



10363





LEGO.com/sustainable-packaging



FR

DONNEZ
OU
RECYCLEZ



ASSOCIATION

OU



MAGASIN

OU



DÉCHÈTERIE

Adresses sur quefairedemesdechets.fr



BUILDER



Apple and the Apple logo are trademarks of Apple Inc., registered in the U.S. and other countries and regions. App Store is a service mark of Apple Inc. Google Play and the Google Play logo are trademarks of Google LLC. Tencent and the Tencent logo are trademarks of Tencent Inc.

LEGO.com/devicecheck



LEGO® Builder

Artista, artigiano, architetto aeronautico

Leonardo da Vinci (1452-1519) è il maestro indiscusso dell'innovazione rinascimentale. Adorato dai suoi contemporanei per il suo talento visionario, la curiosità sconfinata e il carattere stravagante, da Vinci è ancora giustamente celebrato per il suo ingegno creativo. Leonardo dedicò la sua vita all'esplorazione e al superamento dei confini dell'arte, dell'anatomia umana e animale, della fisica e dell'ingegneria, con passione, determinazione e maestria senza pari. Pur avendo realizzato capolavori come la Gioconda e l'Ultima Cena, che lo resero famoso in tutto il mondo, fu sempre fortemente affascinato dal volo umano, che studiò a profusione.





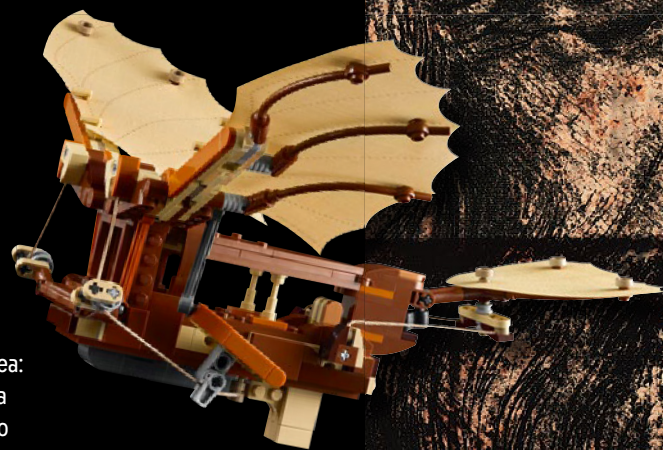
“Il piacere più nobile è la
gioia di comprendere”.

– *Leonardo da Vinci*



Imitare il volo degli uccelli

Anche se, a quanto ne sappiamo, le invenzioni aeronautiche di Leonardo da Vinci non furono mai realizzate durante la sua vita, le sue idee, i suoi progetti e i suoi studi furono una preziosa ispirazione per il primo aereo costruito alcuni secoli dopo. L'ornitottero è una delle sue opere più famose, che però sono tutte basate sulla stessa idea: quella di una sola persona che pilota una macchina meccanica dotata di ali. Usando la forza del proprio corpo, il pilota tirava e spingeva manovelle e corde che azionavano le ali.



“La semplicità è la suprema sofisticazione”.

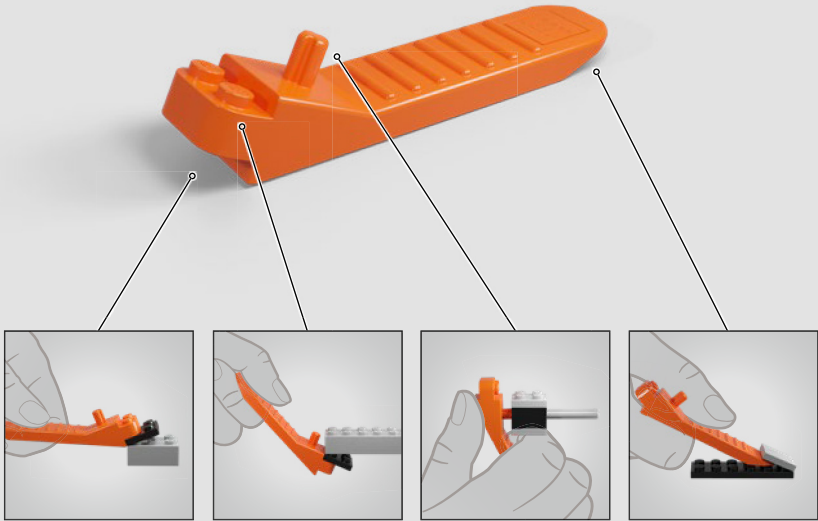
– Leonardo da Vinci

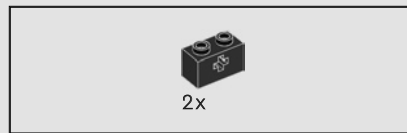


Il Design Team LEGO®

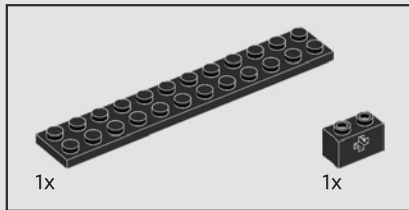
“È da qui che è partita la nostra idea: realizzare una macchina con parti mobili tutte collegate tra loro e attivate da corde o, in questo caso, una singola corda. È un modello apparentemente semplice, ma rappresenta una grande sfida ingegneristica LEGO®. Il modello è progettato per dare l'impressione che sia stato costruito con materiali quali il legno, il lino e la corda. Ha uno scheletro in mattoncini per la coda e le ali, e le ali sono in tessuto con un motivo stampato. Incorporare il filo di tessuto come parte principale del meccanismo di azionamento delle ali è stata una grande sfida! Le componenti meccaniche del modello sono esposte per sottolineare le parti funzionali e la visione di Leonardo e per far prendere il volo alla nostra interpretazione del design originale”.

Antica Bracanov
LEGO® Senior Designer

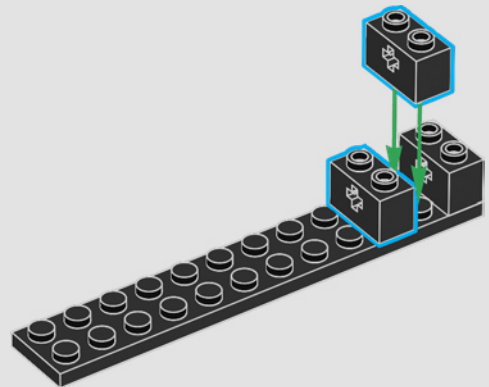
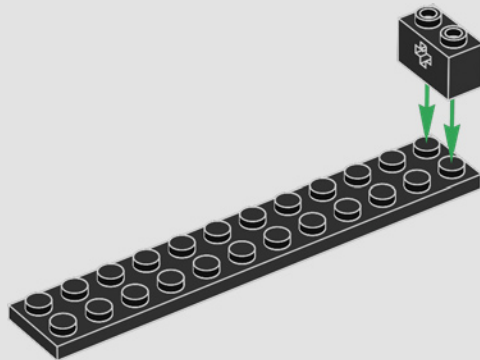


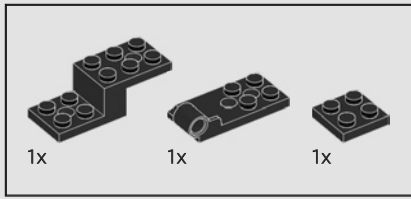


2

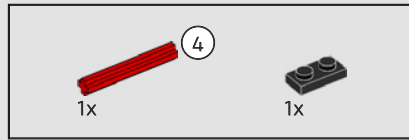
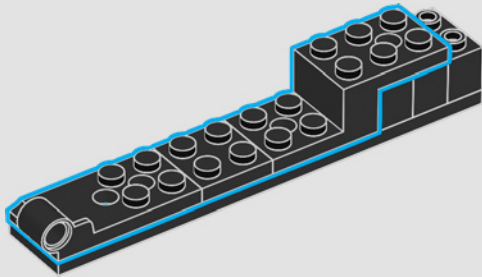


1

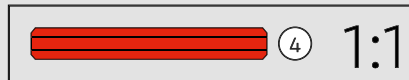
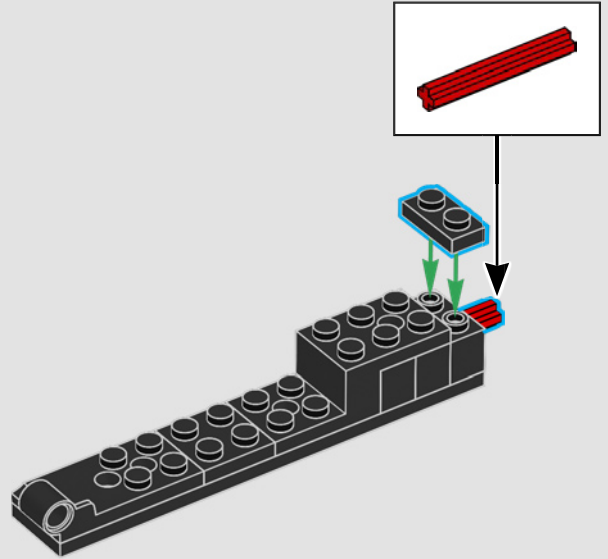


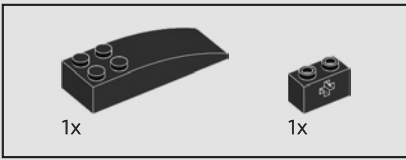


3

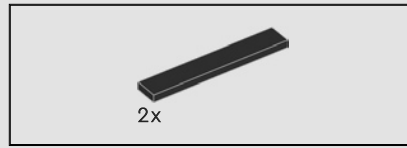
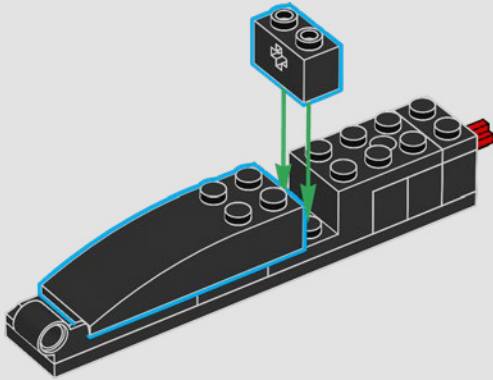


4

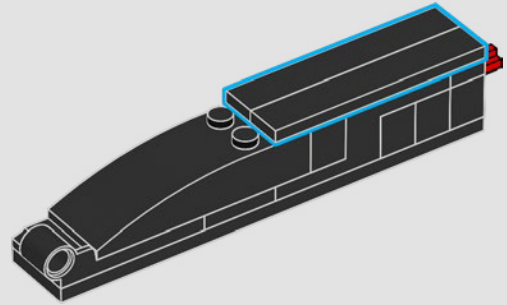


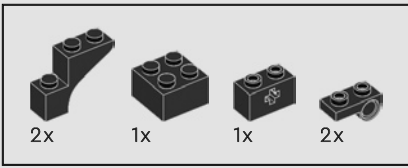


5

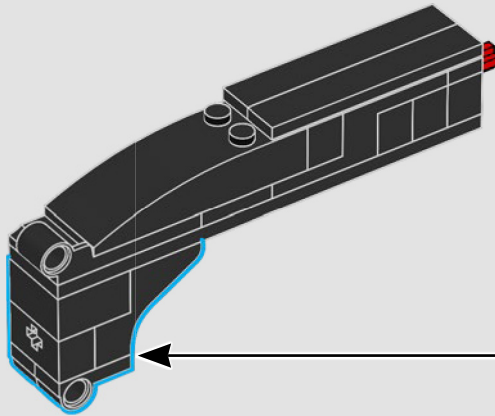
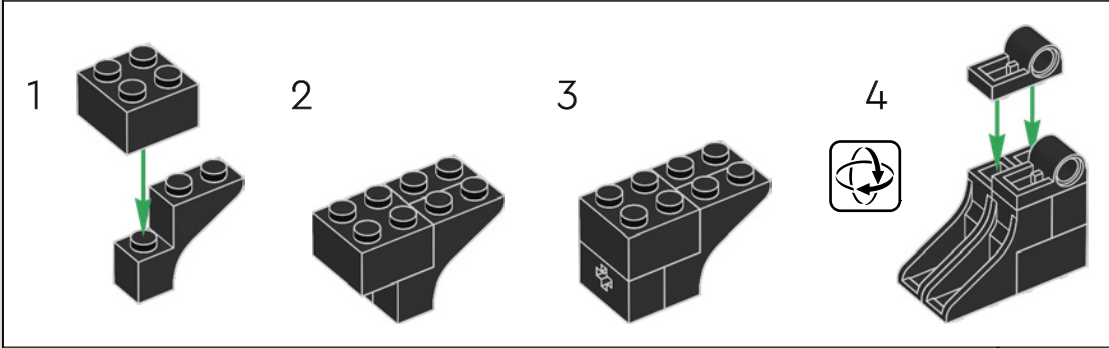


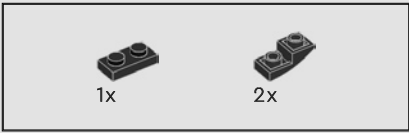
6



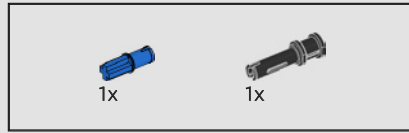
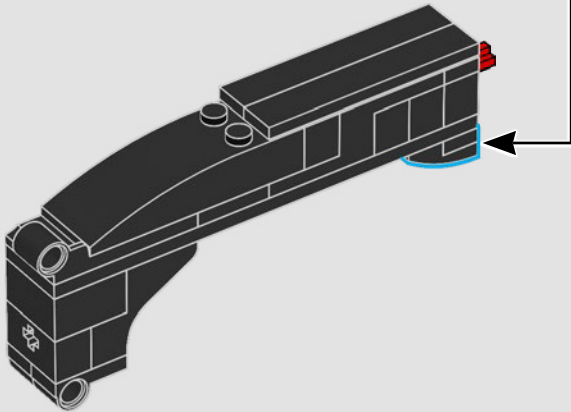
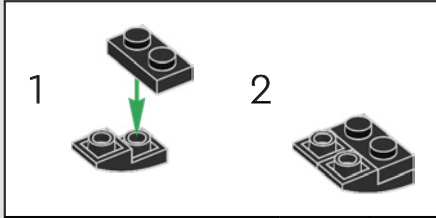


7

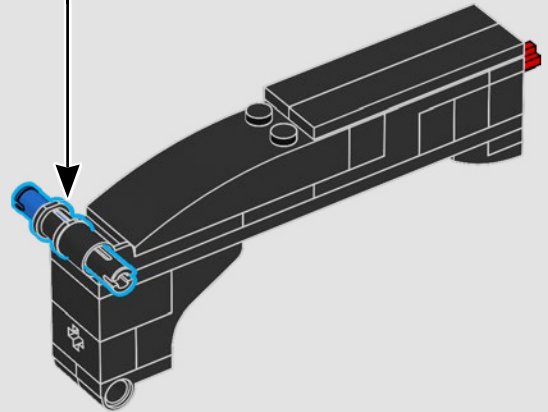
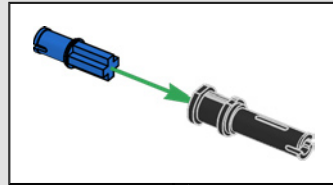


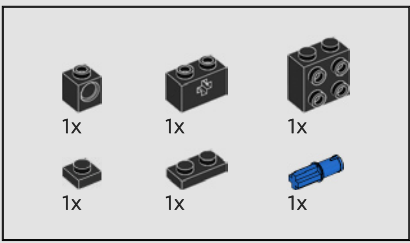


8

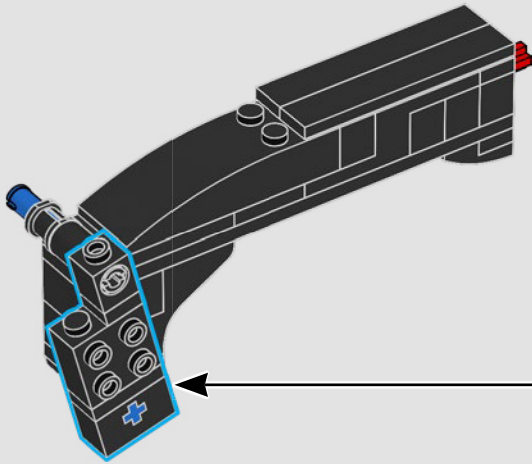
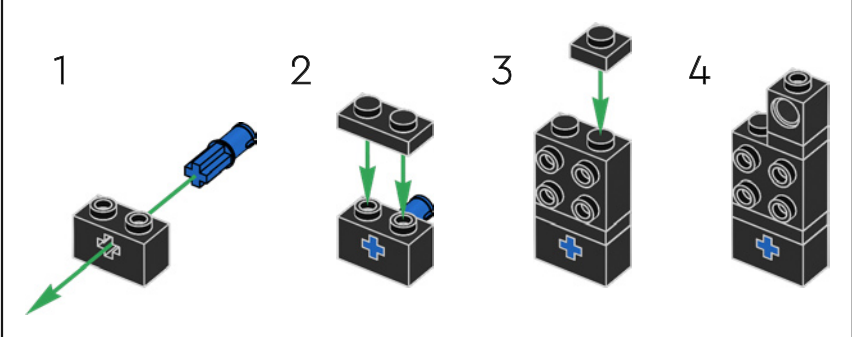


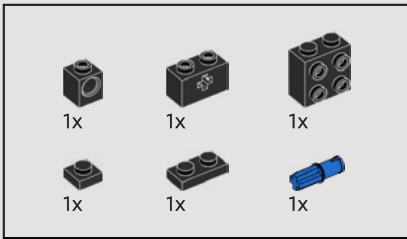
9



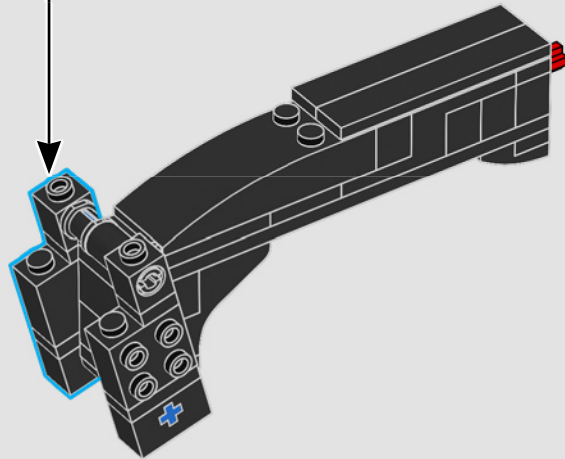
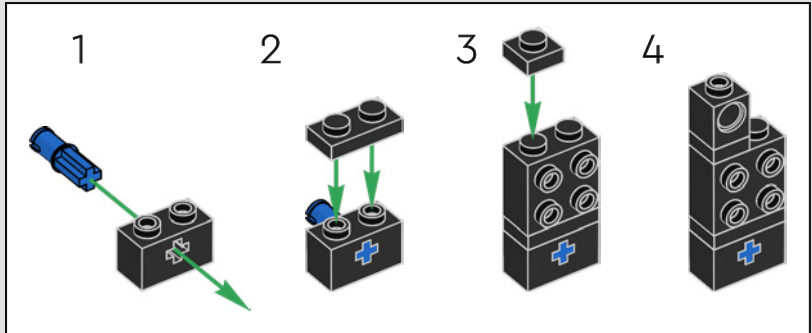


10

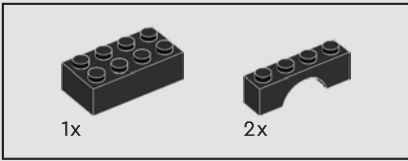




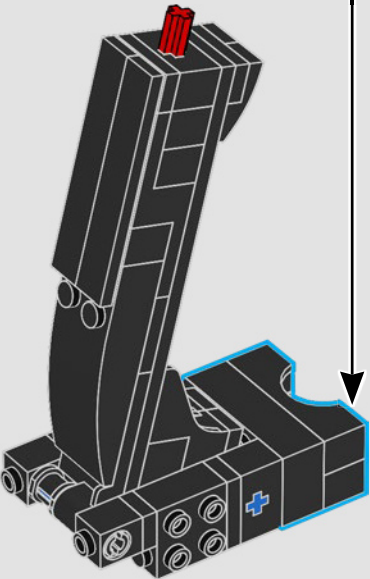
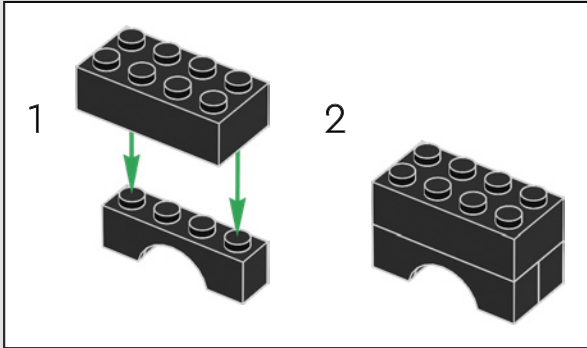
11

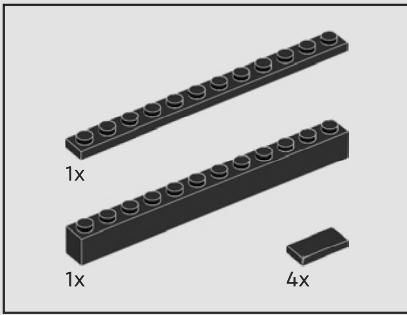


Una delle macchine di Leonardo, conosciuta come Il Grande Nibbio, fu ispirata e prende il nome da un uccello della famiglia degli Accipitridi: il nibbio reale.

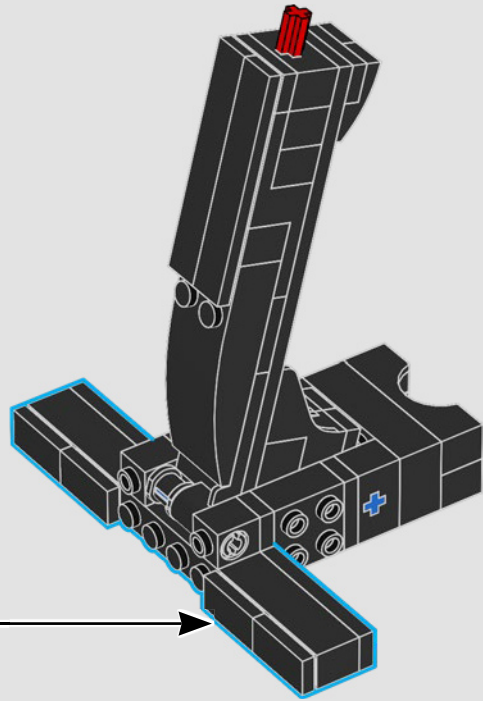
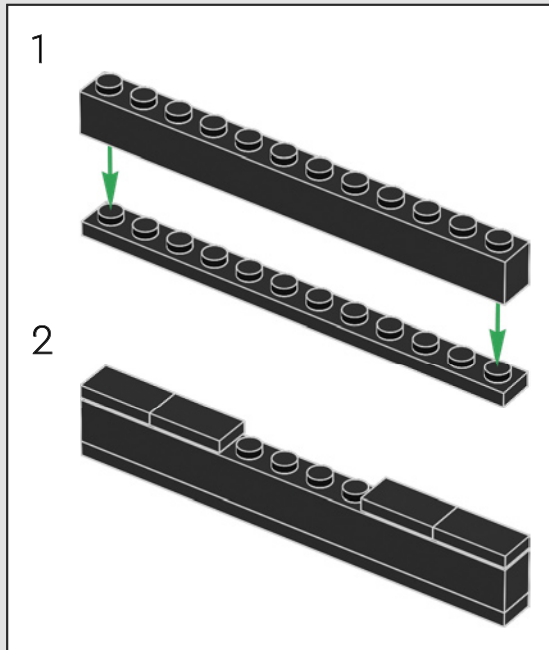


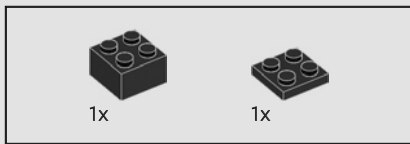
12



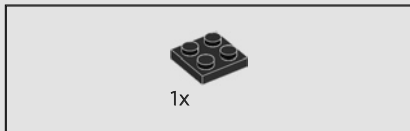
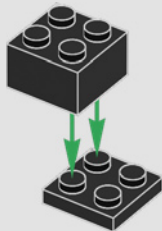


13

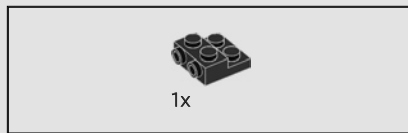
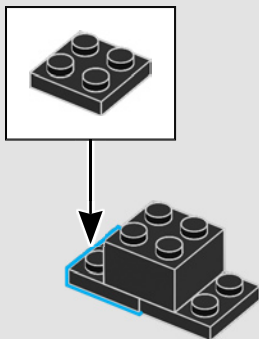




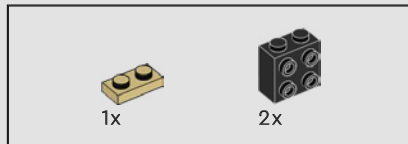
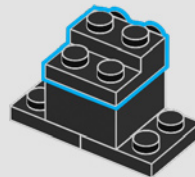
14



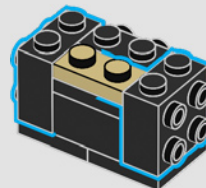
15

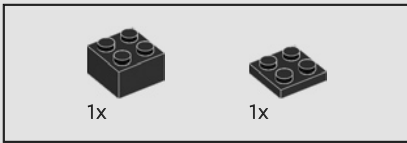


16

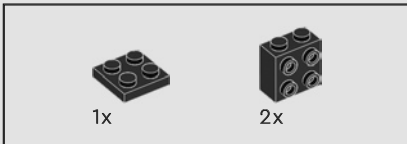
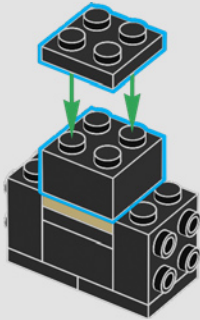


17

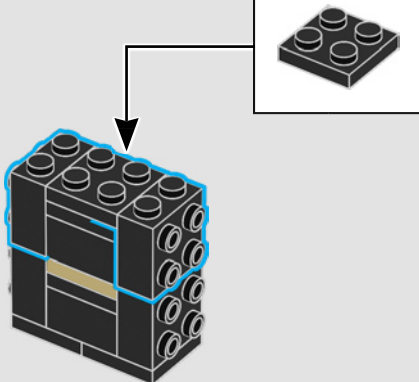




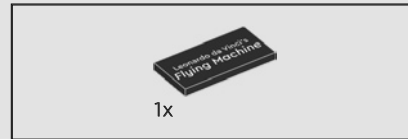
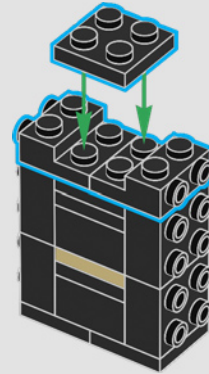
18



19



20



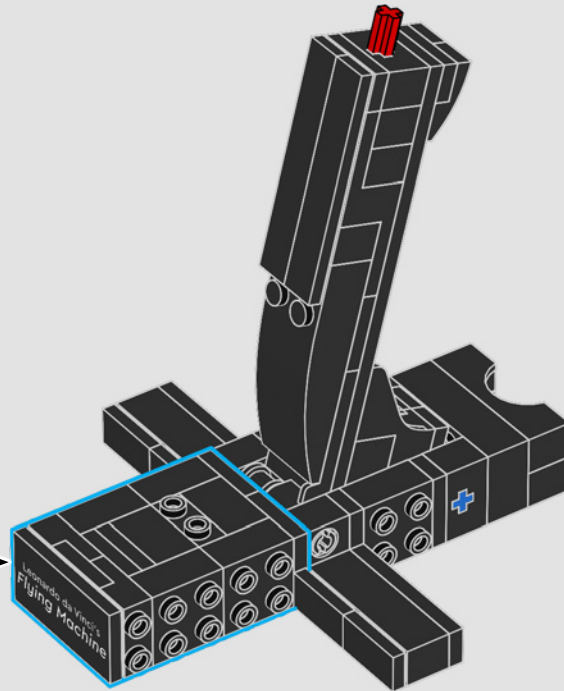
21

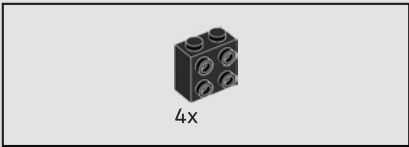




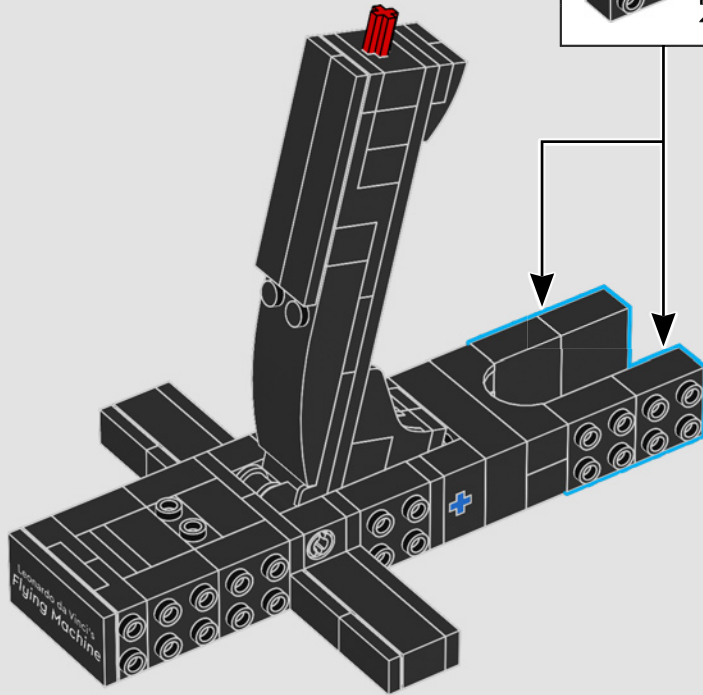
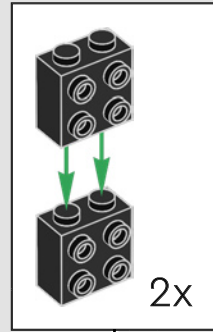
Da Vinci spesso scriveva al contrario nei suoi taccuini. Il testo poteva essere letto correttamente solo se veniva riflesso in uno specchio.

