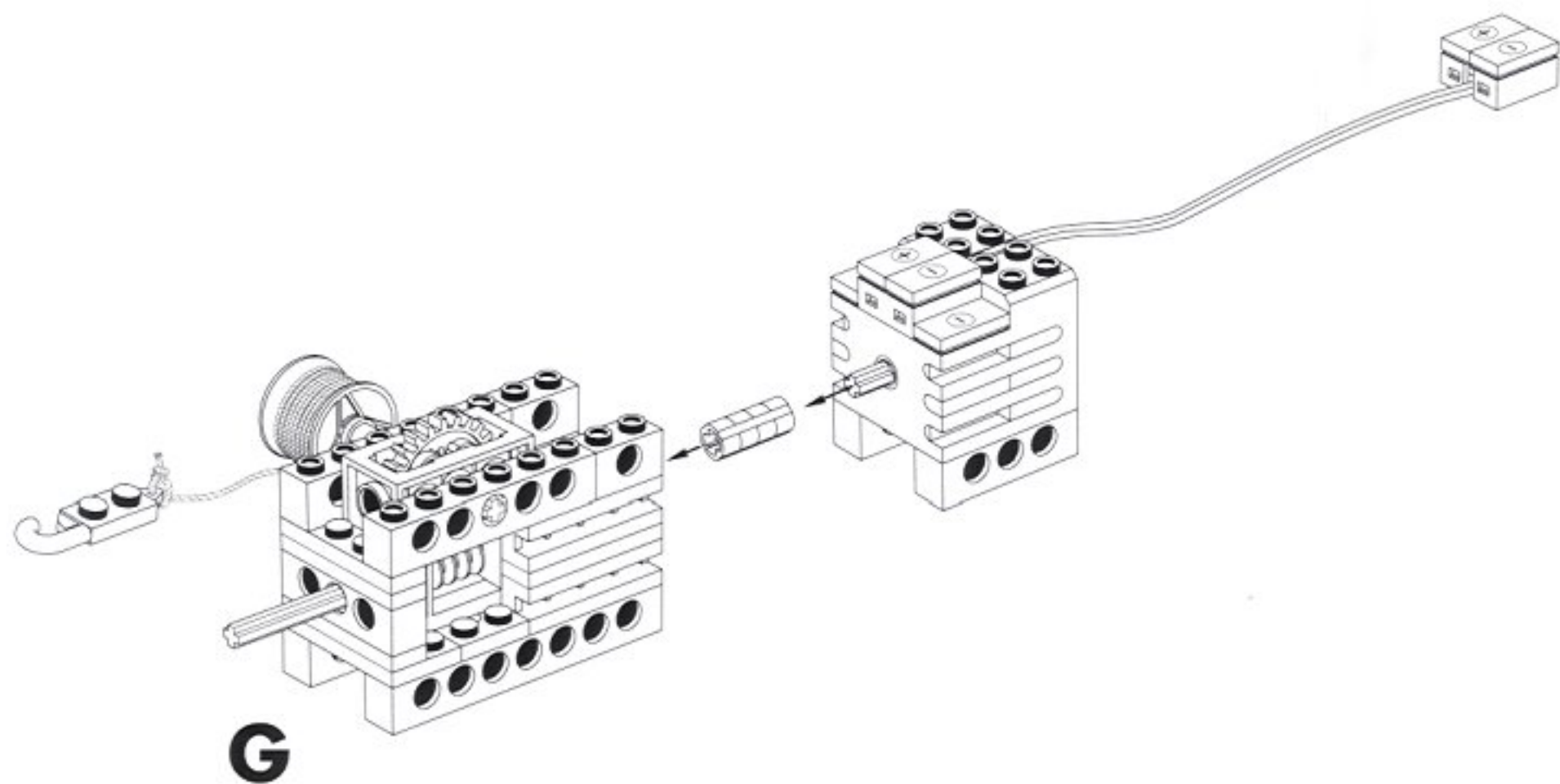
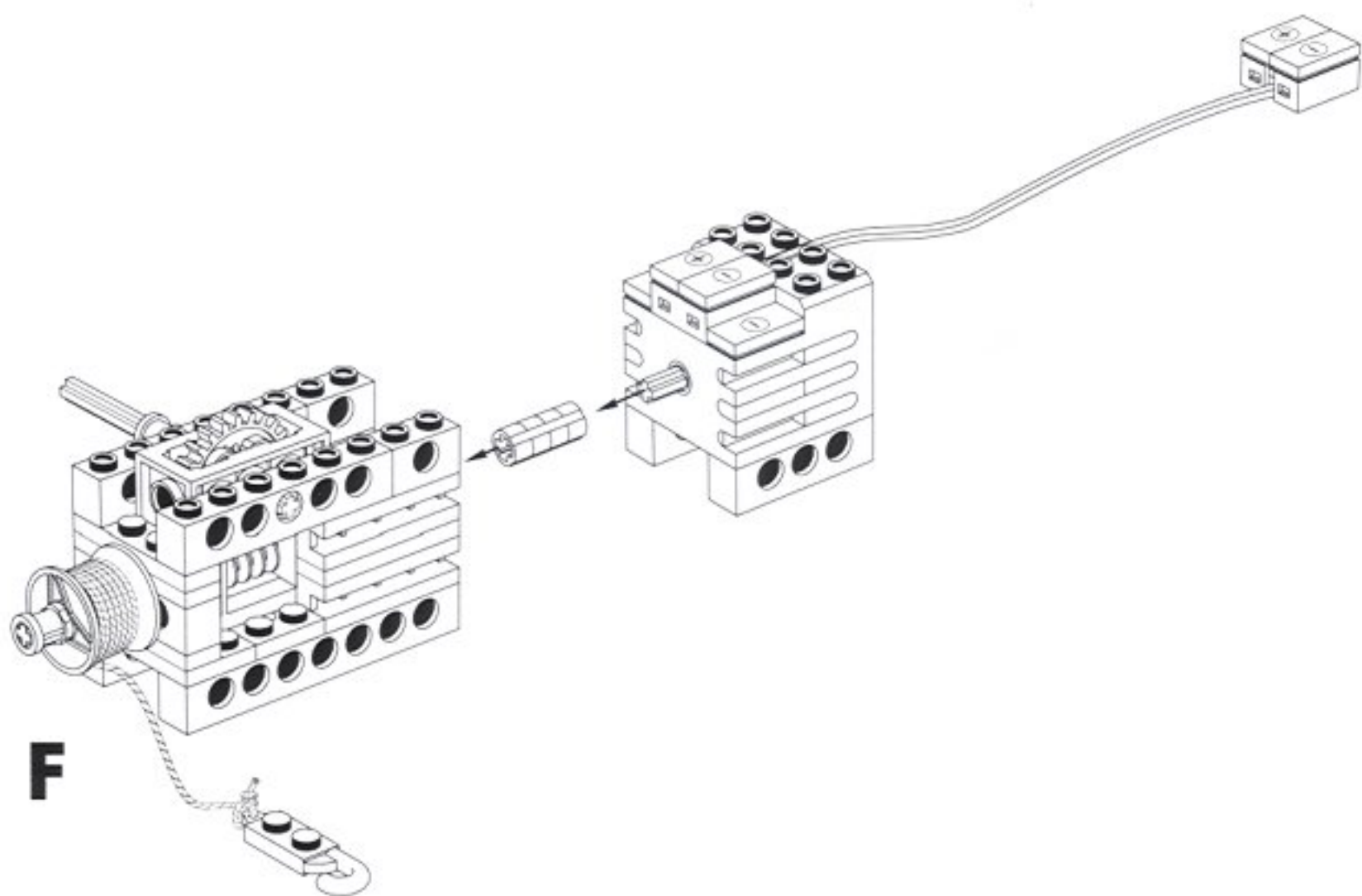


8









Motor
Moteur
規格
モーター
모터



E

a. Especificaciones

- Voltaje máximo: 9 voltios. Se encenderá a aproximadamente 1 voltio
- Funcionamiento libre: rpm 350
- Corriente de funcionamiento libre: 5 mA
- Corriente de bloqueo: 350 mA.

b. Precauciones

- El motor no es resistente al agua.

CN/HK

a. 規格

- 啟動時1伏特，最大電壓9伏特
- 空轉（無負載）轉速350 rpm
- 空轉（無負載）電流5毫安培
- 阻斷電流350毫安培

b. 警告

- 馬達並不防水

UK/US

a. Specifications

- Max voltage 9 volt. Will start at about 1 volt
- Free running rpm 350
- Free running current 5 mA
- Blocking current 350 mA.

b. Caution

- The motor is not waterproof.

F

a. Caractéristiques

- Tension maxi 9 volts. Démarrage à partir de 1 volt
- Rotation à vide 350 t/mn
- Courant à vide 5 mA
- Courant de blocage 350 mA.

b. Précaution

- Le moteur n'est pas étanche à l'eau.

ROK

a. 제품 규격

- 최대전압 9V, 약 1V에서 작동하기 시작함.
- 공회전 350 rpm
- 공회전 전류 5 mA
- 저지 전류 350 mA.

b. 주의

- 본 모터는 방수가 되지 않습니다.

D

a. Technische Daten

- Maximale Spannung 9V. Betrieb ab ca. 1 volt
- 350 Umdrehungen pro Minute
- Stromstärke im Betriebszustand 5 mA
- Sperrstromstärke 350 mA.

b. Vorsicht

- Der Motor ist nicht wasserfest.

P

a. Especificações

- Tensão máxima de 9 volts. Começa com aproximadamente 1 volt
- Velocidade sem carga de 350 rpm
- Corrente sem carga de 5 mA
- Proteção de corrente de 350 mA.

b. Precaução

- O motor não é à prova d'água.

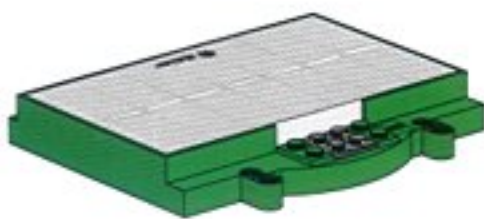
JAP

a. 仕様

- 最大電圧 9 V約1 Vで始動
- 自走速度 350 rpm
- 自走電流 5 mA
- 阻止電流 350 mA

b. 注意

- モーターは防水されていません。



Solar cell
Solarzelle
Celda Solar
Cellule solaire
Células Solares
太陽能電池
태양전지
太陽電池

UK/US

a. Specifications

- 3V, 200mA at full sun outdoors
- 3V, 100 mA indoors at full sun through window
- 2.5V, 8 mA with light from 60w incandescent lamp with 25 cm distance to solar cell (2000 lux)
- 2.5V, 40 mA with light from 60w incandescent lamp with 8 cm distance to solar cell (10000 lux).

b. Caution

- Do not bend excessively or push hard on the clear plastic window
- Do not step on or otherwise place heavy weight on the solar cell
- The solar cell is not waterproof.

P

a. Especificações

- 3V, 200 mA com sol intenso do lado de fora da casa
- 3V, 100 mA com sol intenso do lado de dentro de casa através da janela
- 2.5V, 8 mA com a luz de uma lâmpada incandescente de 60 W afastada 25 cm da célula solar (2.000 lux)
- 2.5V, 40 mA com a luz de uma lâmpada incandescente de 60 W afastada 8 cm da célula solar (10.000 lux).

b. Precauções

- Não dobrar nem pressionar com objetos duros
- Não pise nem coloque objetos pesados sobre a célula solar
- A célula solar não é à prova d'água.

D

a. Technische Daten

- 3V, 200mA bei direkter Sonneneinstrahlung im Freien
- 3V, 100mA bei direkter Sonneneinstrahlung durch das Fenster im Raum
- 2,5 V, 8mA bei Lichteinstrahlung einer 60 W Glühlampe im Abstand von 25cm zur Solarzelle (2000 Lux)
- 2,5 V, 40mA bei Lichteinstrahlung einer 60 W Glühlampe im Abstand von 8 cm zur Solarzelle (10000 Lux).

b. Vorsicht

- Das transparente Plastikfenster nicht übermäßig biegen oder fest darauf drücken
- Nicht auf die Solarzelle treten oder schwere Gegenstände darauf legen
- Die Solarzelle ist nicht wasserfest.

CN/HK

a. 規格

- 3伏特，200毫安培，相當於戶外日曬充足下的陽光強度
- 3伏特，100毫安培，相當於透過窗戶照到室內的陽光強度
- 2.5伏特，8毫安培，相當於距離25公分外，60瓦的白熱燈泡照明強度（2000勒克斯，即未燭光）
- 2.5伏特，40毫安培，相當於距離8公分外，60瓦的白熱燈泡照明強度（10000勒克斯，即未燭光）

b. 警告

- 太陽能面板不得彎曲及擠壓
- 不得踩踏太陽能電池，或於其上放置重物
- 太陽能電池並不防水

E

a. Especificaciones

- 3V, 200mA a exposición solar total
- 3V, 100mA en lugares cerrados a exposición solar total a través de una ventana
- 2.5V, 8mA con luz incandescente de 60w a una distancia de 25 cm. de la celda solar (2000 lux)
- 2.5 V, 40 mA con luz incandescente de 60w a una distancia de 8 cm. de la celda solar (10000 lux).

b. Precauciones

- No doblar excesivamente o empujar fuerte la ventana de plástico
- No pisar o colocar objetos pesados sobre la celda solar
- La celda solar no es resistente al agua.

ROK

a. 제품 규격

- 실외에서 최대로 태양에 노출될 경우 3V, 200mA.
- 실내에서 창문을 통해 최대로 태양에 노출될 경우 3V, 100 mA.
- 25cm 떨어진 60W 백열전등에 노출될 경우 (2000 lux) 2.5V, 8 mA.
- 8cm 떨어진 60W 백열전등에 노출될 경우 (10000 lux) 2.5V, 40 mA.

b. 주의사항

- 전지의 투명한 플라스틱 창을 심하게 누르거나 구부리지 마십시오.
- 전지를 밟거나 무거운 물체를 올려지 마십시오.
- 본 태양전지는 방수가 되지 않습니다.

F

a. Caractéristiques

- 3V, 200mA à l'extérieur en plein soleil
- 3V, 100 mA en intérieur plein soleil au travers d'une fenêtre
- 2.5V, 8 mA avec une lampe à incandescence de 60w à 25 cm de la cellule (2000 lux)
- 2.5V, 40 mA avec une lampe à incandescence de 60w à 8 cm de la cellule (10000 lux).

b. Précaution

- Ne pas plier excessivement ou pousser sur la vitre en matière plastique
- Ne pas poser ou appuyer une charge de poids important sur la cellule
- La cellule solaire n'est pas étanche à l'eau.

JAP

a. 仕様

- 晴天時屋外で3 V, 200 mA
- 晴天時室内の間接日光で3 V, 100 mA
- 太陽電池との距離が25 cmの60 W白熱灯からの光で2.5 V, 8 mA (2000ルクス)
- 太陽電池との距離が8cmの60 W白熱灯からの光で2.5 V, 2.5 V, 40 mA (10000ルクス)

b. 注意

- 透明プラスチック窓を無理に曲げたり強い力で押さないでください。
- 太陽電池を踏んだり、重いものを載せたりしないでください。
- 太陽電池は防水されていません。

Capacitor
Kondensator
Condensador
Condensateur
Capacitor
電容器
축전지
コンデンサー



a. Especificaciones
- 1 F (Faradio) condensador electrolítico de 2.5 voltios
- Voltaje de operación 2.5 voltios normal. Voltaje de carga 4 voltios máximo
- Máxima corriente de carga y de descarga: 0 - 250 mA
- Indicador LED de color rojo cuando se carga completamente a 2.5 voltios
- Protegido contra polaridad negativa. No cargará completamente en ese caso.
b. Precaución
- El condensador no es resistente al agua.

a. 規格
- 1F(法拉)・2.5伏特電容器
- 正常操作電壓2.5伏特。最大充電電壓4伏特。
- 最大充放電電流0.250毫安培
- 當2.5伏特電壓充滿時，紅色指示燈會亮
- 電池裝反時，保護措施會讓電池無法充電
b. 警告
- 電容器並不防水

a. Specifications
- 1 F (Farad) 2.5 volt electrolytic capacitor
- Operating voltage 2.5 volt normal. Charging voltage max. 4 volt
- Max charging and discharging current 0 - 250 mA
- Red LED indicator when fully charged at 2.5 volt
- Protected against reverse polarity. Will not fully charge then.
b. Caution
The capacitor is not waterproof.

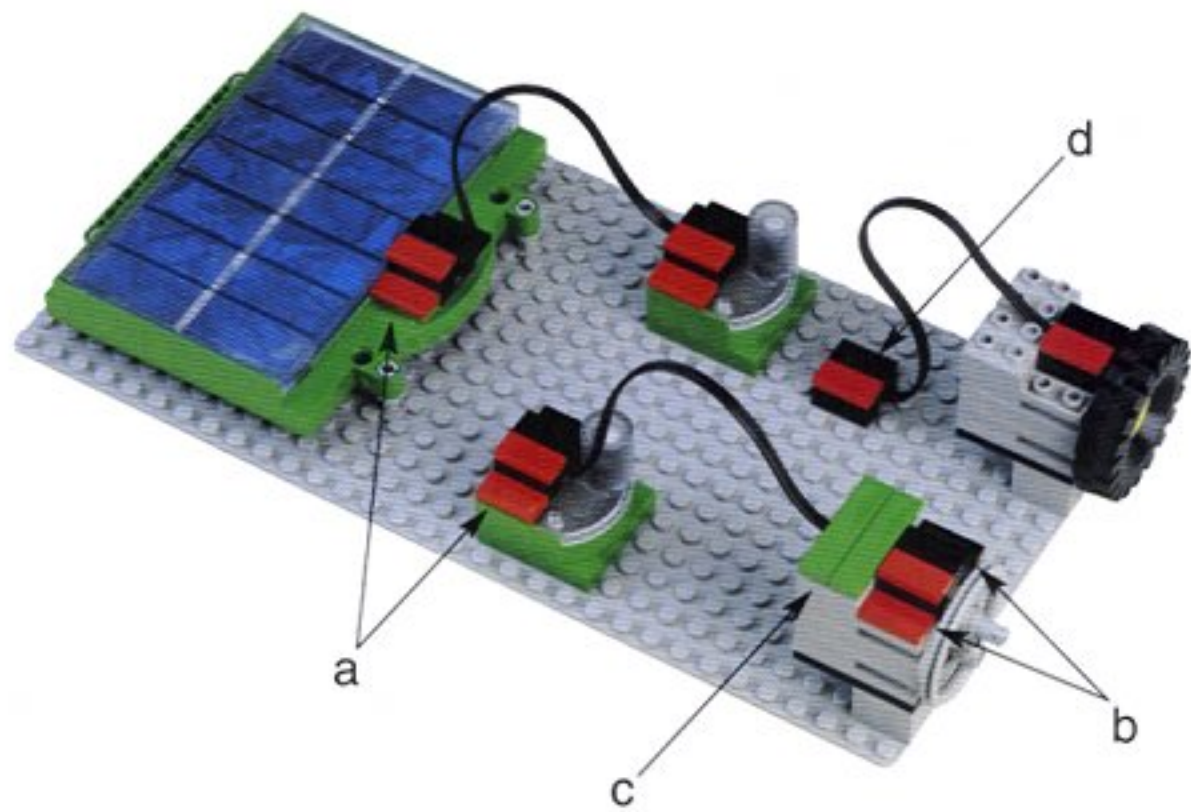
a. Caractéristiques
- Condensateur électrolytique de 1 F (Farad) 2,5 volts
- Tension normale d'utilisation 2,5 volts. Tension de charge maxi 4 volts
- Courant maxi de charge et de décharge 0 - 250 mA
- Diode rouge témoin de charge maxi à 2,5 volts
- Protégé contre l'inversion de polarité. Ne conservera pas sa charge dans ce cas.
b. Précaution
- Le condensateur n'est pas étanche à l'eau.

a. 제품 규격
- 1 F (Farad) 2.5V 전해 축전지.
- 일반작동전압 2.5V. 충전전압은 최대 4V.
- 최대 충전 및 방전전류 0 - 250 mA.
- 2.5V로 충전이 완료되면 LED 표시기에 적색정등.
- 전극이 바뀌는 경우 보호기능으로 방지. 이 경우 충전이 완전히 되지 않음.
b. 주의
- 본 축전지는 방수되지 않습니다.

a. Technische Daten
- 1 F (Farad) 2,5V Elektroytkondensator
- Normale Betriebsspannung 2,5 V, Ladespannung max. 4V
- Maximale Ladé- und Entladestromstärke 0-250 mA
- Rote LED Anzeige, wenn Kondensator vollständig geladen ist, bei 2,5 V
- Ist vor entgegengesetzter Polung geschützt. Wird dabei nicht vollständig aufgeladen.
b. Vorsicht
Der Kondensator ist nicht wasserfest.

a. Especificações
- Capacitor eletrolítico de 1 F (Farad) e 2,5 volts
- Tensão de operação normal: 2,5 volts. Tensão máxima de carga: 4 volts
- Corrente máxima de carga ou descarga entre 0 - 250 mA
- Diodo vermelho que indica quando atinge plena carga a 2,5 volts
- Proteção contra polaridade reversa. Assim o capacitor não será carregado.
b. Precaução
- O capacitor não é à prova d'água.

a.仕様
- 1F (ファラド) 2.5 V 電解コンデンサー
- 通常動作電圧 2.5 V。最大充電電圧 4 V。
- 最大充電・放電電流 0 ~ 250 mA
- 2.5 Vで充電終了時に赤いLEDインジケータ点灯
- 逆極性に対して保護。その場合は完全に充電されません。
b. 注意
- コンデンサーは防水されていません。



Connecting solar cell, capacitor and generator
Identifying plus (+), (-).
Red tiles are used to identify (+). Black tiles are used to identify (-). The solar cell and capacitor have (+) and (-) molded in the plastic. Always place a red tile over (+) and a black tile over (-) on the solar cell and the capacitor, regardless of whether the capacitor is being charged or discharged. See illustration "a" above.
(+) and (-) on the generator. When the handle is turned clockwise (+) will be to the left and (-) to the right seen from the front. On illustration "b" above this is thus indicated with red and black tiles.
To indicate the motor is being used as a generator two green tiles are attached to the top. This is done throughout the instruction booklet. See illustration "c".
All wires are (+) and (-) coded using red and black tiles. See illustration "d" above.
NOTE: The capacitor will ONLY charge when (+/red) and (-/black) are connected correctly to the solar cell or the generator. It will not damage the capacitor if incorrectly connected.

D

Anschließen von Solarzelle, Kondensator und Motor
 Erkennen von Plus- (+) und Minuspol (-)
 Rote Plättchen werden verwendet, um (+) zu erkennen. Schwarze Plättchen werden verwendet, um (-) zu erkennen. Die Solarzelle und der Kondensator sind bereits mit (+) und (-) gekennzeichnet. Befestigen Sie an der Solarzelle und am Kondensator immer ein rotes Plättchen über (+) und ein schwarzes Plättchen über (-), unabhängig davon, ob der Kondensator geladen oder entladen wird. Siehe Zeichnung „a“ oben.
 (+) und (-) am Generator. Wenn die Kurbel im Uhrzeigersinn gedreht wird, befindet sich von vorn betrachtet, (+) auf der rechten und (-) auf der linken Seite. In der Zeichnung „b“ oben wird dies folglich mit roten und schwarzen Plättchen angezeigt.
 Um zu erkennen, daß der Motor als Generator benutzt wird, werden zwei grüne Plättchen darauf befestigt. Dies wird überall im Anleitungsbuch so gehandhabt. Siehe Zeichnung „c“.
 Alle Leitungen werden mit (+) und (-) codiert, indem die roten und schwarzen Plättchen dazu verwendet werden. Siehe Zeichnung „d“ oben.
HINWEIS : Der Kondensator wird NUR geladen, wenn (+/red) und (-/black) richtig an der Solarzelle oder dem Generator angeschlossen ist. Sollte der Kondensator falsch angeschlossen sein, wird er dadurch nicht beschädigt.

E

Conectando la celda solar, el condensador, y el generador
 Identificando positivo (+), (-)
 Las losetas de color rojo son usadas para identificar (+). Las losetas negras son usadas para identificar (-). La celda solar y el condensador tienen (+) y (-) marcados en el plástico. Siempre coloca una loseta roja sobre el (+) y una loseta negra sobre el (-) en la celda solar y en el condensador, a pesar de que el condensador este siendo cargado o descargado. Ver la figura “a”.
 (+) y (-) en el generador. Cuando se gira la manivela en sentido de las agujas del reloj, (+) estará a la izquierda y (-) a la derecha vistos desde el frente. En la Figura “b”, esta indicado con las losetas roja y negra.
 Para indicar que el motor está siendo utilizado como un generador, se conectan dos losetas verdes a la parte superior. Esto se realiza en todo el manual de construcción. Ver Figura “c”.
 Todos los cables son (+) y (-) utilizando losetas rojas y negras. Ver Figura “d”.
NOTA: El condensador SOLAMENTE cargará cuando (+ / rojo) y (- / negro) estén conectados correctamente a la celda solar o al generador. No dañará al condensador si esta conectado incorrectamente.

F

Relier cellule solaire , condensateur et générateur
 Identifier les pôles (+) et moins (-).
 Les caches rouges sont utilisés pour repérer le (+). Les caches noirs sont utilisés pour repérer le (-). La cellule solaire et le condensateur possèdent des repères (+) et (-) moulés dans la matière plastique. Placez toujours un cache rouge sur le (+) et un noir sur le (-) de la cellule solaire et du condensateur, sans se soucier de l'état de charge du condensateur. Voir illustration “a”.
 (+) et (-) sur le générateur. Lorsque l'on tourne la manivelle dans le sens des aiguilles d'une montre, le (+) doit être à gauche et le (-) à droite en regardant de face. Sur l'illustration “b” ci-dessus les caches rouge et noir montrent cette situation.
 Pour repérer que le moteur est utilisé comme générateur, deux caches verts sont placés au dessus. Ce repérage est utilisé dans l'ensemble du livret d'instruction. Voir illustration “c”.
 Tous les câbles sont repérés en utilisant (+) et (-) avec des caches rouges et noirs. Voir illustration “d”.
NOTE: Le condensateur se charge SEULEMENT quand (+/rouge) et (-/noir) sont reliés correctement à la cellule solaire ou au générateur. Le condensateur ne sera pas endommagé en cas de mauvais branchement.

P

Conectando célula solar, capacitor e gerador
 Identificando a polaridade (+) e (-).
 Peças vermelhas são usadas para identificar (+). Peças pretas são usadas para identificar (-). A célula solar e o capacitor têm (+) e (-) moldados no plástico. Sempre coloque as peças vermelhas sobre (+) e as peças pretas sobre (-) na célula solar e no capacitor, independentemente de onde o capacitor está sendo carregado ou descarregado. Veja ilustração “a” acima.
 (+) e (-) no gerador. Quando a manivela estiver girando no sentido horário, o (+) estará a esquerda e o (-) a direita com o gerador visto de frente. A ilustração “b” acima está assim indicado com peças vermelhas e pretas.
 Para indicar que o motor está sendo usado como gerador, duas peças verdes estão conectadas na parte de cima. Isto é feito de acordo com o manual de instruções. Veja ilustração “c”.
 Todos os fios estão indicando a polaridade (+) e (-) usando peças vermelhas e pretas. Veja ilustração “d” acima.
Observação: O capacitor SOMENTE receberá carga quando (+/vermelho) e (-/preto) estiverem conectados corretamente à célula solar ou ao gerador. O capacitor não será danificado se for conectado incorretamente.

CN/HK

太陽能電池、電容器、發電機的连接方式
 正負極識別方式
 紅色蓋板代表正極，黑色蓋板代表負極。太陽能電池和電容器的塑膠面板上，則以 (+) 代表正極，(-) 代表負極。不管太陽能電池和電容器是否處於充電狀態，務必注意正負極接線正確。請參考上方“a”圖。
 如何判斷發電機的正負極。面對發電機，順時針方向旋轉把手時，左方代表正極，右方代表負極。請參考上方“b”圖紅色和黑色蓋板的部份。
 為了標示當成發電機的馬達，我們在馬達的上方會標示綠色的記號。你可以在模型建構說明書中發現。請參考“c”圖。
 所有連接的電線也會以紅色和黑色的蓋板來標示正負極。請參考上方“d”圖。
注意：電容器只有在和太陽能電池及發電機，正確的连接時才能充電。如果連接錯誤，並不會損壞電容器。

ROK

태양전지, 축전지, 발전기 연결하기
 양극(+)과 음극(-)을 확인합니다.
 적색 타일은 양극(+)을 의미하고 검은색 타일은 음극(-)을 의미합니다. 태양전지와 축전지에는 플라스틱으로 만들어진 (+)와 (-)가 있습니다. 축전지의 충전여부에 상관 없이 적색 타일은 (+), 검은색 타일은 (-) 위에 항상 올려 놓으십시오. 위 그림 “a” 를 참조하십시오.
 발전기에도 (+)와 (-)가 있습니다. 핸들을 시계방향으로 돌리면 정면에서 봤을 때 좌측이 (+), 우측이 (-)가 됩니다. 위 그림 “b” 에서는 적색과 검은색 타일로 표시되어 있습니다.
 발전기 뒷면에 녹색 타일 2개를 붙여 모터가 발전기로 사용됨을 나타냅니다. 그림 “c” 를 참조하여 지침서에 따라 작업하십시오.
 모든 전선은 적색과 검은색 타일을 이용하여 (+)와 (-)표시를 합니다. 그림 “d” 를 참조하십시오.
참고 : 본 축전지는 양극(+/적색)과 음극(-/검은색)이 태양전지나 발전기에 올바르게 연결된 경우에만 충전됩니다. 연결이 잘못되더라도 축전지에 손상은 없습니다.

JAP

太陽電池、コンデンサー、発電機の接続
 プラス (+) 極とマイナス (-) 極の識別
 (+) 極は赤いタイルで識別します。(-) 極は黒いタイルで識別します。太陽電池とコンデンサーはプラスチック部分に (+) と (-) のマークがあります。コンデンサーを充電している場合も放電している場合も、必ず赤いタイルを太陽電池とコンデンサーの (+) 極に被せ、黒いタイルを (-) 極に被せてください。上図の「a」を参照してください。
 発電機の (+) と (-) ハンドルを時計回りに回すと、正面から見て (+) が左側、(-) が右側になります。上図の「b」では、赤と黒のタイルと同様に示されています。
 モーターが発電機として使用されていることを示すため、上部に緑色のタイルが2つ取り付けられています。
 これは、使用説明書を参照して行ってください。図中の「c」を参照してください。
 電線はすべて、(+) と (-) が赤と黒のタイルで色分けされています。上図の「d」を参照してください。
注：コンデンサーは、(+ / 赤) と (- / 黒) が太陽電池または発電機に正しく接続されている場合にのみ充電されます。
 接続が正しくない場合にコンデンサーが損傷しないようになっています。

Note that some of the elements mentioned here may not be included in the building set accompanying this booklet.

Es wird darauf hingewiesen, daß einige, in Verbindung mit diesem Heft erwähnten Elemente nicht im Baukasten enthalten sind.

Observa que algunos de los elementos mencionados no se incluyen en el maletín de construcción que acompaña este manual.

Certains éléments mentionnés ici peuvent ne pas être inclus dans la boîte correspondant à ce livret.

Observe que alguns dos elementos mencionados aqui podem não estar incluídos no conjunto de montagem que acompanha este manual.

有些這裡提到的零件，並不包括在積木盒中。

본 책자에 언급된 부품 중 일부는 제품 구성물에 없을 수도 있습니다.

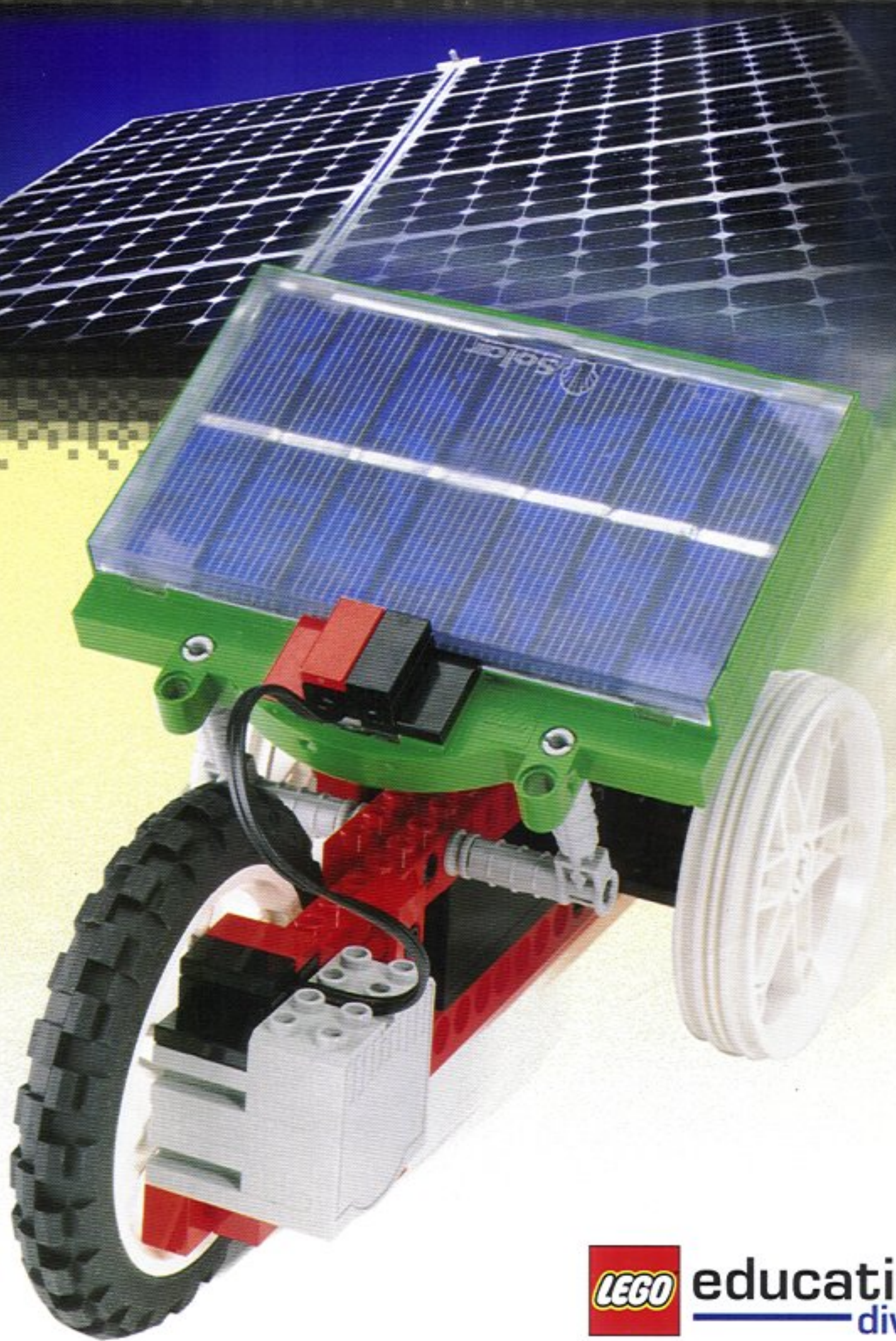
ここで述べられている部品の一部は、本書が同梱されている組み立てセットには含まれていない場合があります。

e

L

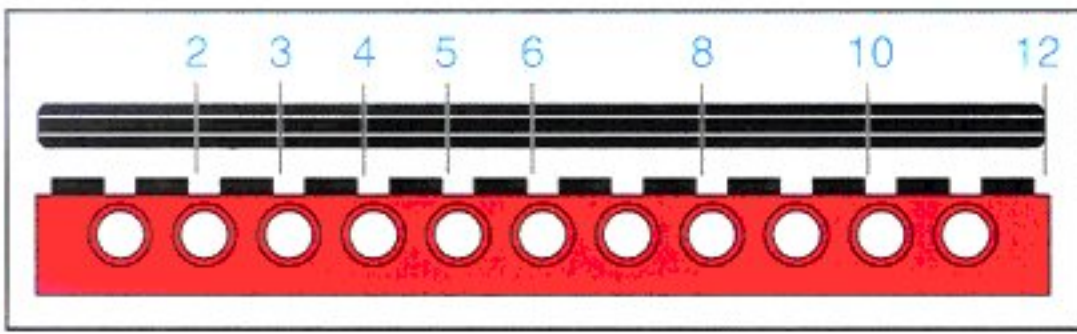
A

B

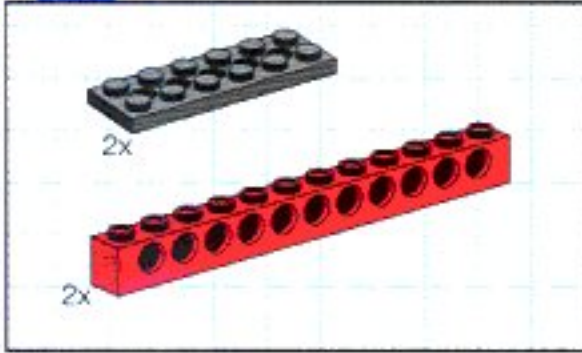


9684

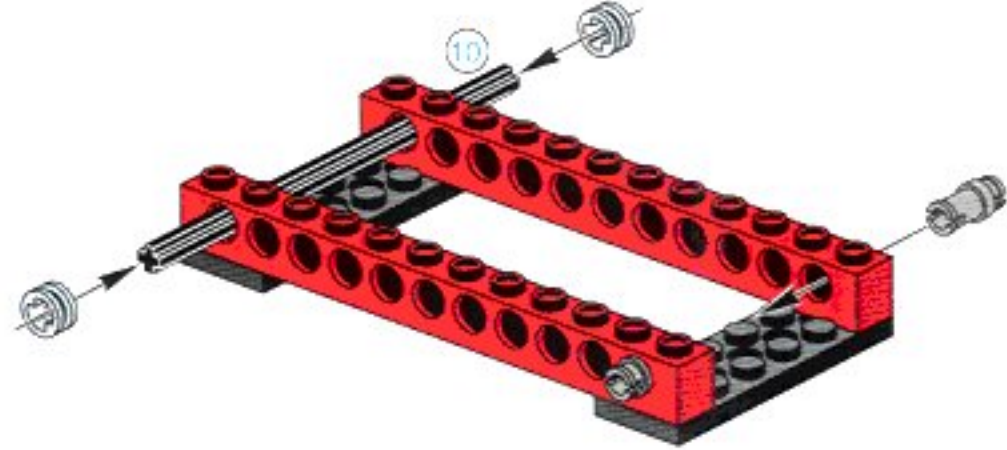
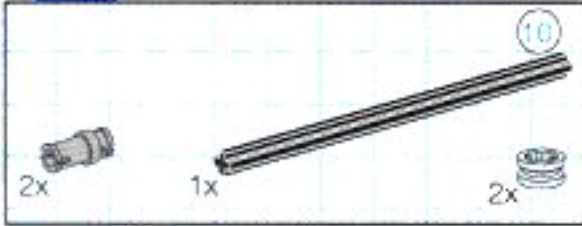
LEGO educational
division



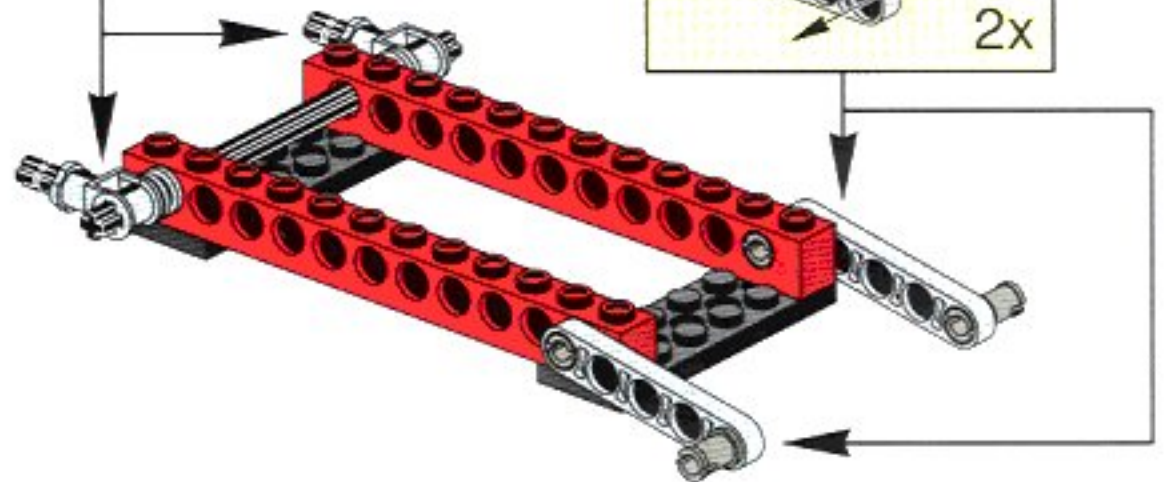
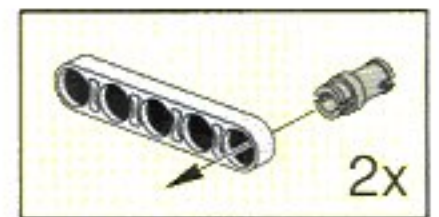
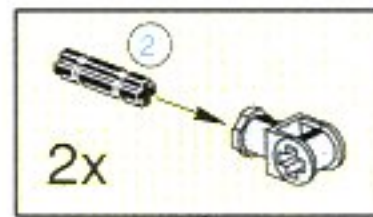
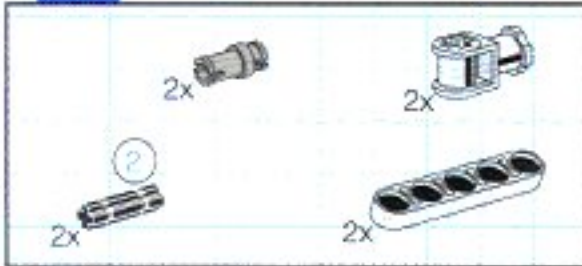
1



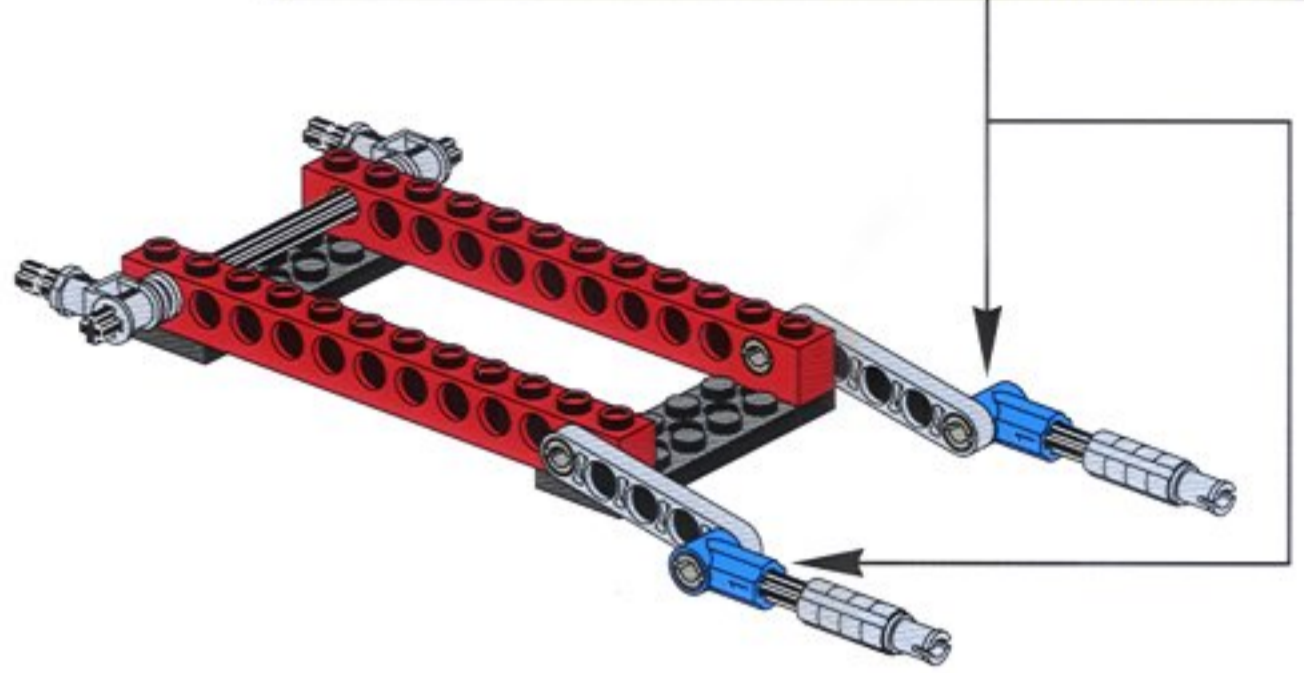
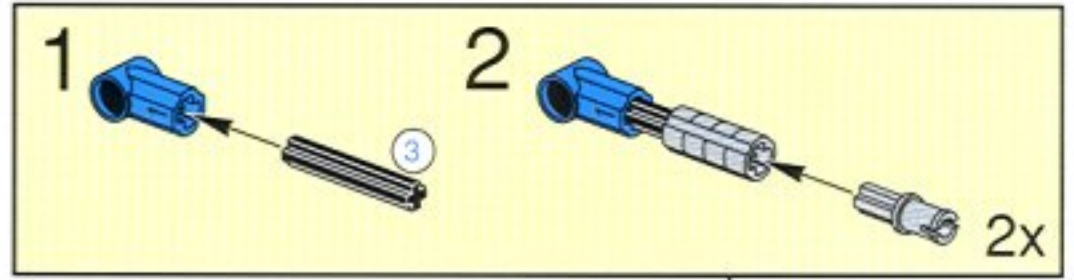
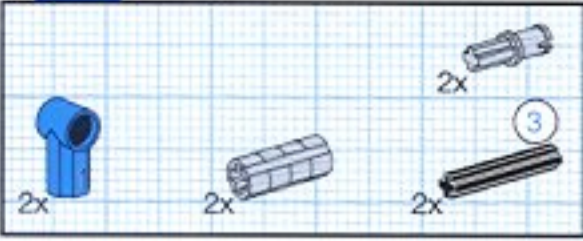
2



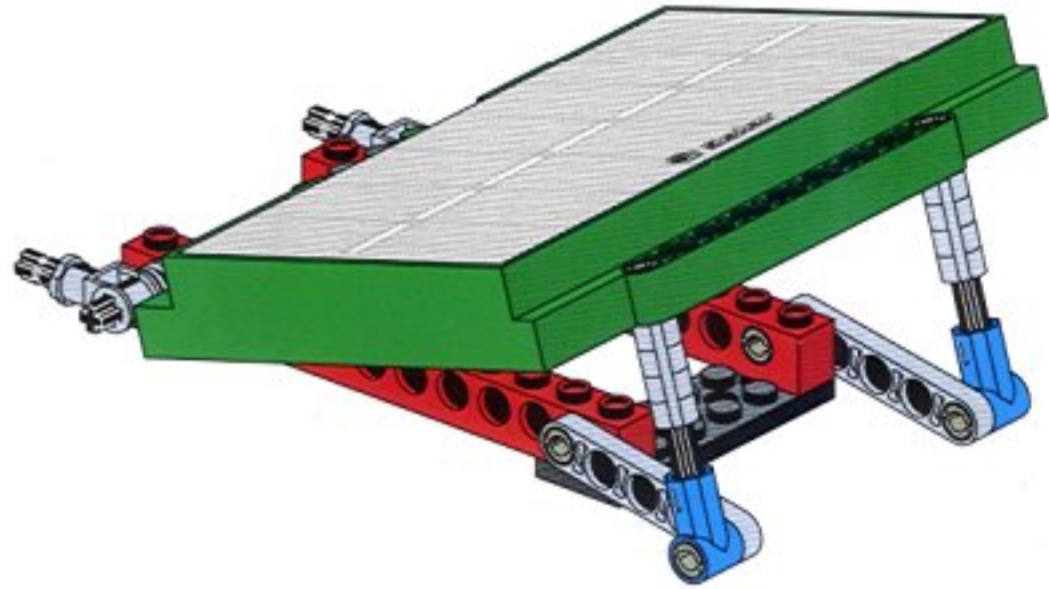
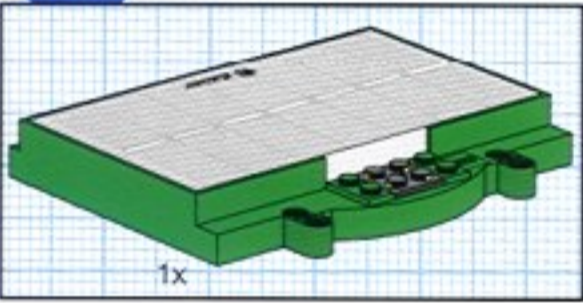
3



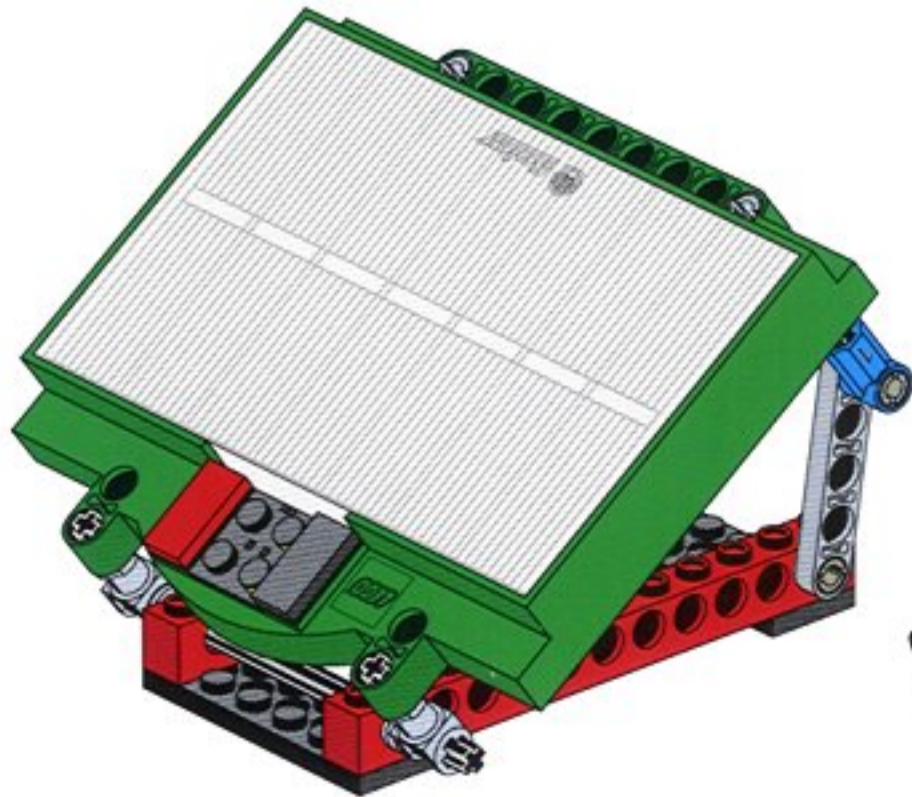
4



5

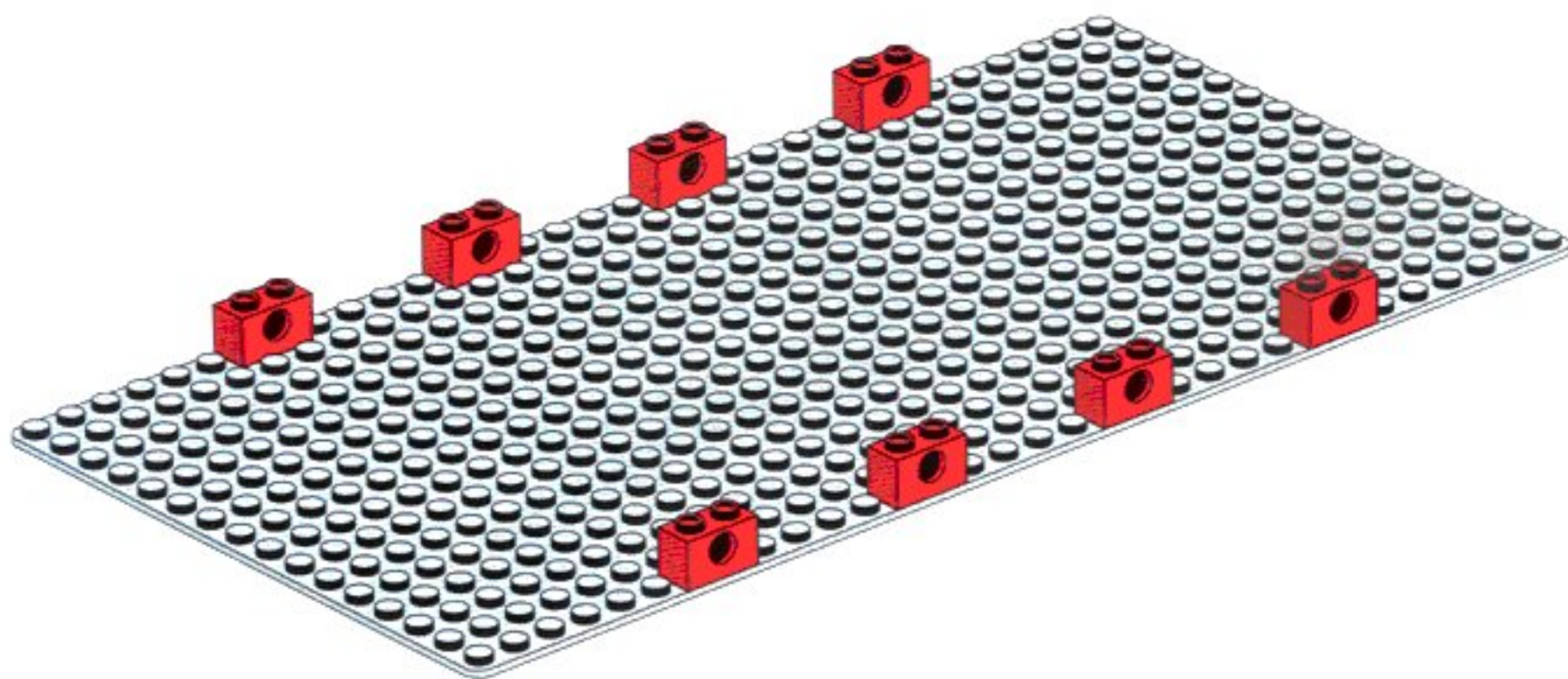
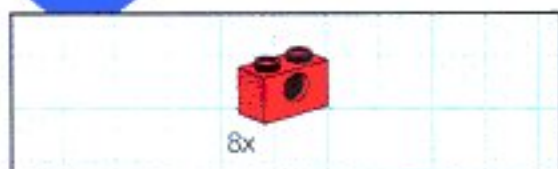


6

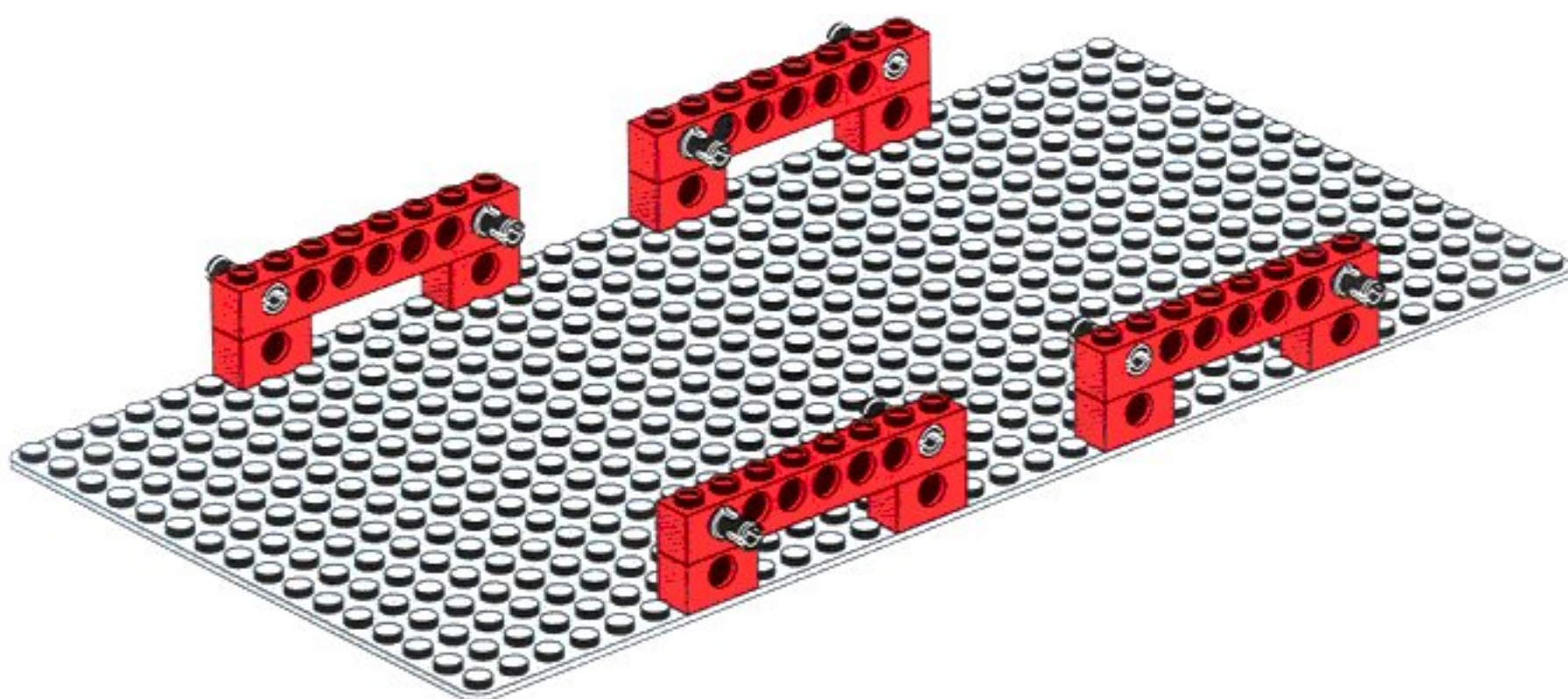
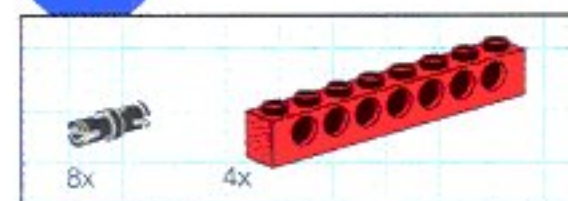


3

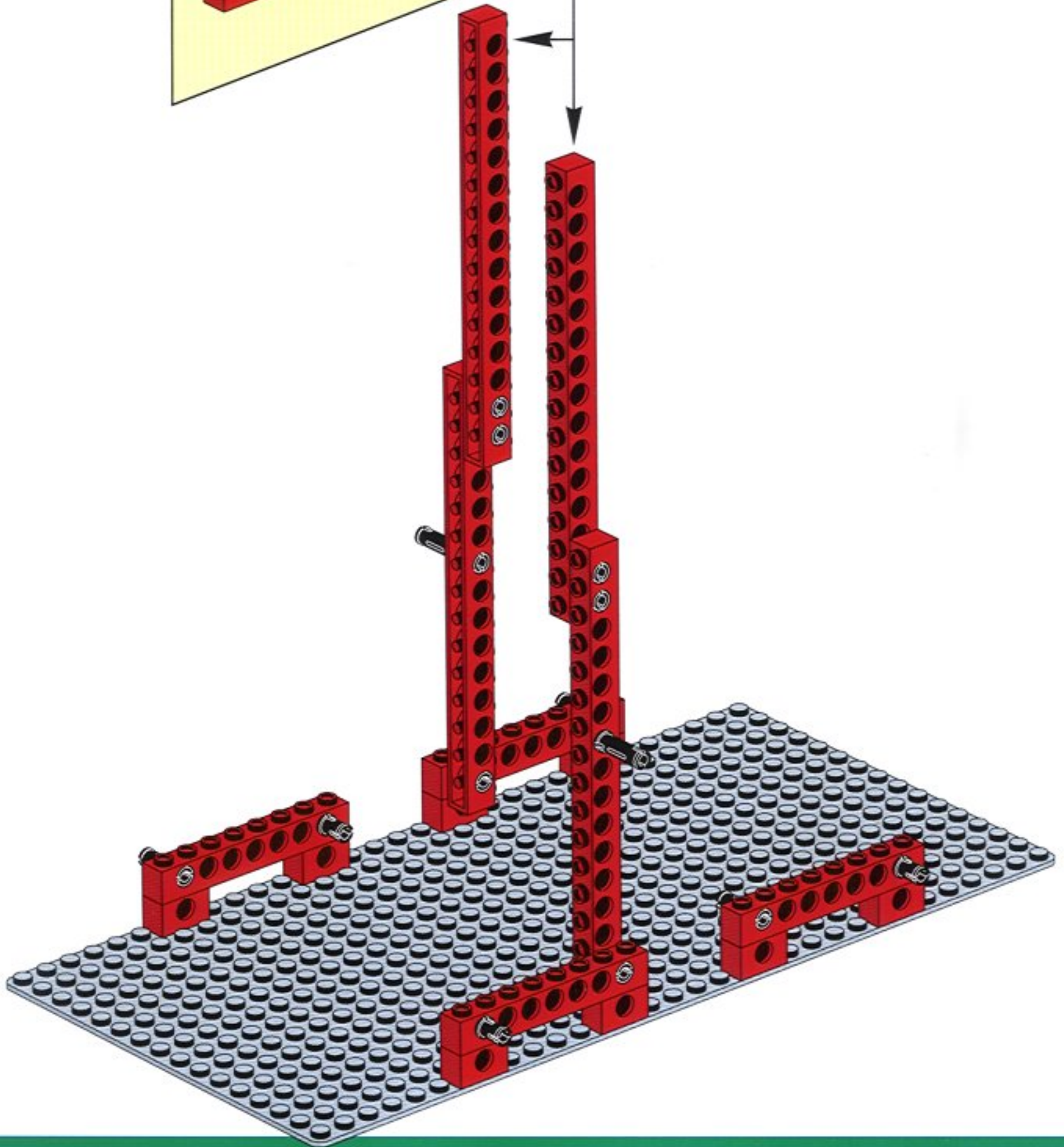
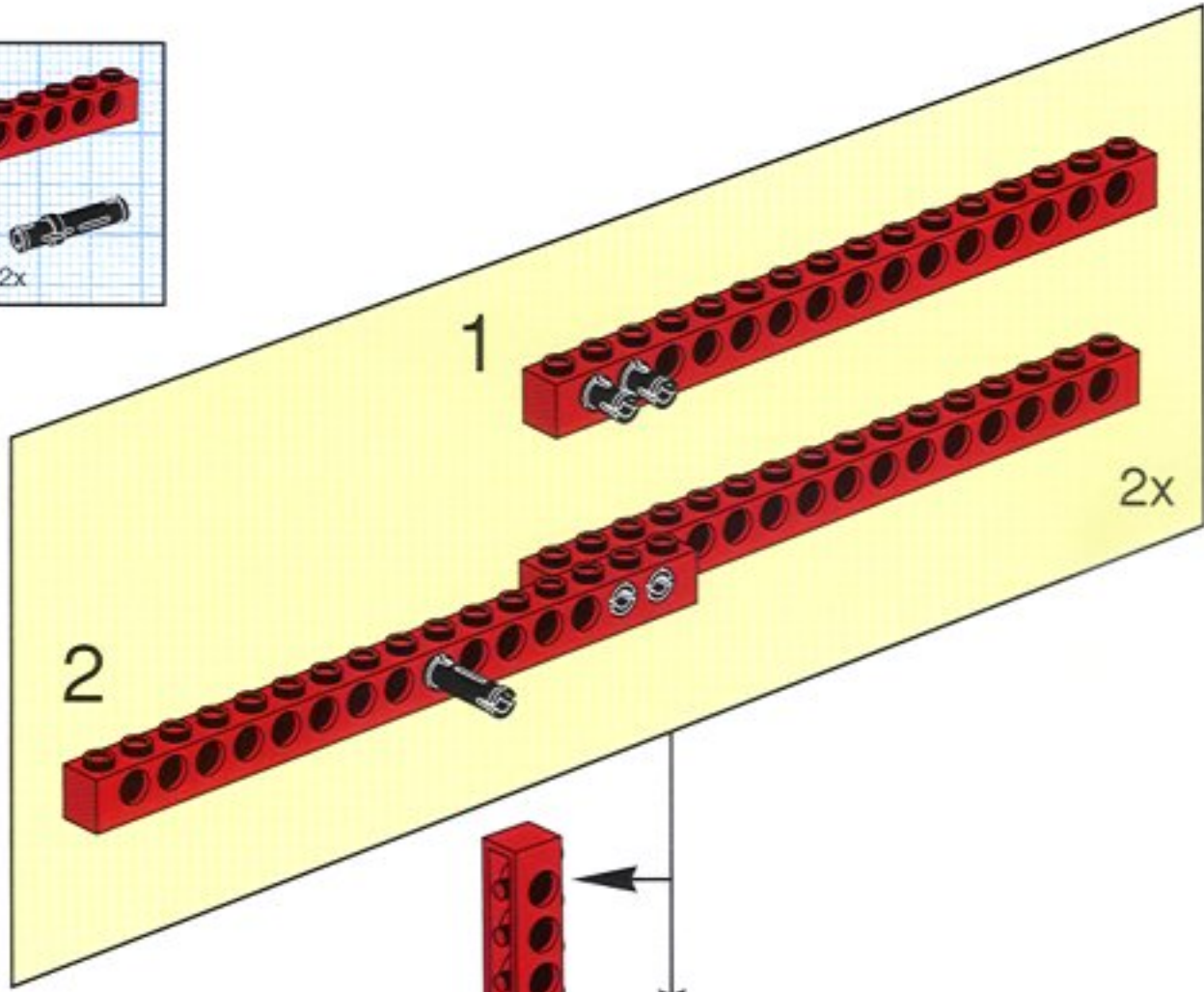
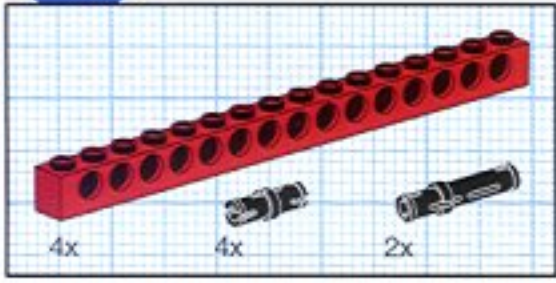
1



2

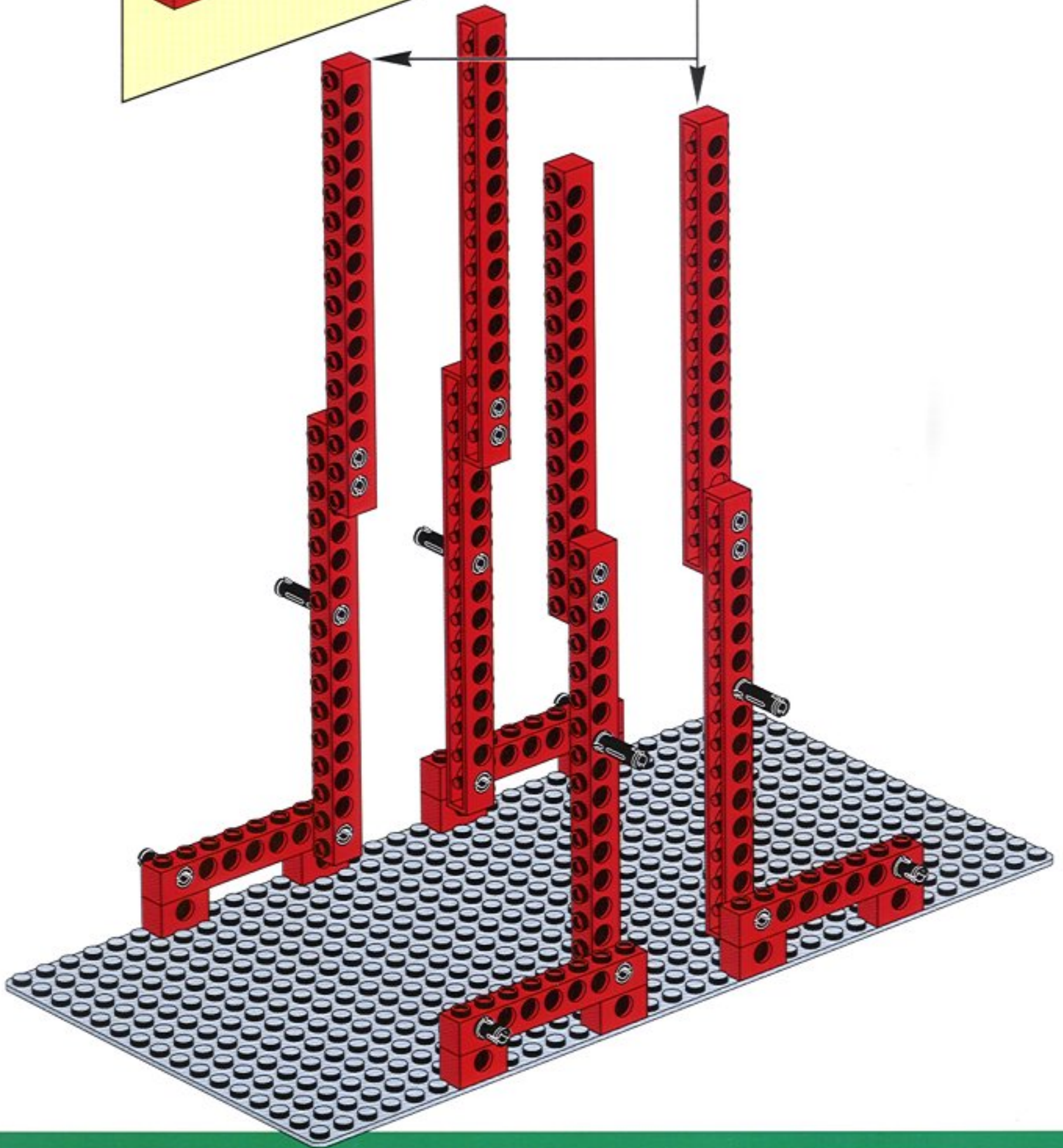
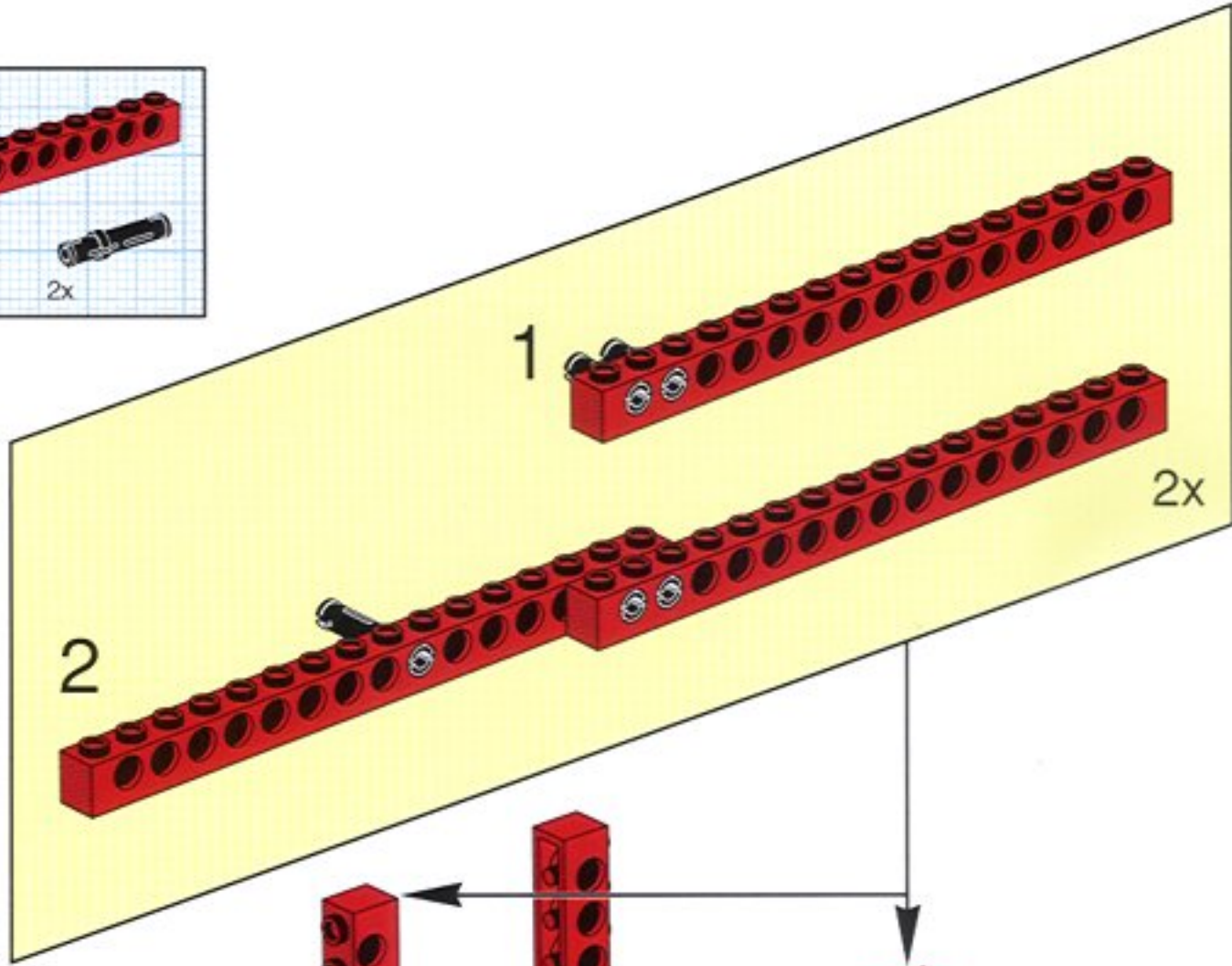
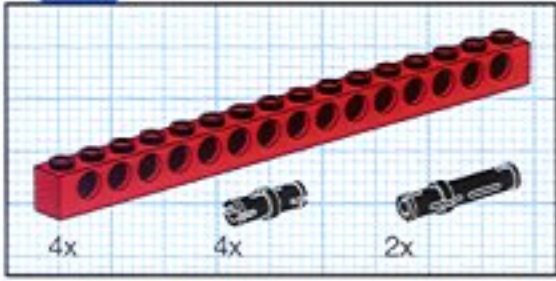


3

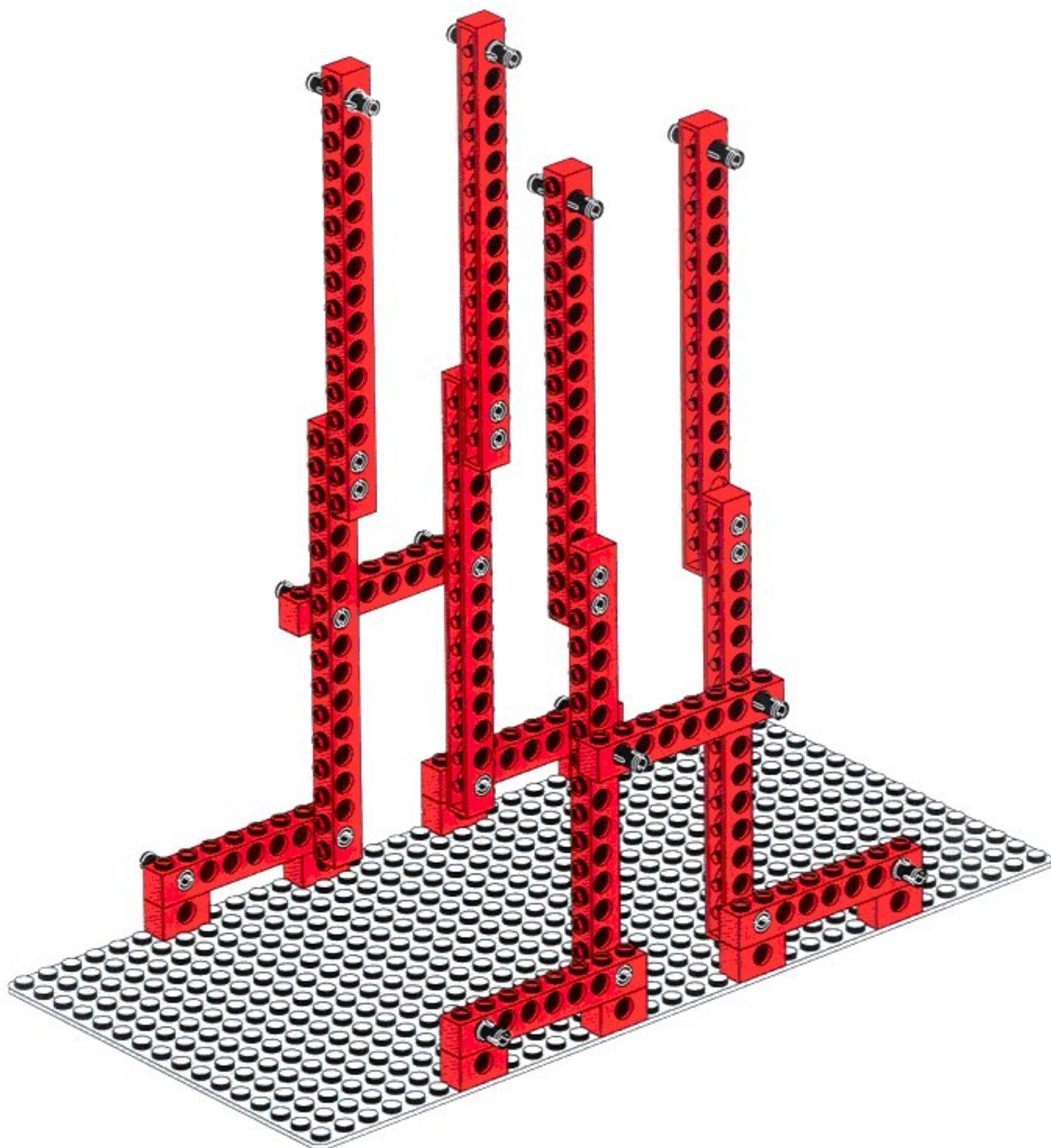
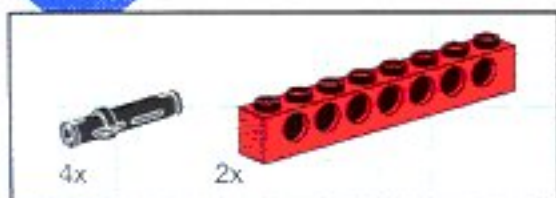


5

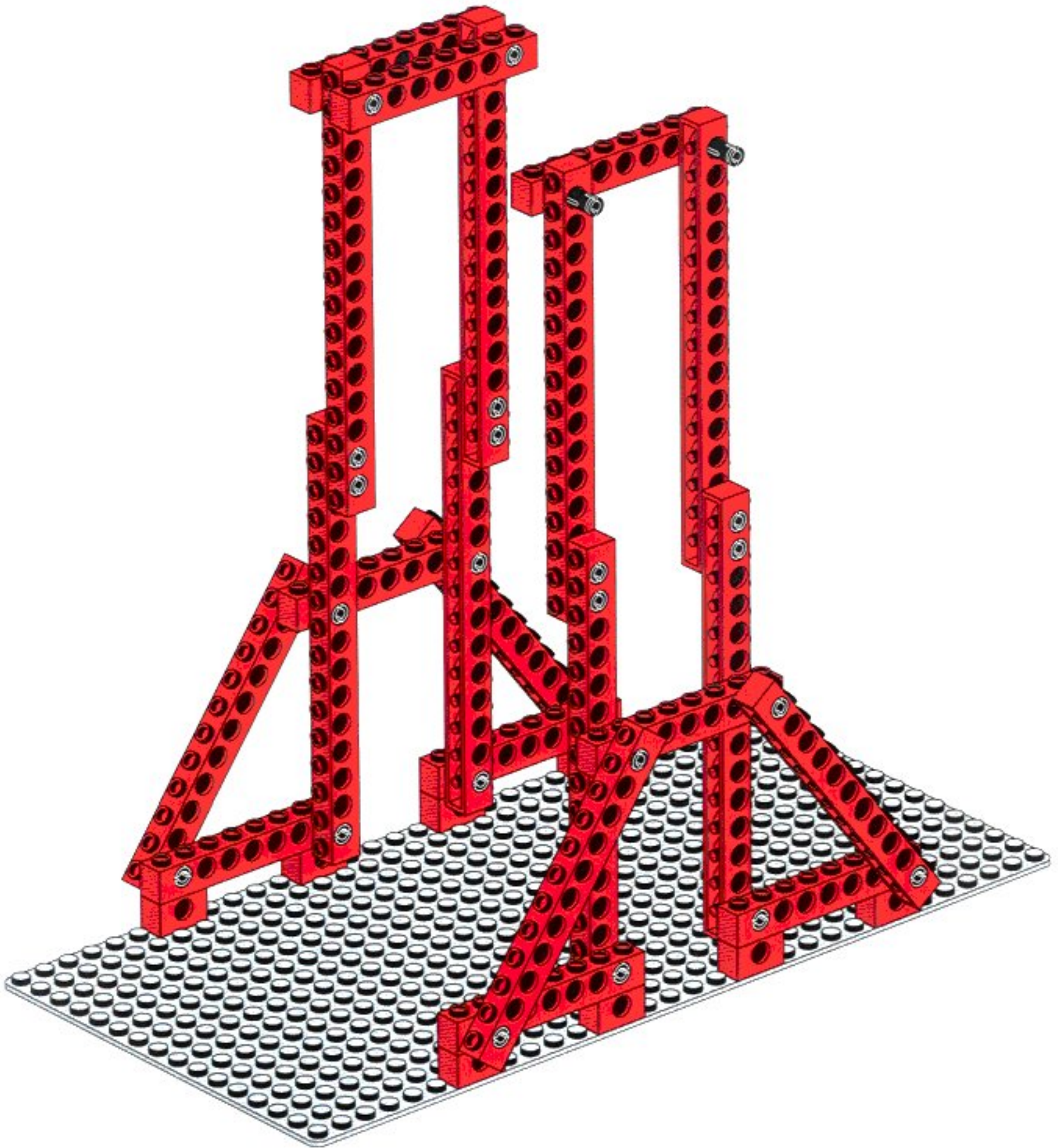
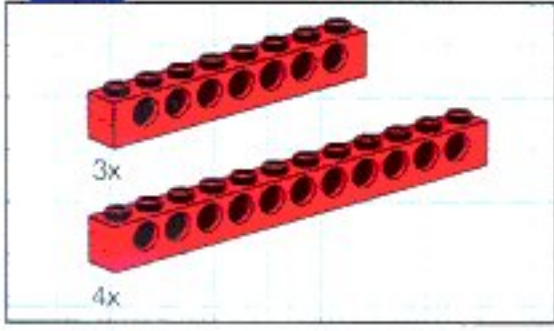
4

