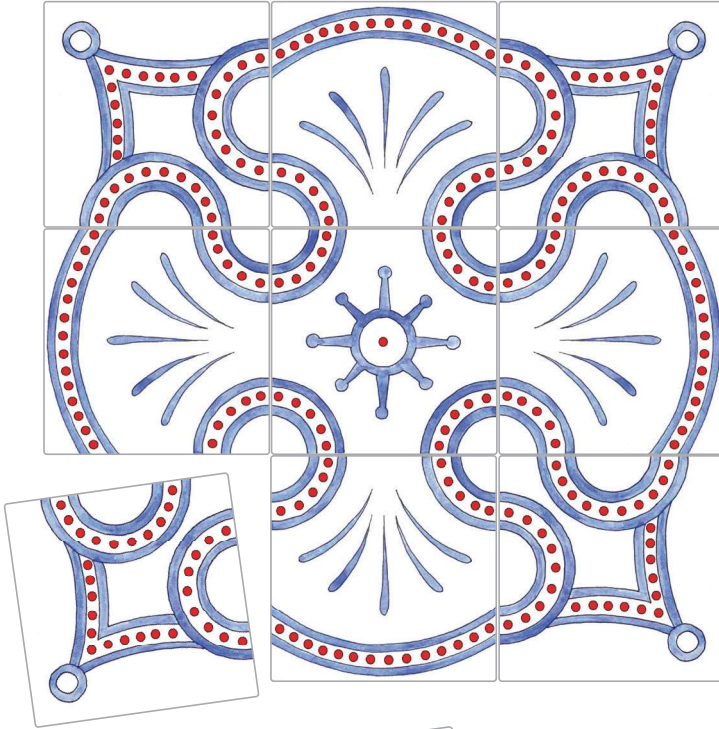


DESIGNED BY HELEN BARON

# TILLIONS™

CREATE MILLIONS OF TESSELLATING TILE PATTERNS



TILLIONS



TILLIONS



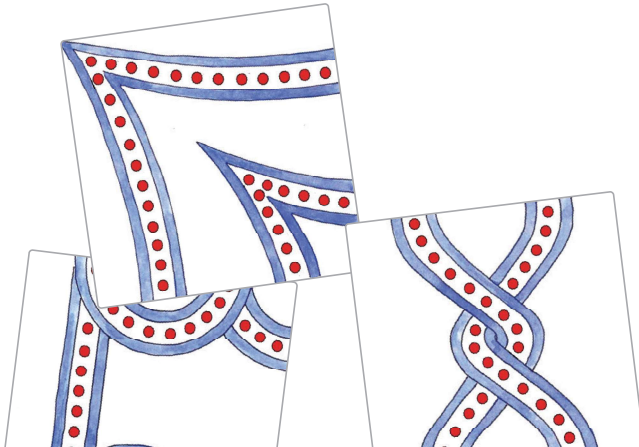
TILLIONS



TILLIONS



TILLIONS





## WELCOME TO TILLIONS:

Tillions are made to go together. Every one of the 144 patterned magnetic tiles in this box of Tillions fits with every other to make millions of unpredictable new designs.

Until you try them, it's hard to believe how patterns form and shift with every change.

Tillions are for everyone, whether you are younger or older, any language you speak and whatever your ability. They are perfect for designers, mathematicians, artists, planners, thinkers and dreamers.

With so many possible variations, you will soon be making intricate and pleasing patterns that can constantly change and be reimaged. Tillions will also work with any magnet-receptive surface, such as a refrigerator.

## CONTENTS:

144 x magnetic Tillions in 18 different designs, each 3.8cm x 3.8cm

1 x foldable magnet-receptive design board, 52cm x 26cm

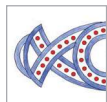
1 x 'sort and store' tray for your Tillions

1 x ideas booklet (you are using it now!)

## THE DIFFERENT TYPES OF TILLIONS:

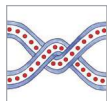
The 18 different Tillions come in five basic types.

Here is how each type is represented in the examples in this booklet:



### Finials (F)

which join on one side.



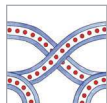
### Runners (R)

which join on opposite sides.



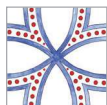
### Corners (C)

which join on adjacent sides.



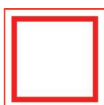
### Borders (B)

which join on three sides.



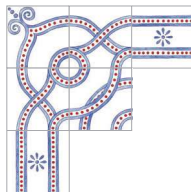
### Middles (M)

which join on all four sides.

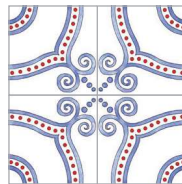


A good way of beginning a design is to start with a corner and work outwards, reflecting what is done on either side (a), or start with four corners pointing outwards (b).

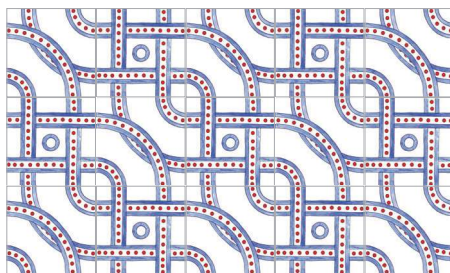
(a)



(b)



Or perhaps try a chequerboard pattern using two middle designs.

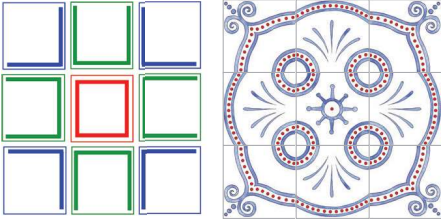


It seems to work best if not too many different Tillions are used in a pattern, otherwise it can be confusing on the eye.