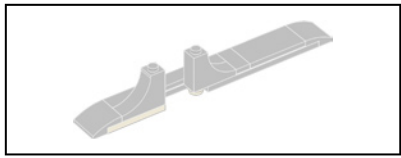
22



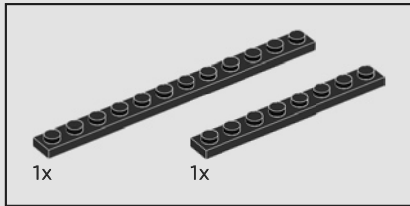


23

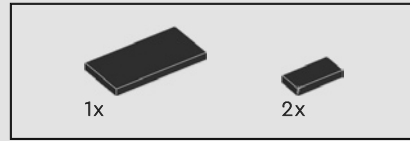
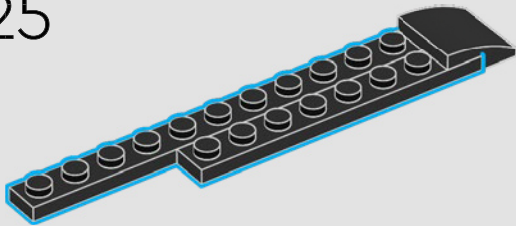




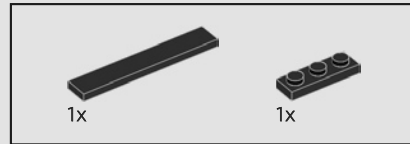
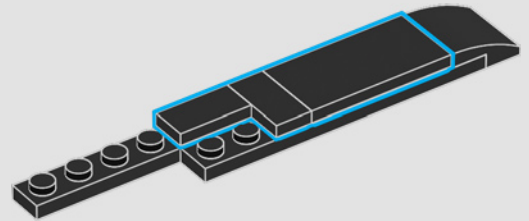
24



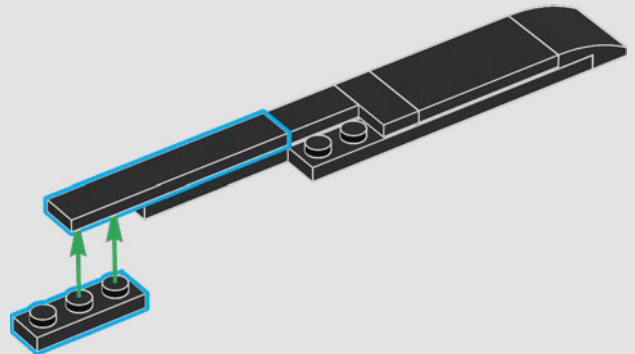
25

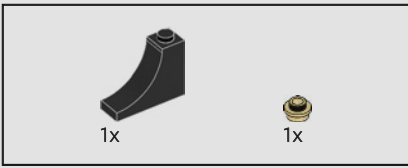


26

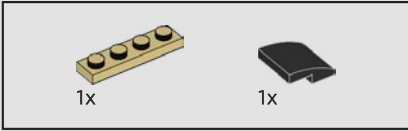
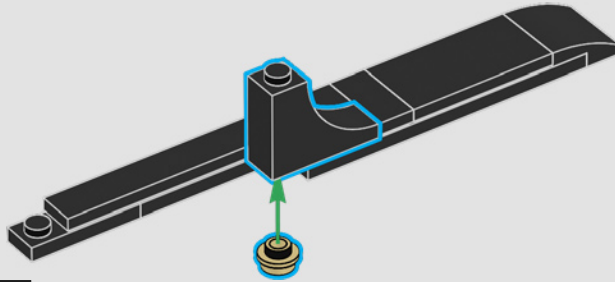


27

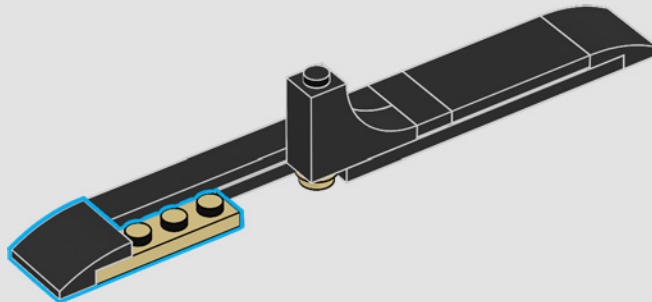


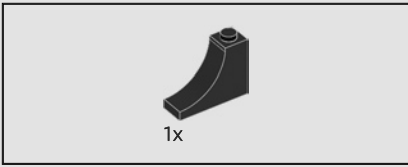


28

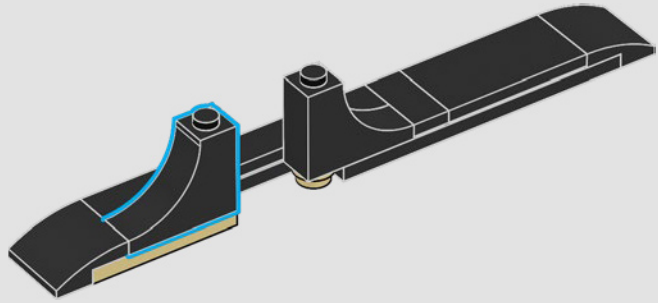


29

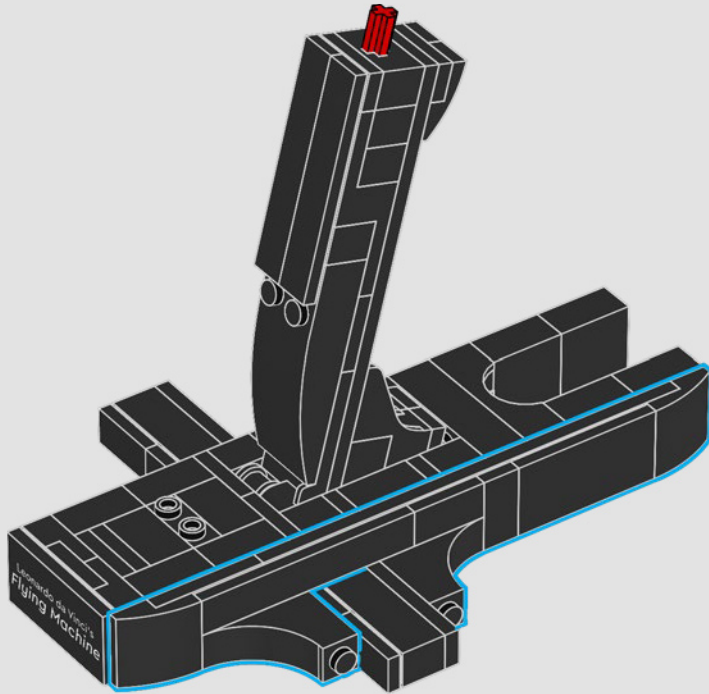


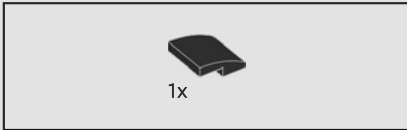
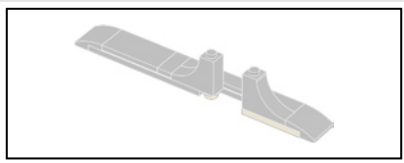


30

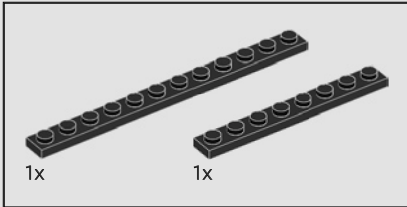


31

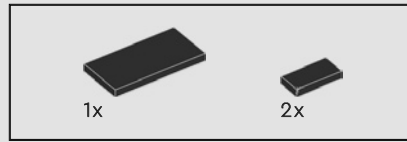
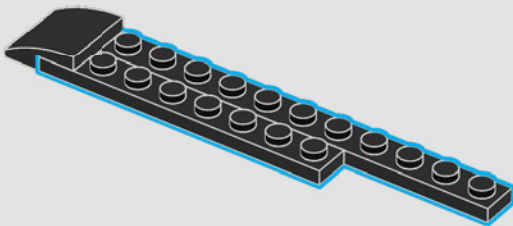




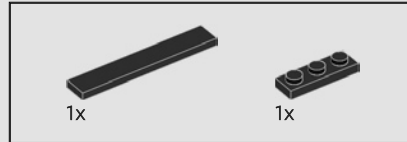
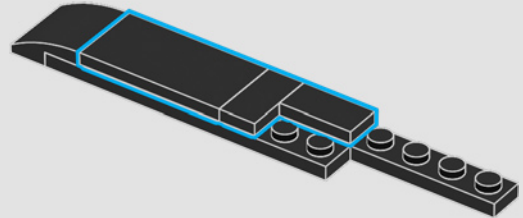
32



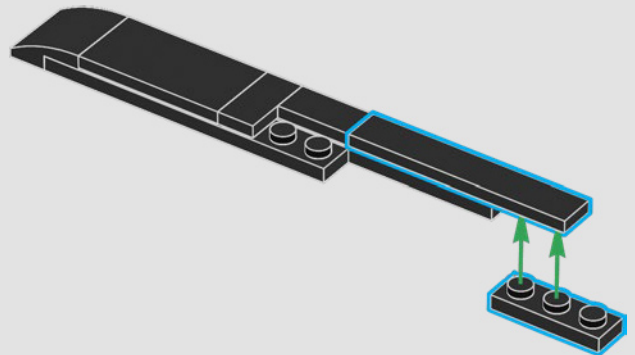
33

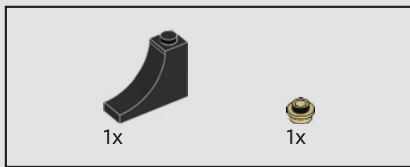


34

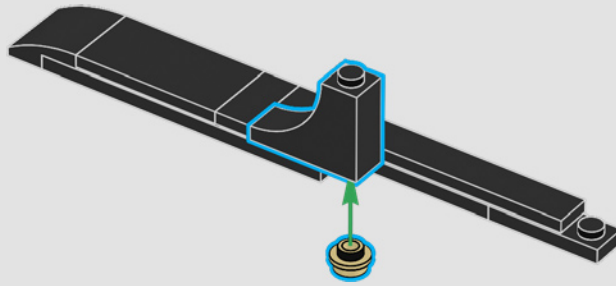


35

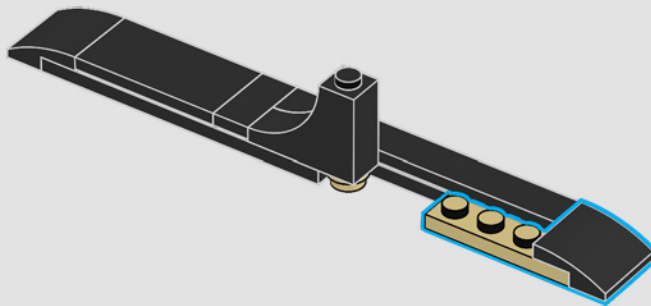


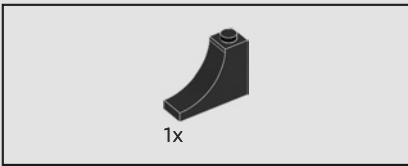


36

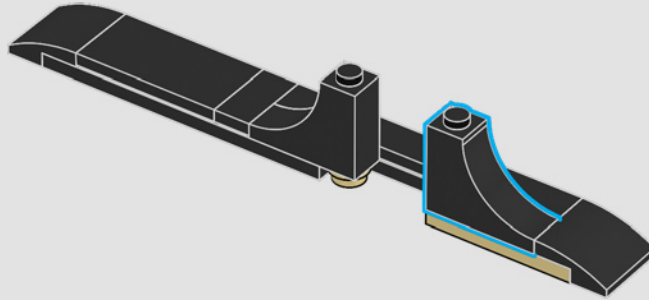


37

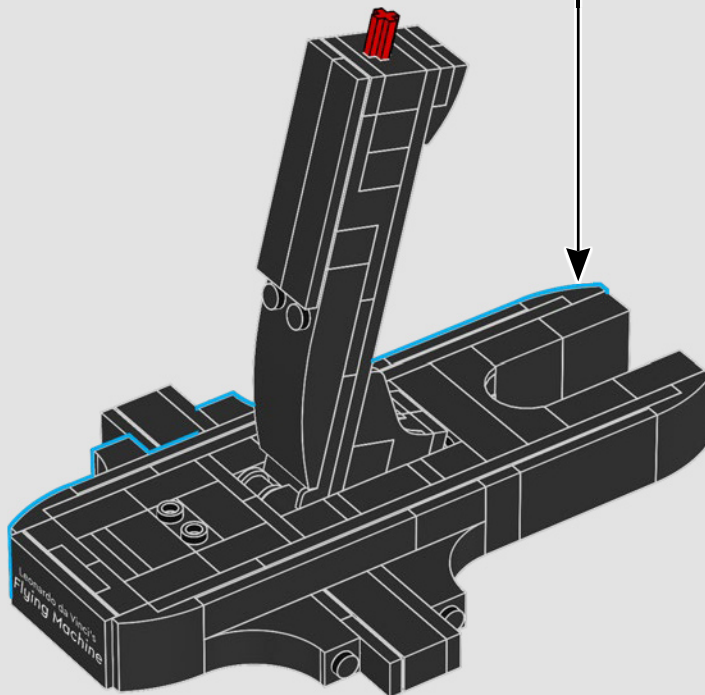




38



39

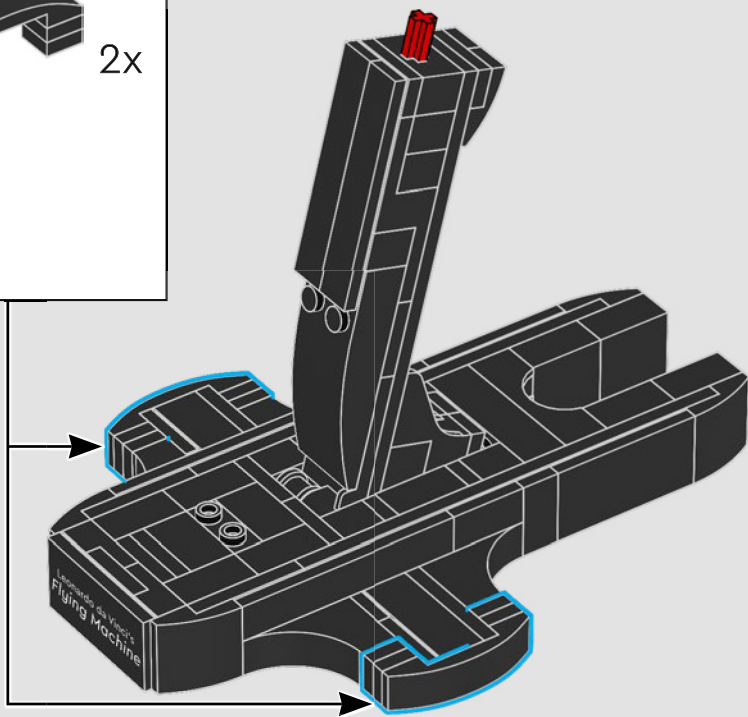
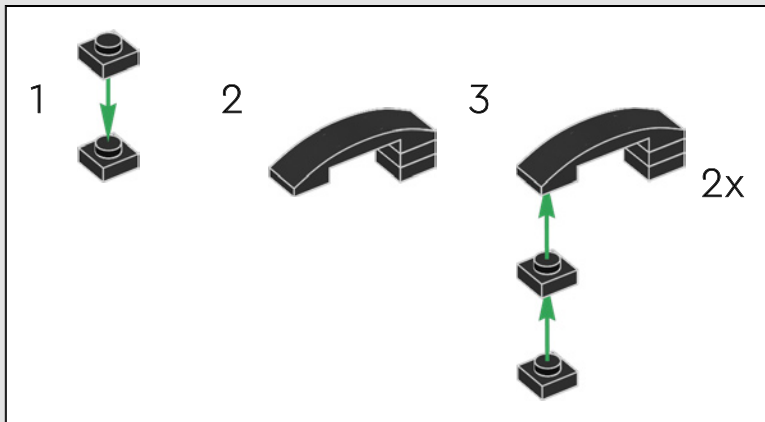




Leonardo da Vinci scrisse oltre 35.000 parole e realizzò 500 schizzi sul volo e sulle macchine volanti.

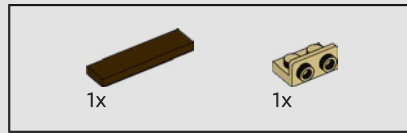
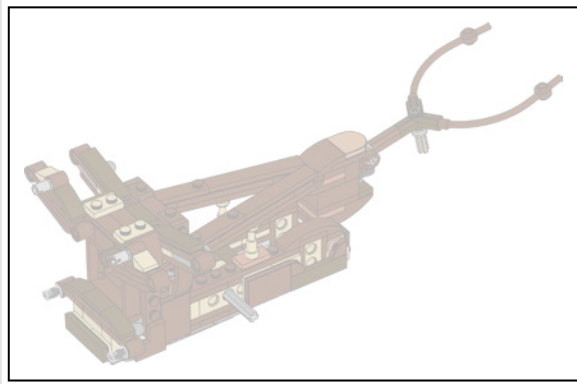
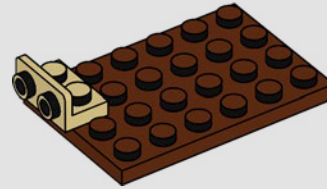


40

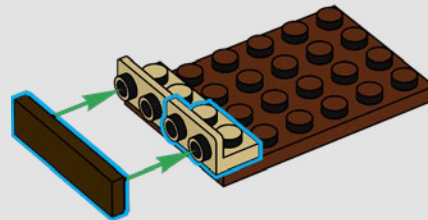


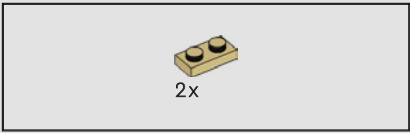


41

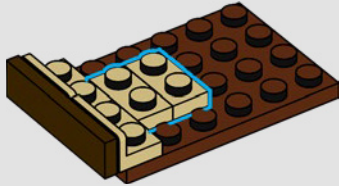


42

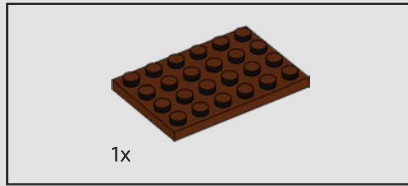
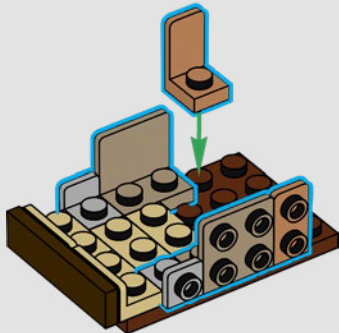




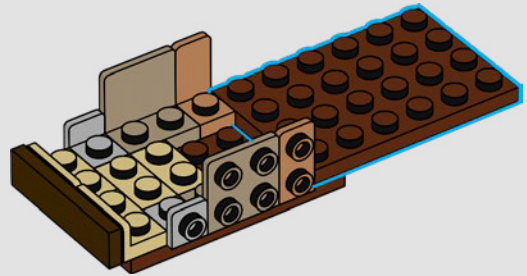
43



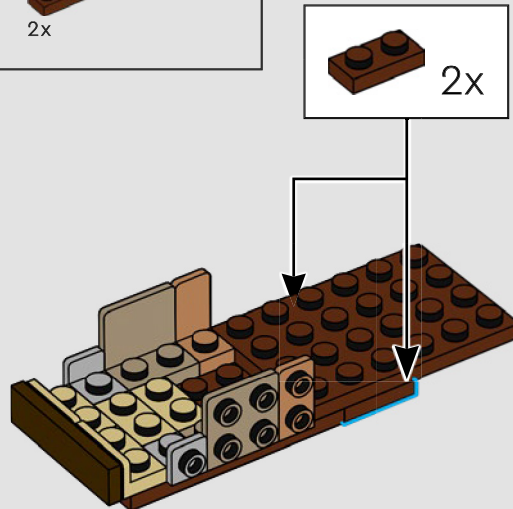
44

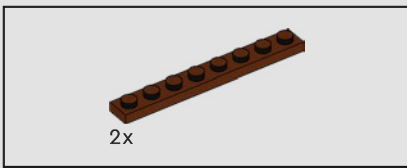


45

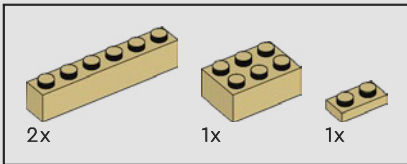
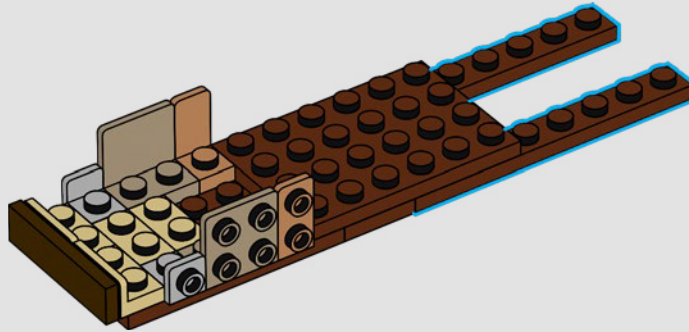


46

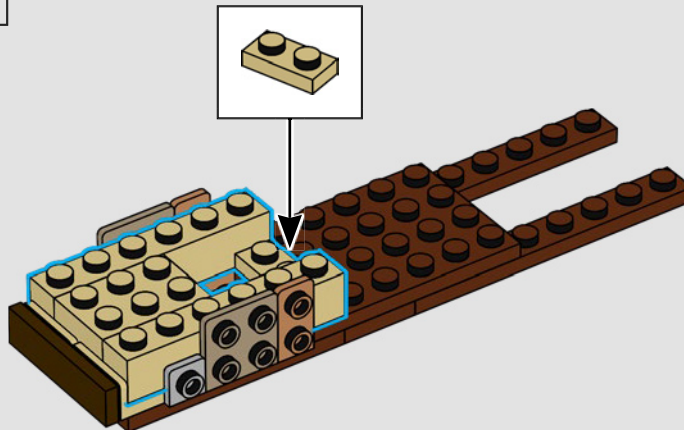




47

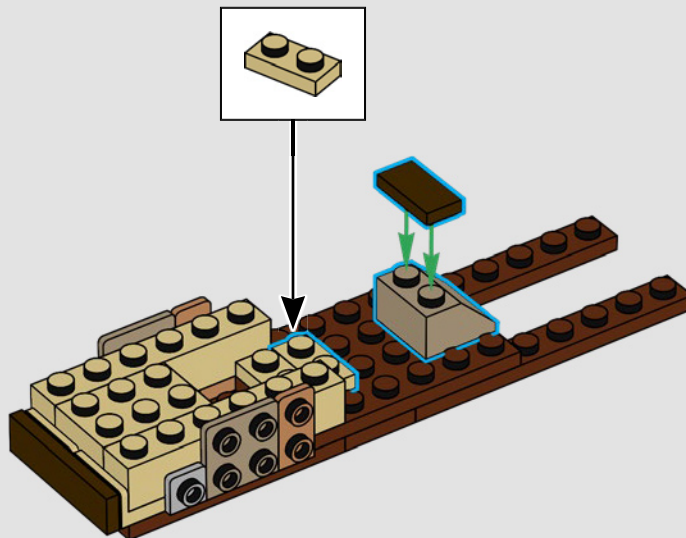


48

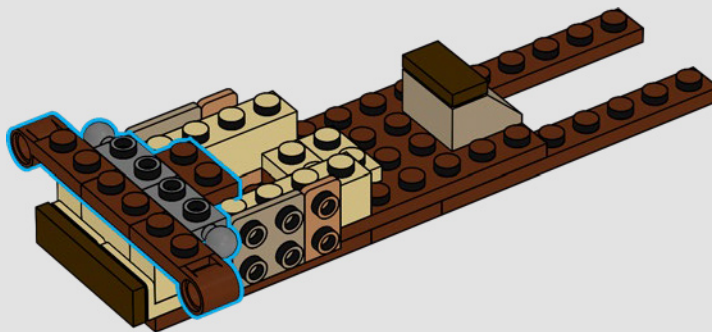


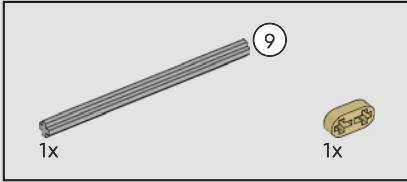
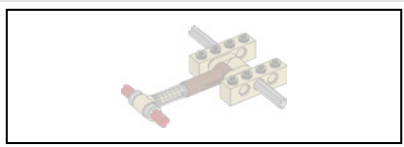


49

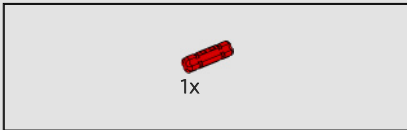
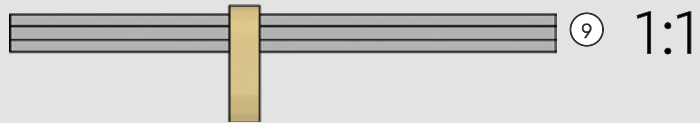


50

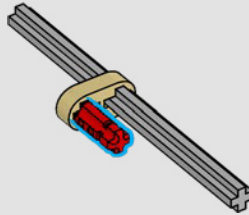


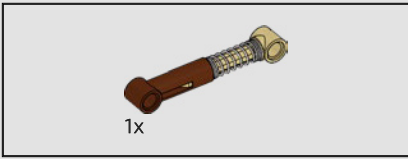


51

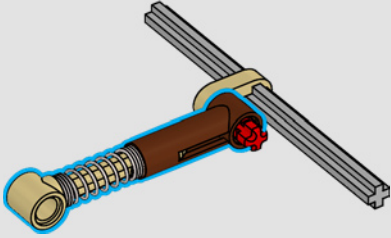


52

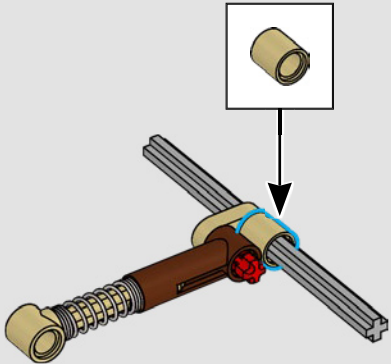




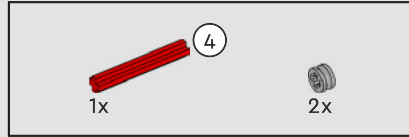
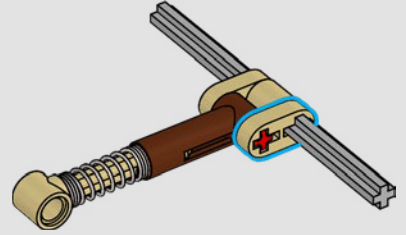
53



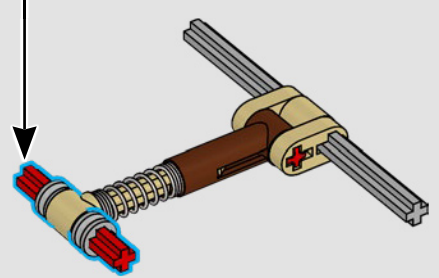
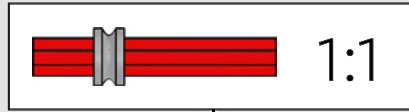
54

