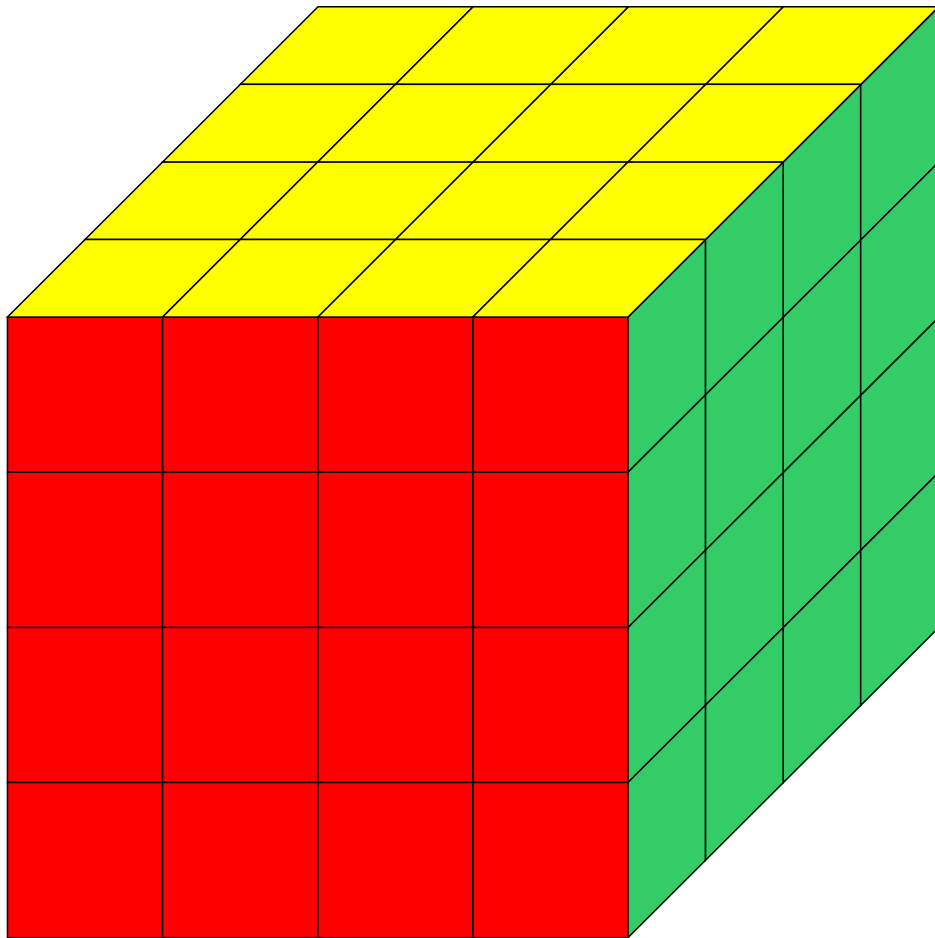


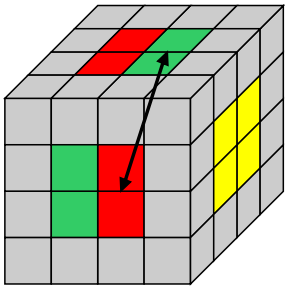
# Zauberwürfel

## 4 × 4

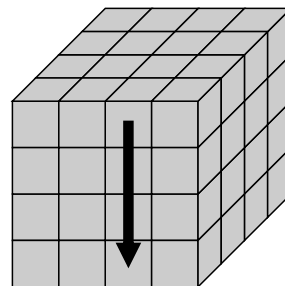
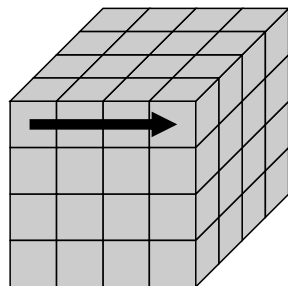
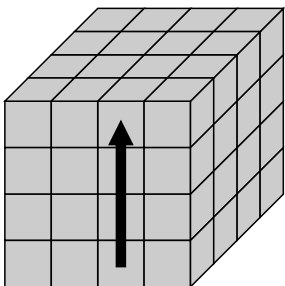
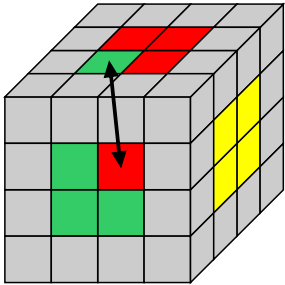
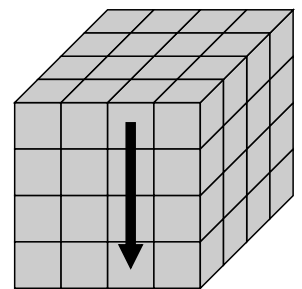
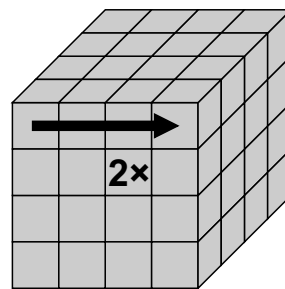
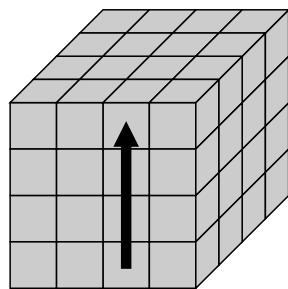
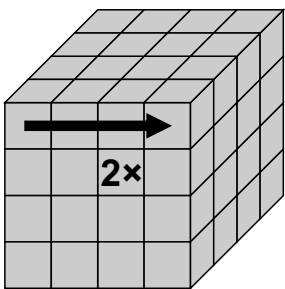
### Rubik's Revenge



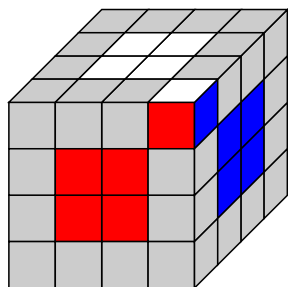
# Mittelsteine ordnen



Beim 4 mal 4 Zauberwürfel müssen zuerst die Mittelsteine geordnet werden. Man fängt mit den 4 weißen Mittelsteinen an und ordnet dann die gelben Mittelsteine auf der gegenüberliegenden Seite an. Danach kann man die Mittelsteine mit den anderen Farben ordnen.