The pattern leaves the edge of every joining side of a Tillion at the same place, so every joining side fits every other. In any pattern scheme one style of border could be substituted for another style of border, one corner for another and so on.

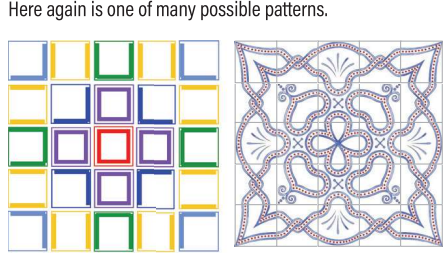
**GETTING STARTED:**

1. A nice pattern to start with is a symmetrical 3x3 square. This takes four matching corners, four matching borders and one middle. Here is an example:

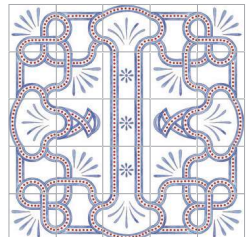
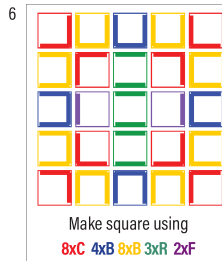
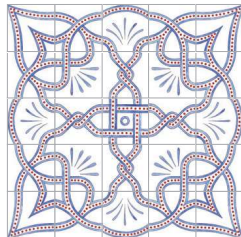
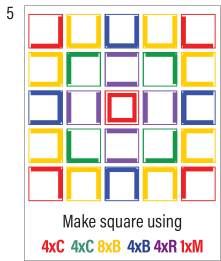
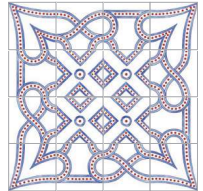
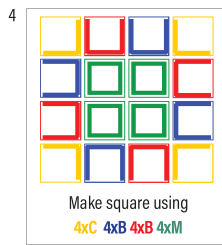
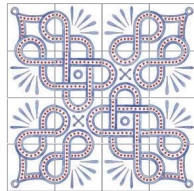
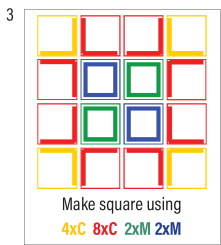
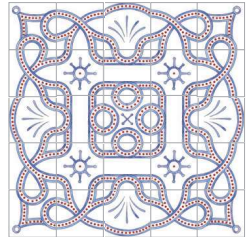
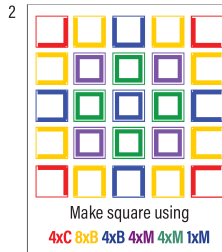
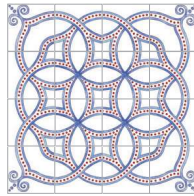
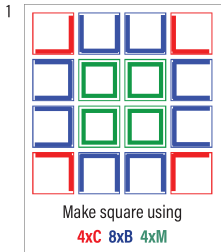


2. Swap the middle for another and you will see how the pattern changes, or try a different border or corner design.

3. Now let's expand this design - move the borders outwards, replacing them with matching middles. Choose another four matching corners and eight matching runners, and arrange them as in the diagram below.



**OTHER PATTERNS TO TRY BEFORE YOU START CREATING YOUR OWN:**



**GOOD LUCK!**



## BIENVENUE CHEZ TILLIONS :

Les Tillions sont faits pour aller ensemble. Chacune des 144 tuiles magnétiques à motifs de cette boîte de Tillions s'adapte à toutes les autres pour créer des millions de nouveaux motifs imprévisibles.

Jusqu'à ce que vous les essayiez, il est difficile de croire que les modèles se forment et changent avec cette modification.

Les Tillions s'adressent à tous, que vous soyez jeune ou plus âgé, quelle que soit la langue que vous parlez et quelles que soient vos capacités. Ils sont parfaits pour les concepteurs, les mathématiciens, les artistes, les planificateurs, les penseurs et les rêveurs.

Avec toutes les variations possibles, vous ne tarderez pas à créer des motifs complexes et agréables à regarder, qui peuvent constamment changer et être réimaginés. Les Tillions fonctionneront également avec toute surface réceptive aux aimants, comme un réfrigérateur.

### CONTENU :

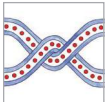
- 144 x Tillions magnétiques de 18 motifs différents, chacun 3,8cm x 3,8cm
- 1 tableau pliable à motifs magnétiques, 52 cm x 26 cm.
- 1 x plateau de rangement pour vos Tillions.
- 1 x livret d'idées (vous l'utilisez maintenant !)

### LES DIFFÉRENTS TYPES DE TILLIONS :

Les 18 Tillions différents se déclinent en cinq types de base. Voici comment chaque type est représenté dans les exemples de ce livret :



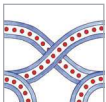
**Les fleurons (F)**  
qui se rejoignent sur un côté.



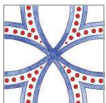
**Les coulisses (R)**  
qui s'assemblent sur les côtés opposés.



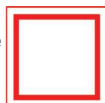
**Les coins (C)**  
qui se rejoignent sur les côtés adjacents.