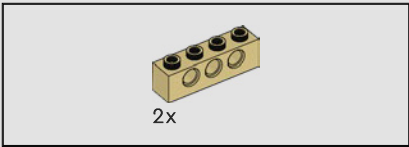


55

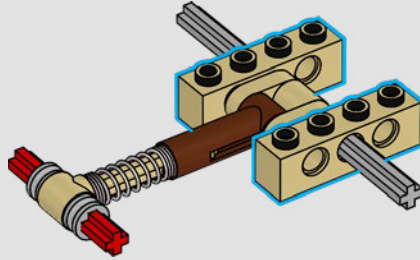


56

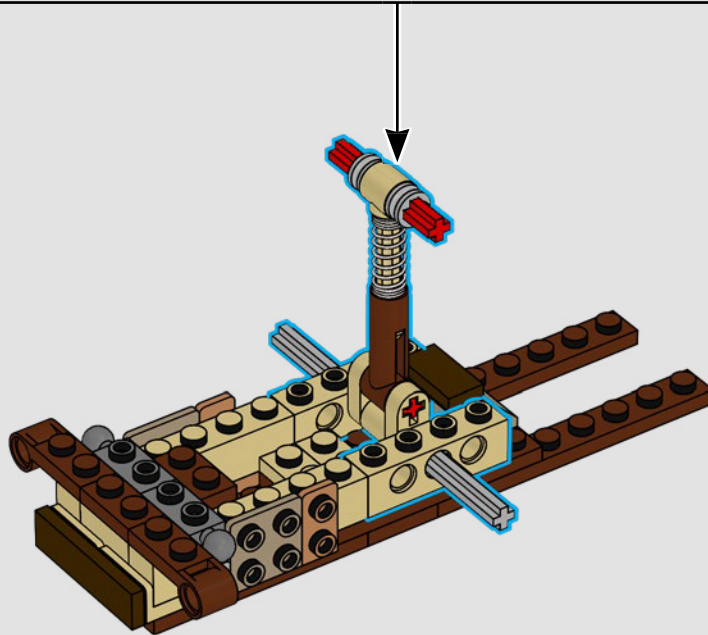




57

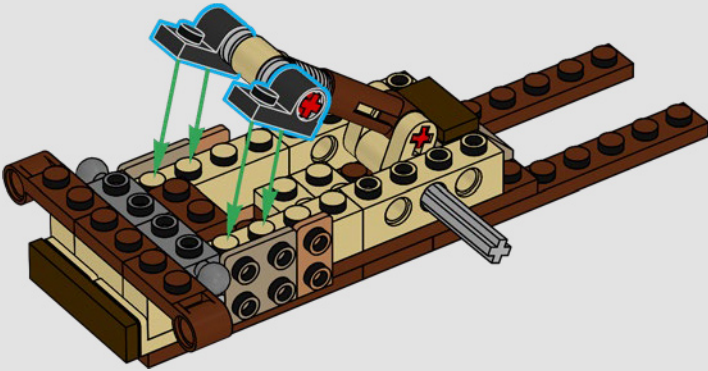


58

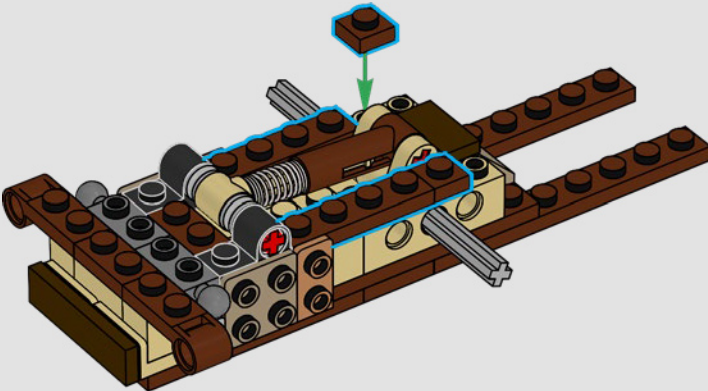




59

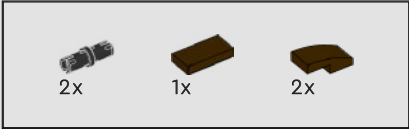
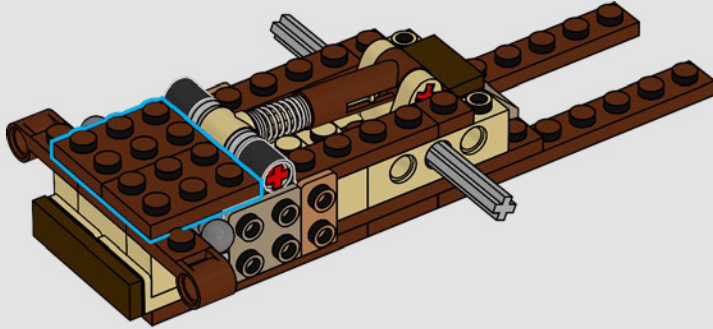


60

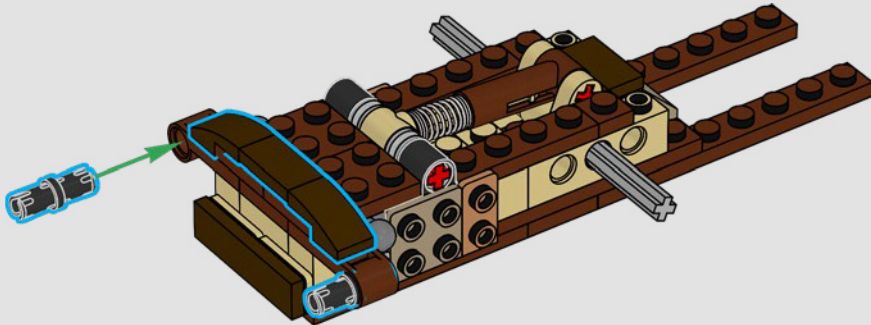


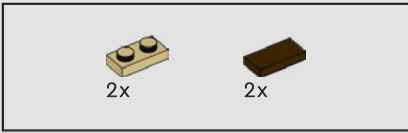


61

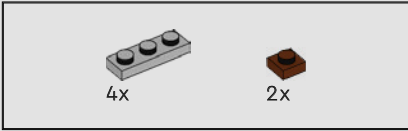
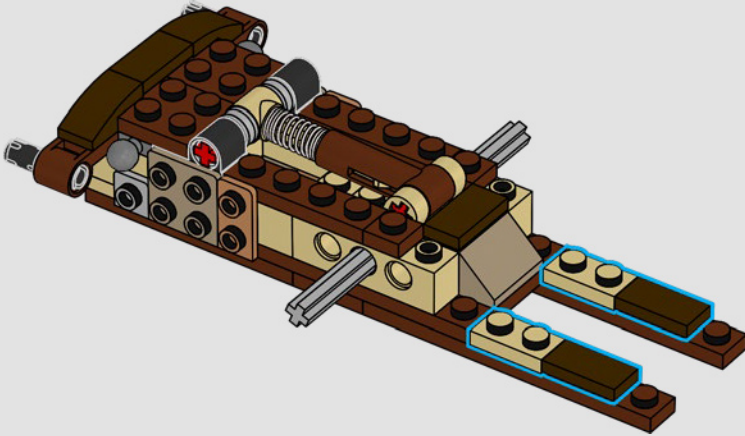


62

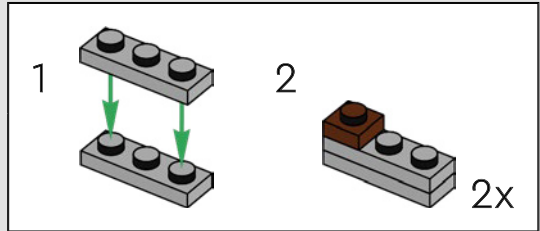
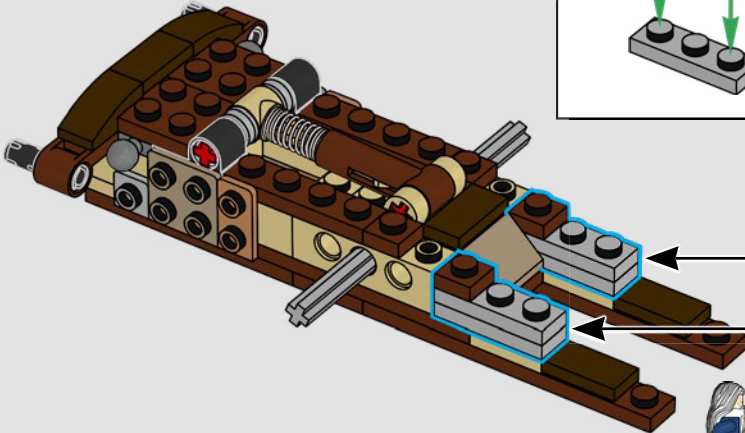


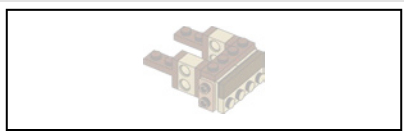


63

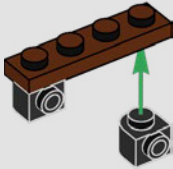


64

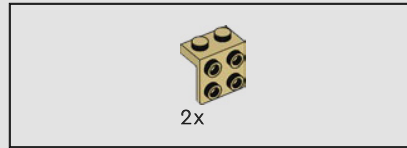
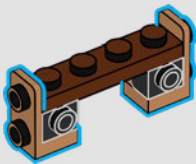




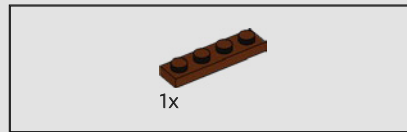
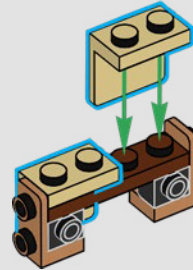
65



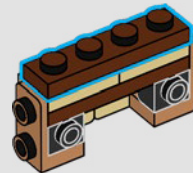
66

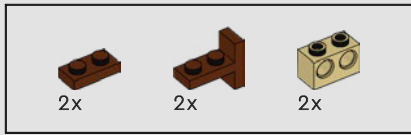


67

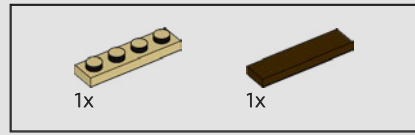
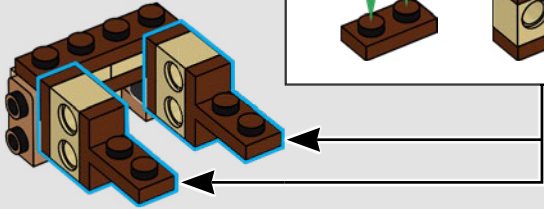
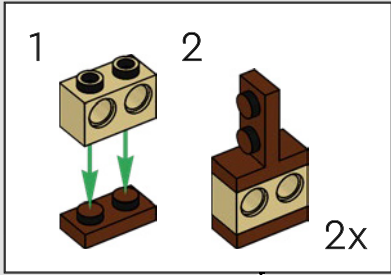


68

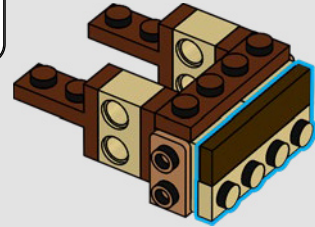




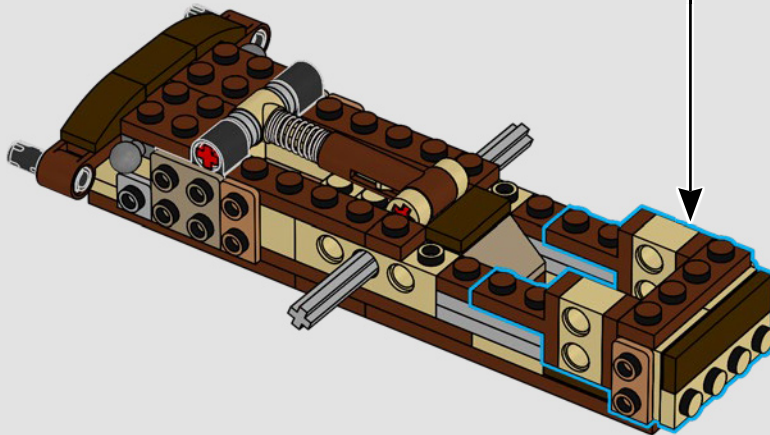
69

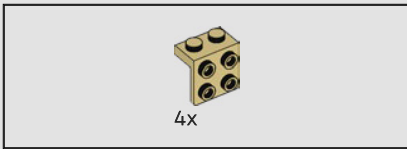


70

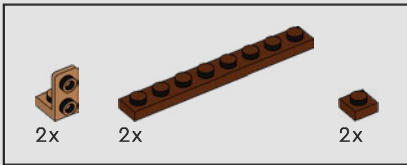
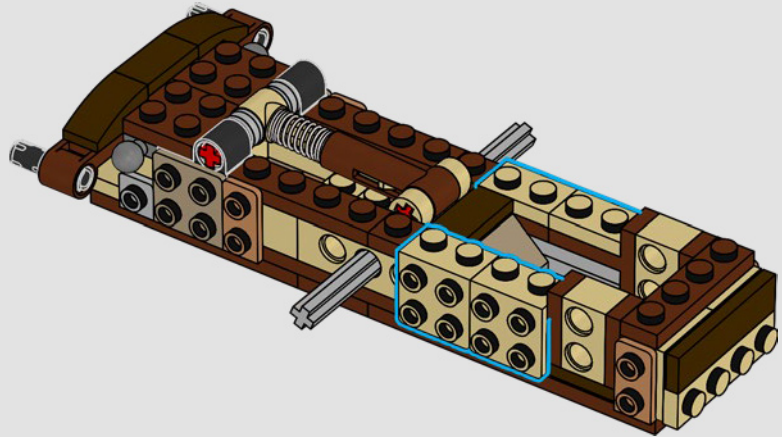


71

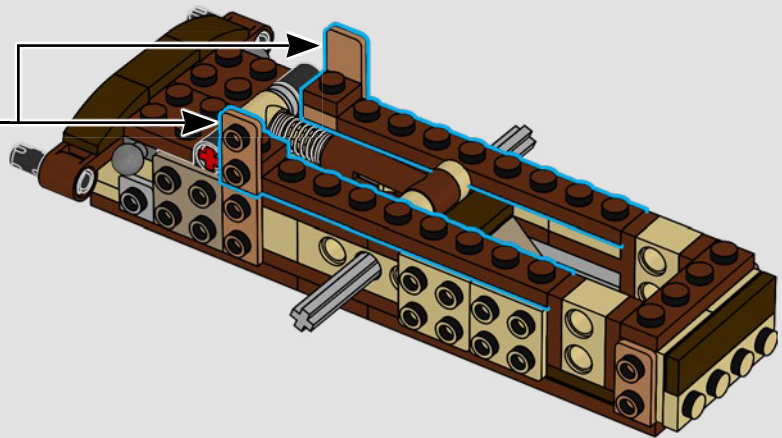
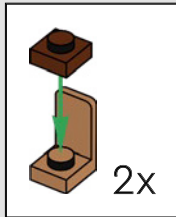


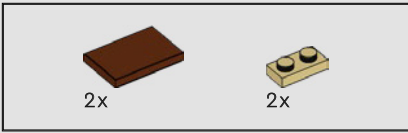


72

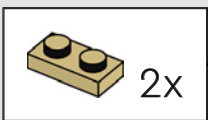
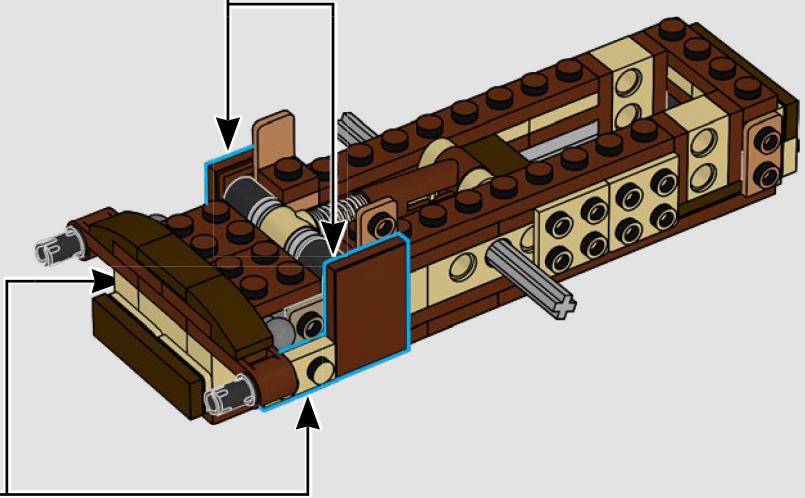
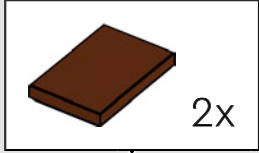


73



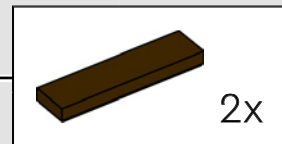
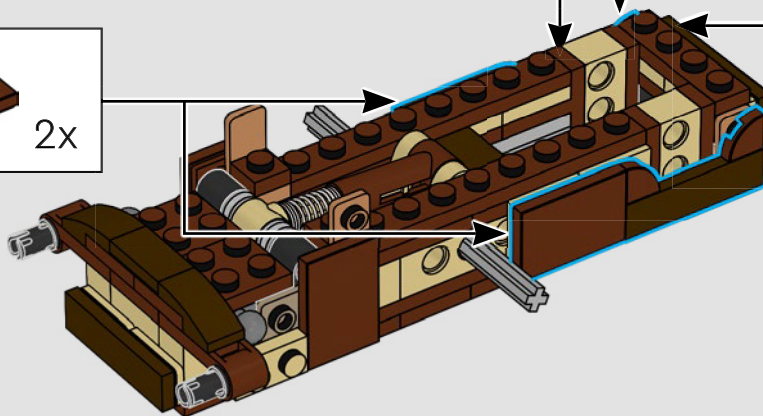


74

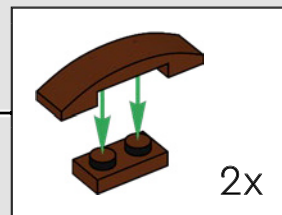
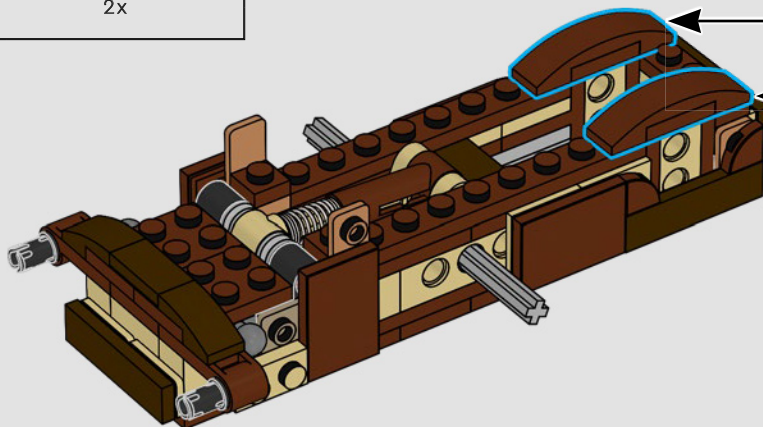


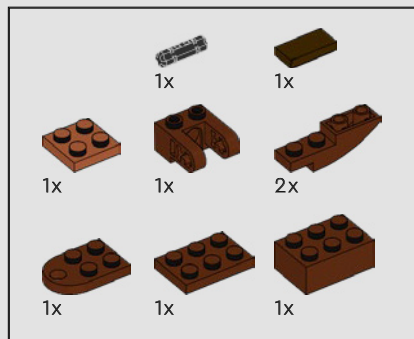


75



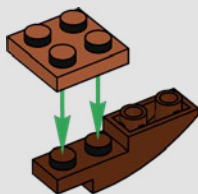
76



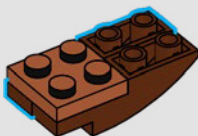


77

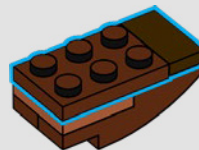
1



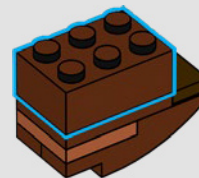
2



3



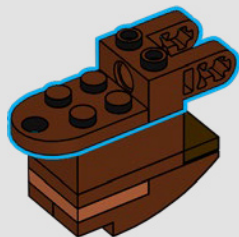
4



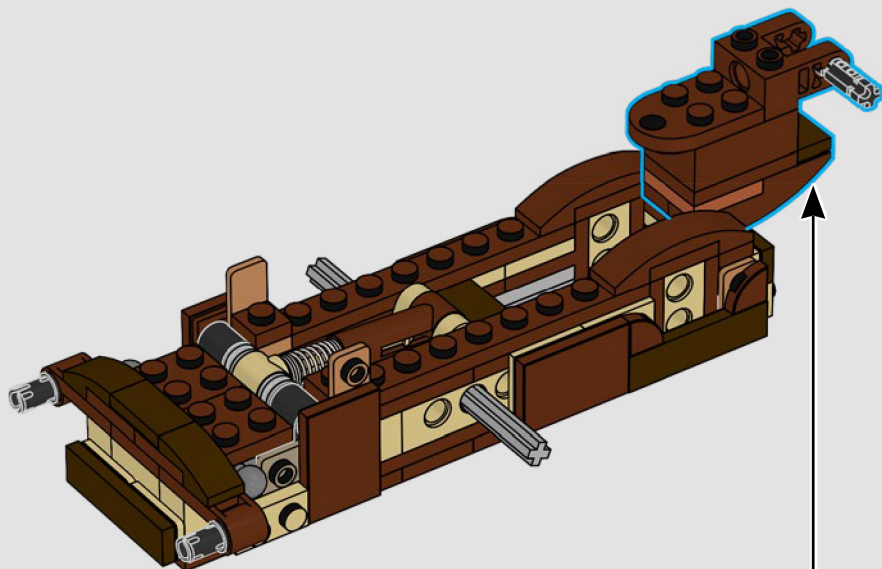


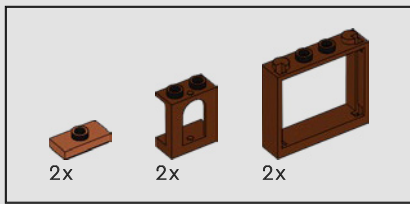
L'ornitottero, costruito e pilotato a bassa quota da un suo amico, fallì miseramente. La macchina infatti si schiantò e l'amico di Leonardo subì una frattura alla gamba.

5

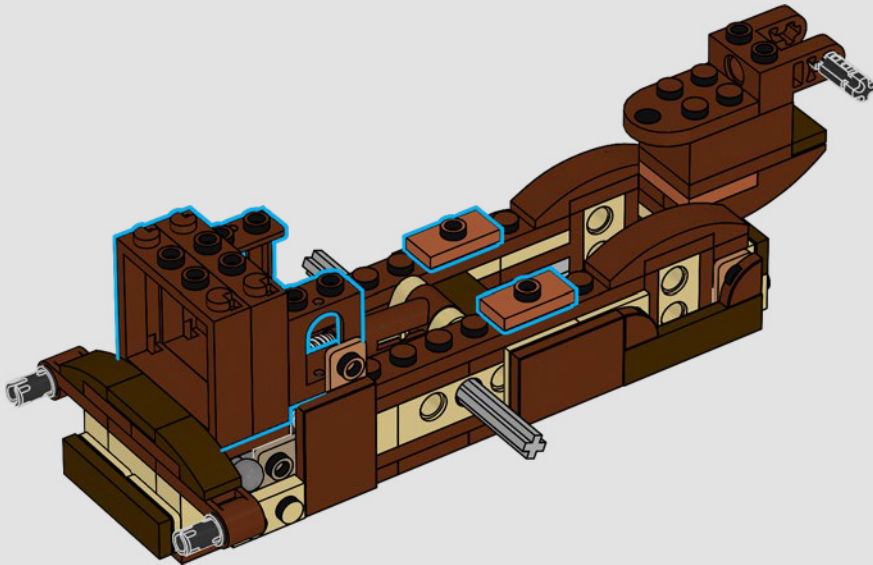


6



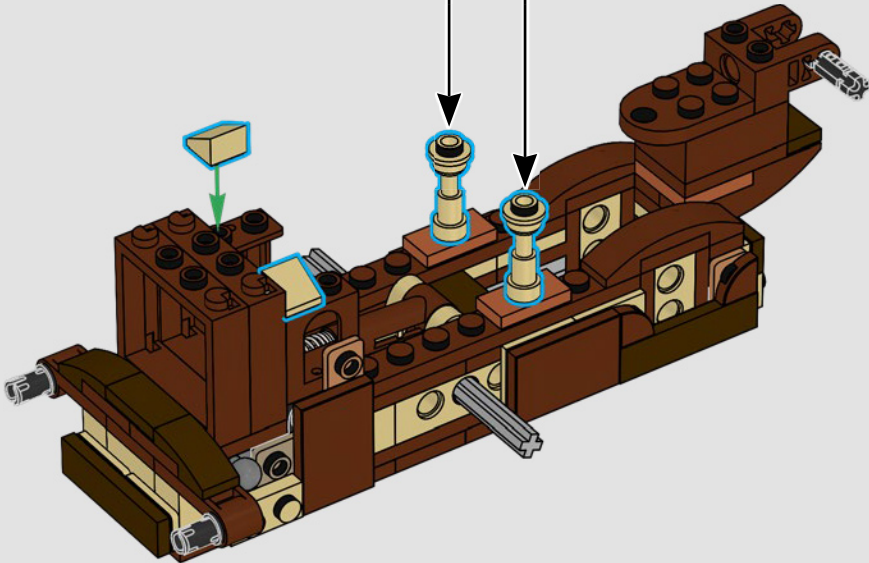
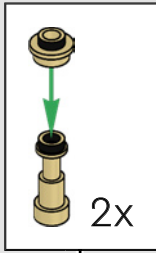


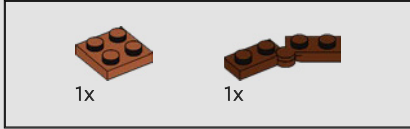
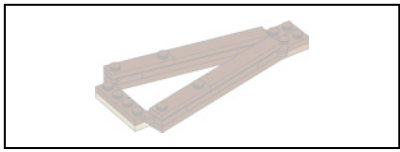
78



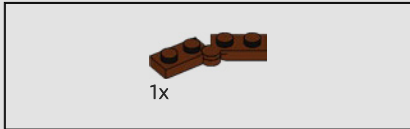
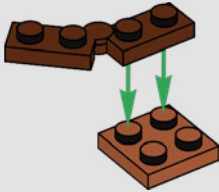


79

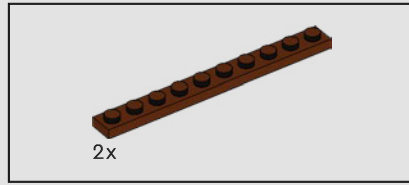
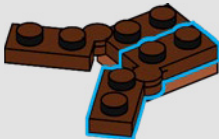




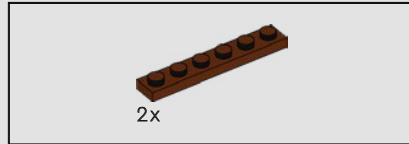
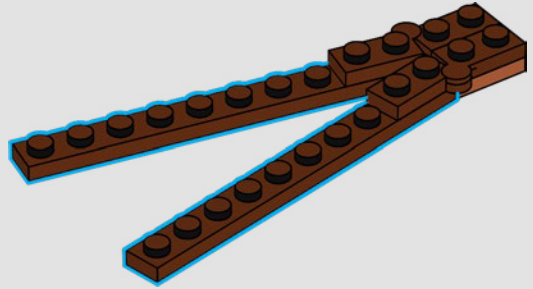
80



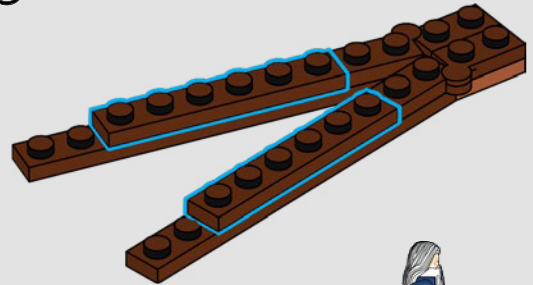
81

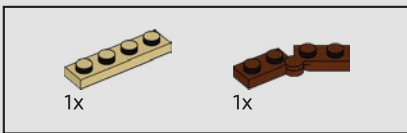


82

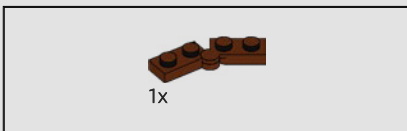
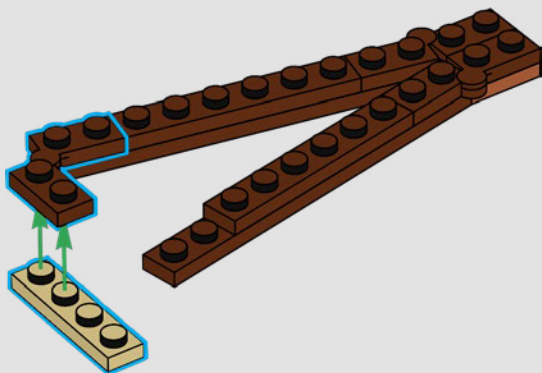


83

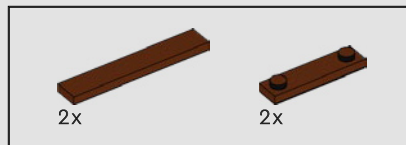
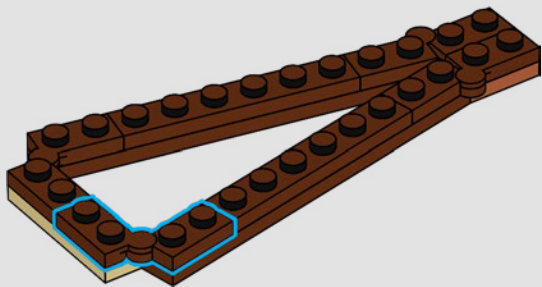




