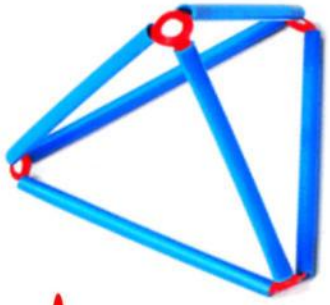
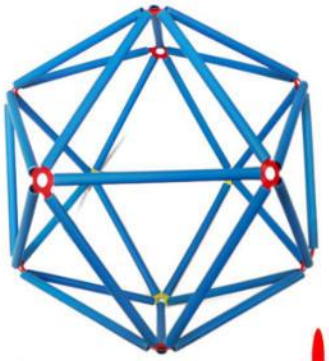


SCROLL Down to see ALL pages

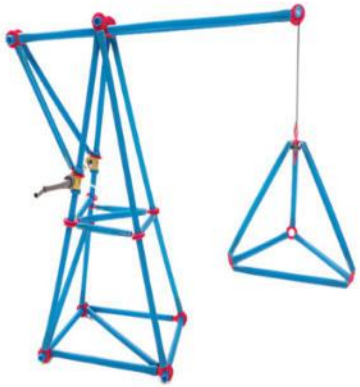
Kre8® Maker Kits

SCROLL Down to see ALL pages



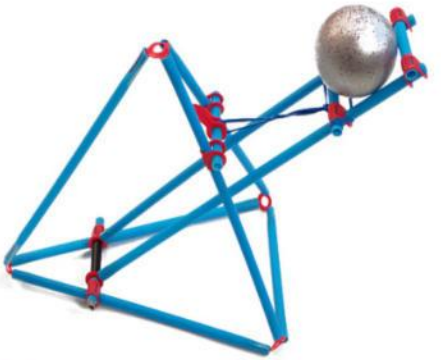
Kre8®Maker kits are easy, quick and fun construction kits ideal for **STEM** subjects. You can make mathematical forms, structures, mechanical models and open-ended creations, including forms not possible with other construction kits. Joints are made by pushing connectors into the tubes or by sliding the tubes inside connector holes. To reuse pull joints apart.

To extend **Kre8®Maker's** usefulness it can be combined with other popular construction systems and 'found materials'. The size of a model depends on the length of the 5mm diameter tubes. Use good scissors or snips to cut the tubes to length required. **Suitable for 8+ years.**



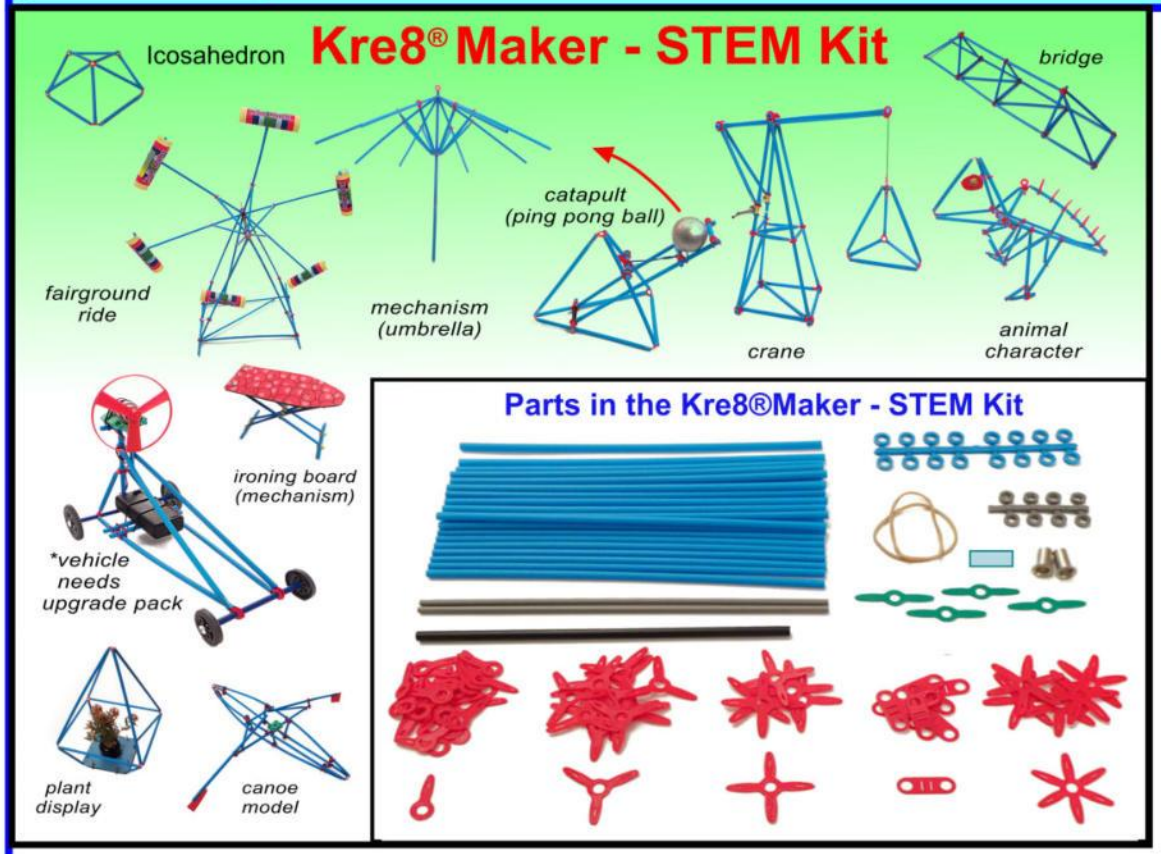
History

In response to requests by teachers and educational distributors in 2007 for a more mathematical kit we started developing **Kre8®Maker** which can be used on its own or combined with the **Kre8® Making System**



See **YouTube videos** on Kre8 website for more instructions

Kre8®Maker Design & Make



Kre8®Maker - STEM Kit

(**STEM** stands for **Science, Technology, Engineering** and **Maths**)
Have fun assembling a range of structural, mechanical and mathematical models, like those shown. Parts can be re-used.
To make joints the **Kre8® Maker connectors** are pushed into the end of the **Kre8®Maker tubes** and /or the hole connector part moved into position required. Fast to assemble, for example you can make a tetrahedron form in less than two minutes. If required the adhesive putty can be used to make joints more permanent.

