## Girl Scouts Activities at Home

<table>
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<tr>
<th>Building and Making Activities</th>
<th>Topics</th>
<th>Suggested Age</th>
<th>Girl Scout Badge Connections</th>
<th>Steps included</th>
</tr>
</thead>
</table>
| **Cupcake Delivery**                | Design Thinking; Engineering    | 6+            | Daisy - Mechanical Engineering: Model Car | All Steps  
Step 1: Design and build model cars  
Step 2: Use model cars to test the friction of different surfaces  
Step 3: Race your cars! |
|                                    |                                 |               | Daisy - Journey: Think Like an Engineer | Step 1: Find out how engineers use design thinking to solve problems.  
Step 2 (partial): Do 3 hands-on design challenges: design and build a fairy house, a car powered by air, and a way to get across a canyon. |
|                                    |                                 |               | Brownie - Journey: Think Like an Engineer | Step 1: Find out how engineers use design thinking to solve problems.  
Step 2 (partial): Do 3 design thinking activities: design and build an assistive device, a water collection device, and a device that can launch a ball across a room. |
|                                    |                                 |               | Brownie - Inventor | All Steps  
Step 1: Warm up your inventor’s mind  
Step 2: Find lots of ways to solve the same problem  
Step 3: Make a needs list  
Step 4: Solve a problem  
Step 5: Share your invention |
|                                    |                                 |               | Senior - Journey: Think Like an Engineer | Step 1: Find out how engineers use design thinking to solve problems.  
Step 2 (partial): Do 3 design thinking activities: design and build prototypes of a can holder that isn’t harmful to animals, a kinetic sculpture, and an assistive device for the elderly. |
| **Paper Skyscraper**                | Design Thinking; Engineering    | 6+            | Brownie - Inventor | All Steps  
Step 1: Warm up your inventor’s mind  
Step 2: Find lots of ways to solve the same problem  
Step 3: Make a needs list  
Step 4: Solve a problem  
Step 5: Share your invention |
|                                    |                                 |               | Junior - Journey: Think Like an Engineer | Step 1: Find out how engineers use design thinking to solve problems.  
Step 2 (partial): Do 3 design thinking activities: design and build a paper structure that can support the weight of heavy books, an emergency shelter, and a prototype of a structure that can withstand an earthquake’s shaking. |
| **Cooking with the Sun**            | Engineering Design; Physical Sciences (Solar Energy) | 8-13         | Brownie - Inventor | Step 1: Warm up your inventor’s mind  
Step 3: Make a needs list  
Step 4: Solve a problem  
Step 5: Share your invention |
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| Linkages                       | Design Thinking; Engineering  | 8-12          | Brownie - Journey: Think Like an Engineer | **Step 1**: Find out how engineers use design thinking to solve problems.  
**Step 2 (partial)**: Do 3 design thinking activities: *design and build an assistive device*, a water collection device, and a device that can launch a ball across a room. |
|                                |                               |               | Senior - Journey: Think Like an Engineer | **Step 1**: Find out how engineers use design thinking to solve problems.  
**Step 2 (partial)**: Do 3 design thinking activities: *design and build* prototypes of a can holder that isn’t harmful to animals, a kinetic sculpture, and an assistive device for the elderly. |
| Roller Coasters                | Engineering; Physics          | 6-12          | Daisy - Mechanical Engineering: Roller Coaster | **Step 2**: Build a model of a roller coaster  
**Step 3**: Test your roller coaster |
|                                |                               |               | Brownie - Journey: Think Like an Engineer | **Step 1**: Find out how engineers use design thinking to solve problems.  
**Step 2 (partial)**: Do 3 design thinking activities: *design and build* an assistive device, a water collection device, and a device that can launch a ball across a room. |
|                                |                               |               | Junior - Entertainment Technology | **Step 3**: Try the science of amusement park rides |
| Zipline                        | Design Thinking; Engineering  | 6-12          | Brownie - Inventor | All Steps  
**Step 1**: Warm up your inventor’s mind  
**Step 2**: Find lots of ways to solve the same problem  
**Step 3**: Make a needs list  
**Step 4**: Solve a problem  
**Step 5**: Share your invention |
|                                |                               |               | Senior - Journey: Think Like an Engineer | **Step 1**: Find out how engineers use design thinking to solve problems.  
**Step 2 (partial)**: Do 3 design thinking activities: *design and build* prototypes of a can holder that isn’t harmful to animals, a kinetic sculpture, and an assistive device for the elderly. |
| Build a Storm Drain            | Design Thinking; Engineering; Earth Science | 7-13          | Brownie - Journey: WOW! Wonders of Water | **Step 2**: Plan a Take Action project, such as making informative posters, promoting recycling at school, or planting low-water gardens.  
**Step 3**: Find out about water issues  
**Step 4**: Explore water solutions  
**Step 5**: Educate and inspire |
|                                |                               |               | Ambassador - Water | All Steps  
**Step 1**: Warm up your inventor’s mind  
**Step 2**: Find lots of ways to solve the same problem  
**Step 3**: Make a needs list  
**Step 4**: Solve a problem  
**Step 5**: Share your invention |
| Solve the Fall                 | Design Thinking; Engineering  | 6+            | Brownie - Inventor | All Steps  
**Step 1**: Warm up your inventor’s mind  
**Step 2**: Find lots of ways to solve the same problem  
**Step 3**: Make a needs list  
**Step 4**: Solve a problem  
**Step 5**: Share your invention |
### Building and Making Activities