**Les bordures (B)**  
qui se rejoignent sur trois côtés.

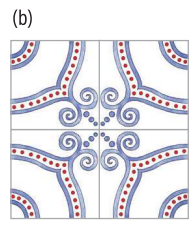
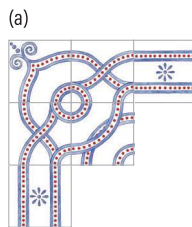


**Les milieux (M)**  
qui se rejoignent sur les quatre côtés.

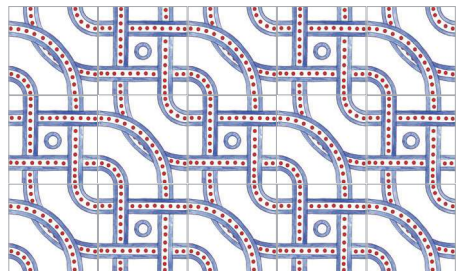


Le motif laisse le bord de chaque côté de jonction d'un Tillion au même endroit, de sorte que chaque côté de jonction s'adapte à tous les autres. Dans n'importe quel schéma de motif, un style de bordure peut être remplacé par un autre style de bordure, un coin par un autre et ainsi de suite.

Une bonne façon de commencer un dessin est de commencer par un coin et de travailler vers l'extérieur, en reflétant ce qui est fait de chaque côté (a), ou de commencer avec quatre coins pointant vers l'extérieur (b).



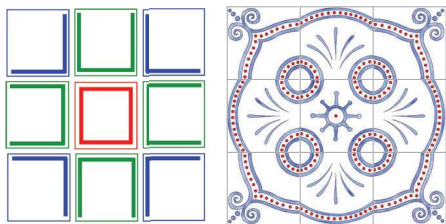
Vous pouvez aussi essayer un motif en damier en utilisant deux motifs intermédiaires.



Il semble que cela fonctionne mieux si l'on n'utilise pas trop de Tillions différents dans un motif, sinon cela peut être déroutant pour l'œil.

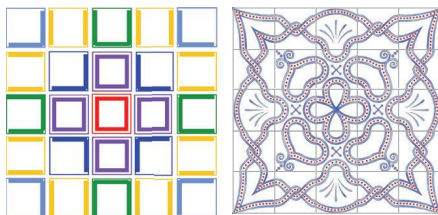
## POUR COMMENCER :

1. Un bon modèle pour commencer est un carré symétrique 3x3. Il faut quatre coins, quatre bords et un milieu identiques. Voici un exemple :

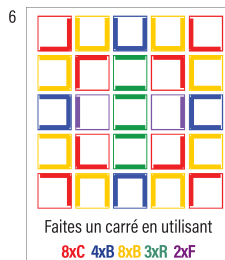
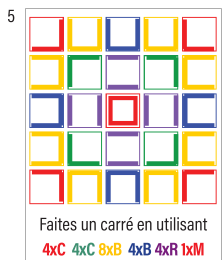
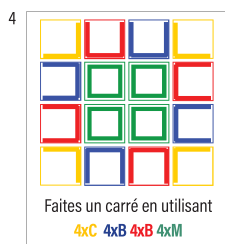
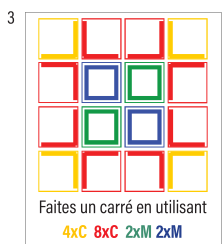
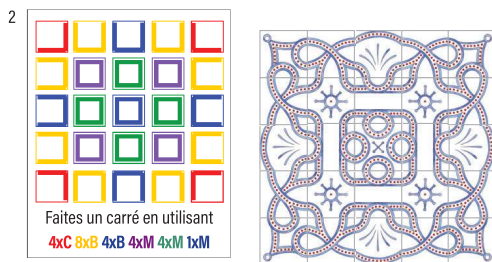
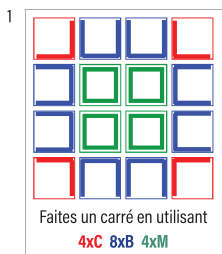


2. Remplacez le milieu par un autre et vous verrez comment le motif change, ou essayez un autre motif de bordure ou de coin.

3. Élargissons maintenant ce motif - déplacez les bordures vers l'extérieur, en les remplaçant par des milieux assortis. Choisissez quatre autres coins assortis et huit couleurs assortis, et disposez-les comme dans le diagramme ci-dessous. Voici à nouveau l'un des nombreux motifs possibles.



## VOUS POUVEZ ESSAYER D'AUTRES MODÈLES AVANT DE CRÉER LE VÔTRE :



**BONNE CHANCE !**





## WILLKOMMEN BEI TILLIONS:

Tillions sind dafür gemacht, zusammen zu passen. Jedes der 144 gemusterten Magnetplättchen in dieser Tillions-Schachtel passt zu jedem anderen und ermöglicht so Millionen von unvorhersehbaren neuen Designs.

Bevor man sie nicht ausprobiert hat, ist es schwer zu glauben, wie sich die Muster bei jeder Änderung bilden und verändern.

Tillions sind für jeden geeignet, egal ob Sie jünger oder älter sind, welche Sprache Sie sprechen und welche Fähigkeiten Sie haben. Sie sind perfekt für Designer, Mathematiker, Künstler, Planer, Denker und Träumer.

Bei so vielen Variationsmöglichkeiten werden Sie bald komplizierte und ansprechende Muster herstellen, die sich ständig verändern und neu erfinden lassen. Tillions funktionieren auch mit jeder magnetischen Oberfläche, z. B. einem Kühlschrank.

