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Stem Kids Challenge: Build the stale tower with easter plastic eggs Fairy Tale STEM activities an project ideas for kids Colorful STEM Preschool Activities for kids with Light and Blocks Spring STEM Activities for Kids in the Classroom #easter #spring #stem activities for kids Sailing Away with Sailboats in the STEM Lab! #stemactivities for kids Build Working Gears out of Popsicle Sticks #stem #stemactivities for Kids Late Medieval Europe STEM Challenges & STEM Activities for the Classroom #siege tower and ballista Tape Resist Dinosaur Bone Art #stem and #summer Activities for kids STEM Jellybean Structures The Stem Laboratory #stem Activities for Kids Science for Kids : Easter Science with Peeps Boats #stem activities for kids STEM Challenges can be low cost ways to incorporate learning concepts in your classroom or maker space. One classic favorite of mine are marshmallow and toothpick challenges. We started a Creator Club a few weeks ago. Our kids meet once a week to do hands-on learning projects. We have kids from 4K to 4th grade. As you know that range is wide in abilities. The great news is that there are plenty of activities to do with wide ranges of children. Our first week we dove right in and taught the students how to use hot glue guns so they could build craft stick truss bridges. This past week we had so much fun creating with marshmallows and toothpicks. I created a list of challenges that I dug up from the internet to use. After a successful Club, I thought you might benefit from this list of ideas, too!A few tips before you try this activity: let your marshmallows get stale. I opened my bags two days early and that was enough to help them get a little crusty and help them stand up better. Because we were closing in on Valentines Day, we had a little fun with some heart marshmallows I found! Using themed marshmallows adds an additional element of interest. We had no problems keeping the interest for an hour with these challenges. Finally, keep some of your marshmallows fresh. In an effort to curb uncontrolled eating of marshmallows, I told the kids that I had fresh, soft, non-crusty marshmallows for them! don't think a single kid ate a crusty marshmallow. They did ask me repeatedly for the good marshmallows but I'll take that over sugared up kids! I handed out marshmallows about 2/3rds of the way through the club time, when I noticed they were getting a little restless. The quick treat break had them back to building in no time and they were engaged and focused even after eating!We did not get through ALL of these challenges in one nightbut I'm happy to have these ideas all in one place for the next time around. Hope it helps you save some time, too!Build one dimensional shapes. For younger students this is a great way to reinforce basic geometry. Shapes that worked well for us included: triangle, square, rhombus, rectangle, trapezoid, parallelogram, pentagon, hexagon.Idea from: Arvindguptatoys.com Source: arvindguptatoys.comBuild three dimensional shapes. The kids went crazy over these. Building pyramids, cubes, prisms, tetrahedrons, and rectangles (I believe the geometry term is hyperrectangle). These small structures were great opportunities for the kids to explore support. Some recognized immediately that their shape wouldnt stand up with out connecting enough marshmallows and toothpicks. It took others a little longer. We found fun in the falling but reward in determining how to get it to stand on its own.Idea from: Arvindguptatoys.com Source: Arvindguptatoys.comCreate letters. I see so many opportunities for this from practicing the alphabet to spelling names, to snap words. It may also help reinforce letter structure for those students that sometimes struggle with forming letters. Idea from:Fantasticfunandlearning.com Source: Fantasticfunandlearning.comBuild a house. The kids built simple houses at the beginning, but it didnt take them long to begin experimenting with adding on and growing their houses (and tree houses!).Idea from:Simplydesigning.porch.com Source: Simplydesigning.porch.comBuild a tall tower. Using our shapes in #2, we discussed the importance of stability in a structure. They built towers using different three dimensional shapes. We discussed the strength found in a triangle. A prism shape worked well for creating taller towers.Idea from:Classroomfreebies.com Source: Classroomfreebies.comBuild a bridge. Once you tackle towers, bridges are a natural transition. This is a good small team exercise.Idea from: Meredith Vance Source: Pinterest.comBuild a pyramid. Just like the bridges, this is a project best suited for small teams. Students can be challenged with limited marshmallows and toothpicks, or limited by time. This helps them stay focused and on task.Idea from:Almostunschoolers.blogspot.com Source: Almostunschoolers.blogspot.comCreate animals. We loved this challenge! The kids created birds, lions, pigs, long dogs and other unique animals.Idea from: ApartmentTherapy.com Source: Apartmenttherapy.comDesign a snowflake. Were still in the thick of winter, so a snowflake challenge fits the mood around here! I thought the kids would be more excited about this one, but I think if I had older ones they would have gone crazy.Idea from: Julie Bennett Source: Pinterest.comCreate a sculpture. I often try to build in time to free build. Sometimes I set a theme such as plants, animals, fruit, vehicles, buildings, holiday themed (Valentines Day!). Other times I just let them build.Idea from: Amazingmess.com Source: Amazingmess.comMake a