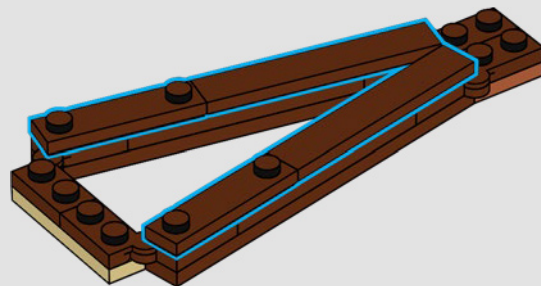
84



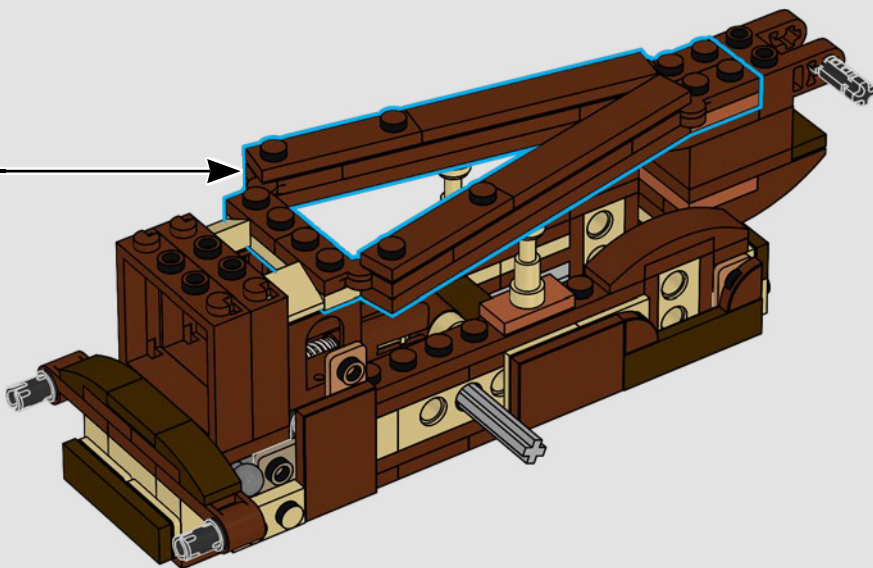
85

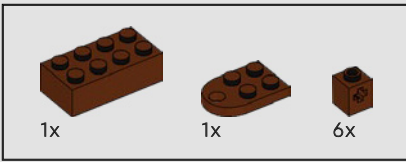


86

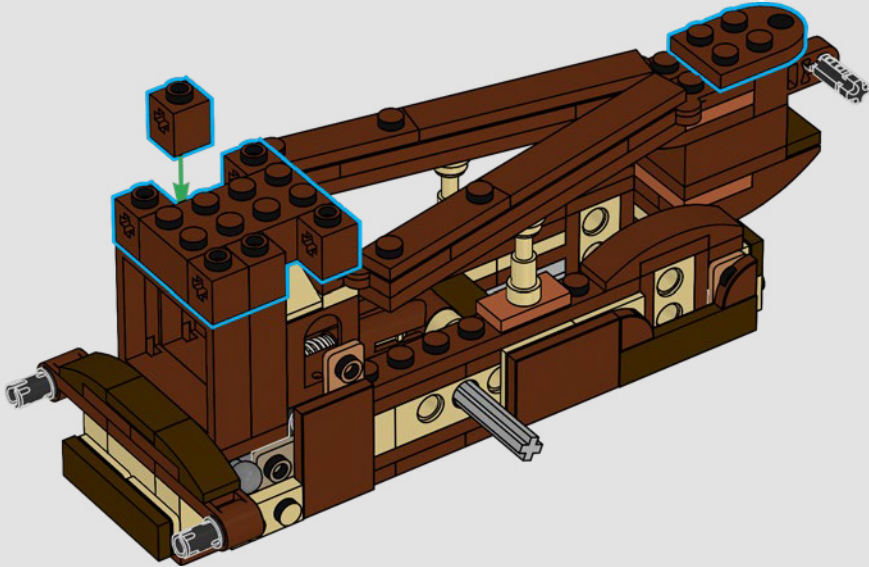
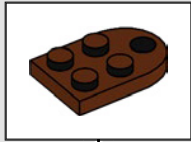


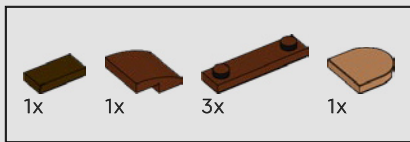
87



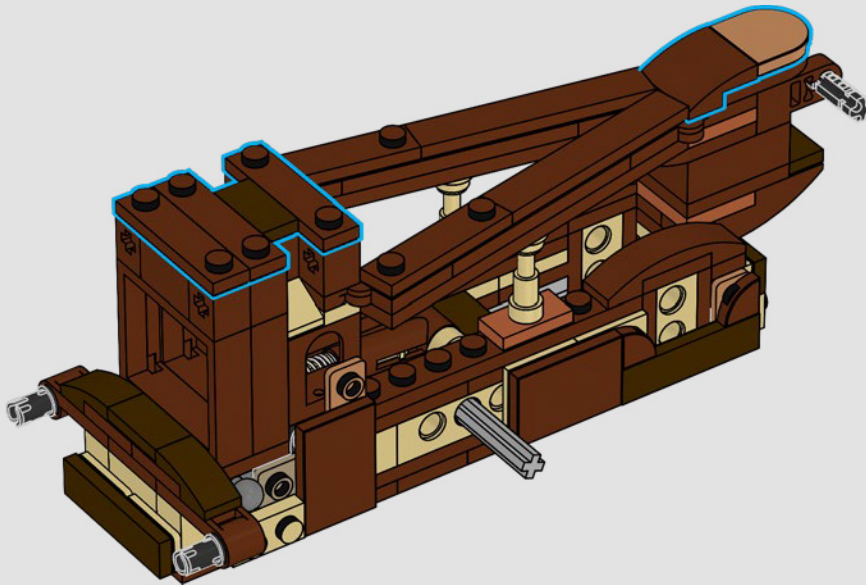


88



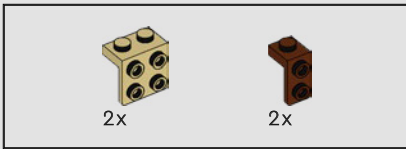


89

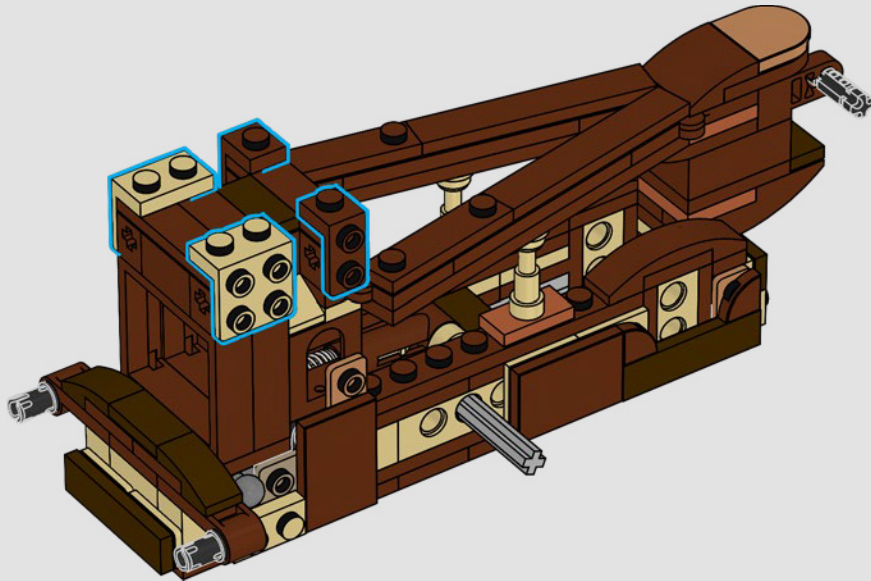


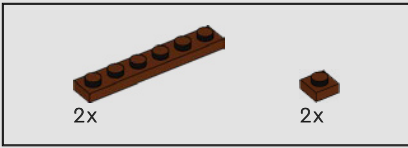


Leonardo da Vinci era sicuro che il corpo umano potesse produrre abbastanza energia per far decollare e tenere in quota una macchina volante.

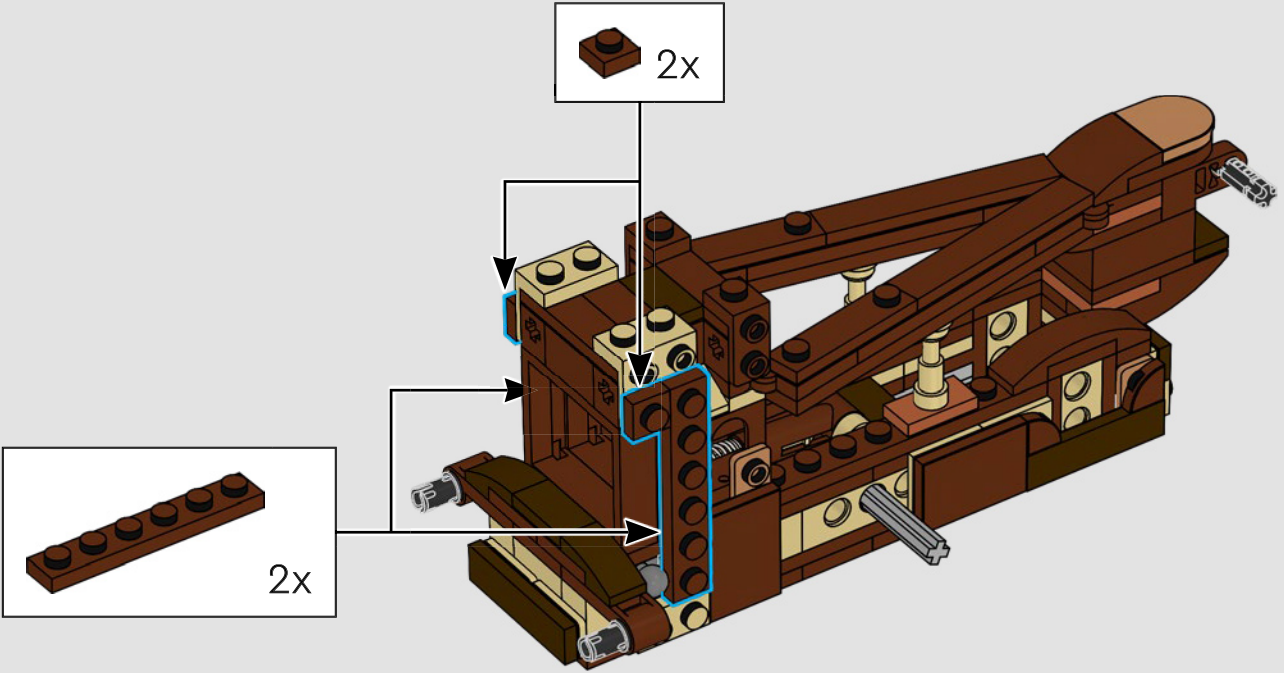


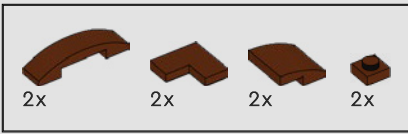
90



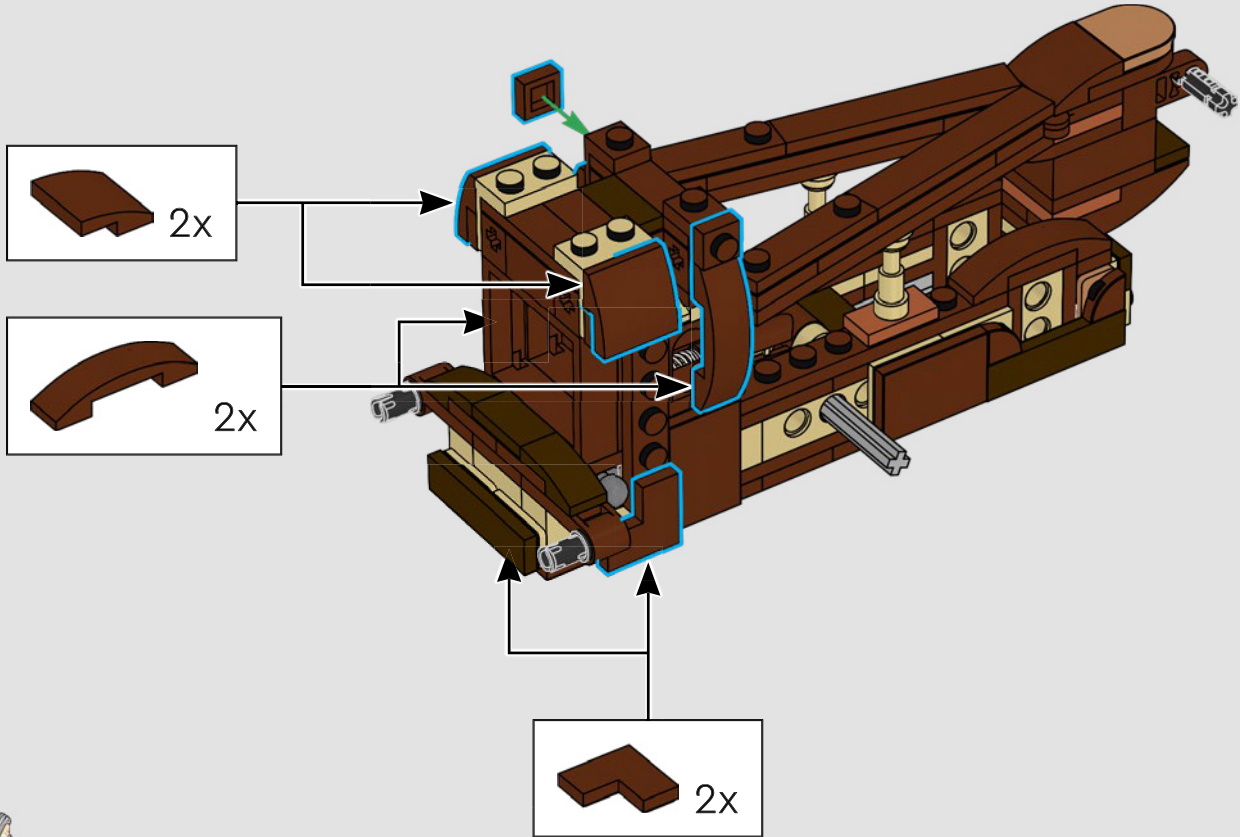


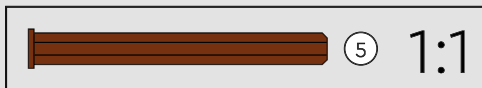
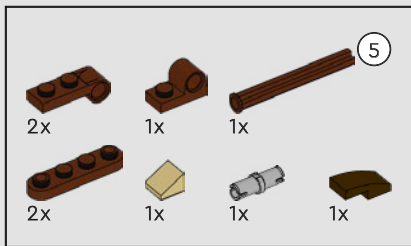
91



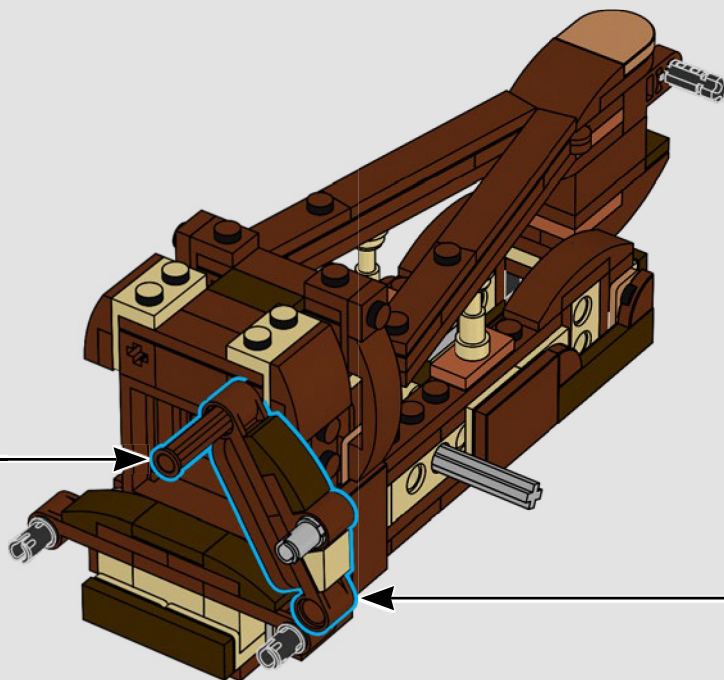
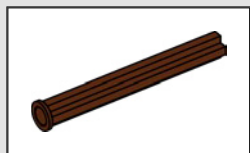
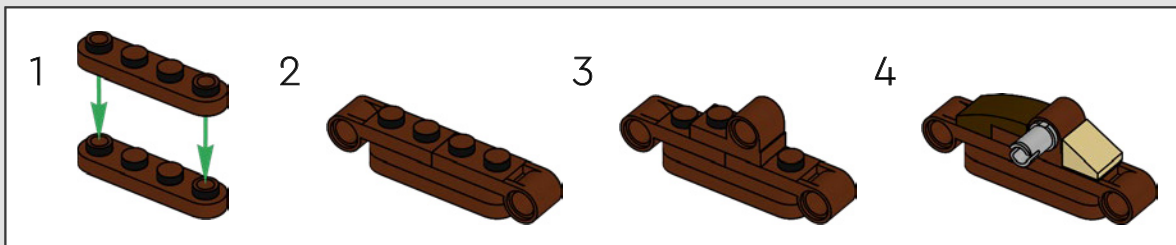


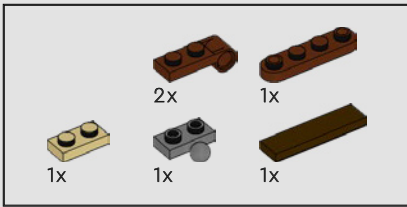
92



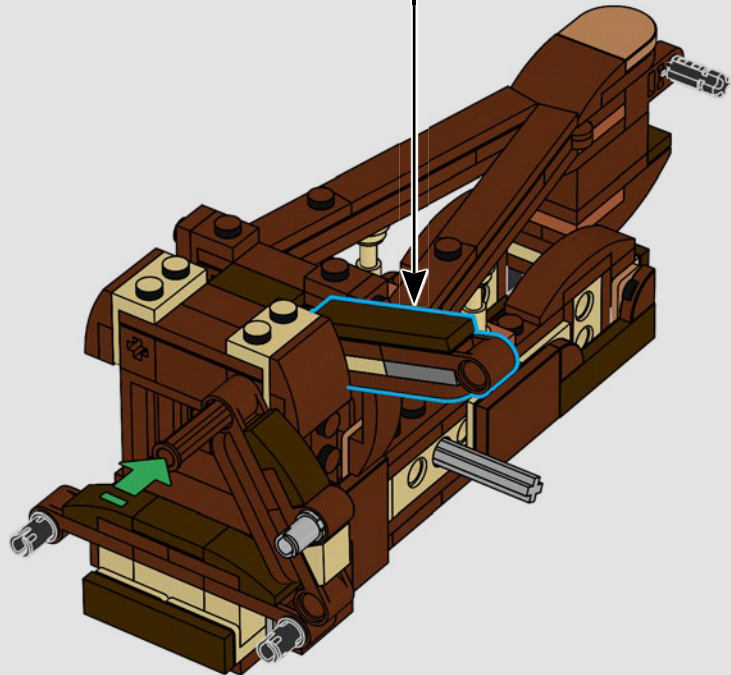
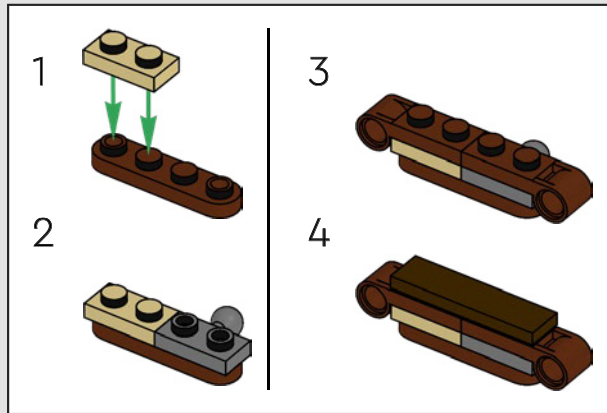


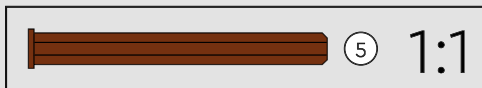
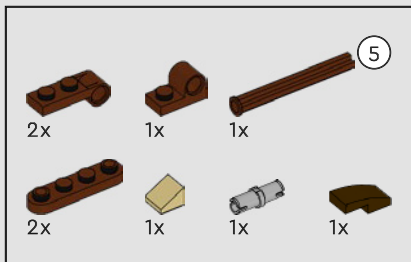
93



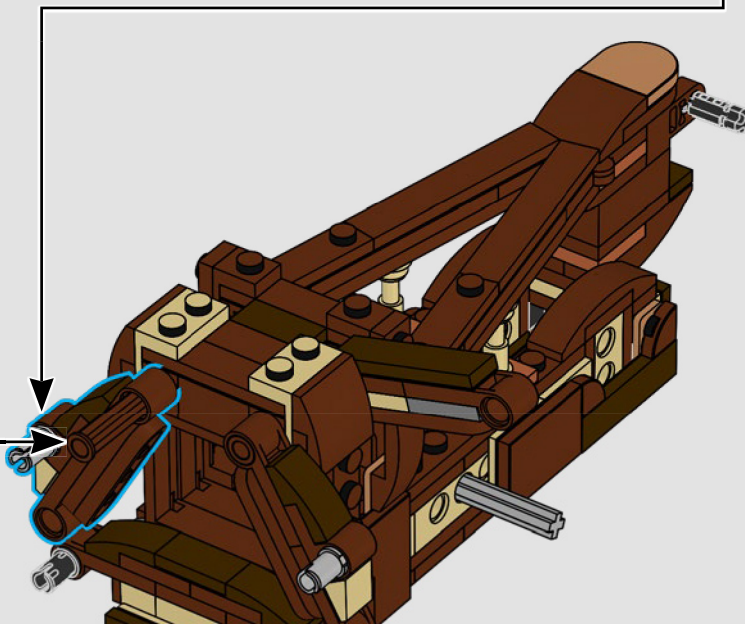
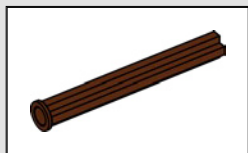
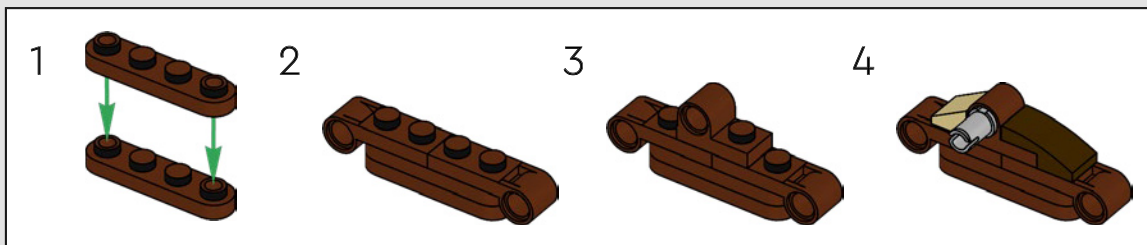


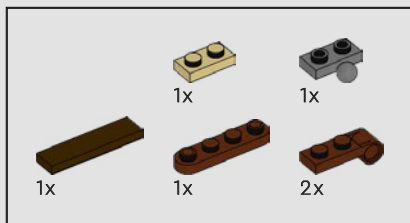
94



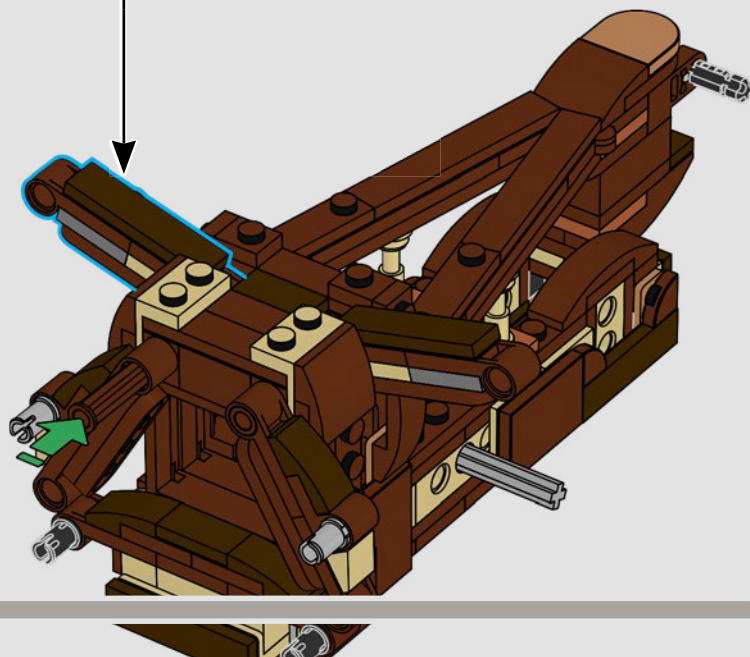
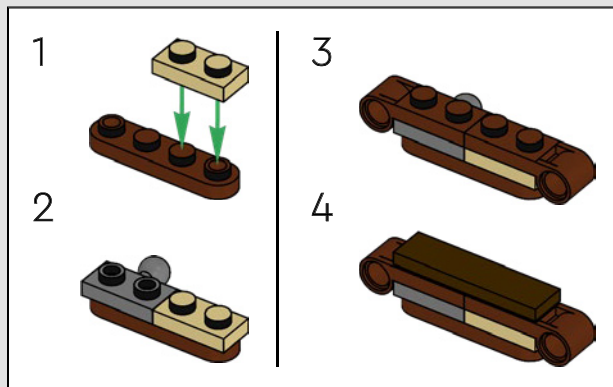


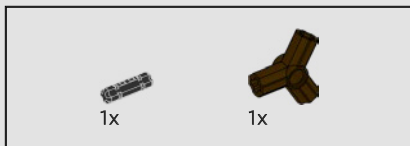
95



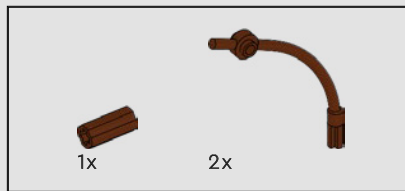
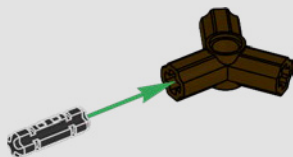


96

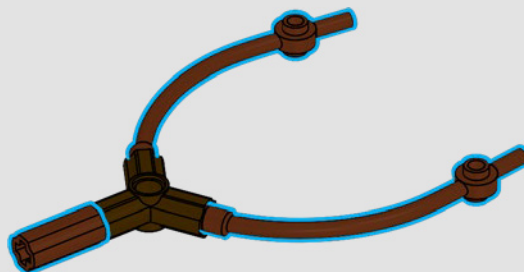




97



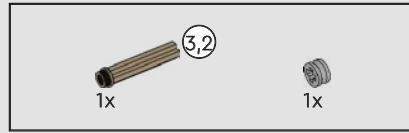
98



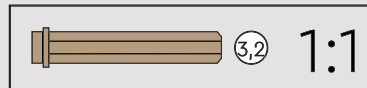
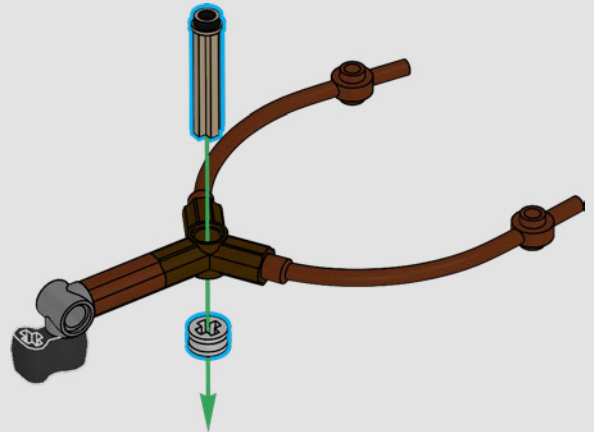
Gli schizzi di Leonardo da Vinci mostrano diverse macchine volanti azionate da un pilota tramite vari meccanismi di potenza: alcuni alimentati dalle gambe, altri dalle gambe e dalle braccia, e altri ancora con timoni collegati al capo del pilota.



