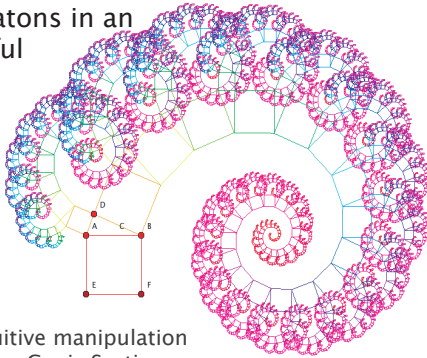# ☀ Geometry.

Easily create startling geometric constructions! Starting from simple trigonometric theorems, continuing with relations in non-Euclidean geometry up to fractals and movement groups – Cinderella lets you create and manipulate visualizatons in an intuitive, yet powerful way. Using Java technologies, constructions are seamlessly exported to the WWW.

- Move mode for intuitive manipulation
- Points, Lines, Circles, Conic Sections
- Automatic locus generation
- Background pictures and text objects
- Euclidean and non-Euclidean geometry
- Hyperbolic and Spherical geometry
- Solid mathematical core
- Automatic theorem prover
- Interactive Exercises
- Measurements and calculations
- Function plots and vector fields
- Export to HTML, PDF and others
- Transformations as geometric objects
- Scribble mode for pen-based input
- Dynamic fractals

Example uses: School geometry, Pythagoras' Theorem, circle geometry, symmetry and ornaments, geometry on the sphere, fractals

● Simulation.

Freely experiment with masses, springs, charges and fields! Liberated from the constraints of reality, scenarios ranging from atom physics, classical mechanic to planetary orbits may be examined. Effortlessly sketch experiments using the mouse and bring them to life with a simple click.

- Virtual real-time physics laboratory
- Simulates masses and force
- Springs, gravitation, electrostatics, magnetism
- Calculates potential and kinetic energy
- Stable numeric simulation utilizing the Runge-Kutta method
- Visualization of field lines
- Virtual electronics construction kit including oscilloscope
- Visualization and interactive manipulation of forces
- Fully linked to geometry and scripting
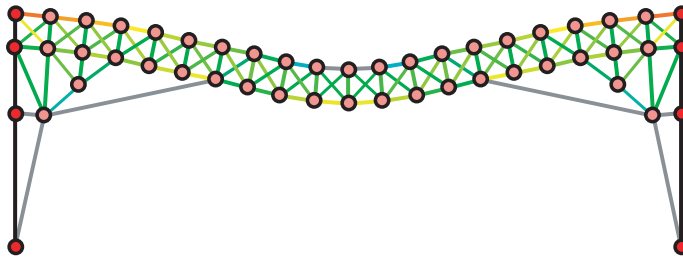
Example uses: Conservation of momentum and energy, statics of buildings, electromagnetic fields, statistical thermodynamics, Kepler's laws

● Algorithms.

Simply realize whatever behavior you need! The brand-new programming interface offers infinite extension possibilities. Using simple commands, you can customize your construction. This allows the visualization even of complex processes.
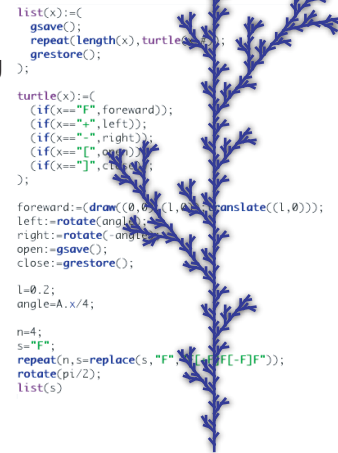
- Built-in functional scripting language
- Interacts with all geometric objects
- Calculations with complex numbers
- Vectors and matrices
- Define your own functions
- Import data from other applications
- Integrates data from simulations
- Drawing primitives for customized graphics
- Interactive applets
- JavaScript interface for maximum customizability
- Embedded Python interpreter (Jython)
- Access to geometric objects
- Define new objects
- Visage toolkit for visualization of graph algorithms (Project of the DFG research center Matheon)

Example uses: Create interactive tutorial systems, dynamic illustrations for web pages, analysis of physics experiments

(current as of August 2005, subject to modifications)