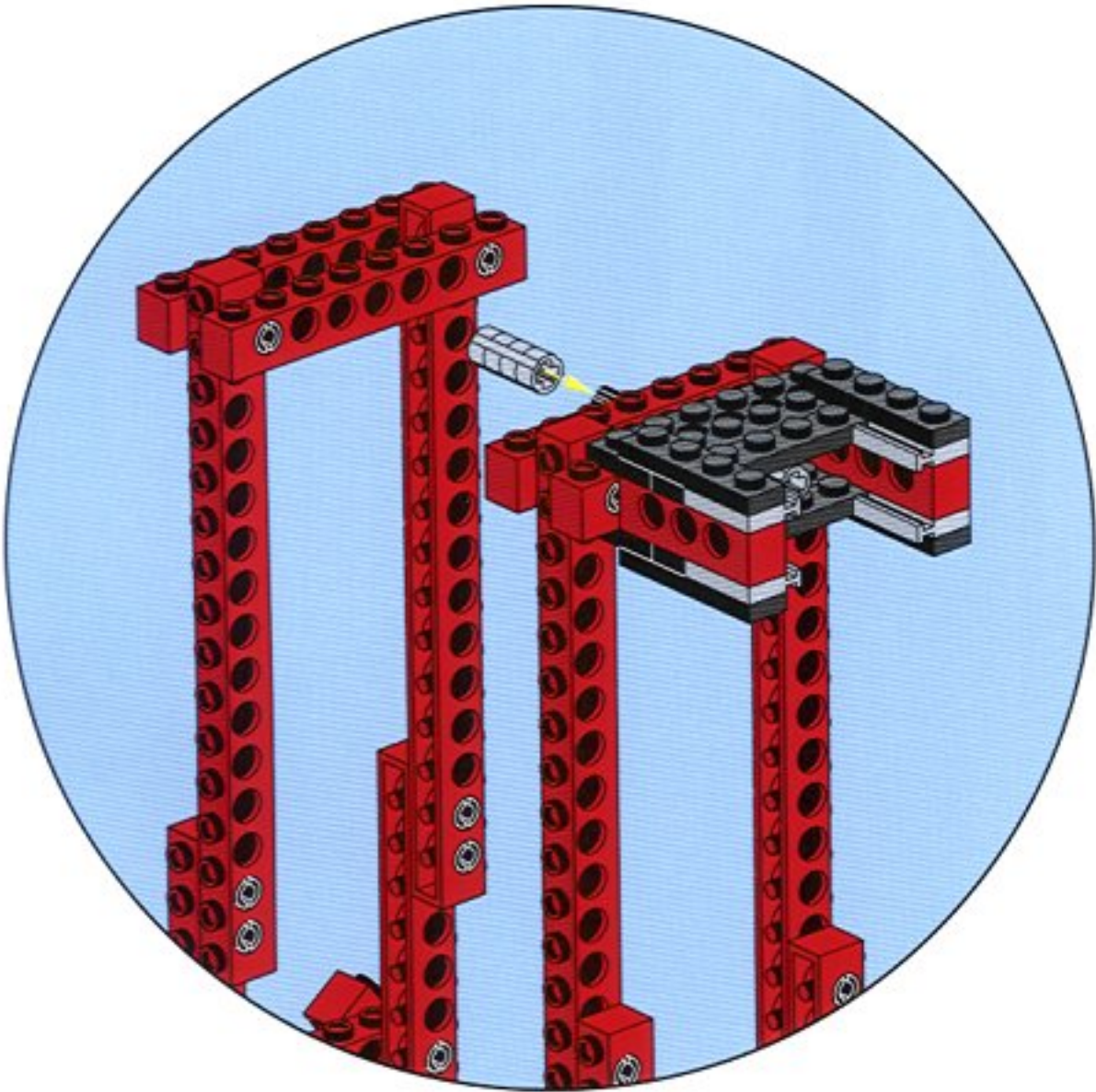
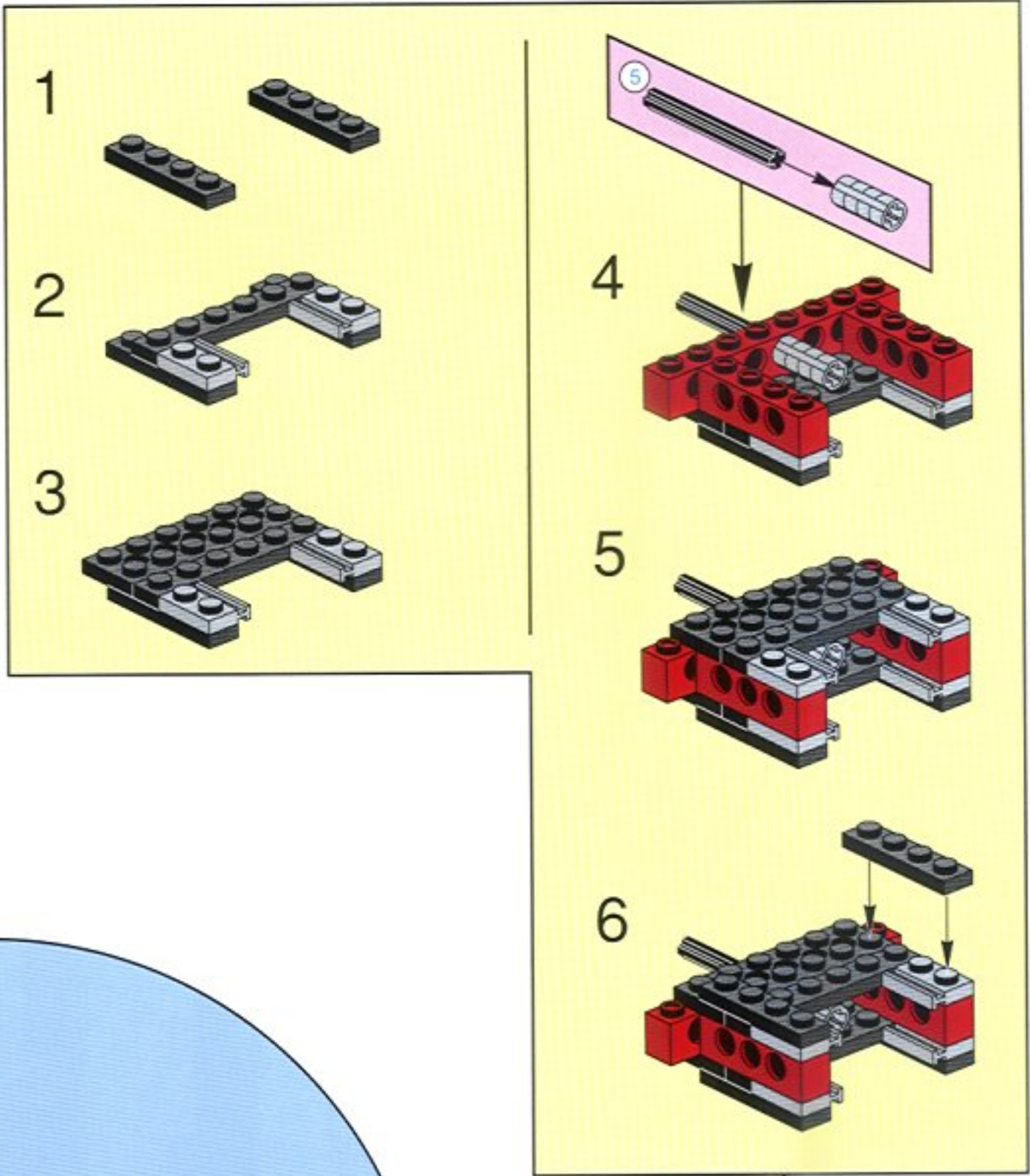
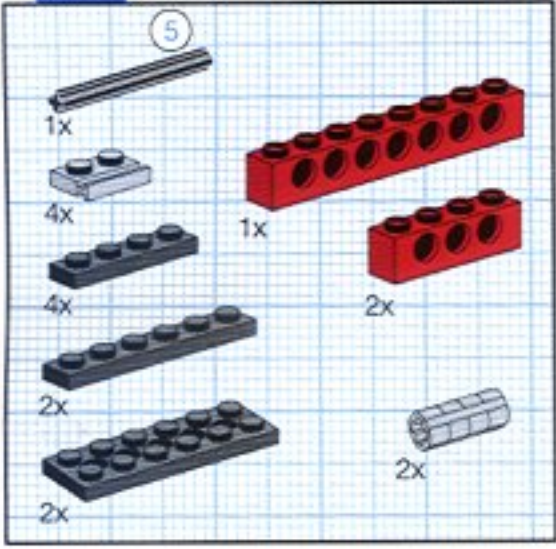


5

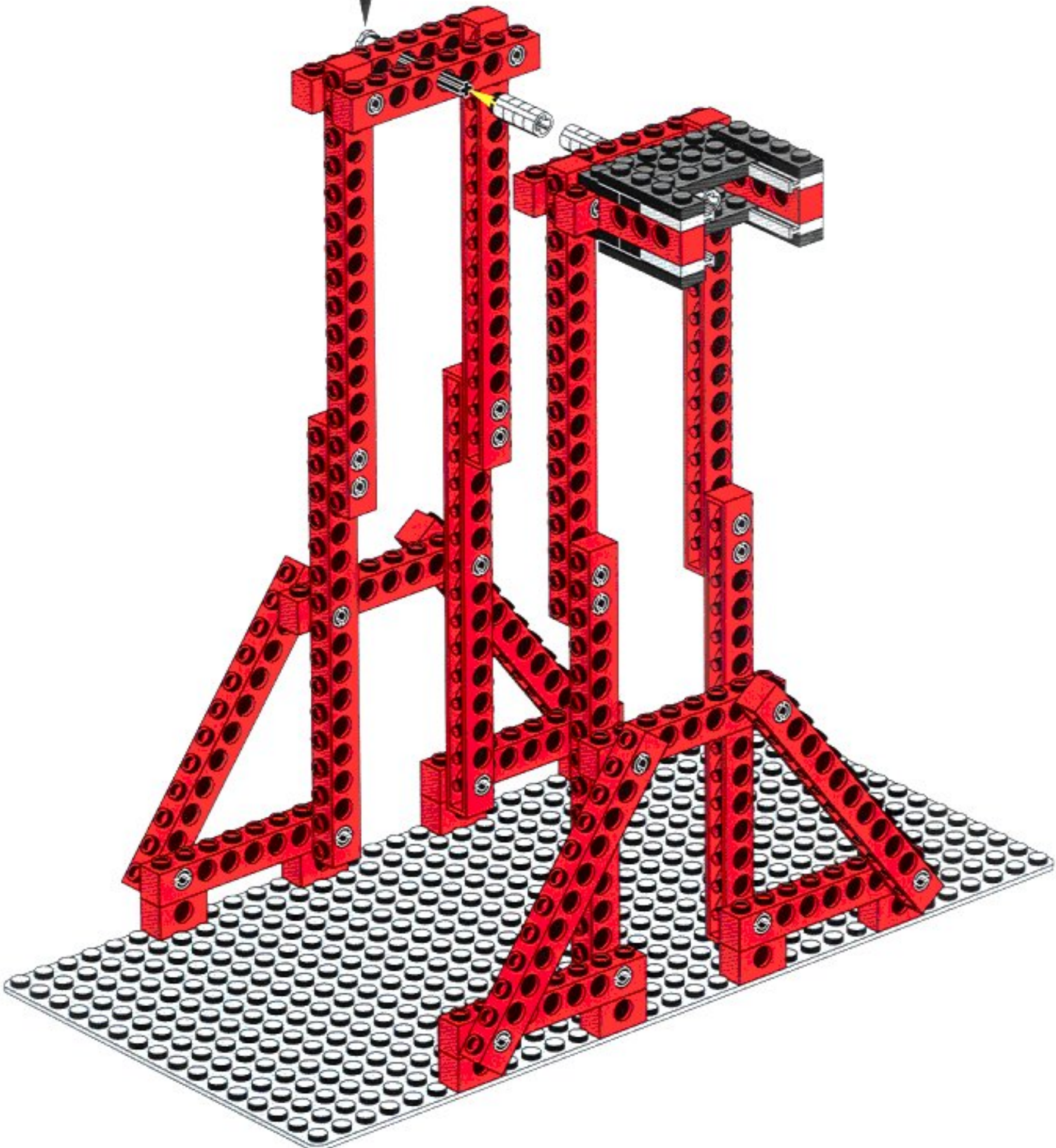
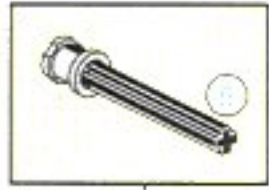
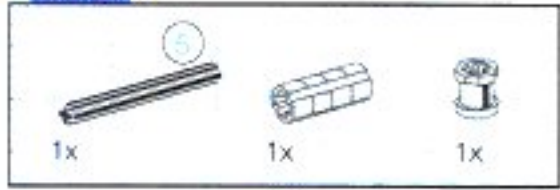


6

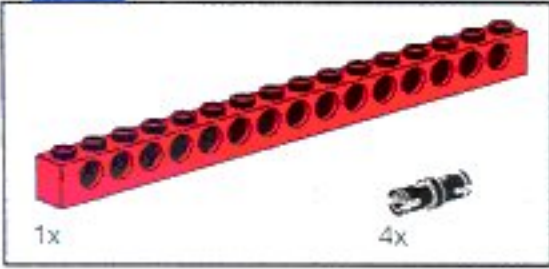




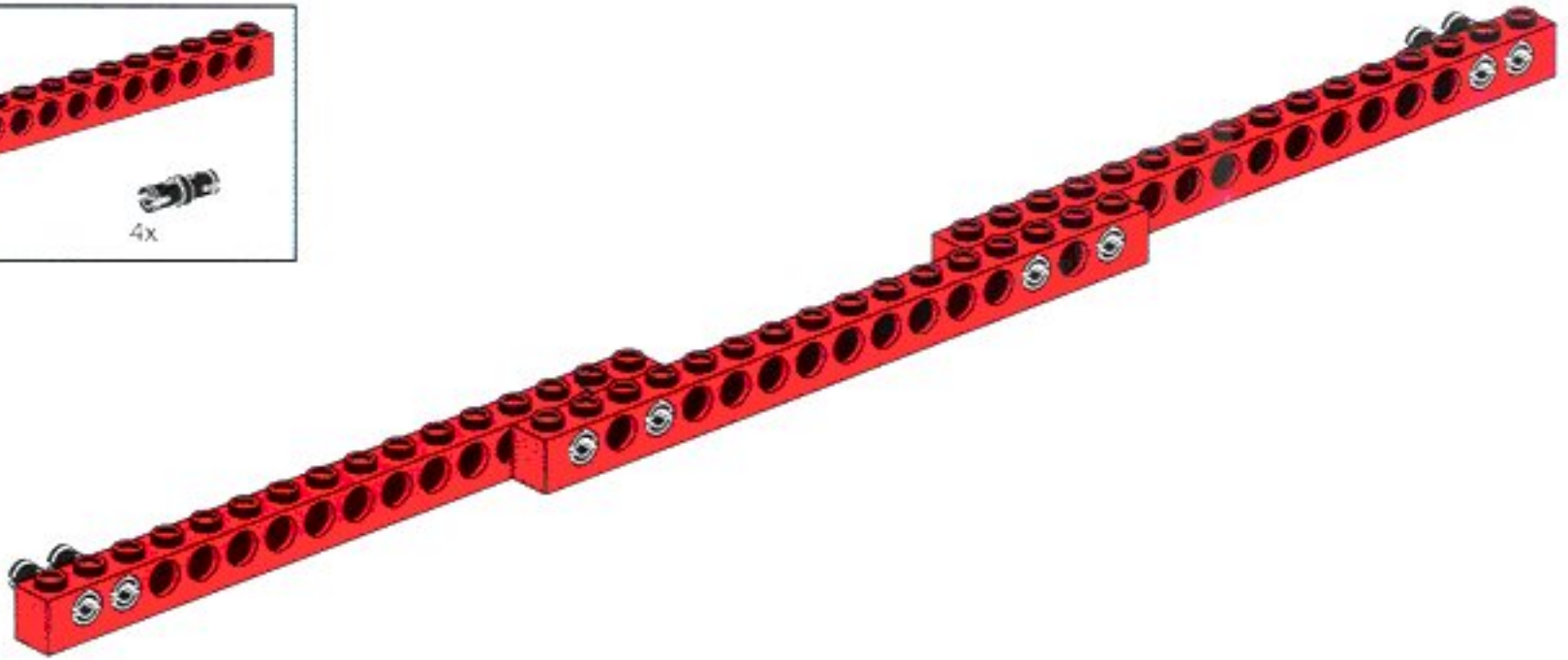
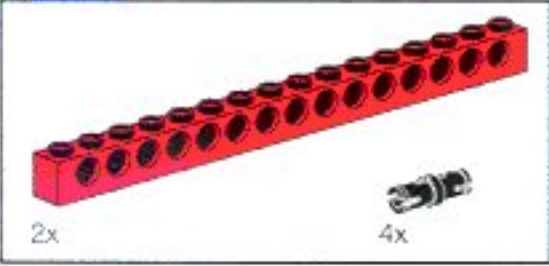
8



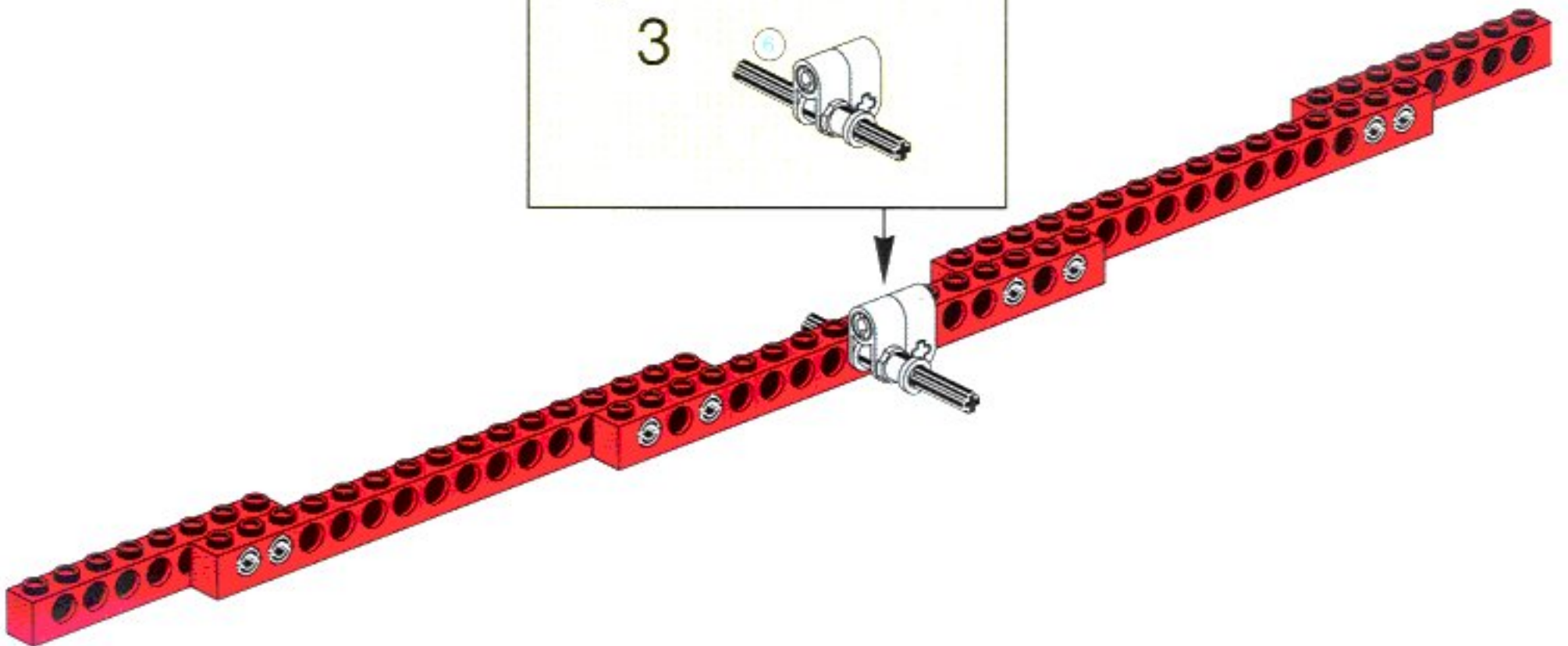
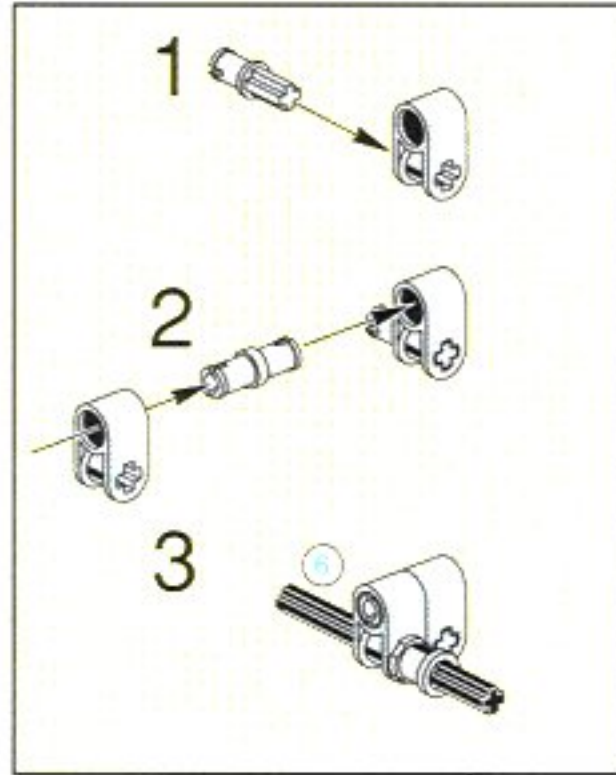
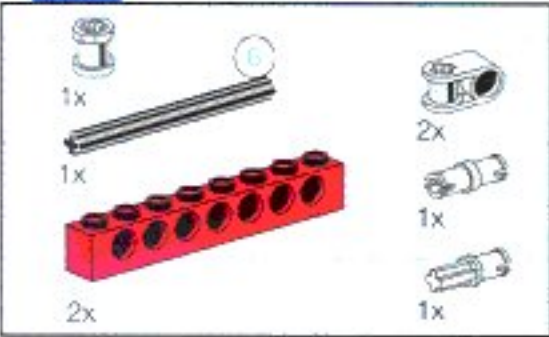
9

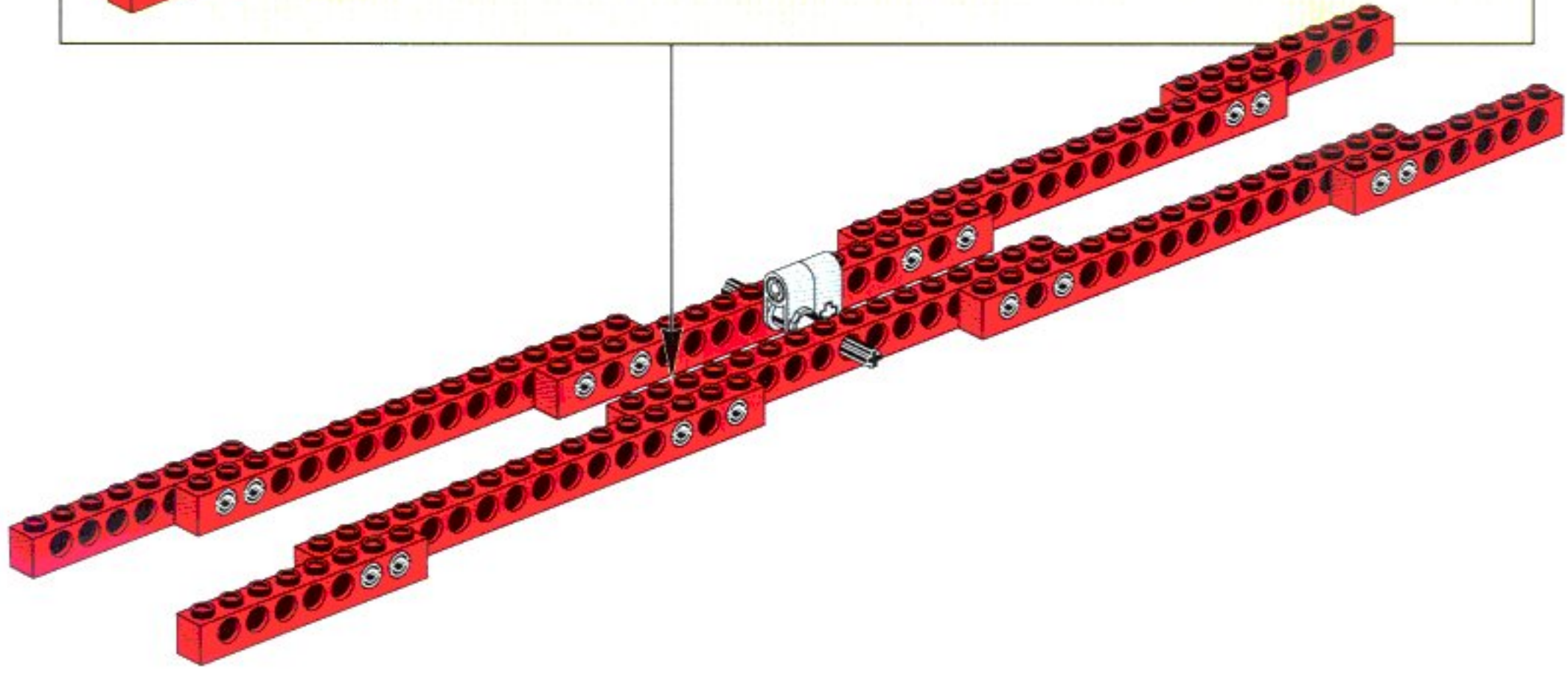
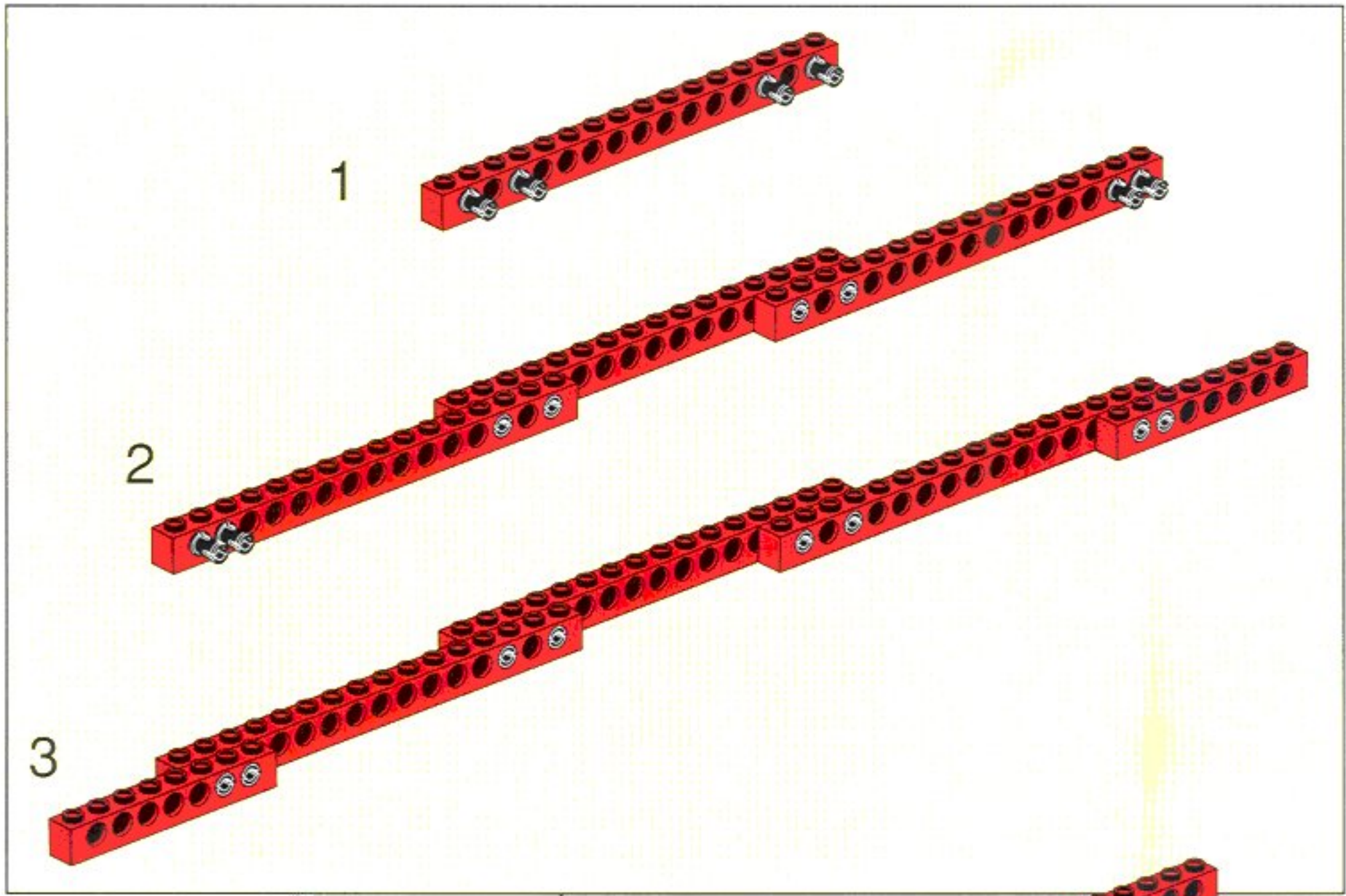
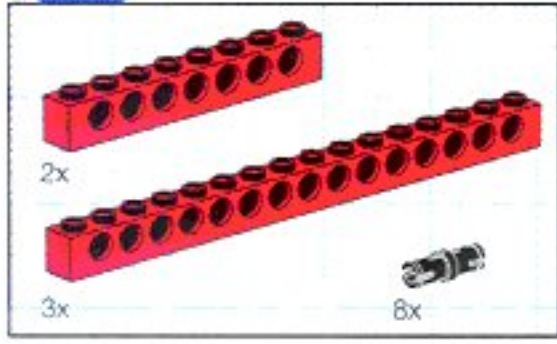


10

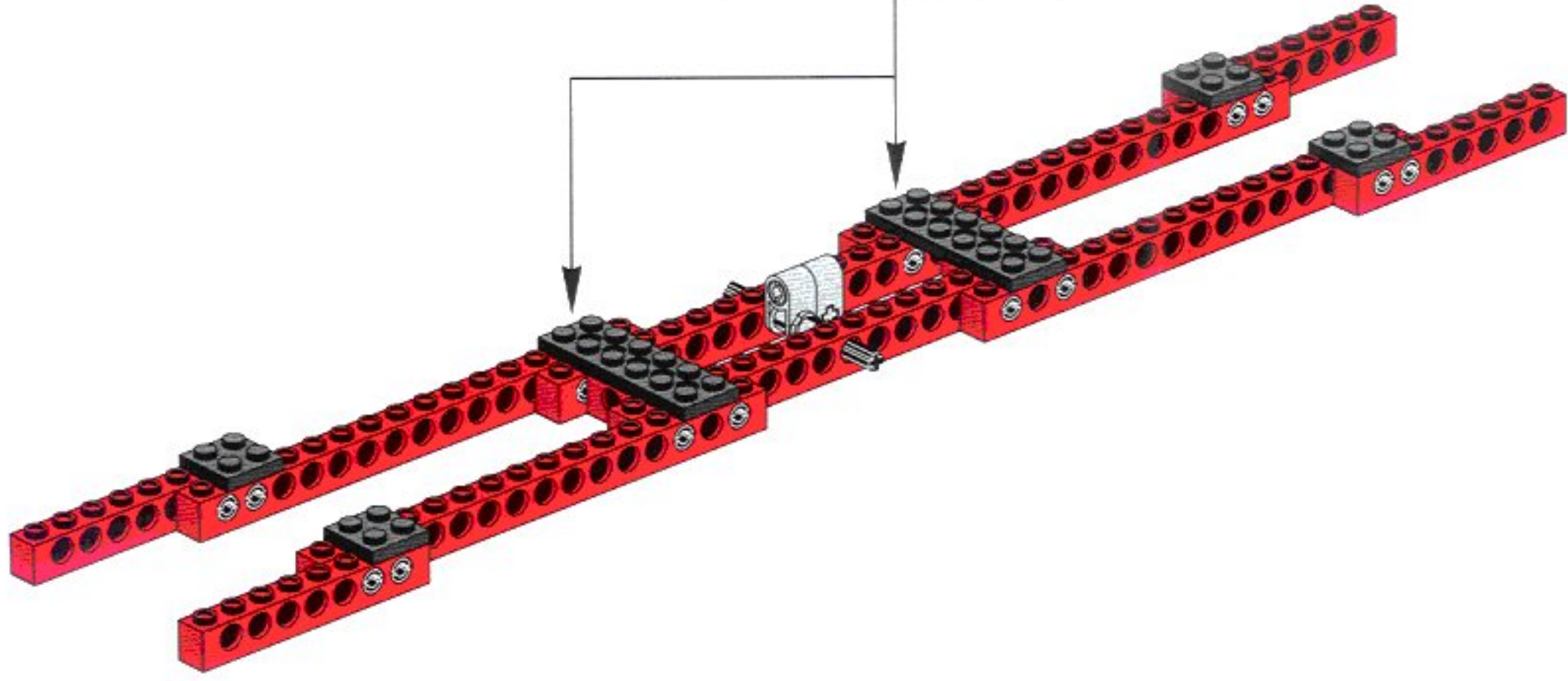
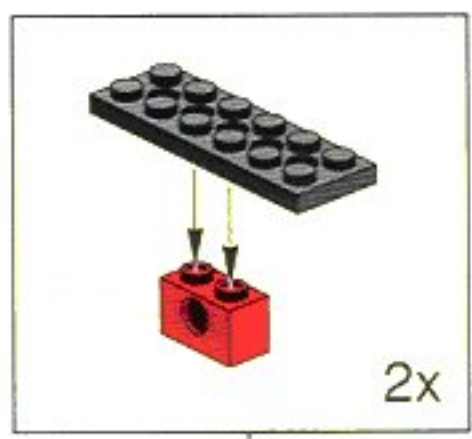
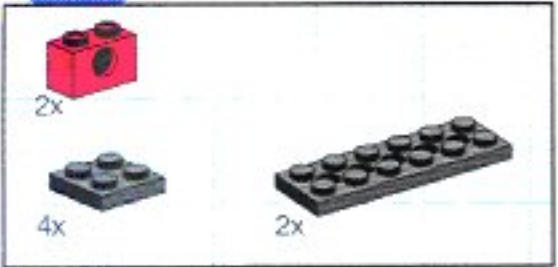


11

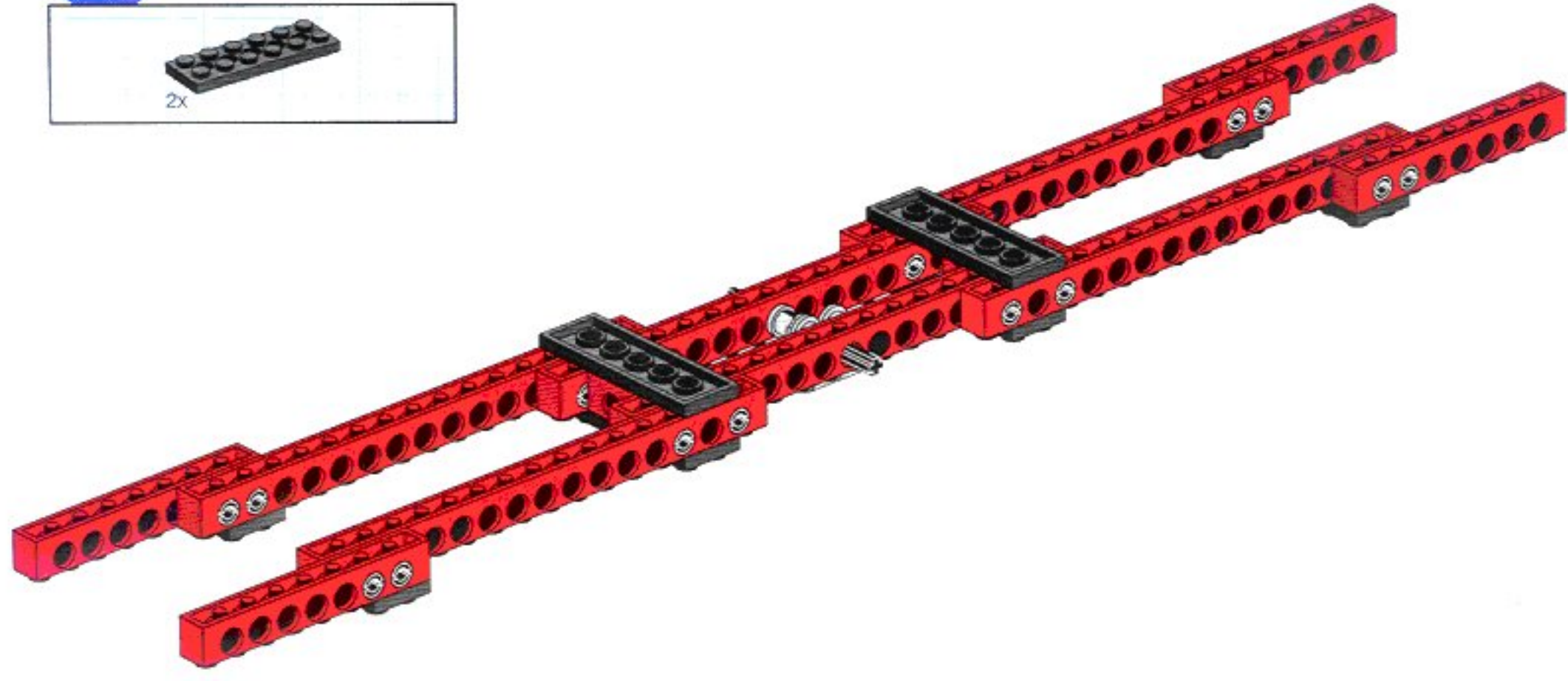


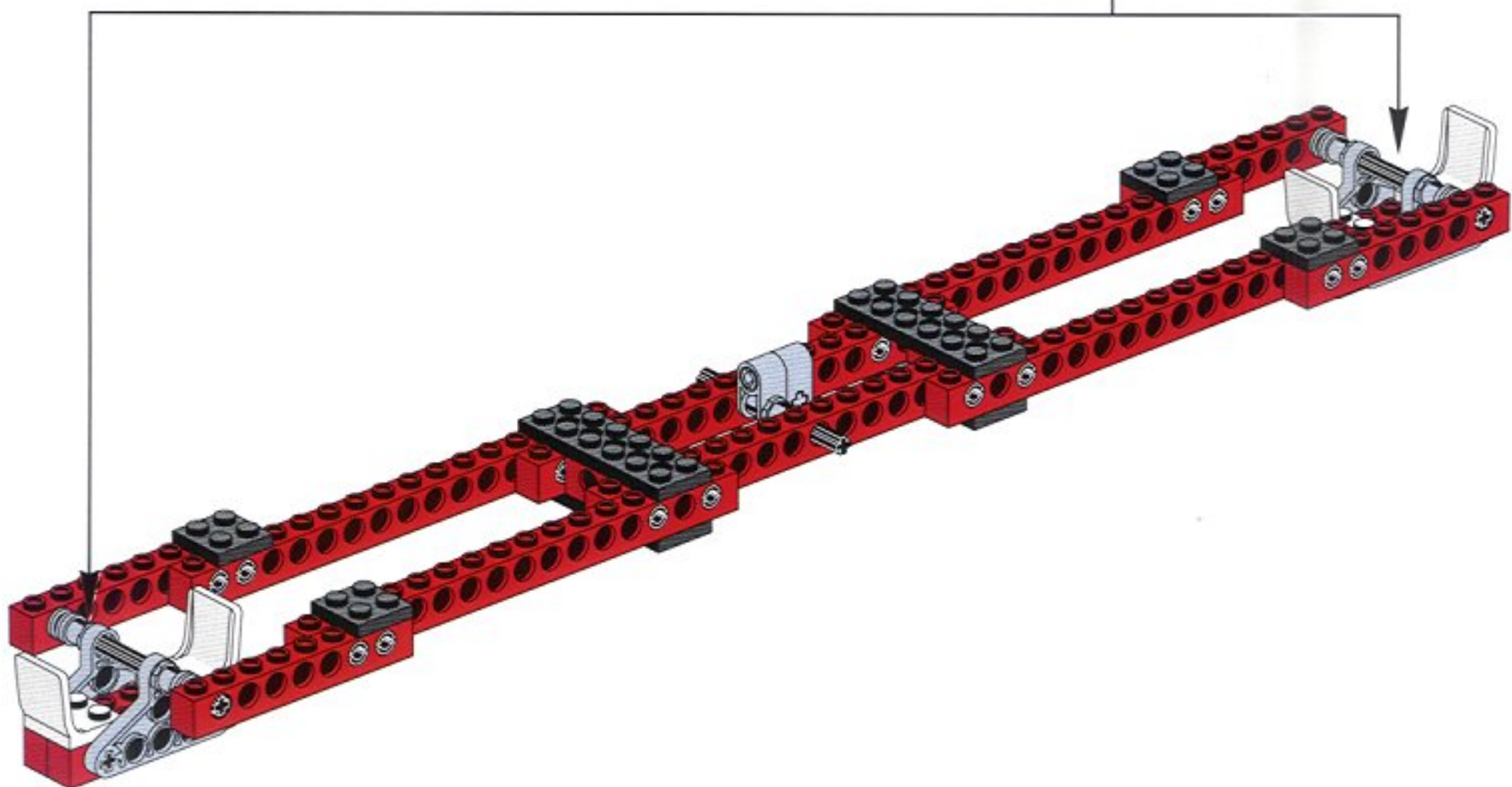
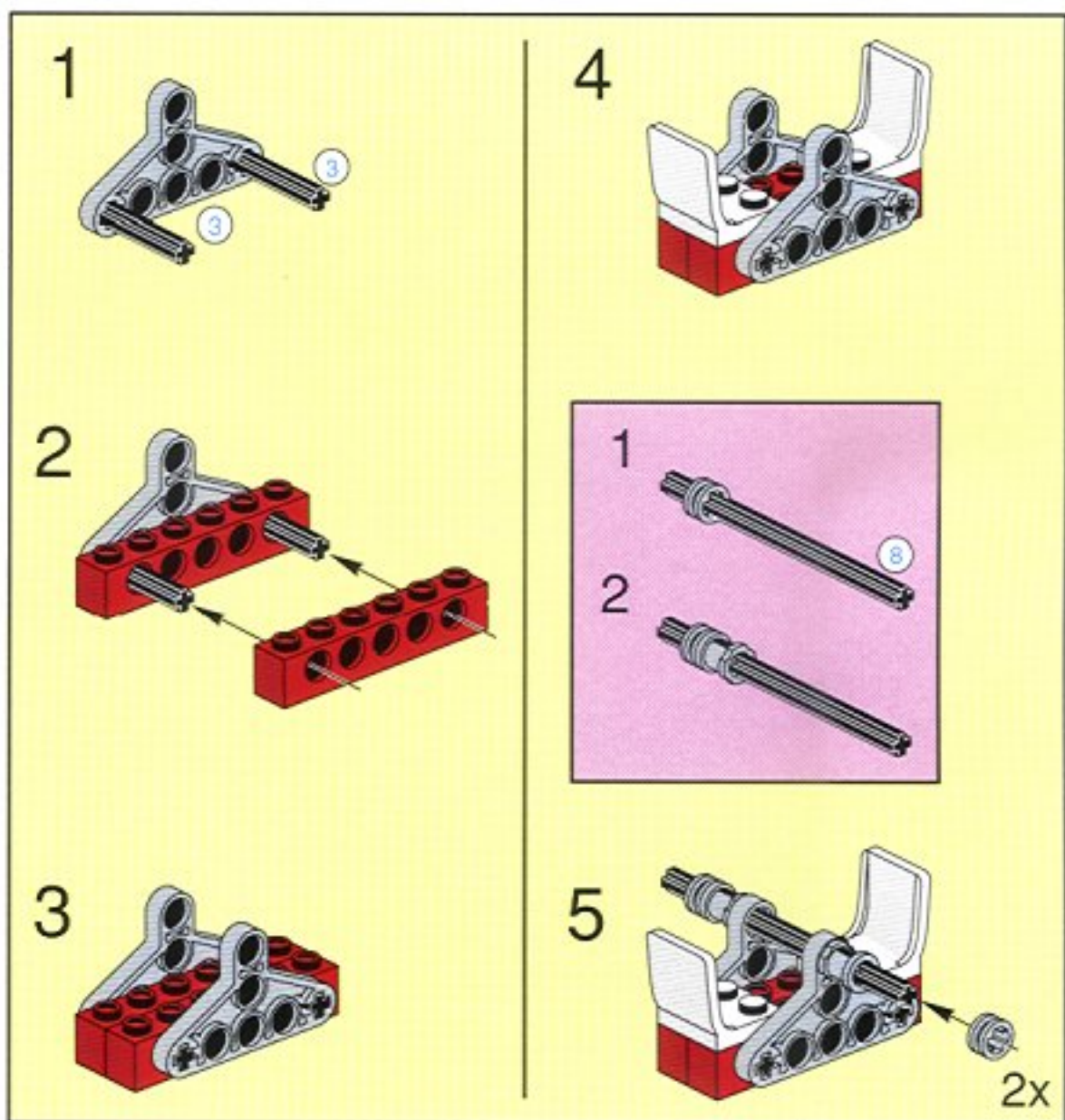
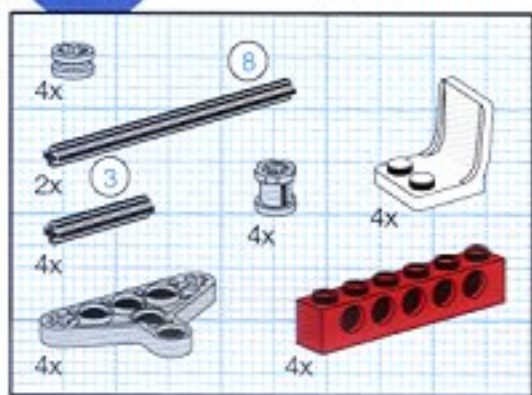


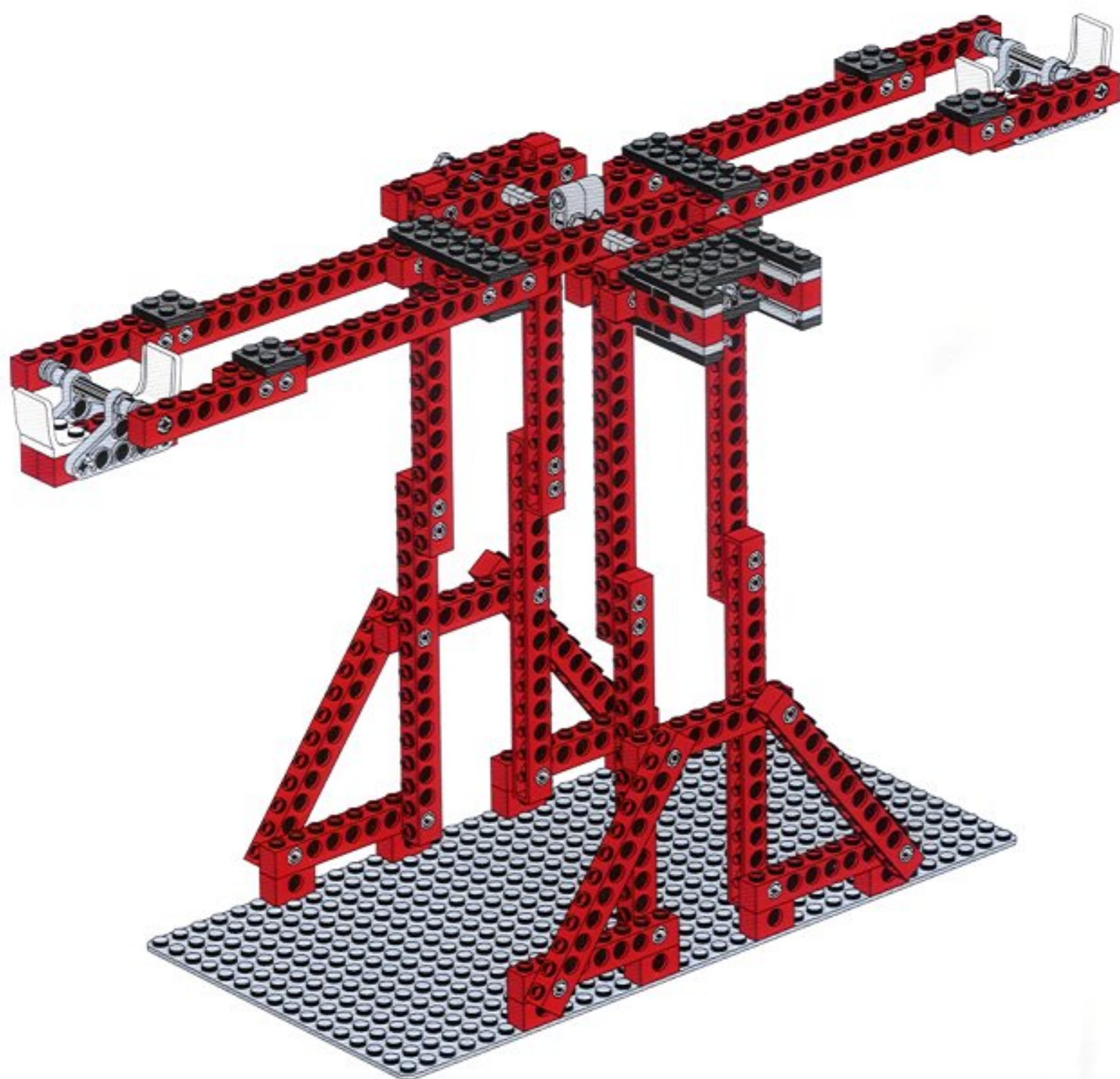
13



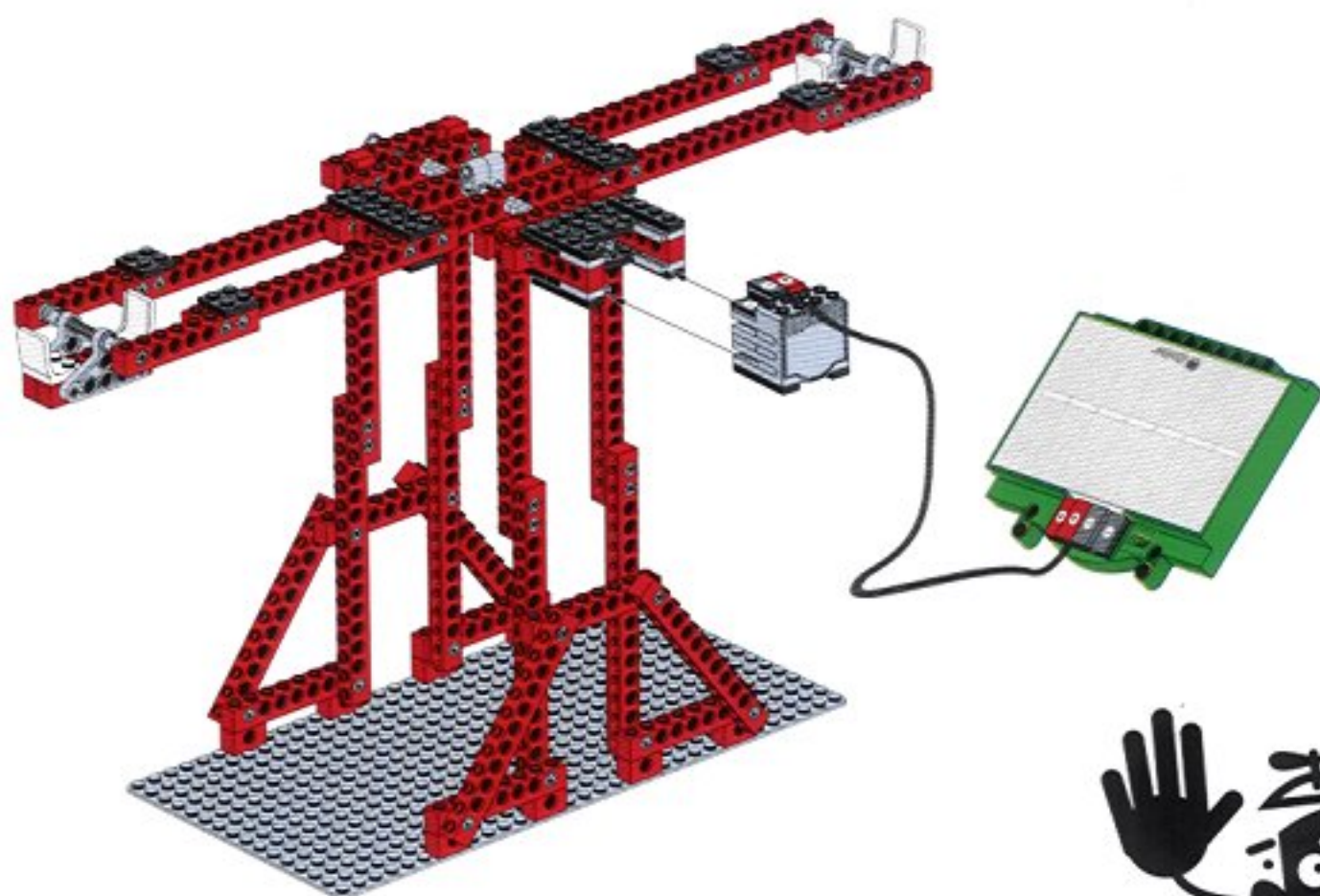
14



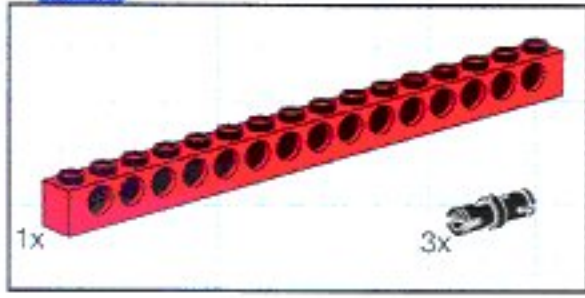




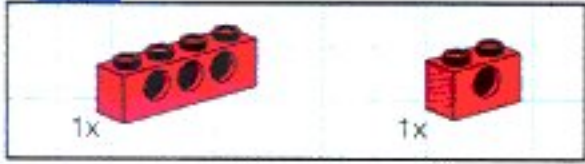
16



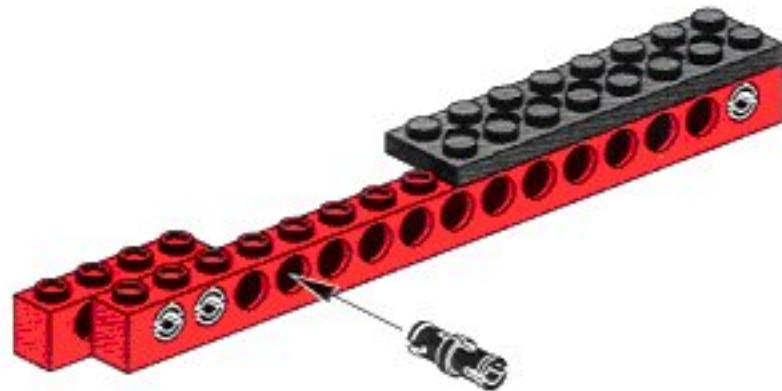
1



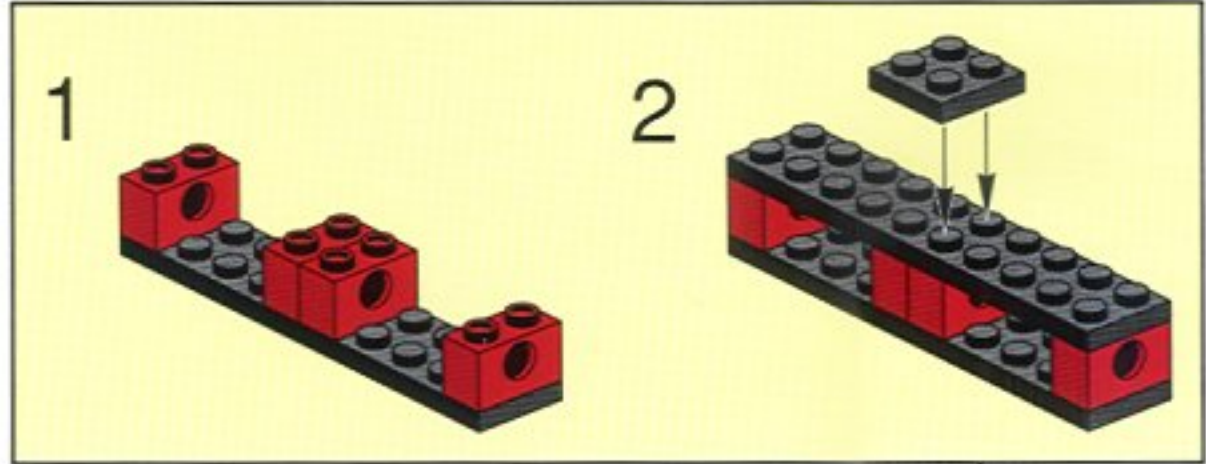
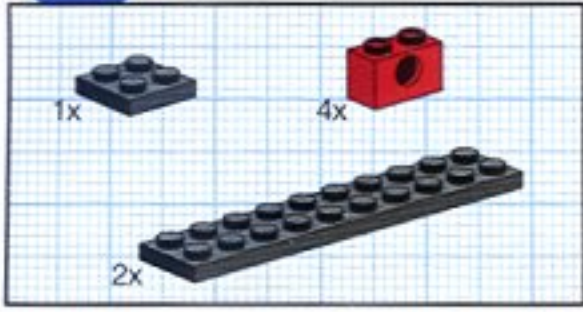
2



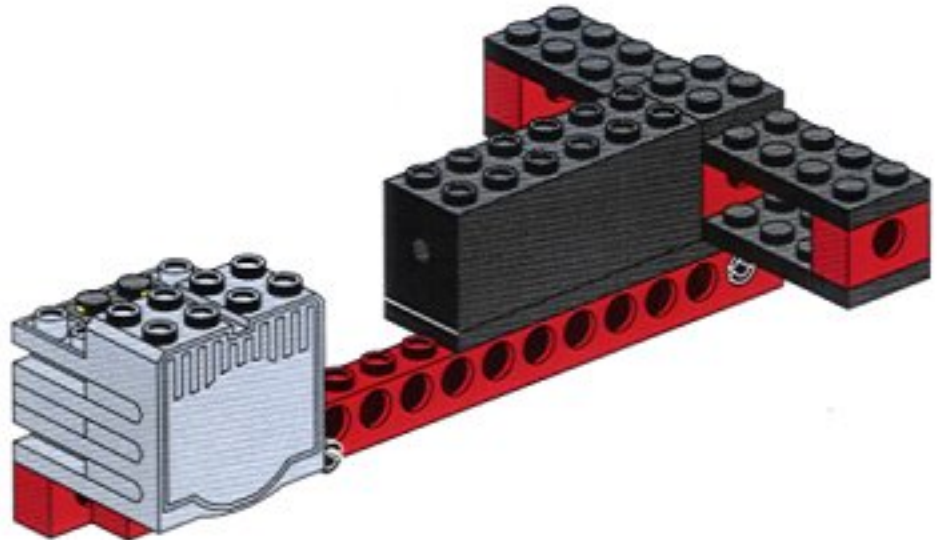
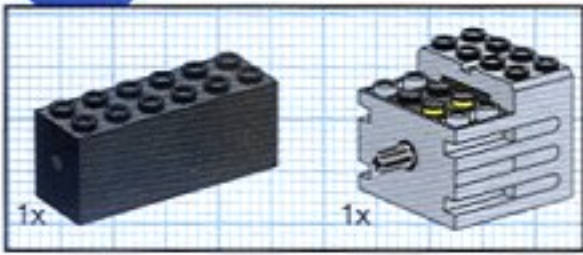
3



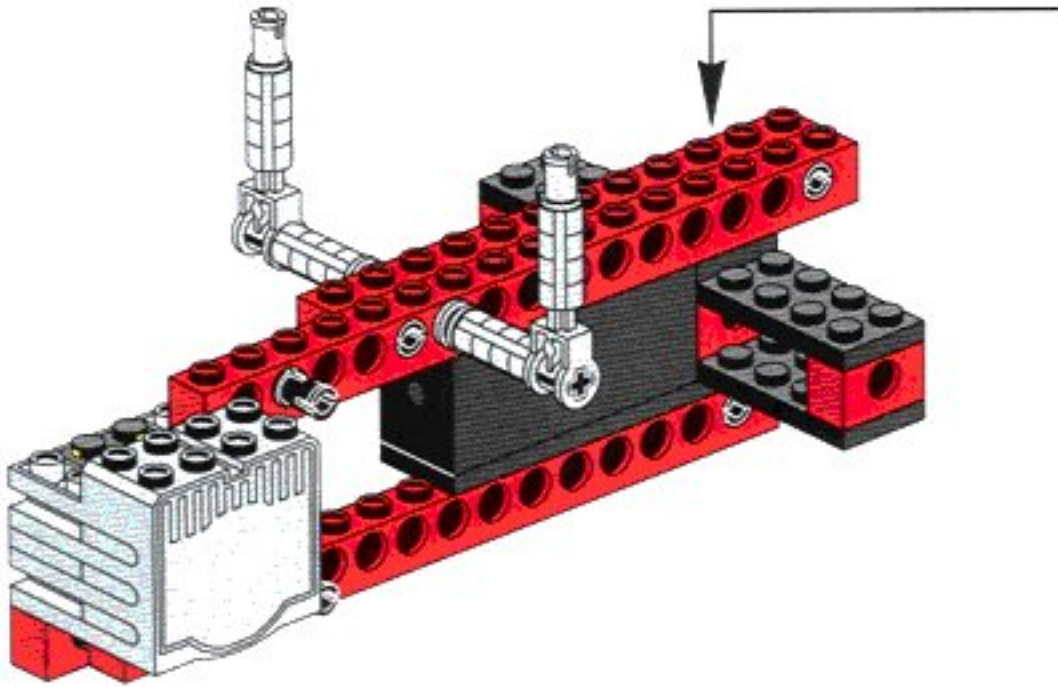
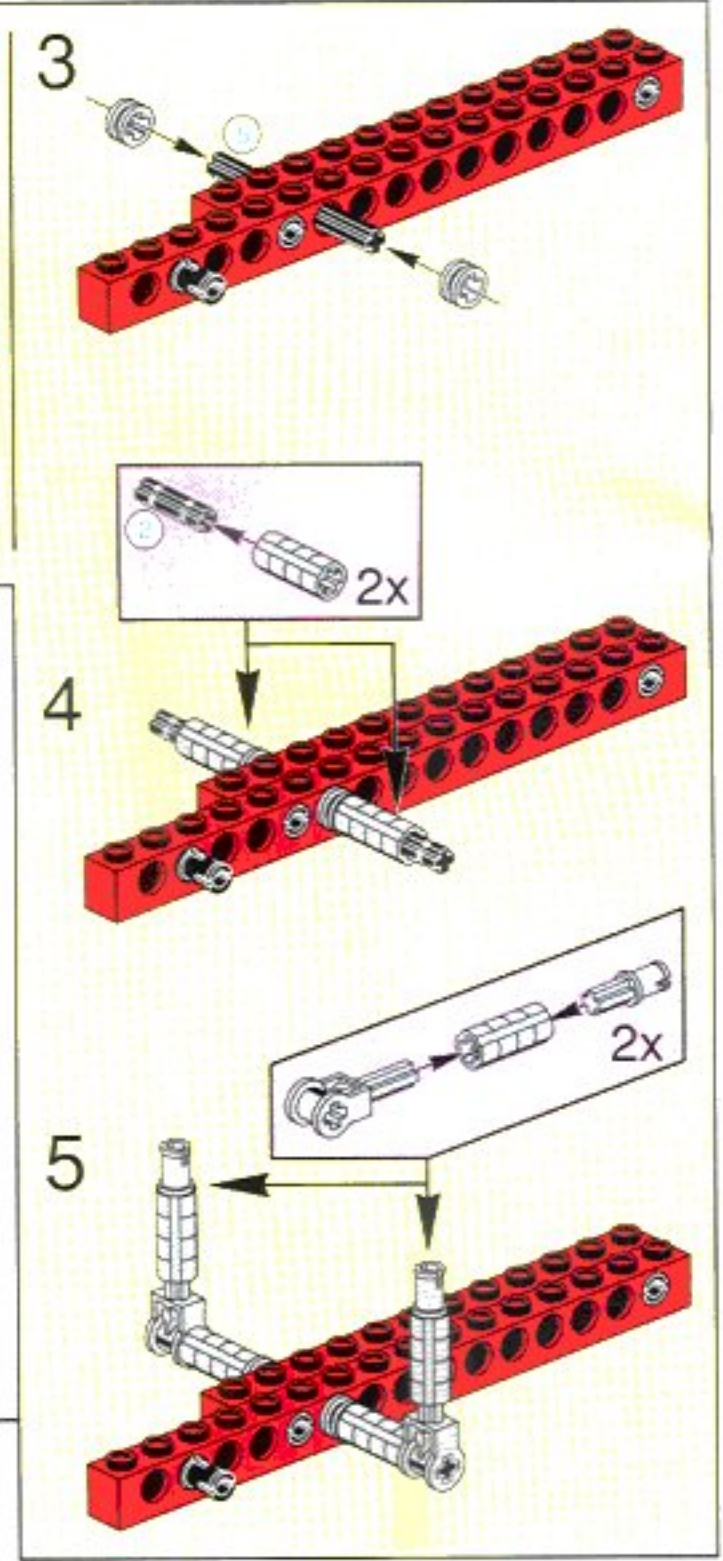
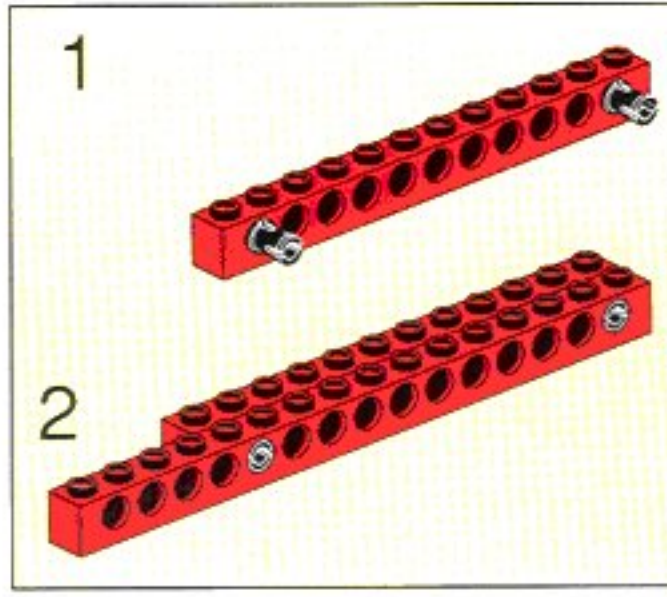
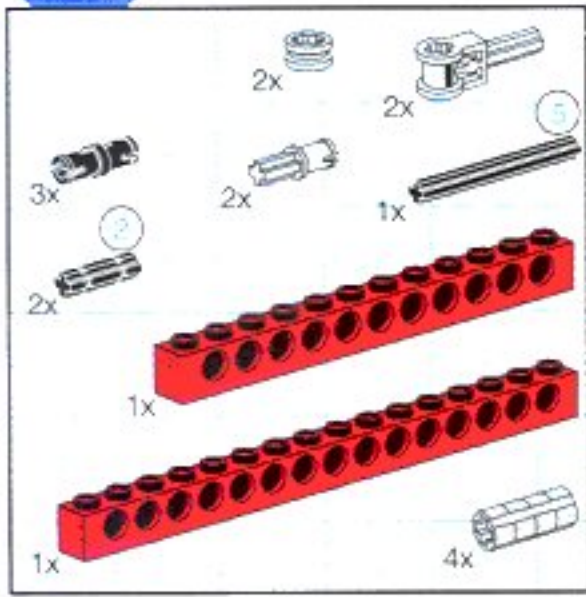
4



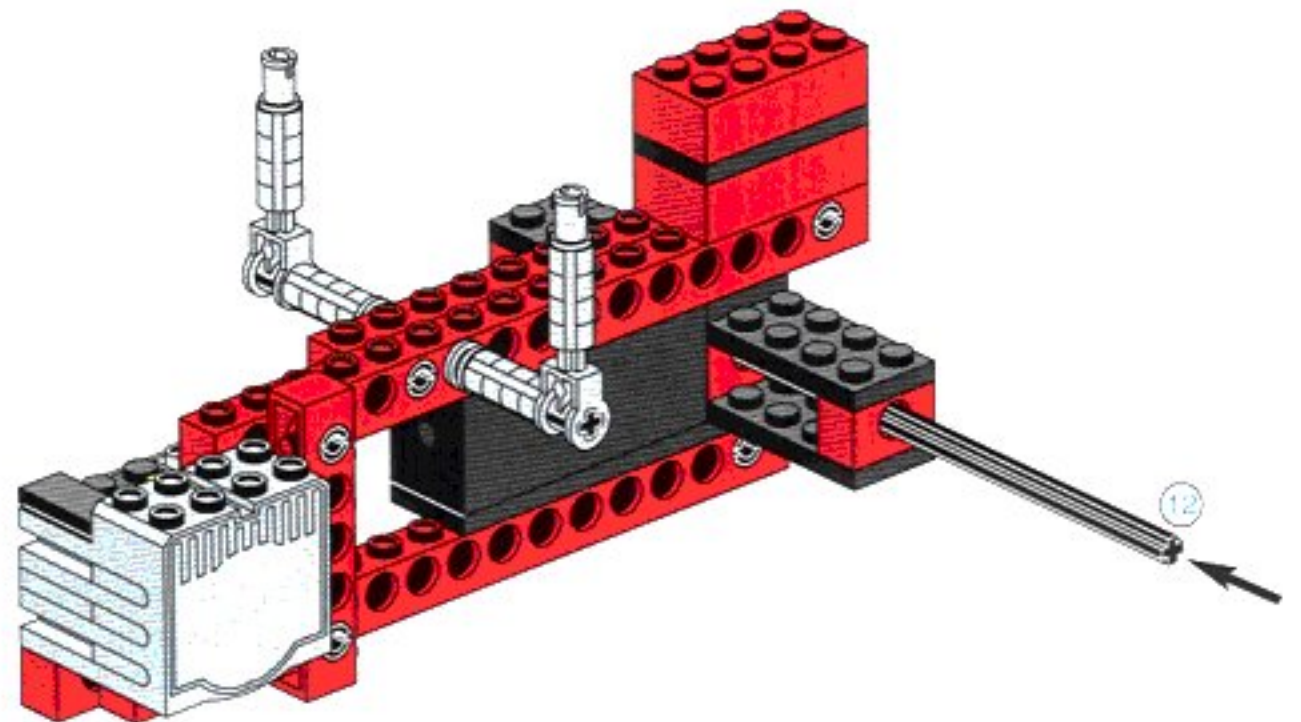
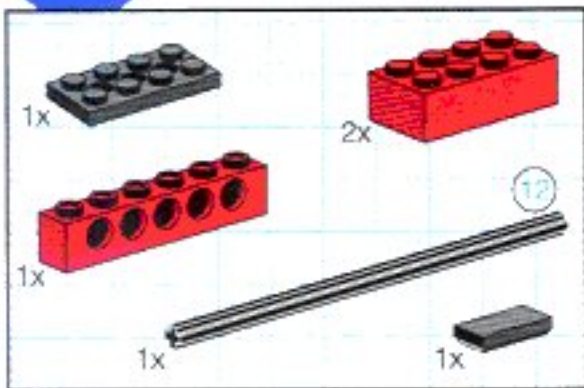
5



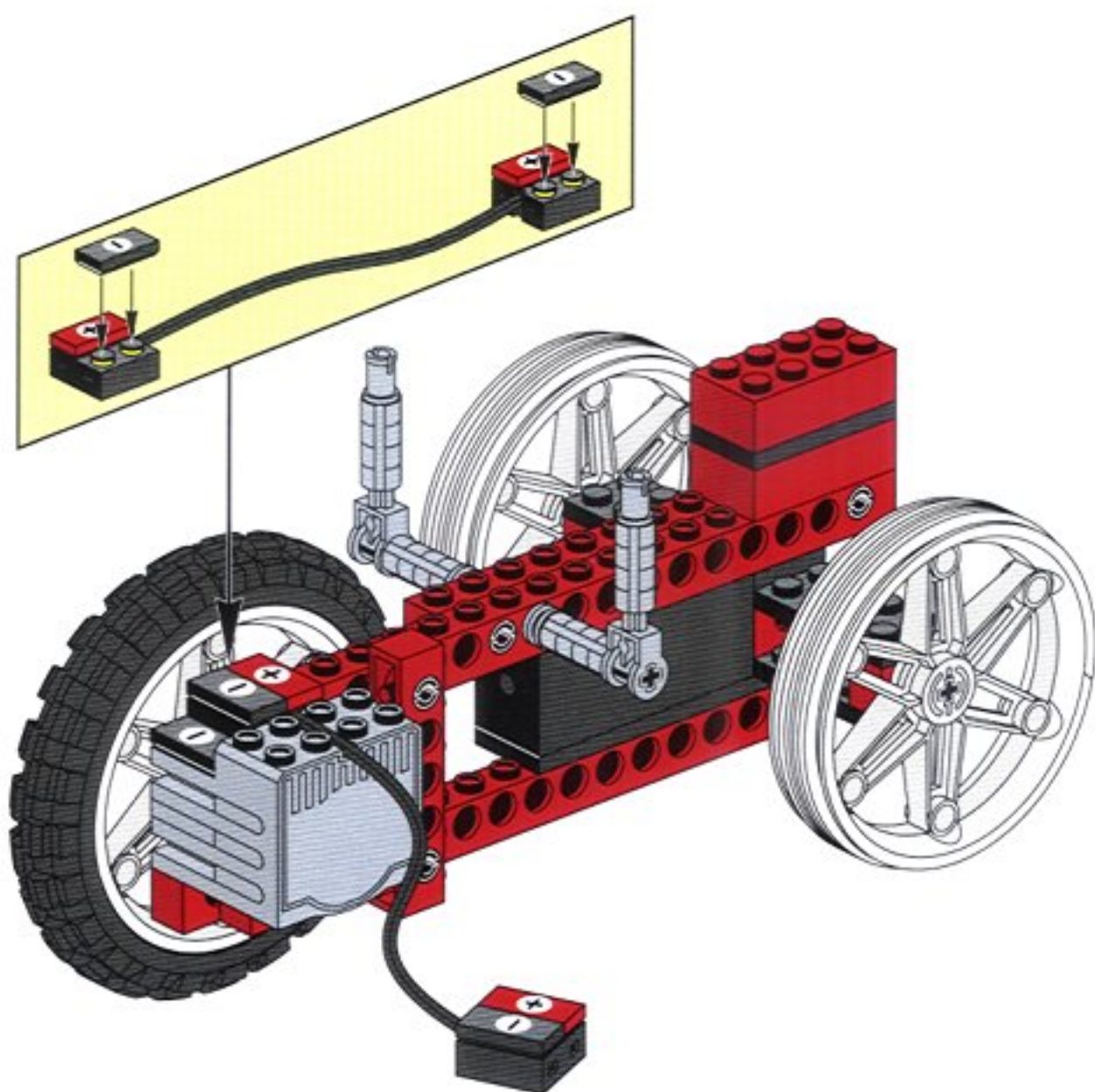
6



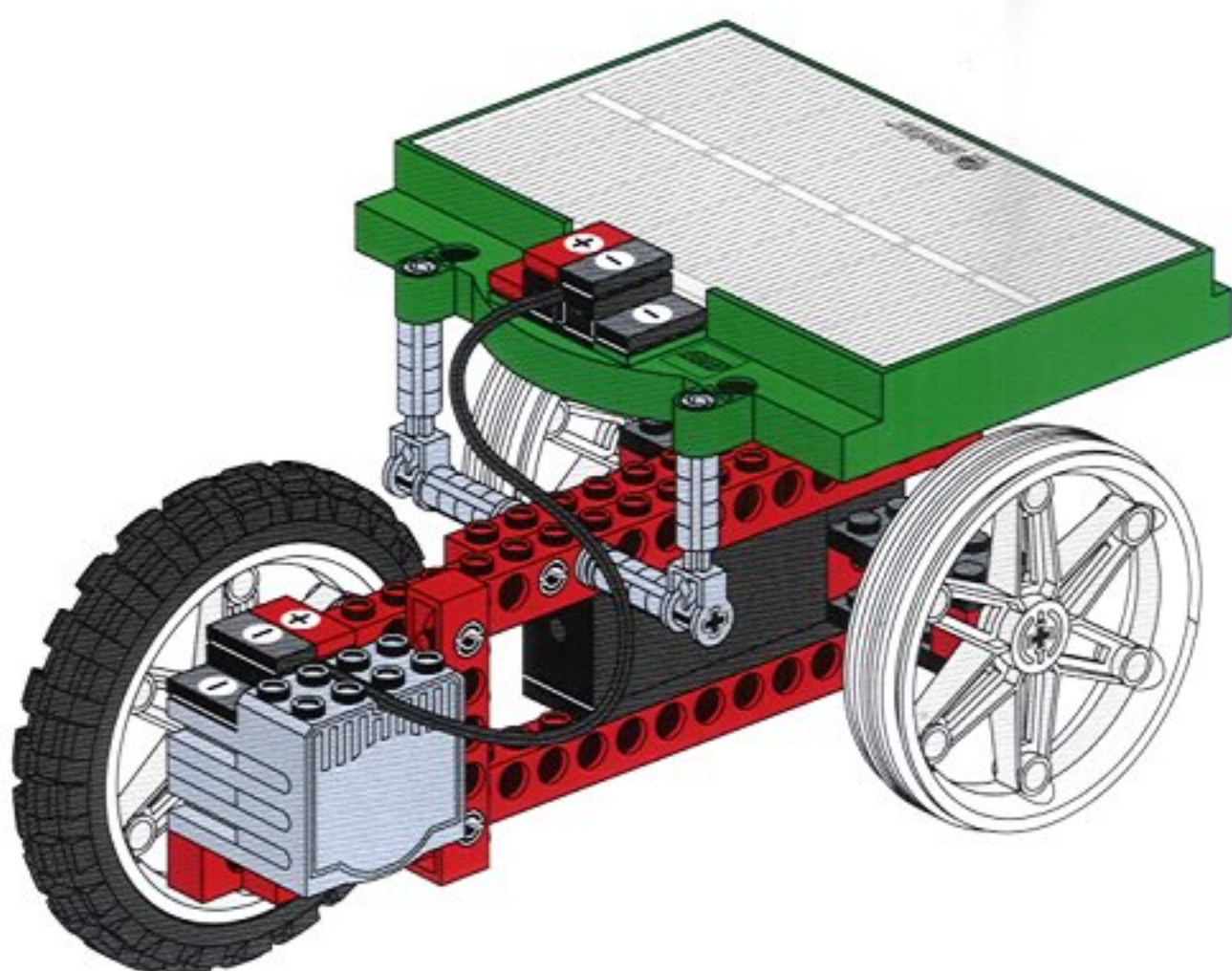
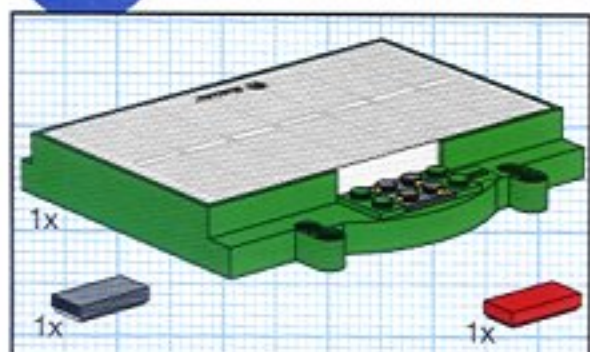
7



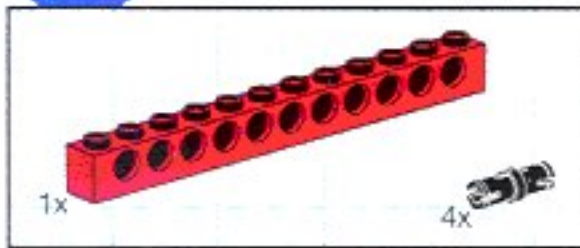
8



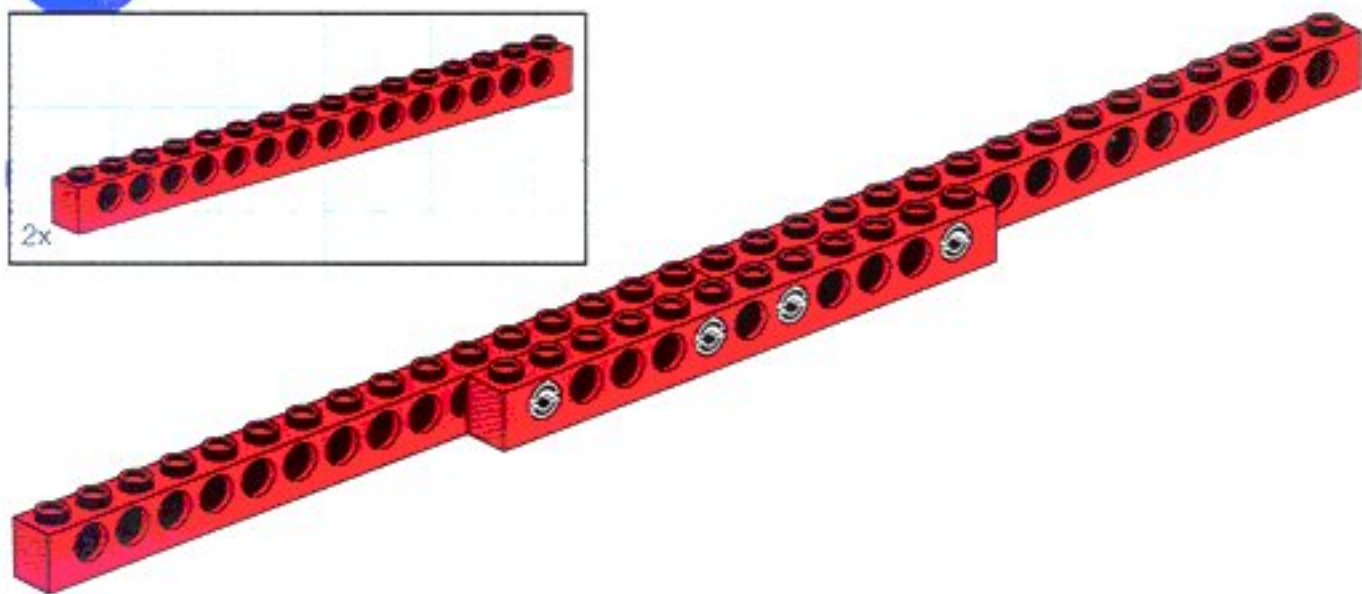
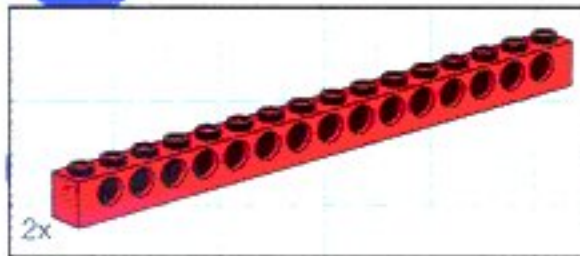
9



