Future Designer Patch Program

girl scouts carolinas peaks to piedmont

Partnered with Gresham Smith

GSCP2P is excited to partner with Gresham Smith to launch Future Designer. To help Girl Scouts discover the world of design! This fun, hands-on program introduces Girl Scouts to architecture, interior and graphic design, urban planning, engineering, and related careers. Through creative activities and real-world projects, participants explore how design shapes the world and how they can too! Gresham Smith is a team of diligent designers, creative problem-solvers, insightful planners and seasoned collaborators who work closely with clients to improve the cities and towns we call home. Consistently ranked as a "Best Place to Work," we are focused on creating a culture that fosters diversity of experience combined with a common goal of genuine care for each other, our partners and the outcome of our work. From roadways and pathways that connect people and places, to hospitals that promote well-being and recovery, to corporate campuses that encourage productivity and teamwork, our Core Purpose serves as our NorthStar—to plan, design and consult to create healthy and thriving communities.

Complete the number of activities below listed for your age level.

Level	Number of Activities	Number of Starred Activities
Juniors	5	2
Cadettes	6	2
Seniors	6	3
Ambassadors	6	3

Activities:

Architecture and Urban Design

Architecture/Urban Design refers to the planning, design, and development of buildings, spaces, and cities. Architecture focuses on creating functional, aesthetic, and sustainable structures, while urban design involves organizing and shaping the physical, social, and cultural aspects of urban spaces, such as streets, parks, and neighborhoods. Together, they shape the built environment to improve quality of life, support communities, and integrate with the natural surroundings.

1. Understanding Proportions

- Watch a video on how to draw a floor plan to help guide you through the process.
- Draw a floor plan or elevation of your house. Focus on proportions and scale.
- Draw a floor plan or elevation of a building you know. Describe its features.
- Draw a site plan of your favorite park or public space. Describe features like trees, plants, seating, play equipment, and walkways. Think about why these features are arranged this way and why.

2. Building Scavenger Hunt

- Create a photo log of at least 5 buildings you're interested in. You can either take your own photos or use images from online research, books, or other resources.
- For each building, describe:
- Distinctive features
    - (materials, shape, design elements), Characteristics that stand out to you, Aspects you want to learn more about (history, architecture style, purpose, etc.).
- Characteristics that stand out to you.
- Aspects you want to learn more about (history, architecture style, purpose, etc.).

You can present this log as a booklet, a poster, or a mood board.
Keep your descriptions clear and focused on the features you find most interesting.

3. Construction Materials

- Survey your neighborhood and identify the materials used in the construction of the buildings.
- For each building, note the predominant materials used, such as brick, metal, glass, wood, concrete, or plaster.
- Provide an estimate of how many buildings are made from each material and reflect on any patterns you observe in the construction choices.

4. Your Dream Park

- What features and components would you include in your ideal park?
- Think about the spaces and elements that would make it special.
- Create a site plan or floor plan and include sketches of the design.
    - Alternatively, you can cut out images from magazines or collect images from online resources to create a Pinterest board, mood board, or collage that represents your vision.

*5. Your Classroom

- Describe the layout and features of your classroom. What do you like about it, and what would you change to improve the space?
- What is your ideal classroom? How would your ideal classroom be different from the one you have at school?
- Draw a plan or diagram that shows the path you take through your school on a typical day.
- How long does it take you to travel from point A to point B in your school? Think about the time spent and any obstacles along the way.
- Reflect on your journey through the school.
- How could the circulation path or design be improved?
- Would changing the layout of hallways help make the flow more efficient?
- What other ideas do you have that might make wayfinding in your school easier? (signs, markers, floor patterns)

6. Historic Preservation

- When you walk or ride around your neighborhood, can you tell which houses or buildings look older or newer? Some older buildings may be on the historic registry and are being preserved. Talk to an adult about this.
- Do any older houses or buildings have historic significance? If so, why are they important to the community?
- Historic Preservation: What does it mean? Why is it important? Discuss these ideas and consider how preserving buildings can help maintain a community's history and identity.

*7. Architectural Styles

- Research different architectural styles. Can you identify these styles in your neighborhood or community?
- Take a photo tour to capture buildings with different architectural styles.
- Document the styles you see and describe them.
- Create a booklet, poster, or board to showcase the styles you discovered.

Interior Design and Graphic Design

Interior and Graphic Design are creative fields that focus on how spaces and visuals affect people's experiences. Interior design involves planning and decorating rooms and buildings to make them functional, comfortable, and beautiful. Graphic design focuses on visual communication and wayfinding, using images, colors, and typography to share ideas, messages, or identities. Both areas combine creativity with problem-solving to improve how people interact with spaces and visuals.

