

JUNIOR DETECTIVE BADGE – MEETING 1

Badge Purpose: When girls have earned this badge, they will know how to follow clues and discover facts like a real detective.

Activity Plan Length: 1.5 hours

Time	Activity	Materials Needed
15 minutes	Getting Started <ul style="list-style-type: none"> Girls recite the Girl Scout Promise + Law. 	<input type="checkbox"/> (Optional) Girl Scout Promise and Law poster
10 minutes	Five Changes <ul style="list-style-type: none"> Girls practice the power of observation. 	None
10 minutes	Make a Fingerprint ID Card <ul style="list-style-type: none"> Girls practice identifying different types of fingerprints. 	<input type="checkbox"/> Pencils <input type="checkbox"/> Index cards or scratch paper <input type="checkbox"/> Clear tape (3/4" or wider) <input type="checkbox"/> (Optional) Fingerprint record page printed on cardstock
15 minutes	Dust for Fingerprints <ul style="list-style-type: none"> Girls continue to practice identifying different types of fingerprints. 	<input type="checkbox"/> Cocoa powder <input type="checkbox"/> Shallow bowls or deep paper plates <input type="checkbox"/> Identical smooth surfaces (small mirrors or ceramic tiles) <input type="checkbox"/> Masking tape <input type="checkbox"/> Make-up or mop brushes <input type="checkbox"/> Writing utensils <input type="checkbox"/> Paper towels <input type="checkbox"/> ID cards made in Activity #2
15 minutes	Dental Impressions <ul style="list-style-type: none"> Girls learn about different types of evidence. 	<input type="checkbox"/> Styrofoam plates (one per pair of girls) <input type="checkbox"/> Scissors <input type="checkbox"/> Ballpoint pens
10 minutes	"Me" Latin <ul style="list-style-type: none"> Girls communicate in code. 	<input type="checkbox"/> Paper <input type="checkbox"/> Pencils
15 minutes	Wrapping Up	<input type="checkbox"/> (Optional) Make New Friends song lyrics poster

Getting Started

Time: 15 minutes

Materials Needed: (Optional) Girl Scout Promise and Law poster

Welcome everyone to the meeting, recite the Girl Scout Promise and Law.



Activity #1: Five Changes

Time: 10 minutes

Badge Connection: Step 1 – Practice the Power of Observation

Materials Needed: None

1. Divide the girls into pairs.
2. Have partners sit across from one another and talk about what they did today for one minute.
3. Stop the group and have partners turn and sit back to back, so that they cannot see one another.
4. Now they need to choose five things about their appearance to change. It has to be significant enough to be noticeable—setting your watch to the wrong time would be too small—and it can't be related to how you are sitting or posed (hand on chin, right leg crossed over left) because those change even as you are sitting. Possible hints for those who are stuck: rolling or unrolling sleeves, collars, or socks; tying or untying shoelaces; or trading something with someone else.
5. When all are ready, partners turn around and try to guess each other's changes.
6. If there's time, challenge them to turn around again and pick three new things to change.
7. Discuss with girls how easy or difficult it was to notice changes—big or small—in their surroundings. What, if anything, helped/could help make their powers of observation stronger?

Activity #2: Make a Fingerprint ID Card

Time: 10 minutes

Badge Connection: Step 3 – Fingerprint for fun

Materials Needed: Pencils; index cards or scratch paper; clear tape; (optional) fingerprint record page

Prep Needed:

- Make copies of basic fingerprint patterns and, if desired, fingerprint record pages. You may also be able to get ID kits from your local police department.
1. Give each girl a pencil and an index card or scratch paper to make a graphite "ink pad." Instead of ink, the girls will be using graphite dust to make a fingerprint record.
 2. Direct girls to scribble with the pencil for a while, making a big, dark blob of silver gray dust.
 3. Now it's time for girls to choose which hand to fingerprint. It's best to use their non-writing hand, so the one less used will be the one that's messy.
 4. Start with the thumb. Rub the thumb in the dust until their entire finger pad, from tip to past the first joint crease, is covered in graphite. Notice that this is not like using ink or dye, where pushing the finger in or holding it down longer will soak up more color—it's more like rolling a donut in sugar.
 5. Have girls help each other with this part: One person holds up her shiny gray thumb while the other pulls off a piece of clear tape about 1 ½" long, holding at the edges to avoid adding other fingerprints. The tape helper places the tape so that the long direction runs up and down along her partner's finger—not wrapped around, like using an adhesive bandage.
 6. The tape helper should smooth the tape down so it covers as much of the print as possible, without letting it wiggle. Then, from one edge, she can lift the tape up cleanly.
 7. Direct girls to place the print in the box marked "thumb" on the record card. Or, if using index cards, place the tape print near one side and label the print with what finger and which hand it is from.
 8. Complete the rest of the fingers on that hand.