constellation. I loved this idea when I spotted it on pinterest. Students love talking about space. Combining a natural interest with a STEM project can be great fun.Idea from: Artsymomma.com Source: Artsymomma.com.They may not be K'Nex but they are still a "rod and connector set" of sorts!All kinds of fun can be had with marshmallows and toothpicks! And you can even eat the connectors - Can't say that of K'Nex!So let your imagination run wild... but please do not try to break the Guinness World Record for the most marshmallows eaten in 1 minute. (Full-size ones.... is 25, achieved by Anthony Falzon (Malta) in Sliema, Malta, on 25 March 2013.)One afternoon my daughter suggested that we get out the marshmallows and toothpicks and here is the result. She took most of the photos and built everything but the large bridge structure.I hope that you have as much fun as we did!P.S. If you find the Instructables I post interesting please click the "Follow" button above. Thanks!You will need lots of mini marshmallows and lots of toothpicks. It's best to let the marshmallows get a bit stale as they have greater strength and gripping power. I don't have a preference regarding multi-colored or white marshmallows. We had both on hand, but the multi-colored seemed to be a bit more stale, and therefore better building materials.I prefer round toothpicks to the flat ones; they have greater strength.Triangles and Squares are your basic building blocks. Triangles are inherently more stable than squares.Squares tend to lack rigidity, and so we want a cross tie to strengthen it. But unfortunately geometry requires that our hypotenuse be longer than the sides-- and our toothpicks are all the same length.The solution is to bend our square into a parallelogram. That gives us a nice strong building block that is really two triangles put together.If you like squares or have a particular need for a square structure (and who doesn't?) you can slide an additional marshmallow onto the side and add two cross ties. This makes a really strong building block.Now you have some basics from where to start. Now go build something really cool!You can start building in 2D and then add connections to put multiple 2D parts together, or you can just "go for it" and build in 3D from the start. Sometimes during building, such as in the large bridge, things started falling apart and so additional cross ties or braces or just plain more toothpicks and marshmallows had to be added at strategic locations to hold things together. Experiment and have fun!No reason to limit your creations to structures. Go ahead and build animals and people -- Whatever you can imagine!Have FUN!!!! Who doesn't love a STEM project that includes a bag of marshmallows! This is one of my favorite, "totally do-able" STEM challenges. It's super budget-friendly and super simple to set up at a moment's notice. It's awesome for both large and small groups too! Building with marshmallows and toothpicks is always a huge hit and a quick way to set up Pin Why are building structures excellent STEM play? You need a good design, the correct number of pieces, a solid base, and basic engineering skills to build a solid structure. Plus, it also provides a chance to work on building skills and problem-solving skills on a fundamental level. This might be just the right level for your junior engineers! Pin Do you have a kiddo looking for even more of a challenge? Take it a step further, combine the building techniques you've just tried with the shapes, and see who can build the tallest marshmallow and toothpick tower. You can set this as a timed event or leave it untimed! Generally, 15-20 minutes is a reasonable amount of time. For a simple tower challenge, you might start with around 50-100 toothpicks and a bag of mini marshmallows. If you find that the structures are too small or too large, you can adjust the quantity of toothpicks and marshmallows accordingly. TIP: Consider increasing the number of materials for a more complex challenge or decreasing them for a quicker activity. Try the 100 marshmallow tower challenge! The kiddos must build with 100 marshmallows in a set amount of time! Generally, 15-20 mins is a reasonable STEM challenge time frame. This is also a fun team-building activity! Use the free instant download above. Pin Structure challenge! Research an interesting building or structure to replicate with marshmallows and toothpicks. It's a fantastic opportunity to combine engineering, math, history, technology, and architecture for a STEAM project. Use the free instant download above. Two-dimensional (2D) shapes are geometric figures that exist in two dimensions, namely length and width. These shapes are flat and can be represented on a plane surface. Common examples of 2D shapes include: Square: A square is a four-sided polygon with equal sides and four right angles. Circle: A circle is a perfectly round shape with all points on its boundary equidistant from its center. Triangle: A triangle is a three-sided polygon, and the sum of its internal angles is always 180 degrees. Rectangle: A rectangle is a four-sided polygon with opposite sides of equal length and all angles at right angles. Pentagon: A pentagon is a five-sided polygon. Hexagon: A hexagon is a six-sided polygon. Octagon: An octagon is an eight-sided polygon. These shapes are fundamental in geometry and serve as building blocks for more complex geometric structures. Pin Three-dimensional (3D) shapes are geometric figures in three dimensions: length, width, and height (or depth). Unlike 2D shapes, 3D shapes have volume and occupy space. Common