AutoSTEM – automata to teach STEM subjects to young learners

Erasmus KA201 large-scale project to create innovative resources

For students from 4 to 8 years

How to they introduce STEM areas?

What are automata?

What are they made from?

Partners
University of Coimbra Portugal, Queen Maud University College Trondheim Norway, 32 SU School “Sv.Kliment Ohridski” Sofia Bulgaria, Eurek@ Perugia Italy, Kindersite UK

With the support of the Erasmus+ Programme of the European Union. The content reflects only the author’s view and the European Agency and the European Commission are not responsible for any use that may be made of the information it contains.
Step by Step Teacher Guide
• What are automata and STEM
• The theoretical framework and pedagogical concepts
• Key concepts for constructing automata

Automata Pedagogical Guidelines and Construction Instructions
• Details in the next section

Scenarios to implement Automata
• Ideas how to take the ideas further holistically and into additional subject areas

Resources for planning and reflection

Videos
• 29 videos to date
AutoSTEM – automata to teach STEM to young learners

The Automata that have been developed

- Jelly Bird
- The Talking Elephant
- The Dancing Doll
- The Balloon Car
- The Amphicar
- The Snapping Crocodile
- The Acrobat
- The Wind Turbine
- The Colour Spinning Disk
- The Eco Car
- The Drawbridge
- The Two Faces
- The Returning Tin Can
- The Butterfly

With the support of the Erasmus+ Programme of the European Union. The content reflects only the author’s view and the European Agency and the European Commission are not responsible for any use that may be made of the information it contains.
AutoSTEM – Choosing an Automata to Use

Pedagogical guidelines and construction notions:

- Here is an automata that is suitable for using with children between the ages of 3-6 years. The jellybird is a fun and engaging way that children can be introduced to number and mathematical concepts and in making children closer to learning about key aspects of learning.

  - Areas of learning include:
    - Social interaction (shape and placement)
    - Numeracy
    - Inside/outside
    - Round and square
    - Narrow and straight
    - E.g. left-hand side and right-hand side
    - Symmetry and asymmetry

1. Instructions: how to use the Jellybird to teach Maths concepts and stem to teachers guide – 4th July 2017
2. Templates:
   - Jellybird recorded and uploaded to download
   - Jellybird written on maplewood
   - Video made of Jellybird
   - Video of children making the jellybird

Media examples of children making the automata

Full teachers step by step guide

What areas of STEM learning are included

How to make video

Templates to print off
• Introducing STEM Concepts
• How to construct the JellyBird
  Parts and tools
• Method
• How the JellyBird can be used to learn STEM

The body is round, but not a circle.

It is pointed at one end and round at the other.

There is a left-hand side and a right-hand side of the body.
The wings are rectangles. A rectangle has four sides and is an oblong.
There will be one wing on either side of the bird.

The eyes are round, almost like circles. There will be one eye on either side of the body.

The beak is a triangle. It has three corners. The sharp corner points outwards. The bird uses the beak to pick. The beak will be in the front.

The tail is a trapezium. It has four sides. The widest side points outwards. The bird uses the tail to steer. The tail will be in the back.
Children’s play with automata is important
The project facilitates creativity and wonder
The workshop is interdisciplinary
Do not do too much
Provide enough time
to build automata
for exploration
to test and play with the automata
Do not have too many children in the group
Website: https://www.autostem.info

Videos: https://www.youtube.com/channel/UCaVYKg0qYXnUNNdqwNtLAVQ

Facebook: https://www.facebook.com/AutomataforStem

Email: joel@kindersite.info