NOTE: Compared to using an ink pad, all of the prints taken this way are reversed. Instead of taking the image normally left on a surface, we put the print on a clear surface (the tape) and looked at it from the other side. This is what the finger actually looks like, rather than the mirror image that the finger normally leaves behind in an ink print.



Activity #3: Dust for Fingerprints

Time: 15 minutes

Badge Connection: Step 3 – Fingerprint for fun

Materials Needed: Cocoa powder; shallow bowls or deep paper plates; identical smooth surfaces (small mirrors or ceramic tiles); masking tape; make-up or mop brushes; writing utensils; paper towels; ID card from Activity #2

Prep Needed:

- Practice dusting for prints once at home, or have your activity leader practice. You can expect a clear image only about one out of every third time, so girls should not be surprised if they have trouble reading the prints.
 - Place a small piece of masking tape on the back of the mirror or tile where the girls can write their names.
1. Give each girl a mirror or tile, and a writing utensil to write her name or initials on the tape on the back.
 2. Have girls wipe off the mirror with a cloth or towel until it is free from prints.
 3. Each girl will choose one finger of the hand she made a record of in #2, or tell everyone in the group to use the same finger (for example, the index finger). Just make sure it is one of the fingers for which there is a record on the ID card.
 4. Direct girls to rub the chosen finger on their face to pick up some additional oils.
 5. Tell girls to hold the mirror or tile in the other hand (along the edge, without leaving additional prints) while pressing the chosen finger straight down onto the mirror. Roll the finger slightly from one side to the other but be very careful not to let the finger wiggle or smudge the print in any way.
 6. Girls can now lift the finger straight up and make sure they can see a print. If not, they should wipe the mirror off and try again.
 7. Divide girls into teams of three. For each team, set the three girls' ID cards out on the table and then the three girls' mirrors or tiles with prints. Have all three girls close their eyes while someone else mixes up the tiles. Each girl on the team will now pick one to dust.
 8. To do so, have girls dip the makeup brush into the cocoa powder. Only the tips of the bristles need to be in the powder.
 9. Girls should hold the mirror by the edges. Then, with the brush, try to leave powder behind without dragging any of the bristle through the print, which will only add more lines and smudge the print. Dab the cocoa gently onto the print, following the print ridges if they are visible.
 10. Tell girls to face away from everyone else, and gently blow the extra cocoa powder off the print.
 11. They can now compare this print to the ID cards (remember, they will be backwards.) Ask girls if they can tell whose print they have.

Activity #4: Dental Impressions

Time: 15 minutes

Badge Connection: Step 5 – Types of evidence

Materials Needed: Styrofoam plates (one per pair of girls); scissors; ballpoint pens

1. Ask the girls to break off into pairs. Give each pair a Styrofoam plate and have them cut the plate in two. Each girl should take a half of the plate.
2. Girls should then cut the half plate in half again, so they each have two quarters.
3. Direct girls to label one along the edge with their name and "upper" and the other with their name and "lower."
4. Girls should now stack the two sections on top of each other so that the two curled edges, from the rim of the plate, curl away from each other rather than nesting together. That is, the surfaces that were the underside of the plate are touching, and the two interior or eating surfaces are now on the outside.
5. To make the completed impression, girls are going to put the points of the quarters (what used to be the center of the plate, away from the edges) in their mouths and bite down. If they think the point is going to get in the way and then they won't get many of their teeth on the plate, they can simply cut off a bit of the tip so they can fit more in their mouths.
6. Taking the impression doesn't take a lot of time. Each girl should put the plate quarters all the way in her mouth and bite down firmly, then let go. Now each girl has her basic dental record.



