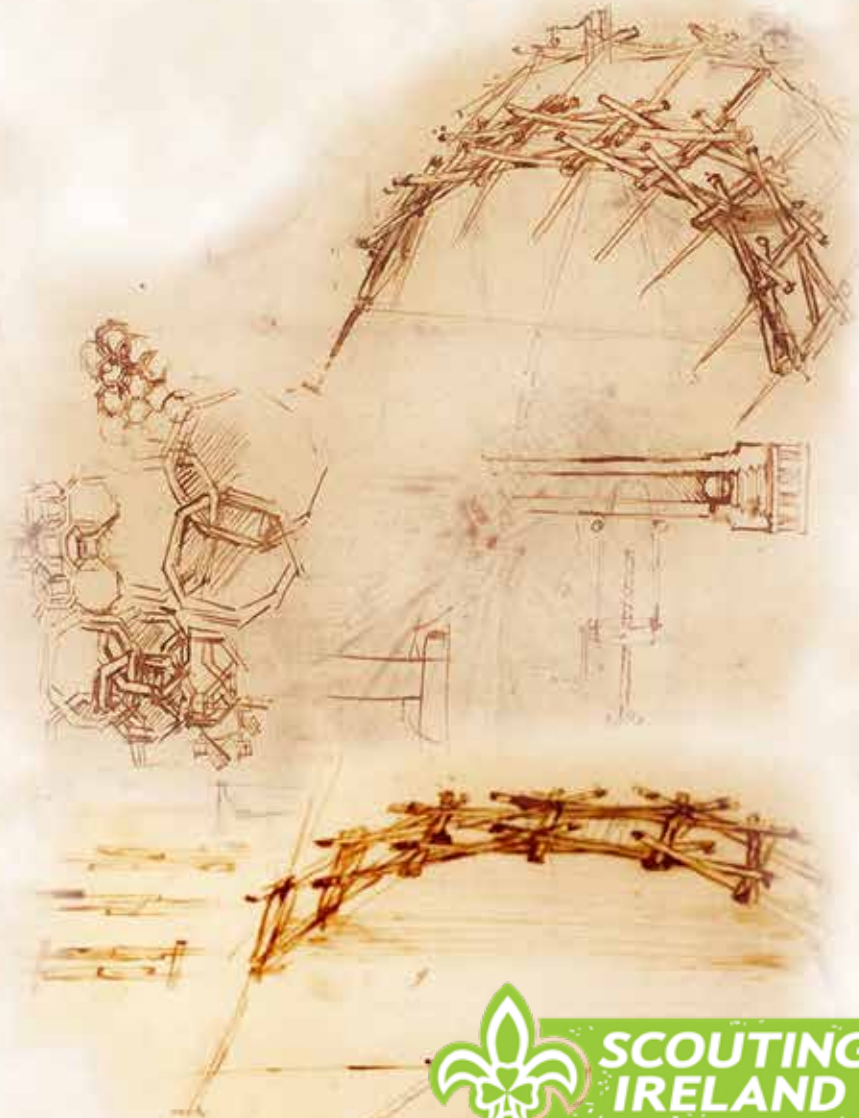


LEONARDO - BRIDGES AND STRUCTURES



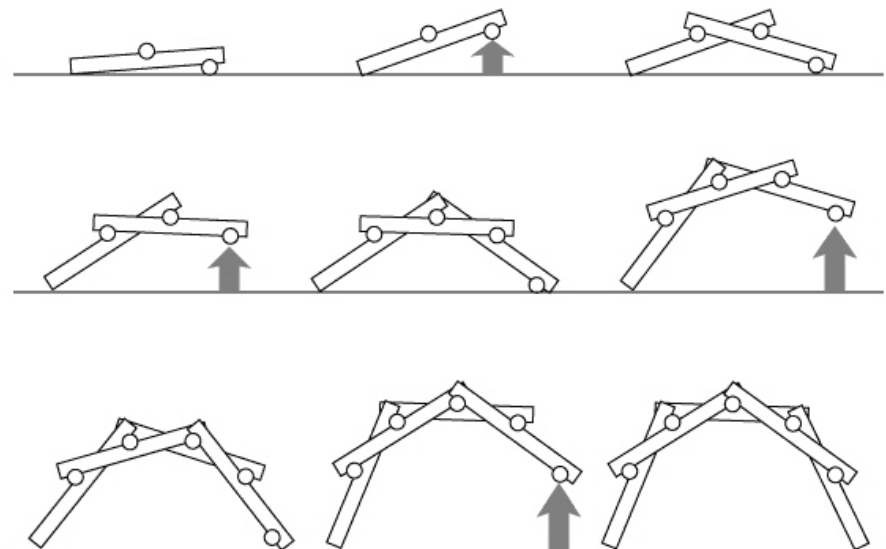
Leonardo Da Vinci friction bridge

Leonardo Da Vinci designed a friction bridge to enable armies to quickly build and deconstruct a bridge as they moved over rough terrain. In his experiments he also discovered the possibilities of building dome structures and roofing methods using the same self supporting principles.

