EXPERIENCE WORKSHOP

THE EXPERIENCE-CENTERED MATH/ART MOVEMENT

www.experienceworkshop.org

KIKS

Kids Inspiring Kids for STEAM

Experience Workshop's STEAM Learning Material

EXPERIENCE WORKSHOP'S 4DFRAME WIND & WATER POWER: The wind & water turbine

Dr. Kristóf Fenyvesi
University of Jyväskylä

Co-funded by the Erasmus+ Programme of the European Union

EXPERIENCE WORKSHOP

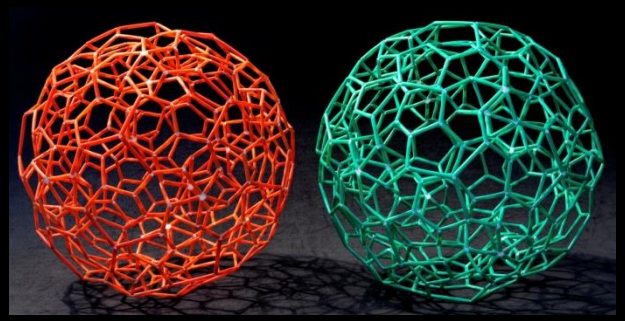
THE EXPERIENCE-CENTERED MATH/ART MOVEMENT

www.experienceworkshop.hu

Introduction of 4D Frame

For Free Imagination and Infinite creativity



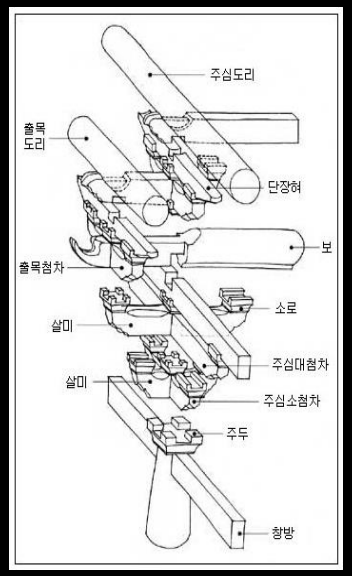



4D Land Corporation / 4D Math and Science Creativity Institute, KOREA

The 4Dframe educational modelling kit is based upon the analysis of building techniques utilized in the construction of Korea's traditional, wooden buildings, in which no any nails have been used.

❖ 4Dframe has been proved to be a very appropriate tool for developing various skills in the transdisciplinary framework of STEAM learning.

Traditional Korean Wooden Palace

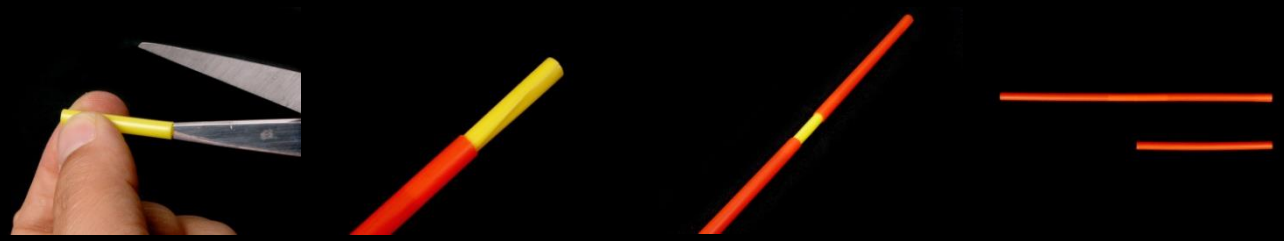


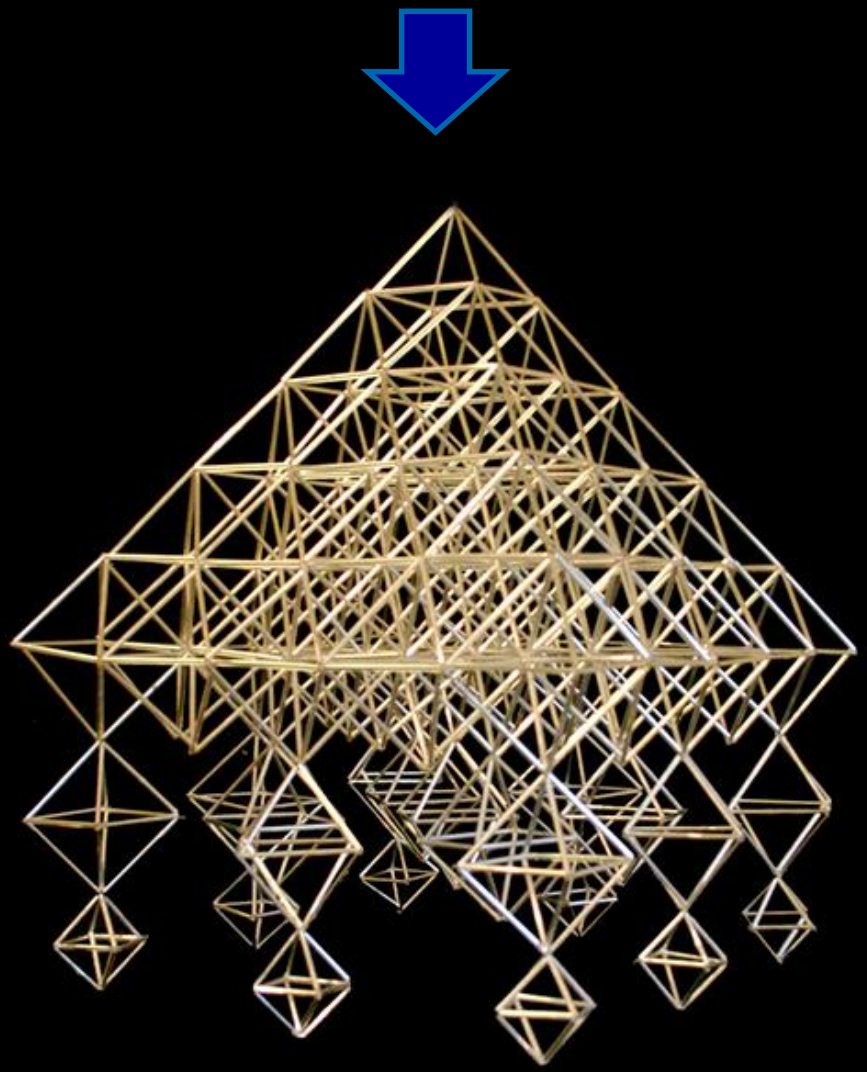
Principle of Architecture

4D Frame Tube

4D Frame Connector

Bend, Cut & Connect!

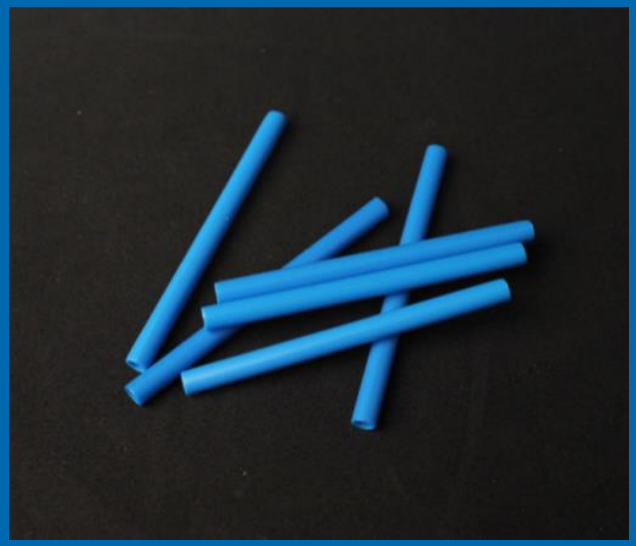


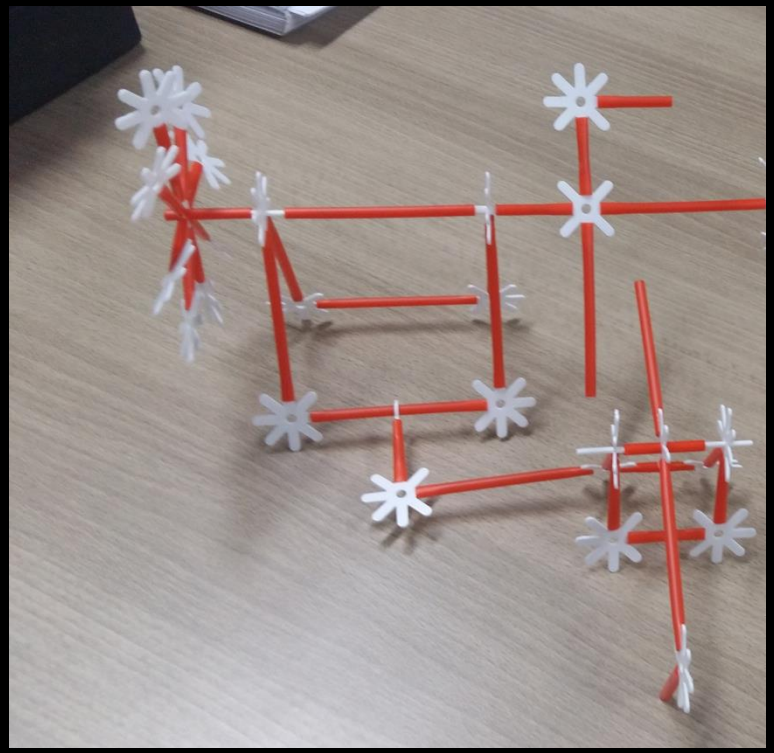


The traditional Nordic christmas decoration: the himmeli


국립중앙과학관
National Science Museum


4D프레임 제3의흙 누리과학체험관
4D프레임 제3의흙 누리과학체험관

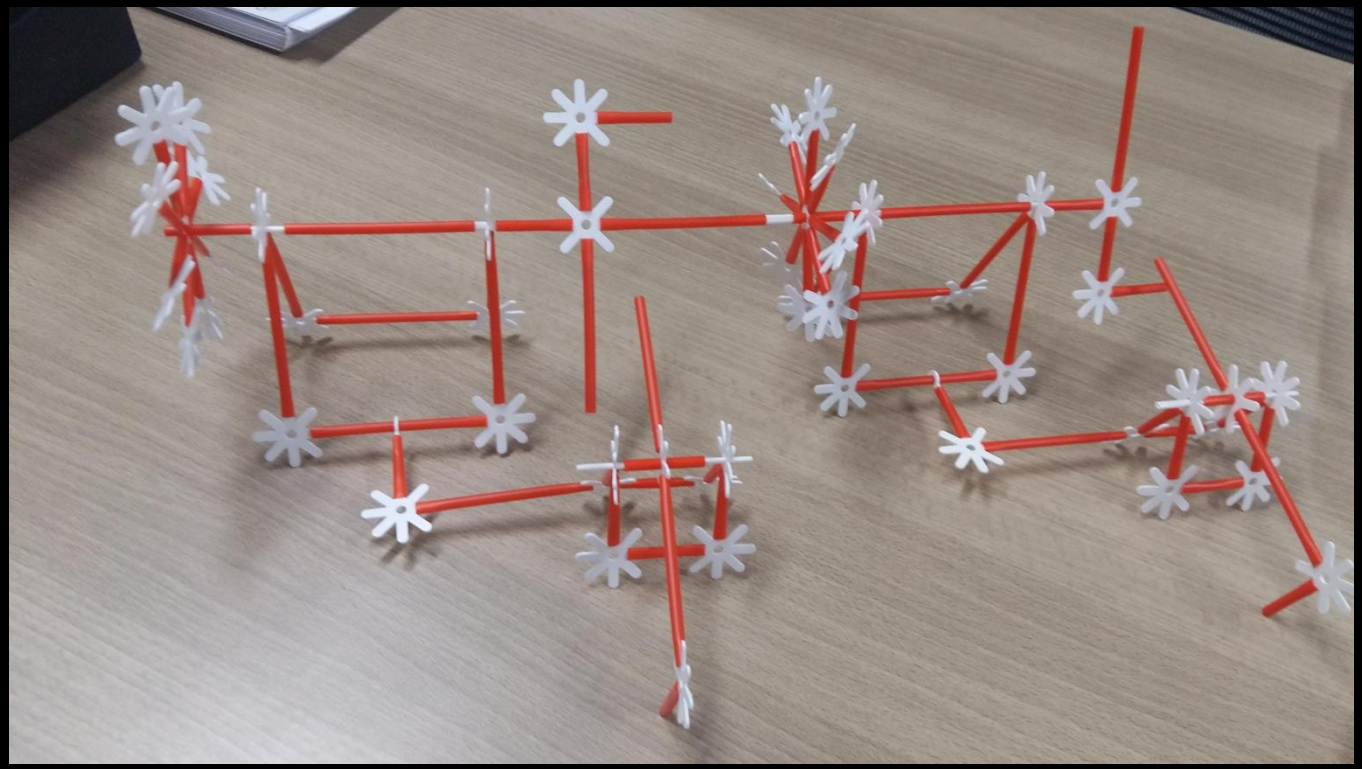




대한민국 발명체험교구
4D프레임
www.4dframe.com

Ingredients:

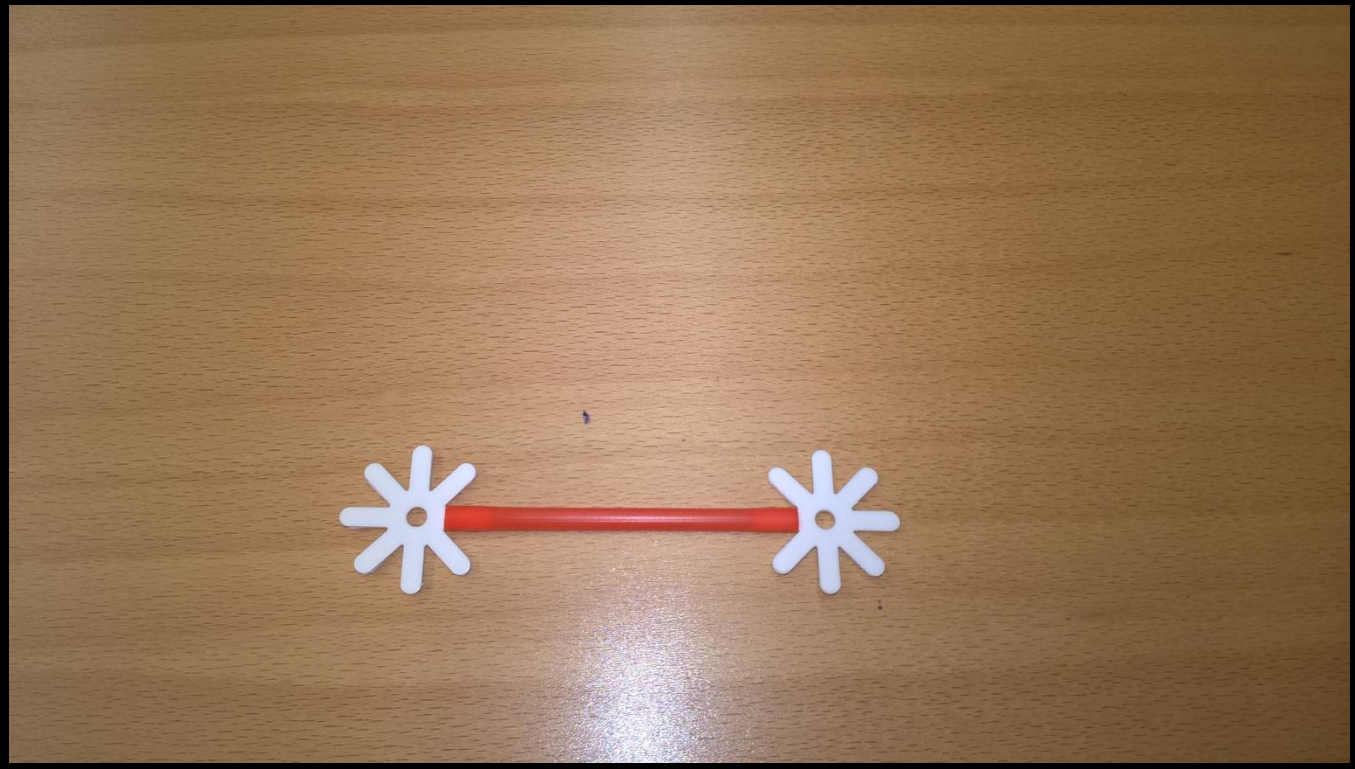
- Long red tube: 7 cms * 12
- Short red tube: 3 cms * 21
- 8-star connector * 26
- white flat connector * 4
- ?-shape connector *1

