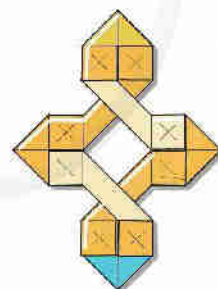
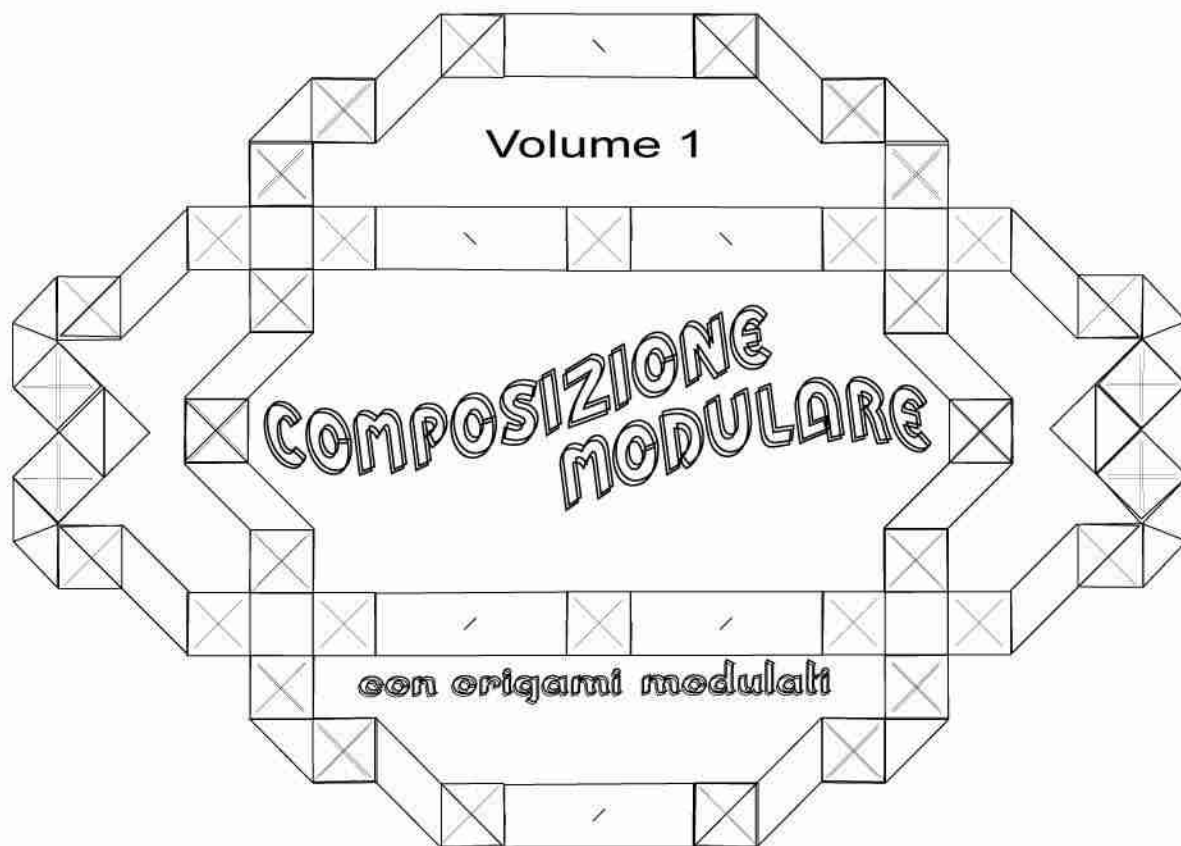


**Meccanorigami
Tassellazioni
Decorazioni
Poliedri**



Franco Pavarin

www.aereimaschereorigami.altervista.org



Franco Pavarin

www.aereimaschereorigami.altervista.com

Presentazione

Questo testo tratta di origami modulare, cioè della tecnica costruttiva di unione di moduli tutti uguali o anche di tipo diverso, ottenuti piegando fogli delle medesime dimensioni, per realizzare modelli origami piatti o tridimensionali.

Tale tecnica, sviluppata per prima da Tomoko Fuse diversi anni fa, consente di costruire quasi ogni tipo di modello, con un'incredibile varietà di possibili accostamenti cromatici.

L'origami tradizionale non può dare le opportunità che offre la tecnica modulare per sviluppare la creatività e la fantasia nella scelta del tipo di modulo, della forma della composizione e degli accostamenti di colore.

Questo testo, in gran parte basato su esperienze di diversi anni fa, può essere considerato una continuazione del mio vecchio libro: "Decorazioni modulari con origami modulati", in quanto intende fornire un contributo a coloro che lavorano con più persone organizzabili in gruppi di lavoro.

Gli ultimi due capitoli sono invece adatti per il piegatore più raffinato, puntiglioso e metodico, quello alla ricerca della migliore soluzione di un problema.

Meccanorigami deriva nel nome da un amato gioco della mia infanzia che consisteva nel collegare aste e piastre metalliche con viti e bulloni per realizzare ogni genere di veicoli.

Meccanorigami è un sistema basato su un particolare tipo di incastro, da me presentato ad un convegno CDO molti anni fa, ora ulteriormente perfezionato, che consente ad ogni modulo di unirsi con l'adiacente per mezzo di appendici che possono indifferentemente assumere la forma maschio o femmina. Con questo sistema si possono realizzare elaborate forme 2D come tassellazioni, cornici, nastri e pizzi o modelli tridimensionali di cui quelli presentati sono solo una parte.




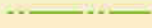

















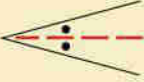

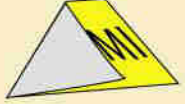



Questo sistema è anche ottimale per la costruzione di gioielli come ciondoli, orecchini e spille; da realizzare in carta metallizzata e da irrigidire con 2 o 3 bagni in liquido cristallizzante bicomponente.

In un testo successivo verranno presentati i risultati di un ulteriore sviluppo di "Meccanorigami", più altri sistemi di costruzione modulare 2D e 3D: "Ancora", "Cubotto" e "Intreccio".

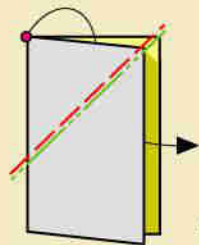
Aprile 2016

Franco Pavarin

Simbologia origami

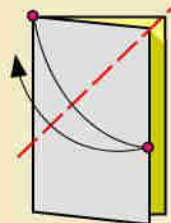
		Indicazione	Risultato 3D
	Piega a valle (piega bassa)		
	Piega a monte (piega alta)		
	Ruotate e piegate		
	Ruotate, piegate e riportate alla posizione iniziale		
	Ribaltate sull'asse verticale		
	Ribaltate sull'asse orizzontale		
	Ruotate di 180°		
	Piega bisettrice a valle		
	Figura ingrandita		

Realizzazione delle pieghe rovesce



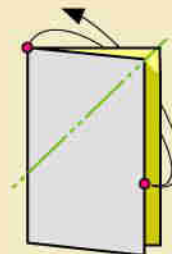
1

Eseguite una piega rovescia interna



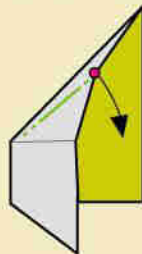
2

Una piega a valle



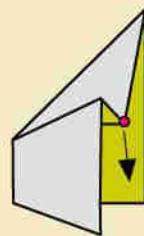
3

Ripiegate con piega a monte sulla medesima traccia



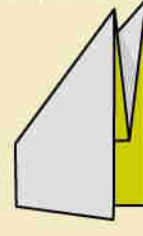
4

Aprite e rovesciate il verso della piega



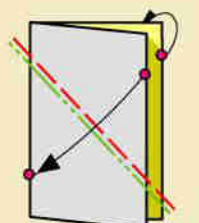
5

Inserite all'interno il vertice indicato



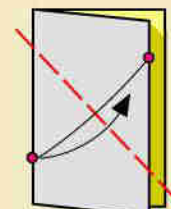
6

Piega rovescia interna ultimata



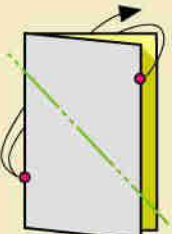
1

Eseguite una piega rovescia esterna



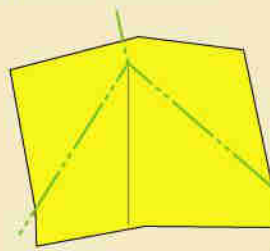
2

Una piega a valle



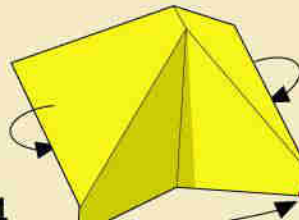
3

Ripiegate con piega a monte sulla medesima traccia



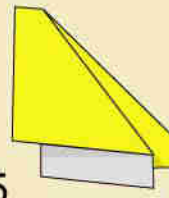
4

Aprite e rovesciate il verso della piega



5

Richiudete



6

Piega rovescia esterna ultimata

TASSELLAZIONE MODULARE MULTIFORME

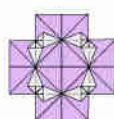
CLASSIFICAZIONE TIPOLOGICA



A

pg

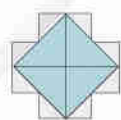
8



H

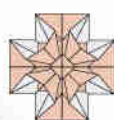
pg

16



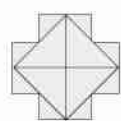
B

10



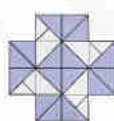
I

17



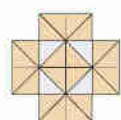
C

11



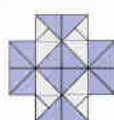
L

19



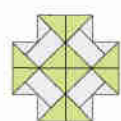
D

12



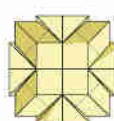
M

19



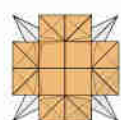
E

13



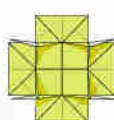
N-3D

20



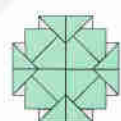
F

14



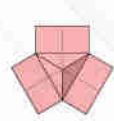
O-3D

21



G

15



P-3D

22

TASSELLAZIONE MODULARE MULTIFORME

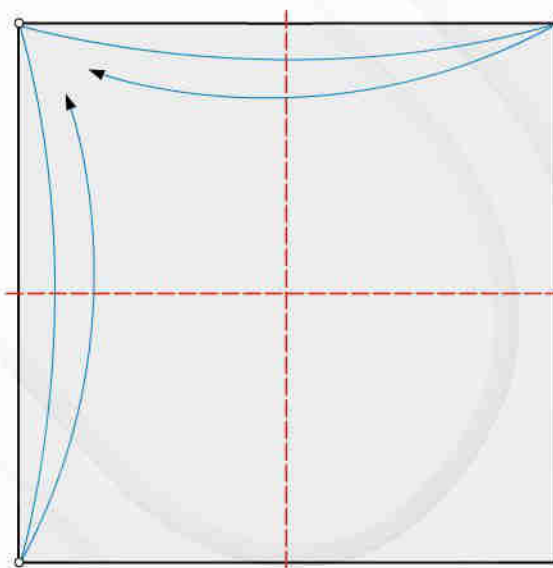
...è un sistema costruttivo per la realizzazione di tassellazioni con origami modulati che permette centinaia di combinazioni.

I 52 moduli presentati sono tutti collegabili tra loro e cambiando il tipo di sovrapposizione è possibile creare moltissime trame differenti.

Le 18 composizioni riportate in fotografia, da me realizzate una ventina d'anni fa, sono state ottenute unendo moduli solamente di tipo A, B e C.

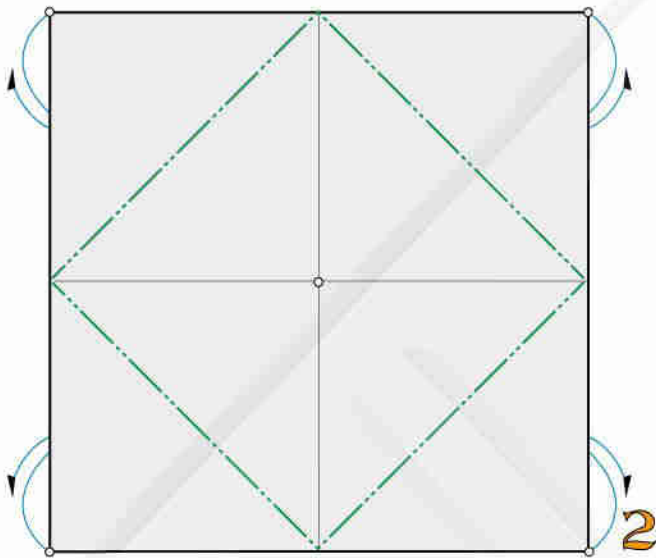
Una volta ultimata la tassellazione, piegate tutti gli angolini sottostanti dei moduli perimetrali.

Può essere adoperata carta di qualunque tipo; consiglio l'uso del ferro da stiro per spianare adeguatamente la composizione ultimata.

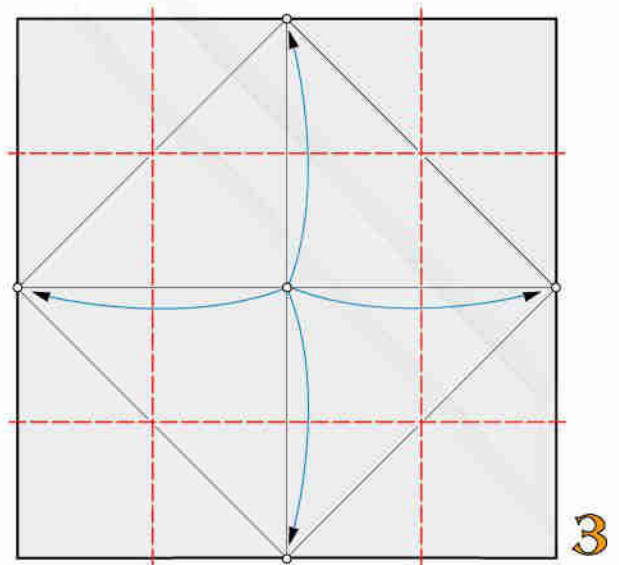


2 pieghe a valle

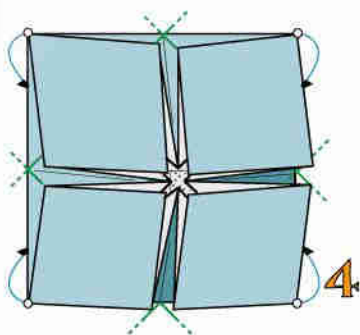
1



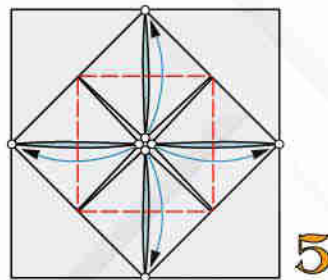
4 pieghe a monte



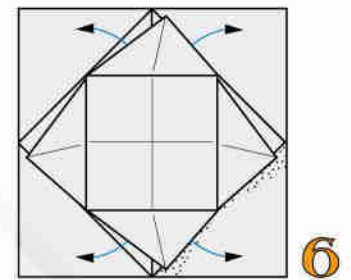
4 pieghe a valle e ruotate portando al centro i punti medi



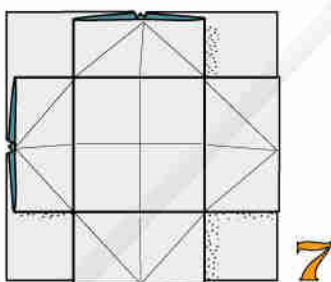
4 pieghe a monte e ruotate portando posteriormente i vertici al centro



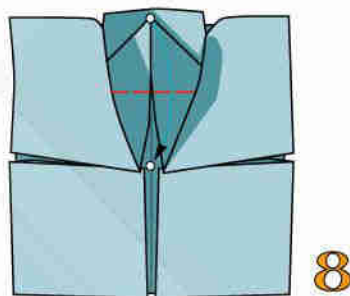
4 pieghe a valle e ruotate i vertici centrali



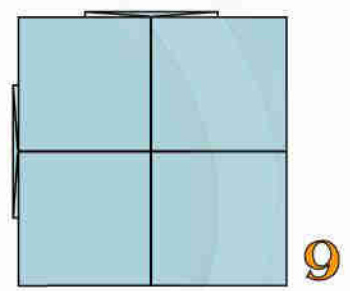
Estraete le superfici triangolari sottostanti ai vertici



Ribaltate



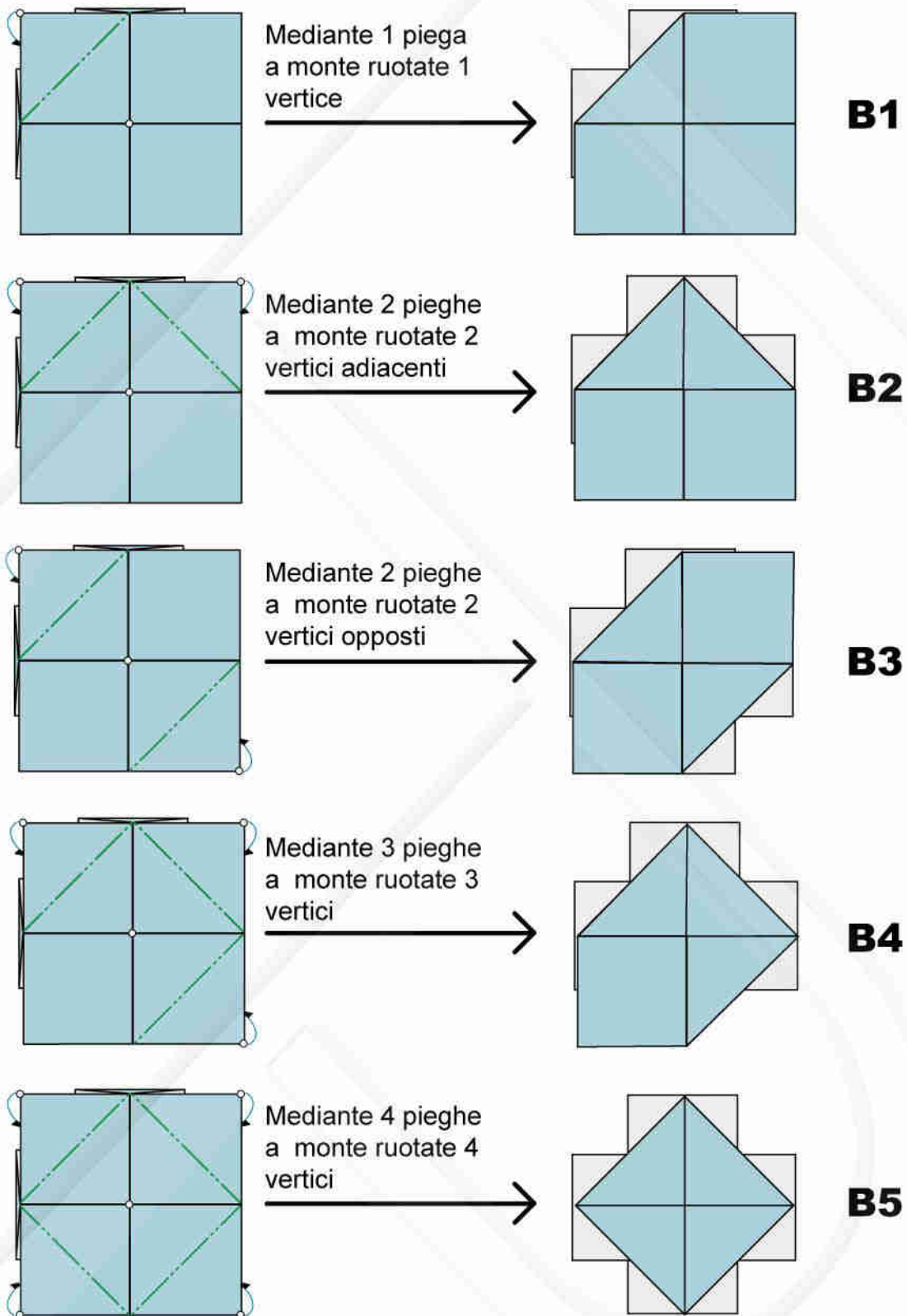
4 pieghe a valle nascoste e ruotate portando al centro i 4 vertici centrali



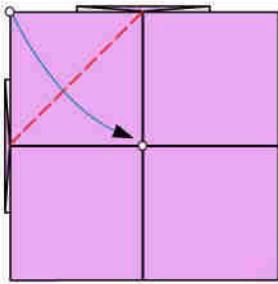
Modulo base ultimato

A

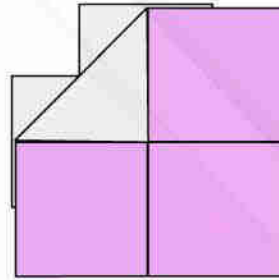
MODULI ULTIMATI



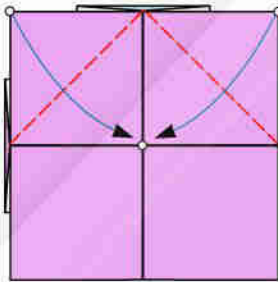
MODULI ULTIMATI



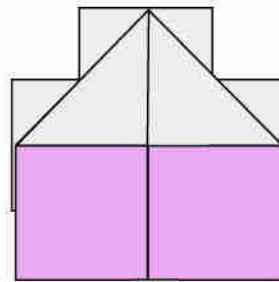
Mediante 1 piega
a valle ruotate 1
vertice



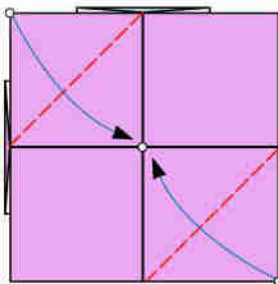
C1



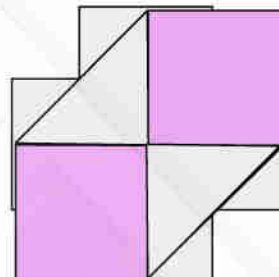
Mediante 2 pieghe
a valle ruotate 2
vertici adiacenti



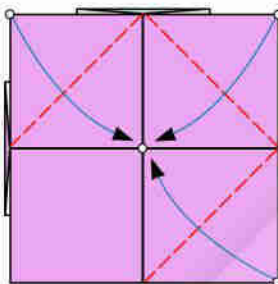
C2



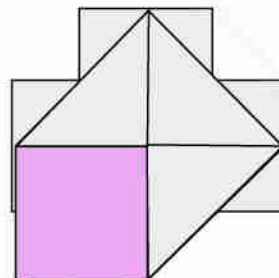
Mediante 2 pieghe
a valle ruotate 2
vertici opposti



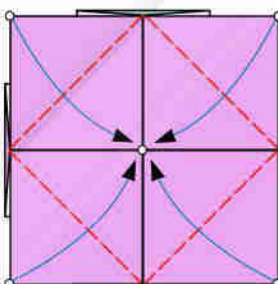
C3



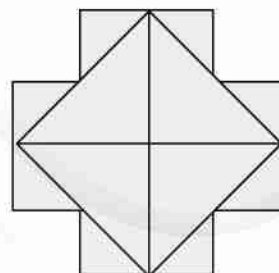
Mediante 3 pieghe
a valle ruotate 3
vertici



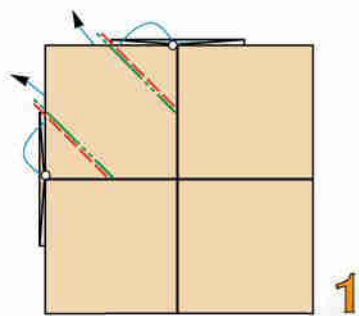
C4



Mediante 4 pieghe
a valle ruotate 4
vertici

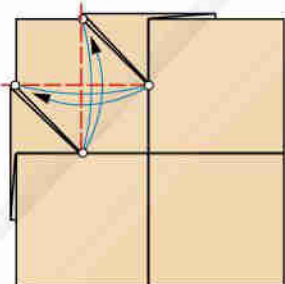


C5



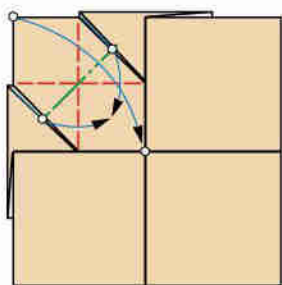
2 pieghe rovesce interne

1



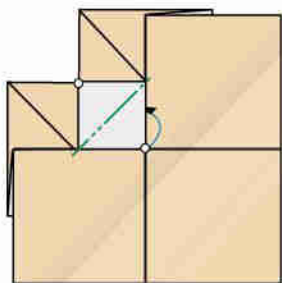
2 pieghe a valle

2



1 piega a monte e ruotate ripiegando a valle

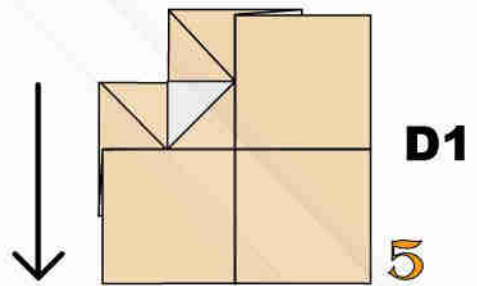
3



1 piega a monte e ruotate intascando

4

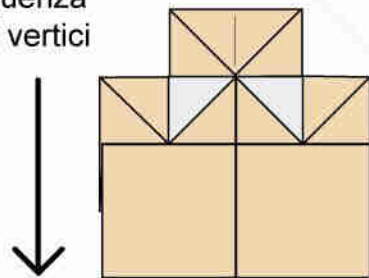
MODULI ULTIMATI



D1

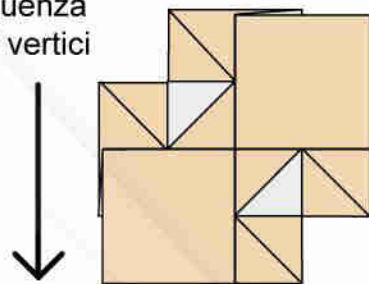
5

Ripetete la sequenza di pieghe per 2 vertici adiacenti



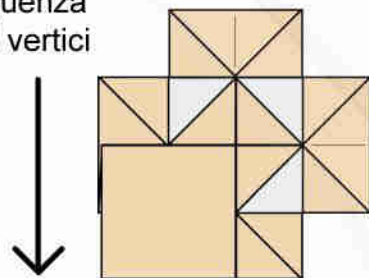
D2

Ripetete la sequenza di pieghe per 2 vertici opposti



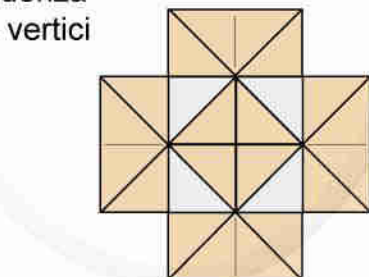
D3

Ripetete la sequenza di pieghe per 3 vertici



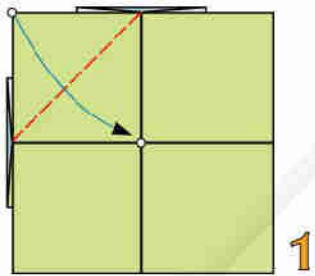
D4

Ripetete la sequenza di pieghe per 4 vertici



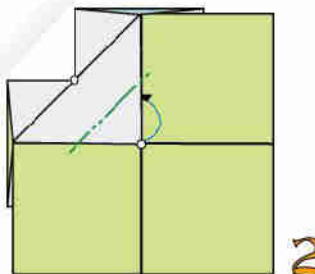
D5

MODULI ULTIMATI



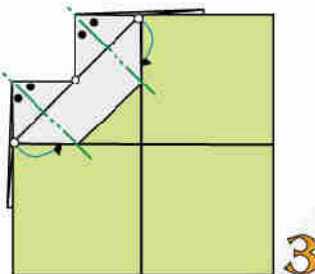
1 piega a valle e ruotate

1



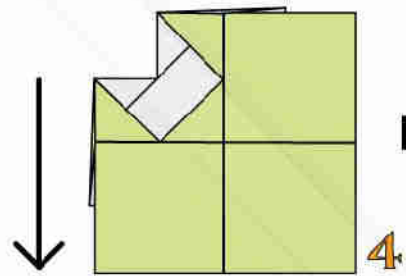
1 piega a monte e ruotate

2



2 pieghe bisettrici a monte e ruotate

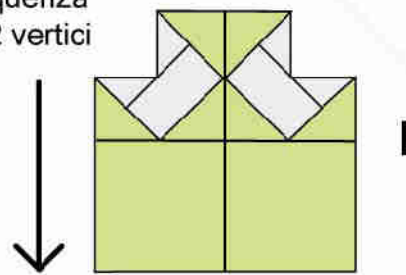
3



E1

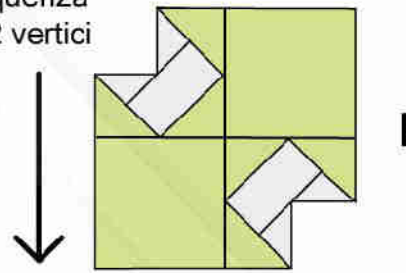
4

Ripetete la sequenza di pieghe per 2 vertici adiacenti



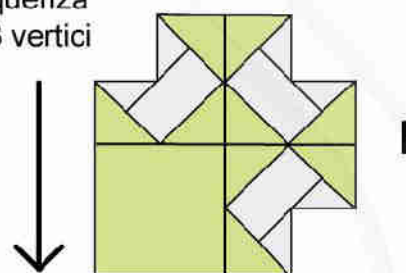
E2

Ripetete la sequenza di pieghe per 2 vertici opposti



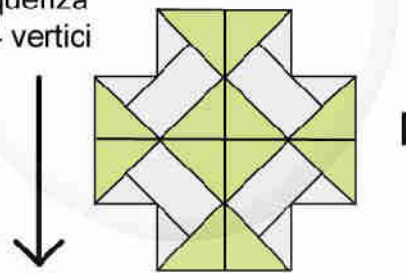
E3

Ripetete la sequenza di pieghe per 3 vertici

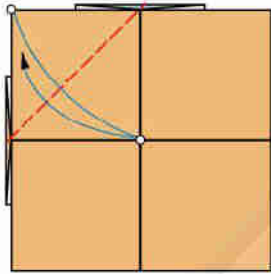


E4

Ripetete la sequenza di pieghe per 4 vertici

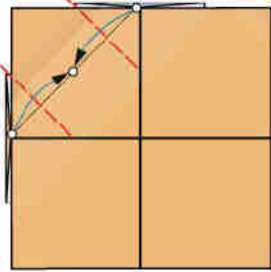


E5



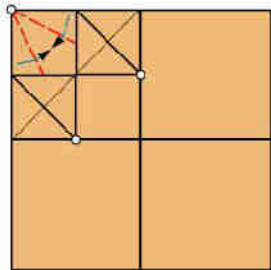
1

1 piega a valle e ruotate



2

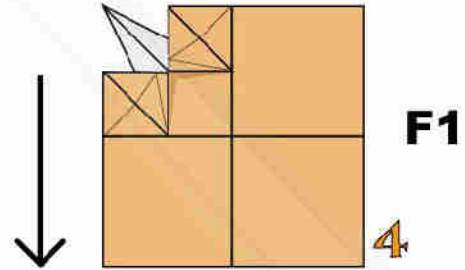
2 pieghe a valle e ruotate



3

2 pieghe a valle (parzialmente nascoste) e ruotate

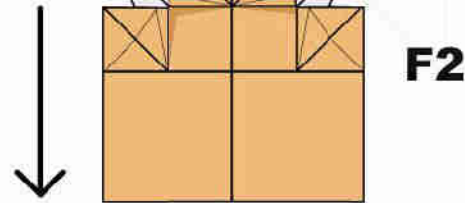
MODULI ULTIMATI



F1

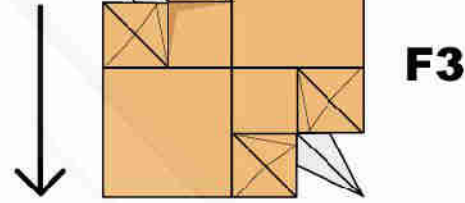
4

Ripetete la sequenza di pieghe per 2 vertici adiacenti



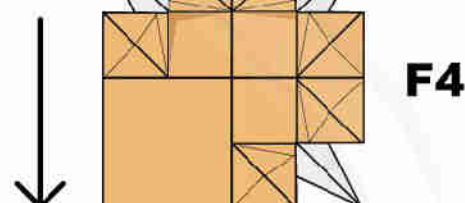
F2

Ripetete la sequenza di pieghe per 2 vertici opposti



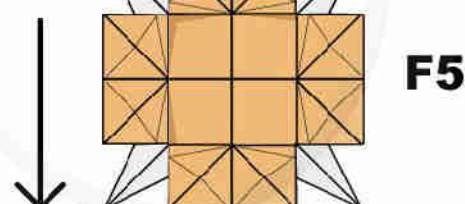
F3

Ripetete la sequenza di pieghe per 3 vertici



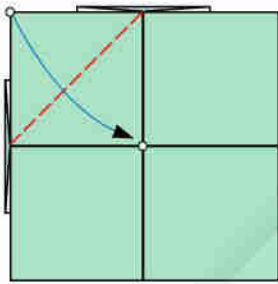
F4

Ripetete la sequenza di pieghe per 4 vertici



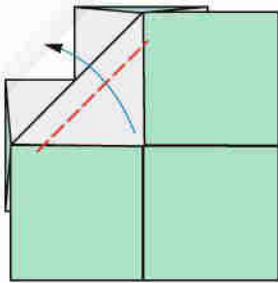
F5

MODULI ULTIMATI



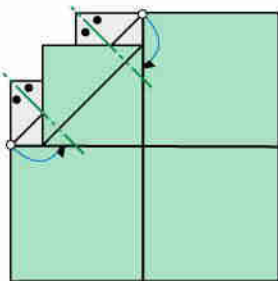
1

1 piega a valle
e ruotate



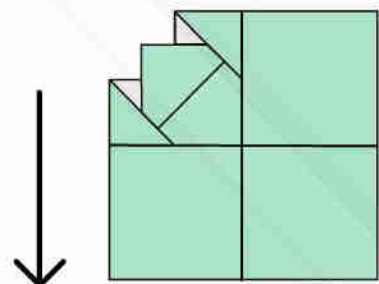
2

1 piega a valle
e ruotate



3

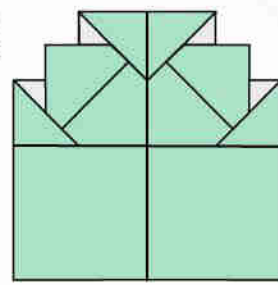
2 pieghe a monte
e ruotate



G1

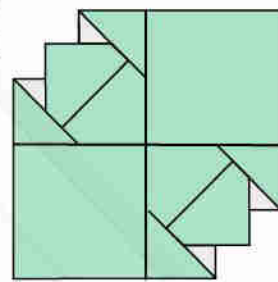
4

Ripetete la sequenza
di pieghe per 2 vertici
adiacenti



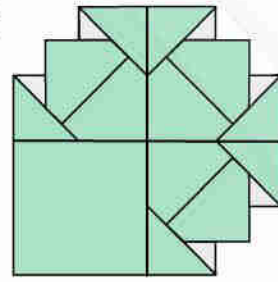
G2

Ripetete la sequenza
di pieghe per 2 vertici
opposti



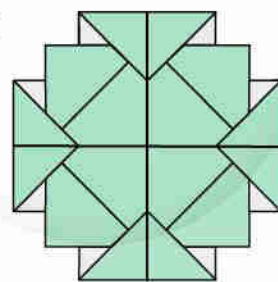
G3

Ripetete la sequenza
di pieghe per 3 vertici



G4

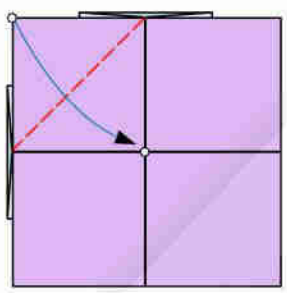
Ripetete la sequenza
di pieghe per 4 vertici



G5

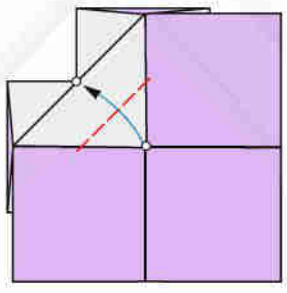
MODULI ULTIMATI

1 piega a valle e ruotate



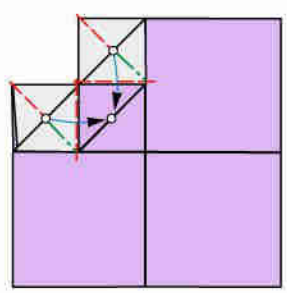
1

1 piega a valle e ruotate



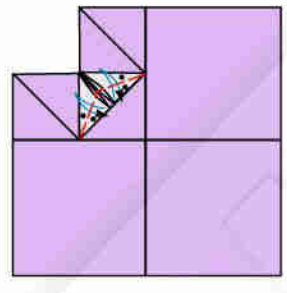
2

4 pieghe a valle, 2 a monte e ruotate



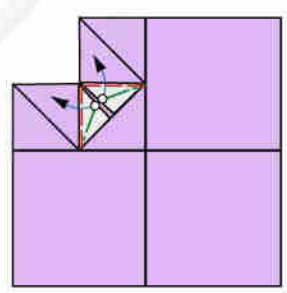
3

4 pieghe bisettrici a valle



4

Ripiegando a valle ed a monte aprite i 2 triangoli



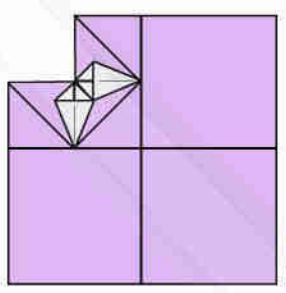
5

Ripetete la sequenza di pieghe per 2 vertici adiacenti

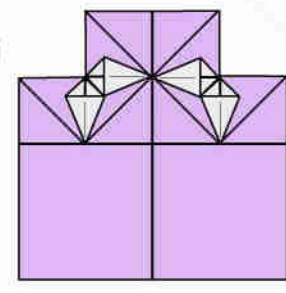
Ripetete la sequenza di pieghe per 2 vertici opposti

Ripetete la sequenza di pieghe per 3 vertici

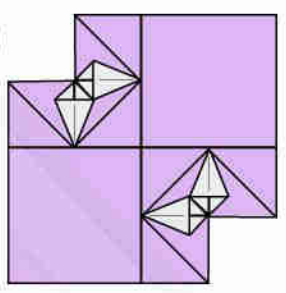
Ripetete la sequenza di pieghe per 4 vertici



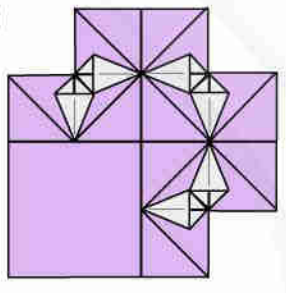
6



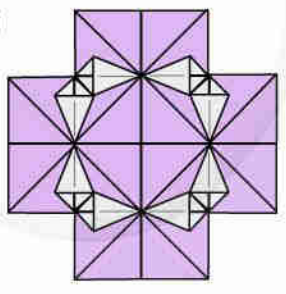
H2



H3

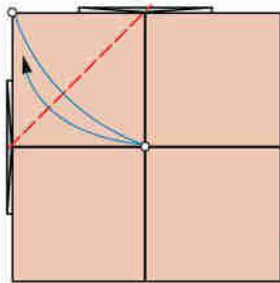


H4



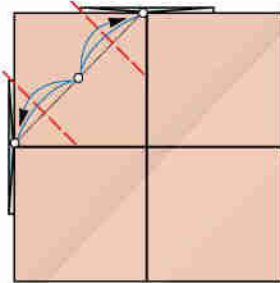
H5

MODULI ULTIMATI



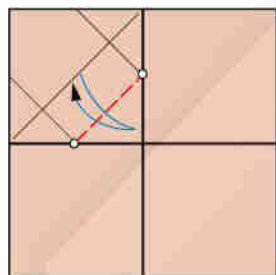
1 piega a valle

1



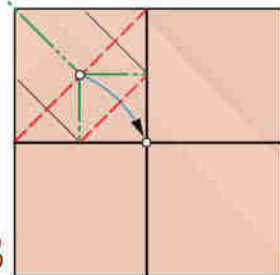
2 pieghe a valle

2



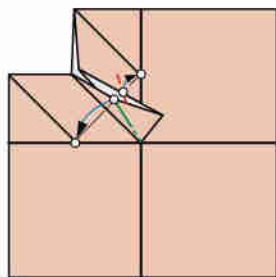
1 piega a valle

3



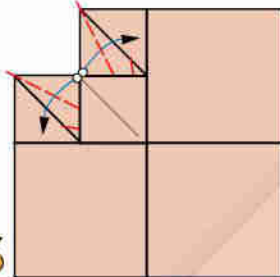
3 pieghe a monte e ruotate 3D ripiegando a valle

4



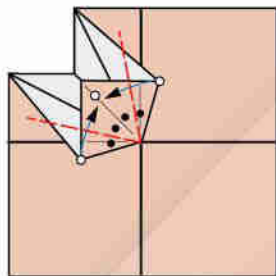
Mediante 2 pieghe a monte appiattite il triangolo verticale

5



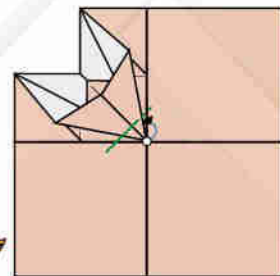
4 pieghe a valle solo sulla sup. in vista ed aprite

6



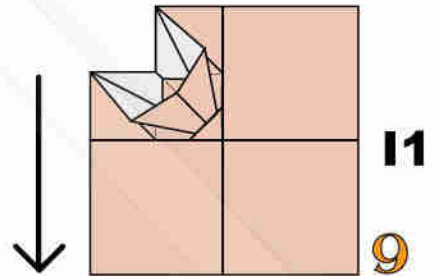
2 pieghe bisettrici a valle e ruotate

7



1 piega a monte e ruotate

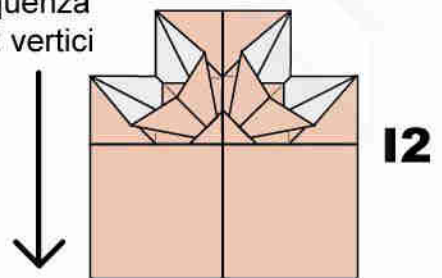
8



I1

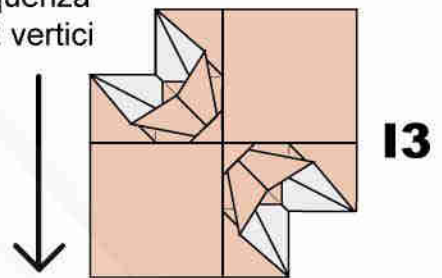
9

Ripetete la sequenza di pieghe per 2 vertici adiacenti



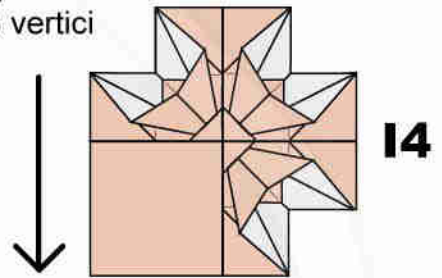
I2

Ripetete la sequenza di pieghe per 2 vertici opposti



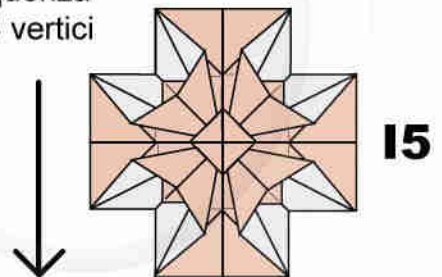
I3

Ripetete la sequenza di pieghe per 3 vertici



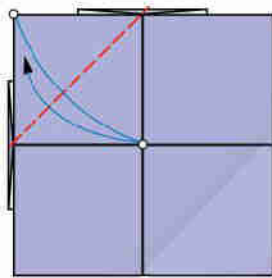
I4

Ripetete la sequenza di pieghe per 4 vertici



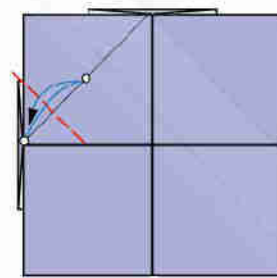
I5

1 piega
a valle



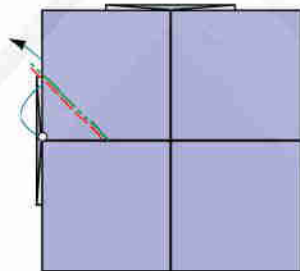
1

1 piega
a valle



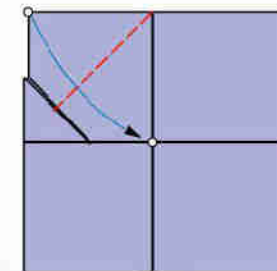
2

1 piega
rovescia
interna



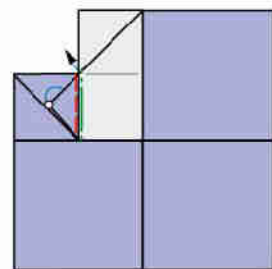
3

1 piega
a valle e
ruotate



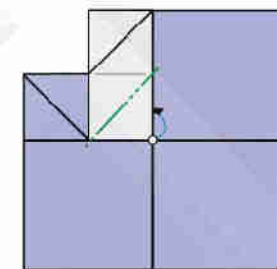
4

1 piega
rovescia
interna



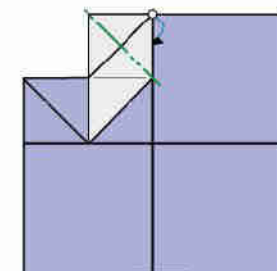
5

1 piega a
monte e
ruotate
intascando



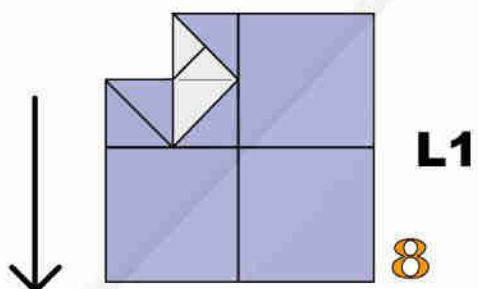
6

1 piega a
monte e
ruotate

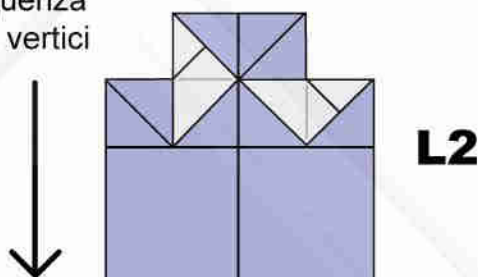


7

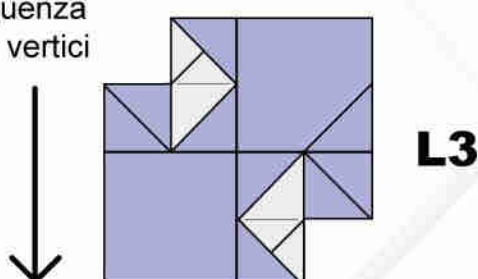
MODULI ULTIMATI



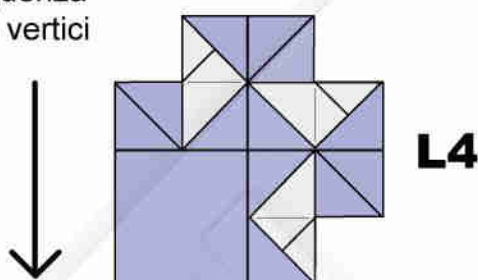
Ripetete la sequenza di pieghe per 2 vertici adiacenti



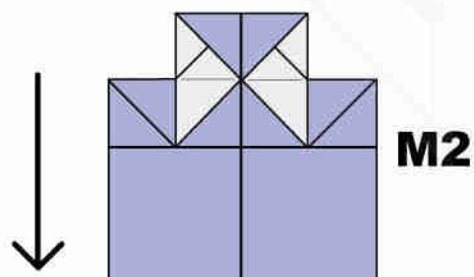
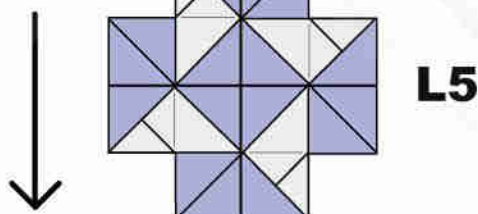
Ripetete la sequenza di pieghe per 2 vertici opposti



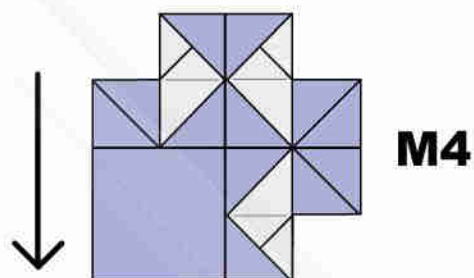
Ripetete la sequenza di pieghe per 3 vertici



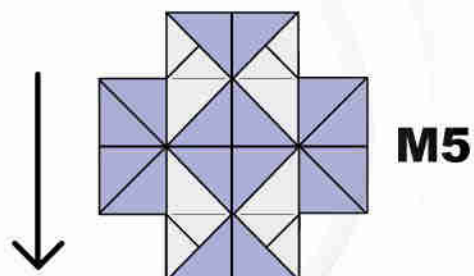
Ripetete la sequenza di pieghe per 4 vertici



Ripetete simmetricamente la sequenza di pieghe per 2 vertici adiacenti

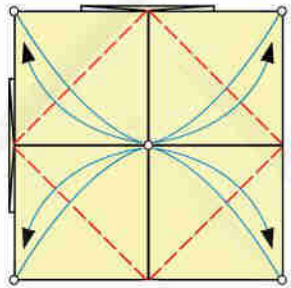


Ripetete simmetricamente la sequenza di pieghe per 3 vertici



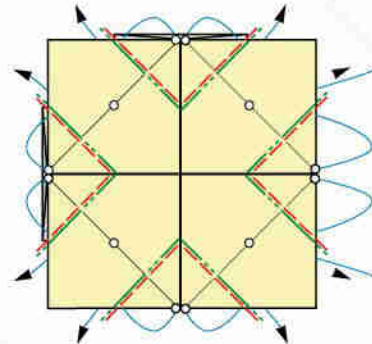
Ripetete simmetricamente la sequenza di pieghe per 4 vertici

MODULI 3D



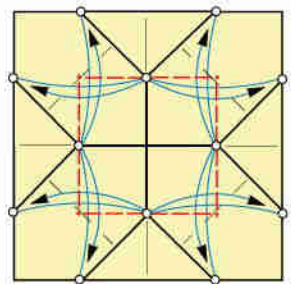
1

4 pieghe a valle



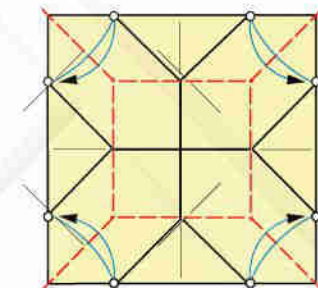
2

4 pieghe rovesce interne



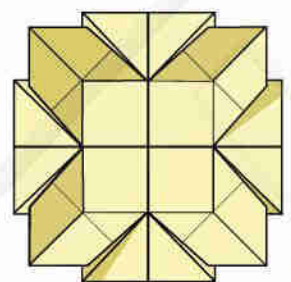
3

4 pieghe a valle



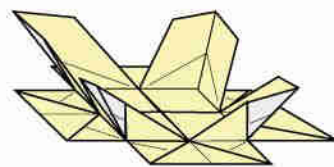
4

4 pieghe diagonali a valle e, ripiegando, modellate 3D

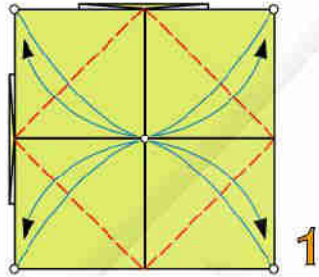


5

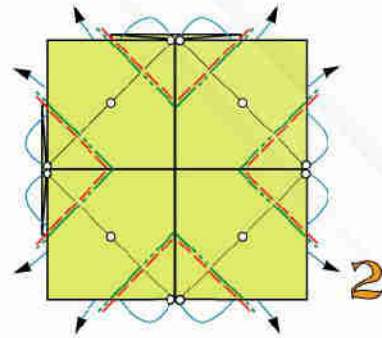
Modulo **N** ultimato



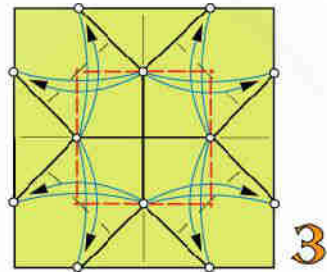
Assonometria



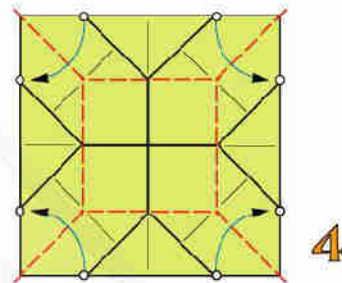
4 pieghe a valle



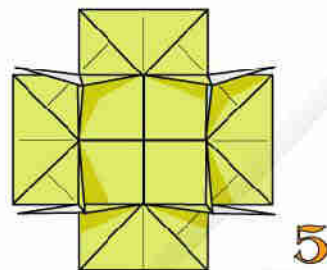
4 pieghe rovesce interne



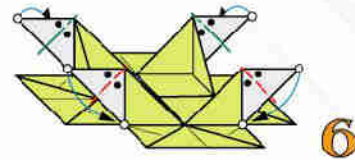
4 pieghe a valle



4 pieghe diagonali a valle e, ripiegando, modellate 3D congiungendo i punti indicati

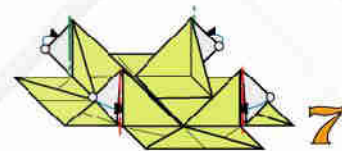


5



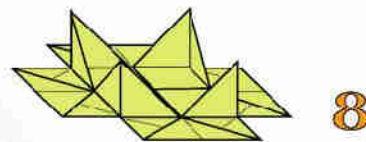
Assonometria: 4 pieghe bisettrici a valle, 2 per lato

6



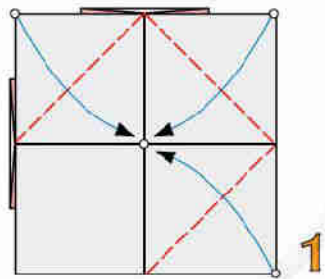
4 pieghe bisettrici a valle, 2 per lato e intascate

7

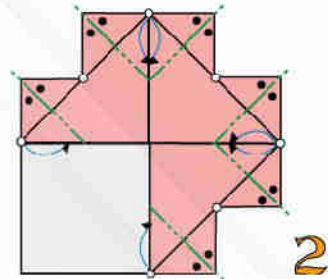


Modulo **O** ultimato

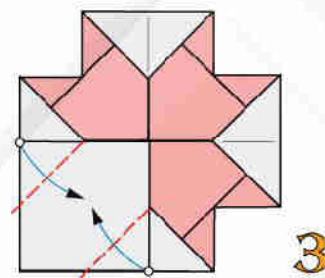
8



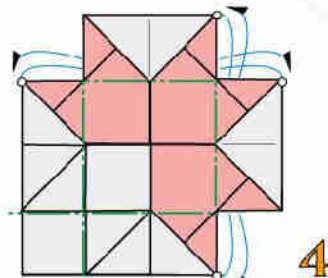
Adoperate carta leggera.
3 pieghe a valle e ruotate



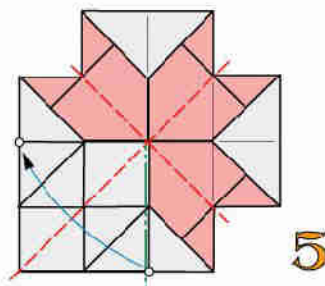
6 pieghe bisettrici a monte e ruotate



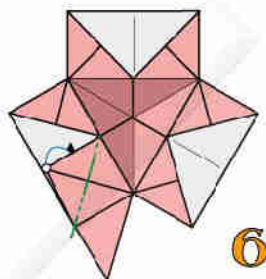
2 pieghe a valle e ruotate



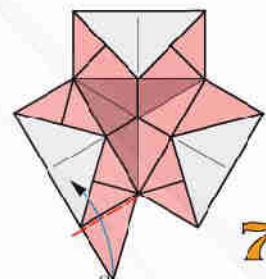
4 pieghe a monte



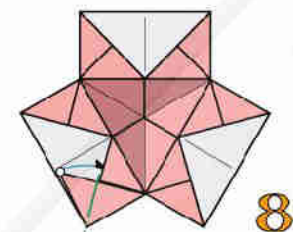
2 pieghe a valle, 1 a monte e ruotate 3D



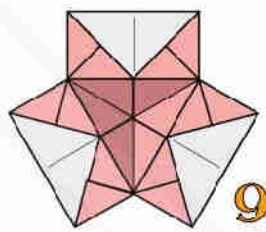
1 piega a monte e ruotate



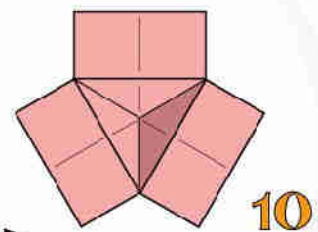
1 piega a valle e ruotate



1 piega a monte e intascate

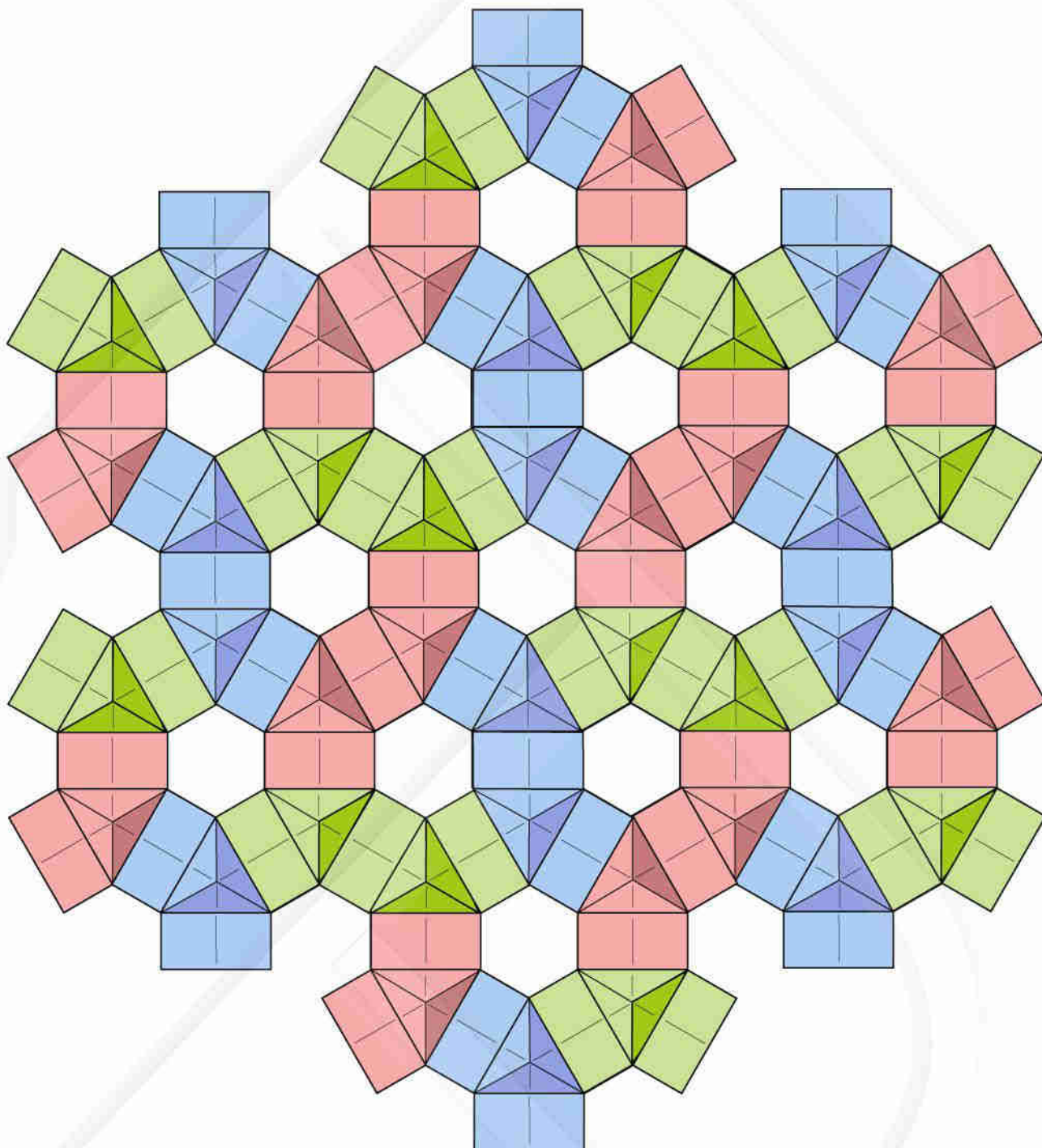


Ribaltate



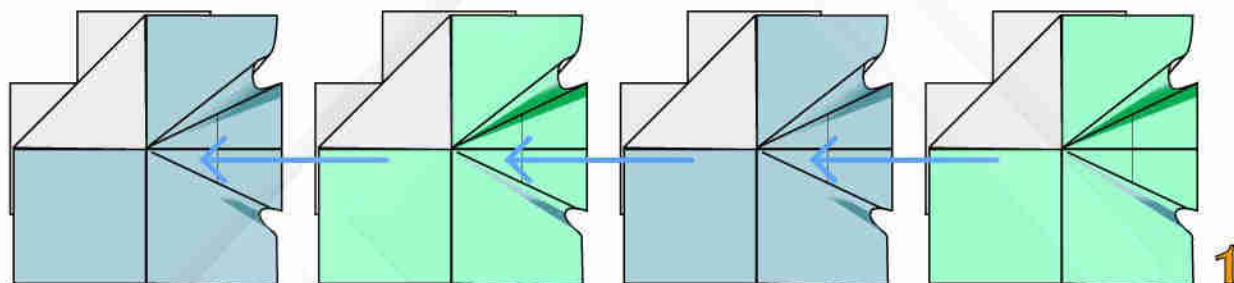
Modulo **P** ultimato

ESEMPIO DI TASSELLAZIONE ESEGUITA CON MODULI P

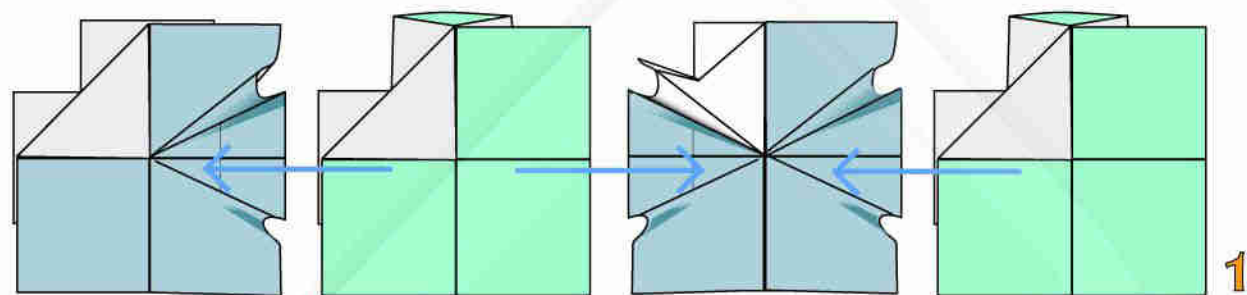
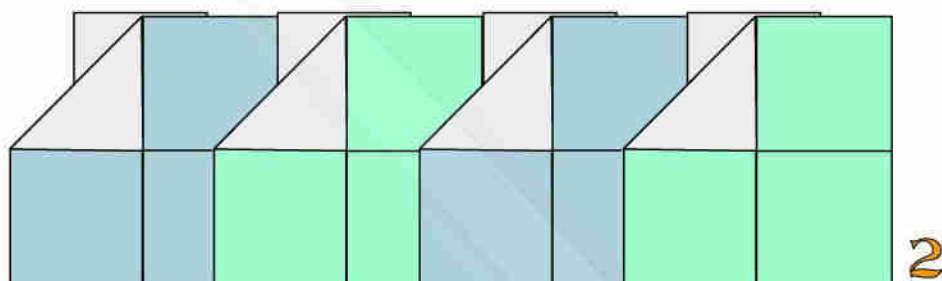


TIPOLOGIE DI UNIONE DEI MODULI

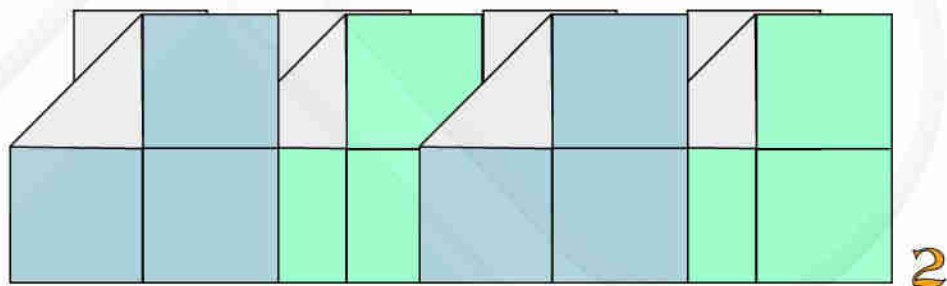
Si presentano solamente alcuni tipi di aggregazioni, in quanto le combinazioni possono essere molte. Se poi si variano i moduli, le combinazioni diventano innumerevoli.

