**Dyeing Methods**

**BEFORE: PRESOAK ALL FIBERS**
Presoaking wets the fiber thoroughly, which helps the dye penetrate. Soak at least 30 minutes in room temperature water with a few drops of detergent added. Some fibers, such as superwash, will saturate more quickly. Difficult to saturate fibers like silk will benefit from soaking overnight. If a fiber holds air, gently squeeze it under water or place a weight on the fiber to keep it submerged. Oils/lanolin will keep dye from bonding to fibers. If spinning oils or lanolin remains in a fleece/yarn, it should be scoured before dyeing.

**AFTER: RINSE OR SOAP OFF ALL FIBERS**
After heating for appropriate time, remaining dye liquid should be relatively clear. Fiber can be left to cool in place (recommended) or carefully removed from pot when somewhat cooled. Soak fiber in warm soapy water to remove unattached dye, then soak in plain water. Avoid moving or temperature shocking the fiber when hot or wet. If dye bleeds heavily and is not mostly removed by a few soaks, fiber can be put back into a pot with water and acid and heated again. After rinsing, press water out of fiber (no wringing!) and dry flat.

**How much dye to use?**
Some dye powders are very concentrated, while others add auxiliaries (acid, salt, etc.) into the mix, making the dye powder less concentrated. For a medium shade, a concentrated dye like Washfast, Jacquard, or Lanaset will usually require the dye powder be about 1% of the fiber’s dry weight - 4.5 grams of powder for an entire pound of fiber. For dyes with included auxiliaries, the package should be consulted. **Note: when dyeing very dark shades or black, the high concentration of dye particles may change the texture of the fiber and make it feel rough or chalky. If deep, dark colors are desired, consider starting with a natural grey or brown wool.**

**Using stock solutions:**
Stock solutions are preliminary dilutions of dye powder and water. They are useful for minimizing the handling of dye powders, which can be a respiratory irritant. Because they are diluted, usually at 1% by weight, they are easier to measure accurately than concentrated dye powders. They are highly suitable for handpainting, immersion methods, and mixing custom colors. For a medium shade, use about 1 ml of 1% stock solution for each gram of fiber weight. (100 grams = approx 3.5 ounces). Stock solutions can be painted directly on fiber but will usually be too strong except when the very darkest shades are desired. Depending on desired shade, they will normally need to have at least 4-5 parts plain water mixed with them – 20+ parts water for pastels.

**Mixing a dyebath:**
For immersion dyeing, dye powder or stock solutions are mixed with acid, salt and water before adding the fiber. The amount of water does not affect the final shade; that is controlled only by the amount of dye relative to the fiber weight. If starting with powder, follow safety precautions. Mix the dye first with 1 cup of boiling water to dissolve, then add to remainder of ingredients.

Using concentrated dye powder (one without auxiliary chemicals) a dyebath for one pound of fiber will need:
- At least 10 quarts of water
- 1 Tbsp. salt
- 1 Tbsp. citric acid crystals OR ¾ cup of white vinegar
- 1 tsp. Synthrapol or dish detergent (optional)

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<thead>
<tr>
<th>Desired Shade</th>
<th>Amount of Dye Powder</th>
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<tr>
<td>Light</td>
<td>½ tsp. dye powder (1.2 gr) OR 120 ml stock solution</td>
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<tr>
<td>Medium</td>
<td>1 ¼ tsp. dye powder (4.5 gr) OR 450 ml stock solution</td>
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<tr>
<td>Dark</td>
<td>3 ½ tsp. dye powder (9 gr) OR 900 ml stock solution</td>
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<tr>
<td>Black</td>
<td>10 tsp. dye powder (25 gr) OR 2.5 liters stock solution</td>
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METHOD: Immersion Dyeing

Good for dyeing single solid colors. Semi-solids will occur if pot is very full of fiber, or fiber is tied tightly to make resists. A minimum of 10 quarts of water per dry pound of fiber is usually required. Using a larger pot with more water will produce more level results.

1. Prepare dyebath according to dye manufacturer’s directions, adding auxiliaries (acid, salt, water softener, etc.).
2. Place presoaked fiber in dyebath.
3. Bring up to temperature (180-200°F) and keep there for 45 min., until dyebath is exhausted. Turn fiber periodically for evenness.
4. Let fiber cool in pot or gently remove to begin soaping off/rinse process.

METHOD: Low Water Immersion Dyeing (a.k.a. Hot Pour/Kettle/Crock Pot Dyeing)

Good for semi-solids or more muted, blended multi-colors. Fiber is immersed in barely enough acidified water to cover and brought to high temperature before adding dye(s). Avoid many contrasting or complementary dye colors, as they may blend and become muddy.

1. Prepare stock solutions.
2. Place presoaked fiber in pot with just enough water and acid to cover.
3. Bring pot up to temperature (180-200°F).
4. Using a spoon, baster or syringe, carefully pour stock solutions into fiber. Poke gently with a skewer to distribute dye. Dyes will strike immediate area first, and remaining dye will blend across the whole pot somewhat.
5. Keep pot at temperature for 45 min., until dyebath is exhausted.
6. Let fiber cool in pot or gently remove to begin soaping off/rinse process.

METHOD: Hand-painting / Space Dyeing

Good for distinct multi-colors. Dyes are applied directly onto presoaked fiber then heat set, usually by steaming or baking. Acid can be added to presoak, to stock solutions, or sprayed on after painting.

1. Prepare stock solutions.
2. Press excess moisture from presoaked fiber and place it on a large piece of plastic wrap.
3. Using spoons, syringes, brushes, etc., apply dye onto sections of fiber and gently squeeze to distribute. Gently flip fiber to make sure back side is getting enough dye. Avoid adding so much dye that it puddles under fiber. Colors will wick up the fiber, so if no blending is desired, leave a white area between colors.
4. Spray on diluted acid if not already added to stock solutions or presoak.
5. Wrap fiber in plastic wrap to form a tube, then coil the tube to make a big spiral. Wrap another piece of plastic around that.
6. Place coils in steamer basket over boiling water, put lid on pot and steam for 45-60 minutes.
7. Let fiber cool in plastic wrap, then gently remove from plastic to begin soaping off/rinse process.

VARIATION: Mason Jar Dyeing

Low Water Immersion dyeing in smaller containers – especially good for loose fiber or locks, but can be used with any fiber or yarn. Place wet fiber in a quart mason jar and add stock solution(s) or powdered dye. Fill with water and about 1 Tbsp. of vinegar. Place open jars in a canning rack or steamer basket and steam as for hand-painted fiber.

VARIATION: Crock Pot Dyeing with powdered dyes.

Low Water Immersion with layered powders. Choose 2 dye colors near each other on the color wheel and 1 contrast color. Place 1/3 of presoaked fiber into pot and barely cover with acidified water (1-2 Tbsp. vinegar per quart). Sprinkle 1/2 -1 tsp. dye powder on fiber. Repeat for each 1/3 of the fiber with another dye color. Bring pot up to temperature (180-200°F) then cook for 45 minutes. Finish as for regular Crock Pot dyeing.