



Think Like an Engineer Journey







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You develop important skills when you do a Take Action project—and you use those skills to help others. That's inspiring!

When you Take Action, you learn how to:

- Advocate for change
- Analyze data
- Communicate with others
- Craft persuasive arguments
- Create budgets
- Design for sustainability
- Develop timelines
- Empathize with others

- Give presentations and speeches
- Make good decisions
- Manage projects
- Negotiate with others
- Research root causes of issues
- Solve problems
- Think critically
- Work as a team

These are exactly the kind of skills that colleges, universities and businesses hope to find on college and job applications!

They'll also give you a strong foundation for earning the Silver and Gold Awards, two of Girl Scouts' highest awards. That's because Take Action projects help you develop as a leader.

By doing a Take Action project, you may also discover an issue that'ss especially meaningful to you and that you'd like to expand to earn your Silver or Gold Award.

To do this, think about how you can amplify what you've already done—how can you help more people, get more support from other organizations, reach into new communities, or find other ways to lift your Take Action project to the level of a Silver or Gold Award project.

As a Silver Award Girl Scout, you're advancing on the path to leadership and are eligible to earn your Gold Award. As a Gold Award Girl Scout, you've achieved the highest award in Girl Scout and are eligible to be selected as a Young Woman of Distinction.

And it all starts with Take Action!

As a Cadette, you can earn the Silver Award with a small team of girls or on your own. As a Senior or Ambassador, you earn the Gold Award by creating an individual project and organizing a support team.

THE BENEFITS OF GOING GOLD

Higher Education and Career

- Distinguish yourself in the college admissions process
- Earn college scholarships
- Enter the military one rank higher

Life Skills

- Be seen as a role model and distinguished leader
- Master time management skills
- Make the world a better place

Community

- Use your vision for change
- Tackle an issue, locally or globally
- Establish a lifetime network
- Create your community legacy with a sustainable solution to a problem



Ready to get started? Turn the page to find out how you can design a project that has lasting impact.

People sometimes wonder about the difference between a community service project and a Take Action project. Here's how you can explain this to others:

Community Service makes the world better by addressing a problem "right now." For example, collecting cans of food for a food pantry will feed people "right now." Gathering toys for a homeless family shelter will make kids happy "right now." Providing clothing and toiletries to people after a fire or flood will help them "right now." These acts of kindness are important ways to help people—right now.

Take Action makes the world better by coming up with a solution that is sustainable. That means that the problem continues to be addressed, even after the project is over. Developing a sustainable solution is the key difference between community service and Take Action projects.

When you Take Action, you work as a team to:

- Identify a problem
- Research the root causes of the problem
- Come up with a sustainable solution
- Develop a team plan
- Put the plan into action
- Reflect on what worked, what didn't and what you've learned

Here are three ways to create sustainable change:

Make your solution

Make your Educate and inspire permanent. others to be part of the change.

3

Change a rule, regulation or law.

Here's an example of how to go beyond community service in order to Take Action:

Your team has identified a problem: there's too much trash in the local park. If you go to the park and pick up trash, you will have solved the problem for today—but there will be more trash to pick up tomorrow. That's not sustainable.

So what do you do?

Explore why there's so much trash. Here are a few ways you might do that:

Talk to people who work at the park in different kinds of jobs, from park manager to groundskeeper. What do they already know about why there's so much trash?

- > What do they think causes this problem?
- What solutions have they already tried?
- If those solutions didn't work, what did they learn?

Do a walk-through of the park to understand what visitors experience.

- ▶ How far do you have to walk to find a trash can?
- ▶ How easy is it to find a trash can?
- ▶ Is it difficult or easy to collect your trash and carry it around the park?

Interview park visitors about their experience.

- ▶ Why do they think there's a trash problem?
- What are their ideas about how to fix it?
- ▶ Record their answers and add them to your research.

Create a digital survey.