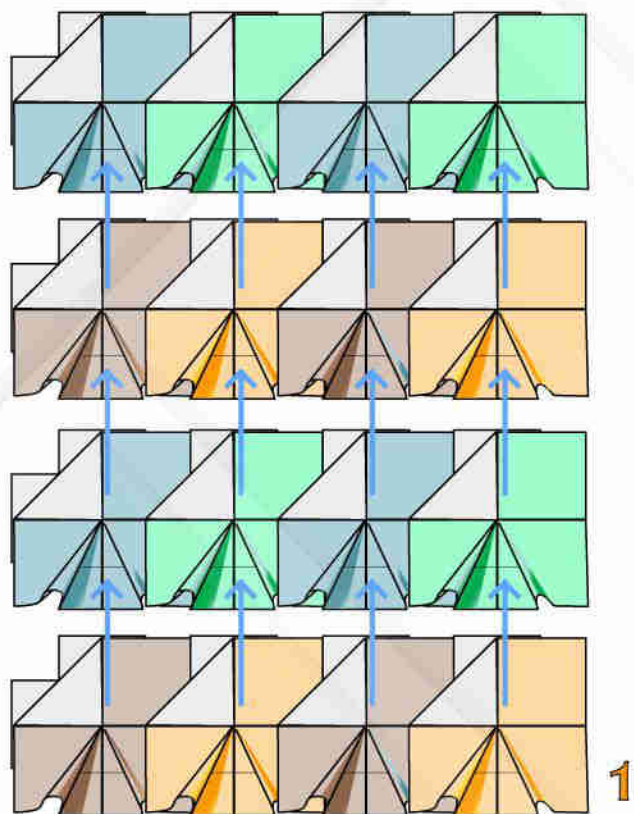


Riga con unione in successione- **X**



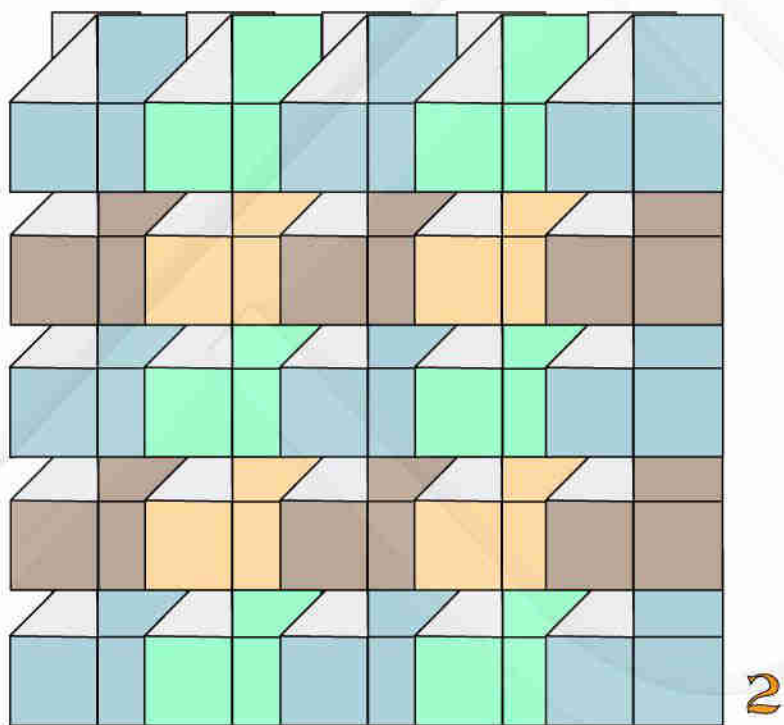
Riga con sovrapposizione alternata- **Y**



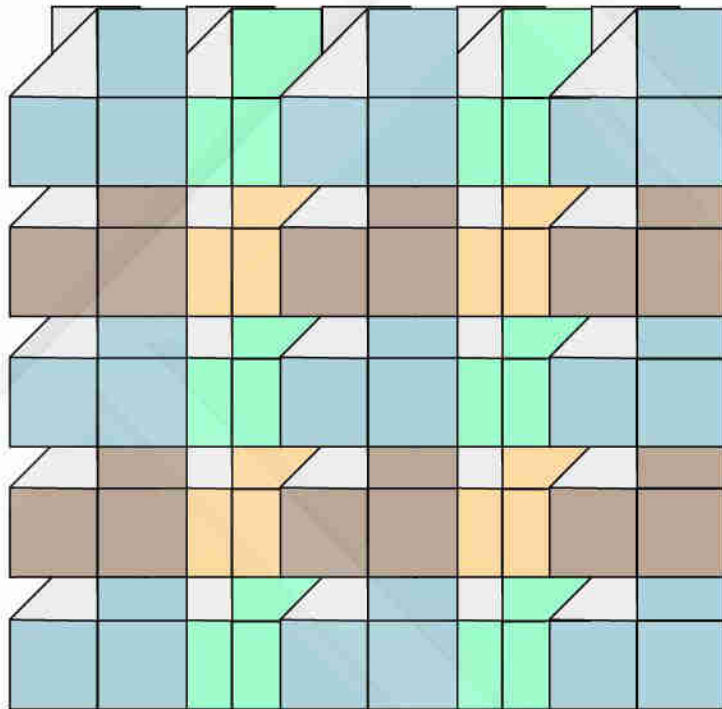


1

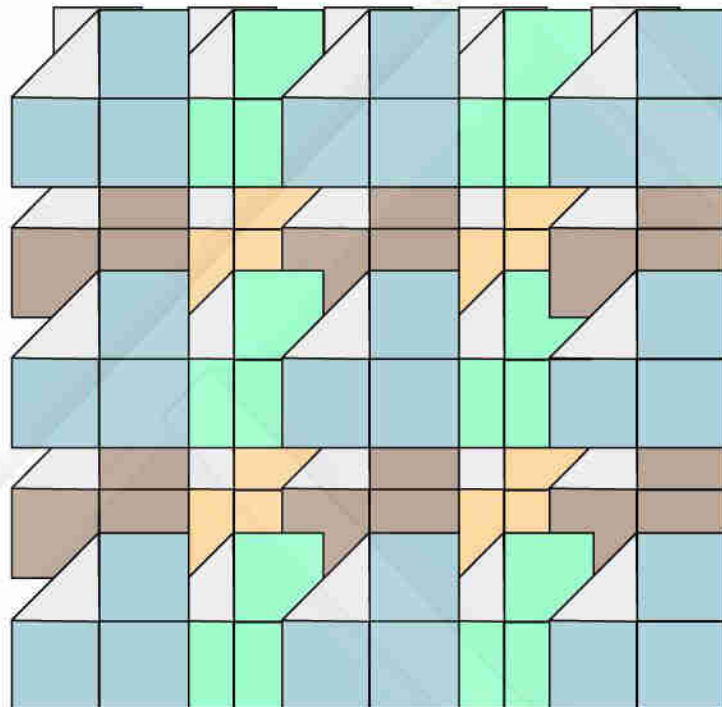
Righe **X** unite verticalmente in successione



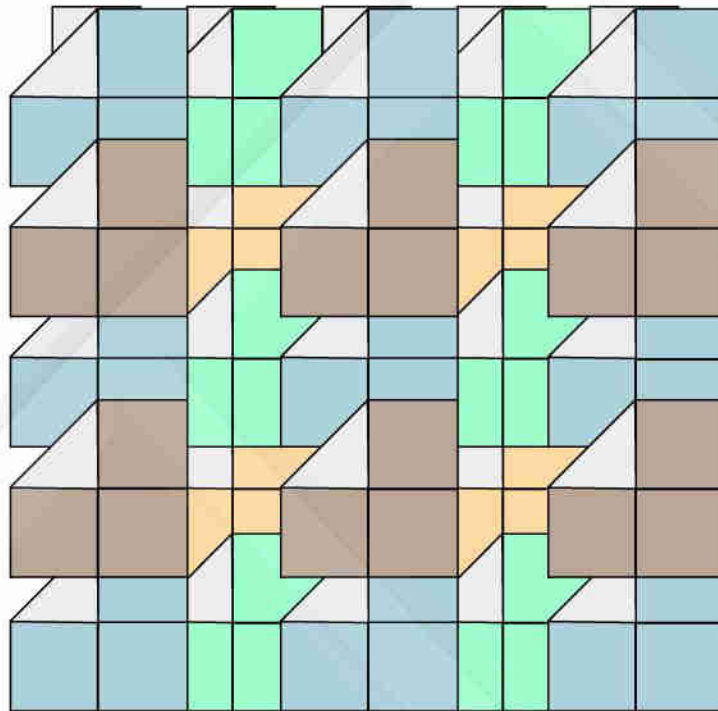
2



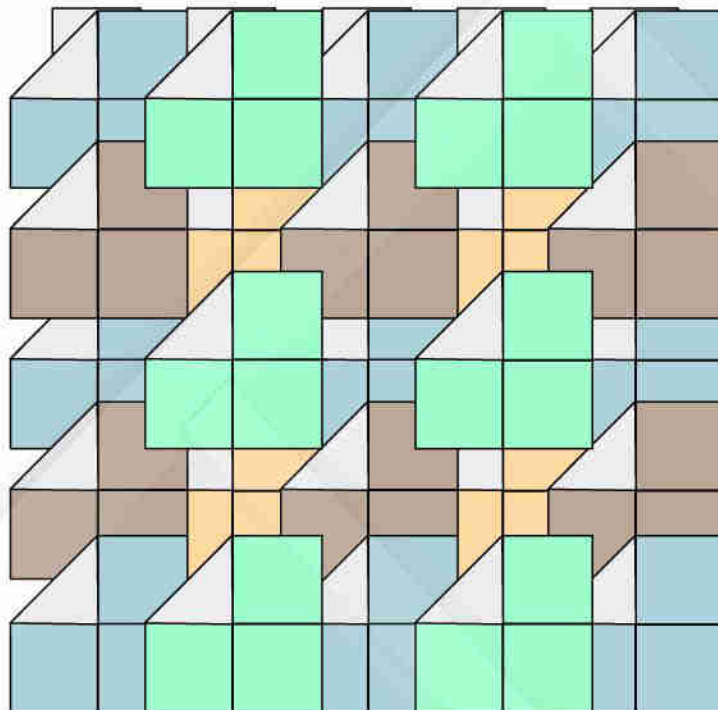
Righe **Y** unite verticalmente in successione



Righe **Y** unite verticalmente con sovrapposizione alternata

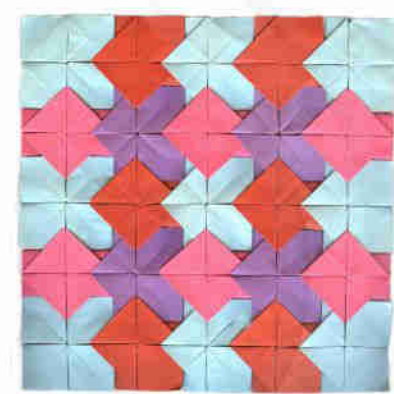
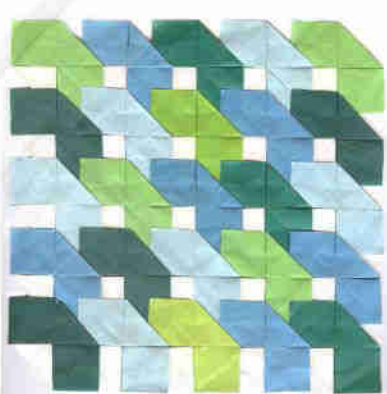
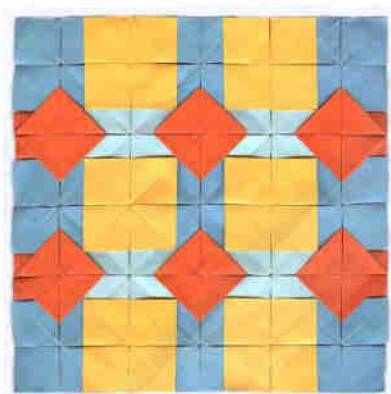


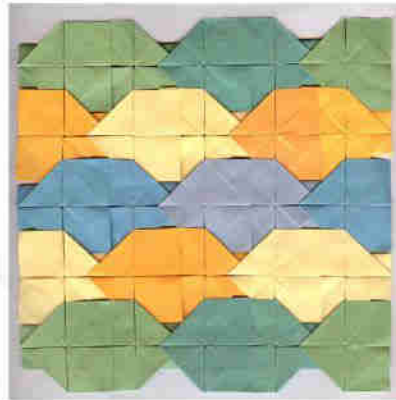
Righe **Y** unite verticalmente con sovrapposizione alternata



Righe **Y** unite verticalmente con sovrapposizione alternata scalata

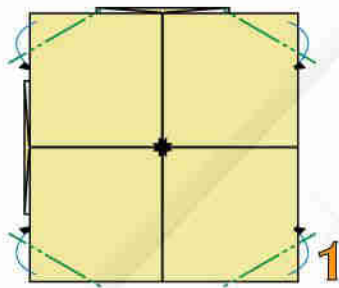
ESEMPI DI TASSELLAZIONI CON MODULI A, B_n e C_n



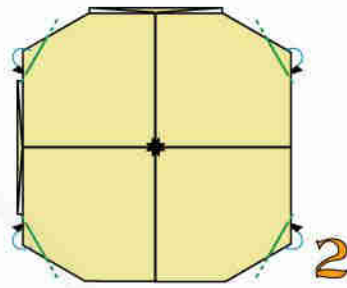


TASSELLAZIONE A GRATICCIO

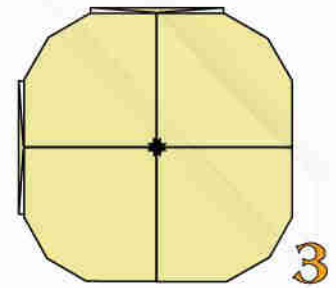
Il modulo "graticcio" serve per realizzare trame verticali e, data la sua grande robustezza, è adatto per la costruzione di graticci verticali a cui appendere oggettini vari, come animaletti, decorazioni o regali per le feste. Si realizza unendo moduli R con moduli graticcio.



Partite dal modulo base A.
4 pieghe a monte e ruotate

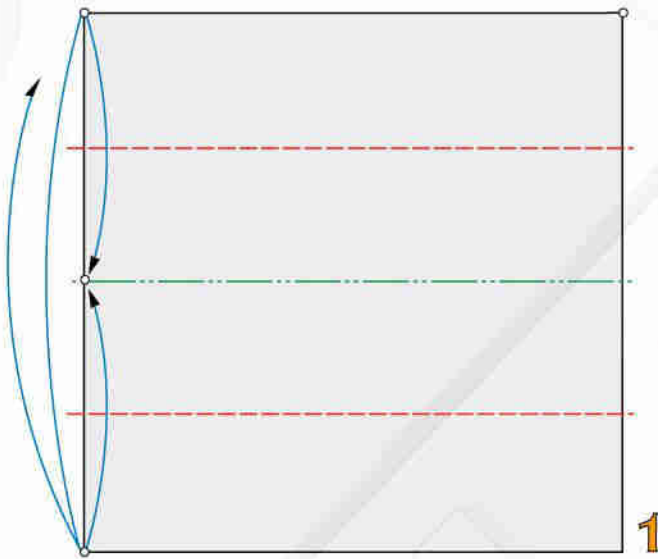


4 pieghe a monte e ruotate



Modulo **R** ultimato

MODULO GRATICCIO



1 piega a monte, 2 a valle e ruotate



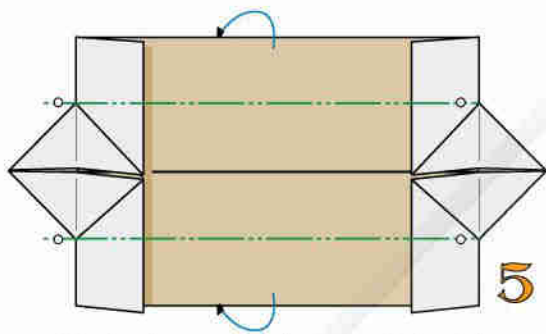
2 pieghe a monte sottostanti e ruotate



4 pieghe rovesce interne



2 pieghe a monte sottostanti,
ruotate e ribaltate



2 pieghe a monte e ruotate intascando

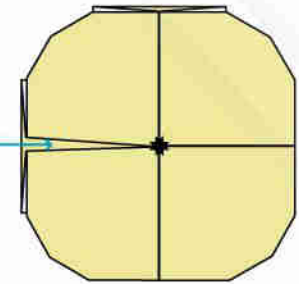
5



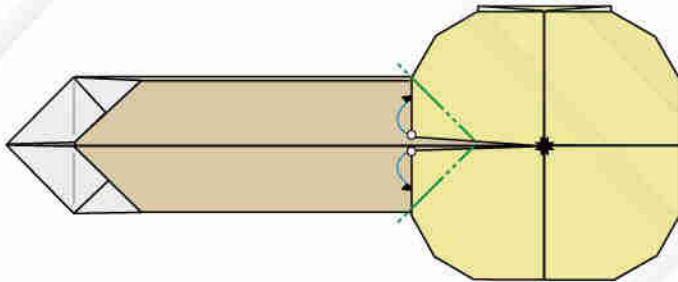
4 pieghe a monte e ruotate intascando

6

Modulo
GRATICCIO
ultimato



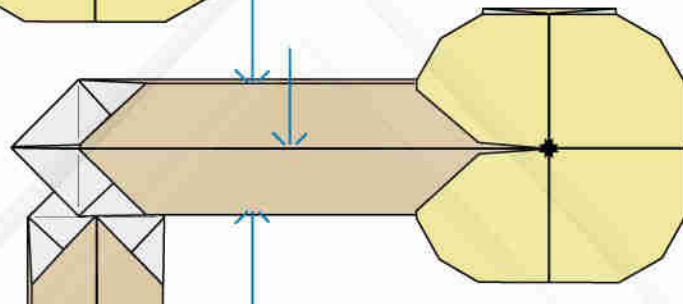
1



Bloccate l'unione agganciando a monte i 2 vertici indicati

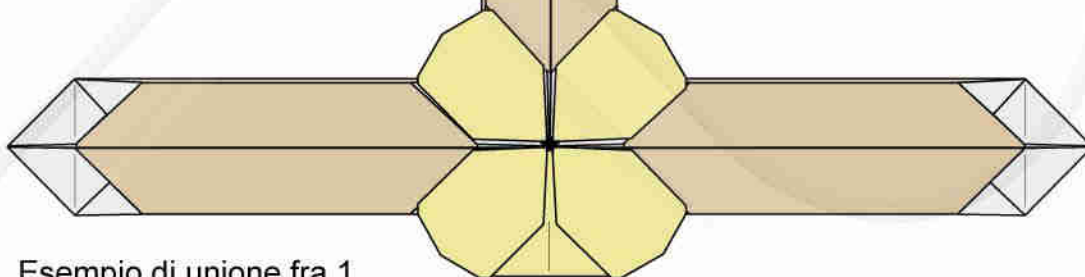
2

UNIONE DI UN MODULO
GRATICCIO CON UN
MODULO **R**



3

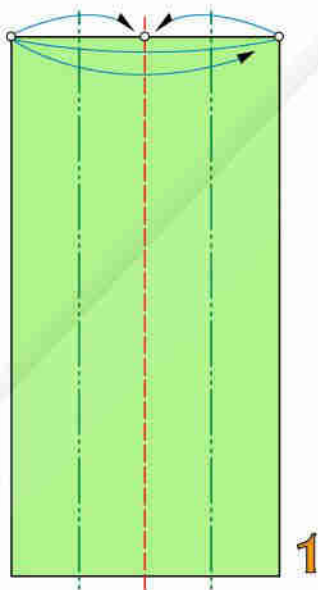
Unione completata.
Ora potete collegare altri 3 moduli.
Potete notare che il modulo
Graticcio dispone di 3 tasche
utili per agganciare altri oggetti



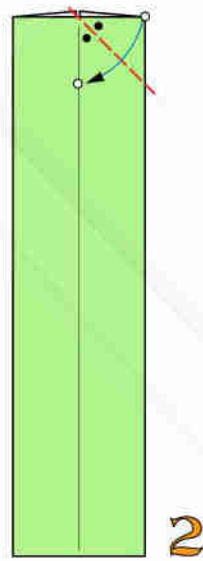
Esempio di unione fra 1
modulo R e 3 moduli Graticcio

MODULO FOGLIA PER GRATICCIO

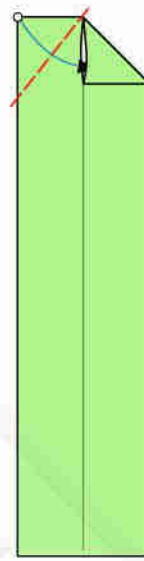
Si parte da mezzo foglio quadrato e si ottiene una foglia che si può inserire nella tasca centrale del modulo graticcio. In questo si possono posizionare fino a 3 foglie.



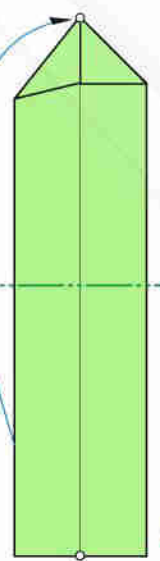
1 piega a valle,
2 a monte e ruotate



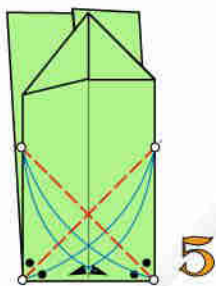
1 piega bisettrice
a valle e ruotate



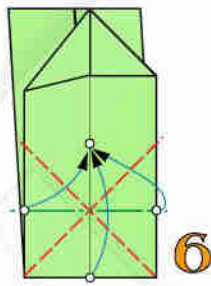
1 piega a valle e
ruotate intascando



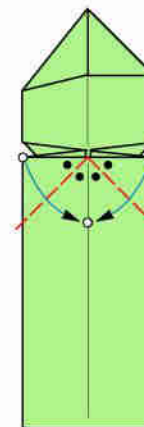
1 piega a monte
e ruotate



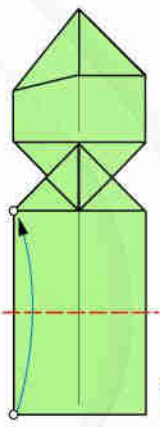
2 pieghe bisettrici
a valle solo sulla
sup. in vista e
ruotate



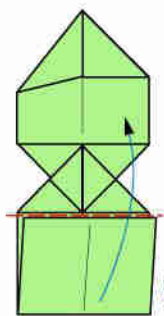
1 piega a monte e
ruotate ripiegando
a valle



2 pieghe bisettrici
a valle e ruotate

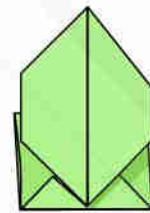


1 piega a valle
e ruotate



9

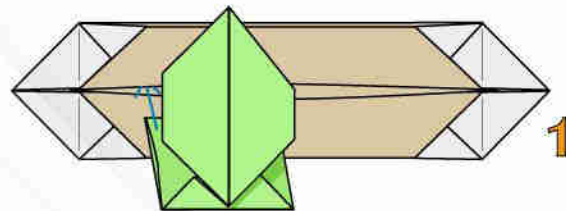
1 piega a valle,
ruotate e ribaltate



10

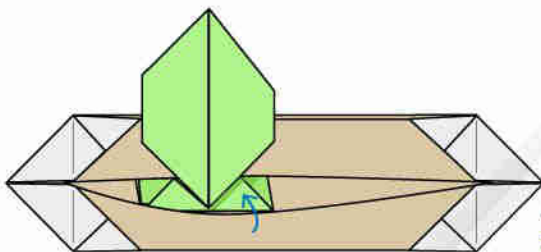
Modulo foglia ultimato

INSERIMENTO DEL MODULO FOGLIA NEL MODULO GRATICCIO



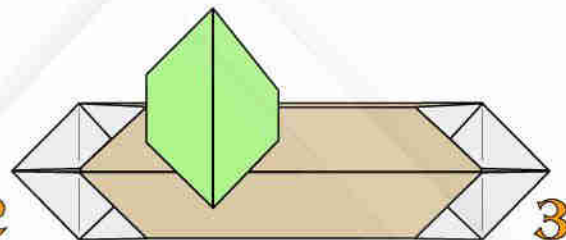
1

Intascate il bordo indicato nella tasca centrale del graticcio



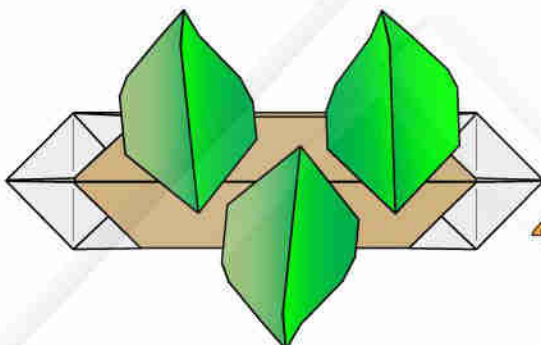
2

Intascate anche il bordo inferiore della foglia



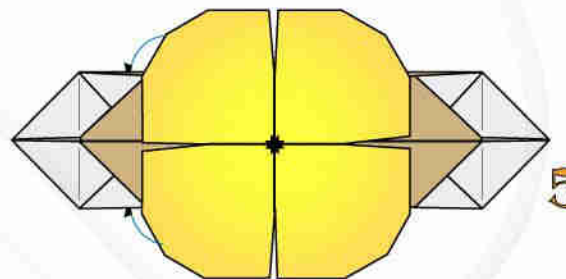
3

Bloccaggio ultimato



4

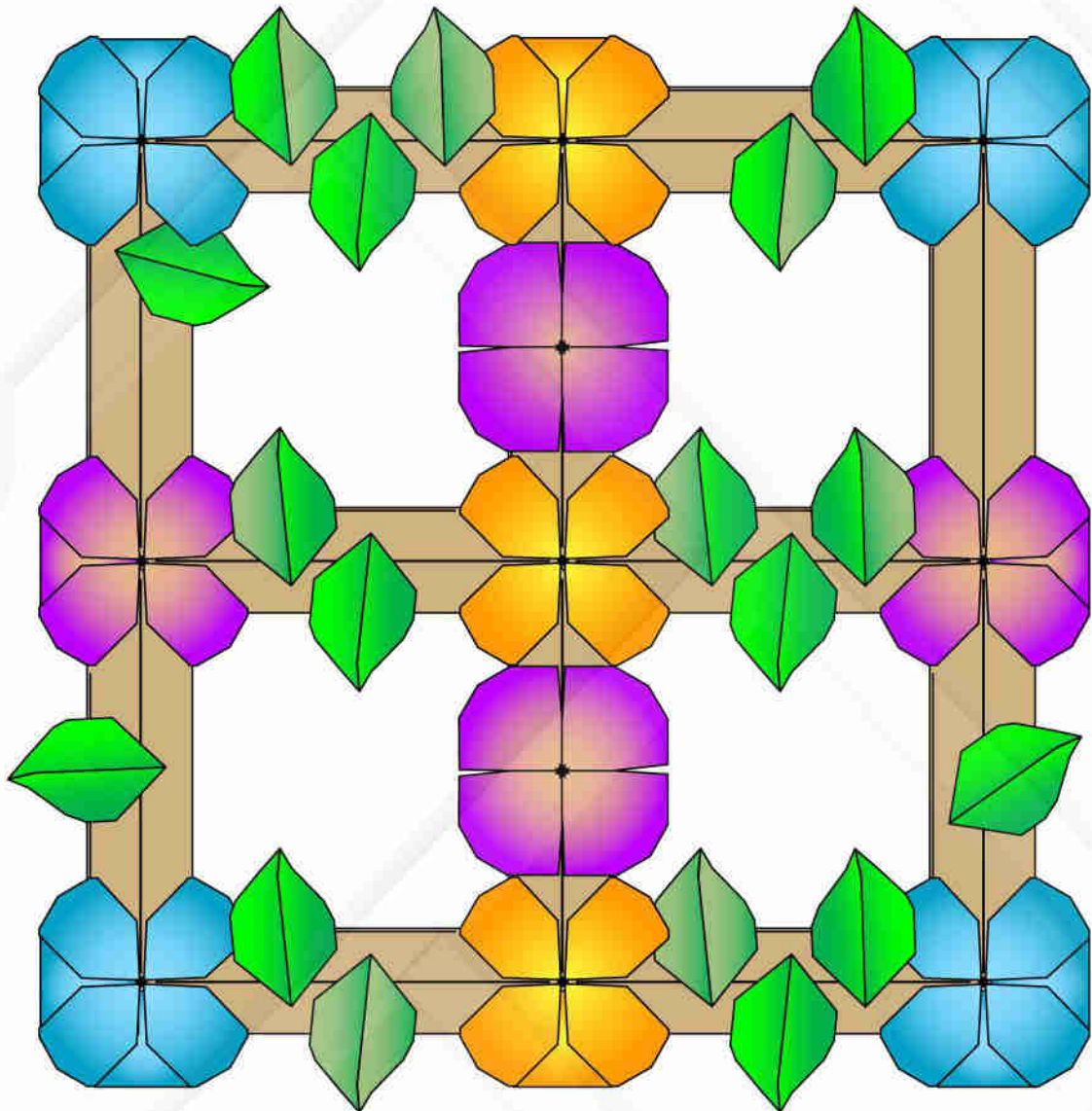
Si possono inserire fino a 3 foglie



5

Si può inserire un fiore derivato dal modulo 1 intascando 2 vertici posteriori nelle tasche superiore ed inferiore del graticcio

ESEMPIO DI GRATICCIO



TASSELLAZIONI MODULARI COMPATIBILI

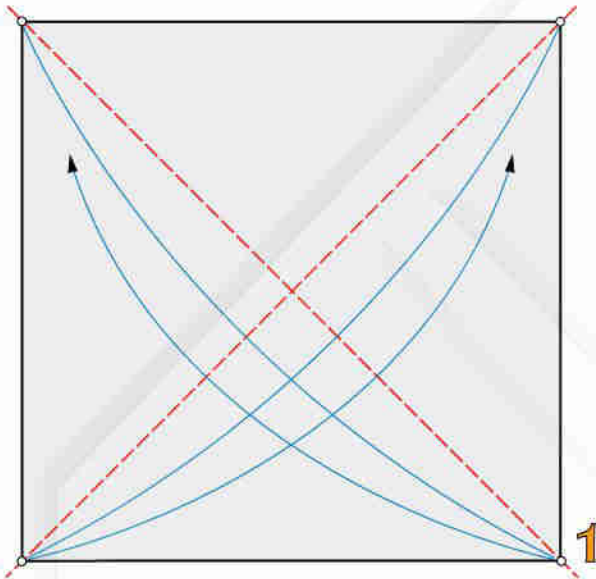
Queste tassellazioni costituiscono la naturale evoluzione di quelle presentate in un mio vecchio libro del 1989.

I moduli, abbastanza semplici, sono compatibili fra loro poichè le unioni avvengono nello stesso modo.

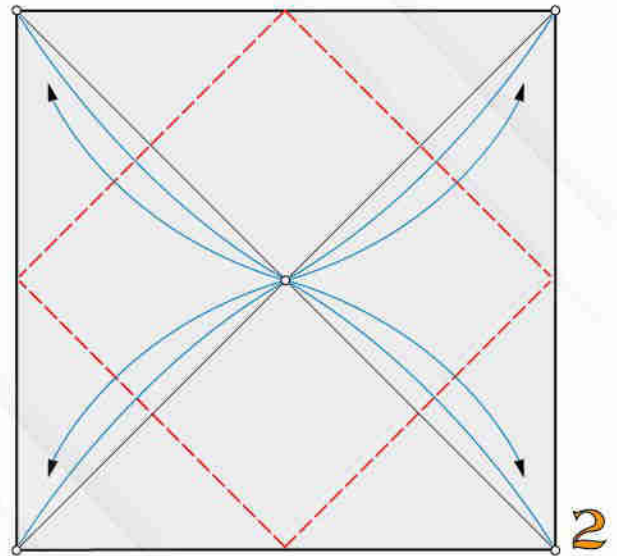
Sostituendo del tessuto alla carta, si può pensare ad un loro utilizzo nel campo della moda.



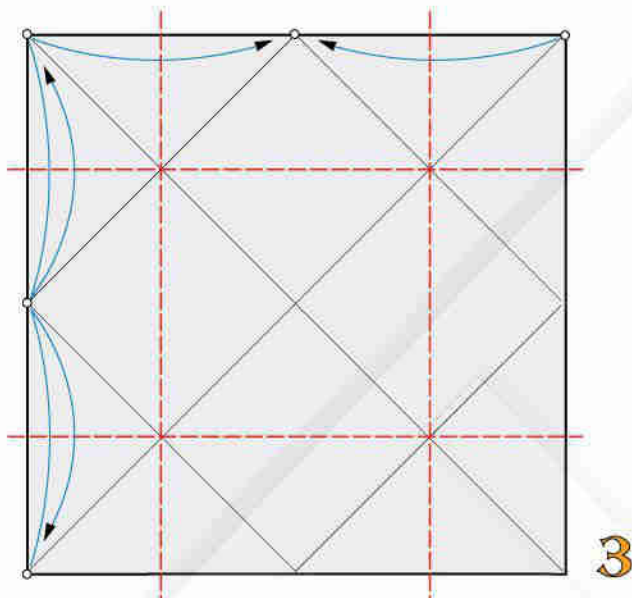
MODULO "A"



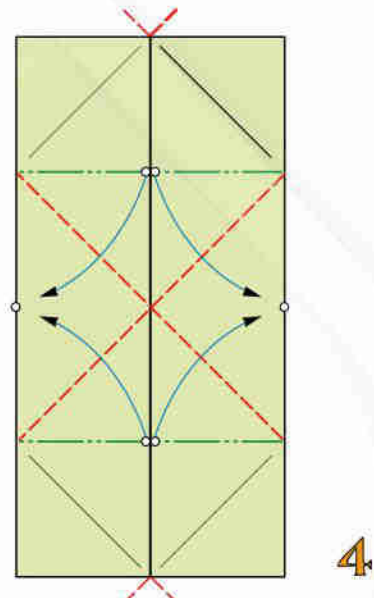
2 pieghe diagonali a valle



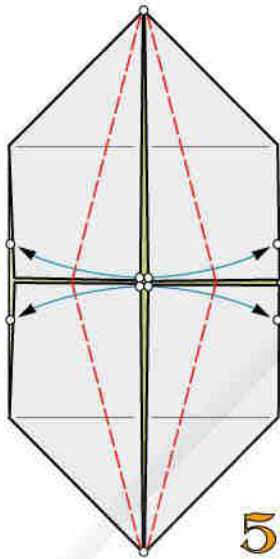
4 pieghe a valle



4 pieghe a valle e ruotate i bordi laterali

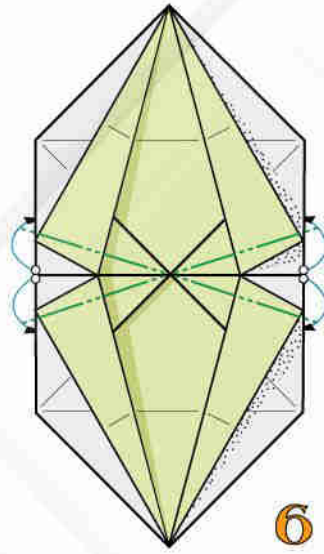


Ruotate ripiegando 4 volte a valle ed a monte sulla sup. in vista e 4 volte a valle su quella sottostante



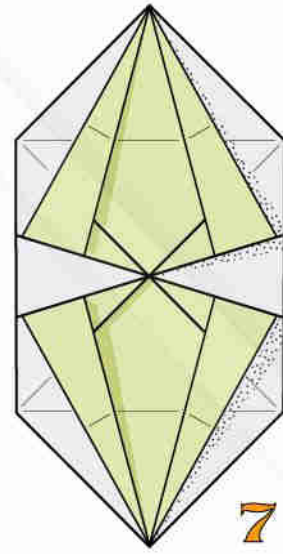
5

4 pieghe a valle e ruotate



6

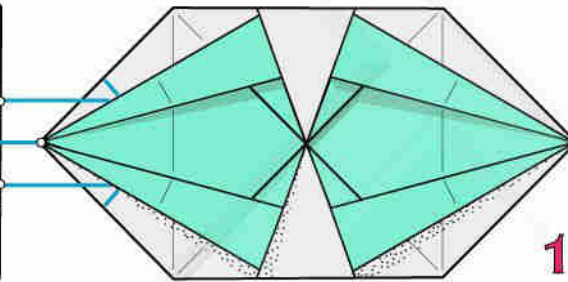
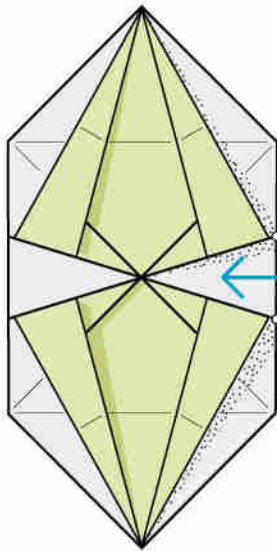
4 pieghe a monte e ruotate



7

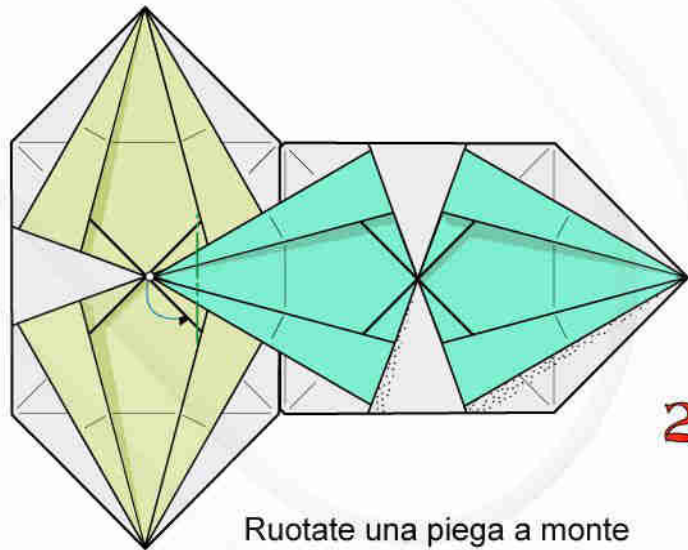
Modulo "A" ultimato

UNIONE DI 2 MODULI



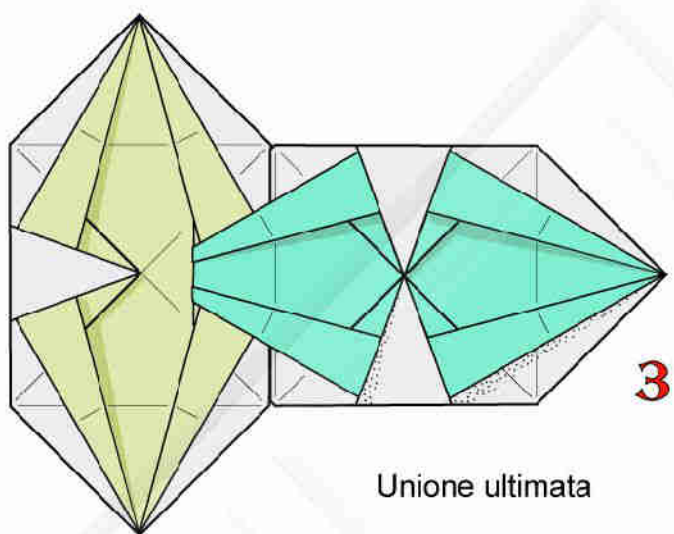
1

Intascate i 2 vertici del modulo di sinistra sotto i bordi del modulo di destra e quello centrale del modulo di destra entro il modulo di sinistra



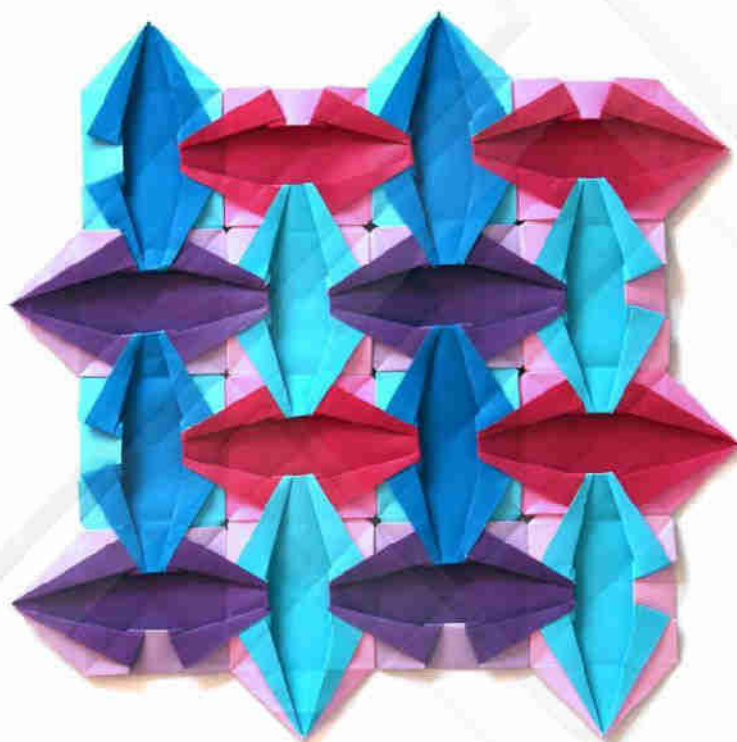
2

Ruotate una piega a monte bloccando l' unione

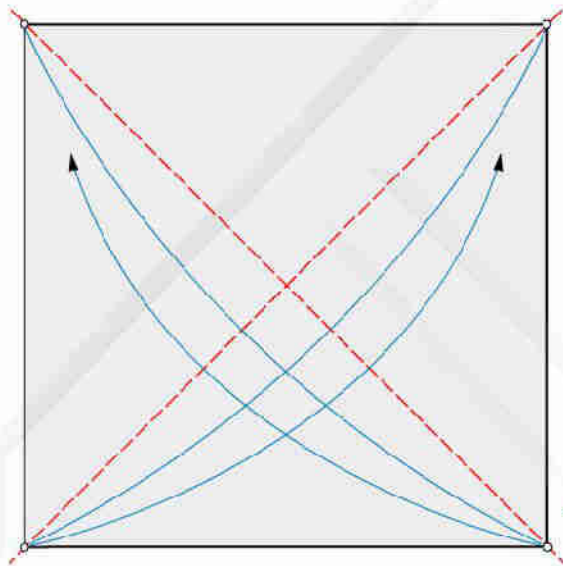


Unione ultimata

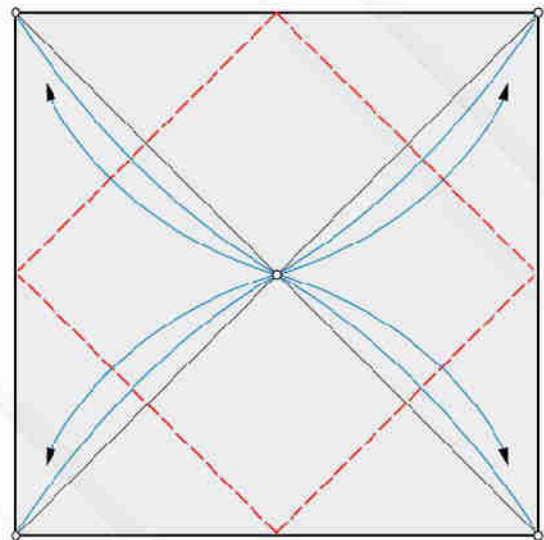
ESEMPIO DI TASSELLAZIONE ESEGUITA CON 16 MODULI "A"



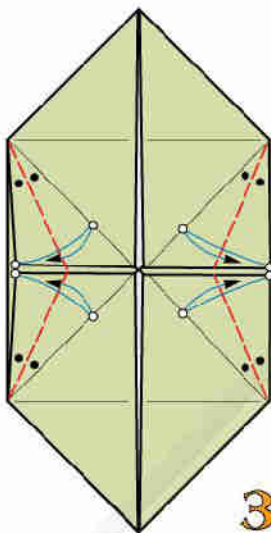
MODULO "B"



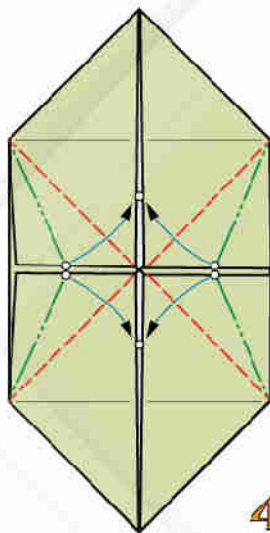
2 pieghe diagonali a valle



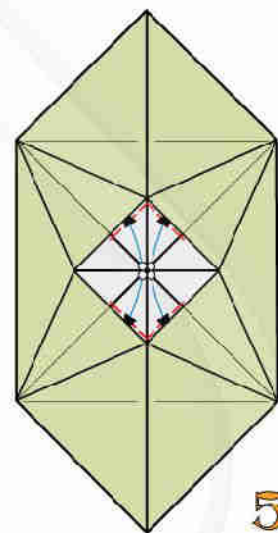
4 pieghe a valle



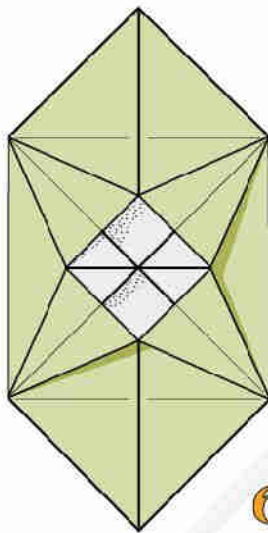
4 pieghe bisettrici a valle



Ruotate ripiegando 4 volte a valle e 4 volte a monte

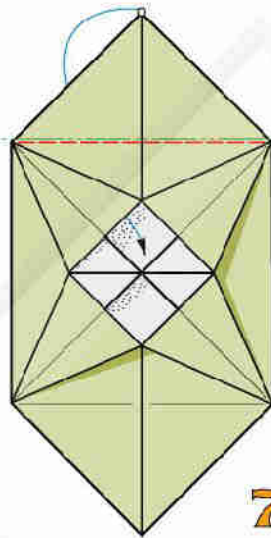


Mediante 4 pieghe a valle, intascate i 2 vertici superiori ed i 2 vertici inferiori



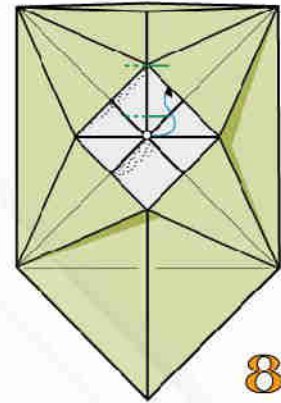
6

Modulo "B" ultimato



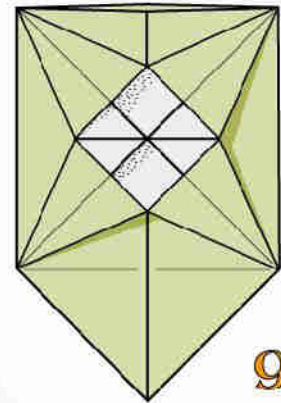
7

Modulo "B" di bordo:
eseguite una piega
rovescia interna



8

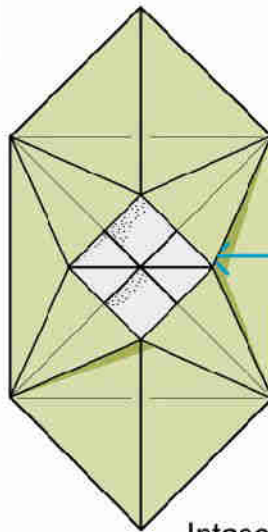
Mediante 2 pieghe a monte
(quella interna non visibile)
ruotate all'interno il vertice
superiore



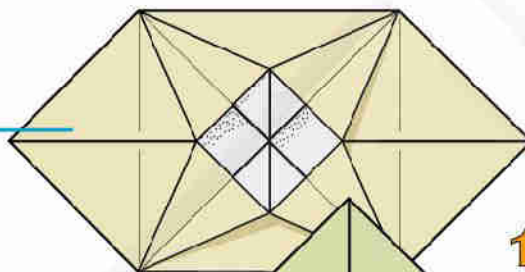
9

Modulo "B" di bordo
ultimato

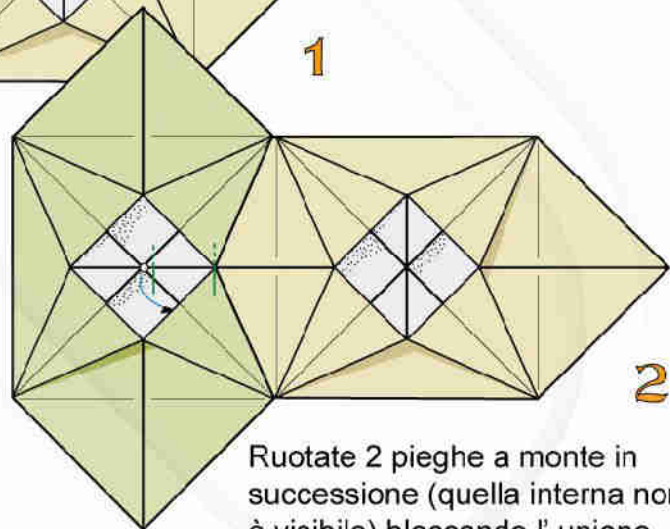
UNIONE DI 2 MODULI



Intascate un modulo
nell'altro

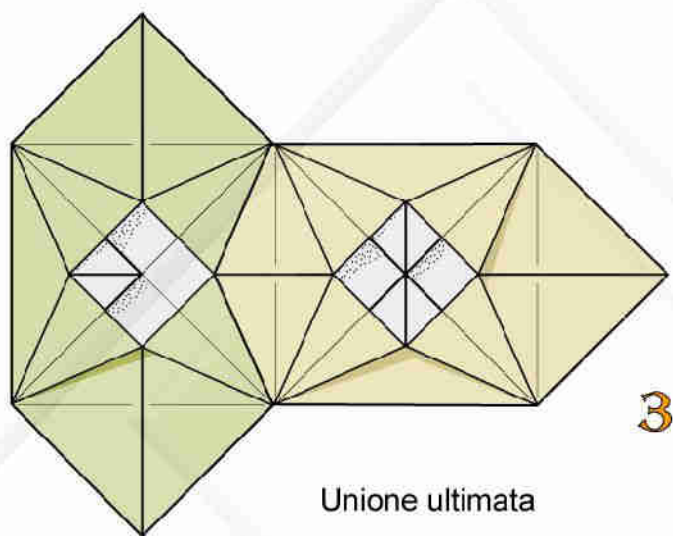


1



2

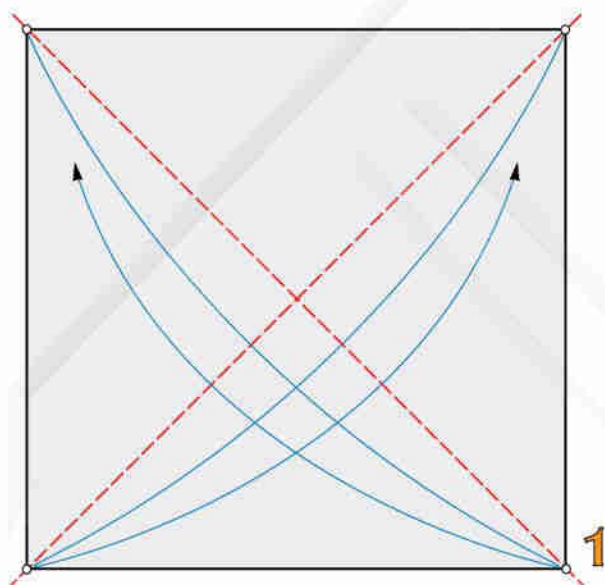
Ruotate 2 pieghe a monte in
successione (quella interna non
è visibile) bloccando l' unione



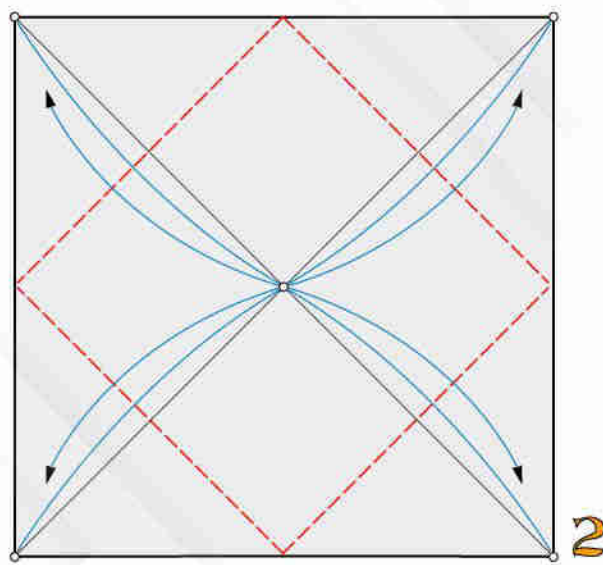
ESEMPIO DI TASSELLAZIONE ESEGUITA CON 16 MODULI "B"



