

Senior Science of Style

In this badge program you and your Senior Girl Scout will learn the science behind fashion and beauty products. By following the steps below your Girl Scout will earn her Senior Science of Style badge.

1. Have a conversation about fashion, beauty products, and science. Here are some talking points to get you started.

Talking Points:

- What kinds of science are used in the fashion and beauty industry? (Think about the chemistry behind makeup, engineering new kinds of fabric, etc.)
- Have you ever thought about the ingredients in the products you use every day?
- Have you ever looked at why different kinds of fabric are used for different things?

2. Make your own beauty product and test it out! Sugar scrubs are a great exfoliating product that remove dead skin cells without causing pain and they are super easy to make at home. Below are the ingredients and instructions for a basic sugar scrub – feel free to experiment by adding different ingredients to see what differences they make.

Materials:

- 1 cup granulated sugar, either white or brown
- ½ cup oil (olive oil or coconut oil work well)
- Essential oils of your preference (optional)
- 1 small wide-mouth container with a lid

Instructions:

1. Mix your sugar and oil together in the container
2. If using essential oils add them in - you only need a few drops
3. To use: scrub skin with mixture and rinse well.

3. Now that you and your Girl Scout have made your own beauty product, take a look at the ingredients in some of the ones around your house. Start with shampoo or conditioner—if you have two different kinds of shampoo that’s even better as you can compare them.
 - a. Take a look at the ingredient lists.
 - What ingredients do you recognize?
 - What ingredients do you not?
 - If you look at two different kinds of shampoo, what ingredients do they share?
 - Which ones are different?
 - b. Now look at the shampoo descriptions—do they claim to add shine? Volume? Color-stay? What ingredients do they have to cause that effect?
 - c. Check out the Environmental Working Group’s Skindeep database at <https://www.ewg.org/skindeep/>. This database lets you look up products and ingredients and has a ton of information about what ingredients are used for and their safety ratings. Here are a couple of interesting ingredients to look into:
 - Fragrance
 - Carmine
 - Lanolin
 - d. Examine the ingredients on other products you have around your house and see what you might find in them. You can use the attached worksheet to help guide you.

4. You and your Girl Scout have looked into the beauty industry, now it is time to look into fashion. Fabric plays a big role in how clothing performs, particularly in outdoor and workout gear.
 - a. Put together two workout outfits: one with natural fabric (wool, cotton, silk) and one with synthetic fibers (lycra, spandex, etc.). Once you have your two outfits, put them to the test with a quick workout—go for a walk or run, do some jumping jacks, whatever your preferred exercise is, and don’t forget to stretch! Compare the performance of both outfits.
 - Which outfit was more comfortable to exercise in?
 - When you sweat, which outfit kept you dryer or cooler?
 - Which outfit was easier to stretch in?

5. Choose one kind of clothing (dresses, hats, pants, high heels, jeans, anything you want!) and make a timeline of that item of clothing through history.
 - Where did that clothing originate from?
 - How has the style changed through history?
 - Who has typically worn that clothing?
 - What are the materials it is made from? Have they changed over the years?

6. Now that you and your Girl Scout have an understanding of fashion history, look towards the future. Do a little research into some of the advancements in fabric and fashion technology that are being worked on currently—nanotechnology, recycled materials, fabric that changes color according to temperature, clothing that connects to your phone. Your Girl Scout will come up with a piece of clothing or accessory that they would design for the future.
 - a. Draw your design and write up the idea in detail.
 - What kind of material would it be made of?
 - What function would this item provide?
 - Do we have the technology to create this? If not, what advancements need to be made?
 - How much do you think this would cost to make?
 - Where do you think the future of fashion is headed?

7. Congratulations! Your Girl Scout has earned her Science of Style badge!
 - a. Review what you learned together.
 - What was one new thing you learned about the science behind fashion?
 - What was your favorite thing you did?
 - Are you going to look at fashion or beauty differently after today?
 - Are you going to change anything, knowing what you know now?
Use different beauty products, look into different kinds of clothing?

The Science of Style: Exploring Ingredients

1. Find three ingredients that are in multiple products. Why do you think these ingredients show up again and again?
2. Compare the ingredients of two similar products. What differences do you see between them? What are the similarities?
3. Were any of the ingredients surprising? Which ones?
4. Do you think companies make it easy to find the ingredients in their products? Why do you think that is?