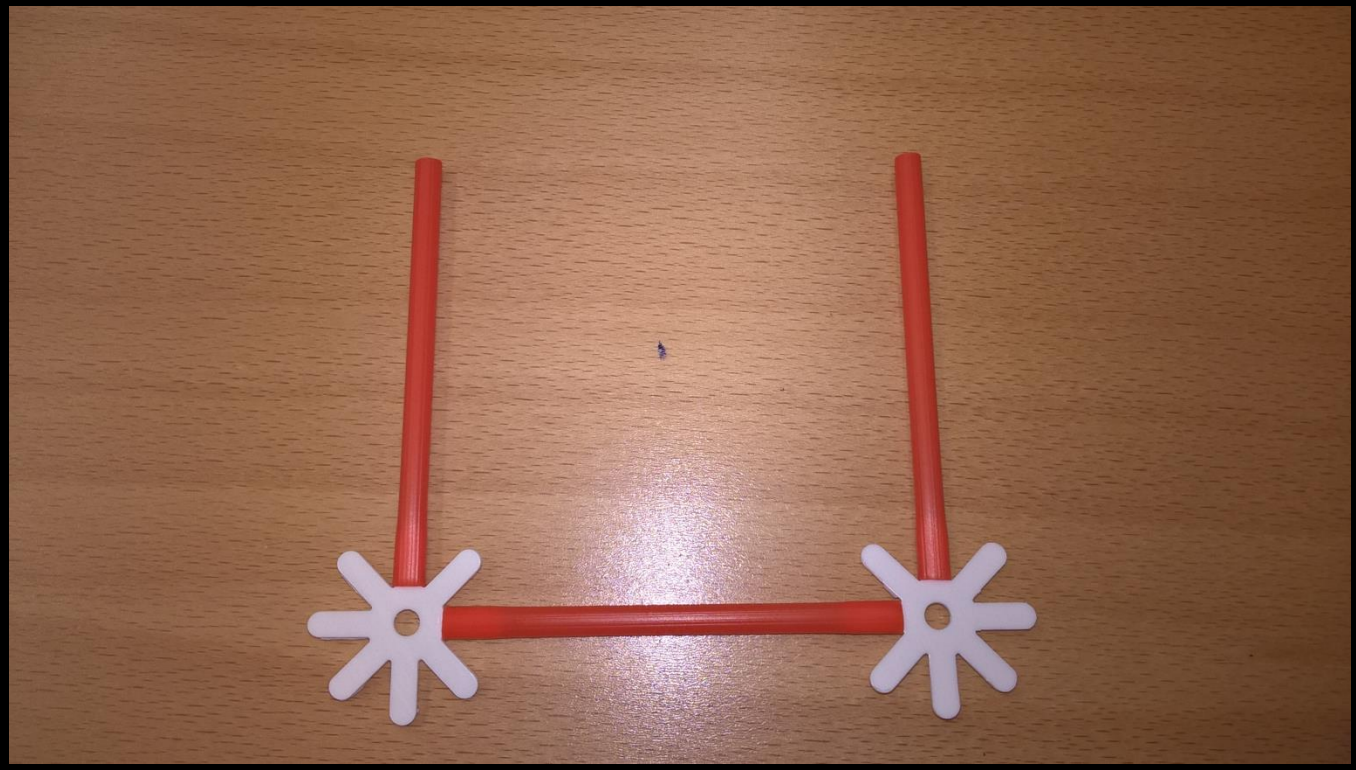


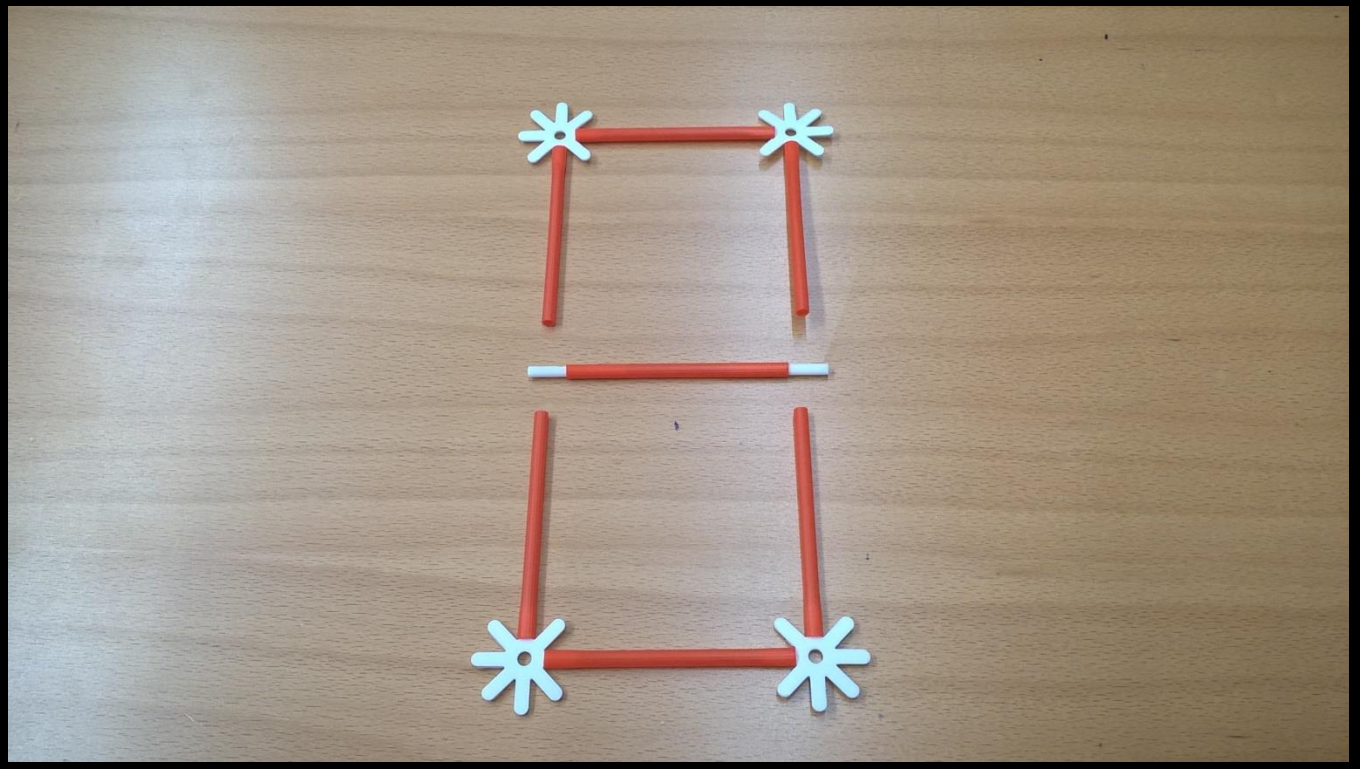
대한민국 발명체험교구
4D프레임
www.4dframe.com

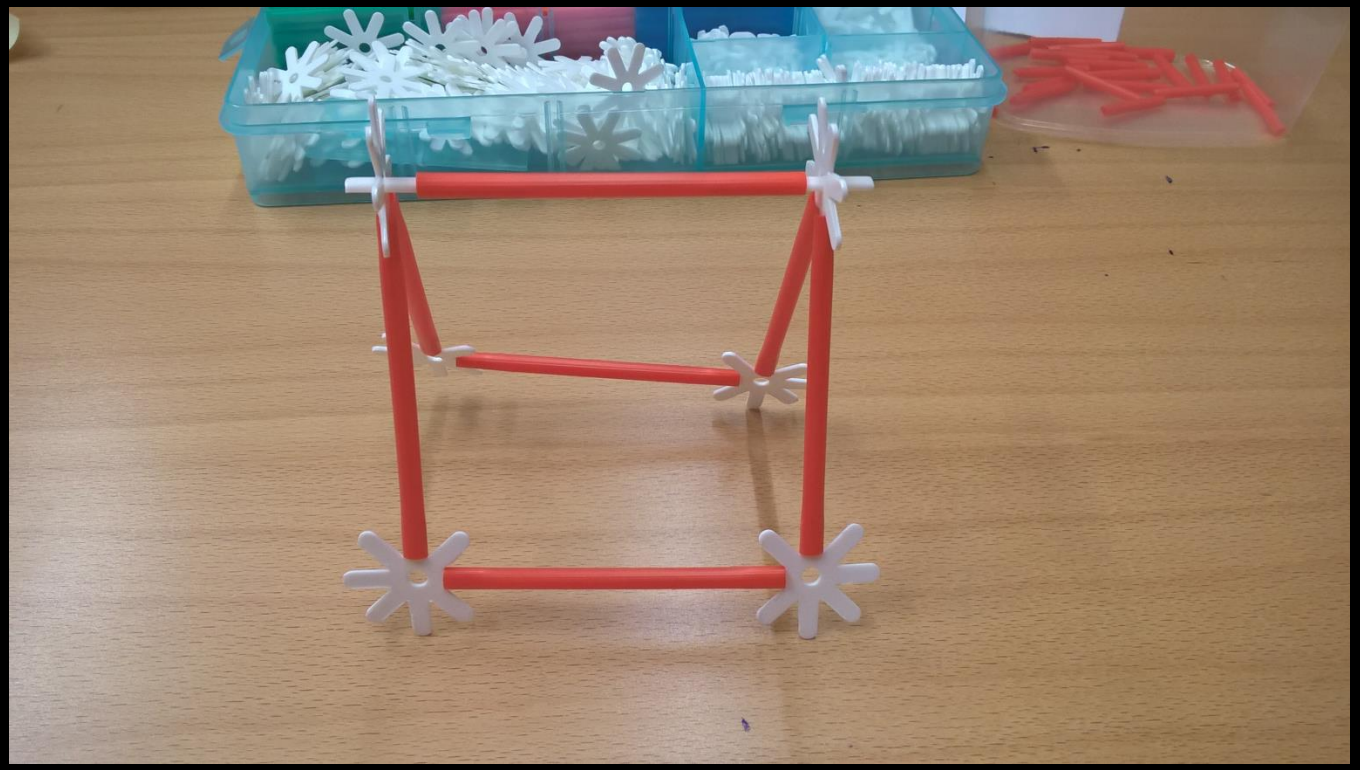
Ingredients:

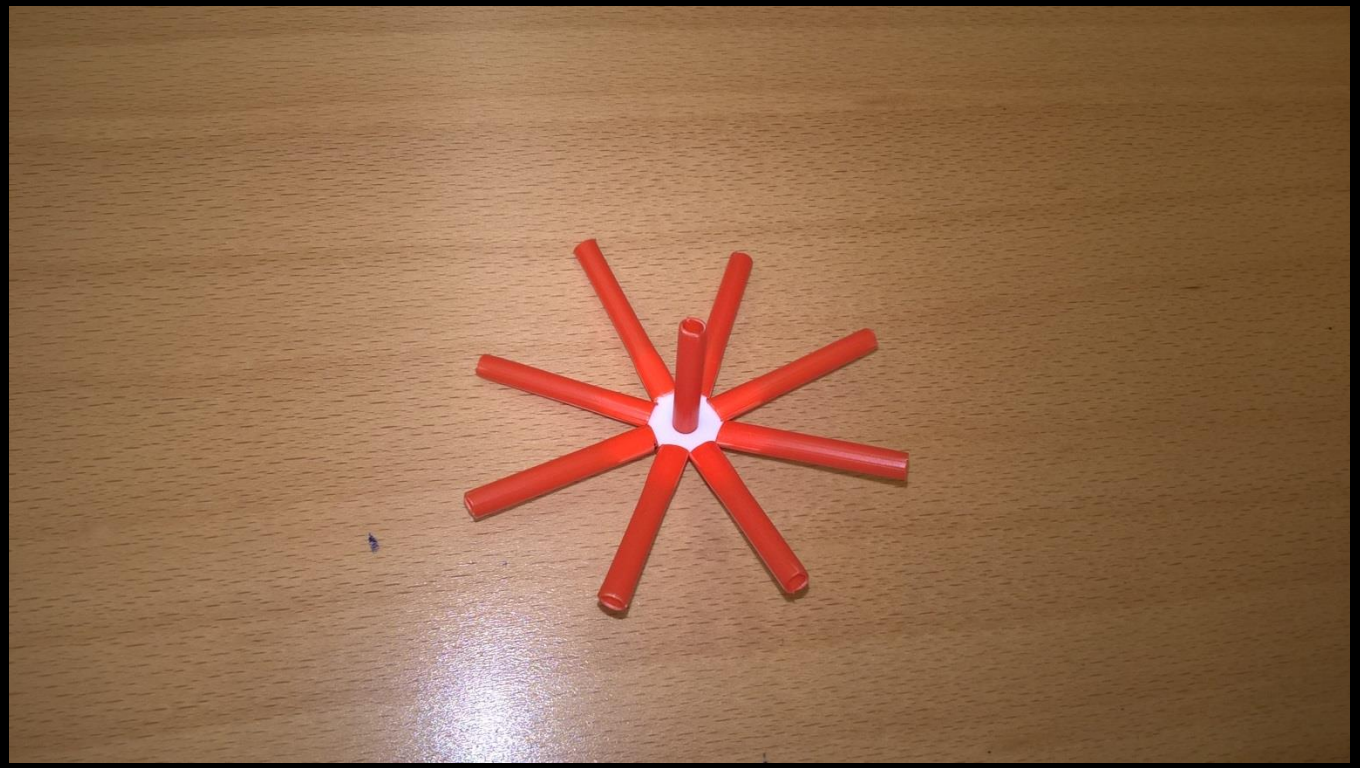
- Long red tube: 7 cms * 12
- Short red tube: 3 cms * 21
- 8-star connector * 26
- white flat connector * 4
- ?-shape connector *1