examples of 3D shapes include: These 3D shapes are essential in geometry and commonly represent objects in the physical world. Understanding their properties is crucial in various fields, including mathematics, physics, and engineering. For more 3D Shape building cards, grab this free printable. Cube: A cube is a three-dimensional shape with six equal square faces, and all angles are right angles. Sphere: A sphere is a perfectly round three-dimensional object, similar to a ball, with all points on its surface equidistant from its center. Cylinder: A cylinder has two parallel circular bases connected by a curved surface. It can be visualized as a can or a tube. Cone: A cone has a circular base connected to a single vertex (apex) by a curved surface. It resembles an ice cream cone. Rectangular Prism: A rectangular prism is a three-dimensional shape with six faces, each being a rectangle. It is similar to a box or a rectangular block. Pyramid: A pyramid has a polygonal base (such as a square, triangle, etc.) connected to a single apex by triangular faces. Cuboid: Similar to a rectangular prism, a cuboid is a three-dimensional shape with six rectangular faces.Pin Straw Boats Challenge Design a boat made from straws and tape and see how many items it can hold before it sinks. Strong Spaghetti Get out the pasta and test our your spaghetti bridge designs. Which one will hold the most weight? Paper Bridges Similar to our strong spaghetti challenge. Design a paper bridge with folded paper. Which one will hold the most coins? Paper Chain STEM Challenge One of the simplest STEM challenges ever! Paper Tower Challenge: Build the tallest free-standing tower possible using a limited amount of paper. Strong Paper Experiment with folding paper in different ways to test its strength, and learn about what shapes make the strongest structures. Spaghetti Marshmallow Tower Build the tallest spaghetti tower that can hold the weight of a jumbo marshmallow. Cup Tower Challenge Make the tallest tower you can with 100 paper cups. Paper Clip Challenge Grab a bunch of paper clips and make a chain. Are paper clips strong enough to hold weight? Pin Pin PinStraw Boat STEM Challenge 80+ Doable Engineering Projects in one convenient pack! Full instructions with sample images Activity-specific instruction sheets Data Collection Sheets Questions for Reflection Architecture Building Cards: Try the tallest tower challenge Bridge Building Cards: Explore different types of bridges to build your own. Paper Chain STEM Challenge: Who can make the longest chain? Great icebreaker or quick challenge! 3 Little Pigs Architectural Pack: Design a house that won't blow away! Great marshmallow challenge: A classic challenge kids love! Real-world STEM challenge lesson but don't know where to start? Our easy-to-follow template shows the steps! What's the difference between a scientist and an engineer? Crossword and word search with engineering vocabulary. 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Exposing kids to simple STEM ideas early sets a foundation for higher learning tomorrow. We have manyeasy STEM projects that preschool and elementary-age kids can try! We like to set up fun building challenges using easy and inexpensive supplies. STEM is all about the world around us, so lets encourage kids to use what they have and get creative with their engineering skills! Shapes are everywhere and are the basis for all our designs and creations. First, kiddos can build the 2D and 3D shapes printed on the cards below! This is an excellent way for them to familiarize themselves with the various shapes. Plus, it also provides a chance to work on building skills and problem-solving skills on a fundamental level. This might be just the right level for your junior engineers! Pin Do you have a kiddo looking for even more of a challenge? Take it a step further, combine the building techniques you've just tried with the shapes, and see who can build the tallest marshmallow and toothpick tower. You can set this as a timed event or leave it untimed! Generally, 15-20 minutes is a reasonable amount of time. For a simple tower challenge, you might start with around 50-100 toothpicks and a bag of mini marshmallows. If you find that the structures are too small or too large, you can adjust the quantity of toothpicks and marshmallows accordingly. TIP: Consider increasing the number of materials for a more complex challenge or decreasing them for a quicker activity. Try the 100 marshmallow tower challenge! The kiddos must build with 100 marshmallows in a set amount of time! Generally, 15-20 mins is a reasonable STEM challenge time frame. This is also a fun team-building activity! Use the free instant download below. Pin Structure challenge! 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Engineering vocabulary cards Design a one-of-a-kind invention and write about it with this 5-page activity!Pin Skip to content Building toothpick sculptures is a construction project that is simple enough for young children yet challenging enough for older kids.Updated December 2022If you haven't tried building with toothpicks with your kids, you must give it a try!Its a construction project that can be as simple as poking a bunch of toothpicks in playdough for young children or as challenging as building a geodesic dome or tower for older kids and adults.And with all the different great ways to build with toothpicks, everything from traditional marshmallows to Model Magic to sculpture as snack, youre sure to find one to suit your family. And if you add in little animal figurines and dolls to populate