156 Parts in the STEM Kit

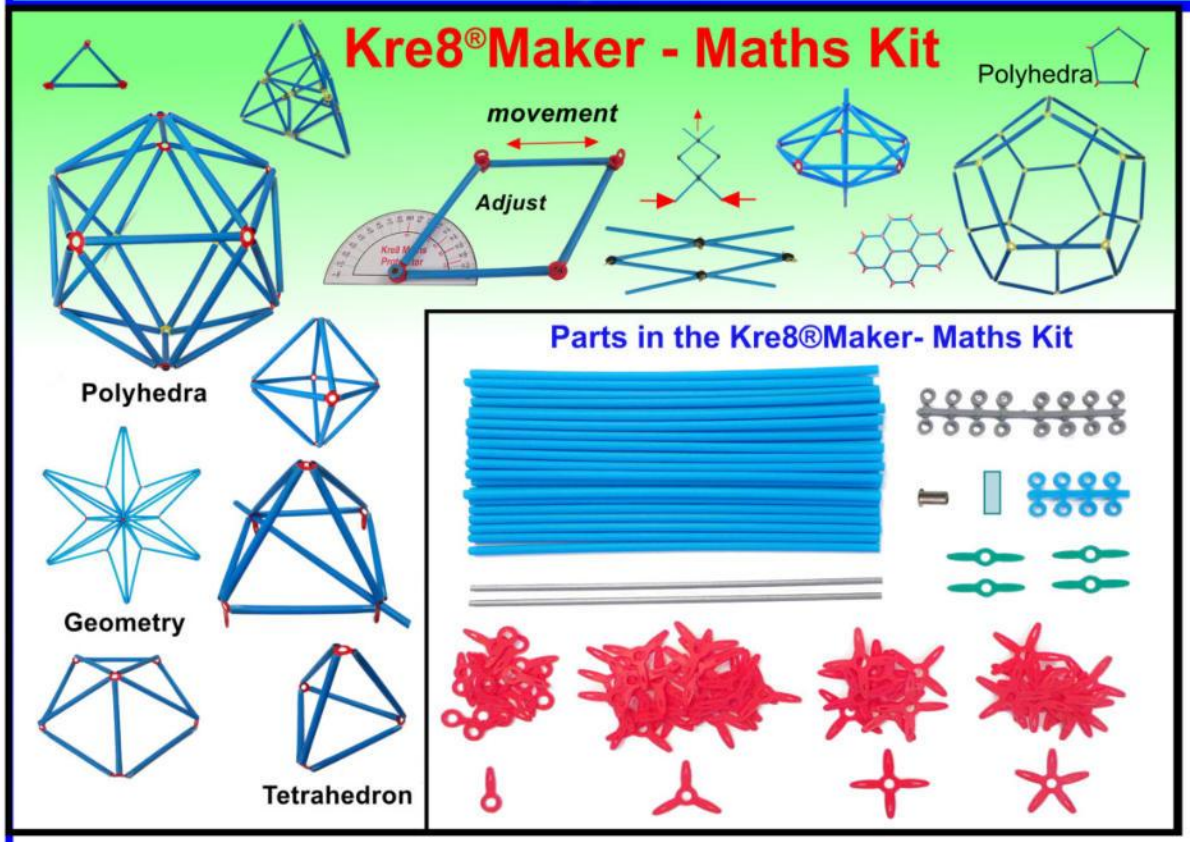
This kit is supplied with:-
93 x Kre8® Maker connectors,
(on one red sheet and one green sheet)
30 x Kre8® - blue tubes 200mm x 5mm dia. that can be cut to length wanted.
8 x Kre8® - grey collars,
16 x Kre8® - blue collars,
2 x Kre8® - grey tubes,
2 x metal bearing,
1 x spacer tube,
2 x rubber bands,
1 x adhesive putty
1 x web link that show 'how to make' the models.

Enough parts supplied to make models shown individually *except for the Kre8® - air powered vehicle which also needs the **Kre8®Air powered upgrade pack.***
You may also want to extend your range of activities by purchasing a **Kre8® Maker - Maths** kit.

Suitable for 8+ years plus.

Go to
www.Kre8.com/maker.htm
for **YouTube** videos,
instructions and models etc.

Kre8®Maker Maths Kit



138 Parts in the Maths Kit

This kit is supplied with:-
79 x Kre8®Maker connectors
(on one red sheet and one green sheet)
30 x Kre8 blue tubes 200mm x 5mm dia. that can be cut to length required.
16 x Kre8® - grey collars,
8 x Kre8® - blue collars,
2 x Kre8® - grey tubes,
1 x metal bearing and
1 x adhesive putty
1 x link to videos and help sheets that show how to use Kre8®Make and build models.

Enough parts supplied to make the complex models shown individually but more at once if simple models made.

Kre8®Maker Maths Kit

Have fun making a range of basic mathematical geometric forms, like those shown, including various polyhedra, moving linkages etc. Parts can be re-used.
To make joints the **Kre8® Maker connectors** are pushed into the end of the **Kre8®Maker tubes** and/ or the hole part of connector moved into position required. Fast to assemble, for example you can make a tetrahedron form in less than two minutes. If required the adhesive putty can be used to make joints more permanent.

*To extend the range of activities you can purchase a **Kre8® Maker - STEM** kit to make more structural and mechanical models.*

Suitable for 8+ years

Go to
www.Kre8.com/maker.htm
for **YouTube** videos,
instructions and models etc.

Kre8®Maker
Ways to Fix Connectors

Here are some tips to make joints more permanent

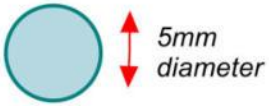
Note - Ordinary glues do not work well the Kre8®Maker tubes and connectors.

1) Using Adhesive Putty

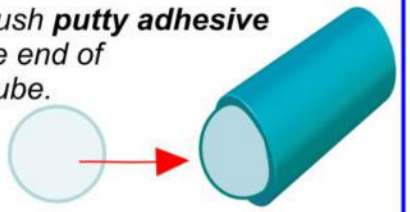
A good simple safe way is to use a small amount of reusable **putty adhesive** such as Blu-Tack®.