In this activity we present a few ideas to explore his concept. You will need some dowel or bamboo skewers and a bit of patience to master the building methods. When you master the techniques with models you can then move to build life size structures.



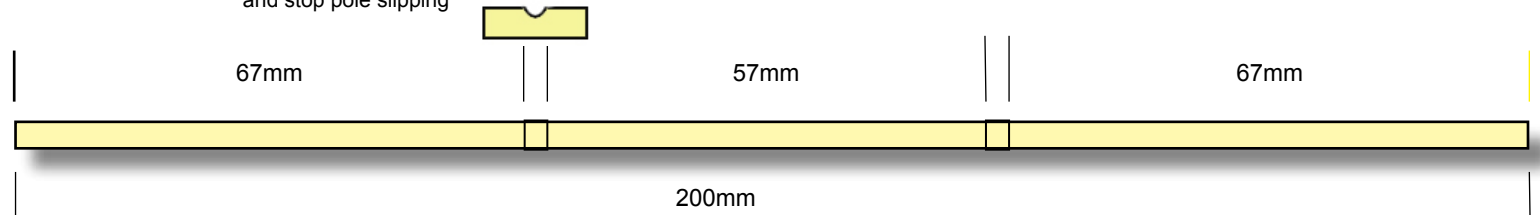
Constructing the friction bridge



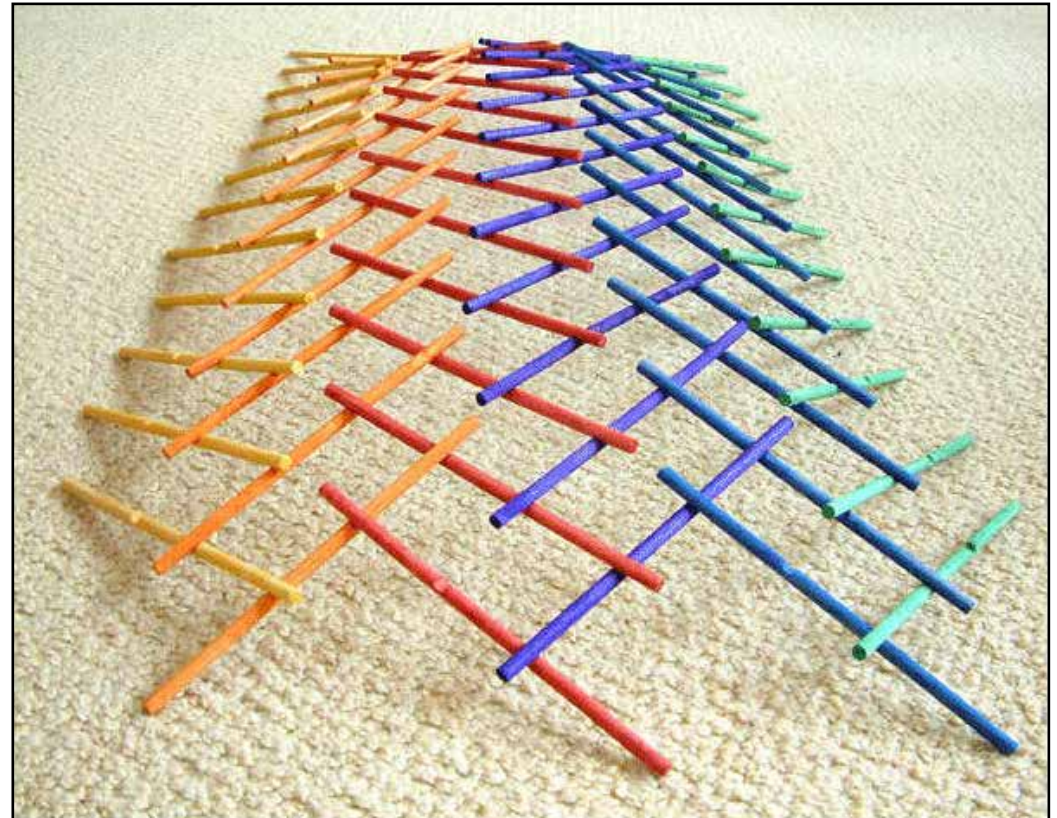
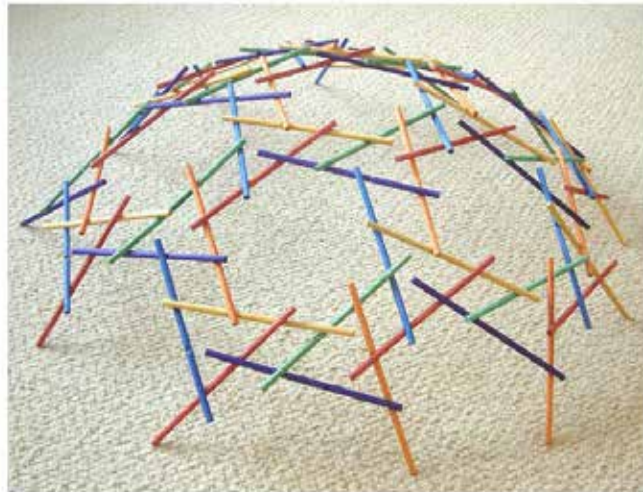
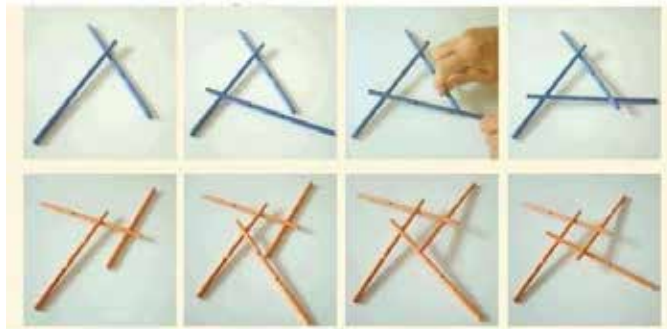
Leonardo Sticks