## INHALT:

144 x magnetische Tillions in 18 verschiedenen Designs, jeweils 3,8cm x 3,8cm

1 faltbare, magnetische Designtafel, 52 cm x 26 cm

1 x Sortier- und Aufbewahrungsfach für Ihre Tillions

1 x Ideenheft (Sie benutzen es jetzt!)

## DIE VERSCHIEDENEN ARTEN VON TILLIONS:

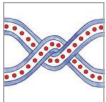
Die 18 verschiedenen Tillions gibt es in fünf Grundtypen.

In den Beispielen in diesem Heft wird jeder Typ folgendermaßen dargestellt:



### Endstücke (F)

die auf einer Seite zusammenlaufen.



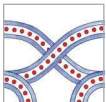
### Kufen (R)

die auf gegenüberliegenden Seiten zusammenlaufen.



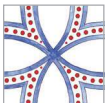
### Ecken (C)

die auf benachbarten Seiten zusammenlaufen.



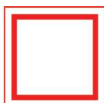
### Bordüren (B)

die auf drei Seiten zusammenlaufen.

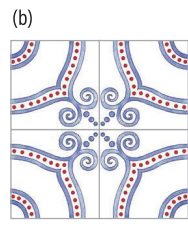
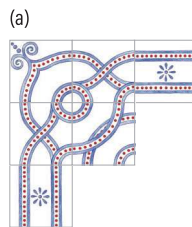


### Mittelteile (M)

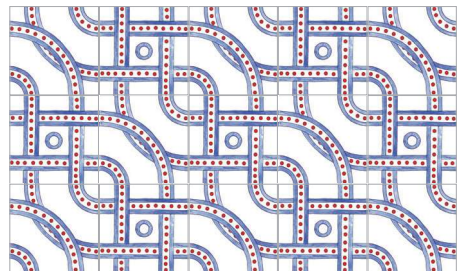
die an allen vier Seiten zusammenlaufen



Eine gute Möglichkeit, mit einem Entwurf zu beginnen, ist, mit einer Ecke zu beginnen und sich nach außen zu arbeiten, wobei man sich an der Seite orientiert (a), oder mit vier Ecken zu beginnen, die nach außen zeigen (b).



Oder versuchen Sie es mit einem Schachbrettmuster aus zwei mittleren Motiven.

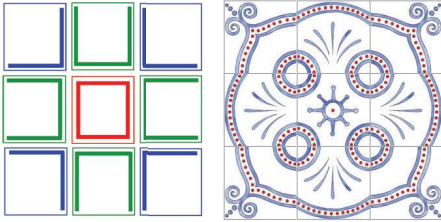


Es scheint am besten zu funktionieren, wenn nicht zu viele verschiedene Tillions in einem Muster verwendet werden, sonst kann es für das Auge verwirrend sein.

Das Muster lässt die Kante jeder Verbindungsseite eines Tillion an der gleichen Stelle, so dass jede Verbindungsseite zu jeder anderen passt. In jedem Musterschema kann eine Art von Rand durch eine andere Art von Rand, eine Ecke durch eine andere und so weiter ersetzt werden.

**ANFANGEN:**

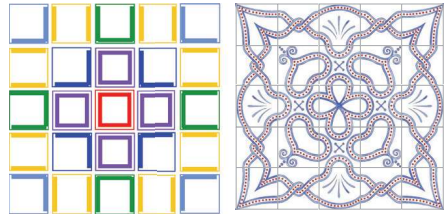
1. Ein schönes Muster, mit dem man beginnen kann, ist ein symmetrisches 3x3-Quadrat. Dazu braucht man vier passende Ecken, vier passende Ränder und eine Mitte. Hier ist ein Beispiel:



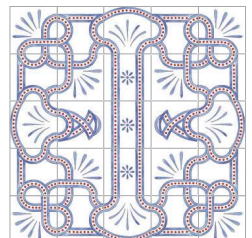
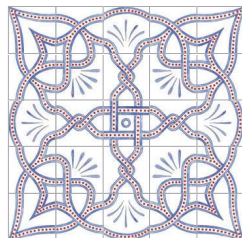
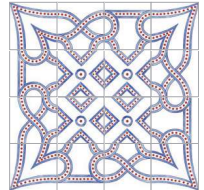
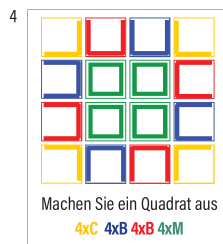
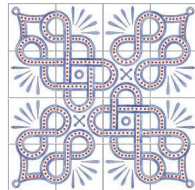
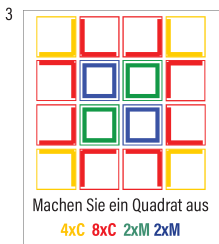
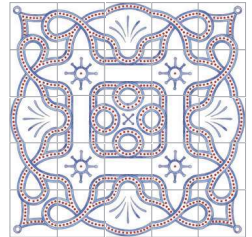
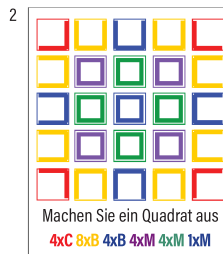
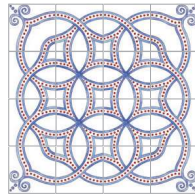
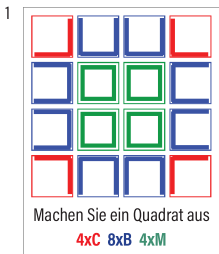
2. Tauschen Sie die Mitte gegen eine andere aus und Sie werden sehen, wie sich das Muster verändert, oder versuchen Sie es mit einem anderen Rand- oder Eckdesign.

