Teacher Name	STEM Day Activity Title	Please provide a short description of your activity (remember activities should be at least 45 minutes in length)
Melia Foley	Garage Band	
Diane Jackson	Sand Table	Kids gather around the sand table, exploring the sand, letting the grains run between their fingers. The teacher passes out some props—marbles, rulers, boxes and cups—and lets students explore freely for a few minutes. The kids excitedly dig in, filling cups with sand and pouring it out, burying marbles, and turning the rulers into shovels and rakes. Then I wil say: “I have a challenge for you today. How fast can you make the marbles roll?” Kids start rolling marbles across the sand, only to find the marbles quickly get stuck, hung up on miniature sand dunes. Then one student tries putting his marble on a ruler. It rolls much faster. Then another props his ruler up on a cup and the marble flies. The teacher watches quietly as the kids explore. Afterward, the teacher and her students gather on the rug to talk about their observations. She asks: “What did you design out of your tools that make the marble roll fastest?” “What do you think makes the marble slow down?” “Why do you think the marble rolls faster on the ruler than in the sand?”
King	Rock Your Color World!	Students will learn about Sir Isaac Newton's color wheel invention! They will uncover the mystery behind primary, secondary, and tertiary colors. They will also discover the magic of color harmonies and color schemes. Activities include blending paint to make a personal color scale and dipping paper towels in special colored dyes to create new colors!
Jeri Stein	Float My Boat!	Your challenge is to build tinfoil boats and test different designs to see how many pennies you can load without sinking your boat. Let's dive in!
Lambert	Don't Lose Your Marbles	Students compete to build a marble track.
Jim Hamilton	nature, unnature walk, study	Students will explore different aspects of nature and how the impact of humans can can our world for the better and bad.

Quinn	See It, Say It, Make It	Class will be divided into small groups. One designated person will observe a previously created model. They will then communicate the information to their group, and the group will attempt to re-create the model using the specifications they have been given.
Lockwood	It's the Last Straw	Create Loop Airplanes out of a straw and 2 strips of paper. Engineer your plane to fly the farthest.
Benzur	Blood is thicker than Water	We will be making fake blood and getting really messy!
Terry High	Build a Raft	Students will construct a raft in order to see whose raft will support the most weight without sinking.
Manzi	finger knit	students will learn how to finger knit
Xu	Dancing Raisins	Materials: Raisins, cups, water, cans of soda. Steps: Pour water in a cup. Add some raisins. Observe. Pour soda into a cup. Pour some raisins into it. Observe. Big Question: Why your raisins dance?
Jasper	Straw Airplanes	We will experiment with straws and paper loops to make airplanes that fly the farthest.
Danhi	5 Senses	We are going to conduct an experiement growing plants in the light and dark.
M. Zabinski	Strongest Structure	Each team of students will build a structure that has certain characteristics(tallest, strongest) more so than the rest of the class. Bags with building matterials will be provided.
Menendez	Magnets	Students will demonstrate how magnets attract and repel. Students will identify objects that do not block mangetic force.
Allen-Thornton	Water	Students will investigate different kinds of liquids.
Durant	Sound	Students will think of ways to change sound.
D. Jackson	weather	Students will identify, measure, and observer the types of weather.

Rhinehart	Shadows	Shadows are sneaky things: they run ahead of you, jump behind you, and sometimes even disappear completely! Even Peter Pan had trouble catching his shadow. Believe it or not, all that sneakiness is actually the result of shadow science. Your shadow changes size and shape during the day and then runs and hides when it gets dark—unless you're near a light. So, what exactly makes your shadowy twin dance around all day? Let's play detective and find out why that sneaky shadow never stays in one place for long. Problem: What makes shadows change size and shape throughout the day? Materials: •Moonbear's Shadow by Frank Asch •Large tarp •Chalk •Notebook •Pencil •Friend Procedure: 1.Read Moonbear's Shadow with an adult. Look closely at the pictures and talk about what you see. 2.Think about your own shadow. Have you ever seen your shadow act like Moonbear's shadow? What makes our shadows dance around in such a funny way? Write down any of your thoughts down in your notebook. 3.Make a guess about what makes your shadow change size and shape throughout the day. Write your guess—called a hypothesis—in your shadow science notebook. 4.Place a large tarp on the ground. For the best results, try to start your project in the morning on a nice sunny day. 5.Ask a friend to stand on the tarp and face the sun. 6.Use your chalk to trace, or outline, your friend's shoes as he stands on the tarp. 7.Next, trace your friend's shadow on the tarp. 8.Note the time of day in your notebook. 9.Make any observations, or thoughts about what you see, in your notebook. How big is your friend's shadow? Is it stretched out or squashed short? 10.Look to see where the sun is. Is the sun high in the sky or low on the horizon, the line where the sky and the land meet. Note these observations in your notebook as well. 11.Repeat steps 5-10 every few hours throughout the day. Make sure your friend faces the same direction every time you trace his shadow—just make sure his feet line up with the chalk outline you made before. 12.Make your last shadow outline when the sun starts to set. 13.Once you're finished, take a look at your tarp. Did the shadows move and change shape the way you were expecting?