How to use

A) *Make a small ball of* ***putty adhesive*** *the same size as the* ***tube****. (about 5mm diameter)*



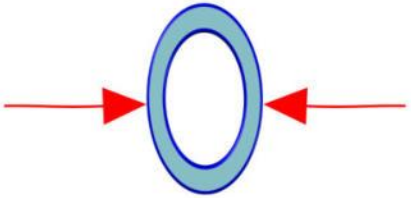
B) *Push* ***putty adhesive*** *in the end of the tube.*



C) *Push* ***Kre8®Maker connector*** *into the* ***tube end*** *through the middle of the* ***putty adhesive****.*

2) Squeeze the tubes

If want just a bit tighter joint you may find squeezing the **tube** end (by hand) before inserting the connector will be sufficient. (if not choose on of the other methods on this page)



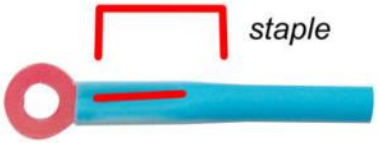
Squeeze end of tube

How

Insert connector in tube at **narrow part** for a tighter fit.

3) Using office stapler

to give a **permanent fixed joint just** like that used to staple piece of paper together. (or can use drawing pin)



How

Best to operate on a protected table top so enough force can be applied to push the staple through both the plastic connector and the tube.

4) Using Hot glue

This makes good **permanent joint** that cannot be undone. A small '**squirt of hot glue**' is placed into the end of the **Kre8®maker tube** then the **Kre8®Maker connector** is inserted while glue is still hot.

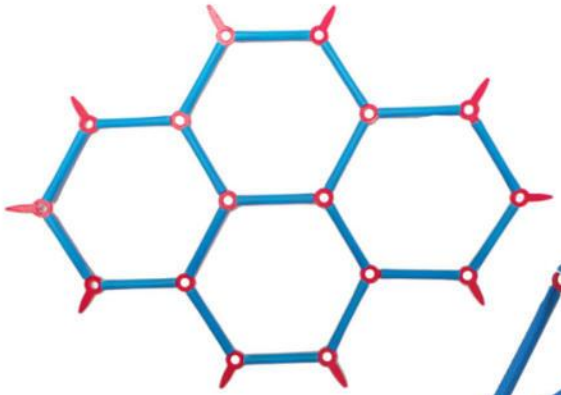
Hot glue gun

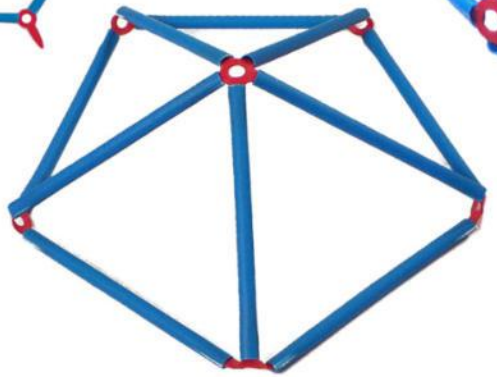
Using a ***low melt glue gun*** *is recommended*

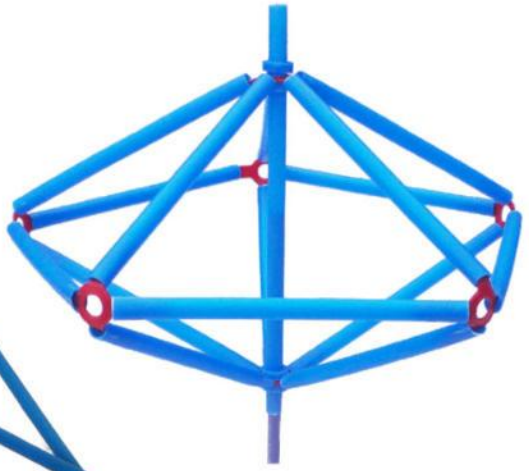
DANGER - Do not use **HOT GLUE GUN** unless a teacher has **explained** the dangers of using a **HOT glue gun** and how to **avoid burning** yourself.

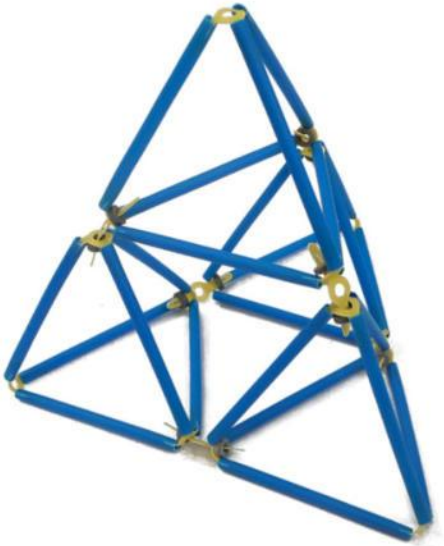
If you do get a burn **cool** it in **running cold water** as soon as possible and continue this for about 5min.