- Use social media to encourage people to share their complaints and ideas for solutions.
- ➤ Take your tablet to the park and ask people to take your survey in real time.
- ➤ Analyze your data and use them to brainstorm solutions.

Research the kind of trash problems that all parks—from community parks to national parks—deal with.

- Are there any studies or articles about how parks have tried to fix the problem?
- ▶ Which solutions worked and why?
- ▶ Which ones didn't and why?

Here's what you might discover:

- ▶ There aren't enough trash cans in the park.
- ➤ There *are* enough trash cans—but they're hard to find.
- ➤ The trash cans are not placed in convenient locations, so people have to walk out of their way to throw away trash.
- People don't realize the importance of putting trash in the trash cans.

Here's how you might address these issues:

- ➤ Make a presentation to the city council to present your data and advocate for your chosen solution.
- ▶ Create an anti-littering public awareness campaign.
- Design and build interactive garbage cans that make it fun to toss away trash. (For inspiration: Search online for "the fun theory" or "the world's deepest bin.")



Turn the page to start exploring your own.

What are your talents—painting portraits, coding, creating fun events, public speaking, writing, organizing groups of people, creating budgets, speaking another language, playing a musical instrument?

What do you do for fun—skateboarding, building drones, sewing costumes, cooking, doing karaoke, hiking, playing games on your phone, listening to music?

You can use what you're good at (your talents and skills) and what you do in your spare time (your interests) when you design your Take Action project. You'll have fun and people will be inspired by the enthusiasm you bring to your project.

Check each talent or interest you can use to Take Action - then add a few more!

- create a comic
- start a blog
- design a website
- code an app
- develop a workshop
- design a prototype for a new invention
- create a social media campaign
- organize a "girl-led talks" event
- build a maker space
- organize a panel discussion or debate
- make a movie
- design an exhibit
- write a book
- organize an online community
- create an artwork
- invent a new product
- make a playbook
- create a 'zine
- circulate a petition
- create a volunteer group
- invent a new process