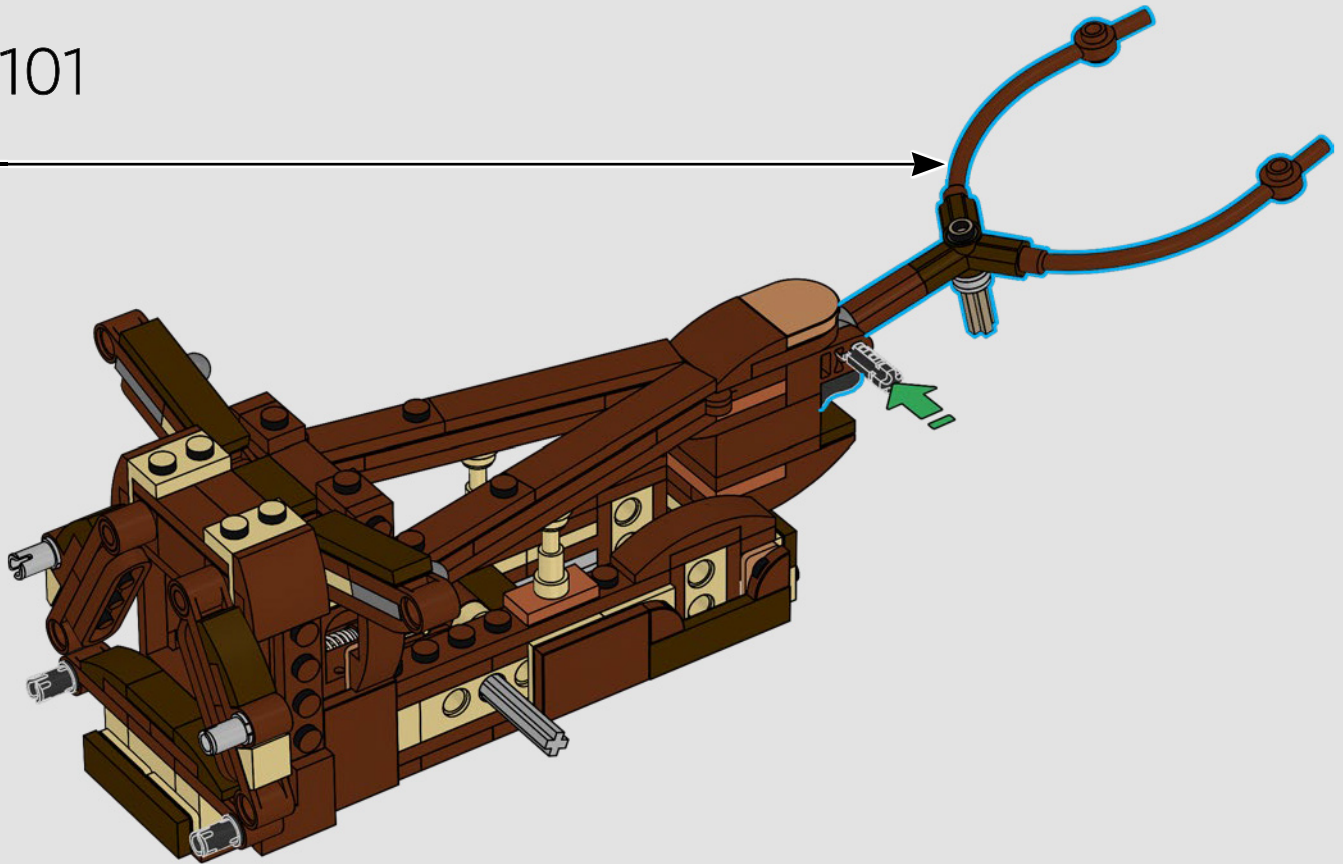
99

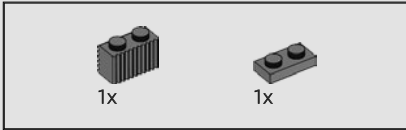
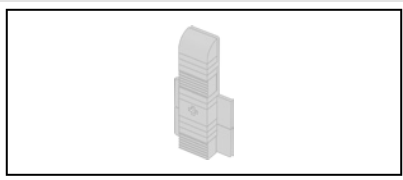


100

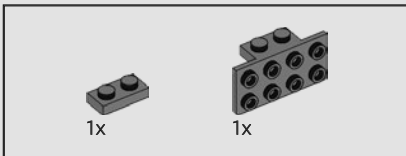
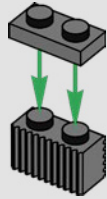


101

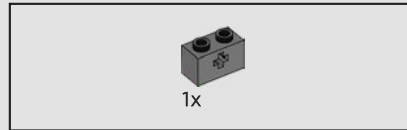
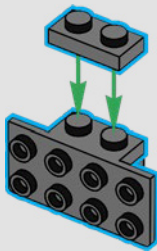




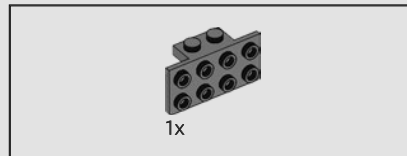
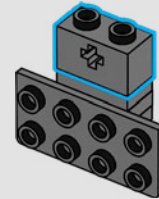
102



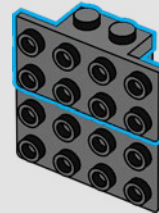
103

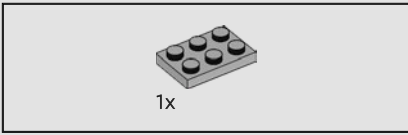


104

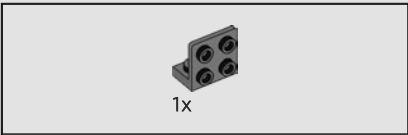
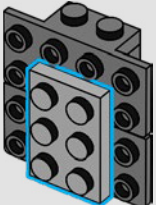


105

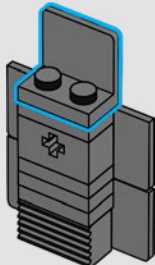


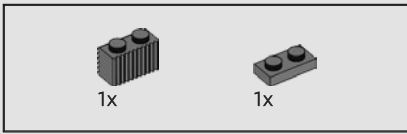


106

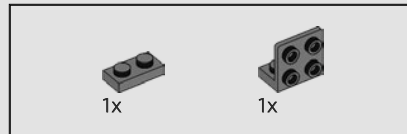
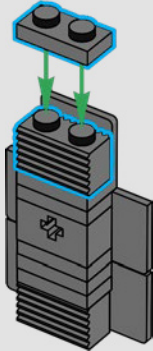


107

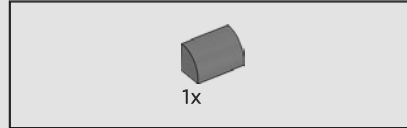
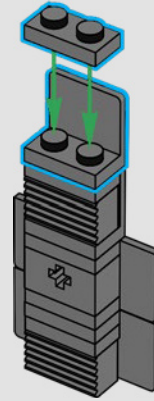




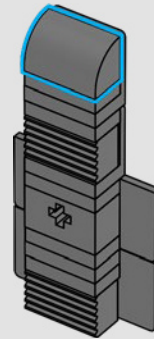
108

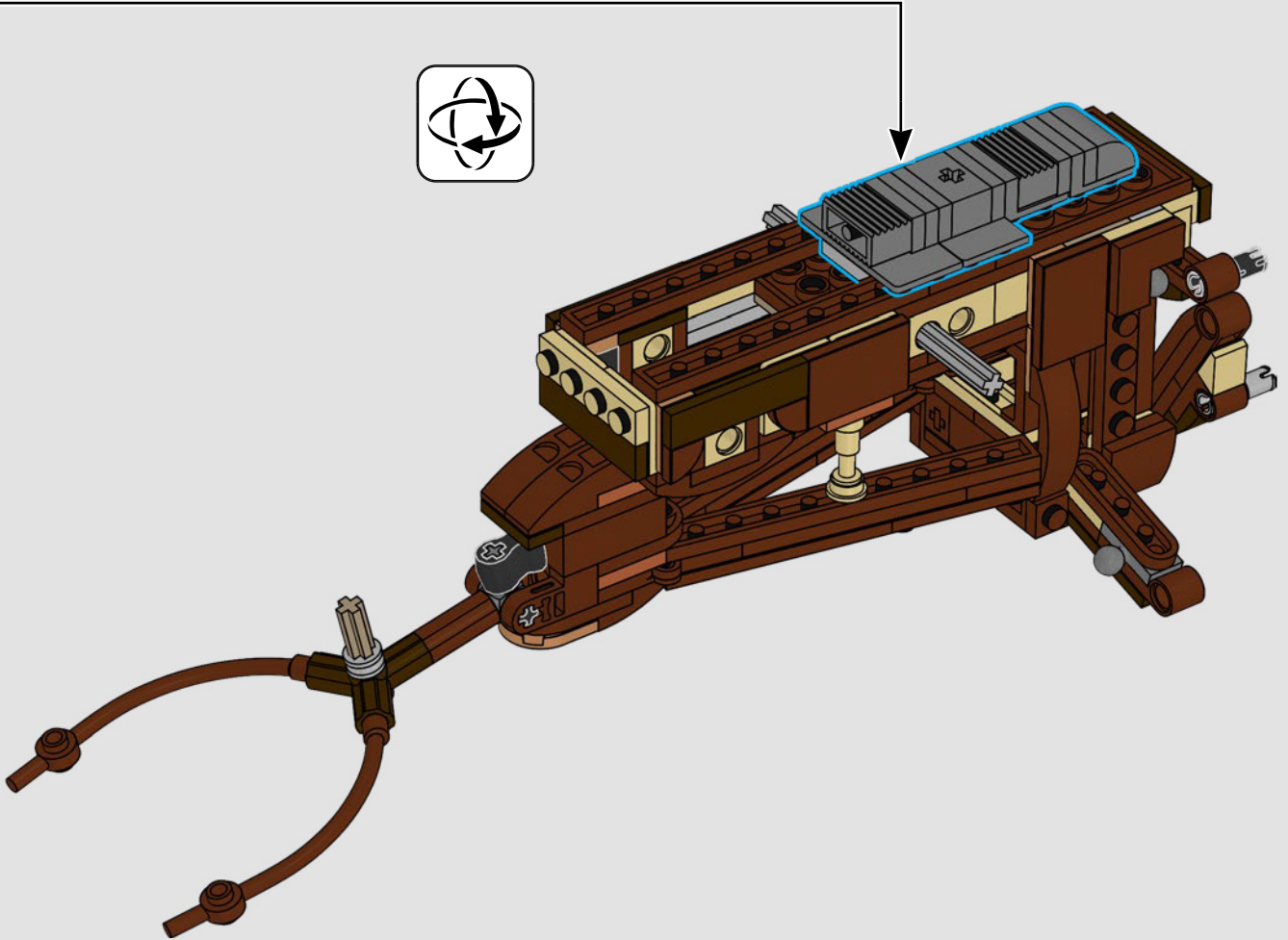


109

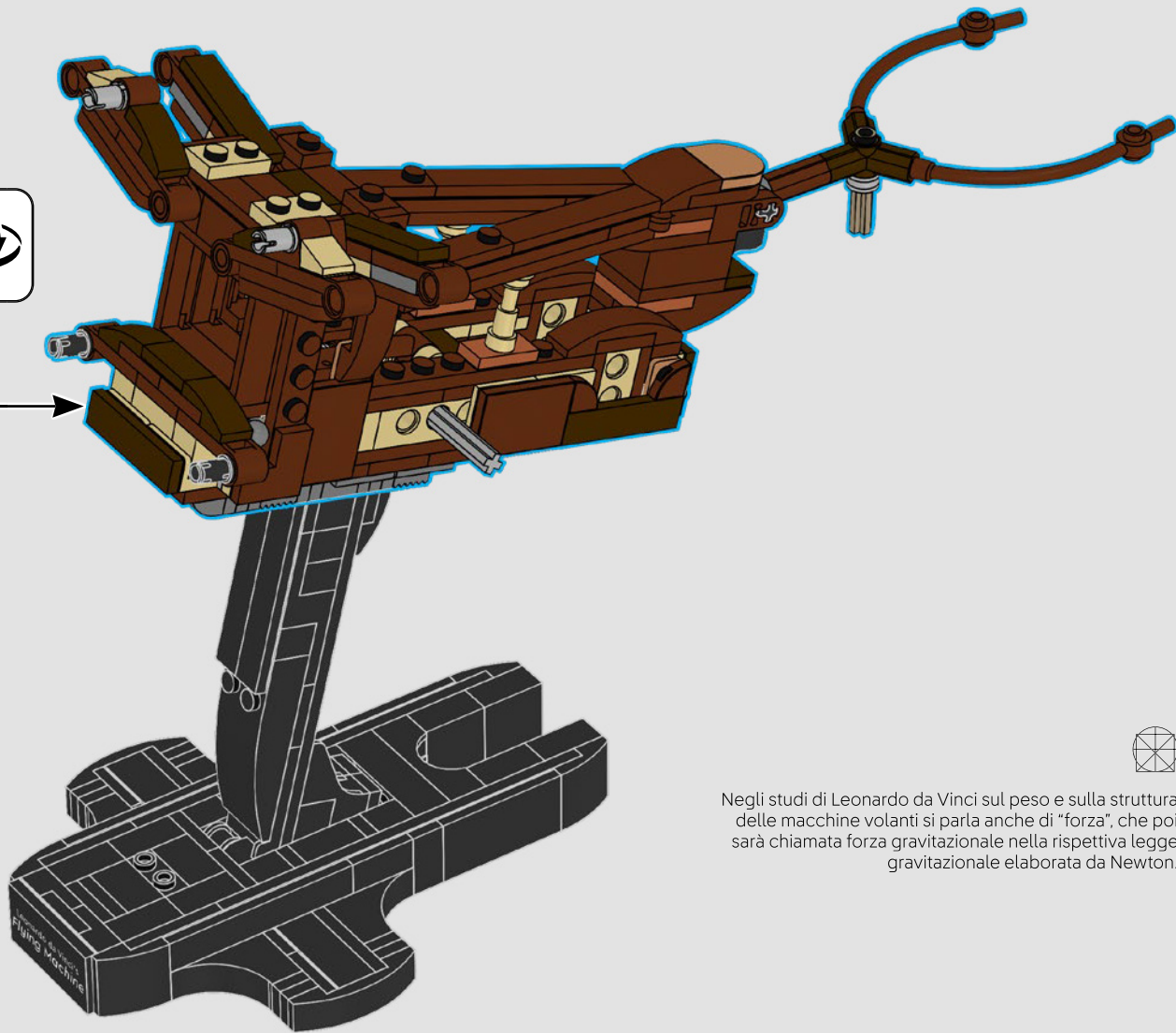


110



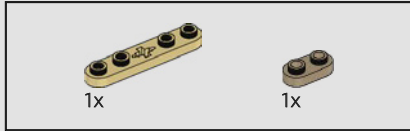
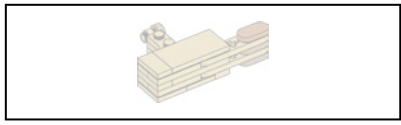


112

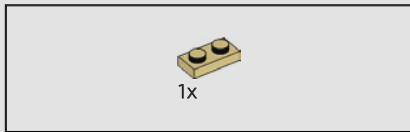
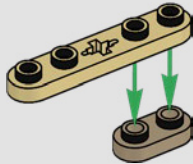


Negli studi di Leonardo da Vinci sul peso e sulla struttura delle macchine volanti si parla anche di "forza", che poi sarà chiamata forza gravitazionale nella rispettiva legge gravitazionale elaborata da Newton.

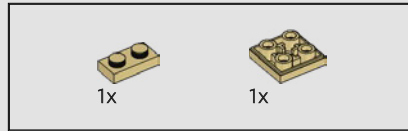
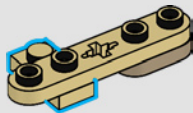




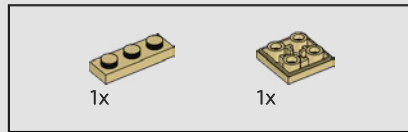
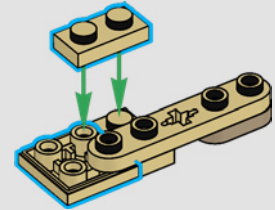
113



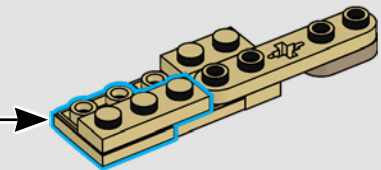
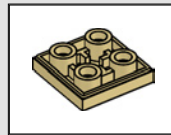
114

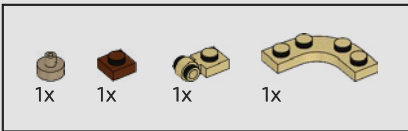


115

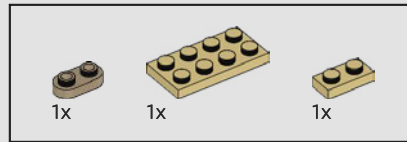
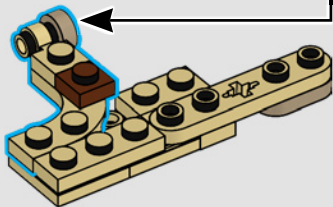
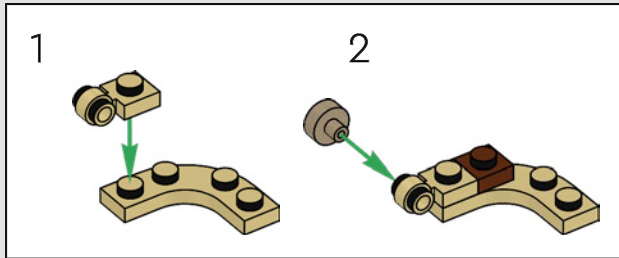


116

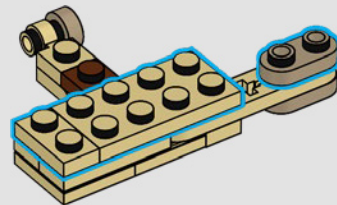


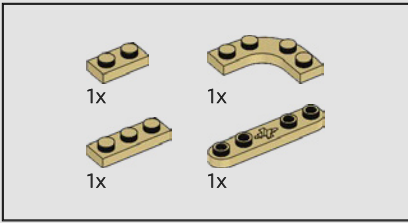


117

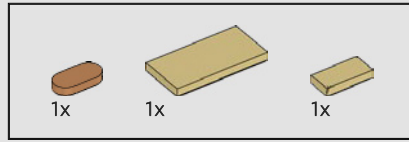
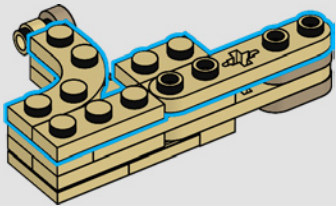


118

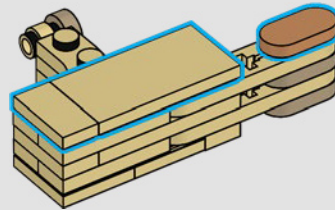


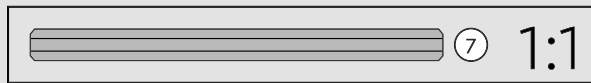
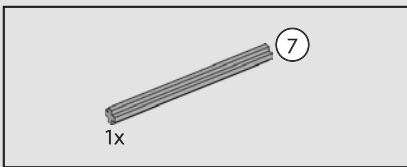


119

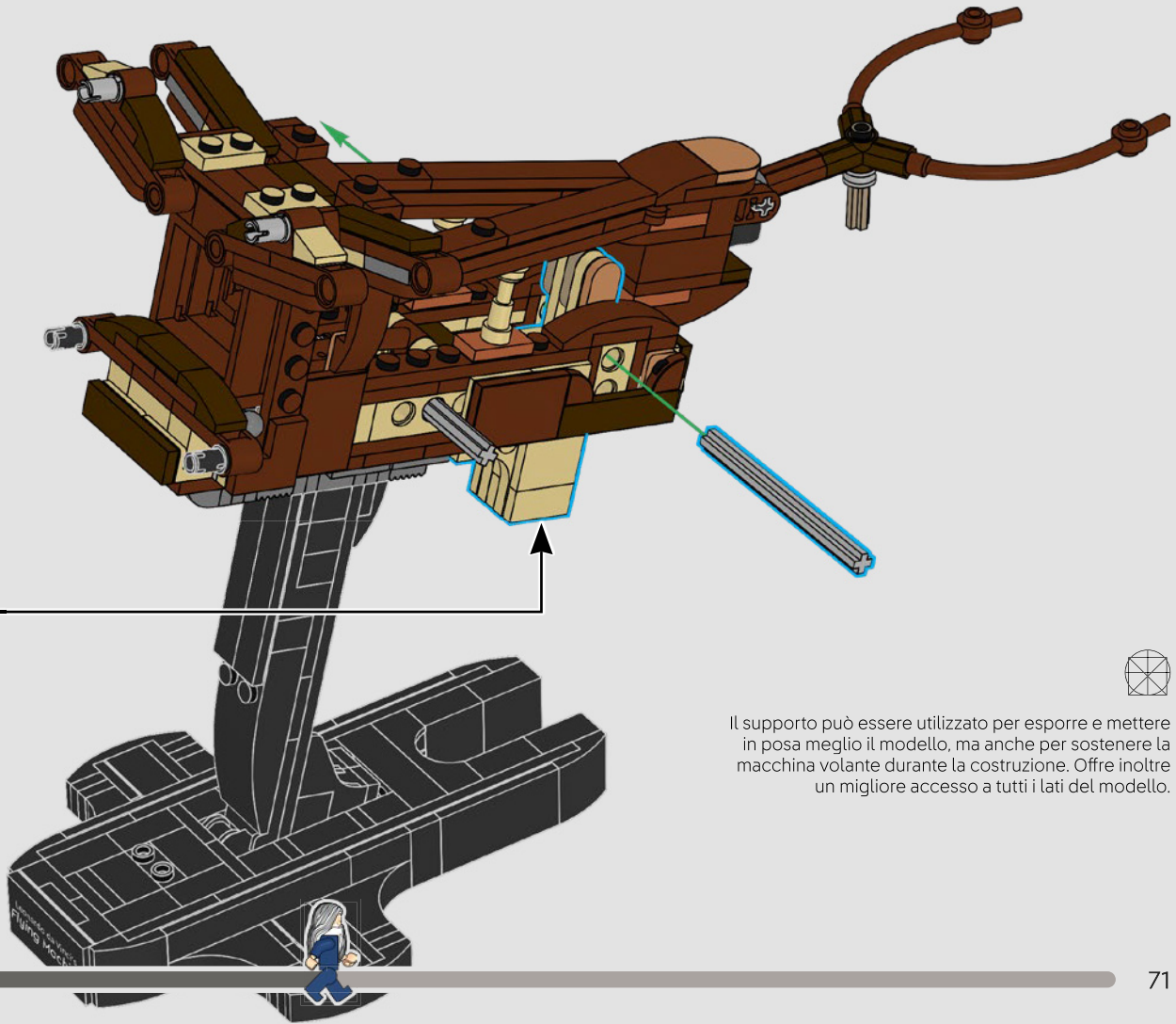


120

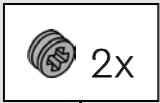
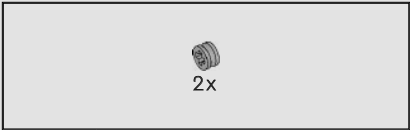




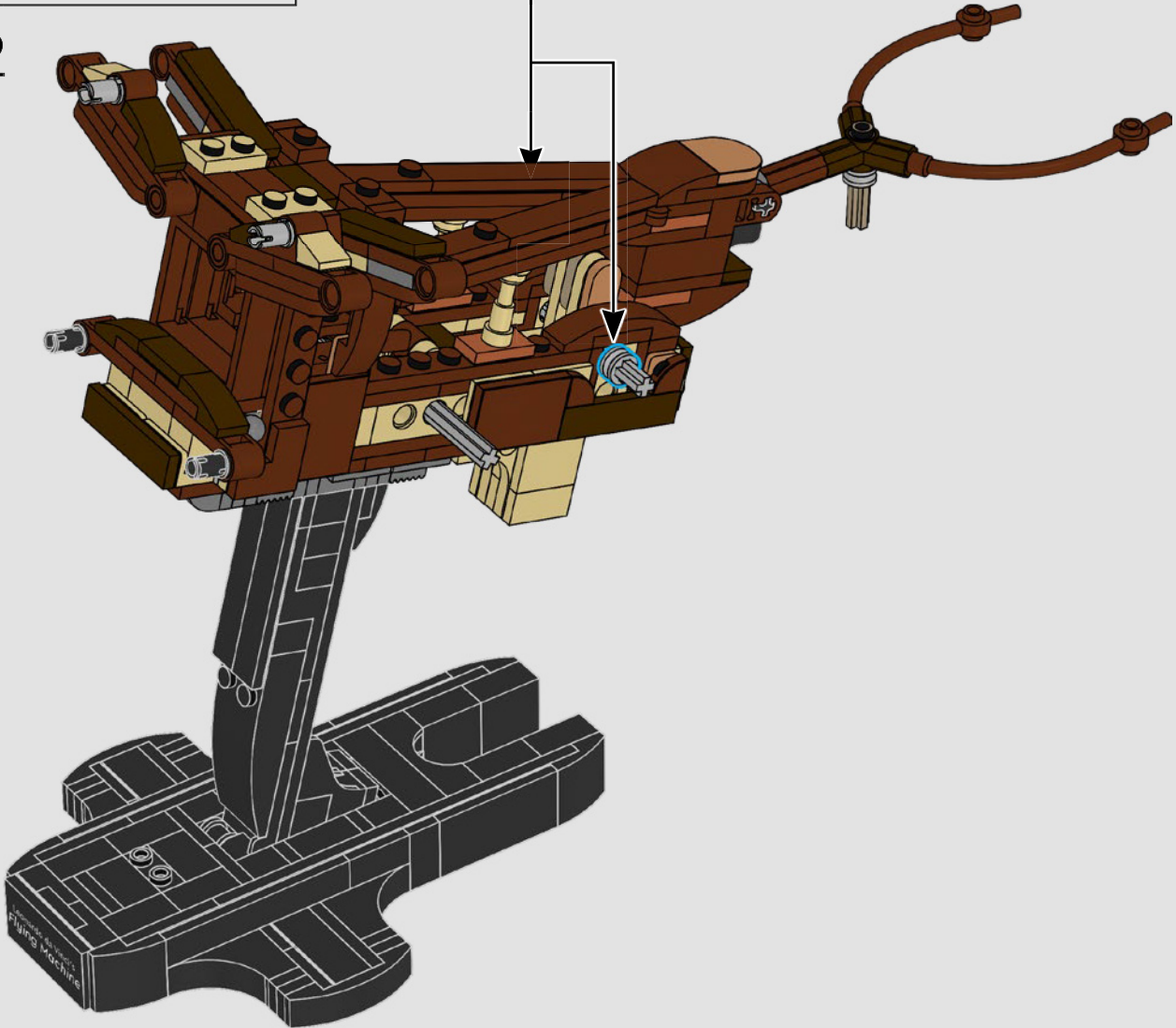
121

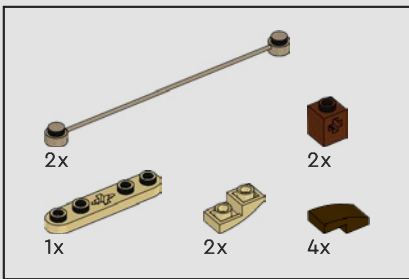


Il supporto può essere utilizzato per esporre e mettere in posa meglio il modello, ma anche per sostenere la macchina volante durante la costruzione. Offre inoltre un migliore accesso a tutti i lati del modello.