		Results: Your shadow will be the biggest and the longest when the sun is near the horizon—right in the morning after the sun rises and right in the afternoon before the sun sets. In the middle of the day, around lunchtime, your shadow will become very small. It might even disappear! Why? Think about the sun as it was shining in your backyard. Why was almost everything bright except for your friend's shadow? Well, when we're outside during the daytime, our bodies are actually blocking some of the sun's light. The sun's light can't shine through our bodies—that's why shadows are always very dark. As the sun moves around in the sky, our shadows move around too. When the sun is near the horizon, our bodies block more light. The more light we block, the bigger the shadow. But when the sun is high above us, the light is only shining down on our heads. Our heads don't take up much room, so our shadows are very small at this time of the day. Do you think shadows can only be created by light from the sun? Find out! What would happen if you tried to "lose" your shadow like Moonbear? Do you think you could do it? Guessing and testing is a big part of being a scientist. Now that you know more about the relationship light and dark, use your new knowledge to invent more shadow experiments.

Rhinehart	Water flow	Can you dig it? This science experiment isn't for kids who like to keep their hands clean. The sandbox will be your lab as you work to set up an epic water race. Water flow design, playing in the sand and a race? This obviously isn't your average science fair project. Problem: Will water flow faster in a shallow sand trench or a deep sand trench? Materials: 1.Small shovel 2.Trowel 3.Sandbox 4.2 buckets 5.Water 6.Stopwatch 7.Tape measure 8.Paper 9.Pencil 10.Helper Procedure: 1.Use paper and a pencil to draw trench designs before you move to the sandbox. 2.Think about what you know about sand and water and motion. You want to design a trench that will move water the fastest from one side of the sand box to the other. How do you think you can do this? 3.Do you think a shallow trench or a deep trench will move water the fastest? Write down your guess, sometimes called a hypothesis, in your notebook. 4.Head over to your sandbox (if you can take a trip to the beach, that would work even better!) Just make sure that wherever your are, the sand is at least a foot deep. 5.Start digging. Remember that you want to create one shallow trench and one very deep trench. Dig your trenches parallel, or side-by-side. Since you will be having a "water race", you want each trench to be the same length. 6.Have you and your helper fill the two buckets with an equal amount of water. 7.Stand at the beginning of one trench and have your friend stand at the beginning of the second trench. 8.At the same time, you and your helper should begin pouring water into your separate trenches. Which trench moves the water the fastest? Results: Water moved faster in the shallow trench than in the deep trench. Why?

		The sand played a big part in this water race. Dry sand soaks up water -- the more water is soaked up, the more water is not moving down the trench. In a deep trench, some of the water is getting soaked up by the sand while the rest is busy filling up the tall sides of the trench. This takes time. That's why the deep trench was slower. The shallow trench, however, was also made of sand, but its shorter sides sped up its overall time. The water in that trench didn't have to fill up a long ways like the water in the deep trench. Trenches can be made with lots of different materials, not just sand! Now that you know a little about water flow design, continue your experiments with trenches made of dirt or wood. Do you think those trenches would be faster or slower than your trenches made of sand? Never stop guessing and testing! Scientists spend every day coming up with new ways to test their guesses -- why not do the same?