organize a volunteer effort

design a video game

create an online class

create digital surveys and analyze the data

create a data base

make an infographic

hold a storytelling festival

advocate for a new law

change an existing law

build a playground

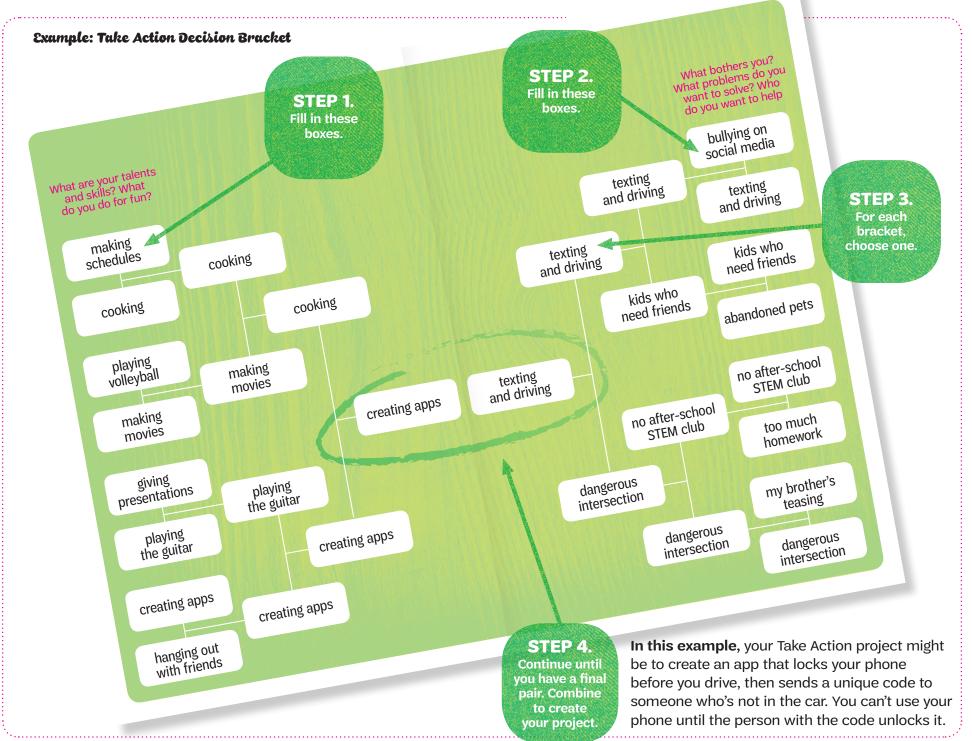
create an art gallery

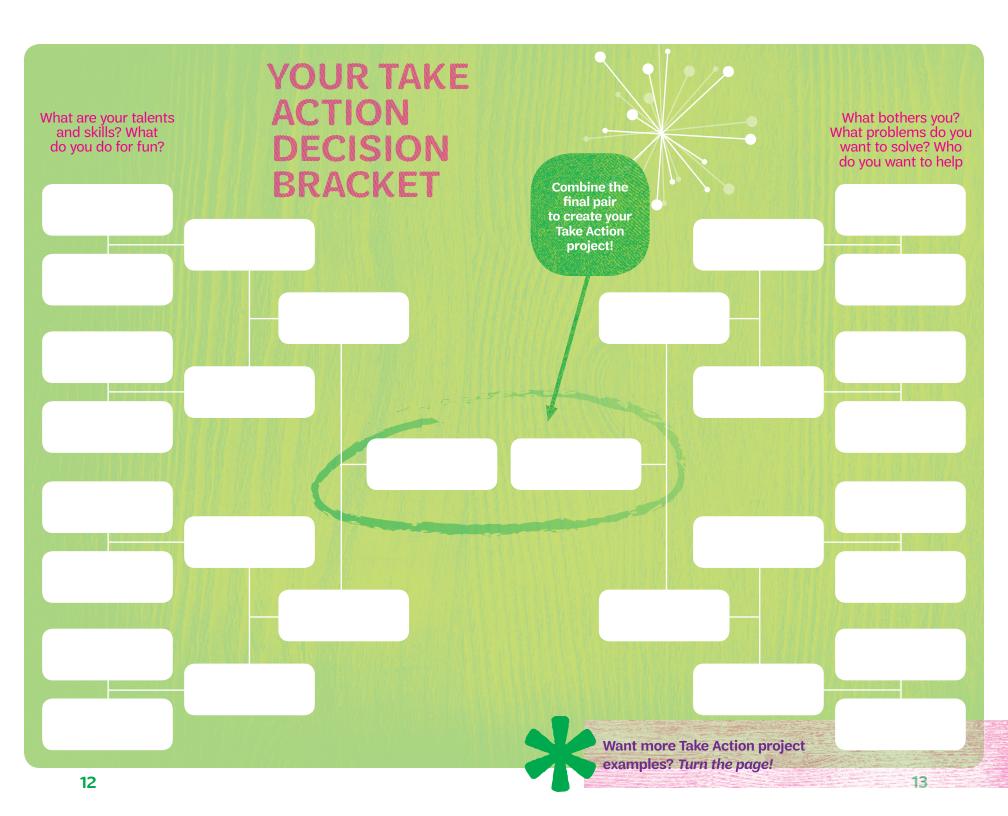
organize a community event

Other ideas:



How can you match your talents and interests with an issue you care about? Turn the page to find out!





Follow the news. Watch TV news, read newspapers and magazines, listen to the radio, follow social media, subscribe to blogs or news feeds—it doesn't really matter how you tune into what's happening in the world. What matters is that, when you do, you hear inspiring stories about people who:

- stood up and spoke out to advocate for change
- invented a product—such as a language-learning app, new medical device, or robot that assists people with disabilities—that helps others
- created bonds between people of different backgrounds so they could solve problems together
- built something useful—such as a bike path, playground, public garden, or maker space—to improve their community

Keep a list of stories that inspire you. Is there a way to address the same issue or use a similar approach to Take Action in your community?