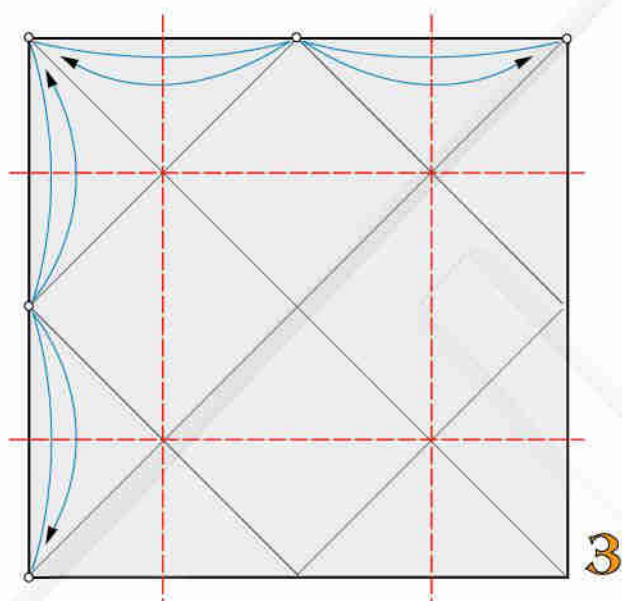
MODULO "C"



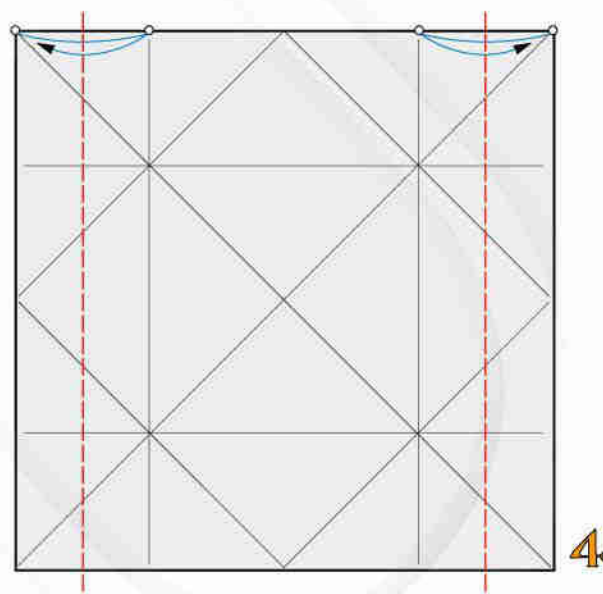
2 pieghe diagonali a valle



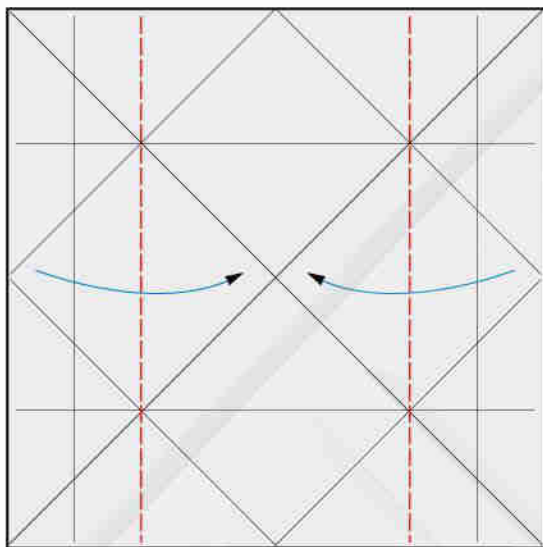
4 pieghe a valle



4 pieghe a valle

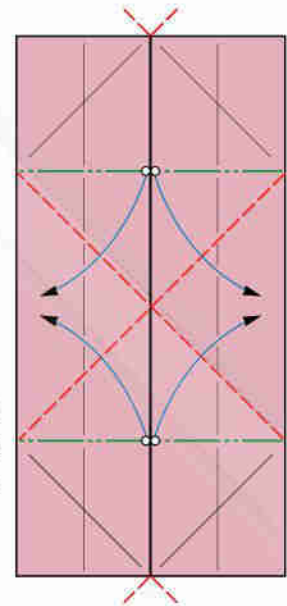


2 pieghe a valle



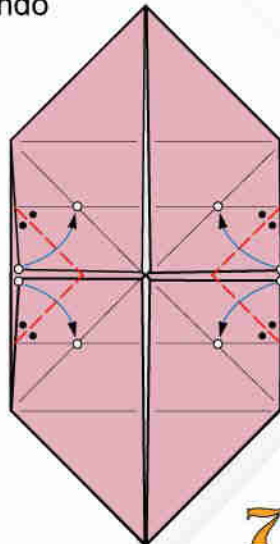
5

Ruotate ripiegando
4 volte a valle ed a
monte sulla sup. in
vista e 4 volte a valle
su quella sottostante



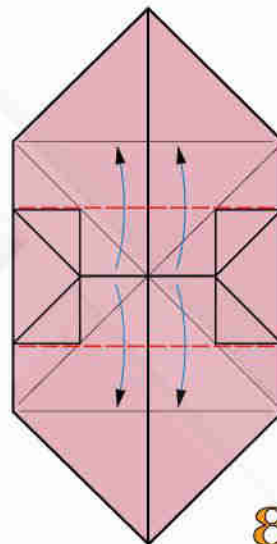
6

Ruotate ripiegando
a valle



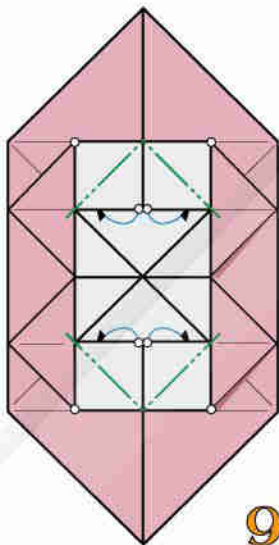
4 pieghe bisettrici
a valle e ruotate

7



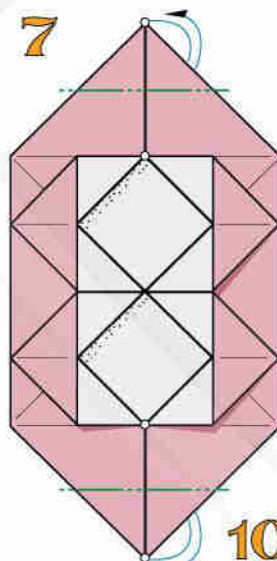
4 pieghe a
valle e ruotate

8



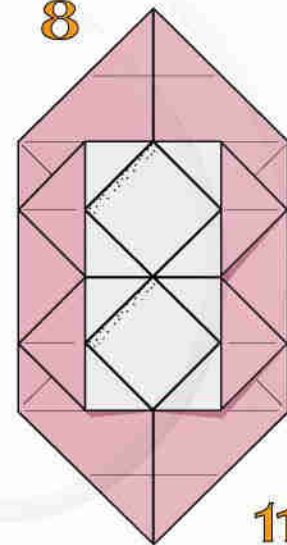
9

4 pieghe a monte e ruotate



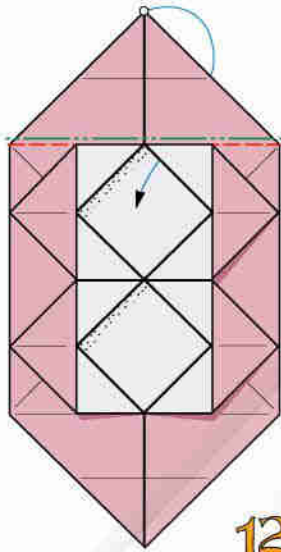
10

2 pieghe a monte



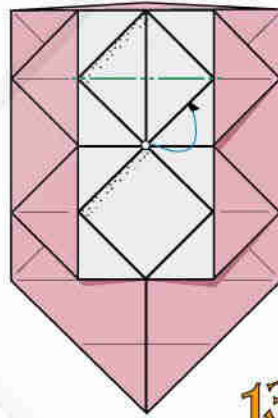
11

Modulo "C" ultimato



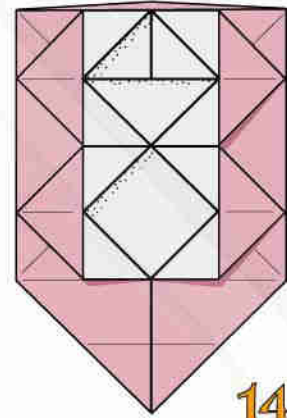
12

Modulo "E" di bordo:
eseguite una piega
rovescia interna



13

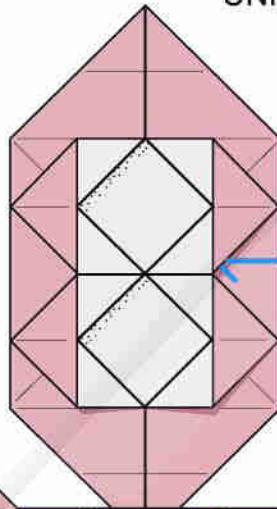
Mediante 1 piega a monte
ruotate all'interno il vertice
superiore



14

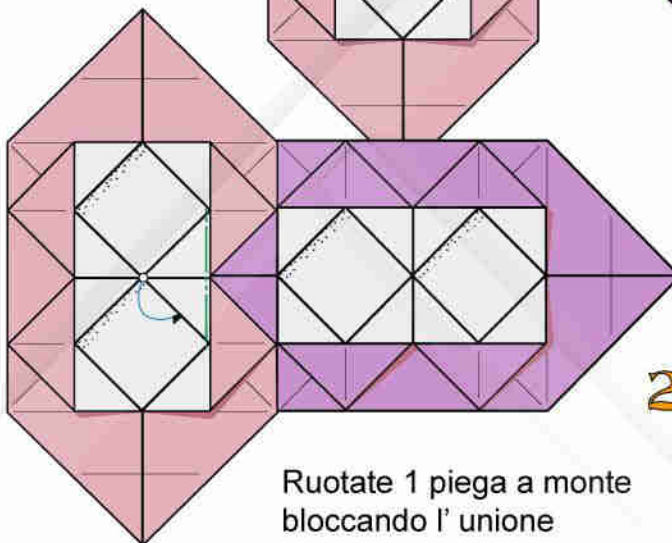
Modulo "E" di bordo
ultimato

UNIONE DI 2 MODULI



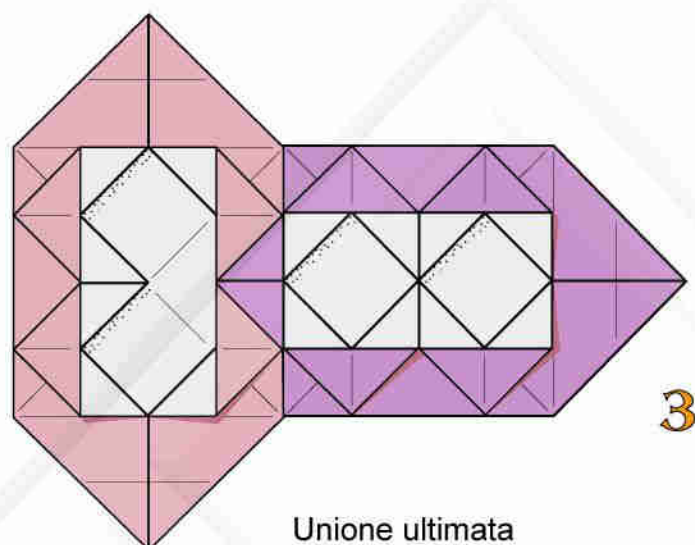
1

Intascate un modulo
nell'altro



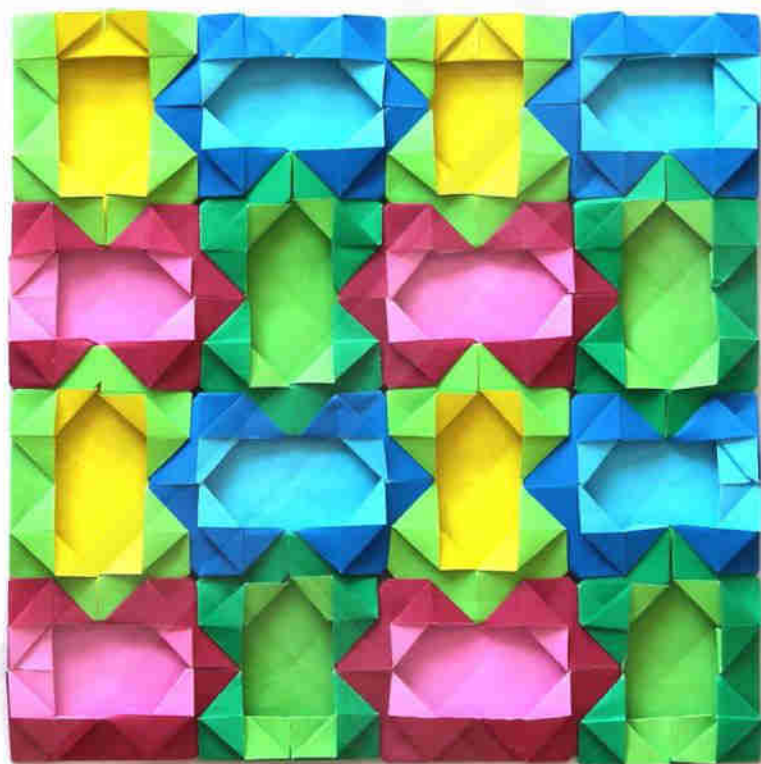
2

Ruotate 1 piega a monte
bloccando l'unione

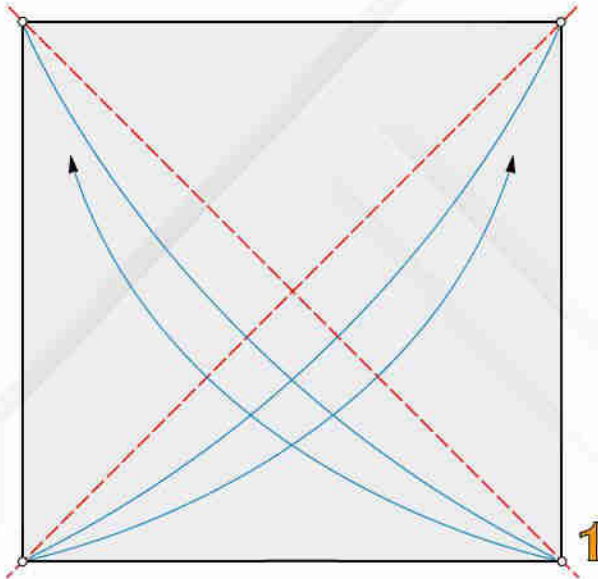


Unione ultimata

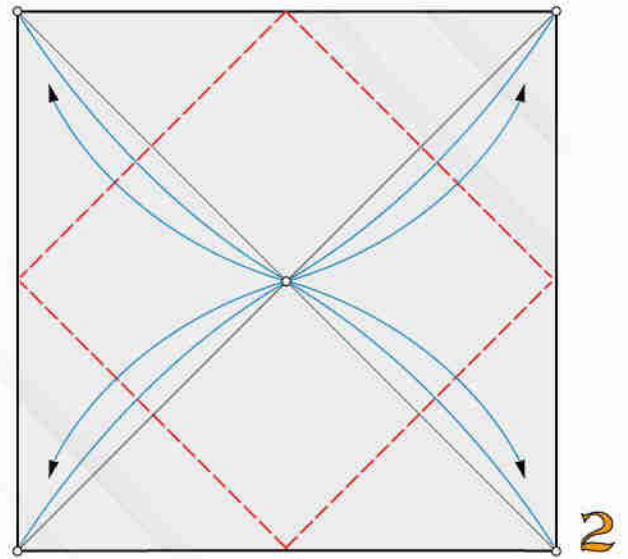
ESEMPIO DI TASSELLAZIONE ESEGUITA CON 16 MODULI "C"



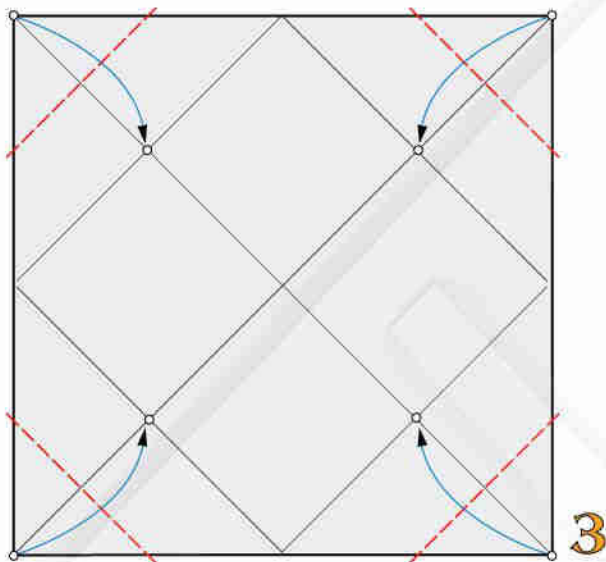
MODULO "D"



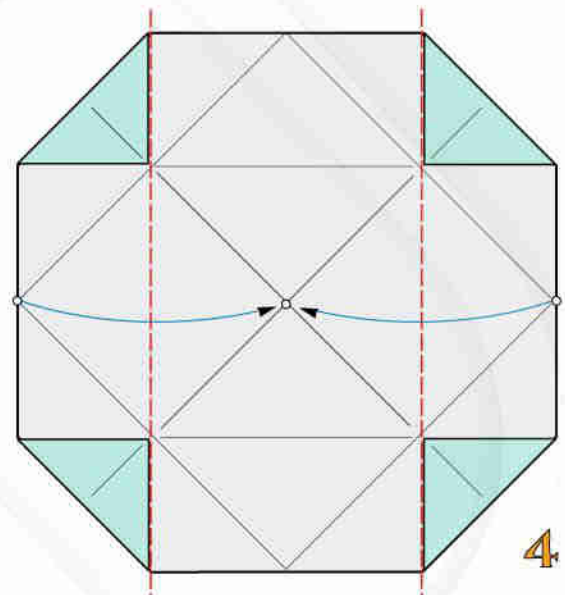
2 pieghe diagonali a valle



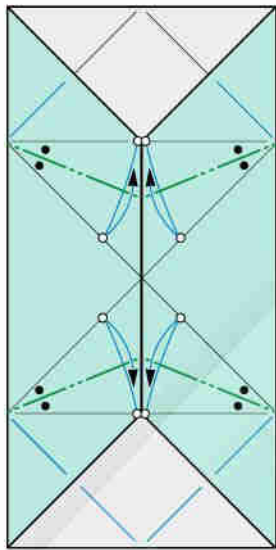
4 pieghe a valle



4 pieghe a valle e ruotate

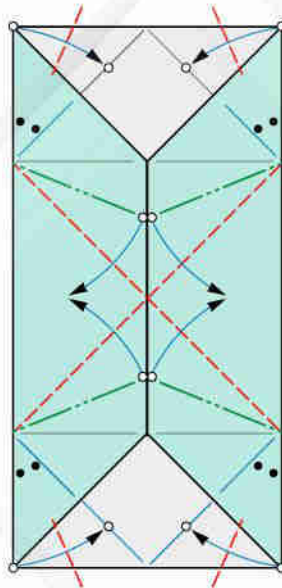


2 pieghe a valle e ruotate



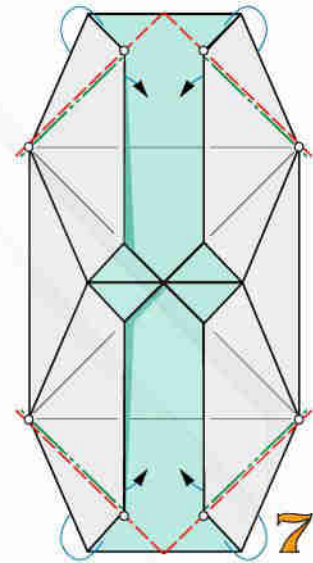
5

2 pieghe bisettrici a monte solo sulla sup. in vista



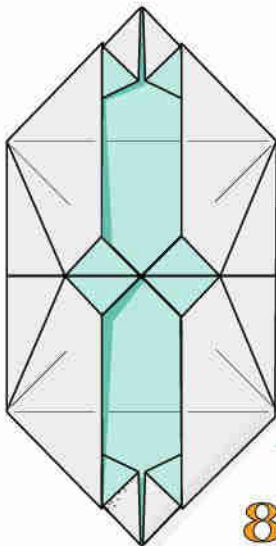
6

4 pieghe bisettrici a valle e ruotate ripiegando a valle ed a monte



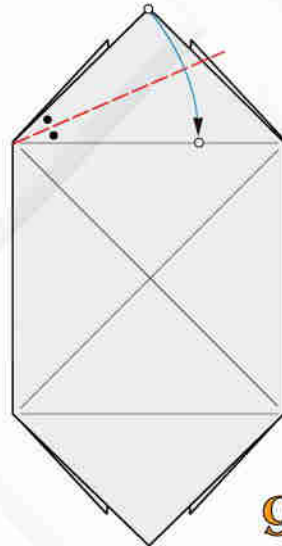
7

4 pieghe rovesce interne



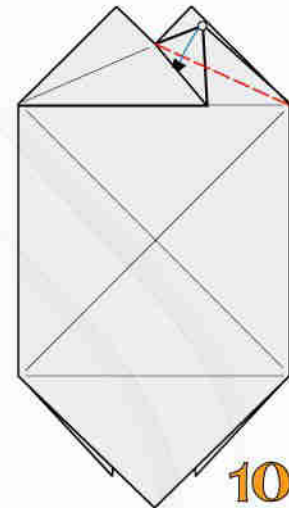
8

Modulo "D" ultimato. Ribaltate



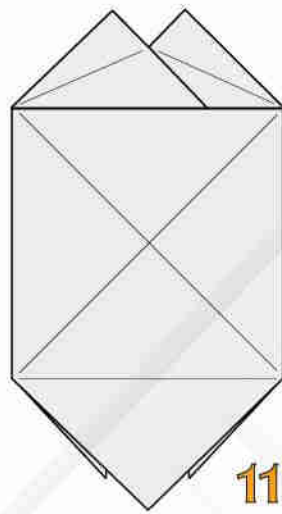
9

Modulo "D" di bordo: eseguite 1 piega a valle e ruotate

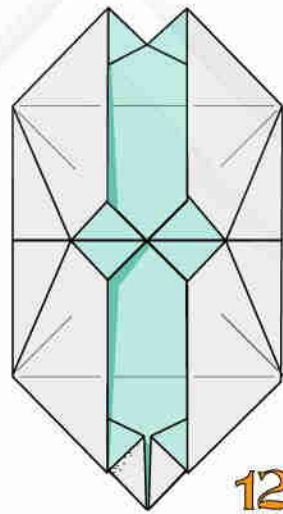


10

Eseguite 1 piega a valle ed intascate

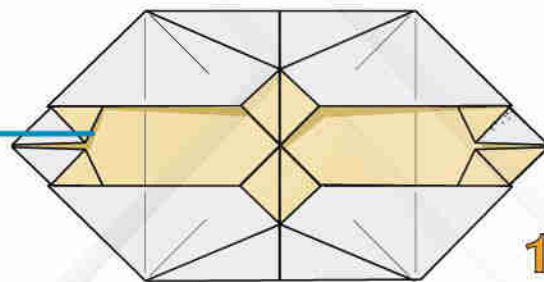
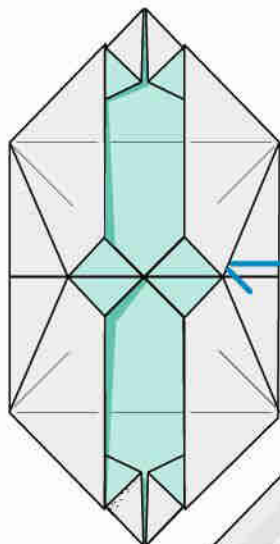


Ribaltate

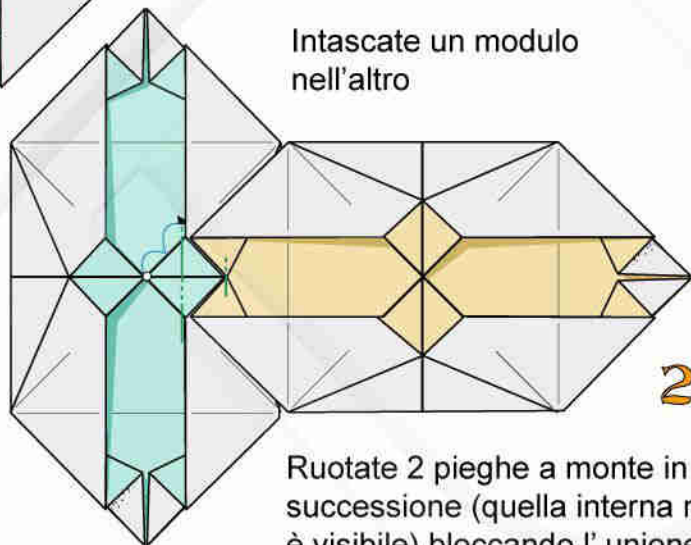


Modulo "D" di bordo ultimato.

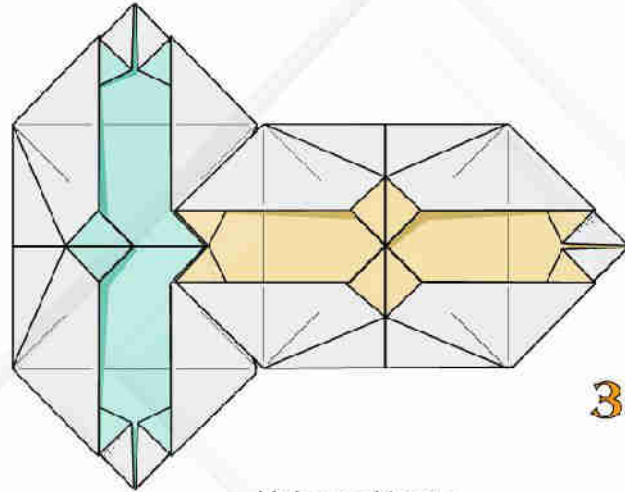
UNIONE DI 2 MODULI



Intascate un modulo nell'altro



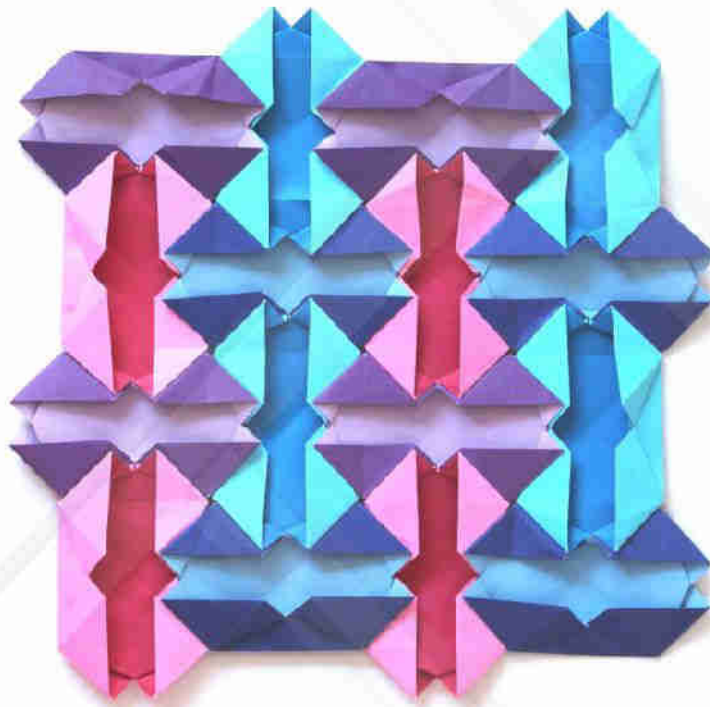
Ruotate 2 pieghe a monte in successione (quella interna non è visibile) bloccando l'unione



3

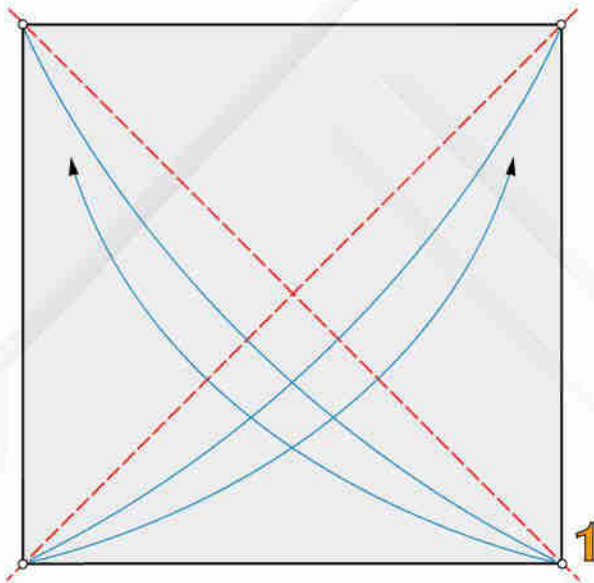
Unione ultimata

ESEMPIO DI TASSELLAZIONE ESEGUITA CON 16 MODULI "D"

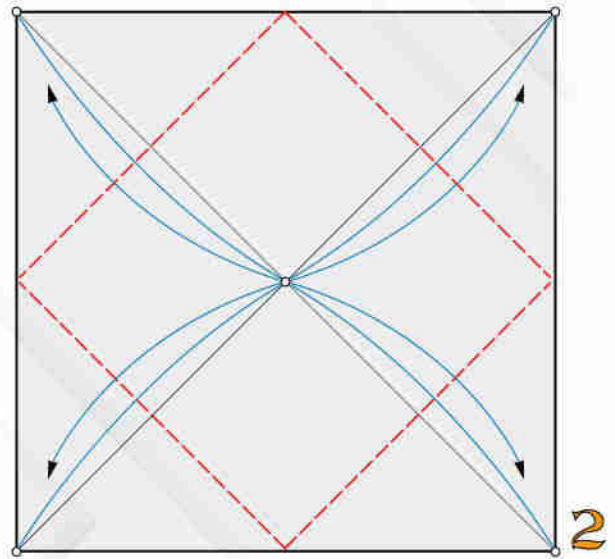


49

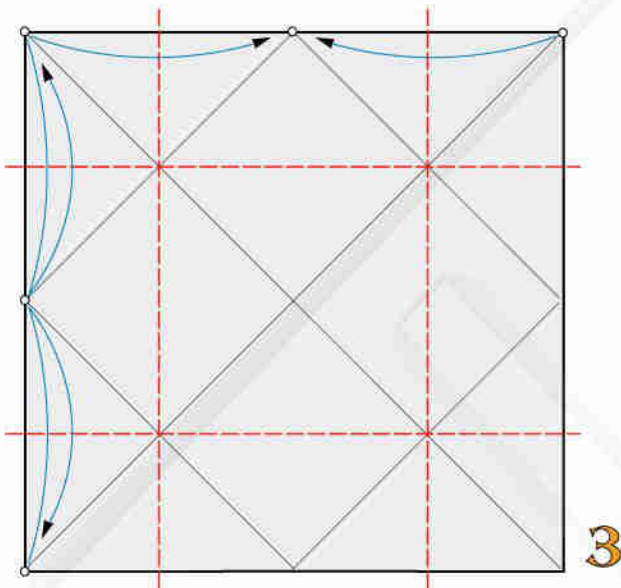
MODULO "FIORE"



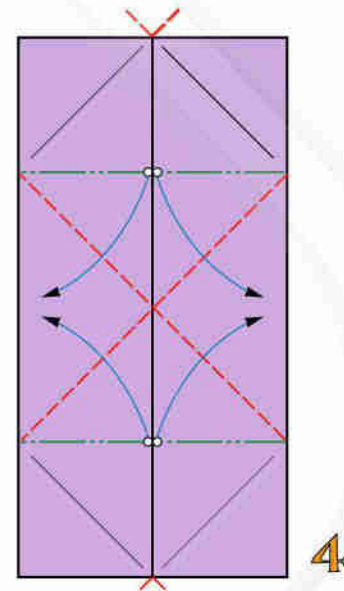
2 pieghe diagonali a valle



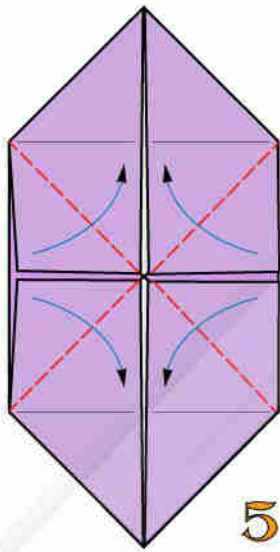
4 pieghe a valle



4 pieghe a valle e ruotate i bordi laterali

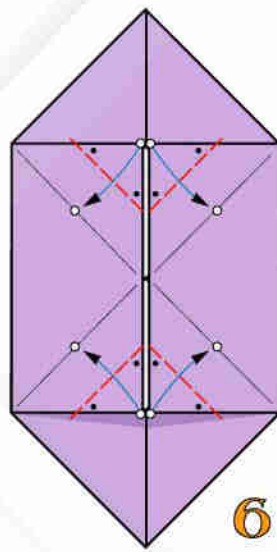


Ruotate ripiegando 4 volte a valle ed a monte sulla sup. in vista e 4 volte a valle su quella sottostante



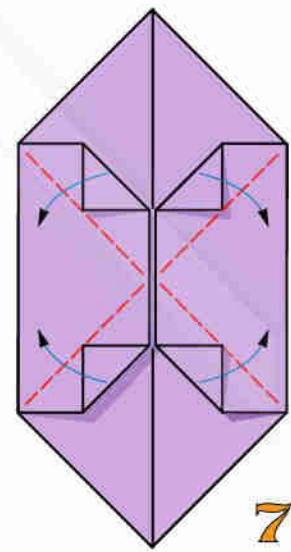
5

4 pieghe a valle e ruotate



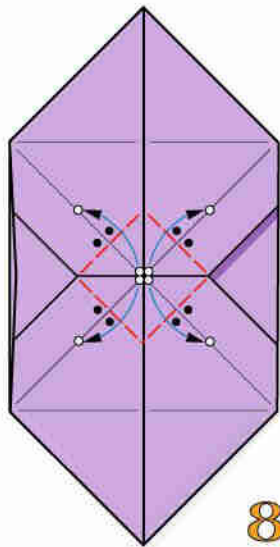
6

4 pieghe a valle e ruotate



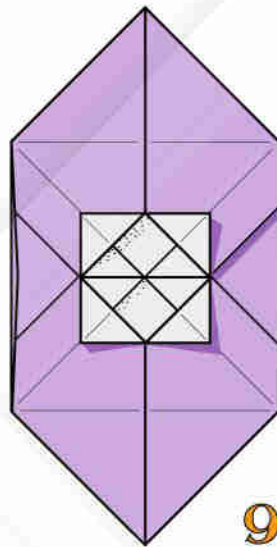
7

Ripiegando a valle, ruotate



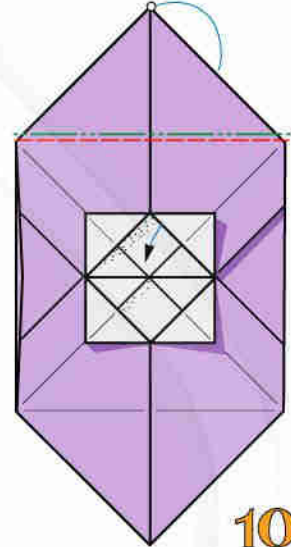
8

4 pieghe a valle e ruotate



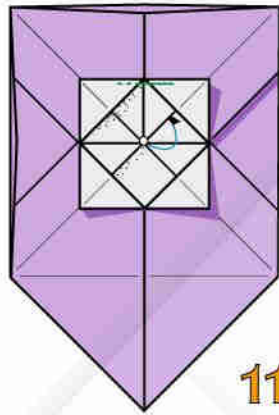
9

Modulo "Fiore" ultimato.



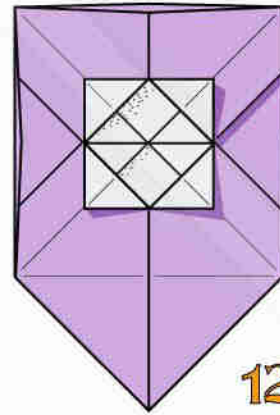
10

Modulo "Fiore" di bordo:
eseguite una piega
rovescia interna



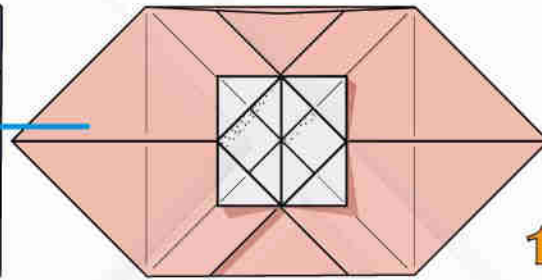
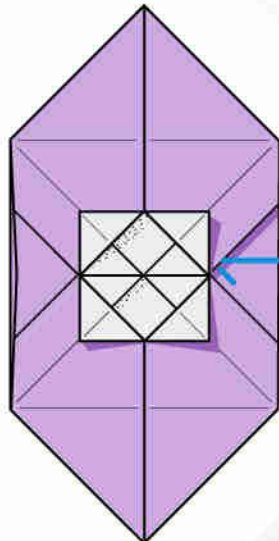
11

Mediante 1 piega a monte ruotate all'interno il vertice superiore



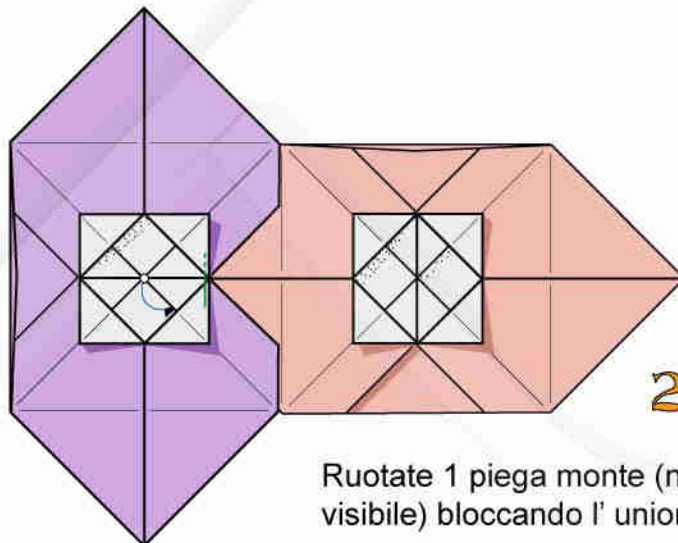
12

Modulo "Fiore" di bordo ultimato



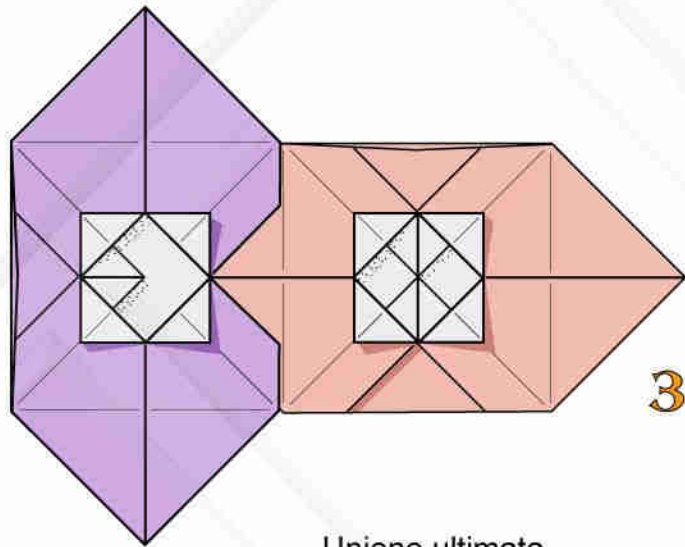
1

Intascate un modulo nell'altro



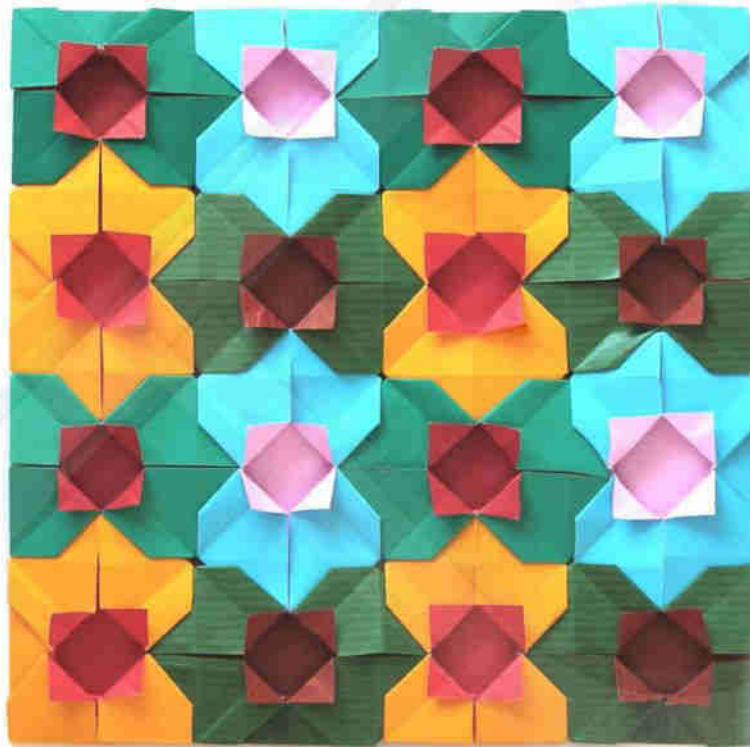
2

Ruotate 1 piega monte (non visibile) bloccando l'unione

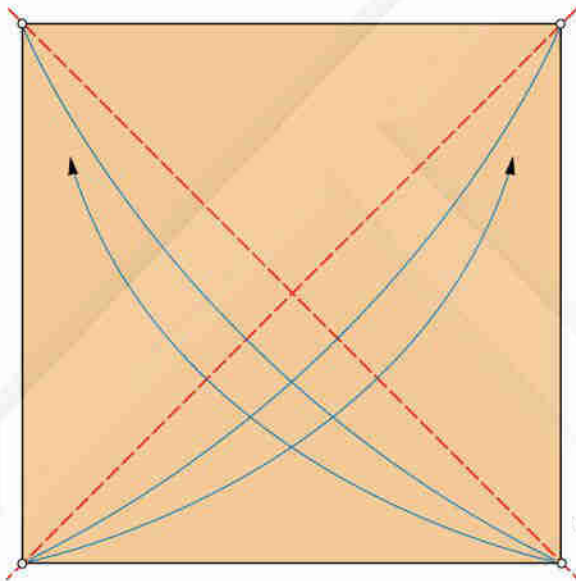


Unione ultimata

ESEMPIO DI TASSELLAZIONE ESEGUITA CON 16 MODULI "FIORE"

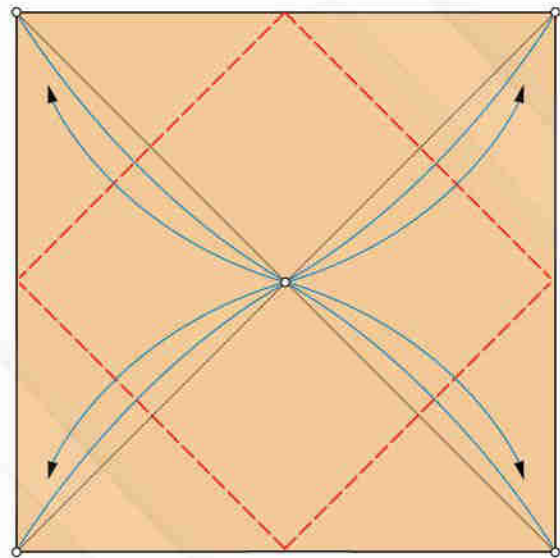


MODULO "€"



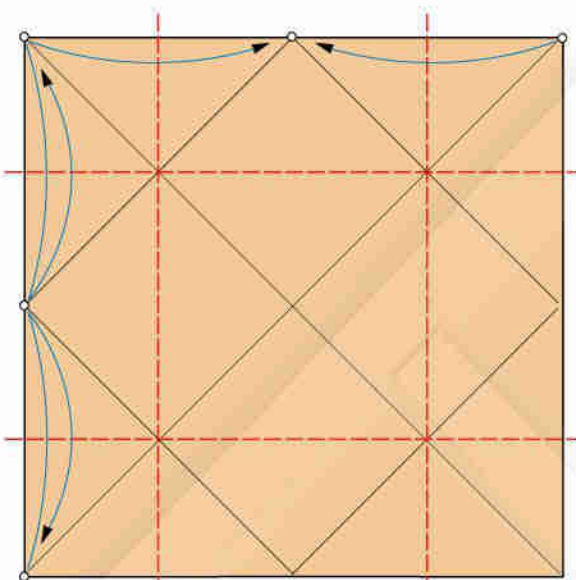
2 pieghe diagonali a valle

1



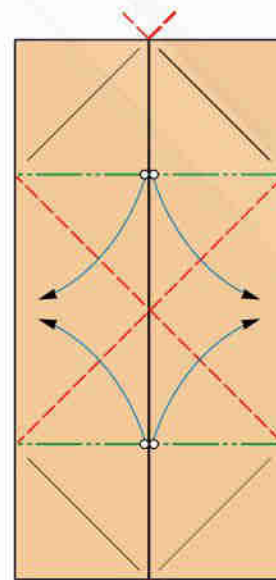
4 pieghe a valle

2



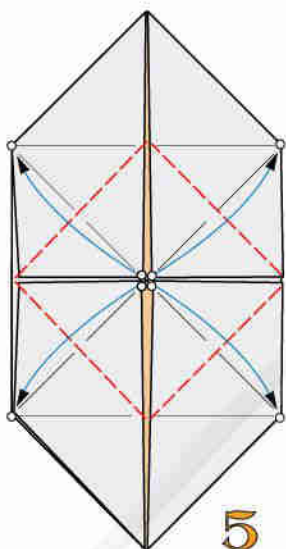
4 pieghe a valle e ruotate i bordi laterali

3



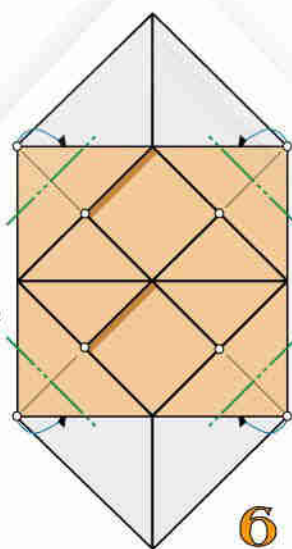
Ruotate ripiegando 4 volte a valle ed a monte sulla sup. in vista e 4 volte a valle su quella sottostante

4



4 pieghe a valle e ruotate

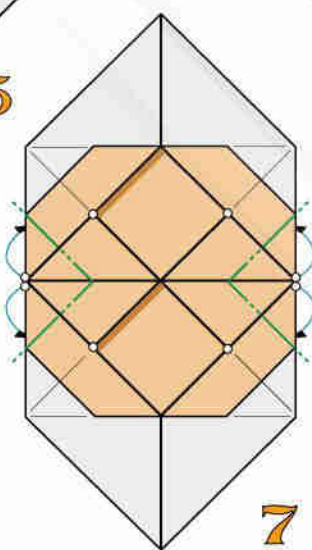
5



4 pieghe a monte e ruotate

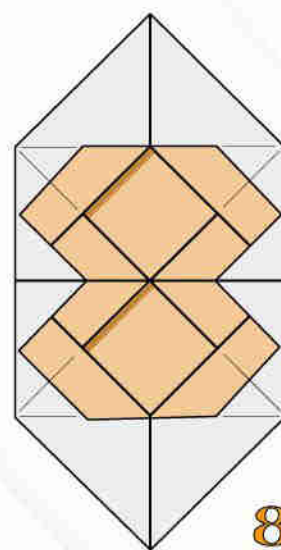
6

4 pieghe a monte e ruotate

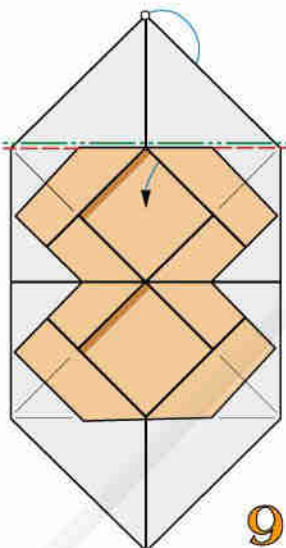


Modulo "E" ultimato

7

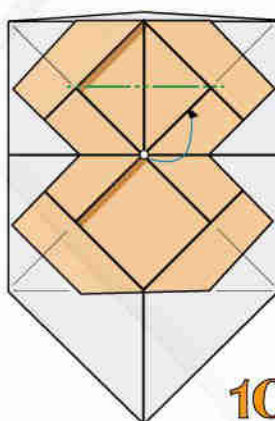


8



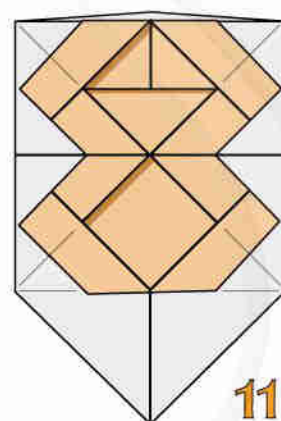
Modulo "E" di bordo: eseguite una piega rovescia interna

9



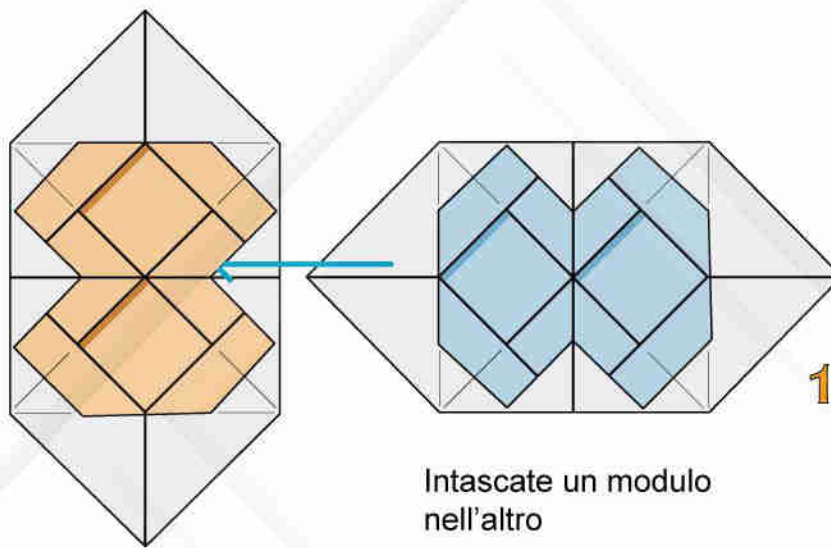
Mediante 1 piega a monte ruotate all'interno il vertice superiore

10

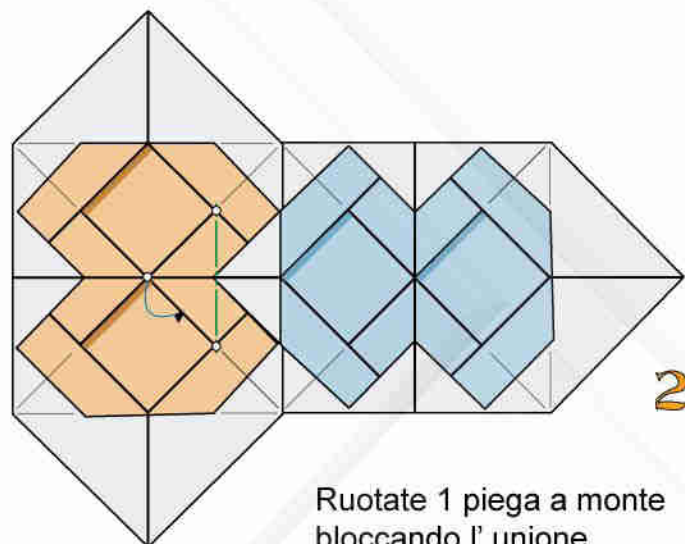


Modulo "E" di bordo ultimato

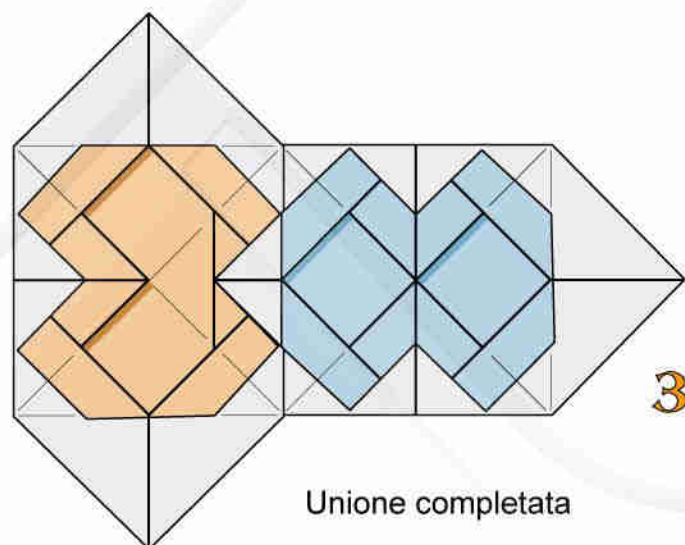
11



Intascate un modulo nell'altro

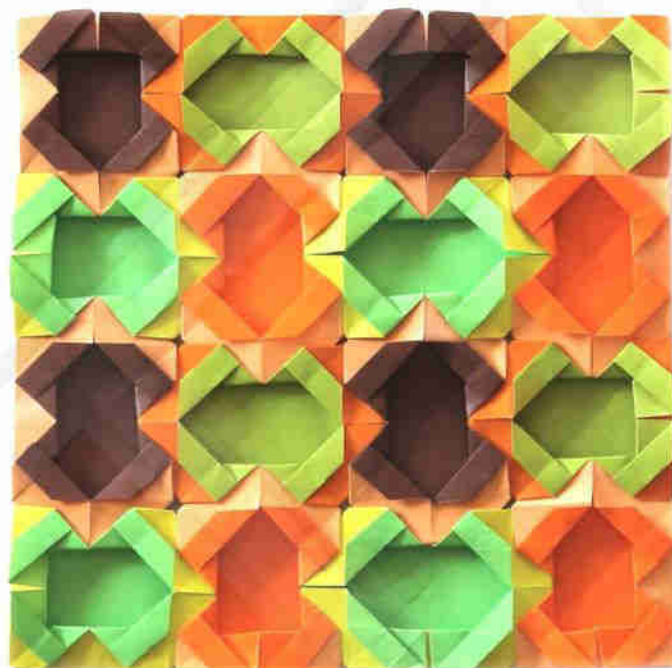


Ruotate 1 piega a monte bloccando l'unione



Unione completata

ESEMPIO DI TASSELLAZIONE ESEGUITA CON 16 MODULI "D"



ESEMPIO DI TASSELLAZIONE MISTA, ESEGUITA CON 8 MODULI "FIORE", 4 MODULI "A" E 4 MODULI "E"



MODULI RETTANGOLARI VARIABILI

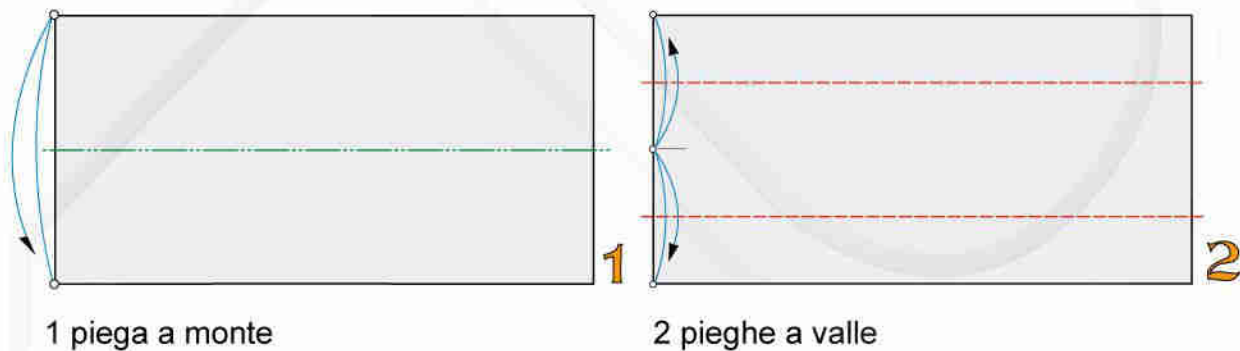
Si presentano 2 moduli, compatibili tra loro, estremamente flessibili, tanto da permettere quasi ogni possibile trama ortogonale.

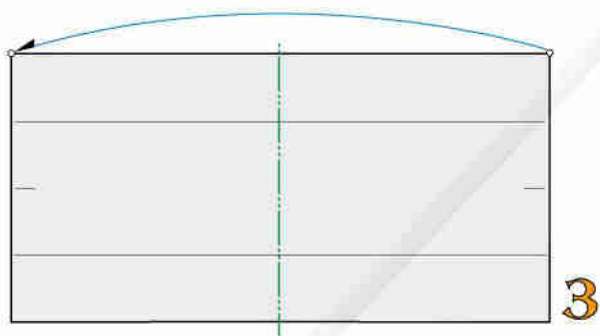
Ambedue si realizzano partendo da fogli rettangolari 2x1.

Il modulo "A" è asimmetrico, con un'estremità a gancio e all'altra estremità 3 ganci o 3 tasche; il modulo "B" può avere indifferentemente 6 ganci o 6 tasche equamente ripartiti nel perimetro.