1. Design your ideal home.
   - What rooms or spaces do you need or want?
   - What colors, textures, and materials will be inside?
   - What kind of furniture or electronics will you have?
   - Any other ideas or unique features you imagine?

You can:

- Cut out images from magazines to create a mood board. Create a Pinterest board to visualize your design.

*2. Design a Room

- List the activities/functions you want in the room (e.g., reading, working, dining, exercising).
- Identify the furniture, equipment, or items needed for those activities (e.g., desk, chair, sofa, bookshelf, workout equipment).

- Determine how much space each activity or feature needs in the room (e.g., how much space for a dining table or a workout area).
  - Design the room around these needs:
  - Draw a floor plan.
  - Create sketches of key items.
  - Cut out images from magazines or make a Pinterest Board/Mood Board to visualize your design.

3. Make a Mural

Design a mural for your school or favorite team.

- What colors will you use and why? Think about the mood or energy you want to convey.
- What lettering style (font/text) will you choose for names, slogans, or messages?
- What are your favorite team's colors? Do you like them? Why or why not?

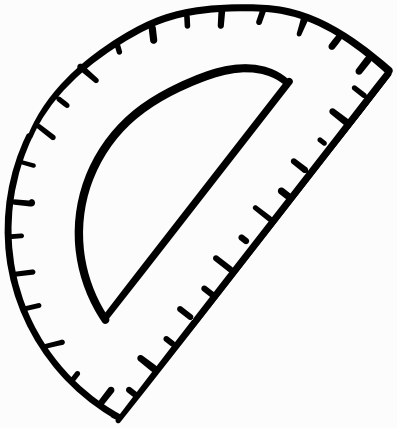
Consider incorporating elements that represent the school or team spirit, identity, or values into the mural design!

4. See the Signs

- Go for a walk or drive around your neighborhood and take photos of at least 5 different signs you see. These could be street signs, traffic signs, informational signs, or any other type of signage that communicates important messages to the public.
- Research the meaning of each sign you've photographed. What does it indicate or inform people about?
- For each sign, explain how it helps people in your community.
- Organize your findings into a booklet, poster, or board.

*5. *What is Color Theory?

- Research the topic of color theory to understand how colors interact with each other and why certain color combinations are pleasing to the eye.
- Use what you learned about color theory to create a color wheel.
  - Include the primary colors, secondary colors, and tertiary colors.
- You can draw the color wheel by hand or use digital tools.



6. Your Own Design Firm.

- Pretend you lead your own design firm.
  - What type of firm is it?
- What does your firm's logo look like?
- Design and illustrate your logo. Write a paragraph about your firm.

Engineering

Engineering applies science, math, and creativity to solve real-world problems and design systems, structures, and technologies that make life better. Engineers plan and build bridges, roads, buildings, machines, and water systems, and they develop solutions for clean energy, transportation, and communication. Engineering is about innovation, safety, and improving how people live and connect with the world around them.

1. Engineering Project

Research a significant engineering project (e.g., Hoover Dam, Golden Gate Bridge, Panama Canal) and describe its impact and benefits to society.

- What is the project's significance? How has it benefited society (e.g., transportation, power generation, flood control)?
- What engineering projects are near your community? How do they benefit your local area?

2. Bridges or Similar Structure

- Research and identify several basic types of bridges.
- Create a sketch or drawing of a bridge or another similar structure, such as a viaduct or overpass. Include details like the supports, beams, deck, arches, and any other components that are part of the structure.

3. How Does a Light Switch Work?

- Research how a light switch functions.
- What is an Electrical Circuit?
- Draw a simple diagram of a light switch circuit.
- Label each part and show how the flow of electricity is affected when the switch is on and off.
- Make Your Own Light Switch Circuit

4. How Does Air Conditioning Work?

- Research the process behind how air conditioning works.
- What Device Cools or Heats the Air?
- What Device Moves the Air and How is the Airflow Directed?
- Where Does the Air Come Out?
- Draw a diagram to illustrate and explain.

5. Traffic Signs and Signals

- Research the various types of traffic signs and signals.
- Illustrate at least 5 different types of traffic signs, showing their shapes, colors, and graphics.
  - For each type, explain what the sign tells drivers or pedestrians to do or not do.
- Use your creativity to design and illustrate your own traffic sign.
  - Explain Why This Sign is Needed
- Once you've designed your sign, explain why you think it's important. What problem does it solve or what behavior does it encourage?

6. Road Maps

- Explore different road maps and navigation applications.
- Use a map or a navigation app to map out a route from your home to a specific destination.
- Identify how many possible routes are available to get to your destination.
  - What is the fastest route?
  - What is the most scenic route?
- Create a puzzle or maze and map out the quickest path to reach the destination.

7. Understand Water Quality

Which water would you rather drink: clean or dirty?