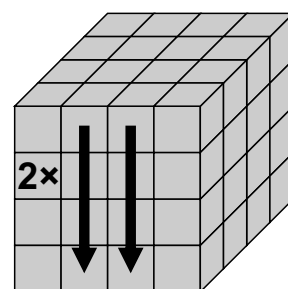
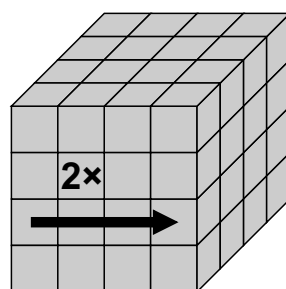
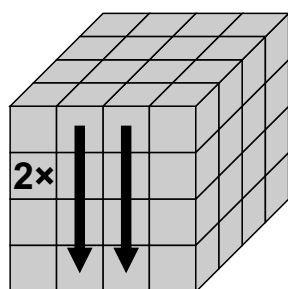
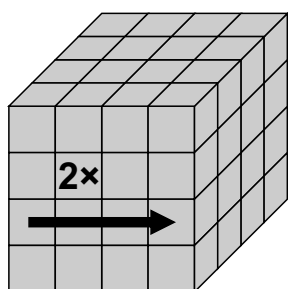
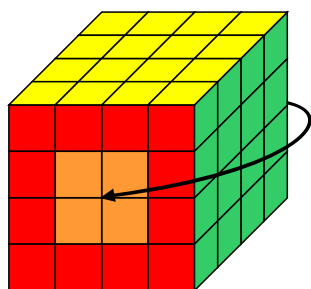
# Mittenblocks tauschen



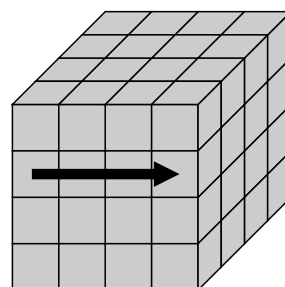
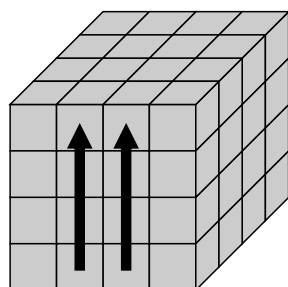
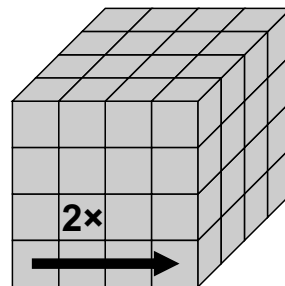
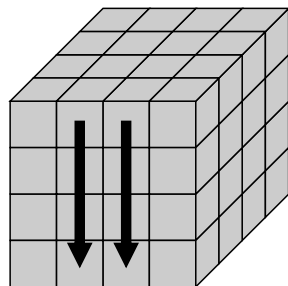
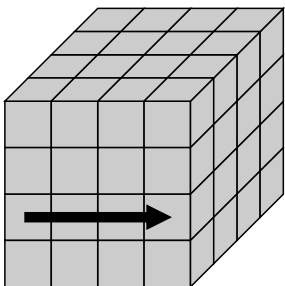
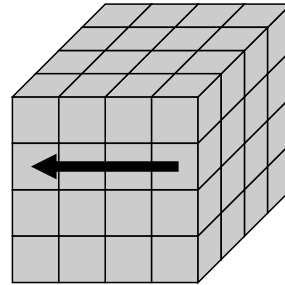
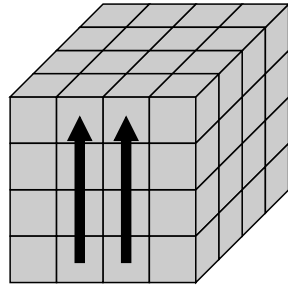
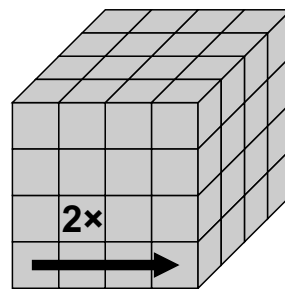
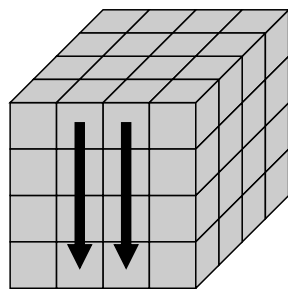
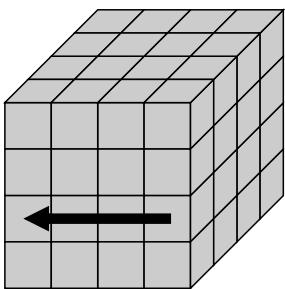
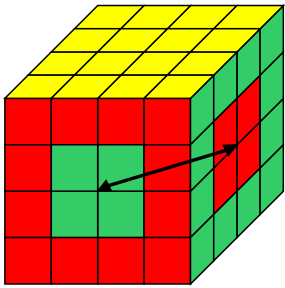
Es muss darauf geachtet werden dass die Mittelsteine an der richtigen Stelle sind.

Dabei können die Ecksteine helfen.

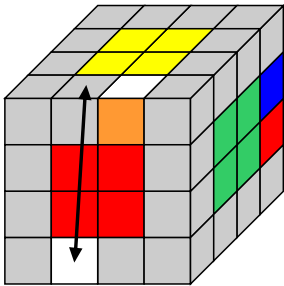
Wenn die Mittelsteine nicht stimmen, können sie mit den beiden nachfolgenden Zügen an die richtige Position gebracht werden.