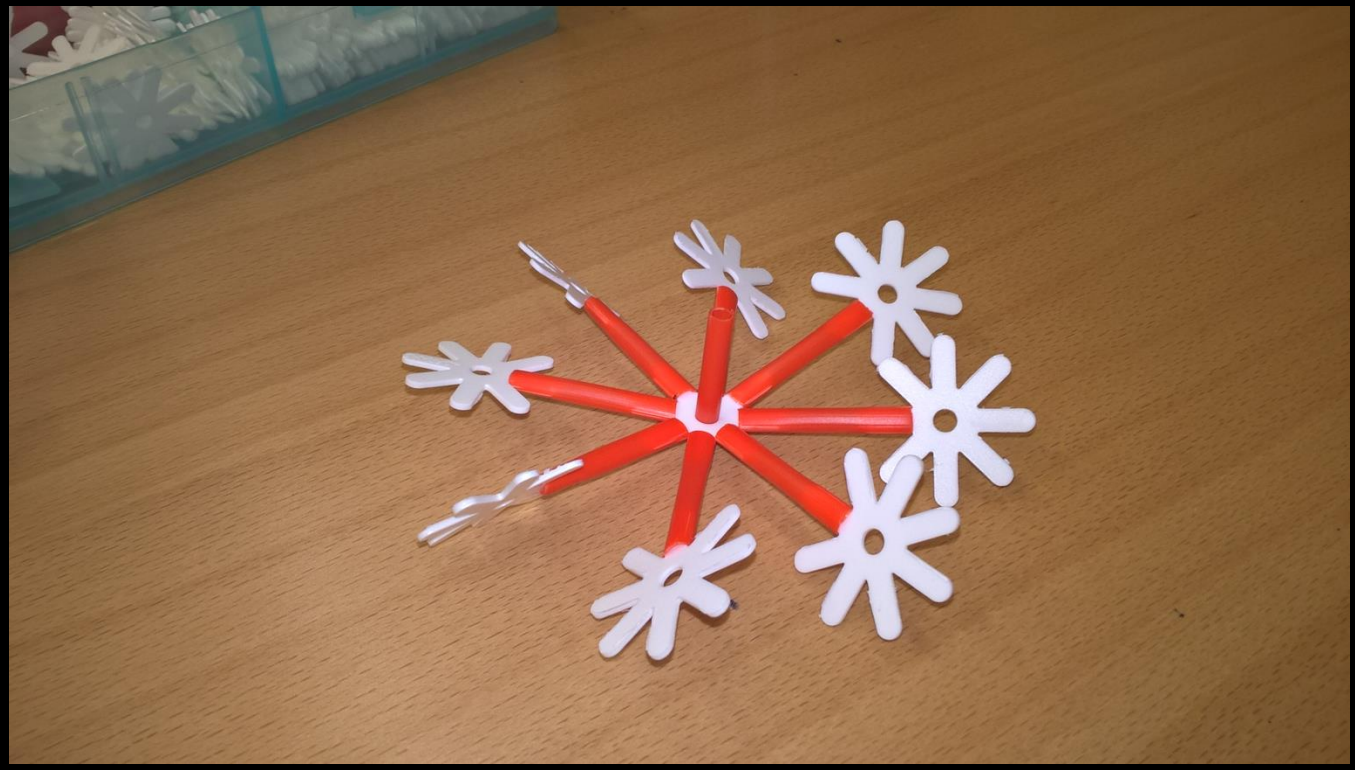


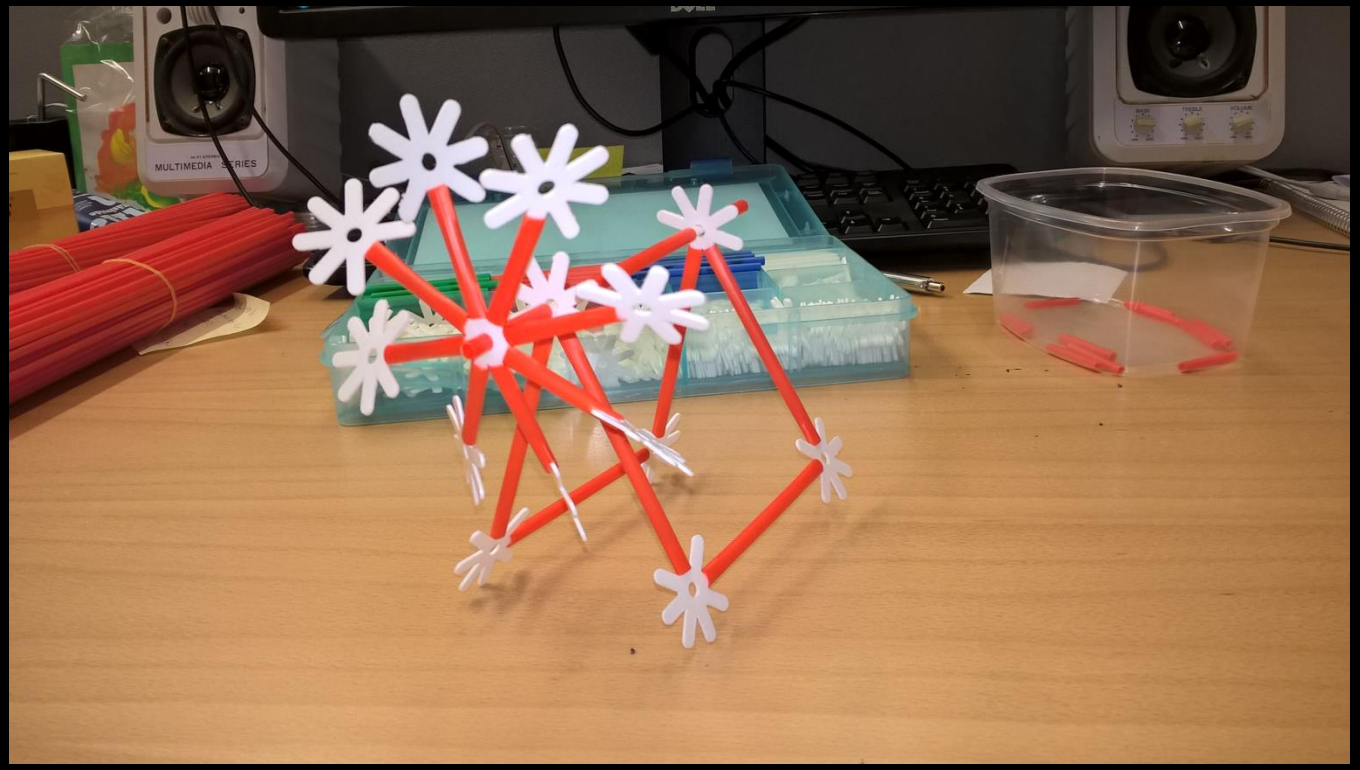


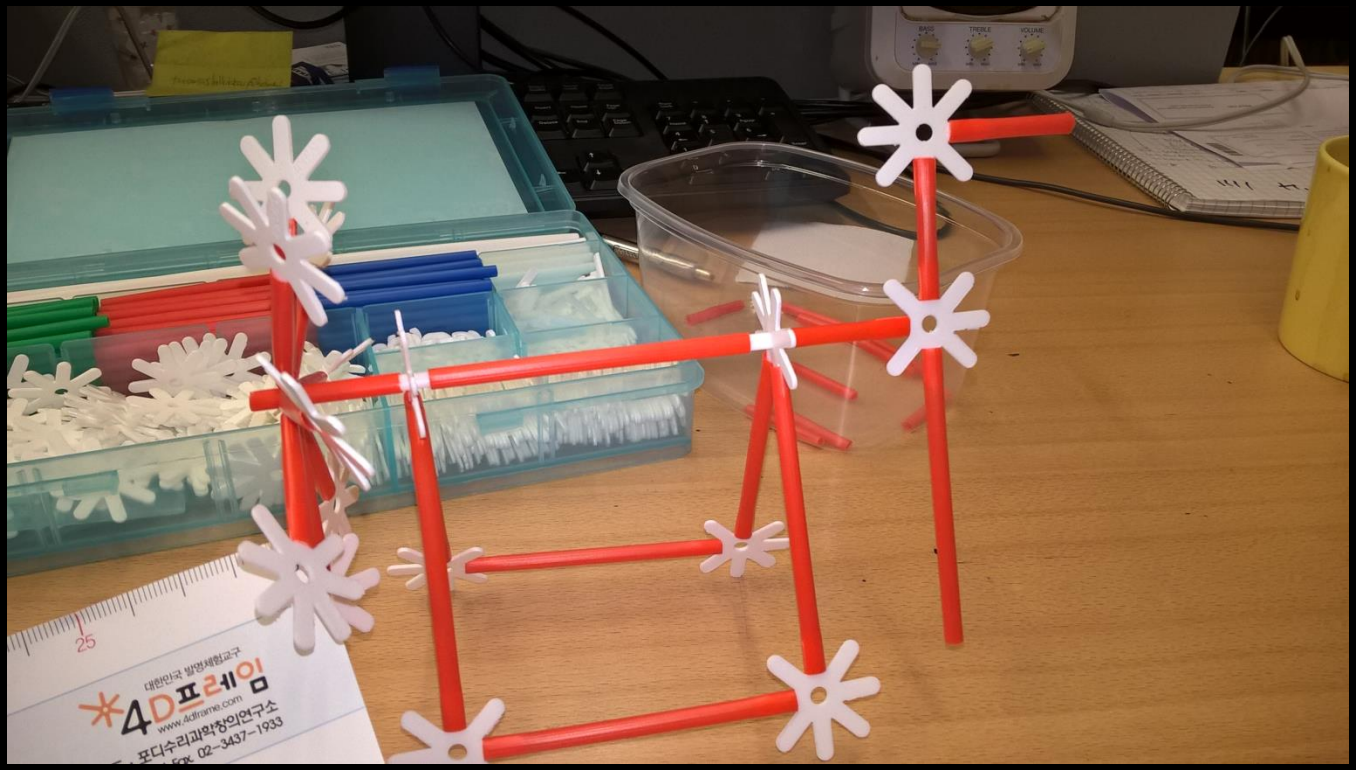


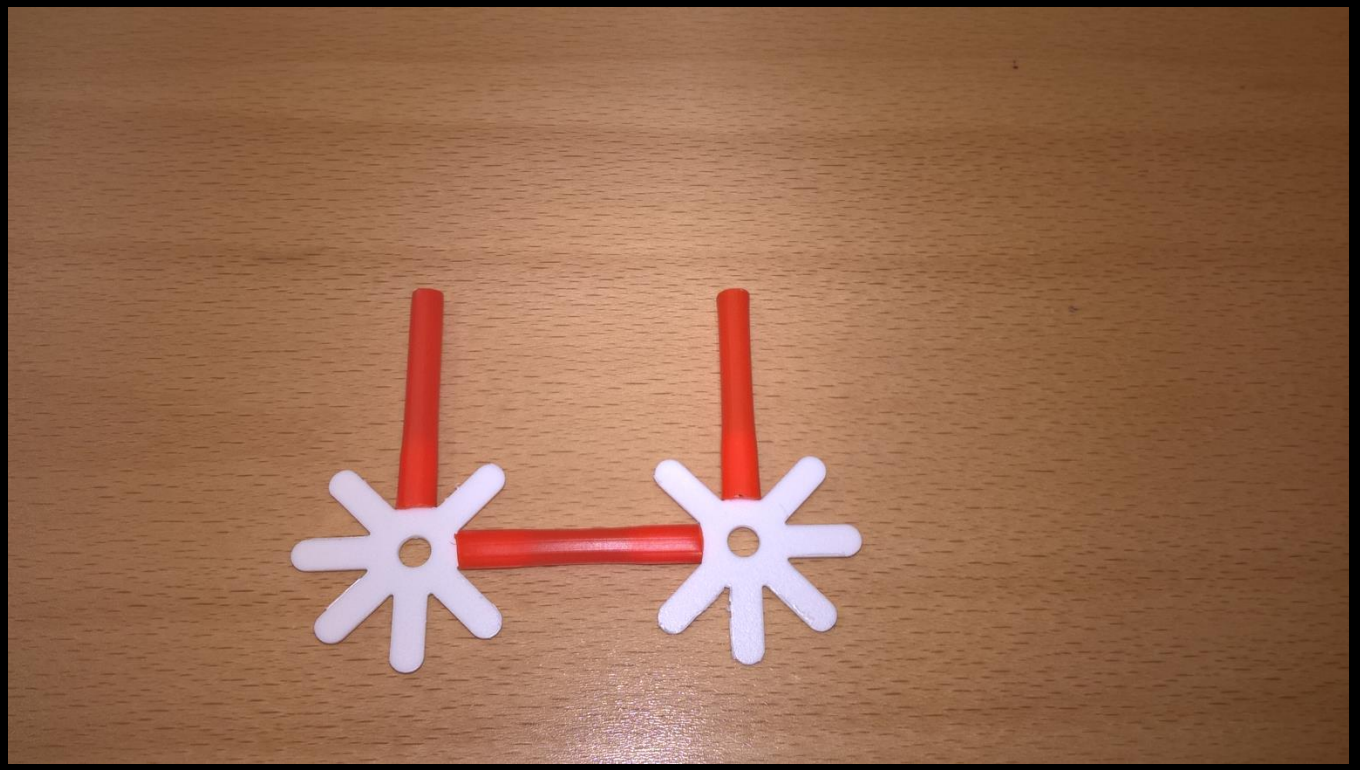


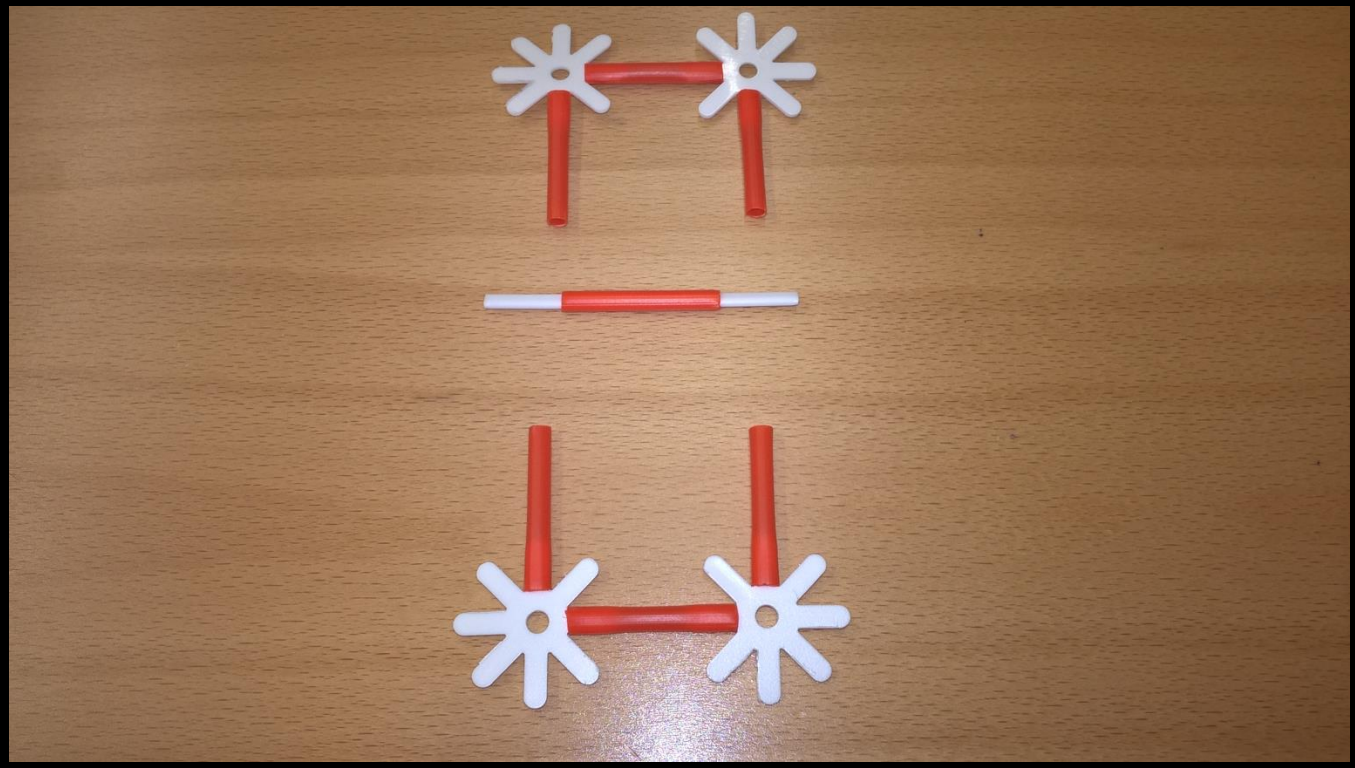


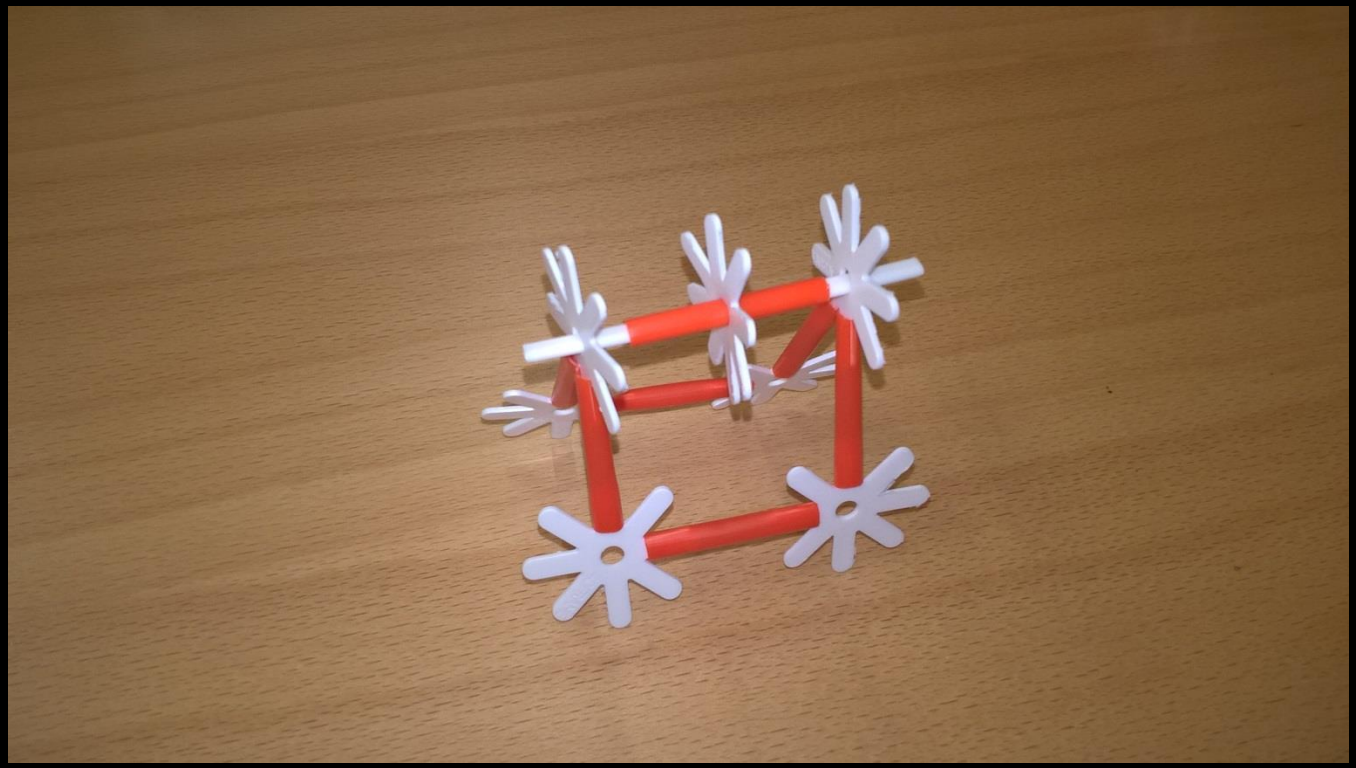


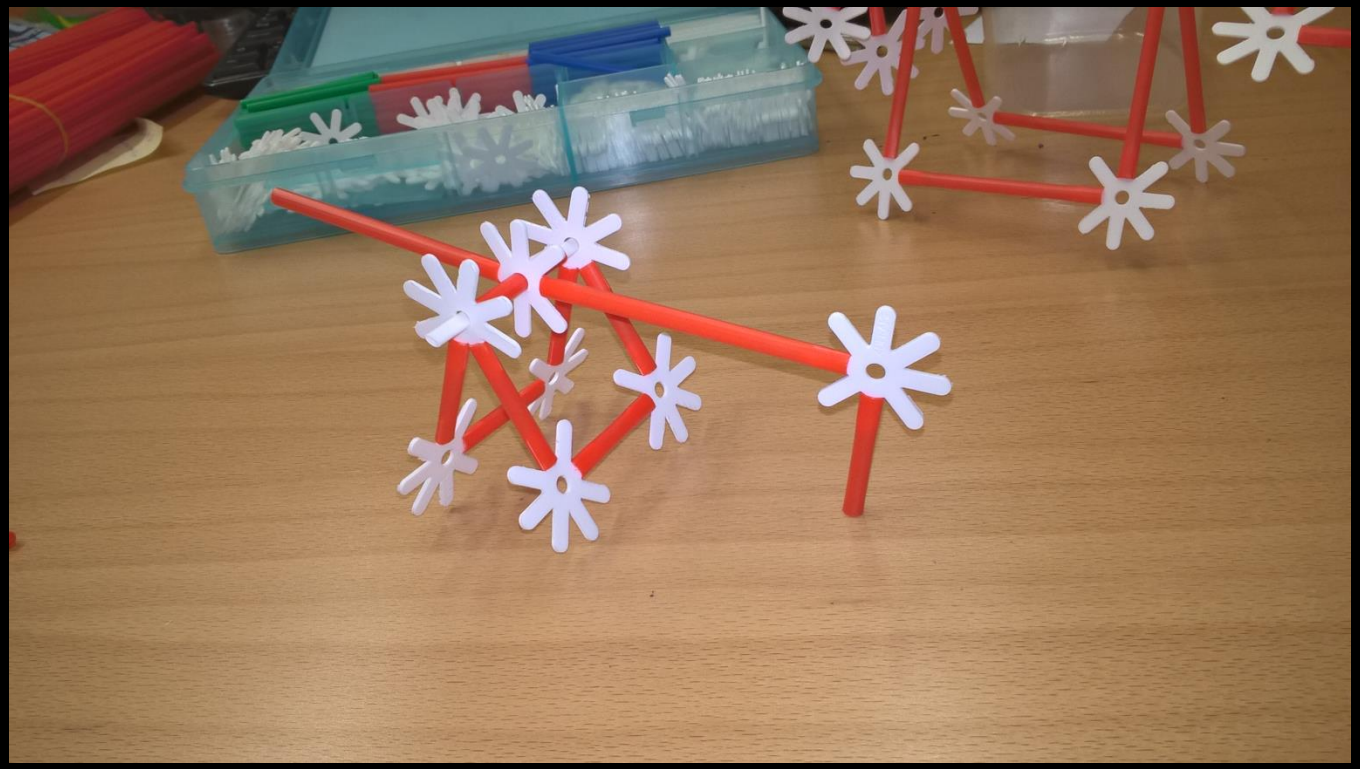