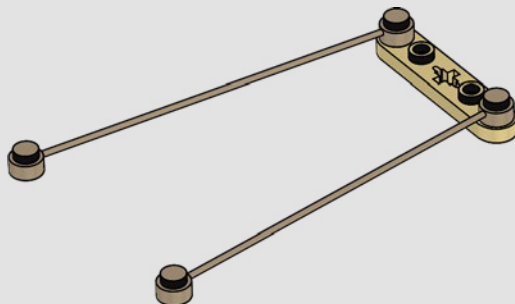
122



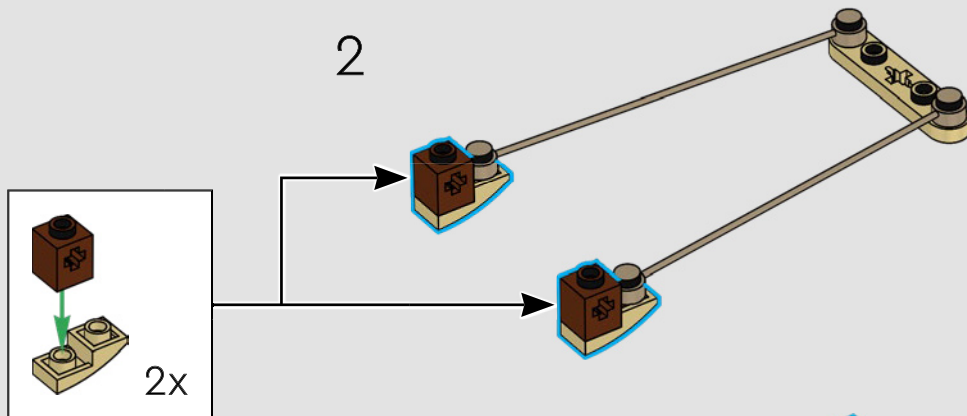


123

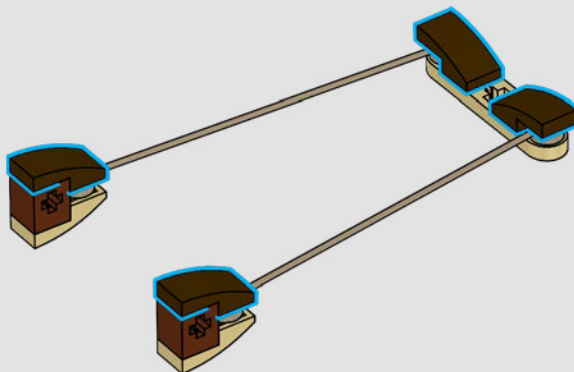
1

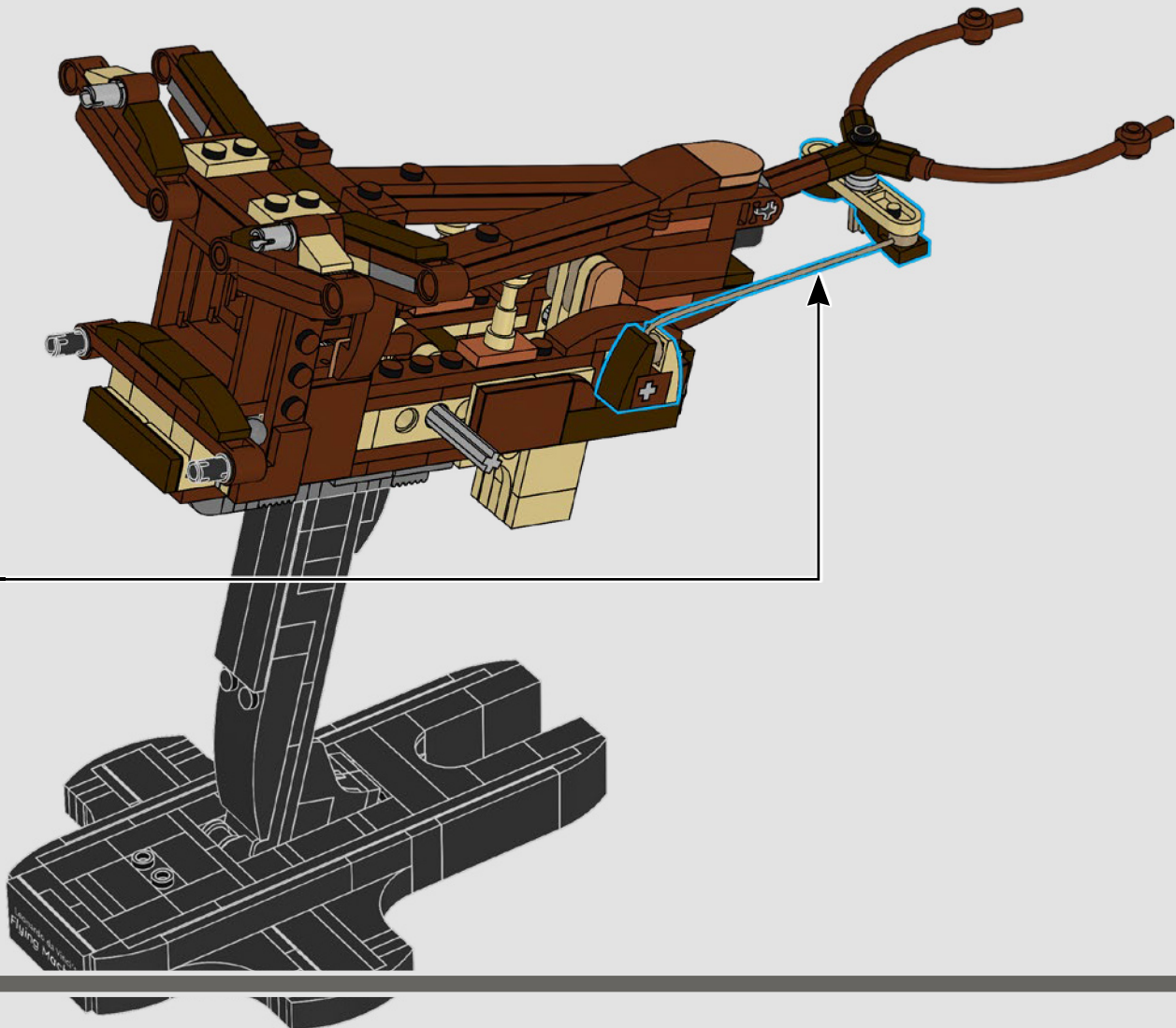


2



3

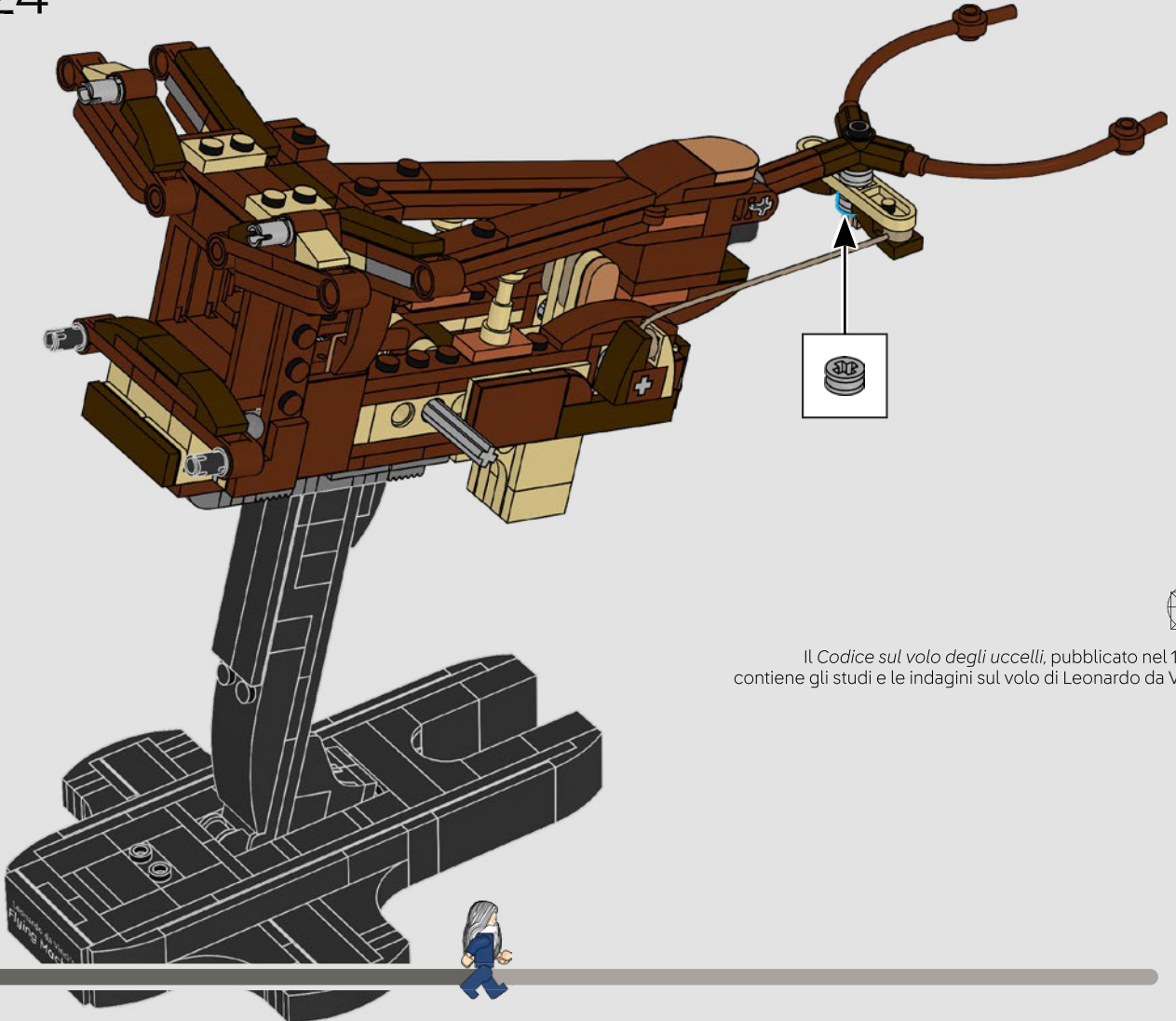




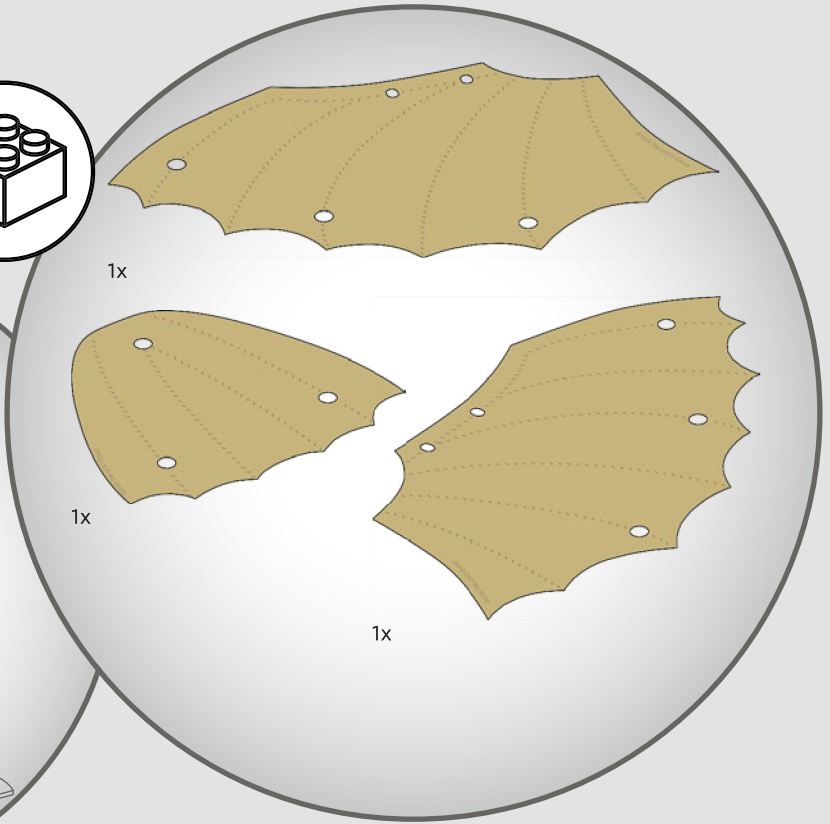
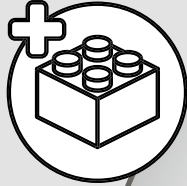
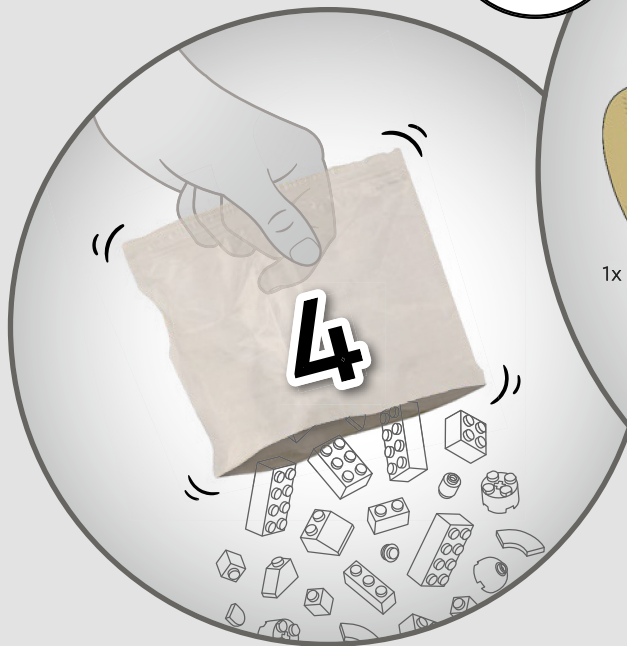


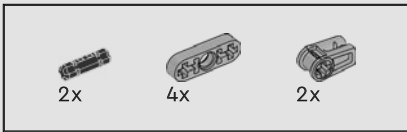
1x

124

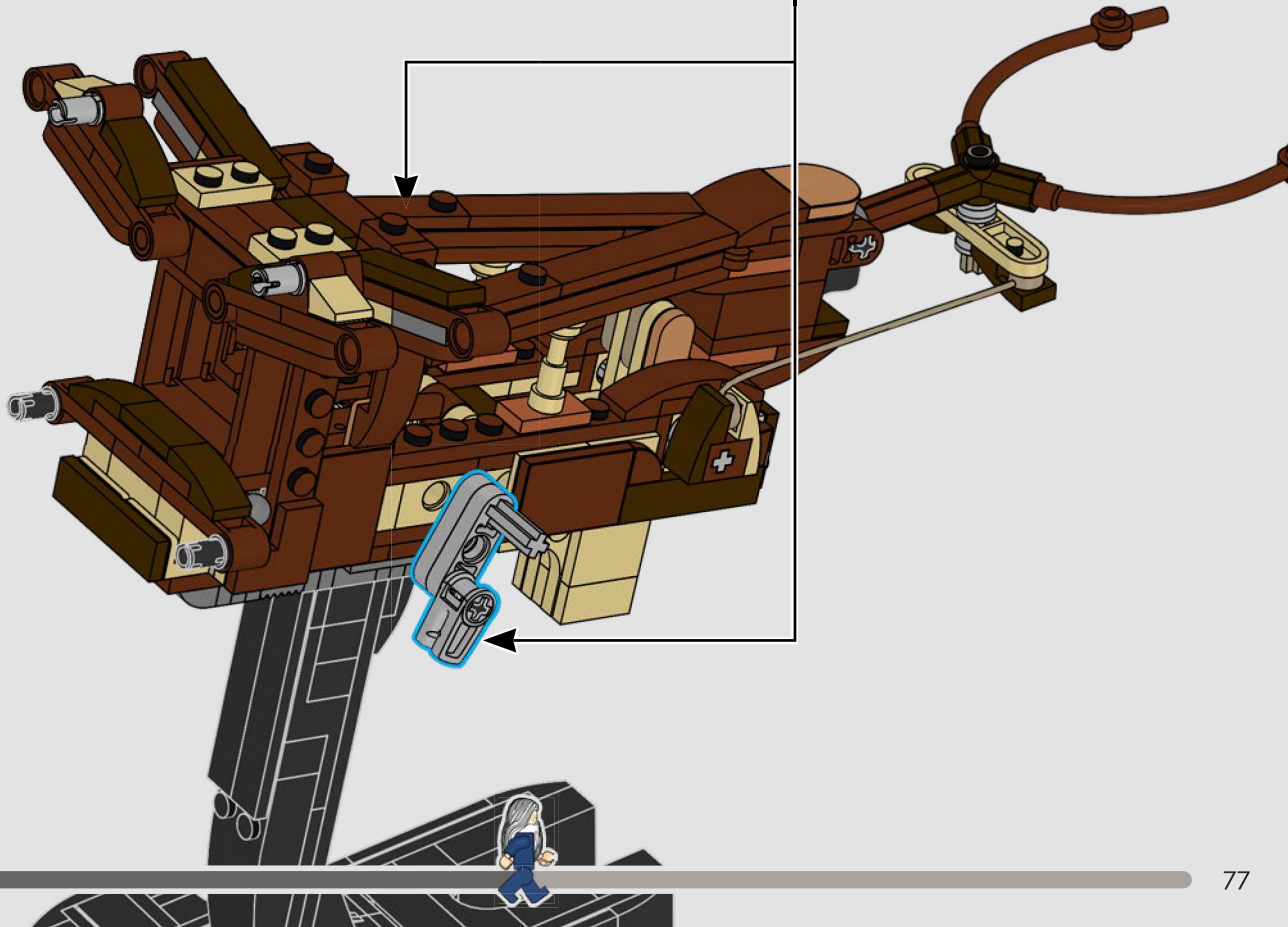
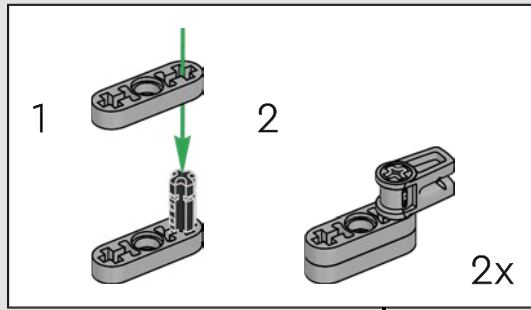


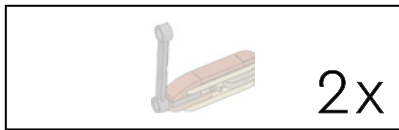
Il Codice sul volo degli uccelli, pubblicato nel 1505, contiene gli studi e le indagini sul volo di Leonardo da Vinci.



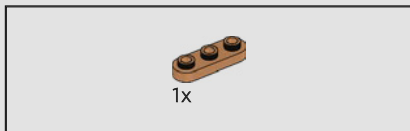
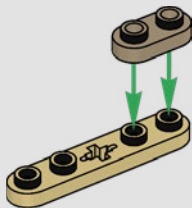


125

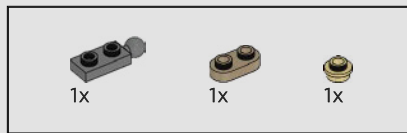
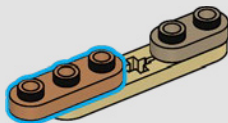




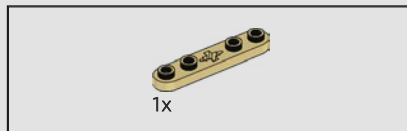
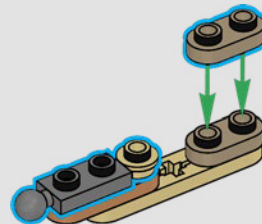
126



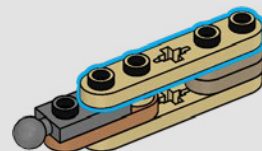
127

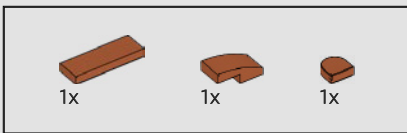


128

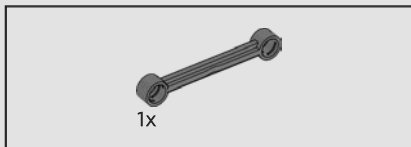
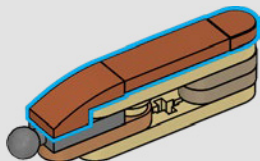


129

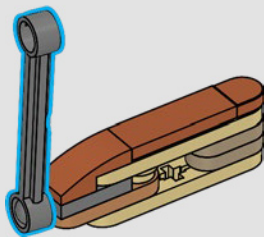




130

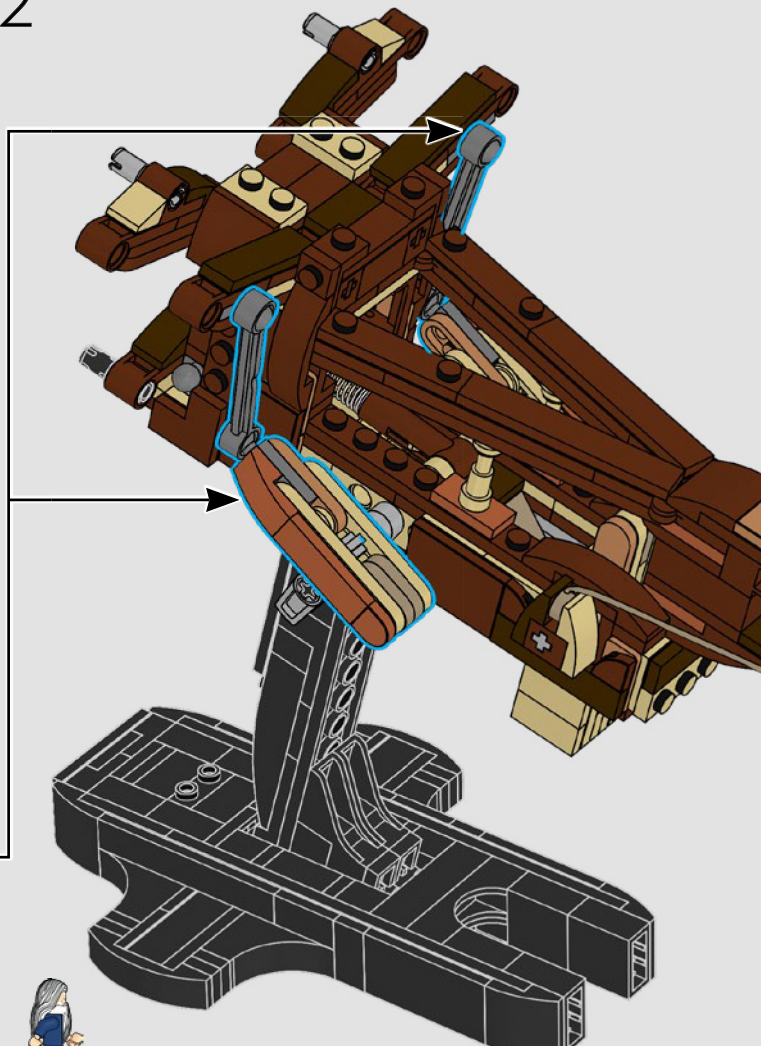


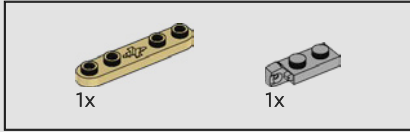
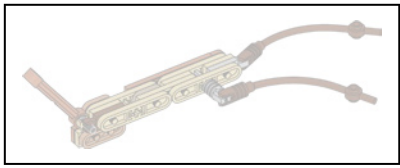
131



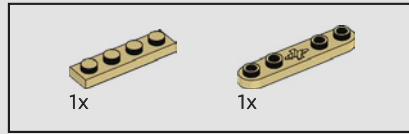
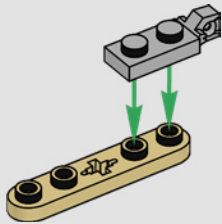
2x

132

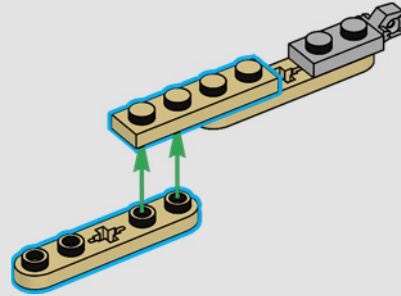




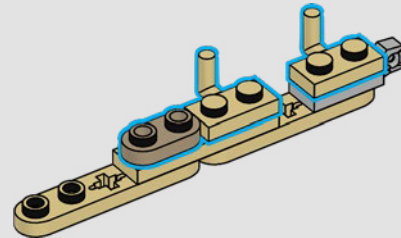
133

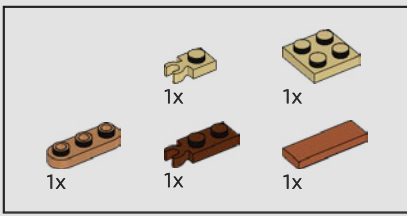


134

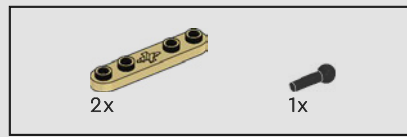
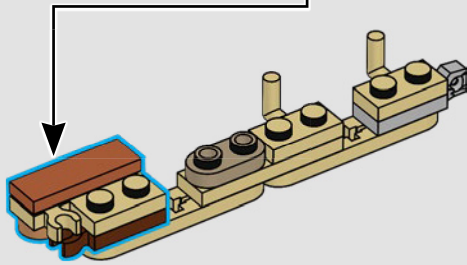
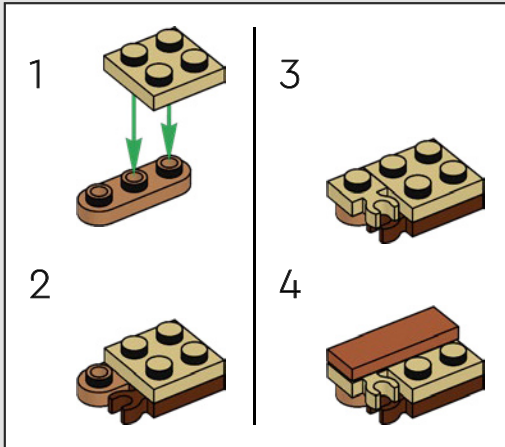


135

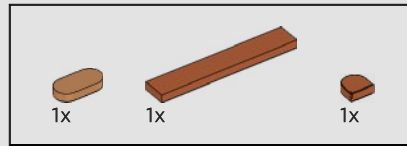
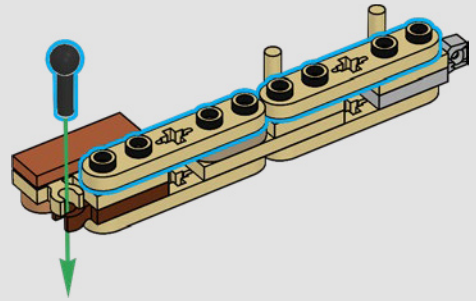




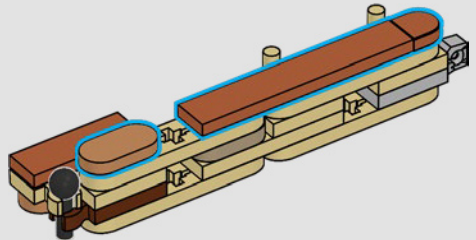
136

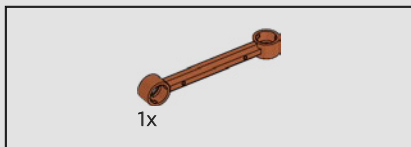


137

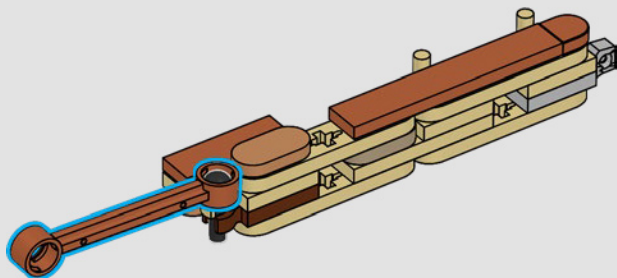


138

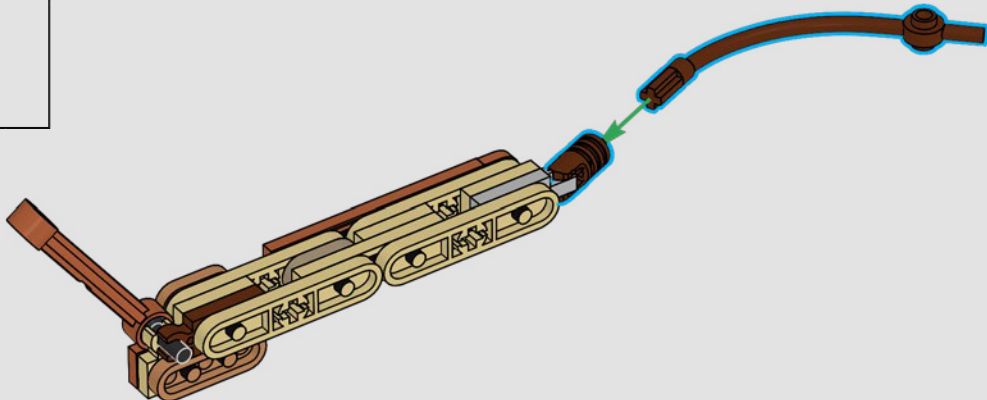
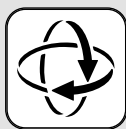


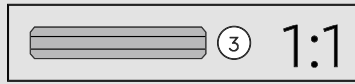
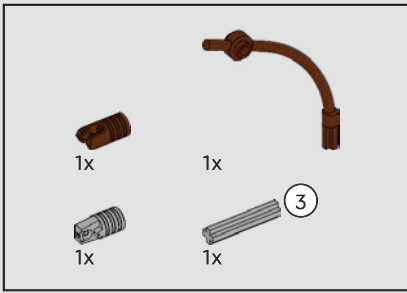


139

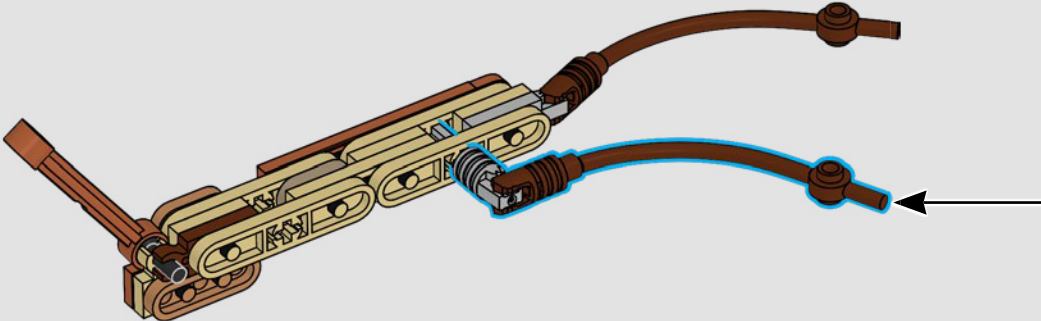
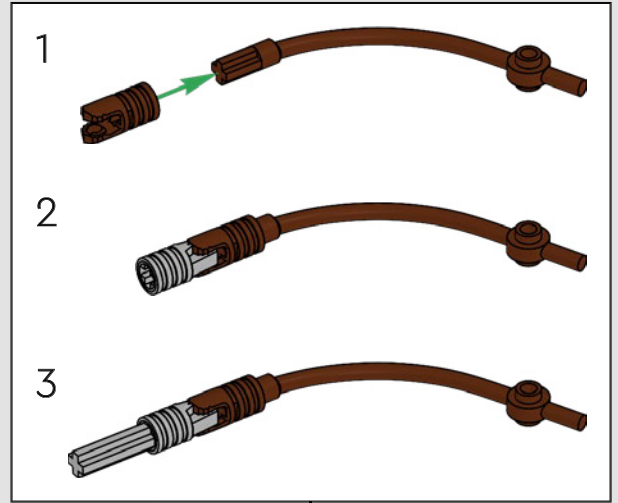


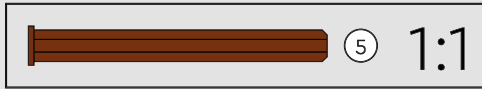
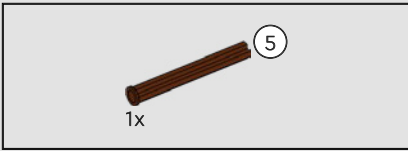
140



