

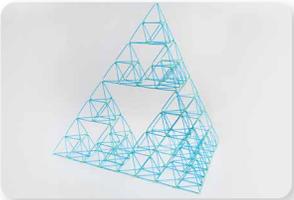
STEAM SCHOOL KIT

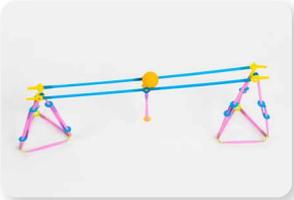
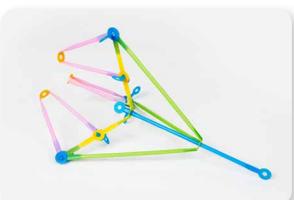
ACTIVITIES LEARNING OBJECTIVES

Activities are base models with building instructions, tips, and support materials. Below is an overview of outcomes listed for each building activity describing the intention of what is being created and what is happening when building the model.

Information about the Kit

<https://learning.strawbees.com/product/steam-school-kit/>

	DESCRIPTION	LINK TO ACTIVITY	LEARNING OBJECTIVES OVERVIEW
<p>Platonic Solids</p> 	<p>Build the shapes that have intrigued philosophers, mathematicians and scientists for centuries.</p>	<p>https://learning.strawbees.com/activity/build-the-platonic-solids</p>	<ul style="list-style-type: none"> • Platonic solids are very unique shapes and from all possible convex polyhedra, only five can be made with regular polygons, like triangles and pentagons, as faces. • Learn the names of the 5 platonic solids: tetrahedron, cube, octahedron, dodecahedron, and icosahedron and break down the number of faces on each by the Greek numerical prefixes of the names. • View how these shapes are commonly often used to make up the world around us.
<p>Stacking Tower</p> 	<p>Build big by stacking Strawbees cubes and add custom shapes to style it.</p>	<p>https://learning.strawbees.com/activity/build-a-stacking-tower</p>	<ul style="list-style-type: none"> • Learning geometric reasoning of shapes taking up space and how they can be stacked together as building blocks and make large, stable structures without falling apart. • Start by building a simple vertical the tower, then stack horizontally, as a wall and include shapes in-between to create arches and begin to see how it used in architectural buildings and nature.
<p>Sierpinski Pyramid</p> 	<p>Construct a modular, fractal structure with tetrahedral shapes.</p>	<p>https://learning.strawbees.com/activity/construct-a-sierpinski-pyramid</p>	<ul style="list-style-type: none"> • Learn about Wacław Sierpiński, a Polish mathematician, famous for extensively describing a certain type of self-similar triangle, which means it's not only a triangle made out of other triangles but the drawing pattern repeats independently of the scale. • Building a large and lightweight three-dimensional scale model of the Sierpinski Pyramid made from a pyramid shape performing repeatedly over and over again. • Construct a very tall architectural model strong enough to hold it's own weight that can even fly!

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<p>Truss Bridge</p> 	<p>Build a series of bridges and use your hands to understand structural integrity.</p>	<p>https://learning.strawbees.com/activity/build-a-truss-bridge/</p>	<ul style="list-style-type: none"> • Learn about the truss as a rigid structure made out of beams used starting in a bridge design and how they can be altered. • Practicing geometric reasoning skills as one of the simplest ways to create rigid structures is by combining or breaking other shapes into triangles.
<p>Rollercoaster Run</p> 	<p>Build a track for a ping pong ball to travel up and down on!</p>	<p>https://learning.strawbees.com/activity/build-a-roller-coaster</p>	<ul style="list-style-type: none"> • Build a track with enough width to support a rolling ball and not fall through. • Practicing spatial reasoning of considering the space available and how to construct bases with enough variance in height to hold up the track up in place. • Learning to tinker. Adjusting the height of the tracks to work with gravity and build up of potential energy as the ball travels down at just the right speed with a design to prevent it from flying off at track's curve or turn.
<p>Mechanical Arm</p> 	<p>Make a collapsible grabber using an accordion linkage.</p>	<p>https://learning.strawbees.com/activity/make-a-mechanical-arm</p>	<ul style="list-style-type: none"> • Creating an accordion linkage, made of connected pairs of scissors using levers to grab items. • Explore how to get different results for the accordion linkage by changing straw sizes and connectors to affect the movement and the end of the arm grabs.
<p>Mechanical Claw</p> 	<p>Make a 3-finger claw to grab objects from any direction moving a single straw.</p>	<p>https://learning.strawbees.com/activity/build-a-mechanical-claw</p>	<ul style="list-style-type: none"> • Creating mechanical linkages to expand and retract using levers connected to each finger of the mechanical claw. • Designing a claw to grab with constraints of friction and forces at work when pushing and pulling the mechanical linkage. • Explore how to get different results for the claw by changing straw sizes and connectors to affect the movement and how it grabs.

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<p>Mechanical Crane</p> 	<p>Build an operational crane with a four-bar linkage and control it with your hands.</p>	<p>https://learning.strawbees.com/activity/build-a-mechanical-crane</p>	<ul style="list-style-type: none"> • A model of crane using mechanical linkages to expand and retract using levers. • Explore how to get different results for the mechanism to work by changing straw sizes and connectors to affect the movement and force required to operate the crane with your hands.
<p>Catapult</p> 	<p>Launch a projectile across the room with a Strawbees catapult.</p>	<p>https://learning.strawbees.com/activity/build-a-catapult</p>	<ul style="list-style-type: none"> • Learning about giving energy to a projectile and then releasing it with potential and kinetic energy. • Explore changing design of catapult by exchanging straw sizes for redesign of the body and how it effects the projectile travels in distance.

Visit the following websites on how to incorporate Strawbees effectively through curriculum standards with an assessment of student understanding and performance in classrooms.

Next Generation Science Standards (NGSS): <https://learning.strawbees.com/ngss/>

United Nation's 17 Sustainable Development Goals: <https://learning.strawbees.com/sdgs/>



For more activities, lesson plans and support material please go to:

learning.strawbees.com