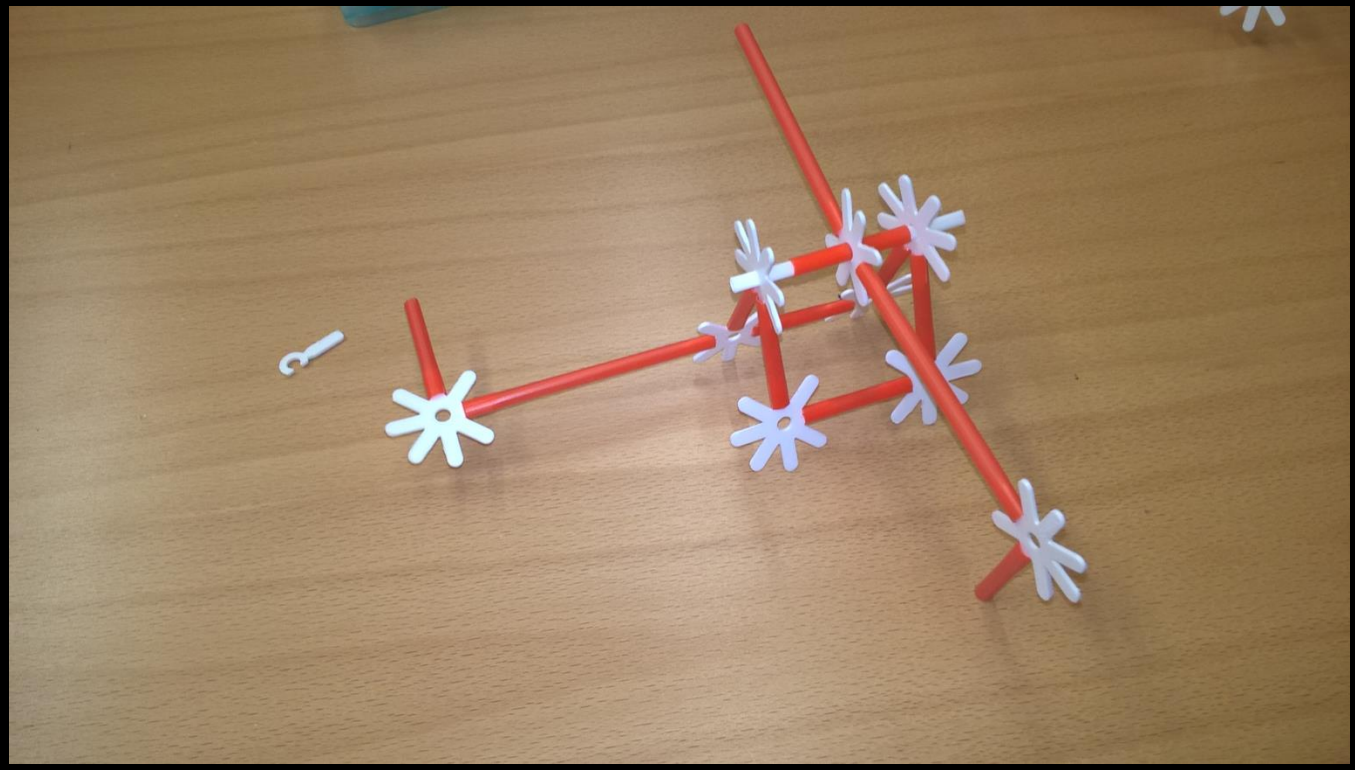


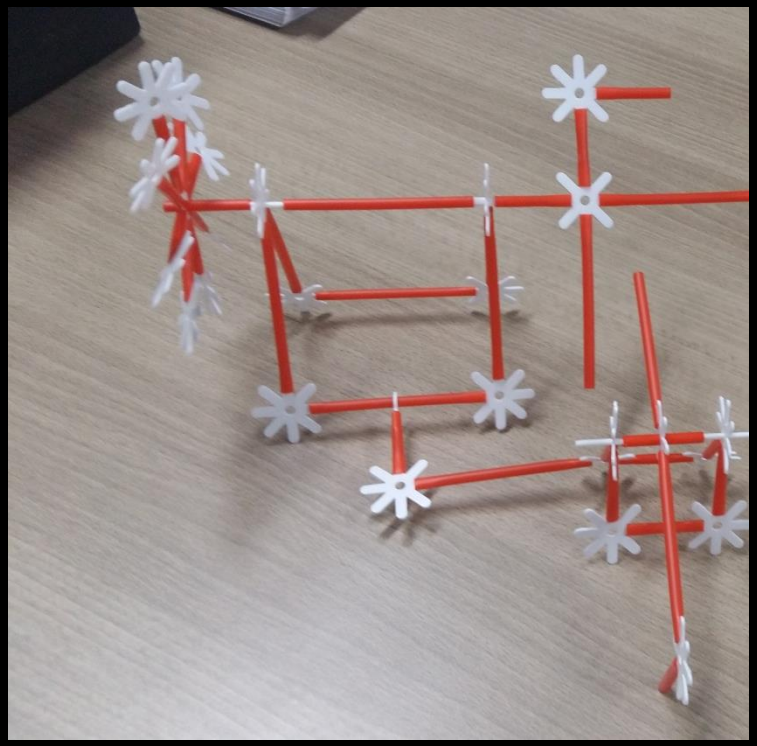


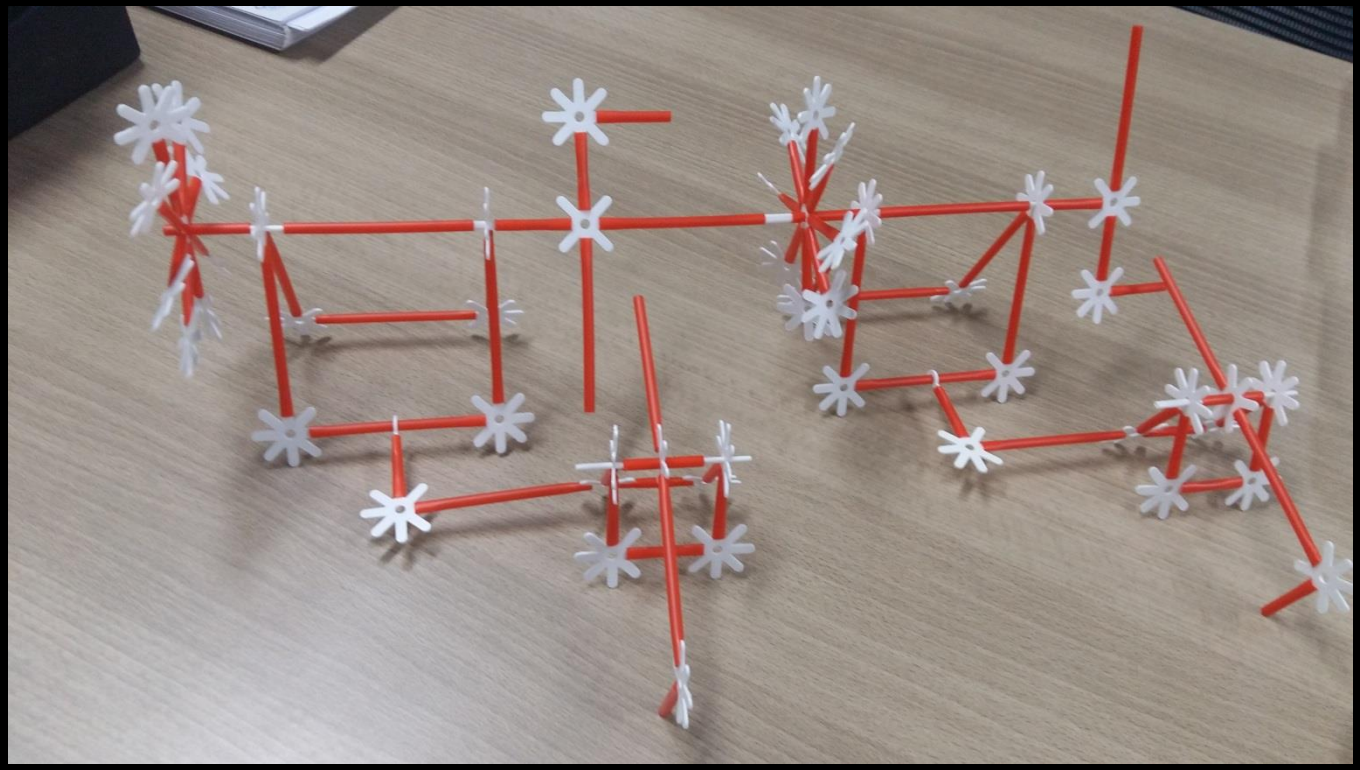


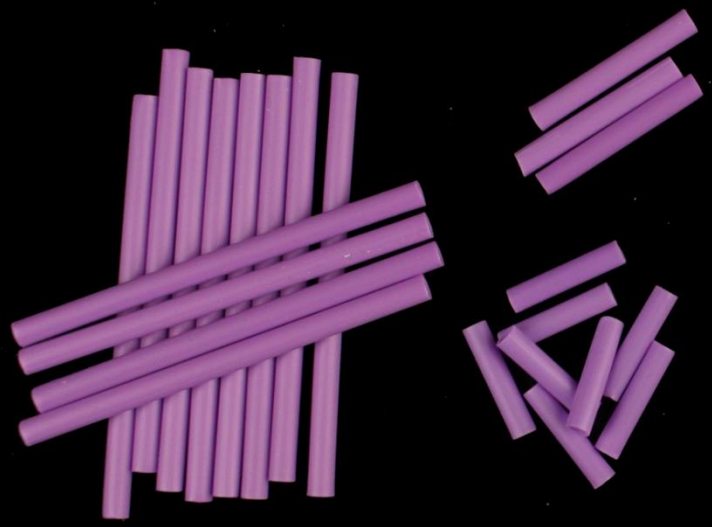




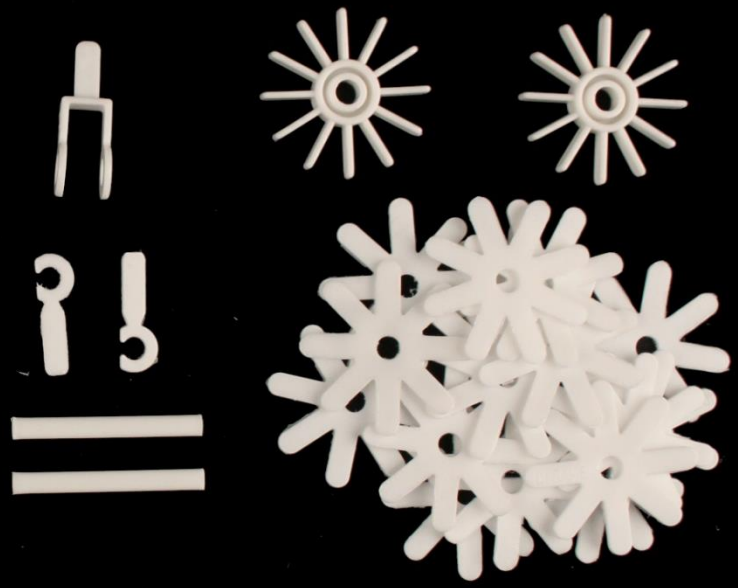






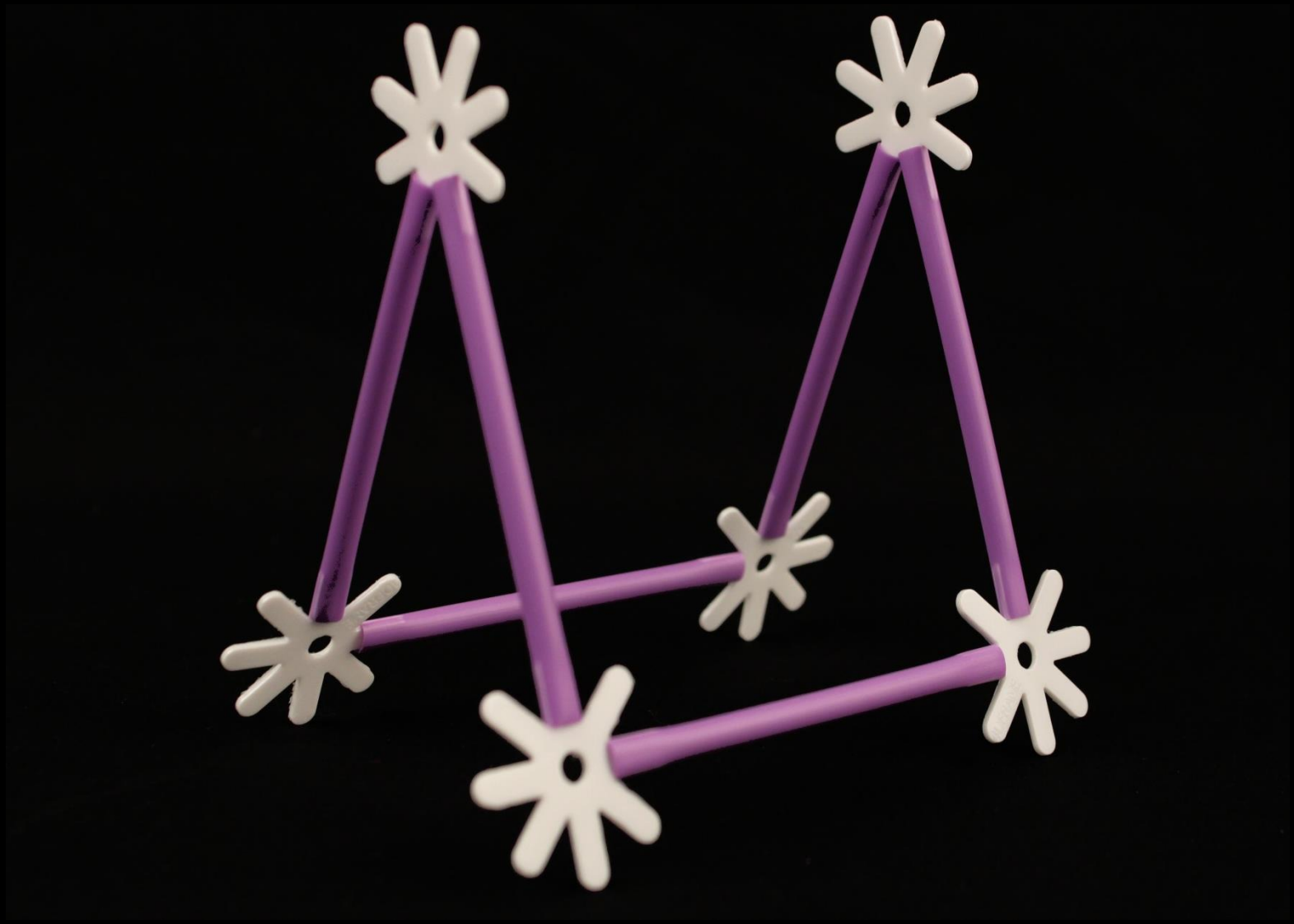


Tube