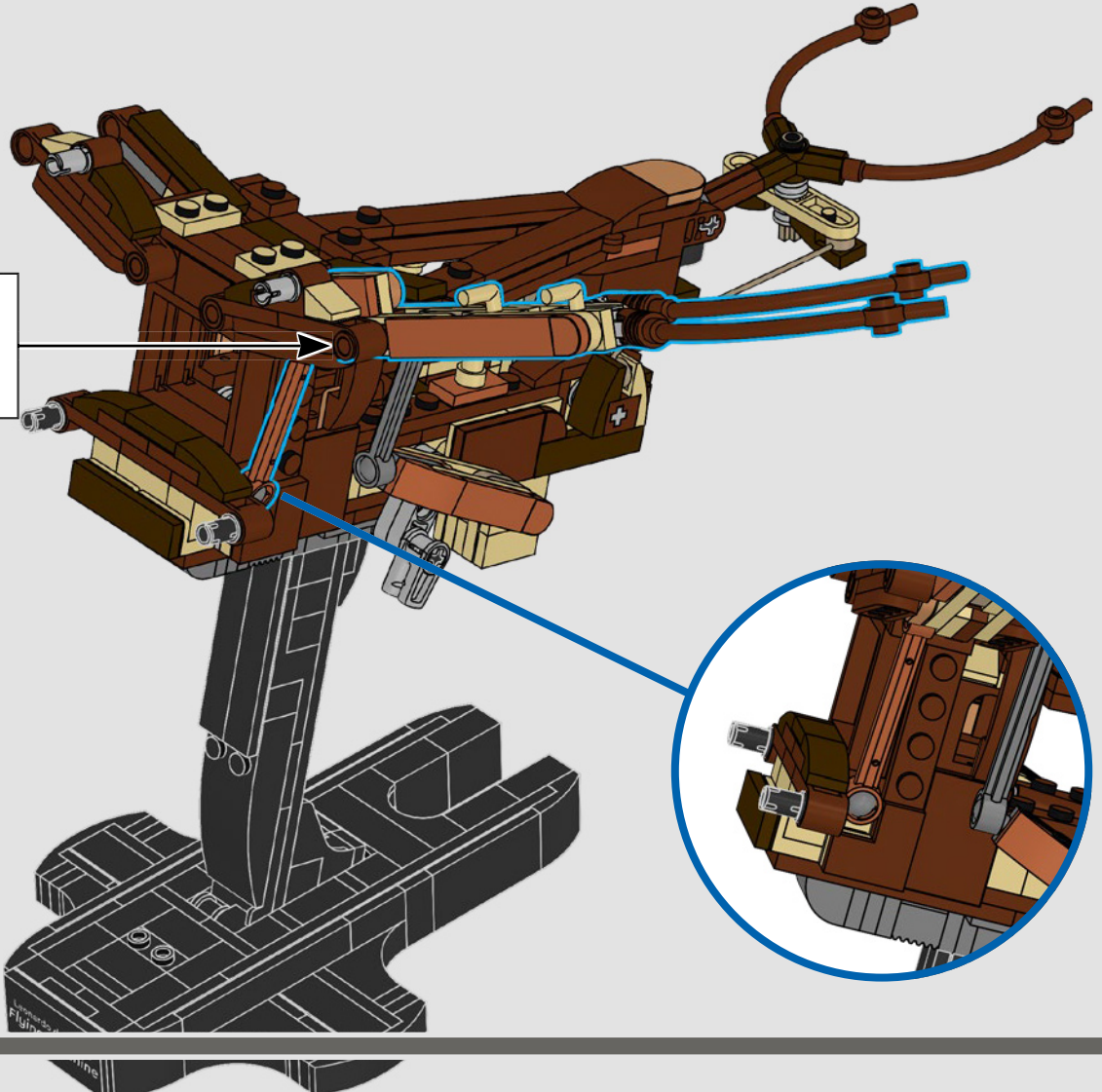
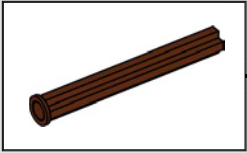


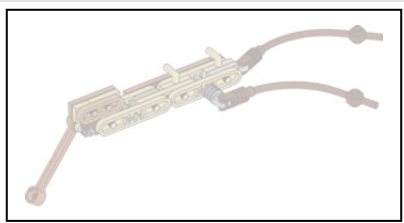
141



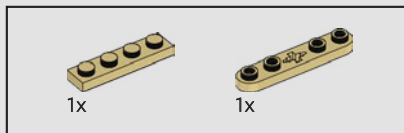
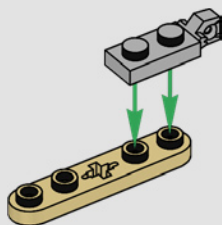


142

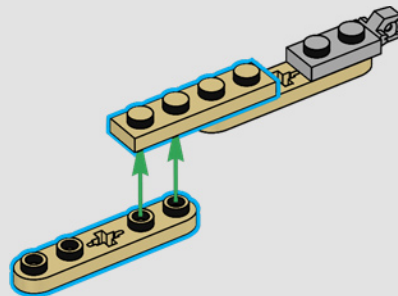




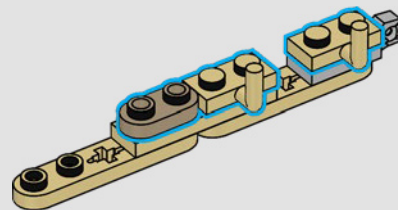
143

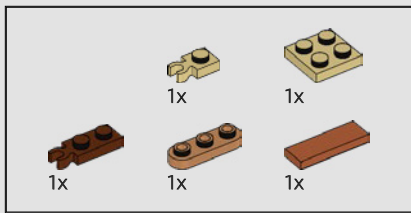


144

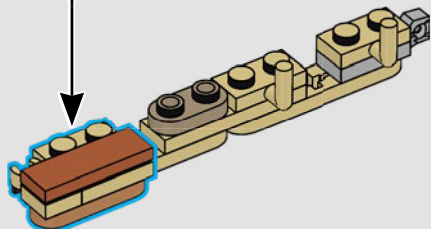
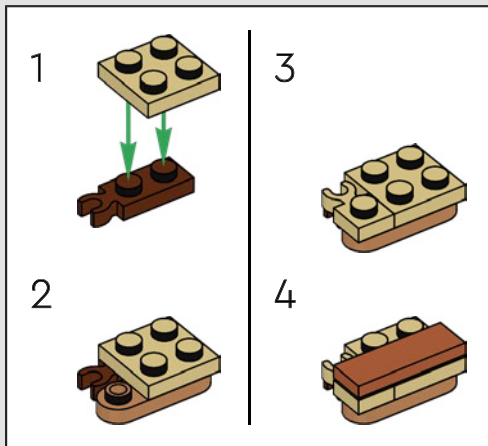


145

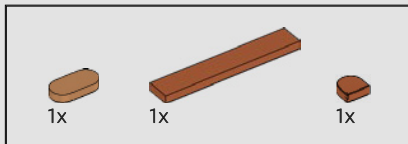
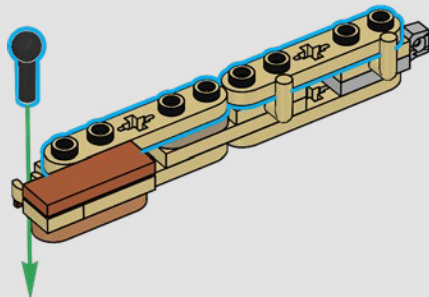




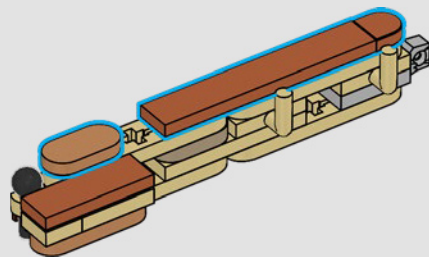
146

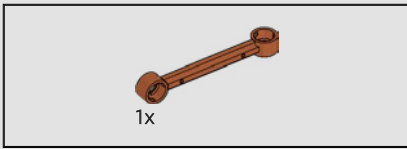


147

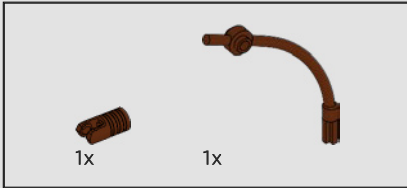
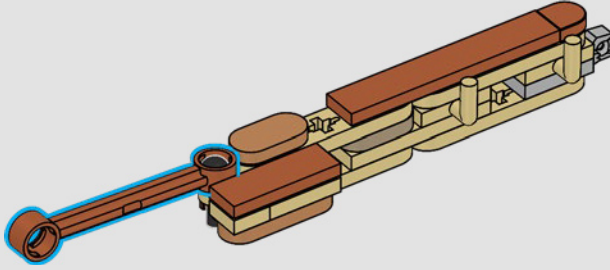


148

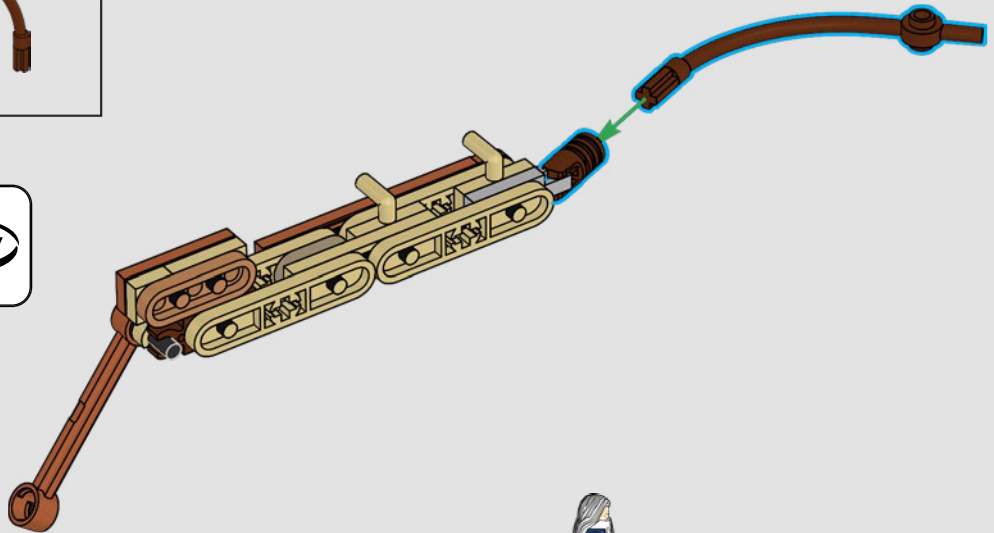


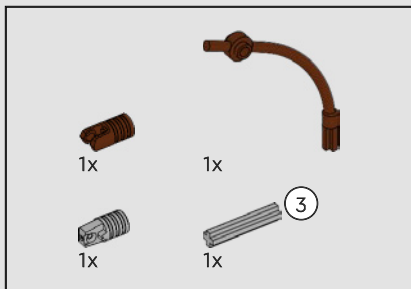


149

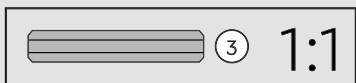
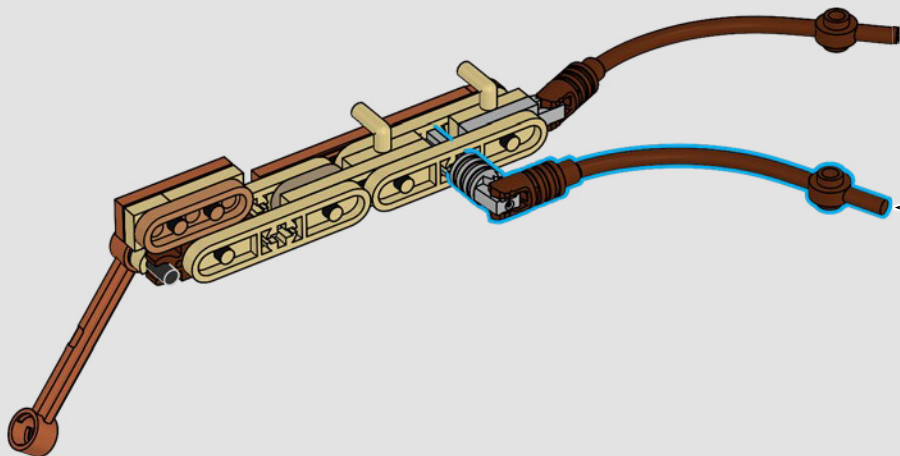
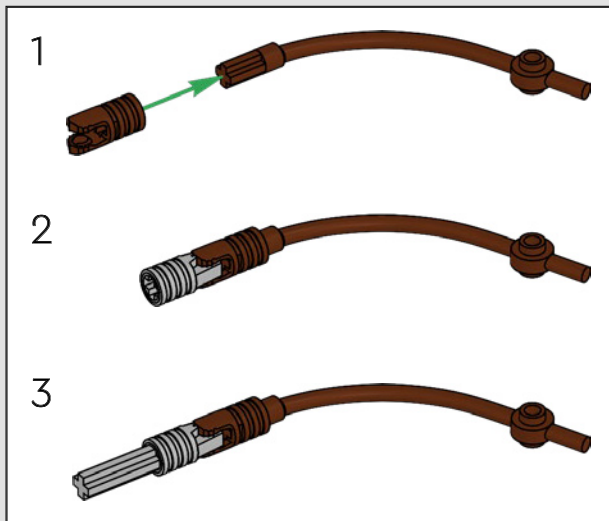


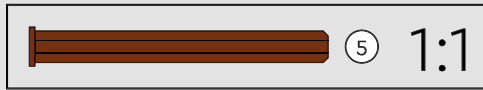
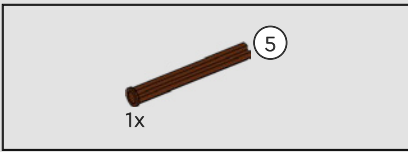
150



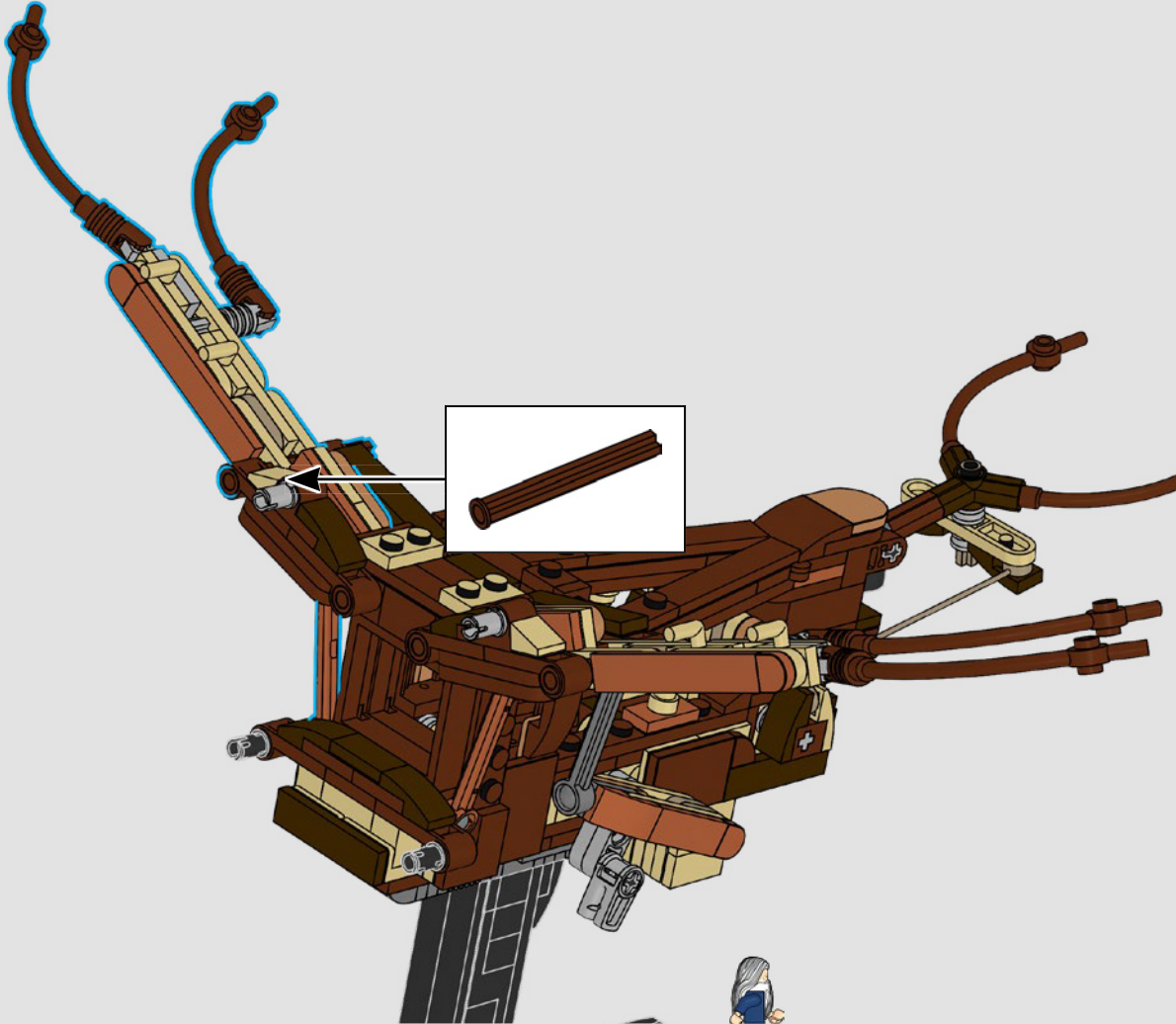


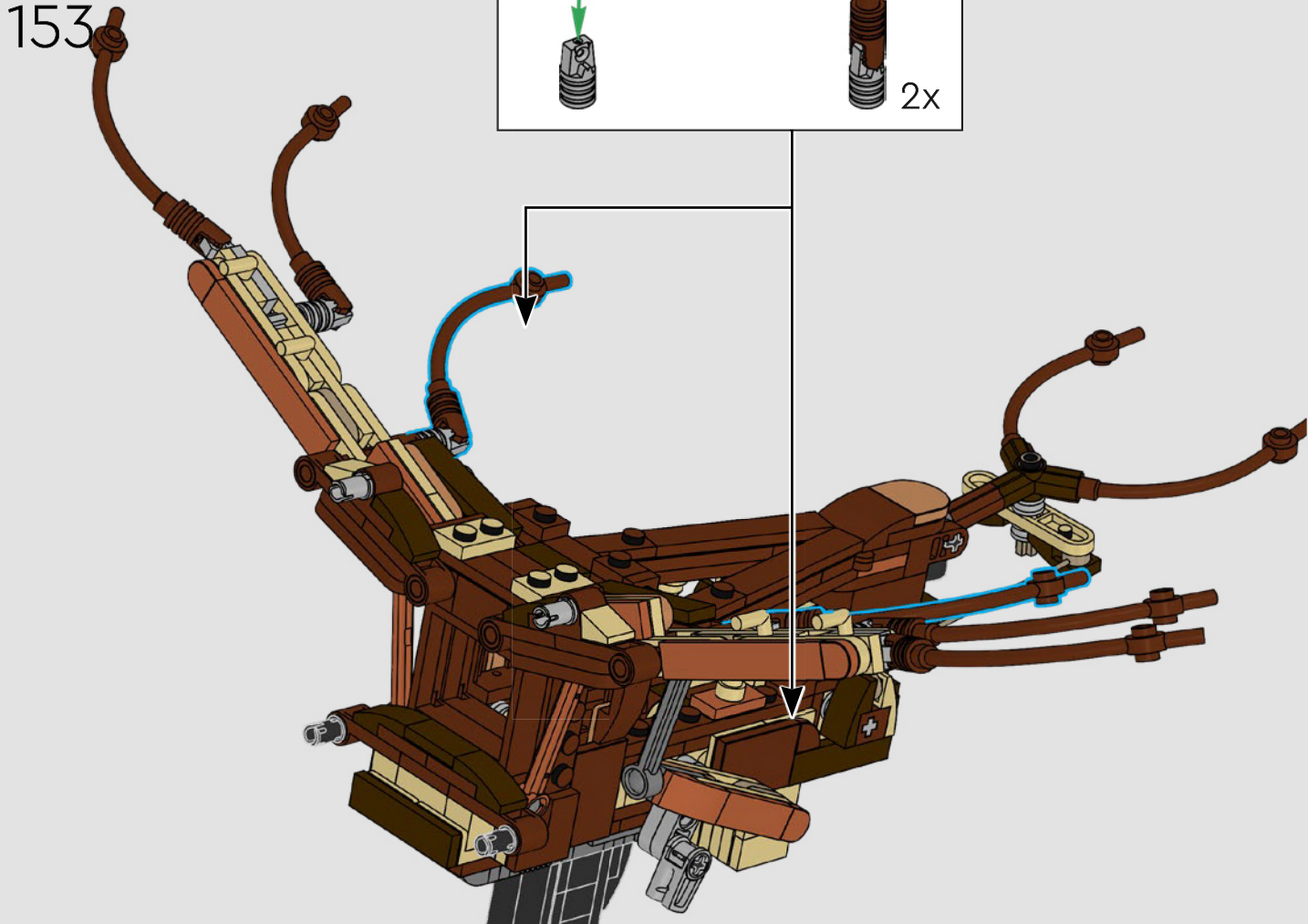
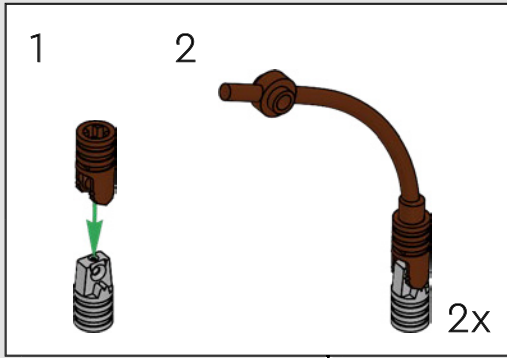
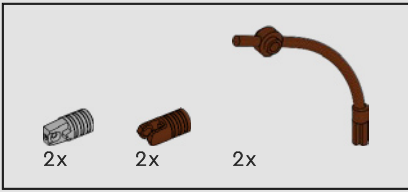
151

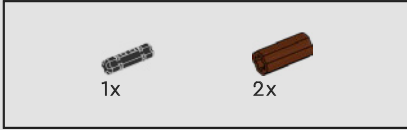




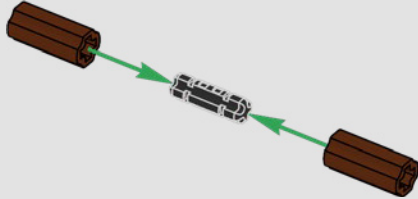
152



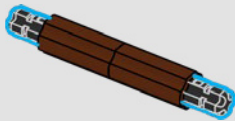




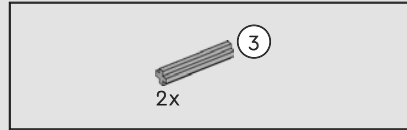
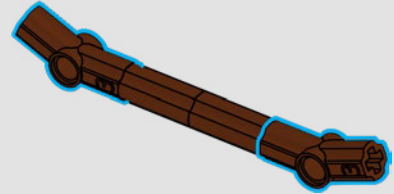
154



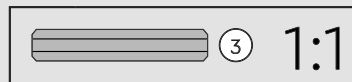
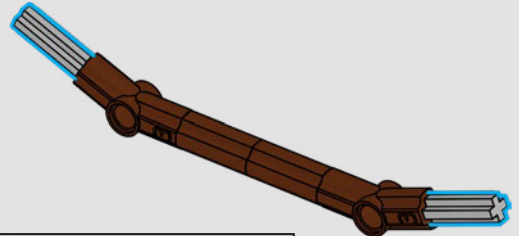
155



156

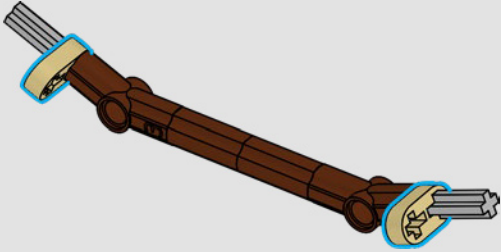


157

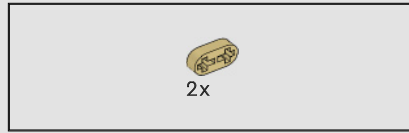
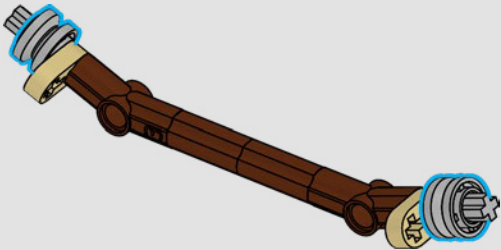




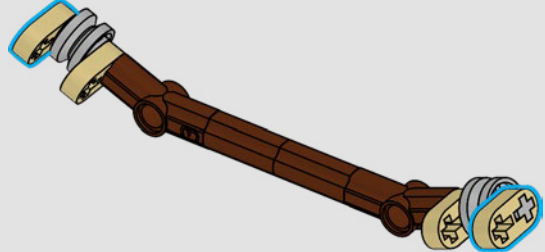
158



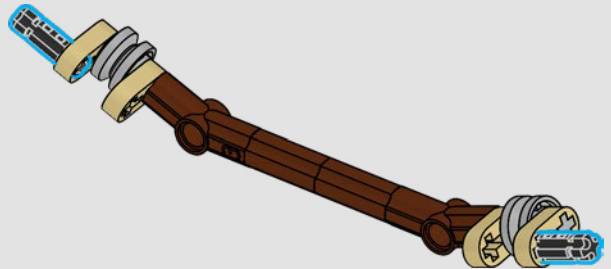
159



160



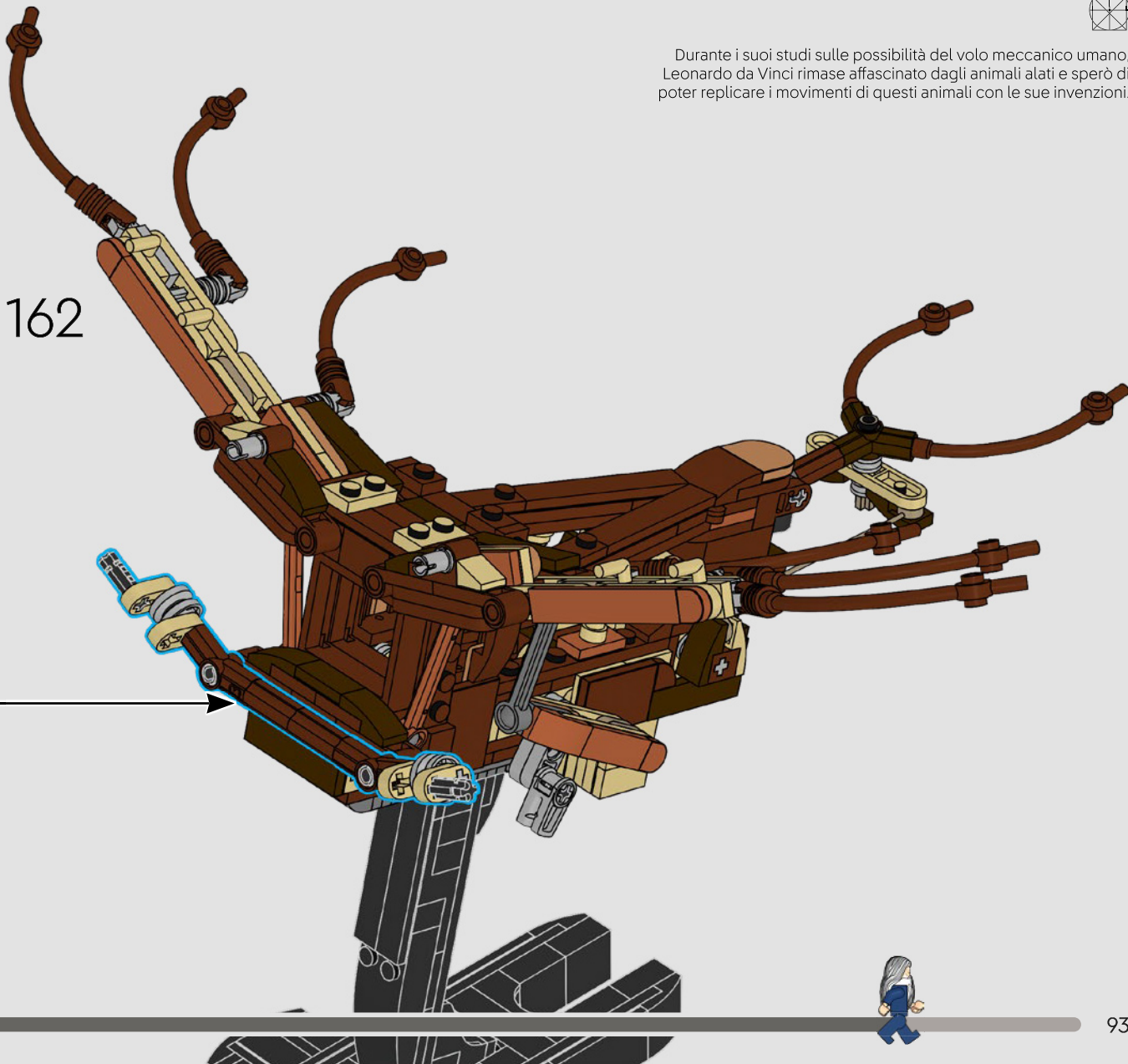
161

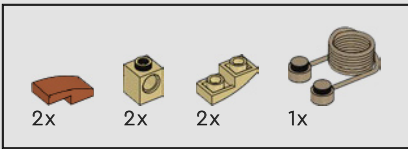




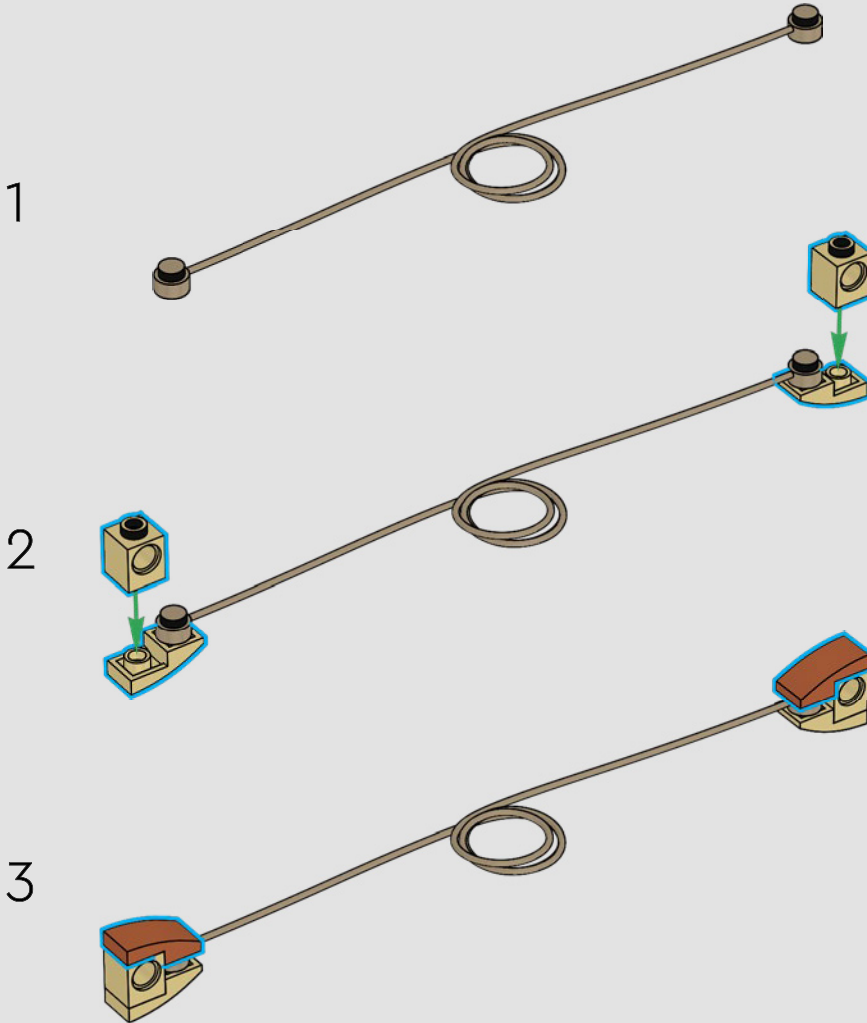
Durante i suoi studi sulle possibilità del volo meccanico umano, Leonardo da Vinci rimase affascinato dagli animali alati e sperò di poter replicare i movimenti di questi animali con le sue invenzioni.