Kre8®Maker
Making Examples - 1

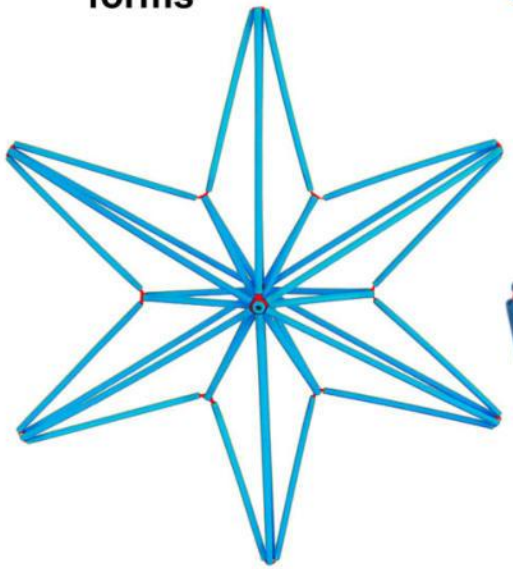


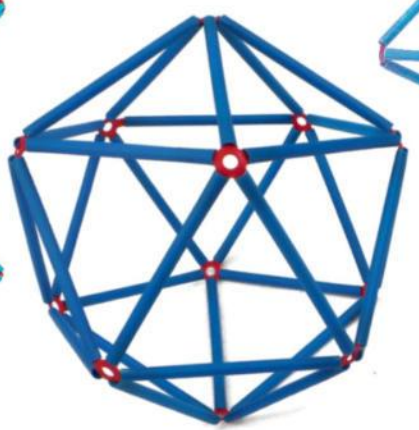


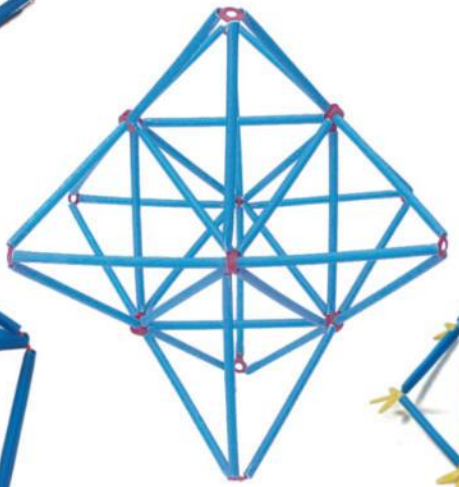




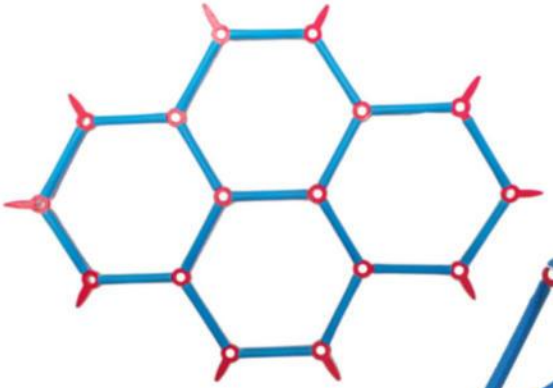
Various mathematical forms

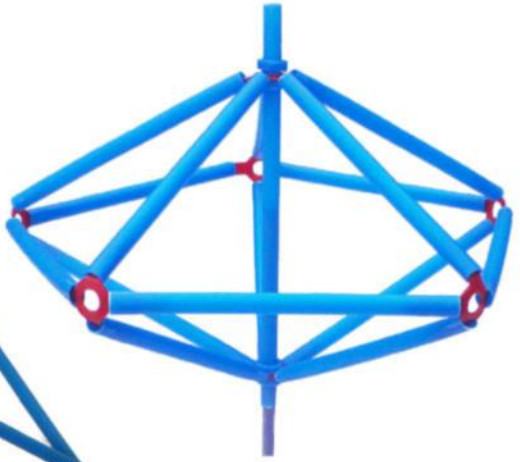


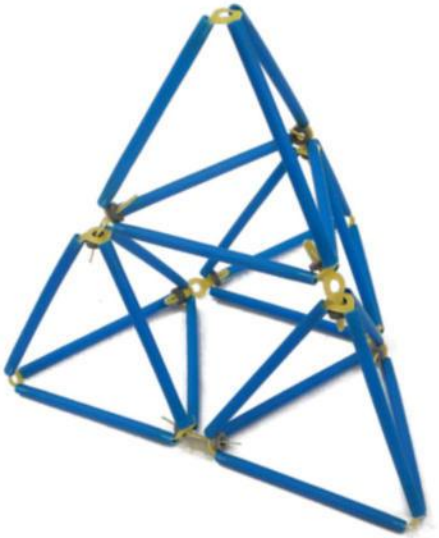


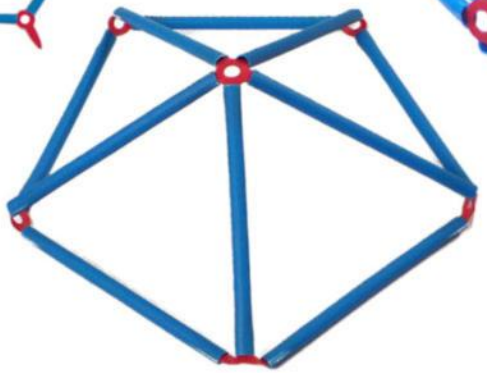


Kre8® Maker
Making Examples - 1

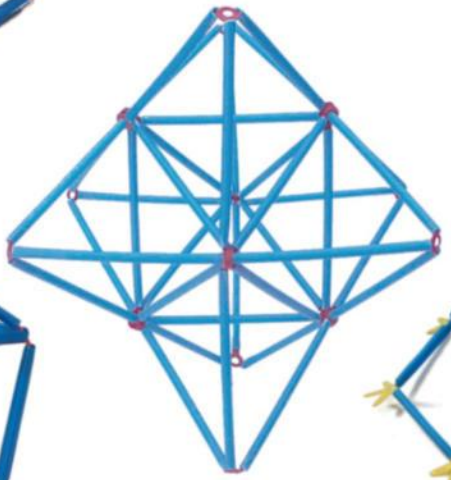








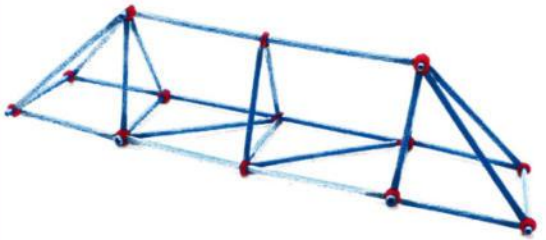
Various mathematical forms



Kre8® Maker
Making Examples - 3

Ironing board
example of a folding mechanism)

