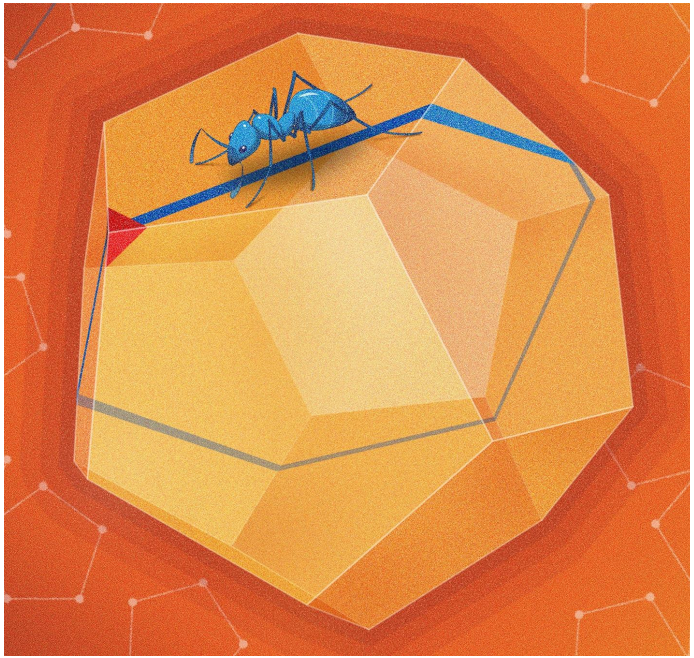
Concepts

Lasiradio

- Viljami Virolainen (contact person)
- Otso Hyvärinen
- Tom Henriksson
- Riitta Matikainen
- Lumi Alastalo

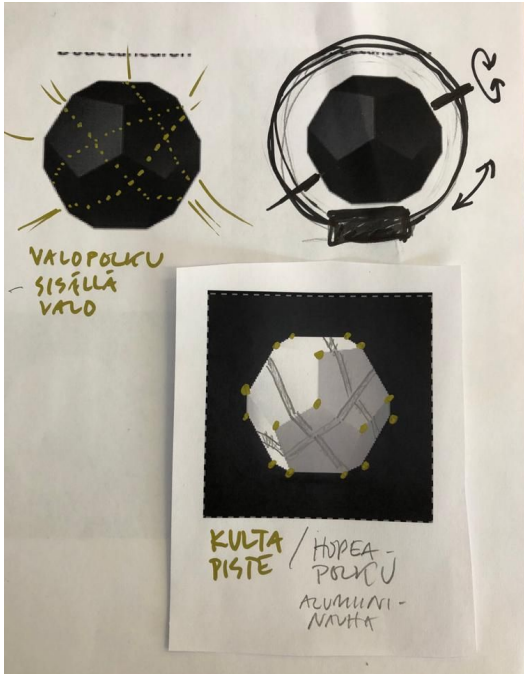
Anti-social jogger



Statement: Celebrating innovations in mathematics during the COVID-19 pandemic.

The mathematical solution to the “anti-social jogger” problem was discovered during the lockdown year of 2020. Your task is to start from an edge, walk along a straight path on a dodecahedron, and return to your starting point without touching other edges.

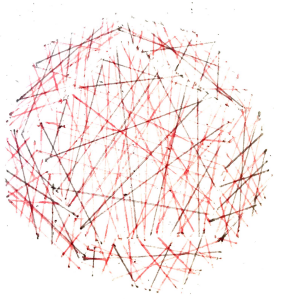
Can you do this?

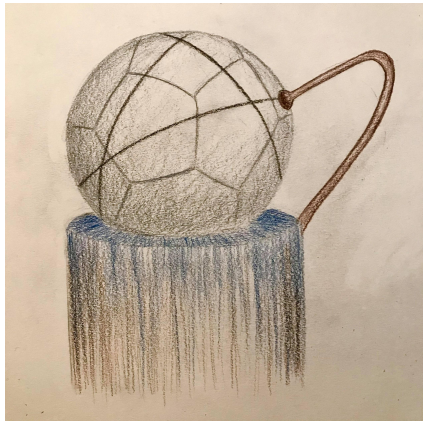


Implementation 1: Object: The dodecahedron is displayed as a solid object, with holes and/or grooves representing the possible paths. In a negative form, only the paths are visible.

The paths of the solution may be displayed in motion, implemented with led lights or even a moving ball drawing tracks in sand.

Materiality: Wood, plywood, plastic, woolen/polyester/acrylic threads, led lights, sand, magnets, single-board computer, software

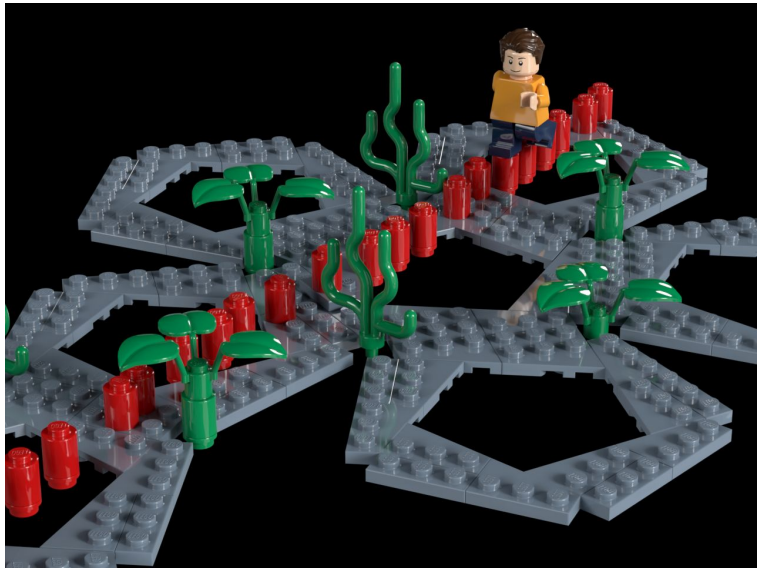




Implementation 2: Game: The anti-social jogger problem is presented as a game that exhibition visitors can interact with. Options include:

a) Touchable game: Exhibition visitors move the ball (the jogger is stable) OR move a peg representing the jogger (the ball is stable)