You will need to have a large number of Leonardo poles or sticks to create these dome structures. They can easily be made from bamboo skewers (used for bar-b-ques). First thing to do is cut them to length using a craft knife. You will also need a small round file to cut two slots on the length of the stick to add friction at the joints.

File a small slot in pole to aid with friction and stop pole slipping



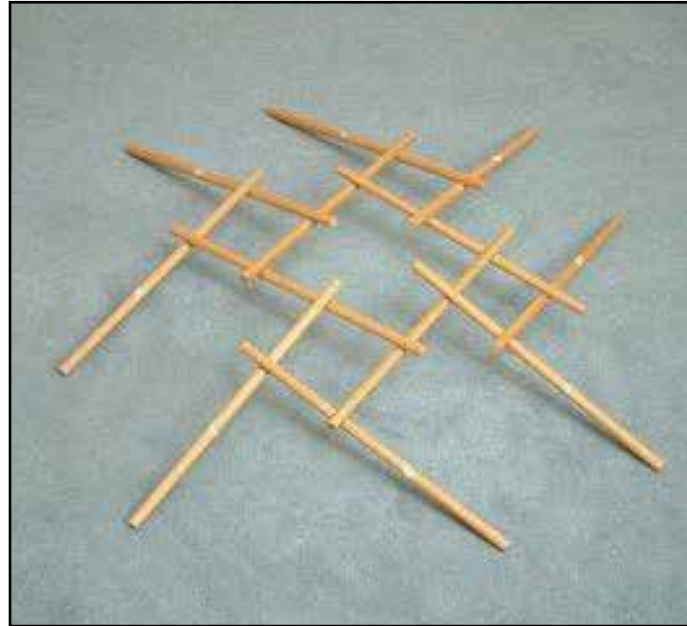
To make a collection suitable poles for the Leonardo Bridge the poles will need to be of a bigger diameter to the sticks shown here. 12mm dowel rod is good for that project.



The dome based structures can be made from round poles or flat timbers. In models it can be lollipop sticks in large structures wooden planks, or square construction timbers.

The picture below shows a large dome structure constructed by a team of architectural students exploring Leonard's concept.

Once you understand the basic self supporting idea you can try it with three, four and six connecting points.



Basic friction points construction