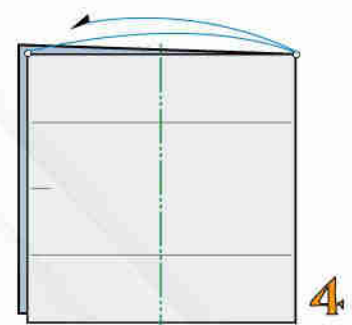


Modulo rettangolare "A"

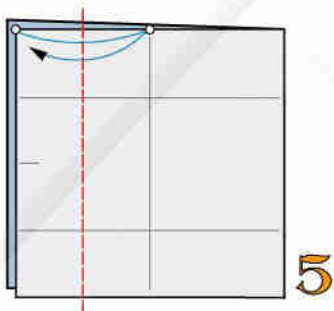




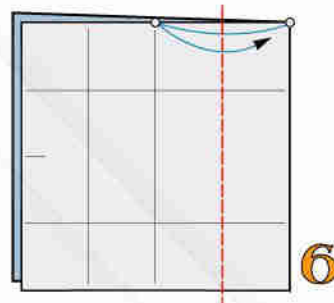
1 piega a monte



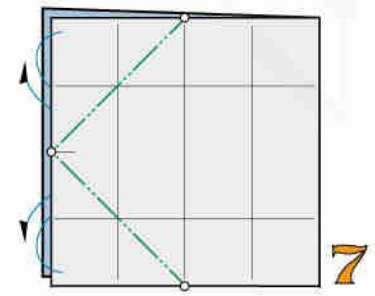
1 piega a monte solo sulla sup. in vista



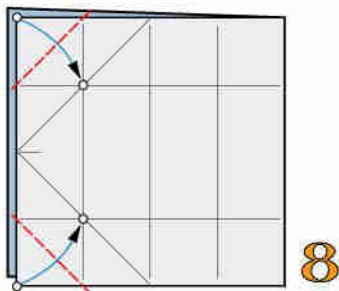
1 piega a valle solo sulla sup. in vista



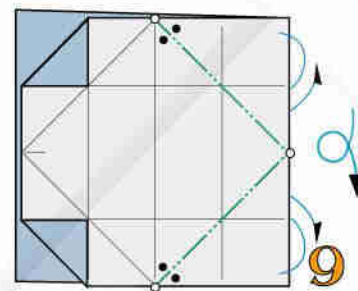
1 piega a valle solo sulla sup. in vista



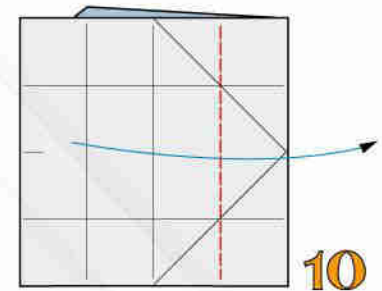
2 pieghe a monte solo sulla sup. in vista



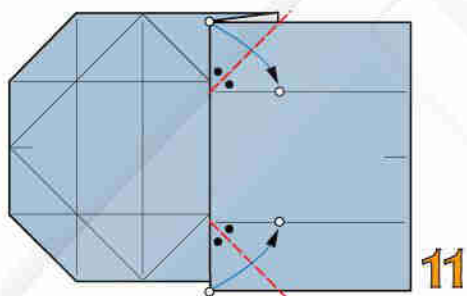
2 pieghe a valle e ruotate



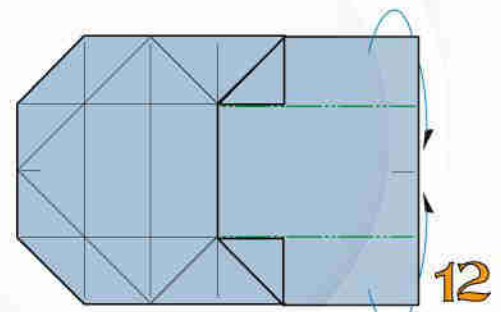
2 pieghe bisettrici a monte e ribaltate



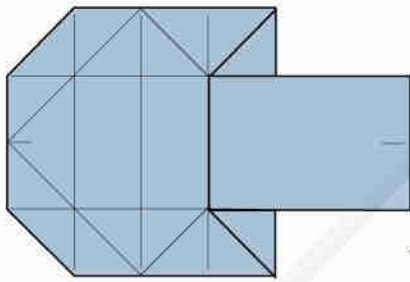
Ruotate ripiegando a valle



2 pieghe bisettrice valle e ruotate

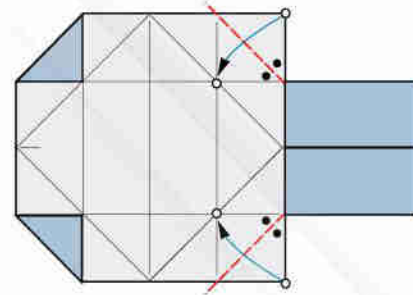


2 pieghe a monte e ruotate



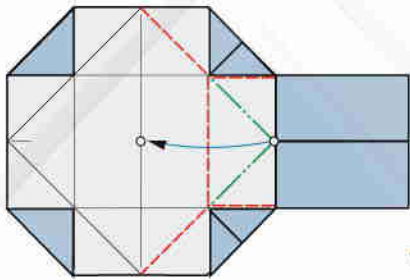
13

Ribaltate



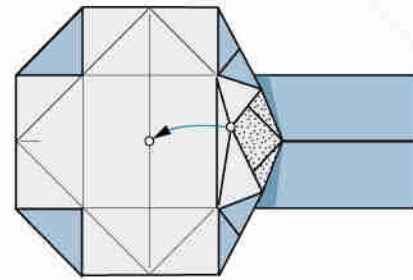
14

2 pieghe a valle e ruotate

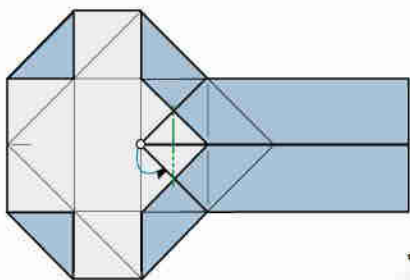


15

Ruotate ripiegando a valle ed a monte

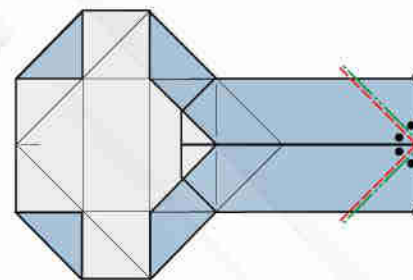


16



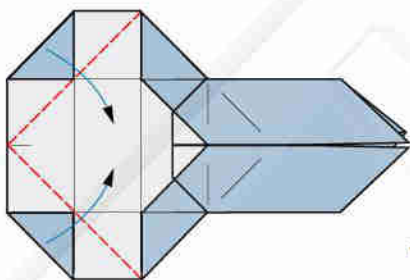
17

1 piega a monte e ruotate bloccando il modello



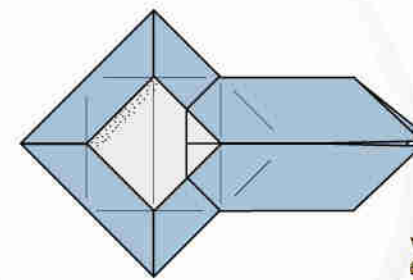
18

2 pieghe rovesce interne



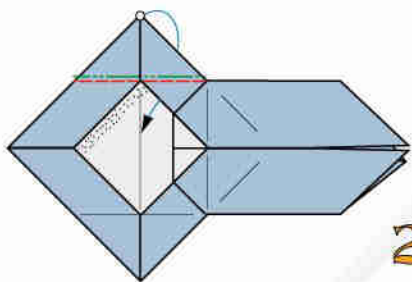
19

Ruotate ripiegando a valle



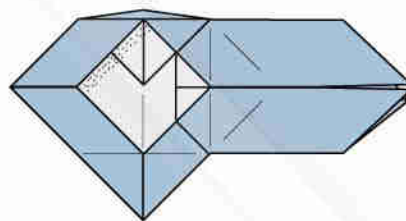
20

Modulo rettangolare A ultimato con 4 ganci

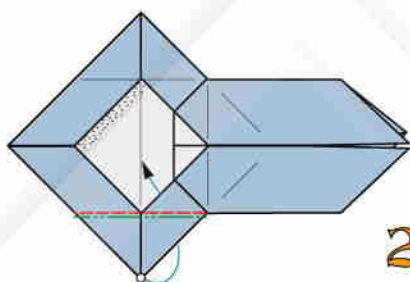


21

Eseguite 1 piega rovescia interna

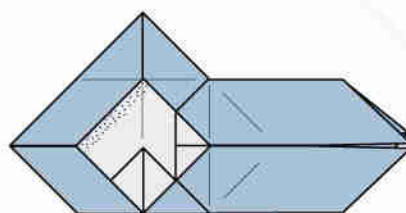


MODULO "A1" ultimato
con 3 ganci e 1 tasca

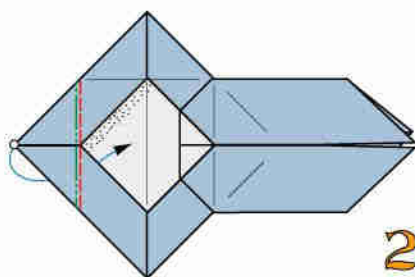


22

Eseguite 1 piega rovescia interna

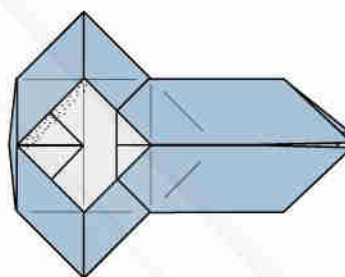


MODULO "A2" ultimato
con 3 ganci e 1 tasca

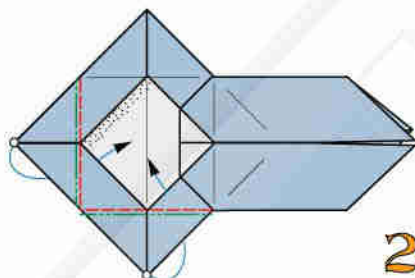


23

Eseguite 1 piega rovescia interna

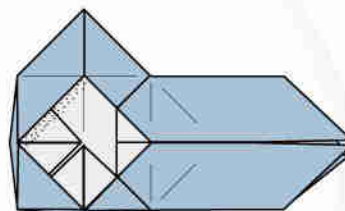


MODULO "A3" ultimato
con 3 ganci e 1 tasca

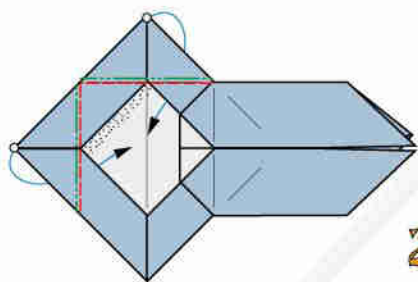


24

Eseguite 2 pieghe rovesce interne

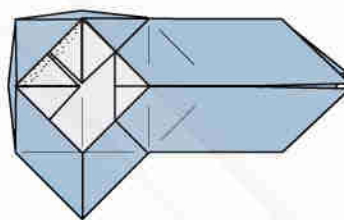


MODULO "A4" ultimato
con 2 ganci e 2 tasche

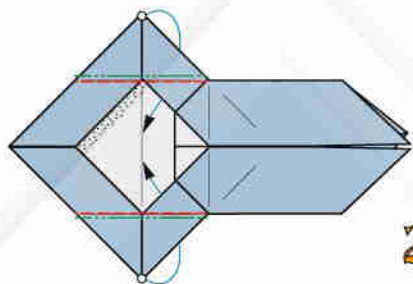


25

Eseguite 2 pieghe rovesce interne

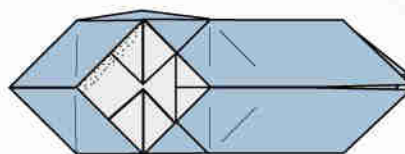


MODULO "A5" ultimato
con 2 ganci e 2 tasche

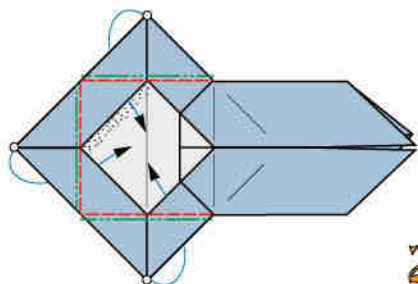


26

Eseguite 2 pieghe rovesce interne

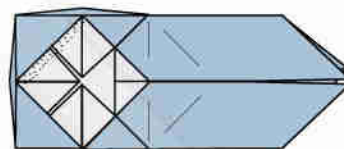


MODULO "A6" ultimato
con 2 ganci e 2 tasche

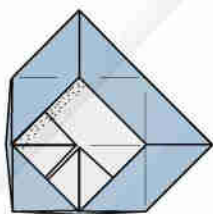


27

Eseguite 3 pieghe rovesce interne

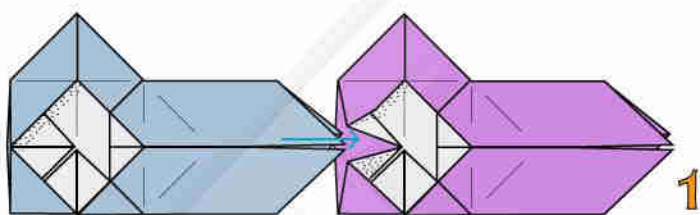


MODULO "A7" ultimato
con 1 gancio e 3 tasche

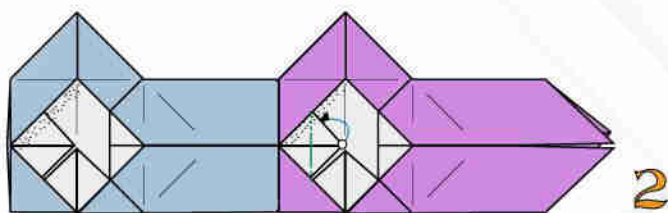


A volte può essere utile disporre di un mezzo modulo, ottenuto dividendo a metà il foglio rettangolare base.
MEZZO MODULO "A4" ultimato con 2 ganci e 2 tasche.

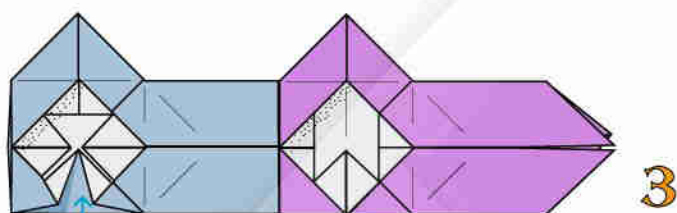
UNIONE DI MODULI A4



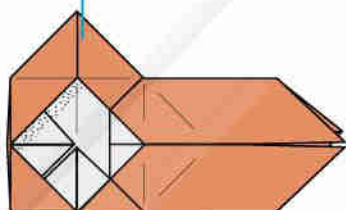
Inserite tutti i 3 vertici del modulo di sinistra nella tasca del modulo di destra

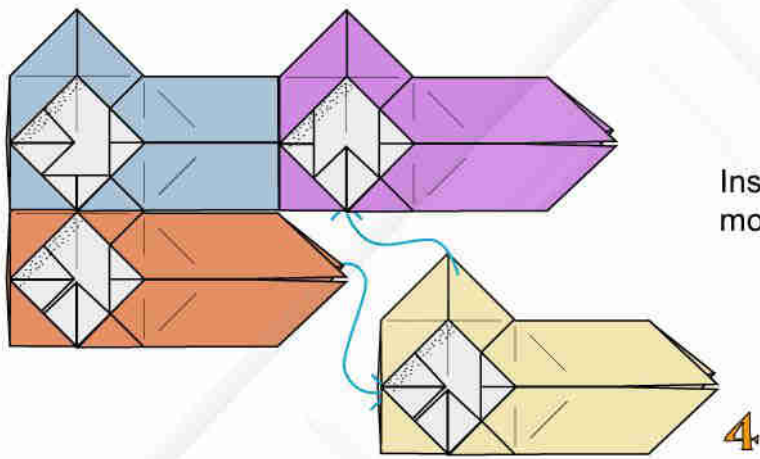


Ruotate una piega a monte bloccando l'unione

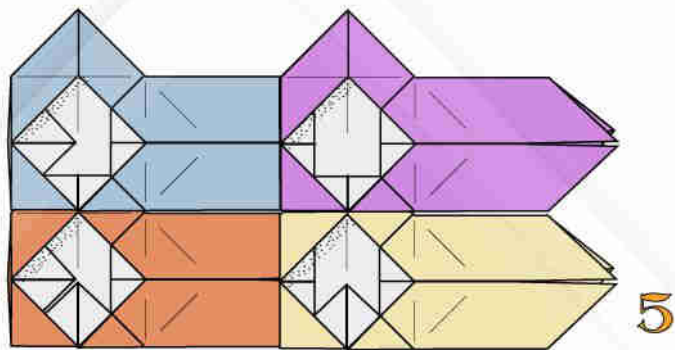


Inserite e bloccate un terzo modulo

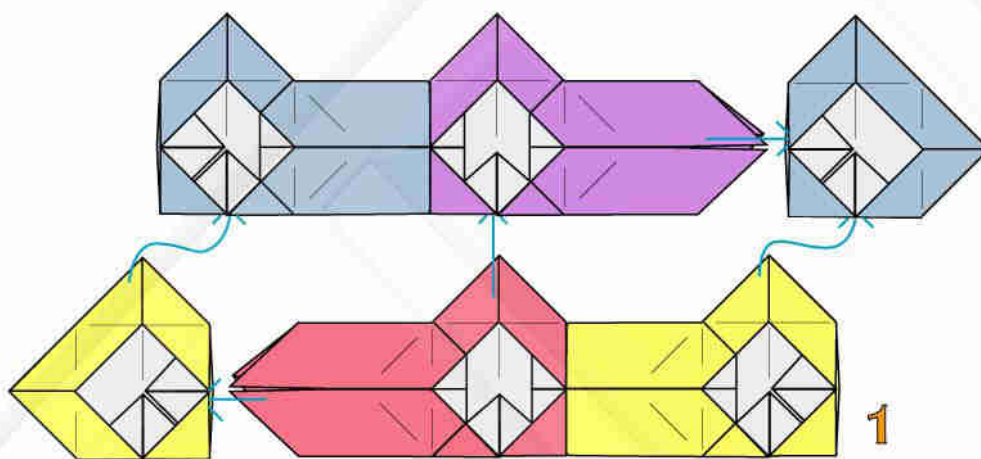


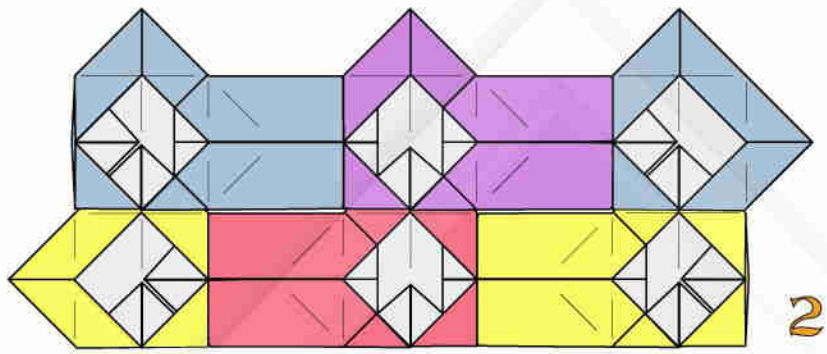


Inserite e bloccate un quarto
modulo

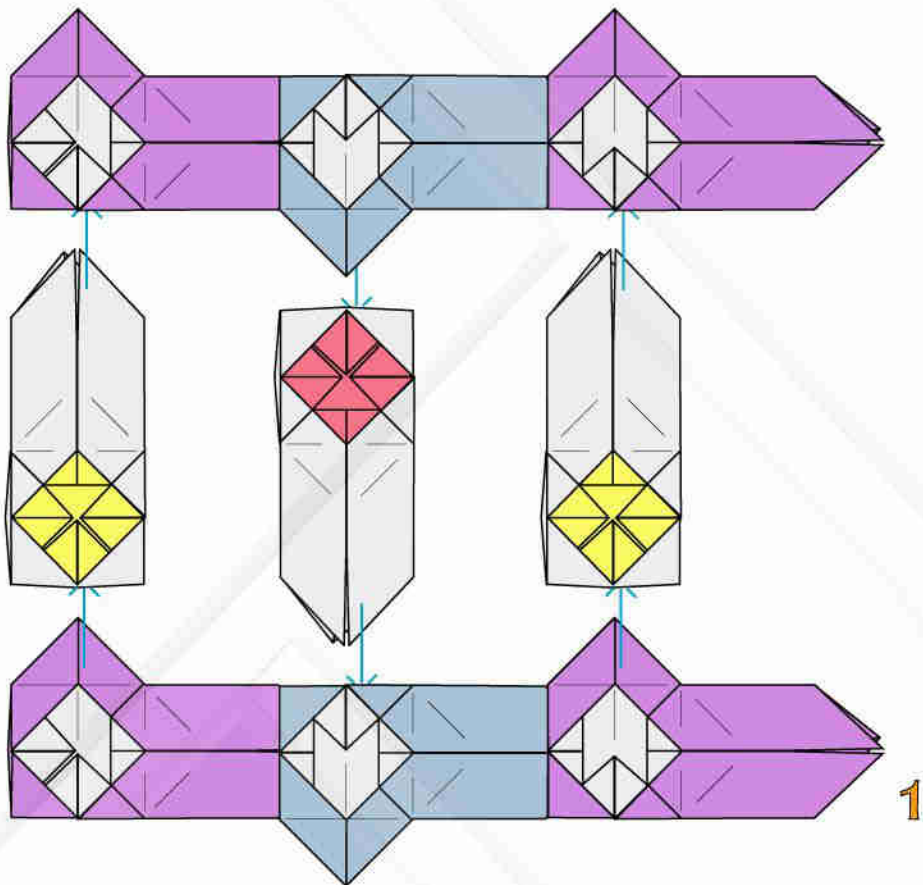


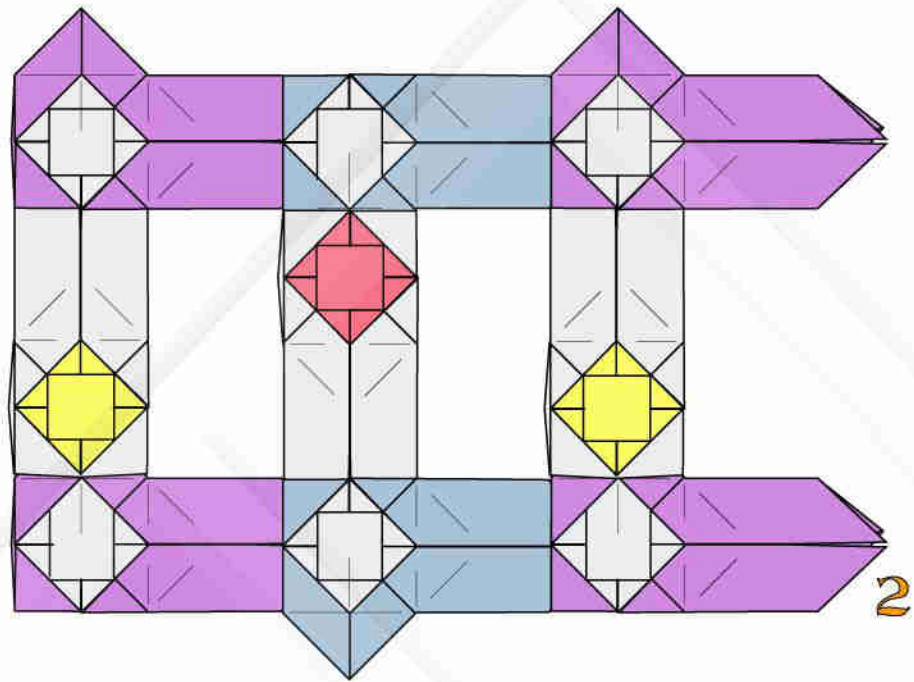
UNIONE DI 2 MODULI "A4", 2 "A5", E 2 MEZZI MODULI



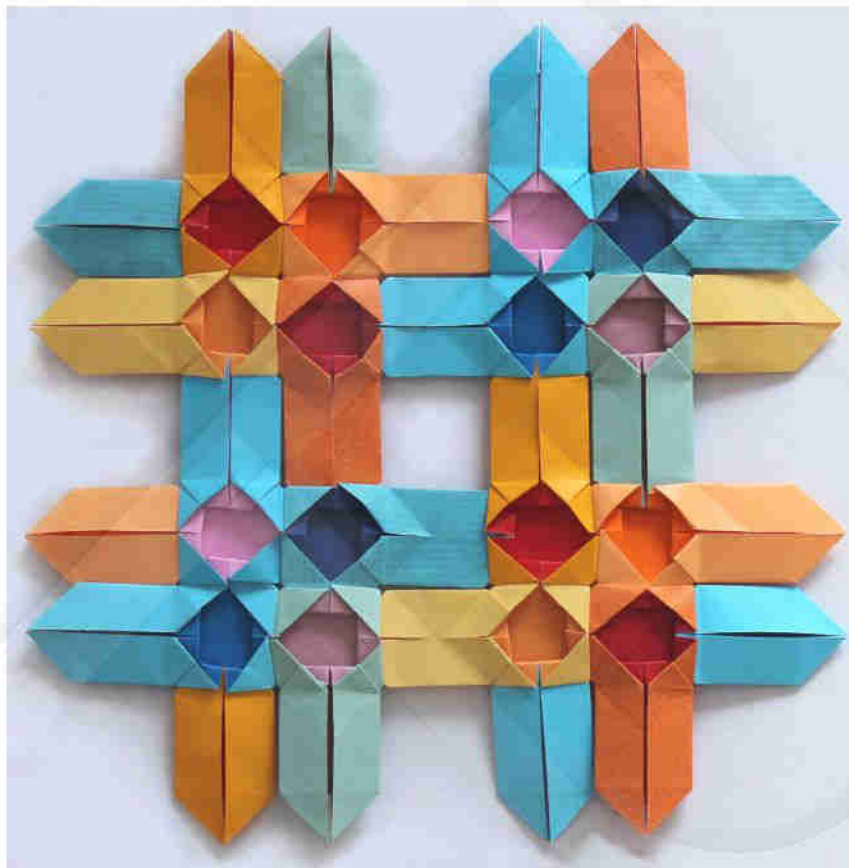


UNIONE DI 4 MODULI "A4", 2 "A5", E 3 "A7"





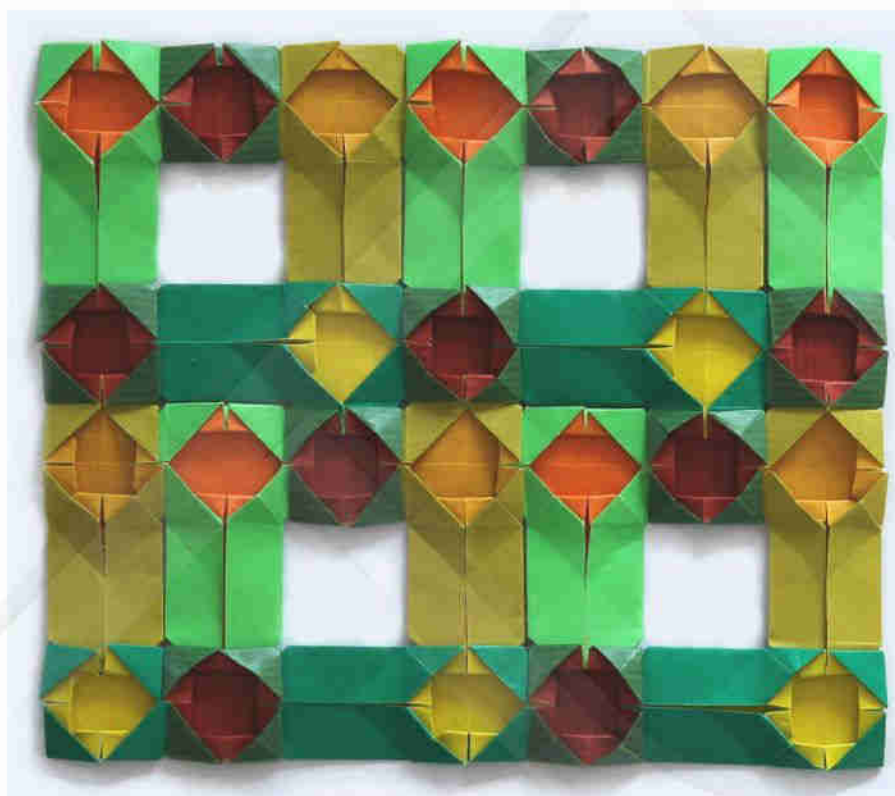
**ESEMPIO DI TASSELLAZIONE ESEGUITA
CON 16 MODULI "A5" E 8 MEZZI MODULI**



**ESEMPIO DI TASSELLAZIONE ESEGUITA
CON 12 MODULI "A4" E 4 MEZZI MODULI**



**ESEMPIO DI TASSELLAZIONE ESEGUITA
CON 9 MODULI "A4", 5 MODULI "A5" E 10
MEZZI MODULI**



Modulo rettangolare B²



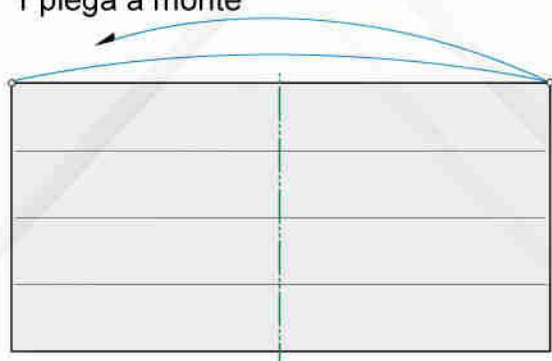
1

1 piega a monte



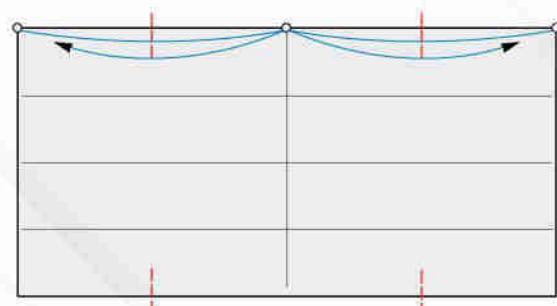
2

2 pieghe a valle



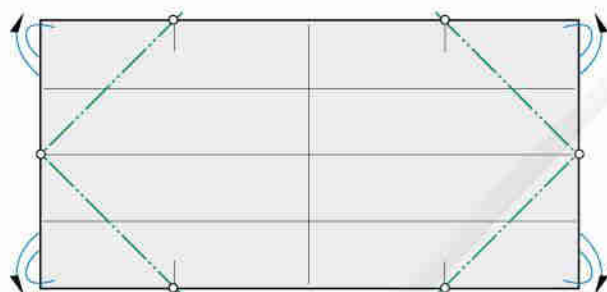
3

1 piega a monte



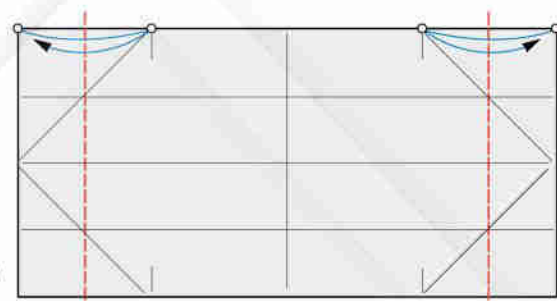
4

4 piccole pieghe a valle



5

4 pieghe a monte



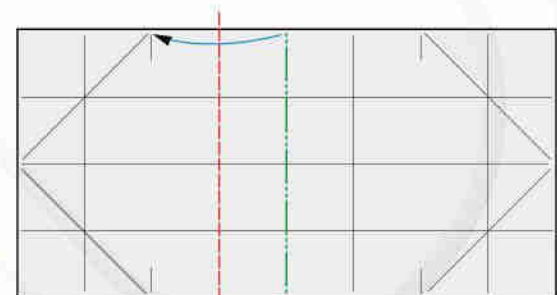
6

2 pieghe a valle



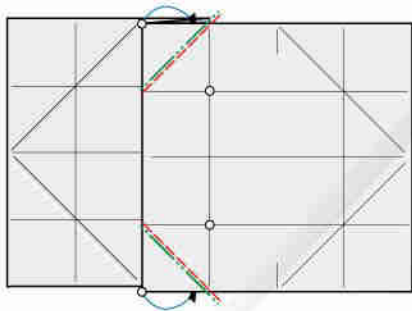
7

2 pieghe a valle



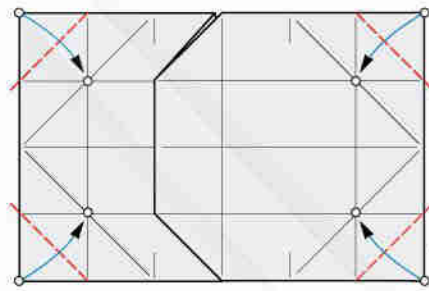
8

Ruotate ripiegando a valle ed a monte



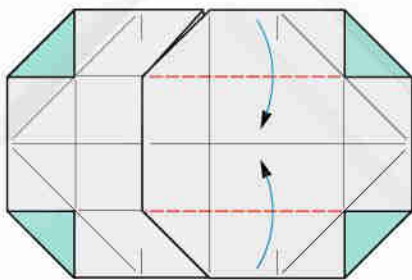
9

2 pieghe rovesce interne



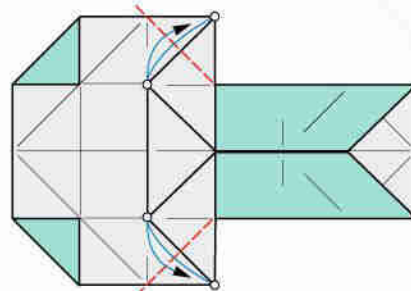
10

4 pieghe a valle e ruotate



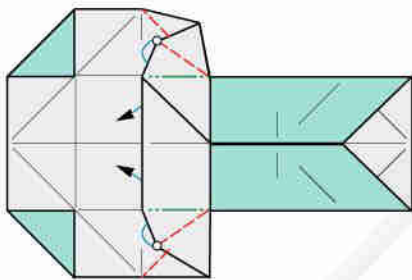
11

Ruotate ripiegando a valle



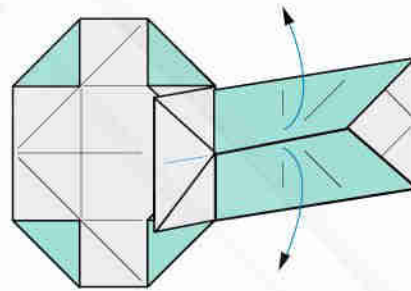
12

2 pieghe a valle



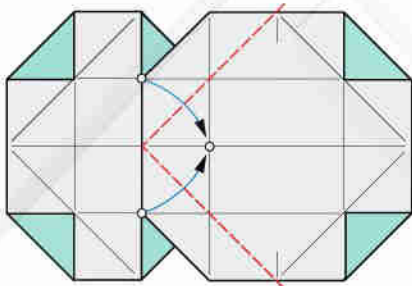
13

2 pieghe rovesce interne



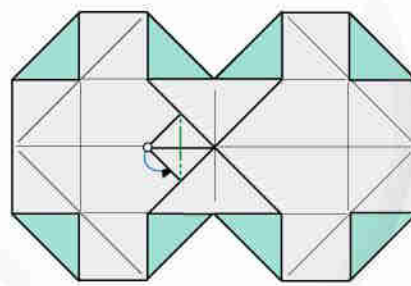
14

Riaprite



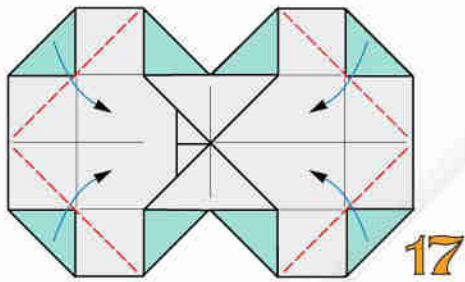
15

2 pieghe a valle



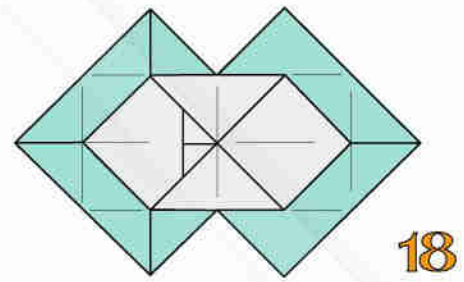
16

1 piega a monte e ruotate bloccando il modello



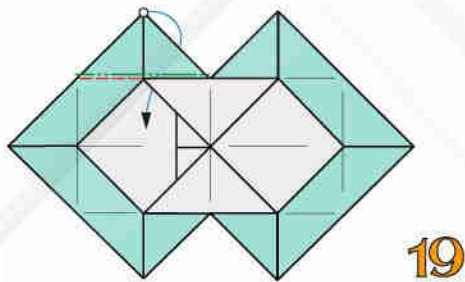
4 pieghe a valle e ruotate

17



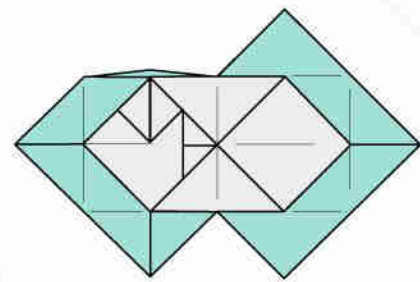
MODULO "B" ultimato
con 6 ganci

18

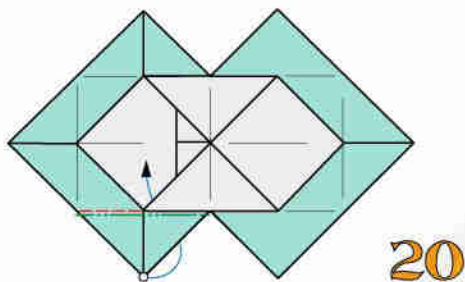


Modulo B.
Eseguite 1 piega rovescia interna

19

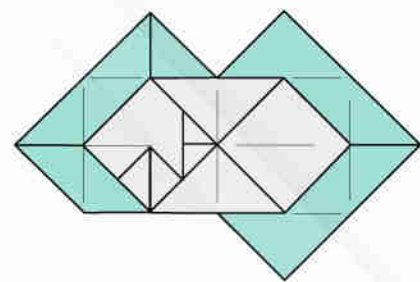


MODULO "B1" ultimato
con 5 ganci e 1 tasche

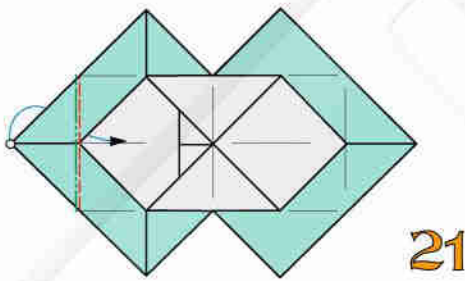


Modulo B.
Eseguite 1 piega rovescia interna

20

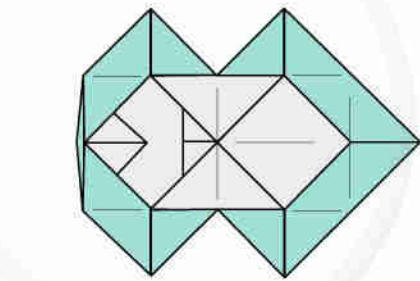


MODULO "B2" ultimato
con 5 ganci e 1 tasche

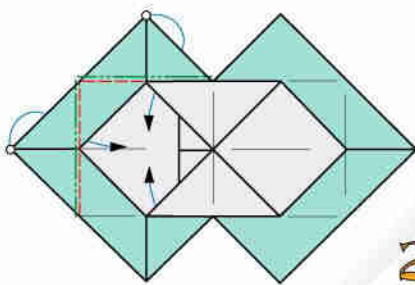


Modulo B.
Eseguite 1 piega rovescia interna

21

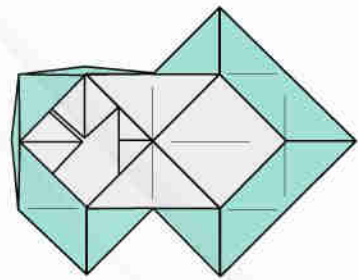


MODULO "B3" ultimato
con 5 ganci e 1 tasche

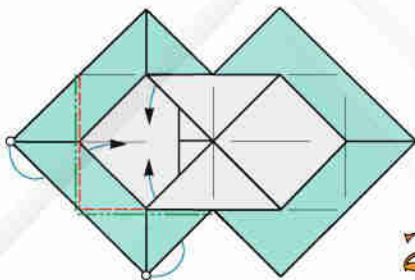


22

Modulo B.
Eseguite 2 pieghe rovesce interne

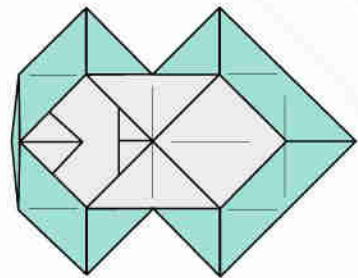


MODULO "B4" ultimato
con 5 ganci e 1 tasca

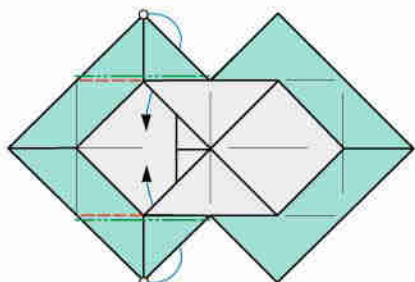


23

Modulo B.
Eseguite 2 pieghe rovesce interne

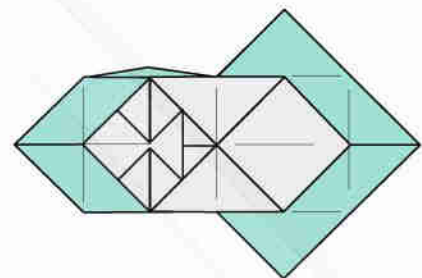


MODULO "B5" ultimato
con 5 ganci e 1 tasca

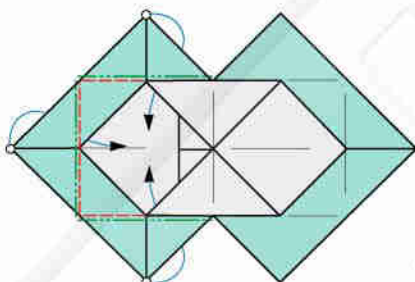


24

Modulo B.
Eseguite 2 pieghe rovesce interne

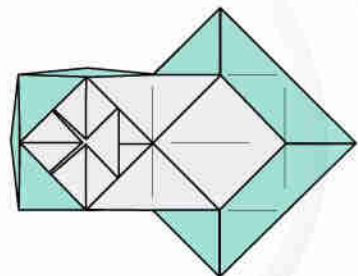


MODULO "B6" ultimato
con 5 ganci e 1 tasca

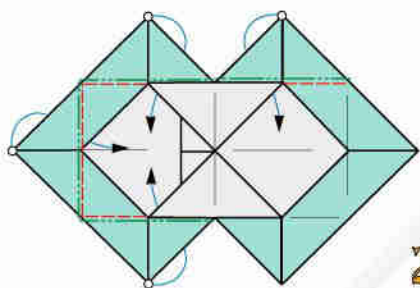


25

Modulo B.
Eseguite 3 pieghe rovesce interne

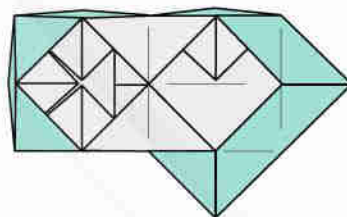


MODULO "B7" ultimato
con 5 ganci e 1 tasca

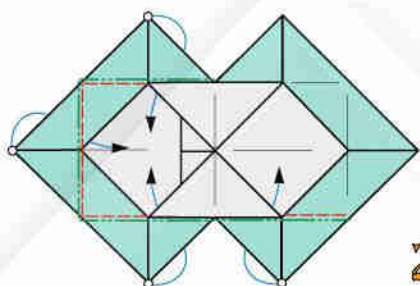


26

Modulo B.
Eseguite 4 pieghe rovesce interne

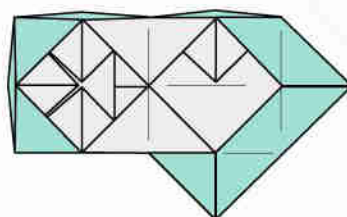


MODULO "B8" ultimato
con 2 ganci e 4 tasche

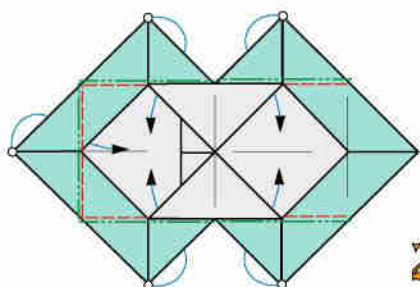


27

Modulo B.
Eseguite 4 pieghe rovesce interne

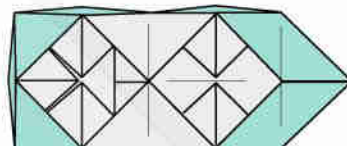


MODULO "B9" ultimato
con 2 ganci e 4 tasche

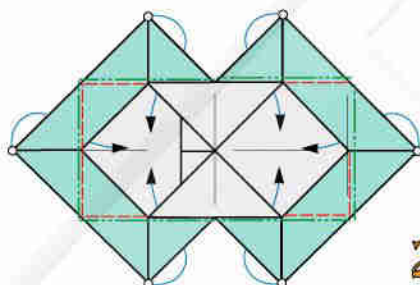


28

Modulo B.
Eseguite 5 pieghe rovesce interne

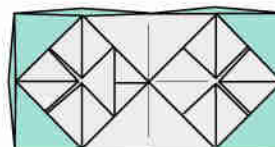


MODULO "B10" ultimato
con 1 gancio e 5 tasche



29

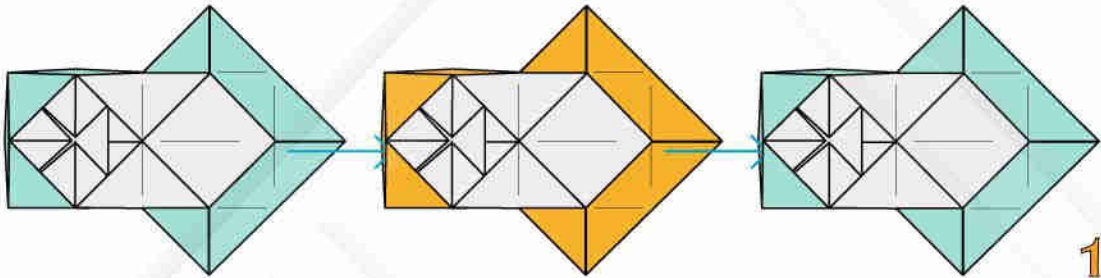
Modulo B.
Eseguite 6 pieghe rovesce interne



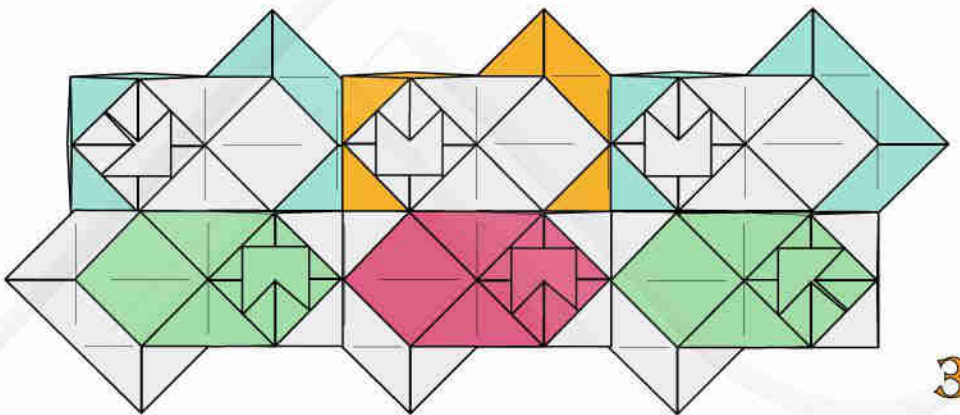
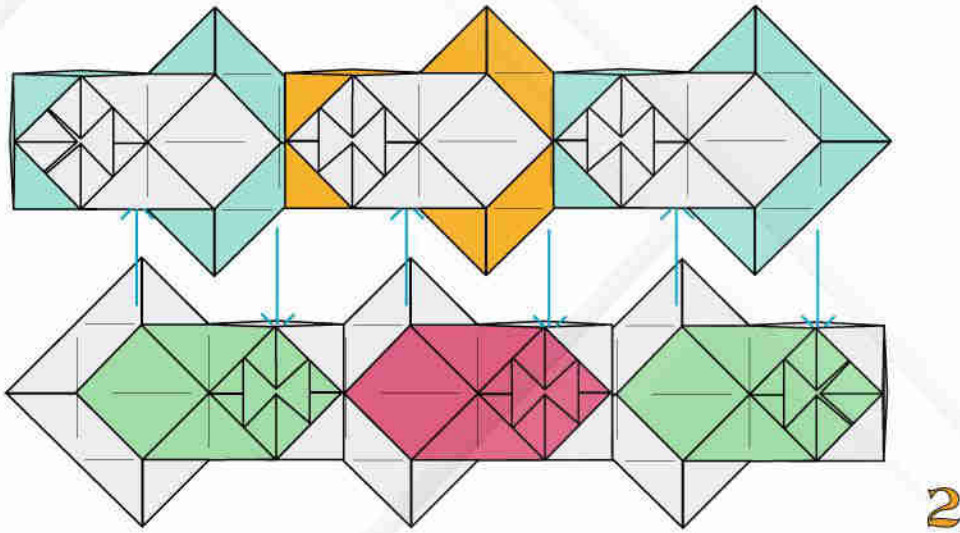
MODULO "B11" ultimato
con 6 tasche

UNIONE DI 6 MODULI B7

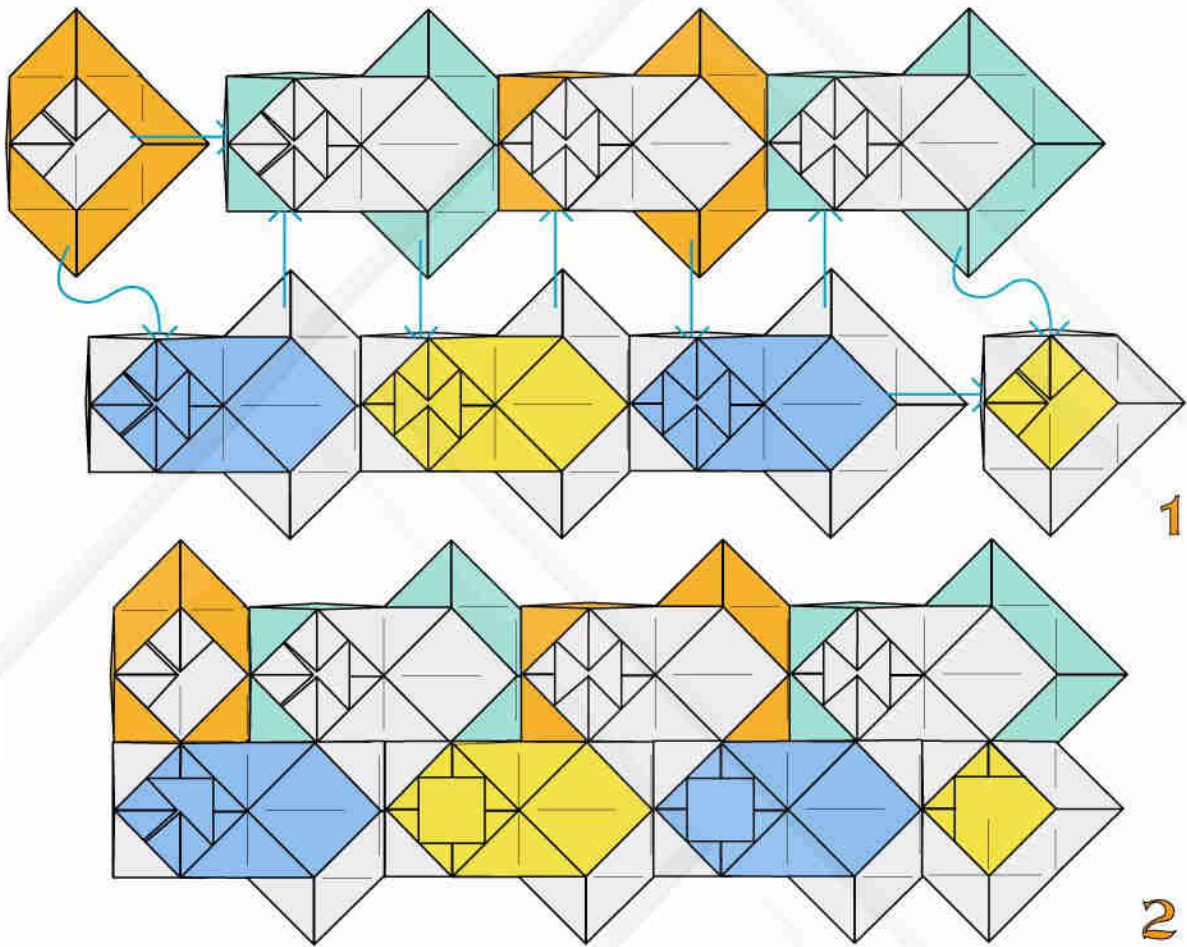
Si uniscono e si bloccano 3 moduli a nastro nel solito modo



Si uniscono e si bloccano 2 nastri nel solito modo

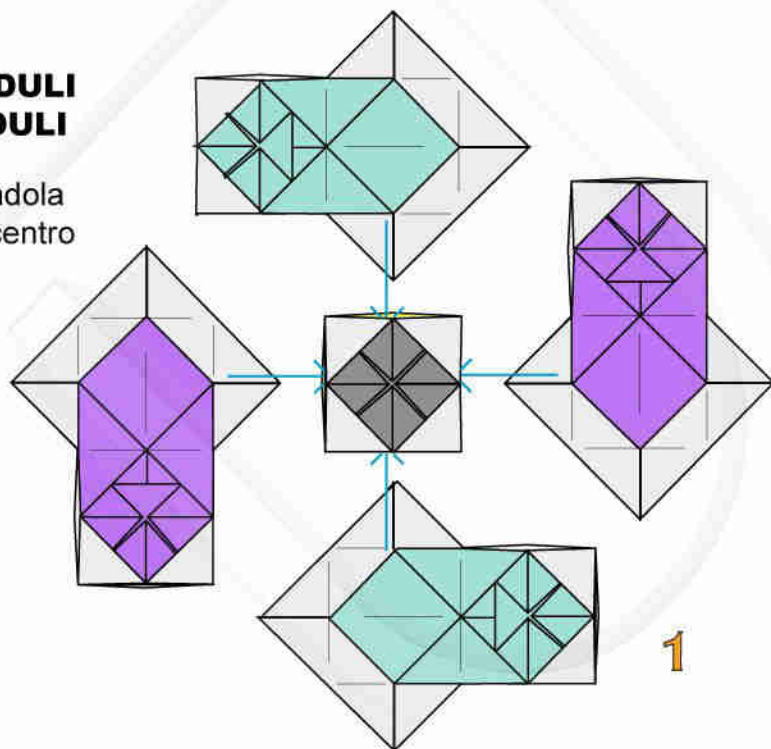


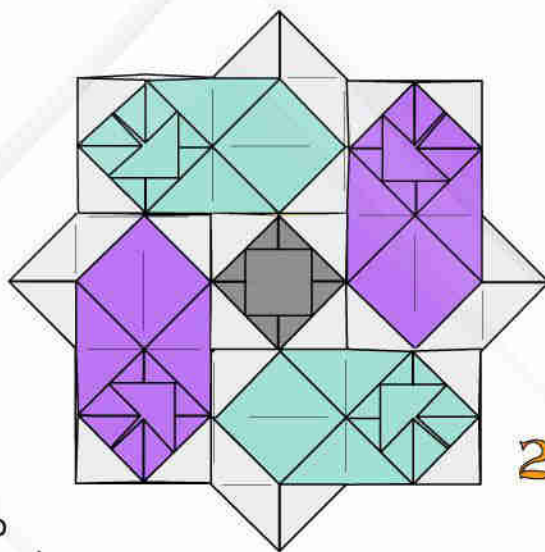
UNIONE DI 6 MODULI B7 E 2 MEZZI MODULI



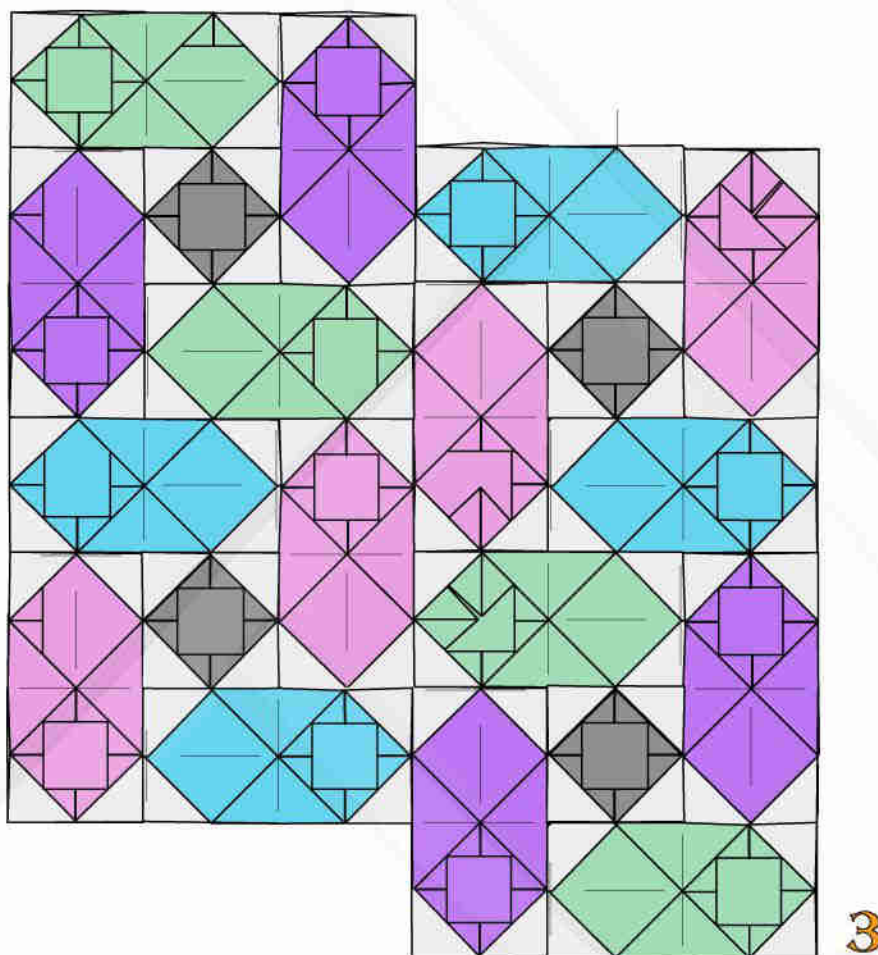
UNIONE DI 16 MODULI B7 E 4 MEZZI MODULI

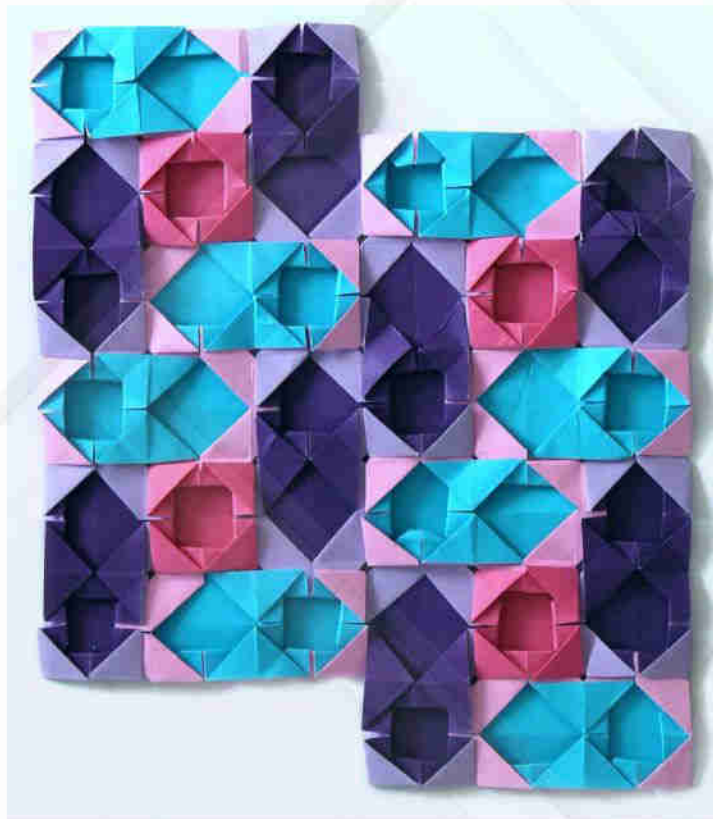
Si costruisce una girandola di 4 moduli B7 con al centro in mezzo modulo