Rhinehart	Why Do Plant Wilt	Whew! It's hot out here. The plants are wilting in the summer's heat. Can adding shade help your plants stay happy? Problem: Can a bit of shade help stop your outdoor plants from wilting? Materials: •Umbrella •2 planter boxes •Soil •Sprayer •6 lettuce plants •Thermometer •Moisture meter •Notebook and pencil Procedure: 1.Is it hot outside? That's perfect! Grab your water bottle and head off to find the warmest place outside your house. 2. How can you find a warm place? Walk around until you see some plants that look wilted, with droopy leaves. You can also use your thermometer. Hold it by the top so it doesn't read your body temperature. Stand in each spot for a few minutes and see if the temperature on the thermometer changes. 3.Get two small planter boxes and six lettuce plants. Lettuce wilts in the hot sun, so it's a good plant for a heat experiment. Add soil to your planter boxes, and spray the soil with water. 4.Now plant your lettuce plants. Put three in each container. Put both containers in the hot sun. 5.In this experiment, you're going to give one batch of lettuce shade. The other will be in the hot sun. Create a hypothesis: your best guess about what is going to happen. Will the lettuce wilt? Will the lettuce in the shade wilt less than the lettuce in the hot sun? How about the temperature? Will it be different in each planter box? 6.Now, place the thermometer on top of the soil in each planter box. The temperature should be the same. 7.Add an umbrella to the side of one of the planter boxes. Make sure that the umbrella's shade covers the lettuce plants in that box but doesn't go as far as the other. 8.After one hour, take the temperature on top of the soil of the two planter boxes again. Make a note of it in your notebook. Is it different? The same? 9.Next, water the lettuce in each planter box. Wait for several hours. Now, use the moisture meter to see how wet the soil is in each planter. Write the readings down in your notebook. 10.Take a look at the lettuce plants in each planter. Do they look wilted? Do they look different or the same? Results: It may be a little cooler under the umbrella, but this depends on the

		air temperature and local winds. The plants will likely look less wilted. The soil underneath the umbrella will be moister than the soil with no umbrella. Why? Have you ever stood in a parking lot on a warm day and then moved underneath the shade of a nearby tree? It sure is cooler under there, isn't it? Temperature readings depend on many things. They depend on how warm the air is in general, and they depend on how the air is moving. For example, an ocean breeze can cool you down. These readings also depend on the heat that's stored in the ground. In a parking lot, the blacktop stores a lot of heat and radiates it out again, making it feel like you're standing in an oven. Forest and garden soils don't tend to do this as much, especially if they don't have a lot of plants and leaves to cover the soil. Depending on the movement of the air, the heat in the air, and the heat stored in the ground, you may or may not find that adding shade to your plants changes the temperature of the soil in the planter boxes. Plants may wilt because the soil is dry and the plants don't have enough to drink. If you add shade, this means that the sun no longer beats down directly on the soil, helping the soil stay damp. Less water evaporates from the soil, and the plants don't wilt as much. Even if the air temperature is about the same, adding shade can still keep your plants happy, because the plants stay moist for a longer time. Plants have leaves that provide shade. Look around your garden or deck. How can you use plants to add natural shade to your garden?

Rhinehart	Craters	In kindergarten, kids frequently learn to identify the sun, moon, and stars, and sometimes the planets as well. They often look at pictures of the moon, and hear about how “craters” have formed on the surface of both moon and earth. So what's a crater and how does it happen? Here's a kindergarten experiment with safe, nontoxic household ingredients. What You Need: •Wide mixing bowl •Flour •Ping pong ball •Superball •Marble •Yard stick •Small pebble What You Do: 1.Take out the mixing bowl and fill it half full with flour. Have your child run her hand across the top of the flour so that it's flat and even. 2.Now invite your kindergartener to use her imagination. Tell her that in this experiment, the flour represents the dusty surface of the moon, except it has no craters. That's the job of this experiment! 3.Now lay out the ping pong ball, superball, marble, and small pebble. Invite your scientist to lay them out a few ways: by size, then by weight. (Make sure she notices how the ping pong ball may be biggest, but it's not the heaviest!) 4.Now take the yard stick, hold it upright, and measure one foot high. Invite your child to drop each object from that height onto a different part of the flour. What happens? 5.Gently pull each object off, leaving the flour imprint, and write the results in a quick chart on a piece of paper. Which one made the biggest puff of dusty flour? Which one went deepest? Which one left the widest crater? 6.Now smooth the flour and try the experiment once more, from two feet above. What happens now? Explain to your child that this is how craters form in nature, only with huge big chunks of planetary material. Complex understanding of concepts like mass and volume will follow in years to come, but right now, you are helping your child gain hands-on, common sense familiarity with how all this works in the real world.
Katie Beck	Straw Rocket Aeronautics	The students will create rockets using the following materials: a paper template, a pencil, tape, and a drinking straw. They will launch the rockets by blowing into the straw that has been stuck in the back of the rocket. The students will make several rockets and vary the side of the rocket to see if it affects the distance it is launched.
Biccum	Jack and the Parachute	Students will build and test the speed of parachutes for a lego man with a variety of materials.
Melanie Miller	Catapults	The students will construct catapults to study force.

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Will Barnes	Straw Structures	Students work in engineering teams to design, build and test model bridges as they determine how shapes affect the strength of structures.
Manzi	Only You Can Help Save Fred	Fred doesn't know how to swim and you must save him!
Andrew Burnes		
James Garner	Electricity	
Sally Brown	Surprise!	