Materiality: Wood, stone, acrylic, plywood



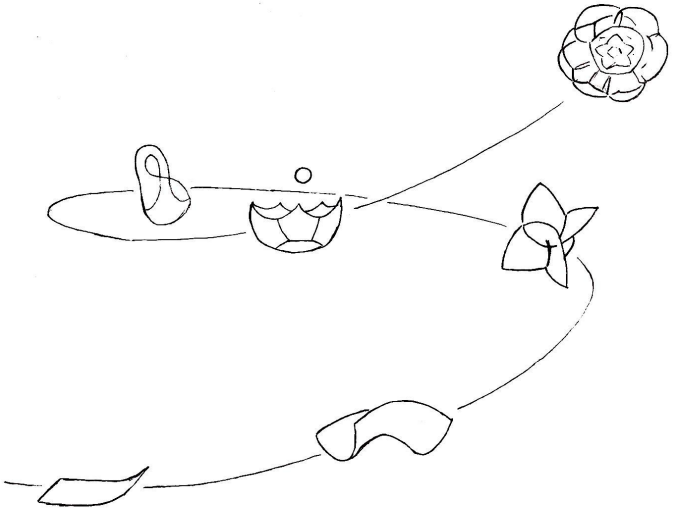
a) Obstacle course: Paths are displayed as narrow tracks where exhibition visitors have to stabilize themselves. The edges are obstacles that the visitors will have to avoid.

Materiality: Wood, wooden/plastic/metal obstacles, screws, plywood, paint

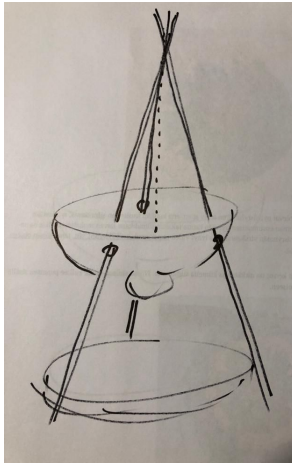
Metamorphosis

Statement: Metamorphosis of caterpillar to butterfly, catenoid to helix
Implementation 1: Butterfly rising to air making a ruled surface (hyperboloid) by trajectory

Materiality: Support beams from steel, wood or acryl. Butterflies from recycled metal



Implementation 2: Butterfly evolution represented as interesting geometric shapes rising on a helix curve, making a catenoid as a solid of revolution
Materiality: Curved steel rod on the middle (spinnable)

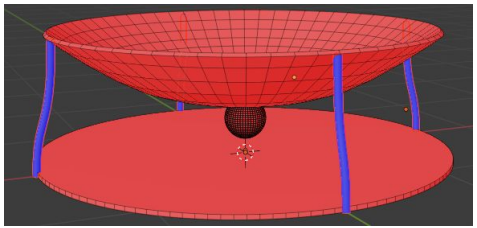


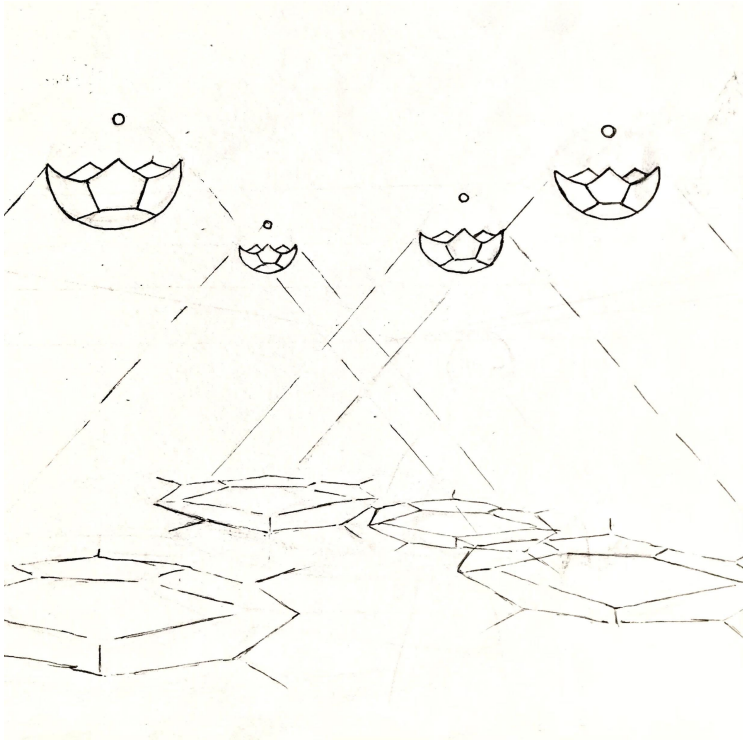
Grail

Statement: Stereographic projection using sunlight to project shadows onto a flat surface

Implementation 1: Mirrors and lenses concentrate sunlight to point, which then works as a light source, from which stereographic projection is made.

Materials: Metal, mirror painting/acryl, lenses, wood, water could be used in light reflections,





Implementation 2: Sea floor: Projecting “flowers” from half dodecahedrons up in the air to the viewer standing beneath them.

Materiality: water or other transparent liquid like alcohol, thin metal beams for support structure, acryl if needed color lighting