Air propelled vehicle
showing added electrics and propeller

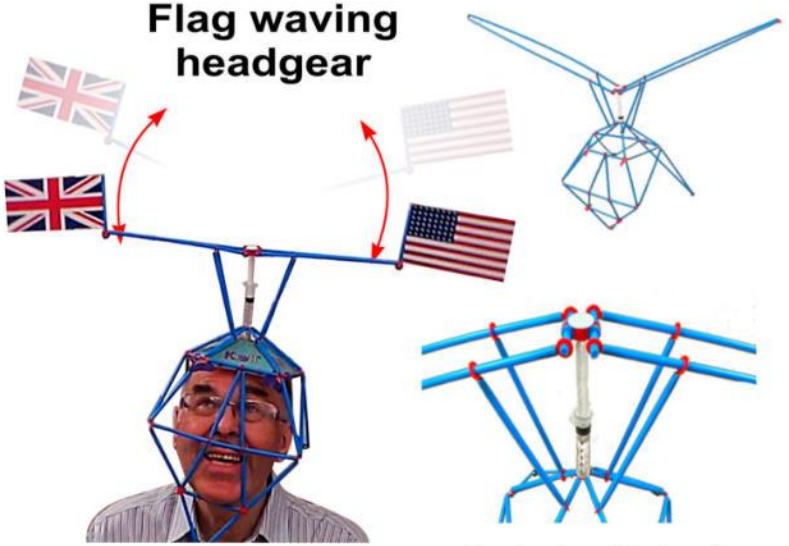


Bridge

Display

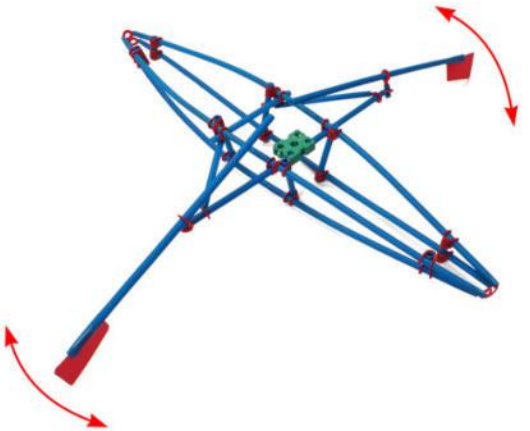
example for a plant

Flag waving headgear



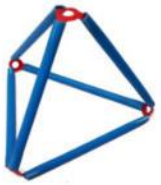
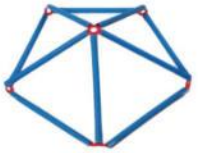
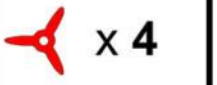
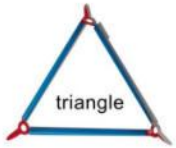
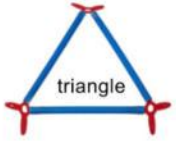
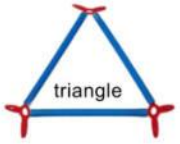
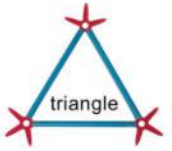
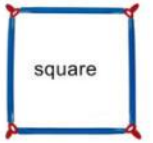
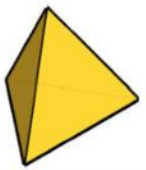
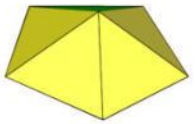
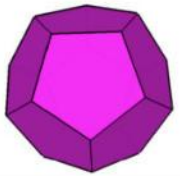
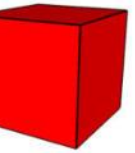
using 'syringe' hydraulics

Canoe model
with movable oars



Kre8®Maker

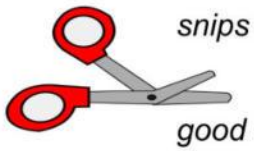
Modelling of Maths 3D Forms

Polyhedron Forms made with Kre8®Maker							
	Tetrahedron	Square based pyramid	Triangular pyramid Octahedron	Top of a Icosahedron	Dodecahedron	Icosahedron	Hexahedron (cube)
Connectors needed	 x 4	 x 5	 x 6	 x 5 x 1	 x 20	 x 12	 x 8
To make, start with:							
Number of rods used	8	6	12	10	30	30	12
Notes	Produces a very rigid form 4 faces	 can add base diagonal	Very rigid form 8 faces	Perhaps use as a hat or a stand 8 faces	Not as difficult as it looks 12 faces	About 18cm dia if 8cm rods used 20 faces	 can add diagonal
Solid polyhedrons (for easy reference)							

Kre8® Maker
Making a Tetrahedron

NOTES

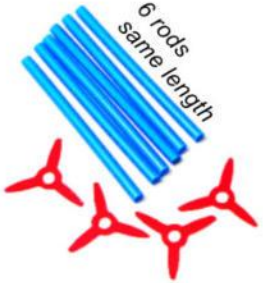
ROD SIZE
The tubes can be cut to length wanted using snips or scissors



snips or

good scissors

Tetrahedron forms are rigid and stable because they are only made from triangles.



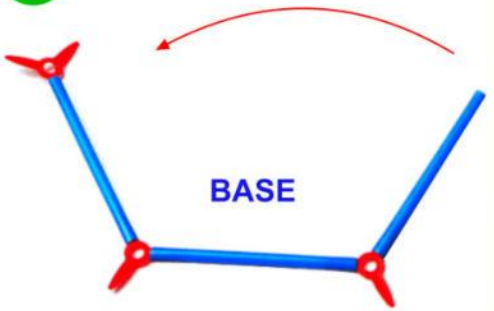
Parts needed

Collect these parts

1

Start top part by pushing a 3 star connector into a rod end

2

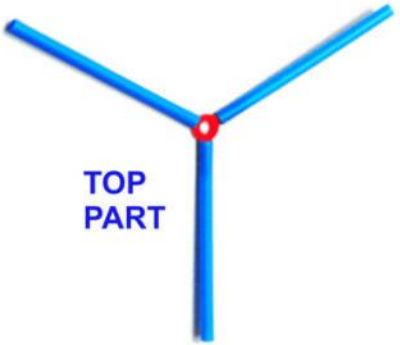


Start **base part** like this then ....