3) Nun wollen wir dieses Muster erweitern - verschieben Sie die Ränder nach außen und ersetzen Sie sie durch passende Mittelteile. Wählen Sie vier weitere passende Ecken und acht passende Läufer aus und ordnen Sie sie wie im Diagramm unten an.

Hier ist wieder eines von vielen möglichen Mustern.



**DU KANNST AUCH ANDERE MUSTER AUSPROBIEREN, BEVOR DU DEINE EIGENEN ERSTELLST:**



**VIEL GLÜCK!**





## BIENVENIDO A TILLIONS':

Los Tillions están hechos para ir juntos. Cada una de las 144 baldosas magnéticas estampadas de esta caja de Tillions encaja con todas las demás para crear millones de nuevos diseños imprevisibles.

Hasta que los pruebas, es difícil creer cómo se forman y cambian los patrones con cada cambio.

Los Tillions son para todo el mundo, tanto para los más jóvenes como para los más mayores, en cualquier idioma y sea cual sea su capacidad. Son perfectos para diseñadores, matemáticos, artistas, planificadores, pensadores y soñadores.

Con tantas variaciones posibles, pronto estará haciendo patrones intrincados y agradables que pueden cambiar constantemente y ser y reimaginados. Los Tillions también funcionan con cualquier superficie receptiva a los imanes, como una nevera.

### CONTENIDO:

- 144 x Tillions magnéticos en 18 diseños diferentes, cada uno de 3,8cm x 3,8cm
- 1 tablero de diseño magnético plegable de 52 cm x 26 cm
- 1 x bandeja para clasificar y guardar los Tillions
- 1 x cuaderno de ideas (¡ya lo está utilizando!)

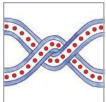
### LOS DIFERENTES TIPOS DE TILLIONS

Los 18 Tillions diferentes vienen en cinco tipos básicos. Así es como se representa cada tipo en los ejemplos de este folleto:



#### Remates (F)

que se unen por un lado.



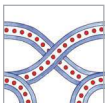
#### Las correderas (R)

que se unen en los lados opuestos.



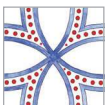
#### Esquinas (C)

que se unen en los lados adyacentes.



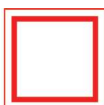
#### Bordes (B)

que se unen en tres lados.

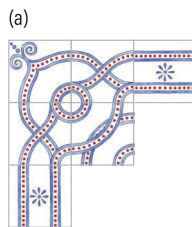


#### Medias (M)

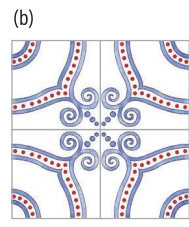
que se unen en los cuatro lados



Una buena forma de empezar un diseño es comenzar con una esquina y trabajar hacia fuera, reflejando lo que se hace en cada lado (a), o comenzar con cuatro esquinas apuntando hacia fuera (b).

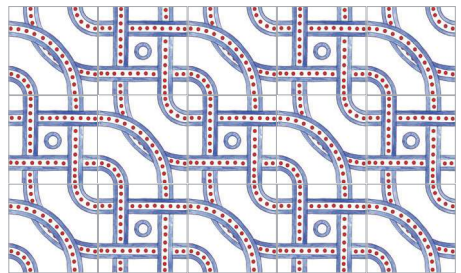


(a)



(b)

O tal vez intente un patrón de tablero de ajedrez utilizando dos diseños centrales.

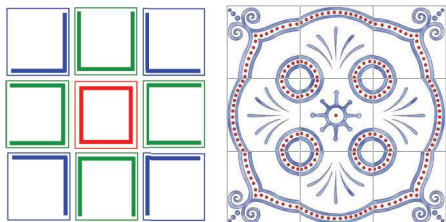


Parece que funciona mejor si no se utilizan demasiados Tillions diferentes en un patrón, de lo contrario puede resultar confuso para el ojo.

El patrón deja el borde de cada lado de unión de un Tillion en el mismo lugar, por lo que cada lado de unión encaja con todos los demás. En cualquier esquema de patrón, un estilo de borde puede ser sustituido por otro estilo de borde, una esquina por otra y así sucesivamente.

### ANFANGEN:

1. Un buen patrón para empezar es un cuadrado simétrico de 3x3. Para ello se necesitan cuatro esquinas iguales, cuatro bordes iguales y un centro. He aquí un ejemplo:



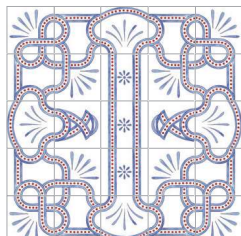
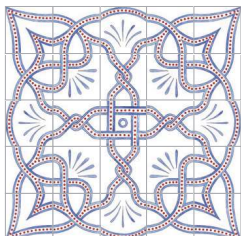
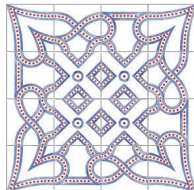
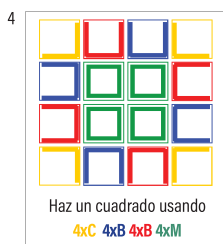
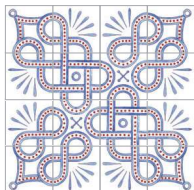
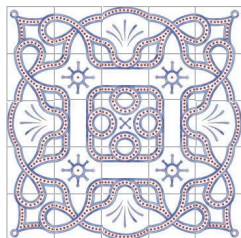
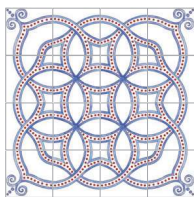
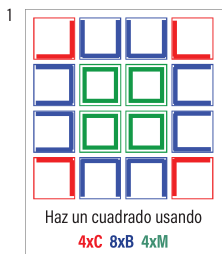
2. Cambia el centro por otro y verás cómo cambia el patrón, o prueba con un diseño de borde o esquina diferente.