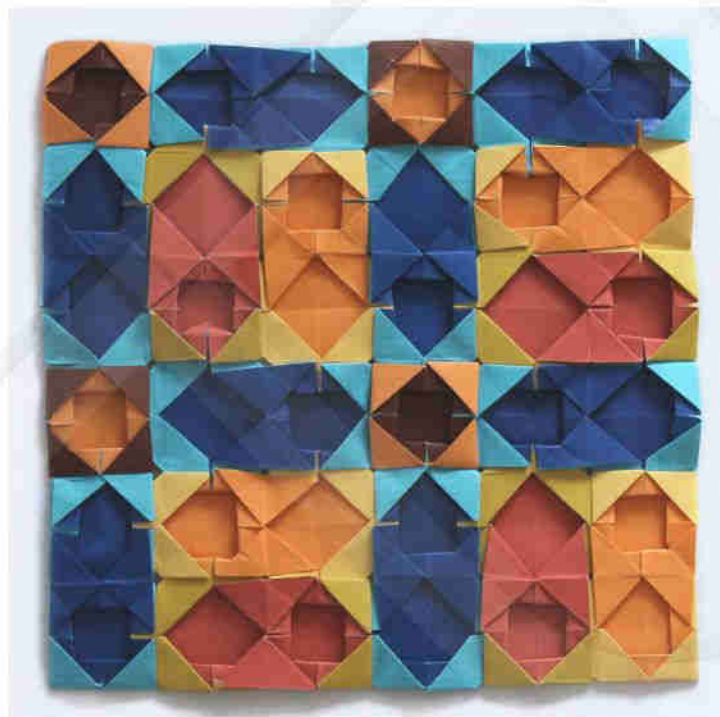


Si uniscono e bloccano
4 girandole nel solito modo

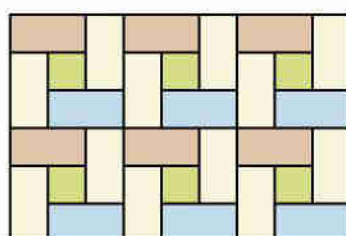
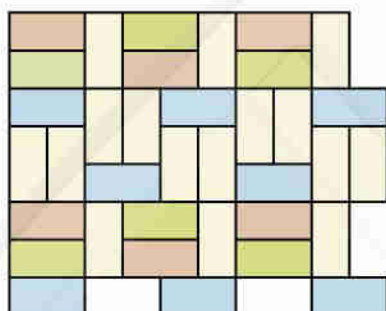
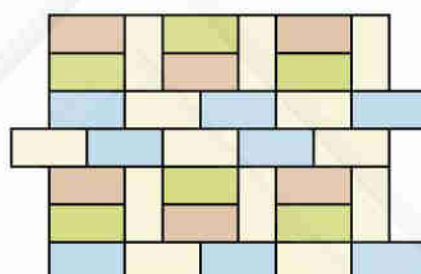
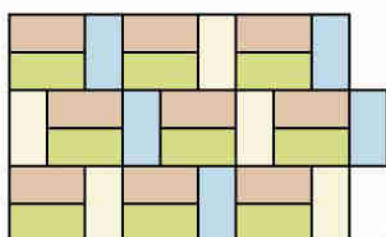
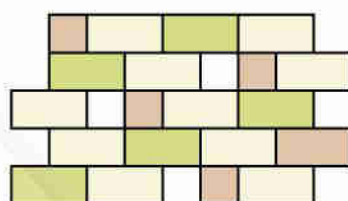
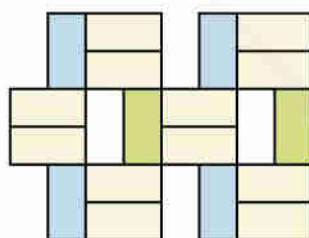
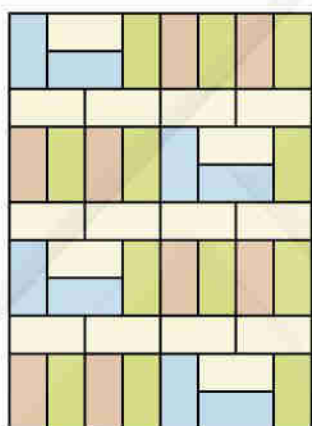


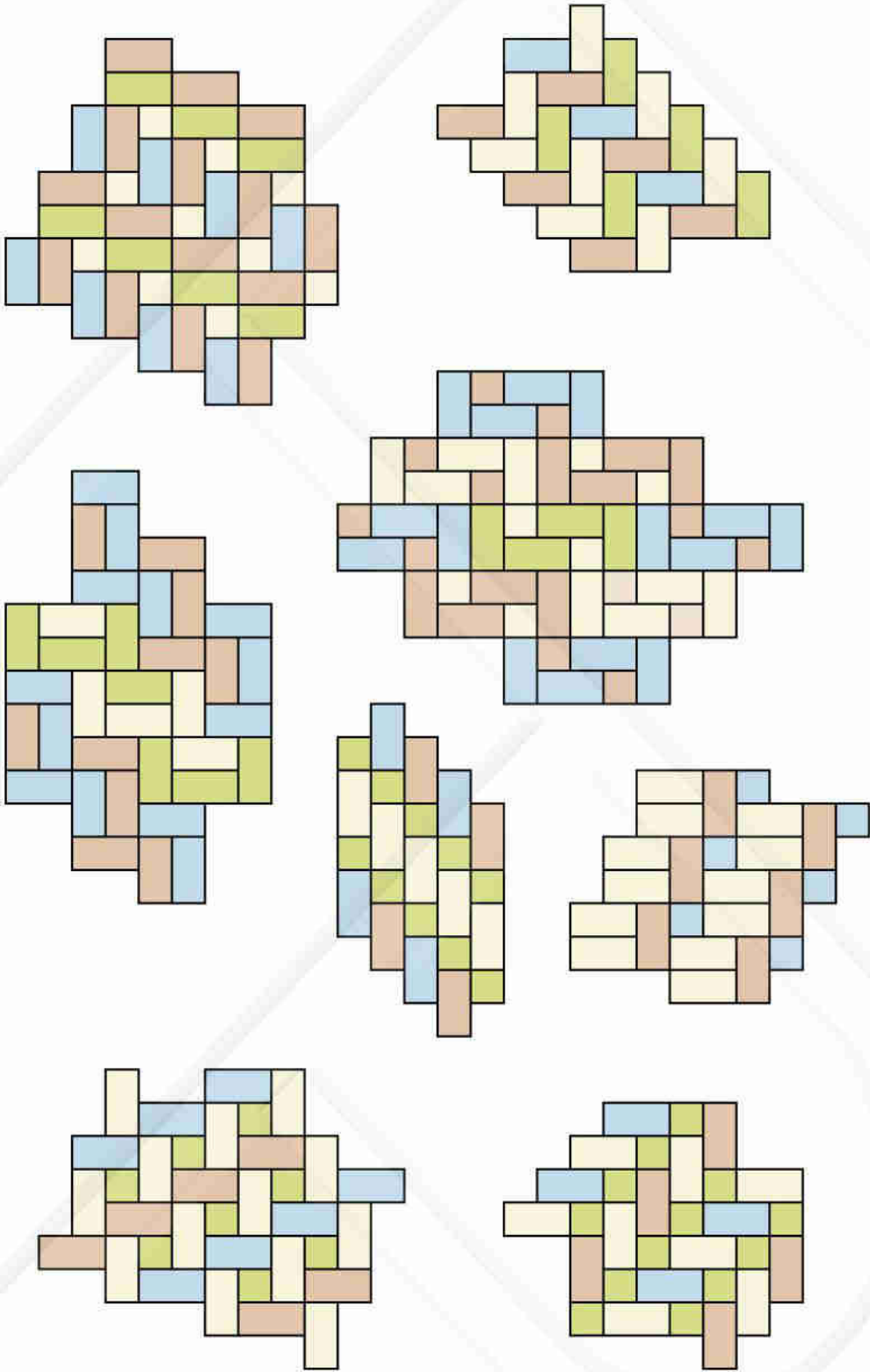


**ESEMPIO DI TASSELLAZIONE ESEGUITA
CON 16 MODULI "B7" E 4 MEZZI MODULI**



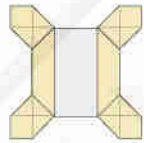

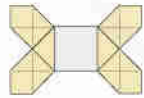

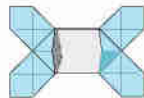
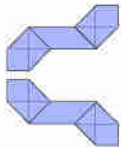
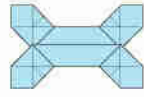
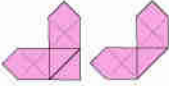
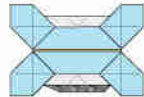
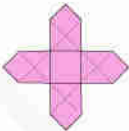
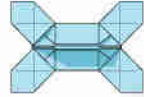





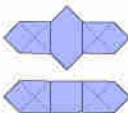

Esempi di tassellazioni realizzabili con i moduli rettangolari





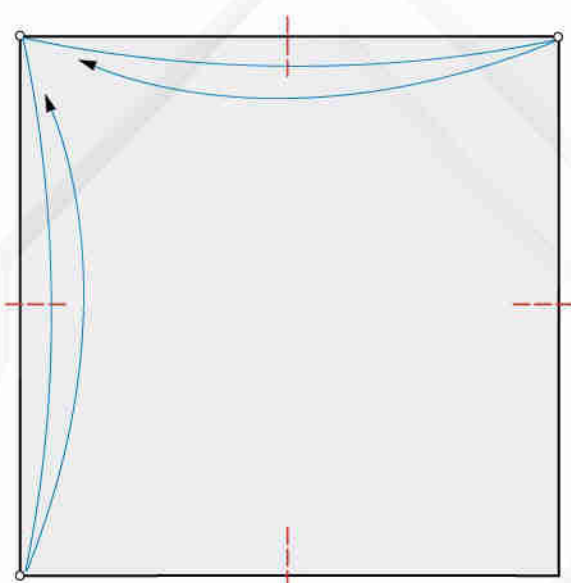
MECCANORIGAMI

CLASSIFICAZIONE TIPOLOGICA

PIASTRA		80	ASTA 2/5		116
SEMIPIASTRA		88	ASTA a C		119
SEMIPIASTRA 3D 1		94	ASTA a S		121
SEMIPIASTRA 3D 2		96	GOMITO 90°		125
SEMIPIASTRA 3D 3		99	GOMITO a croce		127
SEMIPIASTRA 3D 4		104	GOMITO a T		128
ASTA		109	GOMITO 45°		131
ASTA 4/5		112	GOMITO 135°		132
ASTA 3/5		114	GOMITO 180°		135

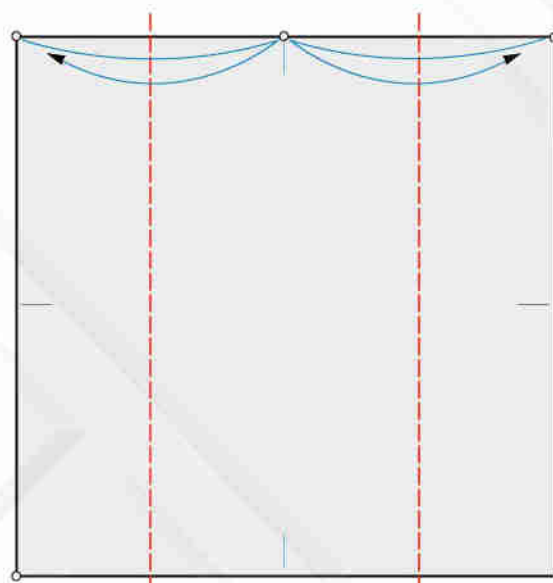
Piastra

Principale elemento di Meccanorigami, base di molte realizzazioni 2D e 3D.
Di semplice costruzione. Adoperate carta quadrata robusta, monocoloro o bicolore.



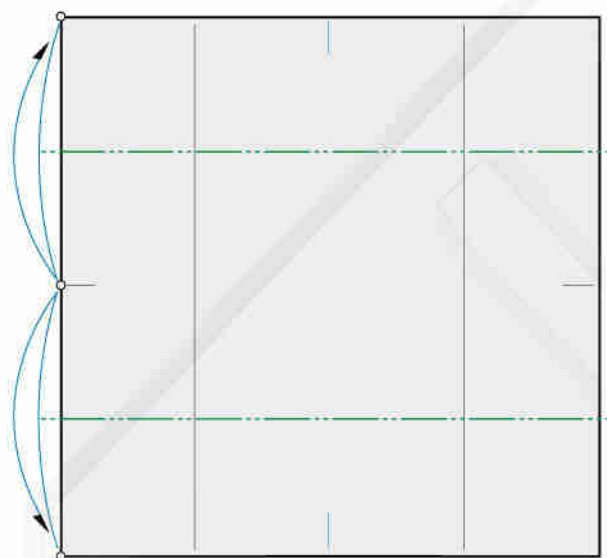
1

4 piccole pieghe a valle



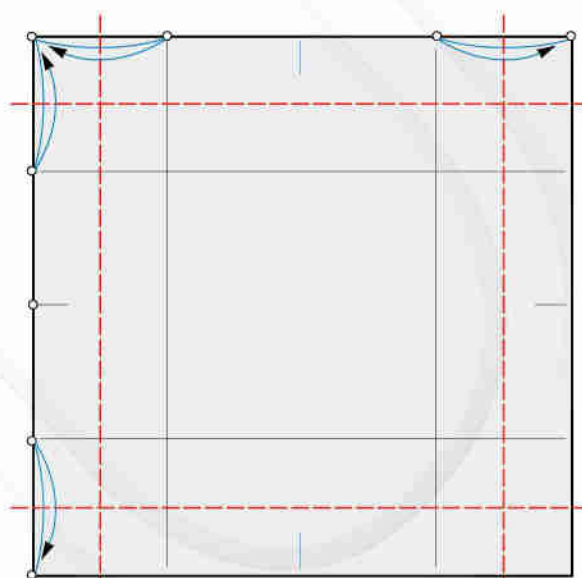
2

2 pieghe a valle



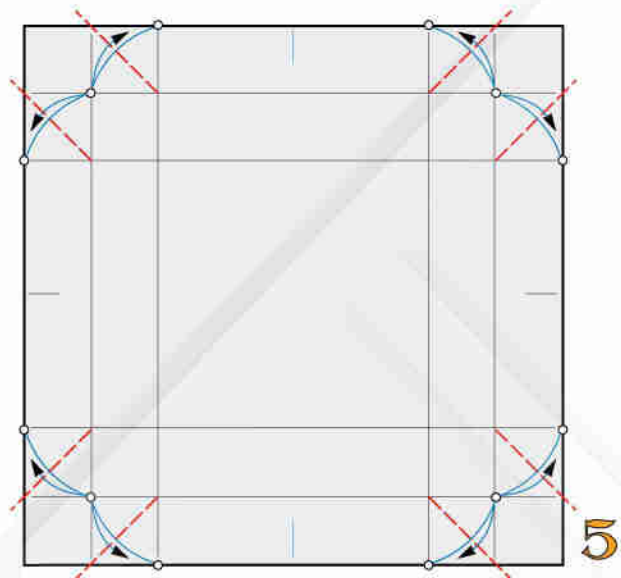
3

2 pieghe a monte

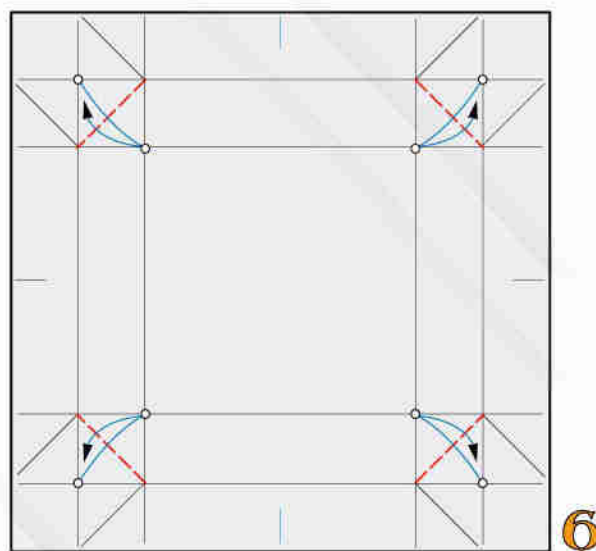


4

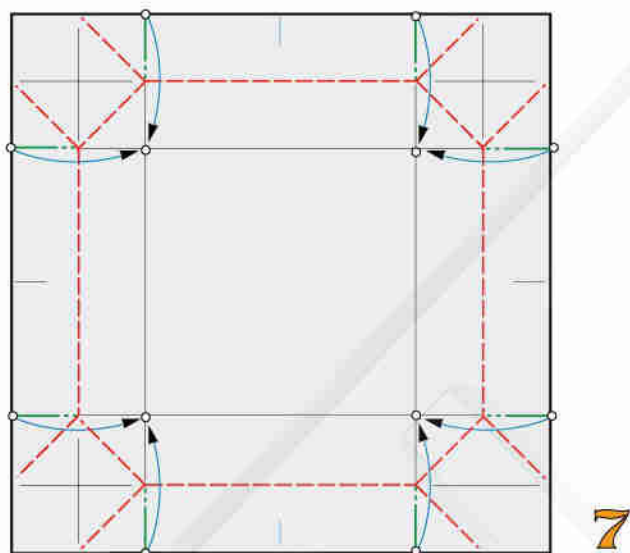
4 pieghe a valle



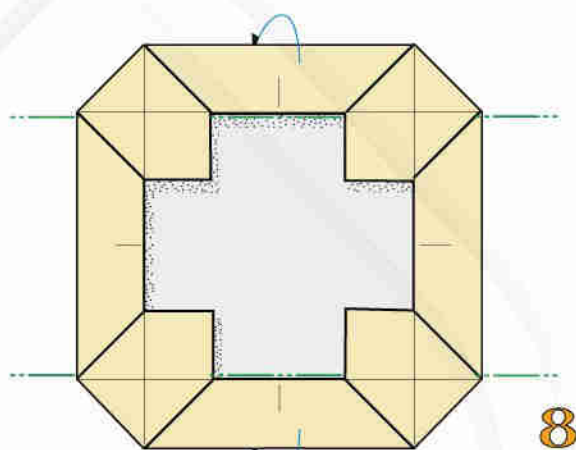
8 pieghe a valle



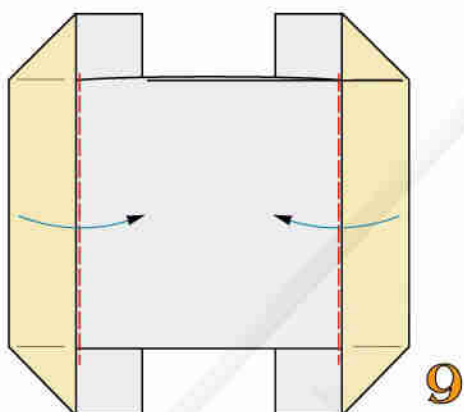
4 pieghe a valle



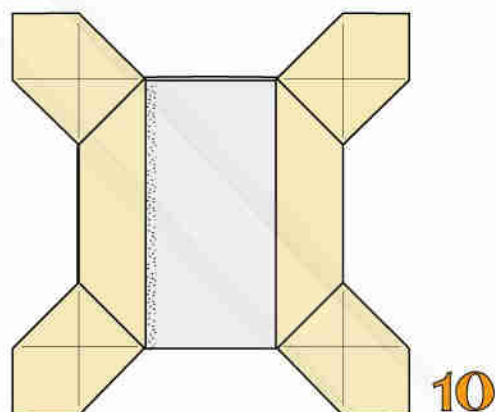
Ruotate ripiegando a valle ed a monte. Non è un passaggio difficile, nonostante le apparenze. Non eseguite subito le 4 pieghe diagonali a valle, queste risultano quasi automaticamente piegandone una alla volta dopo aver ruotato i 2 bordi concorrenti



Ruotate ripiegando 2 volte a monte

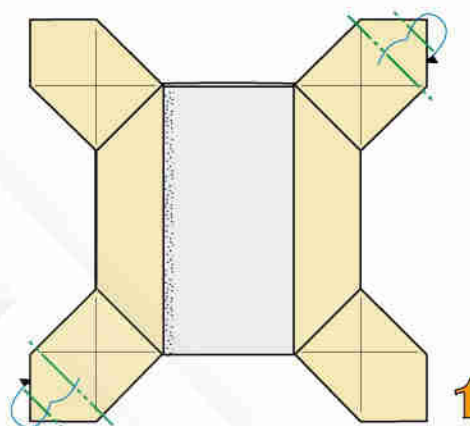


Ruotate ripiegando 2 volte a valle

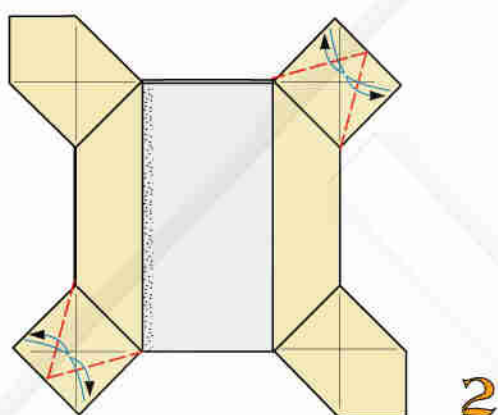


Modulo tipo "A" ultimato

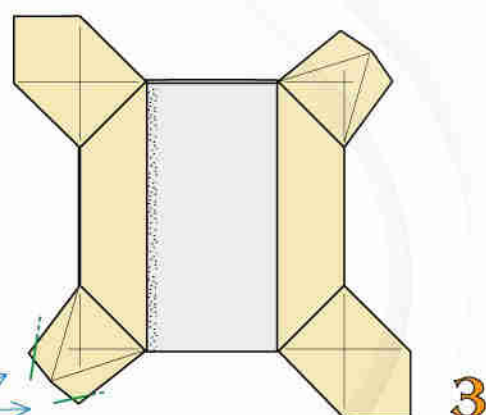
A questo punto bisogna scegliere quali appendici trasformare per l'aggancio, perchè ciò implica una differente resa di colore quando i moduli sono di tinta differente. Dobbiamo ridurre la superficie delle appendici da inserire entro quelle dell'altro modulo. In questo caso si sono scelte quella a destra in alto e quella a sinistra in basso



4 pieghe a monte e ruotate in successione

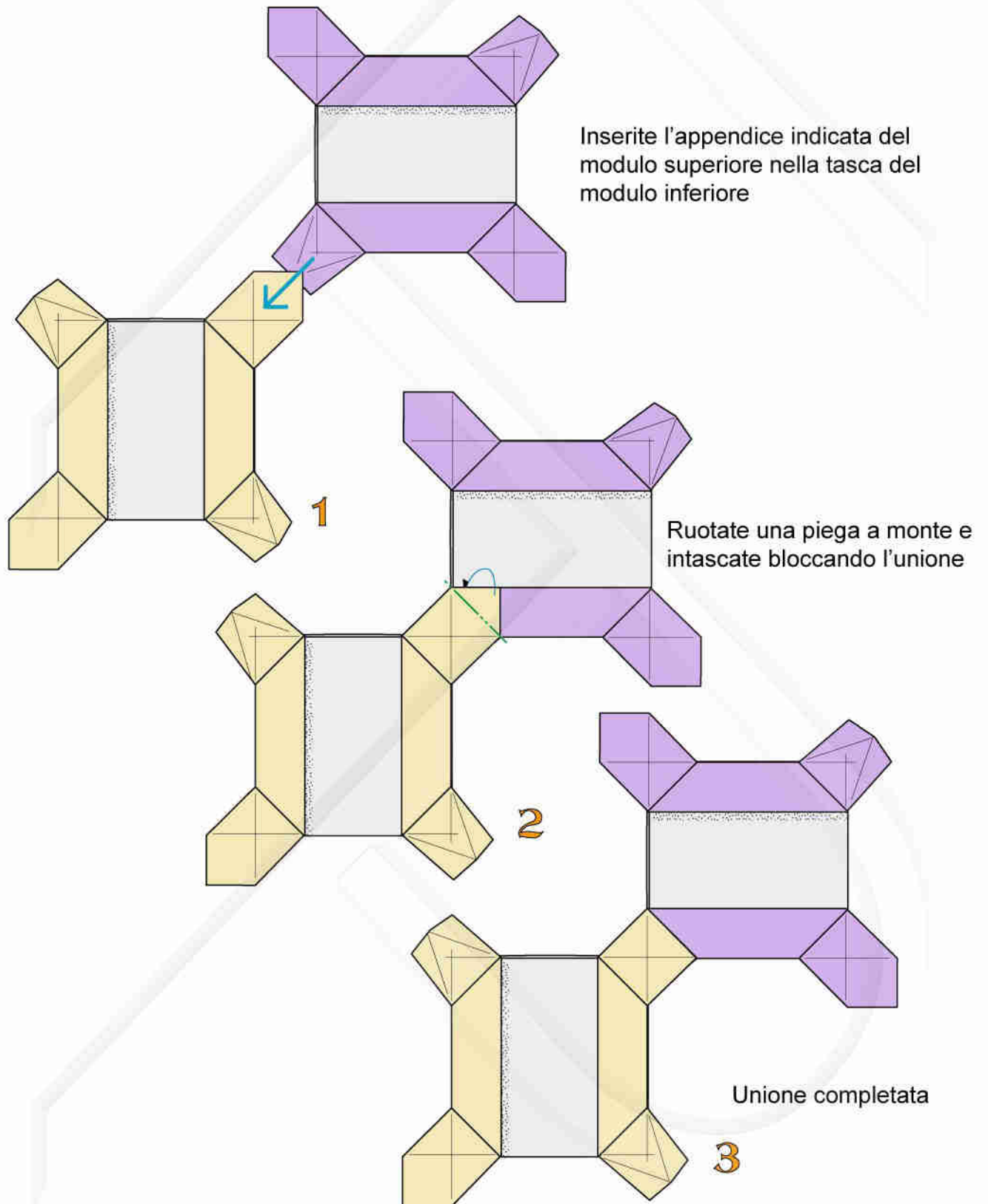


4 pieghe a valle

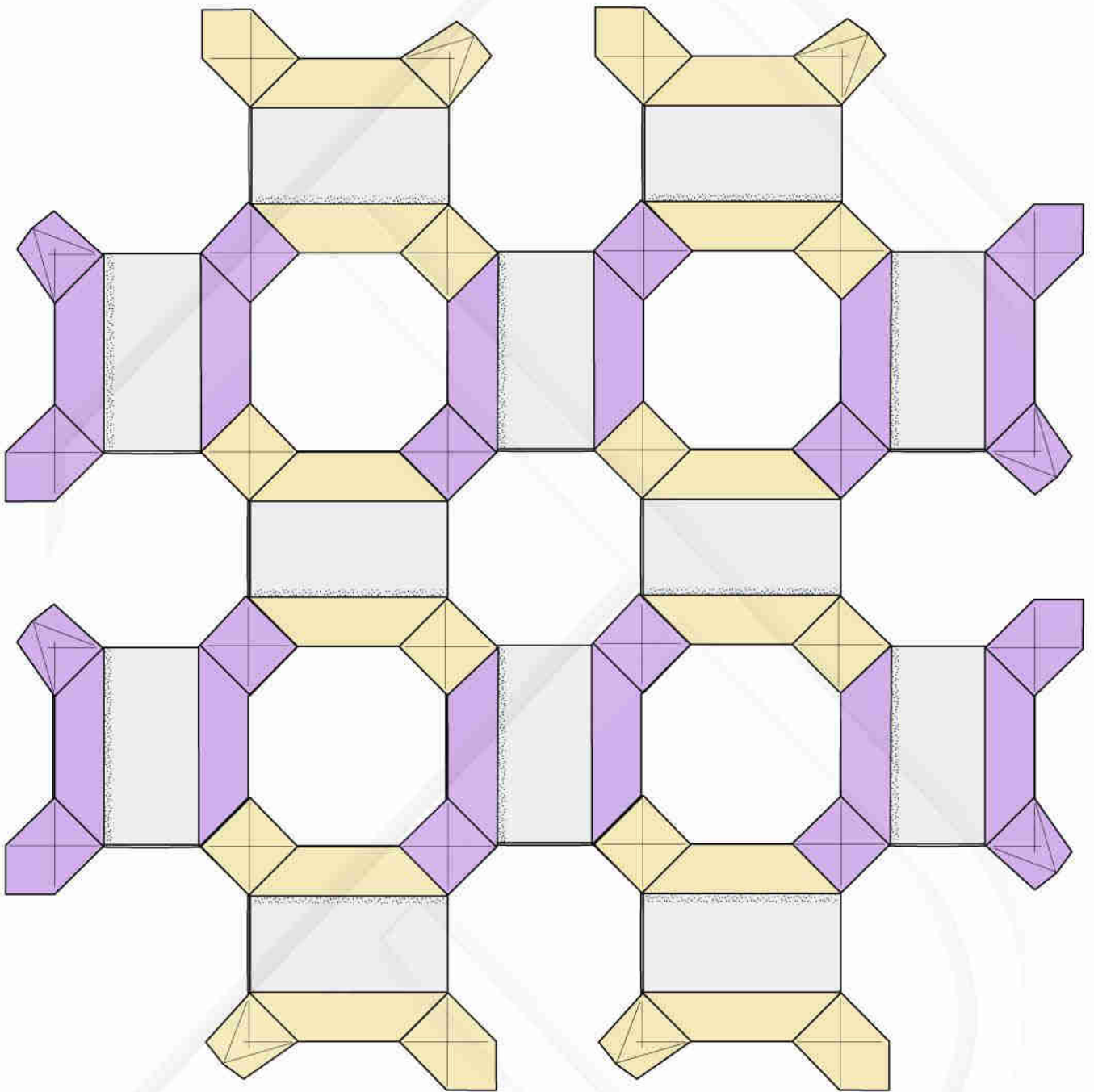


Modulo tipo "A" pronto per essere agganciato. Se ci sono difficoltà a far entrare le appendici, ridurre il bordo d'ingresso con 1 o 2 pieghe sugli angoli

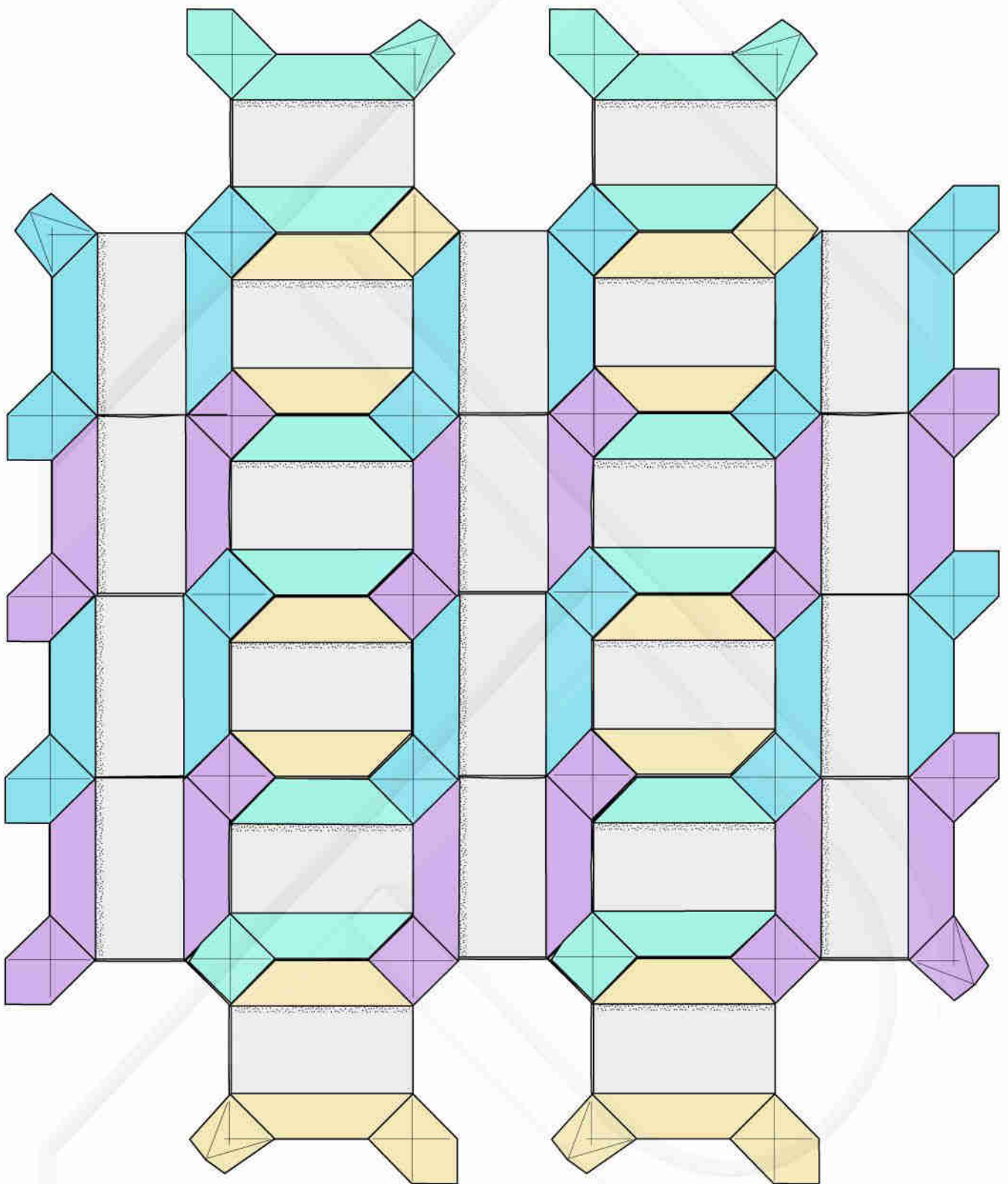
UNIONE DI 2 PIASTRE

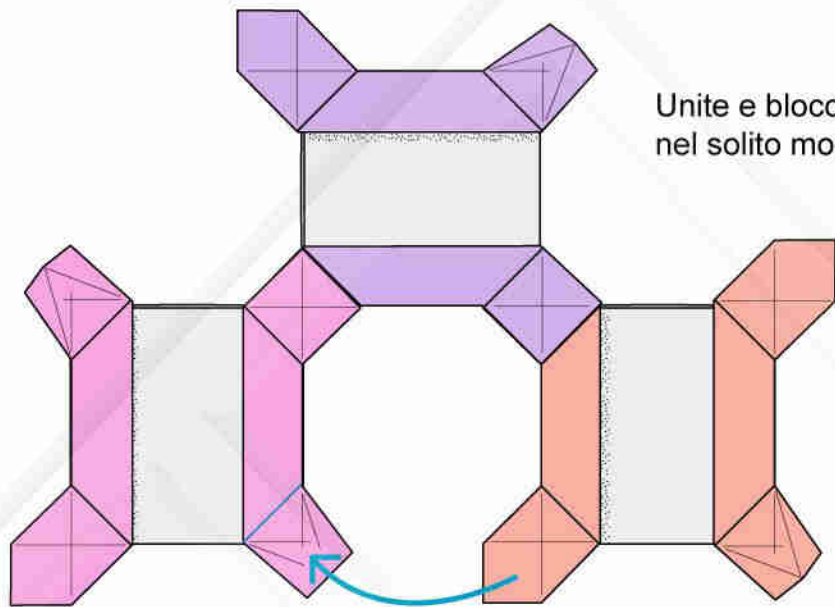


ESEMPIO DI TASSELLAZIONE REALIZZATA UNENDO 12 PIASTRE



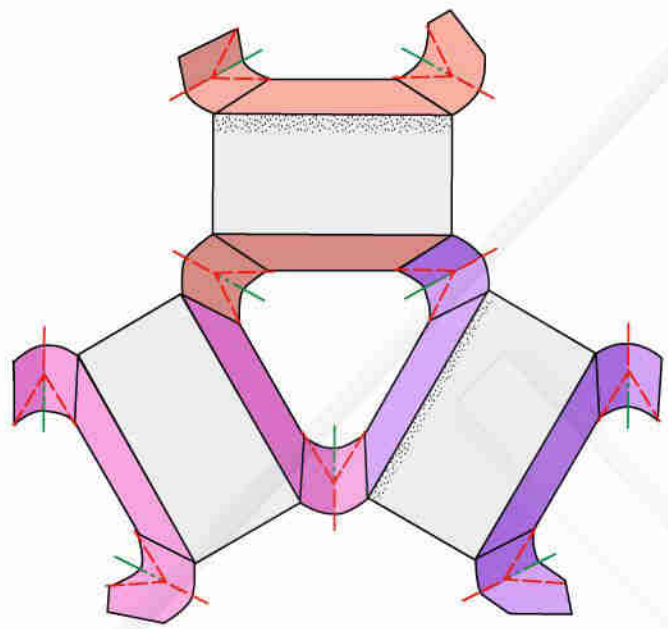
ESEMPIO DI TASSELLAZIONE REALIZZATA INTRECCIANDO 16 PIASTRE



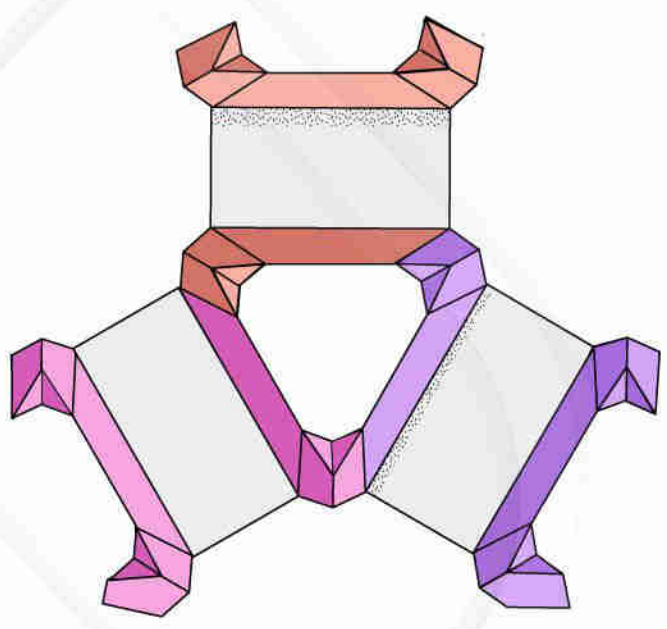


Unite e bloccate 3 moduli nel solito modo

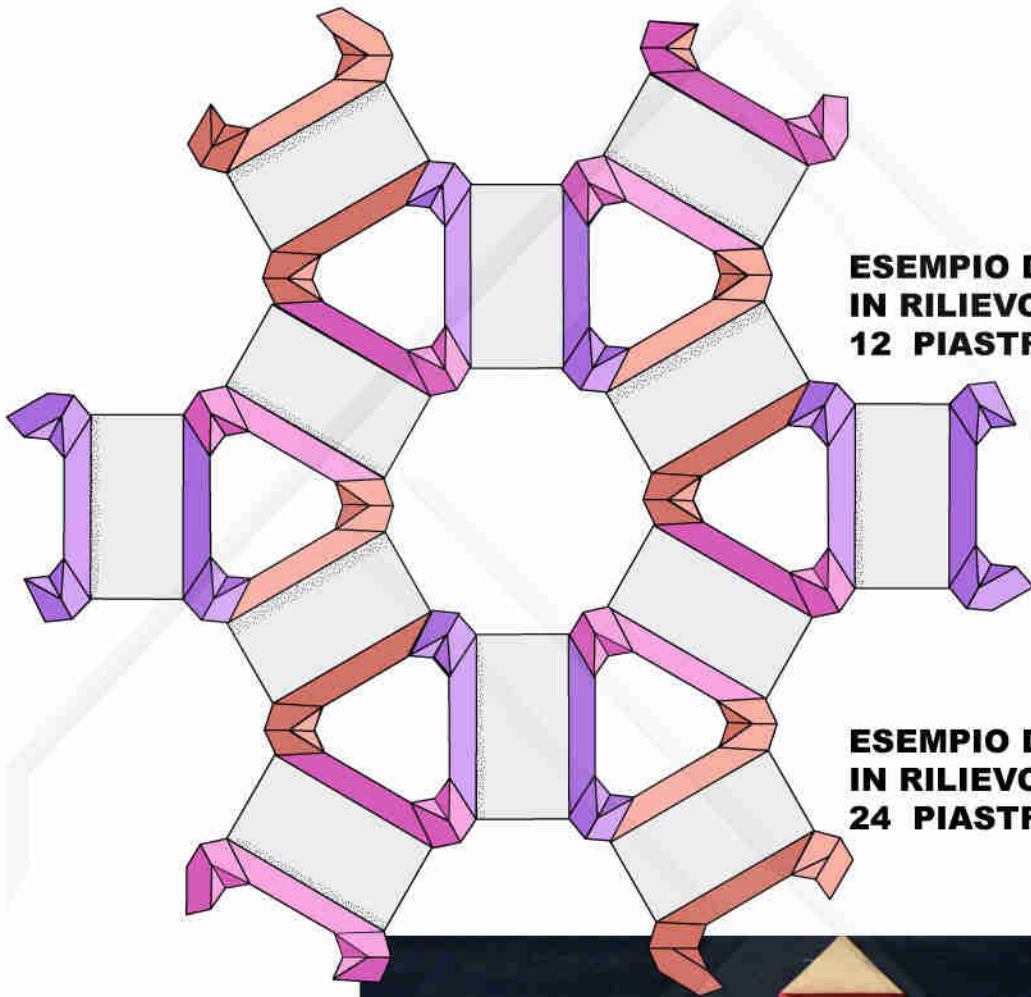
UNENDO 3 MODULI SI REALIZZA UNA TASSELLAZIONE IN RILIEVO, AVENTE I MODULI INCLINATI FRA LORO DI 60 GRADI E SPAZI VUOTI A FORMA DI TRIANGOLO EQUILATERO ED ESAGONO REGOLARE



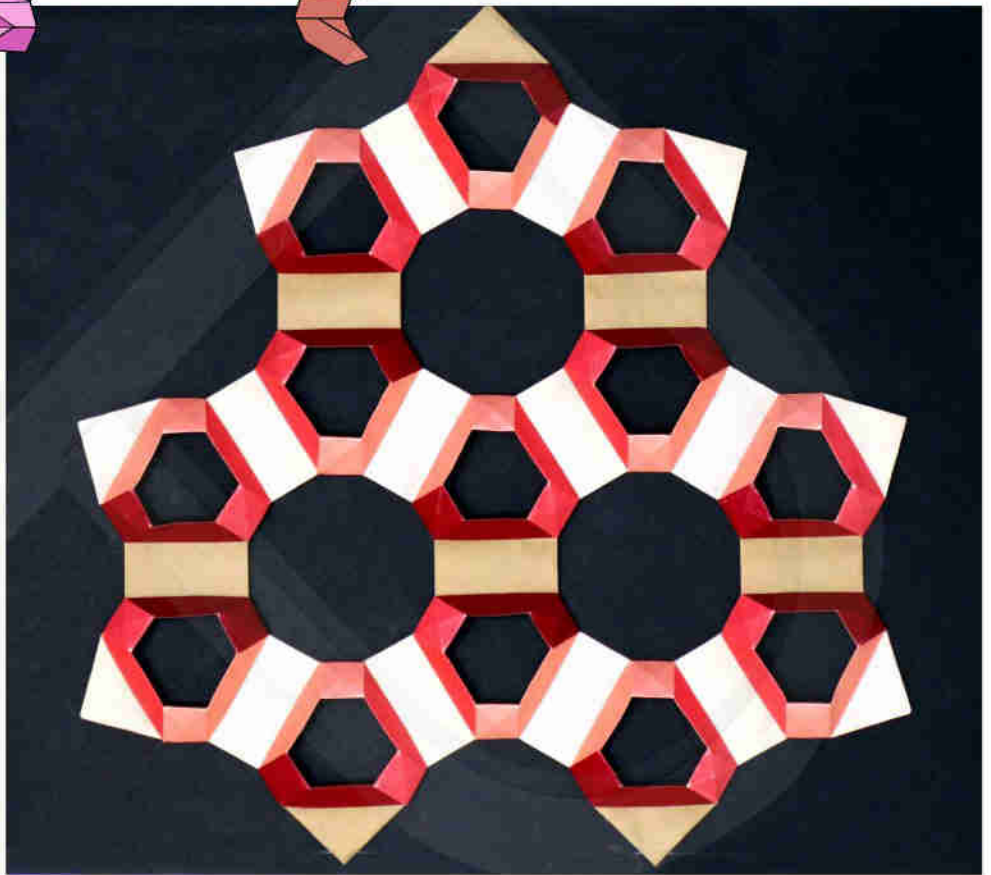
Modellate gli angoli a valle ed a monte



Unione completata



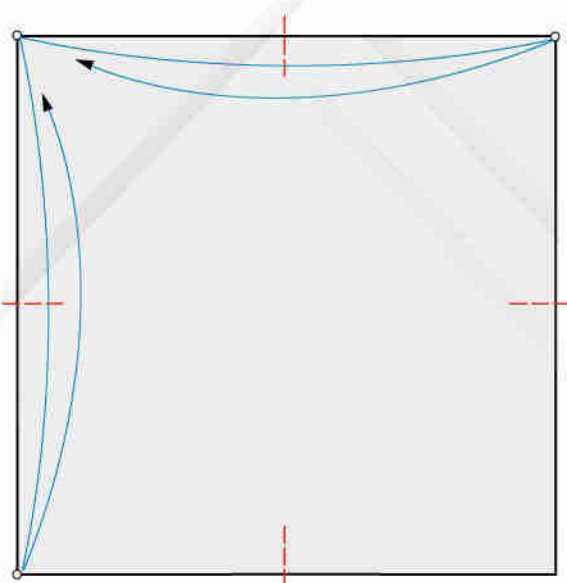
**ESEMPIO DI TASSELLAZIONE
IN RILIEVO REALIZZATA CON
12 PIASTRE**



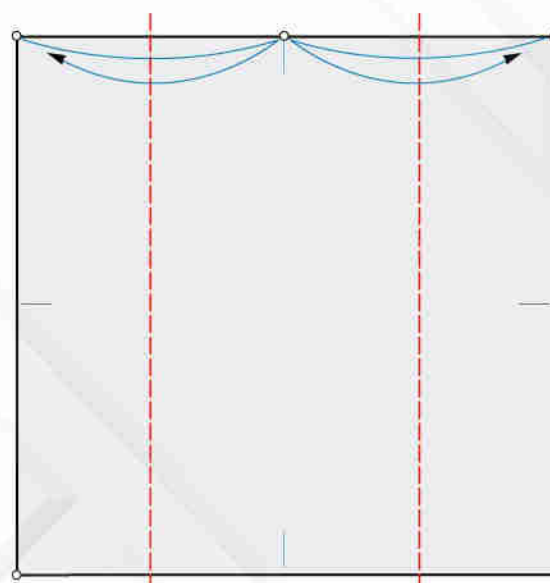
**ESEMPIO DI TASSELLAZIONE
IN RILIEVO REALIZZATA CON
24 PIASTRE**

Semipiastra

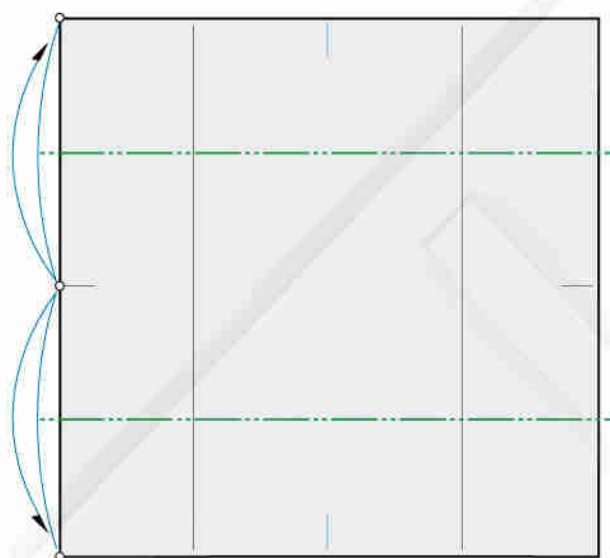
Secondo elemento base, indispensabile per la costruzione di molti modelli 2D e 3D.
Di semplice costruzione. Adoperate carta quadrata robusta, monocoloro o bicolore.



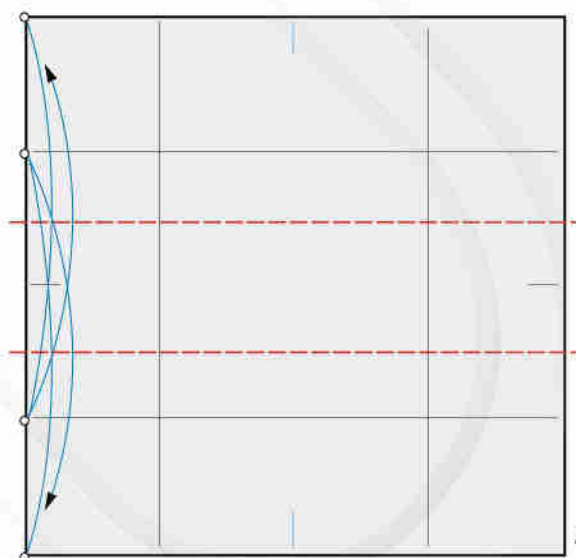
4 piccole pieghe a valle



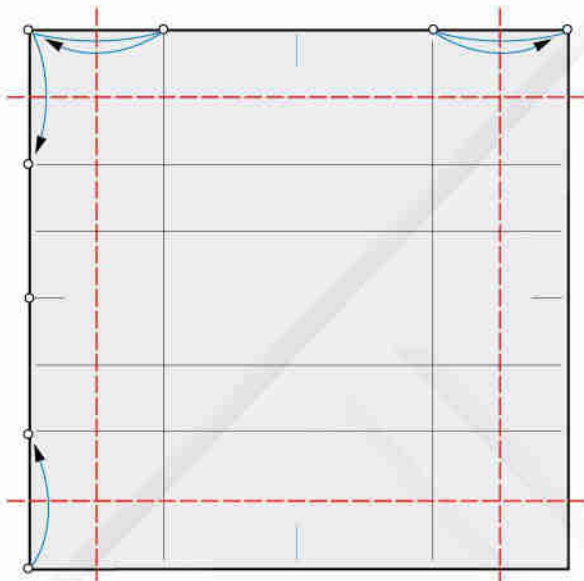
2 pieghe a valle



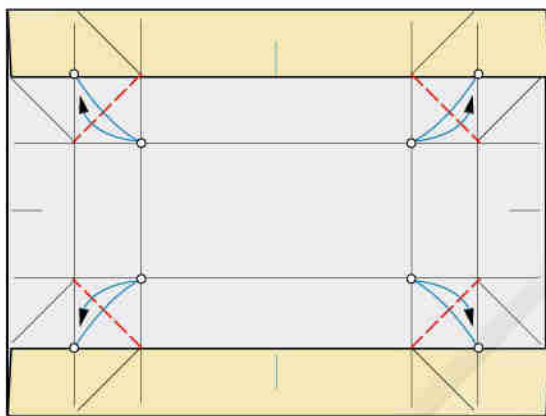
2 pieghe a monte



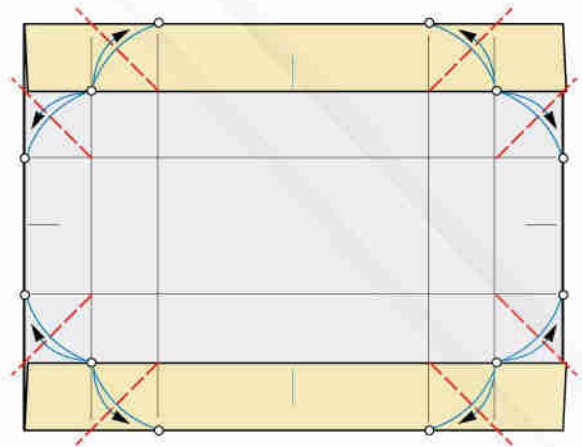
2 pieghe a valle



4 pieghe a valle e ruotate 2 volte



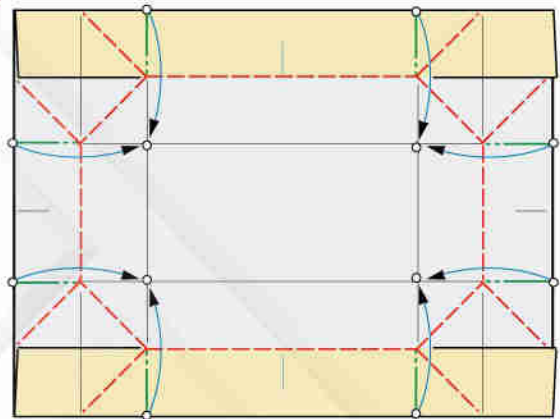
4 pieghe a valle



8 pieghe a valle

6

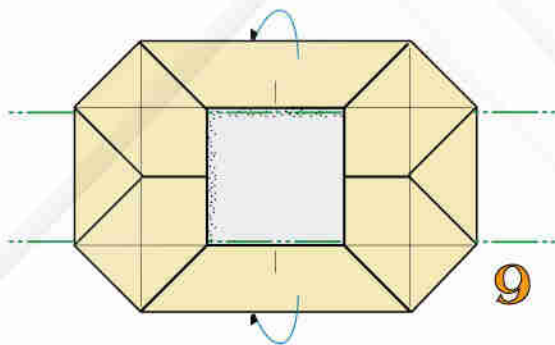
5



8

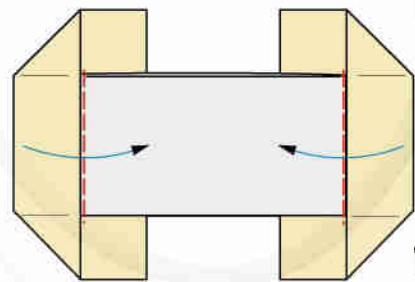
7

Ruotate ripiegando a valle ed a monte. Non è un passaggio difficile, nonostante le apparenze. Non eseguite subito le 4 pieghe diagonali a valle, queste risultano quasi automaticamente piegandone una alla volta dopo aver ruotato i 2 bordi concorrenti



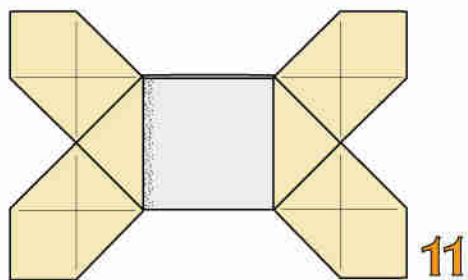
9

Ruotate ripiegando 2 volte a monte

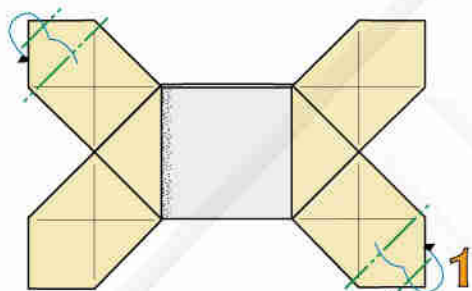


10

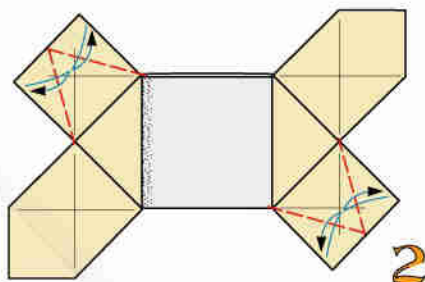
Ruotate ripiegando 2 volte a valle



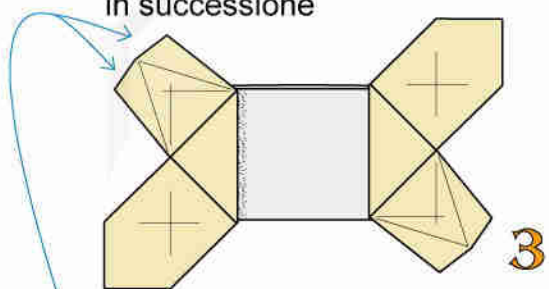
A questo punto bisogna scegliere quali appendici trasformare per l'aggancio, perchè ciò implica una differente resa di colore quando i moduli sono di tinta differente. Dobbiamo ridurre la superficie delle appendici da inserire entro quelle dell'altro modulo. In questo caso si sono scelte quella a sinistra in alto e quella a destra in basso



4 pieghe a monte e ruotate in successione



4 pieghe a monte e ruotate

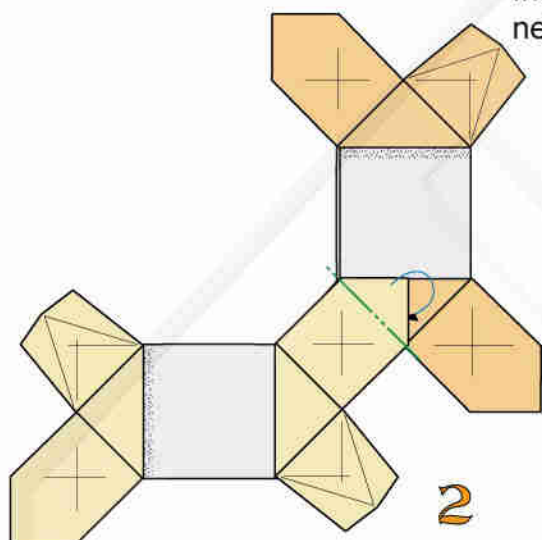


Semipiastra pronta per l'aggancio. Se ci sono difficoltà a far entrare le appendici, ridurre il bordo d'ingresso con 1 o 2 piegine sugli angoli

