

# Resources for family-engaged, out-of-school STEM learning

Compiled July 2020

## STEM activity ideas:

Organization	Resource name	Description	Age group	Link
National PTA	STEM at Home Activities	<ul style="list-style-type: none"> <li>A collection of 15 activities divided into “Learn @ Home” (using common household materials) and “STEM @ Home” (may require new materials)</li> <li>Each activity has a video and a guiding document to easily follow along</li> </ul>	Any	<a href="#">Click</a>
Greater Cincinnati STEM Collaborative	Family STEM Cards	<ul style="list-style-type: none"> <li>A collection of “cards” (each is a simple STEM activity) broken into the categories of Science, Technology, Engineering, and Math</li> <li>Translation available in Spanish</li> <li>Original sources/inspirations for the activities are provided at the bottom of the page</li> </ul>	Any	<a href="#">Click</a>
Raspberry Pi Foundation	Code Club and CoderDojo projects	<ul style="list-style-type: none"> <li>Concise coding projects that simply require an internet connection</li> <li>These guides are detailed enough that facilitators do not need a strong coding background</li> <li>Several “levels” available – drag-and-drop coding with Scratch, basic web design/development with HTML and CSS, programming with Python</li> <li>If the Modules are followed in order, knowledge is built gradually</li> </ul>	Middle/high school	<a href="#">Click</a>
Techbridge Girls	Techbridge Girls@Home	<ul style="list-style-type: none"> <li>A set of design challenges and social-emotional learning activities</li> <li>Specifically prepared in response to remote learning during the COVID-19 crisis</li> <li>Activities available in Arabic, Chinese, English, Somali, Spanish, Tagalog, and Vietnamese</li> </ul>	Any	<a href="#">Click</a>
Techbridge Girls	Role Models Matter	<ul style="list-style-type: none"> <li>Lesson plans, icebreakers, and readings for role models</li> <li>STEM lesson plans broken into the categories of design, structural engineering, chemical engineering, digital media, product design, and more</li> <li>Each activity involves building and/or deconstructing something by hand with simple materials</li> </ul>	Grades 5-12	<a href="#">Click</a>
STEM Family	Activities	<ul style="list-style-type: none"> <li>An extensive list of at-home, engaging activities, many of which require few or no</li> </ul>	Any, may be	<a href="#">Click</a>

		<p>materials</p> <ul style="list-style-type: none"> <li>Divided into categories of “Computational Thinking”, “Design Thinking”, and “Systems Thinking” <ul style="list-style-type: none"> <li>The homepage of the STEM Family website lays out how these three categories fit into a “Learning Pathway”</li> </ul> </li> </ul>	best for young students	
PBS	Design Squad	<ul style="list-style-type: none"> <li>See the “Activities and Videos” or “Lesson Plans” tabs on the website for tons of hands-on STEM ideas using common materials</li> <li>The “Guides” section includes plans for recurring sessions of varying lengths</li> <li>The link on the right is for the parents’ and educators’ part of the site, but the “kids” part of the site can be accessed <a href="#">here</a> <ul style="list-style-type: none"> <li>The “build” section has particularly good activity ideas</li> </ul> </li> </ul>	Some content for all ages (mostly middle school)	<a href="#">Click</a>

---

**Resources for those leading STEM activities (facilitation):**

Organization	Resource name	Description	Age group	Link
Techbridge Girls	Role Models Matter	<ul style="list-style-type: none"> <li>Guide to best practices in encouraging youth (particularly from under-represented groups) to engage with STEM</li> <li>Targeted particularly at someone like STEM professional leading a session</li> <li>See the “Reflection – Making Meaning” section for insights that are particularly useful for bridging the gap to families/personal lives</li> </ul>	Any	<a href="#">Click</a>
Family Creative Learning	Facilitator Guide	<ul style="list-style-type: none"> <li>Extensive guide to a five-session program where students and families complete a number of activities together, including a final project that individual families plan and execute together</li> <li>Each session combines community building with hands-on STEM learning</li> </ul>	Any	<a href="#">Click</a>

---

**Resources for parents, guardians, or mentors of STEM learners:**

Organization	Resource name	Description	Age group	Link
--------------	---------------	-------------	-----------	------

dailySTEM	Family resources	<ul style="list-style-type: none"> <li>• A huge collection of at-home activity lists, STEM-related movie recommendations, at-home conversation starters, and more, compiled by a high school math teacher</li> <li>• Includes Spanish translations for almost all resources</li> </ul>	Any	<a href="#">Click</a>
The Family Dinner Project	Conversation Starters	<ul style="list-style-type: none"> <li>• A list of 22 casual, STEM-related conversation starters – a good bridge for STEM engagement from those without “technical expertise”</li> <li>• Could also be useful for the facilitator of a STEM activity</li> <li>• Useful as easy follow-up assignments for STEM activities</li> </ul>	Any	<a href="#">Click</a>
Techbridge Girls	Science: It’s a Family Affair	<ul style="list-style-type: none"> <li>• Extensive guide that includes suggested tools, discussion topics, media, and activities for parents to begin engaging STEM learners</li> <li>• Includes STEM career exploration tips</li> <li>• Encourages “STEM thinking” and connections to daily life</li> <li>• Balances signing up for programs with activities to do in the home</li> <li>• See Techbridge Girls website for translations into Chinese and Spanish</li> </ul>	Any	<a href="#">Click</a>
Greater Cincinnati STEM Collaborative, STEMx	Parent’s Guide to STEM	<ul style="list-style-type: none"> <li>• Similar to above resource from Techbridge Girls</li> <li>• See pages 12-13 in particular for some basic insights on how parents can conversationally engage students in STEM learning/thinking</li> </ul>	Any	<a href="#">Click</a>
National PTA	STEM Resources	<ul style="list-style-type: none"> <li>• Six documents for various STEM learning resources relevant for parents/families <ul style="list-style-type: none"> <li>◦ Activities, Careers, Events, Girls in STEM, Research, STEM by State</li> </ul> </li> <li>• Each of these documents is a resource guide very similar to this one – some of the resource found on this site are also found here in this guide, some are not</li> </ul>	Any	<a href="#">Click</a>
STEAM Powered Family	Full website	<ul style="list-style-type: none"> <li>• This site is full of possible activities and resource but can be somewhat overwhelming – I primarily suggest the newsletter for a steady source of activity ideas</li> </ul>	Any	<a href="#">Click</a>

*Research foundation for this work:*

- [From the STEM Next Opportunity Fund](#)
- [From Google](#)
- [From the International Journal of Learning and Media](#)
- [From the Family Leadership Design Collaborative](#)