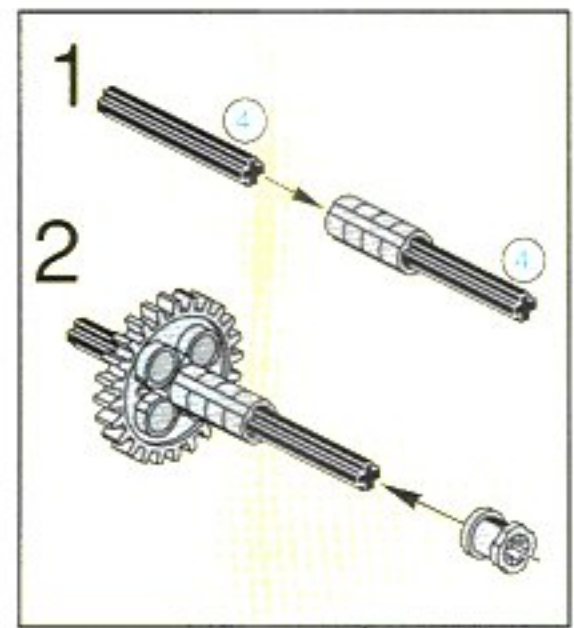
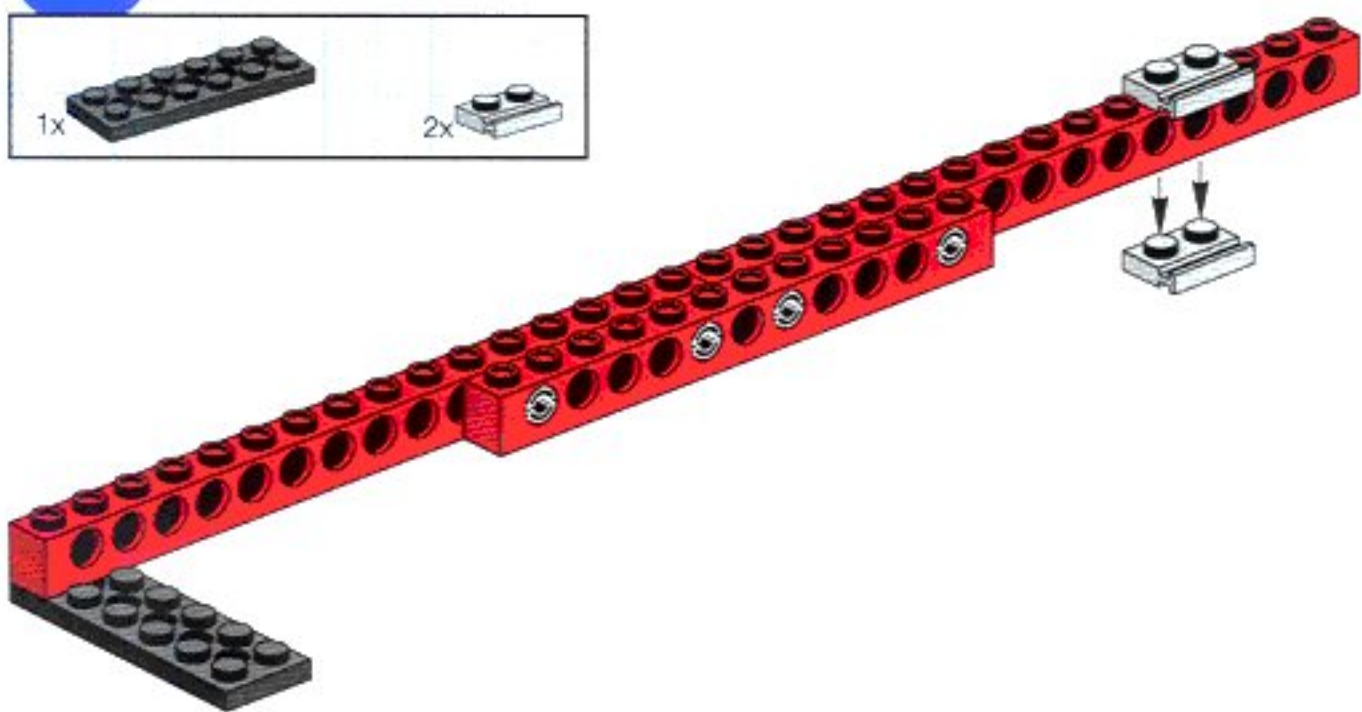
1



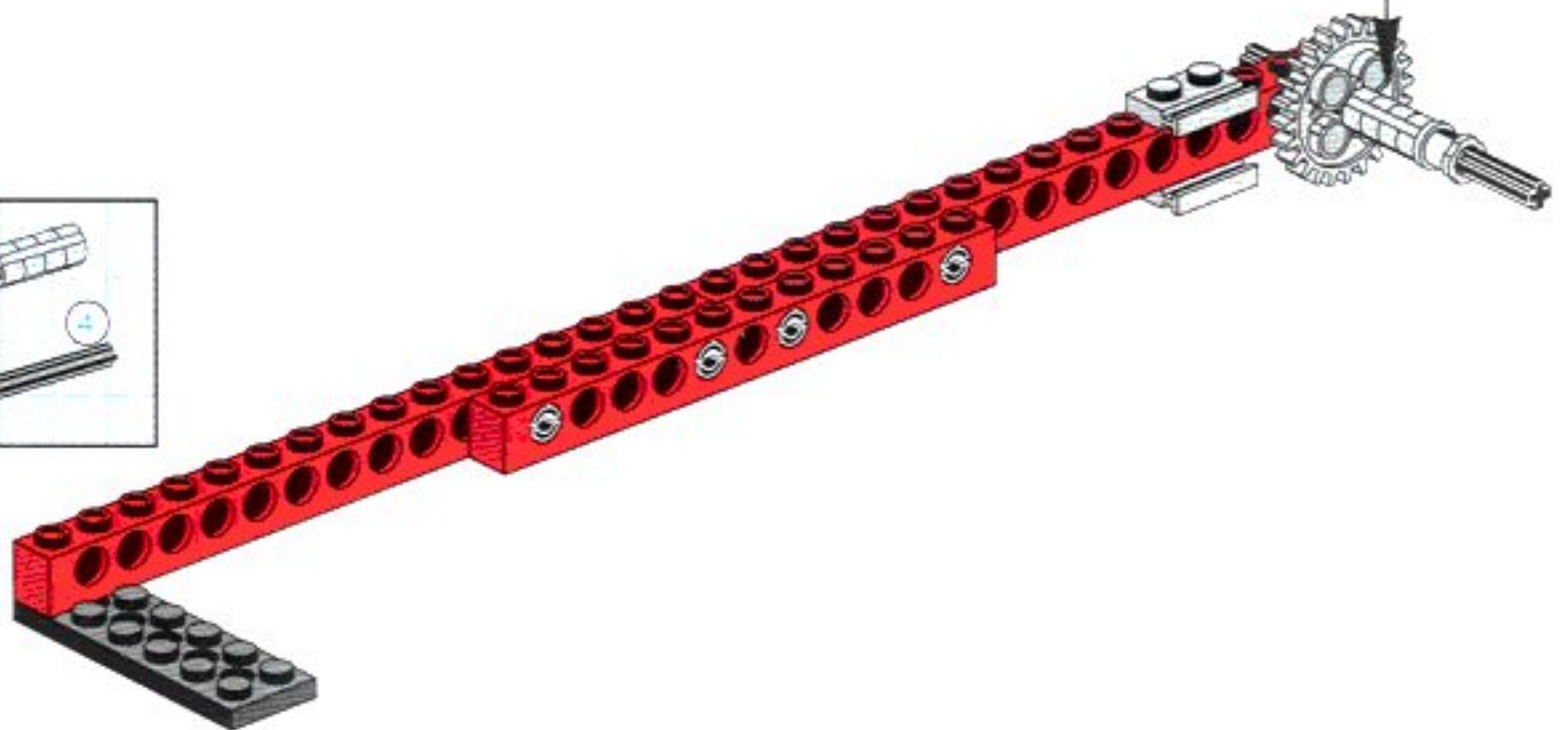
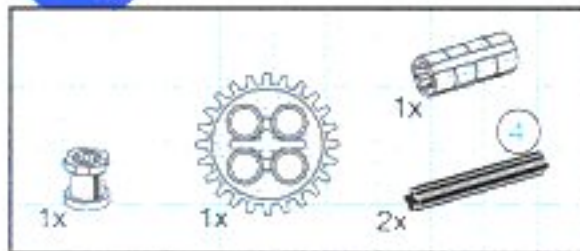
2



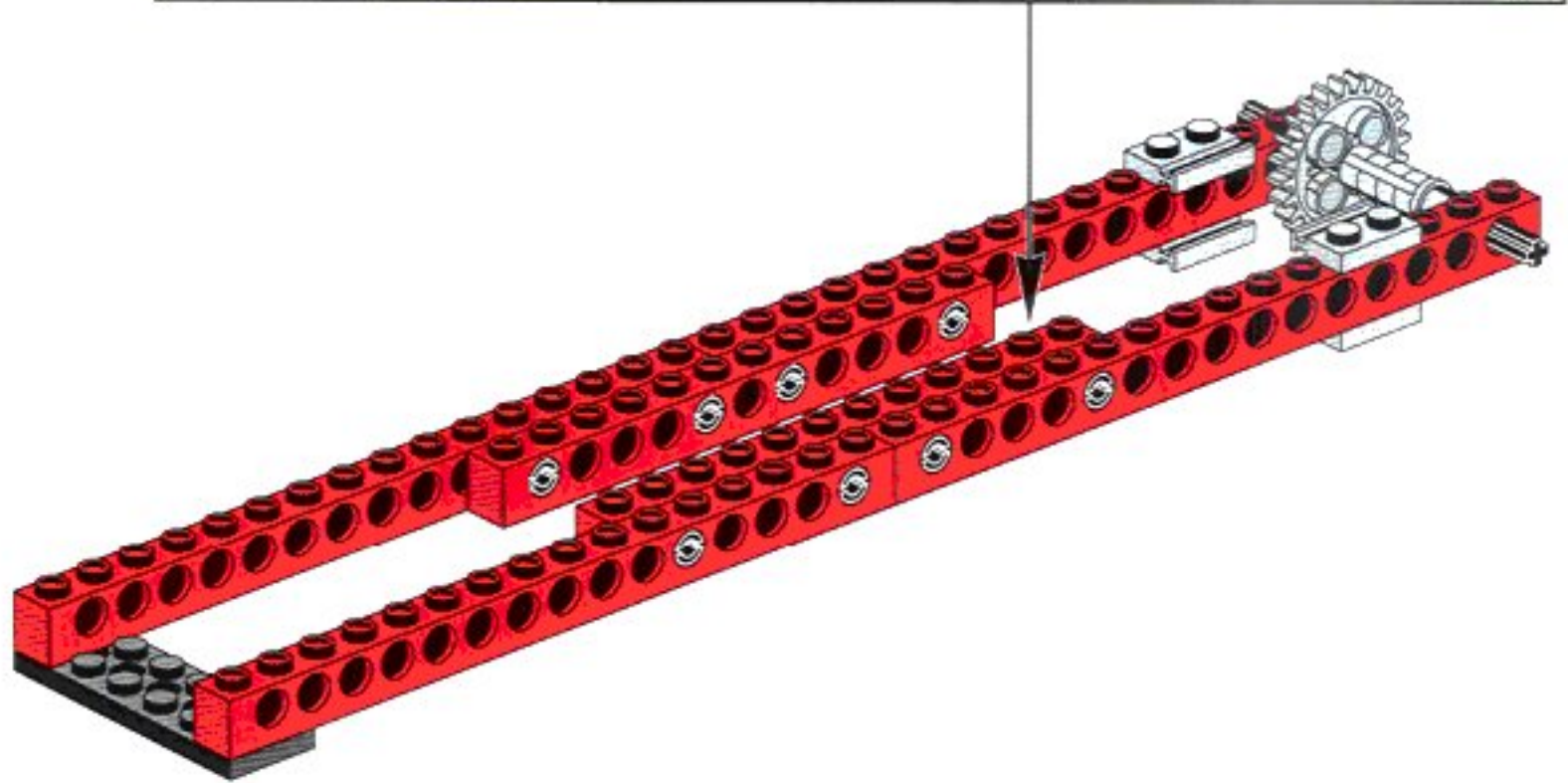
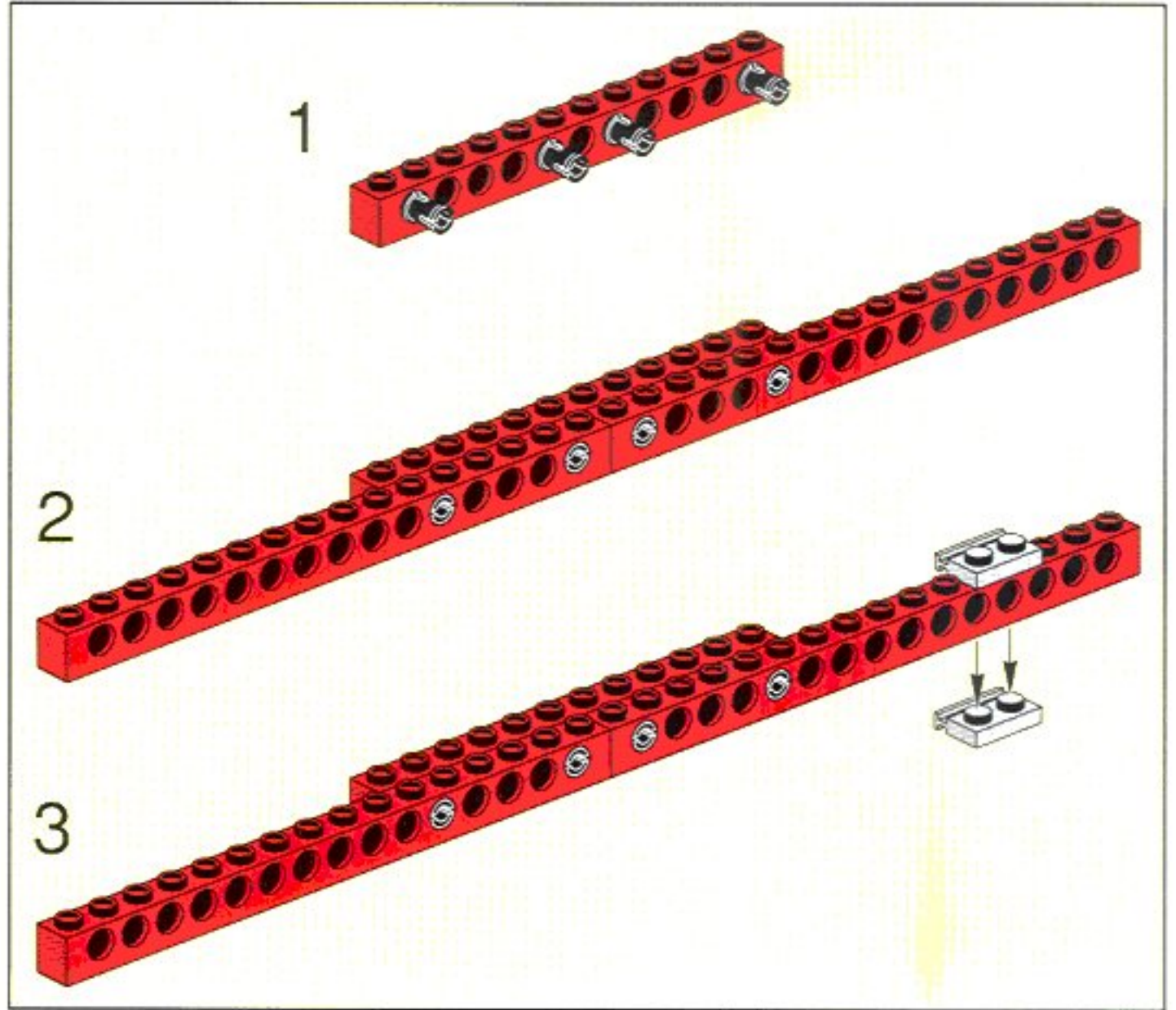
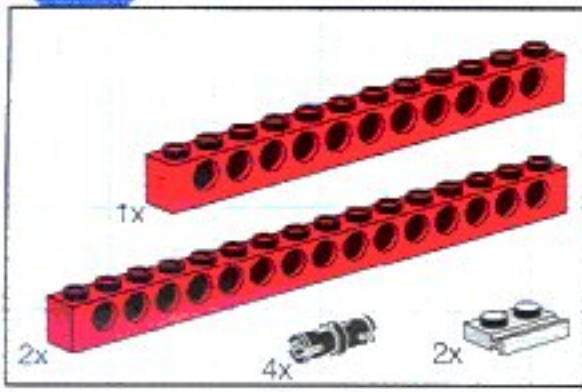
3



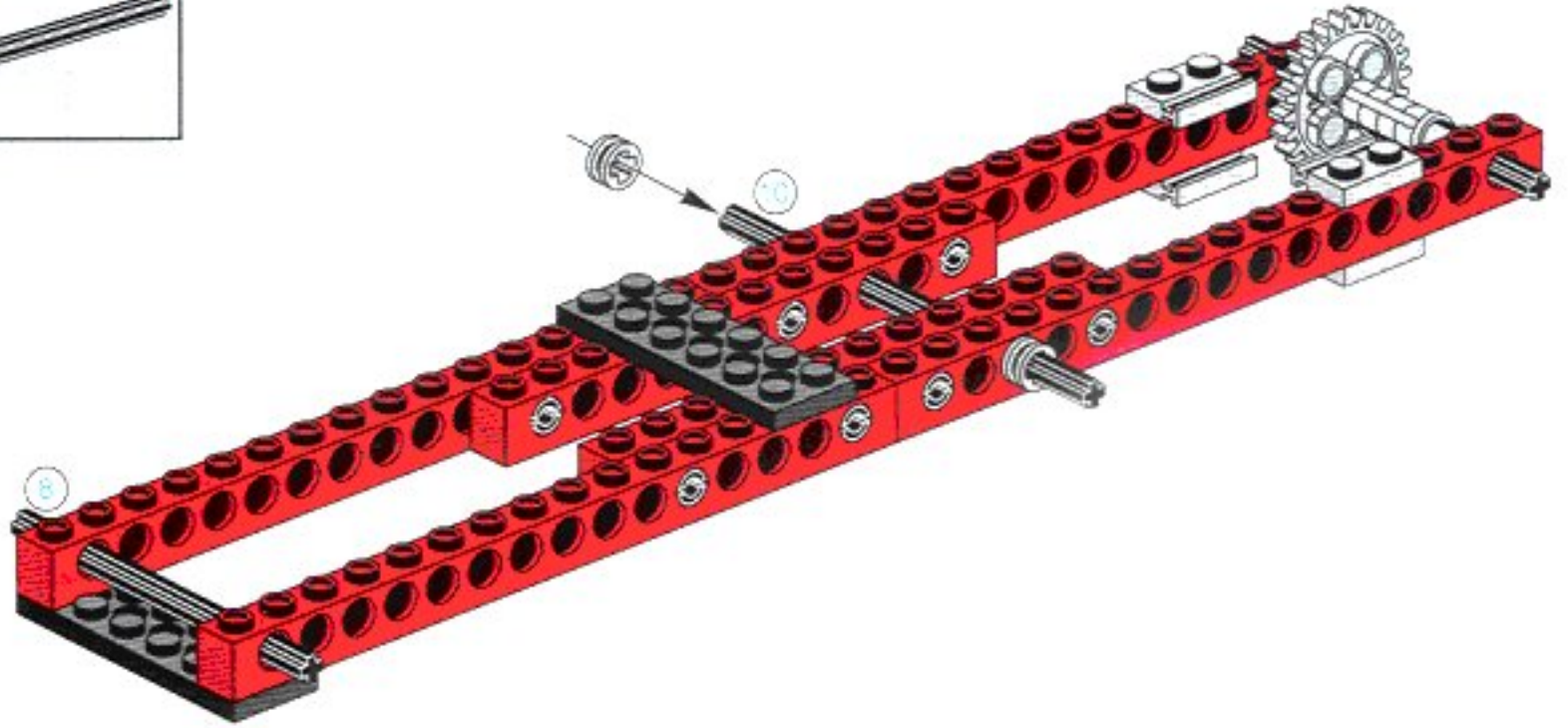
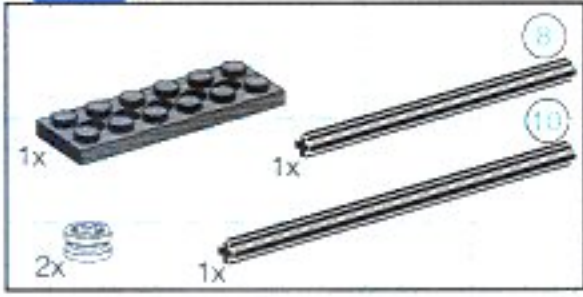
4



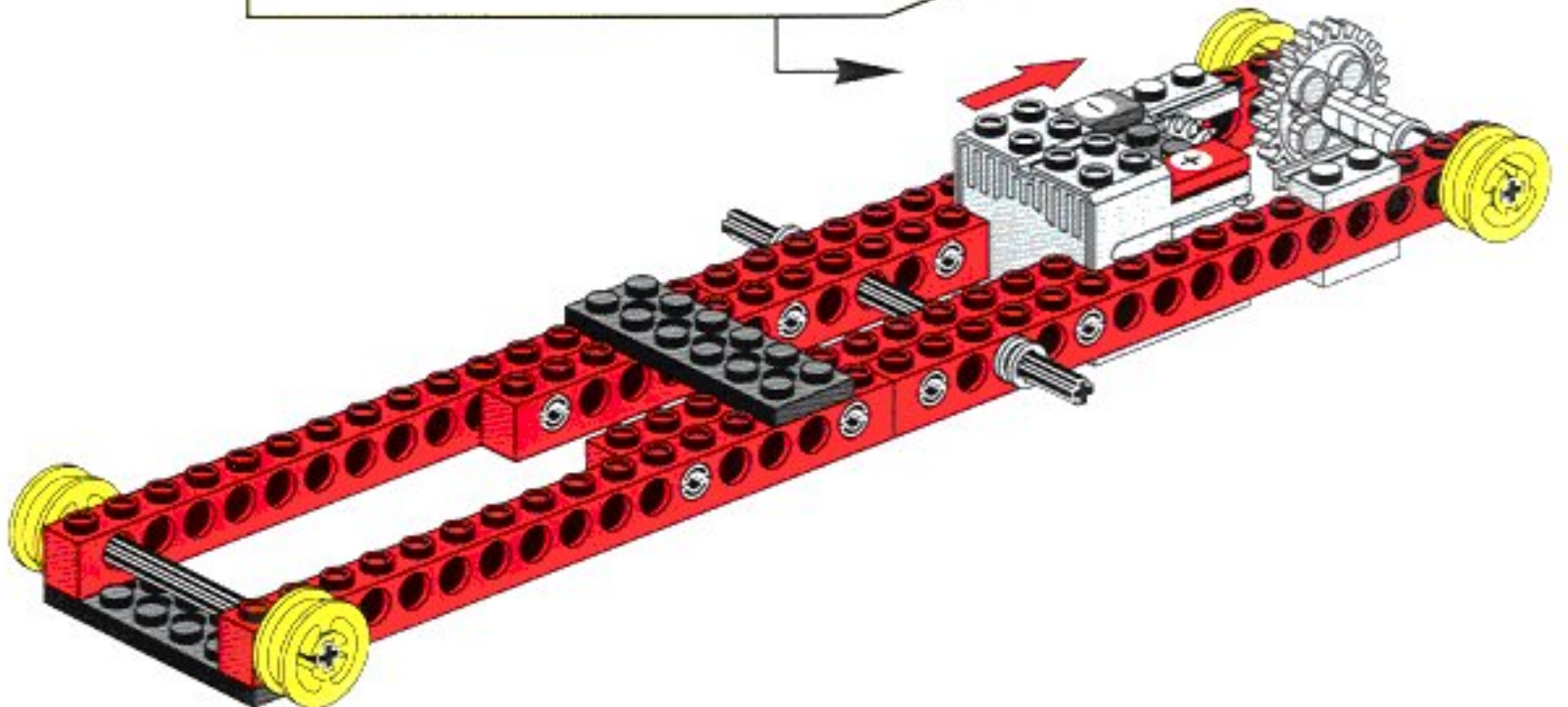
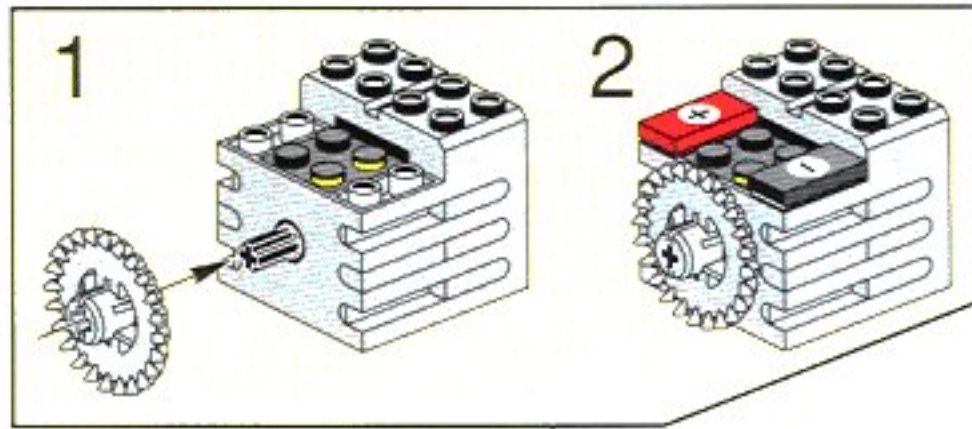
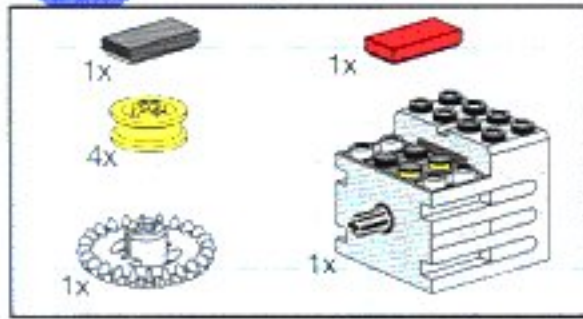
5



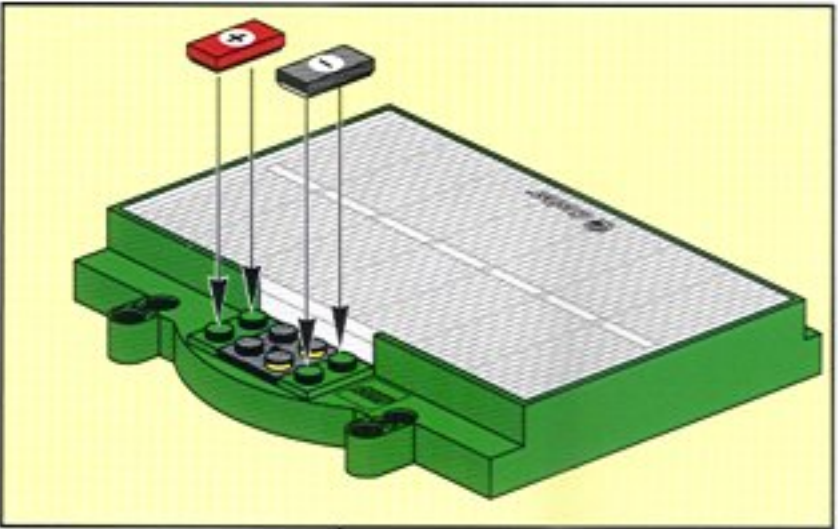
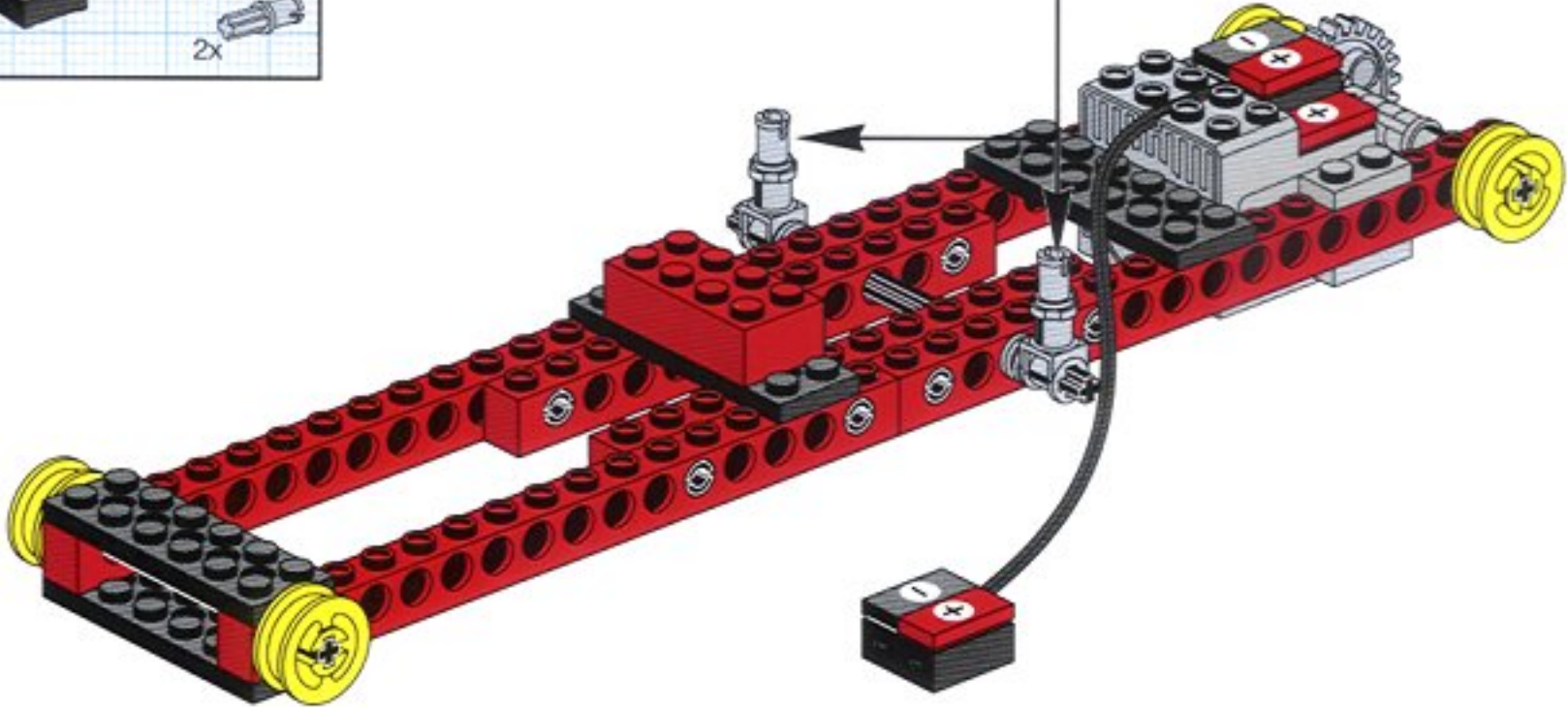
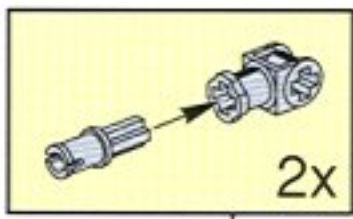
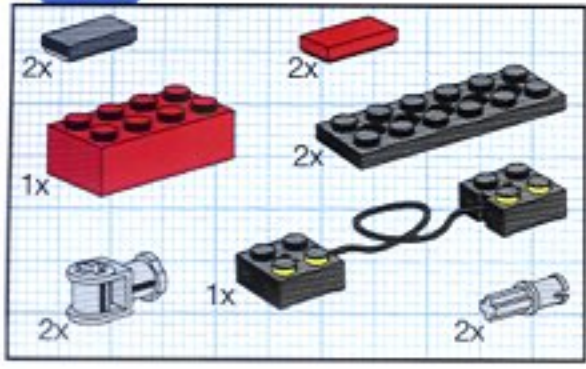
6



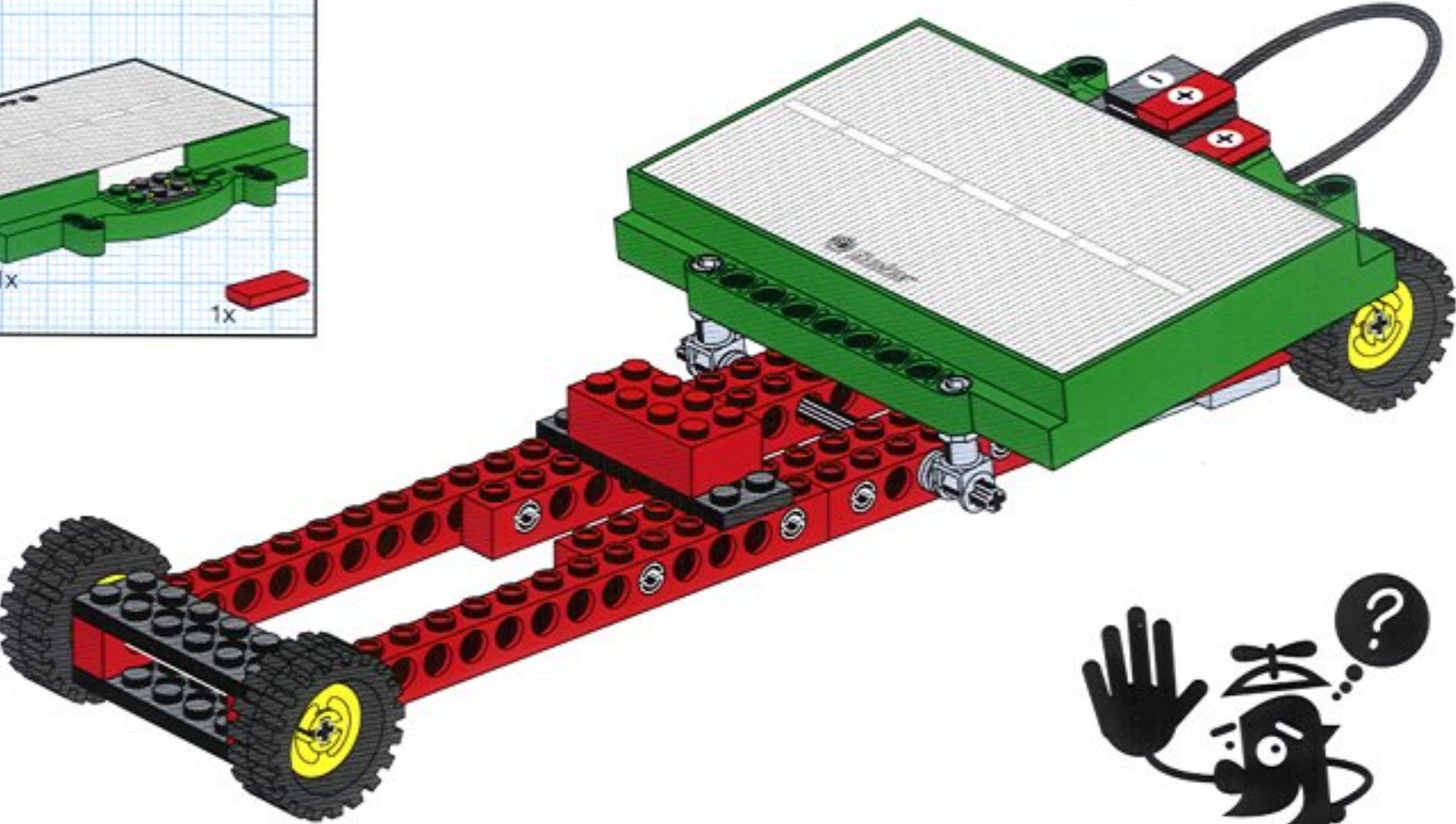
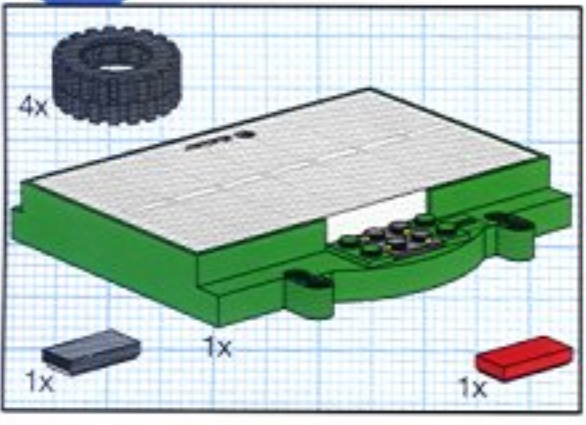
7



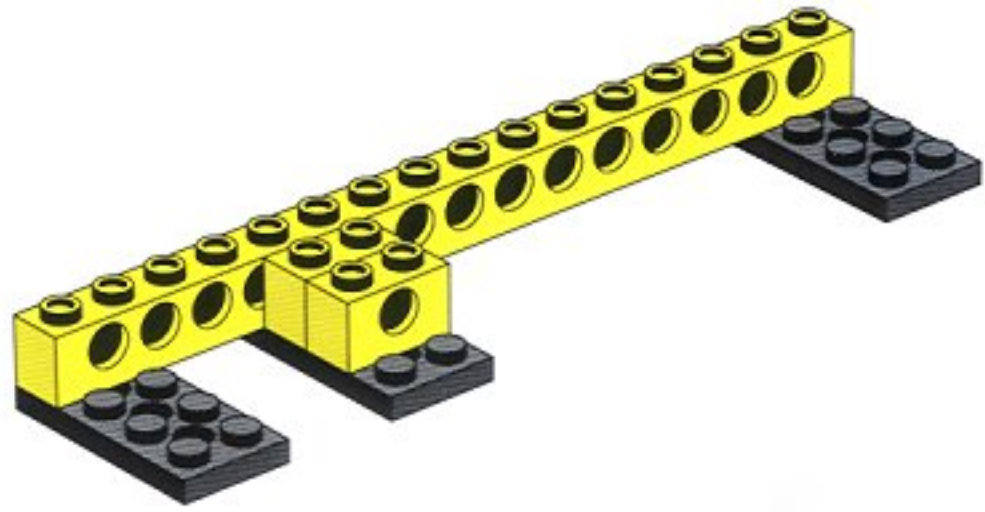
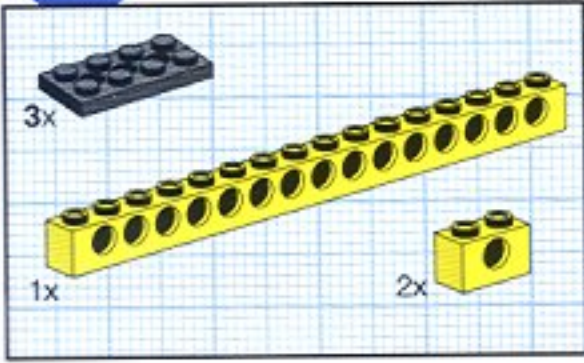
8



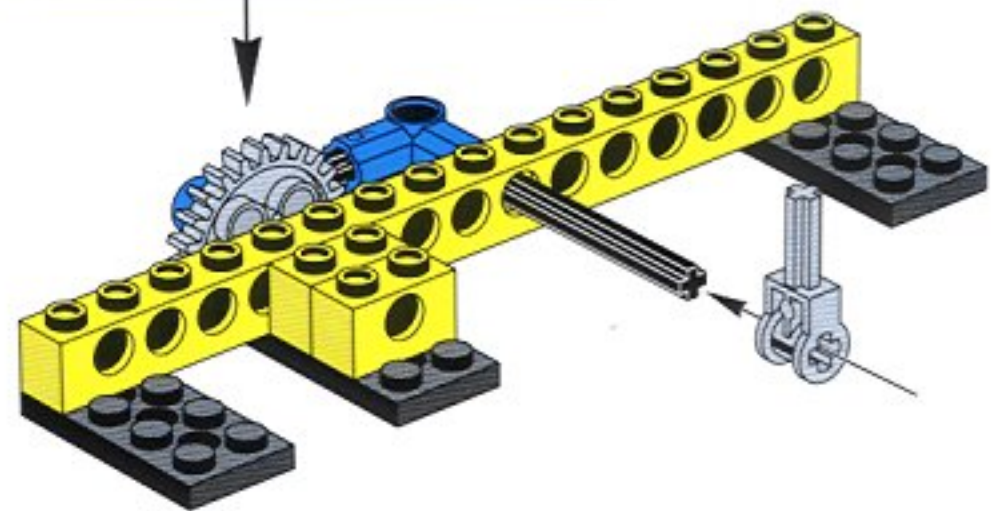
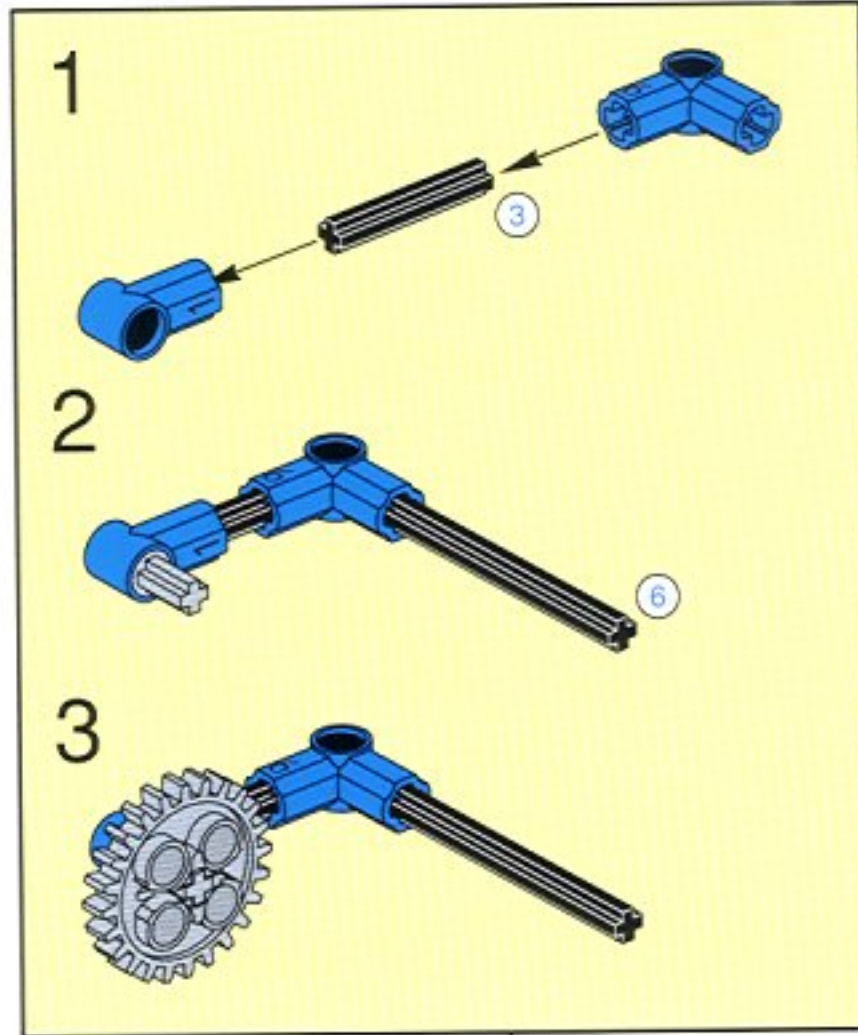
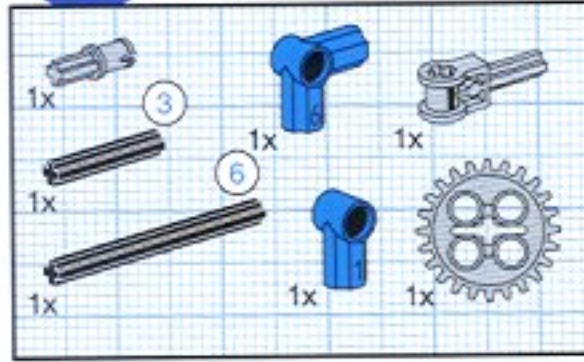
9



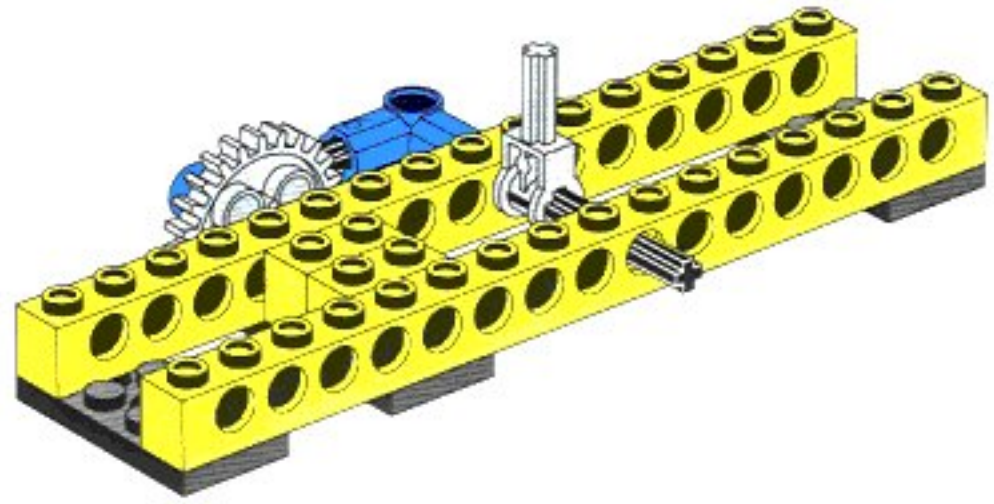
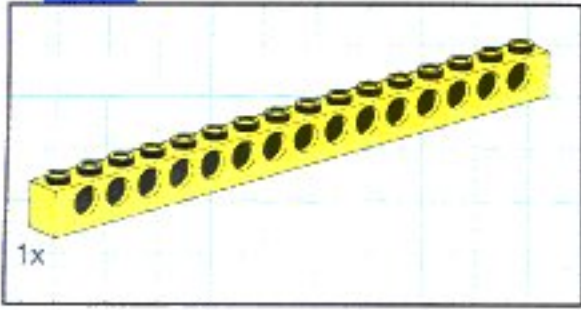
1



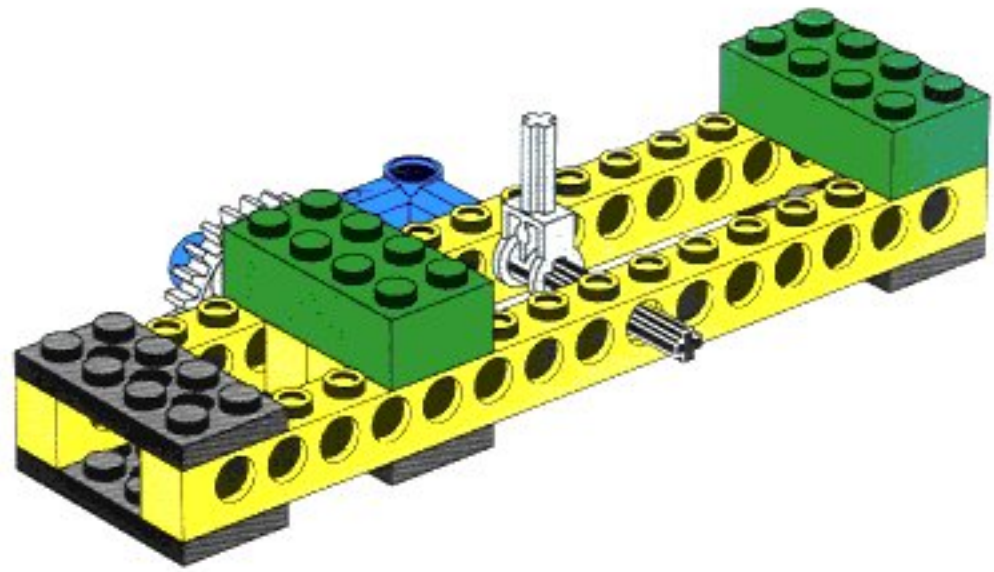
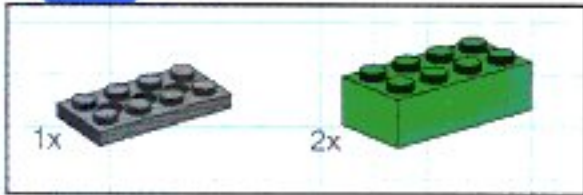
2



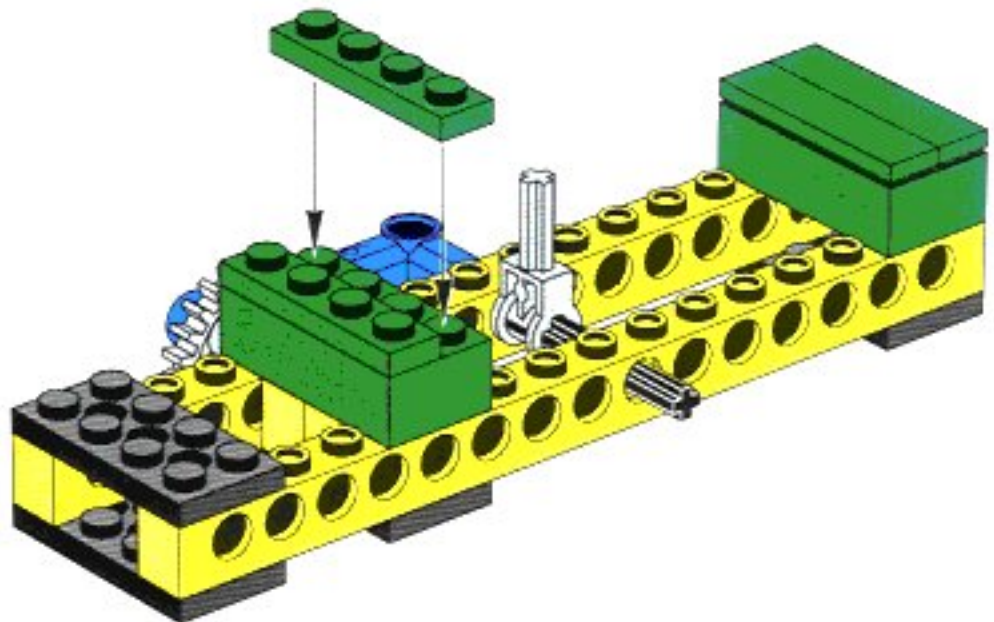
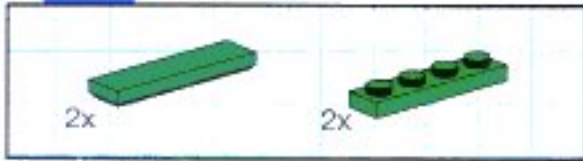
3



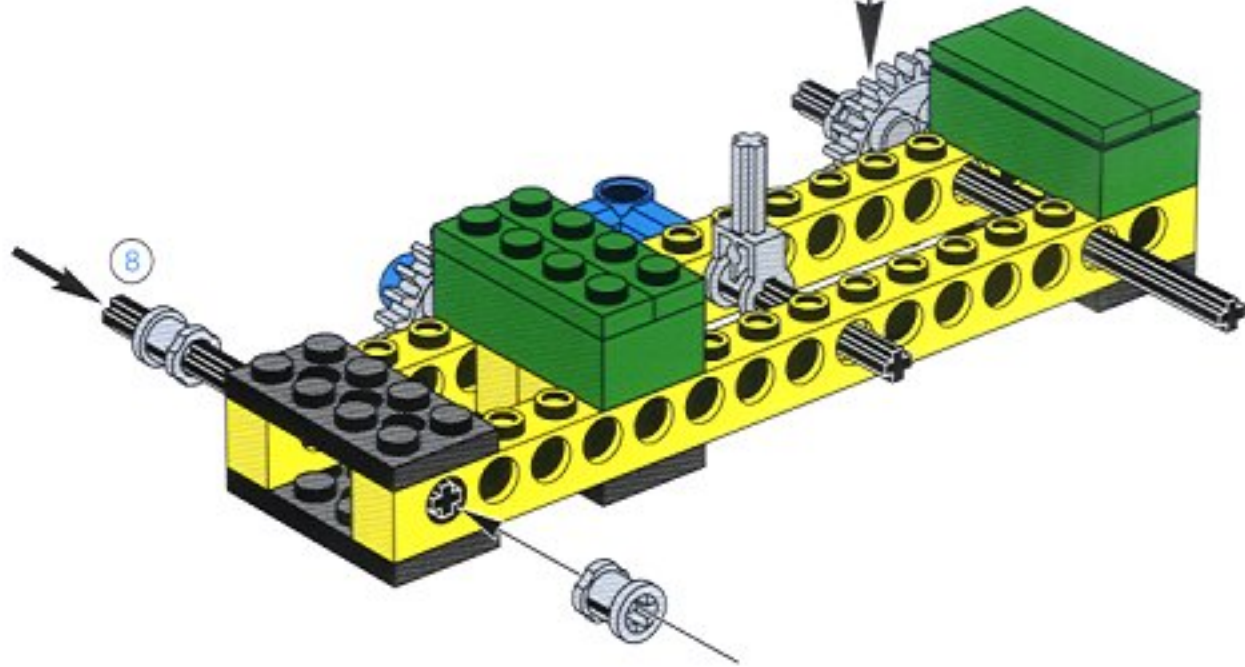
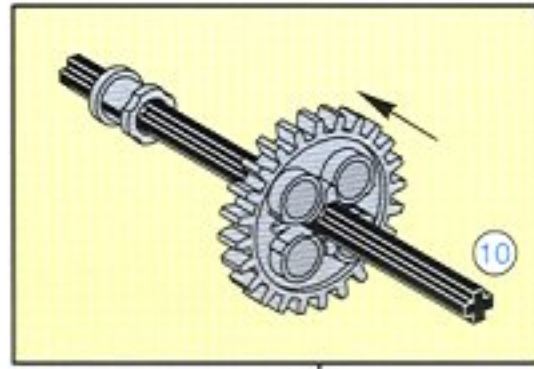
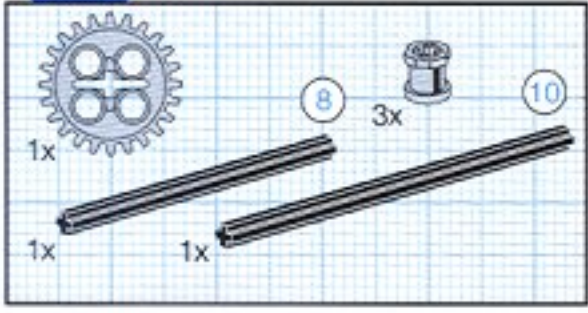
4



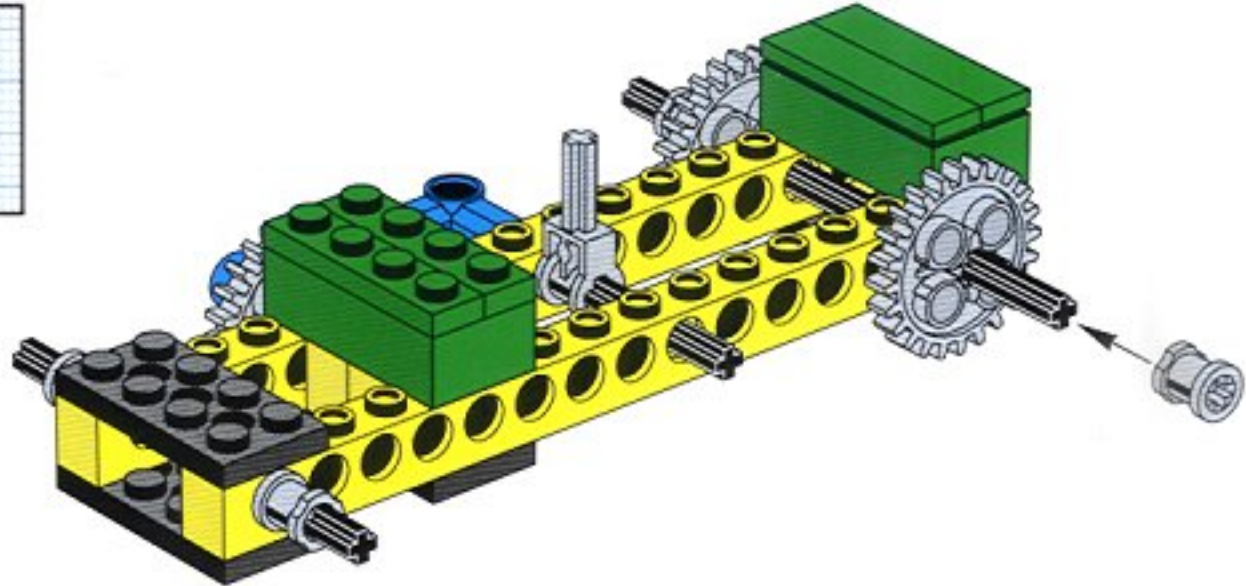
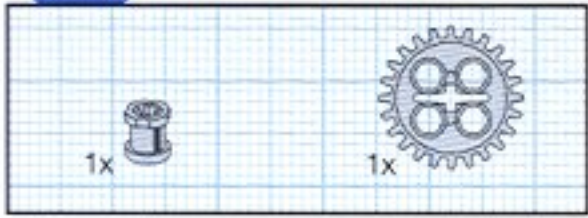
5



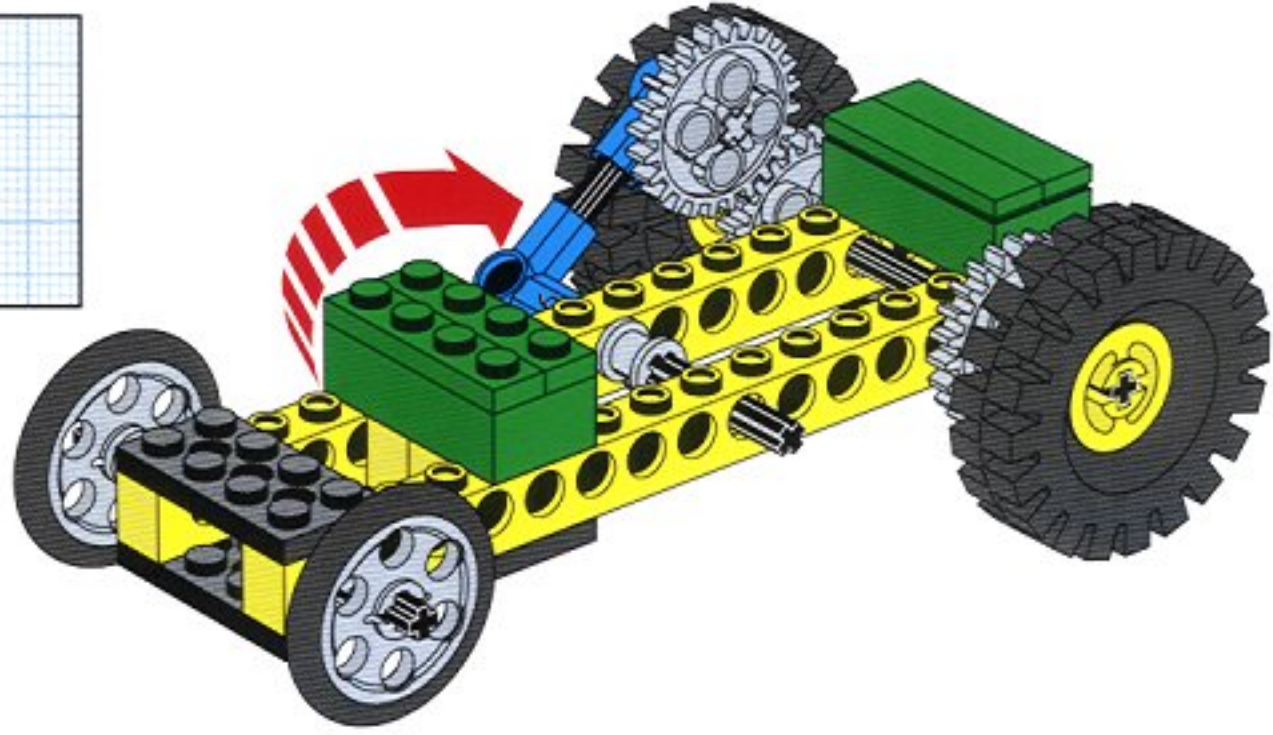
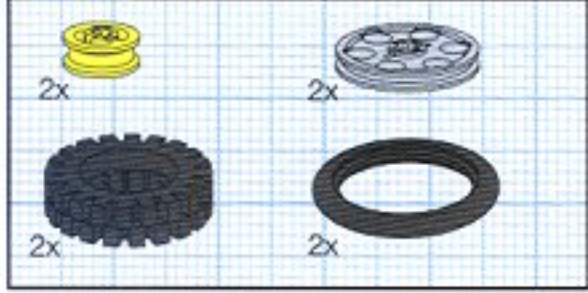
6

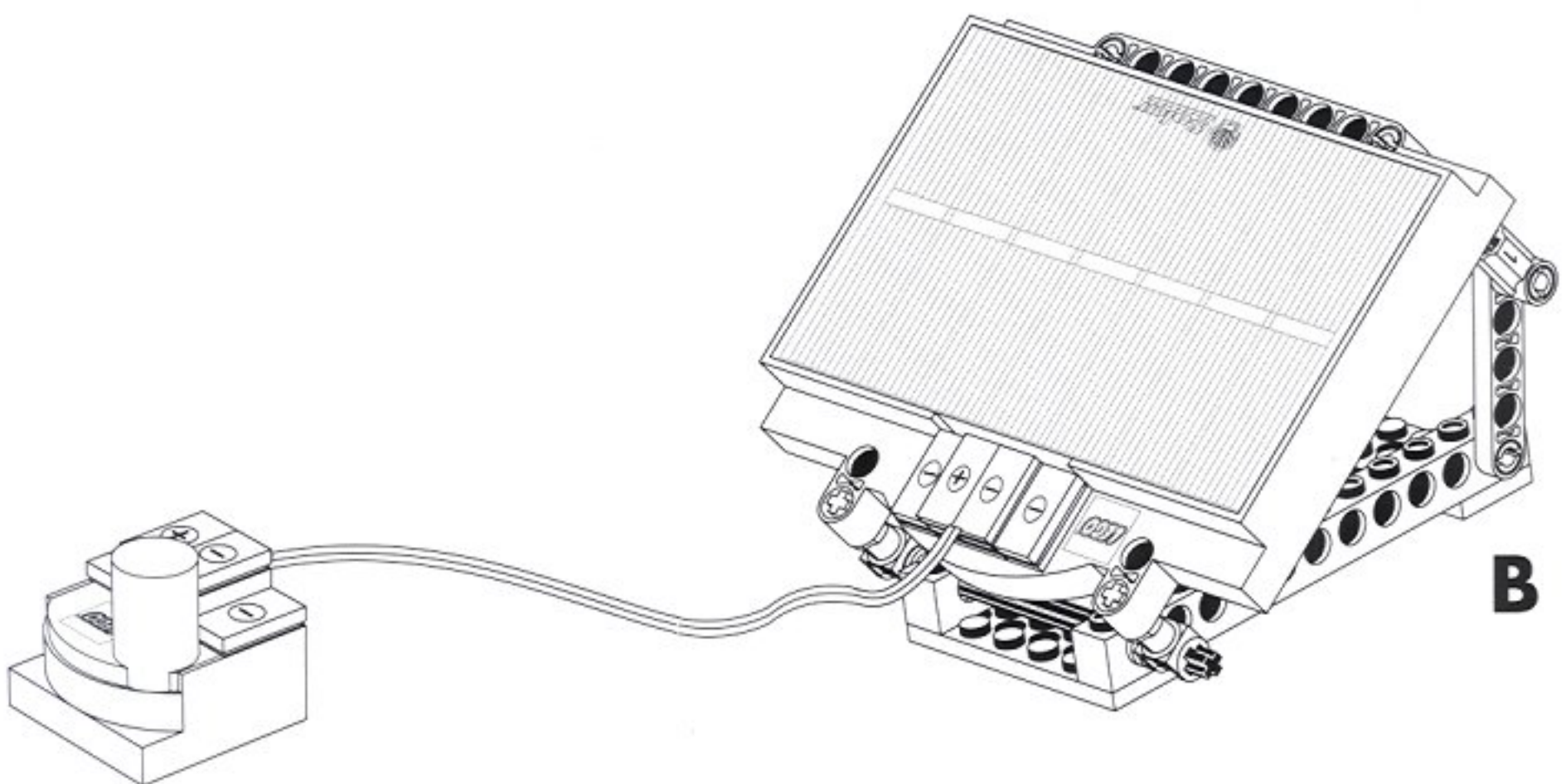
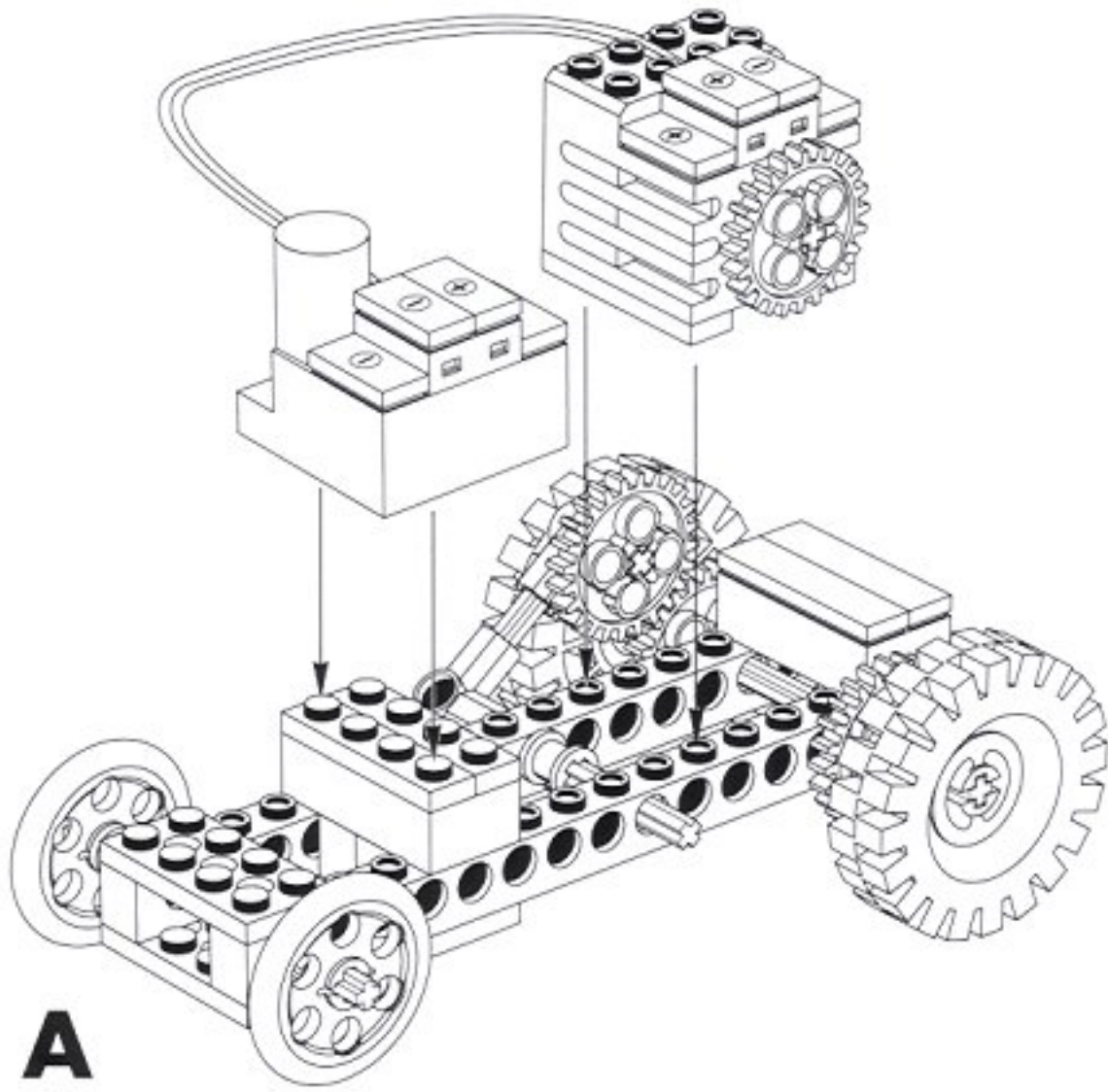


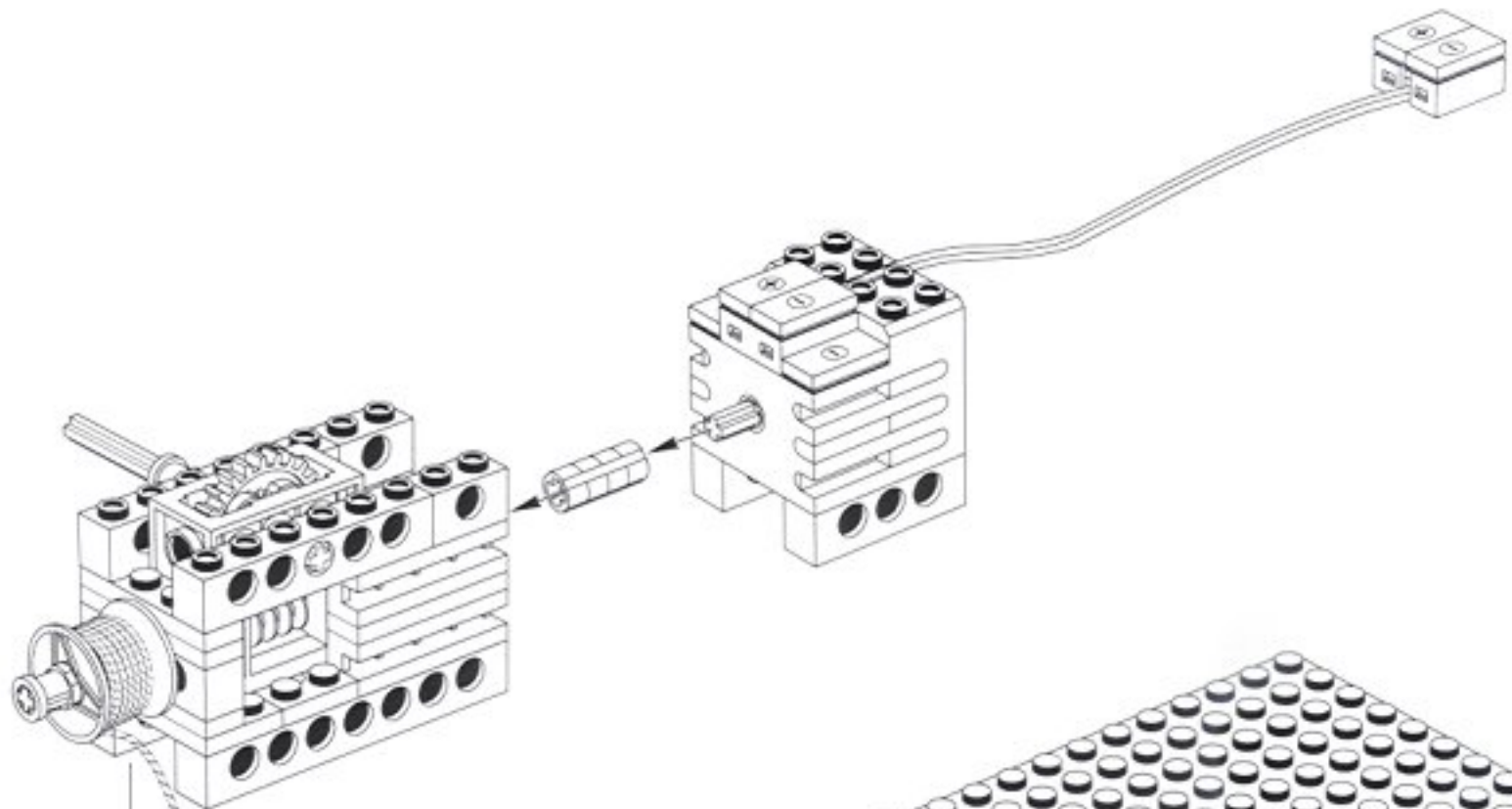
7



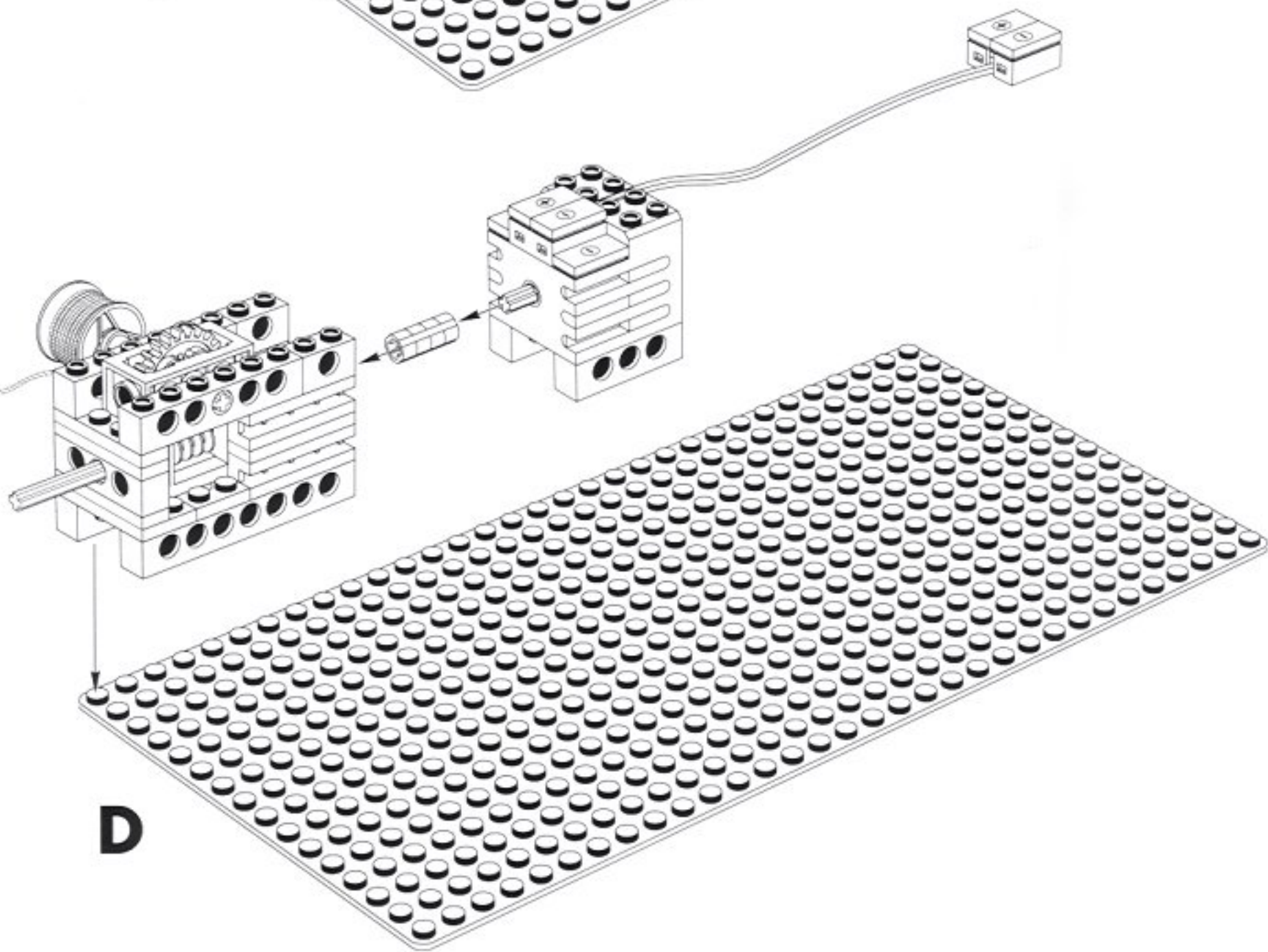
8







C



D

Motor
Moteur
規格
モーター
모터



E

a. Especificaciones

- Voltaje máximo: 9 voltios. Se encenderá a aproximadamente 1 voltio
- Funcionamiento libre: rpm 350
- Corriente de funcionamiento libre: 5 mA
- Corriente de bloqueo: 350 mA.

b. Precauciones

- El motor no es resistente al agua.

CN/HK

a. 規格

- 啟動時1伏特，最大電壓9伏特
- 空轉（無負載）轉速350 rpm
- 空轉（無負載）電流5毫安培
- 阻斷電流350毫安培

b. 警告

- 馬達並不防水

UK/US

a. Specifications

- Max voltage 9 volt. Will start at about 1 volt
- Free running rpm 350
- Free running current 5 mA
- Blocking current 350 mA.

b. Caution

- The motor is not waterproof.

F

a. Caractéristiques

- Tension maxi 9 volts. Démarrage à partir de 1 volt
- Rotation à vide 350 t/mn
- Courant à vide 5 mA
- Courant de blocage 350 mA.

b. Précaution

- Le moteur n'est pas étanche à l'eau.

ROK

a. 제품 규격

- 최대전압 9V, 약 1V에서 작동하기 시작함.
- 공회전 350 rpm
- 공회전 전류 5 mA
- 저지 전류 350 mA.

b. 주의

- 본 모터는 방수가 되지 않습니다.

D

a. Technische Daten

- Maximale Spannung 9V. Betrieb ab ca. 1 volt
- 350 Umdrehungen pro Minute
- Stromstärke im Betriebszustand 5 mA
- Sperrstromstärke 350 mA.

b. Vorsicht

- Der Motor ist nicht wasserfest.

P

a. Especificações

- Tensão máxima de 9 volts. Começa com aproximadamente 1 volt
- Velocidade sem carga de 350 rpm
- Corrente sem carga de 5 mA
- Proteção de corrente de 350 mA.

b. Precaução

- O motor não é à prova d'água.

JAP

a. 仕様

- 最大電圧 9 V約1 Vで始動
- 自走速度 350 rpm
- 自走電流 5 mA
- 阻止電流 350 mA

b. 注意

- モーターは防水されていません。



Solar cell
Solarzelle
Celda Solar
Cellule solaire
Células Solares
太陽能電池
태양전지
太陽電池

UK/US

a. Specifications

- 3V, 200mA at full sun outdoors
- 3V, 100 mA indoors at full sun through window
- 2.5V, 8 mA with light from 60w incandescent lamp with 25 cm distance to solar cell (2000 lux)
- 2.5V, 40 mA with light from 60w incandescent lamp with 8 cm distance to solar cell (10000 lux).

b. Caution

- Do not bend excessively or push hard on the clear plastic window
- Do not step on or otherwise place heavy weight on the solar cell
- The solar cell is not waterproof.

P

a. Especificações

- 3V, 200 mA com sol intenso do lado de fora da casa
- 3V, 100 mA com sol intenso do lado de dentro de casa através da janela
- 2.5V, 8 mA com a luz de uma lâmpada incandescente de 60 W afastada 25 cm da célula solar (2.000 lux)
- 2.5V, 40 mA com a luz de uma lâmpada incandescente de 60 W afastada 8 cm da célula solar (10.000 lux).

b. Precauções

- Não dobrar nem pressionar com objetos duros
- Não pise nem coloque objetos pesados sobre a célula solar
- A célula solar não é à prova d'água.

D

a. Technische Daten

- 3V, 200mA bei direkter Sonneneinstrahlung im Freien
- 3V, 100mA bei direkter Sonneneinstrahlung durch das Fenster im Raum
- 2,5 V, 8mA bei Lichteinstrahlung einer 60 W Glühlampe im Abstand von 25cm zur Solarzelle (2000 Lux)
- 2,5 V, 40mA bei Lichteinstrahlung einer 60 W Glühlampe im Abstand von 8 cm zur Solarzelle (10000 Lux).

b. Vorsicht

- Das transparente Plastikfenster nicht übermäßig biegen oder fest darauf drücken
- Nicht auf die Solarzelle treten oder schwere Gegenstände darauf legen
- Die Solarzelle ist nicht wasserfest.

CN/HK

a. 規格

- 3伏特，200毫安培，相當於戶外日曬充足下的陽光強度
- 3伏特，100毫安培，相當於透過窗戶照到室內的陽光強度
- 2.5伏特，8毫安培，相當於距離25公分外，60瓦的白熱燈泡照明強度（2000勒克斯，即未燭光）
- 2.5伏特，40毫安培，相當於距離8公分外，60瓦的白熱燈泡照明強度（10000勒克斯，即未燭光）

b. 警告

- 太陽能面板不得彎曲及擠壓
- 不得踩踏太陽能電池，或於其上放置重物
- 太陽能電池並不防水

E

a. Especificaciones

- 3V, 200mA a exposición solar total
- 3V, 100mA en lugares cerrados a exposición solar total a través de una ventana
- 2.5V, 8mA con luz incandescente de 60w a una distancia de 25 cm. de la celda solar (2000 lux)
- 2.5 V, 40 mA con luz incandescente de 60w a una distancia de 8 cm. de la celda solar (10000 lux).

b. Precauciones

- No doblar excesivamente o empujar fuerte la ventana de plástico
- No pisar o colocar objetos pesados sobre la celda solar
- La celda solar no es resistente al agua.

ROK

a. 제품 규격

- 실외에서 최대로 태양에 노출될 경우 3V, 200mA.
- 실내에서 창문을 통해 최대로 태양에 노출될 경우 3V, 100 mA.
- 25cm 떨어진 60W 백열전등에 노출될 경우 (2000 lux) 2.5V, 8 mA.
- 8cm 떨어진 60W 백열전등에 노출될 경우 (10000 lux) 2.5V, 40 mA.

b. 주의사항

- 전지의 투명한 플라스틱 창을 심하게 누르거나 구부리지 마십시오.
- 전지를 밟거나 무거운 물체를 올려놓지 마십시오.
- 본 태양전지는 방수가 되지 않습니다.

F

a. Caractéristiques

- 3V, 200mA à l'extérieur en plein soleil
- 3V, 100 mA en intérieur plein soleil au travers d'une fenêtre
- 2.5V, 8 mA avec une lampe à incandescence de 60w à 25 cm de la cellule (2000 lux)
- 2.5V, 40 mA avec une lampe à incandescence de 60w à 8 cm de la cellule (10000 lux).

b. Précaution

- Ne pas plier excessivement ou pousser sur la vitre en matière plastique
- Ne pas poser ou appuyer une charge de poids important sur la cellule
- La cellule solaire n'est pas étanche à l'eau.

JAP

a. 仕様

- 晴天時屋外で3 V, 200 mA
- 晴天時室内の間接日光で3 V, 100 mA
- 太陽電池との距離が25 cmの60 W白熱灯からの光で2.5 V, 8 mA (2000ルクス)
- 太陽電池との距離が8cmの60 W白熱灯からの光で2.5 V, 2.5 V, 40 mA (10000ルクス)

b. 注意

- 透明プラスチック窓を無理に曲げたり強い力で押さないでください。
- 太陽電池を踏んだり、重いものを載せたりしないでください。
- 太陽電池は防水されていません。

Capacitor
Kondensator
Condensador
Condensateur
Capacitor
電容器
축전지
コンデンサー



a. Especificaciones
- 1 F (Faradio) condensador electrolítico de 2.5 voltios
- Voltaje de operación 2.5 voltios normal. Voltaje de carga 4 voltios máximo
- Máxima corriente de carga y de descarga: 0 - 250 mA
- Indicador LED de color rojo cuando se carga completamente a 2.5 voltios
- Protegido contra polaridad negativa. No cargará completamente en ese caso.
b. Precaución
- El condensador no es resistente al agua.

a. 規格
- 1F(法拉)・2.5伏特電容器
- 正常操作電壓2.5伏特。最大充電電壓4伏特。
- 最大充放電電流0.250毫安培
- 當2.5伏特電壓充滿時，紅色指示燈會亮
- 電池裝反時，保護措施會讓電池無法充電
b. 警告
- 電容器並不防水

a. Specifications
- 1 F (Farad) 2.5 volt electrolytic capacitor
- Operating voltage 2.5 volt normal.
Charging voltage max. 4 volt
- Max charging and discharging current 0 - 250 mA
- Red LED indicator when fully charged at 2.5 volt
- Protected against reverse polarity.
Will not fully charge then.
b. Caution
The capacitor is not waterproof.