- Why is clean drinking water important? (Think about health, hygiene, and well-being).
- What facilities in your neighborhood ensure you have clean drinking water at home?
  - What is the name of the facility and where is it located?
- Water services or process engineers likely planned and designed these facilities.
- Consider how these engineers play a role in providing clean water for your community.
  - Write down your thoughts in the notes section and discuss them with your troop.

8. Water Preservation

What is the source of water in your area or community?

- Is it from a well, reservoir, lake, river, springs/aquifers, or another source?
- Do you turn off the water when you brush your teeth? Why or why not?

Why is water preservation important?

- Consider how it impacts the environment, future generations, and overall sustainability.
- Write down your thoughts in the notes section and discuss them with your troop.

What are some ways to preserve water supply?

- Think about actions like using water-efficient appliances, fixing leaks, reducing water usage in daily activities, and promoting community conservation efforts.
- Write down your thoughts in the notes section and discuss them with your troop.

General Interest/Careers

Explore your interest in design and discover the many careers you could pursue in architecture, design, engineering, and more.

1. Design Professionals

- Research Women in at least 2 different design fields (e.g., engineering, interior design, architecture, planning, graphic design) and compare them.
- How are these 2 fields different from each other?
- Select your favorite design field and define it.
    - Examples of fields:
    - Engineering (Civil, Structural, Transportation, Electrical, Mechanical, Water Services & Environmental)
    - Interior Design
    - Architectural Design
    - Landscape Architecture
    - Graphic Design & Wayfinding

*2. Careers

- What careers are available in the design and construction industry?
- What education is required to become a registered professional engineer, interior designer or architect in your state?

3. Research your favorite design professional and write about them. Tell your troop or family unit about them and what they do.

4. If you were a design professional, which type would you be? What would you do in that role?

5. How do design professionals work together? What is each individual professional's role on a project?

- Pick a type of building or construction project and list what professionals or roles might be needed to design the project.

6. Talk to an architect, interior designer, engineer, graphic designer, engineer (civil, structural, transportation, mechanical/electrical, water services) in your community to find out about what they do at work every day. Think of other things you want to know about (why did they become design professionals? What was their favorite project? etc.)

- This can be a phone interview or in-person meeting, but it requires an adult to help make the arrangements with the local design professional and supervise the discussion.
- Share with your group what you learned from your talk with the design professional.

Additional Activities – (these activities will require close adult supervision to help arrange the meetings/tours, provide transportation, and supervise)

- Invite a design professional to speak to your group/unit.
- Tour a construction site or building on your own or with your group/unit.
- Tour a regional, state, or local department of transportation traffic monitoring facility on your own or with your group/unit.
- Tour a municipal water processing plant or facility which serves your community on your own or with your group/unit.

Glossary of Terms

ARCHITECTURE AND URBAN DESIGN

- Proportions – The way various parts of a drawing or building relate to each other in size. Example: making sure the door is not bigger than the whole house.
- Floor Plan – A drawing of a building from above, like looking down at a dollhouse with the roof off.
- Elevation – A flat drawing that shows what the side or front of a building looks like.
- Site Plan – A map of a piece of land showing buildings, paths, trees, and other features.
- Circulation Path – The path people take to move through a building, like hallways or stairs.
- Historic Preservation – Protecting and saving old buildings of historical importance so future generations can enjoy and learn from them.
- Architectural Styles – The “look” or design type of a building (like Gothic, Modern, or Colonial)

INTERIOR DESIGN

- Interior Design – the professional and comprehensive practice of creating an interior environment that addresses, protects and responds to human needs
- Mood Board – A collection of pictures, colors, and materials used to show design ideas.
- Texture – How something feels (rough, smooth, soft) or looks like it would feel.
- Mural – A big picture painted directly on a wall.
- Color Theory – The study of how colors work together and how they make people feel.
- Color Palette - A group of colors that go well together and are used in a design.
- Scale – a design principle related to the relative size of one object or element in relation to another element, or to the overall design or space.
- Accessibility –creating products, environments, or services that can be used by everyone, including people with disabilities, without barriers
- Composition – the arrangement of visual elements, such as images, text, and shapes, within a given space to create a cohesive, aesthetically pleasing, and effective whole

GRAPHIC DESIGN

- Graphic Design - Making pictures, words, and colors work together to share a message.
- Wayfinding - Signs that show people where to go and how to get there. Kind of like a treasure map or a trail of clues that guide you through a place, like a school, zoo, airport, or hospital.
- Logo - A special picture or symbol that shows what a company, team, or brand is.
- Typography - The style and look of letters and words.
- Icon - A small picture that shows an idea or action.
- Brand - The look and feel of a company or product that makes it special and easy to recognize.
- Pixel - The smallest dot on a screen that shows color. When lots of pixels are placed next to each other, they make up the pictures and words you see on a computer, phone, or TV