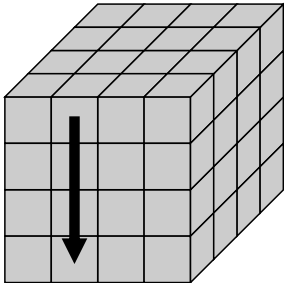
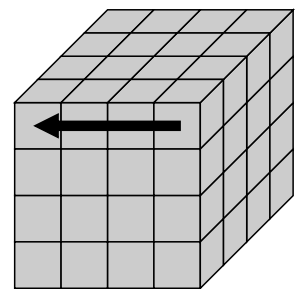
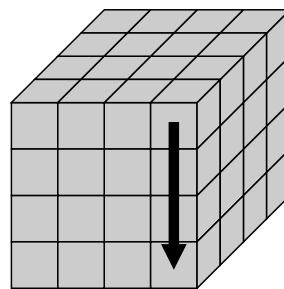
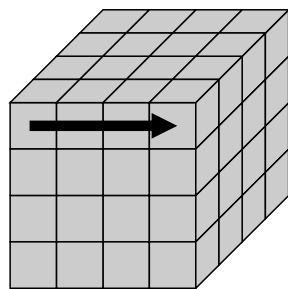
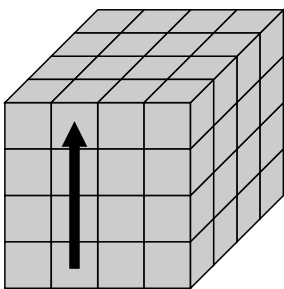
# Mittenblocks tauschen



# Kantenpaare bilden



rechts hinten zwei Kantensteine die noch nicht zusammen passen

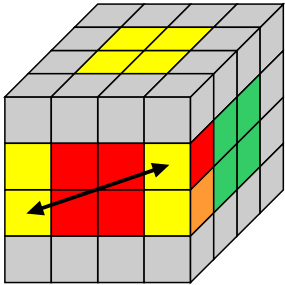
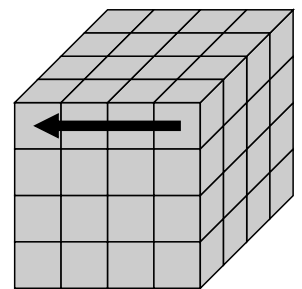
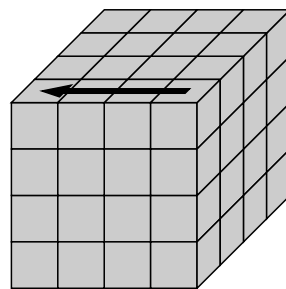
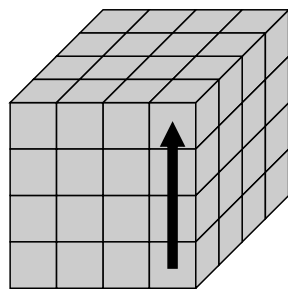
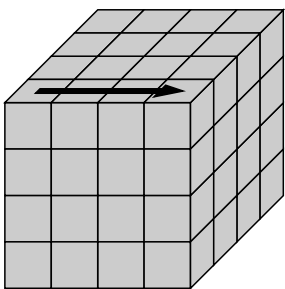
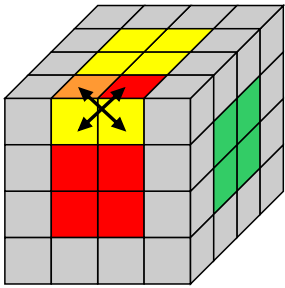


Wenn die Mittelsteine am richtigen Ort sind, müssen die zusammengehörenden Kantensteine zusammengebracht werden. Solange nur die seitlichen Ebenen und nicht mittlere Ebenen verdreht werden, können die Mittelsteine nicht mehr verdreht werden.

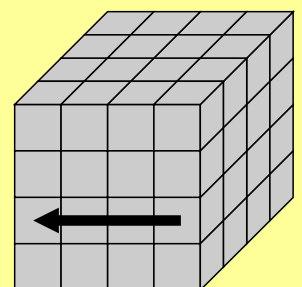
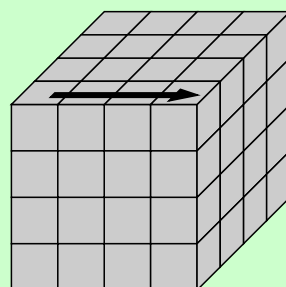
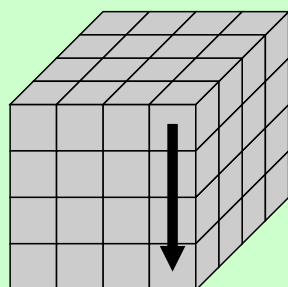
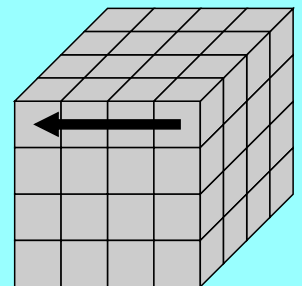
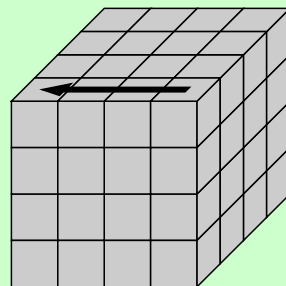
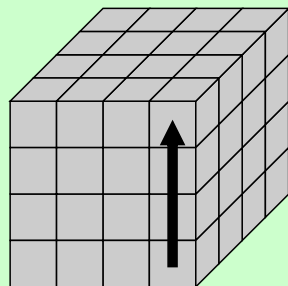
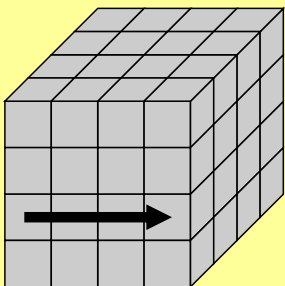
Nur um die Kantensteine zusammen zu bringen muss eine mittlere Ebene verdreht werden. Sie muss später wieder zurück gebracht werden.