3

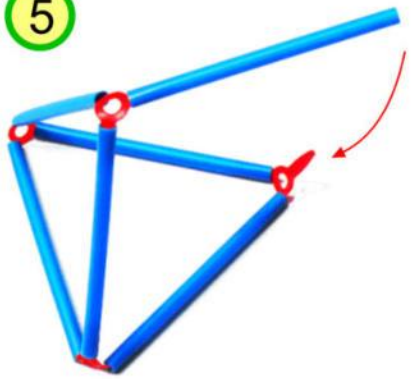
.. join the ends together

4



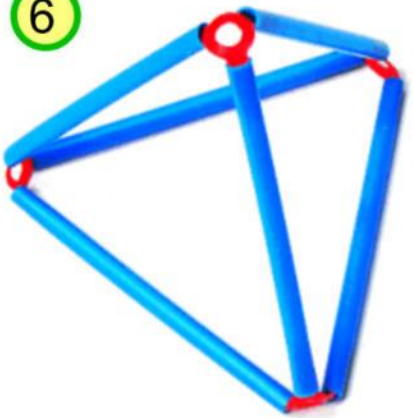
then make **top part**

5



Add **top part** to **base part**

6



Completed **tetrahedron**

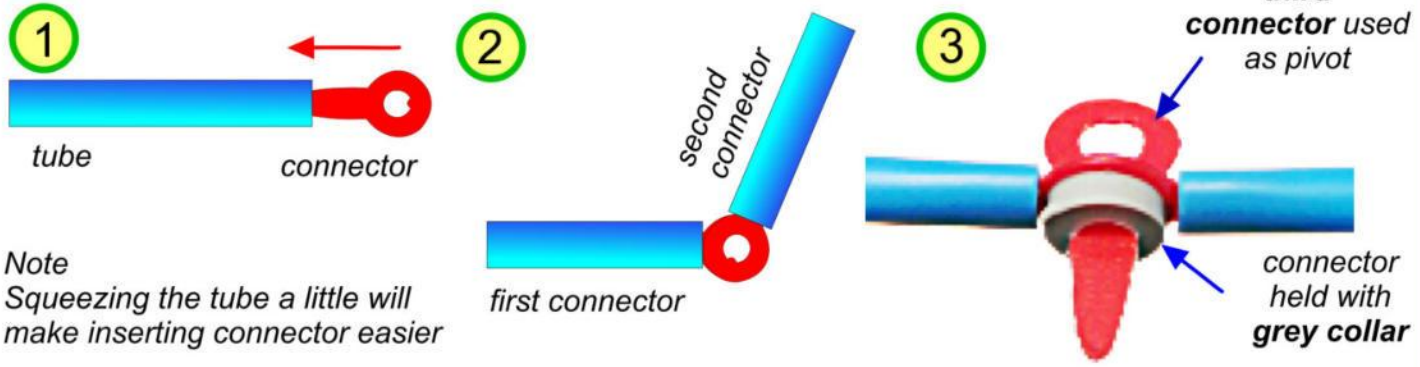
Kre8® Maker
Using Single Connectors

Assembly
Cut tubes to length required
e.g. for 20cm - use as supplied
for 10cm - cut rods in half

Adding connectors
Avoid buckling by
holding the connector hole part
when pushing into the tube

Tip *Connectors push in easier if tube is lightly squeezed while it is being inserted.*

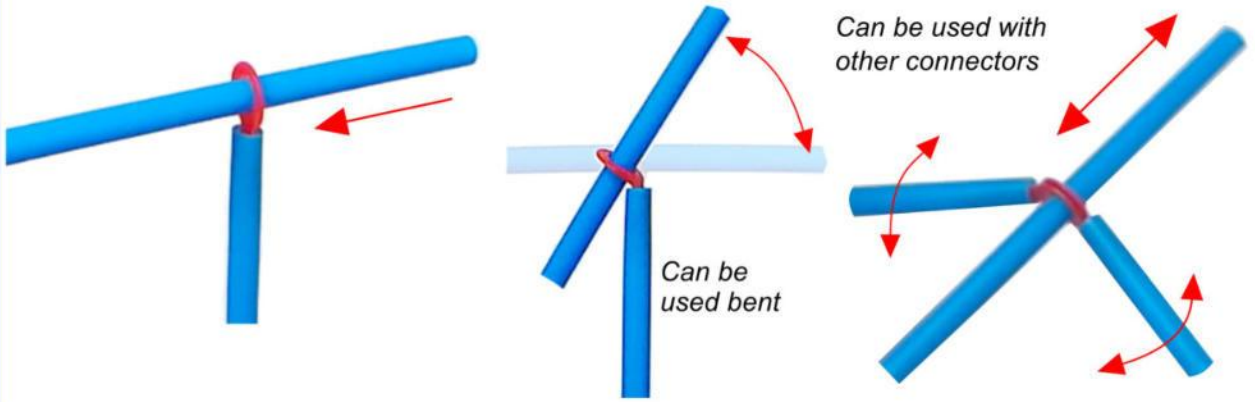
Using a connector as the pivot point



Note
Squeezing the tube a little will make inserting connector easier

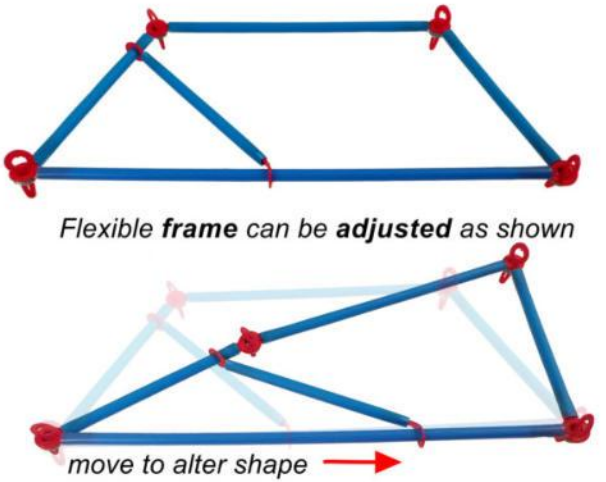
Add **connector** to **tube** | Place **second connector** on top | Join using **third connector**