3. Ahora vamos a ampliar este diseño: desplaza los bordes hacia fuera, sustituyéndolos por medios que hagan juego. Elija otras cuatro esquinas que hagan juego y ocho corredores que hagan juego, y dispóngalos como en el diagrama de abajo.



Aquí también hay uno de los muchos patrones posibles.

### OTROS PATRONES PARA PROBAR ANTES DE EMPEZAR A CREAR LOS TUYOS PROPIOS:



¡BUENA SUERTE!



## BENVENUTI A TILLIONS:

I Tillions sono fatti per andare insieme. Ognuna delle 144 tessere magnetiche in questa scatola di Tillions si adatta a tutte le altre per creare milioni di nuovi disegni imprevedibili.

Finché non li provi, è difficile credere a come i modelli si formano e si spostano ad ogni cambiamento.

I Tillion sono per tutti, che tu sia più giovane o più vecchio, qualsiasi lingua tu parli e qualsiasi sia la tua abilità. Sono perfetti per designer, matematici, artisti, pianificatori, pensatori e sognatori.

Con così tante possibili variazioni, farete presto modelli intricati e piacevoli che possono costantemente cambiare ed essere reimmaginato. Tillions funziona anche con qualsiasi superficie ricettiva ai magneti, come un frigorifero.

### CONTENUTO:

144 x Tillions magnetici in 18 disegni diversi, ciascuno 3,8cm x 3,8cm

1 tavola magnetico-ricettiva pieghevole, 52cm x 26cm

1 x vassoio "ordina e conserva" per i tuoi Tillions

1 x libretto di idee (lo stai usando ora!)

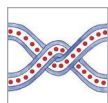
### I DIVERSI TIPI DI TILLIONS:

I 18 diversi Tillions sono disponibili in cinque tipi di base. Ecco come ogni tipo è rappresentato negli esempi di questo libretto:



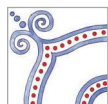
#### Finials (F)

che si uniscono su un lato.



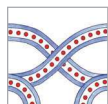
#### Guide (R)

che si uniscono su lati opposti.



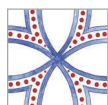
#### Angoli (C)

che si uniscono su lati adiacenti.



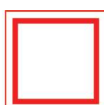
#### Bordi (B)

che si uniscono su tre lati.



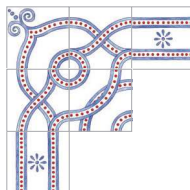
#### Middles (M)

che si uniscono su tutti e quattro i lati.

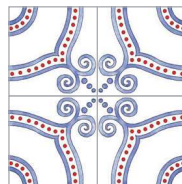


Un buon modo di iniziare un disegno è iniziare con un angolo e lavorare verso l'esterno, riflettendo ciò che viene fatto su entrambi i lati (a), o iniziare con quattro angoli che puntano verso l'esterno (b).

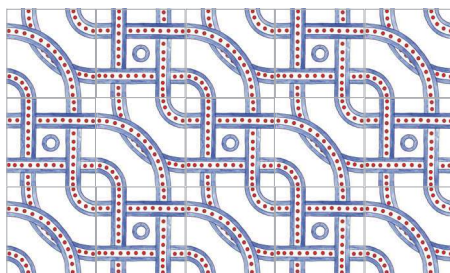
(a)



(b)



O forse provare un modello a scacchiera usando due disegni centrali.

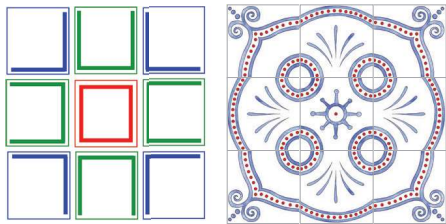


Sembra funzionare meglio se non si usano troppi di erenti Tillion in un modello, altrimenti può confondere l'occhio.

Il modello lascia il bordo di ogni lato di unione di un Tillion nello stesso punto, così ogni lato di unione si adatta ad ogni altro. In ogni schema, uno stile di bordo può essere sostituito con un altro stile di bordo, un angolo con un altro e così via.

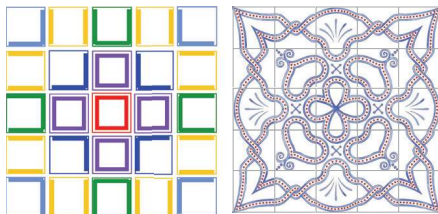
## INIZIARE:

1. Un bel modello con cui iniziare è un quadrato simmetrico 3x3. Questo richiede quattro angoli corrispondenti, quattro bordi corrispondenti e un centro. Ecco un esempio:

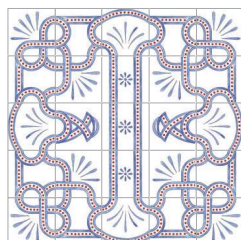
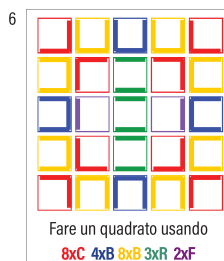
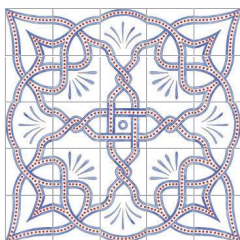
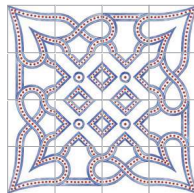
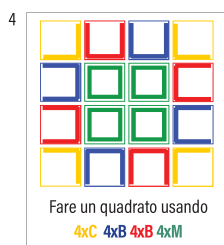
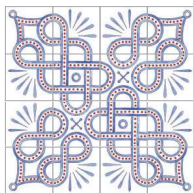
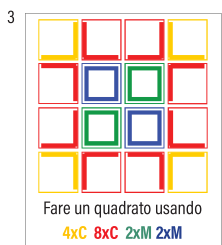
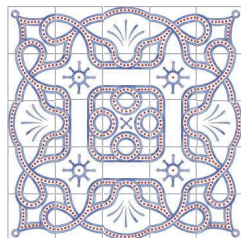
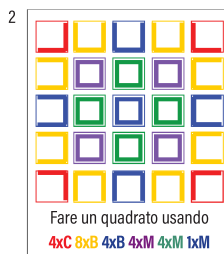
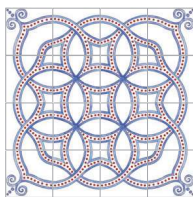
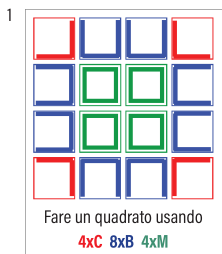


2. Sostituisci il centro con un altro e vedrai come cambia il disegno, o prova un diverso disegno di bordi o angoli.

3. Ora espandiamo questo disegno - sposta i bordi verso l'esterno, sostituendoli con dei mediani corrispondenti. Scegliete altri quattro angoli corrispondenti e otto guide corrispondenti, e disponili come nel diagramma qui sotto. Ecco di nuovo uno dei tanti modelli possibili.



## ALTRI SCHEMI DA PROVARE PRIMA DI INIZIARE A CREARNE UNO PROPRIO:



**BUONA FORMAZIONE!**



## WELKOM BIJ TILLIONS:

Tillions zijn gemaakt om samen te gaan. Elk van de 144 magnetische tegels met patroon in deze doos van Tillions past bij elkaar om miljoenen onvoorspelbare nieuwe ontwerpen te maken.

Totdat je ze probeert, is het moeilijk te geloven hoe patronen zich vormen en verschuiven bij elke verandering.

Tillions zijn er voor iedereen, of je nu jonger of ouder bent, welke taal je ook spreekt en wat je capaciteiten ook zijn. Ze zijn perfect voor ontwerpers, wiskundigen, kunstenaars, planners, denkers en dromers.

Met zoveel variatiemogelijkheden maakt u al snel ingewikkelde en aangename patronen die voortdurend kunnen veranderen en en herschept kunnen worden. Tillions werken ook met elk magneetgevoelig oppervlak, zoals een koelkast.

### INHOUD:

144 x magnetische Tillions in 18 verschillende ontwerpen, elk 3,8cm x 3,8cm

1 x opvouwbaar magneet-ontvankelijk ontwerp bord, 52cm x 26cm

1 x 'sorteer en bewaar' bakje voor je Tillions

1 x ideeënboekje (je gebruikt het nu!)

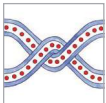
### DE VERSCHILLENDE SOORTEN TILLIONS:

De 18 verschillende Tillions zijn er in vijf basistypes.

In de voorbeelden in dit boekje ziet u hoe elk type is weergegeven:



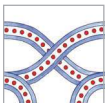
**Finials (F)**  
die aan één kant  
samenkomen.



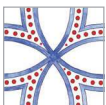
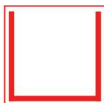
**Lopers (R)**  
die aan tegenoverliggende  
zijden aansluiten.



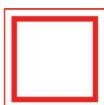
**Hoeken (C)**  
die aan aangrenzende zijden  
aansluiten.



**Grenzen (B)**  
die aan drie zijden aansluiten.

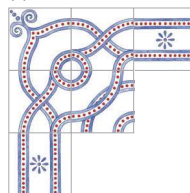


**Middelen (M)**  
die aan alle vier de zijden  
aansluiten

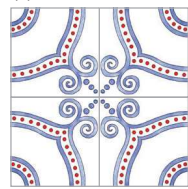


Een goede manier om met een ontwerp te beginnen is te beginnen met een hoek en naar buiten toe te werken, waarbij men weerspiegelt wat aan weerszijden wordt gedaan (a), of te beginnen met vier hoeken die naar buiten wijzen (b).

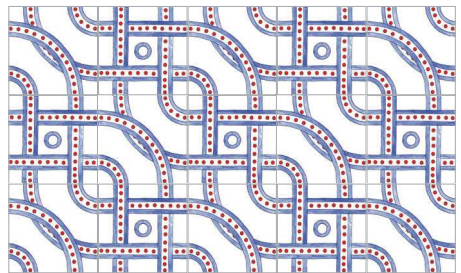
(a)



(b)



Of probeer een dambordpatroon met twee middelste motieven.



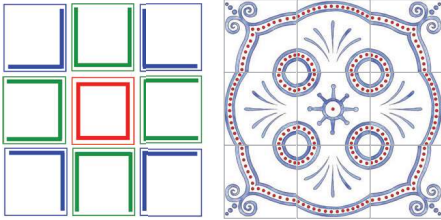
Het lijkt het beste te werken als niet te veel verschillende Tillions in een patroon worden gebruikt, anders kan het verwarrend zijn voor het oog.

