SEDGWICK COUNTY ZOO

5555 Zoo Boulevard
Wichita, KS 67212
316.660.WILD

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S.T.E.A.M. with Sticks

Choose a square • Complete the activity • Check it off

Use this chart however works best for your family. If you need to have daily tasks, follow the calendar. If you want to do a Wednesday activity on Monday, that is perfect too. Activities are perfect for preschool through high school and will help get all students out of the house. Have them take photos of their creations and share the photos with others. The photos can also be a good evaluation tool for parents who are not working from home.

Monday	Tuesday	Wednesday	Thursday	Friday
Collect and count several sticks. Sort them by length. Put in order from shortest to longest.	How many "Y" shaped sticks can you find? Find one more. How many can you carry in one hand?	Make shapes out of sticks. How many sticks does it take to make a triangle, a square, etc.? Can you make a pentagon, a hexagon, an octagon?	Think of 10, 15, 20 different uses for a stick. Write them down or share them with someone else.	Tie lengths of fabric or ribbon to a stick to make a wind wand or a streamer. Does your wind wand move when you hold it inside? What about when you go outside?
Can you make 10 or more alphabet letters using sticks? Make the first letter of your name or your entire name with sticks.	Find a large stick and paint it. No paint? No problem. Use mud! You can even add crushed chalk to your mud for color.	Build a tower with sticks. Try different methods to see which works best. How tall is your tower? Can you make one taller?	Lay sticks on the ground like rungs on a ladder. Hop over each stick – slowly, quickly, sideways, backwards, etc.	Use sticks, grasses, and leaves to design and build a nest for a bird. Make up a song about sticks or birds while you work.
Lay sticks end to end across a porch, sidewalk, flower bed, or your yard. How many sticks did it take? What else can you measure with sticks?	Pick two sticks to use as drumsticks on a tree or rock. Tap out different beats and rhythms. Make up your own song or sing a favorite.	Use sticks to make a small frame for a birdhouse or miniature bear cave. Use leaves or grasses for the walls.	Lay four sticks out in a grid pattern and play Tic Tac Toe. Rocks vs. leaves Pinecone vs. grass blade	Fill a large bowl, bucket, or wagon with water. Do sticks sink or float? Find out. Can you make a small raft that will float?
Using twigs and balls of playdough, construct something of your choice. No playdough? Make a thick mud mixture to use instead.	Use several sticks and make a design on the ground or porch. Add leaves, seeds, stems, rocks, flowers for greater variety. Take a picture of your art.	Use different colors of yarn or string to wrap a stick and make it even more beautiful. No yarn? Try long grasses or vines.	Lay out several sticks. Describe one of the sticks to another person. Can they identify the correct stick? Add more sticks to increase difficulty.	Put the end of a stick into dirt in an old flower pot, a flower bed, or the ground. Use more sticks and make a design. Can you make them stand up without touching them? What can you design?
Use sticks to design a maze or path in your yard. Follow the path or see if someone else can follow your path.	Sort sticks by width, color, size, shape or texture. Are there any other ways to sort your sticks?	Use a stick to write or draw in dirt, sand, or mud. Practice letters, shapes, sight words, or spelling.	Choose some sticks. Can you break them? If so, how many pieces can you make? If not, why not? Are some sticks different than others? How?	Wait until dark or dusk and grab a flashlight. Go on a stick hunt. Is it easier or harder to find sticks in the dark?

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Kansas College and Career Readiness Science Standards

Grade	KCCRSS	Description
Kindergarten	K-PS2-1	Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
	K-PS3-2	Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.
First	1-PS4-1	Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.
	1-PS4-3	Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.
Second	2-PSI-1	Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
	2-PS1-3	Make observation to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.
	2-ESS2-1	Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.
Third	3-PS2-1	Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.
Fourth	*4-ESS3-1	Obtain and combine information to describe that energy and fuels and derived from natural resources and their uses affect the environment.
Fifth	5-PS1-3	Make observations and measurements to identify materials based on their properties
Third-Fifth	3-5-ETS1-1	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, and cost.
Middle School	*MS-PS2-2	Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object
	*MS-ETS1-3	Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

* Additional activity/discussion required.