Adding 'single connectors' on tube



Slide tube in the **connector hole**

Use as wanted

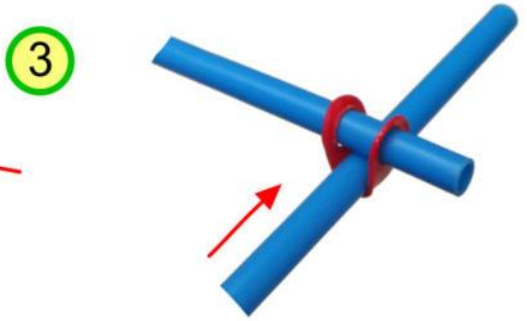


Example in use allowing movement

Kre8®Maker
Using Cross Pieces

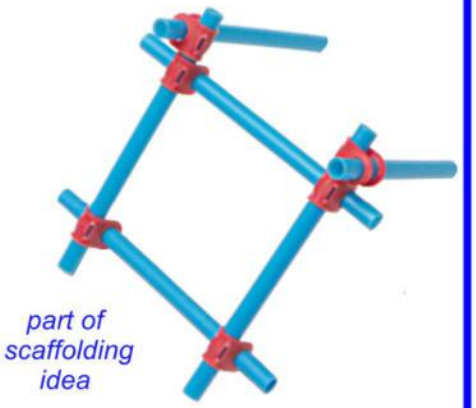
Slide **cross piece** on **tube**

Bend over to make a loop



Slide **second tube** into the **loop**

Three Examples using Cross Piece

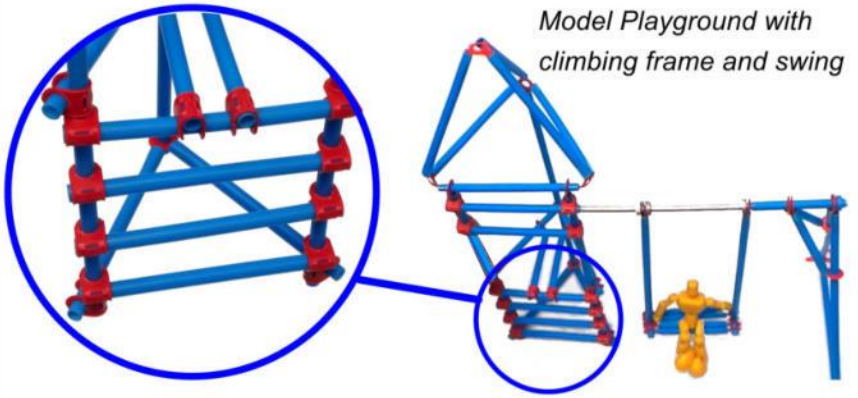


part of scaffolding idea

[1] Scaffold frame

model ironing board that folds up

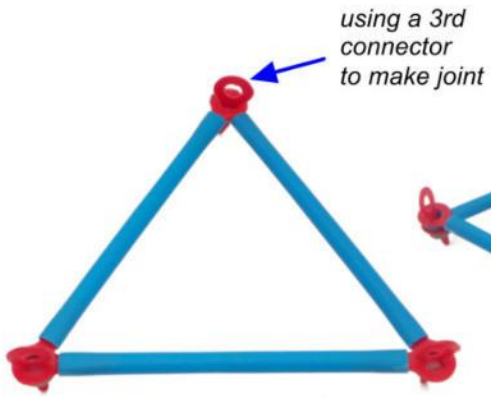
[2] Ironing Board

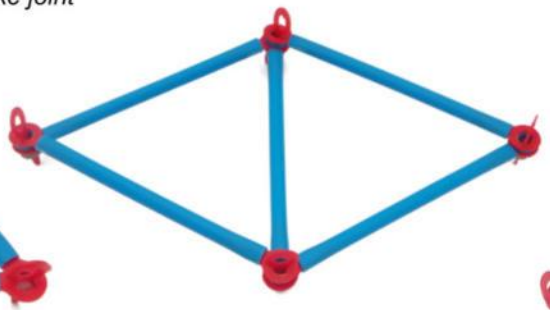


Model Playground with climbing frame and swing

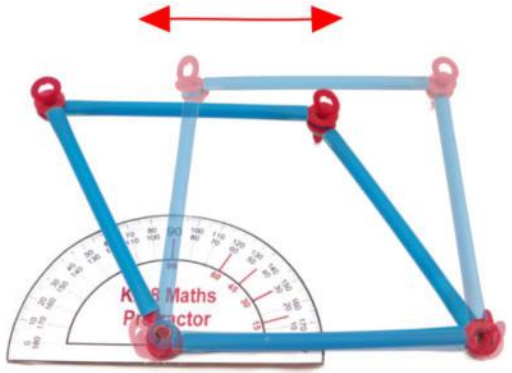
[3] Climbing Frame

Kre8®Maker
More Single Connector Examples



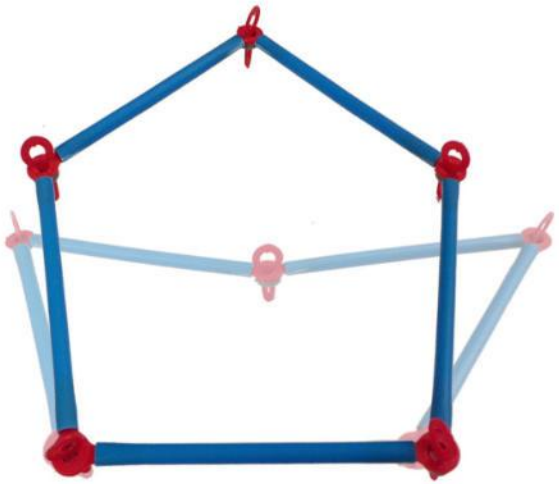


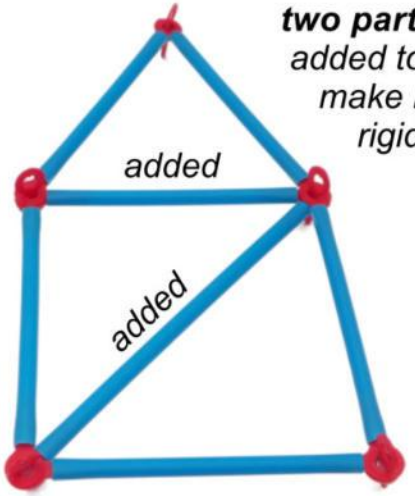
'fixed rigid' shapes



measuring ***angles***

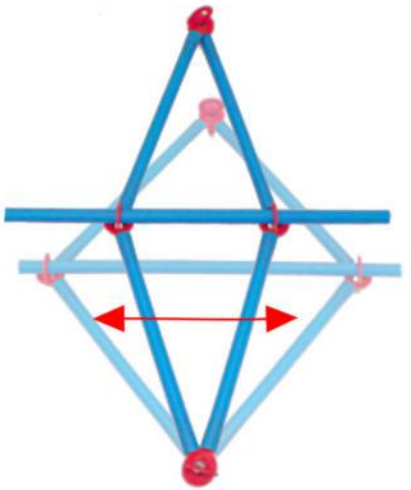
'moveable' shape





two parts *added to make it rigid*

Movable shape .... and .... after being made **rigid** by **triangulation**

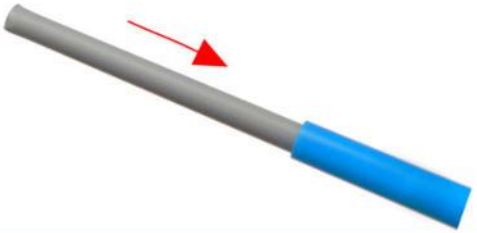


adjustable shape

Kre8® Maker
Using the Grey Tube

To join two 5mm Tubes using a Grey Tube

1 You may need to join two blue tubes to create a longer tube

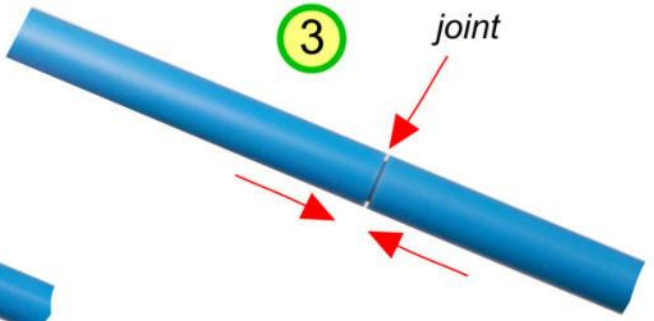