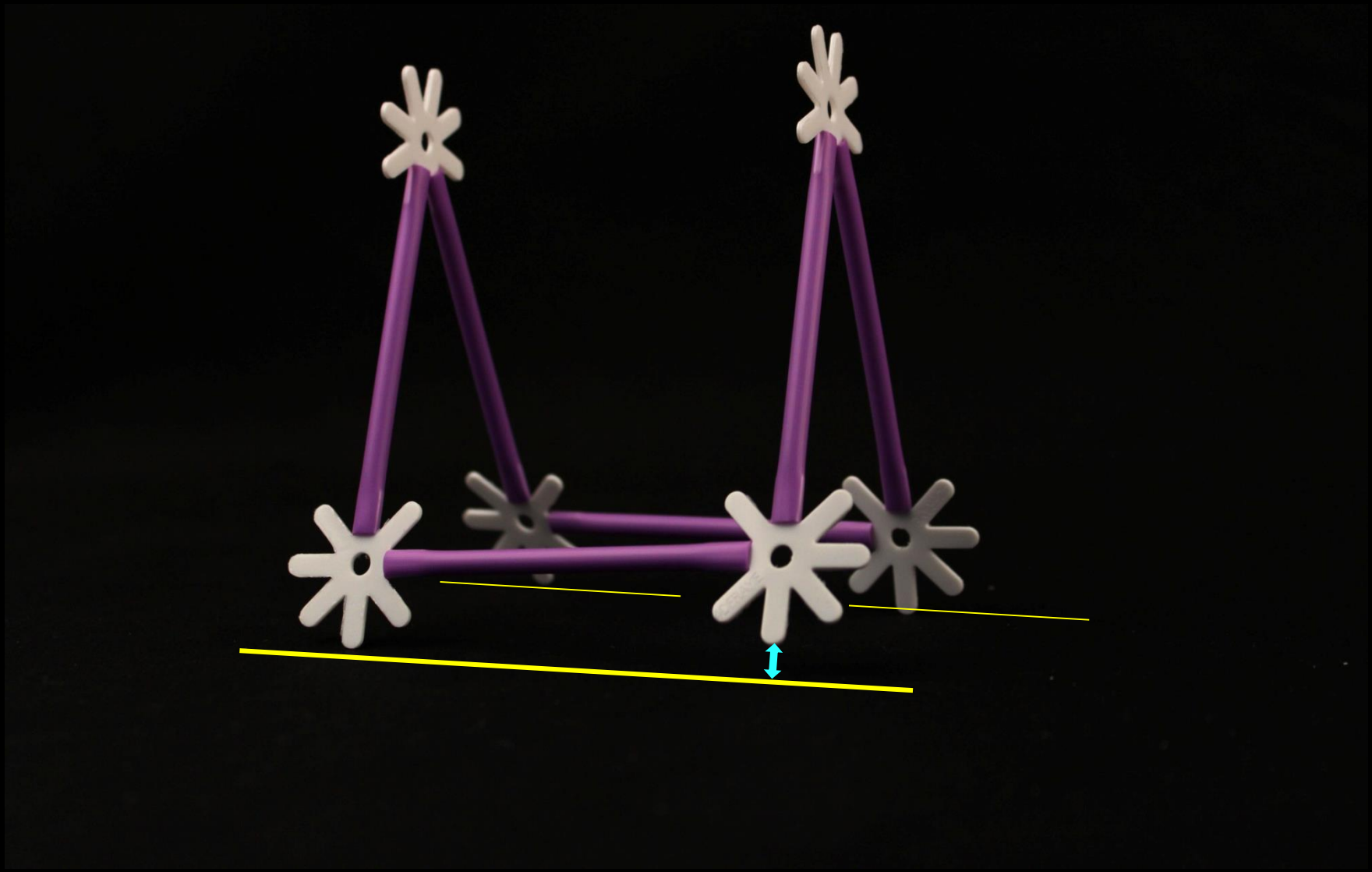


CONNECTING
BRIDGE

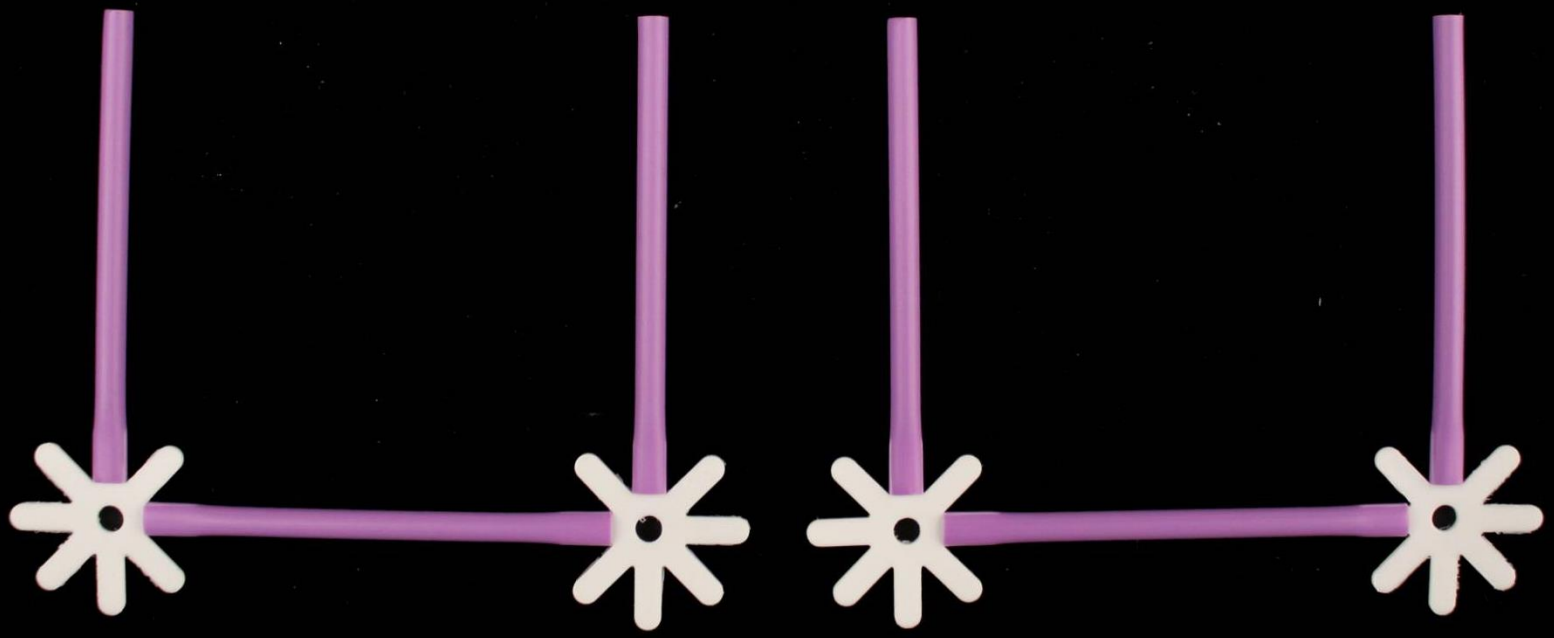
Design the following



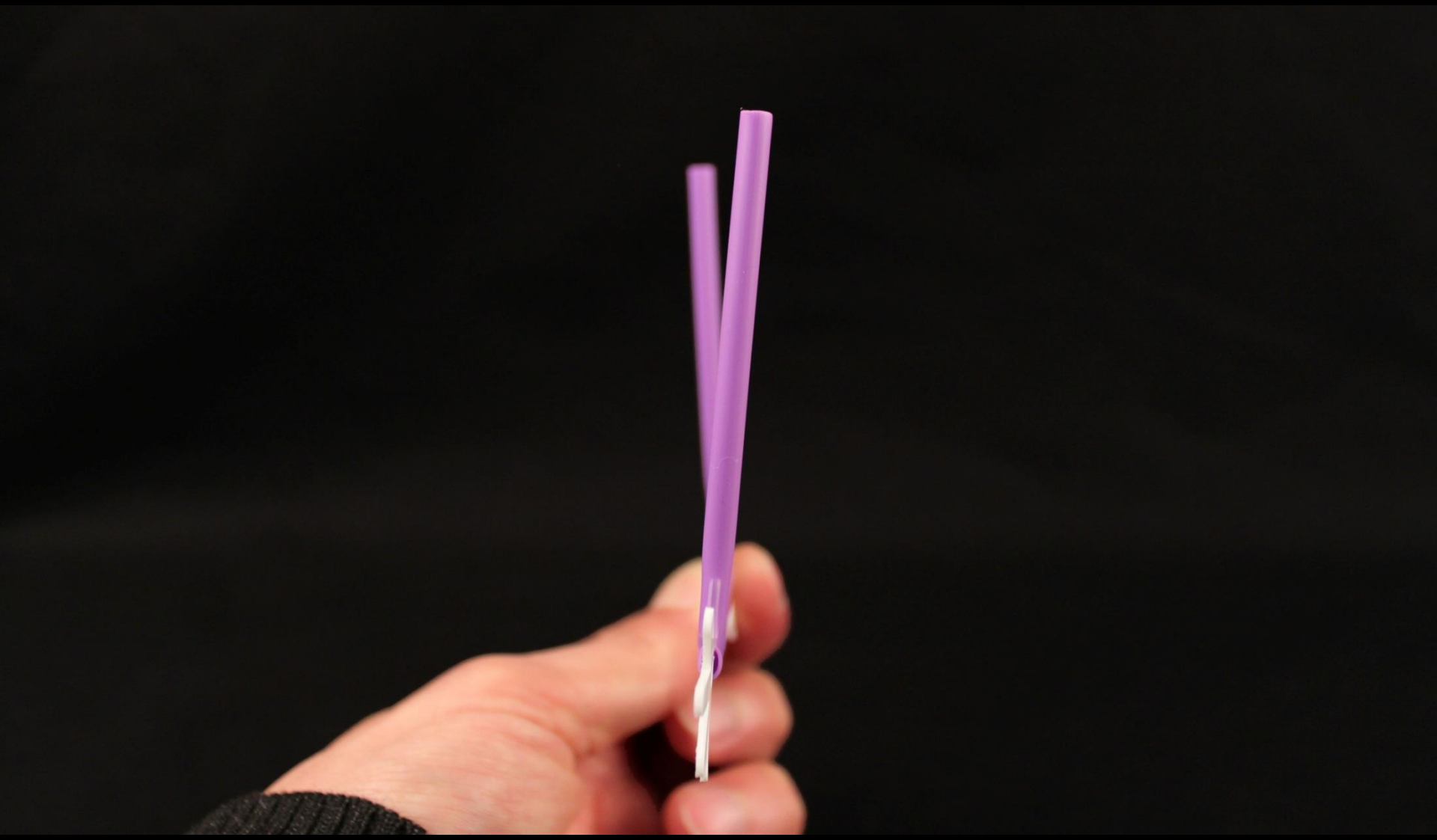
What's the problem? How do you solve?



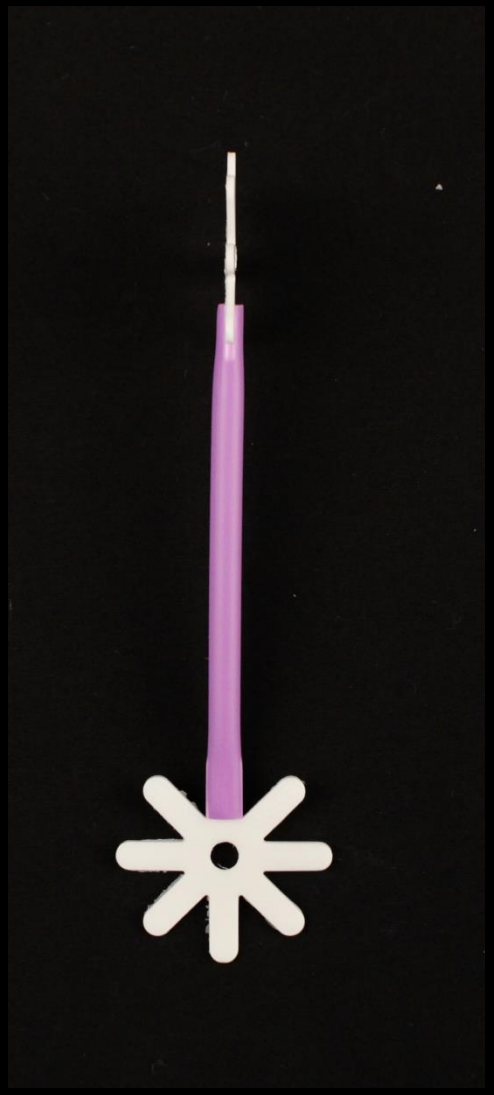
How do you connect?
What's different?
How do you know that?

