

## Developable surfaces and D-Forms

An LKL Maths-Art seminar by  
Tony Wills  
Wills Watson + Associates  
and John Sharp  
London Knowledge Lab

Tuesday 12 June, 6.00 – 7.30pm  
London Knowledge Lab, WC1N 3QS

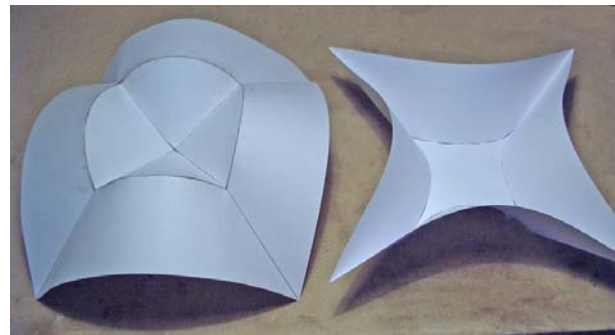
Every so often you learn of a new concept that is so simple you wonder why it was not thought of before. One such case is D-Forms, where surprising and often new three dimensional forms are created by joining the edges of two flat surfaces that have the same length of perimeter.

D-Forms are developable surfaces because they are formed from flat sheets. This talk will begin by looking at the properties of developable surfaces and their different types. Since D-Forms have much in common with the sculptural forms of artists such as Barbara Hepworth, Constantin Brancusi and Naum Gabo, it will also touch on the use of developable surfaces in art and architecture.

The concept of D-Forms was invented by Tony Wills. As a product designer, Tony has developed such products as the D-Form street furniture range which uses D-Forms as moulds into which artificial stone is cast to create elegant architectural elements. They have also been investigated for aircraft propeller shapes.

All welcome. No registration or ticket required, but an email to [lkl.maths.art@gmail.com](mailto:lkl.maths.art@gmail.com) is appreciated to assist with planning.

The flat surfaces for creating a D-Form should be made of material that does not stretch or shear. This excludes woven material, though this does not mean that the concept cannot be extended in that direction, except that the surface will deform. Depending on where you have chosen to start the join the two surfaces, each face “informs” the other what three dimensional form to finally produce. The emerging D-Form continually changes shape as the edge joining progresses. The final D-Form that results only appears when the process is complete.



*Anti D-Form Squaricles*

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John and Tony have worked together on exploring D-Forms, and one result of the collaboration is the concept of **Anti D-Forms**. Rather than work with pairs of surfaces, we decided to try to join two holes with equal perimeters. Not only did this work but we found we could take the surfaces that we had removed to make the holes, construct the “positive” D-Form from them and insert it precisely within the anti D-Form. This is just one illustration of the possibilities we will show.

John has written a book to be published later this year, covering the basic geometry of D-Forms with a set of models to construct.

## **LKL Maths-Art seminar series**

Website and archive: [www.lkl.ac.uk/maths-art](http://www.lkl.ac.uk/maths-art)

This seminar is part of a regular series of maths-art seminars held at the London Knowledge Lab, usually on the second Tuesday of each month during term times. To receive email announcements about events, subscribe to the mailing list at [www.dcs.bbk.ac.uk/mailman/listinfo/lkl-maths-art](http://www.dcs.bbk.ac.uk/mailman/listinfo/lkl-maths-art).

This is the last seminar of the current academic year; seminars will re-commence in September.

We propose these seminars as explorations of the connections between "mathematics" and "art", where both terms are understood broadly: art implies visual art (painting, drawing, sculpture, computer graphics, video), architecture, music, textile art, literature/poetry (and others), and mathematics implies both mathematics as a discipline and the related disciplines in science and engineering for which mathematics is an essential means of expression and communication.

Seminars are normally video-recorded for viewing on the website, and may also be web-cast live.

The seminar organisers are John Sharp and Phillip Kent. We welcome your suggestions about speakers or topics for future seminars; email us at [lkl.maths.art@gmail.com](mailto:lkl.maths.art@gmail.com).

## **Getting to the London Knowledge Lab**

Nearest tube stations are: Holborn (Central, Piccadilly lines), Russell Square (Piccadilly line). Approximately 10-15 minutes walk from either station.