Bei dem oben gezeigten Zug muss darauf geachtet werden dass rechts hinten zwei Kantensteine sind die noch nicht zusammen passen.

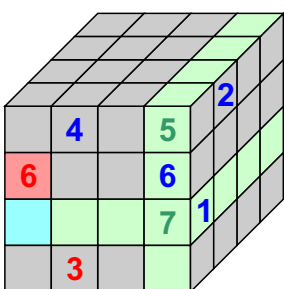
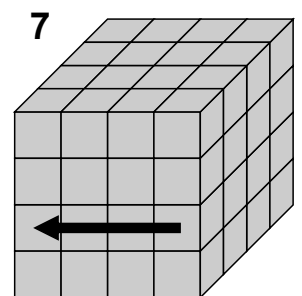
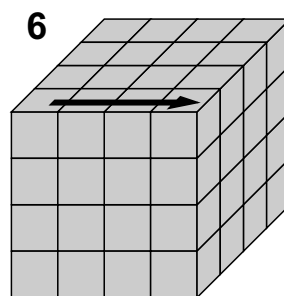
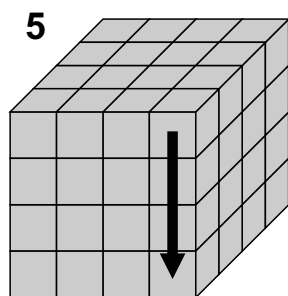
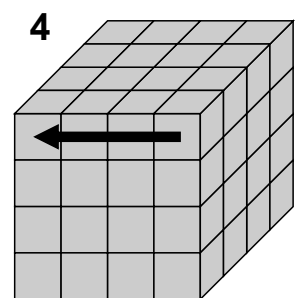
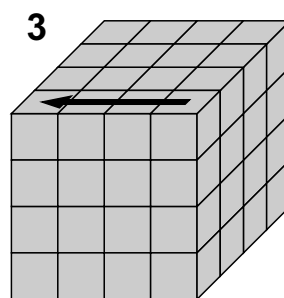
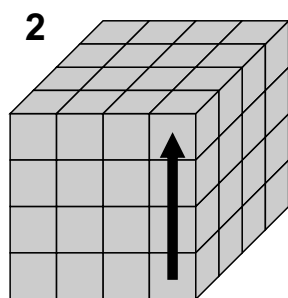
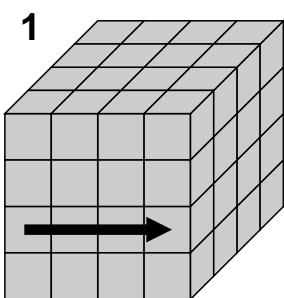
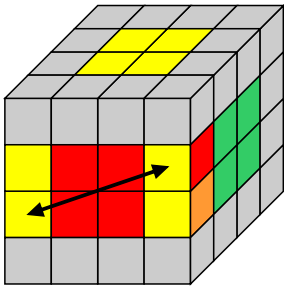
# Kantenpaare bilden



Für die letzten Kantenstein muss noch ein bestimmter Zug angewandt werden.



# Kantenpaare bilden mit Wege der Steine

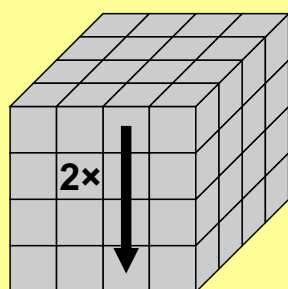
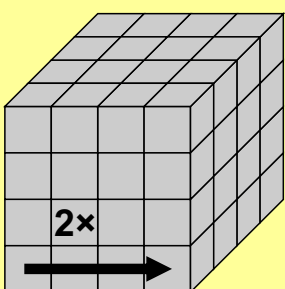
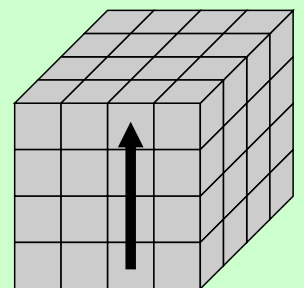
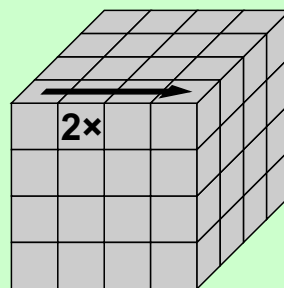
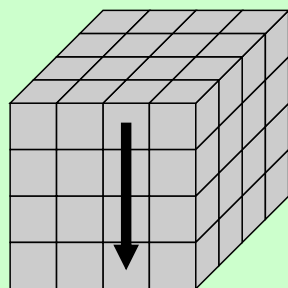
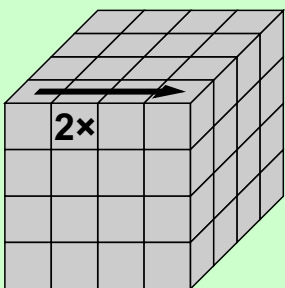
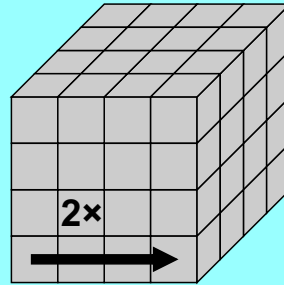
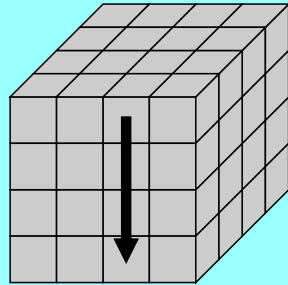
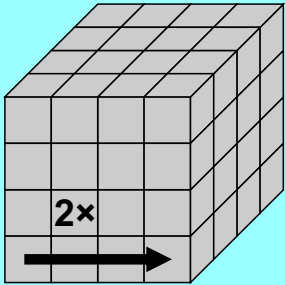
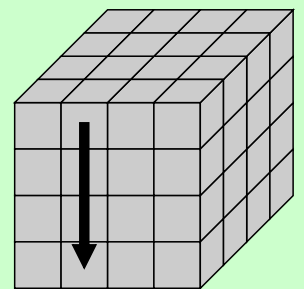
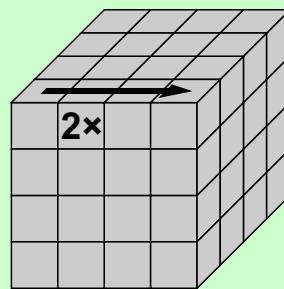
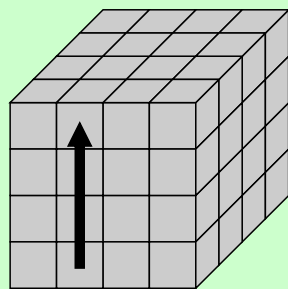
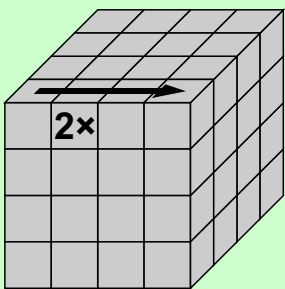
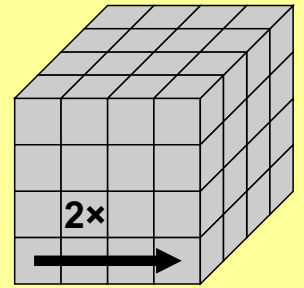
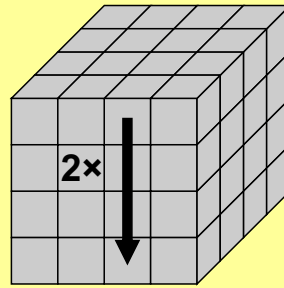
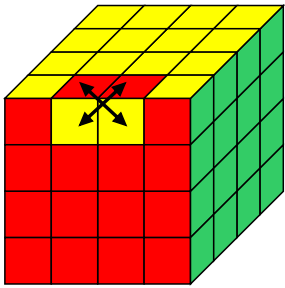