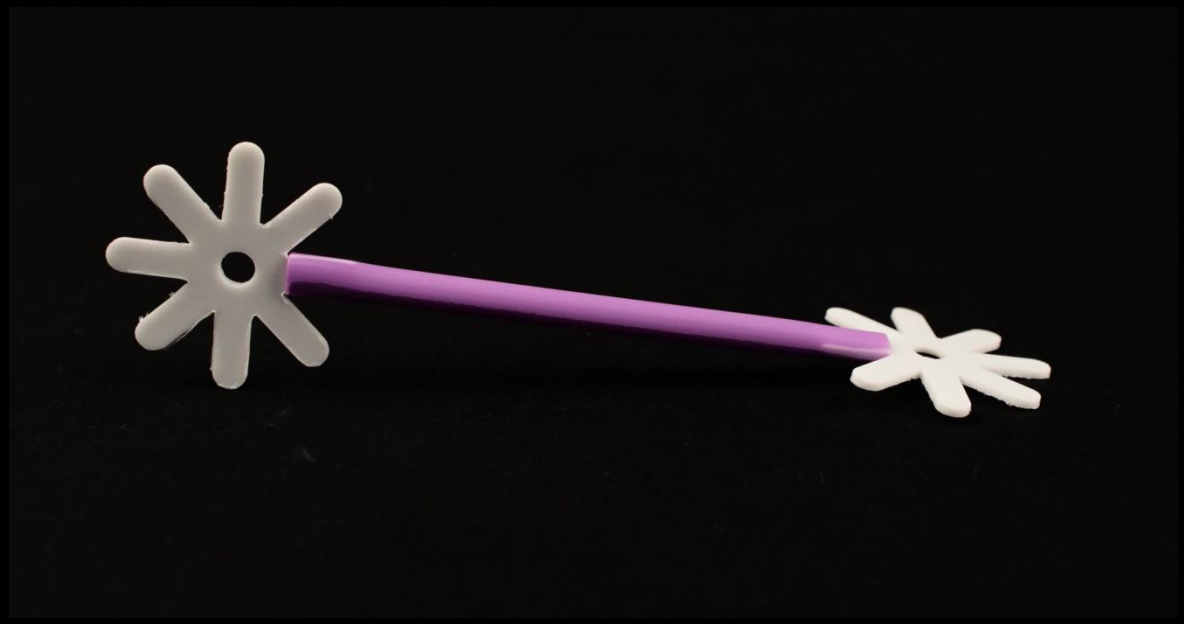


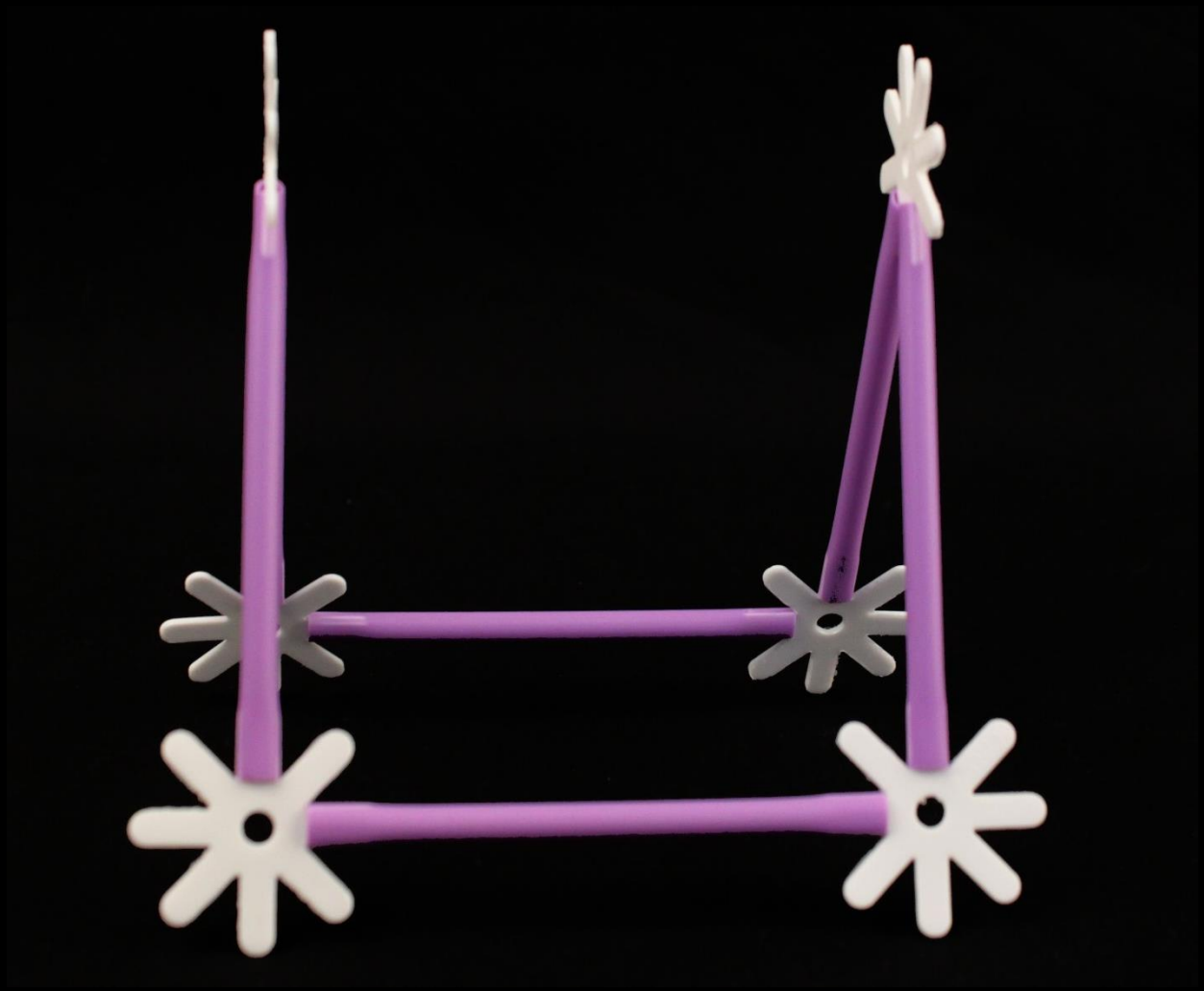
How do sur vey or explore with eyes?