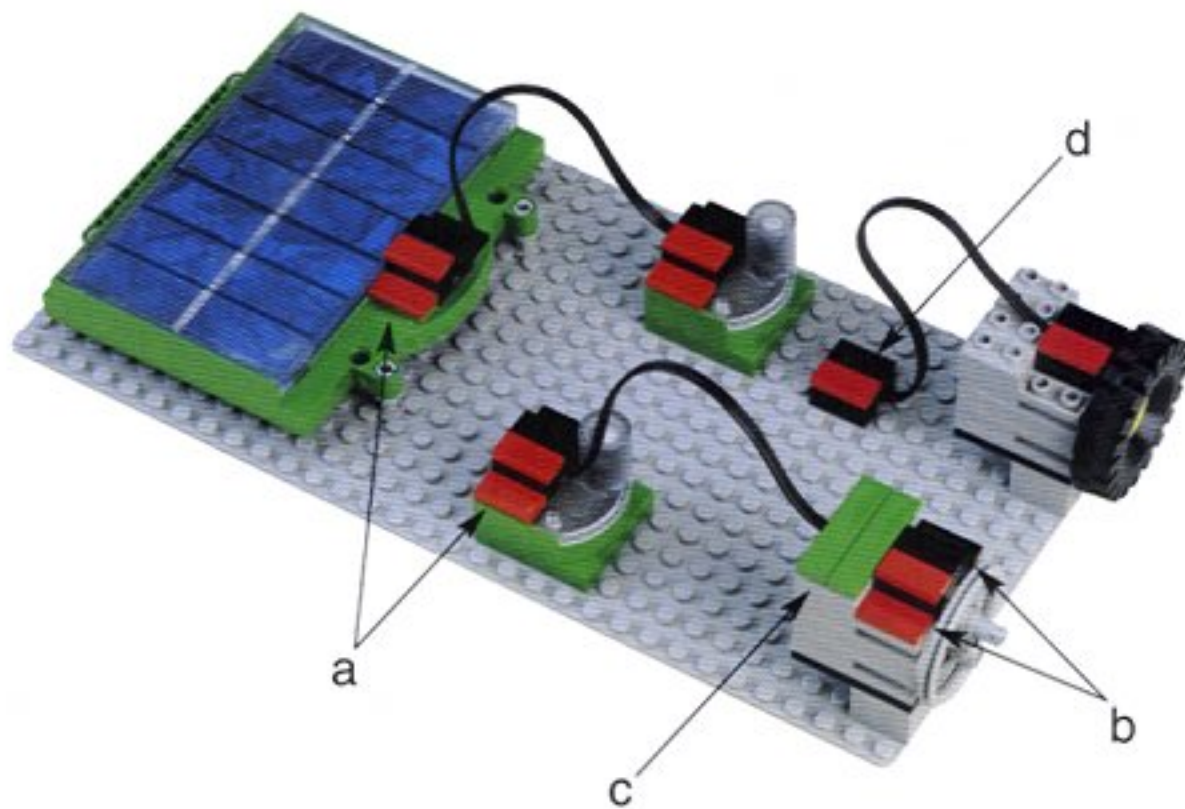
a. Caractéristiques
- Condensateur électrolytique de 1 F (Farad) 2,5 volts
- Tension normale d'utilisation 2,5 volts. Tension de charge maxi 4 volts
- Courant maxi de charge et de décharge 0 - 250 mA
- Diode rouge témoin de charge maxi à 2,5 volts
- Protégé contre l'inversion de polarité. Ne conservera pas sa charge dans ce cas.
b. Précaution
- Le condensateur n'est pas étanche à l'eau.

a. 제품 규격
- 1 F (Farad) 2.5V 전해 축전지.
- 일반작동전압 2.5V. 충전전압은 최대 4V.
- 최대 충전 및 방전전류 0 - 250 mA.
- 2.5V로 충전이 완료되면 LED 표시기에 적색정등.
- 전극이 바뀌는 경우 보호기능으로 방지. 이 경우 충전이 완전히 되지 않음.
b. 주의
- 본 축전지는 방수되지 않습니다.

a. Technische Daten
- 1 F (Farad) 2,5V Elektroytkondensator
- Normale Betriebsspannung 2,5 V, Ladespannung max. 4V
- Maximale Ladé- und Entladestromstärke 0-250 mA
- Rote LED Anzeige, wenn Kondensator vollständig geladen ist, bei 2,5 V
- Ist vor entgegengesetzter Polung geschützt. Wird dabei nicht vollständig aufgeladen.
b. Vorsicht
Der Kondensator ist nicht wasserfest.

a. Especificações
- Capacitor eletrolítico de 1 F (Farad) e 2,5 volts
- Tensão de operação normal: 2,5 volts. Tensão máxima de carga: 4 volts
- Corrente máxima de carga ou descarga entre 0 - 250 mA
- Diodo vermelho que indica quando atinge plena carga a 2,5 volts
- Proteção contra polaridade reversa. Assim o capacitor não será carregado.
b. Precaução
- O capacitor não é à prova d'água.

a.仕様
- 1F(ファラド) 2.5V 電解コンデンサー
- 通常動作電圧 2.5 V。最大充電電圧 4 V。
- 最大充電・放電電流 0 ~ 250 mA
- 2.5 Vで充電終了時に赤いLEDインジケータ点灯
- 逆極性に対して保護。その場合は完全に充電されません。
b. 注意
- コンデンサーは防水されていません。



Connecting solar cell, capacitor and generator

Identifying plus (+), (-).

Red tiles are used to identify (+). Black tiles are used to identify (-). The solar cell and capacitor have (+) and (-) molded in the plastic. Always place a red tile over (+) and a black tile over (-) on the solar cell and the capacitor, regardless of whether the capacitor is being charged or discharged. See illustration "a" above.

(+) and (-) on the generator. When the handle is turned clockwise (+) will be to the left and (-) to the right seen from the front. On illustration "b" above this is thus indicated with red and black tiles.

To indicate the motor is being used as a generator two green tiles are attached to the top. This is done throughout the instruction booklet. See illustration "c".

All wires are (+) and (-) coded using red and black tiles. See illustration "d" above.

NOTE: The capacitor will ONLY charge when (+/red) and (-/black) are connected correctly to the solar cell or the generator. It will not damage the capacitor if incorrectly connected.

D

Anschließen von Solarzelle, Kondensator und Motor
 Erkennen von Plus- (+) und Minuspol (-)
 Rote Plättchen werden verwendet, um (+) zu erkennen. Schwarze Plättchen werden verwendet, um (-) zu erkennen. Die Solarzelle und der Kondensator sind bereits mit (+) und (-) gekennzeichnet. Befestigen Sie an der Solarzelle und am Kondensator immer ein rotes Plättchen über (+) und ein schwarzes Plättchen über (-), unabhängig davon, ob der Kondensator geladen oder entladen wird. Siehe Zeichnung „a“ oben.
 (+) und (-) am Generator. Wenn die Kurbel im Uhrzeigersinn gedreht wird, befindet sich von vorn betrachtet, (+) auf der rechten und (-) auf der linken Seite. In der Zeichnung „b“ oben wird dies folglich mit roten und schwarzen Plättchen angezeigt.
 Um zu erkennen, daß der Motor als Generator benutzt wird, werden zwei grüne Plättchen darauf befestigt. Dies wird überall im Anleitungsbuch so gehandhabt. Siehe Zeichnung „c“.
 Alle Leitungen werden mit (+) und (-) codiert, indem die roten und schwarzen Plättchen dazu verwendet werden. Siehe Zeichnung „d“ oben.
HINWEIS : Der Kondensator wird NUR geladen, wenn (+/red) und (-/black) richtig an der Solarzelle oder dem Generator angeschlossen ist. Sollte der Kondensator falsch angeschlossen sein, wird er dadurch nicht beschädigt.

E

Conectando la celda solar, el condensador, y el generador
 Identificando positivo (+), (-)
 Las losetas de color rojo son usadas para identificar (+). Las losetas negras son usadas para identificar (-). La celda solar y el condensador tienen (+) y (-) marcados en el plástico. Siempre coloca una loseta roja sobre el (+) y una loseta negra sobre el (-) en la celda solar y en el condensador, a pesar de que el condensador este siendo cargado o descargado. Ver la figura "a".
 (+) y (-) en el generador. Cuando se gira la manivela en sentido de las agujas del reloj, (+) estará a la izquierda y (-) a la derecha vistos desde el frente. En la Figura "b", esta indicado con las losetas roja y negra.
 Para indicar que el motor está siendo utilizado como un generador, se conectan dos losetas verdes a la parte superior. Esto se realiza en todo el manual de construcción. Ver Figura "c".
 Todos los cables son (+) y (-) utilizando losetas rojas y negras. Ver Figura "d".
NOTA: El condensador SOLAMENTE cargará cuando (+ / rojo) y (- / negro) estén conectados correctamente a la celda solar o al generador. No dañará al condensador si esta conectado incorrectamente.

F

Relier cellule solaire , condensateur et générateur
 Identifier les pôles (+) et moins (-).
 Les caches rouges sont utilisés pour repérer le (+). Les caches noirs sont utilisés pour repérer le (-). La cellule solaire et le condensateur possèdent des repères (+) et (-) moulés dans la matière plastique. Placez toujours un cache rouge sur le (+) et un noir sur le (-) de la cellule solaire et du condensateur, sans se soucier de l'état de charge du condensateur. Voir illustration "a".
 (+) et (-) sur le générateur. Lorsque l'on tourne la manivelle dans le sens des aiguilles d'une montre, le (+) doit être à gauche et le (-) à droite en regardant de face. Sur l'illustration "b" ci-dessus les caches rouge et noir montrent cette situation.
 Pour repérer que le moteur est utilisé comme générateur, deux caches verts sont placés au dessus. Ce repérage est utilisé dans l'ensemble du livret d'instruction. Voir illustration "c".
 Tous les câbles sont repérés en utilisant (+) et (-) avec des caches rouges et noirs. Voir illustration "d".
NOTE: Le condensateur se charge SEULEMENT quand (+/rouge) et (-/noir) sont reliés correctement à la cellule solaire ou au générateur. Le condensateur ne sera pas endommagé en cas de mauvais branchement.

P

Conectando célula solar, capacitor e gerador
 Identificando a polaridade (+) e (-).
 Peças vermelhas são usadas para identificar (+). Peças pretas são usadas para identificar (-). A célula solar e o capacitor têm (+) e (-) moldados no plástico. Sempre coloque as peças vermelhas sobre (+) e as peças pretas sobre (-) na célula solar e no capacitor, independentemente de onde o capacitor está sendo carregado ou descarregado. Veja ilustração "a" acima.
 (+) e (-) no gerador. Quando a manivela estiver girando no sentido horário, o (+) estará a esquerda e o (-) a direita com o gerador visto de frente. A ilustração "b" acima está assim indicado com peças vermelhas e pretas.
 Para indicar que o motor está sendo usado como gerador, duas peças verdes estão conectadas na parte de cima. Isto é feito de acordo com o manual de instruções. Veja ilustração "c".
 Todos os fios estão indicando a polaridade (+) e (-) usando peças vermelhas e pretas. Veja ilustração "d" acima.
Observação: O capacitor SOMENTE receberá carga quando (+/vermelho) e (-/preto) estiverem conectados corretamente à célula solar ou ao gerador. O capacitor não será danificado se for conectado incorretamente.

CN/HK

太陽能電池、電容器、發電機的连接方式
 正負極識別方式
 紅色蓋板代表正極，黑色蓋板代表負極。太陽能電池和電容器的塑膠面板上，則以 (+) 代表正極，(-) 代表負極。不管太陽能電池和電容器是否處於充電狀態，務必注意正負極接線正確。請參考上方 "a" 圖。
 如何判斷發電機的正負極。面對發電機，順時針方向旋轉把手時，左方代表正極，右方代表負極。請參考上方 "b" 圖紅色和黑色蓋板的部份。
 為了標示當成發電機的马達，我們在馬達的上方會標示綠色的記號。你可以在模型建構說明書中發現。請參考 "c" 圖。
 所有連接的電線也會以紅色和黑色的蓋板來標示正負極。請參考上方 "d" 圖。
注意：電容器只有在和太陽能電池及發電機，正確的连接時才能充電。如果連接錯誤，並不會損壞電容器。

ROK

태양전지, 축전지, 발전기 연결하기
 양극(+)과 음극(-)을 확인합니다.
 적색 타일은 양극(+)을 의미하고 검은색 타일은 음극(-)을 의미합니다. 태양전지와 축전지에는 플라스틱으로 만들어진 (+)와 (-)가 있습니다. 축전지의 충전여부에 상관 없이 적색 타일은 (+), 검은색 타일은 (-) 위에 항상 올려 놓으십시오. 위 그림 "a" 를 참조하십시오.
 발전기에도 (+)와 (-)가 있습니다. 현들을 시계방향으로 돌리면 정면에서 봤을 때 좌측이 (+), 우측이 (-)가 됩니다. 위 그림 "b" 에서는 적색과 검은색 타일로 표시되어 있습니다.
 발전기 뒷면에 녹색 타일 2개를 붙여 모터가 발전기로 사용됨을 나타냅니다. 그림 "c" 를 참조하여 지침서에 따라 작업하십시오.
 모든 전선은 적색과 검은색 타일을 이용하여 (+)와 (-)표시를 합니다. 그림 "d" 를 참조하십시오.
참고 : 본 축전지는 양극(+/적색)과 음극(-/검은색)이 태양전지나 발전기에 올바르게 연결된 경우에만 충전됩니다. 연결이 잘못되더라도 축전지에 손상은 없습니다.

JAP

太陽電池、コンデンサー、発電機の接続
 プラス (+) 極とマイナス (-) 極の識別
 (+) 極は赤いタイルで識別します。(-) 極は黒いタイルで識別します。太陽電池とコンデンサーはプラスチック部分に (+) と (-) のマークがあります。コンデンサーを充電している場合も放電している場合も、必ず赤いタイルを太陽電池とコンデンサーの (+) 極に被せ、黒いタイルを (-) 極に被せてください。上図の「a」を参照してください。
 発電機の (+) と (-) ハンドルを時計回りに回すと、正面から見て (+) が左側、(-) が右側になります。上図の「b」では、赤と黒のタイルと同様に示されています。
 モーターが発電機として使用されていることを示すため、上部に緑色のタイルが2つ取り付けられています。
 これは、使用説明書を参照して行ってください。図中の「c」を参照してください。
 電線はすべて、(+) と (-) が赤と黒のタイルで色分けされています。上図の「d」を参照してください。
注：コンデンサーは、(+ / 赤) と (- / 黒) が太陽電池または発電機に正しく接続されている場合にのみ充電されます。
 接続が正しくない場合にコンデンサーが損傷しないようになっています。

Note that some of the elements mentioned here may not be included in the building set accompanying this booklet.

Es wird darauf hingewiesen, daß einige, in Verbindung mit diesem Heft erwähnten Elemente nicht im Baukasten enthalten sind.

Observa que algunos de los elementos mencionados no se incluyen en el maletín de construcción que acompaña este manual.

Certains éléments mentionnés ici peuvent ne pas être inclus dans la boîte correspondant à ce livret.

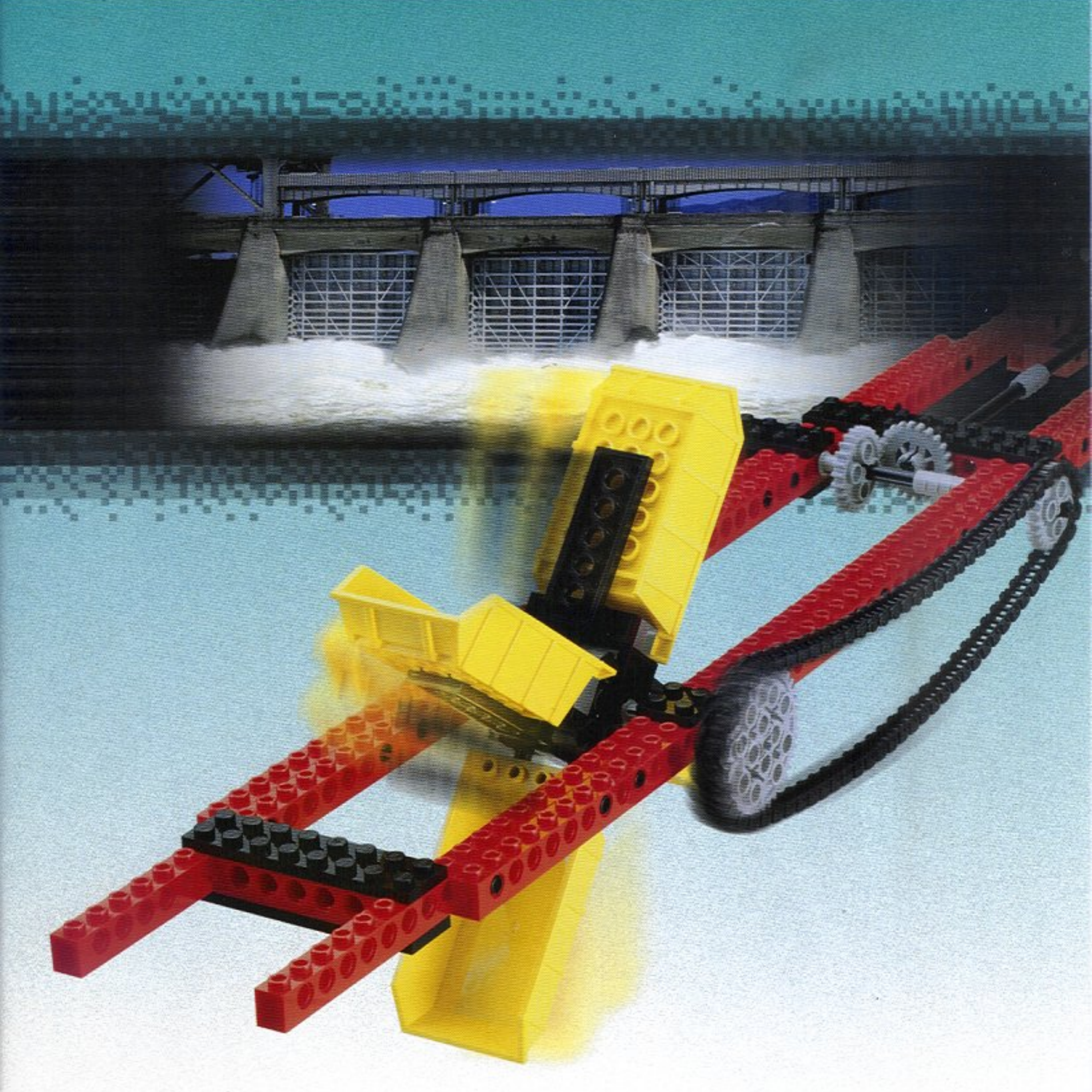
Observe que alguns dos elementos mencionados aqui podem não estar incluídos no conjunto de montagem que acompanha este manual.

有些這裡提到的零件，並不包括在積木盒中。

본 책자에 언급된 부품 중 일부는 제품 구성물에 없을 수도 있습니다.

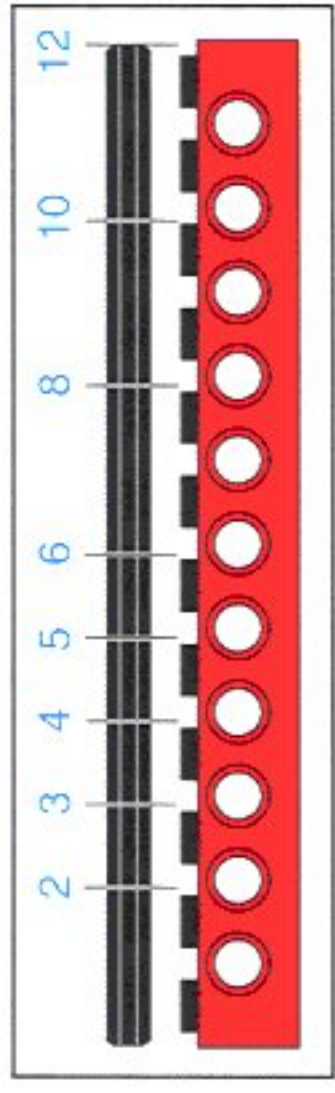
ここで述べられている部品の一部は、本書が同梱されている組み立てセットには含まれていない場合があります。

E **L** **A** **B**



9684

LEGO educational
division



1



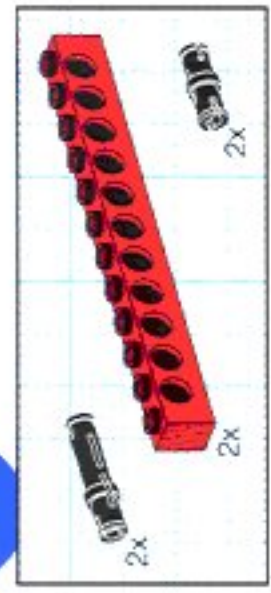
2



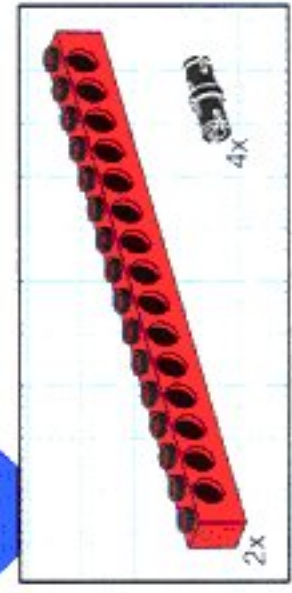
3

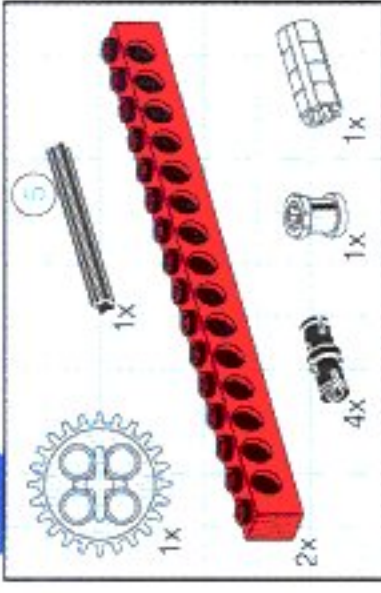
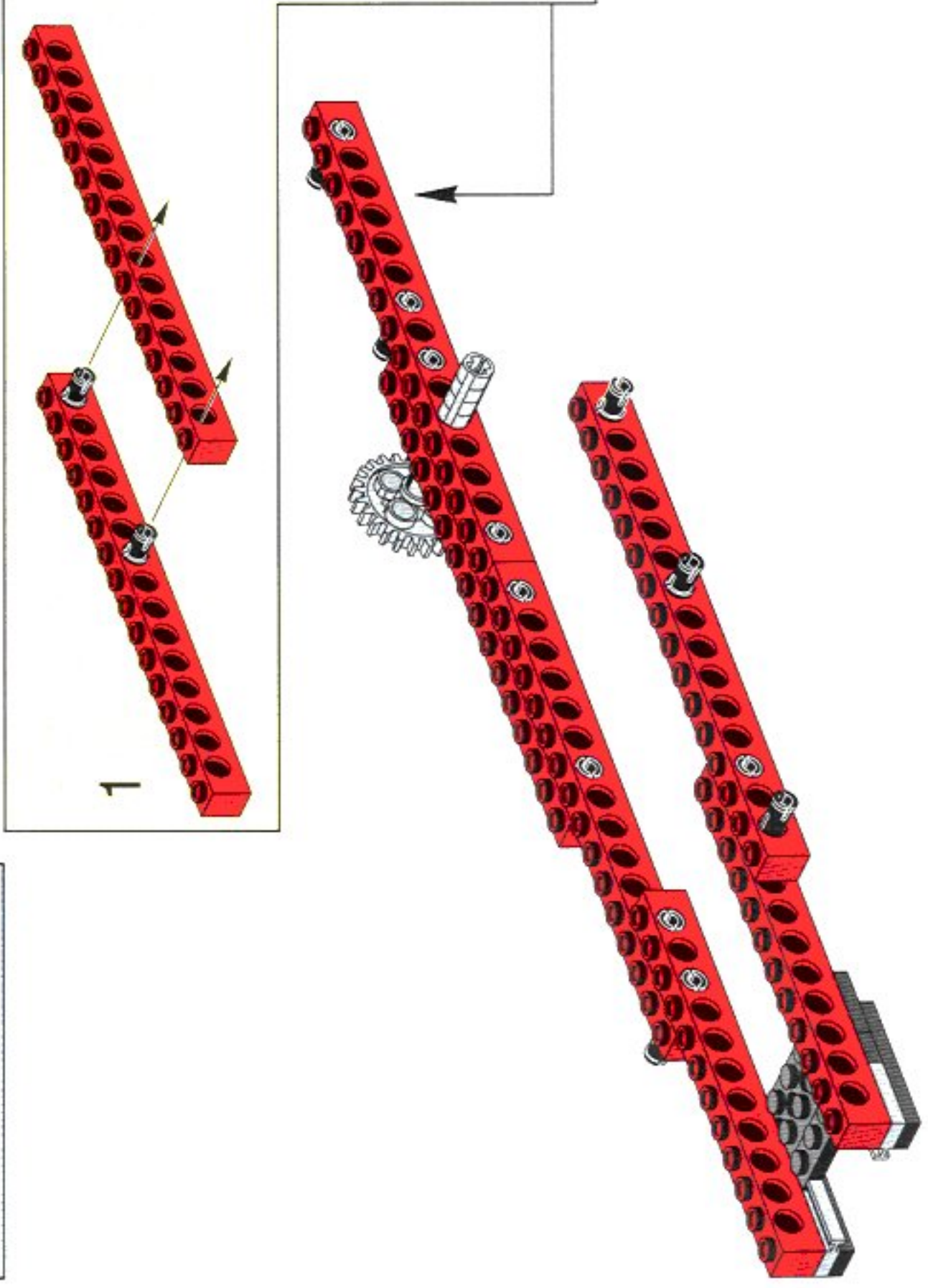


4

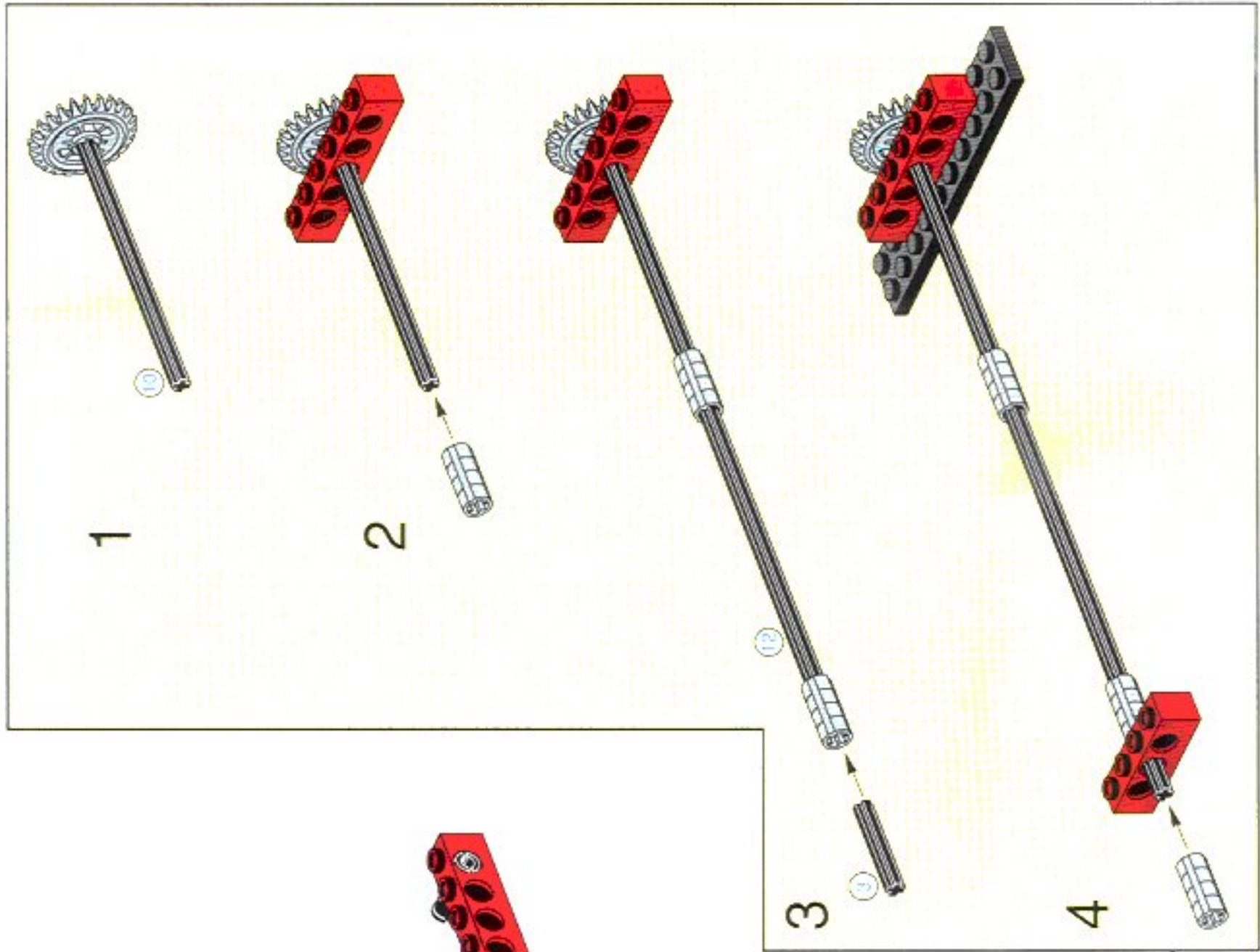
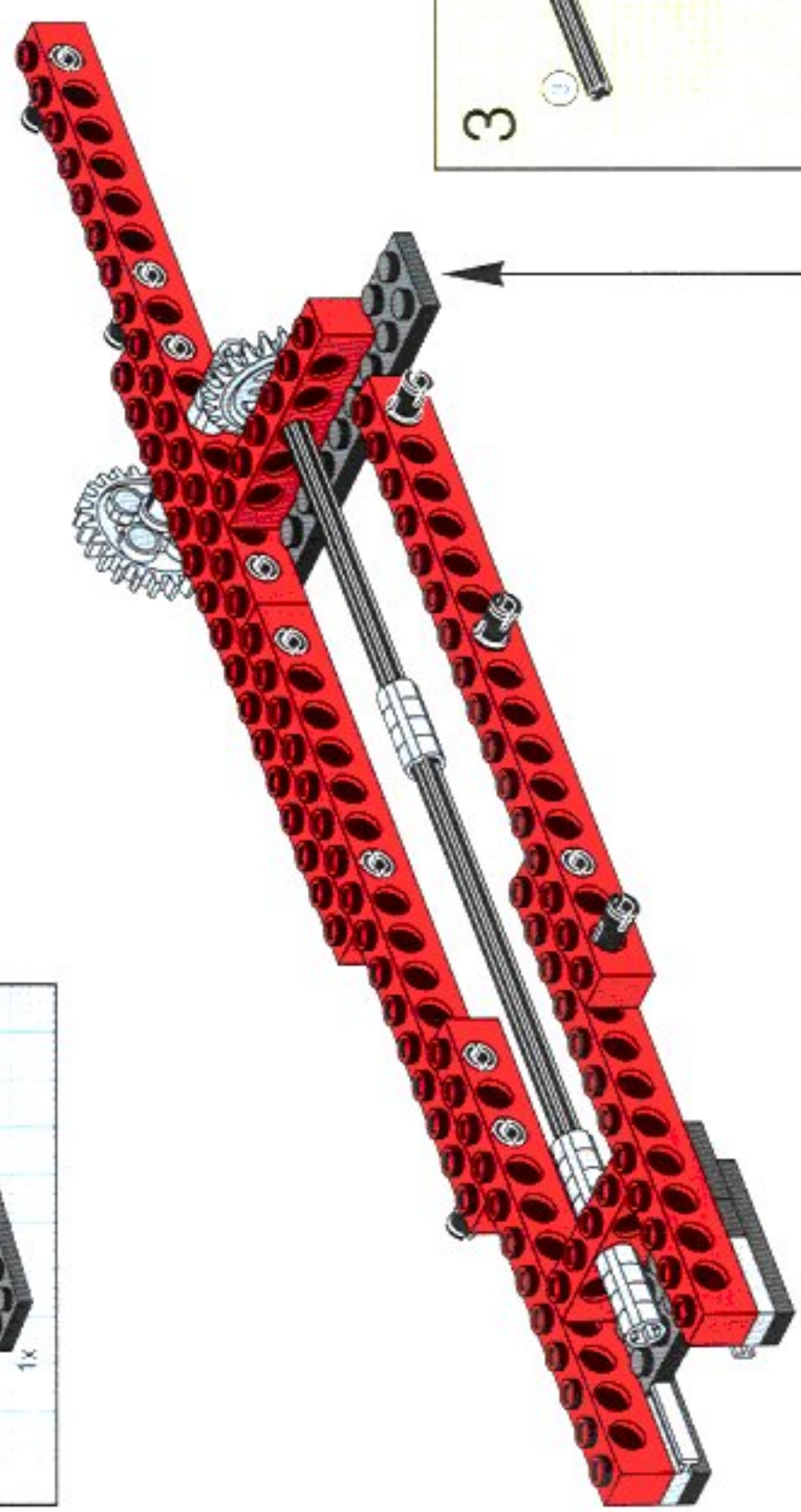
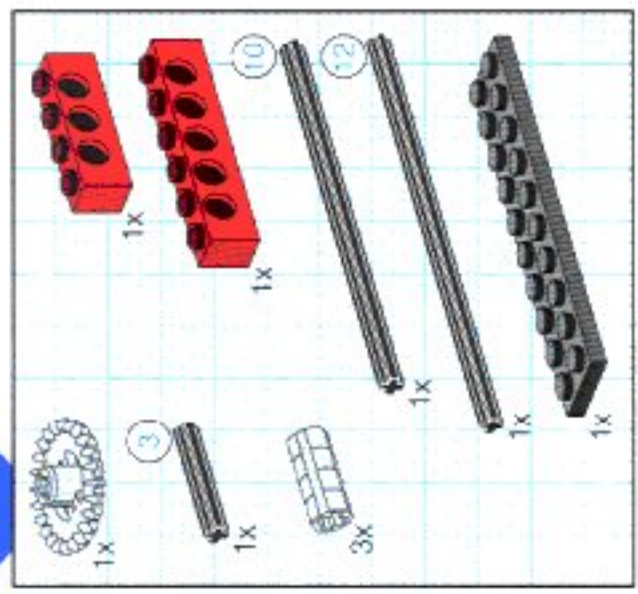


5

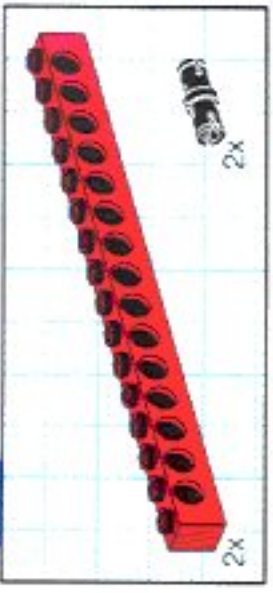




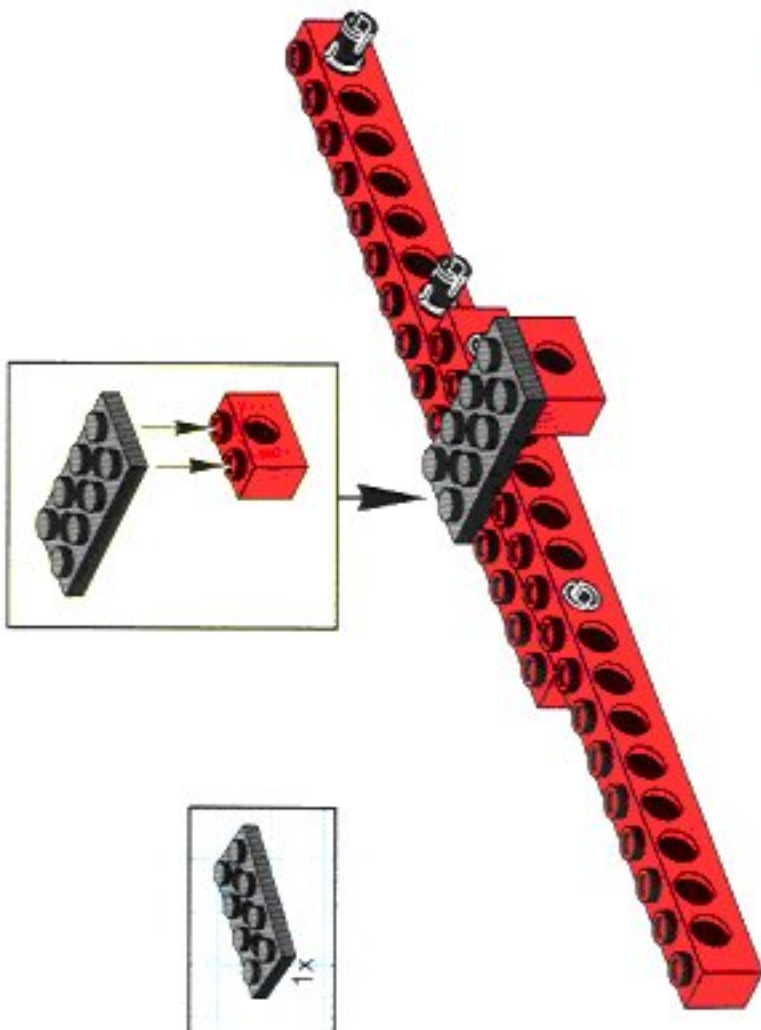
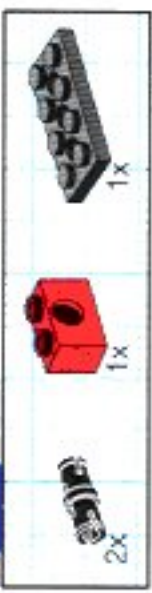
6



8



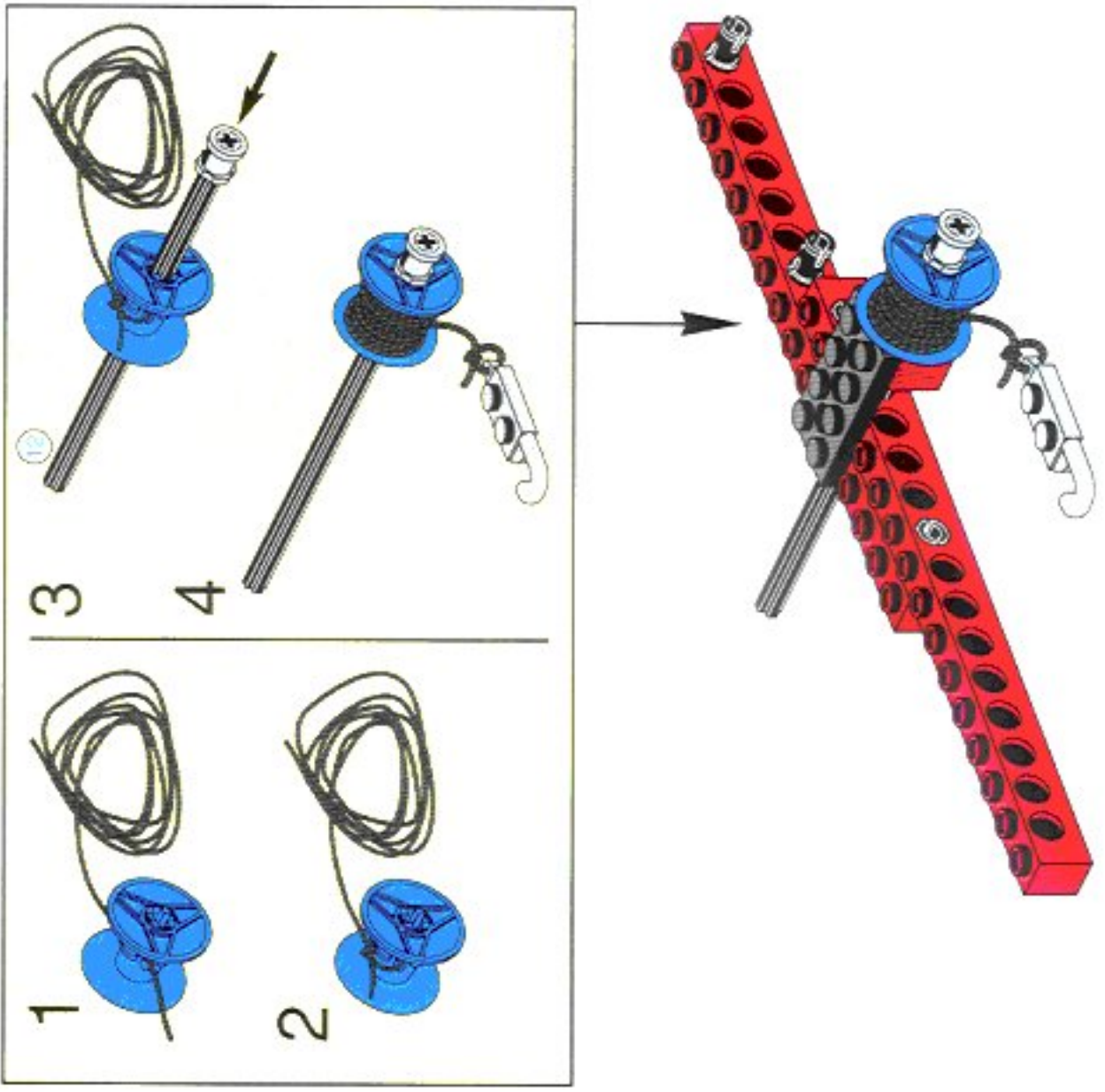
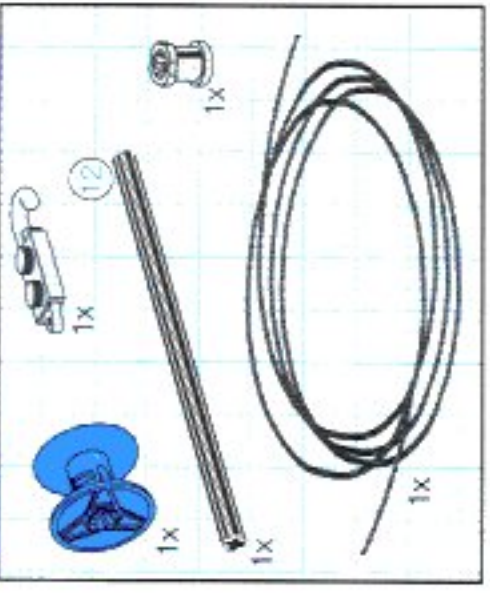
9



10



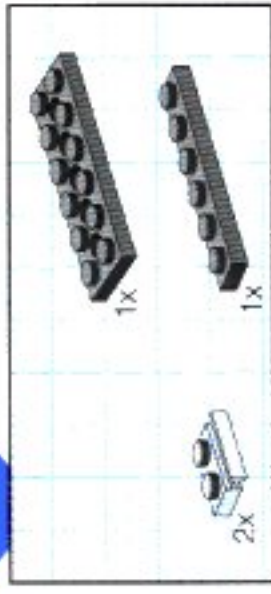
11

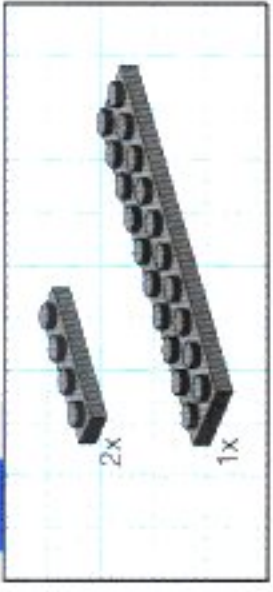


12



13

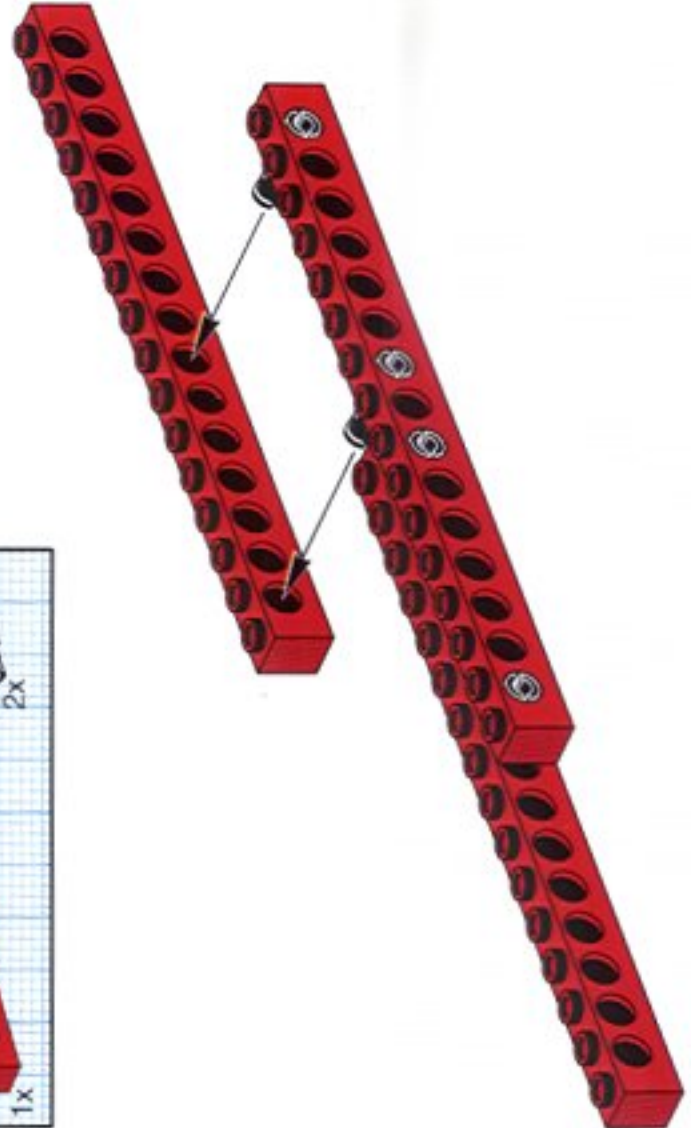




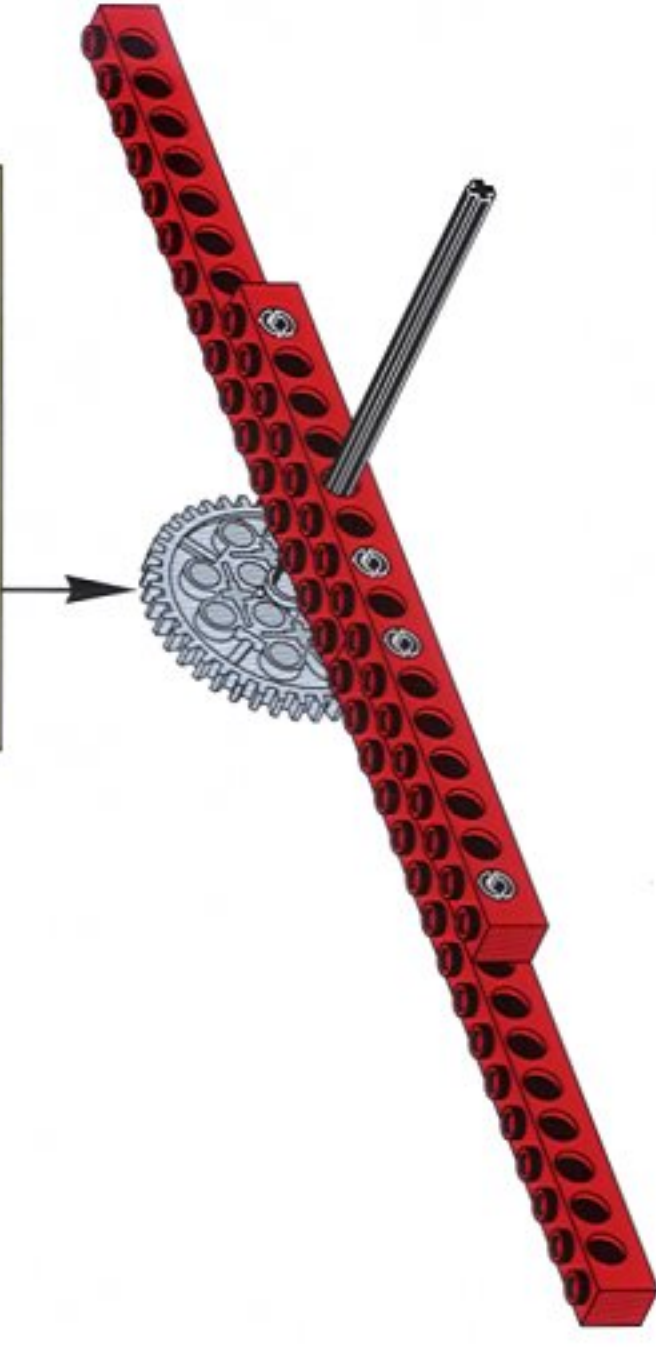
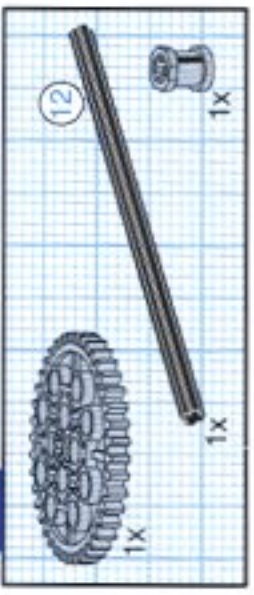
15



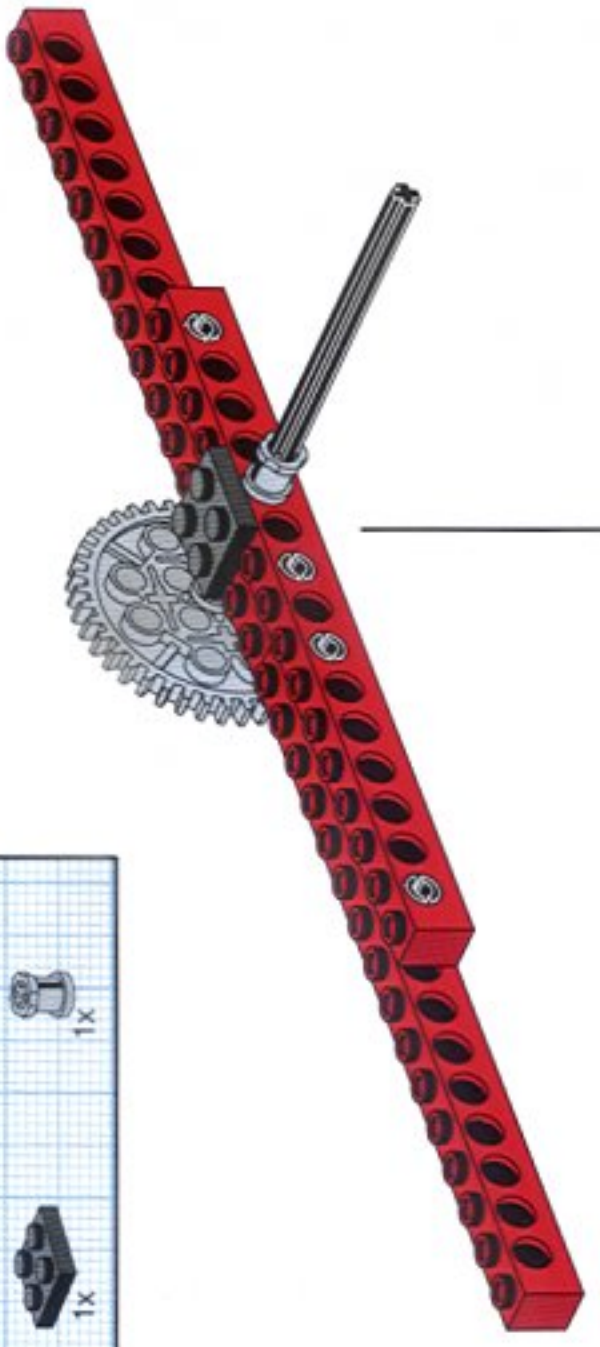
16

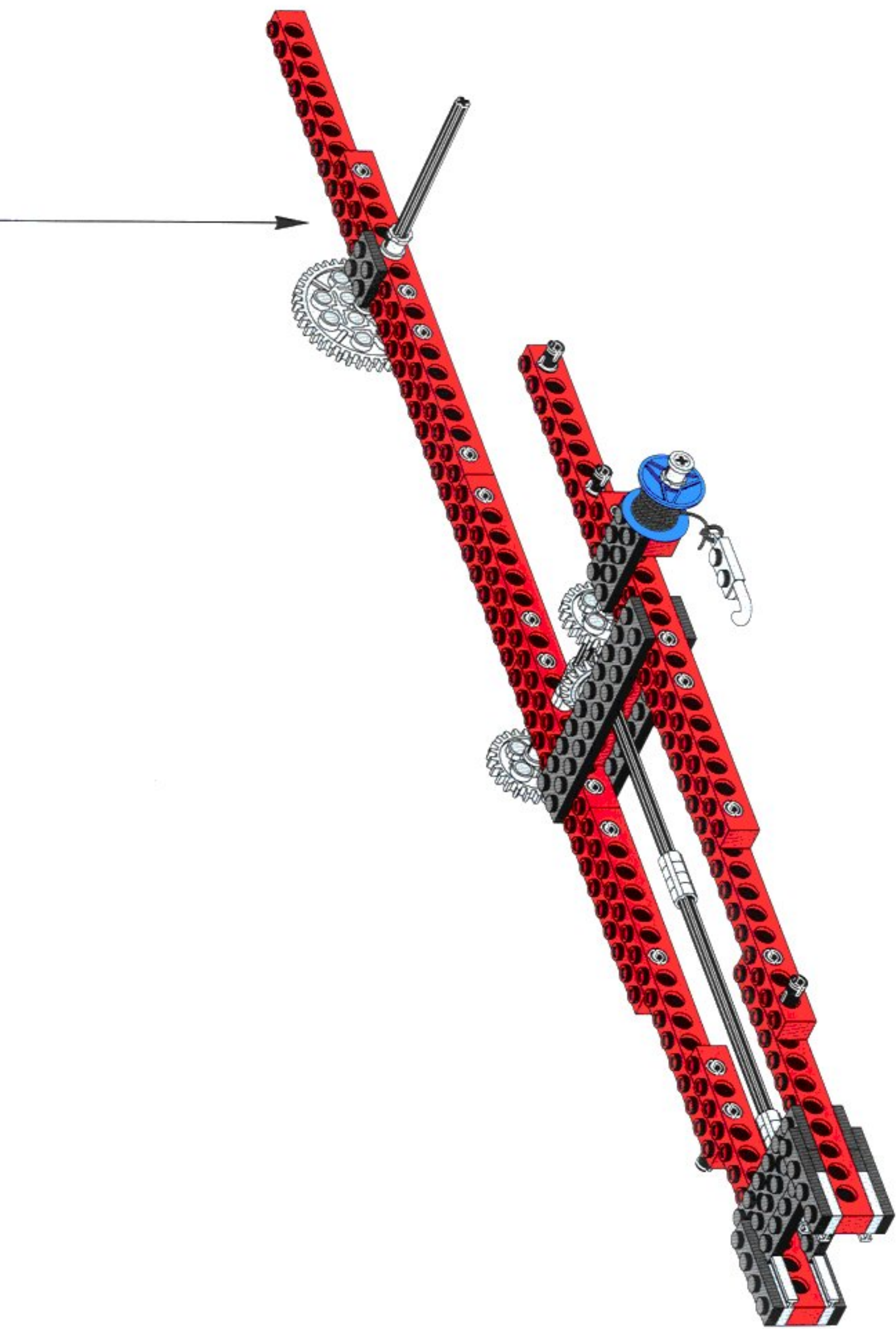


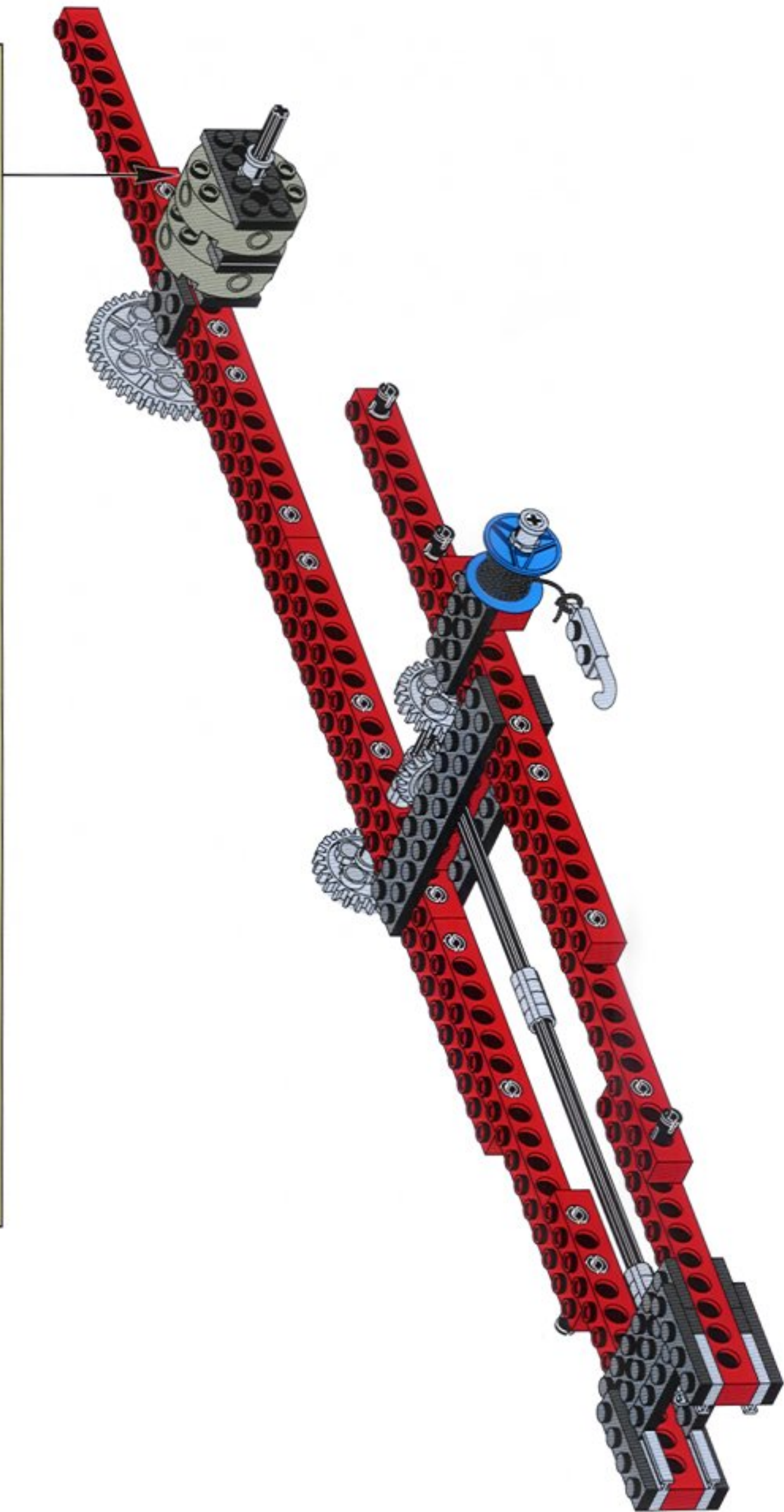
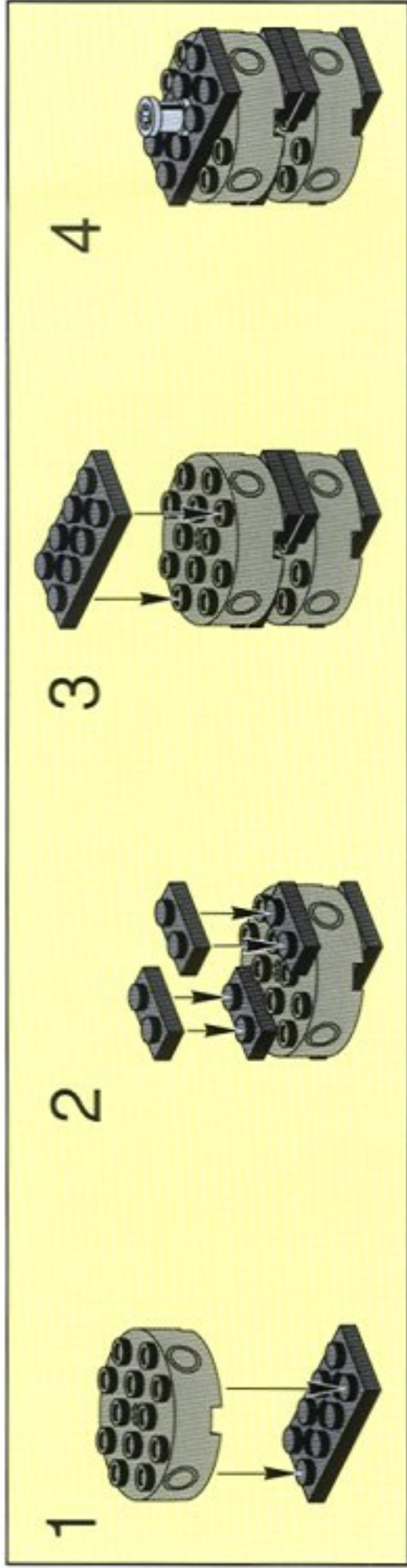
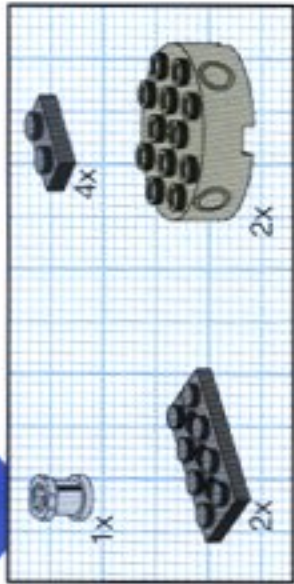
17

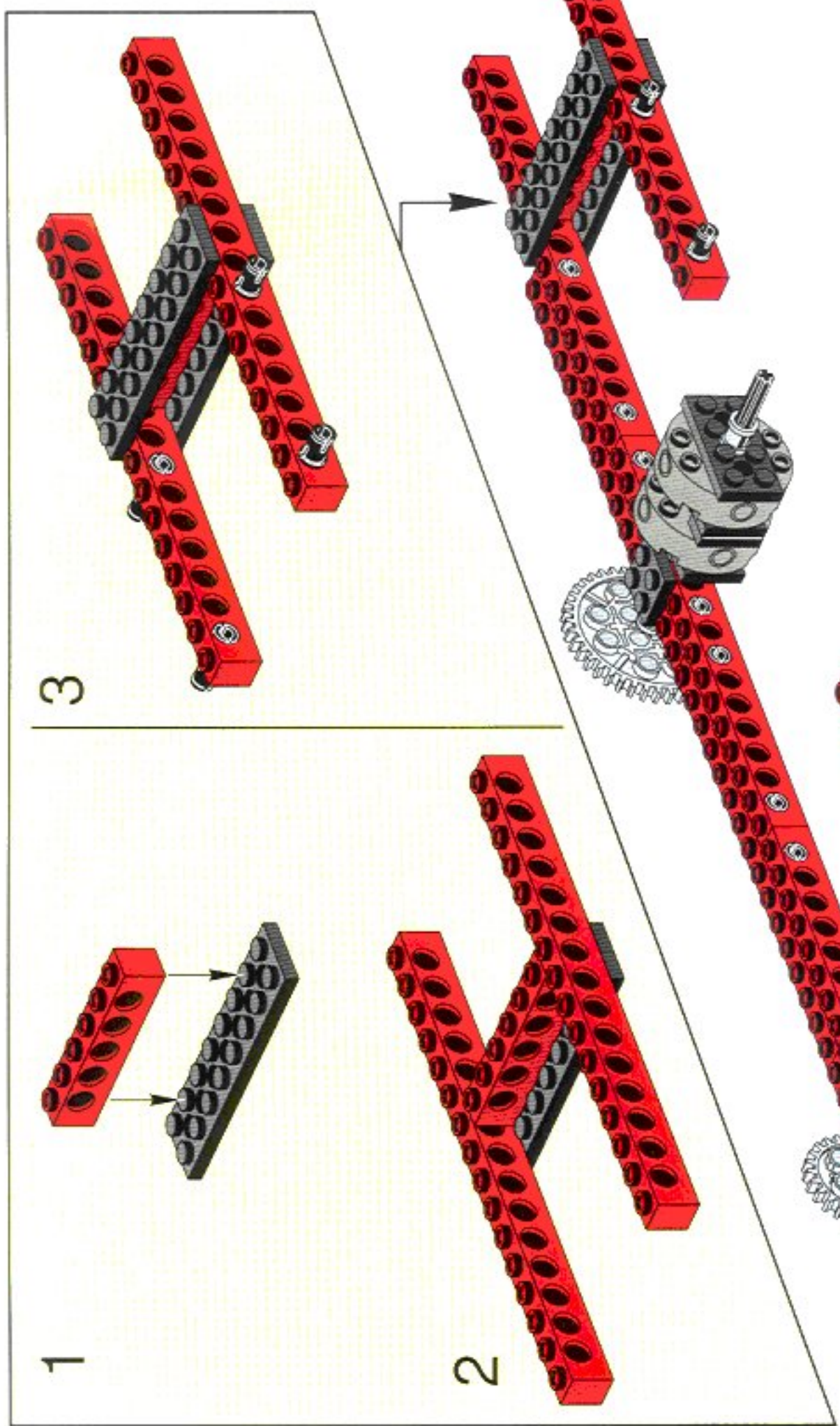
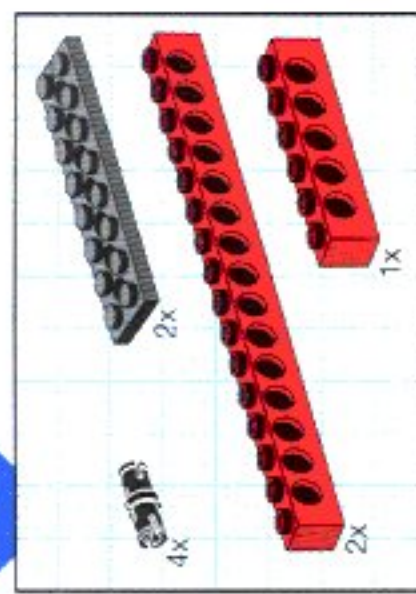


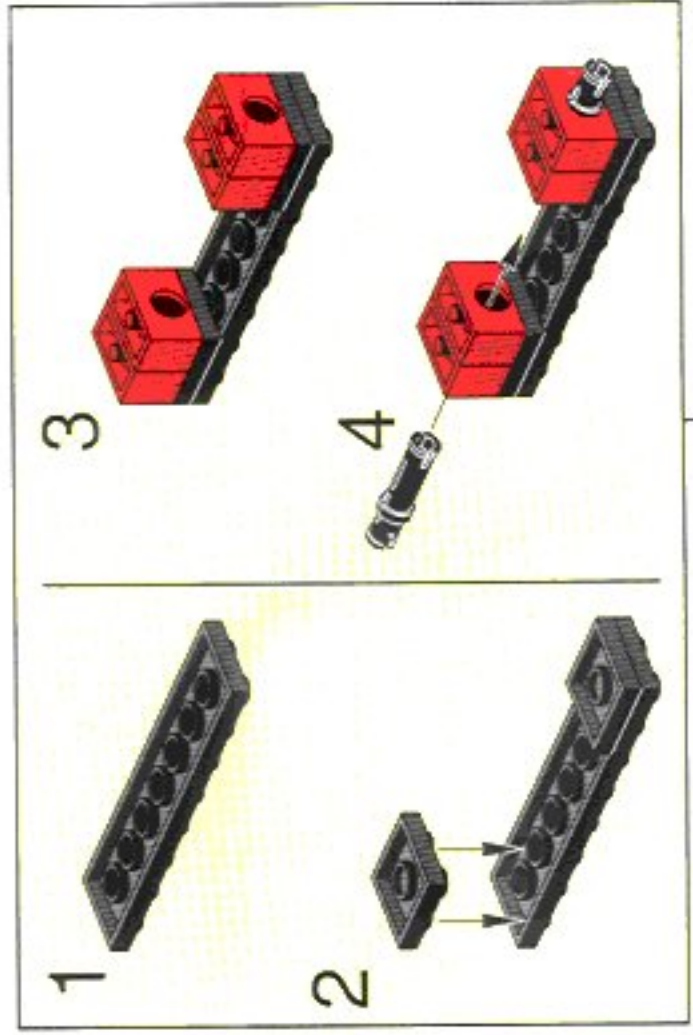
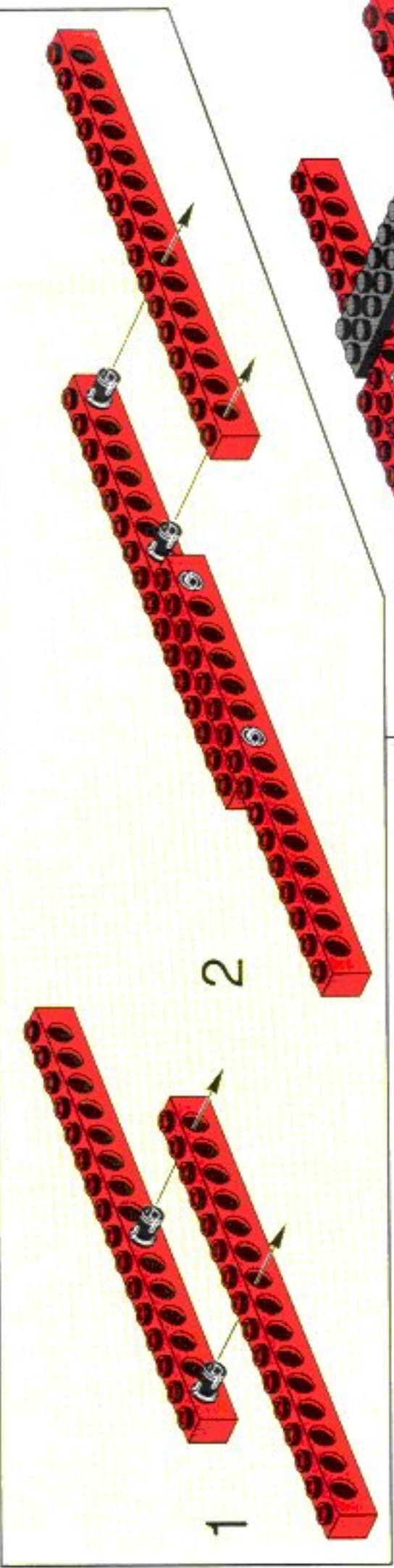
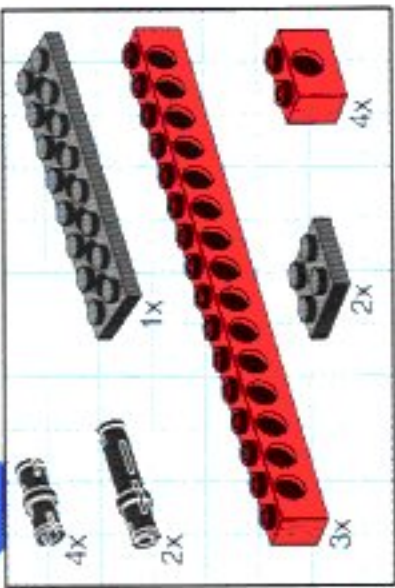
18



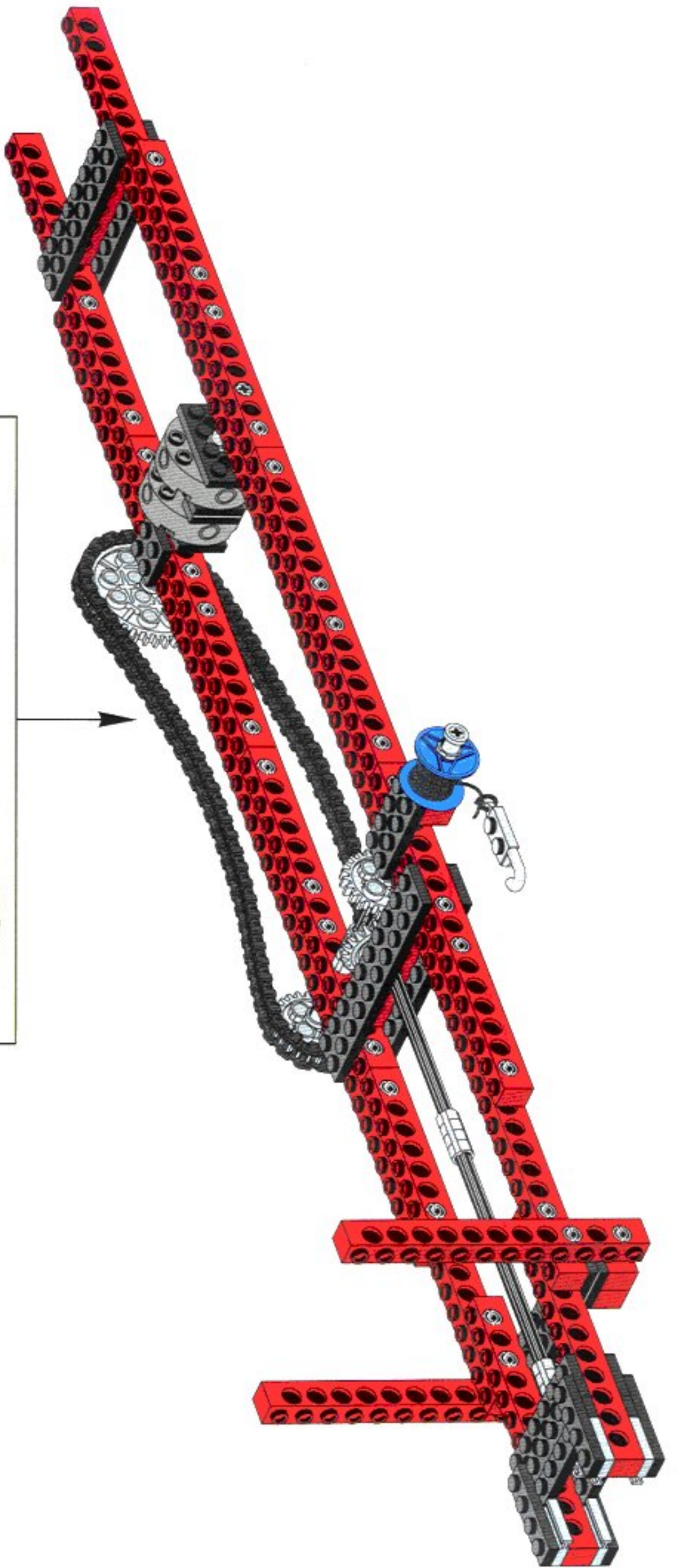
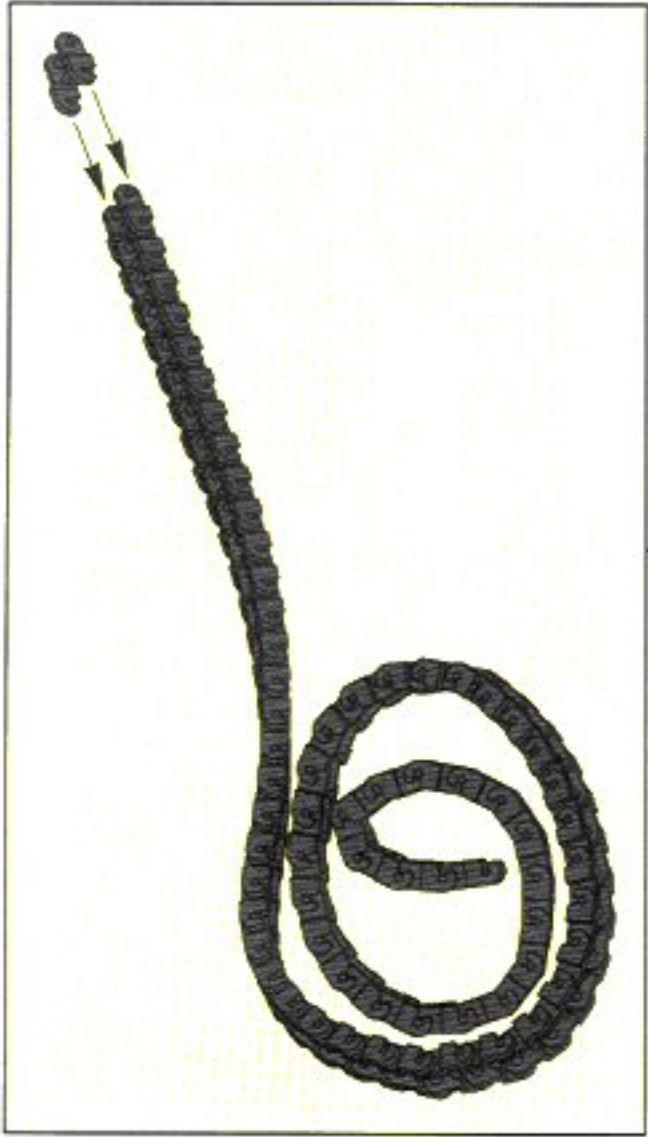
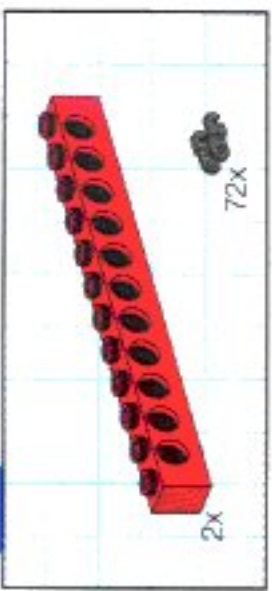


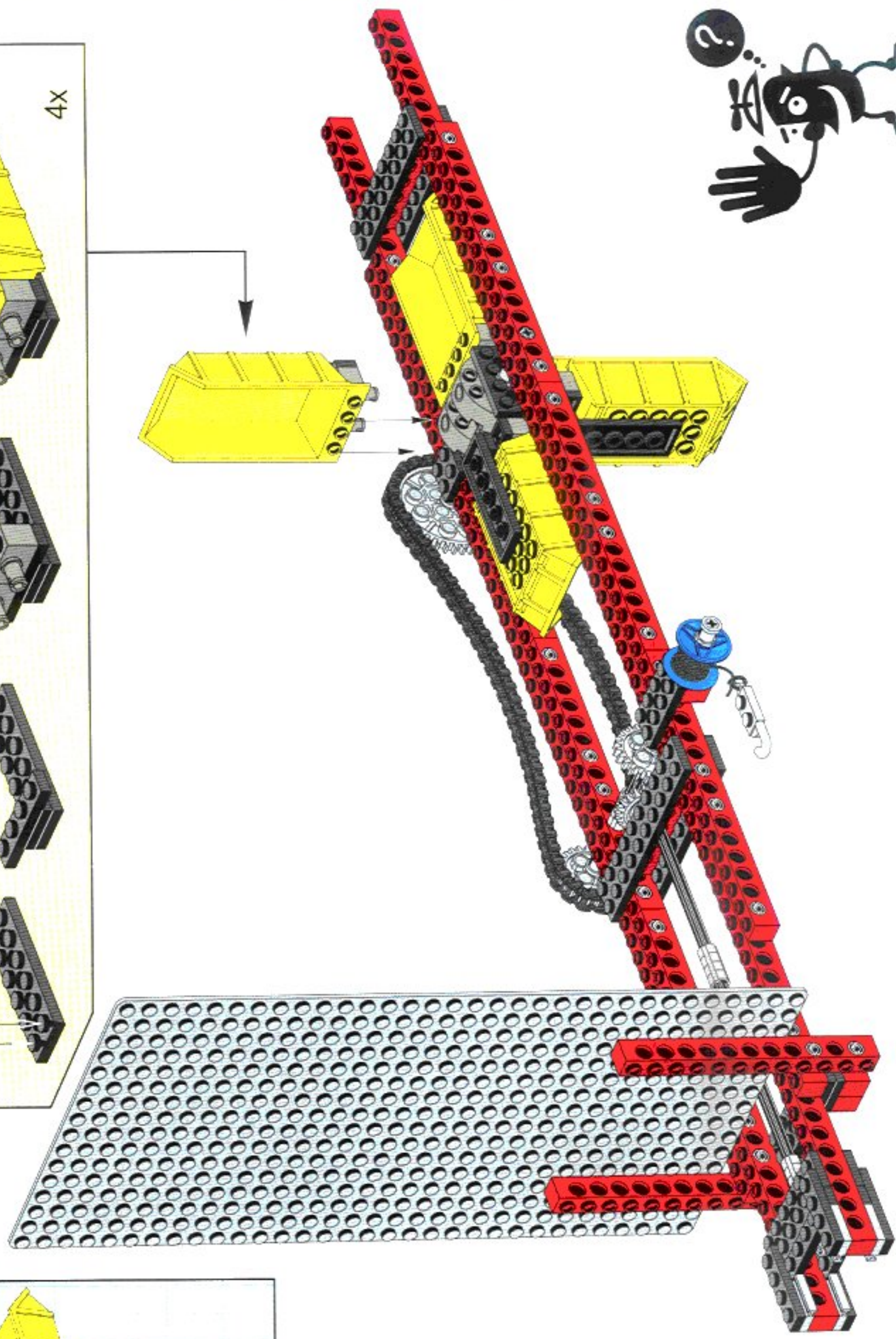
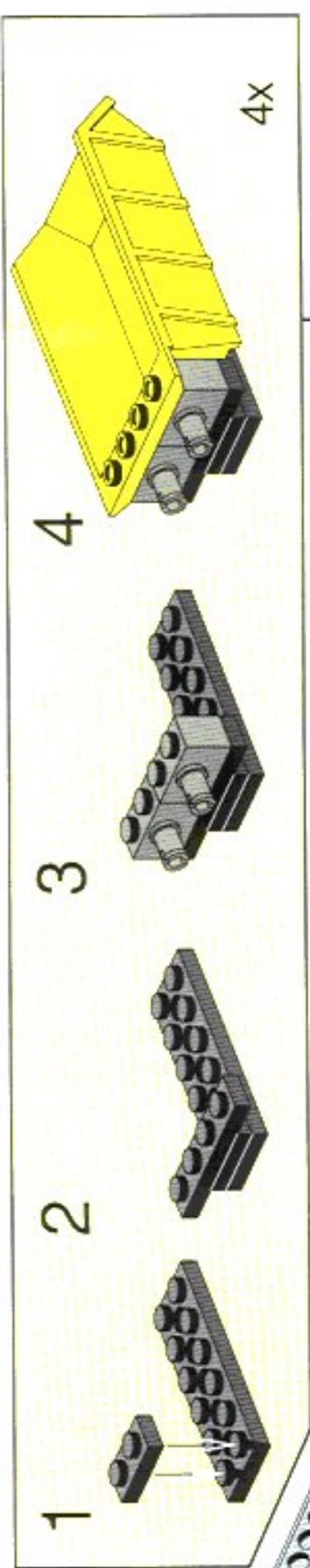
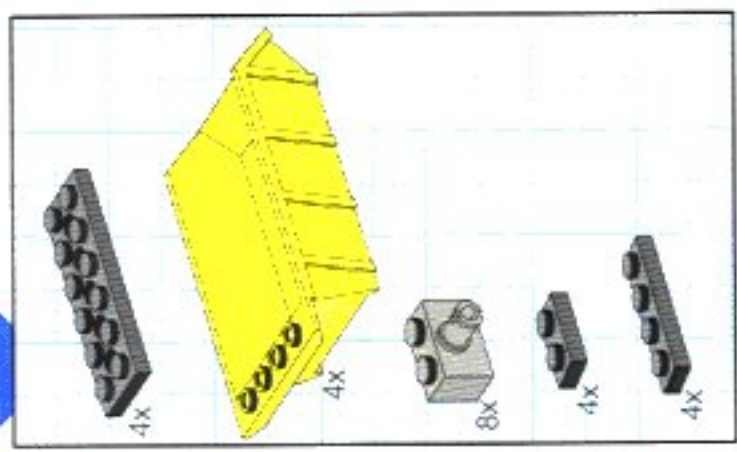