7. It's now time for the mystery. You can do this as one big group, or divide into smaller teams of about five–six to make it easier.
8. Cut one additional set of plate quarters and label them "mystery upper" and "mystery lower."
9. Direct everyone to sit or stand apart (so people can't get sound clues) with their eyes closed; tap one person on the shoulder to make the mystery dental record.
10. Call the group back together and set the mystery prints on the table, along with everyone's dental record prints. First, everyone gets to look at the impressions without picking any of them up. After about a minute, each person gets to pick up the mystery print in her hand, look at it carefully and pass it along to the next person (no one should give any opinions yet). Then, everyone who wants to do so gets a turn holding the print and holding it next to some of the dental record prints.
11. Count to three, and ask everyone to point to the record prints they think match the mystery prints. You may get all different answers, or there may be a majority (hopefully agreeing on the correct person!).
12. Discuss what things could make it hard to tell which print was which. Examples could be: prints looking very similar, not biting down hard enough or everyone using different amounts of pressure, using different amounts of pressure on the original and on the mystery print, inconsistencies in the Styrofoam, lighting or being able to see up close or using a magnifying lens, and others.

Activity #5: “Me” Latin

Time: 15 minutes

Badge Connection: Step 2 – Communicate in code

Materials Needed: Paper; pencils

1. Ask if anyone has ever tried speaking or writing in "pig Latin." Explain that it is not a language at all, but a way of making your words hard to understand by anyone who doesn't know the trick. The trick itself, however, is short and easy to remember. Take the first letter, move it to the end, and add an "ay" sound. Vowels are hard to make work, so if it starts with a vowel, you leave the word and just add "yay" to the end.
 - For example, the word “Girl Scouts” in pig Latin would be: Irlgay Coutssay.”
2. Have each girl write a short, simple sentence at the top of her paper.
3. Now ask each girl to come up with her own, easy to apply code. It should be easy to remember, and should have only one rule, unless you find some words or letters don't cooperate with the rule (like vowels in pig Latin) and you have to make an exception rule. It could be something that changes the starting letter in some way, or adds a syllable to every word, or changes the vowels, or just uses all the same words but the sentence is backwards.
4. Direct girls to use the paper to experiment with the test sentence.
5. When a girl is done, she will write her "Me Latin" code sentence on a new piece of paper. She can then trade with someone else who is finished to try to figure out each other's code.

Wrapping Up

Time: 15 minutes

Materials Needed: (Optional) Make New Friends song lyrics poster

Close the meeting by singing Make New Friends and doing a friendship circle.



More to Explore

- Field Trip Ideas:
 - Visit a local police station.
 - Try looking for a letterbox. Go to www.letterboxing.org to find a box hidden near you and figure out the clues to find the box.
 - Participate in a local or seasonal treasure hunt.
 - Visit a nature center and learn about animal tracks and signs.
- Speaker Ideas:
 - Invite someone who coaches or plays softball or baseball to demonstrate sending signals or communicates with a code (what pitch to use, when to run, whether to bunt or swing away, etc.).

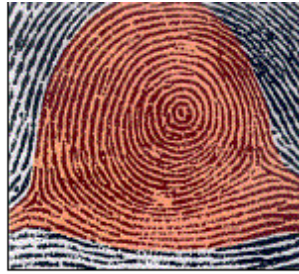


Three primary fingerprint patterns:



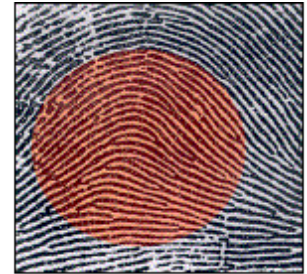
LOOP

In a loop pattern, the ridges enter from either side, re-curve and pass out or tend to pass out the same side they entered.



WHORL

In a whorl pattern, the ridges are usually circular.



ARCH

In an arch pattern the ridges enter from one side, make a rise in the center and exit generally on the opposite side.

Four additional variants:

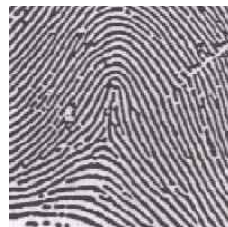
central pocket loop



double loop



tented arch



accidental, which is anything that doesn't fit neatly into the others.