Find out what other Girl Scouts have done. Many Take Action and Silver Award projects are posted on Girl Scout council web sites and social media. You can also attend council recognition ceremonies and meet other Girl Scouts who took action in meaningful ways.



Fill out Your Take Action Talent Inventory on page 8. You'll be inspired to Take Action—and have more fun!—when you create projects that use your talents, interests, and hobbies to change the world.



Try out Your Take Action Decision Bracket on page 12. Use this interactive exercise to combine of your talents/interests and the issues you care about. Play as many times as you like—you may be surprised by the ideas this generates!

If you're working with a team of girls on a Silver Award project, this could be a fun way to narrow down your ideas. If you're working solo on a project, this is a good way to quickly come up with lots of possible "talent/issue" combinations.



Get inspired by some Take Action project examples, starting on page 16. Some are actual projects done by Girl Scouts; others are examples that can serve as thought-starters. Use them as inspiration as you explore the problems you want to address in your own community.

Once you've chosen an issue you feel passionate about, it's time to put your imagination, creativity and leadership skills to work—and come up with your own way to Take Action!



Turn the page for examples of Take Action projects.

In the Think Like an Engineer Journey, you learned about the design thinking process—how engineers solve problems.

When you develop a Take Action project, you can use what you learned: how to identify a problem, research what causes the problem and how you might help solve it, develop a possible (or prototype) solution, and put it into action. If your chosen solution doesn't work right away, you tinker with your prototype, using feedback to make it better.

The Take Action project you do as part of this Journey doesn't necessarily have to be about engineering (although it certainly can be!). You may choose to address issues related to mental or physical health, food scarcity, civic engagement, the environment, online safety, and so on. If you use the design thinking process to develop your project, you will be thinking like an engineer—and making the world a better place.

The following examples are thought-starters.
Use them as inspiration as you develop a project about something that you care about.

Issue: More people of all ages are interested in making and tinkering. However, communities don't always have places to do hands-on activities, which are a great way to get children interested in engineering (and give their families something fun to do as well!).

Solution: Partner with a community center or library to create a maker space. Encourage community involvement by inviting people to donate old tech devices, recyclable cardboard, leftover boards or sandpaper, tools such as hammers or screwdrivers, etc. Create a "Maker Space Playbook" that includes tips for running a maker workshop, project ideas, and design challenge topics. Recruit members of college engineering societies, robotics teams, and artists to deliver workshops.

Sustainability: Make your solution permanent; educate and inspire others.

Issue: Elementary school children don't have the opportunity to learn engineering through hands-on activities.

Solution: Organize a workshop at a community center or library where children can do different engineering projects. Develop a playbook, including project instructions, a supplies list, and tips for recruiting facilitators, so that the workshop can be replicated in the future. Share the playbook online and use social media to let others know about the resource.

Sustainability: Educate and inspire others.

Issue: Farmers need to conserve water during droughts while also sustaining their businesses.

Solution: A Girl Scout Ambassador from Northern California developed soil moisture sensors and readers to help farmers conserve water and use less groundwater. The sensors are planted into the soil; they allow farmers to read and determine the moisture level in the soil. Based on this technology, farmers on average saved 25 percent of their monthly water use. She's in the process of patenting her product and has created a Facebook site and video log to show others how they could replicate it globally.

Sustainability: Make your solution permanent.

Issue: More students would be interested in engineering if they saw how it connects with art and creativity.

Solution: Create a kinetic sculpture garden at a school, community center or library. Use the playful sculptures as a way to introduce others to engineering by giving tours, creating signs explaining the engineering principles used in creating the sculptures, or creating an instructional handout for visitors who want to make their own sculpture.