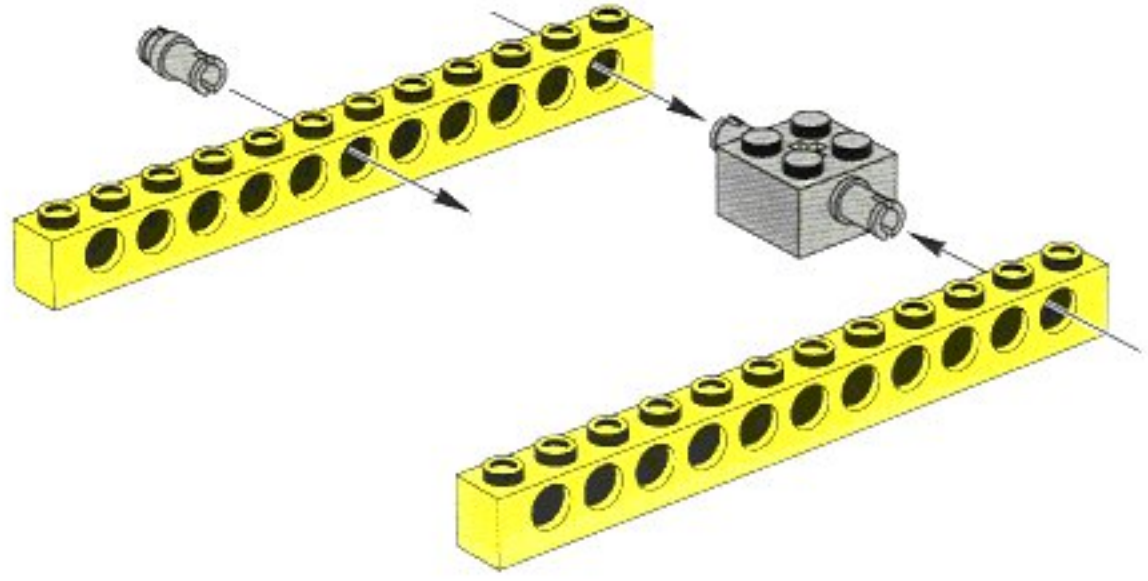
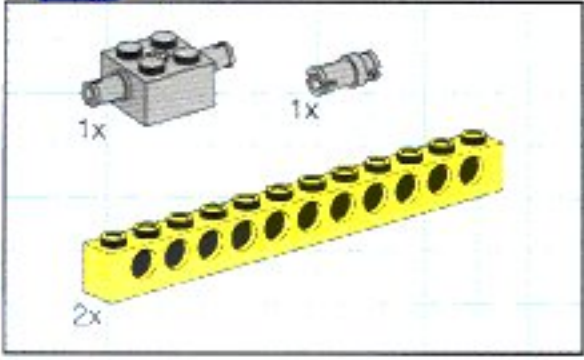


22

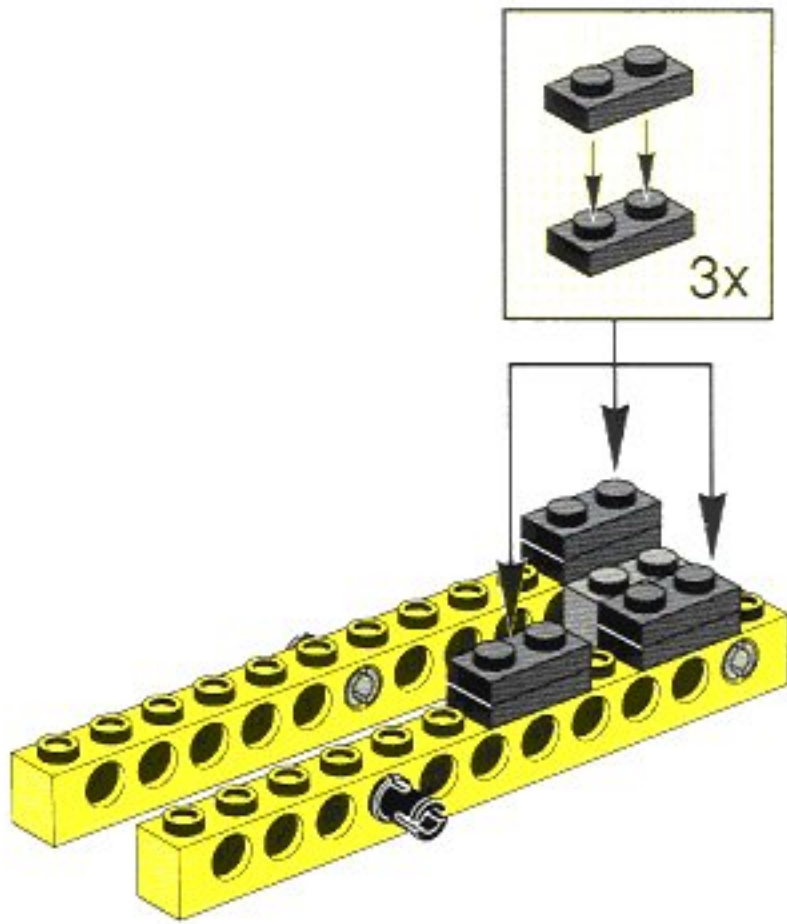




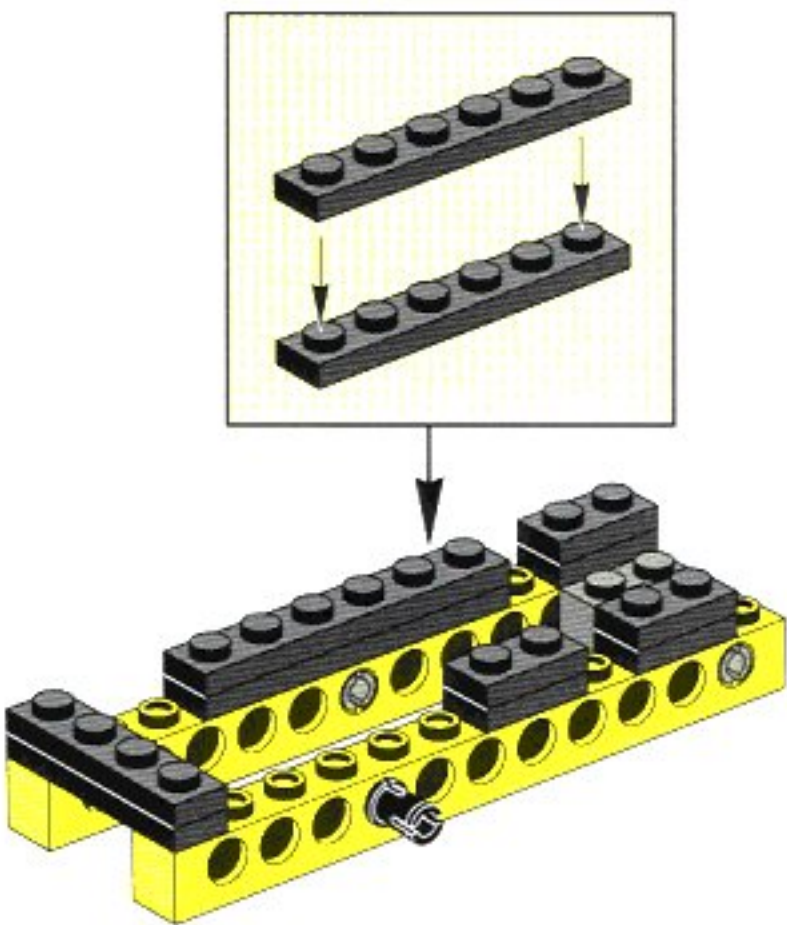
1



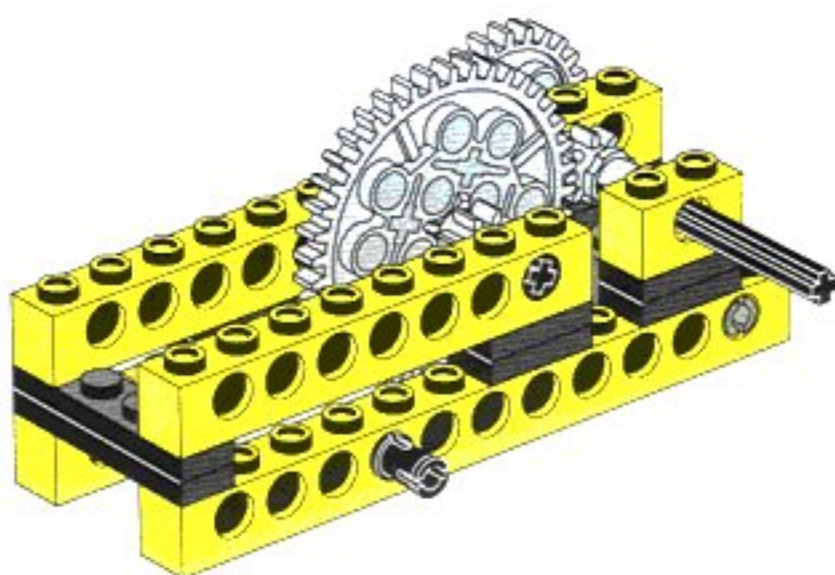
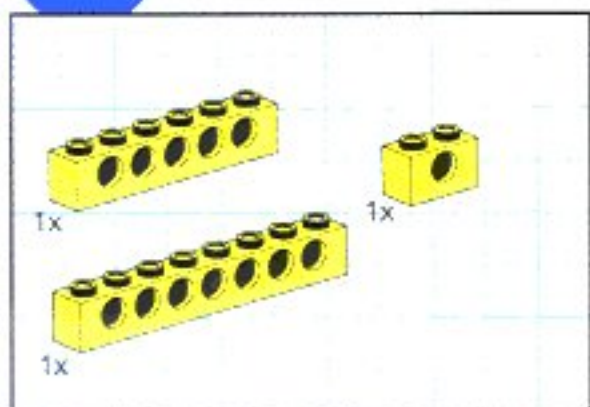
2



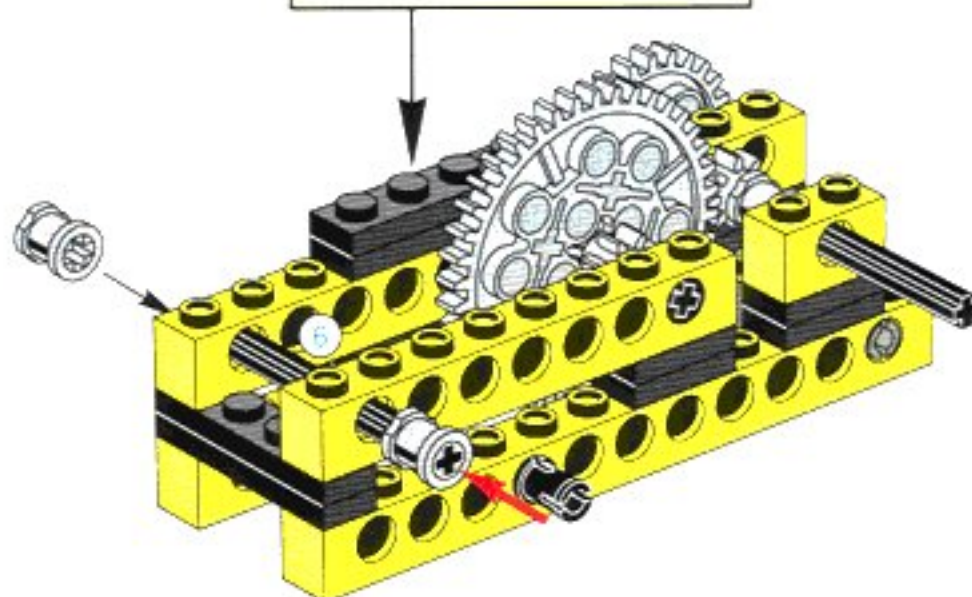
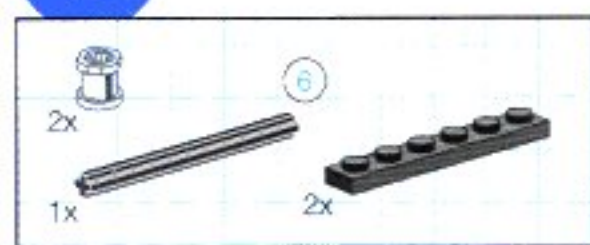
3



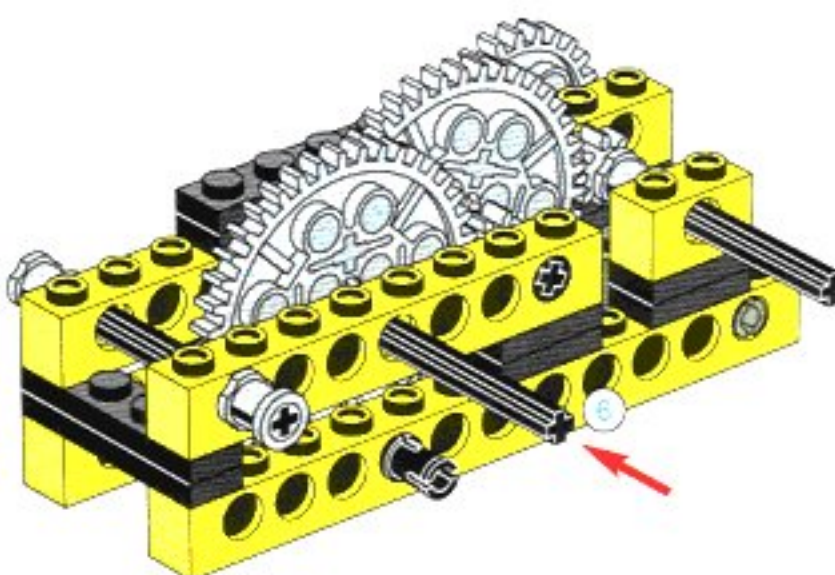
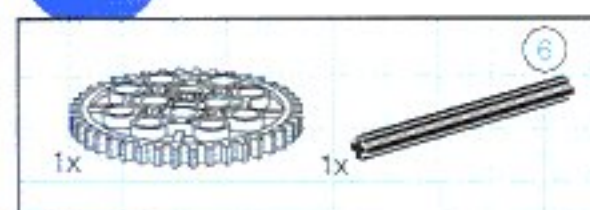
5



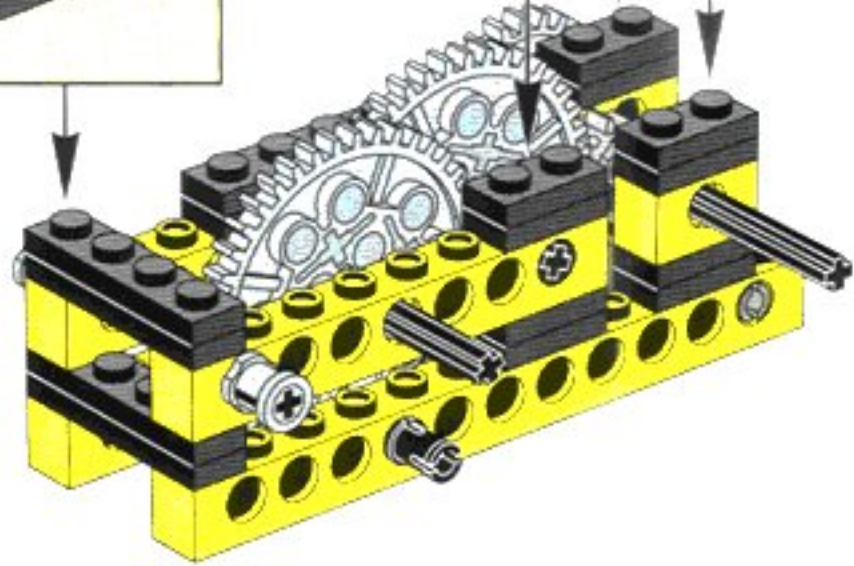
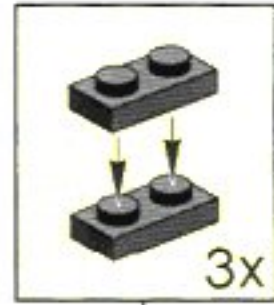
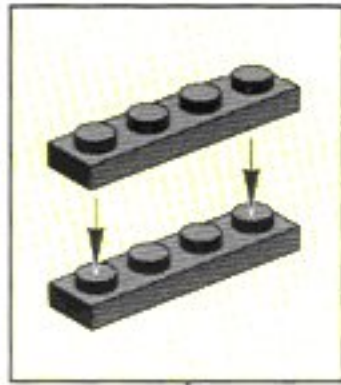
6



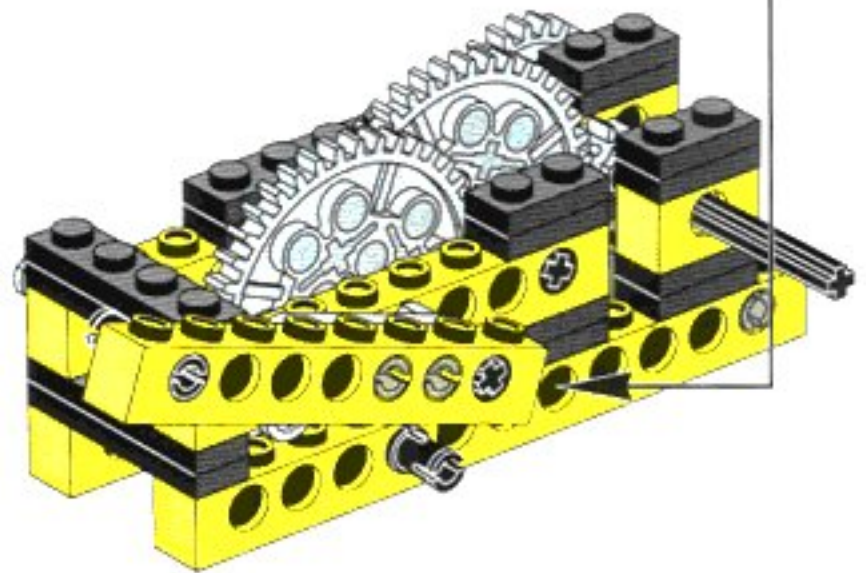
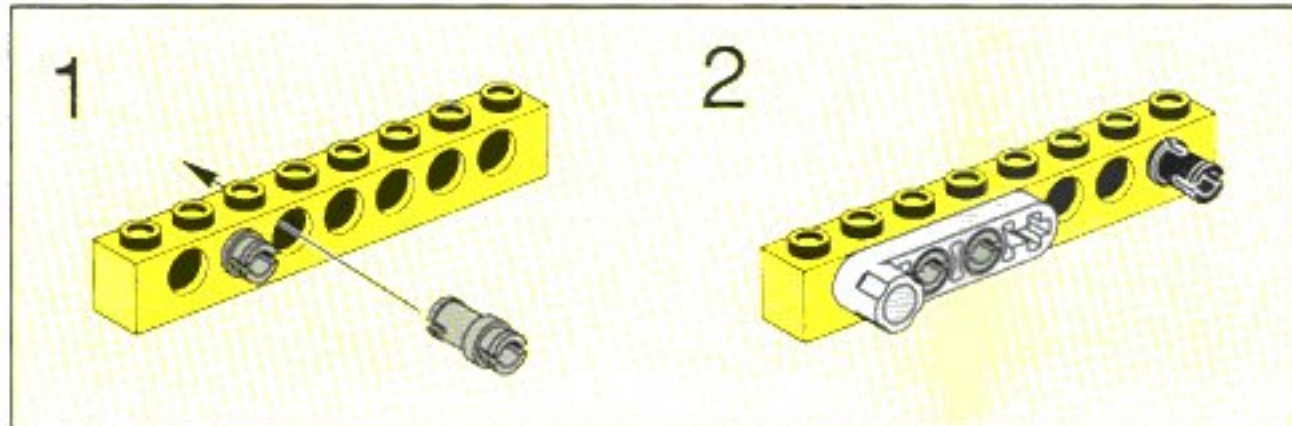
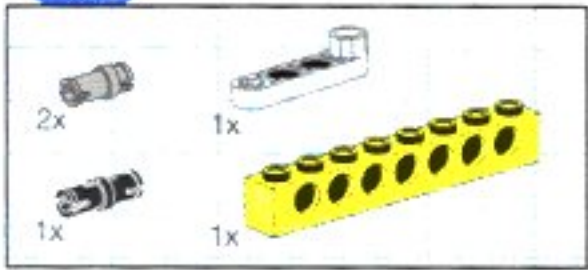
7

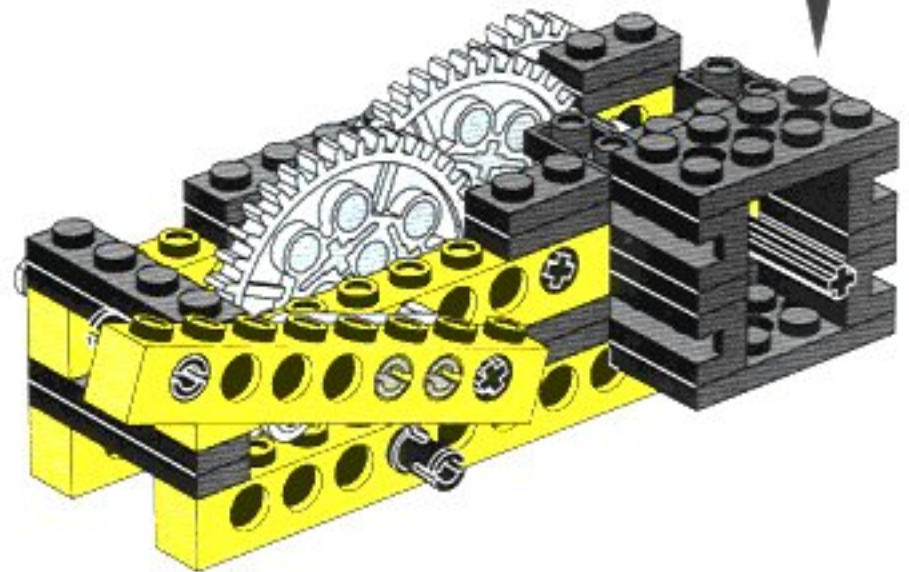
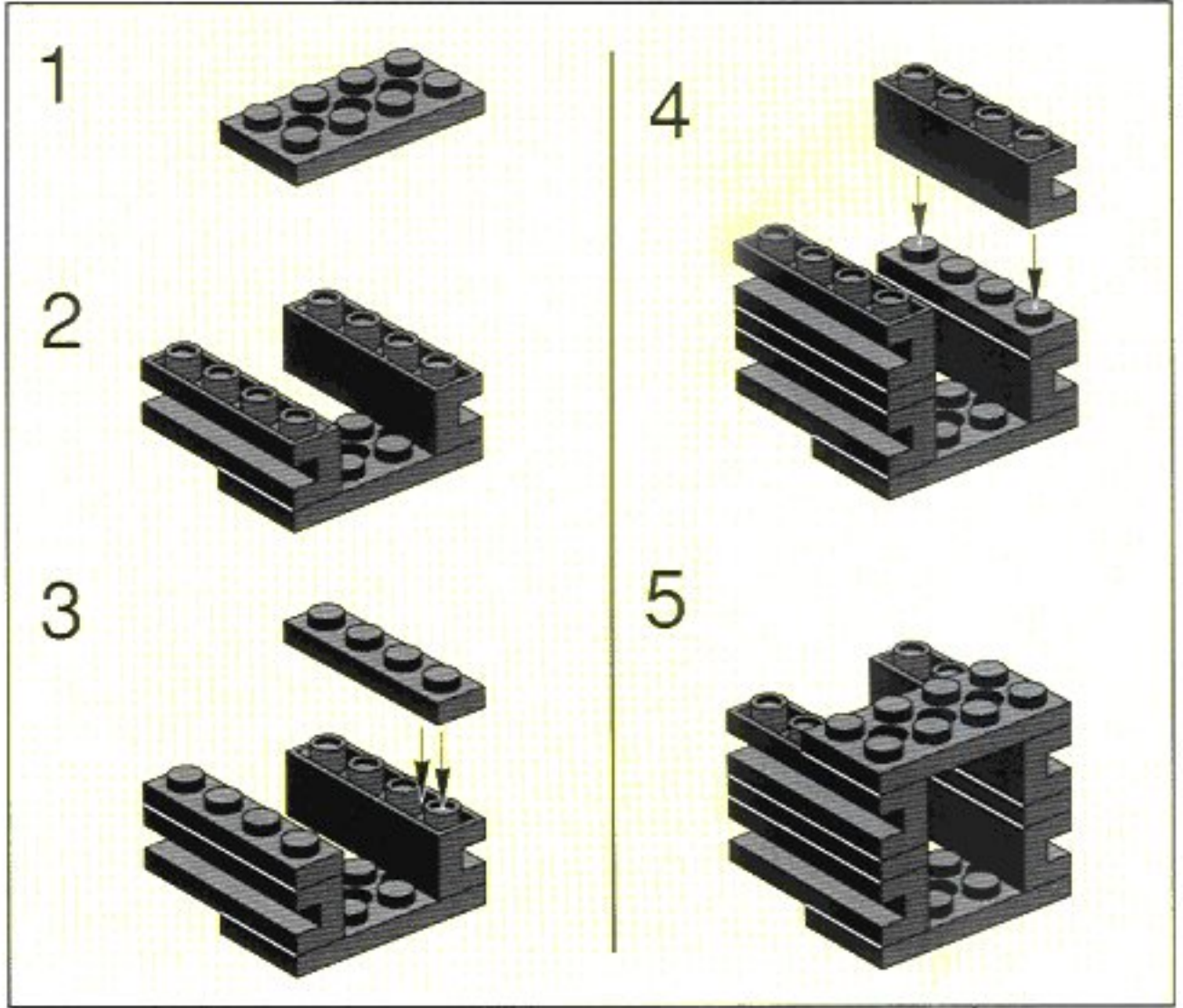
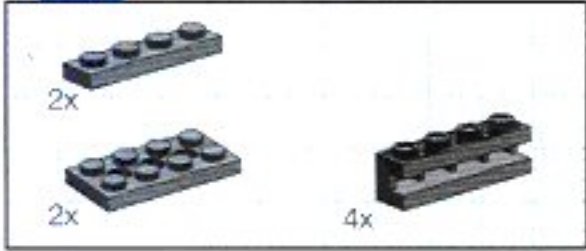


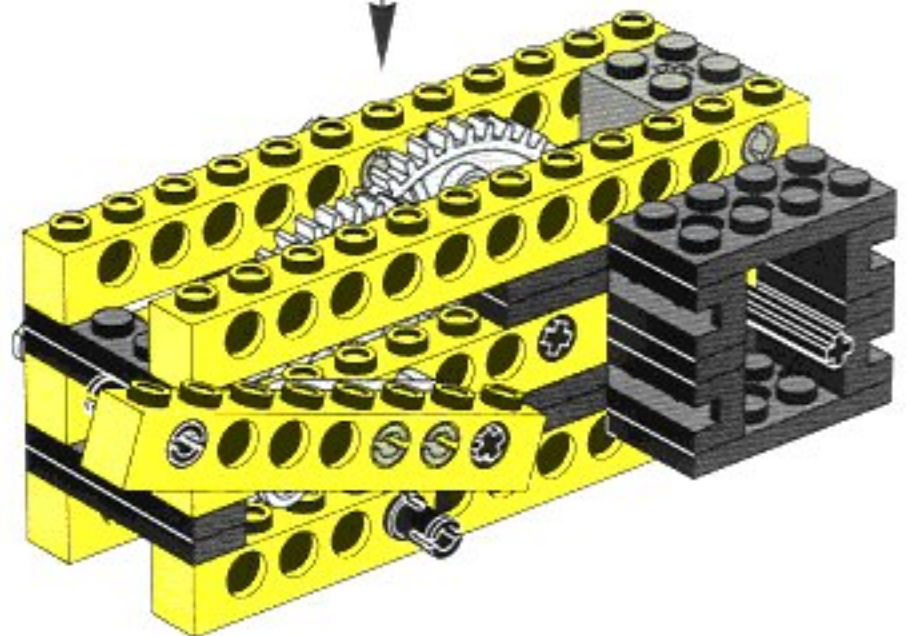
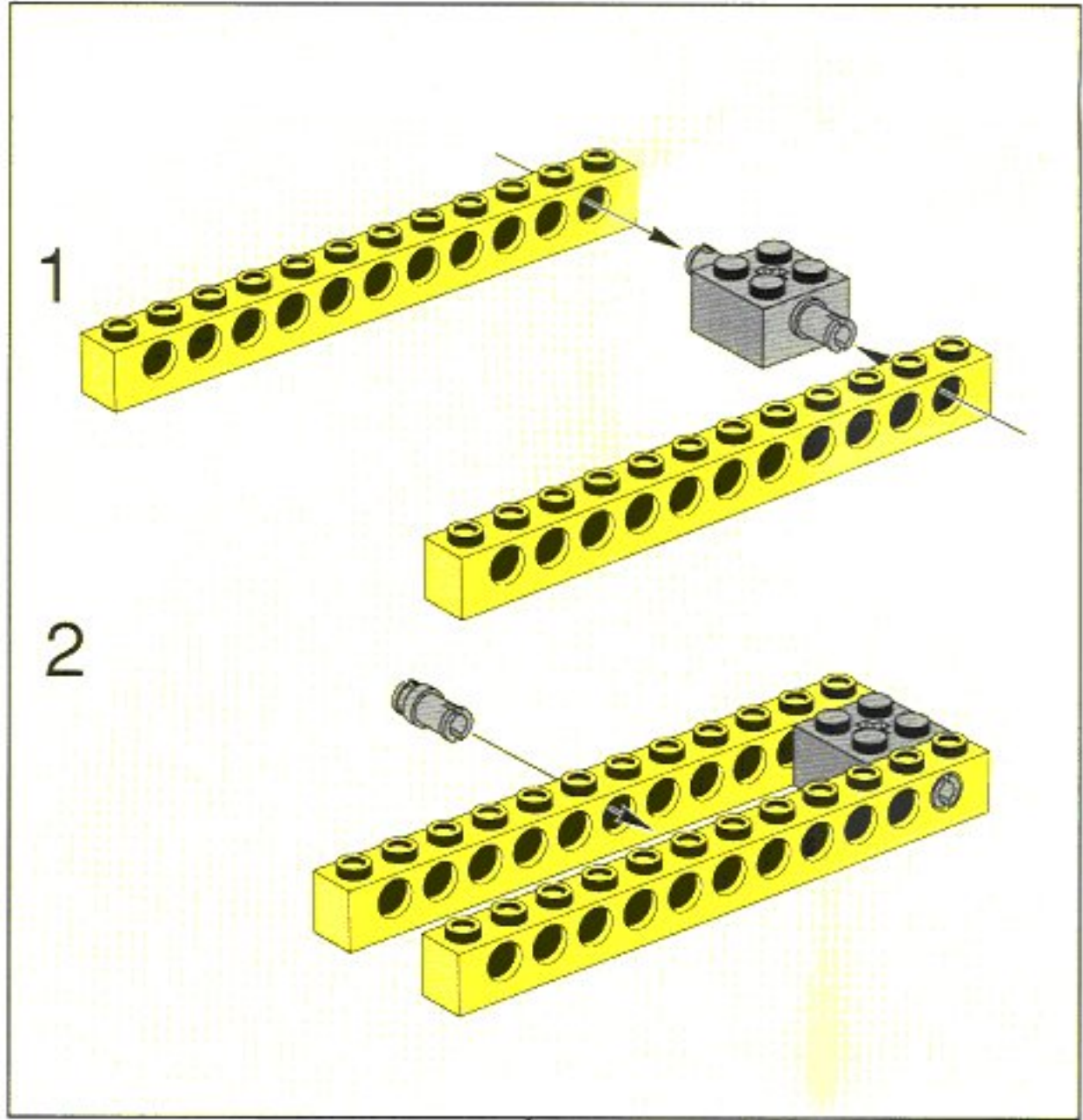
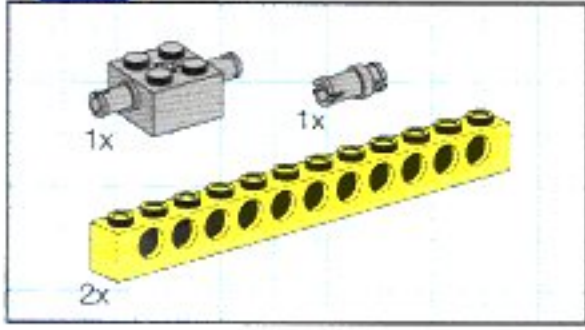
8



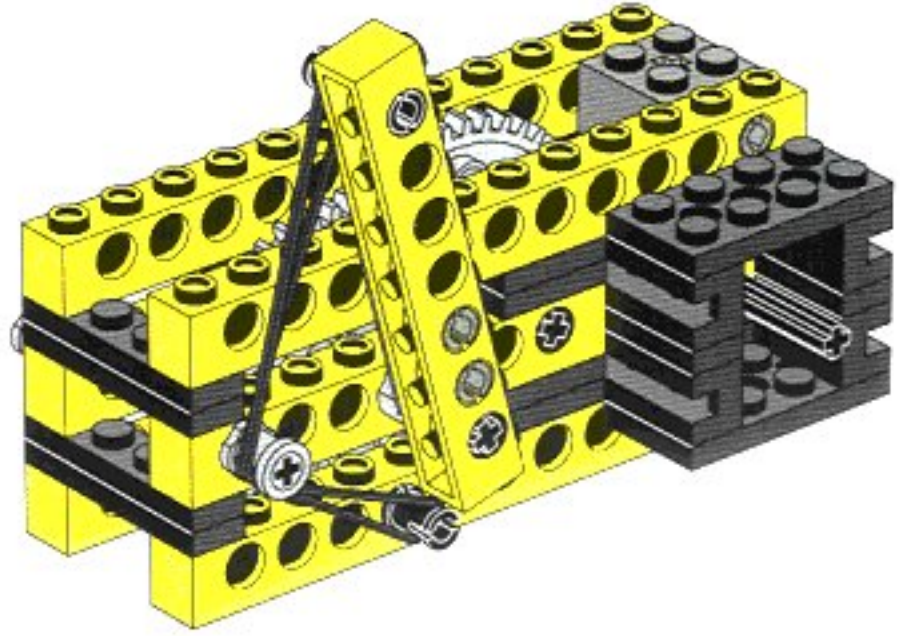
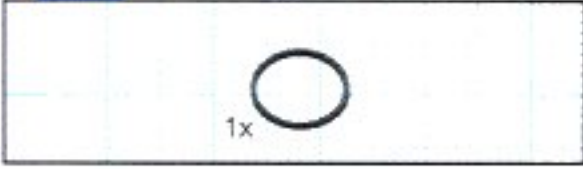
9



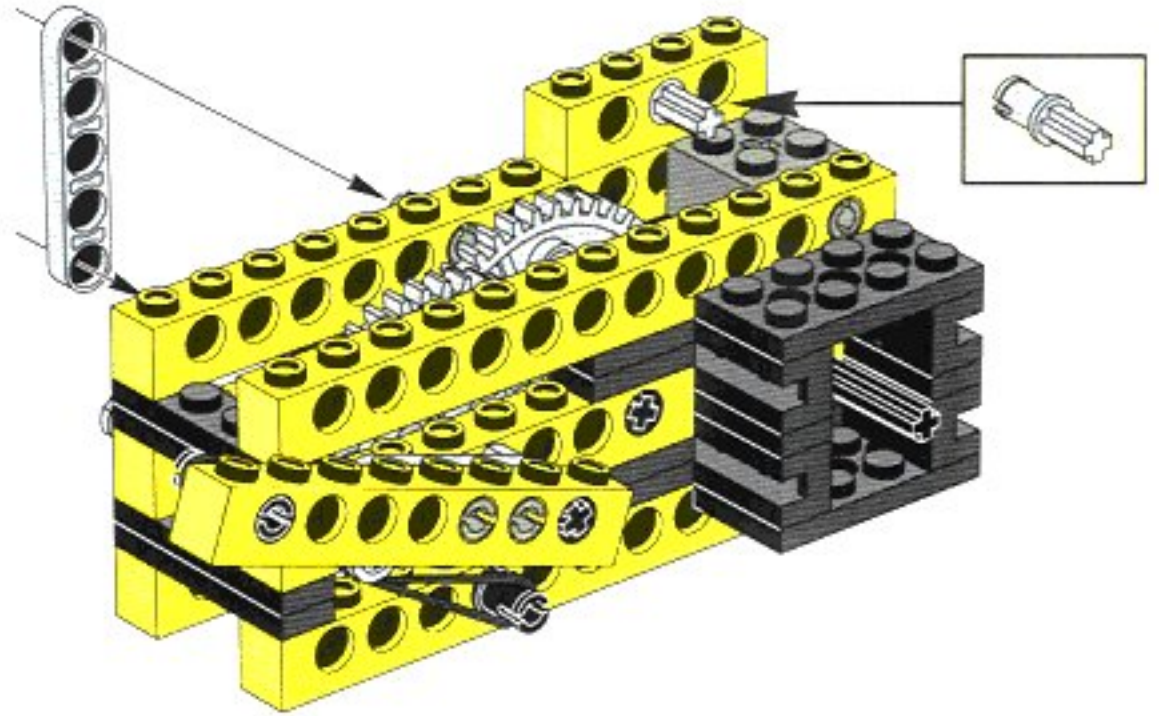
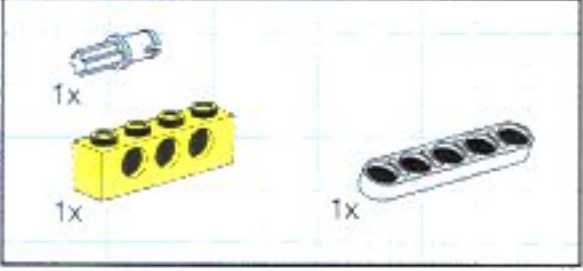




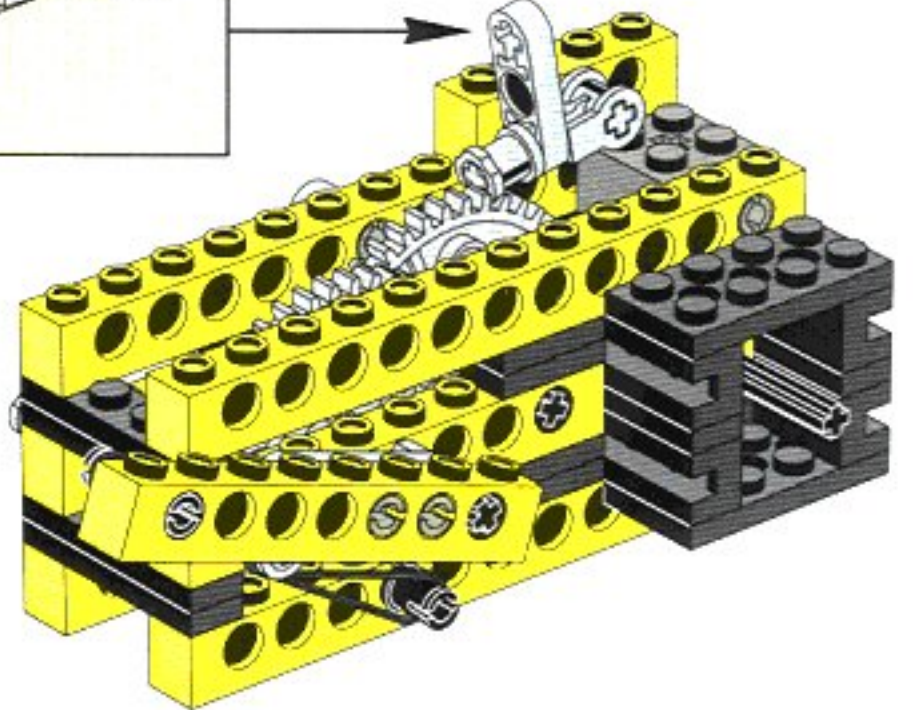
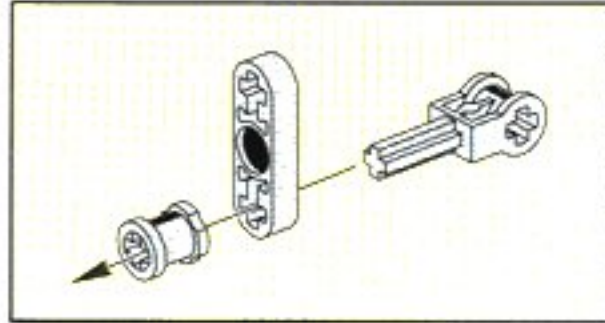
12



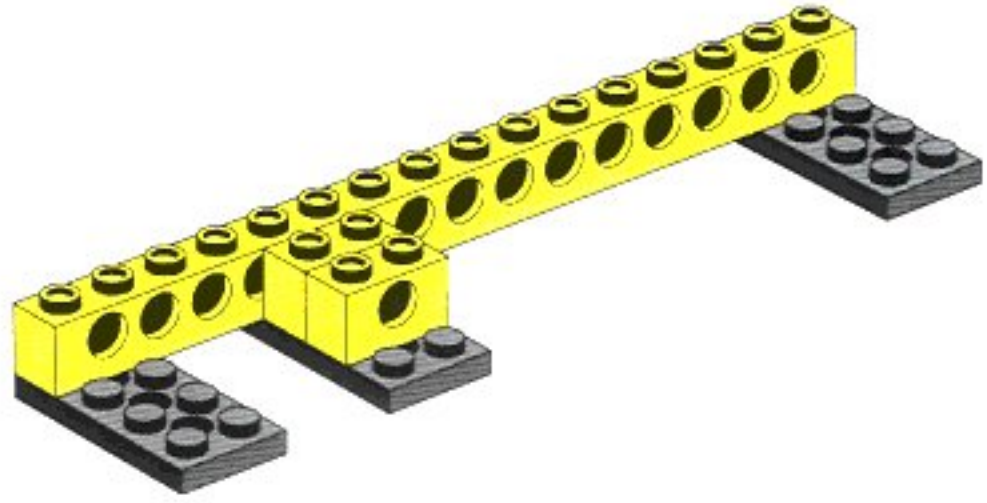
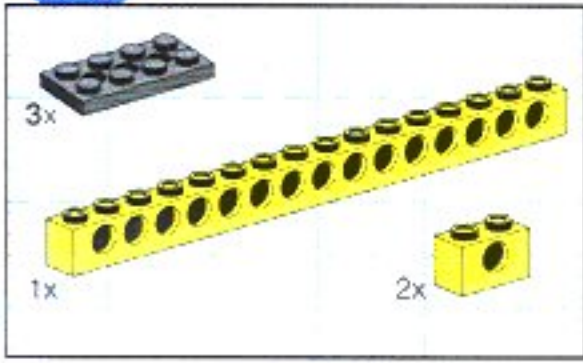
13



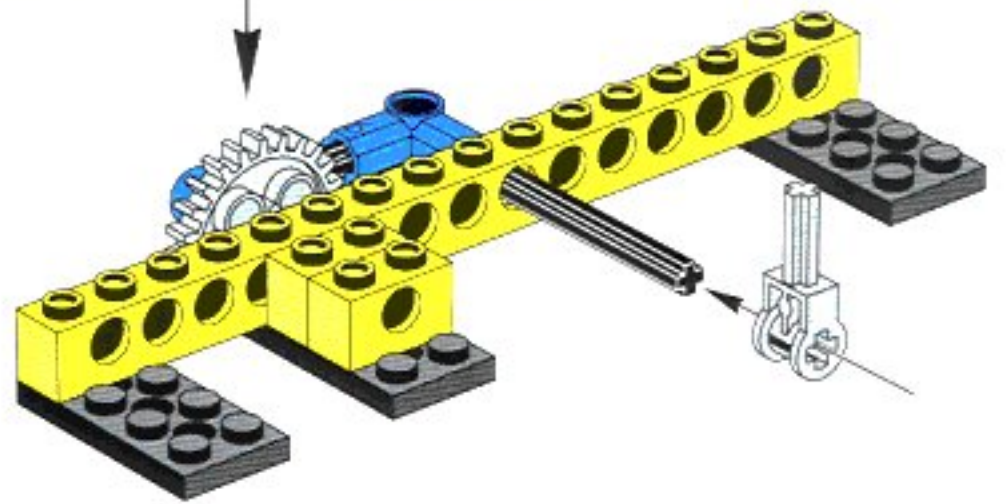
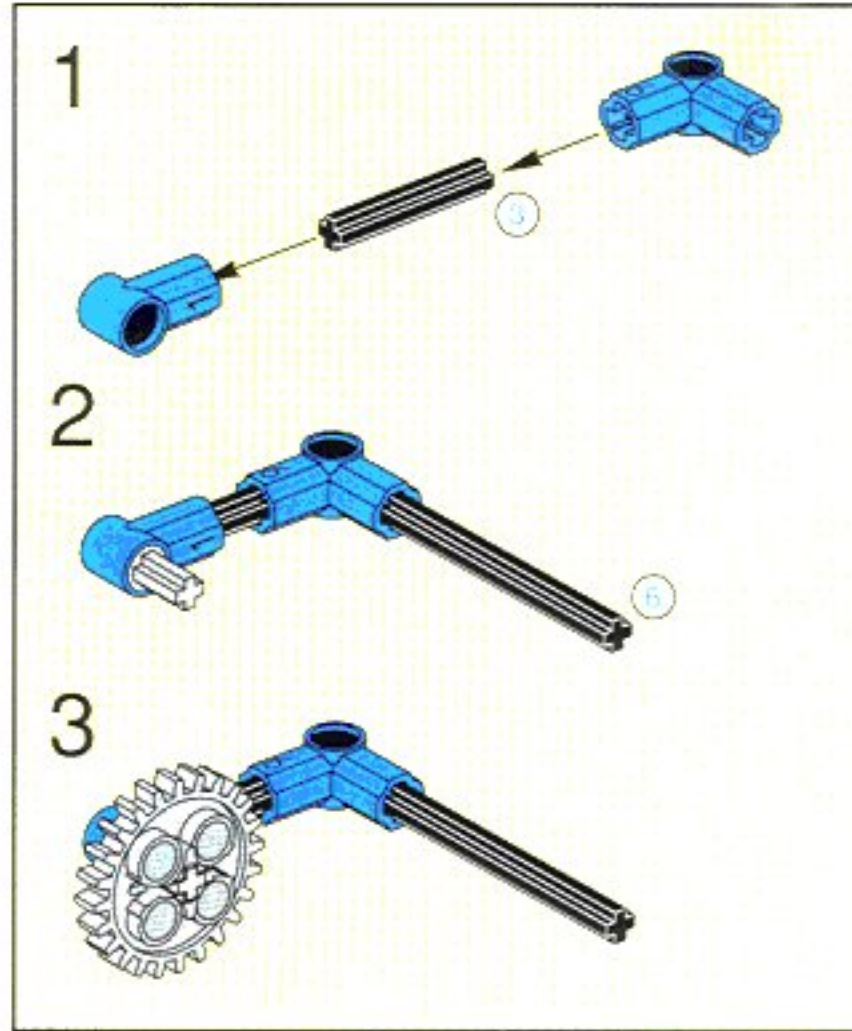
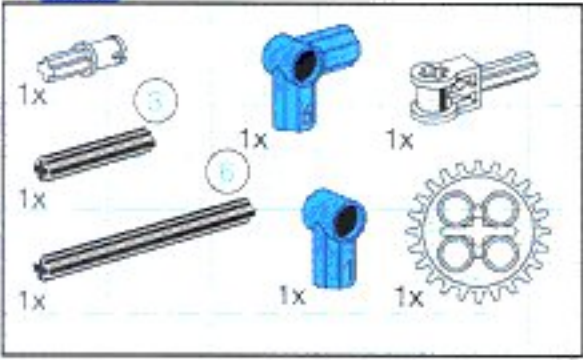
14



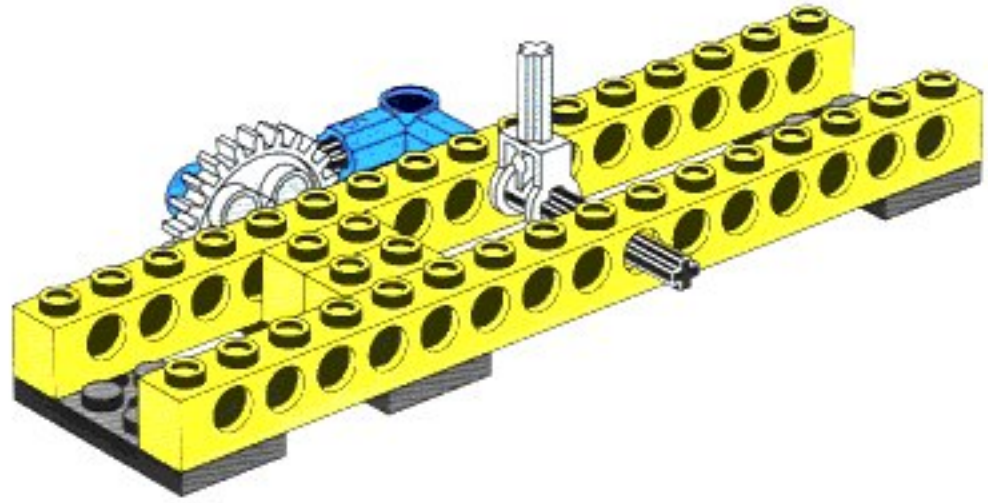
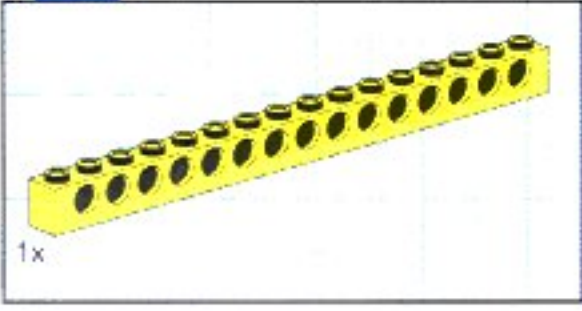
1



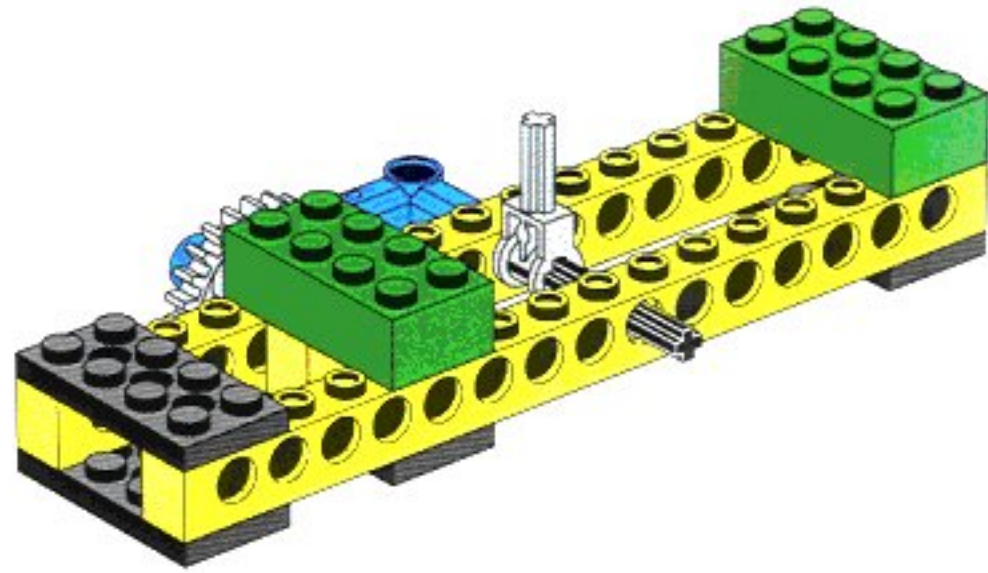
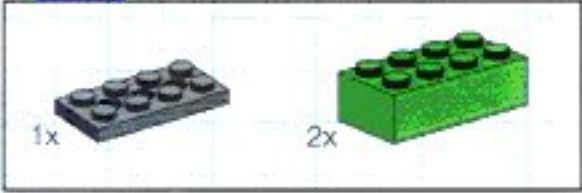
2



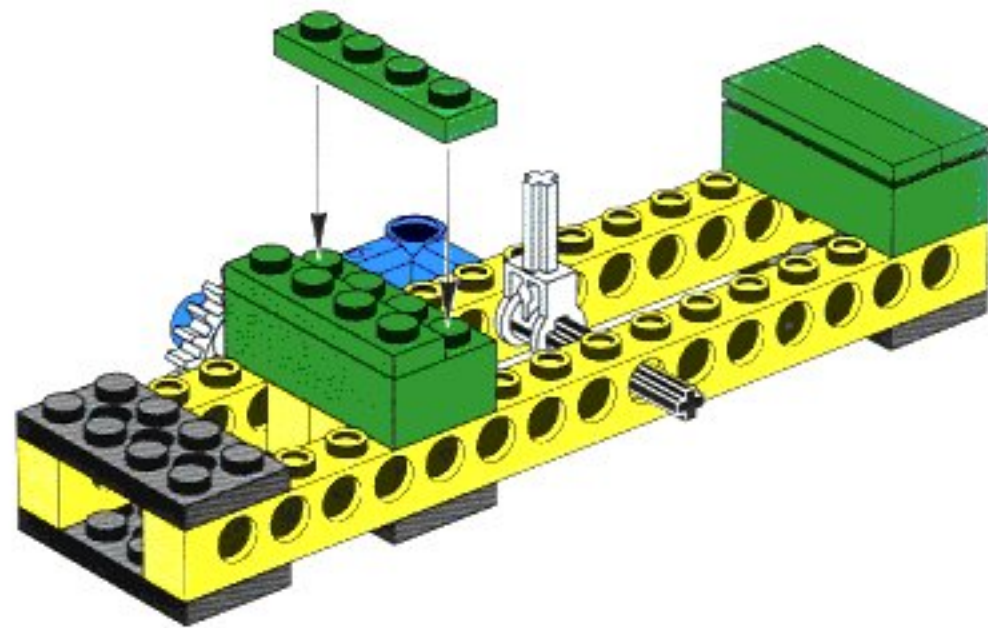
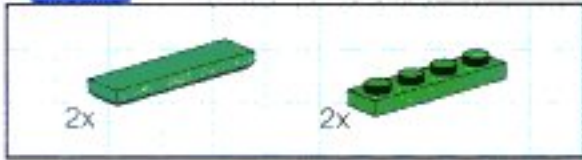
3



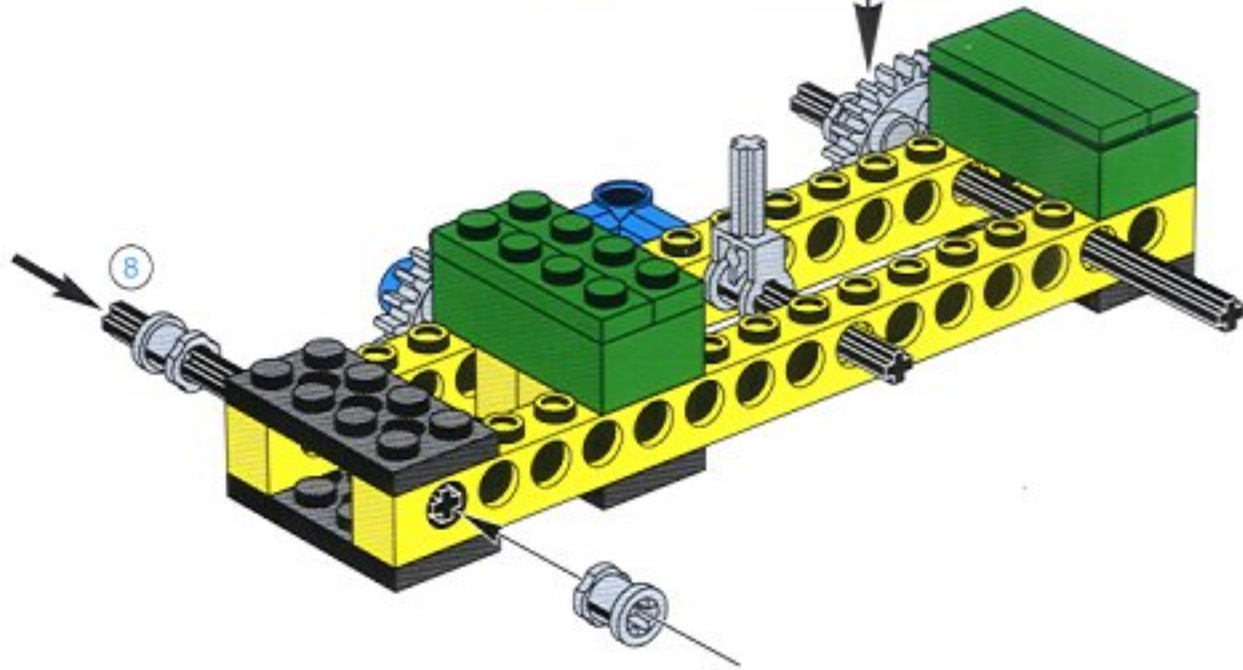
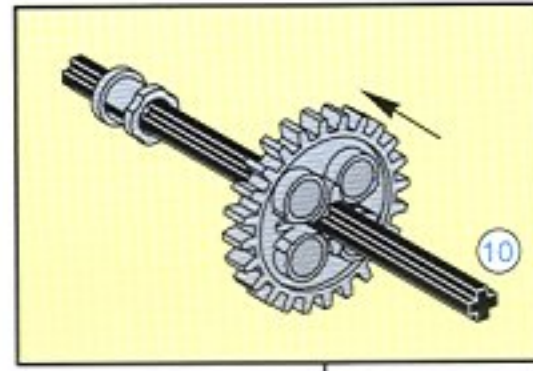
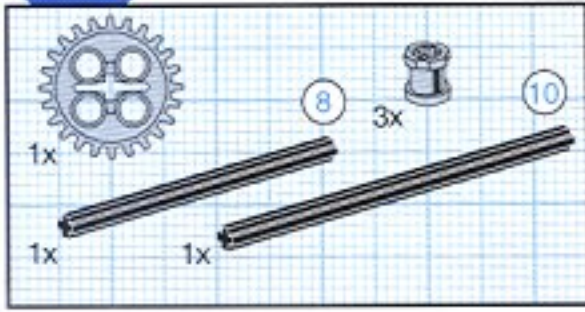
4



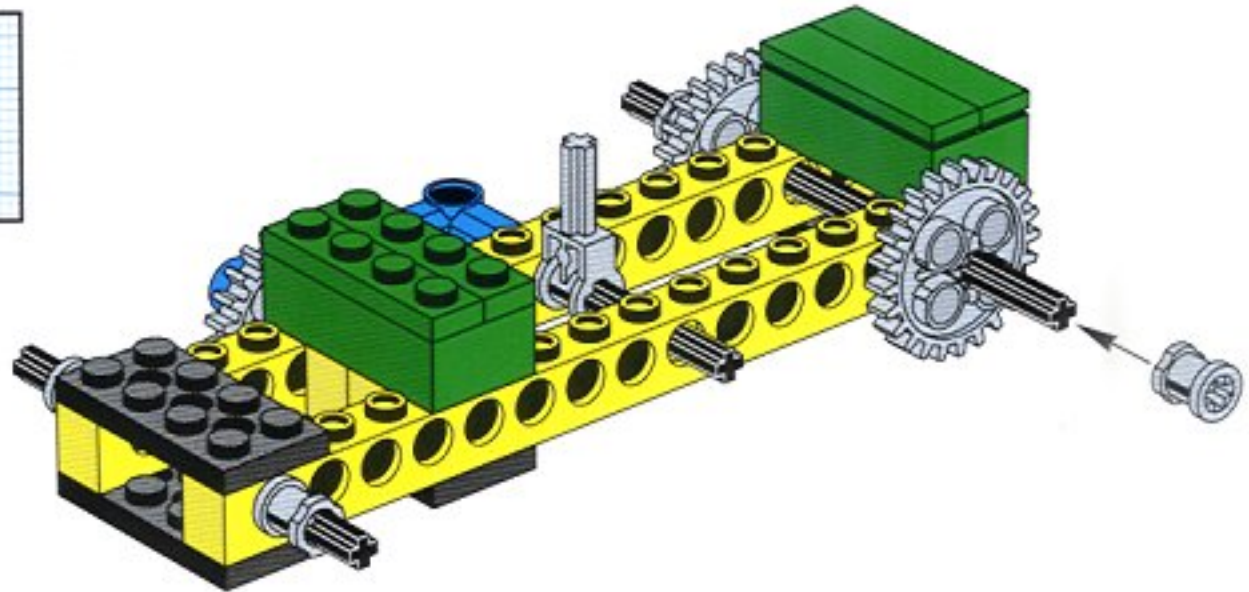
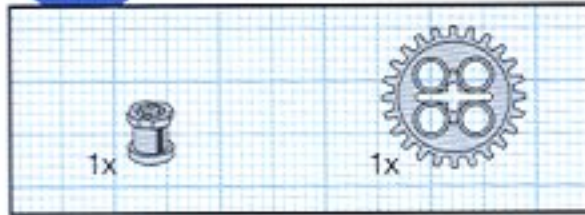
5



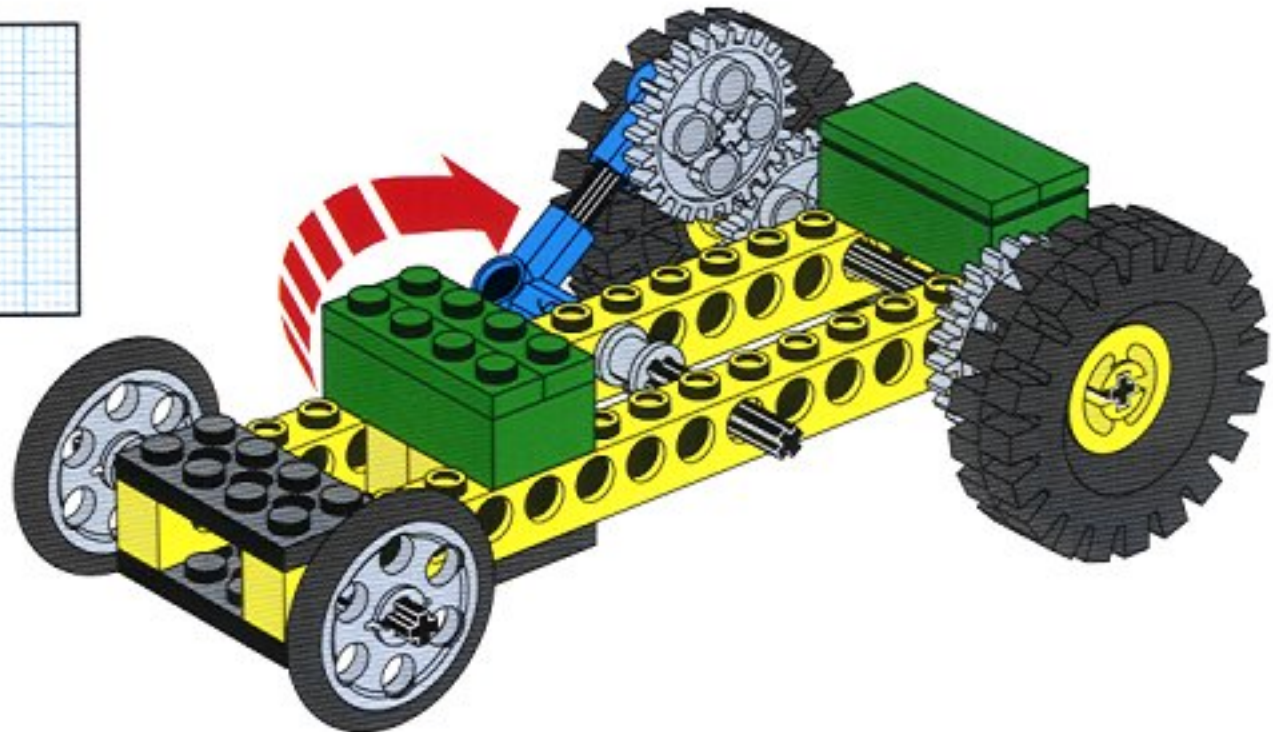
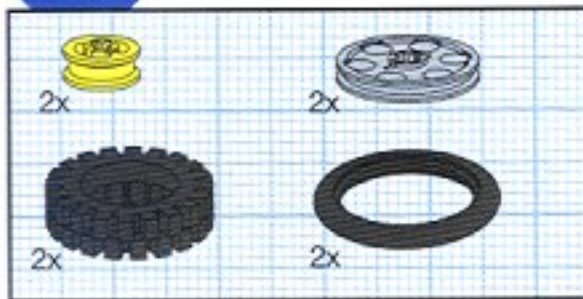
6

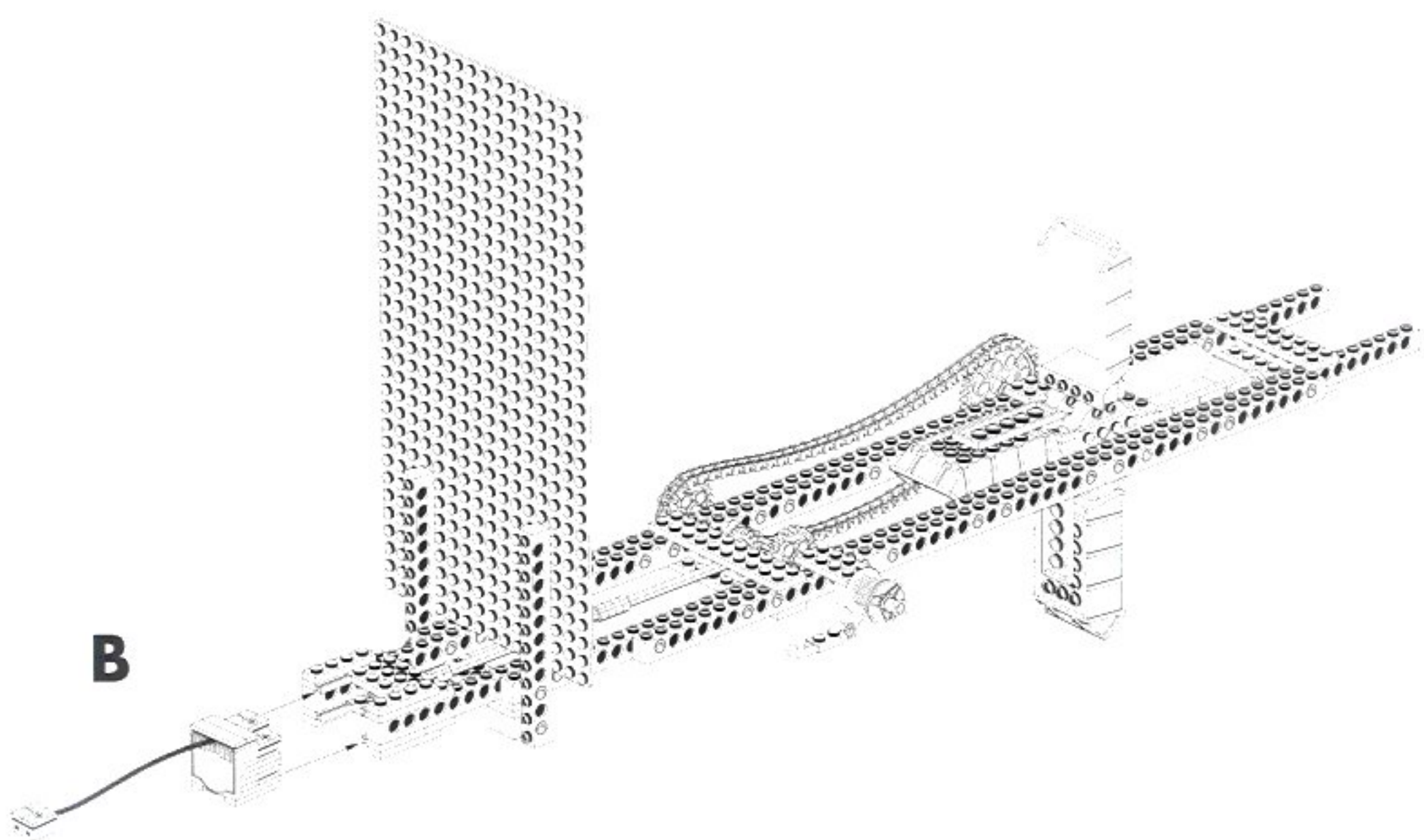
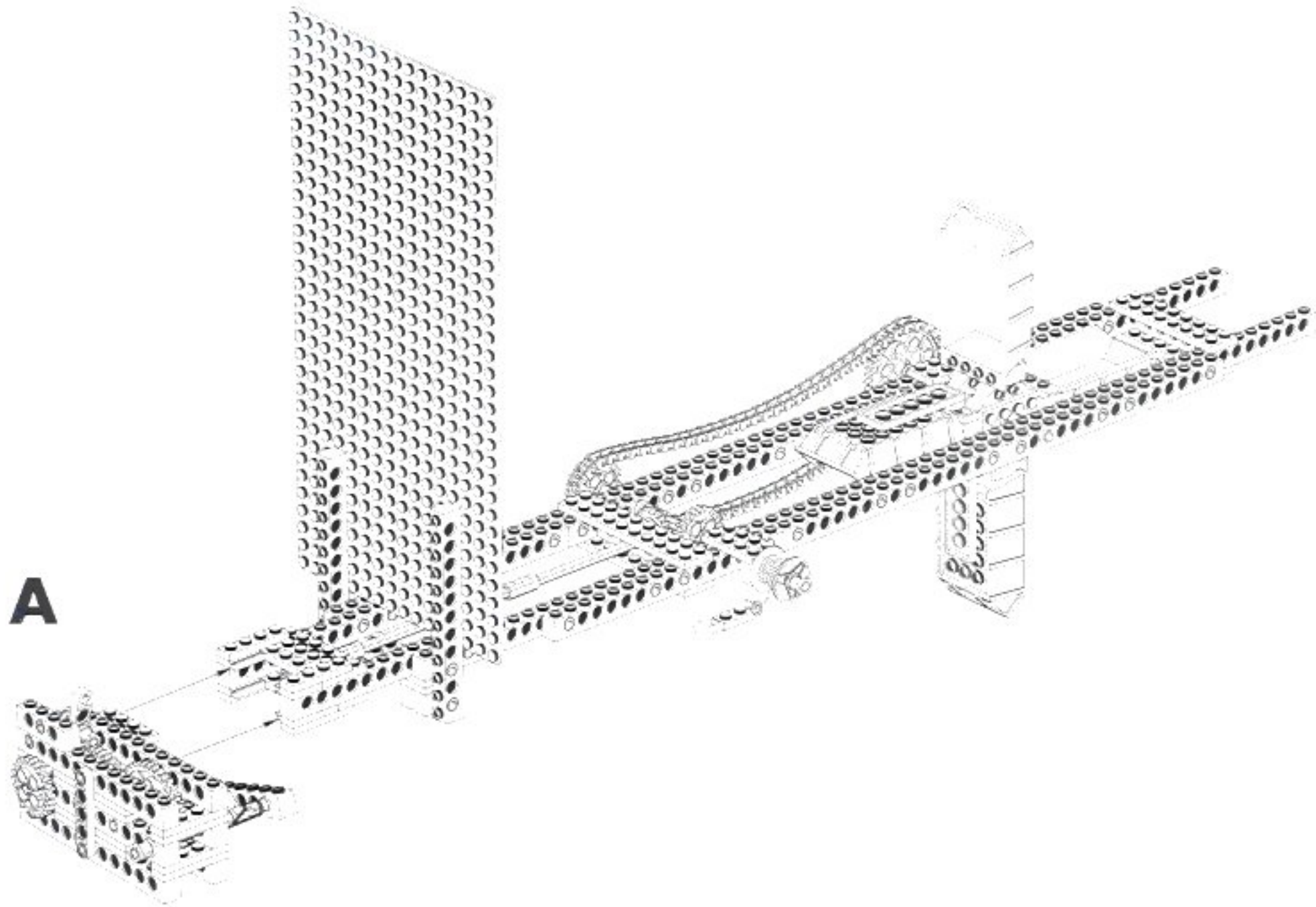


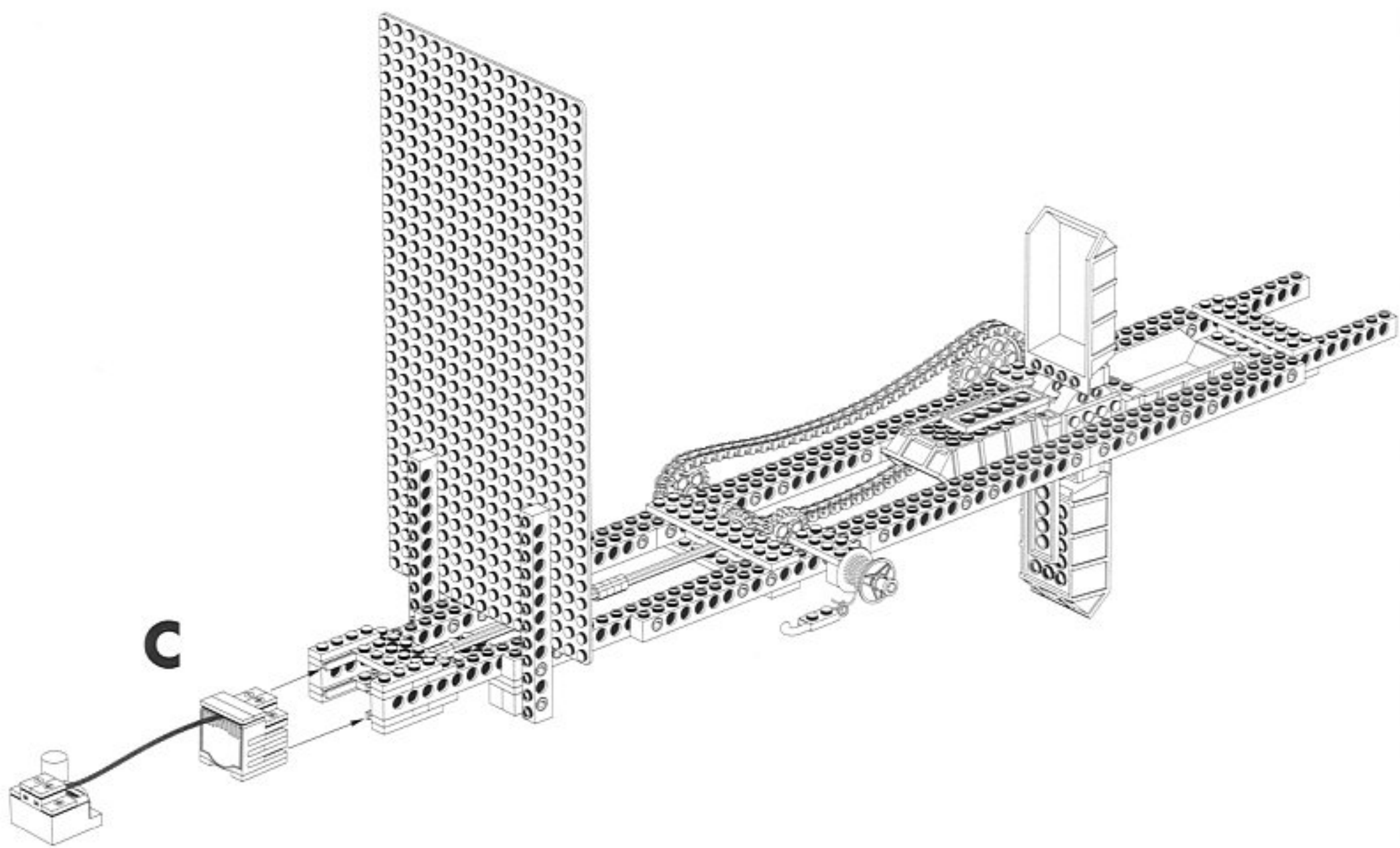
7



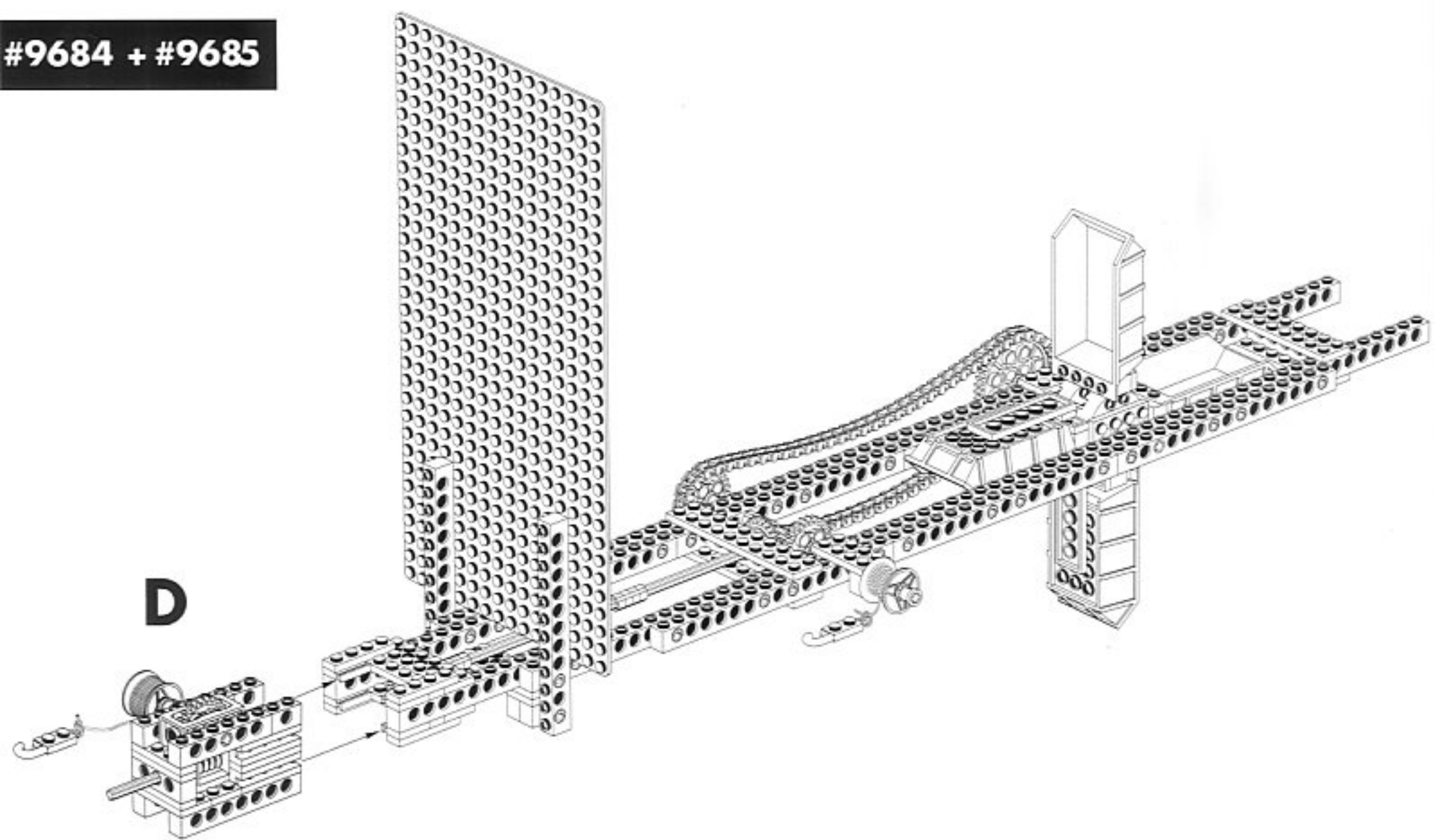
8

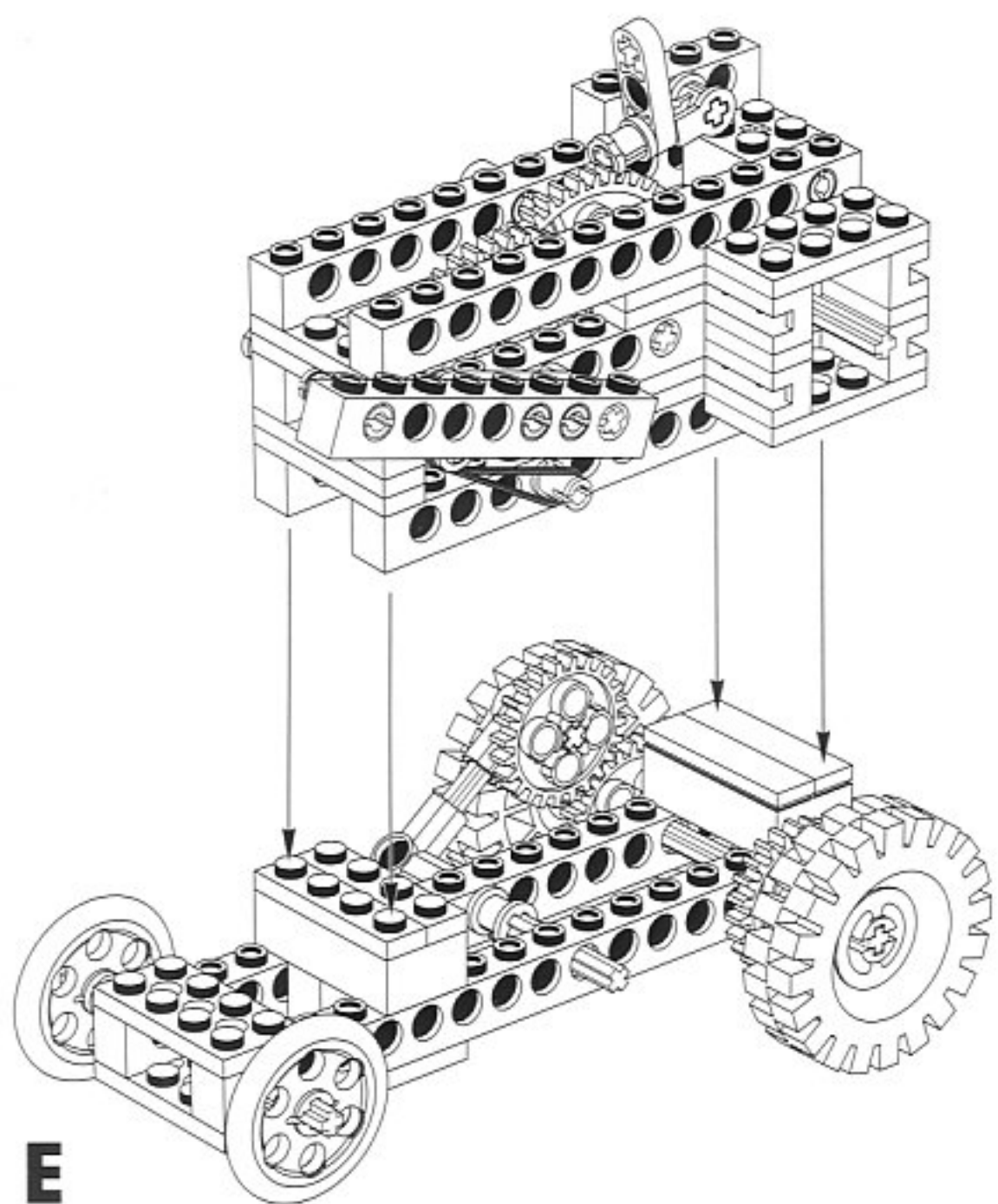




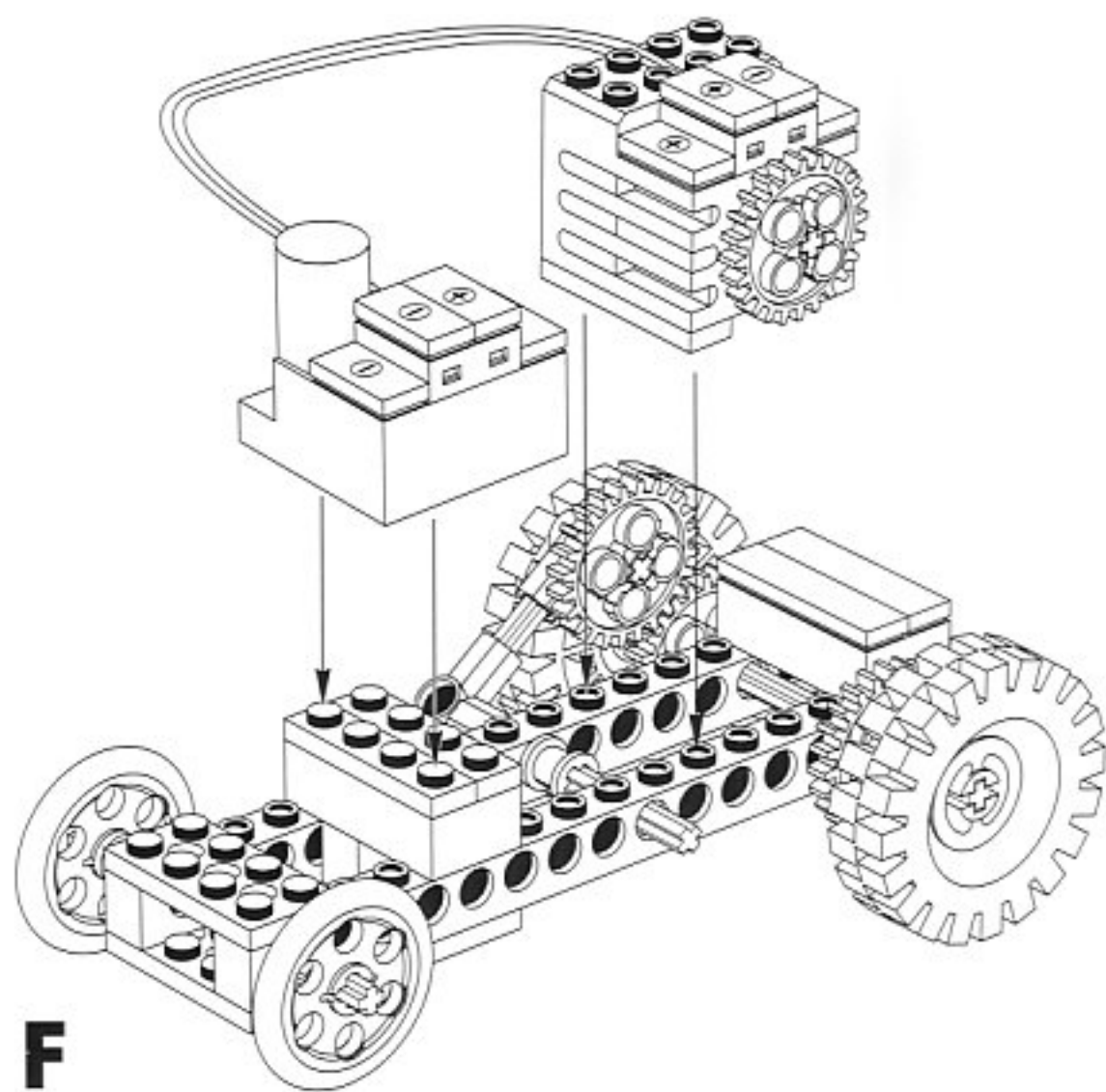


#9684 + #9685





E



F

Motor
Moteur
規格
モーター
모터



E
a. Especificaciones
- Voltaje máximo: 9 voltios. Se encenderá a aproximadamente 1 voltio
- Funcionamiento libre: rpm 350
- Corriente de funcionamiento libre: 5 mA
- Corriente de bloqueo: 350 mA.
b. Precauciones
- El motor no es resistente al agua.

