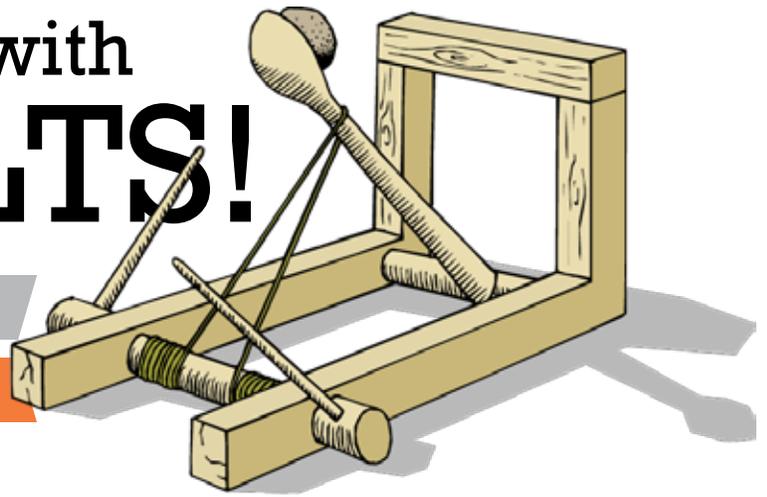


Launch into STEM with CATAPULTS!

Saturday, April 26 ♦ 10am - 3pm

@ Kitsap Mall, Silverdale



Test your launching skills at the
2nd Annual West Sound STEM Showcase.

The Showcase features free, hands-on STEM (**science, technology, engineering & math**) activities for youth of all ages and their families. Events include a **catapult challenge**, with competition by age group: elementary, middle school and high school!

Middle School Student Design Challenge:

Plan and create a catapult to launch a large marshmallow to knock over a wall of Dixie cups positioned 2 meters away using materials listed below.

Authorized Materials:

- Up to 20 popsicle sticks
- Up to 8 clothespins
- Up to 15 rubber bands
- Up to 4 plastic spoons
- Up to 10 pipe cleaners
- Up to 1 meter masking tape
- Up to 1 meter yarn
- Up to 5 plastic bottle lids

Catapult History: When you hear the word “catapult”, you might think of devices used during battles in the Middle Ages. Today, catapults are used for many different purposes. Did you know that catapults are used to launch planes on aircraft carriers where runway space is limited? The same kind of mechanism can be found at Knott’s Berry Farm, where it propels the Montezuma’s Revenge roller coaster ride!

Launch: A catapult is a device used to launch a projectile a great distance without electricity. There are many types of catapults, including trebuchets, mangonels, and ballistas. A trebuchet is one of the most powerful types of catapults, as it uses a load much heavier than the projectile, set far above the ground. This gives the load, and consequently the trebuchet, a lot of potential energy. The projectile is launched when the load starts to fall to the ground. As the load falls, kinetic energy is given to the projectile. The projectile uses this to build up potential energy as it flies toward its goal, and then gains back the kinetic energy as it falls.

Science Behind Catapults: A lever is a type of simple machine. A lever can help move or lift objects by applying force to gain a mechanical advantage. The lever has two important parts: a fulcrum, or center of rotation, and a force arm, which is the lever itself. To use the lever, four parts work together: the lever (long and rigid), the fulcrum (the resting point on which the lever turns or pivots), the effort (force that is applied), and the load (object that will be moved).

Science

forces, simple machines, energy transfers

Technology

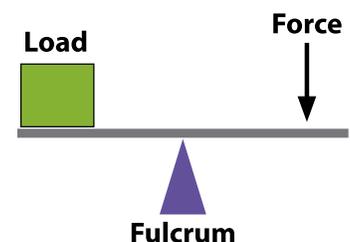
using what you know about force, energy and simple machines to design and build a tool to meet the challenge

Engineering

design, build and test your ideas to meet the challenge

Math

measurement, averages, accuracy



For more info on the Showcase and Catapult Challenge, and for catapult resources, visit www.westsoundstem.org.