대한민국 발명체험교구
4D프레임
www.4dframe.com

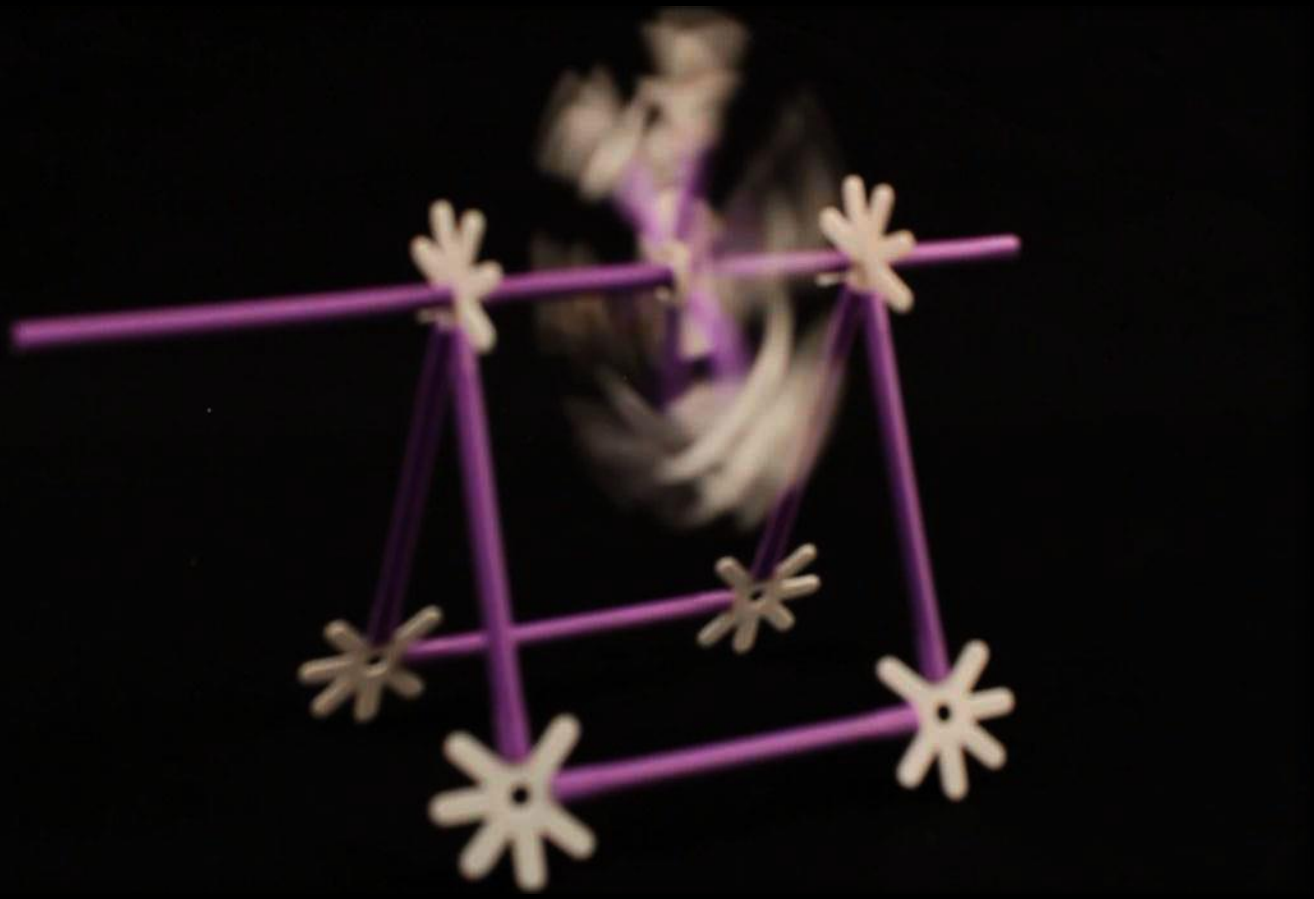




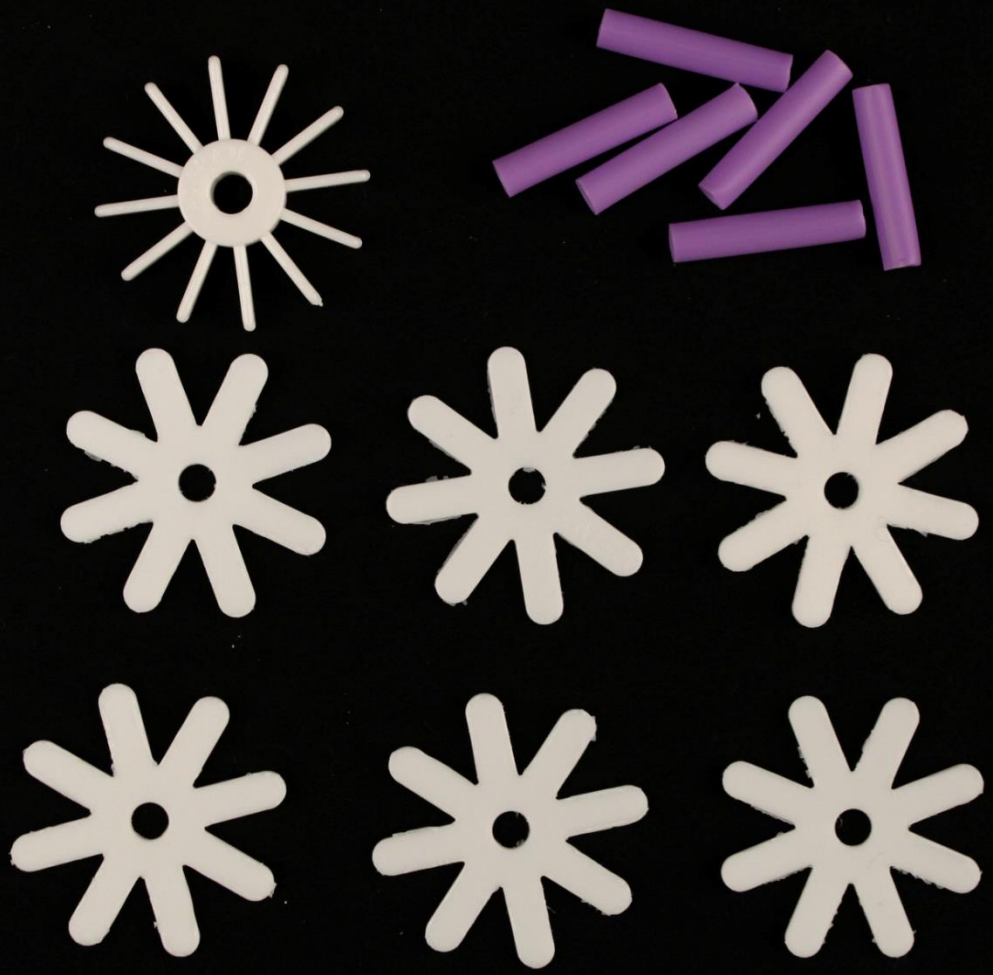


Design Motion

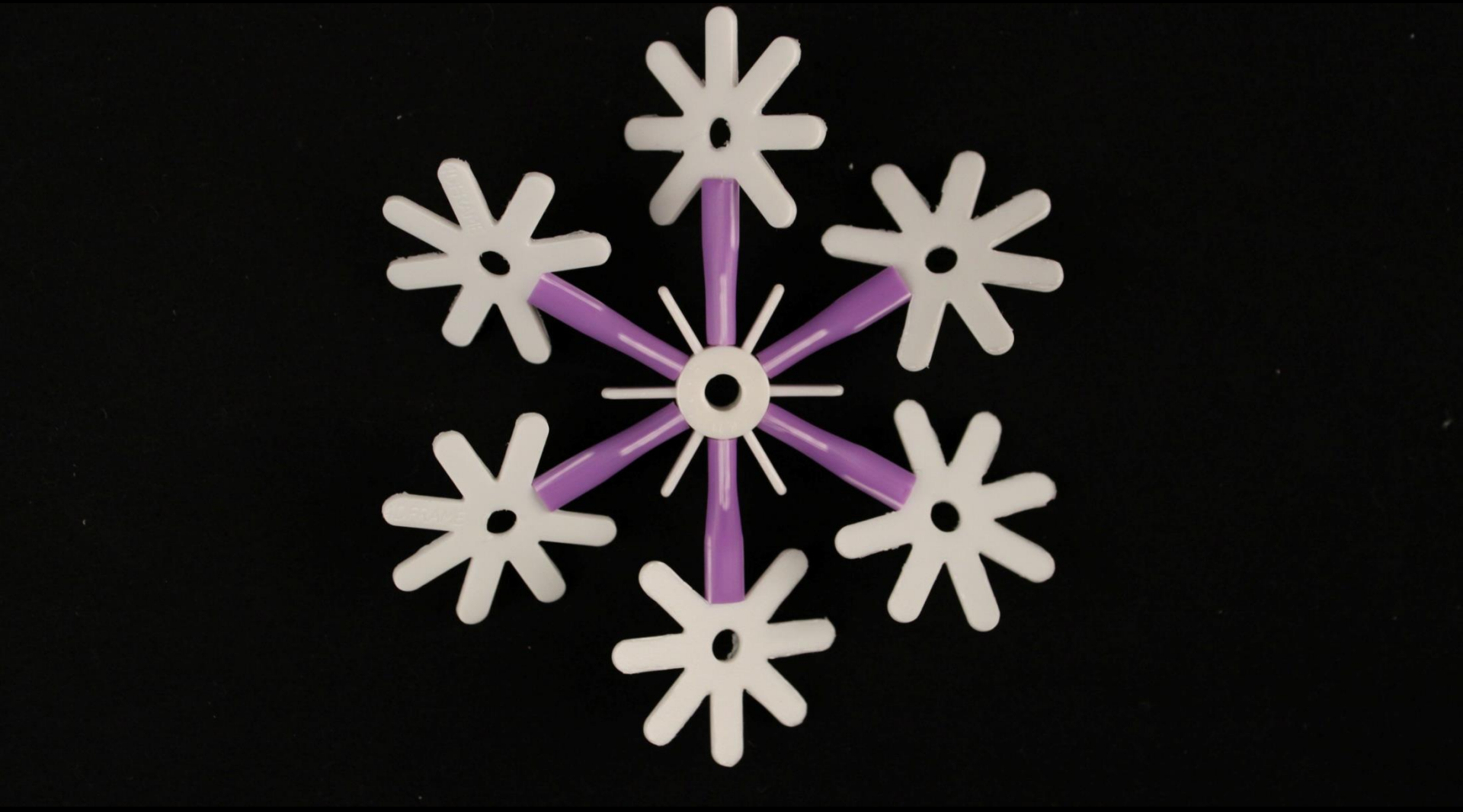
Design Motion

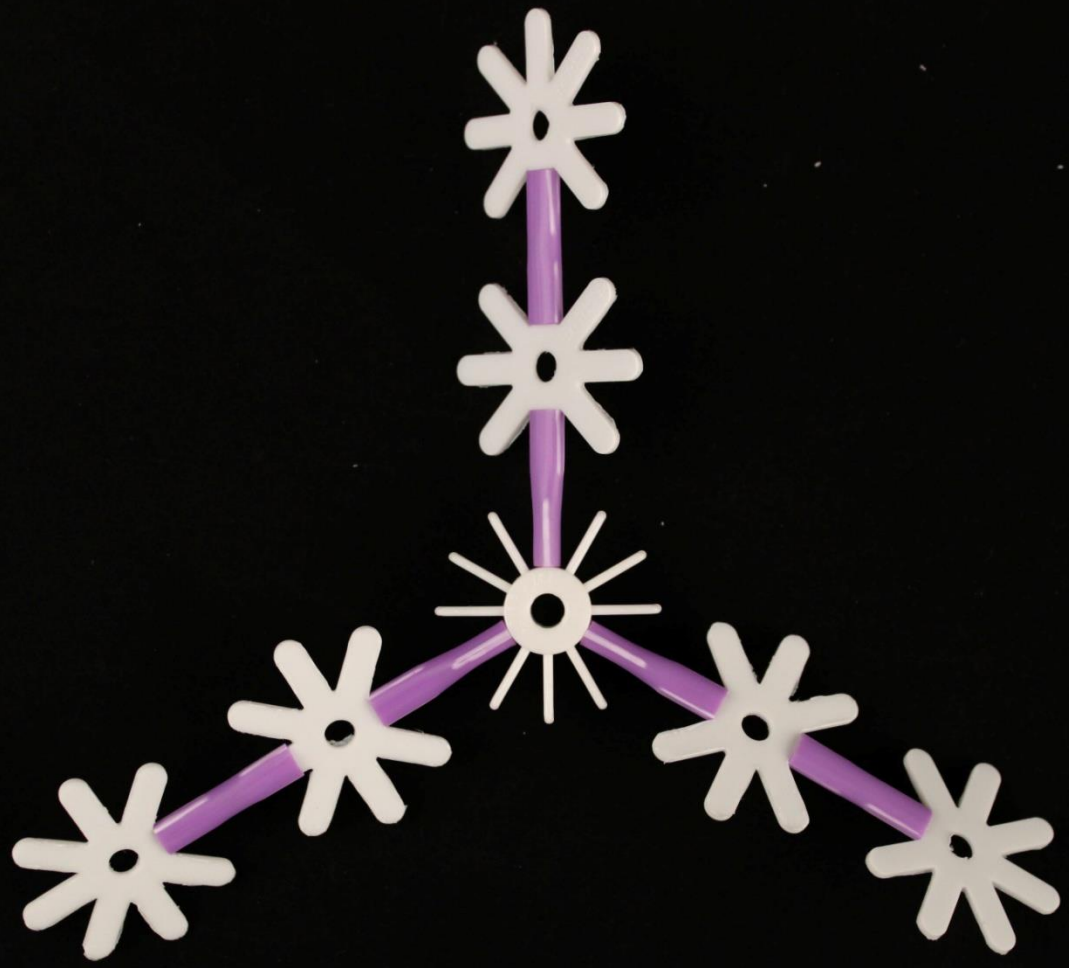


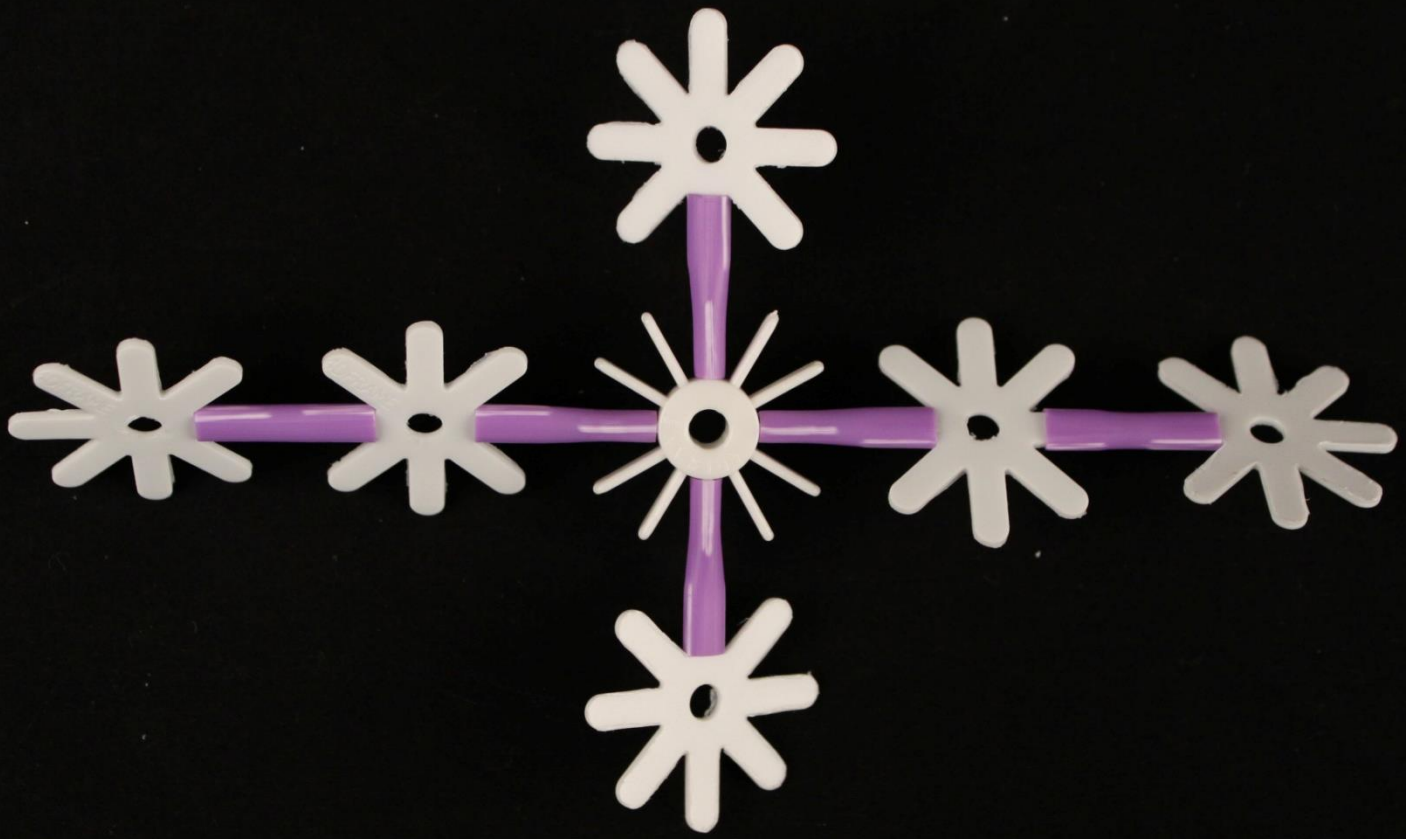
Design Wings

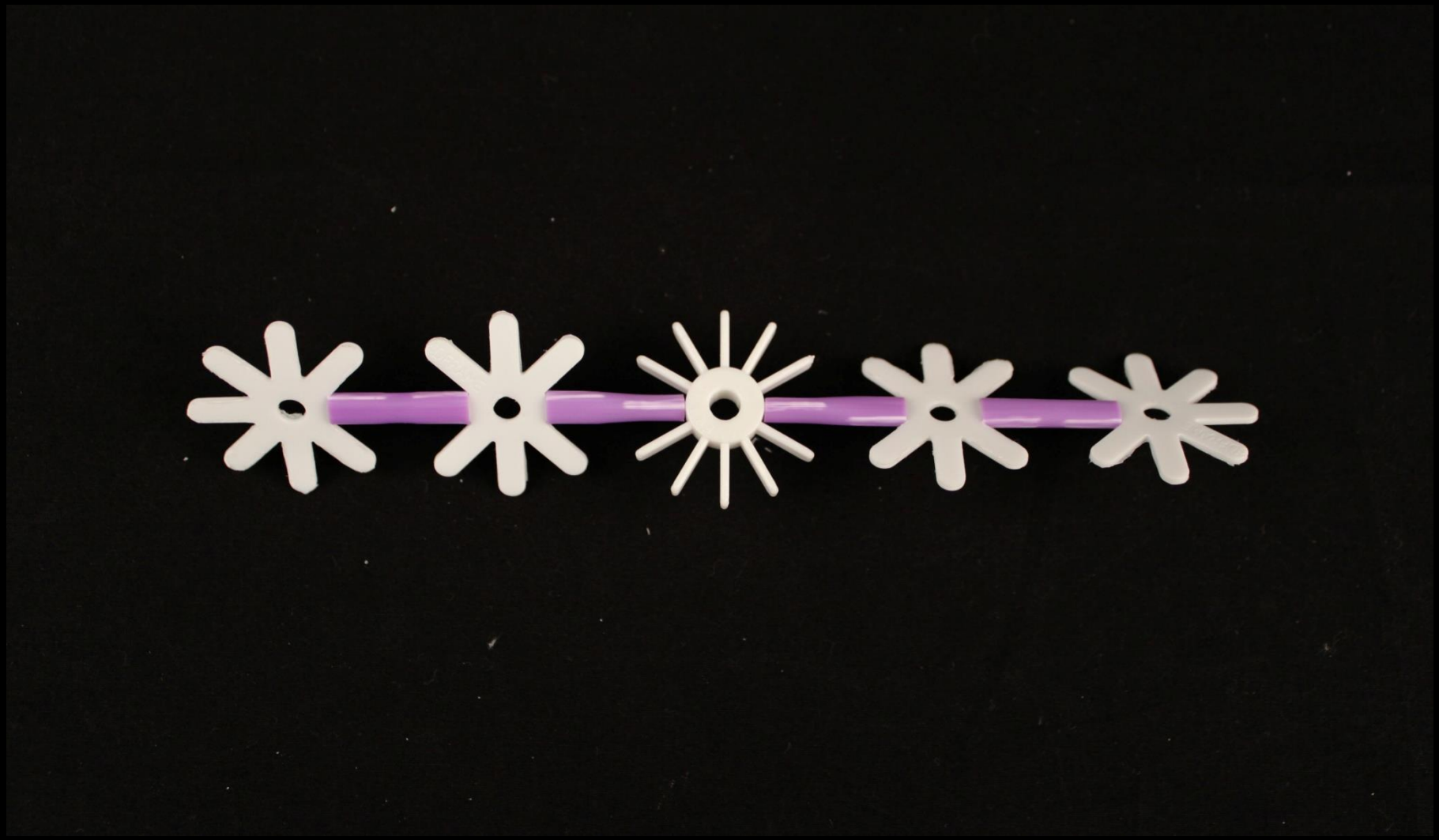


What's crucial point to asseblme for operating?

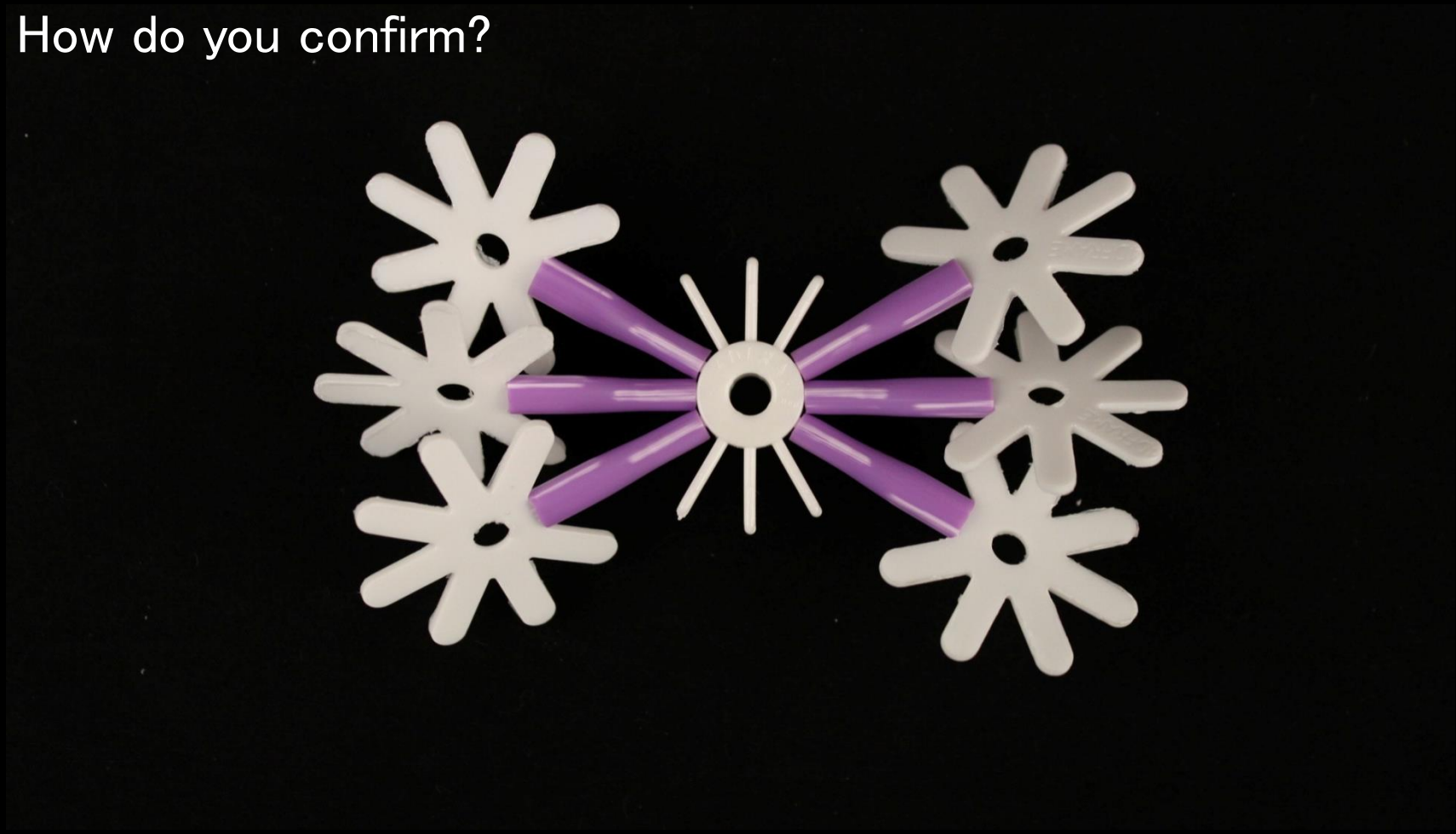








Which kind of model is the best?
How do you know that?
How do you confirm?