CN/HK
a. 規格
- 啟動時1伏特・最大電壓9伏特
- 空轉(無負載)轉速350 rpm
- 空轉(無負載)電流5毫安培
- 阻斷電流350毫安培
b. 警告
- 馬達並不防水

UK/US
a. Specifications
- Max voltage 9 volt. Will start at about 1 volt
- Free running rpm 350
- Free running current 5 mA
- Blocking current 350 mA.
b. Caution
- The motor is not waterproof.

F
a. Caractéristiques
- Tension maxi 9 volts. Démarrage à partir de 1 volt
- Rotation à vide 350 t/mn
- Courant à vide 5 mA
- Courant de blocage 350 mA.
b. Précaution
- Le moteur n'est pas étanche à l'eau.

ROK
a. 제품 규격
- 최대전압 9V, 약 1V에서 작동하기 시작함.
- 공회전 350 rpm
- 공회전 전류 5 mA
- 저지 전류 350 mA.
b. 주의
- 본 모터는 방수가 되지 않습니다.

D
a. Technische Daten
- Maximale Spannung 9V. Betrieb ab ca. 1 volt
- 350 Umdrehungen pro Minute
- Stromstärke im Betriebszustand 5 mA
- Sperrstromstärke 350 mA.
b. Vorsicht
- Der Motor ist nicht wasserfest.

P
a. Especificações
- Tensão máxima de 9 volts. Começa com aproximadamente 1 volt
- Velocidade sem carga de 350 rpm
- Corrente sem carga de 5 mA
- Proteção de corrente de 350 mA.
b. Precaução
- O motor não é à prova d'água.

JAP
a. 仕様
- 最大電圧 9 V約 1 Vで始動
- 自走速度 350 rpm
- 自走電流 5 mA
- 阻止電流 350 mA
b. 注意
- モーターは防水されていません。



UK/US
a. Specifications
- 3V, 200mA at full sun outdoors
- 3V, 100 mA indoors at full sun through window
- 2.5V, 8 mA with light from 60w incandescent lamp with 25 cm distance to solar cell (2000 lux)
- 2.5V, 40 mA with light from 60w incandescent lamp with 8 cm distance to solar cell (10000 lux).
b. Caution
- Do not bend excessively or push hard on the clear plastic window
- Do not step on or otherwise place heavy weight on the solar cell
- The solar cell is not waterproof.

P
a. Especificações
- 3V, 200 mA com sol intenso do lado de fora da casa
- 3V, 100 mA com sol intenso do lado de dentro de casa através da janela
- 2.5V, 8 mA com a luz de uma lâmpada incandescente de 60 W afastada 25 cm da célula solar (2.000 lux)
- 2.5V, 40 mA com a luz de uma lâmpada incandescente de 60 W afastada 8 cm da célula solar (10.000 lux).
b. Precações
- Não dobrar nem pressionar com objetos duros
- Não pise nem coloque objetos pesados sobre a célula solar
- A célula solar não é à prova d'água.

D
a. Technische Daten
- 3V, 200mA bei direkter Sonneneinstrahlung im Freien
- 3V, 100mA bei direkter Sonneneinstrahlung durch das Fenster im Raum
- 2.5 V, 8mA bei Lichteinstrahlung einer 60 W Glühlampe im Abstand von 25cm zur Solarzelle (2000 Lux)
- 2.5 V, 40mA bei Lichteinstrahlung einer 60 W Glühlampe im Abstand von 8 cm zur Solarzelle (10000 Lux).
b. Vorsicht
- Das transparente Plastikfenster nicht übermäßig biegen oder fest darauf drücken
- Nicht auf die Solarzelle treten oder schwere Gegenstände darauf legen
- Die Solarzelle ist nicht wasserfest.

CN/HK
a. 規格
- 3伏特・200毫安培，相當於戶外日曬充足下的陽光強度
- 3伏特・100毫安培，相當於透過窗戶照到室內的陽光強度
- 2.5伏特・8毫安培，相當於距離25公分外，60瓦的白熱燈泡照明強度(2000勒克斯，即未燭光)
- 2.5伏特・40毫安培，相當於距離8公分外，60瓦的白熱燈泡照明強度(10000勒克斯，即未燭光)
b. 警告
- 太陽能面板不得彎曲及擠壓
- 不得踩踏太陽能電池，或於其上放置重物
- 太陽能電池並不防水

E
a. Especificaciones
- 3V, 200mA a exposición solar total
- 3V, 100mA en lugares cerrados a exposición solar total a través de una ventana
- 2.5V, 8mA con luz incandescente de 60w a una distancia de 25 cm. de la celda solar (2000 lux)
- 2.5 V, 40 mA con luz incandescente de 60w a una distancia de 8 cm. de la celda solar (10000 lux).
b. Precauciones
- No doblar excesivamente o empujar fuerte la ventana de plástico
- No pisar o colocar objetos pesados sobre la celda solar
- La celda solar no es resistente al agua.

ROK
a. 제품 규격
- 실외에서 최대한 태양에 노출될 경우 3V, 200mA.
- 실내에서 창문을 통해 최대한 태양에 노출될 경우 3V, 100 mA.
- 25cm 떨어진 60W 백열전등에 노출될 경우 (2000 lux) 2.5V, 8 mA.
- 8cm 떨어진 60W 백열전등에 노출될 경우 (10000 lux) 2.5V, 40 mA.
b. 주의사항
- 전지의 투명한 플라스틱 창을 심하게 누르거나 구부리지 마십시오.
- 전지를 밟거나 무거운 물체를 올리지 마십시오.
- 본 태양전지는 방수가 되지 않습니다.

F
a. Caractéristiques
- 3V, 200mA à l'extérieur en plein soleil
- 3V, 100 mA en intérieur plein soleil au travers d'une fenêtre
- 2.5V, 8 mA avec une lampe à incandescence de 60w à 25 cm de la cellule (2000 lux)
- 2.5V, 40 mA avec une lampe à incandescence de 60w à 8 cm de la cellule (10000 lux).
b. Précaution
- Ne pas plier excessivement ou pousser sur la vitre en matière plastique
- Ne pas poser ou appuyer une charge de poids important sur la cellule
- La cellule solaire n'est pas étanche à l'eau.

JAP
a. 仕様
- 晴天時屋外で3 V, 200 mA
- 晴天時室内の間接日光で3 V, 100 mA
- 太陽電池との距離が25 cmの60 W白熱灯からの光で2.5 V, 8 mA (2000ルクス)
- 太陽電池との距離が8cmの60 W白熱灯からの光で2.5 V, 2.5 V, 40 mA (10000ルクス)
b. 注意
- 透明プラスチック窓を無理に曲げたり強い力で押さないでください。
- 太陽電池を踏んだり、重いものを載せたりしないでください。
- 太陽電池は防水されていません。

Solar cell
Solarzelle
Celda Solar
Cellule solaire
Células Solares
太陽能電池
태양전지
太陽電池

Capacitor
Kondensator
Condensador
Condensateur
Capacitor
電容器
축전지
コンデンサー



E
a. Especificaciones
- 1 F (Faradio) condensador electrolítico de 2.5 voltios
- Voltaje de operación 2.5 voltios normal. Voltaje de carga 4 voltios máximo
- Máxima corriente de carga y de descarga: 0 - 250 mA
- Indicador LED de color rojo cuando se carga completamente a 2.5 voltios
- Protegido contra polaridad negativa. No cargará completa mente en ese caso.
b. Precaución
- El condensador no es resistente al agua.

CN/HK
a. 規格
- 1F(法拉)・2.5伏特電容器
- 正常操作電壓2.5伏特。最大充電電壓4伏特。
- 最大充放電電流0-250毫安培
- 當2.5伏特電壓充滿時，紅色指示燈會亮
- 電池裝反時，保護措施會讓電池無法充電
b. 警告
- 電容器並不防水

UK/US
a. Specifications
- 1 F (Farad) 2.5 volt electrolytic capacitor
- Operating voltage 2.5 volt normal. Charging voltage max. 4 volt
- Max charging and discharging current 0 - 250 mA
- Red LED indicator when fully charged at 2.5 volt
- Protected against reverse polarity. Will not fully charge then.
b. Caution
The capacitor is not waterproof.

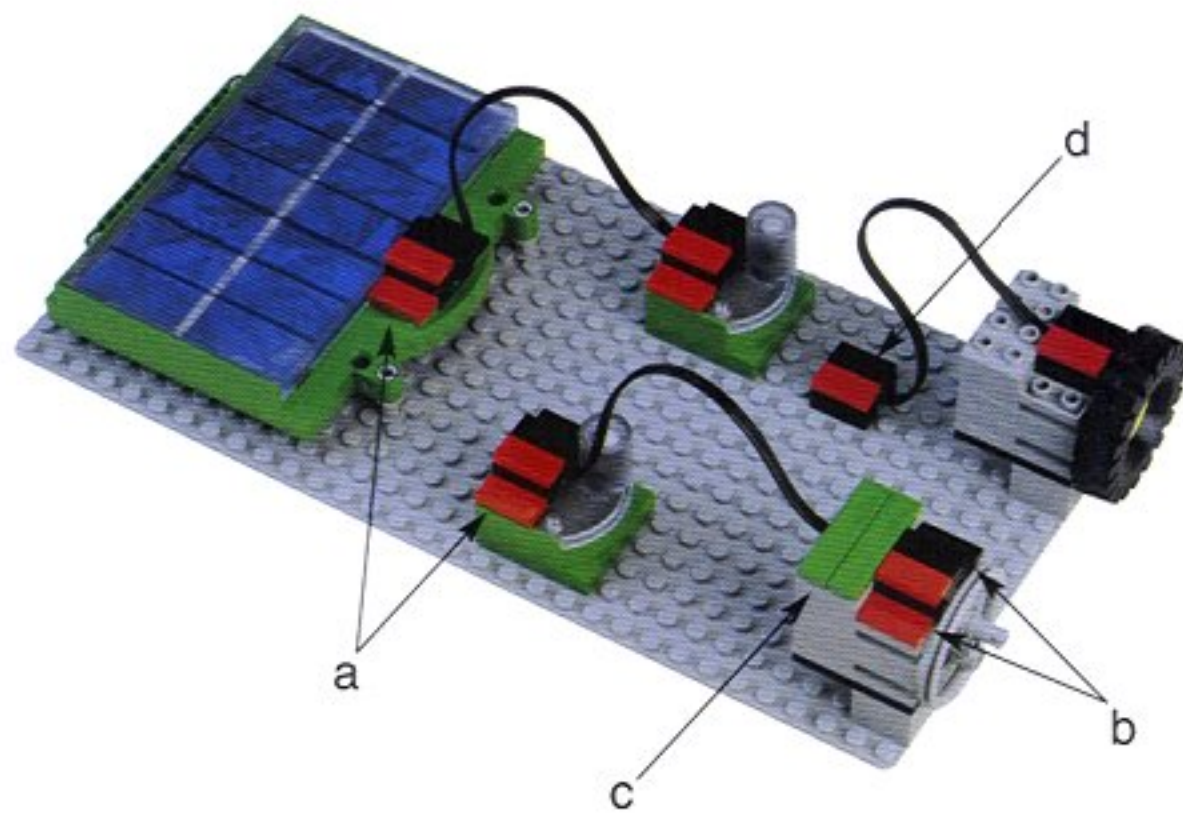
F
a. Caractéristiques
- Condensateur électrolytique de 1 F (Farad) 2,5 volts
- Tension normale d'utilisation 2,5 volts. Tension de charge maxi 4 volts
- Courant maxi de charge et de décharge 0 - 250 mA
- Diode rouge témoin de charge maxi à 2,5 volts
- Protégé contre l'inversion de polarité. Ne conservera pas sa charge dans ce cas.
b. Précaution
- Le condensateur n'est pas étanche à l'eau.

ROK
a. 제품 규격
- 1 F (Farad) 2.5V 전해 축전지.
- 일반작동전압 2.5V. 충전전압은 최대 4V.
- 최대 충전 및 방전전류 0 - 250 mA.
- 2.5V로 충전이 완료되면 LED 표시기에 적색점등.
- 전극이 바뀌는 경우 보호기능으로 방지, 이 경우 충전이 완전히 되지 않음.
b. 주의
- 본 축전지는 방수되지 않습니다.

D
a. Technische Daten
- 1 F (Farad) 2.5V Elektrolytkondensator
- Normale Betriebsspannung 2,5 V, Ladespannung max. 4V
- Maximale Lade- und Entladestromstärke 0-250 mA
- Rote LED Anzeige, wenn Kondensator vollständig geladen ist, bei 2,5 V
- Ist vor entgegengesetzter Polung geschützt. Wird dabei nicht vollständig aufgeladen.
b. Vorsicht
Der Kondensator ist nicht wasserfest.

P
a. Especificações
- Capacitor eletrolítico de 1 F (Farad) e 2,5 volts
- Tensão de operação normal: 2,5 volts. Tensão máxima de carga: 4 volts
- Corrente máxima de carga ou descarga entre 0 - 250 mA
- Diodo vermelho que indica quando atinge plena carga a 2,5 volts
- Proteção contra polaridade reversa. Assim o capacitor não será carregado.
b. Precaução
- O capacitor não é à prova d'água.

JAP
a. 仕様
- 1F (ファラド) 2.5 V 電解コンデンサー
- 通常動作電圧 2.5 V。最大充電電圧 4 V。
- 最大充電・放電電流 0 - 250 mA
- 2.5 Vで充電終了時に赤いLEDインジケータ点灯
- 逆極性に対して保護。その場合は完全に充電されません。
b. 注意
- コンデンサーは防水されていません。



UK/US
Connecting solar cell, capacitor and generator
Identifying plus (+), (-).
Red tiles are used to identify (+). Black tiles are used to identify (-). The solar cell and capacitor have (+) and (-) molded in the plastic. Always place a red tile over (+) and a black tile over (-) on the solar cell and the capacitor, regardless of whether the capacitor is being charged or discharged. See illustration "a" above.
(+) and (-) on the generator. When the handle is turned clockwise (+) will be to the left and (-) to the right seen from the front. On illustration "b" above this is thus indicated with red and black tiles.
To indicate the motor is being used as a generator two green tiles are attached to the top. This is done throughout the instruction booklet. See illustration "c".
All wires are (+) and (-) coded using red and black tiles. See illustration "d" above.
NOTE: The capacitor will ONLY charge when (+/red) and (-/black) are connected correctly to the solar cell or the generator. It will not damage the capacitor if incorrectly connected.

Anschließen von Solarzelle, Kondensator und Motor

D

Erkennen von Plus- (+) und Minuspol (-)

Rote Plättchen werden verwendet, um (+) zu erkennen. Schwarze Plättchen werden verwendet, um (-) zu erkennen. Die Solarzelle und der Kondensator sind bereits mit (+) und (-) gekennzeichnet. Befestigen Sie an der Solarzelle und am Kondensator immer ein rotes Plättchen über (+) und ein schwarzes Plättchen über (-), unabhängig davon, ob der Kondensator geladen oder entladen wird. Siehe Zeichnung „a“ oben.

(+) und (-) am Generator. Wenn die Kurbel im Uhrzeigersinn gedreht wird, befindet sich von vorn betrachtet, (+) auf der rechten und (-) auf der linken Seite.

In der Zeichnung „b“ oben wird dies folglich mit roten und schwarzen Plättchen angezeigt.

Um zu erkennen, daß der Motor als Generator benutzt wird, werden zwei grüne Plättchen darauf befestigt. Dies wird überall im Anleitungsbuch so gehandhabt. Siehe Zeichnung „c“.

Alle Leitungen werden mit (+) und (-) codiert, indem die roten und schwarzen Plättchen dazu verwendet werden. Siehe Zeichnung „d“ oben.

HINWEIS : Der Kondensator wird NUR geladen, wenn (+/red) und (-/black) richtig an der Solarzelle oder dem Generator angeschlossen ist. Sollte der Kondensator falsch angeschlossen sein, wird er dadurch nicht beschädigt.

Conectando la celda solar, el condensador, y el generador

E

Identificando positivo (+), (-)

Las losetas de color rojo son usadas para identificar (+). Las losetas negras son usadas para identificar (-). La celda solar y el condensador tienen (+) y (-) marcados en el plástico. Siempre coloca una loseta roja sobre el (+) y una loseta negra sobre el (-) en la celda solar y en el condensador, a pesar de que el condensador este siendo cargado o descargado. Ver la figura "a".

(+) y (-) en el generador. Cuando se gira la manivela en sentido de las agujas del reloj, (+) estará a la izquierda y (-) a la derecha vistos desde el frente.

En la Figura "b", esta indicado con las losetas roja y negra.

Para indicar que el motor está siendo utilizado como un generador, se conectan dos losetas verdes a la parte superior. Esto se realiza en todo el manual de construcción. Ver Figura "c".

Todos los cables son (+) y (-) utilizando losetas rojas y negras. Ver Figura "d".

NOTA: El condensador SOLAMENTE cargará cuando (+ / rojo) y (- / negro) estén conectados correctamente a la celda solar o al generador. No dañará al condensador si esta conectado incorrectamente.

Relier cellule solaire , condensateur et générateur

F

Identifier les pôles (+) et moins (-).

Les caches rouges sont utilisés pour repérer le (+). Les caches noirs sont utilisés pour repérer le (-). La cellule solaire et le condensateur possèdent des repères (+) et (-) moulés dans la matière plastique. Placez toujours un cache rouge sur le (+) et un noir sur le (-) de la cellule solaire et du condensateur, sans se soucier de l'état de charge du condensateur. Voir illustration "a".

(+) et (-) sur le générateur. Lorsque l'on tourne la manivelle dans le sens des aiguilles d'une montre, le (+) doit être à gauche et le (-) à droite en regardant de face.

Sur l'illustration "b" ci-dessus les caches rouge et noir montrent cette situation.

Pour repérer que le moteur est utilisé comme générateur, deux caches verts sont placés au dessus. Ce repérage est utilisé dans l'ensemble du livret d'instruction. Voir illustration "c".

Tous les câbles sont repérés en utilisant (+) et (-) avec des caches rouges et noirs. Voir illustration "d".

NOTE: Le condensateur se charge SEULEMENT quand (+/rouge) et (-/noir) sont reliés correctement à la cellule solaire ou au générateur. Le condensateur ne sera pas endommagé en cas de mauvais branchement.

Conectando célula solar, capacitor e gerador

P

Identificando a polaridade (+) e (-).

Peças vermelhas são usadas para identificar (+). Peças pretas são usadas para identificar (-). A célula solar e o capacitor têm (+) e (-) moldados no plástico. Sempre coloque as peças vermelhas sobre (+) e as peças pretas sobre (-) na célula solar e no capacitor, independentemente de onde o capacitor está sendo carregado ou descarregado. Veja ilustração "a" acima.

(+) e (-) no gerador. Quando a manivela estiver girando no sentido horário, o (+) estará a esquerda e o (-) a direita com o gerador visto de frente. A ilustração "b" acima está assim indicado com peças vermelhas e pretas.

Para indicar que o motor está sendo usado como gerador, duas peças verdes estão conectadas na parte de cima. Isto é feito de acordo com o manual de instruções. Veja ilustração "c".

Todos os fios estão indicando a polaridade (+) e (-) usando peças vermelhas e pretas. Veja ilustração "d" acima.

Observação: O capacitor SOMENTE receberá carga quando (+/vermelho) e (-/preto) estiverem conectados corretamente à célula solar ou ao gerador. O capacitor não será danificado se for conectado incorretamente.

太陽能電池、電容器、發電機的连接方式

CN/HK

正負極識別方式

紅色蓋板代表正極，黑色蓋板代表負極。太陽能電池和電容器的塑膠面板上，則以 (+) 代表正極，(-) 代表負極。不管太陽能電池和電容器是否處於充電狀態，務必注意正負極接線正確。請參考上方 "a" 圖。

如何判斷發電機的正負極。面對發電機，順時針方向旋轉把手時，左方代表正極，右方代表負極。請參考上方 "b" 圖紅色和黑色蓋板的部份。

為了標示當成發電機的馬達，我們在馬達的上方會標示綠色的記號。你可以在模型建構說明書中發現。請參考 "c" 圖。

所有連接的電線也會以紅色和黑色的蓋板來標示正負極。請參考上方 "d" 圖。

注意：電容器只有在和太陽能電池及發電機，正確的连接時才能充電。如果連接錯誤，並不會損壞電容器。

태양전지, 축전지, 발전기 연결하기

ROK

양극(+)과 음극(-)을 확인합니다.

적색 타일은 양극(+)을 의미하고 검은색 타일은 음극(-)을 의미합니다. 태양전지와 축전지에는 플라스틱으로 만들어진 (+)와 (-)가 있습니다. 축전지의 충전여부에 상관 없이 적색 타일은 (+), 검은색 타일은 (-) 위에 항상 올려 놓으십시오. 위 그림 "a" 를 참조하십시오.

발전기에도 (+)와 (-)가 있습니다. 핸들을 시계방향으로 돌리면 정면에서 봤을 때 좌측이 (+), 우측이 (-)가 됩니다. 위 그림 "b" 에서는 적색과 검은색 타일로 표시되어 있습니다.

발전기 뒷면에 녹색 타일 2개를 붙여 모터가 발전기로 사용됨을 나타냅니다. 그림 "c" 를 참조하여 지침서에 따라 작업하십시오.

모든 전선은 적색과 검은색 타일을 이용하여 (+)와 (-)표시를 합니다. 그림 "d" 를 참조하십시오.

참고 : 본 축전지는 양극(+/적색)과 음극(-/검은색)이 태양전지나 발전기에 올바르게 연결된 경우에만 충전됩니다.

연결이 잘못되더라도 축전지에 손상은 없습니다.

太陽電池、コンデンサー、発電機の接続

JAP

プラス (+) 極とマイナス (-) 極の識別

(+) 極は赤いタイルで識別します。(-) 極は黒いタイルで識別します。太陽電池とコンデンサーはプラスチック部分に (+) と (-) のマークがあります。コンデンサーを充電している場合も放電している場合も、必ず赤いタイルを太陽電池とコンデンサーの (+) 極に被せ、黒いタイルを (-) 極に被せてください。上図の「a」を参照してください。

発電機の (+) と (-) ハンドルを時計回りに回すと、正面から見て (+) が左側、(-) が右側になります。上図の「b」では、赤と黒のタイルと同様に示されています。

モーターが発電機として使用されていることを示すため、上部に緑色のタイルが2つ取り付けられています。

これは、使用説明書を参照して行ってください。図中の「c」を参照してください。

電線はすべて、(+) と (-) が赤と黒のタイルで色分けされています。上図の「d」を参照してください。

注：コンデンサーは、(+ / 赤) と (- / 黒) が太陽電池または発電機に正しく接続されている場合にのみ充電されます。

接続が正しくない場合にコンデンサーが損傷しないようになっています。

Note that some of the elements mentioned here may not be included in the building set accompanying this booklet.

Es wird darauf hingewiesen, daß einige, in Verbindung mit diesem Heft erwähnten Elemente nicht im Baukasten enthalten sind.

Observa que algunos de los elementos mencionados no se incluyen en el maletín de construcción que acompaña este manual.

Certains éléments mentionnés ici peuvent ne pas être inclus dans la boîte correspondant à ce livret.

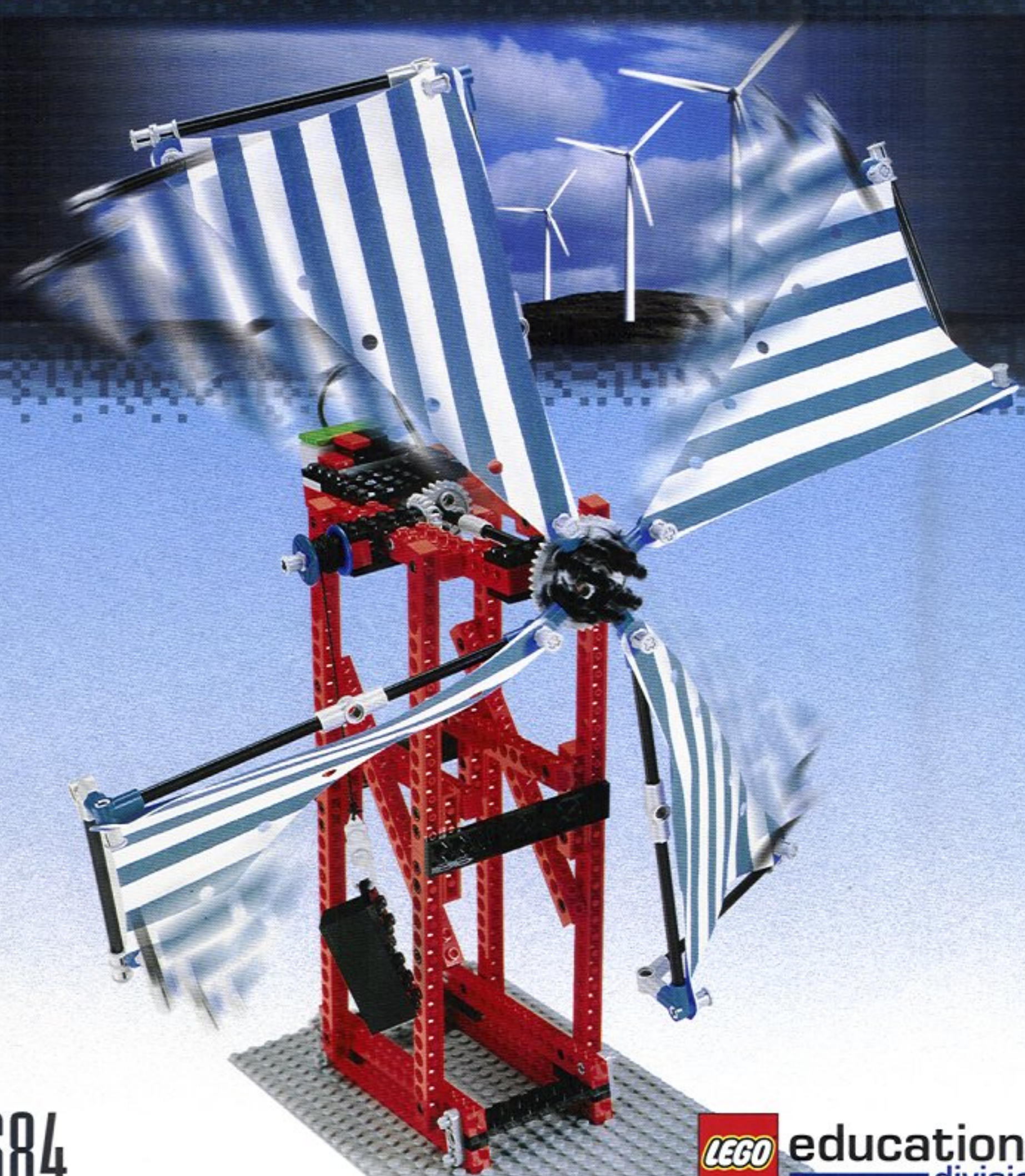
Observe que alguns dos elementos mencionados aqui podem não estar incluídos no conjunto de montagem que acompanha este manual.

有些這裡提到的零組件，並不包括在積木盒中。

본 책자에 언급된 부품 중 일부는 제품 구성물에 있을 수도 있습니다.

ここで述べられている部品の一部は、本書が同梱されている組み立てセットには含まれていない場合があります。

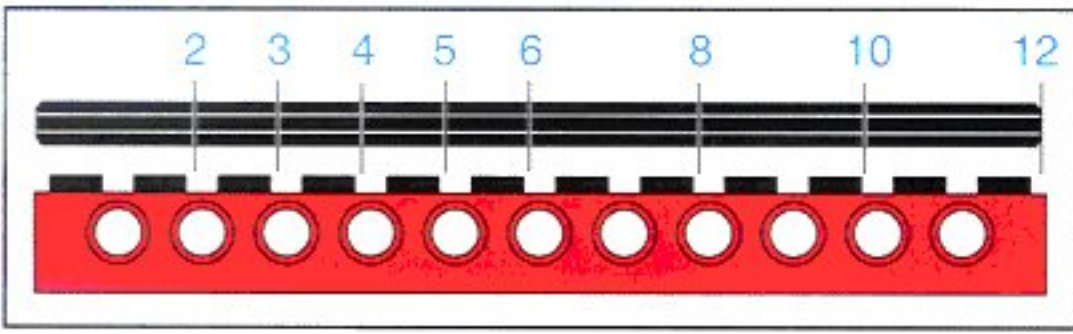
E L A B



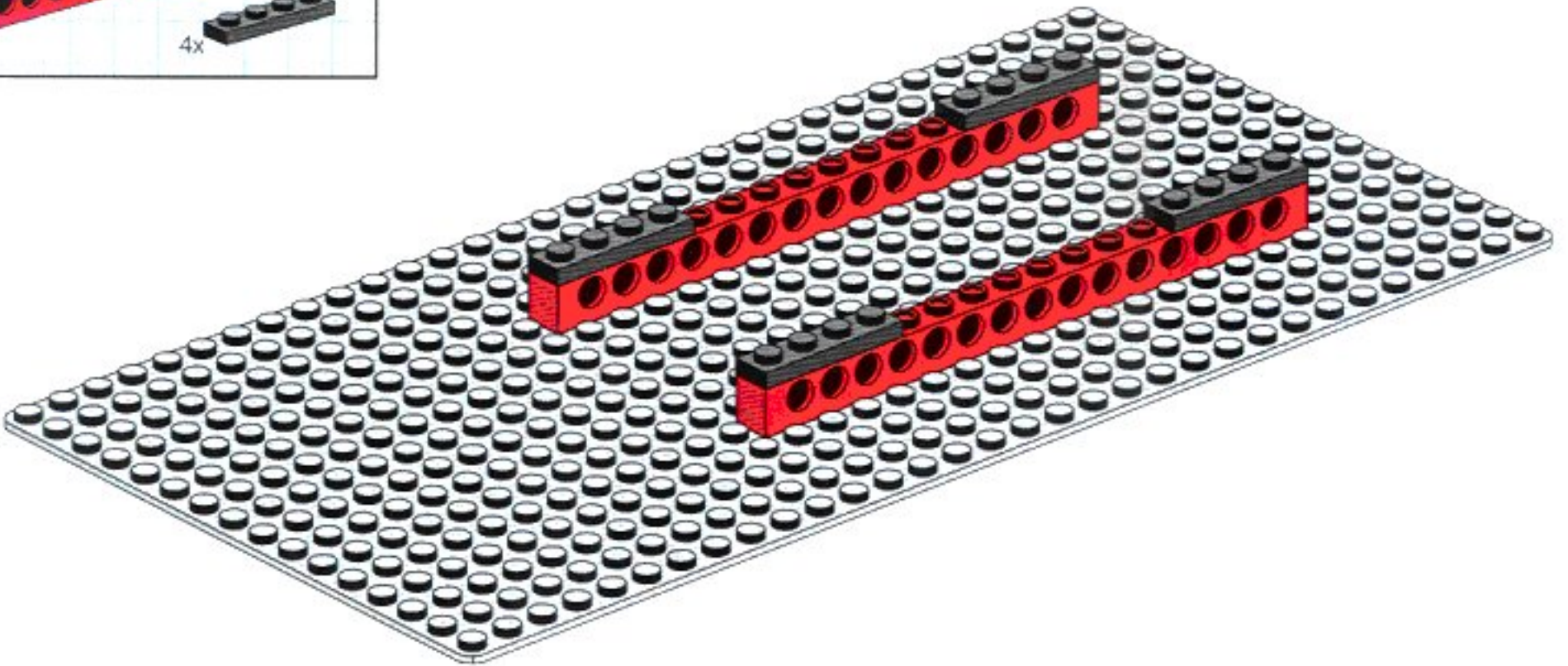
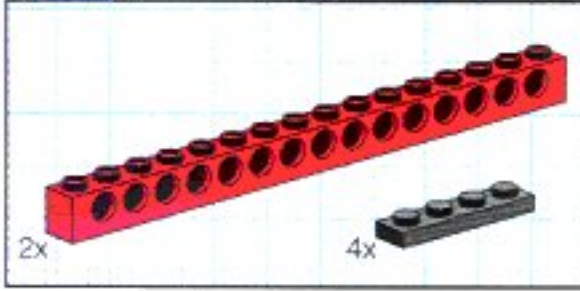
9684



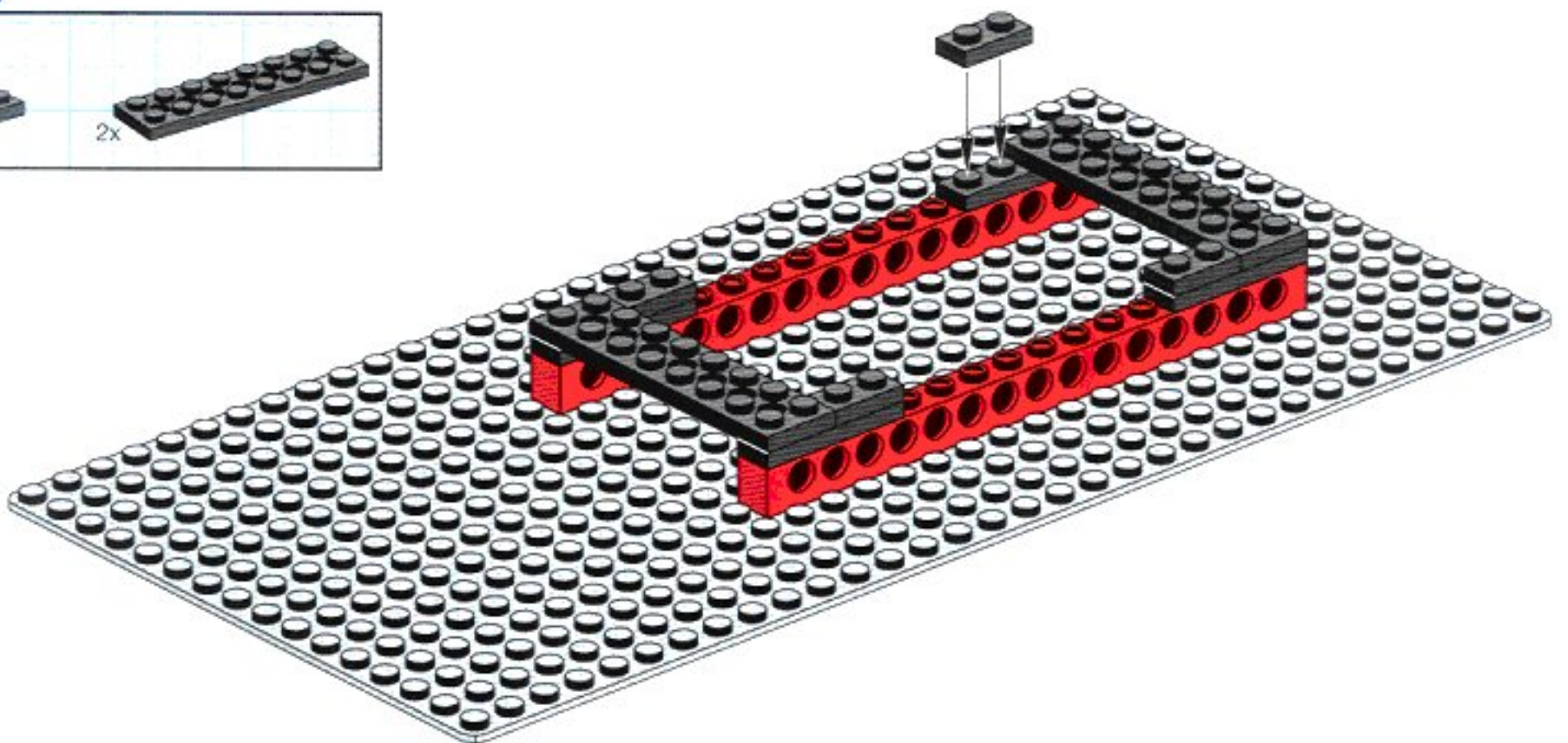
educational
division



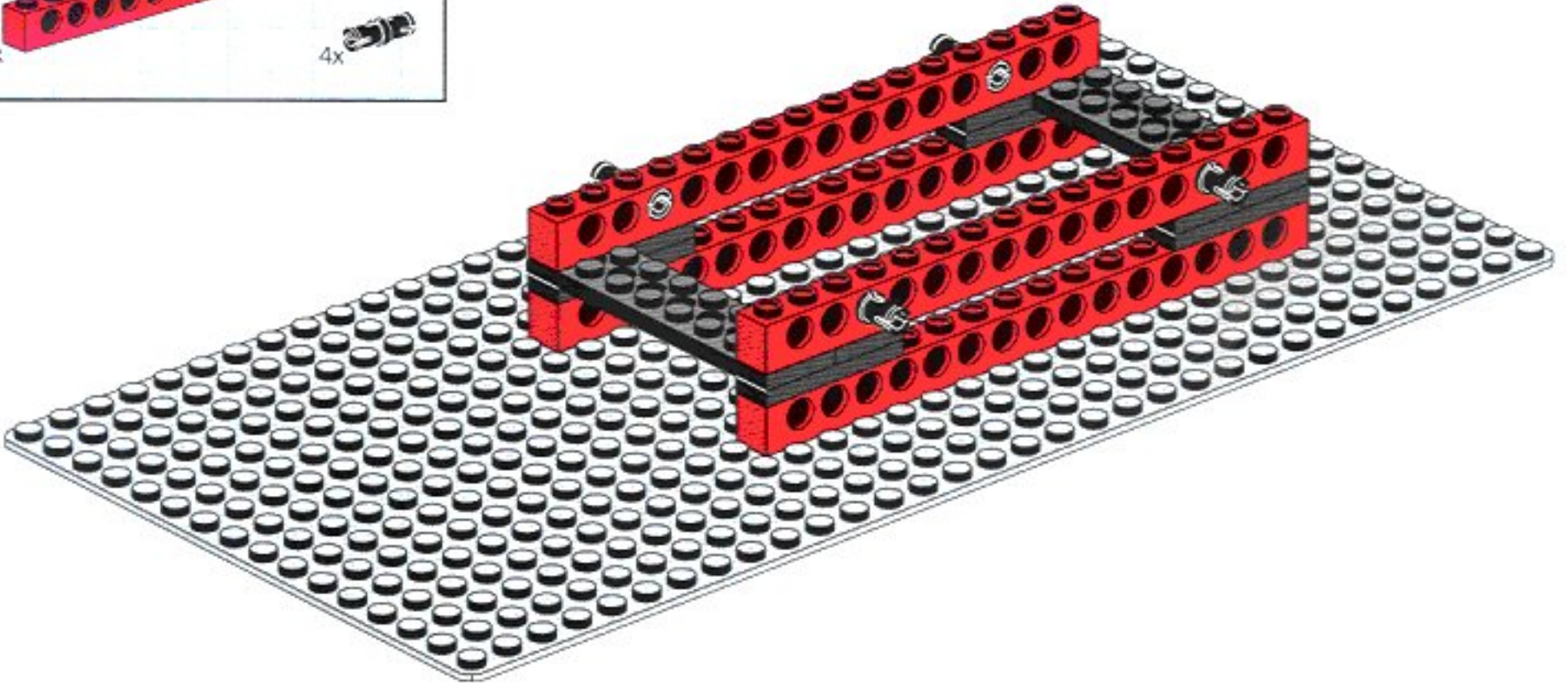
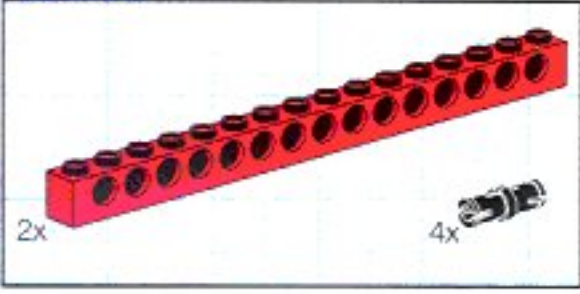
1



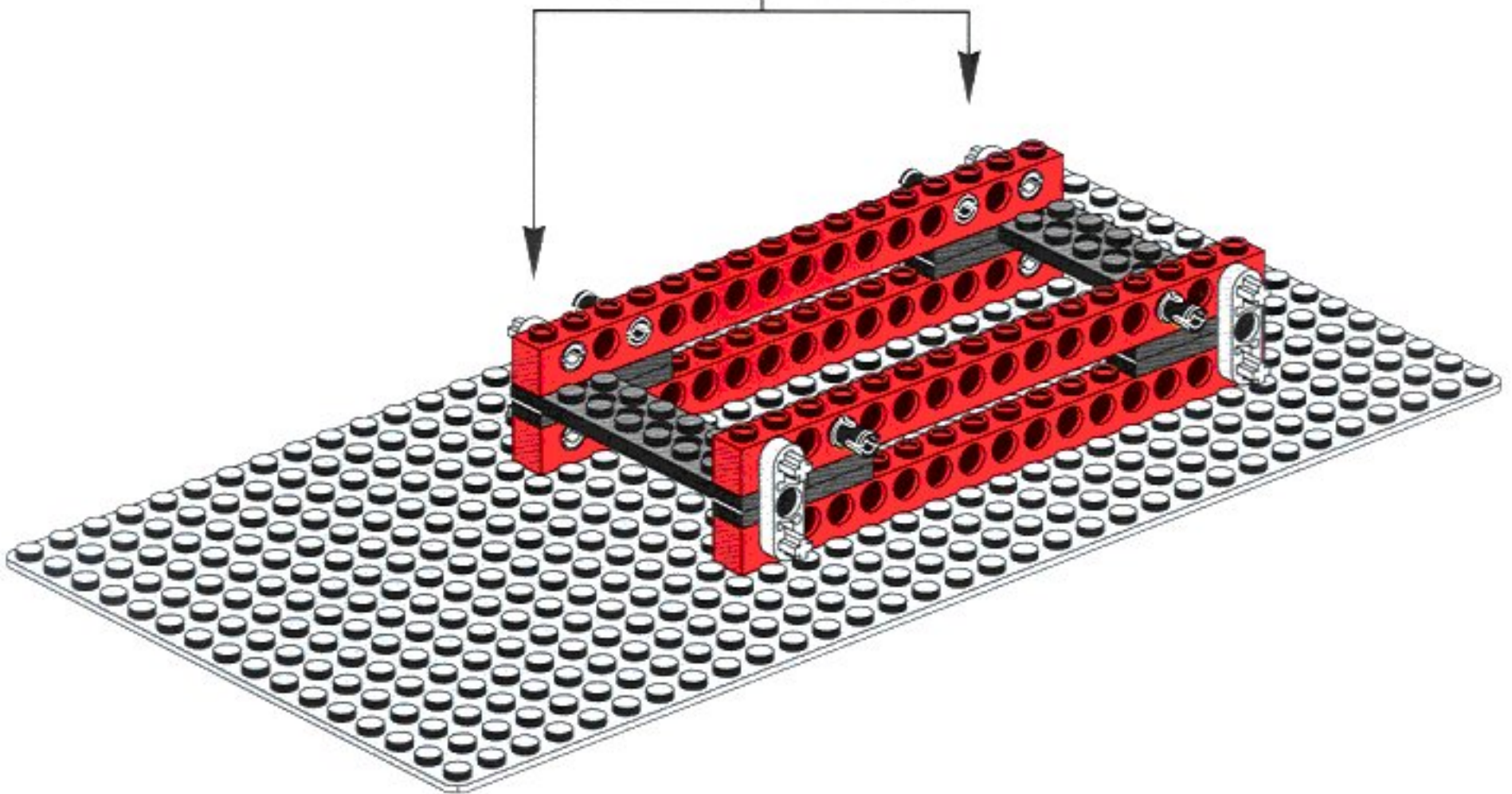
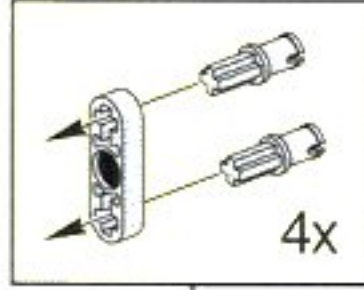
2



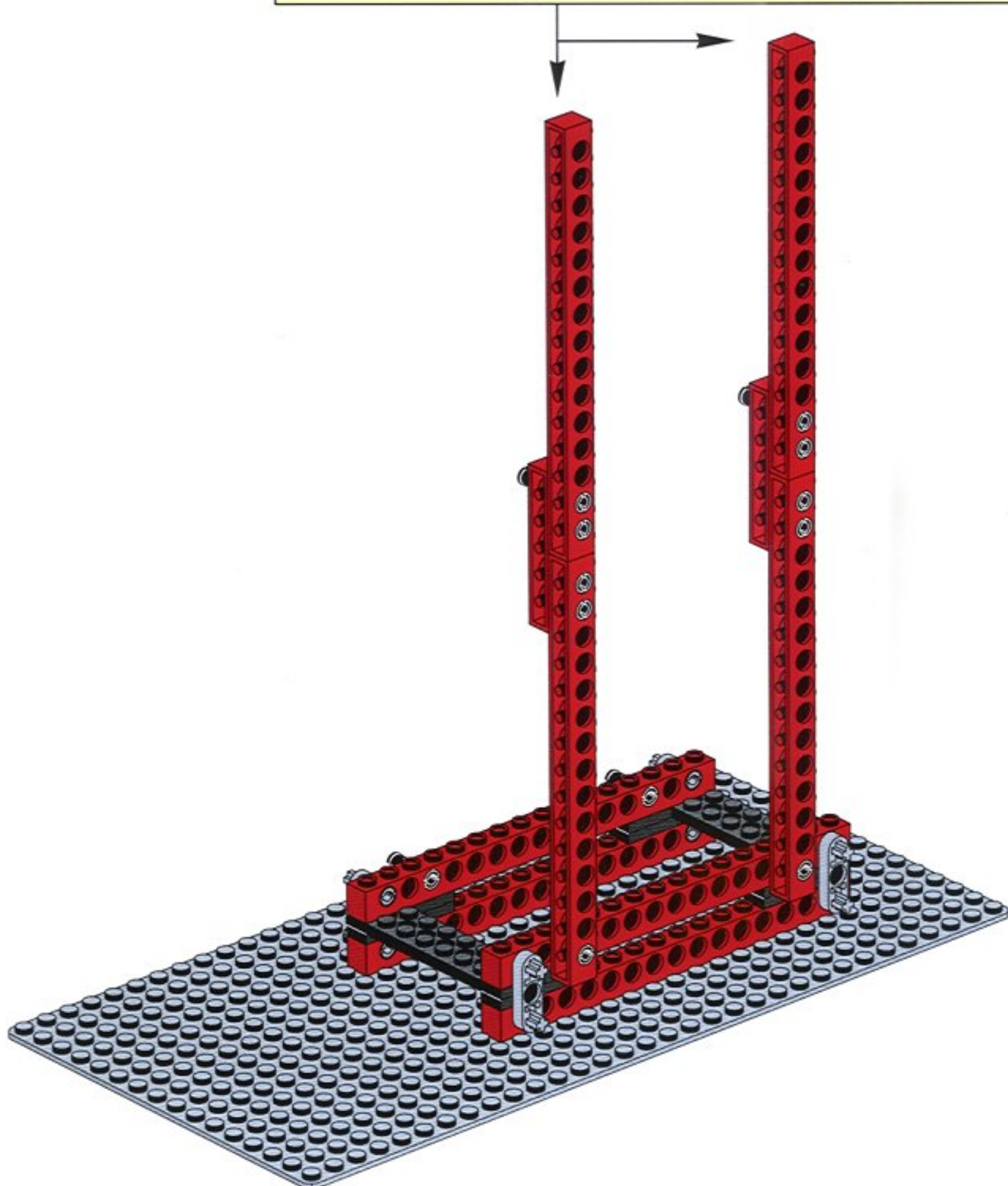
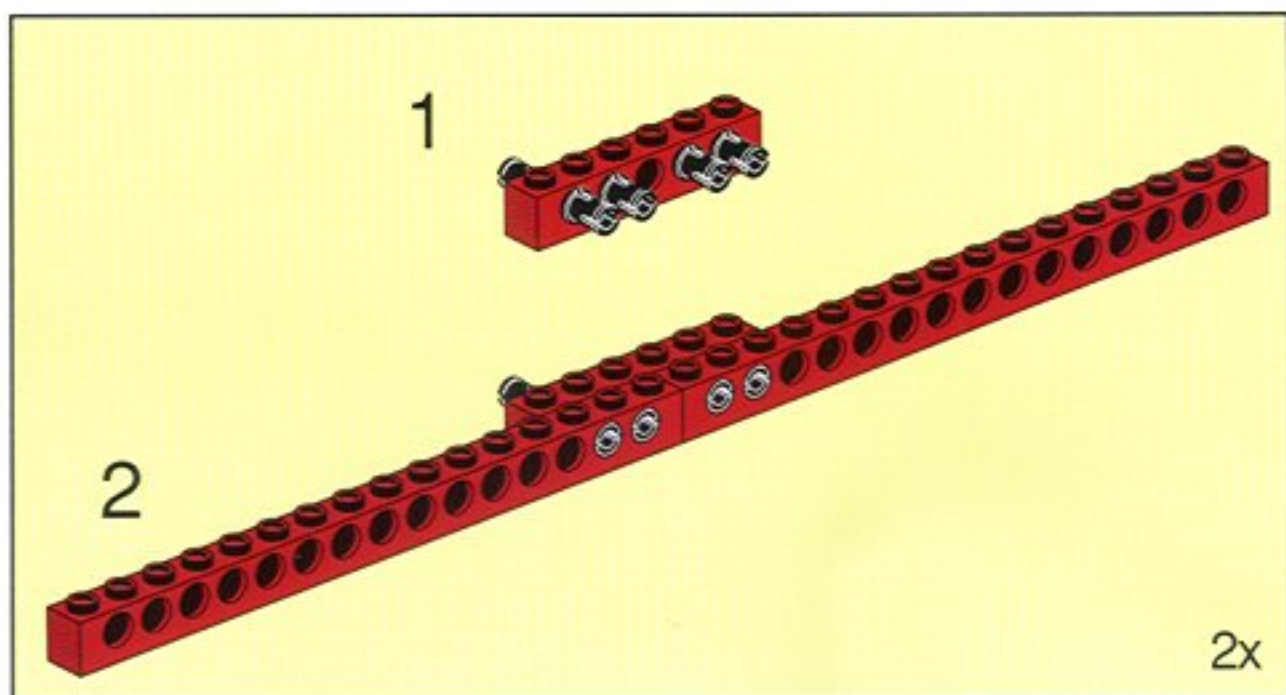
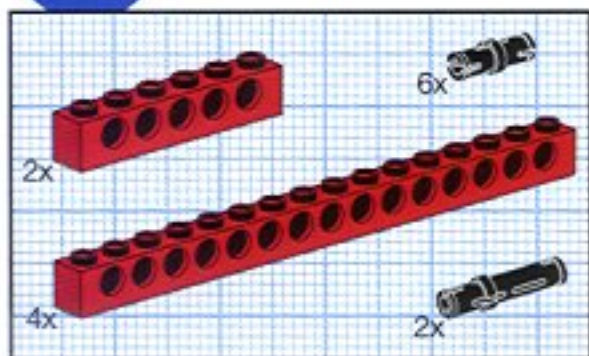
3



4

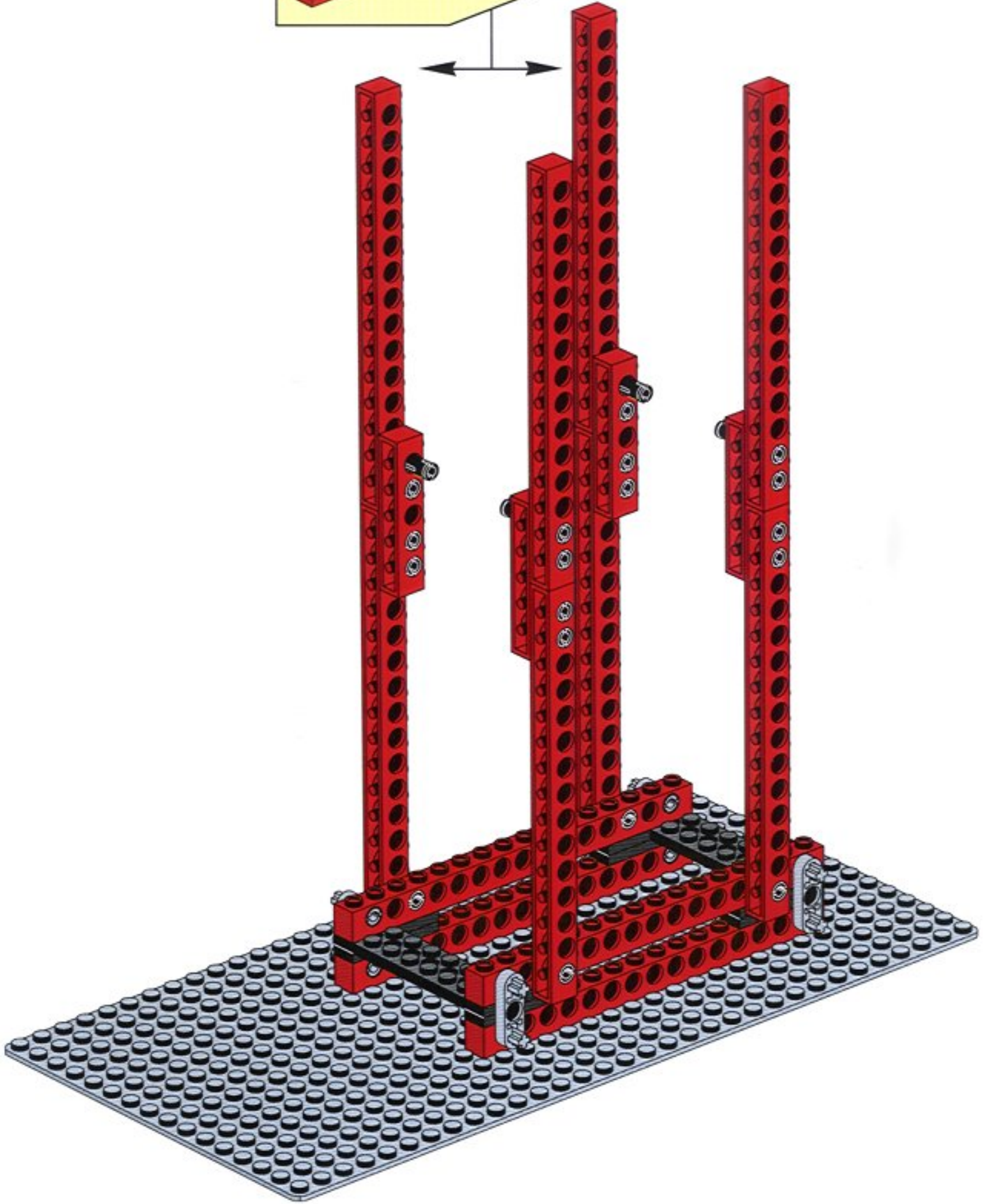
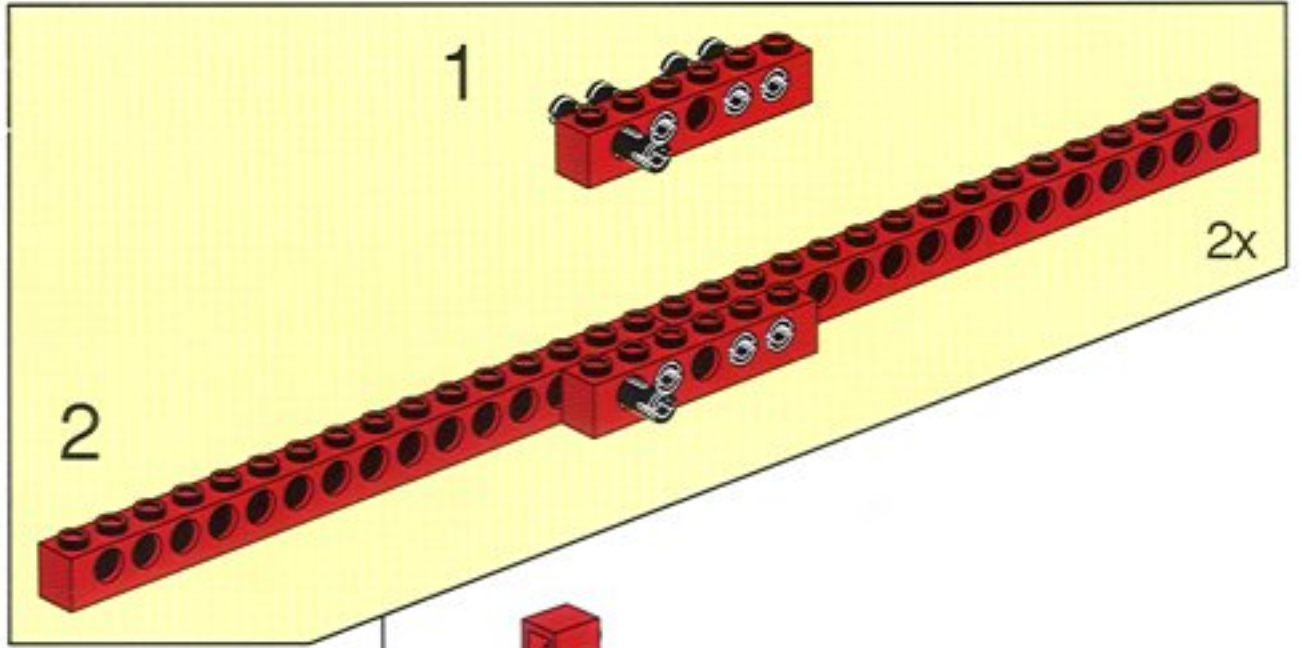
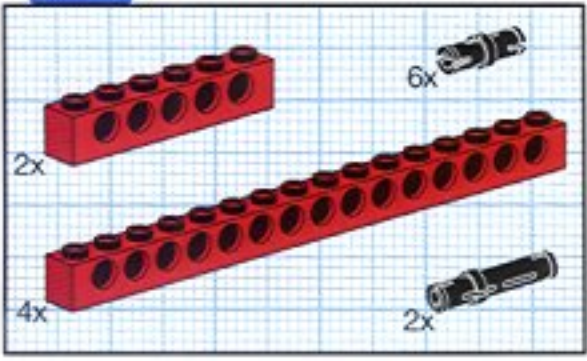


5



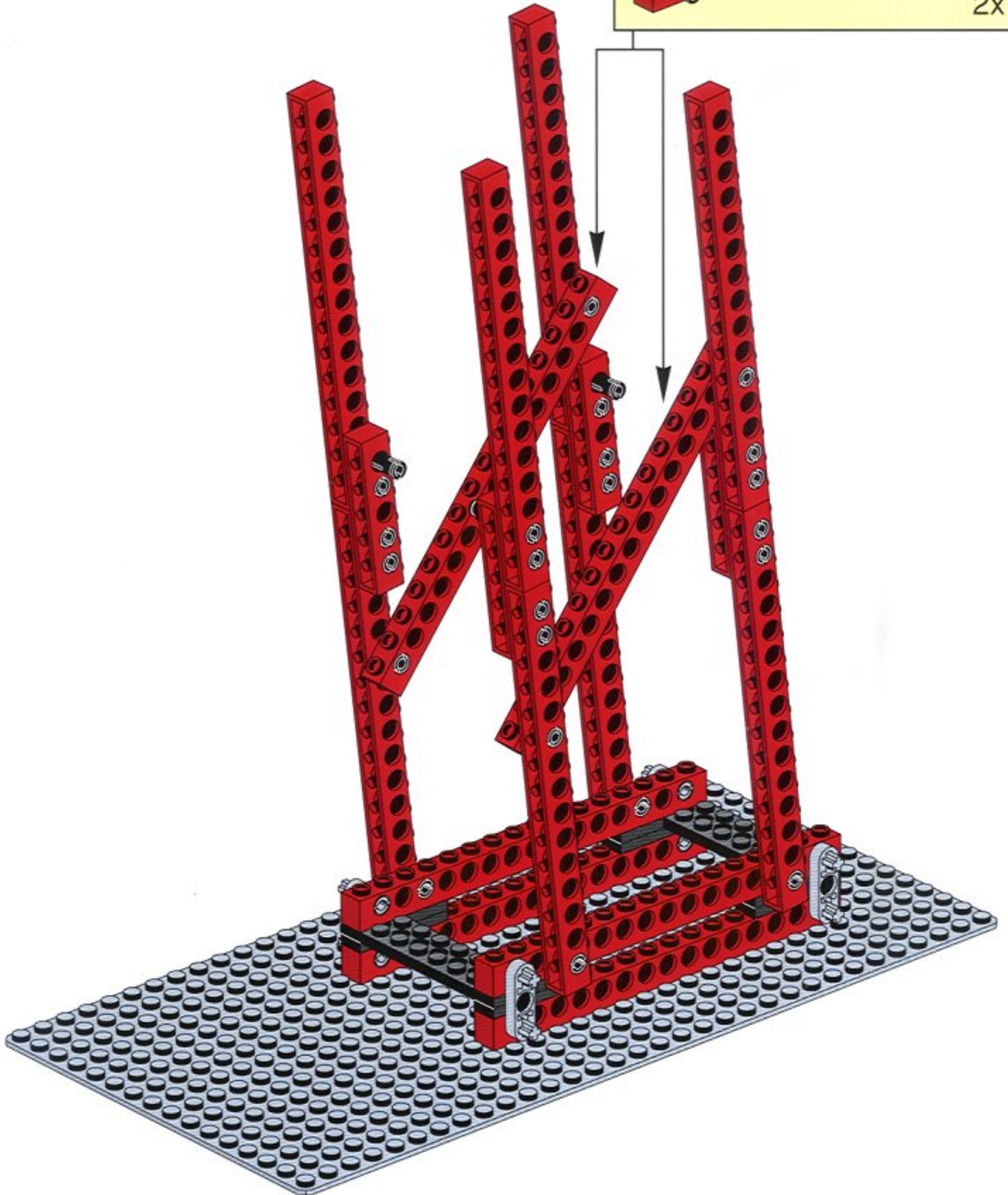
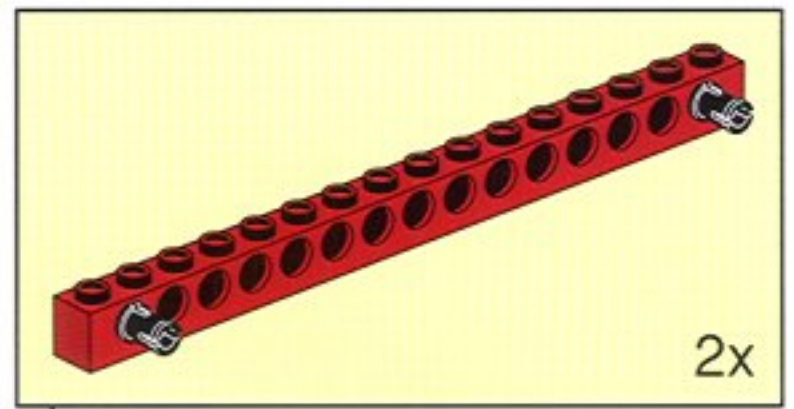
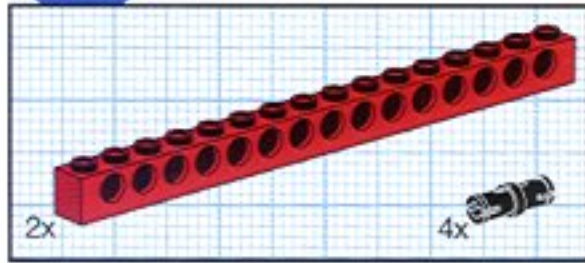
4

6



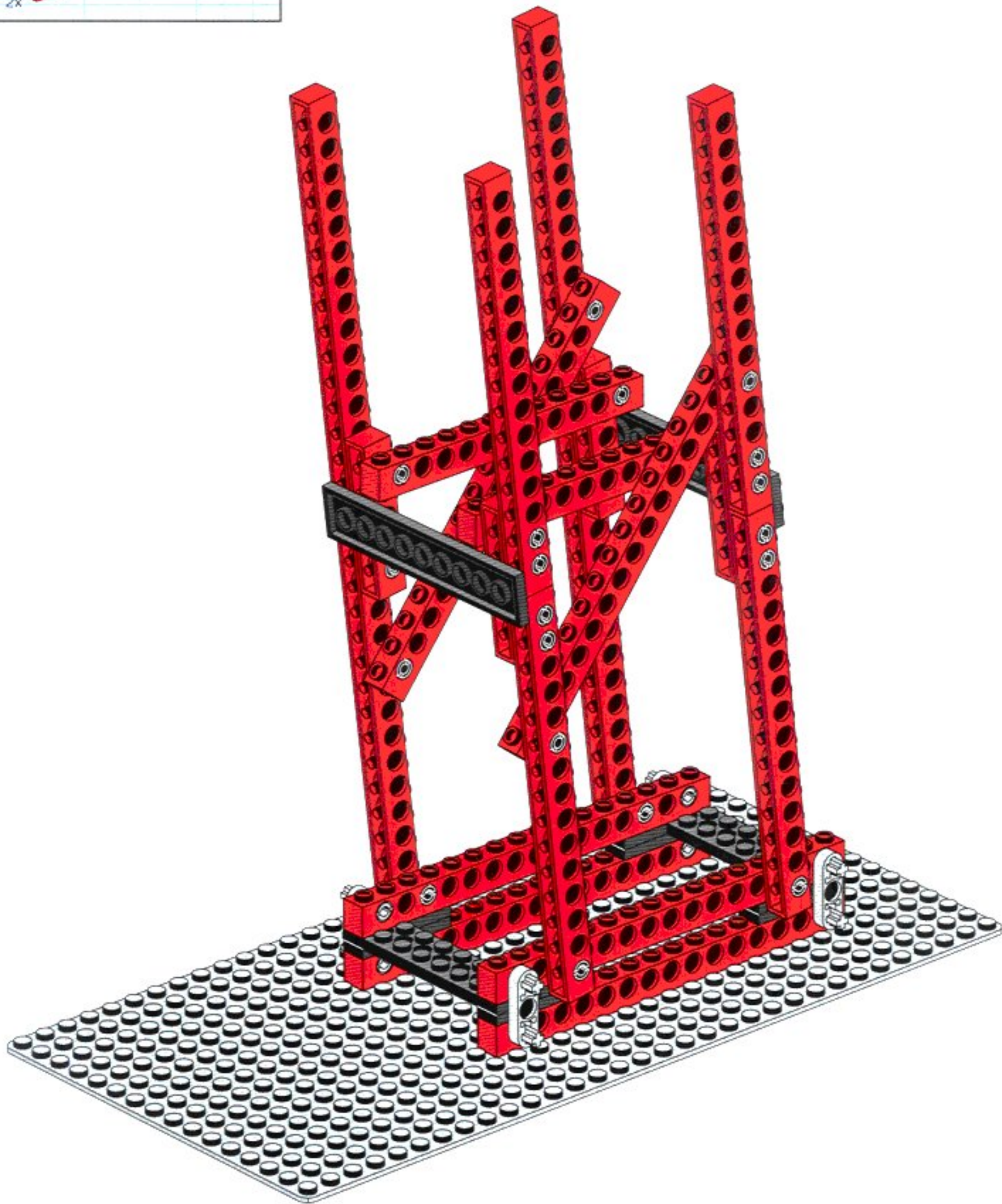
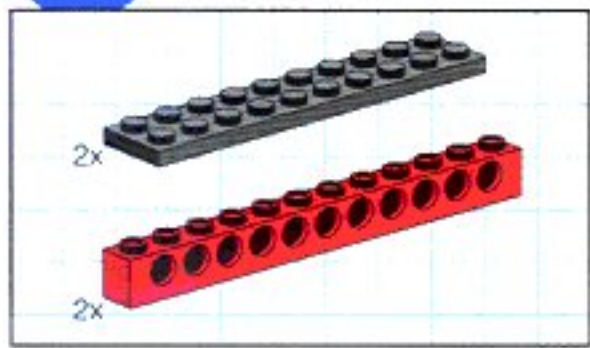
5

7

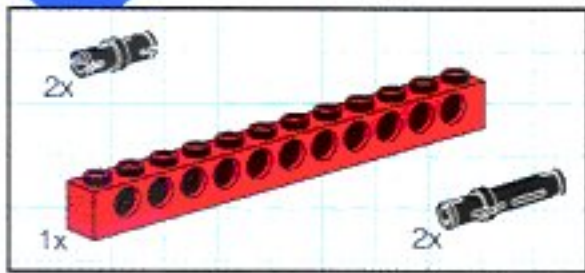


6

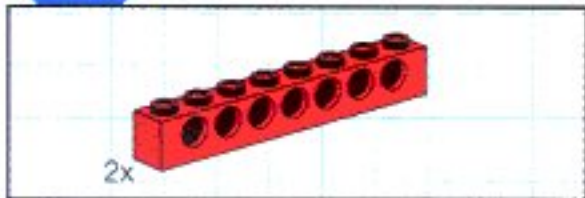
8



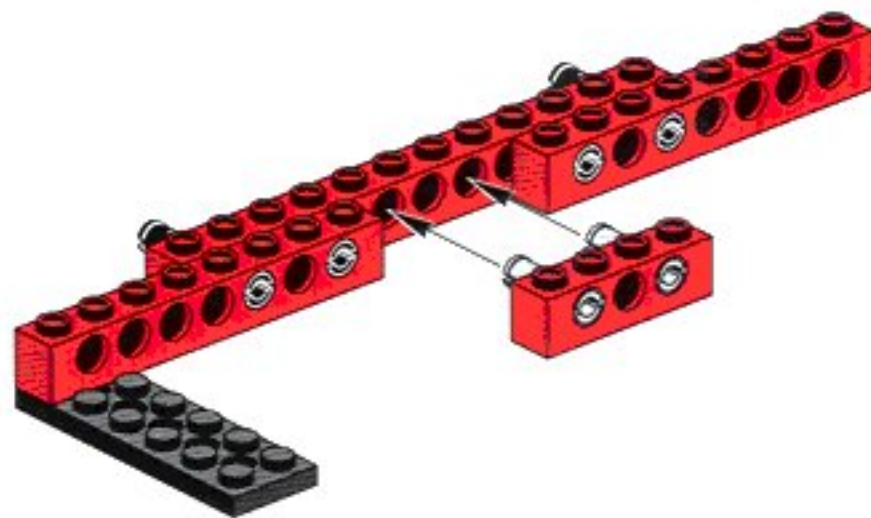
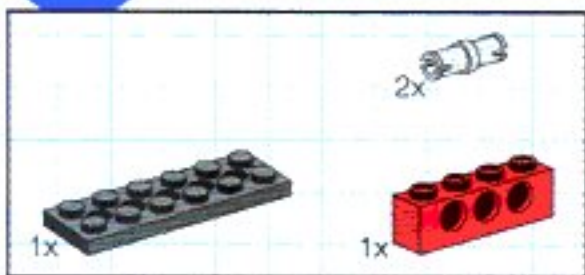
9



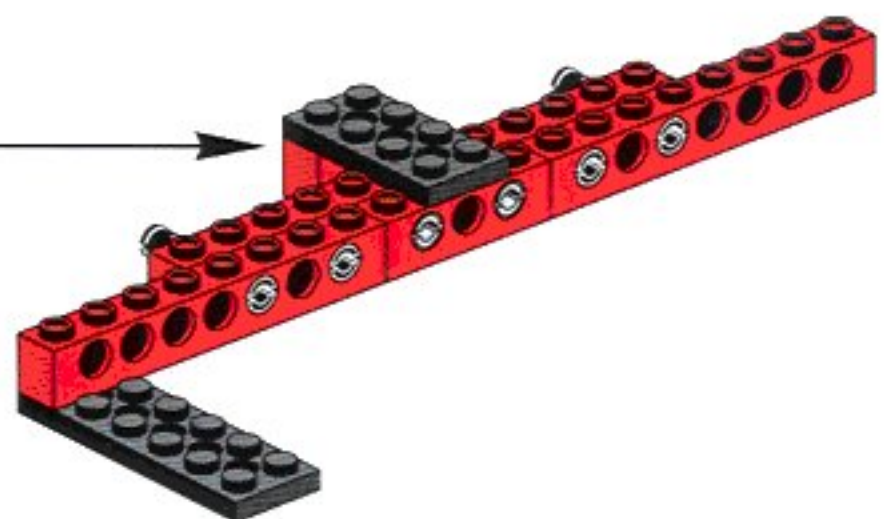
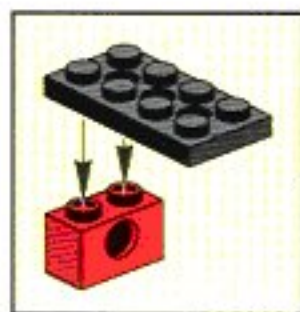
10



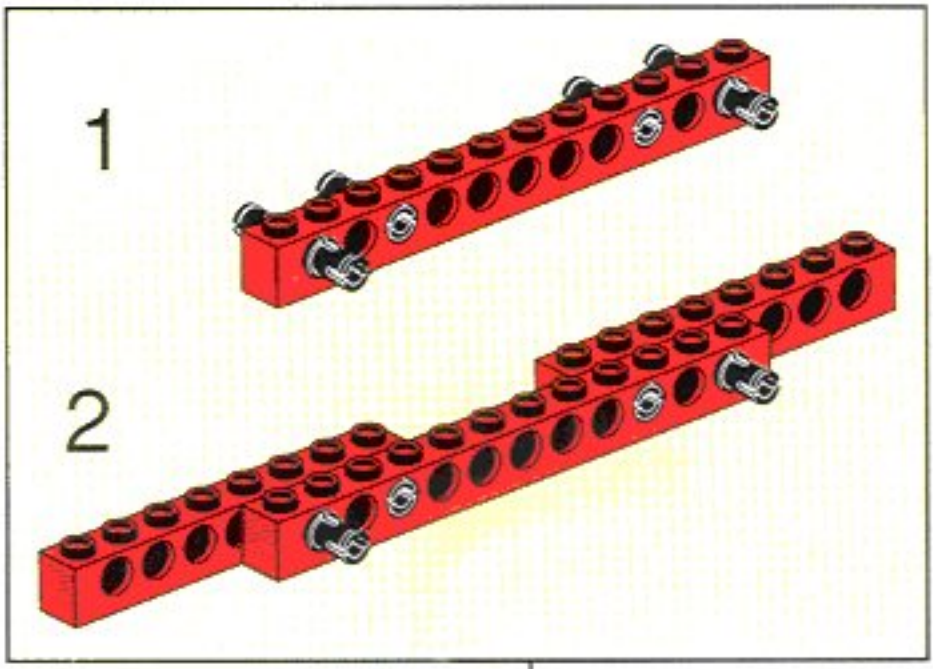
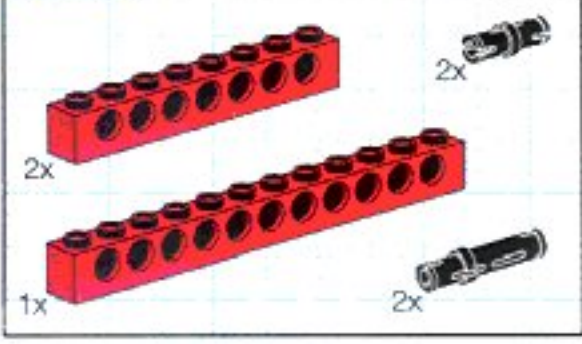
11