1. blauer Stein nach rechts
2. blauer Stein nach oben
3. roter Stein nach unten
4. blauer Stein nach vorne
5. rechte Seite nach vorne
6. blauer und roter Stein quer legen
7. untere Ebene zurück

Wenn die Mittelsteine und die Kantensteine geordnet sind kann er aber wie ein 3 mal 3 Zauberwürfel gelöst werden.

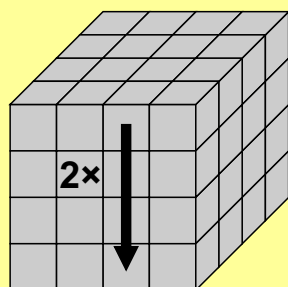
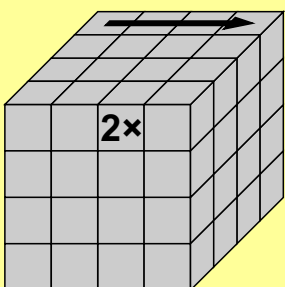
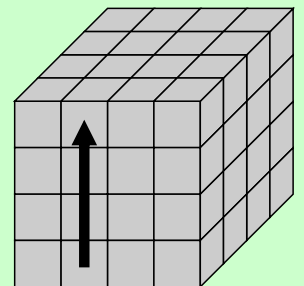
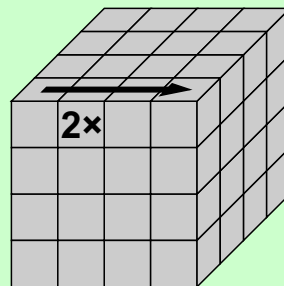
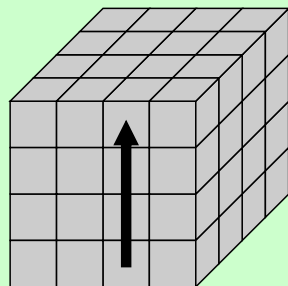
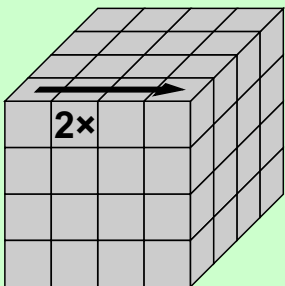
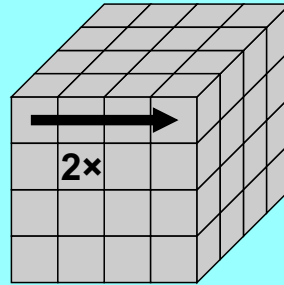
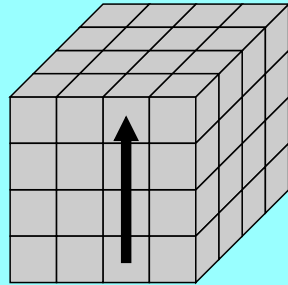
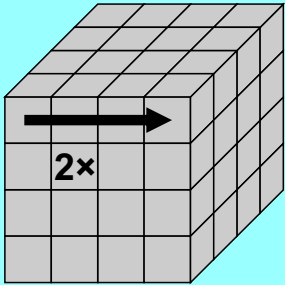
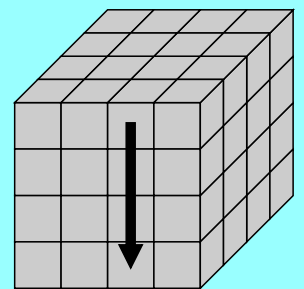
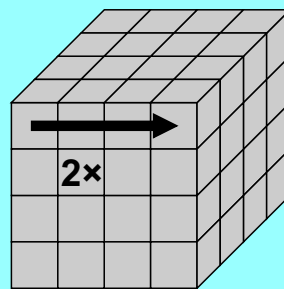
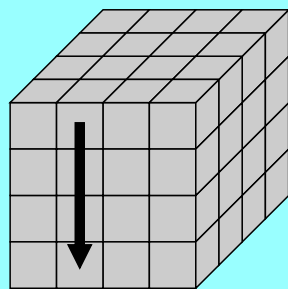
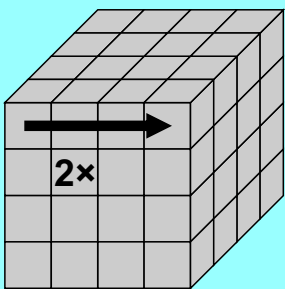
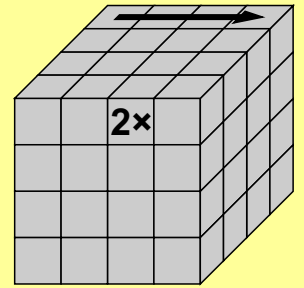
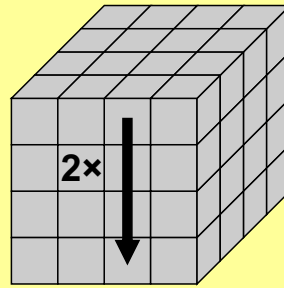
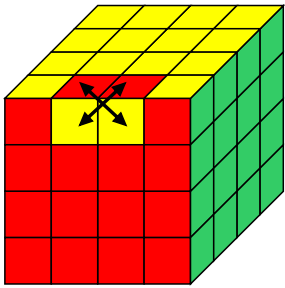
Das Problem ist nur, dass es jeweils 2 Kantensteine mit denselben Farben gibt. Die können untereinander vertauscht werden oder die gegenüberliegenden Kantensteine sind miteinander vertauscht. Für diese Probleme sind Lösungen auf den folgenden Seiten gezeigt.