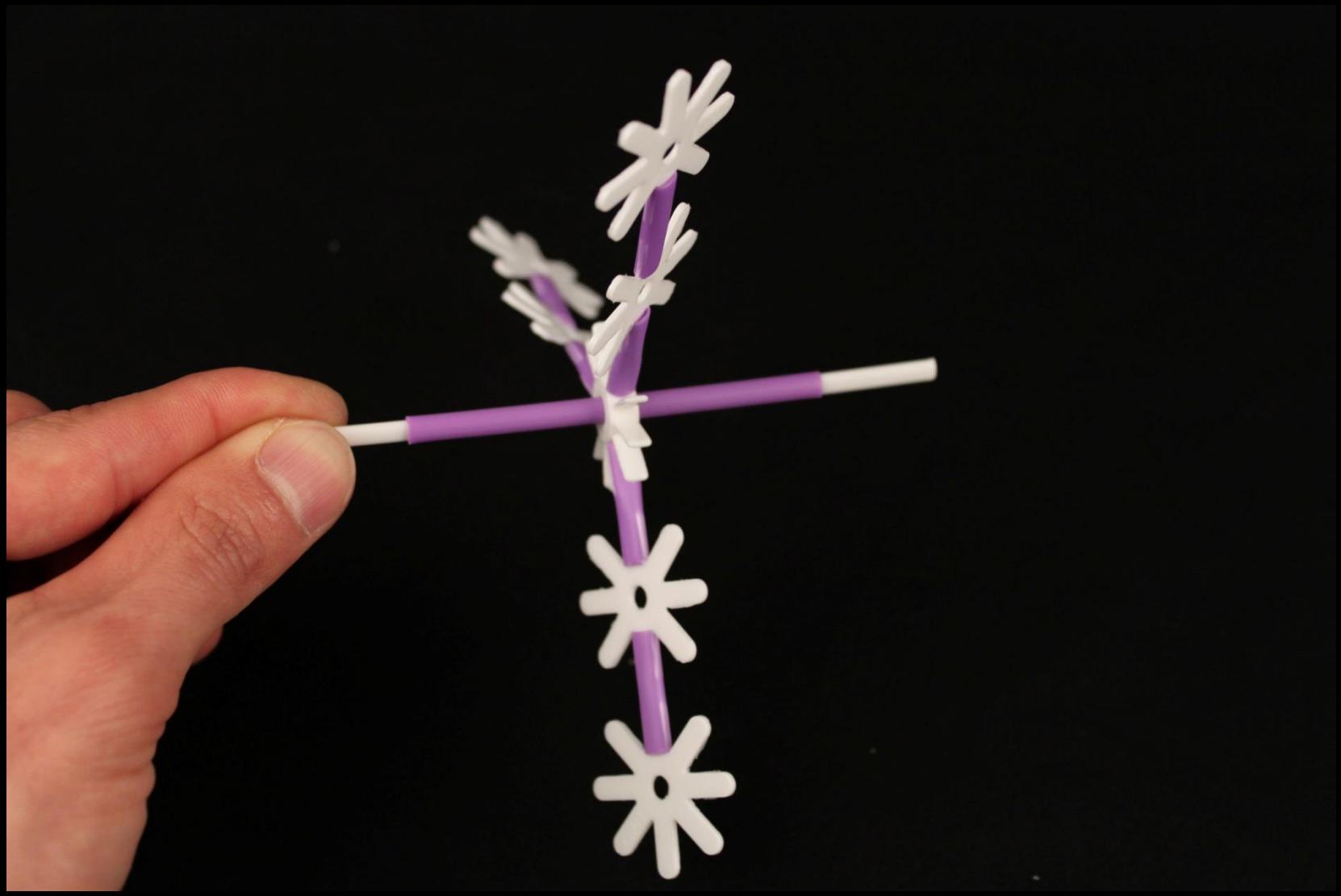


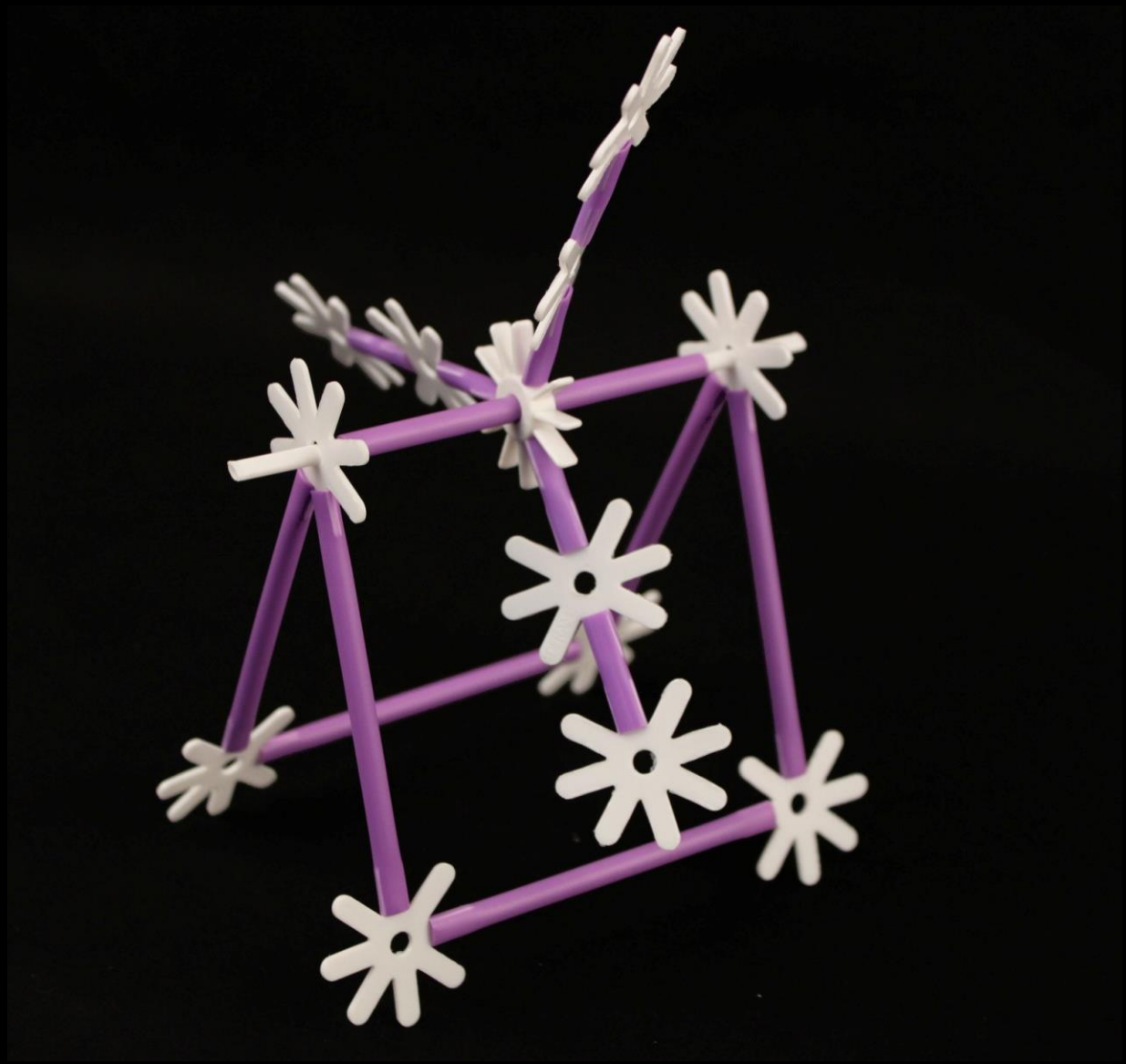
What remains for proceeding?

Discover principle

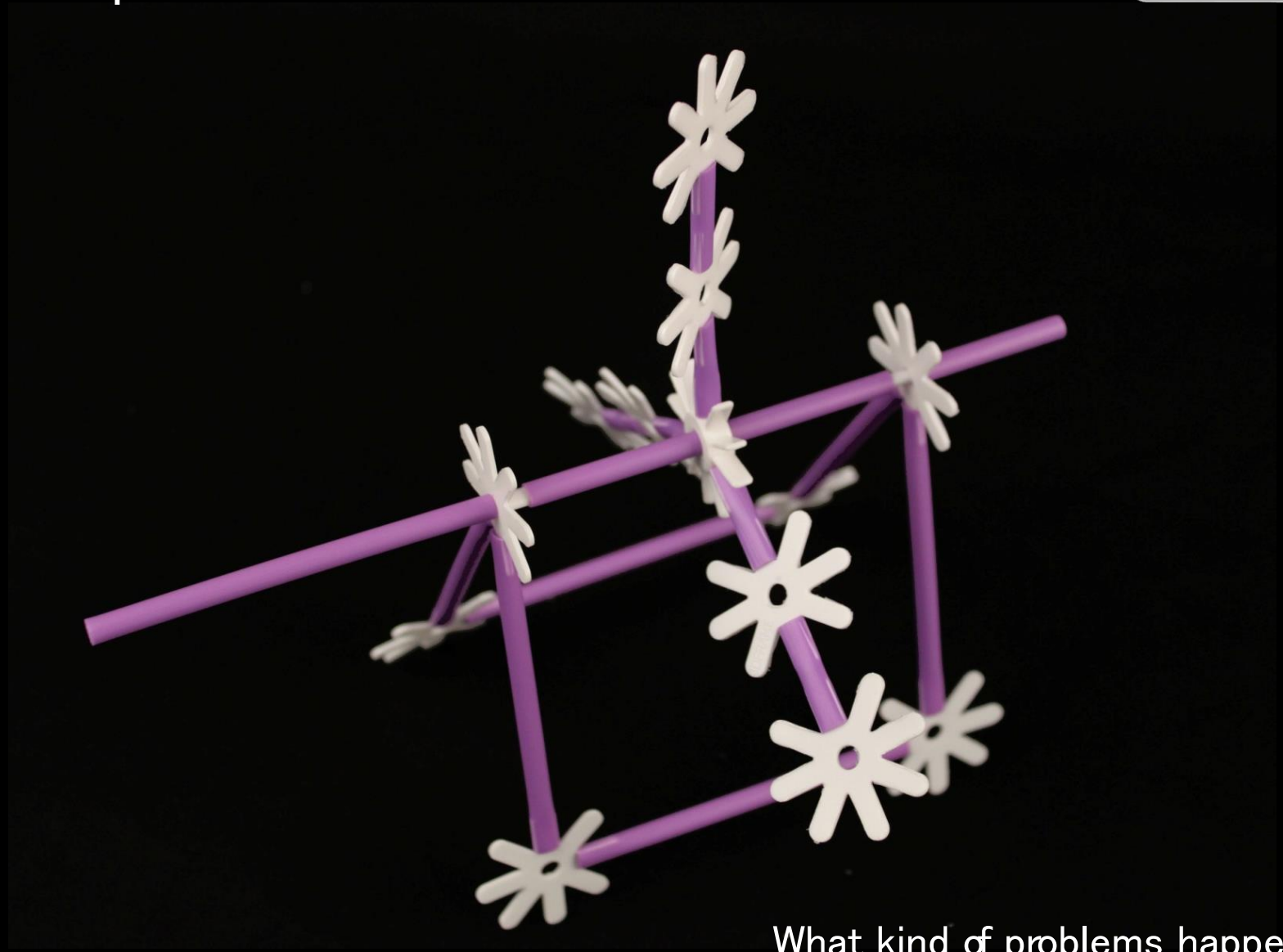
Discover principle

Discover principle

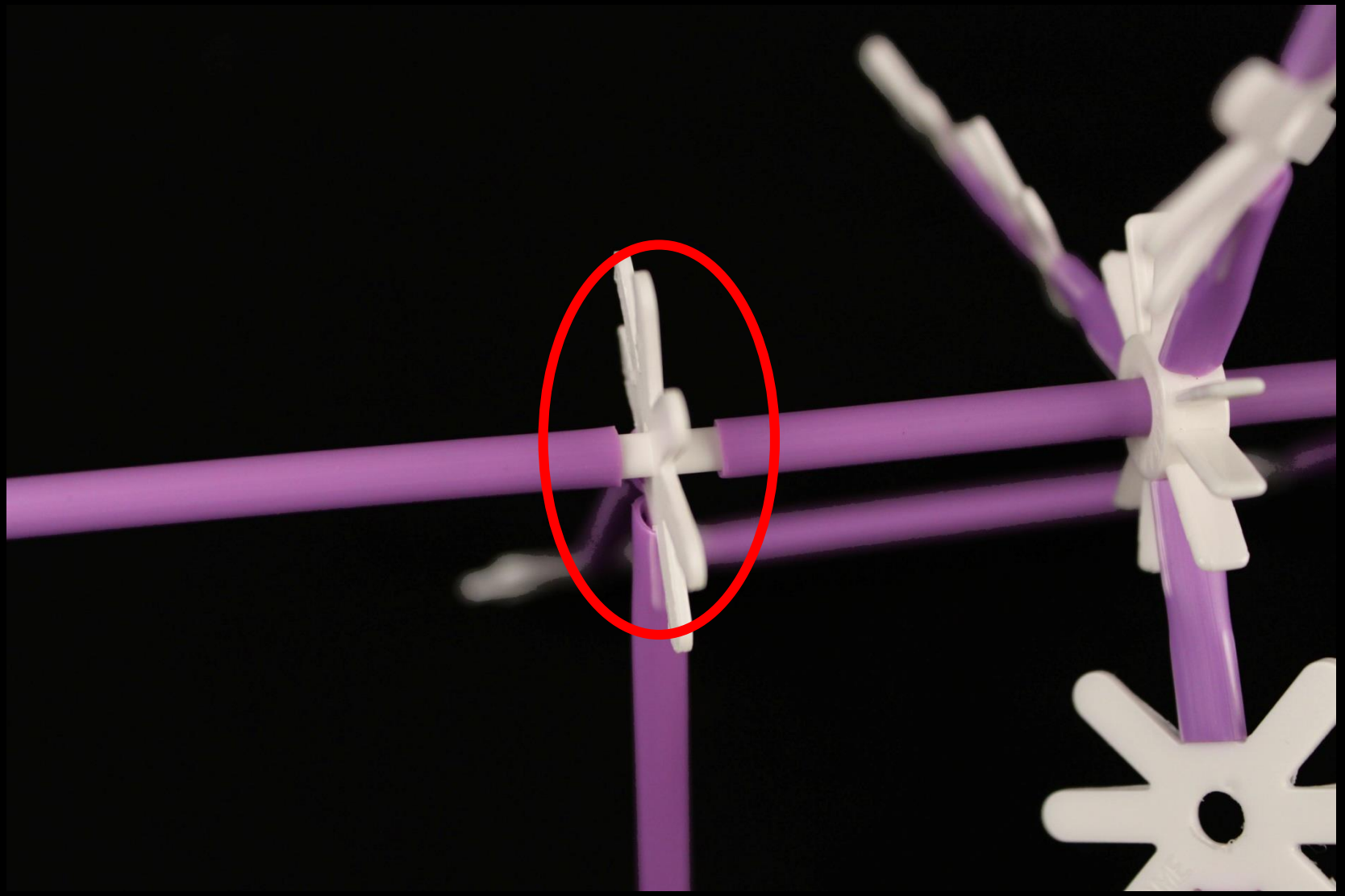




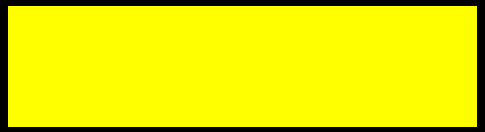
Solve problems



What kind of problems happens?



Explore contact surface



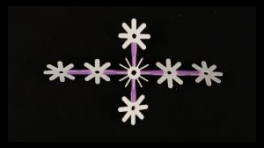
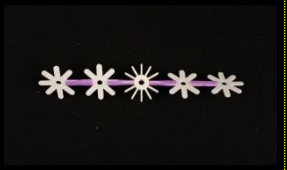
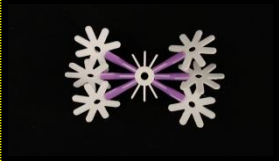
Explore contact surface

Explore contact surface

Explore contact surface

Analyze the efficiency of wings

대한민국 발명체험교구
4D프레임
www.4dframe.com

Structure					
Number of revolution					
Analysis					

Analyze the energy of wings

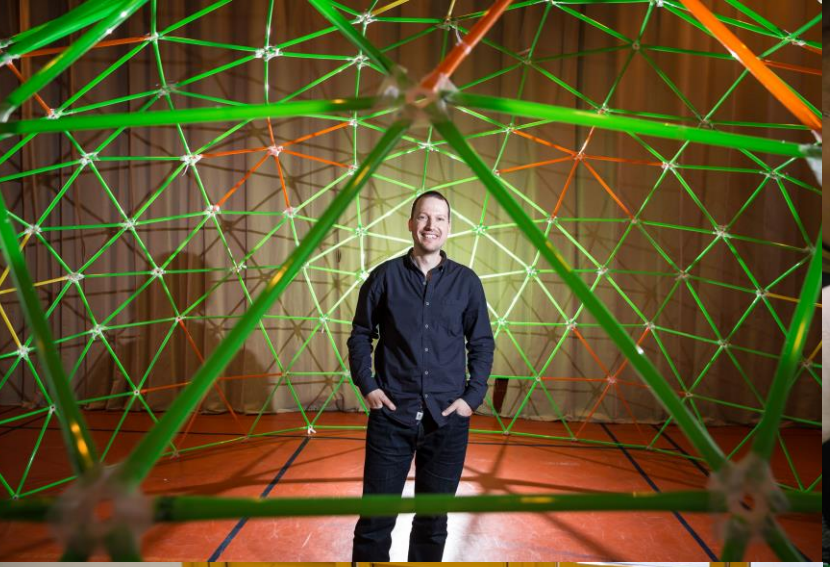
대한민국 발명체험교구 4D프레임 www.4dframe.com

Degree of wings 	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°
Number of revolution										
Analysis										

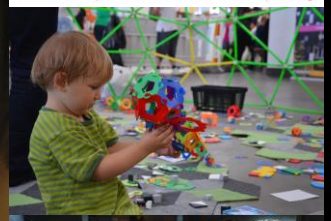
Work in pairs or in small groups! Work as a team of engineers!

You need to solve a given problem within a given amount of time, based on a given amount of resources:

- Set goals
- Make plans
- Do tests
- Record the thinking / design process
- Do more with less








EXPERIENCE WORKSHOP

THE EXPERIENCE-CENTERED MATH/ART MOVEMENT

www.experienceworkshop.org

Interested in STEAM? Looking for support in connecting mathematics & art in education? Do you have a good idea?

Contact us: info@experienceworkshop.org

Website: www.experienceworkshop.org

Facebook: www.facebook.com/experienceworkshop.math.art