12



13



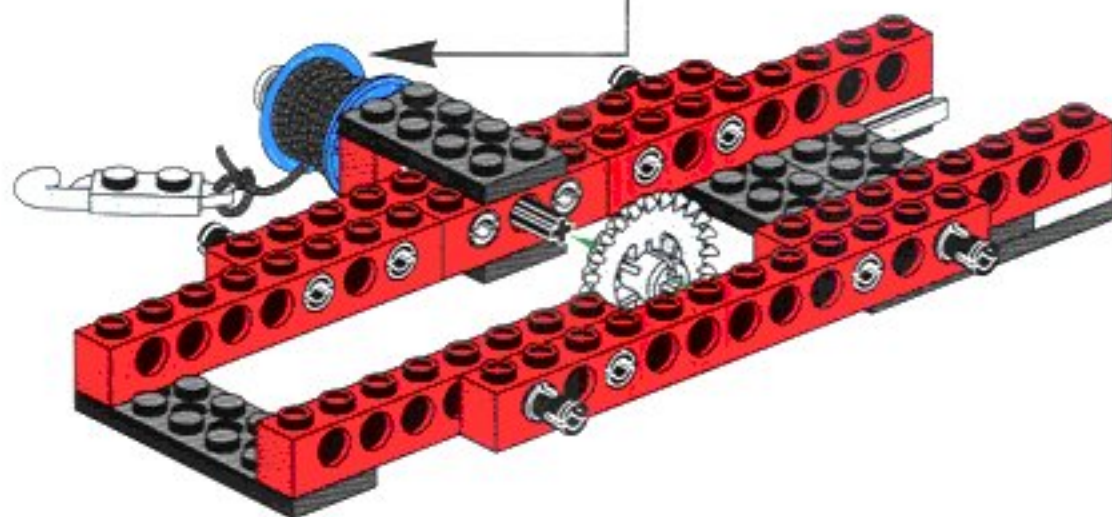
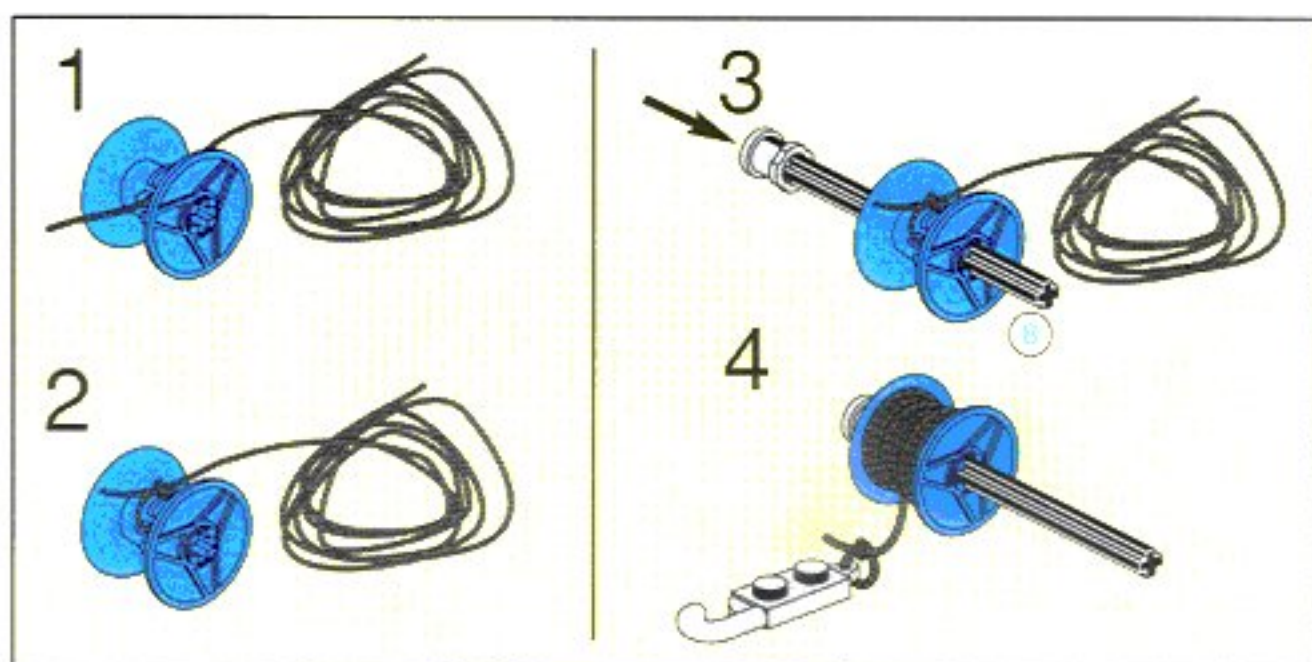
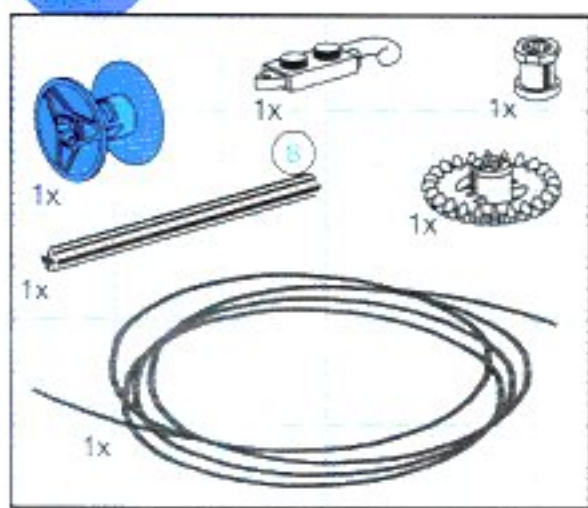
14



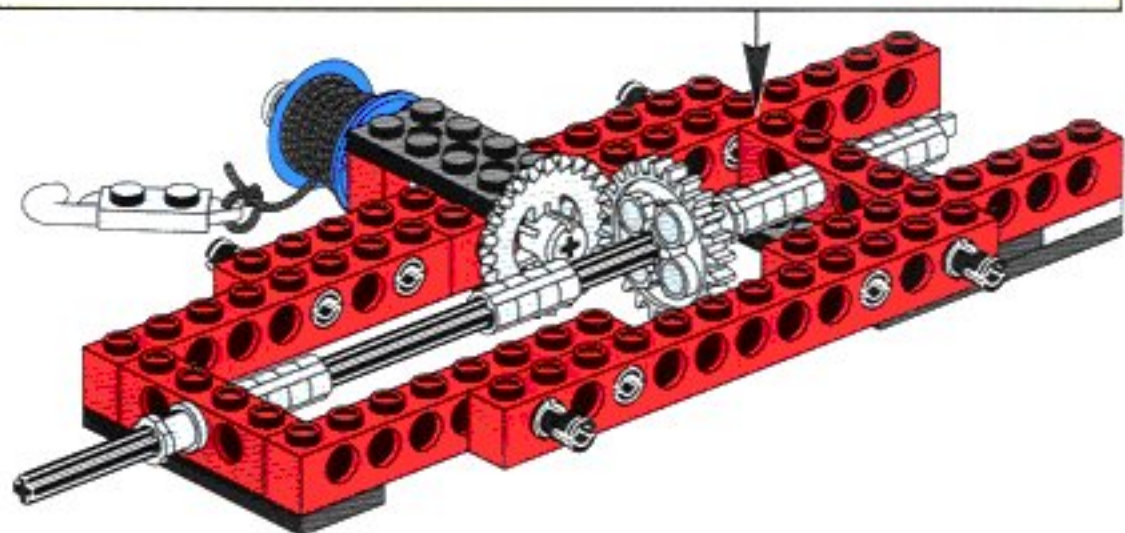
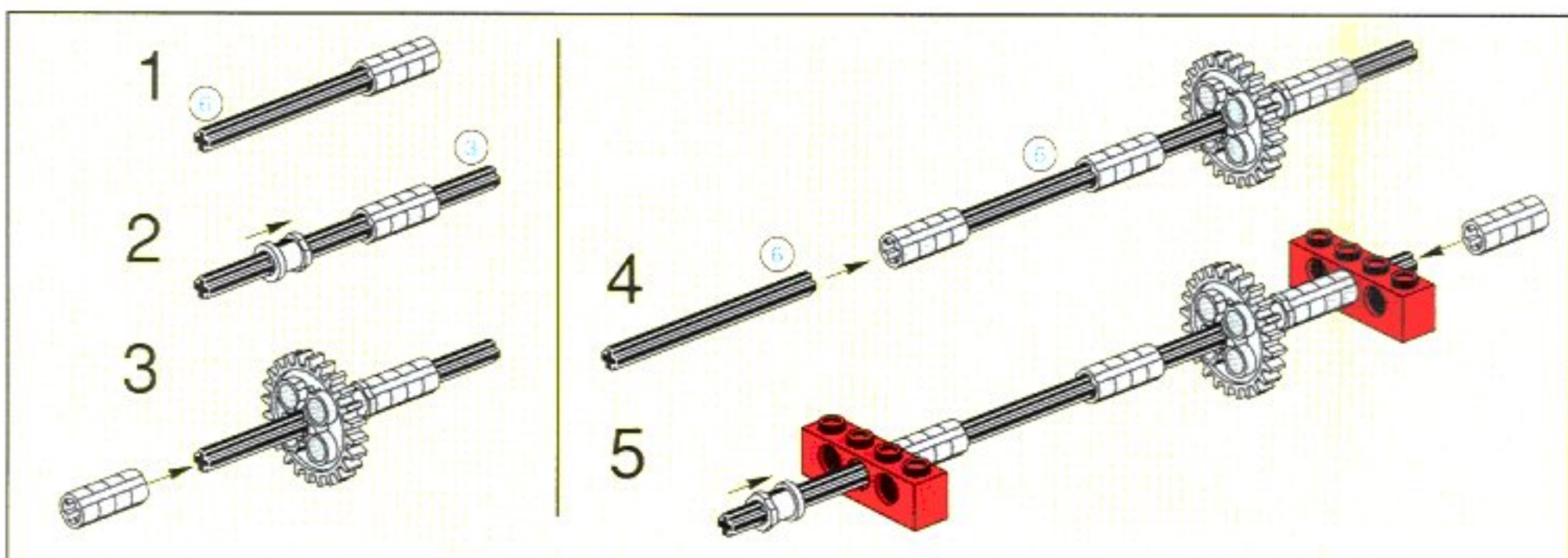
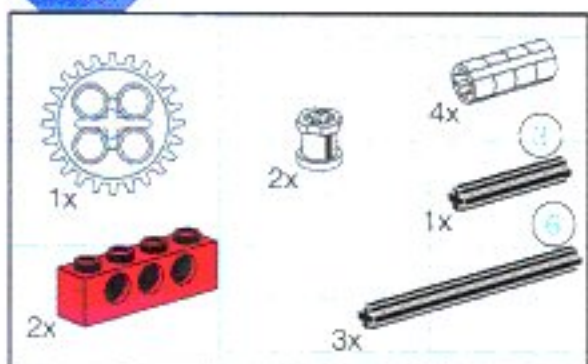
15



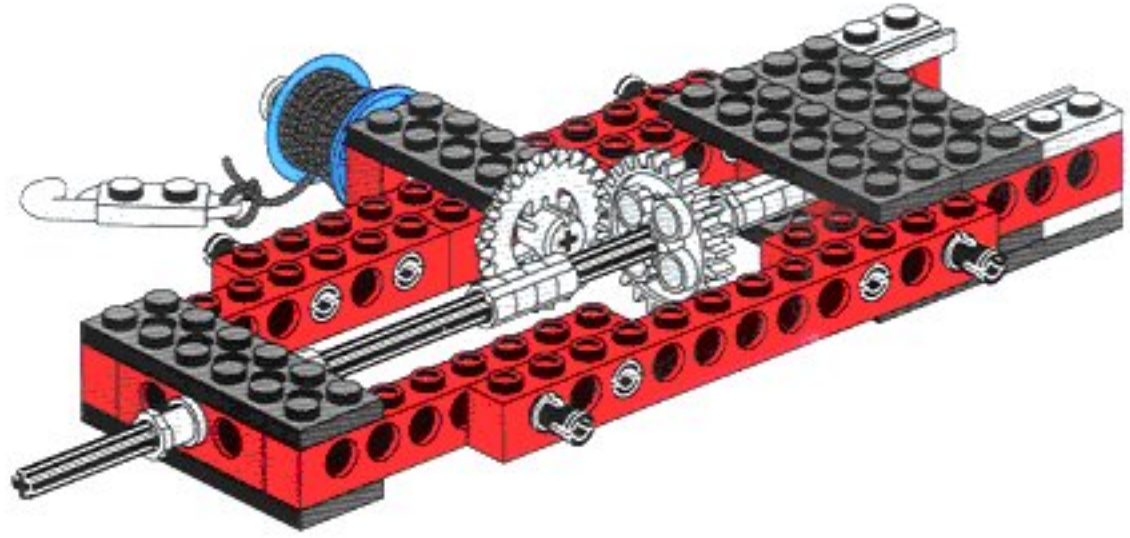
16



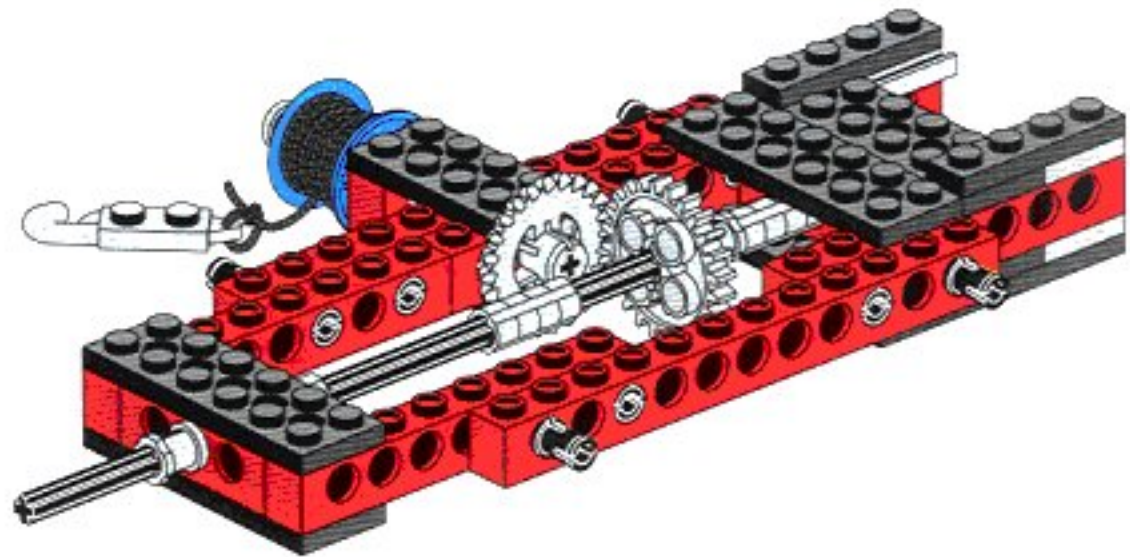
17

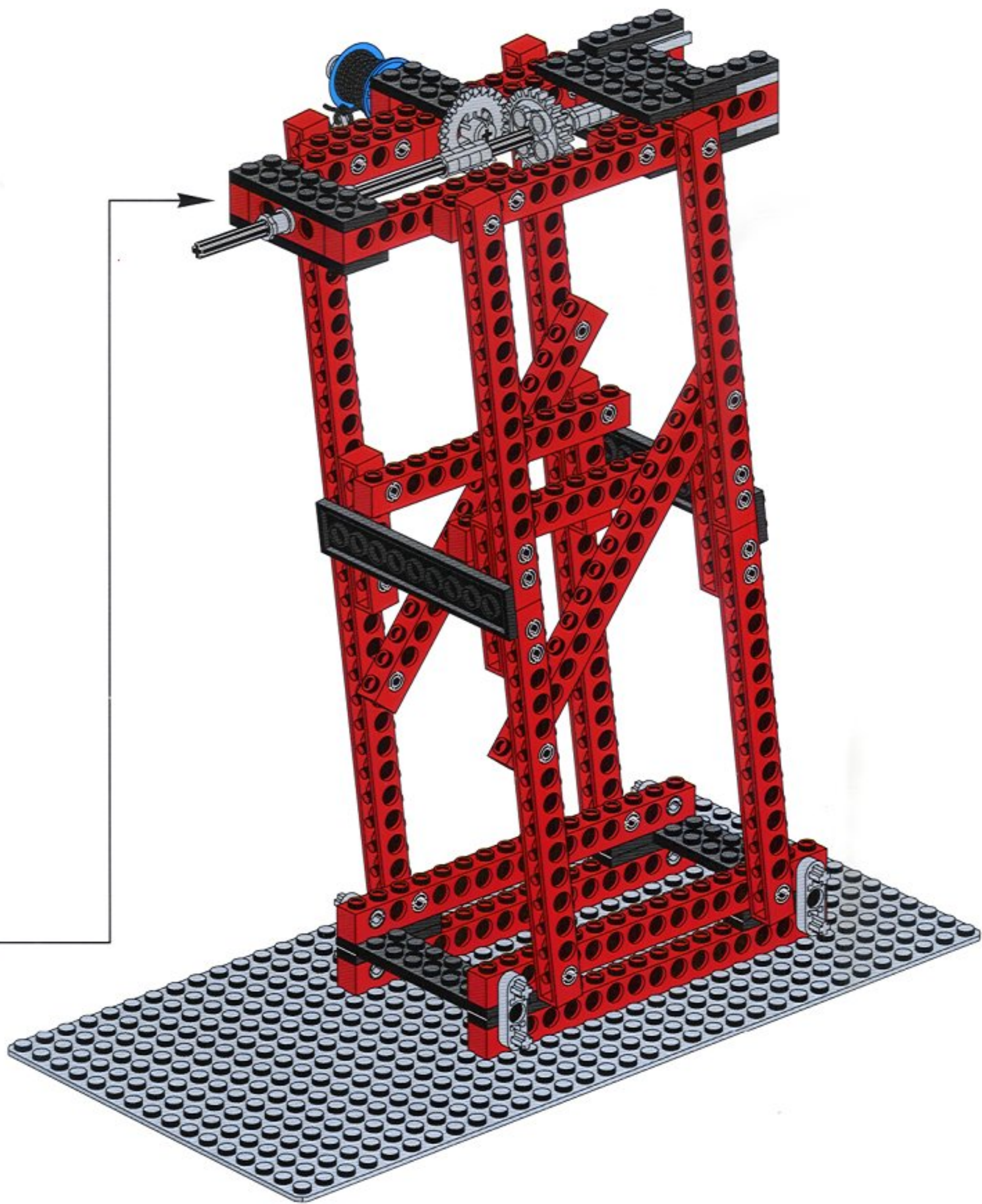


18

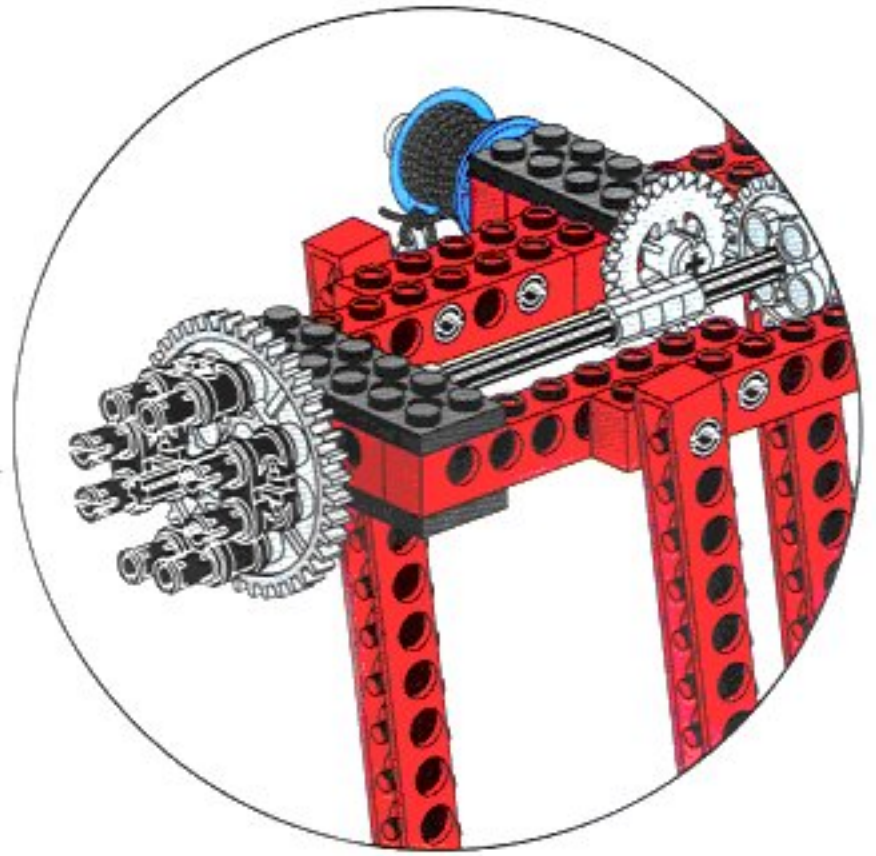
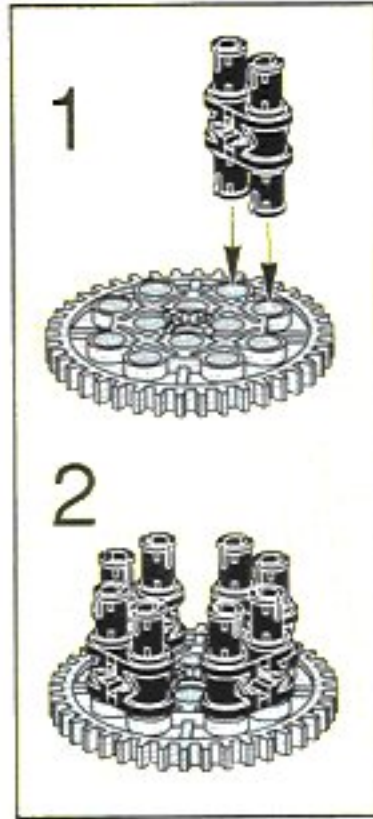


19

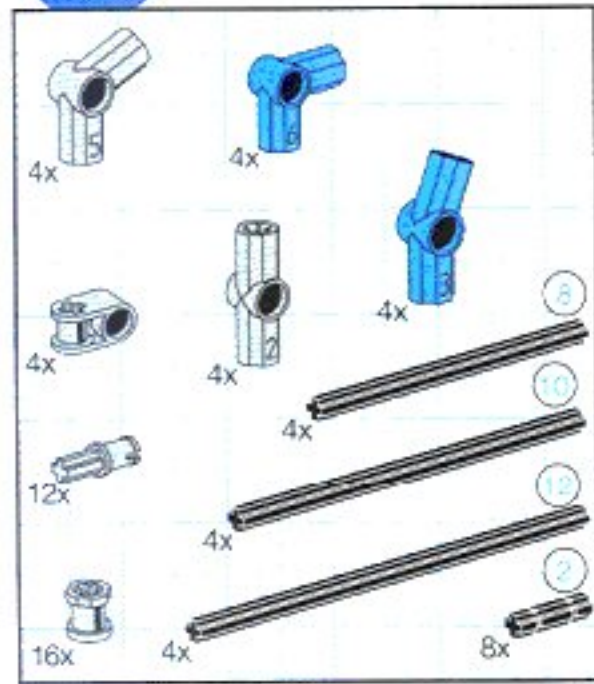




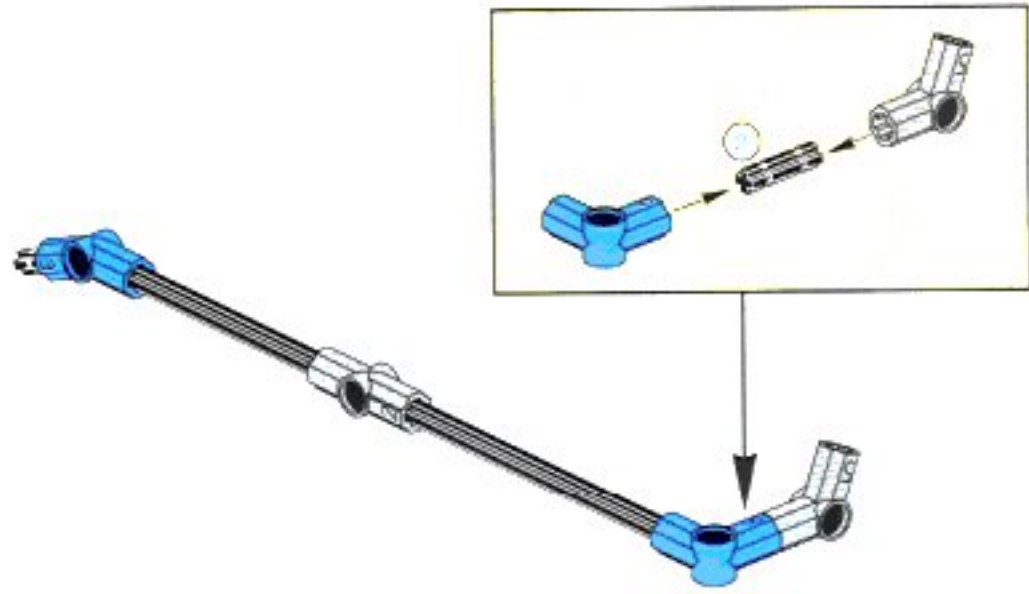
20



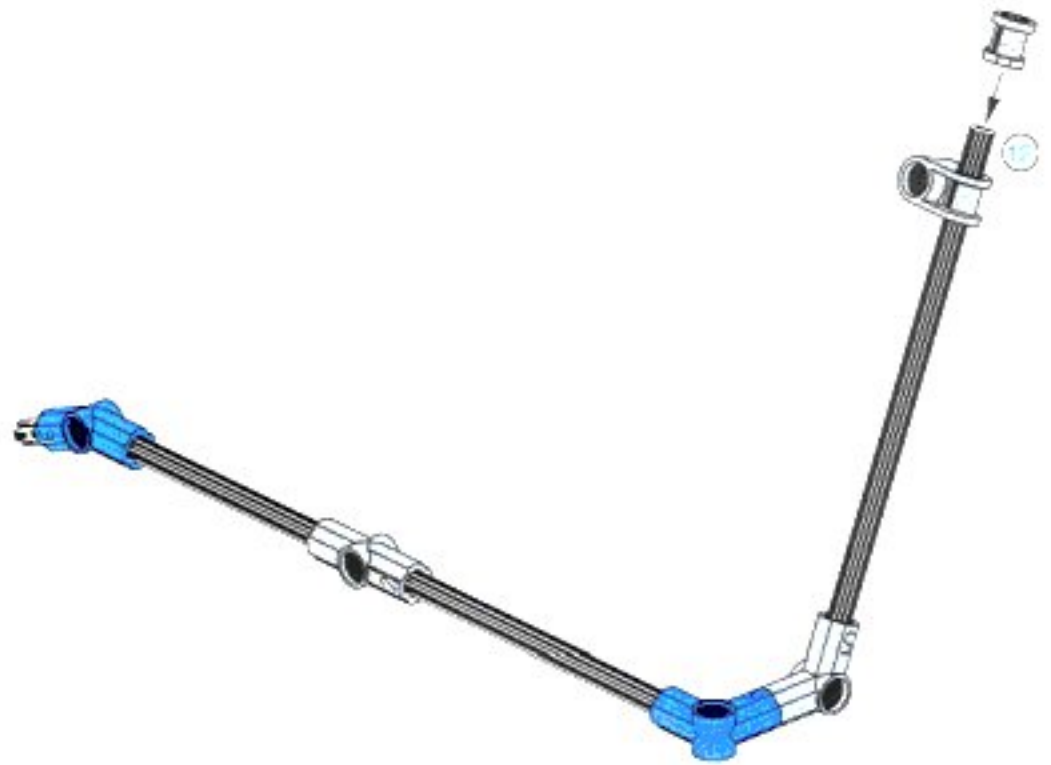
21



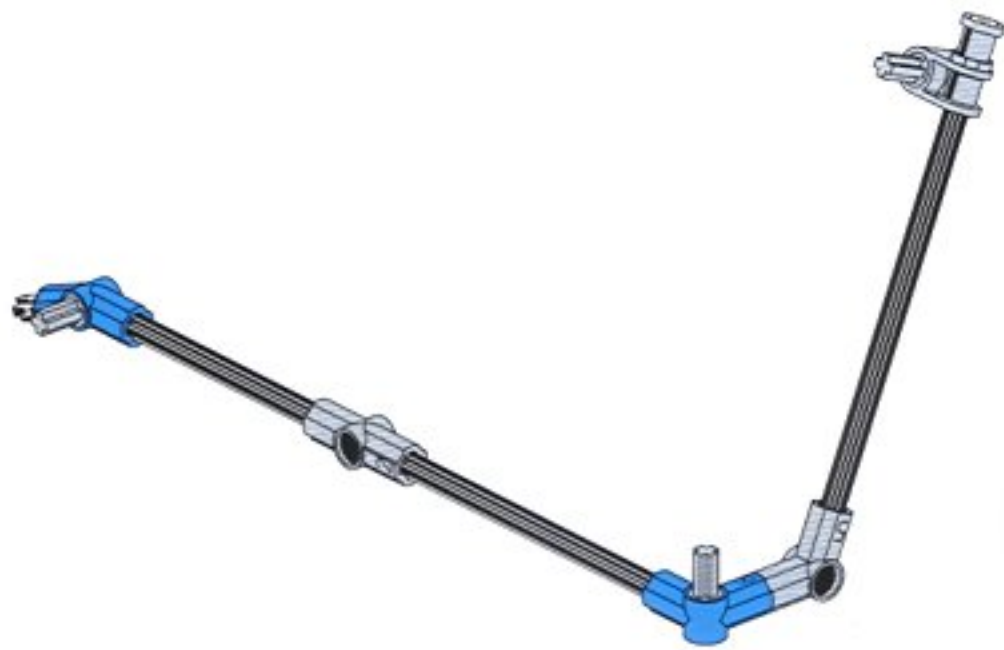
3



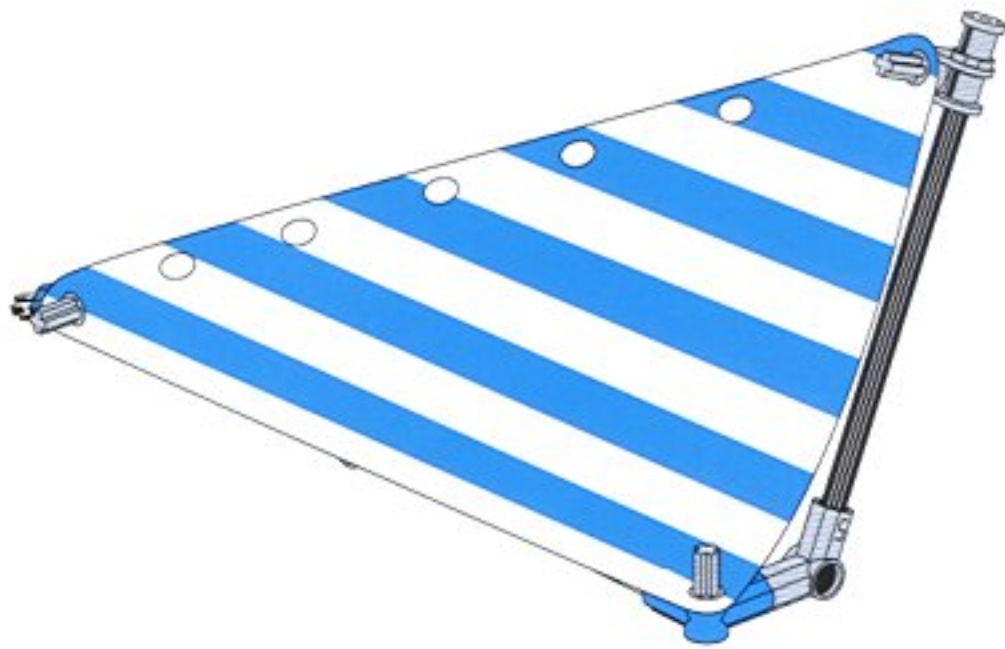
4



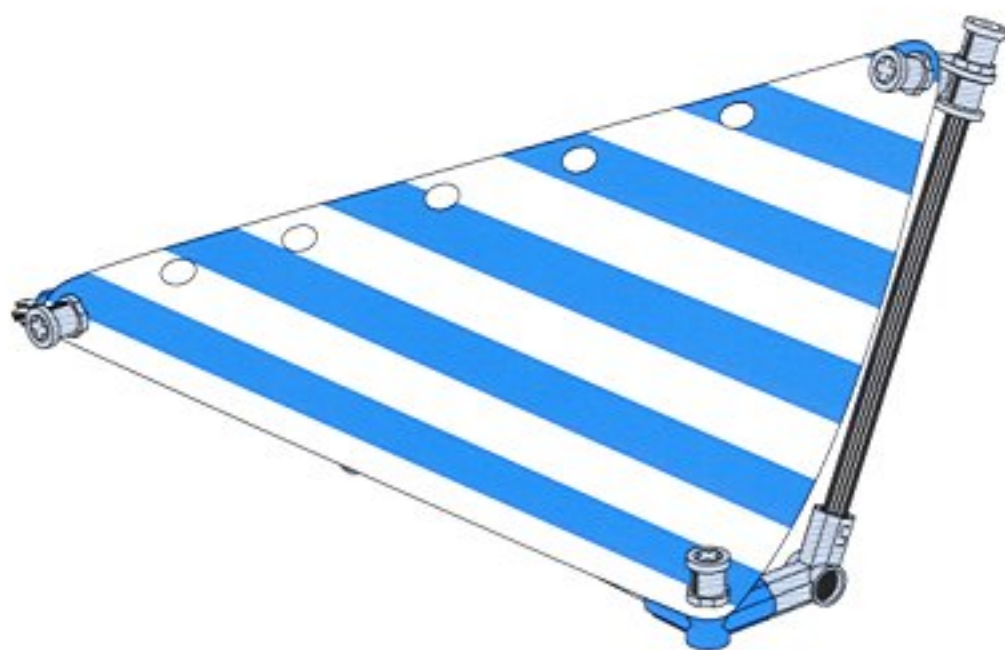
5



6



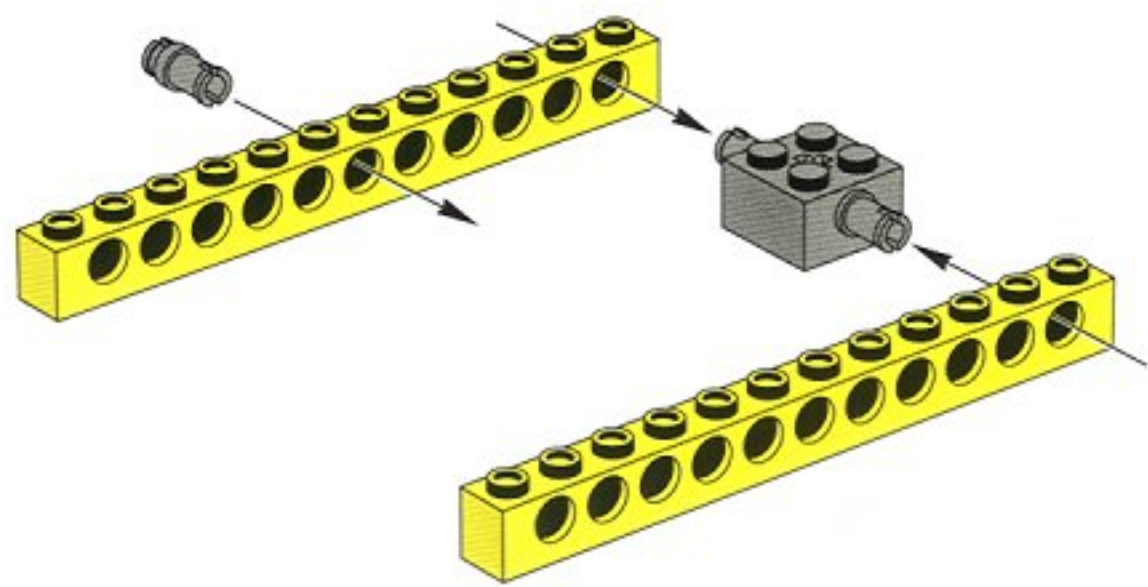
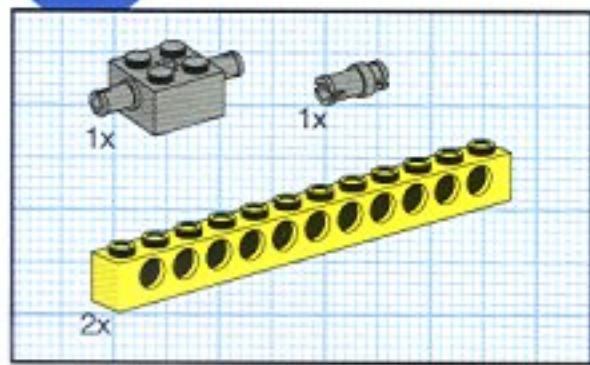
7



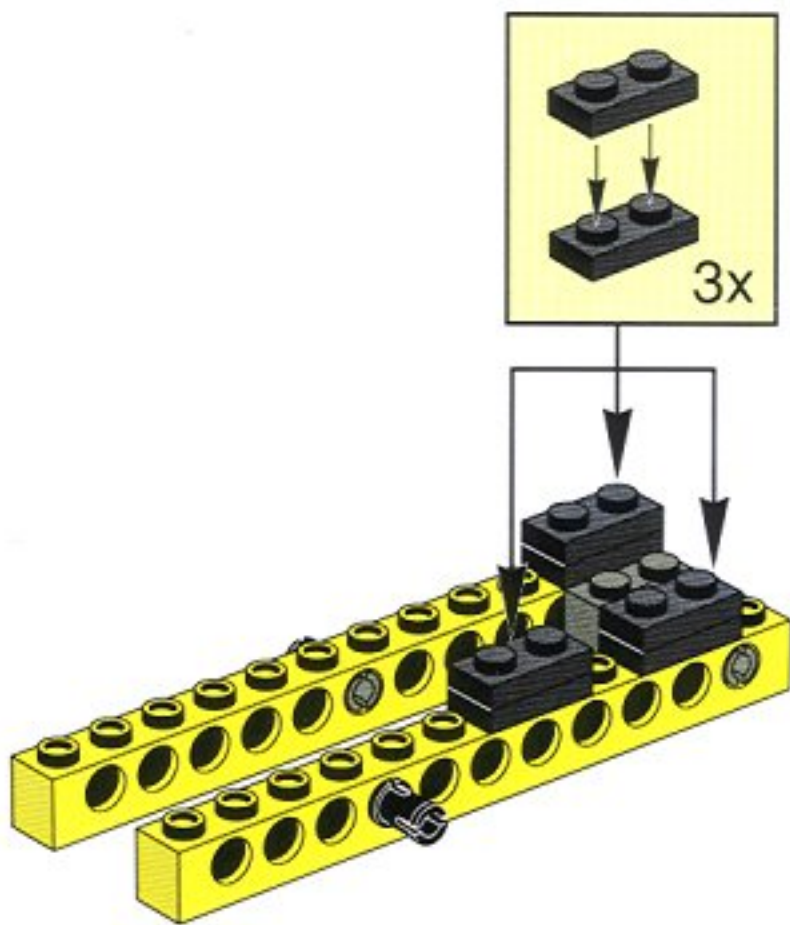
4x



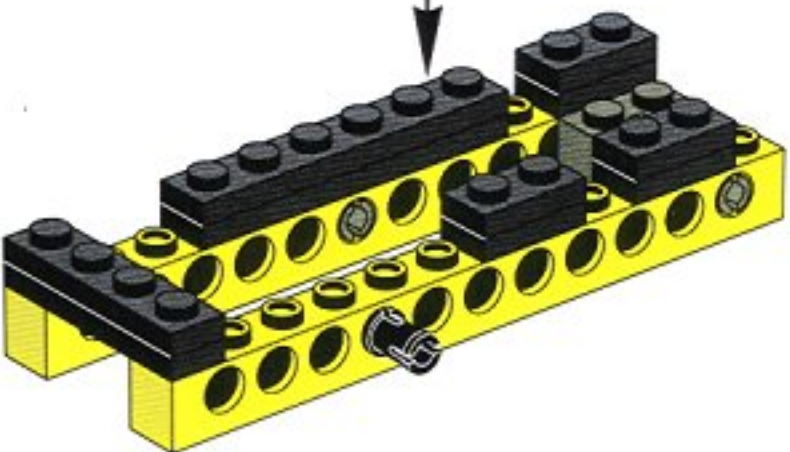
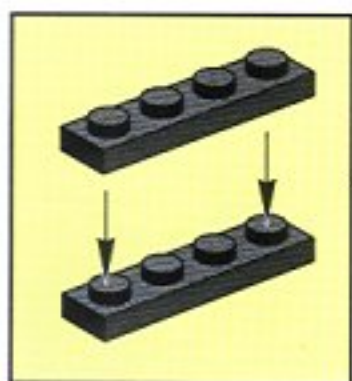
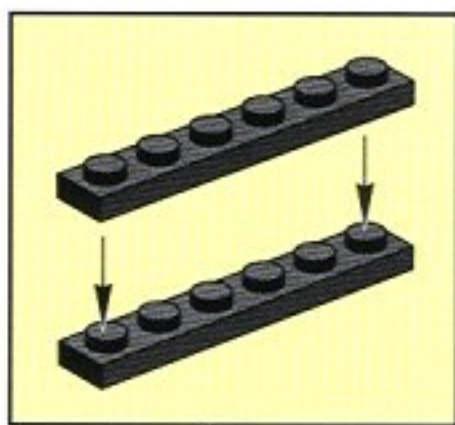
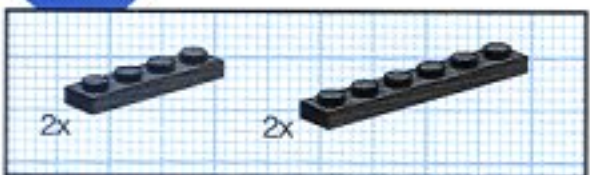
1



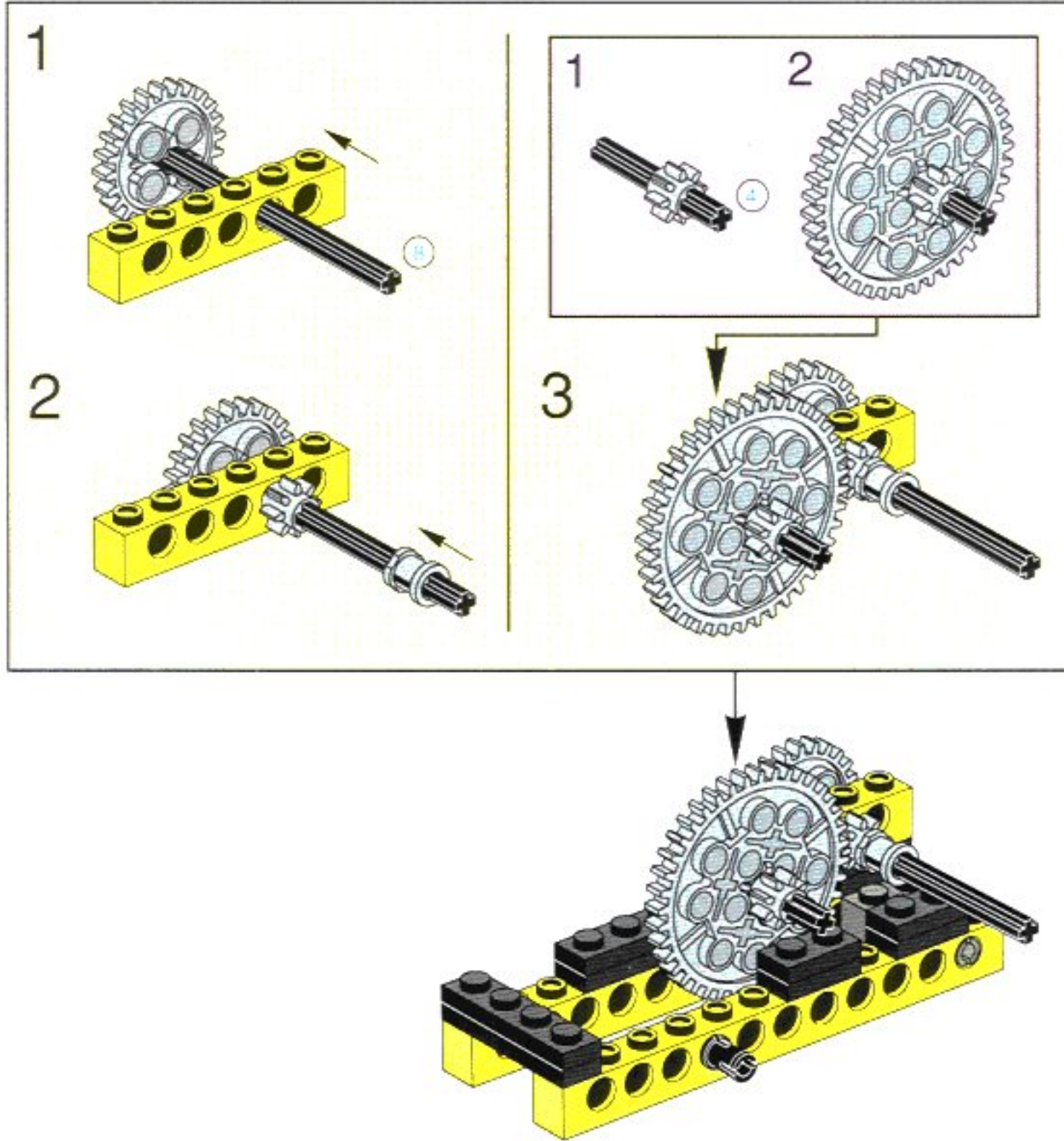
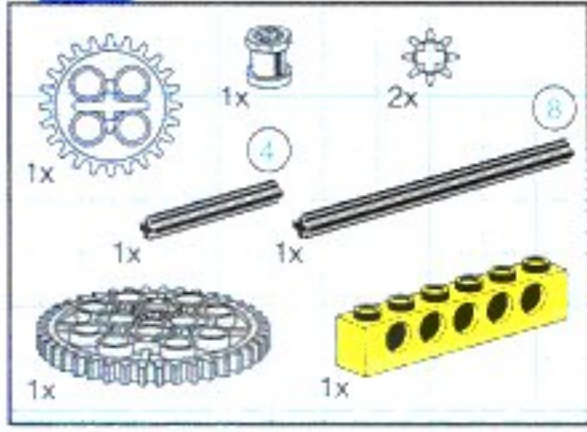
2



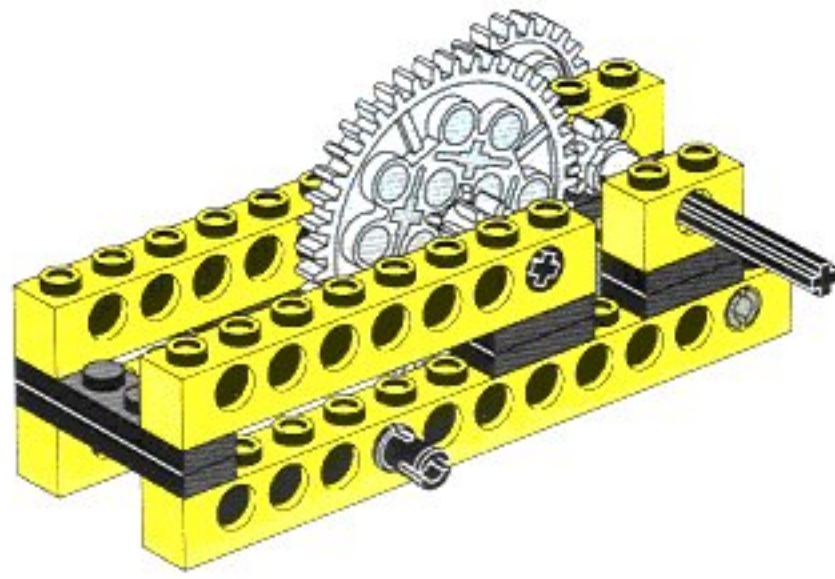
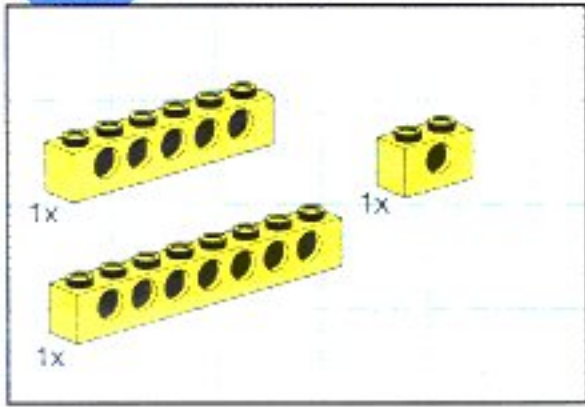
3



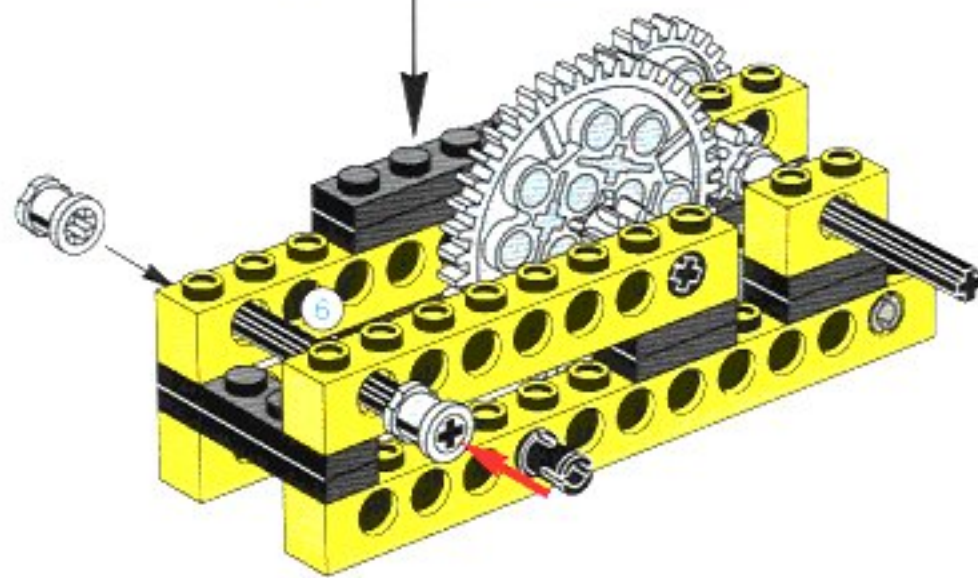
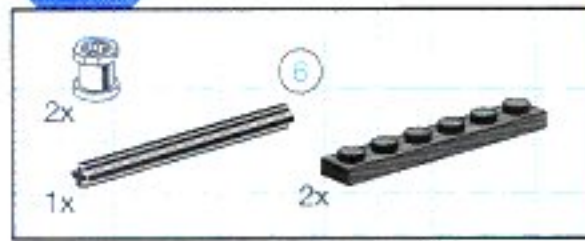
4



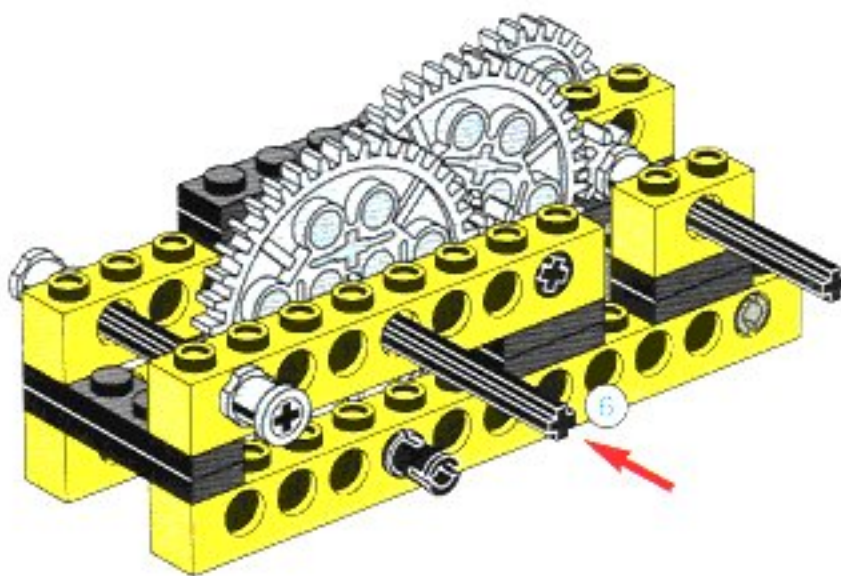
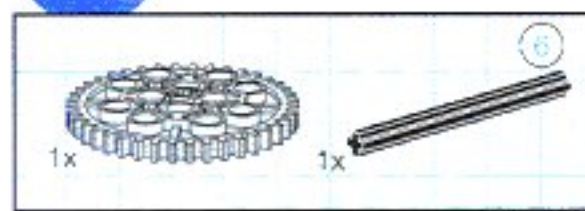
5



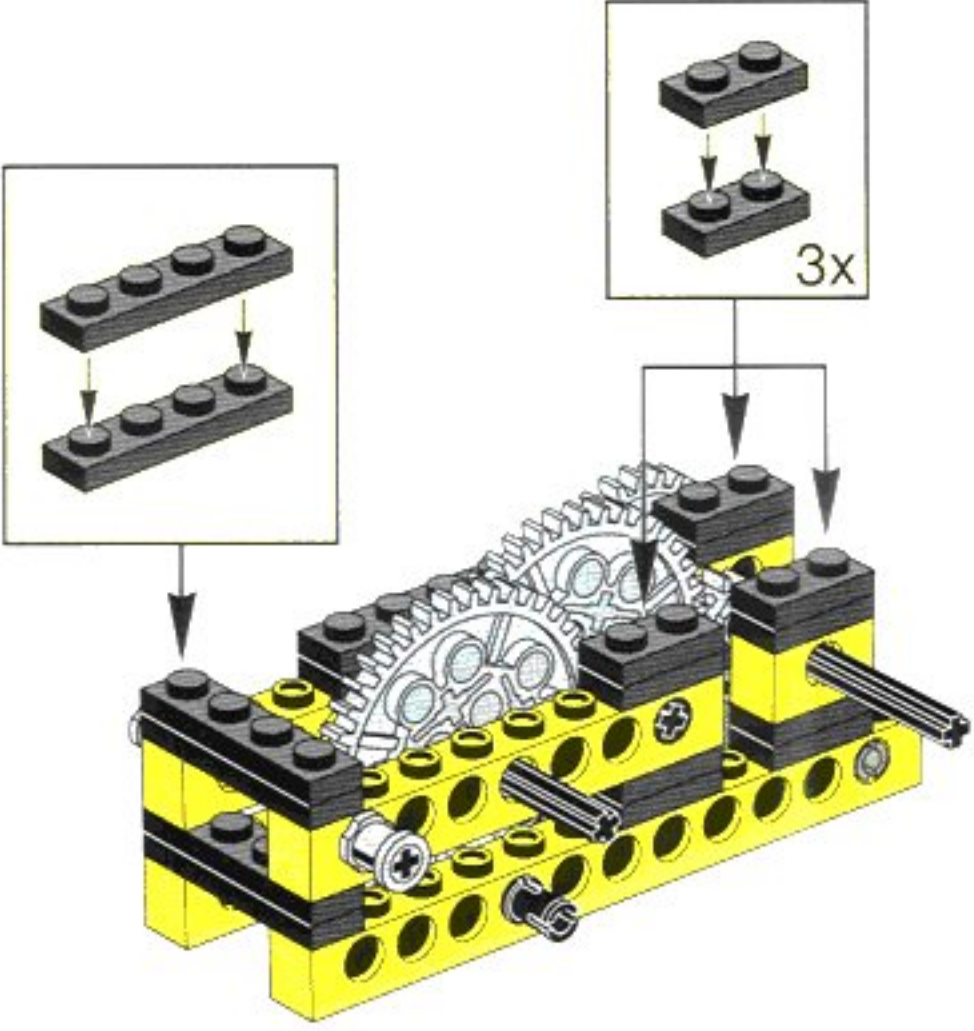
6



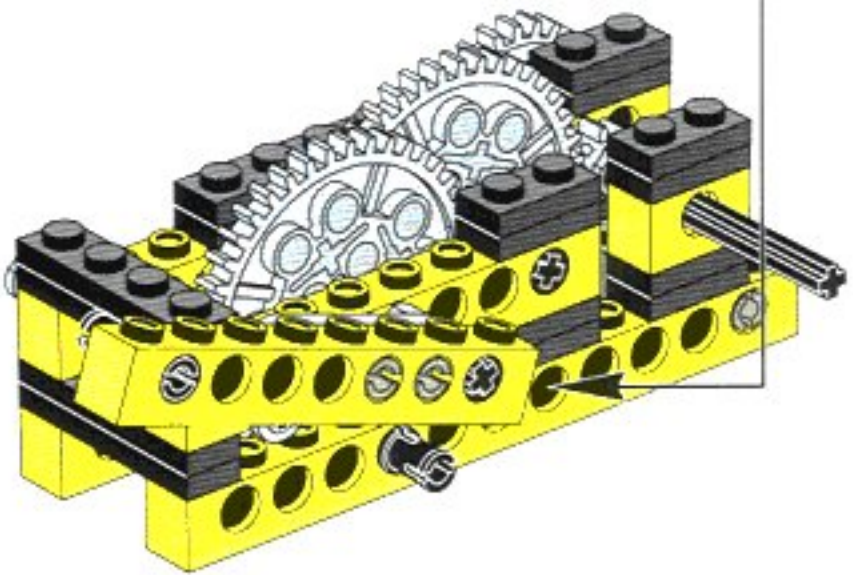
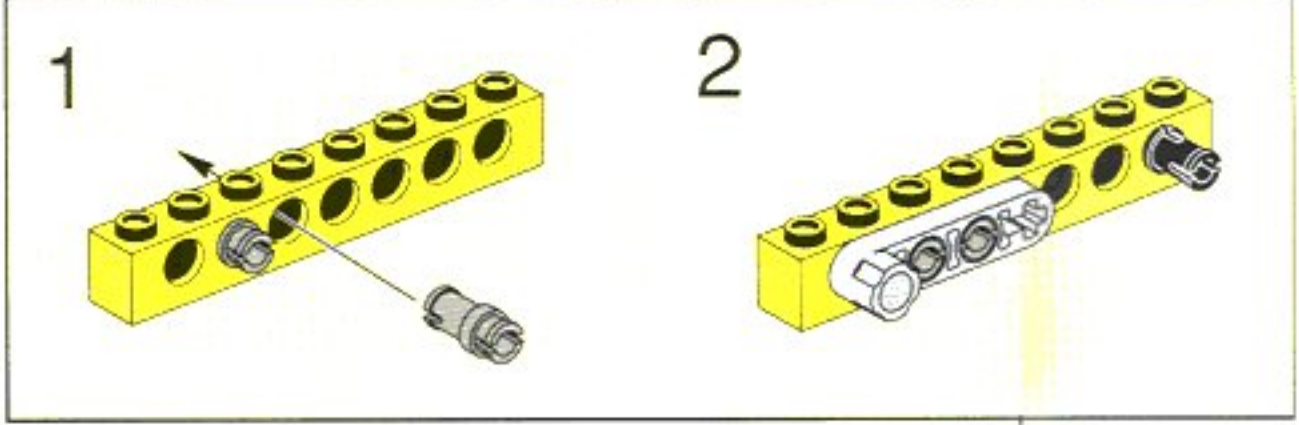
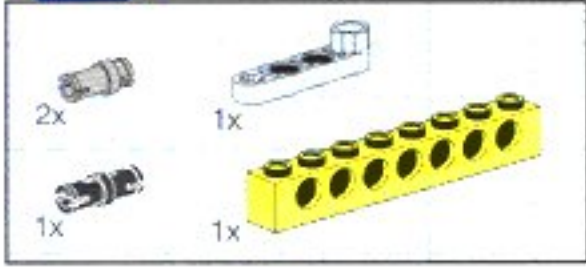
7

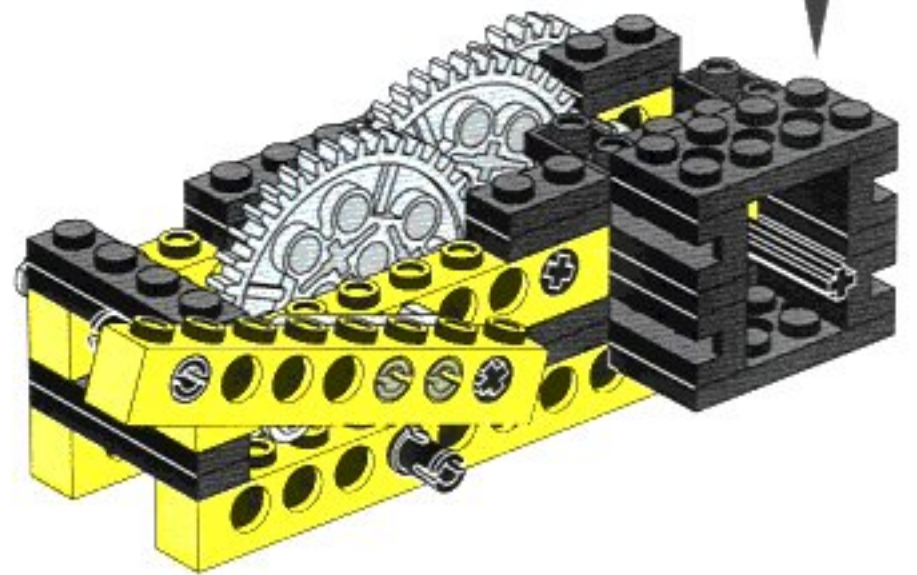
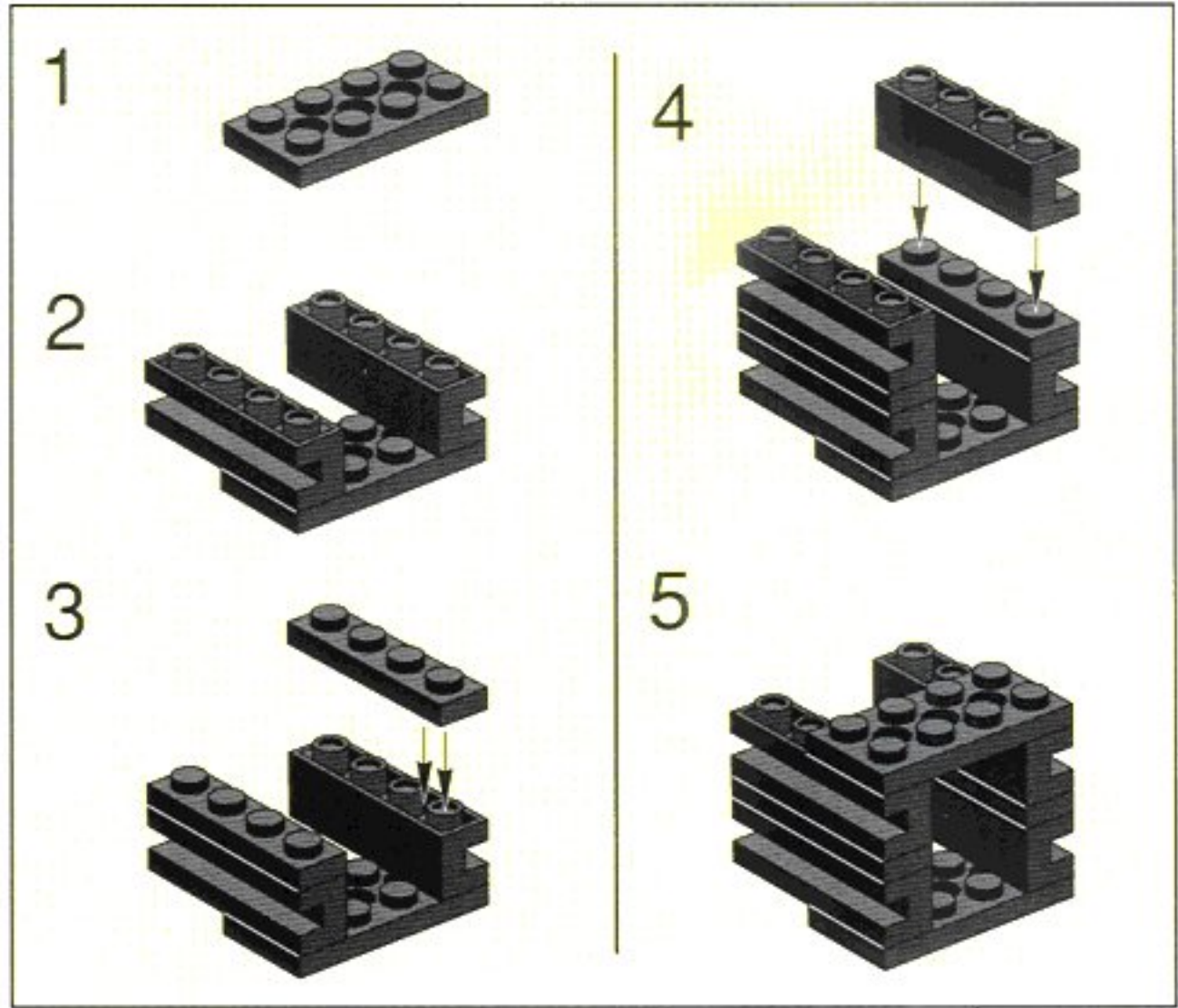
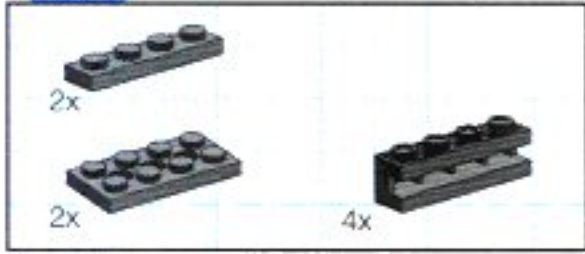


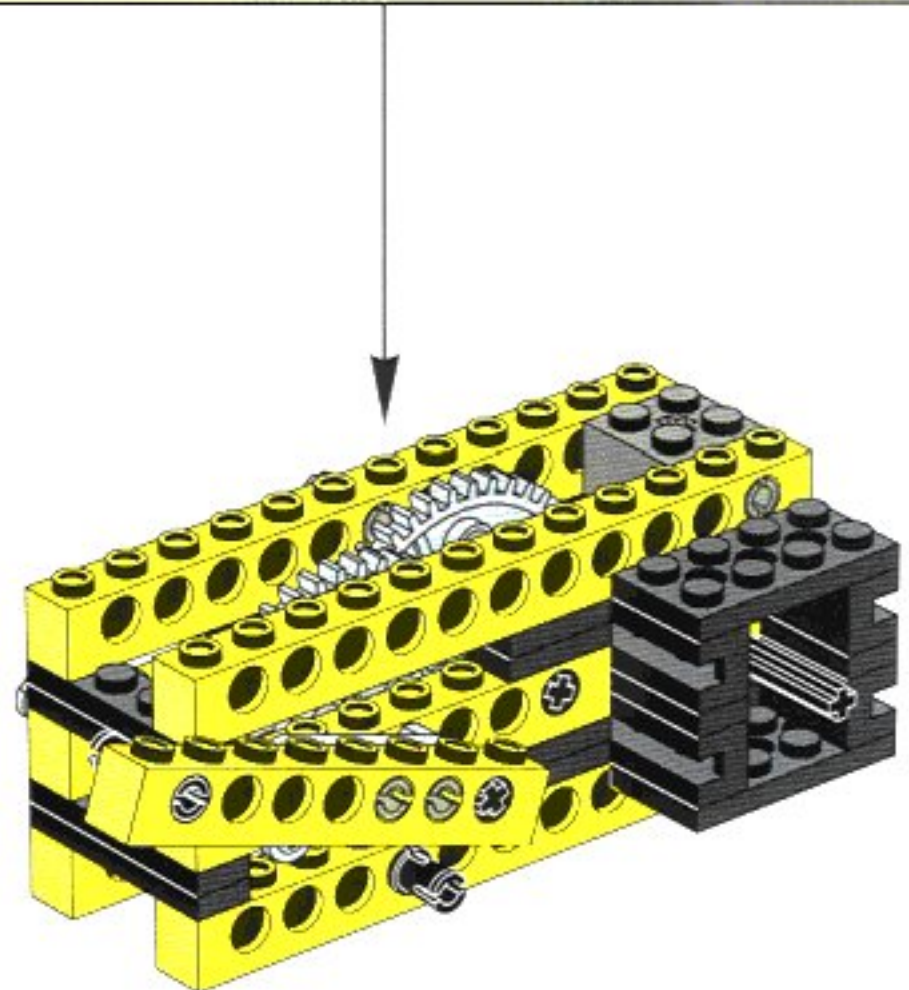
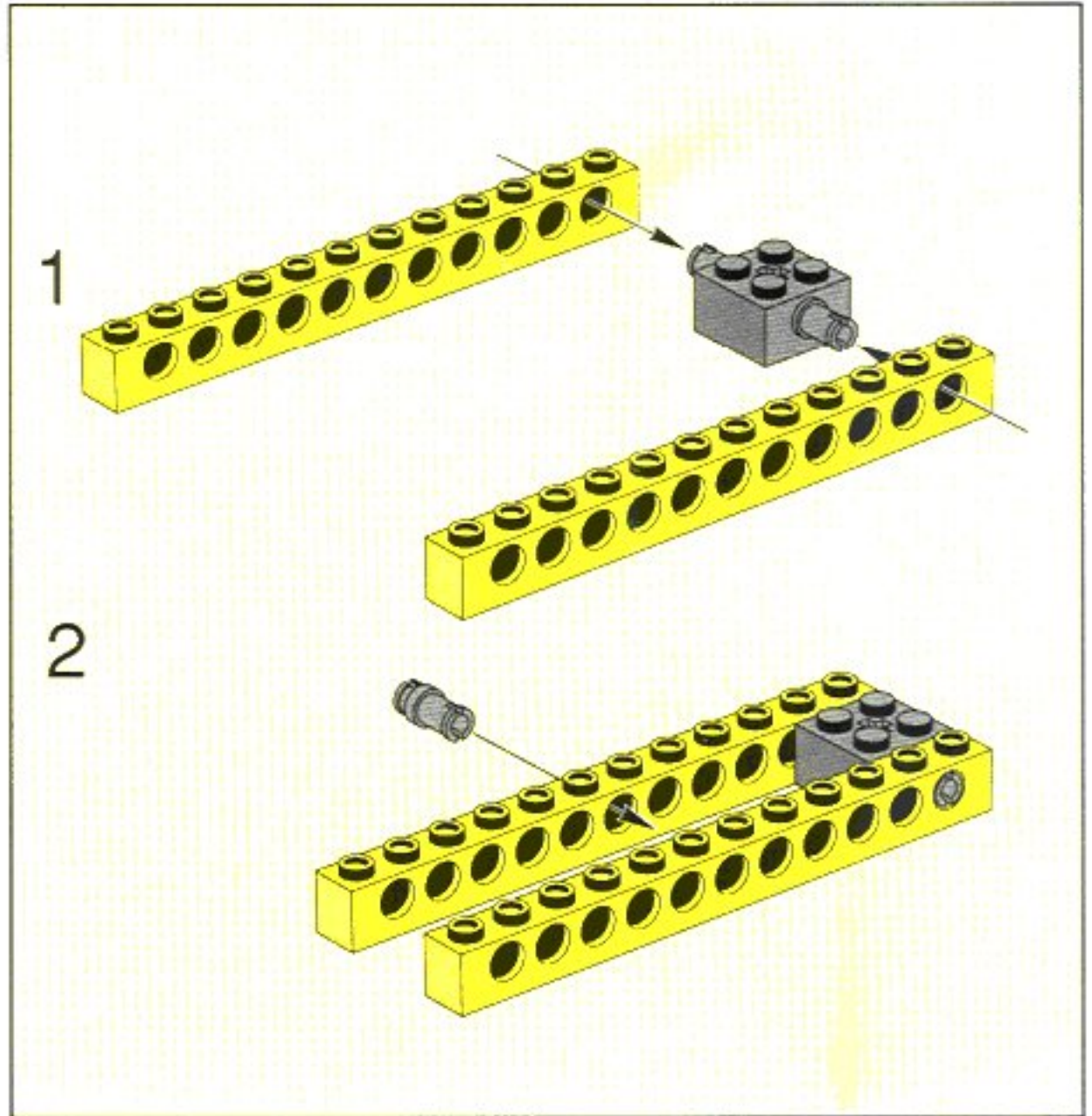
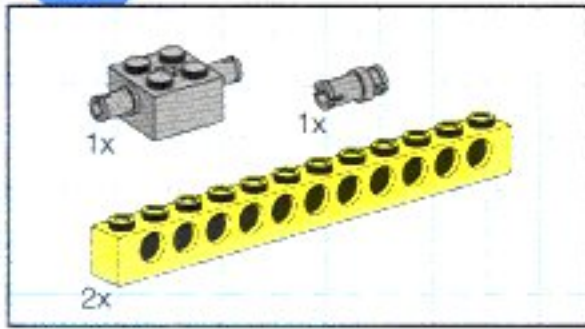
8



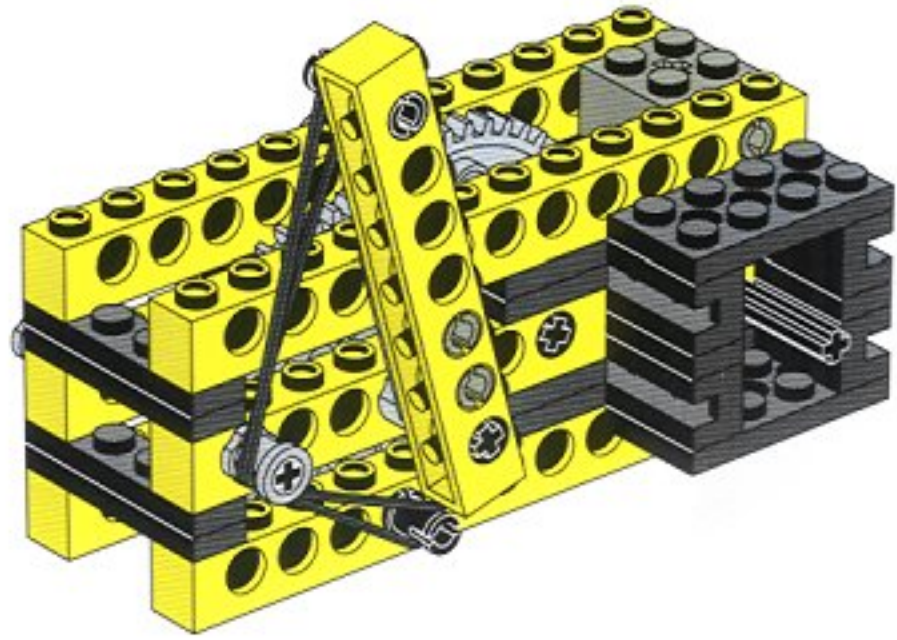
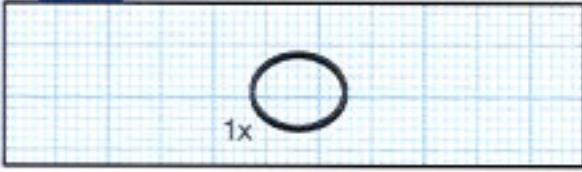
9



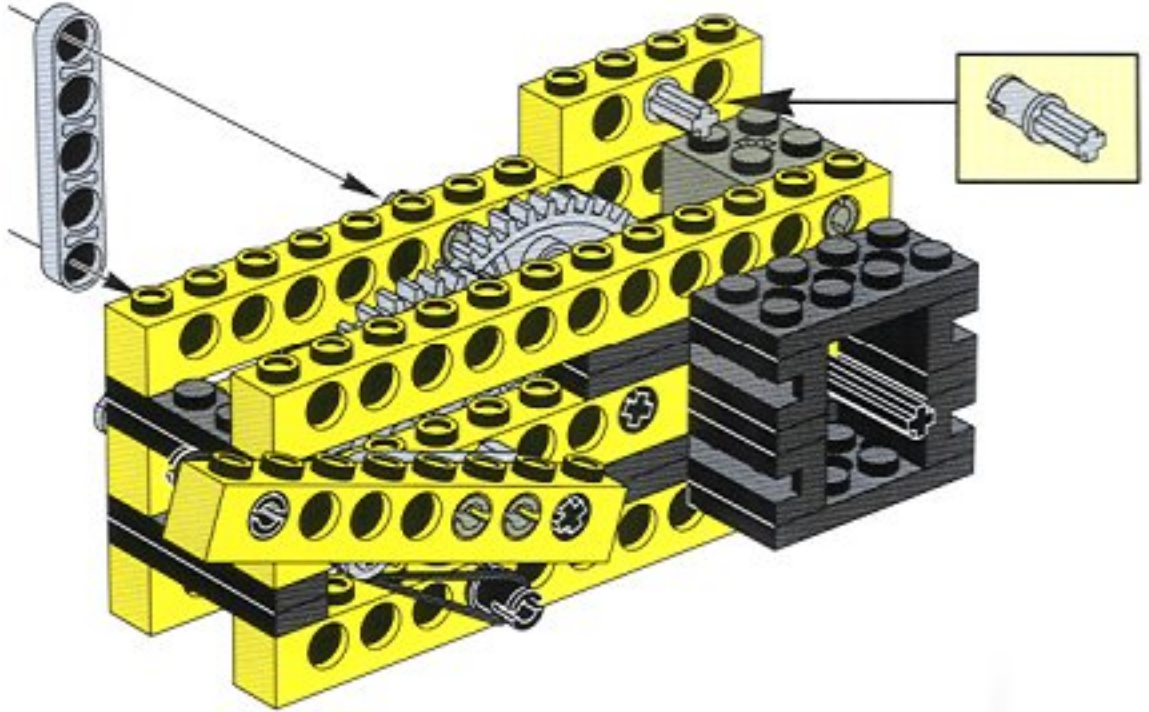
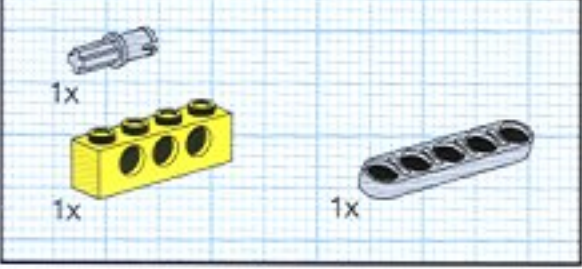




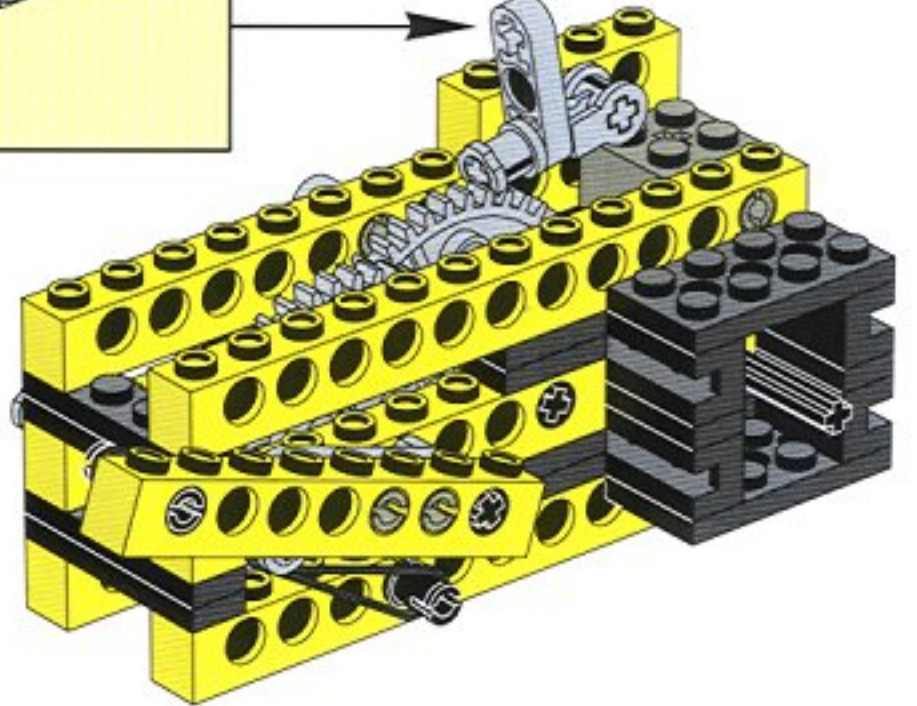
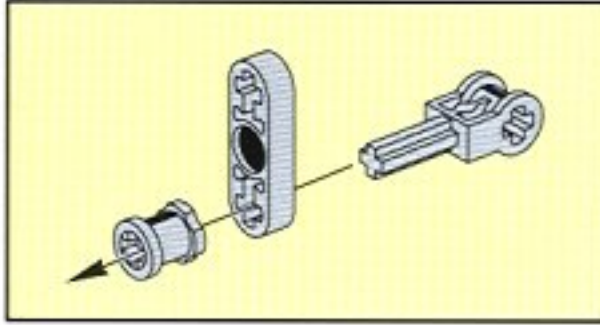
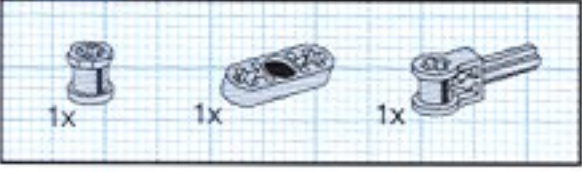
12



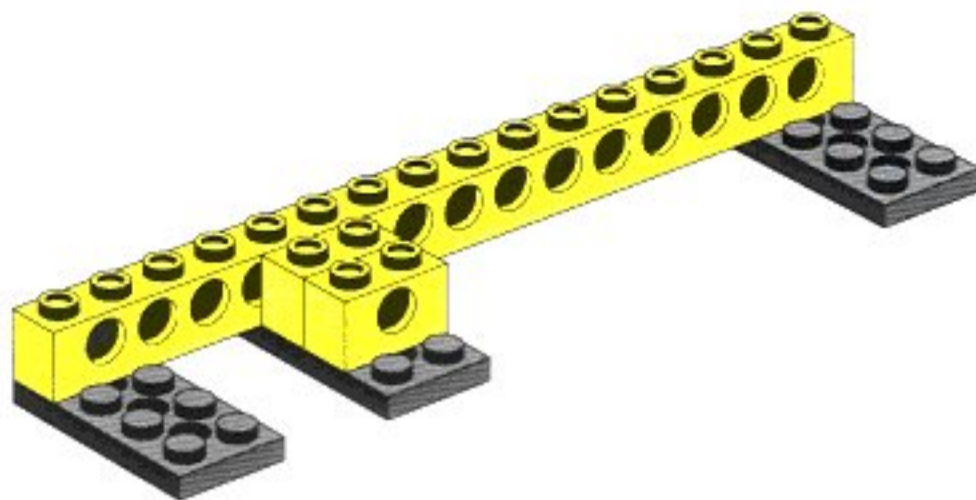
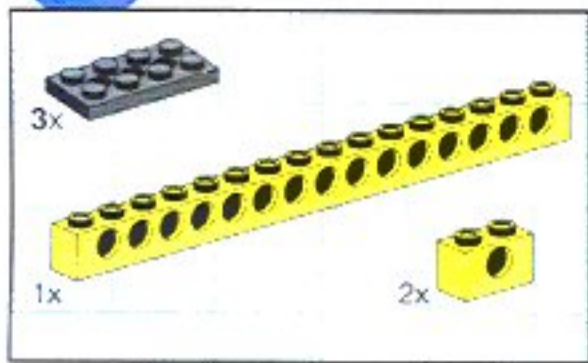
13