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<tbody>
<tr>
<td><strong>Grabbers</strong></td>
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<tr>
<td>Design Thinking;</td>
<td>8+</td>
<td>Brownie - Inventor</td>
<td>All Steps&lt;br&gt;Step 1: Warm up your inventor’s mind&lt;br&gt;Step 2: Find lots of ways to solve the same problem&lt;br&gt;Step 3: Make a needs list&lt;br&gt;Step 4: Solve a problem&lt;br&gt;Step 5: Share your invention</td>
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<td>Engineering</td>
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### Science Explorations

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<td><strong>Energy Red Light</strong></td>
<td>5-9</td>
<td>Brownie - Home Scientist</td>
<td>Step 5: Play with Science</td>
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<tr>
<td><strong>Green Light</strong></td>
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<td>Cadette - Field Day</td>
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<td>Physical Sciences; PE</td>
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### Tech for Global Good Activities

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<tr>
<td><strong>Vaccine Delivery</strong></td>
<td>7-12</td>
<td>Senior - Social Innovator</td>
<td>All Steps&lt;br&gt;Step 1: Explore the big picture&lt;br&gt;Step 2: Make connections&lt;br&gt;Step 3: Build empathy for people affected by the issue you’ve identified&lt;br&gt;Step 4: Develop a solution from a specific point of view&lt;br&gt;Step 5: Practice pitching ideas and getting feedback</td>
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<tr>
<td>Challenge</td>
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<tr>
<td><strong>Save the Species</strong></td>
<td>7-12</td>
<td>Senior - Social Innovator</td>
<td>All Steps&lt;br&gt;Step 1: Explore the big picture&lt;br&gt;Step 2: Make connections&lt;br&gt;Step 3: Build empathy for people affected by the issue you’ve identified&lt;br&gt;Step 4: Develop a solution from a specific point of view&lt;br&gt;Step 5: Practice pitching ideas and getting feedback</td>
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<td><strong>Senior - Eco Explorer</strong></td>
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<td>Step 2: Explore biodiversity&lt;br&gt;Step 3: Investigate a global ecosystem issue&lt;br&gt;Step 5: Share what you learned</td>
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<td><strong>Senior - Voice for Animals</strong></td>
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<td>Step 5: Look into an animal issue</td>
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<td><strong>Senior - Eco Explorer</strong></td>
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<tr>
<td><strong>Senior - Voice for Animals</strong></td>
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<tr>
<td>Cybersecurity Classroom Activities</td>
<td>Topics</td>
<td>Suggested Grade</td>
<td>Girl Scout Badge Connections</td>
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<tr>
<td>Cryptobabel: Coded Communication</td>
<td>Ciphers &amp; codes</td>
<td>4-6</td>
<td>Brownie - Cybersecurity 3: Investigator</td>
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<td>Junior - Cybersecurity 3: Investigator</td>
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<td>Cadette - Cybersecurity 1: Basics</td>
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<td>Ambassador - Cybersecurity 1: Basics</td>
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<td>Netbuilder: Information Transfer</td>
<td>How the internet works and transfers data</td>
<td>4-6</td>
<td>Brownie - Cybersecurity 1: Basics</td>
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<td>Hashing and Cracking: Password Essentials</td>
<td>Creating safe &amp; secure passwords; hacking passwords</td>
<td>4-6</td>
<td>Junior - Cybersecurity 2: Safeguards</td>
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<td>Cadette - Cybersecurity 1: Basics</td>
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<tr>