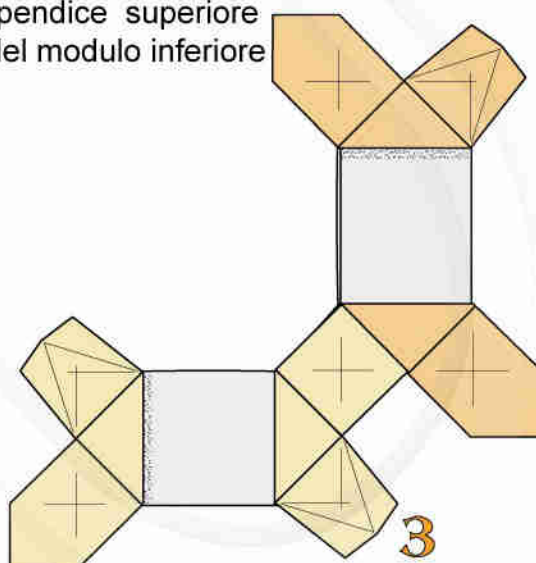
UNIONE DI 2 PIASTRE



Inserite l'appendice superiore nella tasca del modulo inferiore

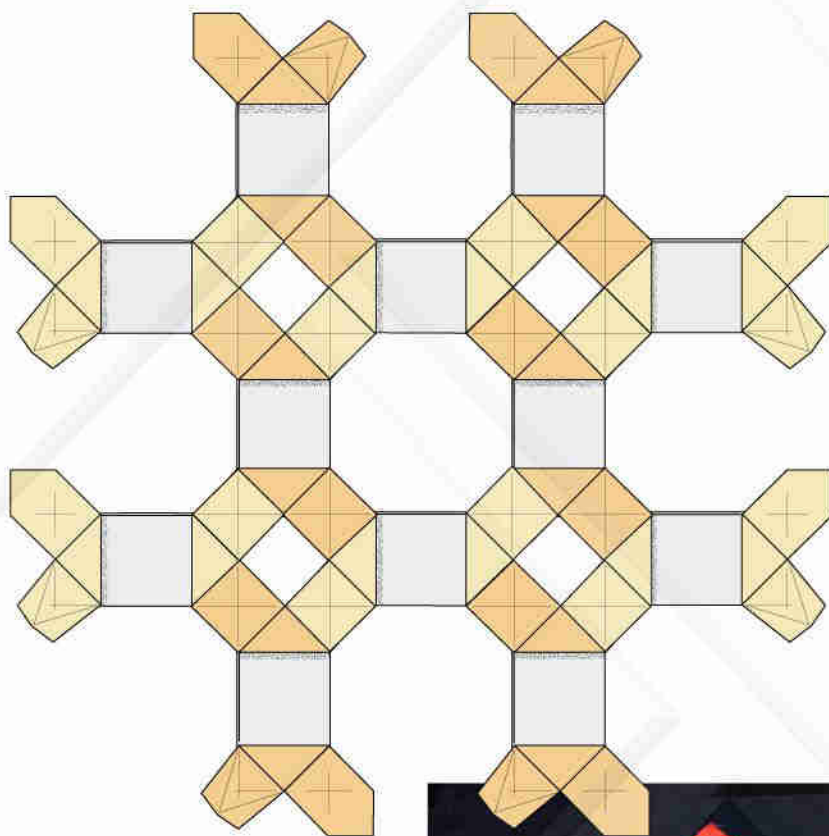


1 piega a monte ed intascate bloccando l'unione

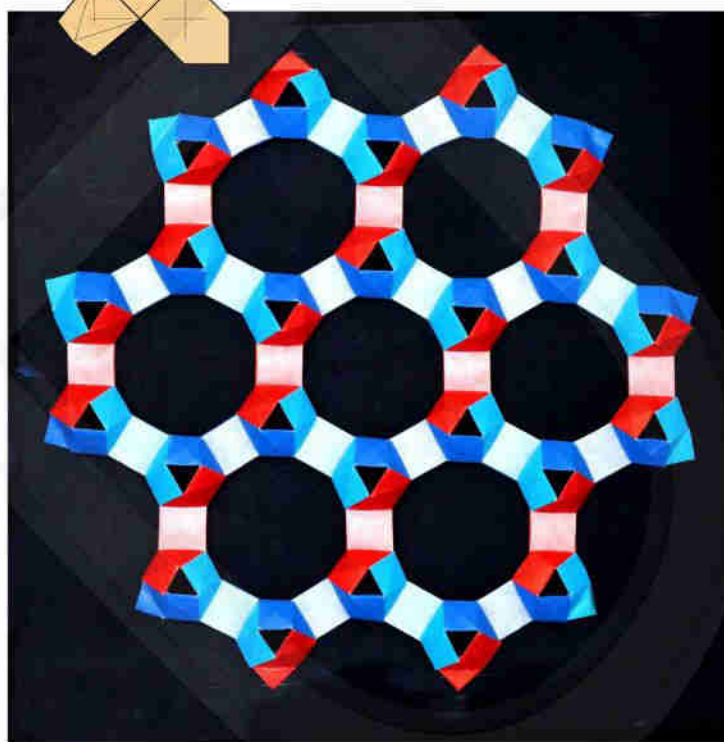


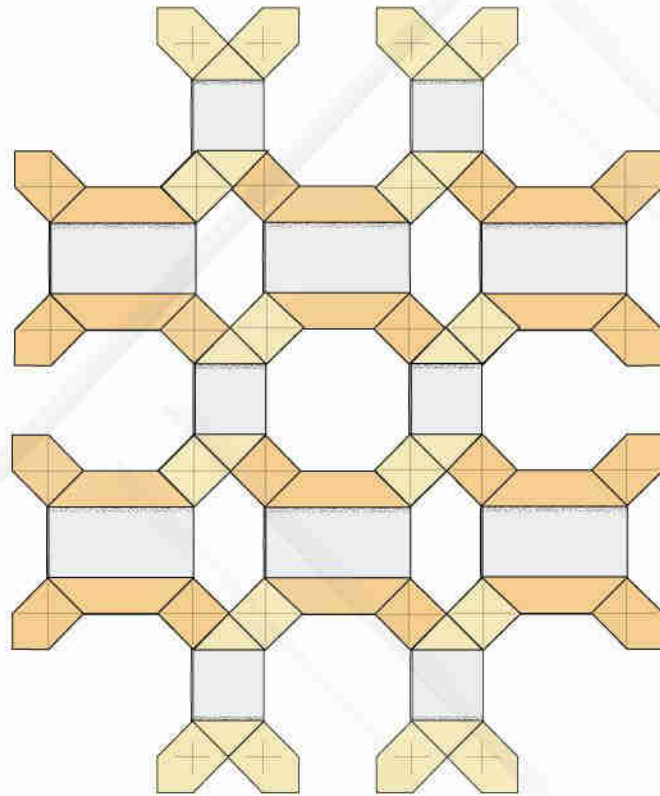
Unione completata

**ESEMPIO DI TASSELLAZIONE
REALIZZATA CON 16 SEMIPIASTRE**

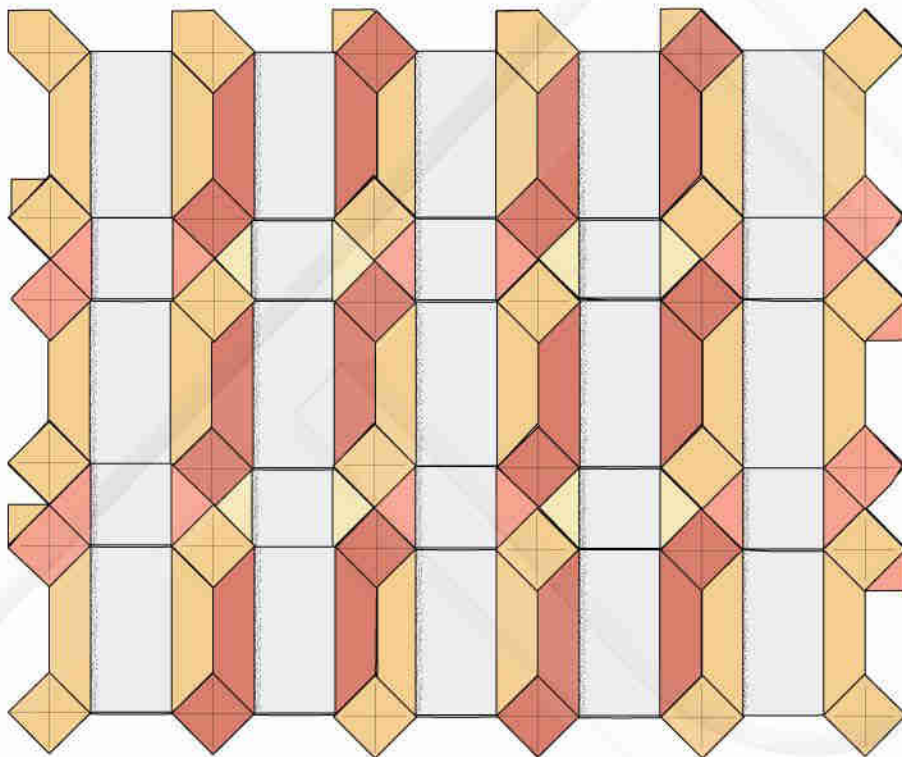


**ESEMPIO DI TASSELLAZIONE
IN RILIEVO REALIZZATA CON
SEMPIASTRE UNITE A
GRUPPI DI 3**





**ESEMPIO DI TASSELLAZIONE REALIZZATA
CON 6 PIASTRE E 6 SEMIPIASTRE**



**ESEMPIO DI TASSELLAZIONE REALIZZATA
CON PIASTRE E SEMIPIASTRE INTRECCIAE**

**ESEMPIO DI TASSELLAZIONE REALIZZATA
CON PIASTRE E SEMIPIASTRE**



**ESEMPIO DI TASSELLAZIONE REALIZZATA
CON PIASTRE E SEMIPIASTRE INTRECCiate**

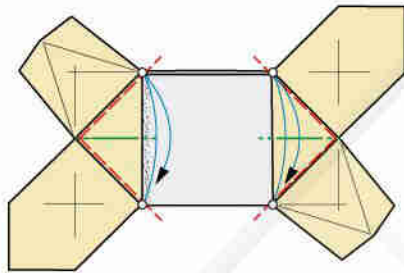


FRONTE

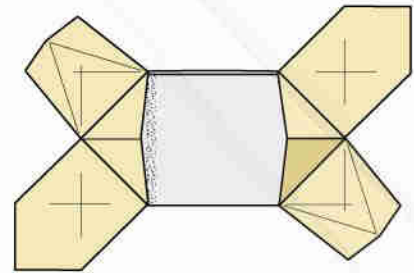


RETRO

Semipiastra 3D-1



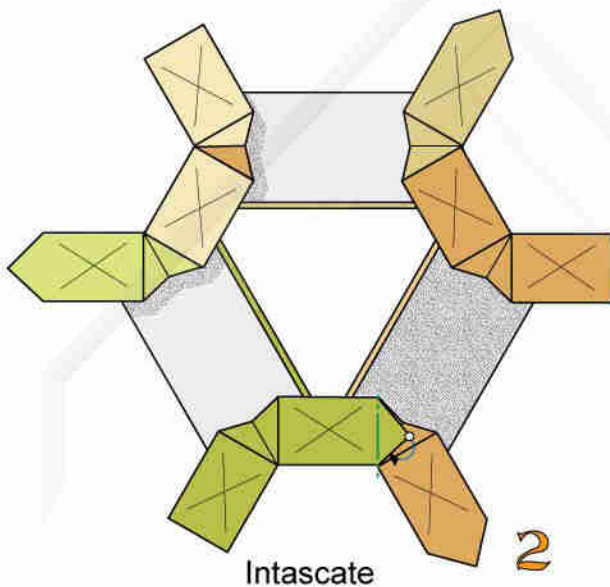
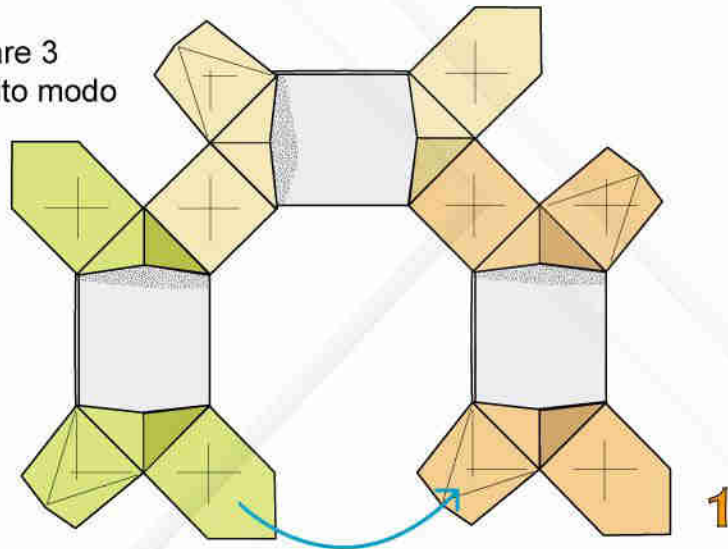
Partite dalla semipiastra.
4 pieghe a valle e 2 a monte



Semipiastra 3D-1 ultimata

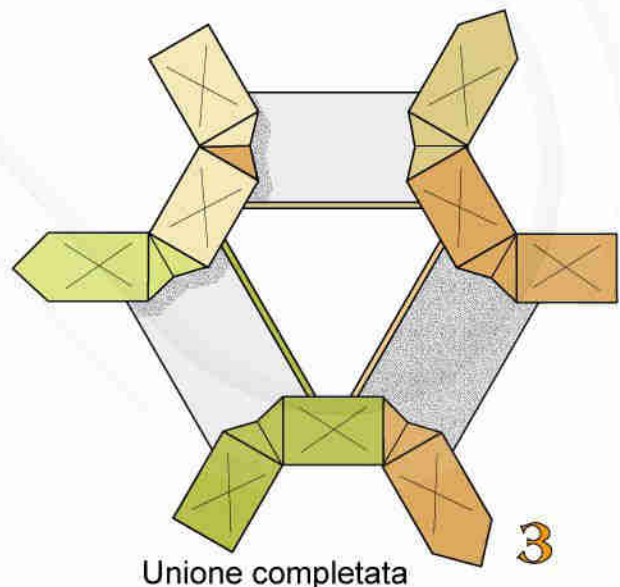
REALIZZAZIONE DI UNA TASSELLAZIONE IN RILIEVO

Unire e bloccare 3
moduli nel solito modo



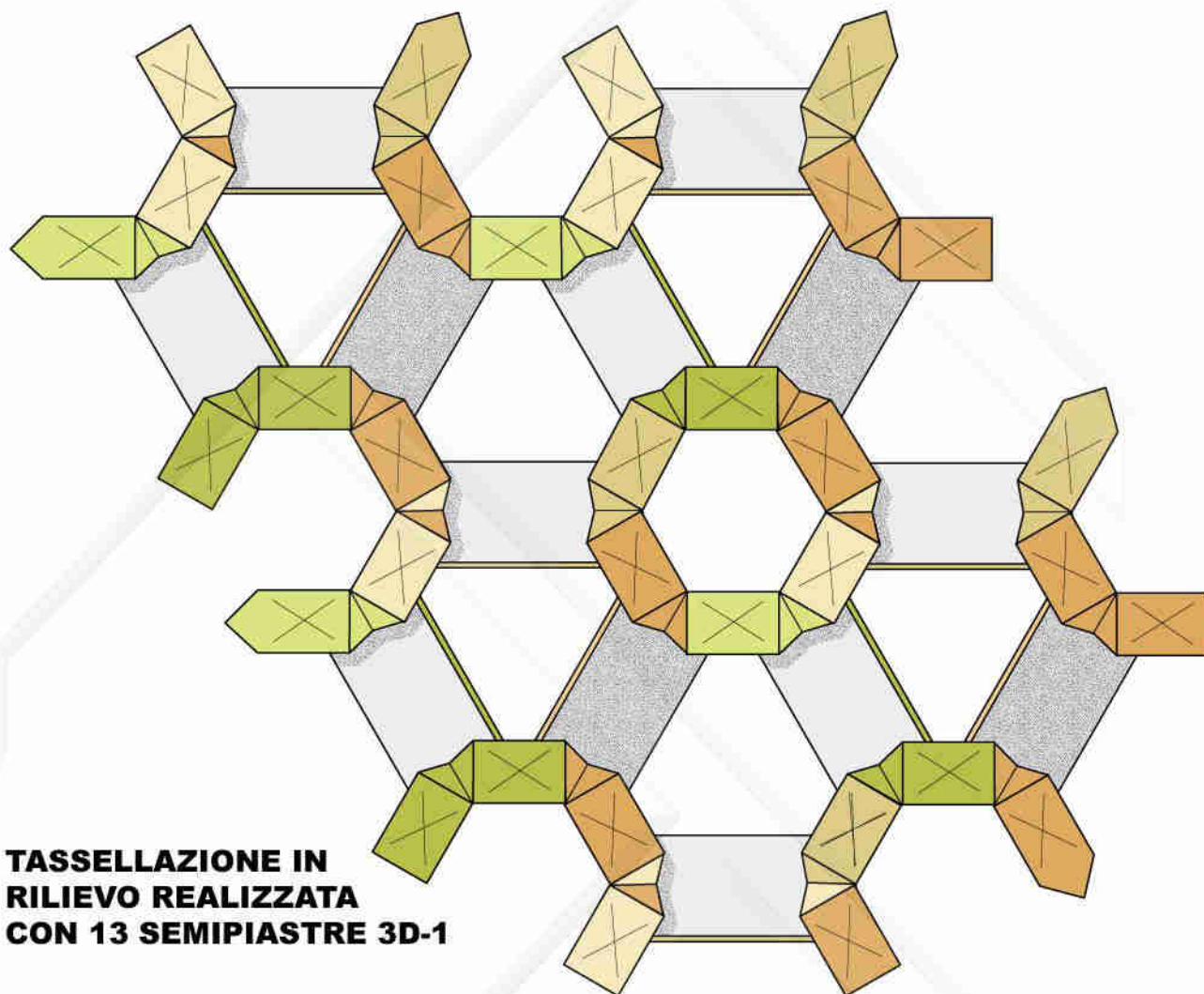
Intascate

2

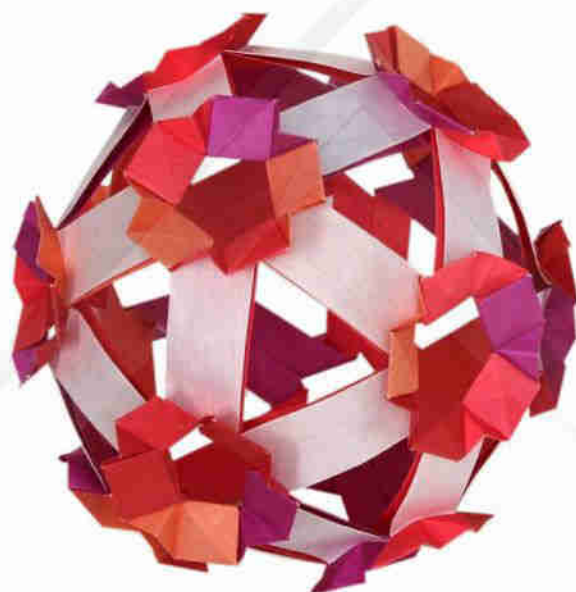


Unione completata

3



TASSELLAZIONE IN RILIEVO REALIZZATA CON 13 SEMIPIASTRE 3D-1

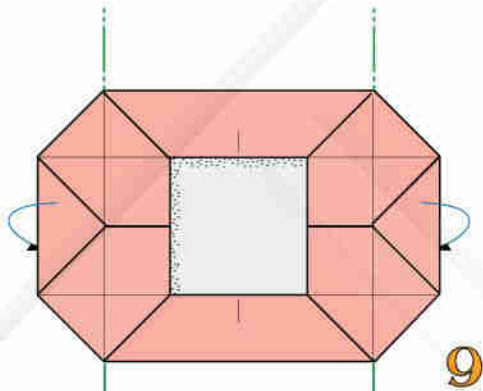


ICOSAEDRO REALIZZATO UNENDO 5 MODULI PER OGNI VERTICE. SOLIDO PLATONICO CON 20 FACCE TRIANGOLARI E 30 SPIGOLI SEMIPIASTRA "3D-1"

30 fogli carta quadrata bicolore robusta

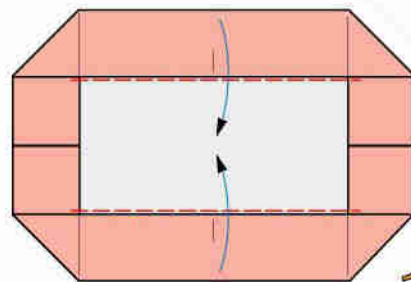
Semipiastra 3D-2

Modulo indicato per la costruzione di poliedri



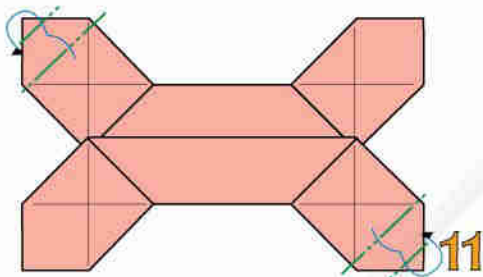
9

Partite dalla fig. n.8 di semipiastra.
Ruotate ripiegando 2 volte a monte



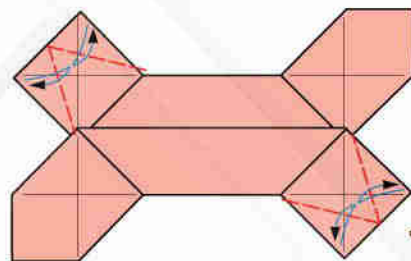
10

Ruotate ripiegando 2 volte a valle



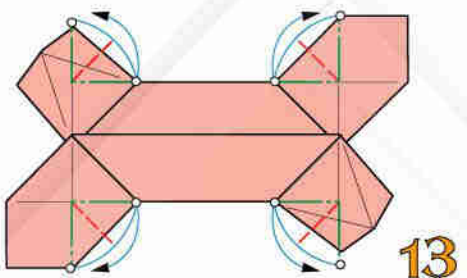
11

4 pieghe a monte e ruotate
in successione



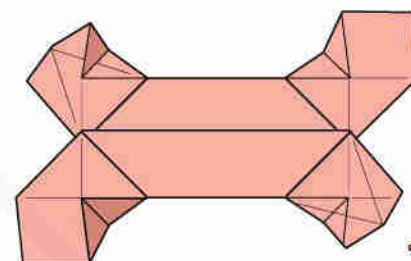
12

4 pieghe a valle e ruotate



13

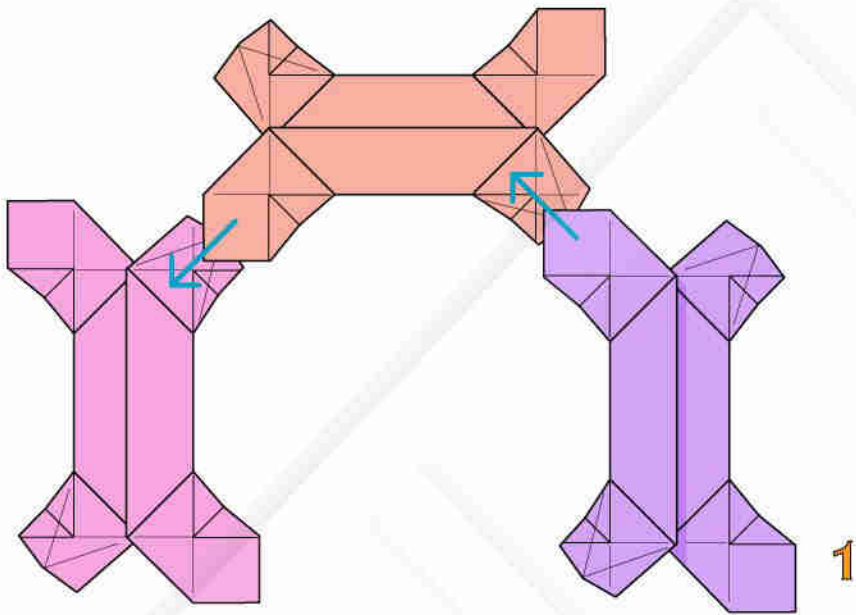
4 pieghe a valle e ruotate
ripiegando a monte



14

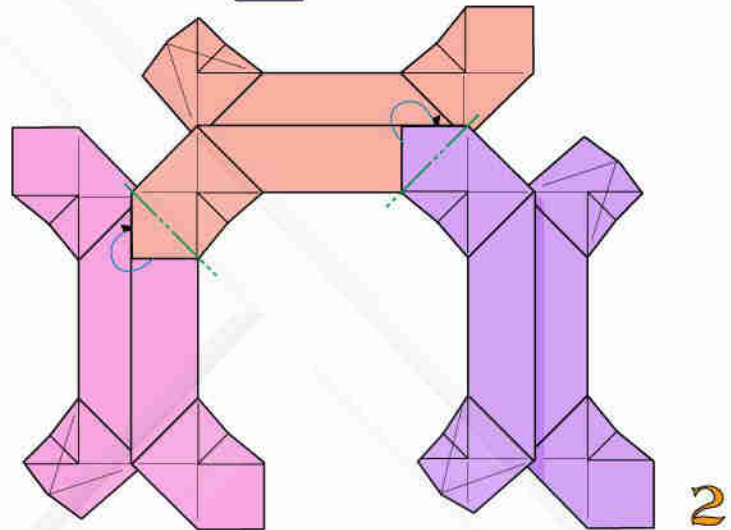
Semipiastra 3D-2 ultimata

REALIZZAZIONE DI UNA TASSELLAZIONE IN RILIEVO

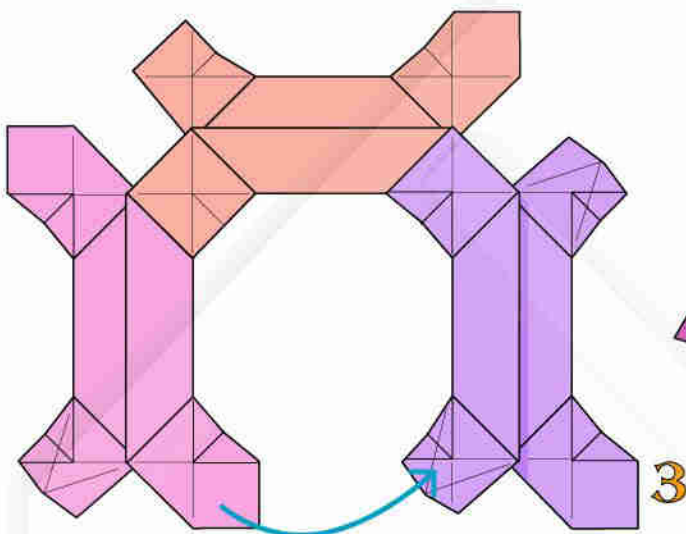


1

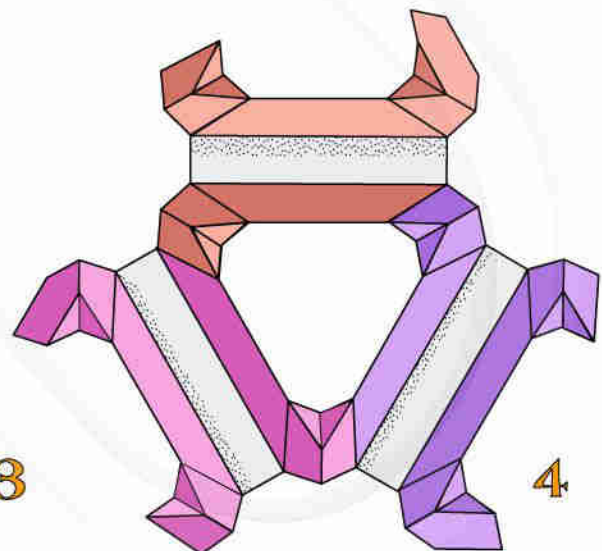
Unire e bloccare 3
moduli nel solito modo



2

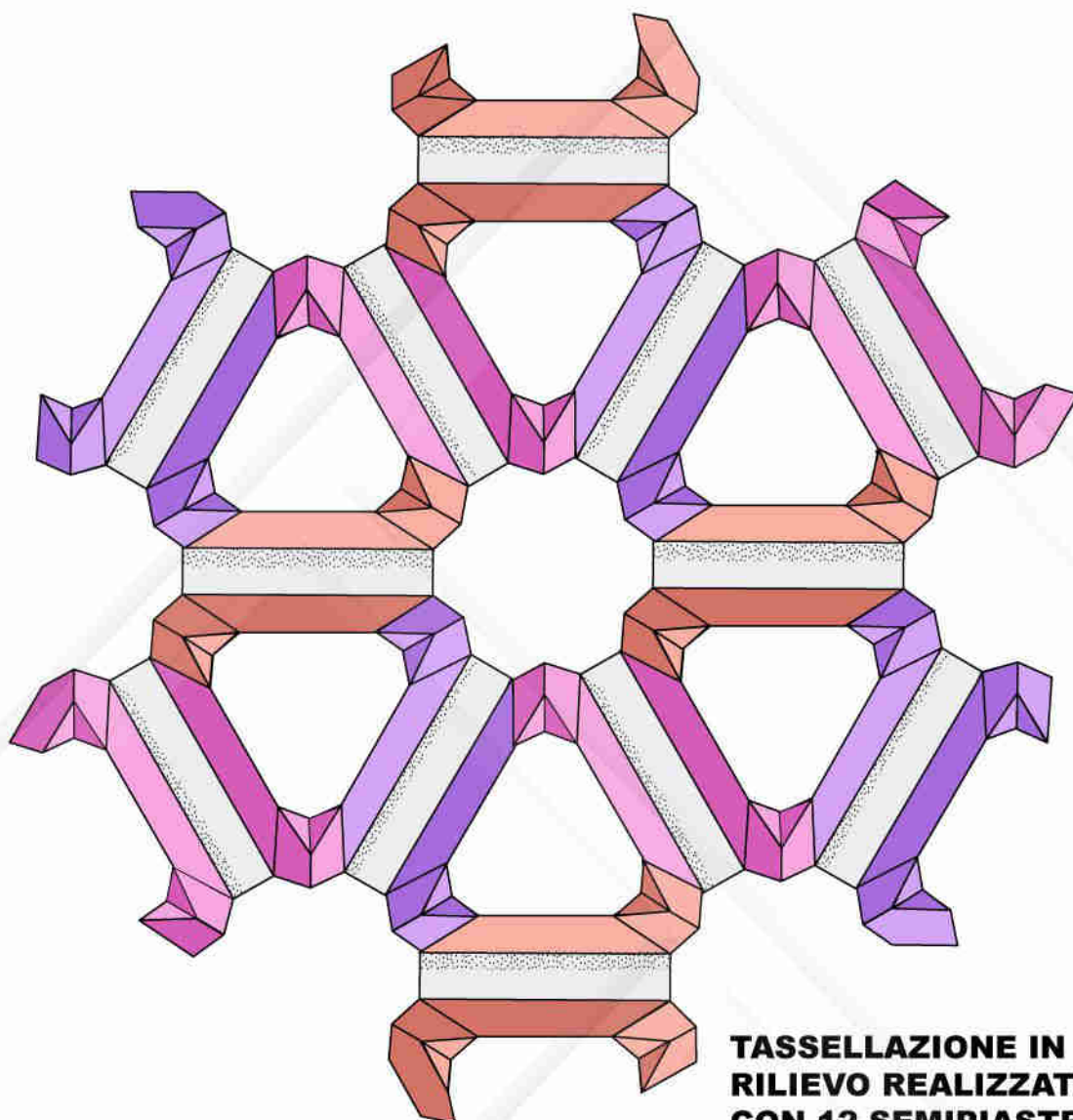


3



4

Unione completata



TASSELLAZIONE IN RILIEVO REALIZZATA CON 12 SEMIPIASTRE 3D-2

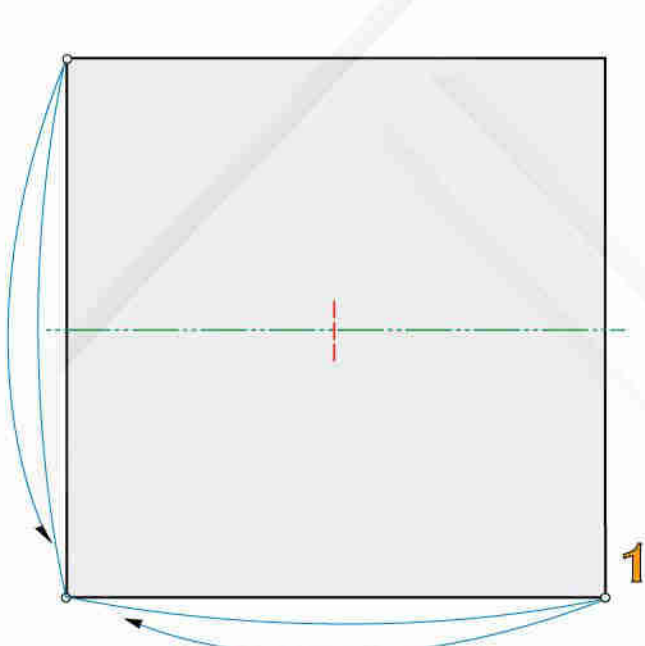


ICOSAEDRO REALIZZATO UNENDO 5 MODULI PER OGNI VERTICE. SOLIDO PLATONICO CON 20 FACCE TRIANGOLARI E 30 SPIGOLI SEMIPIASTRA 3D-2

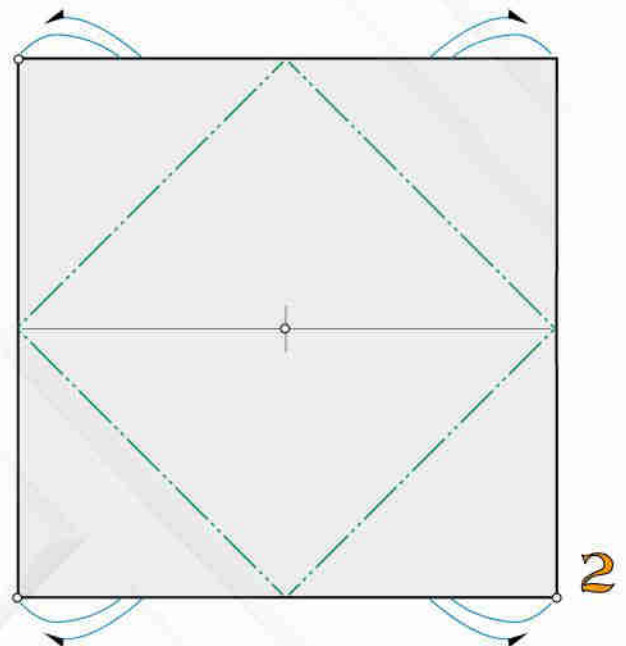
30 fogli carta quadrata bicolore robusta

Semipiastra 3D-3

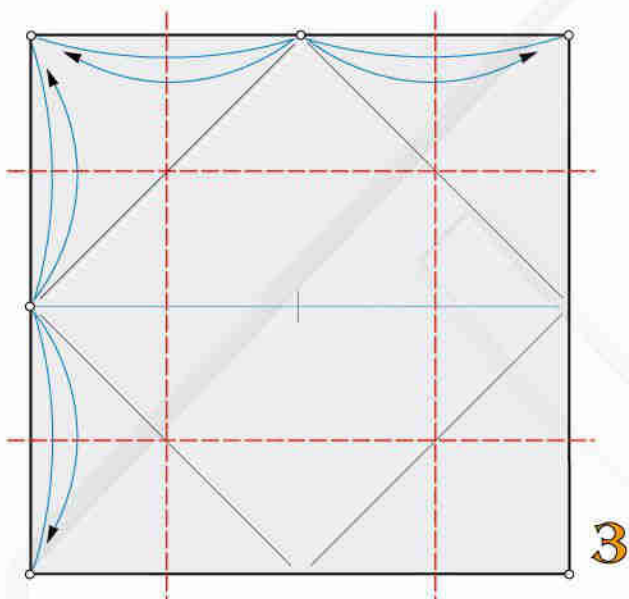
Modulo laborioso indicato per la realizzazione di tassellazioni in rilievo e poliedri



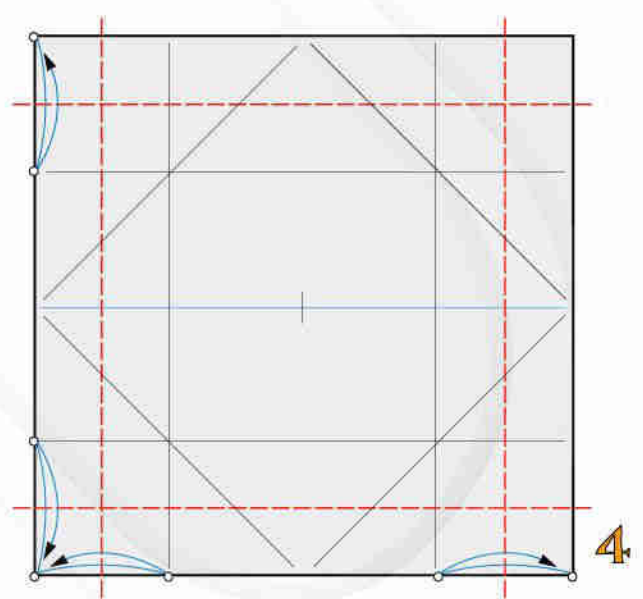
1 piccola piega a valle ed 1 a monte



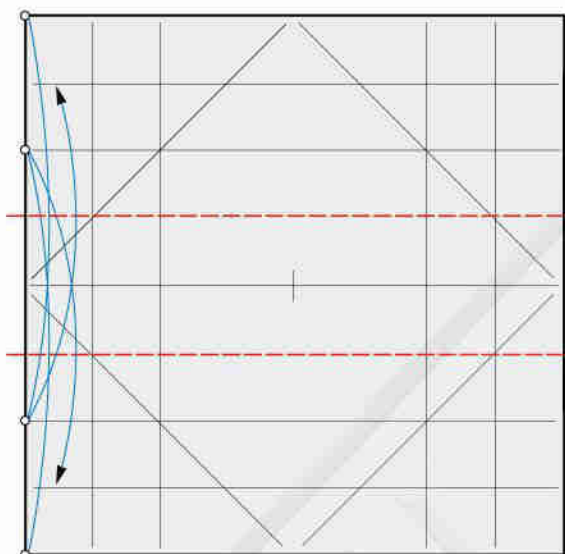
4 pieghe a monte



4 pieghe a valle

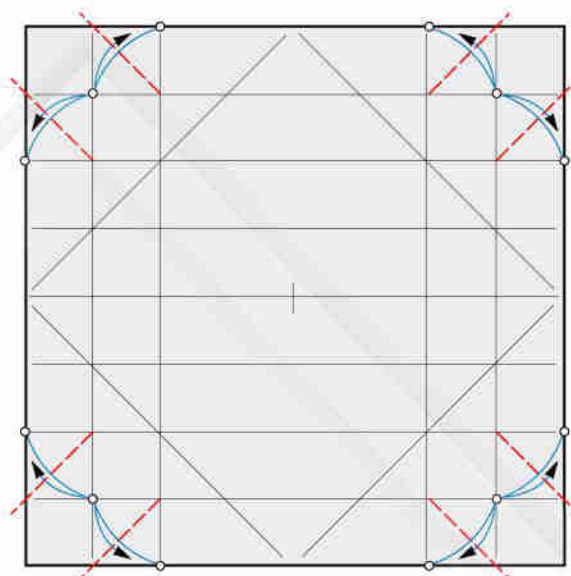


4 pieghe a valle



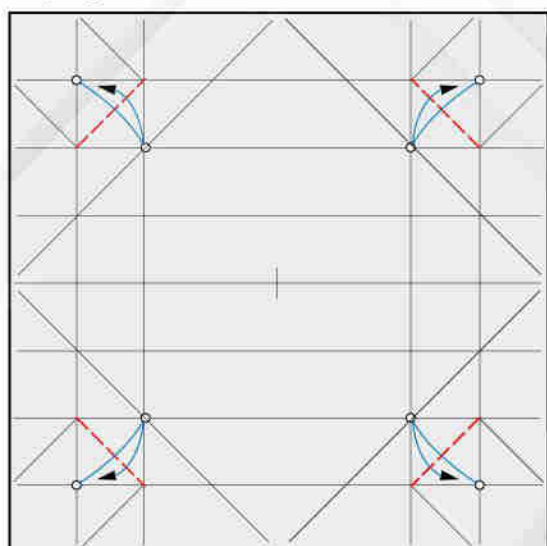
5

2 pieghe a valle



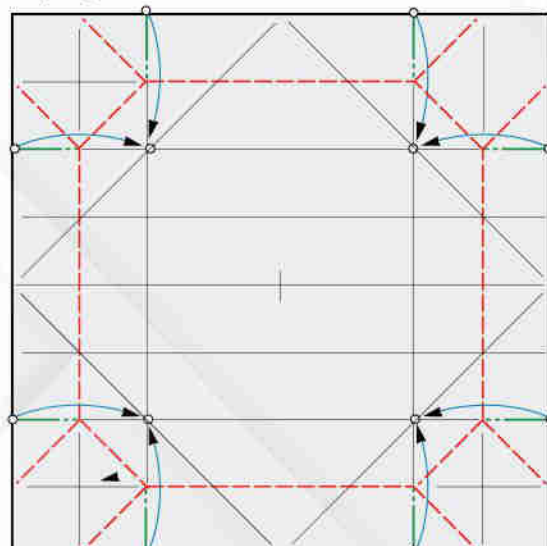
6

8 pieghe a valle



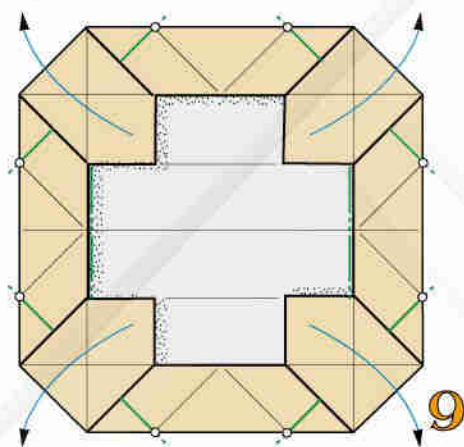
7

4 pieghe a valle



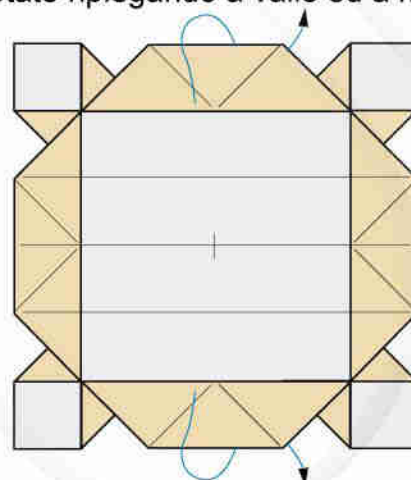
8

Ruotate ripiegando a valle ed a monte



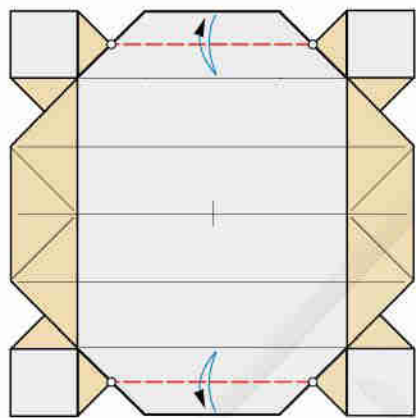
9

4 pieghe a monte e ruotate



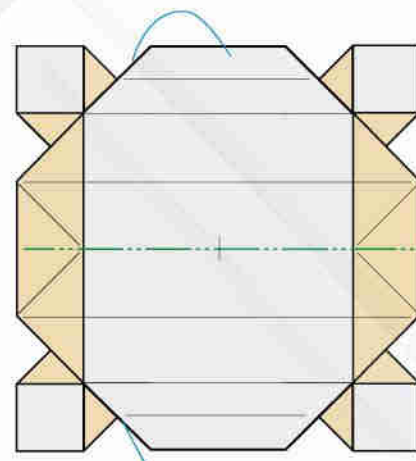
10

Rovesciate all'esterno le 2 superfici trapezoidali.
È necessario aprire il modello per agevolare l'operazione



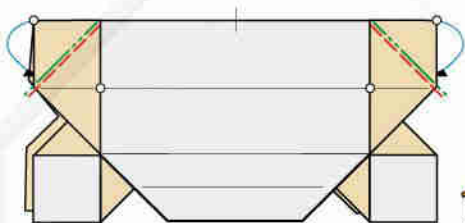
11

2 pieghe a valle



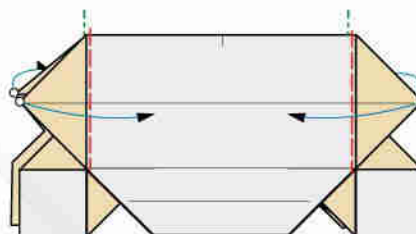
12

Ruotate ripiegando a monte



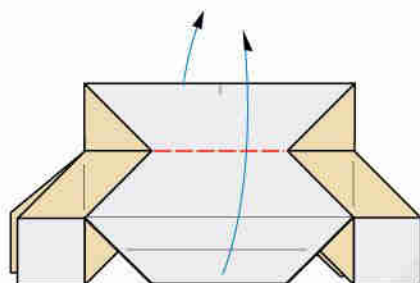
13

2 pieghe rovesce interne



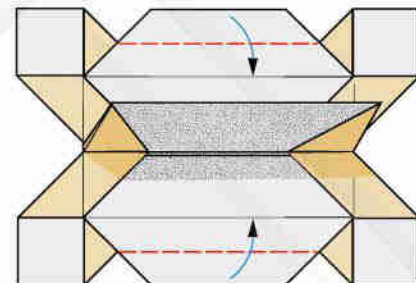
14

Ruotate i 4 vertici indicati ripiegando a valle



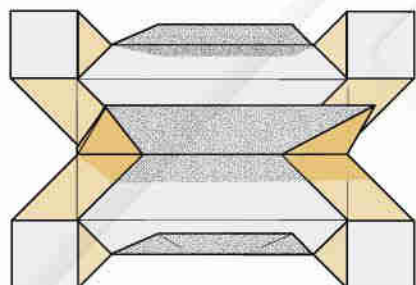
15

Aprite 3D ripiegando a valle



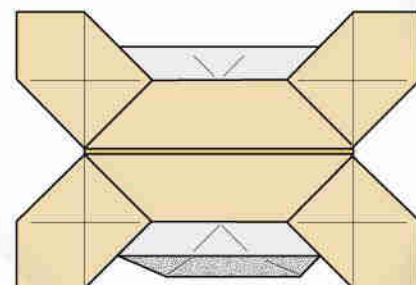
16

2 pieghe a valle e ruotate 90%

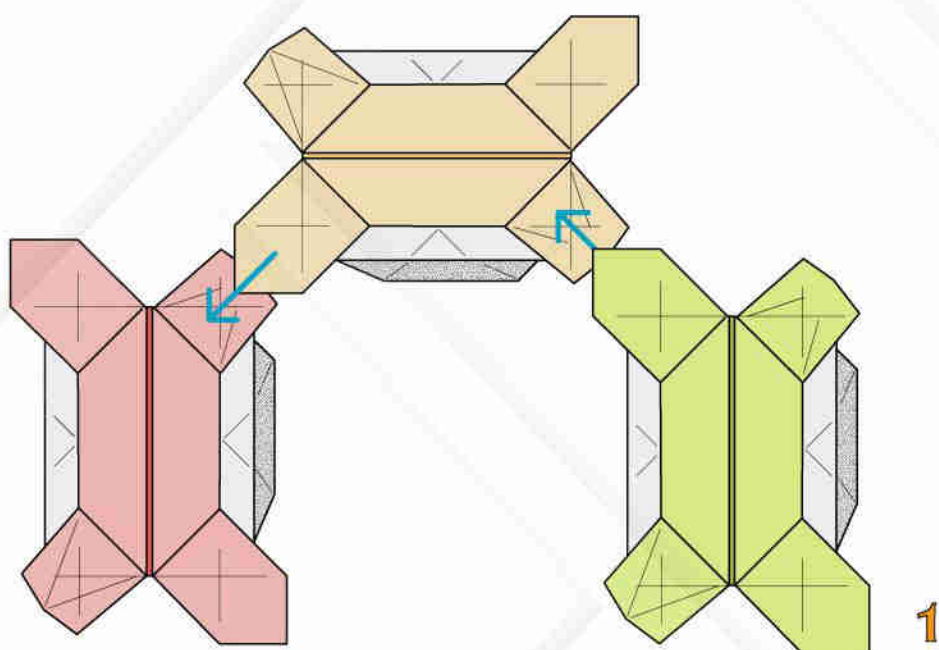


17

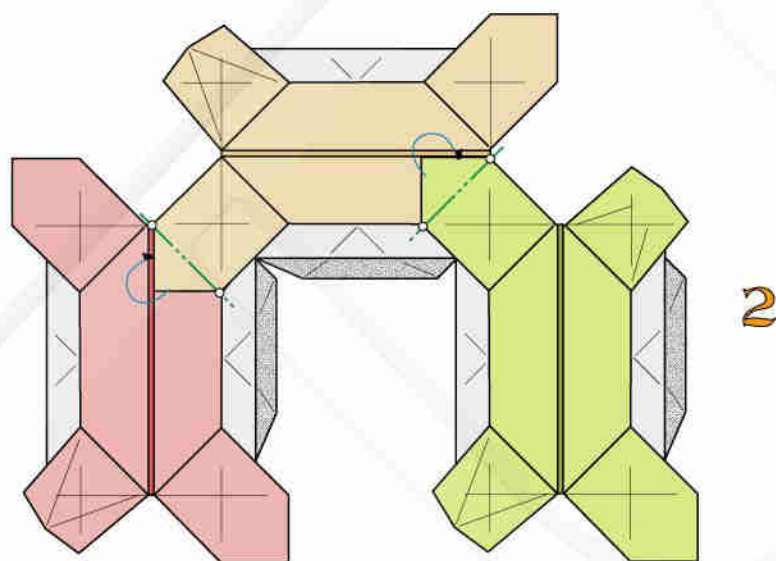
Modulo semipiastra 3D-3 ultimato

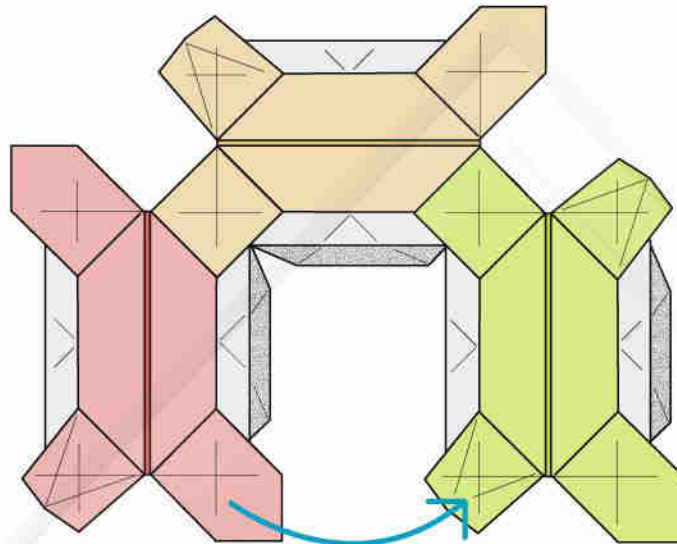


REALIZZAZIONE DI UN POLIEDRO (ICOSAEDRO)



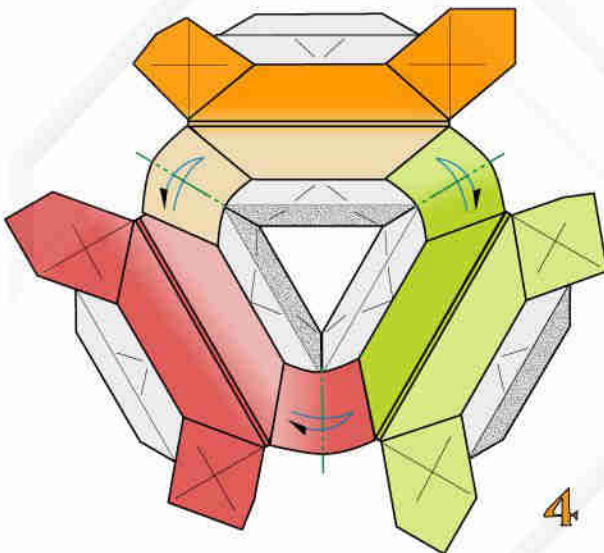
Unire e bloccare 3
moduli nel solito modo





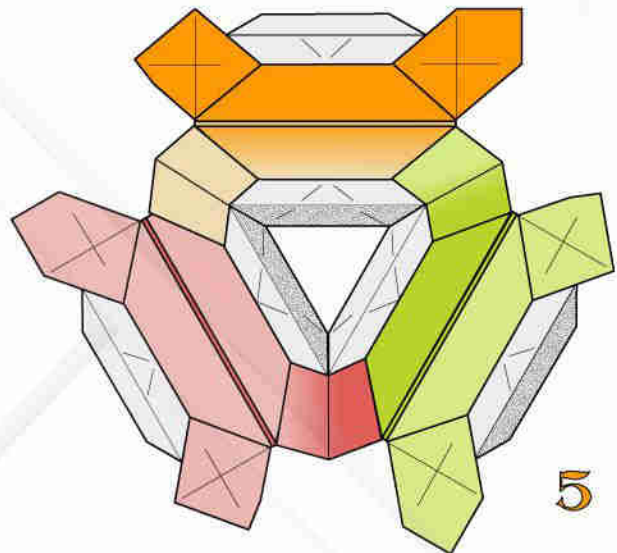
Unione dei 3 moduli
nel solito modo

3



3 pieghe a monte

4



Unione di 3 moduli completata

5

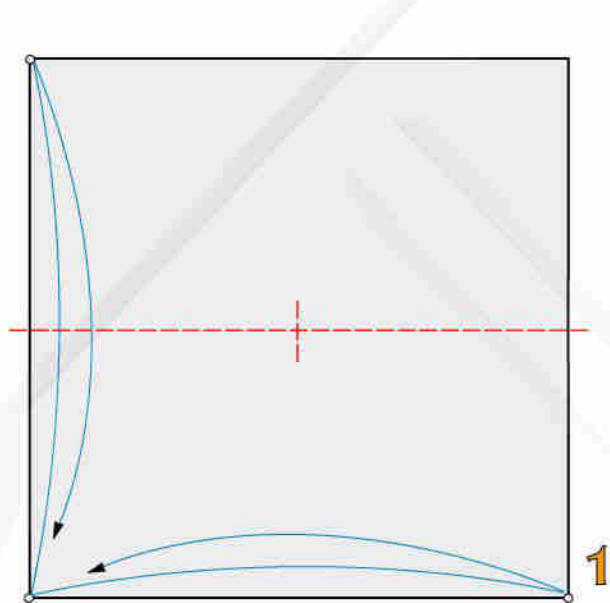


**ICOSAEDRO REALIZZATO
UNENDO 5 MODULI PER
OGNI VERTICE.
SOLIDO PLATONICO CON 20
FACCE TRIANGOLARI E 30
SPIGOLI SEMIPIASTRA "3D-3"**

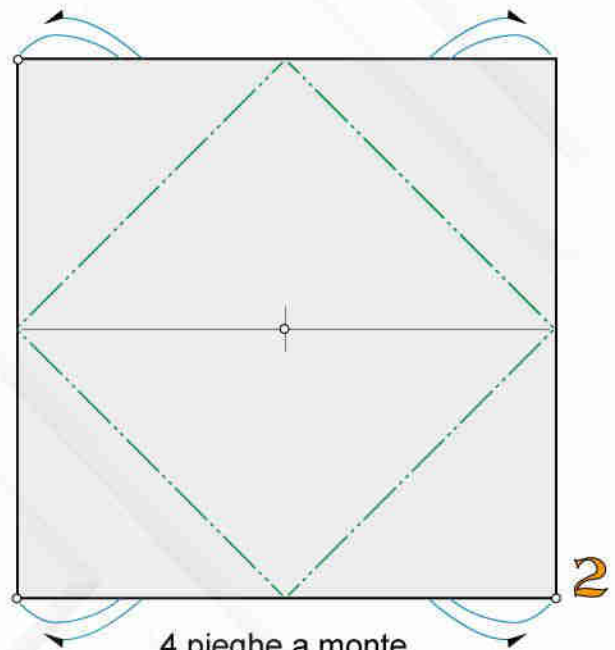
**30 fogli carta quadrata
bicolore robusta**

Semipiastra 3D-4

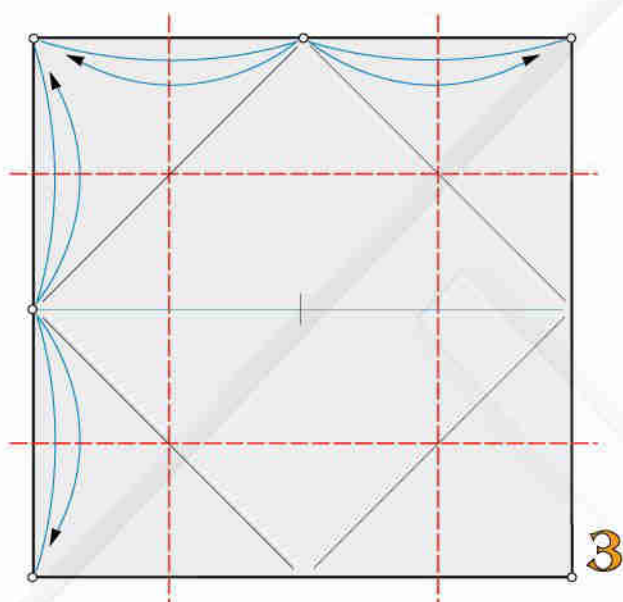
Modulo di complessa realizzazione indicato soprattutto per la costruzione di poliedri