# Kanten vertauschen

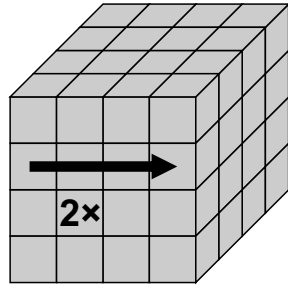
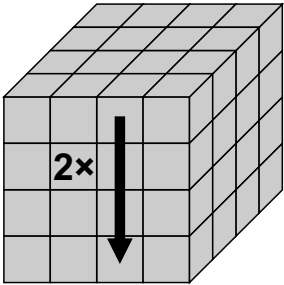
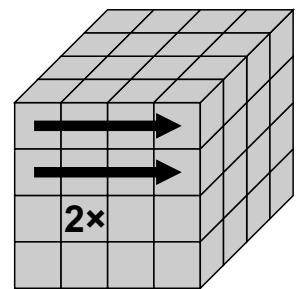
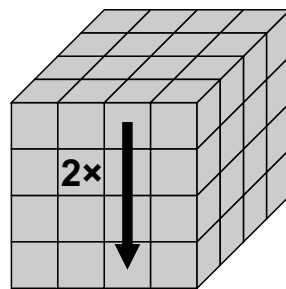
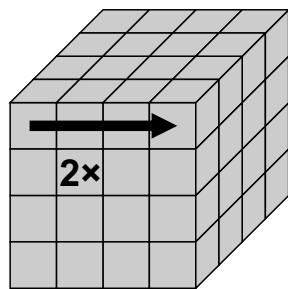
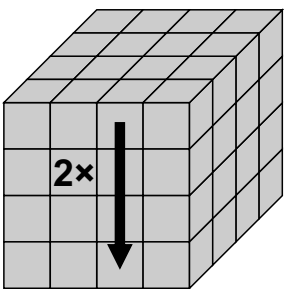
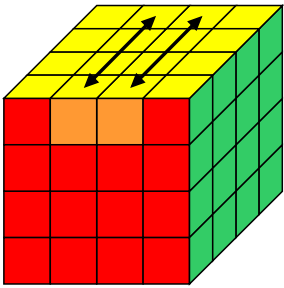