Sustainability: Make your solution permanent.

Issue: Middle school girls—and their parents—are not always aware of the many engineering scholarships, college programs or other opportunities available to them.

Solution: Partner with a middle school guidance counselor to develop a career exploration workshop focused on engineering. Develop a facilitator's guide so the workshop can be replicated in the future.

Sustainability: Educate and inspire others.

Issue: The book and movie Hidden Figures: The American Dream and the Untold Story of the Black Women Mathematicians Who Helped Win the Space Race celebrated women who made important contributions to the American space program, yet went unrecognized for decades. There are women in many communities who haven't been recognized for their contributions to society, whether in the areas of STEM, social justice, advocacy, or caregiving.

Solution: Identify and interview the "hidden figures" in your community to create an oral history. Film or transcribe the interviews, then donate the documentation to a local museum or library to preserve the history for future generations.

Sustainability: Make it permanent, educate and inspire others.

Issue: Communities are often economically and racially segregated, which can lead to a divided community.

Solution: A Girl Scout Ambassador in Florida used her hospitality skills to mitigate tensions in her racially and economically diverse area by building bridges among her peers. With the help of her support team, she hosted a dinner party for 120 students from 12 public and private high schools. The dinner party brought everyone together for critical conversations about how to prevent bullying and strengthen relationships that promote peace, equality, truth, and unity, both among the students themselves and within the community at large.

Sustainability: Educate and inspire others.

Issue: When children are chronically exposed to nicotine and smoke, their health suffers and their chances of becoming a smoker greatly increase.

Solution: Five Girl Scouts in Colorado used what they learned on the Breathe Journey for their Take Action project. They championed and passed an ordinance that made smoking in a vehicle while a minor is present subject to community service or a fine. The ban, passed by the Aurora City Council, is the first of its kind in Colorado.

Sustainability: Change a rule, regulation or law.

Issue: When students with anxiety disorders are overwhelmed by feelings of fear or sadness at school, their learning suffers.

Solution: A Girl Scout Ambassador decided to create a sensory room—a quiet, calming space where people can take a moment to refocus—for her school. She presented her idea to the principal. Not only did she get permission, but the school district's board of directors gave her a grant for the project. Within a year, almost a quarter of the student body had used the room at some point.

Sustainability: Make your solution permanent.

Issue: More girls could have fun and stay fit if they knew how to kayak (or canoe, hike, bike, backpack—pick your favorite sport!)

Solution: Create a one-day event to give girls a chance to try the outdoor activity you love the most. Partner with a local business or outfitter to get equipment and instructors to help. Create a playbook so that others can replicate your event's success in the future.

Sustainability: Educate and inspire others.

Issue: Name the issue—ocean-polluting plastics, middle-school bullying, girls opting out of STEM classes, homeless families, the health risks of obesity, the need for citizen engagement, the danger of cybersecurity breaches, and so on—and you'll find girls who want to find a solution.

Solution: Everyone's heard of TED Talks, the inspiring and informative speeches given by people with a mission to change the world. Create a "Girl-Led Talks" event that features girls speaking out on an issue they care about. Film the talks and post them to an online site to spread the word far and wide.

Sustainability: Educate and inspire others.

Issue: It's difficult to see stars and planets at night—even in a park—if there are too many street or other man-made light sources nearby.

Solution: A Girl Scout Ambassador from Virginia decided to get a state park designated a "dark sky park" by the International Dark-Sky Association. A "dark sky park" has a protected nocturnal environment that leads to clear, starry sky views. To earn her Gold Award, she changed the park's lights and added motion sensors and shields so they didn't emit as much light. She also created posters for the park cabins to let visitors know how the changes were reducing light pollution.

Sustainability: Make your solution permanent; educate and inspire others.



Engineers can:

- give people access to clean water
- invent new medical devices
- design eco-friendly buildings
- help farmers grow more food
- design more efficient transportation
- and much more!