# Cubed (mathematics)



# EXHIBITION CATALOGUE

# Technical information:

16 exhibits
100-200 m2
Languages: Estonian, English, Russian, Latvian
Price upon agreement
Additional fee for transportation, insurance and installation
Minimal rental period is 3 months.
This exhibition is available for rent and sale.

# For further information Pilvi Kolk

pilvi.kolk@ahhaa.ee (Mon-Fri 09:00 - 17:00)

# If you think that mathematics is

a) boring and/orb) totally incomprehensible, you better think again!

Our exhibition "Cubed" is dedicated to - yup, you guessed it - mathematics! Discover how much mathematics surrounds us and how it explains almost everything we do.



# Find out...

how the Pythagorean theorem works, how large is one cubic metre, what is a Monkey Calculator and what is an additator - and how do they work, how does the length of a pendulum affect its amplitude. And of course, a lot more!

# **Exhibits**

# **Gear ratios**

Turn the wheel. Compare the speed of the wheel at the end of the transmission.

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## Gears

Once set in motion, the gears transfer that motion to another axis or another plane, speed things up, slow things down, create changes in torque and generally control the rate of motion.

# Normal distribution

Turn the exhibit so that the small balls will be on top. The balls will roll down and bounce into the pins. Moving further down, the balls drop in the collecting bins and form a shape that resembles a bell.

The top of the bell curve (normal distribution) represents the most probable event in a series of data and all other possible occurrences are symmetrically distributed around it.

# Safe cracker 40 and 50

Can you crack the code? Turn the disks, so that the sum of the numbers in each section will be either 40 or 50.



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# **Monkey calculator**

When moving the monkey's legs, its arms move as well. When the legs are pointing to numbers, the arms are pointing to other numbers - multiplications of what the legs are pointing to. f(A) di = 0

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# Draw a function

Stand on the carpet and move closer and further from the screen to match your movements with the changes on the screen.

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# **Pythagoras's theorem**

You might have heard that the sum of squares of the lengths of the two short sides of the right triangle is equal to the square of the length of the hypotenuse. Here, you can observe the theorem "in action".

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# **Magical pictures**

Geometric disappearance - while moving pieces to form new pictures, the human eye discovers new aspects on the pictures which were not seen before.

# Hyperbola

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A rotating straight rod that fits nicely through a curved slit.

# Chladni plate

Press one of the four buttons to play a corresponding frequency and observe how different frequencies change the shapes of patterns.

# **Cubic metre**

One cubic metre may not sound much, but when you try to fit all your friends inside it, you might be surprised. Check out a cubic-metre-sized cube and decide how small (or big!) it really is.

# Hyperboloid

Grab the hanging disc and turn it. When turning the disc you can see the positions of the strings are changing as well, creating an interesting concave (inward-curved) curvilinear shape - a hyperboloid.

## finit In 15 817932 2 1 $( \bigcirc )$ Addiator ç A way to perform additions and subtractions by mechanically moving

the rods.

# Gömböc

A convex three-dimensional homogeneous body that, when resting on a flat surface has just one stable and one unstable point of equilibrium.