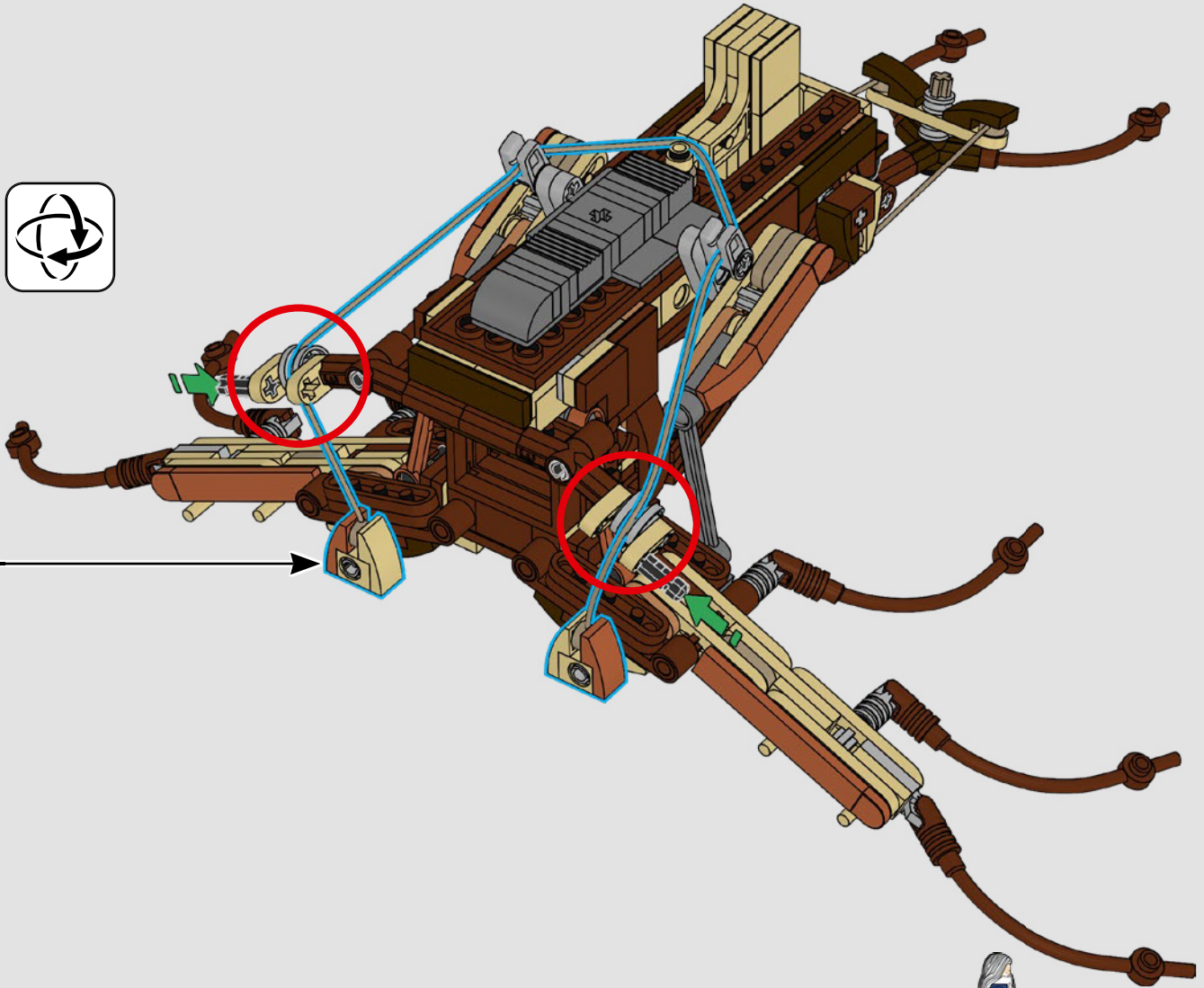
162





163

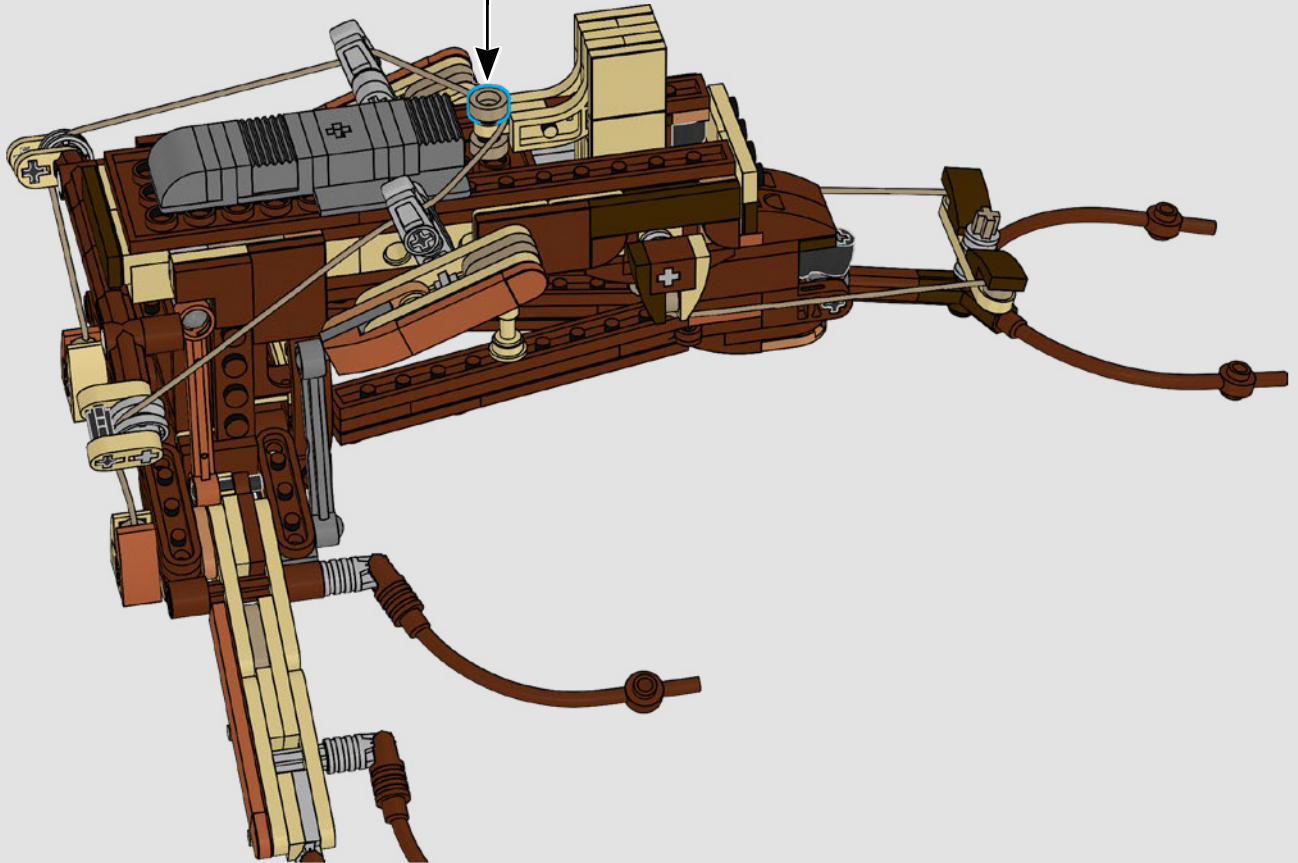
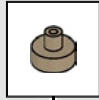




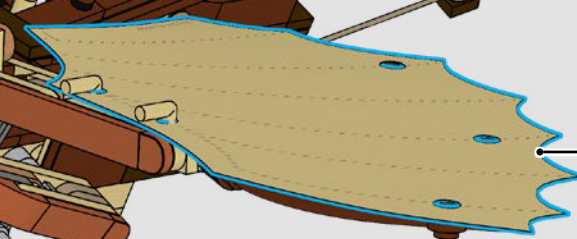
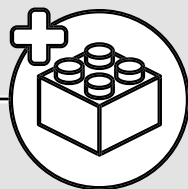
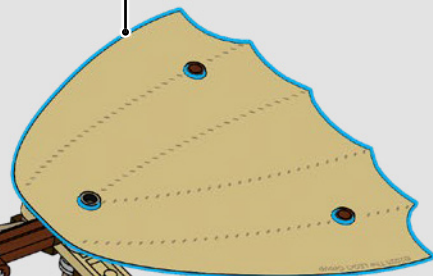
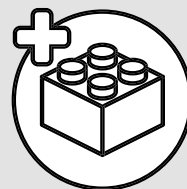
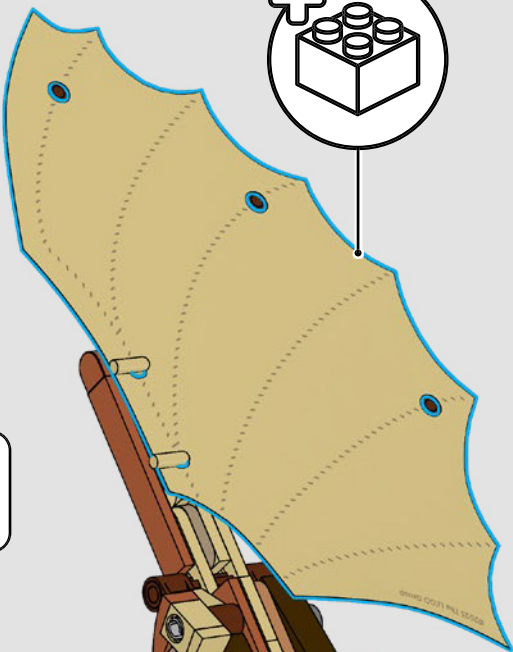
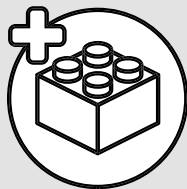


1x

164



165



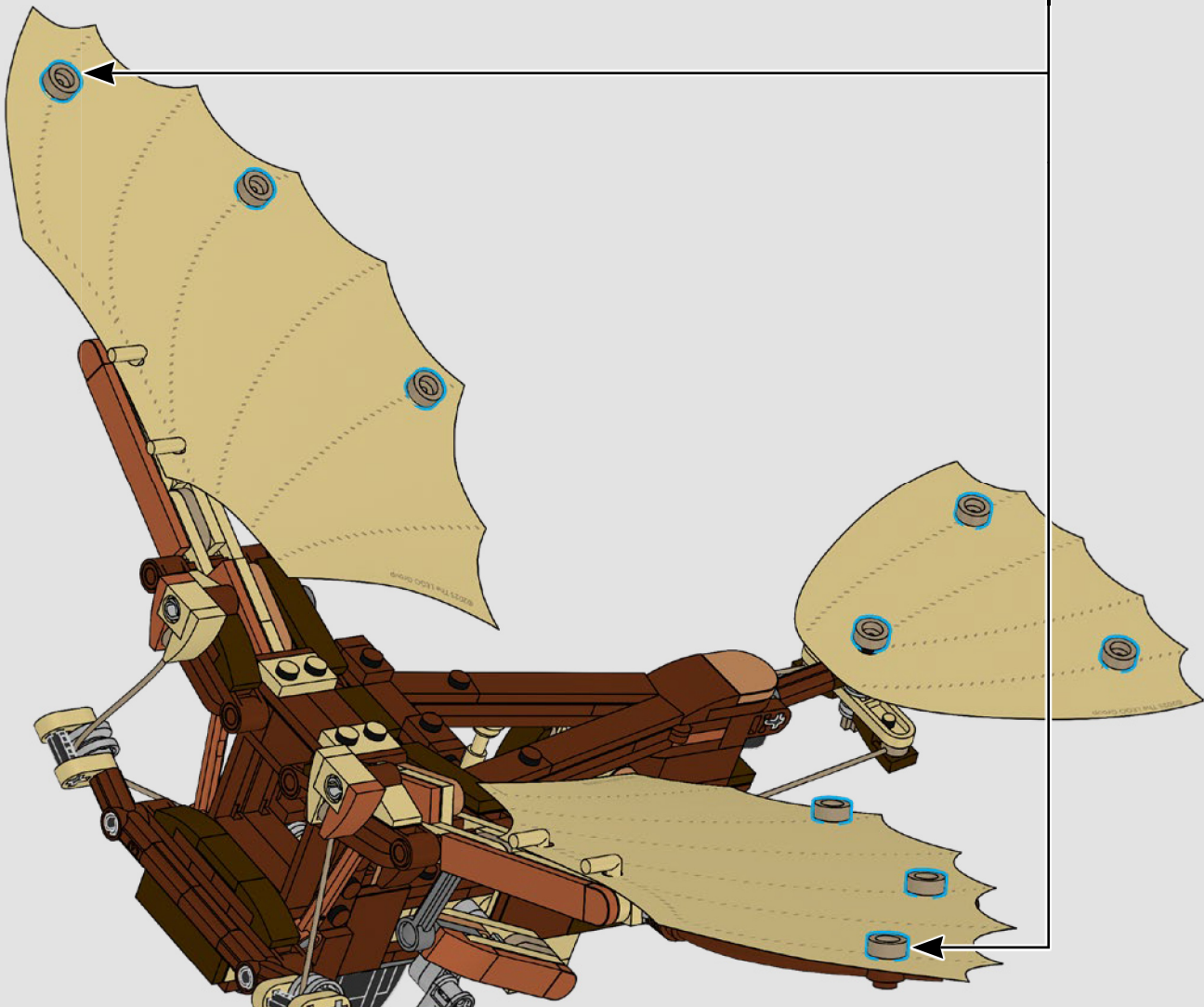


9x



9x

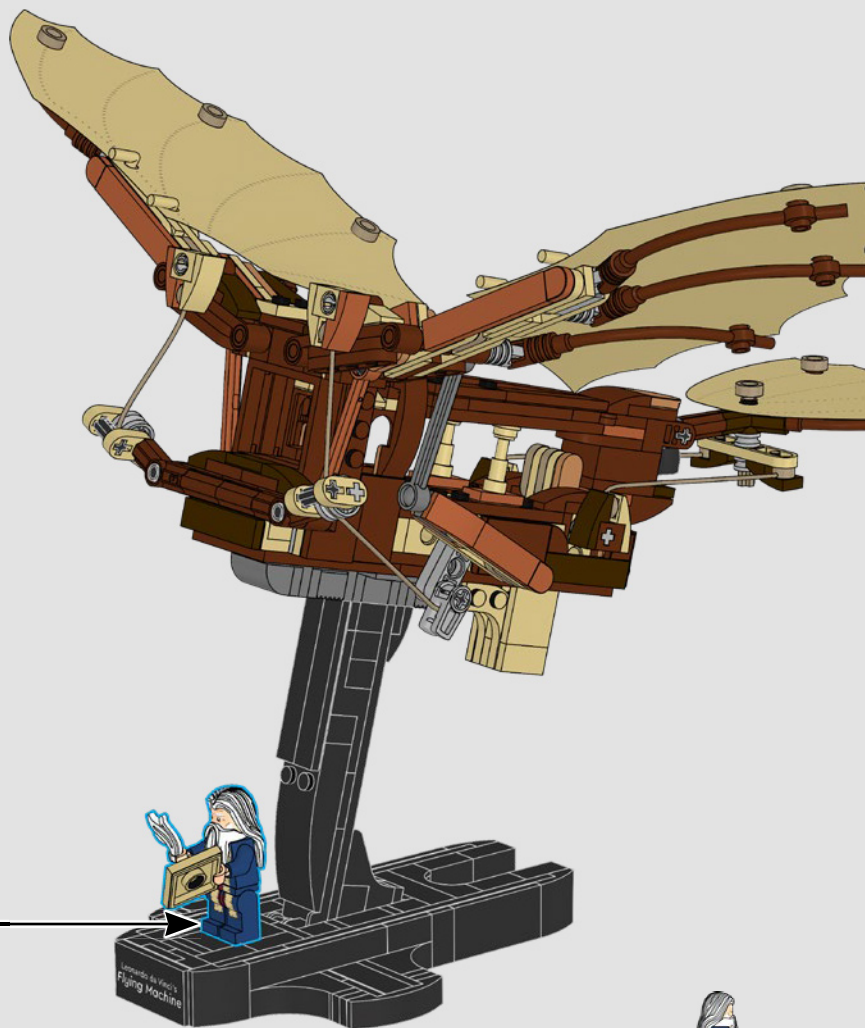
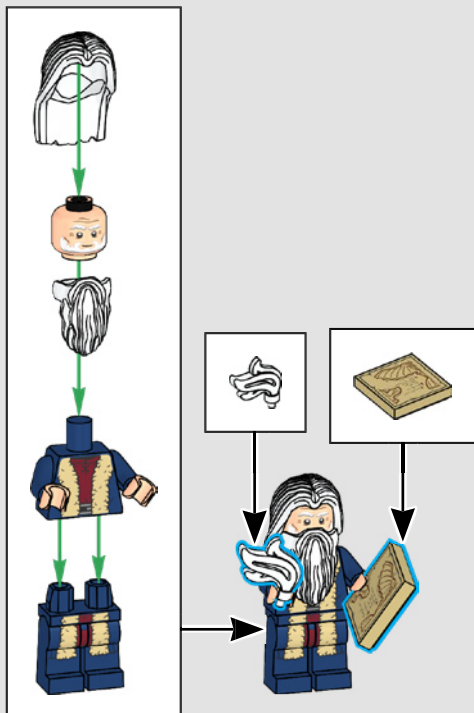
166





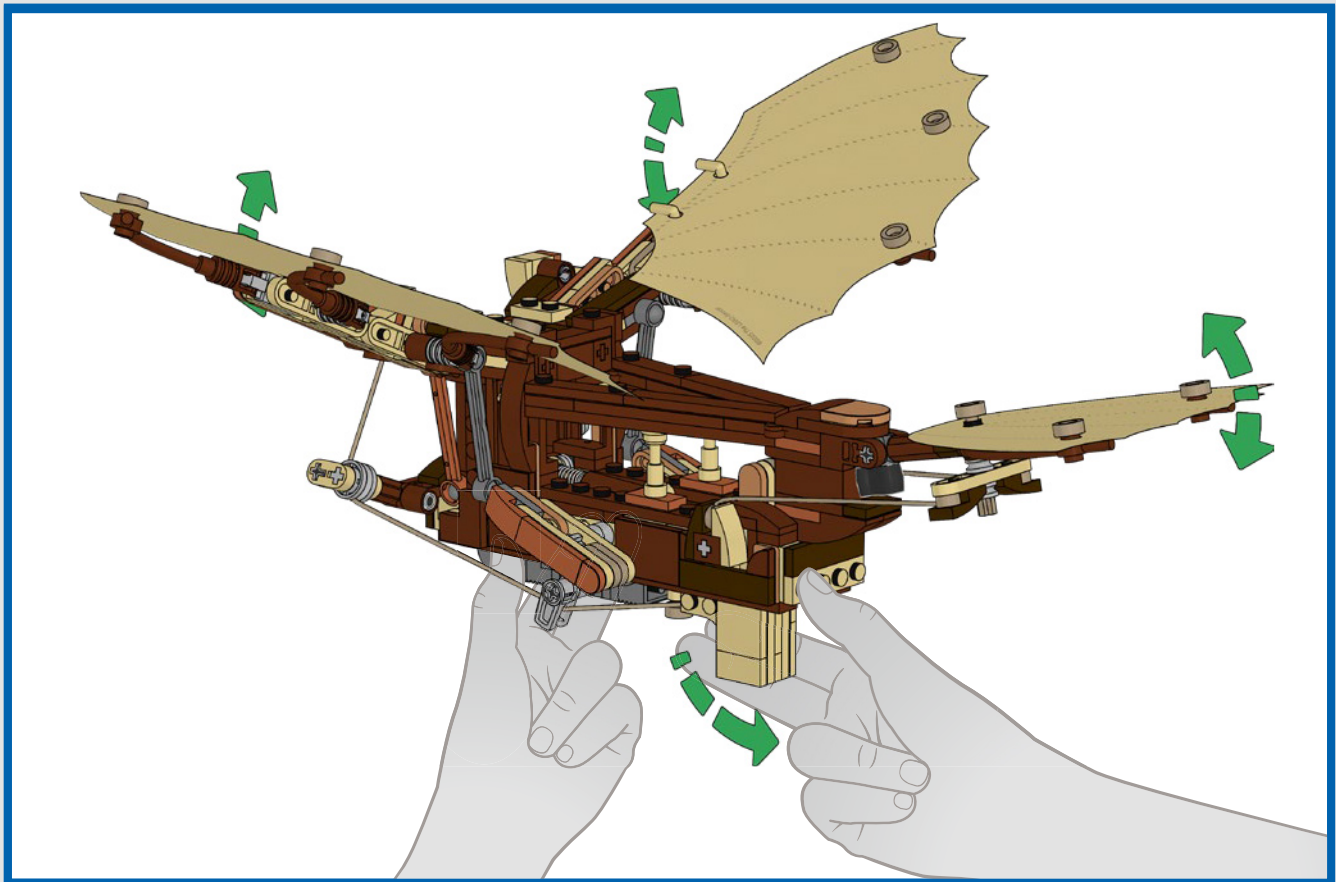
Abbiamo progettato il modello in modo che il grilletto possa essere attivato in almeno tre modi diversi: sul supporto, quando viene tenuto in una mano e quando viene tenuto in entrambe le mani (una sul grilletto, l'altra che supporta il modello).

167





Una delle sfide progettuali è stata quella di capire dove posizionare il grilletto per la funzione di azionamento delle ali, in modo che le mani dei costruttori non interferissero con nessuna parte del meccanismo o delle corde.



2x 6424674
 2x 654126
 10x 302426
 2x 6509664
 9x 4109810
 2x 6279875
 1x 4198367
 2x 6114987
 7x 6178922
 4x 302326
 8x 306926
 10x 6275806
 2x 6192309
 2x 6147050

6x 302226
 3x 300326
 4x 6053077
 3x 6469445
 1x 6321745
 2x 4581280
 4x 6154860
 2x 365926
 2x 4613153
 1x 6258904
 1x 300126
 2x 4560182

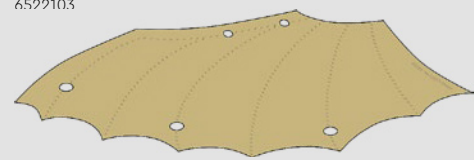
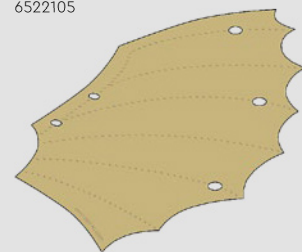
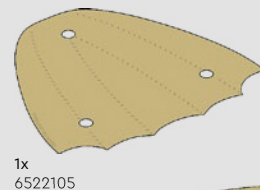
2x 362326
 1x 6562781
 1x 6533639
 4x 663626
 1x 4180548
 2x 346026
 3x 4514845
 1x 611226
 1x 244526
 1x 6523326
 1x 6530674

6x 6380634
 3x 6507790
 1x 6513939
 4x 6492538
 3x 4206482
 1x 4142865
 2x 6129995
 6x 6443061
 1x 6167923
 4x 4516055
 2x 4179771
 6x 6376461
 2x 6352222
 1x 6281995
 15x 4113917
 2x 4523145

4

4x 6261357
 4x 6251252
 1x 4114026
 2x 6060850
 2x 6313611
 8x 6117975
 2x 4114084
 2x 6013081
 1x 6523327
 2x 4121921
 1x 4159739
 2x 4234365
 6x 4113233

2x 6397561
 15x 6311104
 1x 4114309
 1x 6122047
 2x 4112982
 1x 6519042



1x 6522105
 1x 6522103
 1x 6522097

- 4x 6359273
- 2x 6092602
- 4x 6186009
- 2x 4615606
- 4x 6340118
- 2x 6523583
- 2x 6359696
- 1x 6315564
- 1x 6289366
- 1x 6353972
- 11x 6300320
- 8x 6231386
- 2x 6330148
- 1x 6184880
- 1x 6031821
- 1x 6532367
- 2x 6533185
- 1x 6240515

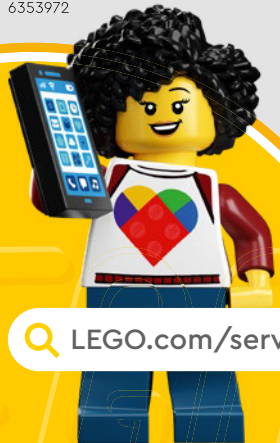
- 11x 4221744
- 4x 6149677
- 8x 6397610
- 2x 6472546
- 6x 6503738
- 3x 4531751
- 8x 4211150
- 2x 6138664
- 2x 6063447
- 2x 6502370
- 2x 6459597
- 2x 6221608
- 3x 6146858

- 2x 6261388
- 10x 6415991
- 1x 6534905
- 2x 6172636
- 6x 6463591
- 4x 6311441
- 3x 4211189
- 1x 4216668
- 4x 4211190
- 4x 4658005
- 5x 6257604
- 2x 4595889

- 2x 6092566
- 4x 6416695
- 1x 4211201
- 4x 6159763
- 8x 6516553
- 4x 4221590
- 2x 4211204
- 4x 4629920
- 4x 4216945
- 2x 4271874
- 2x 4223683

- 1x 6005331
- 2x 4210636
- 4x 4211063
- 1x 6302690
- 1x 6178919
- 2x 6039479
- 2x 6308045
- 4x 6123814
- 2x 6118832
- 2x 4629920
- 6x 4566688
- 8x 6046943
- 1x 6273219
- 6x 6313874

- 1x 6523324
- 6x 6271165
- 2x 6335328
- 2x 4211758
- 4x 6265704
- 2x 4211807
- 2x 6471951
- 4x 6360043
- 2x 6266231
- 4x 4211815
- 4x 4211429
- 1x 4211396
- 1x 4211805
- 1x 4535768



 [LEGO.com/service](https://www.LEGO.com/service)

5

3

7

9



YOU COULD WIN



YOU COULD WIN

Your feedback will help shape the future development of this product series.

Visit:

DU KÖNNTEST GEWINNEN

Dein Feedback trägt zur Weiterentwicklung dieser Produktreihe bei.

Geh auf:

VOUS POURRIEZ GAGNER

Vos commentaires nous aideront à concevoir les futurs produits de cette gamme.

Visitez :

POTRESTI VINCERE TU

La tua opinione ci aiuterà a migliorare la creazione futura di questa linea di prodotti.

Visita:

PUEDES GANAR

Tu opinión contribuirá al futuro de esta serie de productos.

Visita:

轻松获奖

您的反馈将有助于我们在今后改进本产品系列。

请访问：

LEGO.com/productfeedback

You also have the chance to win a LEGO® set.

Terms and conditions apply.*

Außerdem hast du die Chance, ein LEGO® Set zu gewinnen.

Es gelten die Teilnahmebedingungen.*

Vous pourriez également gagner un ensemble LEGO®.

Des conditions s'appliquent.*

Hai anche la possibilità di vincere un set LEGO®.

Termini e condizioni sono applicabili.*

También tienes la oportunidad de ganar un set LEGO®.

Aplican términos y condiciones.*

您还有机会赢取乐高®套装。

条款和条件适用。*

*LEGO.com/productfeedback-terms