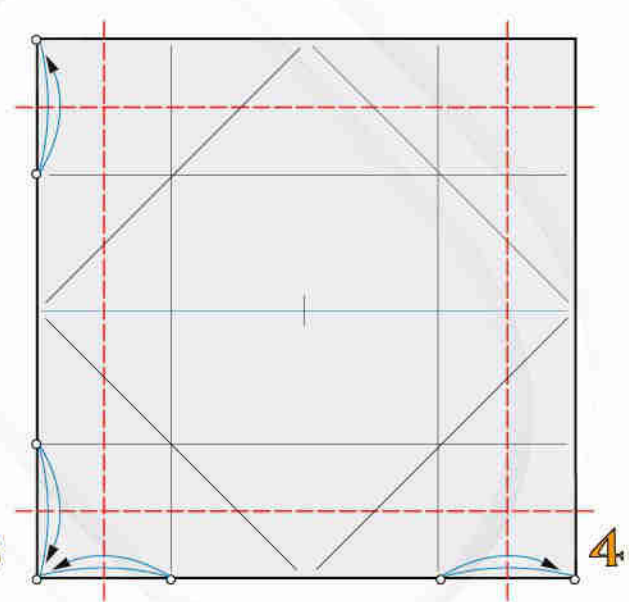
2 pieghe a valle



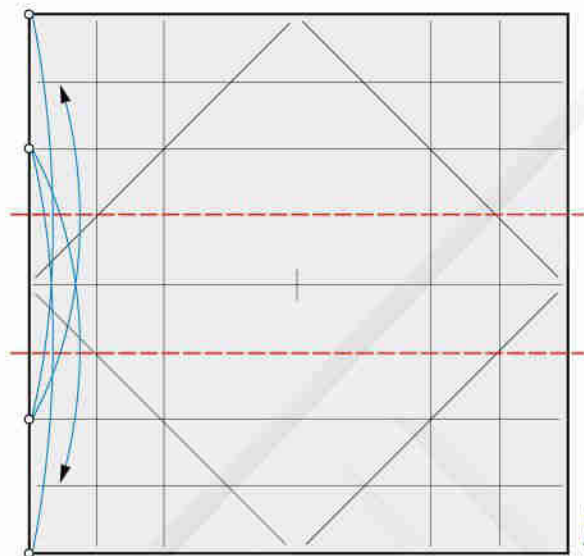
4 pieghe a monte



4 pieghe a valle

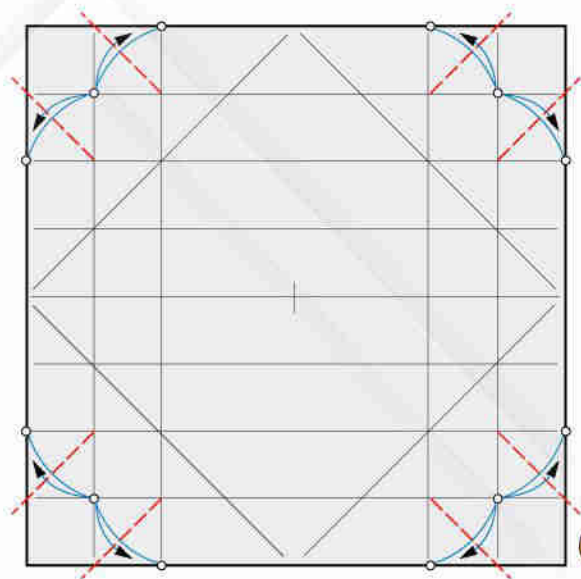


4 pieghe a valle



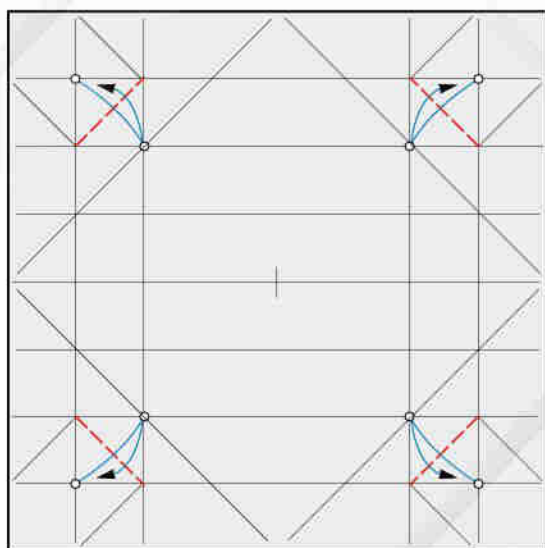
5

2 pieghe a valle



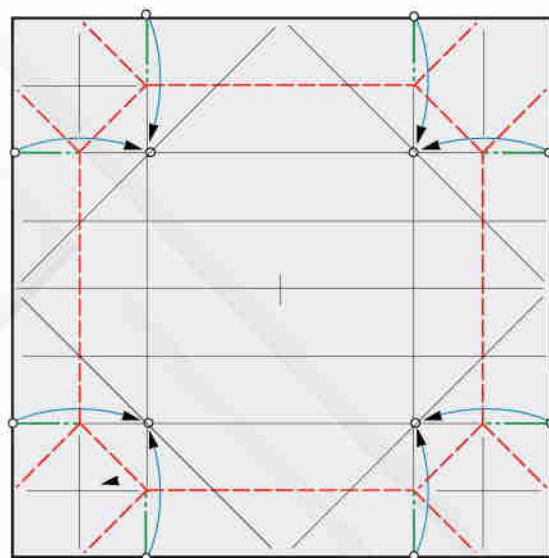
6

8 pieghe a valle



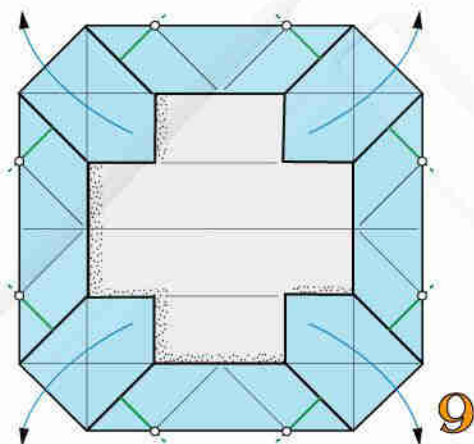
7

4 pieghe a valle



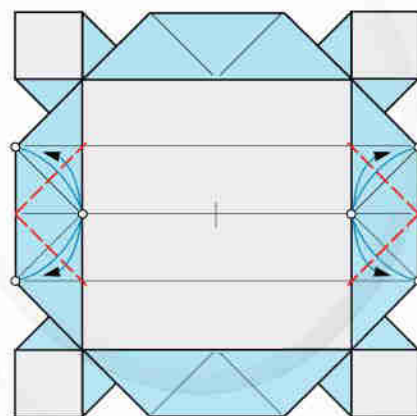
8

Ruotate ripiegando a valle ed a monte



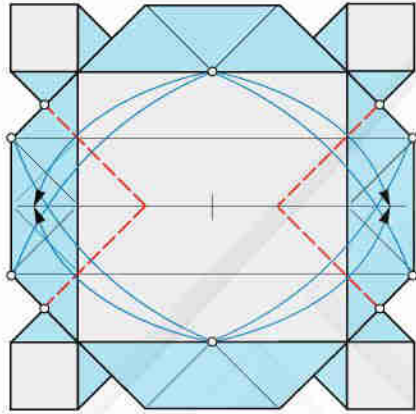
9

4 pieghe a monte e ruotate



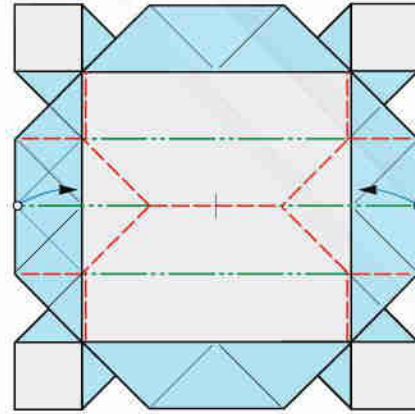
10

4 pieghe a valle



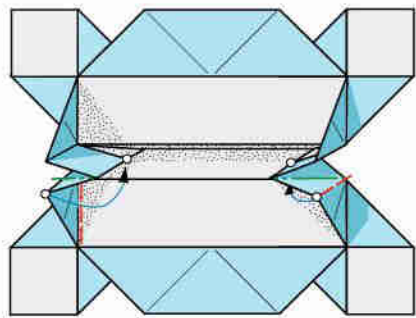
11

4 pieghe a valle



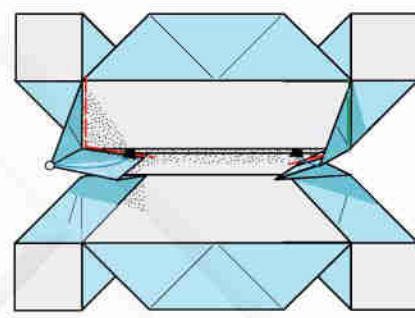
12

4 pieghe a valle e richiudete 3D



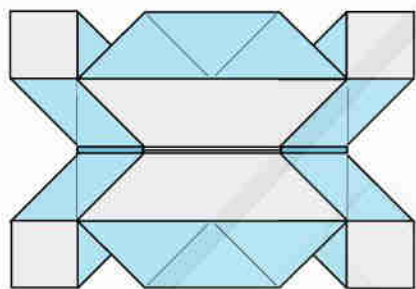
13

Piegando a monte ruotate i vertici indicati



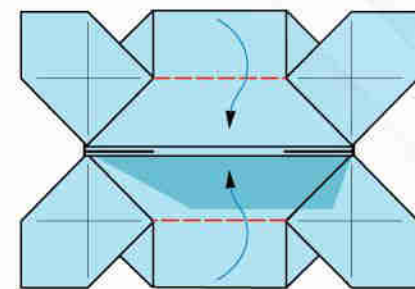
14

Piegando a valle ruotate ed intascate i vertici indicati



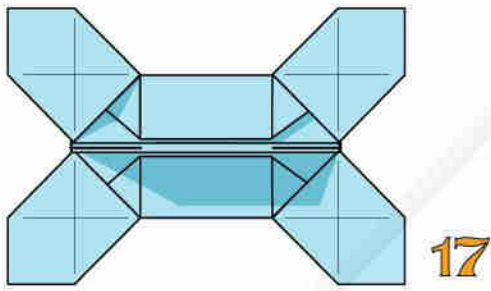
15

Ribaltate



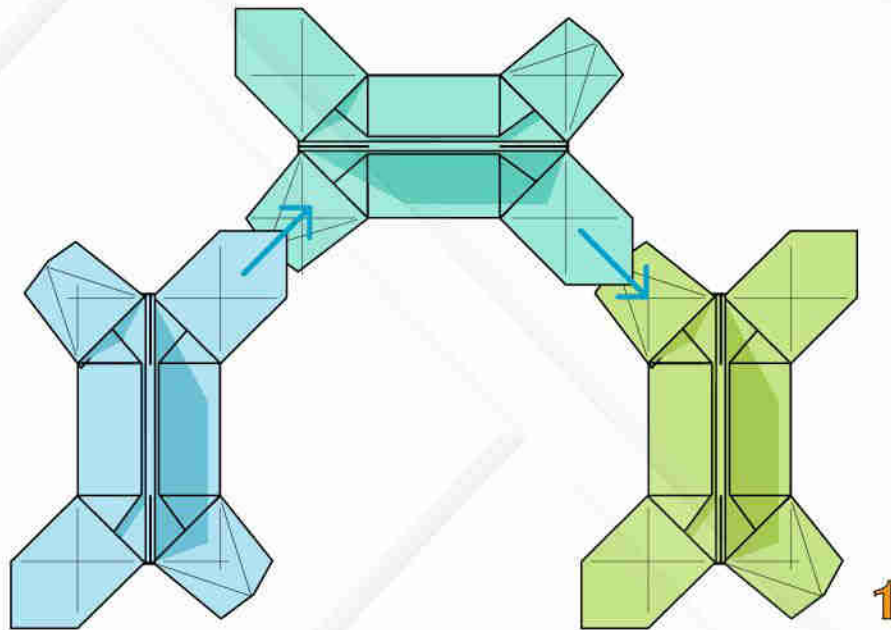
16

2 pieghe rovesce interne



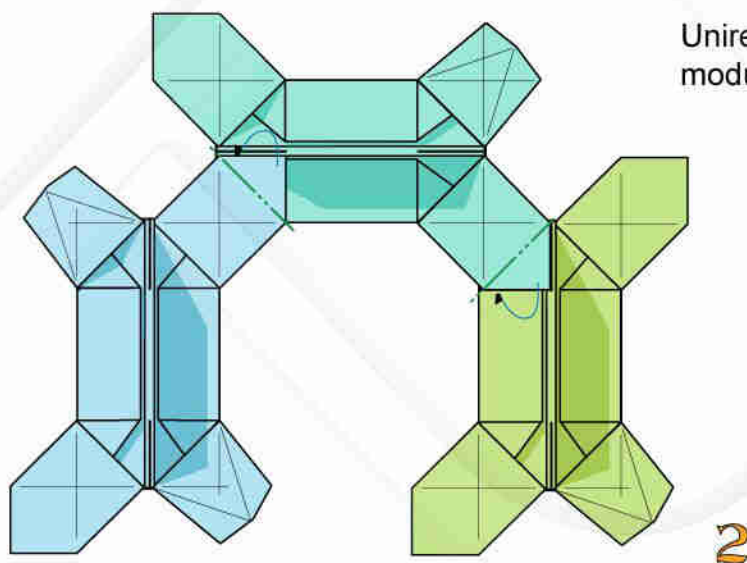
Mezza piastra 3D-4 ultimata

REALIZZAZIONE DI UN POLIEDRO (ICOSAEDRO)

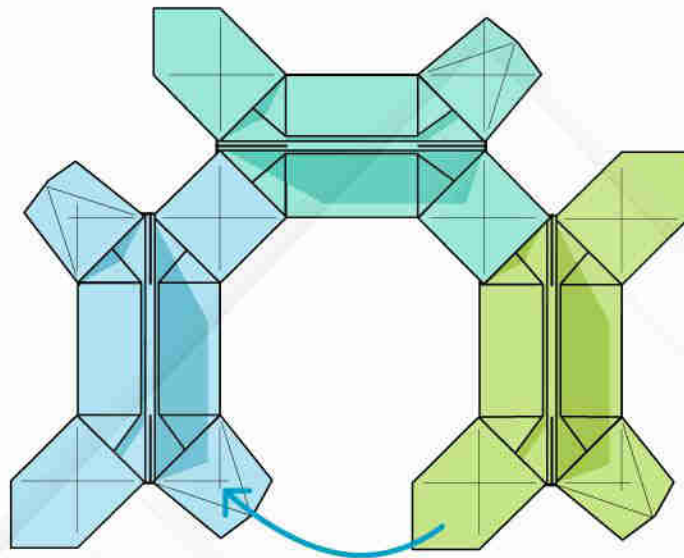


1

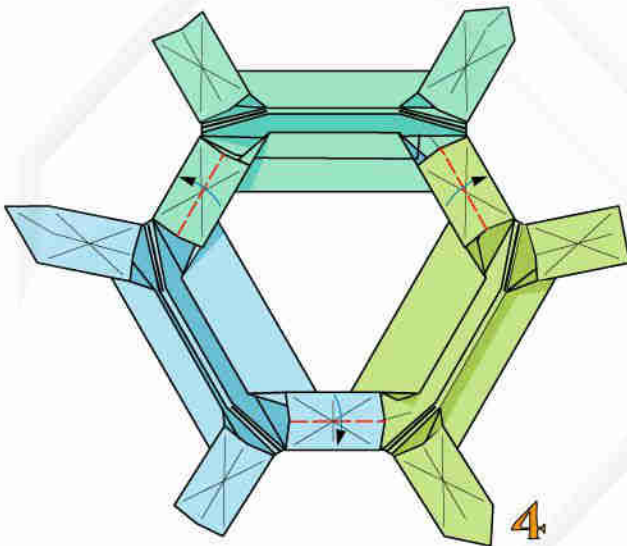
Unire e bloccare 3
moduli nel solito modo



2

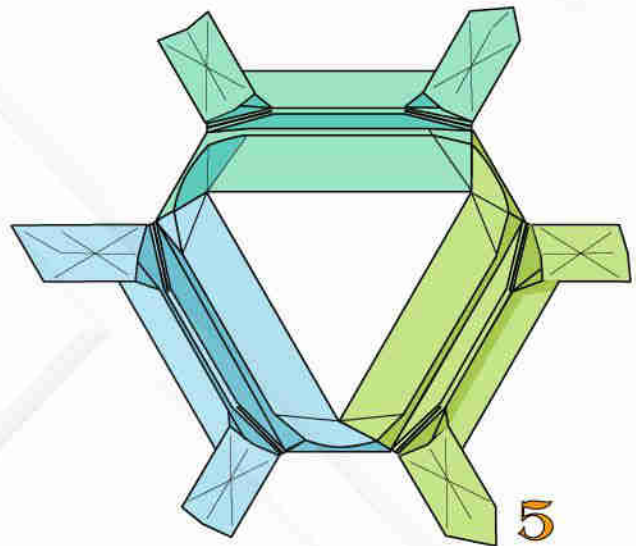


3



4

3 pieghe a valle e ruotate



5

Unione completata

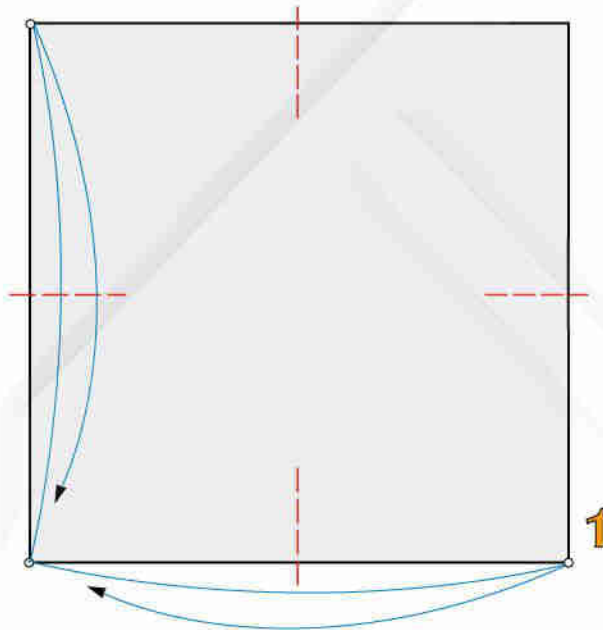


**ICOSAEDRO REALIZZATO
UNENDO 5 MODULI PER
OGNI VERTICE.
SOLIDO PLATONICO CON 20
FACCE TRIANGOLARI E 30
SPIGOLI SEMIPIASTRA "3D-4"**

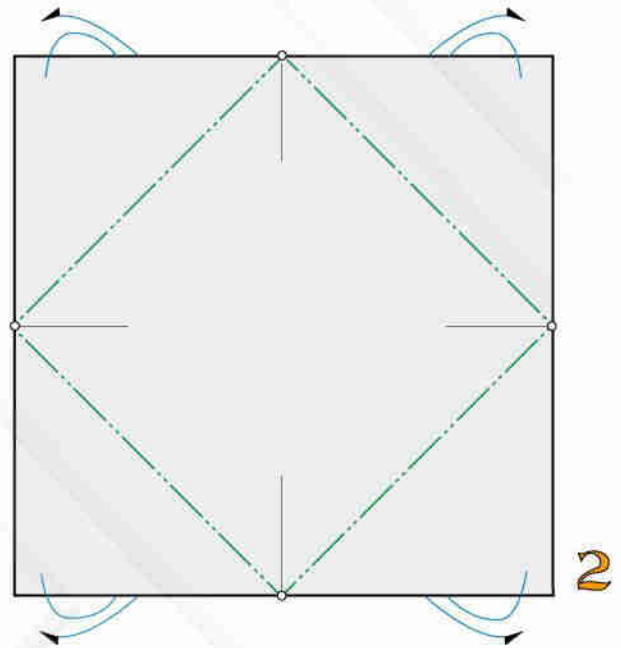
**30 fogli carta quadrata
monocolore robusta**

Asta

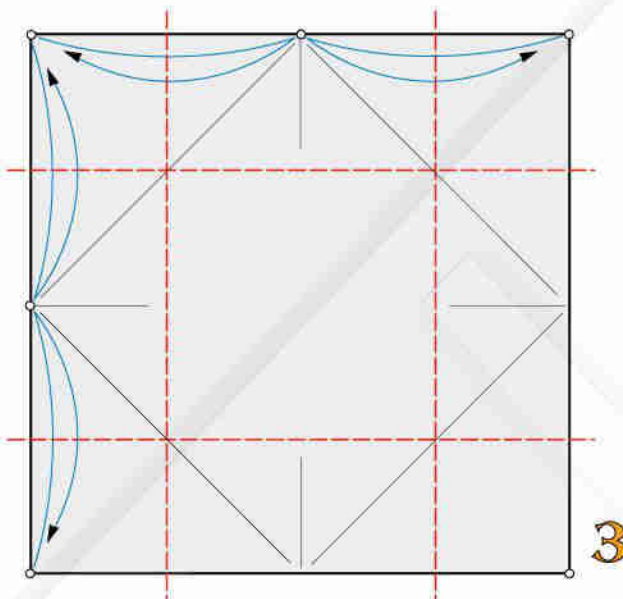
Le aste sono semplici elementi rettilinei dotati solamente di 2 appendici d'aggancio alle estremità. Adoperate carta di medio peso o leggera.



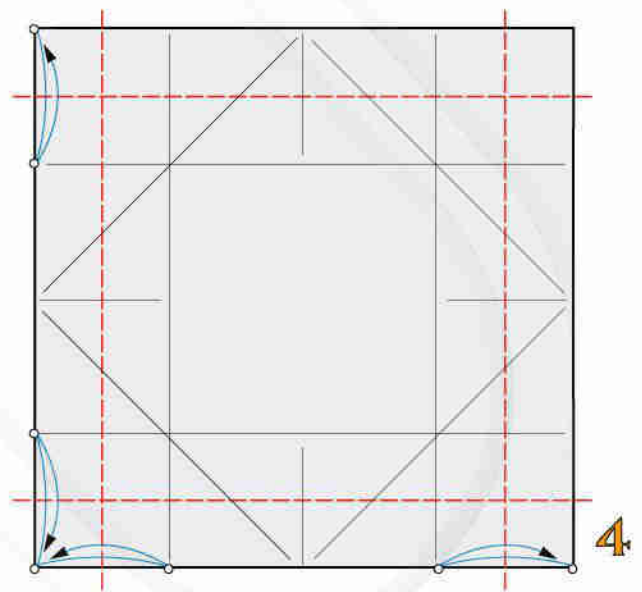
4 pieghe a valle



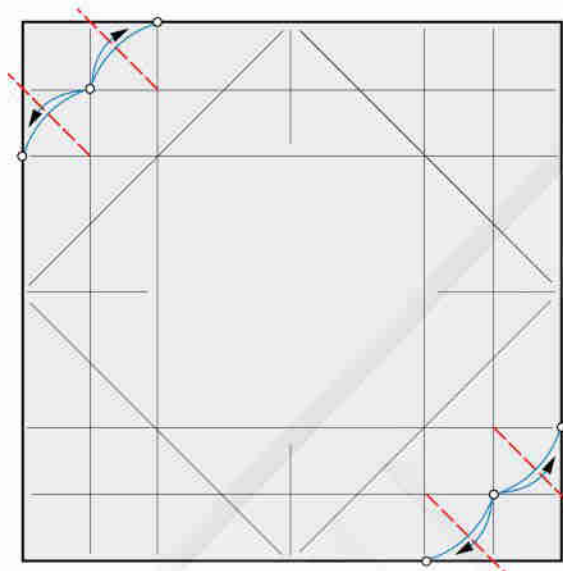
4 pieghe a monte



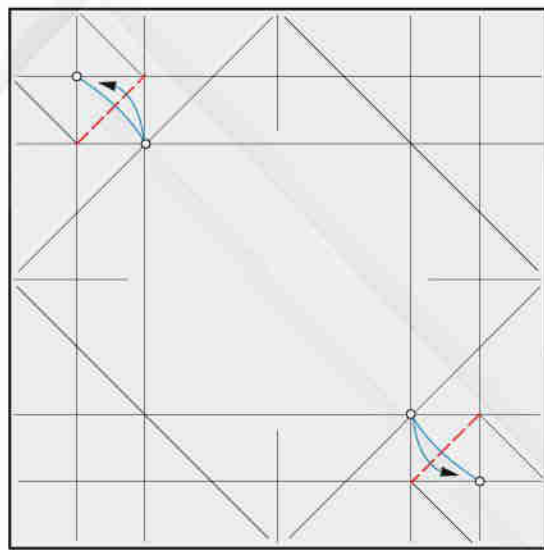
4 pieghe a valle



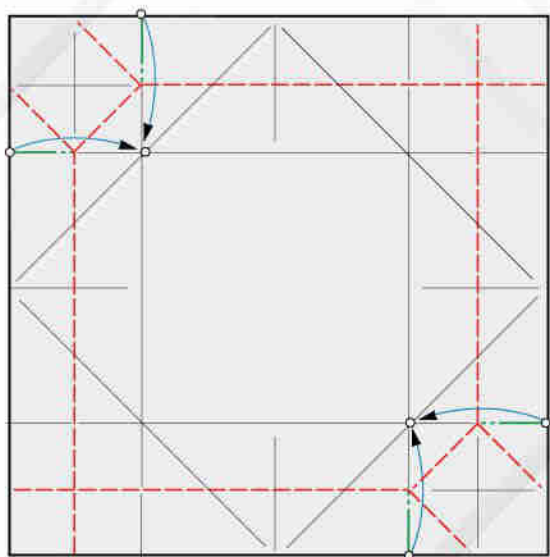
4 pieghe a valle



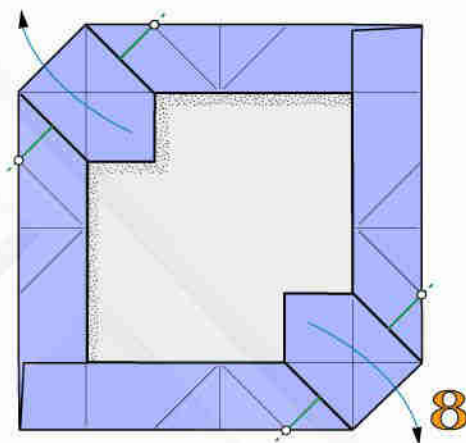
4 pieghe a valle



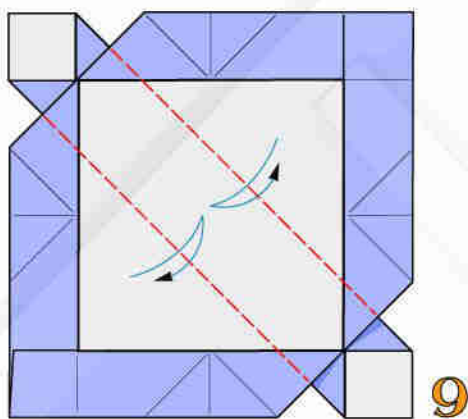
2 pieghe a valle



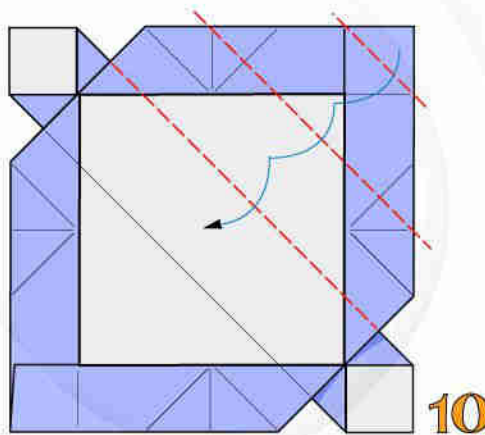
Ruotate ripiegando a valle ed a monte



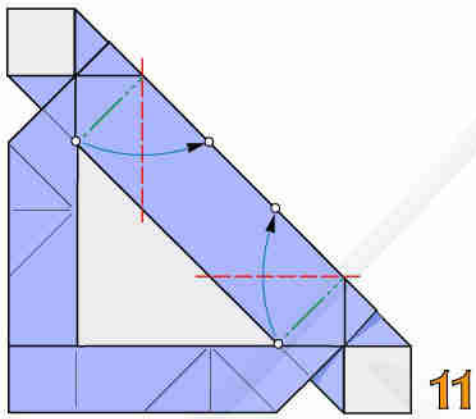
2 pieghe a monte e ruotate



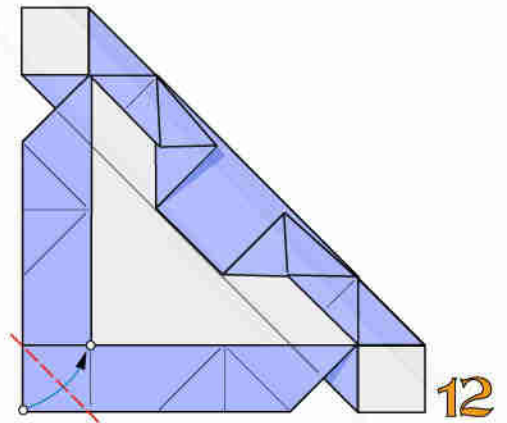
2 pieghe a valle



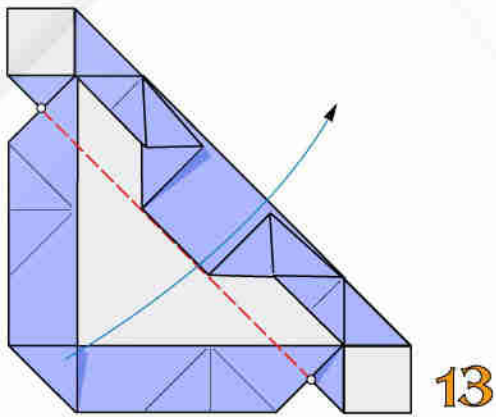
3 pieghe a valle in successione e ruotate



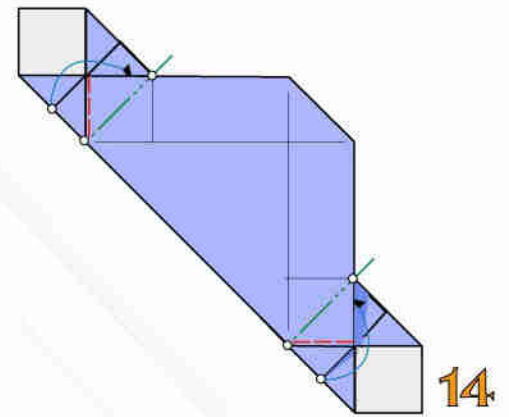
2 pieghe a valle, 2 a monte e ruotate



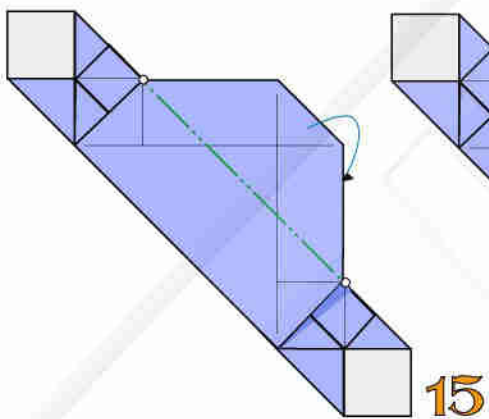
1 piega a valle e ruotate



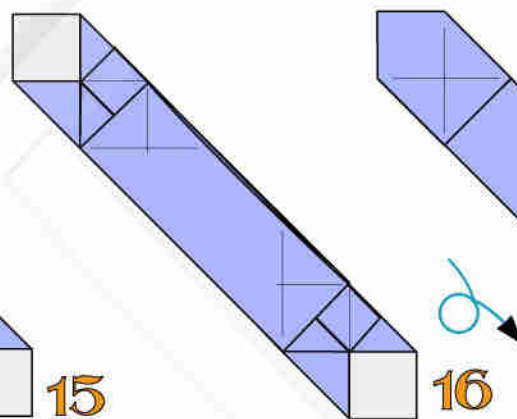
1 piega a valle e ruotate



2 pieghe a valle, 2 a monte e ruotate all'interno

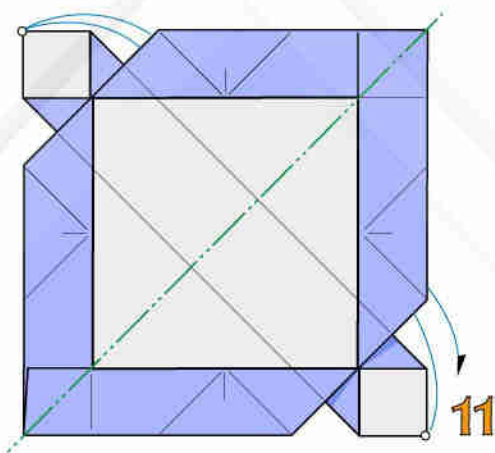


1 piega a monte ed intascate bloccando il modello

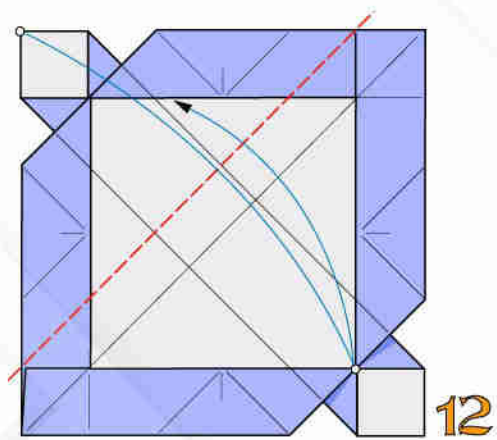


Asta ultimata.

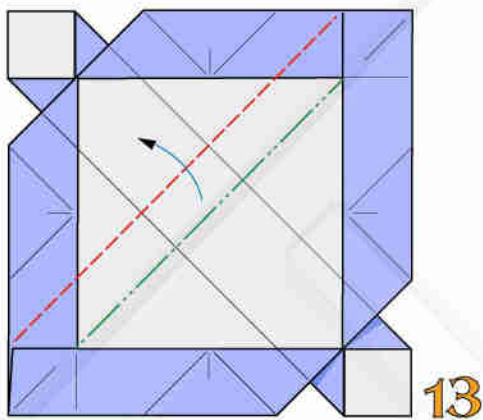
Asta 4/5



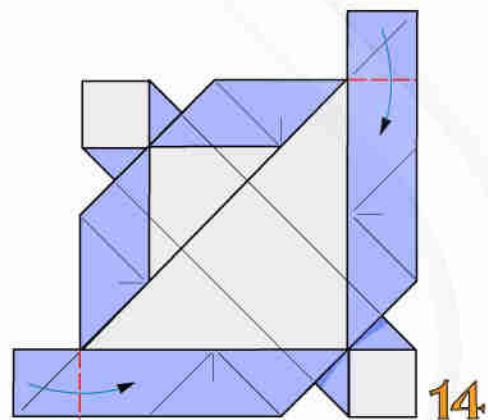
Partite dalla fig. n. 10 di "Asta".
1 piega a monte



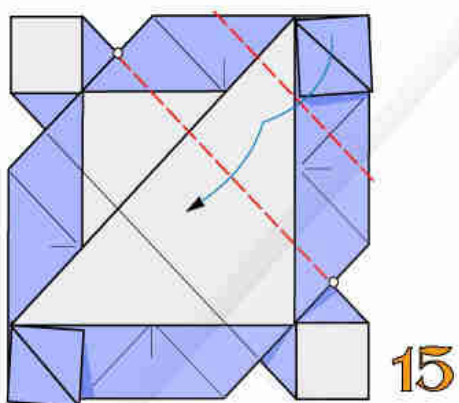
1 piega a valle



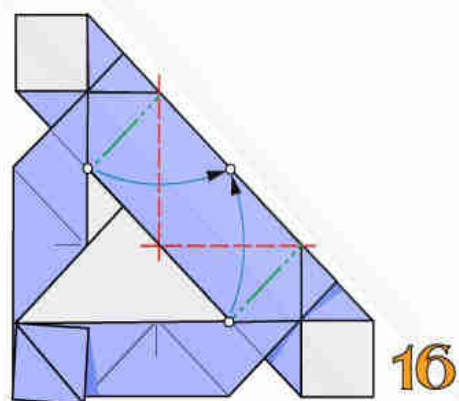
Ruotate ripiegando a valle
ed a monte



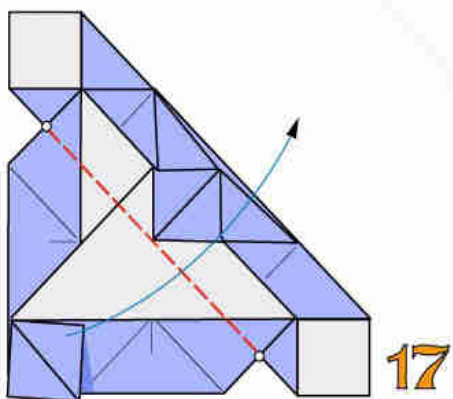
2 pieghe a valle e ruotate



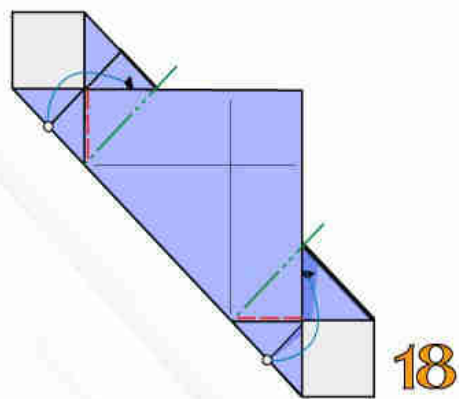
2 pieghe a valle in successione e ruotate



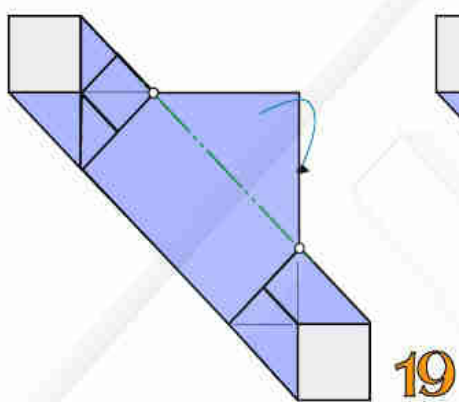
2 pieghe a valle, 2 a monte e ruotate



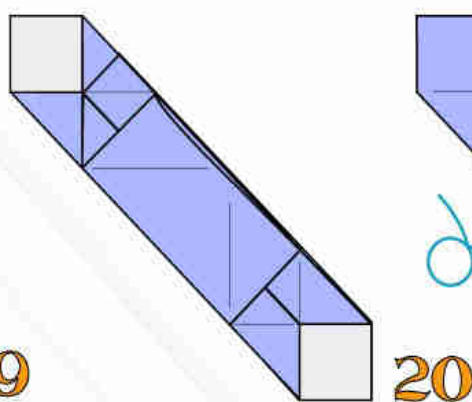
1 piega a valle e ruotate



2 pieghe a valle, 2 a monte e ruotate all'interno

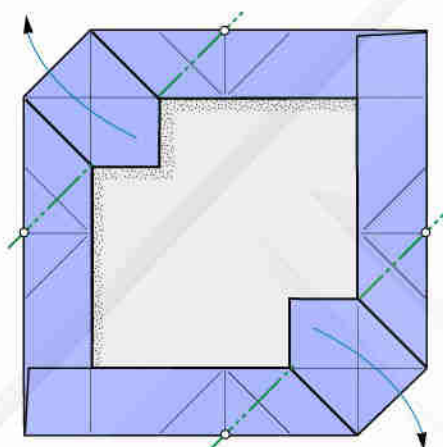


1 piega a monte ed intascate bloccando il modello



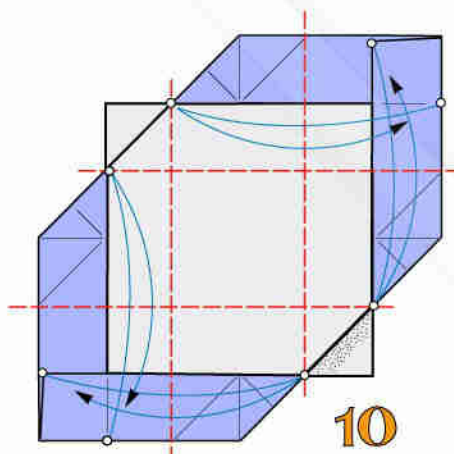
Asta 4/5 ultimata.

Asta 3/5A



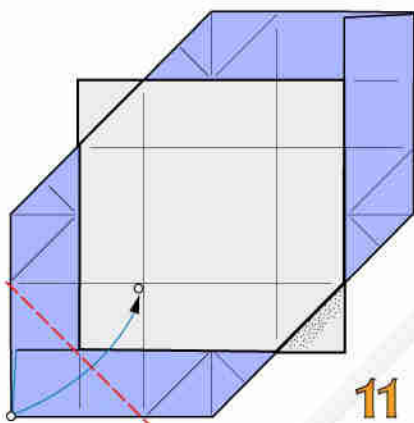
9

Partite dalla fig.n. 8 di "Asta".
2 pieghe a monte e ruotate



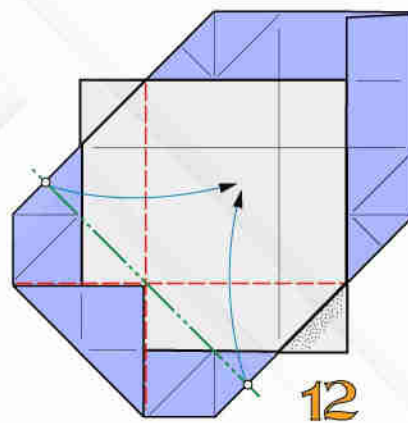
10

4 pieghe a valle



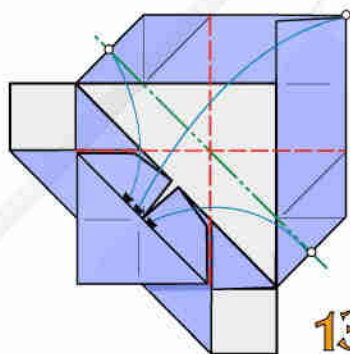
11

1 piega a valle e ruotate



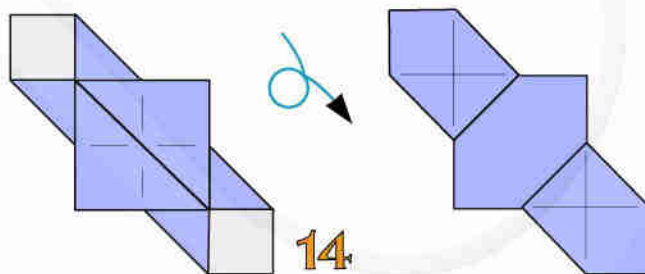
12

1 piega a monte e ruotate
ripiegando a valle



13

1 piega a monte e intascate
tutto ripiegando a valle

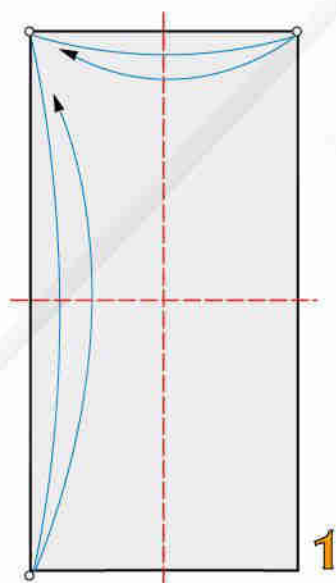


14

Asta 3/5 ultimata.

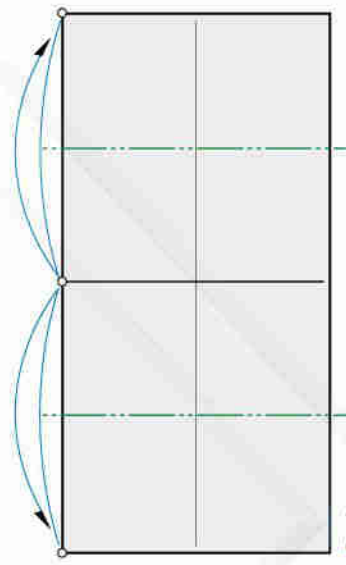
Asta 3/5B

Si dimezza il quadrato di partenza. Costruzione piuttosto difficoltosa.



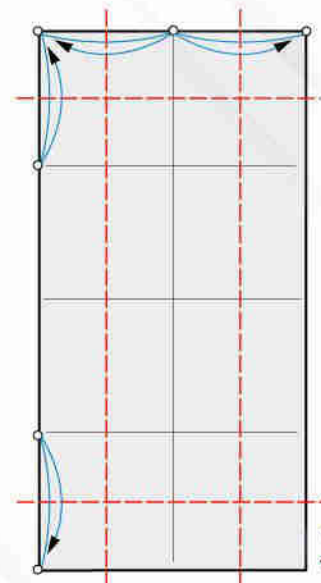
2 pieghe a valle

1



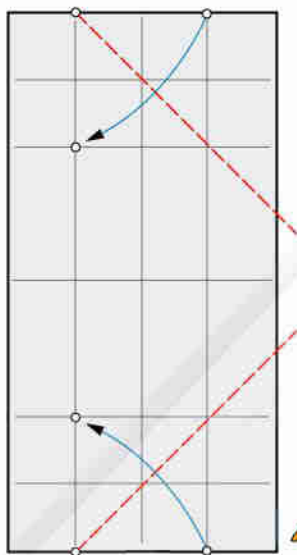
2 pieghe a monte

2



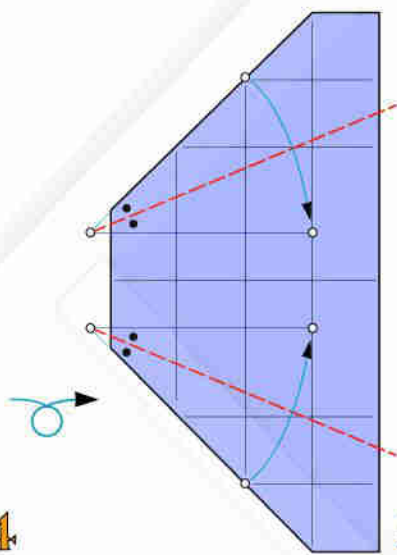
4 pieghe a valle

3



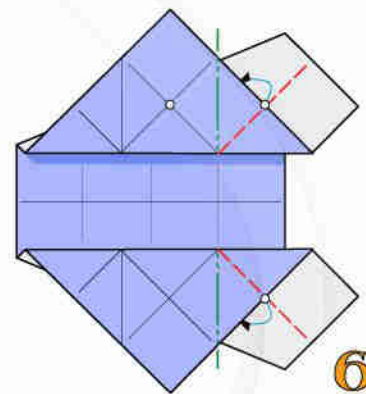
2 pieghe a valle,
ruotatee ribaltate

4



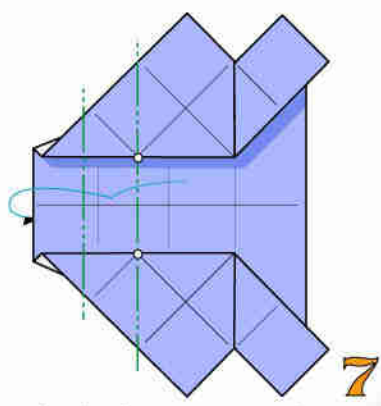
2 pieghe bisettrici
a valle e ruotate

5

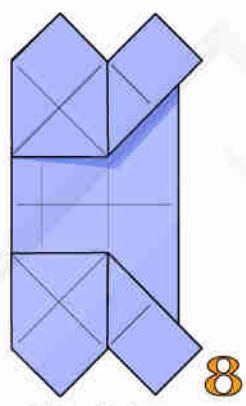


Mediante pieghe a monte
ed a valle rovesciate
all'interno i vertici indicati

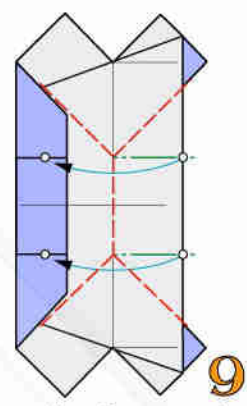
6



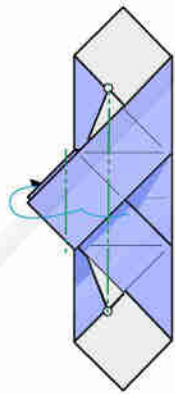
7
2 pieghe a monte in
successione e ruotate



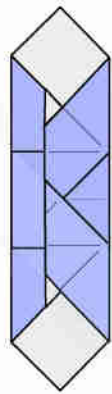
8
Ribaltate



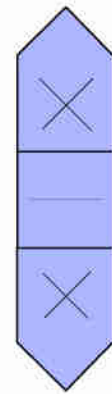
9
5 pieghe a valle, 2 a monte e ruotate
sovrapponendo 2 appendici



10
2 pieghe a monte in successione
e intascate bloccando il modello

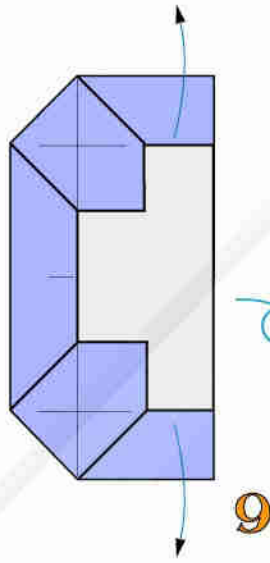


11
Asta 3/5 ultimata.
Ribaltate

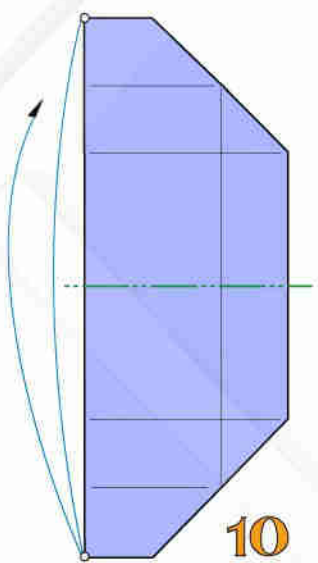


Asta 2/5

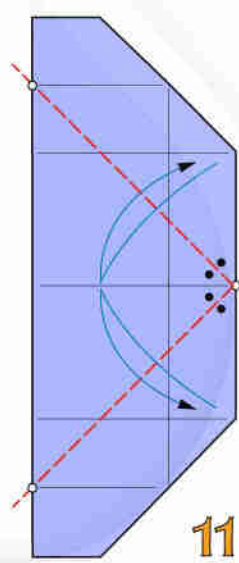
La più piccola delle aste.
Di costruzione un pò difficoltosa.



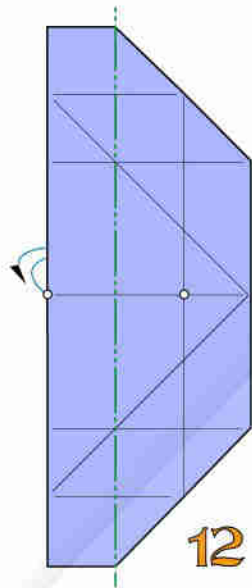
9
Partite dalla fig. n. 8
dell'asta C. Aprite
e ribaltate



10
1 piega a monte

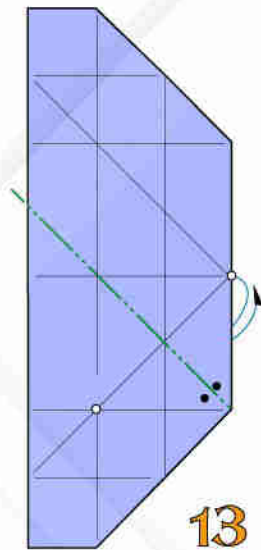


11
2 pieghe bisettrici a valle



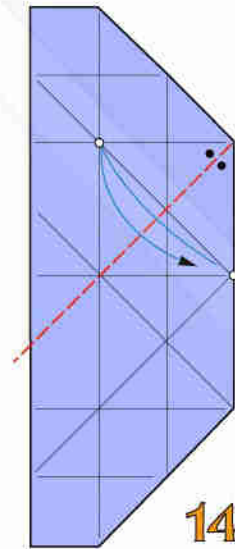
12

1 piega a monte



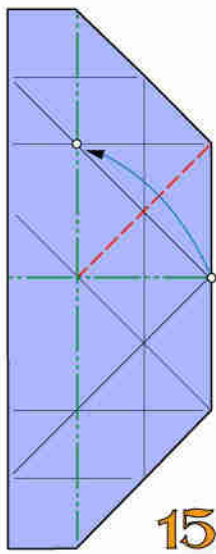
13

1 piega bisettrice a monte



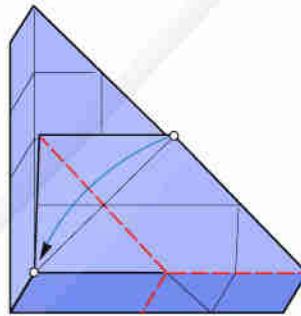
14

1 piega bisettrice a valle



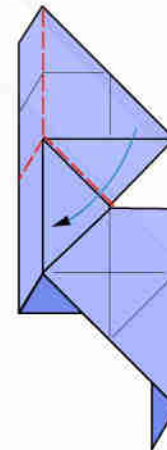
15

Ripiegando a valle ed a monte ruotate 3D



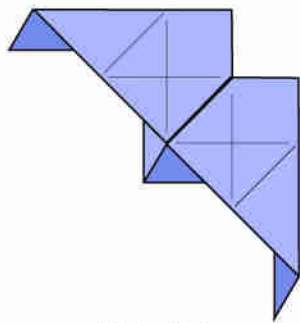
16

1 piega a valle e, ripiegando, ruotate



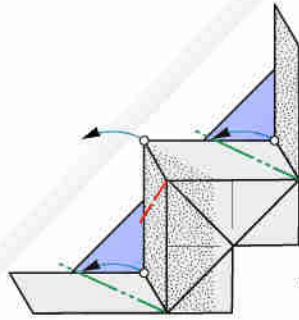
17

1 piega a valle e, ripiegando, ruotate



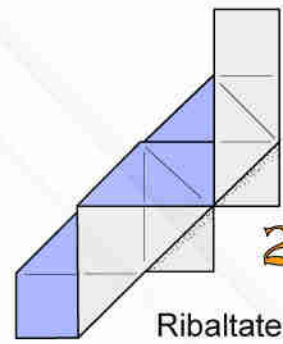
Ribaltate

18



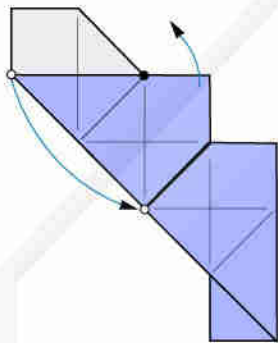
19

2 pieghe a monte, 1 a valle e comprimate 2D



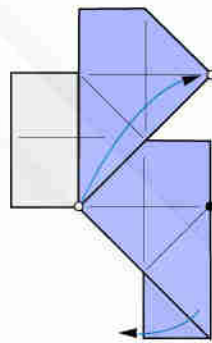
20

Ribaltate



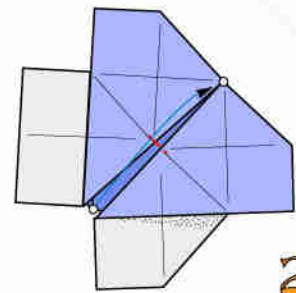
21

Effettuate una rotazione avente come perno il punto nero indicato



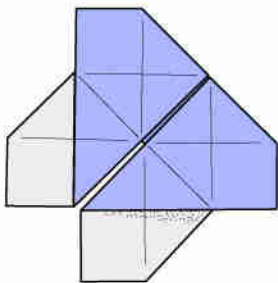
22

Effettuate una rotazione avente come perno il punto nero indicato



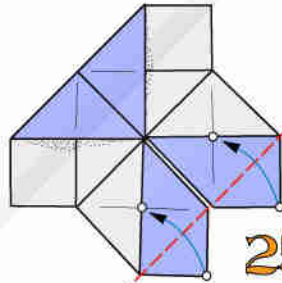
23

Mediante una piega a valle seminascosta ruotate il vertice interno



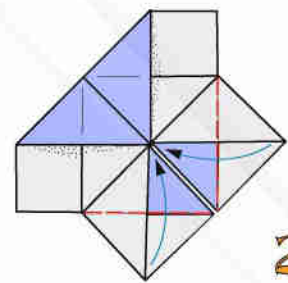
24

Ribaltate



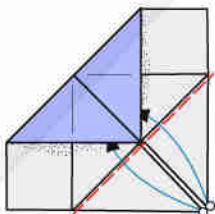
25

2 pieghe a valle e ruotate



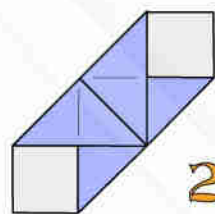
26

2 pieghe a valle e ruotate



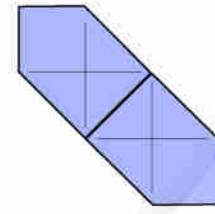
27

2 pieghe a valle e intascate



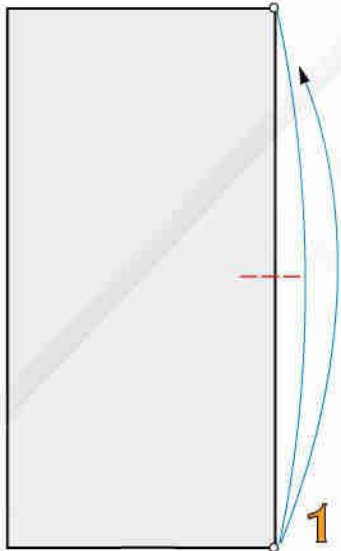
28

Asta 2/5 ultimata.

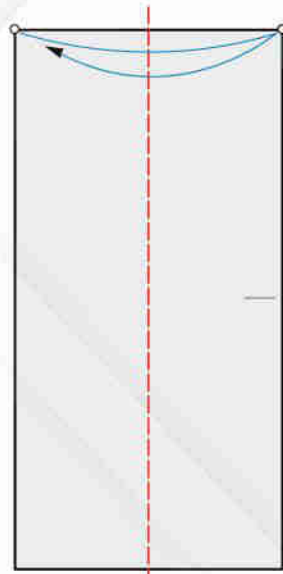


Asta a C

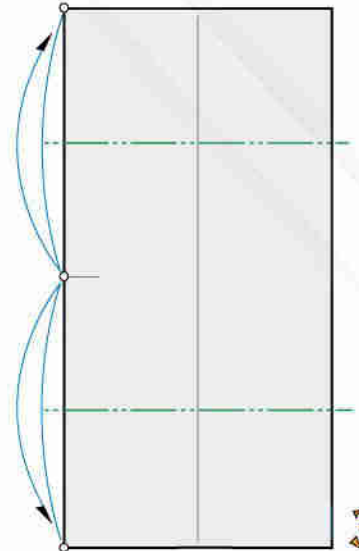
Elemento di fondamentale importanza. Dimezzate il foglio quadrato di partenza.