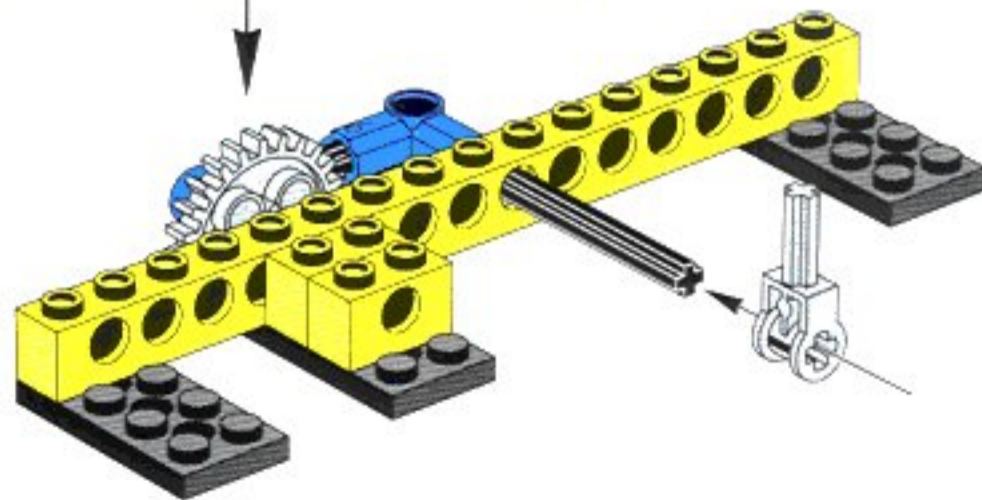
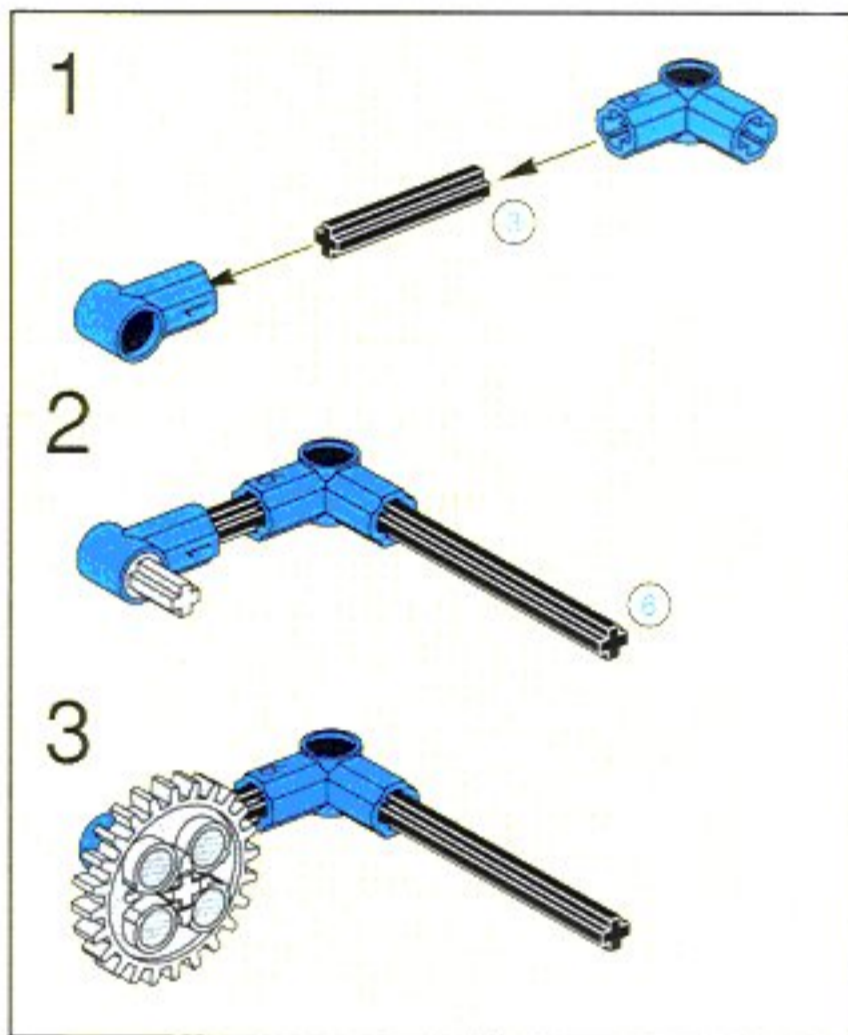
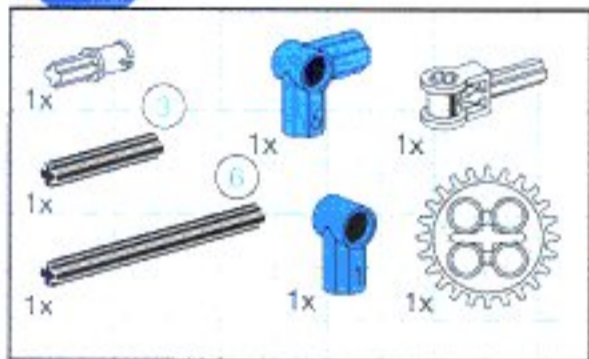
14



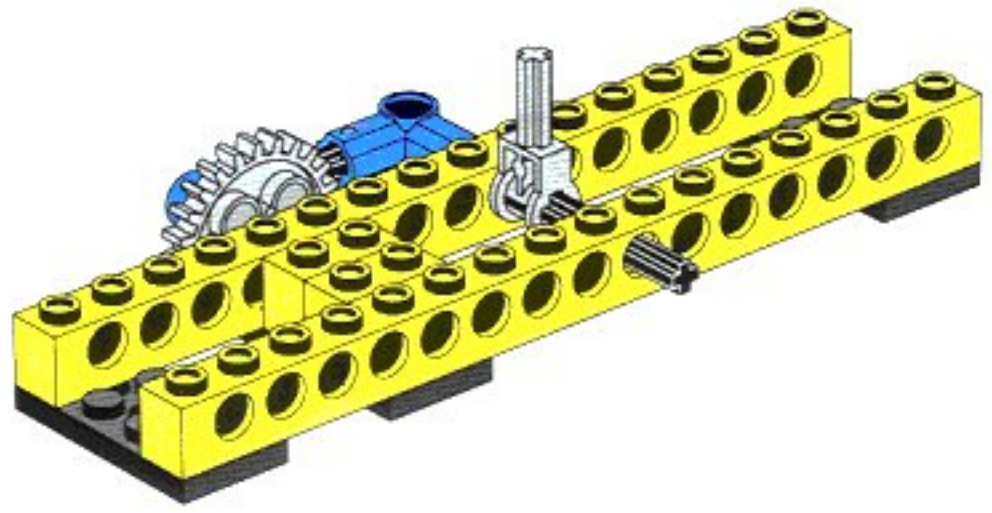
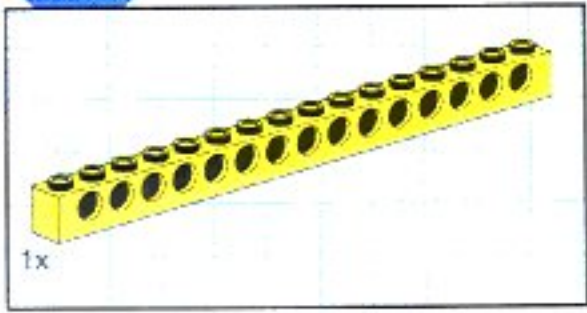
1



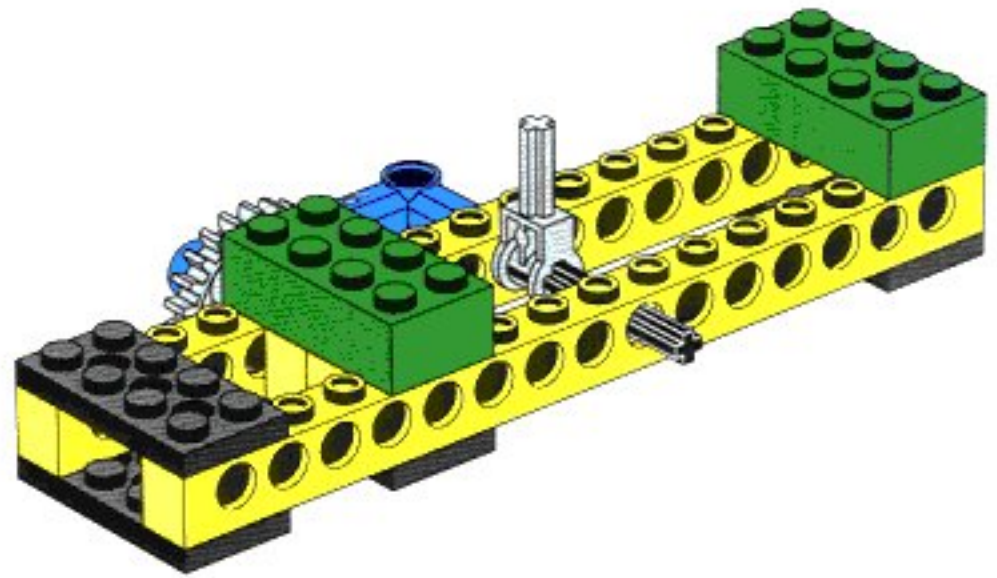
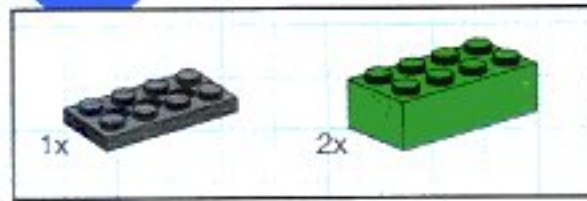
2



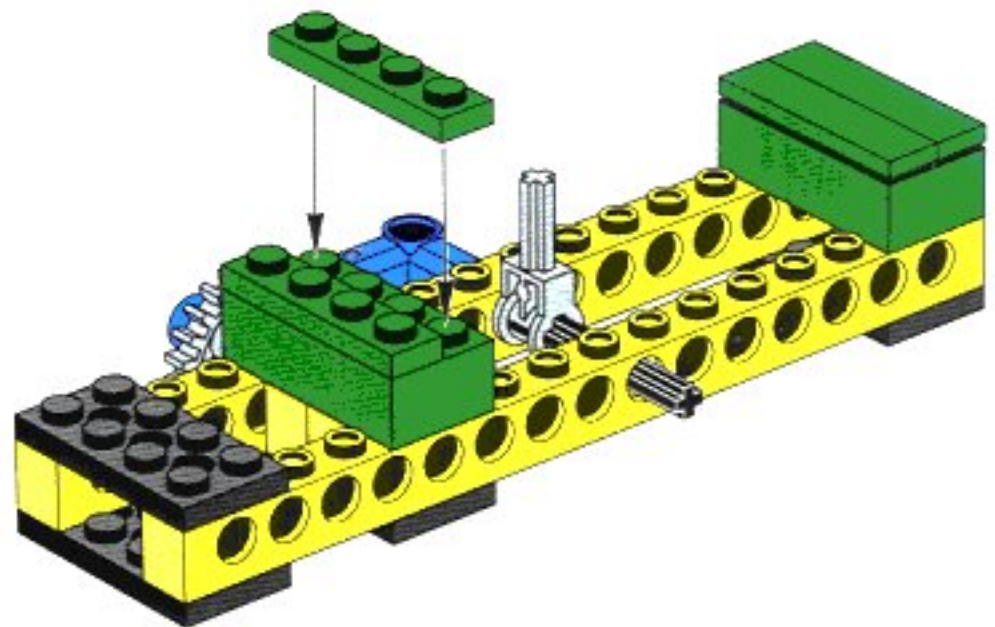
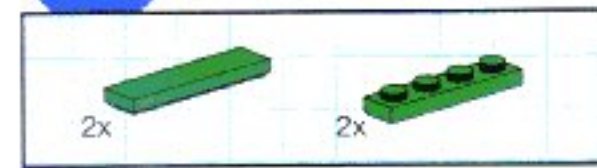
3



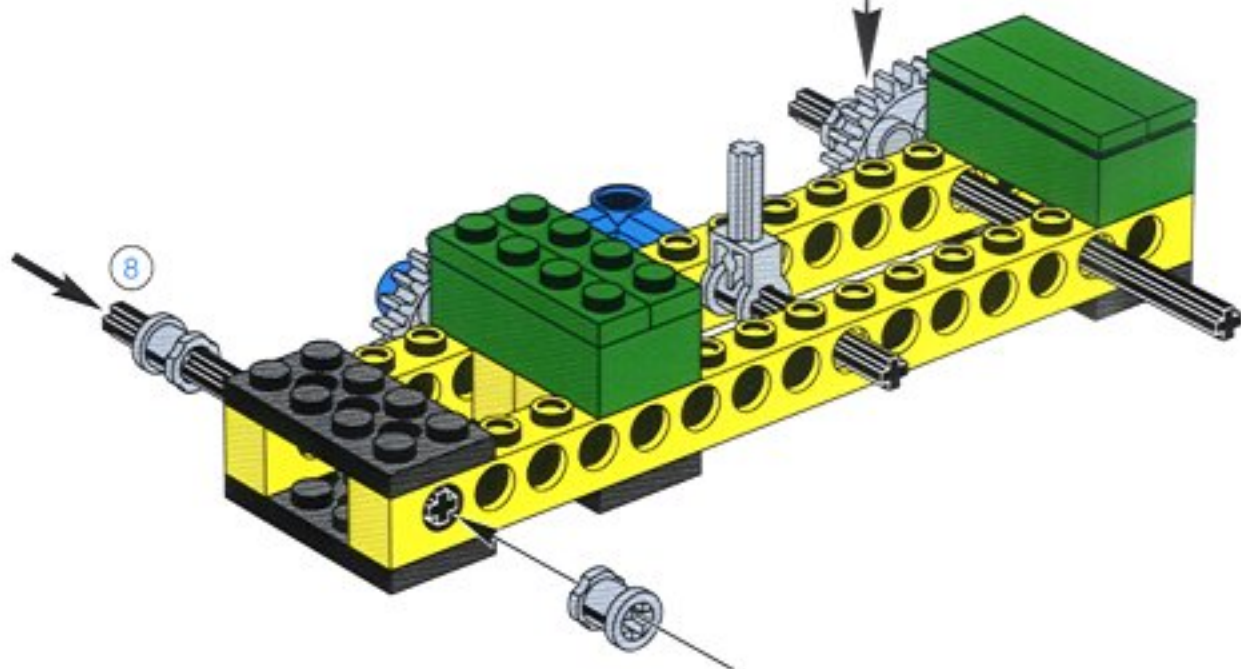
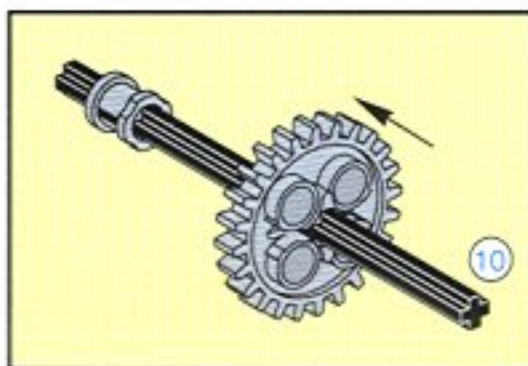
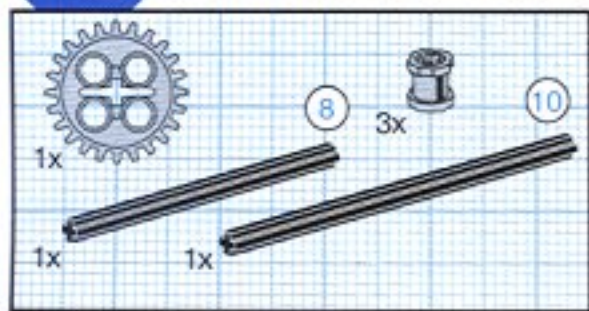
4



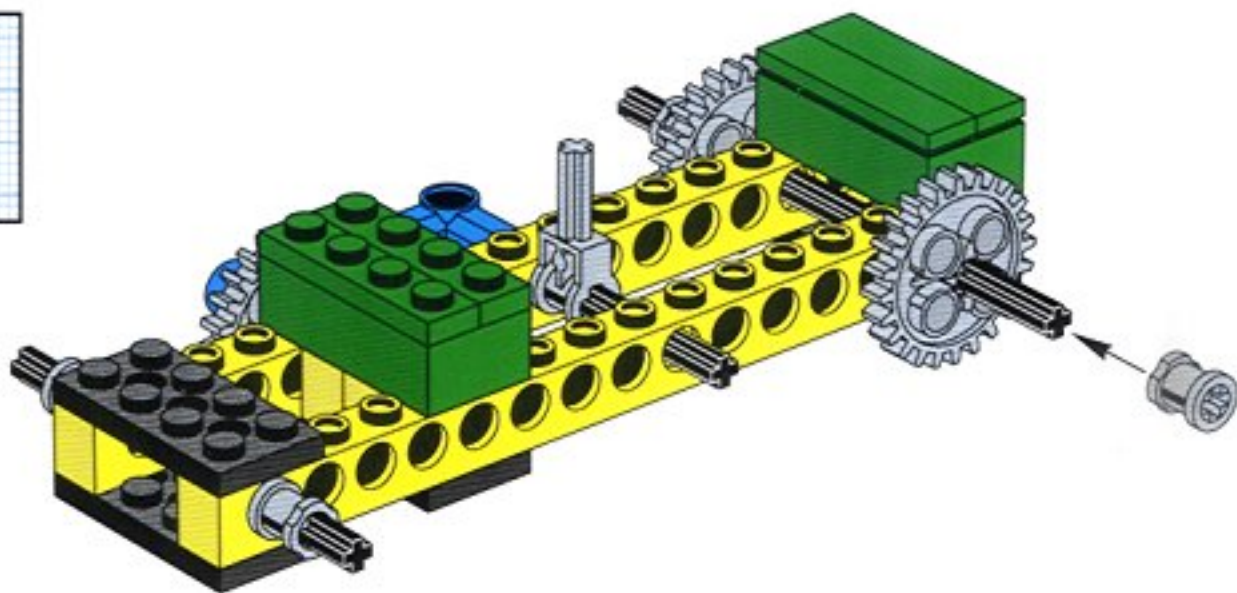
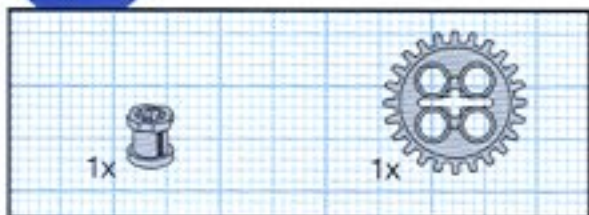
5



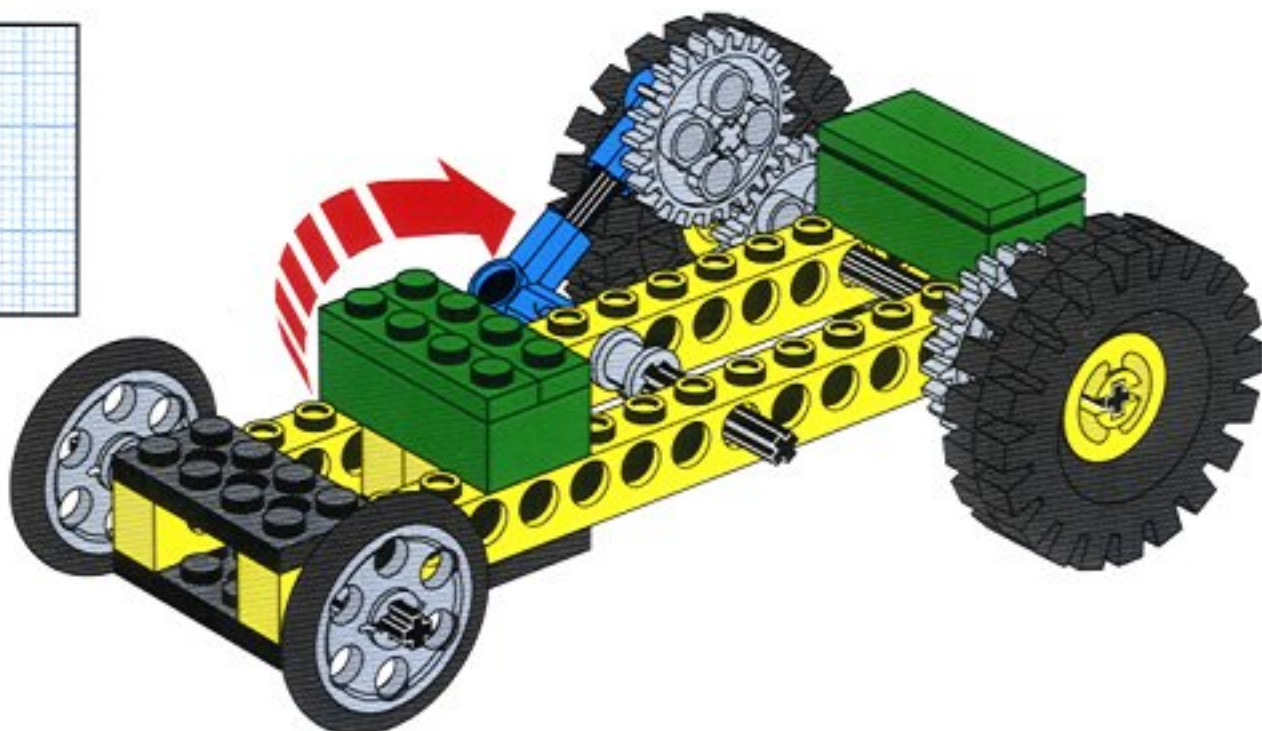
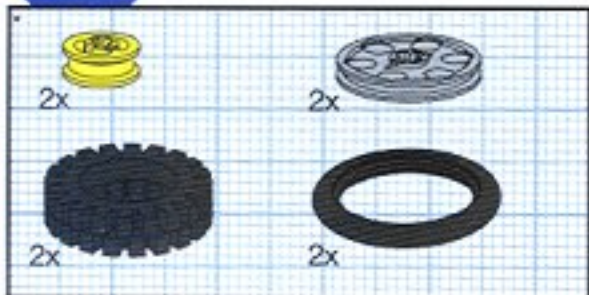
6

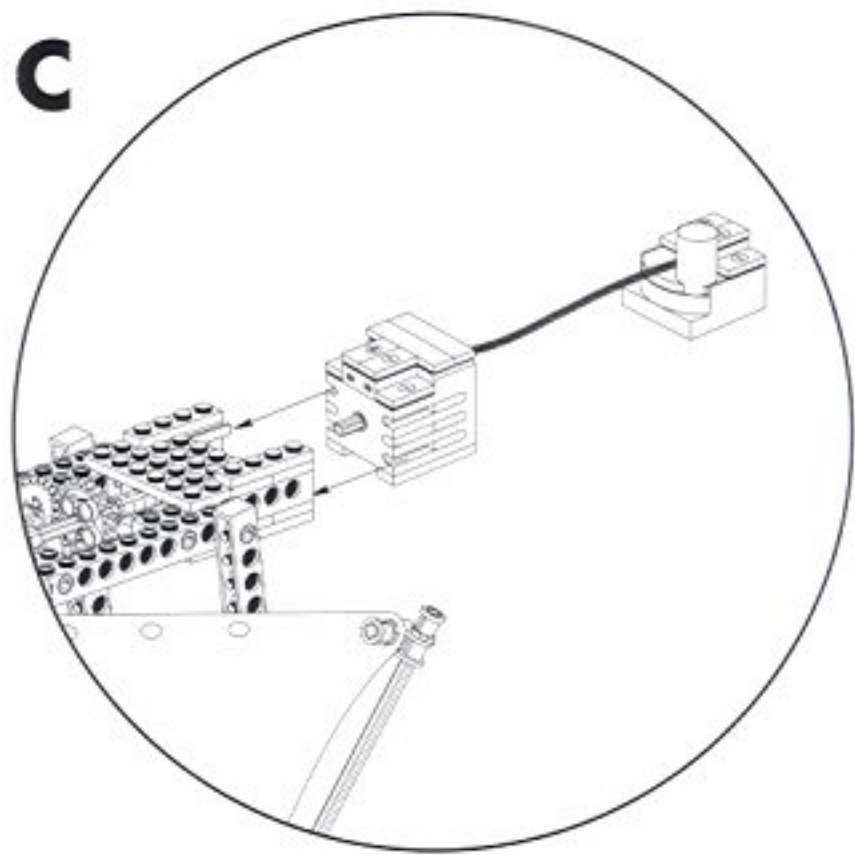
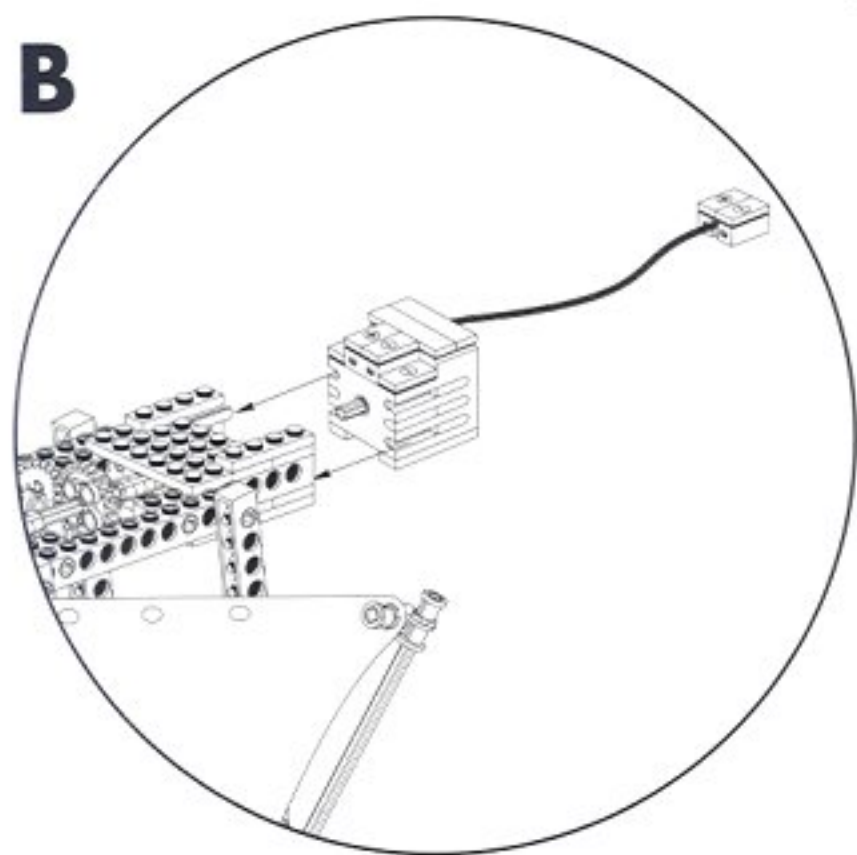
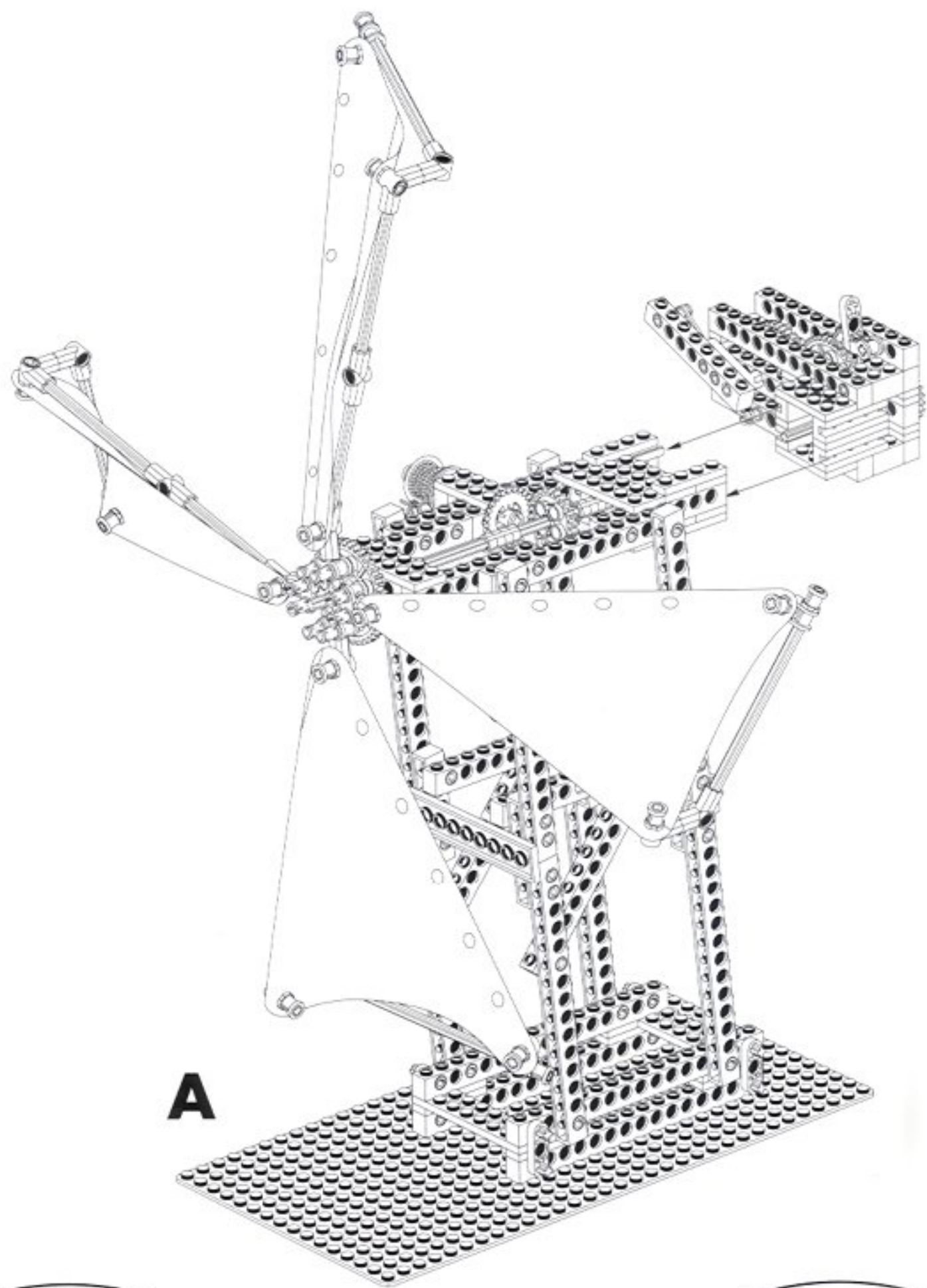


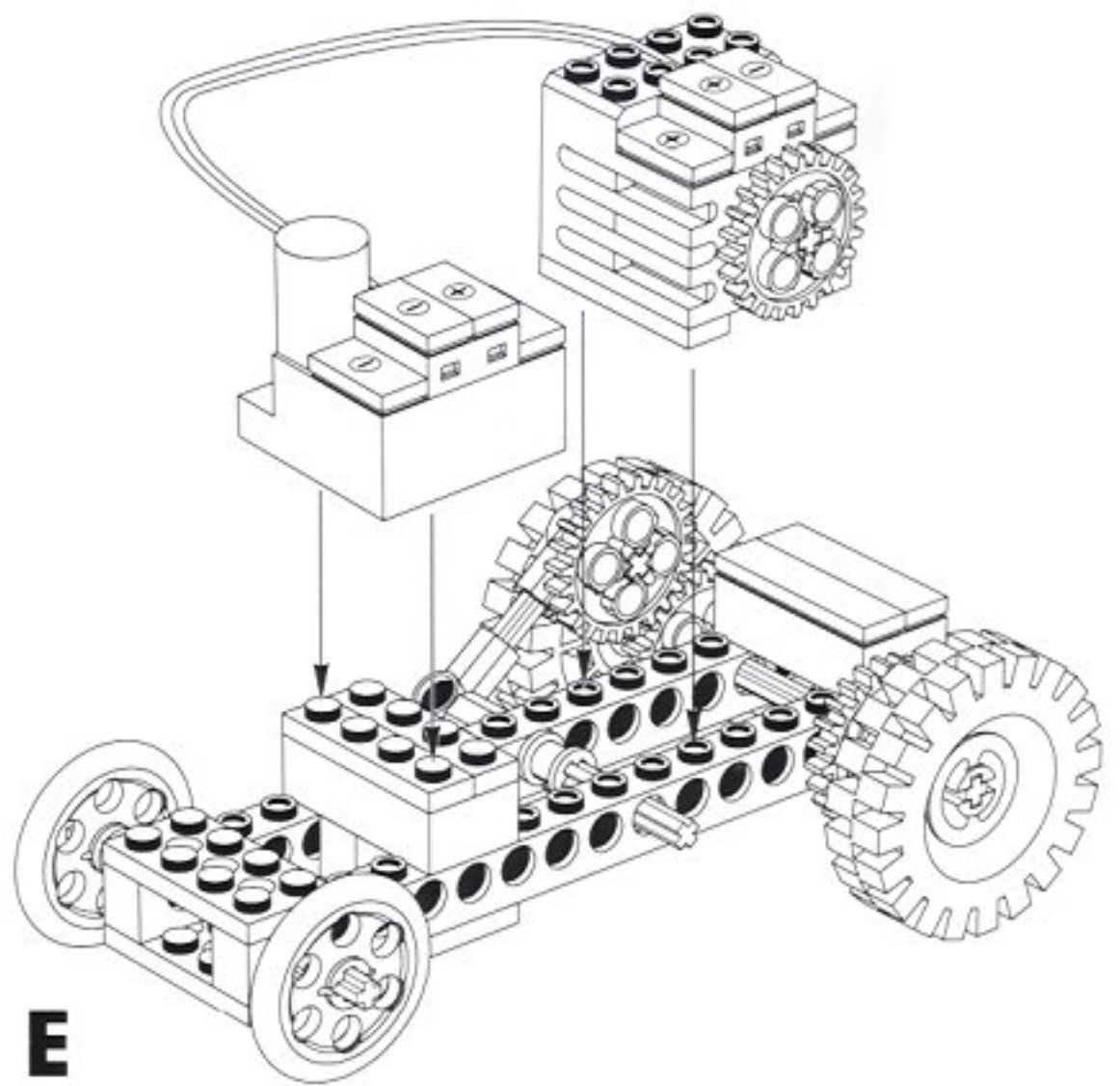
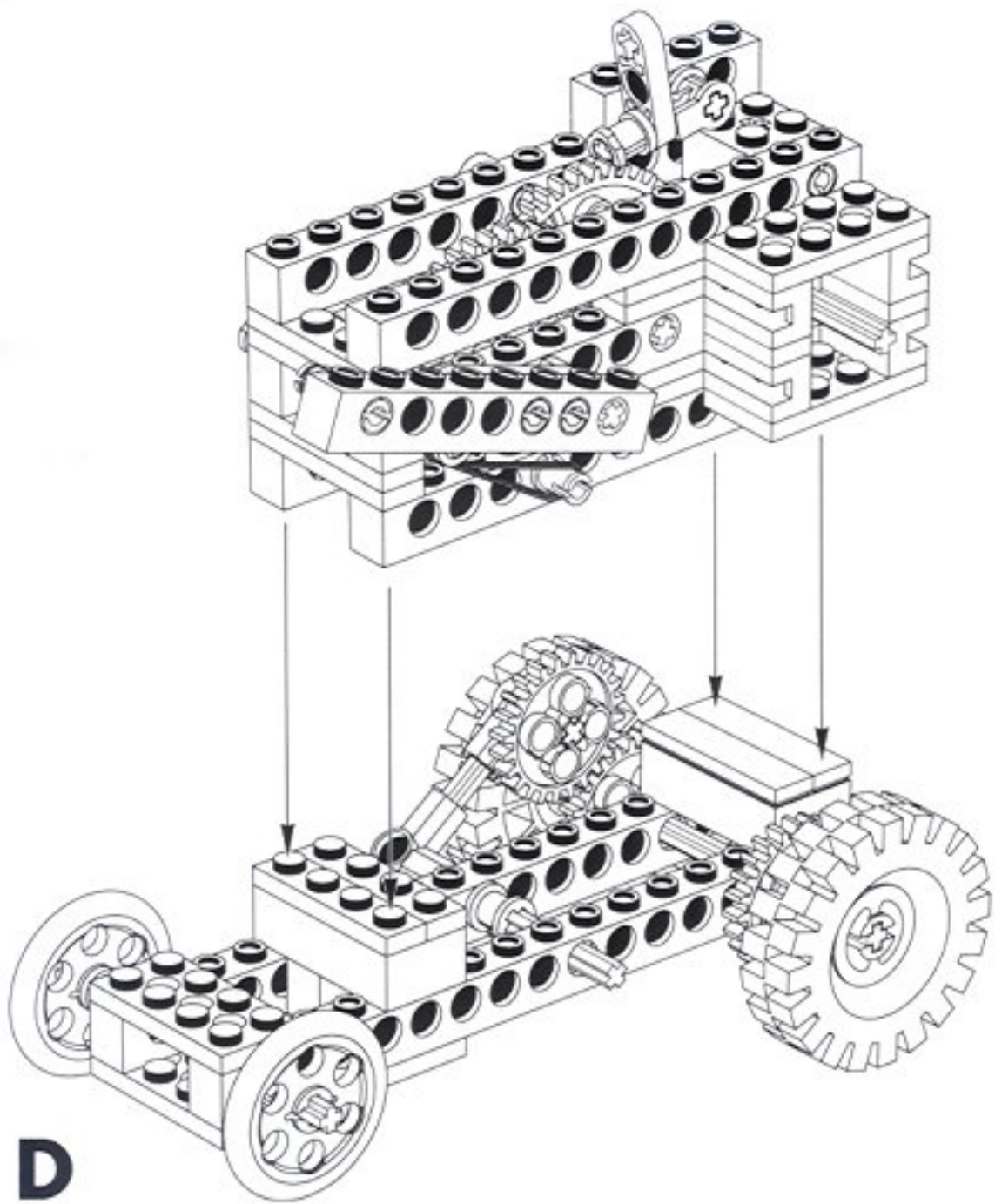
7



8







Motor
Moteur
規格
モーター
모터



E
a. Especificaciones
- Voltaje máximo: 9 voltios. Se encenderá a aproximadamente 1 voltio
- Funcionamiento libre: rpm 350
- Corriente de funcionamiento libre: 5 mA
- Corriente de bloqueo: 350 mA.
b. Precauciones
- El motor no es resistente al agua.

CN/HK
a. 規格
- 啟動時1伏特・最大電壓9伏特
- 空轉(無負載)轉速350 rpm
- 空轉(無負載)電流5毫安培
- 阻斷電流350毫安培
b. 警告
- 馬達並不防水

UK/US
a. Specifications
- Max voltage 9 volt. Will start at about 1 volt
- Free running rpm 350
- Free running current 5 mA
- Blocking current 350 mA.
b. Caution
- The motor is not waterproof.

F
a. Caractéristiques
- Tension maxi 9 volts. Démarrage à partir de 1 volt
- Rotation à vide 350 tr/mn
- Courant à vide 5 mA
- Courant de blocage 350 mA.
b. Précaution
- Le moteur n'est pas étanche à l'eau.

ROK
a. 제품 규격
- 최대전압 9V, 약 1V에서 작동하기 시작함.
- 공회전 350 rpm
- 공회전 전류 5 mA
- 저지 전류 350 mA.
b. 주의
- 본 모터는 방수가 되지 않습니다.

D
a. Technische Daten
- Maximale Spannung 9V. Betrieb ab ca. 1 volt
- 350 Umdrehungen pro Minute
- Stromstärke im Betriebszustand 5 mA
- Sperrstromstärke 350 mA.
b. Vorsicht
- Der Motor ist nicht wasserfest.

P
a. Especificações
- Tensão máxima de 9 volts. Começa com aproximadamente 1 volt
- Velocidade sem carga de 350 rpm
- Corrente sem carga de 5 mA
- Proteção de corrente de 350 mA.
b. Precaução
- O motor não é à prova d'água.

JAP
a. 仕様
- 最大電圧 9 V約 1 Vで始動
- 自走速度 350 rpm
- 自走電流 5 mA
- 阻止電流 350 mA
b. 注意
- モーターは防水されていません。



UK/US
a. Specifications
- 3V, 200mA at full sun outdoors
- 3V, 100 mA indoors at full sun through window
- 2.5V, 8 mA with light from 60w incandescent lamp with 25 cm distance to solar cell (2000 lux)
- 2.5V, 40 mA with light from 60w incandescent lamp with 8 cm distance to solar cell (10000 lux).
b. Caution
- Do not bend excessively or push hard on the clear plastic window
- Do not step on or otherwise place heavy weight on the solar cell
- The solar cell is not waterproof.

P
a. Especificações
- 3V, 200 mA com sol intenso do lado de fora da casa
- 3V, 100 mA com sol intenso do lado de dentro de casa através da janela
- 2.5V, 8 mA com a luz de uma lâmpada incandescente de 60 W afastada 25 cm da célula solar (2.000 lux)
- 2.5V, 40 mA com a luz de uma lâmpada incandescente de 60 W afastada 8 cm da célula solar (10.000 lux).
b. Precações
- Não dobrar nem pressionar com objetos duros
- Não pise nem coloque objetos pesados sobre a célula solar
- A célula solar não é à prova d'água.

D
a. Technische Daten
- 3V, 200mA bei direkter Sonneneinstrahlung im Freien
- 3V, 100mA bei direkter Sonneneinstrahlung durch das Fenster im Raum
- 2.5 V, 8mA bei Lichteinstrahlung einer 60 W Glühlampe im Abstand von 25cm zur Solarzelle (2000 Lux)
- 2.5 V, 40mA bei Lichteinstrahlung einer 60 W Glühlampe im Abstand von 8 cm zur Solarzelle (10000 Lux).
b. Vorsicht
- Das transparente Plastikfenster nicht übermäßig biegen oder fest darauf drücken
- Nicht auf die Solarzelle treten oder schwere Gegenstände darauf legen
- Die Solarzelle ist nicht wasserfest.

CN/HK
a. 規格
- 3伏特・200毫安培，相當於戶外日曬充足下的陽光強度
- 3伏特・100毫安培，相當於透過窗戶照到室內的陽光強度
- 2.5伏特・8毫安培，相當於距離25公分外，60瓦的白熱燈泡照明強度(2000勒克斯，即未燭光)
- 2.5伏特・40毫安培，相當於距離8公分外，60瓦的白熱燈泡照明強度(10000勒克斯，即未燭光)
b. 警告
- 太陽能面板不得彎曲及擠壓
- 不得踩踏太陽能電池，或於其上放置重物
- 太陽能電池並不防水

E
a. Especificaciones
- 3V, 200mA a exposición solar total
- 3V, 100mA en lugares cerrados a exposición solar total a través de una ventana
- 2.5V, 8mA con luz incandescente de 60w a una distancia de 25 cm. de la celda solar (2000 lux)
- 2.5 V, 40 mA con luz incandescente de 60w a una distancia de 8 cm. de la celda solar (10000 lux).
b. Precauciones
- No doblar excesivamente o empujar fuerte la ventana de plástico
- No pisar o colocar objetos pesados sobre la celda solar
- La celda solar no es resistente al agua.

ROK
a. 제품 규격
- 실외에서 최대한 태양에 노출될 경우 3V, 200mA.
- 실내에서 창문을 통해 최대한 태양에 노출될 경우 3V, 100 mA.
- 25cm 떨어진 60W 백열전등에 노출될 경우 (2000 lux) 2.5V, 8 mA.
- 8cm 떨어진 60W 백열전등에 노출될 경우 (10000 lux) 2.5V, 40 mA.
b. 주의사항
- 전지의 투명한 플라스틱 창을 심하게 누르거나 구부리지 마십시오.
- 전지를 밟거나 무거운 물체를 올리지 마십시오.
- 본 태양전지는 방수가 되지 않습니다.

F
a. Caractéristiques
- 3V, 200mA à l'extérieur en plein soleil
- 3V, 100 mA en intérieur plein soleil au travers d'une fenêtre
- 2.5V, 8 mA avec une lampe à incandescence de 60w à 25 cm de la cellule (2000 lux)
- 2.5V, 40 mA avec une lampe à incandescence de 60w à 8 cm de la cellule (10000 lux).
b. Précaution
- Ne pas plier excessivement ou pousser sur la vitre en matière plastique
- Ne pas poser ou appuyer une charge de poids important sur la cellule
- La cellule solaire n'est pas étanche à l'eau.

JAP
a. 仕様
- 晴天時屋外で 3 V, 200 mA
- 晴天時室内の間接日光で 3 V, 100 mA
- 太陽電池との距離が 25 cm の 60 W 白熱灯からの光で 2.5 V, 8 mA (2000ルクス)
- 太陽電池との距離が 8cm の 60 W 白熱灯からの光で 2.5 V, 40 mA (10000ルクス)
b. 注意
- 透明プラスチック窓を無理に曲げたり強い力で押さないでください。
- 太陽電池を踏んだり、重いものを載せたりしないでください。
- 太陽電池は防水されていません。

Solar cell
Solarzelle
Celda Solar
Cellule solaire
Células Solares
太陽能電池
태양전지
太陽電池

Capacitor
Kondensator
Condensador
Condensateur
Capacitor
電容器
축전지
コンデンサー



E
a. Especificaciones
- 1 F (Faradio) condensador electrolítico de 2.5 voltios
- Voltaje de operación 2.5 voltios normal. Voltaje de carga 4 voltios máximo
- Máxima corriente de carga y de descarga: 0 - 250 mA
- Indicador LED de color rojo cuando se carga completamente a 2.5 voltios
- Protegido contra polaridad negativa. No cargará completa mente en ese caso.
b. Precaución
- El condensador no es resistente al agua.

CN/HK
a. 規格
- 1F(法拉)・2.5伏特電容器
- 正常操作電壓2.5伏特。最大充電電壓4伏特。
- 最大充放電電流0-250毫安培
- 當2.5伏特電壓充滿時，紅色指示燈會亮
- 電池裝反時，保護措施會讓電池無法充電
b. 警告
- 電容器並不防水

UK/US
a. Specifications
- 1 F (Farad) 2.5 volt electrolytic capacitor
- Operating voltage 2.5 volt normal. Charging voltage max. 4 volt
- Max charging and discharging current 0 - 250 mA
- Red LED indicator when fully charged at 2.5 volt
- Protected against reverse polarity. Will not fully charge then.
b. Caution
The capacitor is not waterproof.

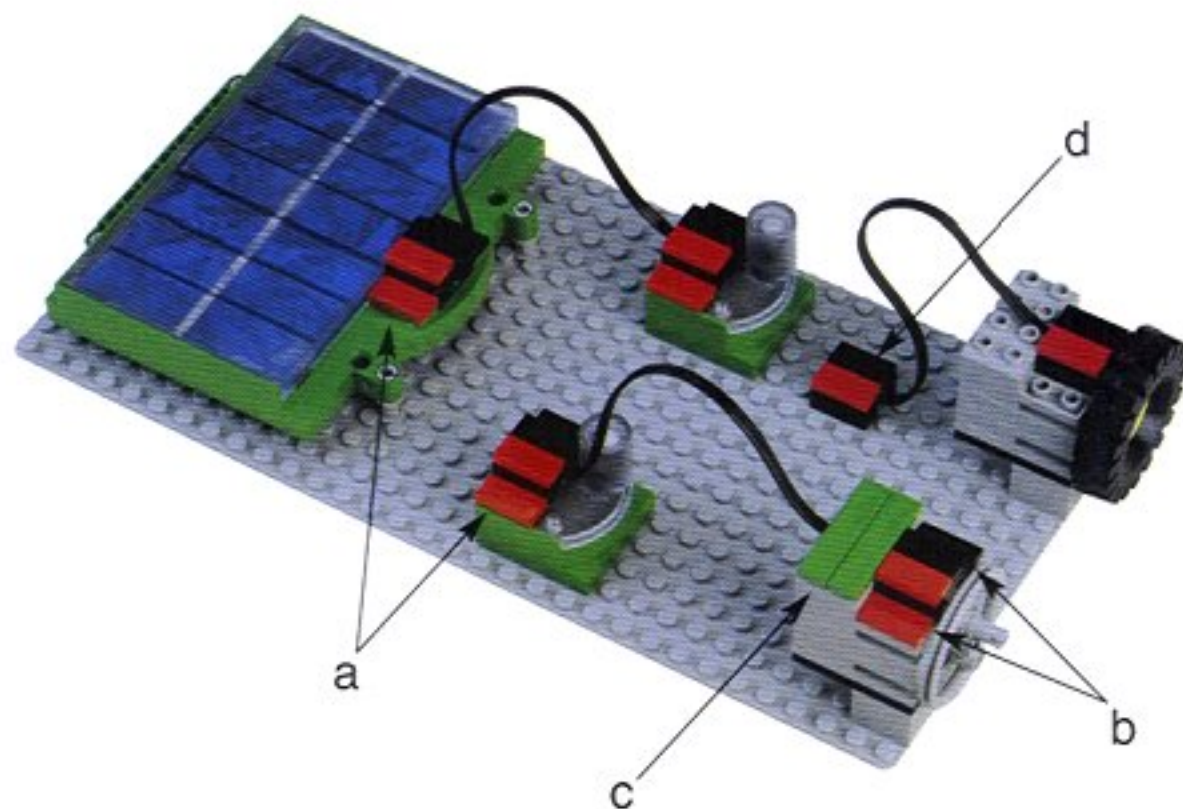
F
a. Caractéristiques
- Condensateur électrolytique de 1 F (Farad) 2,5 volts
- Tension normale d'utilisation 2,5 volts. Tension de charge maxi 4 volts
- Courant maxi de charge et de décharge 0 - 250 mA
- Diode rouge témoin de charge maxi à 2,5 volts
- Protégé contre l'inversion de polarité. Ne conservera pas sa charge dans ce cas.
b. Précaution
- Le condensateur n'est pas étanche à l'eau.

ROK
a. 제품 규격
- 1 F (Farad) 2.5V 전해 축전지.
- 일반작동전압 2.5V. 충전전압은 최대 4V.
- 최대 충전 및 방전전류 0 - 250 mA.
- 2.5V로 충전이 완료되면 LED 표시기에 적색점등.
- 전극이 바뀌는 경우 보호기능으로 방지, 이 경우 충전이 완전히 되지 않음.
b. 주의
- 본 축전지는 방수되지 않습니다.

D
a. Technische Daten
- 1 F (Farad) 2.5V Elektrolytkondensator
- Normale Betriebsspannung 2,5 V, Ladespannung max. 4V
- Maximale Lade- und Entladestromstärke 0-250 mA
- Rote LED Anzeige, wenn Kondensator vollständig geladen ist, bei 2,5 V
- Ist vor entgegengesetzter Polung geschützt. Wird dabei nicht vollständig aufgeladen.
b. Vorsicht
Der Kondensator ist nicht wasserfest.

P
a. Especificações
- Capacitor eletrolítico de 1 F (Farad) e 2,5 volts
- Tensão de operação normal: 2,5 volts. Tensão máxima de carga: 4 volts
- Corrente máxima de carga ou descarga entre 0 - 250 mA
- Diodo vermelho que indica quando atinge plena carga a 2,5 volts
- Proteção contra polaridade reversa. Assim o capacitor não será carregado.
b. Precaução
- O capacitor não é à prova d'água.

JAP
a. 仕様
- 1F (ファラド) 2.5 V 電解コンデンサー
- 通常動作電圧 2.5 V。最大充電電圧 4 V。
- 最大充電・放電電流 0 - 250 mA
- 2.5 Vで充電終了時に赤いLEDインジケータ点灯
- 逆極性に対して保護。その場合は完全に充電されません。
b. 注意
- コンデンサーは防水されていません。



UK/US
Connecting solar cell, capacitor and generator
Identifying plus (+), (-).
Red tiles are used to identify (+). Black tiles are used to identify (-). The solar cell and capacitor have (+) and (-) molded in the plastic. Always place a red tile over (+) and a black tile over (-) on the solar cell and the capacitor, regardless of whether the capacitor is being charged or discharged. See illustration "a" above.
(+) and (-) on the generator. When the handle is turned clockwise (+) will be to the left and (-) to the right seen from the front. On illustration "b" above this is thus indicated with red and black tiles.
To indicate the motor is being used as a generator two green tiles are attached to the top. This is done throughout the instruction booklet. See illustration "c".
All wires are (+) and (-) coded using red and black tiles. See illustration "d" above.
NOTE: The capacitor will ONLY charge when (+/red) and (-/black) are connected correctly to the solar cell or the generator. It will not damage the capacitor if incorrectly connected.

Anschließen von Solarzelle, Kondensator und Motor

D

Erkennen von Plus- (+) und Minuspol (-)

Rote Plättchen werden verwendet, um (+) zu erkennen. Schwarze Plättchen werden verwendet, um (-) zu erkennen. Die Solarzelle und der Kondensator sind bereits mit (+) und (-) gekennzeichnet. Befestigen Sie an der Solarzelle und am Kondensator immer ein rotes Plättchen über (+) und ein schwarzes Plättchen über (-), unabhängig davon, ob der Kondensator geladen oder entladen wird. Siehe Zeichnung „a“ oben.

(+) und (-) am Generator. Wenn die Kurbel im Uhrzeigersinn gedreht wird, befindet sich von vorn betrachtet, (+) auf der rechten und (-) auf der linken Seite.

In der Zeichnung „b“ oben wird dies folglich mit roten und schwarzen Plättchen angezeigt.

Um zu erkennen, daß der Motor als Generator benutzt wird, werden zwei grüne Plättchen darauf befestigt. Dies wird überall im Anleitungsbuch so gehandhabt. Siehe Zeichnung „c“.

Alle Leitungen werden mit (+) und (-) codiert, indem die roten und schwarzen Plättchen dazu verwendet werden. Siehe Zeichnung „d“ oben.

HINWEIS : Der Kondensator wird NUR geladen, wenn (+/red) und (-/black) richtig an der Solarzelle oder dem Generator angeschlossen ist. Sollte der Kondensator falsch angeschlossen sein, wird er dadurch nicht beschädigt.

Conectando la celda solar, el condensador, y el generador

E

Identificando positivo (+), (-)

Las losetas de color rojo son usadas para identificar (+). Las losetas negras son usadas para identificar (-). La celda solar y el condensador tienen (+) y (-) marcados en el plástico. Siempre coloca una loseta roja sobre el (+) y una loseta negra sobre el (-) en la celda solar y en el condensador, a pesar de que el condensador este siendo cargado o descargado. Ver la figura "a".

(+) y (-) en el generador. Cuando se gira la manivela en sentido de las agujas del reloj, (+) estará a la izquierda y (-) a la derecha vistos desde el frente.

En la Figura "b", esta indicado con las losetas roja y negra.

Para indicar que el motor está siendo utilizado como un generador, se conectan dos losetas verdes a la parte superior. Esto se realiza en todo el manual de construcción. Ver Figura "c".

Todos los cables son (+) y (-) utilizando losetas rojas y negras. Ver Figura "d".

NOTA: El condensador SOLAMENTE cargará cuando (+ / rojo) y (- / negro) estén conectados correctamente a la celda solar o al generador. No dañará al condensador si esta conectado incorrectamente.

Relier cellule solaire , condensateur et générateur

F

Identifier les pôles (+) et moins (-).

Les caches rouges sont utilisés pour repérer le (+). Les caches noirs sont utilisés pour repérer le (-). La cellule solaire et le condensateur possèdent des repères (+) et (-) moulés dans la matière plastique. Placez toujours un cache rouge sur le (+) et un noir sur le (-) de la cellule solaire et du condensateur, sans se soucier de l'état de charge du condensateur. Voir illustration "a".

(+) et (-) sur le générateur. Lorsque l'on tourne la manivelle dans le sens des aiguilles d'une montre, le (+) doit être à gauche et le (-) à droite en regardant de face.

Sur l'illustration "b" ci-dessus les caches rouge et noir montrent cette situation.

Pour repérer que le moteur est utilisé comme générateur, deux caches verts sont placés au dessus. Ce repérage est utilisé dans l'ensemble du livret d'instruction. Voir illustration "c".

Tous les câbles sont repérés en utilisant (+) et (-) avec des caches rouges et noirs. Voir illustration "d".

NOTE: Le condensateur se charge SEULEMENT quand (+/rouge) et (-/noir) sont reliés correctement à la cellule solaire ou au générateur. Le condensateur ne sera pas endommagé en cas de mauvais branchement.

Conectando célula solar, capacitor e gerador

P

Identificando a polaridade (+) e (-).

Peças vermelhas são usadas para identificar (+). Peças pretas são usadas para identificar (-). A célula solar e o capacitor têm (+) e (-) moldados no plástico. Sempre coloque as peças vermelhas sobre (+) e as peças pretas sobre (-) na célula solar e no capacitor, independentemente de onde o capacitor está sendo carregado ou descarregado. Veja ilustração "a" acima.

(+) e (-) no gerador. Quando a manivela estiver girando no sentido horário, o (+) estará a esquerda e o (-) a direita com o gerador visto de frente. A ilustração "b" acima está assim indicado com peças vermelhas e pretas.

Para indicar que o motor está sendo usado como gerador, duas peças verdes estão conectadas na parte de cima. Isto é feito de acordo com o manual de instruções. Veja ilustração "c".

Todos os fios estão indicando a polaridade (+) e (-) usando peças vermelhas e pretas. Veja ilustração "d" acima.

Observação: O capacitor SOMENTE receberá carga quando (+/vermelho) e (-/preto) estiverem conectados corretamente à célula solar ou ao gerador. O capacitor não será danificado se for conectado incorretamente.

太陽能電池、電容器、發電機的连接方式

CN/HK

正負極識別方式

紅色蓋板代表正極，黑色蓋板代表負極。太陽能電池和電容器的塑膠面板上，則以 (+) 代表正極，(-) 代表負極。不管太陽能電池和電容器是否處於充電狀態，務必注意正負極接線正確。請參考上方 "a" 圖。

如何判斷發電機的正負極。面對發電機，順時針方向旋轉把手時，左方代表正極，右方代表負極。請參考上方 "b" 圖紅色和黑色蓋板的部份。

為了標示當成發電機的馬達，我們在馬達的上方會標示綠色的記號。你可以在模型建構說明書中發現。請參考 "c" 圖。

所有連接的電線也會以紅色和黑色的蓋板來標示正負極。請參考上方 "d" 圖。

注意：電容器只有在和太陽能電池及發電機，正確的连接時才能充電。如果連接錯誤，並不會損壞電容器。

태양전지, 축전지, 발전기 연결하기

ROK

양극(+)과 음극(-)을 확인합니다.

적색 타일은 양극(+)을 의미하고 검은색 타일은 음극(-)을 의미합니다. 태양전지와 축전지에는 플라스틱으로 만들어진 (+)와 (-)가 있습니다. 축전지의 충전여부에 상관 없이 적색 타일은 (+), 검은색 타일은 (-) 위에 항상 올려 놓으십시오. 위 그림 "a" 를 참조하십시오.

발전기에도 (+)와 (-)가 있습니다. 핸들을 시계방향으로 돌리면 정면에서 봤을 때 좌측이 (+), 우측이 (-)가 됩니다. 위 그림 "b" 에서는 적색과 검은색 타일로 표시되어 있습니다.

발전기 뒷면에 녹색 타일 2개를 붙여 모터가 발전기로 사용됨을 나타냅니다. 그림 "c" 를 참조하여 지침서에 따라 작업하십시오.

모든 전선은 적색과 검은색 타일을 이용하여 (+)와 (-)표시를 합니다. 그림 "d" 를 참조하십시오.

참고 : 본 축전지는 양극(+/적색)과 음극(-/검은색)이 태양전지나 발전기에 올바르게 연결된 경우에만 충전됩니다.

연결이 잘못되더라도 축전지에 손상은 없습니다.

太陽電池、コンデンサー、発電機の接続

JAP

プラス (+) 極とマイナス (-) 極の識別

(+) 極は赤いタイルで識別します。(-) 極は黒いタイルで識別します。太陽電池とコンデンサーはプラスチック部分に (+) と (-) のマークがあります。コンデンサーを充電している場合も放電している場合も、必ず赤いタイルを太陽電池とコンデンサーの (+) 極に被せ、黒いタイルを (-) 極に被せてください。上図の「a」を参照してください。

発電機の (+) と (-) ハンドルを時計回りに回すと、正面から見て (+) が左側、(-) が右側になります。上図の「b」では、赤と黒のタイルと同様に示されています。

モーターが発電機として使用されていることを示すため、上部に緑色のタイルが2つ取り付けられています。

これは、使用説明書を参照して行ってください。図中の「c」を参照してください。

電線はすべて、(+) と (-) が赤と黒のタイルで色分けされています。上図の「d」を参照してください。

注：コンデンサーは、(+ / 赤) と (- / 黒) が太陽電池または発電機に正しく接続されている場合にのみ充電されます。

接続が正しくない場合にコンデンサーが損傷しないようになっています。

Note that some of the elements mentioned here may not be included in the building set accompanying this booklet.

Es wird darauf hingewiesen, daß einige, in Verbindung mit diesem Heft erwähnten Elemente nicht im Baukasten enthalten sind.

Observa que algunos de los elementos mencionados no se incluyen en el maletín de construcción que acompaña este manual.

Certains éléments mentionnés ici peuvent ne pas être inclus dans la boîte correspondant à ce livret.

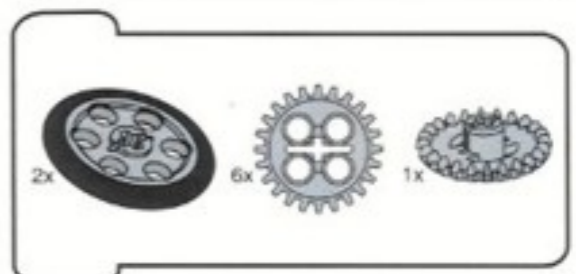
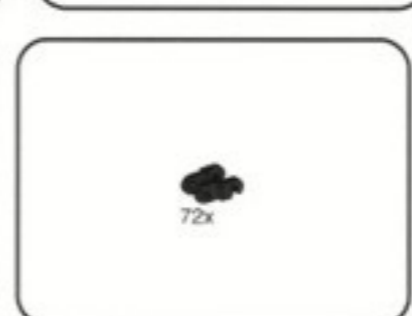
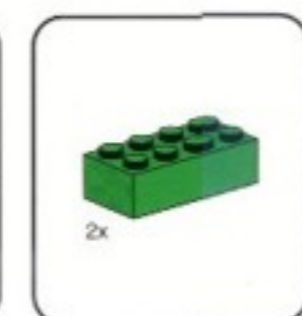
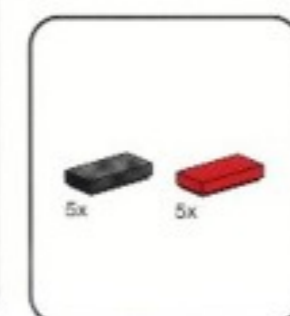
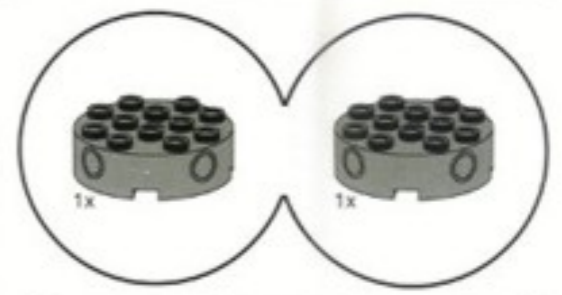
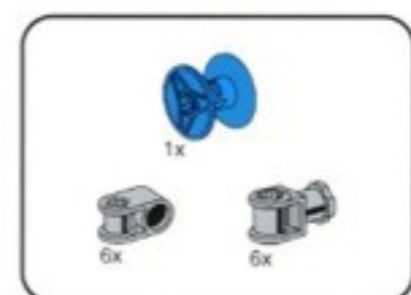
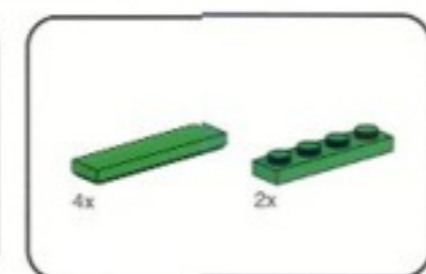
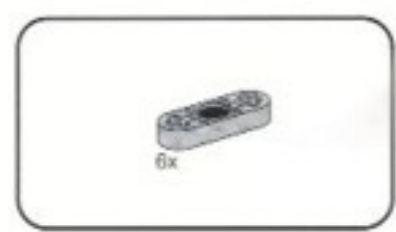
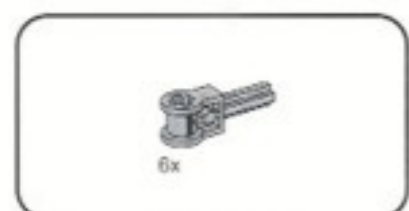
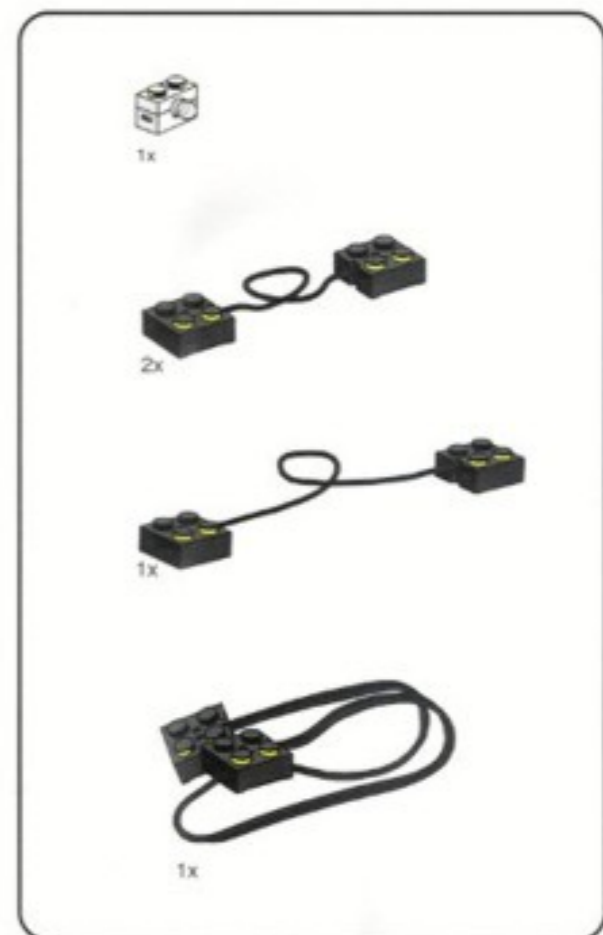
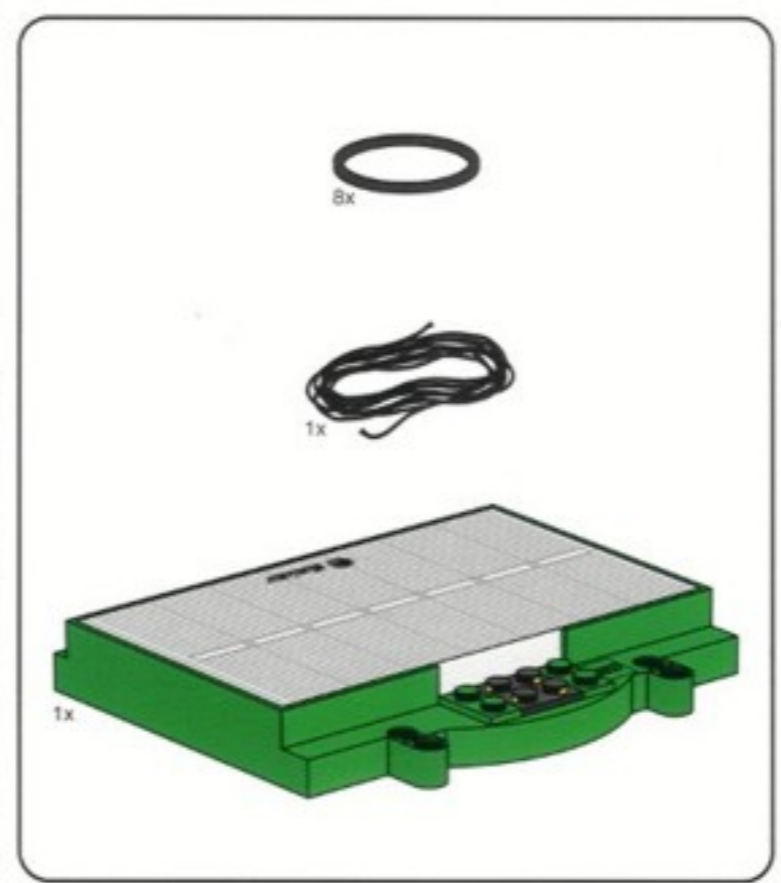
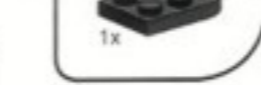
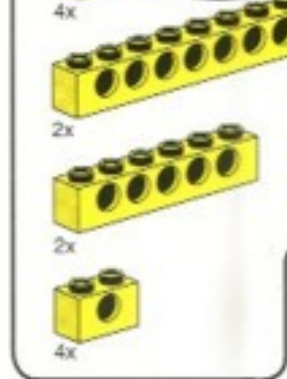
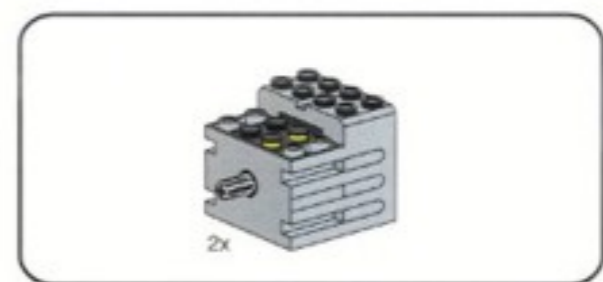
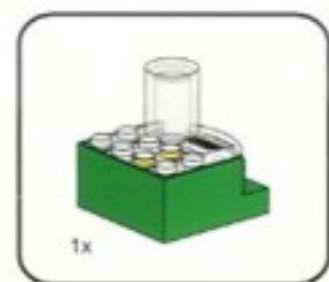
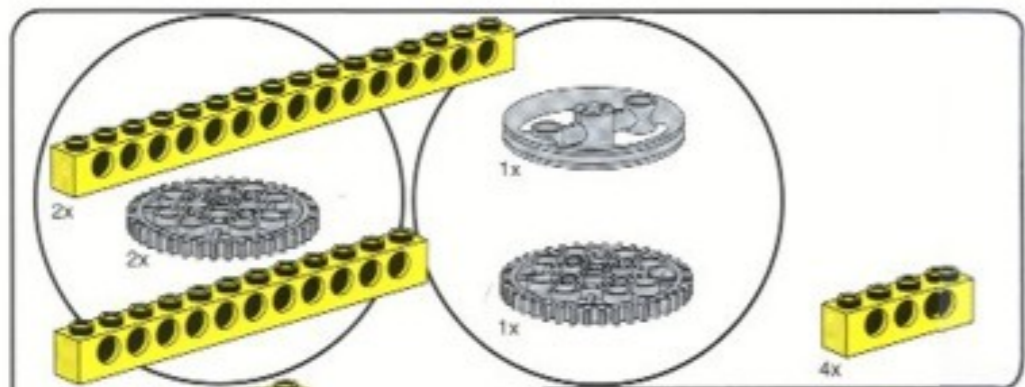
Observe que alguns dos elementos mencionados aqui podem não estar incluídos no conjunto de montagem que acompanha este manual.

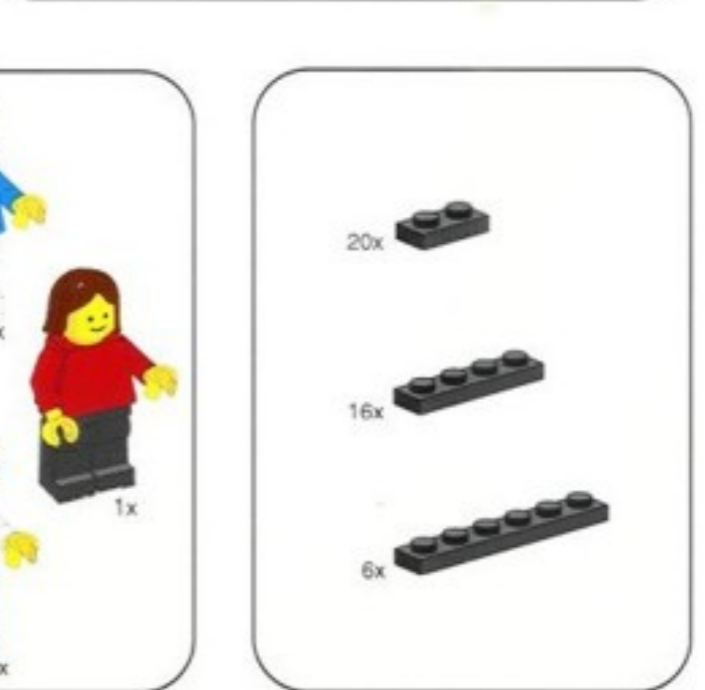
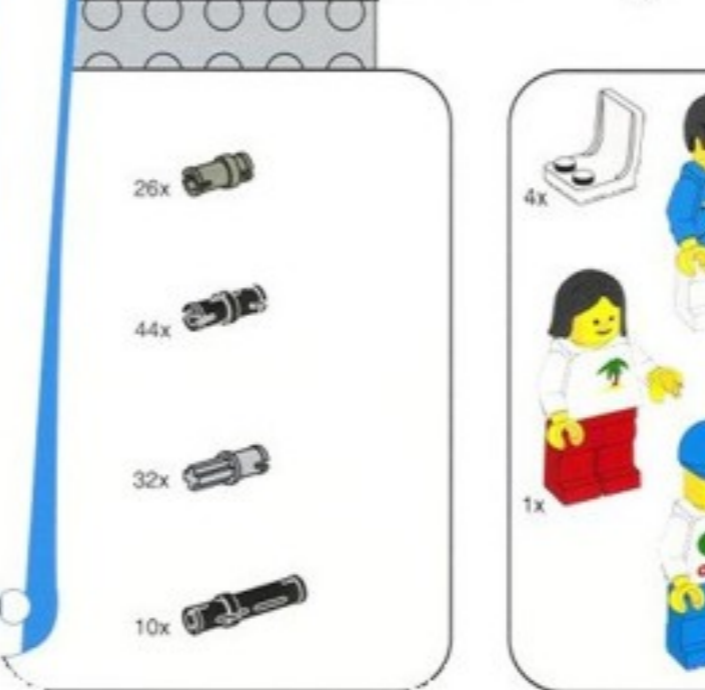
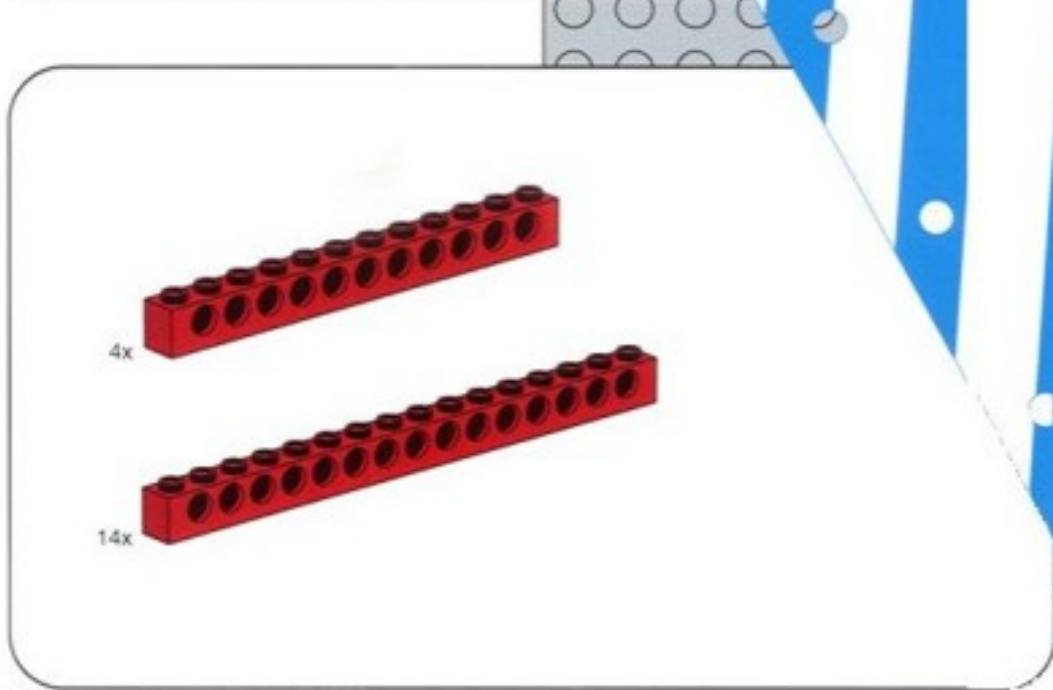
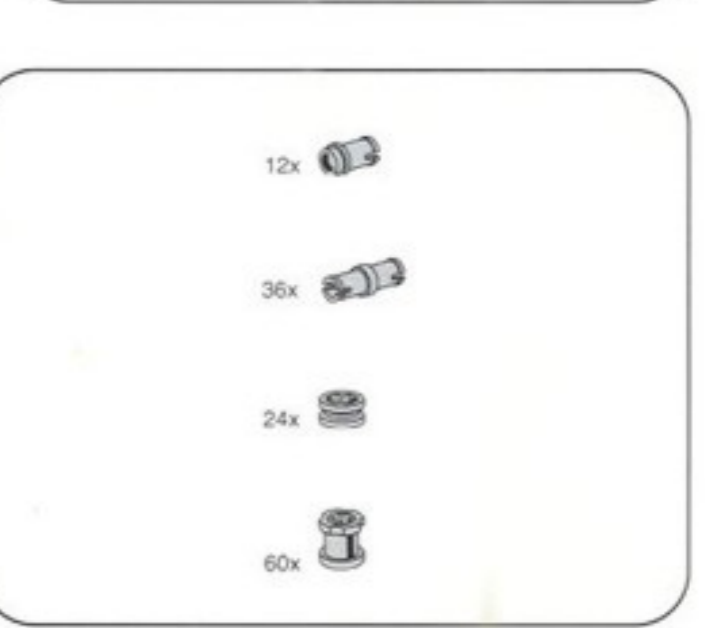
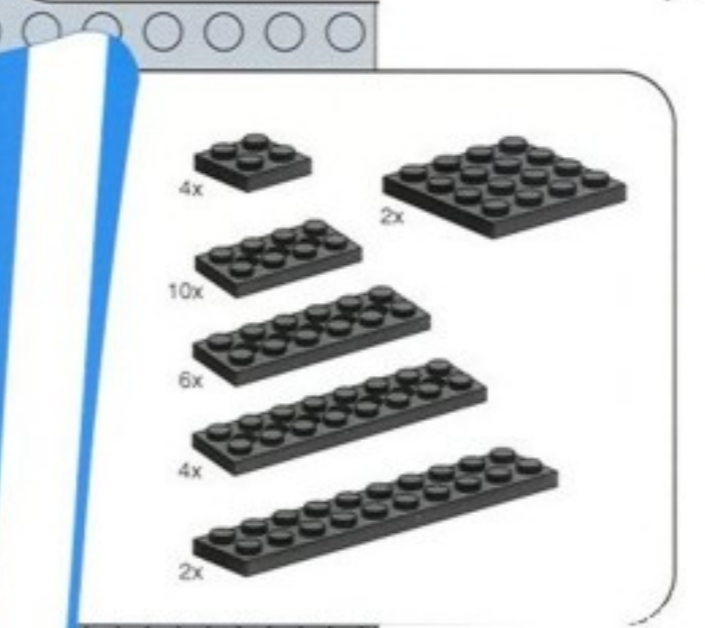
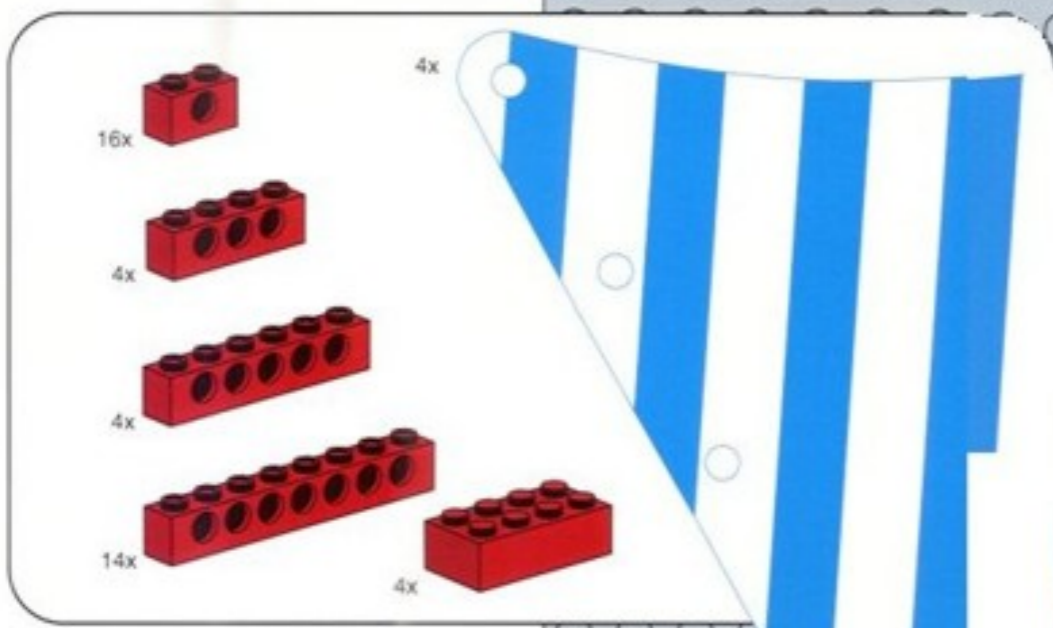
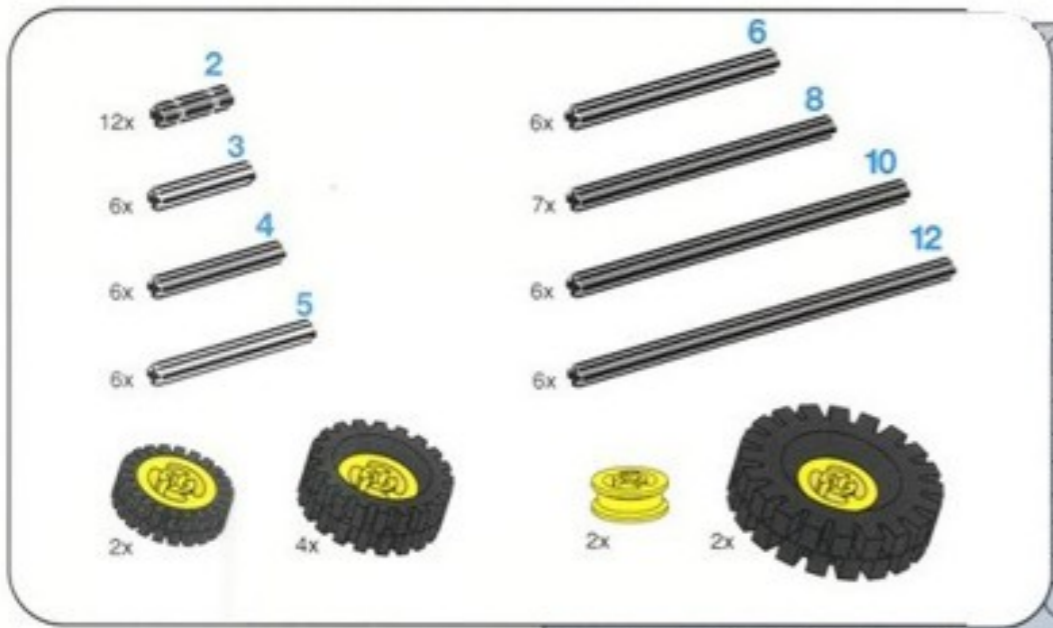
有些這裡提到的零組件，並不包括在積木盒中。

본 책자에 언급된 부품 중 일부는 제품 구성물에 있을 수도 있습니다.

ここで述べられている部品の一部は、本書が同梱されている組み立てセットには含まれていない場合があります。







e

L

A

B

Construction Set/Jouet de Construction/Set de Construcción/Conjunto de Construção
CONT. 729 PCS/PZS/PÇS

9684

Components made in DENMARK and SWITZERLAND/
Éléments fabriqués au DANEMARK et en SUISSE/Componentes hechos en DINAMARCA y SUIZA/Componentes produzidos na DINAMARCA e SUIÇA.
Electronic components made in HUNGARY and CHINA/Composants électroniques fabriqués en HONGRIE et en CHINE/Componentes electrónicos fabricados en HUNGRÍA y en CHINA/
Componentes eletrônicos fabricados na HUNGRIA e na CHINA.
Distributed by LEGO System A/S, DK-7190 Billund, DENMARK/DANEMARK/DINAMARCA.
Distributed in CANADA and the UNITED STATES by/Distribué au CANADA et aux ÉTATS-UNIS par LEGO Systems Inc., Enfield, CT 06083 USA/É-U.
LEGO and the LEGO logo are trademarks of/son des marques de commerce de/son marcas registradas/são marcas comerciais registradas do LEGO Group.
© 2002 and 2003 The LEGO Group.

Ages • Edades

9+



LEGO educational division®