the toothpick buildings, its a perfect pretend play craft, too. Here are some of our favorite materials to use when making toothpick construction projects! Heres a video showing some Fabulous Toothpick Construction ideas for kids! And keep scrolling for even more ideas. Photo by Jean Vant HulAn invitation to play with your food and create as you snack! Some options are healthier than others, but all are fun! Photo by Jean Vant HulClay and playdough work well for building with toothpicks, too! Weve used playdough, Sculpt-It air dry clay, and bread dough. And if you happen to have skewers at home, you can try Kids Sculptures with Styrofoam and Bamboo Skewers (theyre just big toothpicks, right?).Photo by Jean Vant HulHave you tried building with toothpicks with your kids yet? Pin It for Later If youve ever wondered how to make engineering lessons engaging and memorable for upper elementary and middle school students, look no further than your kitchen pantry and craft drawer. Mini marshmallows and toothpicks might seem like humble materials, but theyre fantastic tools for teaching structural engineering. In this post, well explore how these inexpensive items can spark creativity, teach essential engineering principles, and even connect to the UNs Sustainable Development Goals (SDGs). First off, theyre fun! Kids love working with tactile, slightly squishy marshmallows. And who doesnt feel a little like an inventor when piecing together toothpicks to form mini masterpieces? But its not just about the funthese materials are lightweight, easy to manipulate, and ideal for modeling complex engineering concepts in a way thats accessible to young learners. Plus, theyre affordable and eco-friendly compared to buying pre-made kits. Here are a few awesome activities you can do with marshmallows and toothpicks: Basic Shapes and Stability: Have students experiment with building squares, triangles, and hexagons. Which shapes are the most stable? Spoiler alert: triangles are the MVP of structural stability! Building Towers: Challenge students to build the tallest tower they can, then test its strength by adding weight (like pennies in a cup). This introduces the concept of load-bearing structures. Earthquake-Resistant Buildings: Build structures and simulate an earthquake by shaking a tray or table. Discuss how cross-bracing, wide bases, and other techniques make buildings safer during seismic activity. Bridges: Design and test toothpick bridges to see how much weight they can hold. This project is perfect for introducing tension and compression forces. Creative Challenges: Incorporate real-world challenges: Design a structure that can withstand high winds or Build a model of a famous skyscraper. The SDGs provide a framework for teaching kids about real-world issues and how engineering can help solve them. Heres how to tie them in: SDG 9: Industry, Innovation, and InfrastructureTalk about how engineers create resilient infrastructure and innovate to make buildings safer in natural disasters. SDG 11: Sustainable Cities and CommunitiesDiscuss how sustainable building materials and designs can reduce environmental impact while keeping people safe. SDG 13: Climate ActionConnect your earthquake-resistant buildings to the effects of climate change, like increased seismic activity or extreme weather, and how engineers must adapt to these challenges. To make it easier for educators and parents to assess learning outcomes, weve created a free downloadable rubric. It covers: Understanding of basic engineering principles (e.g., stability, load-bearing, tension/compression) Application of problem-solving skills during the design and building process Creativity and teamwork Connection to real-world challenges and sustainable development concepts Lets talk about what happens when the building phase is over and the marshmallow skyscrapers have fulfilled their destiny. How do you responsibly bid farewell to your creations? Heres the plan: Eat the Marshmallows: Why let good marshmallows go to waste? Host a demolition party and let students munch on their sugary structures. Pro tip: avoid eating the ones that have been handled a bit too much (you know what we mean). For extra laughs, pretend to be a giant devouring a city. Compost the Toothpicks: Toothpicks are biodegradable, so toss them into your compost bin. Not only is this eco-friendly, but its also a great opportunity to discuss how small actions, like composting, contribute to a healthier planet. If you want to get creative, call it recycling the rubbish. Sustainable engineering doesnt have to stop at the lesson! can carry over to cleanup, too. Plus, its a sneaky way to teach kids about reducing waste and making eco-conscious choices. Using marshmallows and toothpicks makes abstract concepts tangible. Kids can see and feel the effects of their design choices, whether its a wobbly tower or a sturdy bridge. These activities also encourage trial and error, resilience, and creative thinkingskills that are essential not only in engineering but in life. So, grab some marshmallows and toothpicks and get building! Your students will thank you for the chance to learn, experiment, and create something amazing. Your guide through parenting, Mas&Pas provides free online resources for impartial advice and easy access to qualified professionals.

Toothpicks and marshmallows tower. Building with toothpicks. Toothpick and marshmallow structures. Toothpick and marshmallow building. Things to make with marshmallows and toothpicks. How to make a house out of toothpicks and marshmallows. Marshmallow and toothpick ideas.