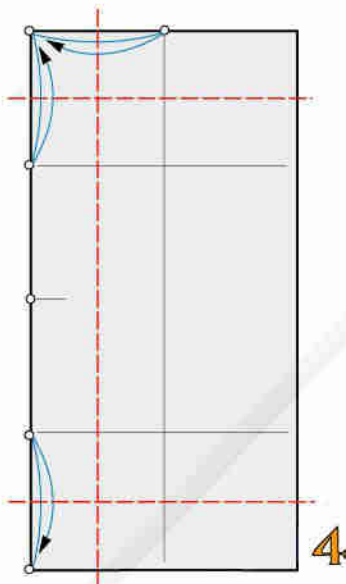
1 piccola piega a valle



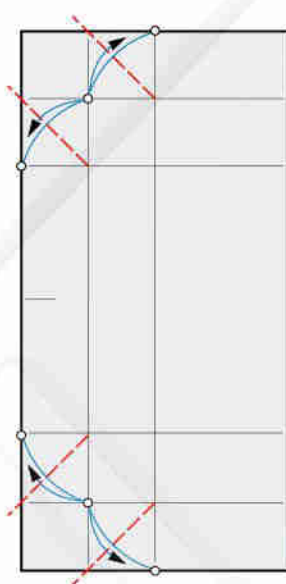
1 piega a valle



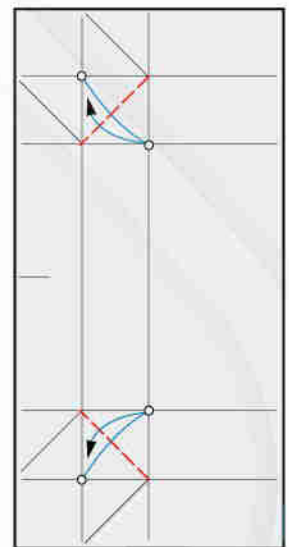
2 pieghe a monte



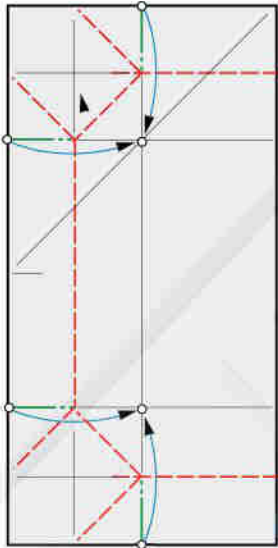
3 pieghe a valle



4 pieghe a valle

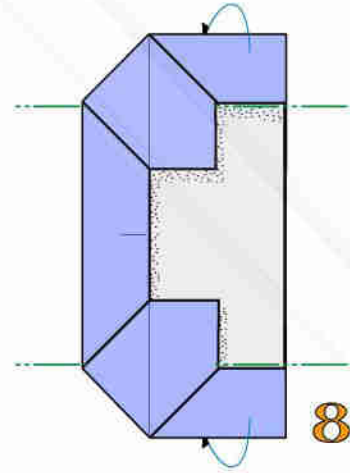


2 pieghe a valle



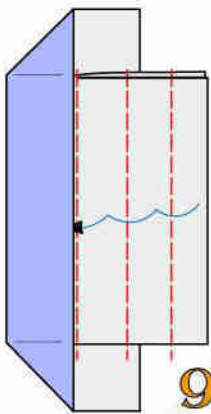
7

Ruotate ripiegando a valle ed a monte



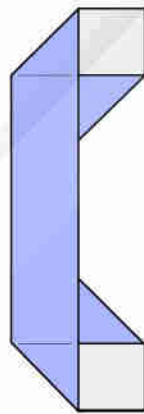
8

Ruotate ripiegando 2 volte a monte



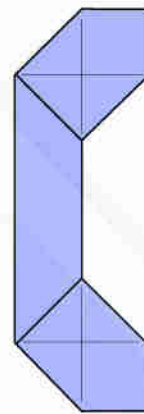
9

3 pieghe a valle ed intascate ruotando in successione



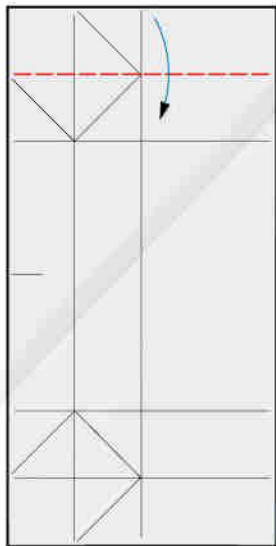
10

Asta a "C" ultimata



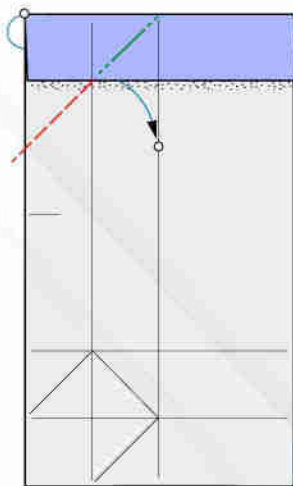
Asta ad S

sinistra



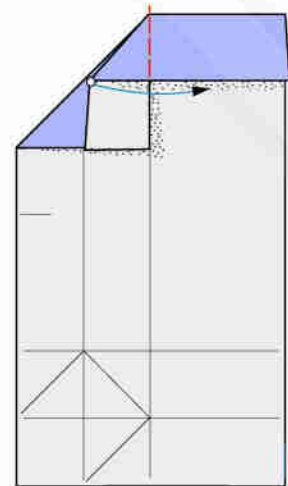
7

Partite dalla fig. n. 6
dell' asta a C.
1 piega a valle e ruotate



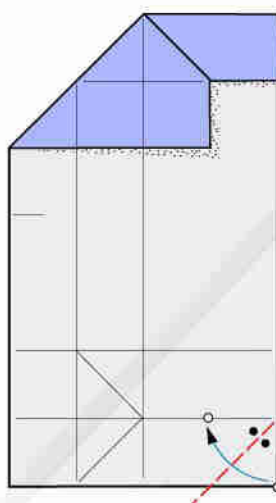
8

1 piega rovescia
interna



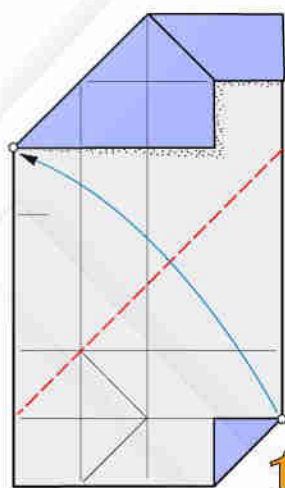
9

1 piega a valle e ruotate



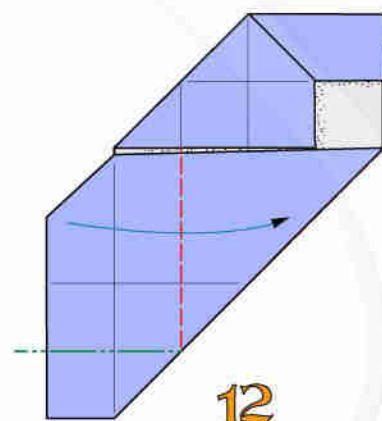
10

1 piega a valle e ruotate



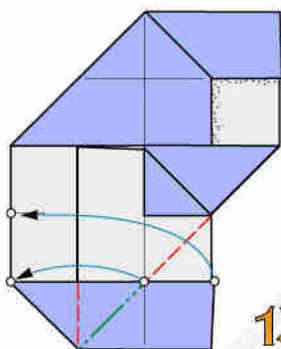
11

1 piega a valle e ruotate



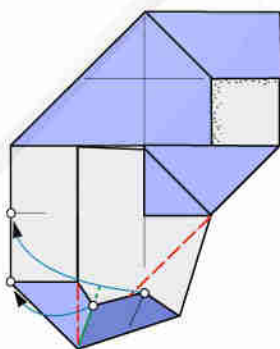
12

Ruotate ripiegando a
valle ed a monte



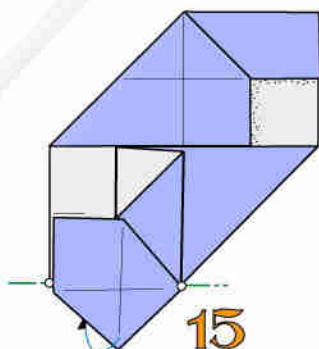
13

1 piega a valle e ruotate ripiegando



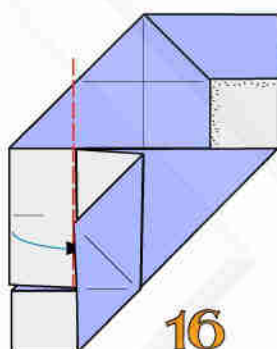
14

1 piega rovescia interna



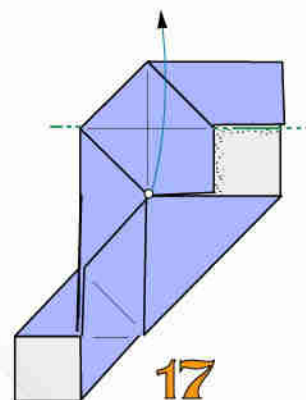
15

1 piega a monte e ruotate



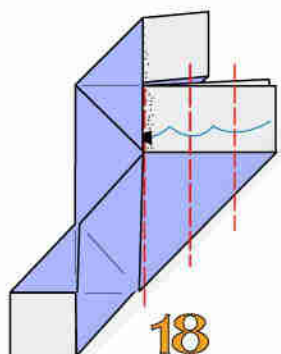
16

1 piega a valle e ruotate intascando



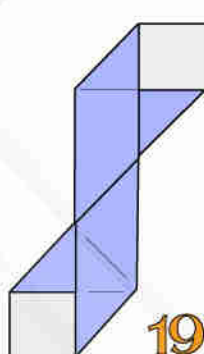
17

1 piega a monte e ruotate estraendo



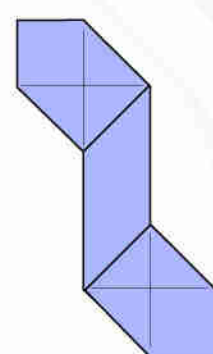
18

3 pieghe a valle in successione e ruotate intascando



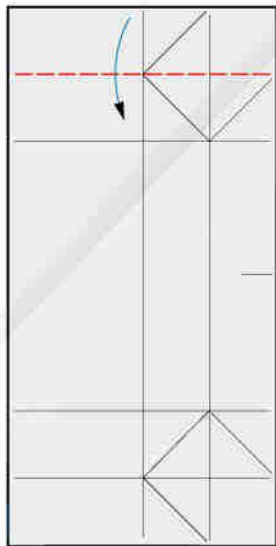
19

Asta ad S sinistra ultimata.



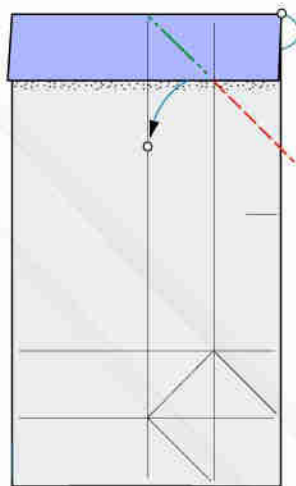
Asta ad S

destra



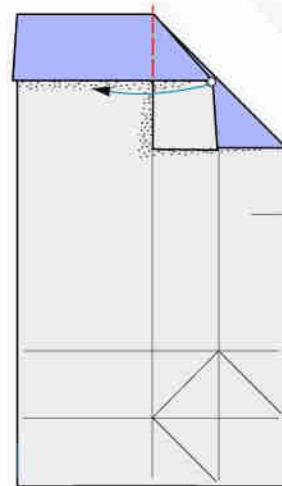
7

Partite dalla fig. n. 6
dell' asta a C.
1 piega a valle e ruotate



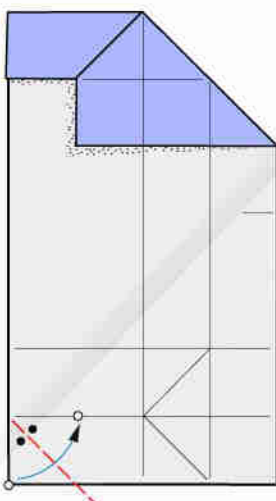
8

1 piega rovescia
interna



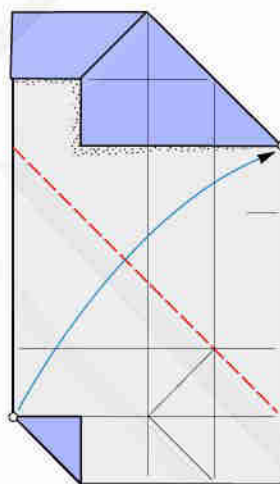
9

1 piega a valle e ruotate



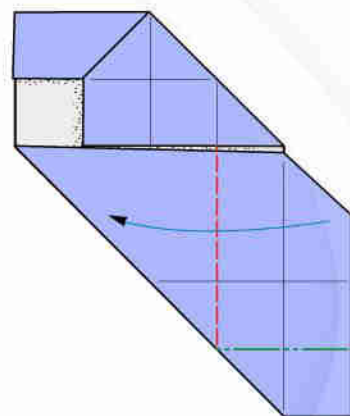
10

1 piega a valle e ruotate



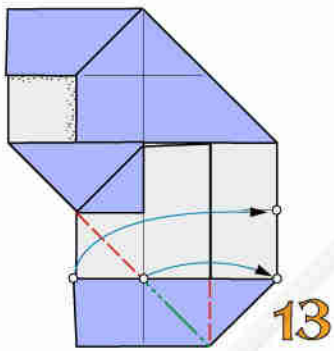
11

1 piega a valle e ruotate

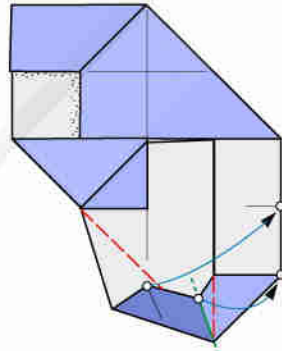


12

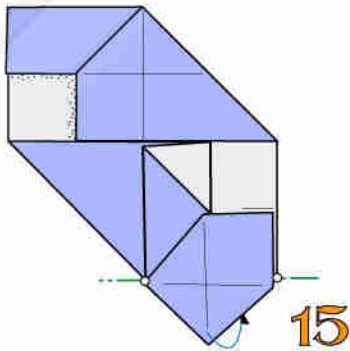
Ruotate ripiegando a
valle ed a monte



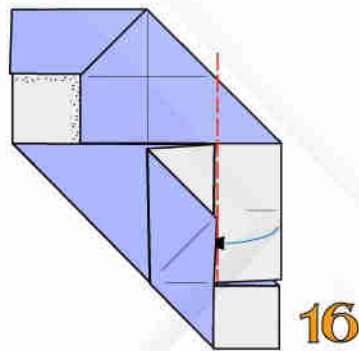
13
1 piega a valle e ruotate ripiegando



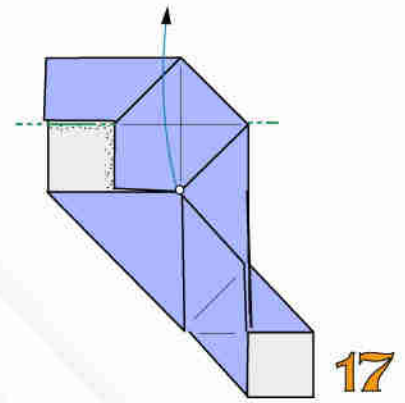
14
1 piega rovescia interna



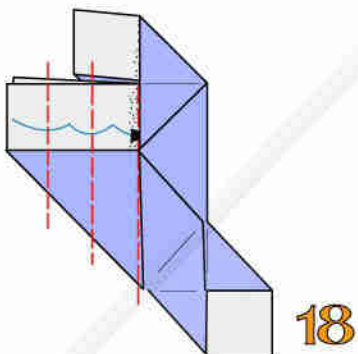
15
1 piega a monte e ruotate



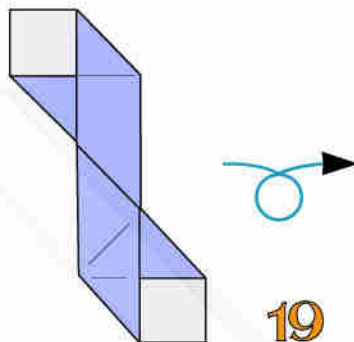
16
1 piega a valle e ruotate intascando



17
1 piega a monte e ruotate estraendo

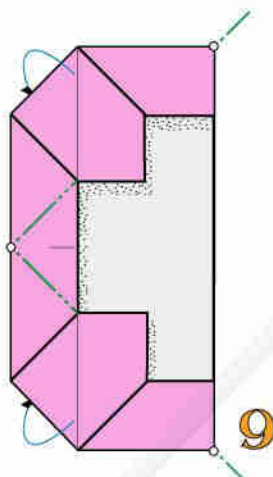


18
3 pieghe a valle in successione e ruotate intascando

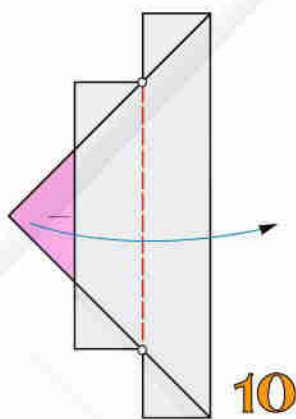


19
Asta ad S sinistra ultimata.

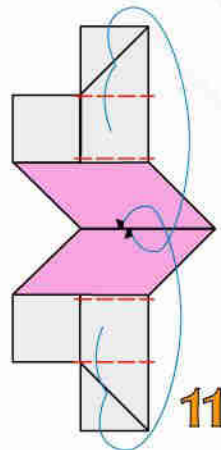
Gomito a 90°



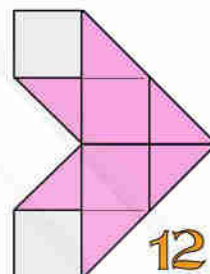
Partite dalla fig. n. 8 di "Asta a C".
2 pieghe a monte e ruotate



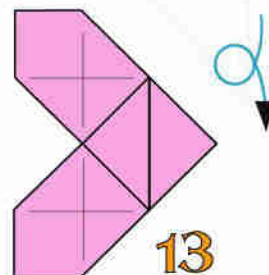
1 piega a valle e ruotate



4 pieghe a valle ed intascate le appendici al centro

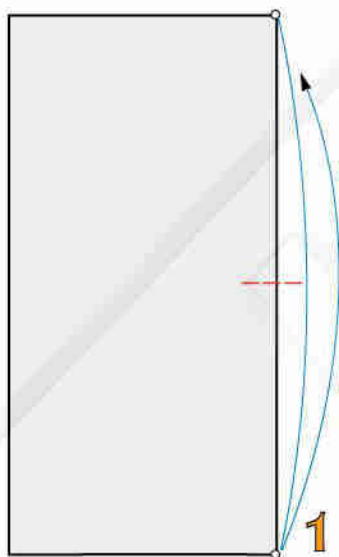


Gomito a 90° ultimato

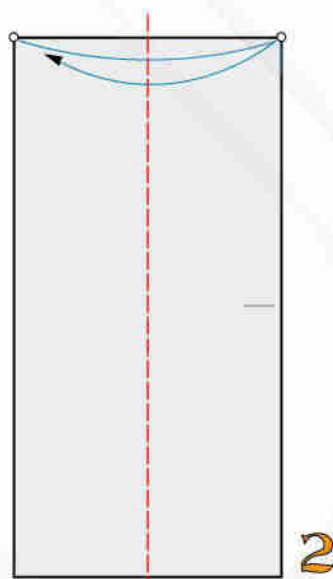


Gomito a 90°

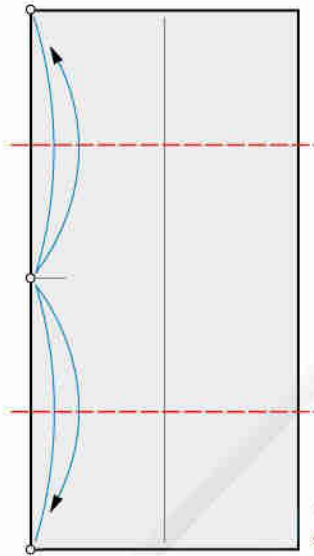
smussato



1 piccola piega a valle

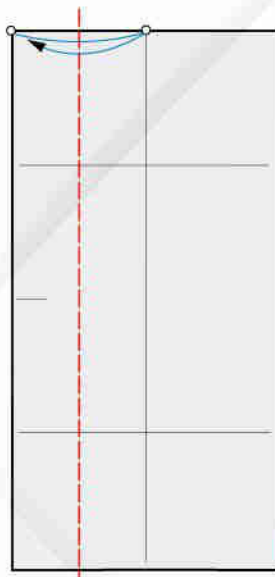


1 piega a valle



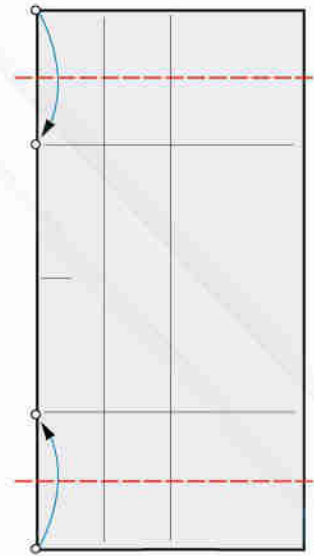
3

2 pieghe a valle



4

1 piega a valle



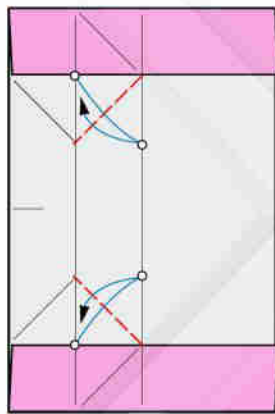
5

2 pieghe a valle e ruotate



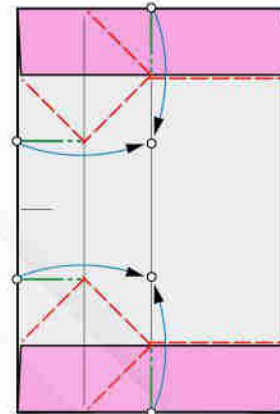
6

4 pieghe a valle



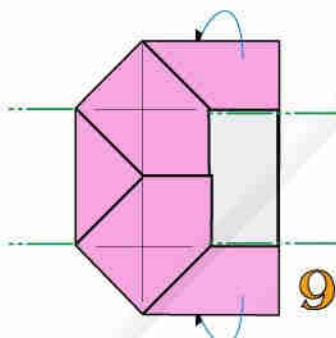
7

2 pieghe a valle



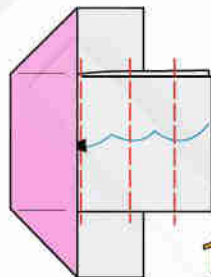
8

2 pieghe a monte e ruotate ripiegando a valle



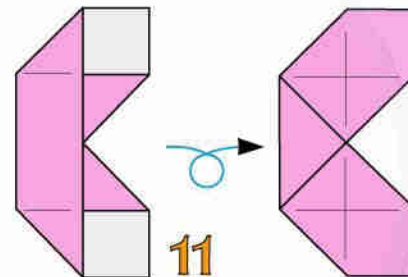
9

4 pieghe a monte e ruotate



10

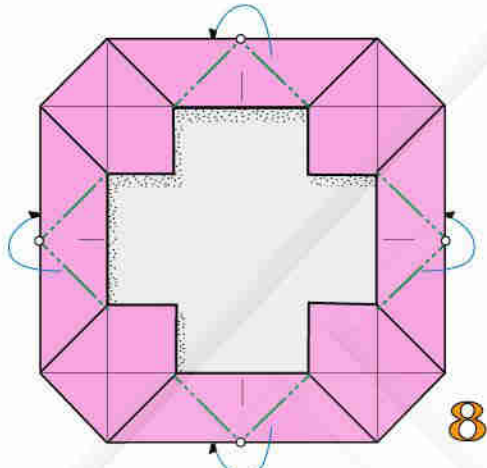
3 pieghe a valle in successione e ruotate



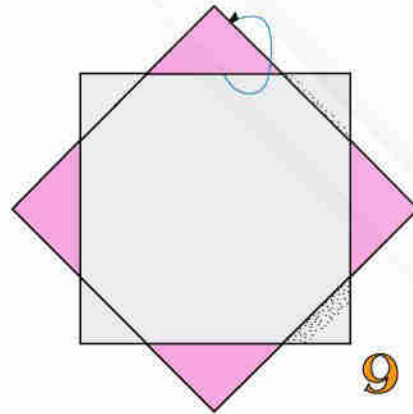
11

Gomito a 90° smussato ultimato

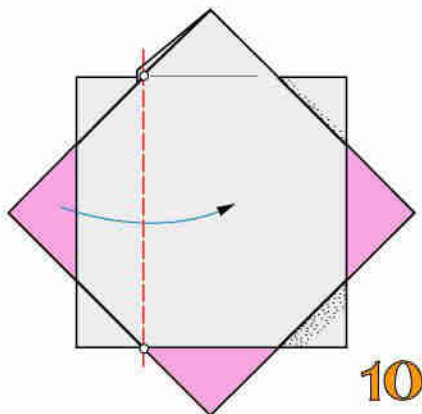
Gomitolo a croce



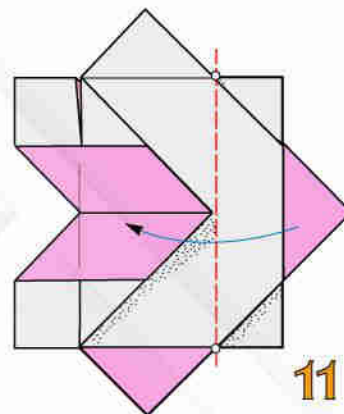
Partite dalla fig. n. 7 di "Piastra".
4 pieghe a monte e ruotate



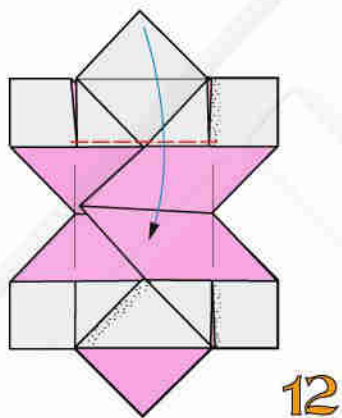
Rovesciate il triangolo indicato



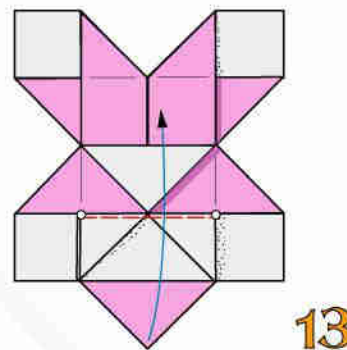
1 piega a valle e ruotate



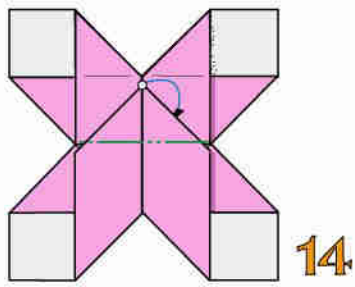
1 piega a valle e ruotate



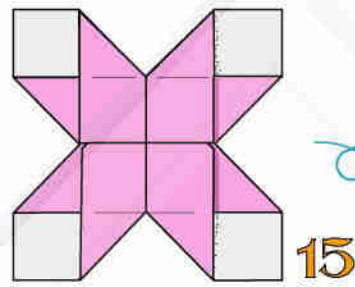
1 piega a valle e ruotate



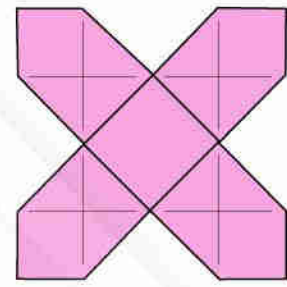
1 piega a valle e ruotate



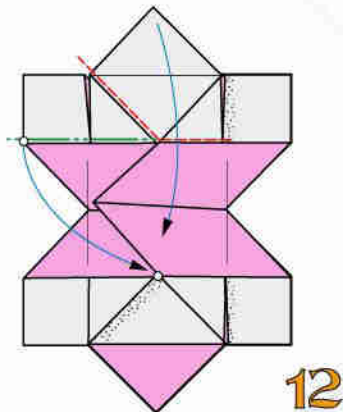
1 piega a monte e
intascate bloccando.



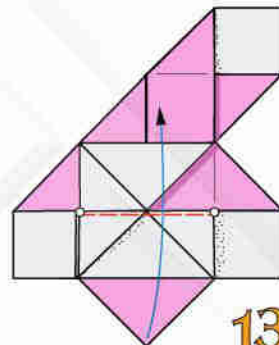
Gomito a croce ultimato



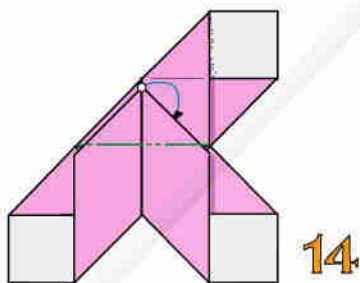
Gomito a T



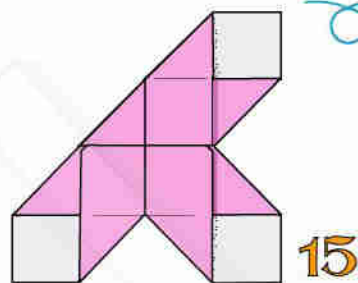
Partite dalla fig. n. 11 di "gomito a croce".
Ruotate ripiegando a valle ed a monte



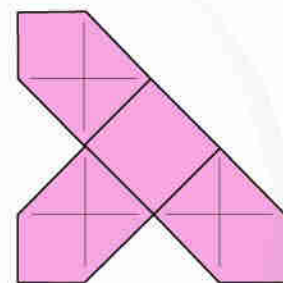
Una piega a valle e ruotate

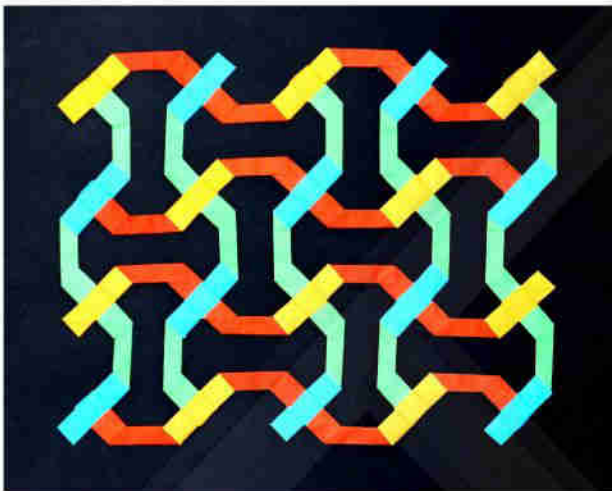


1 piega a monte e
intascate bloccando.

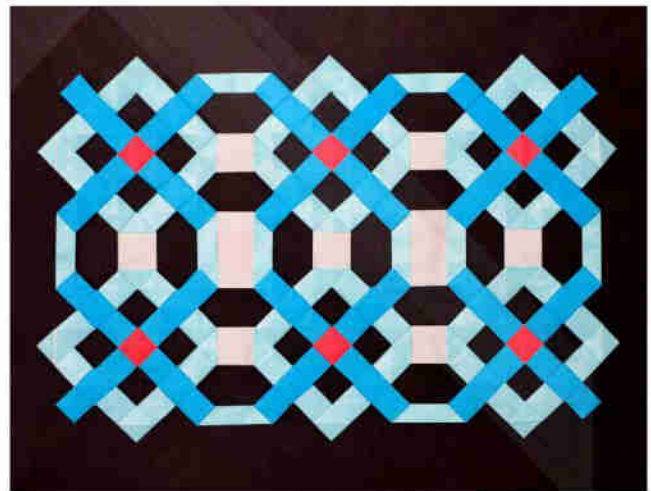


Gomito a T ultimato

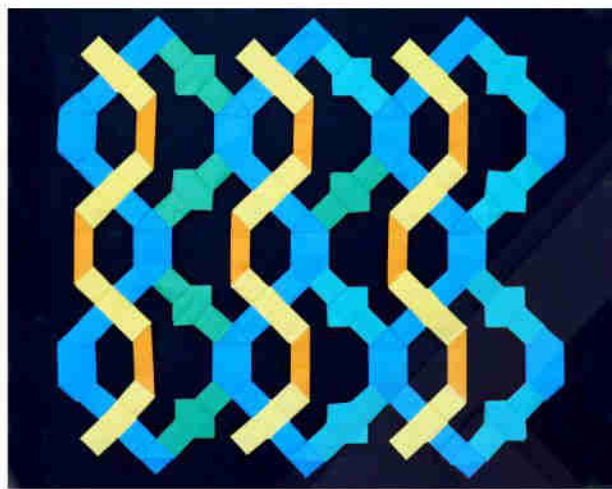




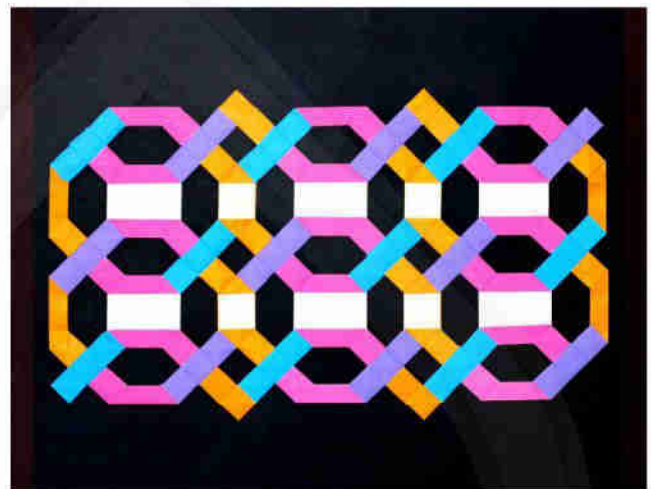
Tassellazione realizzata con moduli:
 Asta a C
 Asta a croce
 Asta a T



Tassellazione realizzata con moduli:
 Piastra
 Semipiastra
 Asta a croce
 Gomito a 90°



Tassellazione realizzata con moduli:
 Semipiastra
 Asta a croce
 Asta a C
 Asta 3&5
 Gomito a 90°



Tassellazione realizzata con moduli:
 Piastra
 Semipiastra
 Asta a croce
 Asta a T
 Asta a C
 Gomito a 90°

ESEMPI DI COSTRUZIONI TRIDIMENSIONALI



Modello realizzato con moduli:
 Piastra (foglio bicolore)
 Semipiastra (foglio bicolore)
 Asta a croce
 Asta a T
 Asta a C
 Gomito 90°



Modello realizzato con moduli:
 Asta a C
 Asta a croce
 Asta a T

ESEMPI DI CATENE



Modello realizzato
 con moduli:
 Gomito 90°



Modello realizzato
 con moduli:
 Gomito 90°
 Asta a C



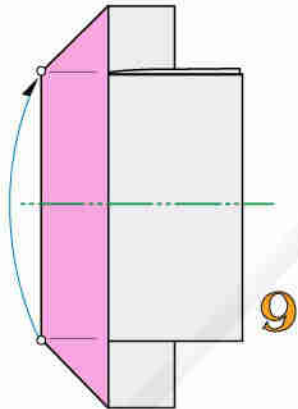
Modello realizzato
 con moduli:
 Semipiastra
 Asta a C; Gomito 90°



Modello 3D
 realizzato con
 moduli:
 Asta a C
 Gomito a 90°

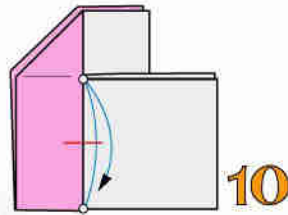
Gomito 45°

Modulo di difficile costruzione necessario per la realizzazione di progetti complessi di pizzi o gioielli.



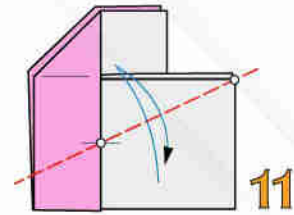
9

Partite dalla fig. n. 8 di "Asta a C".
1 piega a monte e ruotate



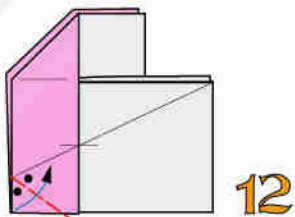
10

1 piccola piega a valle solo sulla sup. in vista



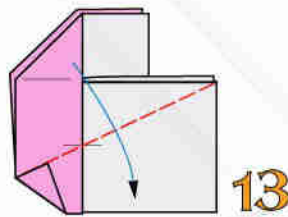
11

1 piega a valle solo sulla sup. in vista



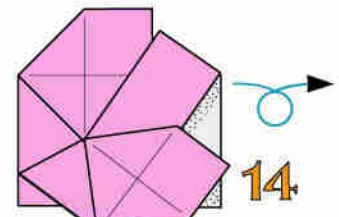
12

1 piega bisettrice a valle e ruotate



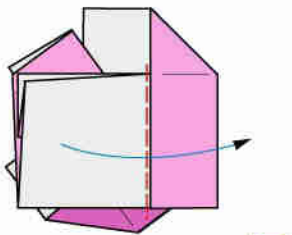
13

Ruotate ripiegando a valle



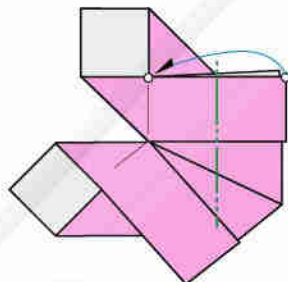
14

Ribaltate



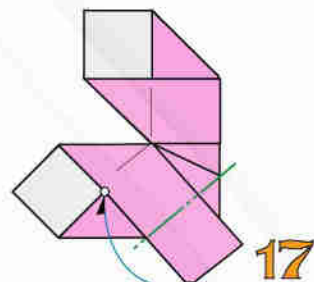
15

1 piega a valle e ruotate



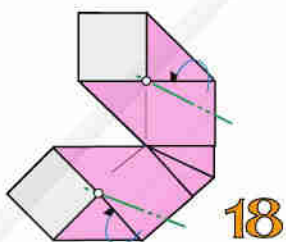
16

1 piega a monte e ruotate



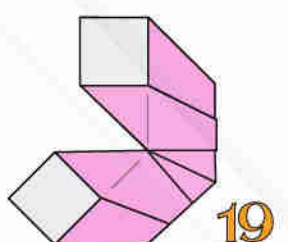
17

1 piega a monte e ruotate



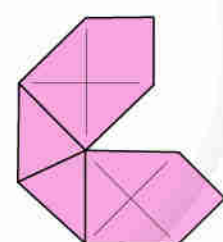
18

2 pieghe a monte e ruotate



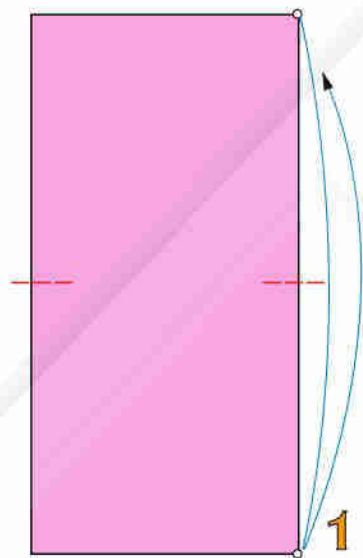
19

Gomito 45° ultimato

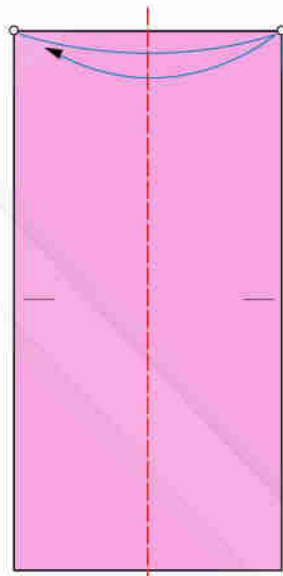


Gomito 135°

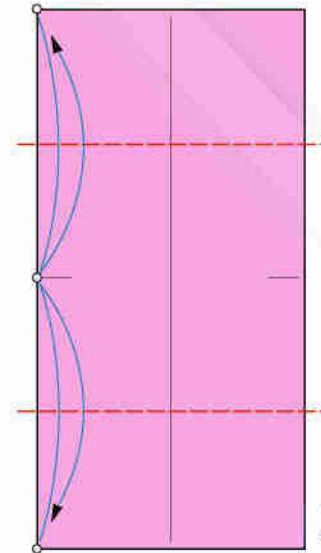
Anche questo è un modulo di difficile costruzione utile per la realizzazione di progetti complessi di pizzi o gioielli. Si tratta di un modulo asimmetrico, del quale esistono la versione destra e la sinistra.



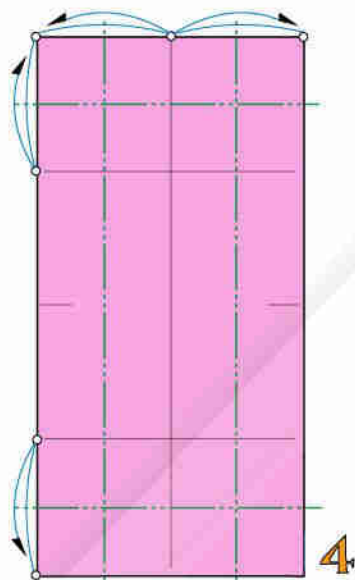
2 piccole pieghe a valle



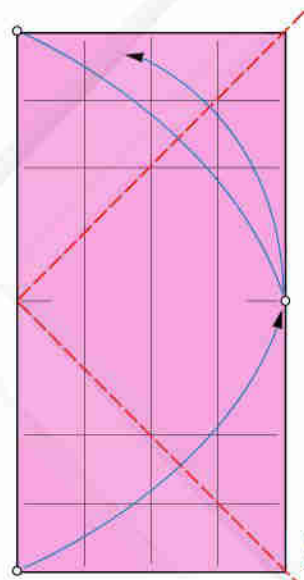
1 piega a valle



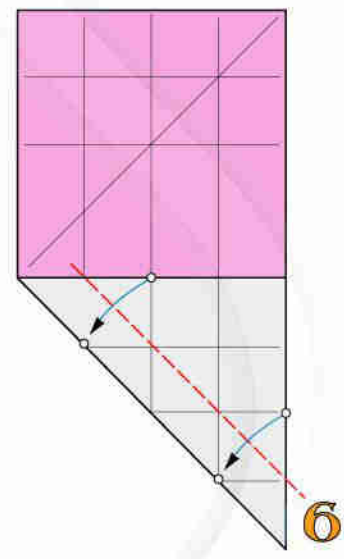
2 pieghe a valle



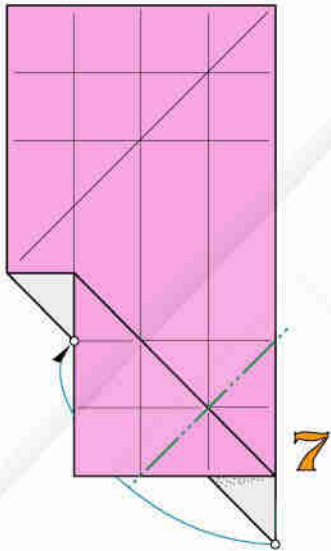
4 pieghe a monte



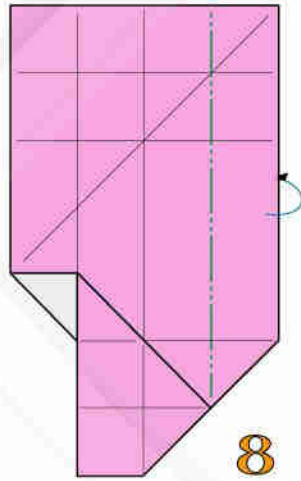
2 pieghe a valle e ruotate il vertice inferiore



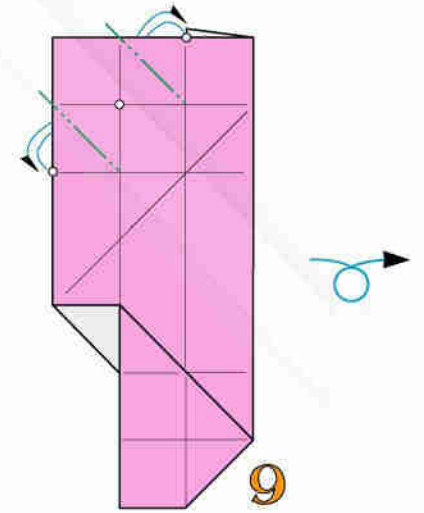
1 piega a valle e ruotate



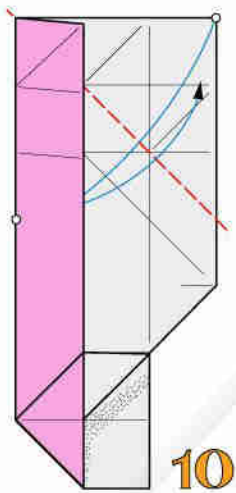
1 piega a monte e ruotate



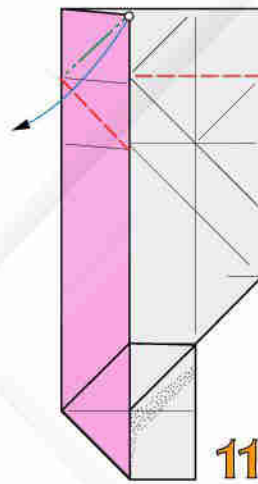
Ripiegando a monte ruotate



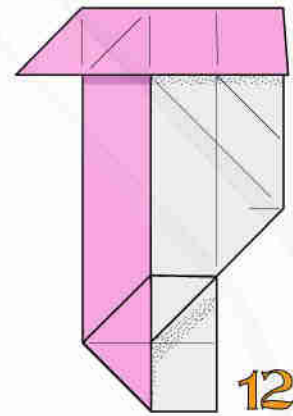
2 pieghe a monte e ribaltate



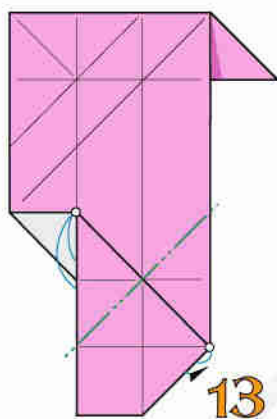
1 piega a valle



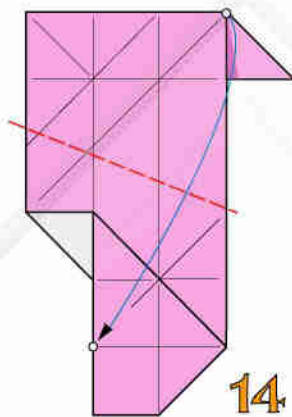
1 piega a valle e ruotate ripiegando a valle ed a monte



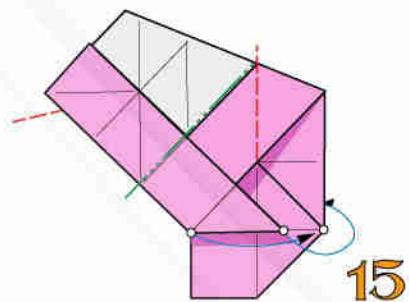
Ribaltate



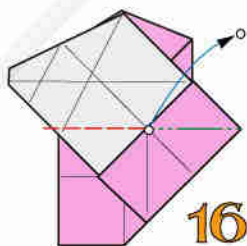
1 piega a monte



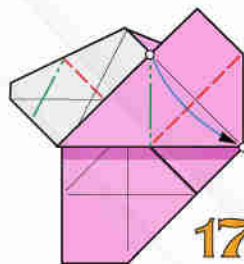
1 piega a valle e ruotate



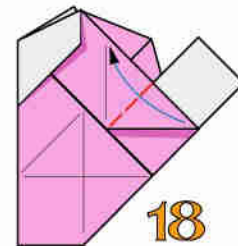
2 pieghe a valle, 1 a monte ed effettuate una rotazione



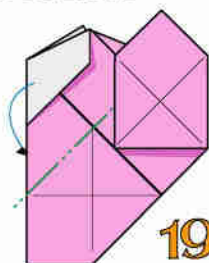
1 piega a valle, 1 a monte ed effettuate una rotazione



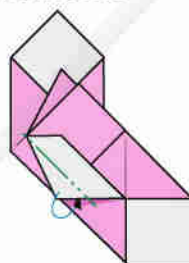
1 piega a valle, ed effettuate una rotazione ripiegando a valle ed a monte



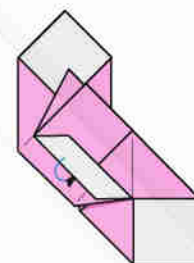
1 piega a valle e ruotate



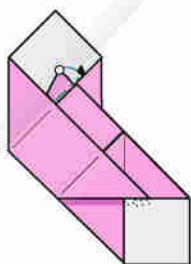
1 piega a monte, ruotate e ribaltate



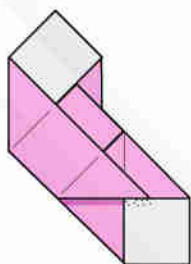
1 piega a monte e ruotate



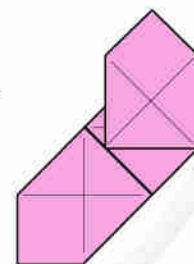
Intascate nel trapezio sottostante



1 piega a valle e ruotate

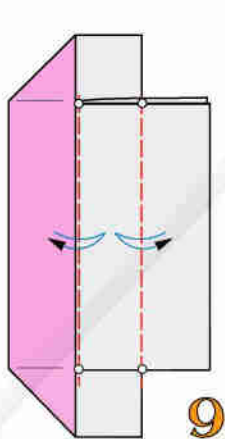


Gomito 135° ultimato



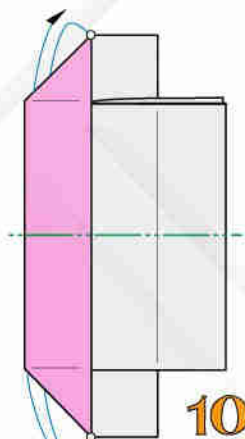
Gomito 180°

Questo è un modulo ricavabile con un procedimento costruttivo insolito ma non difficile, indispensabile in molte occasioni,



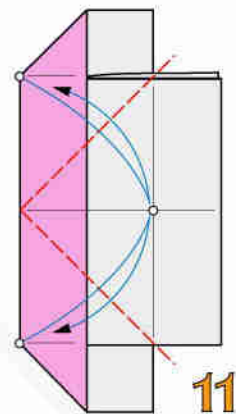
9

Partite dalla fig. n. 8 di "Asta a C".
2 pieghe a valle



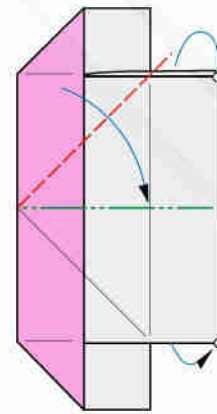
10

Una piega a monte



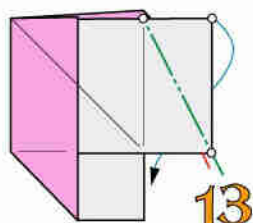
11

2 pieghe a valle



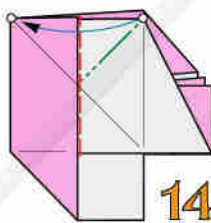
12

Ruotate ripiegando a valle ed a monte



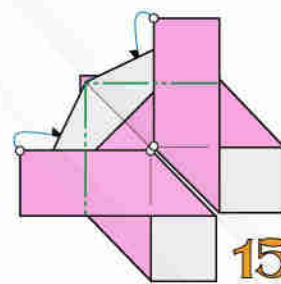
13

Una piega rovescia interna



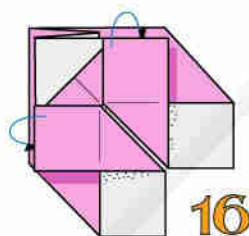
14

Una piega a valle, una a monte e ruotate



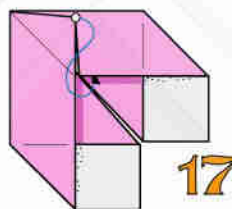
15

Due pieghe a monte e ruotate all'interno



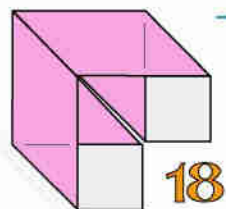
16

Inserite i 2 bordi indicati all'interno delle 2 tasche trapezoidali sottostanti



17

Inserite il vertice indicato all'interno della tasca sottostante

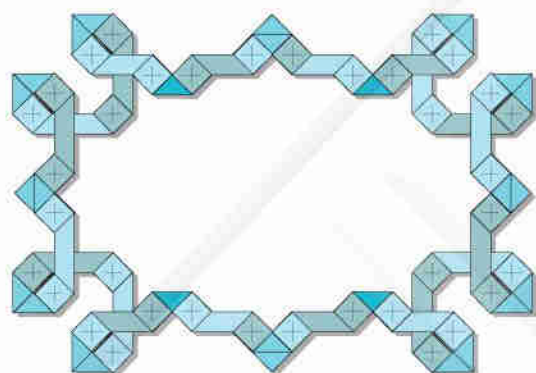


18

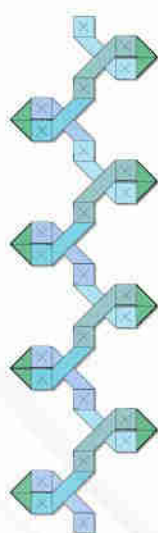
Gomito 180° ultimato

A B C D E F G H I L M N O
P Q R S T U V Z Y X W J
1 2 3 4 5 6 7 8 9 0

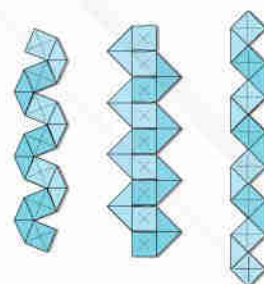
Per la realizzazione di lettere e numeri adoperate foglietti monocolori di differenti colori.
 Per la realizzazione di originali cornici, nastri e pizzi sono consigliabili sormonti ed intrecci



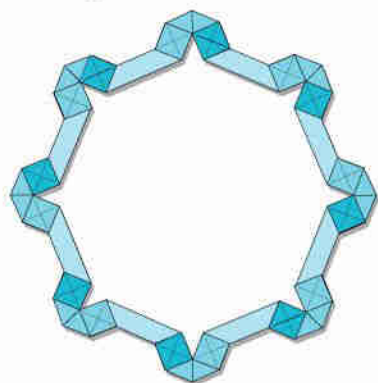
Cornice realizzata con aste C,S e gomiti 90°, 180°



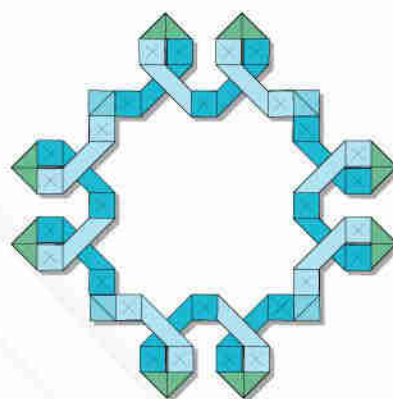
Pizzo realizzato con aste C e gomiti a 180°



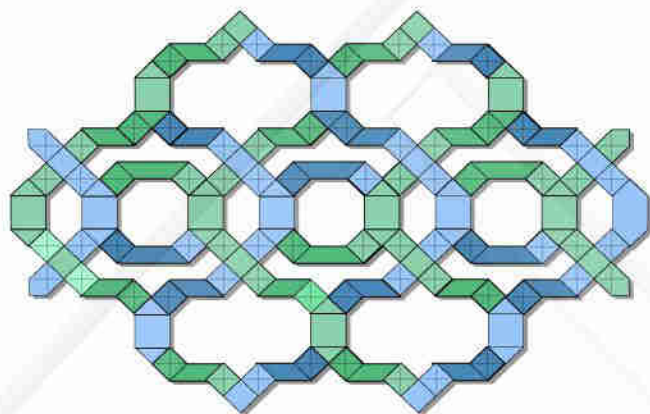
Nastri realizzati con gomiti 45°, 180°, 90°



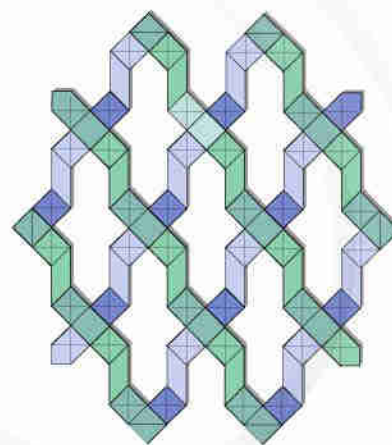
Cornice realizzata con aste C e gomiti 45°



Cornice realizzata con aste C e gomiti 90°, 180°



Pizzo realizzato con semipiastre, aste S, gomiti a croce e 90°



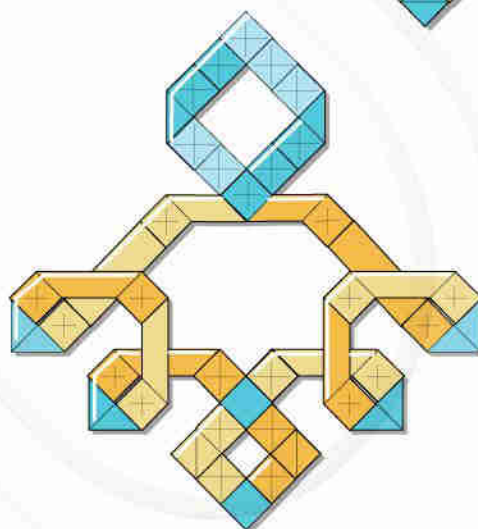
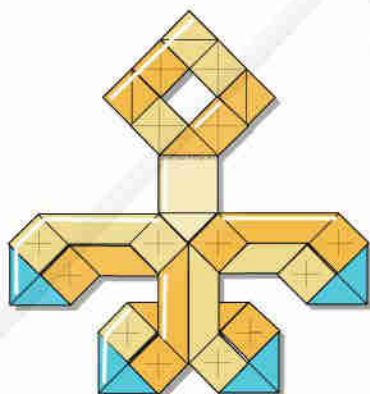
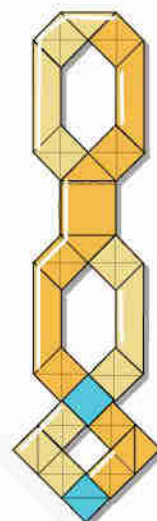
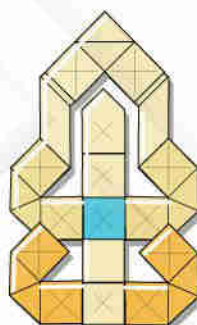
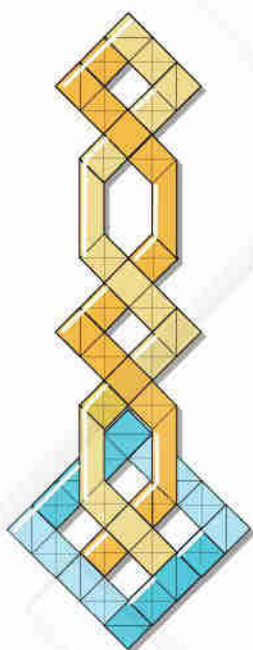
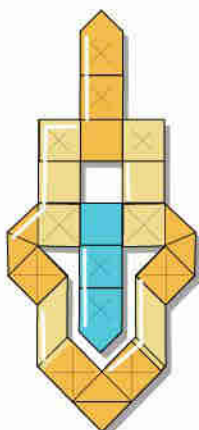
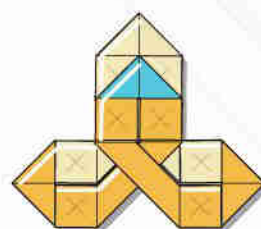
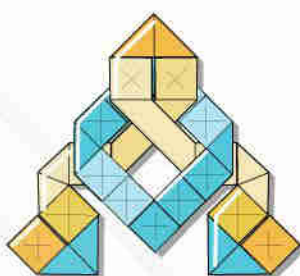
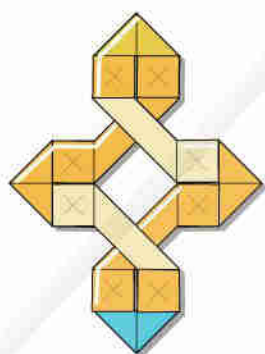
Pizzo realizzato con aste S, gomiti a croce e 90°

Ciondoli Orecchini Spille

Meccanorigami è il sistema costruttivo ideale per la costruzione di gioielli origami.

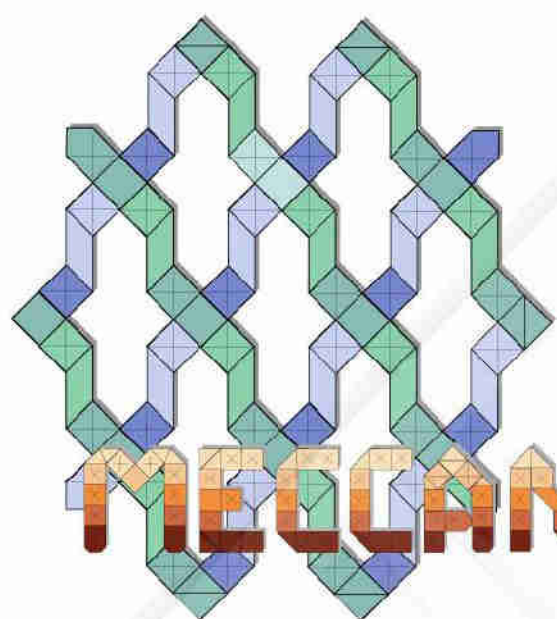
Dopo aver montato il gioiello con foglietti di stagnola o carta metallizzata, con modellazione piatta o bombata, si fissa con colla istantanea una spilletta dotata di una piattina.

Successivamente lo si immerge 2-3 volte in liquido cristallizzante bicomponente che lo rende indistruttibile.

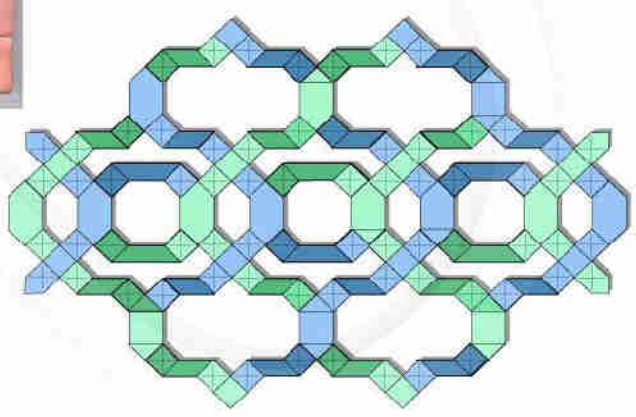


PUBBLICAZIONI DI FRANCO PAVARIN

Aerei , jet ed astronavi di carta volanti	IL CASTELLO	1986
Origami animati	“	1987
Origami maschere animate	”	1988
Decorazioni modulari con origami modulati	“	1989
Origami motoscafi navi barche e velieri	”	1990
Origami scatole e contenitori	“	1990
Pieghe forme e colori	”	1994
Aerei e navi di carta	FABBRI	1996
Fold and fly Paper airplanes	STERLING PUBLISHING	1998
Manuale rapido di aerei di carta volanti	FABBRI	2000
Aerei di carta 17 modelli volanti inediti	IL CASTELLO	2001
Aviones voladores	TUTOR S.A.	2003
17 modelos ineditos de aviones voladores	“	2004
Naves voladoras	”	2006
Quaderni Quadrato magico n.20 e 48	CDO	
Maschere, elmi e copricapi	web	2010
Maschere trasformabili	web	2011
21 nuovi aerei origami volanti	web	2014
Maschere origami 3D volume 1	web	2014
Maschere origami 3D volume 2	web	2015
Legorigami 1 -Q.Quadrato Magico n.56		2015



MEGACANORIGAMI



Franco Pavarin

www.aereiemaschereorigami.altervista.org