<td>Social Engineering: Scam Alert!</td>
<td>Comparing real &amp; phony websites, checking for scams/phishing</td>
<td>4-6</td>
<td>Brownie - Cybersecurity 2: Safeguards</td>
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<td>Cadette - Cybersecurity 3: Investigator</td>
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<tr>
<td>Cyber Forensics: Digital Footprints</td>
<td>Gather and analyze digital information in order to figure out problems and solve crimes</td>
<td>4-6</td>
<td>Brownie - Cybersecurity 3: Investigator</td>
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<td>The Internet of Things</td>
<td>Add a new everyday item to the IoT, how it collects and analyzes data, info sharing &amp; privacy concerns</td>
<td>4-6</td>
<td>Brownie - Cybersecurity 1: Basics</td>
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<td>Junior - Cybersecurity 2: Safeguards</td>
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<tr>
<td>Passwords and Picking: Solving the Puzzle</td>
<td>Password are like puzzles, how to make them harder to solve</td>
<td>4-6</td>
<td>Junior - Cybersecurity 2: Safeguards</td>
</tr>
<tr>
<td>Cybersecurity Classroom Activities</td>
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<tr>
<td>Cryptography: Security Alert</td>
<td>Ciphers, encryption, transferring data safely</td>
<td>4-6</td>
<td>Brownie - Cybersecurity 3: Investigator</td>
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<tr>
<td></td>
<td></td>
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<td>Junior - Cybersecurity 3: Investigator</td>
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</table>
| | | | Cadette - Cybersecurity 1: Basics | Step 1: Crack a code  
Step 2: Hack a password |
| | | | Ambassador - Cybersecurity 1: Basics | Step 2: Hide a message in plain sight |

<table>
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<tr>
<th>Design Challenge Lesson Plans</th>
<th>Topics</th>
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</tr>
</thead>
</table>
| Design Challenges: Balloon Astronaut | Design spacesuits that can withstand the hazards of high velocity impact from space debris and meteoroids. | 2-8 | Brownie - Inventor | All Steps  
Step 1: Warm up your inventor’s mind  
Step 2: Find lots of ways to solve the same problem  
Step 3: Make a needs list  
Step 4: Solve a problem  
Step 5: Share your invention |
| Design Challenges: Energy at Play | Build a device that can move a ball to a target while exploring energy transfer. | 3-6 | Brownie - Inventor | All Steps  
Step 1: Warm up your inventor’s mind  
Step 2: Find lots of ways to solve the same problem  
Step 3: Make a needs list  
Step 4: Solve a problem  
Step 5: Share your invention |
| | | | Brownie - Journey: Think Like an Engineer | Step 1: Find out how engineers use design thinking to solve problems.  
Step 2 (partial): Do 3 design thinking activities: design and build an assistive device, a water collection device, and a device that can launch a ball across a room. |
| Engineering: Energy Madness | Design a machine that can deliver a remote control to an immobile friend - Rube Goldberg | 4-8 | Brownie - Inventor | All Steps  
Step 1: Warm up your inventor’s mind  
Step 2: Find lots of ways to solve the same problem  
Step 3: Make a needs list  
Step 4: Solve a problem  
Step 5: Share your invention |
| | | | Senior - Journey: Think Like an Engineer | Step 1: Find out how engineers use design thinking to solve problems.  
Step 2 (partial): Do 3 design thinking activities: design and build an assistive device, a water collection device, and a device that can launch a ball across a room. |
| | | | Senior: Cybersecurity 1: Basics | Step 5: Design a Rube Goldberg machine |

### Notes
- All steps and partial steps are followed by the completion of the necessary steps for each project.
- The steps included within the steps include: Warm up your inventor’s mind, Find lots of ways to solve the same problem, Make a needs list, Solve a problem, and Share your invention.