# Kanten vertauschen

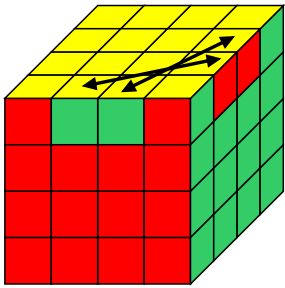


# Kantenpaare tauschen

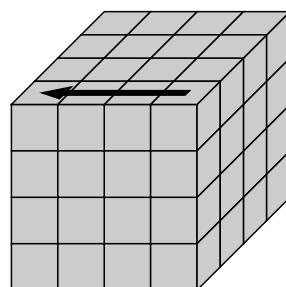
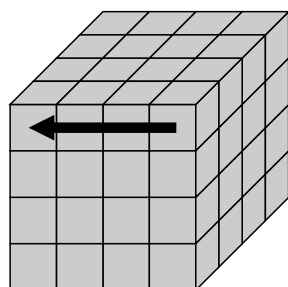
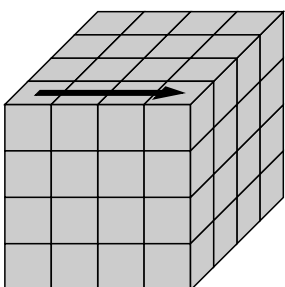
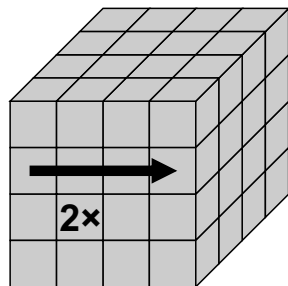
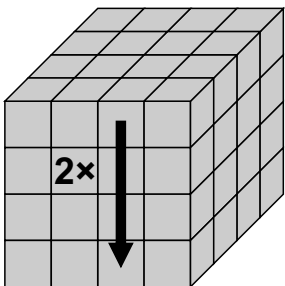
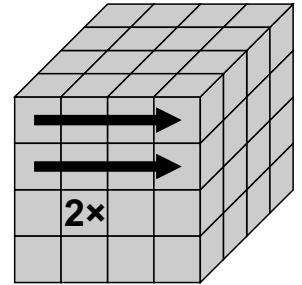
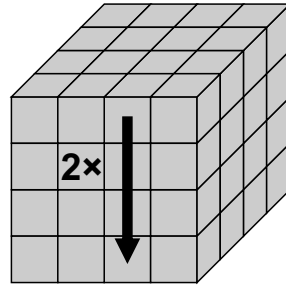
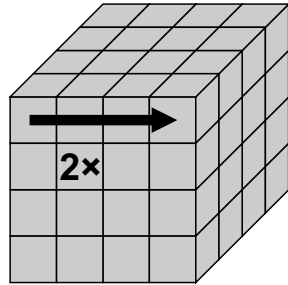
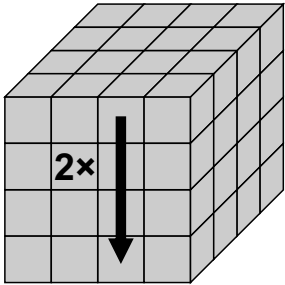
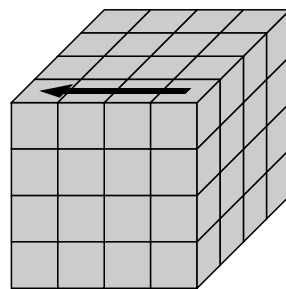
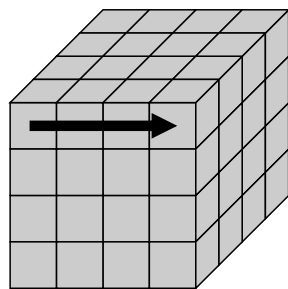
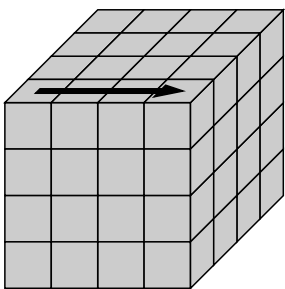


Wenn nur zwei Ecksteine vertauscht sind, kann auch dieser Zug angewandt werden.  
Danach kann der Würfel dann wie ein  $3 \times 3$  Würfel gelöst werden.

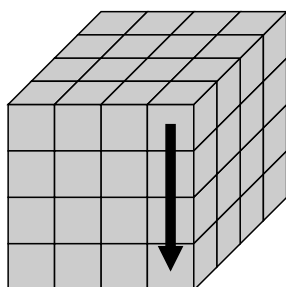
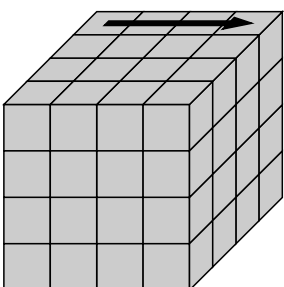
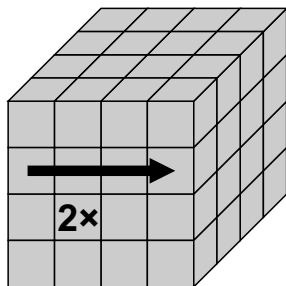
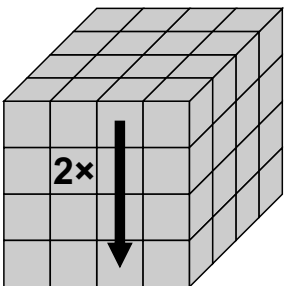
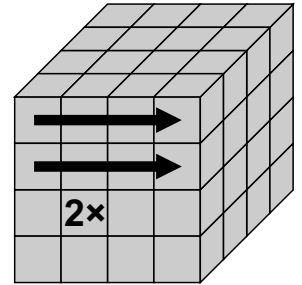
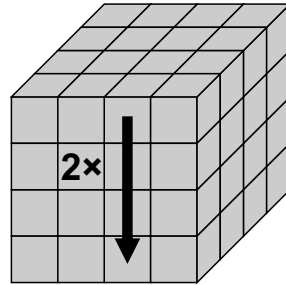
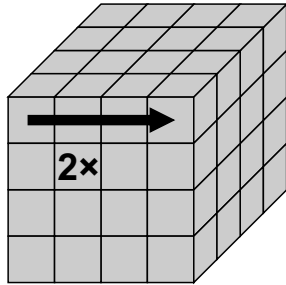
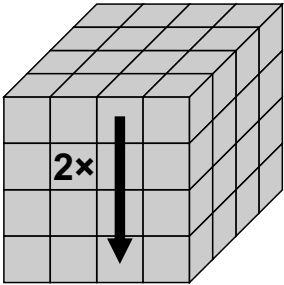
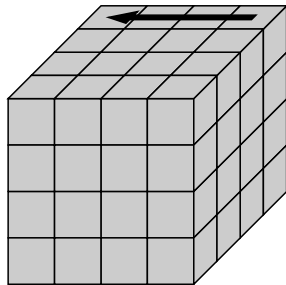
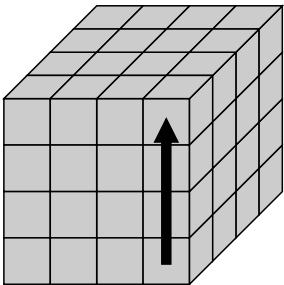
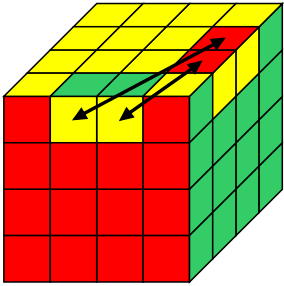
# Kantenpaare tauschen



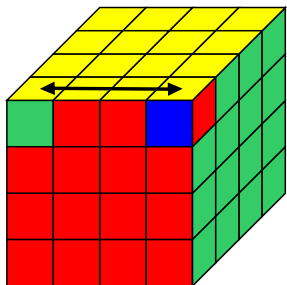
Wenn die vertauschten Kanten nicht gegenüber liegen, muss erst ein Setup-Move gemacht werden, der am Schluss wieder rückgängig gemacht werden muss.