ENGINEERING

- Structure – Something that is built, like a bridge or building. (Think of it as the "skeleton" of what is being built)
- Beam / Support / Deck / Arch – Parts of a bridge or building that hold it up and make it strong. (Think of these as individual "bones" of a bridge's or building's "skeleton")
- Electrical Circuit – A path that electricity travels through to power lights and devices.
- Airflow – The way air moves through a space, like from vents in air conditioning or breeze through a window.
- Traffic Signals / Signage – Signs and lights that tell cars and people what to do on roads.
- Navigation App – A phone or computer tool that shows maps and directions (like Google Maps).
- Water Quality – How clean and safe water is for drinking.
- Water Preservation – Saving water so we don't waste it and can have enough for the future.

CAREERS

- Design Professional – Someone whose job is to plan, design, or create buildings, spaces, systems, or graphics.
- Engineer – A person who solves problems by designing and building things that work, like roads, bridges, machines, or water systems.
- Interior Designer – A person who designs the inside of buildings to make them useful, safe, and beautiful.
- Architect – A person who designs buildings and makes sure they can be built safely.
- Landscape Architecture – Designing outdoor spaces like parks and gardens.

Women in Design Careers

Architecture & Urban Design

- Zaha Hadid (1950–2016) – Iraqi British architect, known for futuristic, flowing forms; first woman to win the Pritzker Prize.
- Denise Scott Brown (b. 1931) – Architect, planner, and theorist; co-author of Learning from Las Vegas; major influence in postmodern architecture.
- Jane Jacobs (1916–2006) – Urbanist and activist; author of The Death and Life of Great American Cities; championed community-centered urban design.
- Toyo Ito (mentorship note: Kazuyo Sejima, b. 1956) – Japanese architect, co-founder of SANAA; known for minimalist yet innovative public and cultural spaces.
- Julia Morgan (1872-1957)- American Architect. First woman admitted to Ecole de Beax Arts in Paris. She was both an architect and an engineer.
- Jeanne Gang (1964) – American architect and founder/leader of Studio Gang and architecture and urban design practice with offices in Chicago, New York, San Francisco and Paris; She designed Aqua Tower and St. Regis Chicago (both located in Chicago) which are the 2 tallest buildings in the world designed by a woman. Known for designing with an emphasis on sustainability and social justice.

Interior Design

- Candace Wheeler (1827-1923) - Candace Wheeler, traditionally credited as the first American woman to establish a career in interior design, was one of the first woman interior and textile designers. She helped open the field of interior design to women, supported craftswomen, and promoted American design reform.
- Dorothy Draper (1889-1969) is one of the first female Interior Designers to work in the commercial sector. In 1923, she created the first interior design company in the United States and is well known for her use of vibrant color combinations.
- Florence Knoll (1917-2019) trained as an architect and interior designer; she defined the standard for the modern corporate interiors. She created clear and uncluttered corporate spaces that changed the way workplaces were arranged.
- Elsie de Wolfe (1865–1950) – Widely considered the first professional interior decorator; brought light, comfort, and elegance to interiors.
- Kelly Wearstler (b. 1967) – Contemporary American designer known for bold, eclectic interiors that mix luxury with playfulness.

Graphic Design

- Cipe Pineles (1908-1991) - was one of the first female art directors to work at a major magazine. She served in that capacity at Glamour, Seventeen, and Charm. She was the first woman admitted to the prestigious New York Art Directors Club in the 1940s.

- April Greiman (b. 1948) - an American designer widely recognized as one of the first designers to embrace computer technology as a design tool.
- Paula Scher (b. 1948) – Pioneering graphic designer and partner at Pentagram; iconic for identity systems (Citibank, MoMA) and bold typographic work.
- Susan Kare (b. 1954) – Designer of the original Macintosh computer icons; a pioneer of pixel art and human-centered digital design.

Engineering

- Emily Warren Roebling (1843–1903) – Took over as chief engineer of the Brooklyn Bridge project after her husband fell ill, supervised construction until completion.
- Nora Stanton Blatch Barney (1883–1971) – First woman to earn a civil engineering degree in the U.S.; worked on major water supply and infrastructure projects.
- Mae Jemison (1956) – is an American engineer, physician, and former NASA astronaut. She became the first African-American woman to travel into space when she served as a mission specialist aboard the Space Shuttle Endeavour in 1992
- Katherine Johnson (1918-2020) – was an American human computer whose calculations of orbital mechanics as NASA employee were critical to the success of the first and subsequent U.S. crewed spaceflights
- Dr. Aprille Ericsson-Jackson (1963) – is an American aerospace engineer who had served as the assistant secretary of defense for science and technology. Ericsson is the first African-American woman to receive a Ph.D in mechanical engineering from Howard University.