

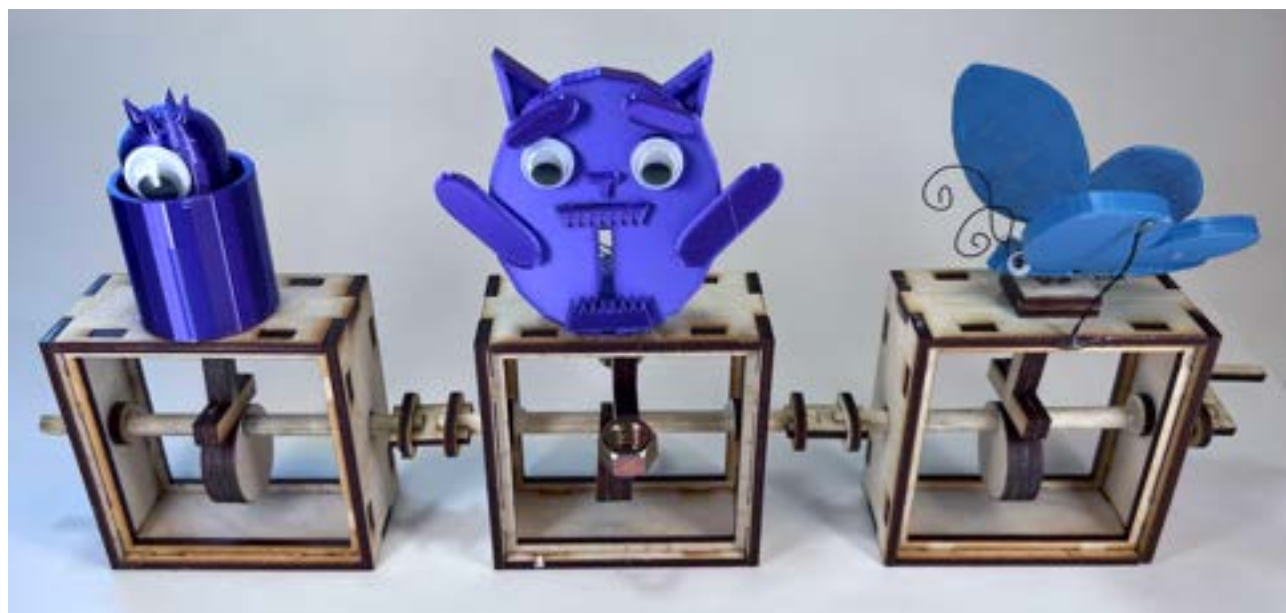
Linkable Automata

Shared by: Trevor Ching/Alexander Greer - Edgerton Center K-12 Maker Projects

Specialized tools and materials used:	Experience level required:
Laser Cutter	Intermediate
3D Printer	beginner
Tinkercad	beginner

Grade Level and Subject: high school

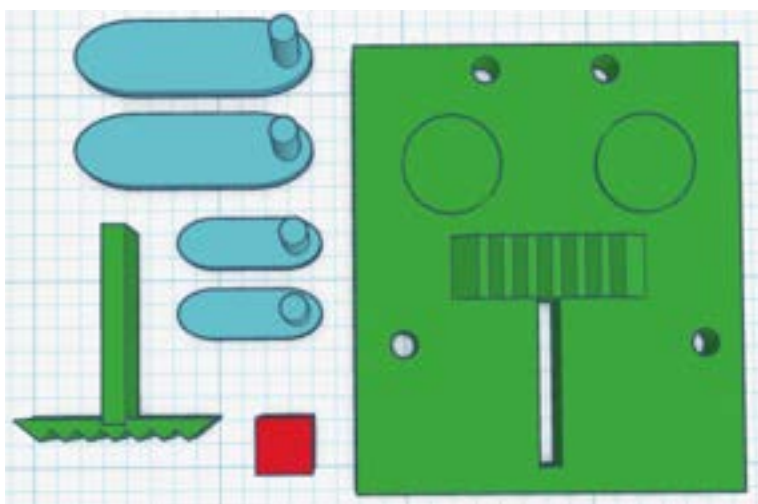
Topic/Content Standards: cam mechanisms and 3D CAD



As a collaborative project, students designed an expressive character which moves by cam action - a mechanism that converts rotational motion into oscillating motion. Students were given a starter mechanism that they could customize and then laser cut. They created characters using 3D printing or craft tools. Wire armatures were used to facilitate a range of motions of multiple parts of the models, while only being connected to one cam system. Each students' characters were then connected with a coupler so one crank could drive each mechanism.



cam mechanism design progress



character designs in tinkercad

Suggested resources

- History of Automata: <https://themadmuseum.co.uk/history-of-automata/>
- Tinkercad: <https://www.tinkercad.com/dashboard>
- Cam mechanism svg template: <https://bit.ly/3aUBfnc>

Possible Content explorations

The objects that students create to animate with with the cam mechanism can be connected to learning objectives in any subject:

- characters from books
- natural phenomena
- historic events
- math concepts (ratios, curves, equations)