Push **grey tube** into **blue tube**

2

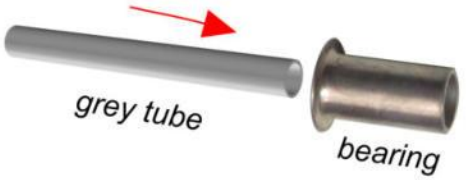
Push second blue tube onto **grey tube**

3



Both tubes joined

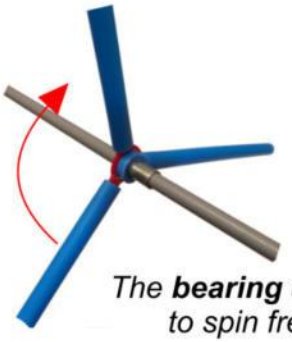
Spinning on a Kre8® Grey Tube



NOTE
Grey tube is 3.9mm** and **bearing inside diameter is 4mm

Using a **metal bearing**

star connector** with **three tubes** and **bearing



*The **bearing** allows it to spin freely*

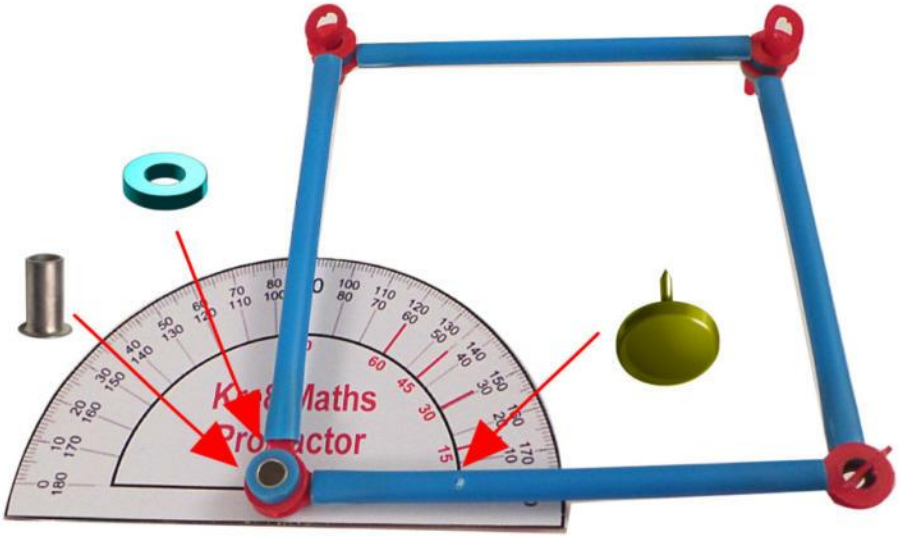
Bearing placed in **star connector** - will spin on **grey tube**

Wheel on **grey tube**

Kre8®Maker

Kre8®Maker Protractor used to Measure Angles

Template to measure angles



*Add drawing pin to hold tube in place insert from **behind***

Make your own Protractor

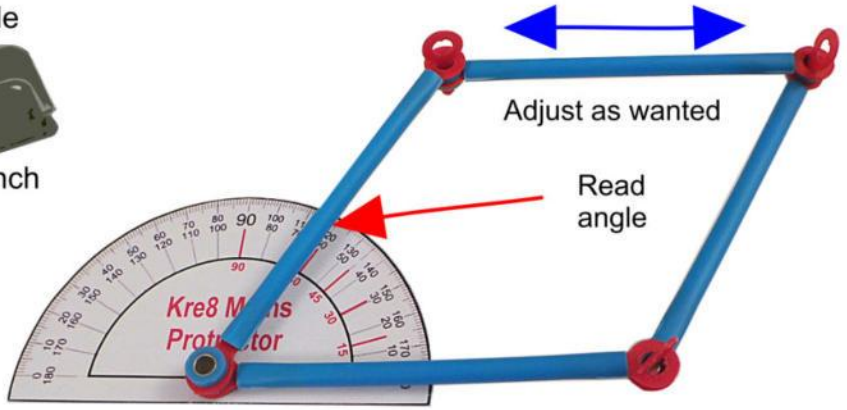
1) **Cut out** the **Kre8®Maker protractor** above

2) **Glue to a piece of card** (or plastic laminate) to stiffen it.

2) **Punch the hole** using a 'paper hole punch'
(TIP- remove back of paper punch so you can punch accurately)

3) Place **metal bearing** through **hole** and fix **Kre8®Maker protractor** with **blue collar** as shown.

4) Fix **one tube** along **zero degrees line** using a **drawing pin** pushed in from the **back.**



Note - Drawing pin does not show as it added underneath