

Take 10... activities to inspire STEM learning at home

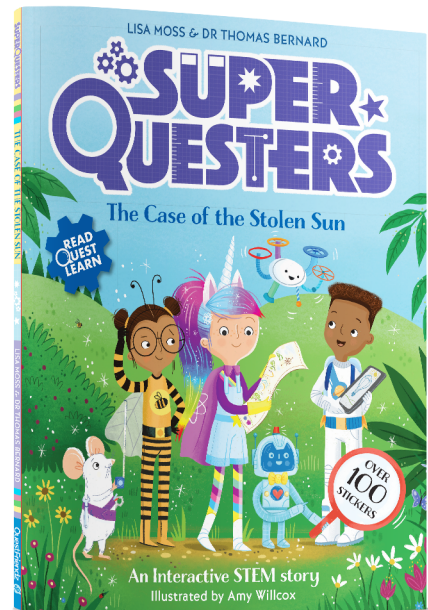
Educational opportunities can take the form of simple, everyday pastimes. Here some ideas from children's publisher, QuestFriendz



STEM skills help children develop a sense of curiosity

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Supporting children to develop STEM (Science, Technology, Engineering, Mathematics) skills, including critical thinking and computational skills has never been more important. As technology continues to evolve and changes the work landscape, it's imperative that children are provided with opportunities to develop core skills in these key areas.

Not only do STEM skills equip children with a transferrable skillset, but they also help them to develop a love of learning and a sense of curiosity, promoting self-esteem as children learn how to problem-solve and view failure as part of the learning process.

STEM children's publisher QuestFriendz gives Belfast Telegraph readers ten practical and fun STEM activities that parents can use to help inspire children to love STEM learning and provide memorable experiences that ignite their curiosity.

Activities For 4-7-year-olds

Coding Unplugged

What you need: A4 paper, pens, two toys

sequence of steps) for the 'start' toy to follow to reach the 'end' toy. For younger children, give them some arrow cards (simple arrows drawn on small pieces of paper) to place directly on the grid. Older children can write the algorithm on a separate strip of paper. You can extend the activity by placing objects in the way that have to be avoided.

Waterproof Roof Experiment

What you need: Lego, range of different materials to function as a roof

Activity: Make a simple (roofless) house from Lego. Test out different materials for the roof e.g. foil, paper, cloth. Make predictions and test out which materials are waterproof by using a spray bottle to spray the roof the same number of times.

Paper Aeroplane Challenge

What you need: Paper, tape

Activity: Make paper aeroplanes using different folding methods and materials (e.g. cardboard, parchment, aluminium). Race each plane to see which design and materials fly the fastest and which can fly the furthest. Encourage children to make predictions before each flight and record your results!

SuperQuesters: The Case of the Stolen Sun (Interactive STEM picture book)

Join the SuperQuesters on an adventure to discover what makes things go up! Along the way, your child will complete eight STEM quests, developing key STEM skills in fun, interactive games, with the reusable stickers. For free SuperQuesters' activities, visit the publisher's website www.questfriendz.com



SuperQuesters author Lisa Moss

Cloud In a Jar

What you need: Jar with a lid, cup of hot water, ice and hairspray

Activity: Pour hot (not boiling) water into the jar and swirl it around. Place the lid upside down on top of the jar, with the ice cubes on top and leave for 20 seconds. Quickly, remove the lid and spray some hairspray inside the jar. Cover it with the lid and ice again quickly. A cloud will begin to form inside the jar. Once the jar is filled, remove the lid and watch the cloud escape!

Paper Roller Coaster

What you need: Paper, cardboard, toilet paper rolls, scissors, ruler, tape and a marble.

Activity: Children design a plan of a roller coaster, making sure it starts at the top of a hill. Use cardboard for the base, toilet paper rolls for the posts and create individual segments using strips of paper that are taped together. Children can experiment with different segment shapes and designs. Place the marble at the top and test out the roller coaster!

Lego Wind Racers

What you need: Lego, wooden kebab sticks, paper, large fan

Activity: Create a wheeled vehicle out of Lego pieces and use the paper and wooden kebab sticks to make a sail to attach to it. Experiment with different sizes and weights of paper and make predictions. Place the vehicle on a starting point, turn on the fan and see how far it travels with each different sail.



Computer scientist Dr Thomas Bernard

Activities For 12-year-olds +

Make A Toothbrush Robot

What you need: Toothbrush, coin cell battery, vibration motor, foam tape

Activity: Cut off the handle of the toothbrush, leaving just the head. Use a vibration motor and hook it to a coin cell battery. You may need to solder the motor terminals to the copper wire leads. Use foam tape to secure the motor and battery to the toothbrush. Decorate and race the robot against others.

Design A Physical or Online Game

Activity: Create your own game. Start by brainstorming game objectives, number of players, characters. Decide on physical or online format. Design and build your game including a set of rules. Online game design provides a great opportunity to learn how to code. The websites offer different coding languages to choose from, as well as letting coders share their video games with others.

Stop Motion Animation

What you need: Smartphone or tablet, tripod/homemade stand, objects to animate, lamp, Stop Motion App (e.g., Stop Motion Studio or I can Animate, both free to download)

Activity: Plan or storyboard the scene. Create the set and set up your filming device on a tripod or stand to keep it steady. Once the objects are all in place, use the Stop Motion App to create your movie. Add sound effects and then grab the popcorn!

SuperQuesters: The Case of the Stolen Sun by Dr Thomas Bernard and Lisa Moss (illustrated by Amy Willcox) is available now from QuestFriendz