Het patroon laat de rand van elke verbindingzijde van een Tillion op dezelfde plaats, zodat elke verbindingzijde bij elke andere past. In elk patroon kan de ene stijl van randen worden vervangen door een andere stijl van randen, de ene hoek door een andere enzovoort.



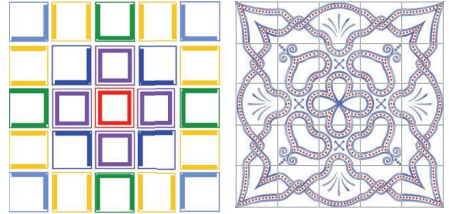
**AAN DE SLAG:**

1. Een mooi patroon om mee te beginnen is een symmetrisch 3x3 vierkant. Hiervoor zijn vier bij elkaar passende hoeken, vier bij elkaar passende randen en een midden nodig. Hier is een voorbeeld:

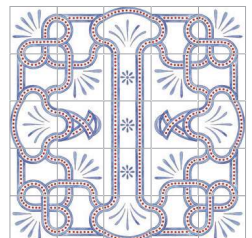
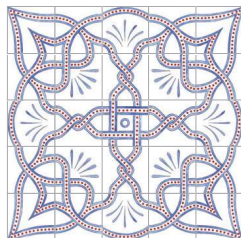
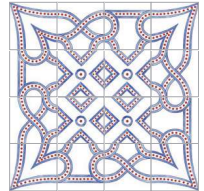
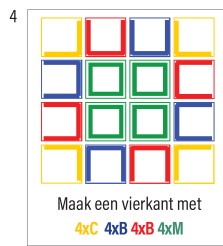
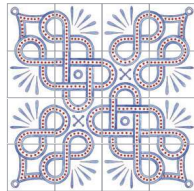
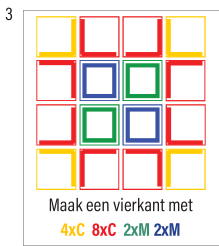
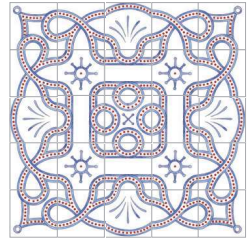
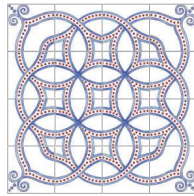
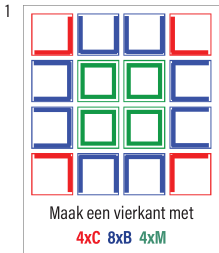


2. Verwissel het midden met een ander en u zult zien hoe het patroon verandert, of probeer een ander rand- of hoekontwerp.

3. Laten we nu dit ontwerp uitbreiden - verplaats de randen naar buiten en vervang ze door bijpassende middens. Kies nog vier bijpassende hoeken en acht bijpassende lopers, en rangschik ze zoals in het diagram hieronder. Hier is weer een van de vele mogelijke patronen.



**ANDERE PATRONEN OM UIT TE PROBEREN VOORDAT JE JE EIGEN PATRONEN GAAT MAKEN:**

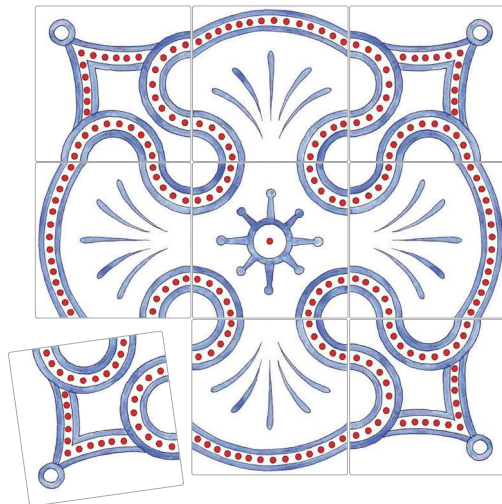


**VEEL SUCCES!**



# TILLIONS™

CREATE MILLIONS OF TESSELLATING TILE PATTERNS!



**For Irene and Philip - because I know you will love Tillions!**

Helen Baron lives in rural Hertfordshire, UK, where she has worked as a potter, tile and mosaic maker for many years. Inspired by a series of slip-trailed tiles she made, which fascinated her with the patterns they created when combined, she developed this new game/pastime called "Tillions":

If you'd like to see her other work, please visit her website  
[www.helenbaronstudio.co.uk](http://www.helenbaronstudio.co.uk)

**the  
Happy  
Puzzle  
Company**

© 2021 The Happy Puzzle Company Ltd.  
All rights reserved.

[www.happypuzzle.co.uk](http://www.happypuzzle.co.uk)



**Warning!** Not suitable for children under three years old due to small parts.

**Attention!** À cause de ses petites pièces, ce jeu n'est pas adapté aux enfants de moins de trois ans.

**Achtung!** Aufgrund von Kleinteilen nicht für Kinder unter drei Jahren geeignet.

**¡Advertencia!** No apropiado para niños de menos de tres años debido a sus partes pequeñas.

**Attenzione:** Il gioco contiene componenti di piccole dimensioni e non è adatto a bambini di età inferiore a 3 anni.

**Waarschuwing:** Niet geschikt voor kinderen onder de drie jaar vanwege kleine onderdelen.