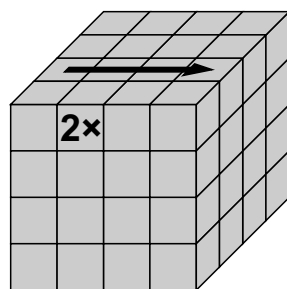
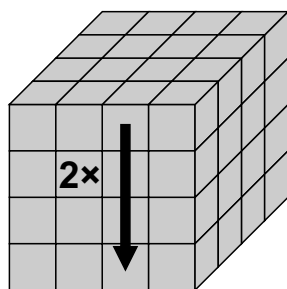
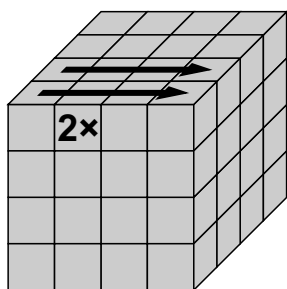
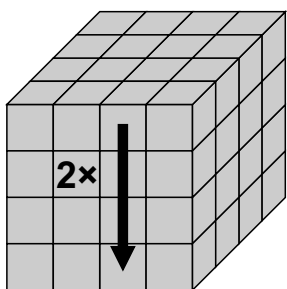
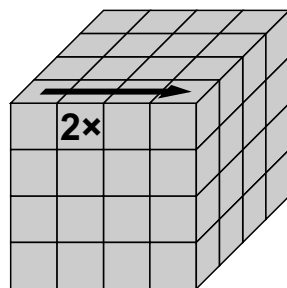
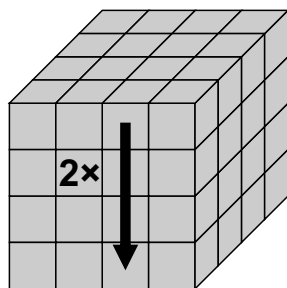
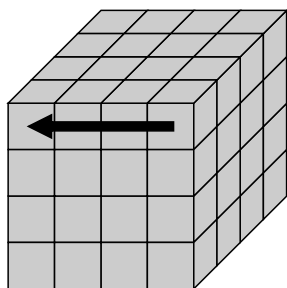
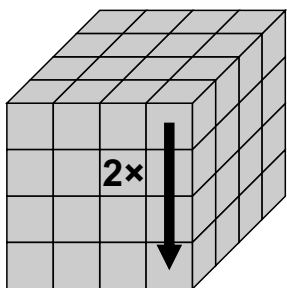
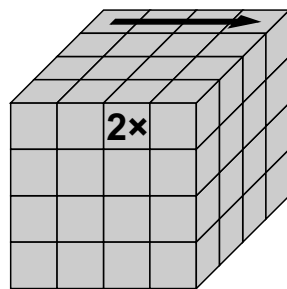
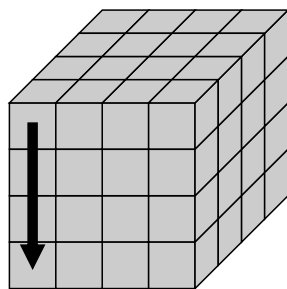
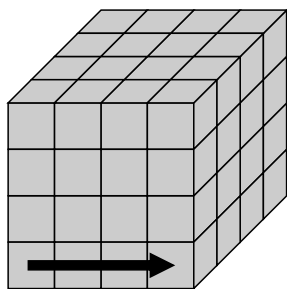
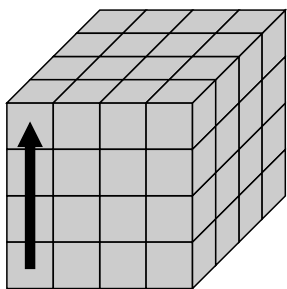
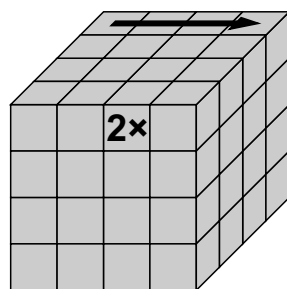
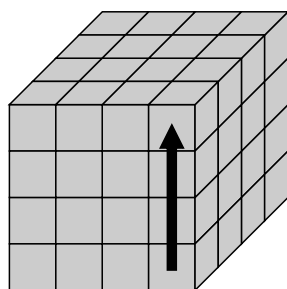
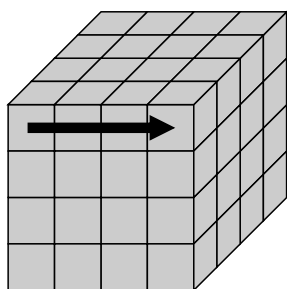
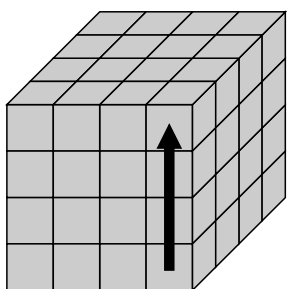
# Kantenpaare tauschen



# Ecken tauschen



Die ersten 10 Schritte in diesem Zug wandelt den Würfel um, in ein Würfel bei dem die oberen und unteren Kantensteine vertauscht sind. Die restlichen 6 Züge sind im Prinzip die Züge die beim Kantenpaare tauschen schon beschrieben sind. Sie sind nur nach unten gedreht.



# Ecken tauschen

