

Basic Darkroom Rules

1. **Be Clean.** Cleanliness is extremely important and cannot be overstressed. If everyone is slightly messy we'll soon have one very large mess. Leave everything cleaner than you found it! Remember, lack of cleanliness leads to contamination of the darkroom environment, which will in turn mess up your photographic work.

Wash your hands. A tiny bit of fixer can make many nasty bleached fingerprints on your negatives and prints. Developer and stop bath are bad for negatives, too. Photo chemicals are not beneficial to your health -- use laboratory common sense in the darkroom.

No Food. No Smoking.

2. **Be Friendly.** Friendliness makes the darkroom considerably more pleasant. Consideration of other people is very important. If someone is having difficulty, take the time to help them do it right so they don't do something that everyone will regret. Make sure all users have given their explicit permission to have the room lights turned on before doing so.
3. **Report All Accidents.** If you think you've contaminated chemistry, exposed a box of paper, or broken equipment, immediately report what has happened to a 6.163 staff member.

Film Development Procedures

There are two major stages of film development. First, the film must be transferred from its original roll to a reel in a development tank. The chemicals must then be applied in a specific order for specific lengths of time.

Transferring the Film

1. **Organize the Equipment.** The transfer process must be done in complete darkness. Therefore it is necessary to have all of your equipment out and in front of you before you turn off the lights. You will need the following equipment to transfer the film to a development tank: your exposed film, a development tank with lid (unattached), a film reel, scissors, and a can opener.
2. **Turn the Lights Off.** (Lock the door first.)
3. **Open the Roll of Film.** Use the can opener to remove one of the metal rings off the end of the roll of film. Remove the spool of film from the metal casing while making sure that the film does not unwind.
4. **Transfer the Film to the Reel.** Insert the end of the film into the slot on the plastic reel. The slot is indicated by slightly protruding, triangular points on the inner rim of the reel. Use a twisting action to slowly roll the film onto the reel. When the spool end of the film is reached, use the scissors to trim off the spool from the film.
5. **Insert Reel into Tank.** Insert the centering post into the reel and place them inside the tank. The flange sits on the bottom of the tank. Securely lock the lid onto the tank.
6. **Turn the Lights On.** Unlock the door.

Preparing and Applying the Chemicals

1. **Mix the Chemicals.** You will need four different chemicals to develop your film: Film Developer, Stop Bath, Fixer, and Alum Hardener. Use the three separate measuring pitchers which are marked to indicate the intended chemical. A small quantity of the Alum Hardener will be added to the fixer, and therefore does not require a separate pitcher. The ratios of the mixtures can be found on the boxes of the respective chemicals.

Film Developer. Mix in a 1:9 ratio with water. For example, if you are making one liter of film developer, add 100 mL of film developer to the pitcher and fill to the 1L mark with water. Be sure to stir the mixture. Rinse the stirring rod before stirring the other chemicals.

Stop Bath. Mix in a 1:9 ratio with water. Stir.

Fixer. Mix in a 2:8 ratio with water. Add 30 mL of Alum Hardener. Stir.

2. **Add the Chemicals.** Place the tank in a tray to minimize spillage. For each of the chemicals, pour the chemical into the tank until the tank is completely full. Agitate using a circular motion for the appropriate amount of time and then pour out the chemical. All chemicals get poured out into the sink except the spent fixer which should be poured into the designated container for disposal.

Film Developer

Time: Read from temperature chart on the wall in the darkroom.

Agitation: 1 minute, then 5 seconds every 30 seconds.

Stop Bath

Time: 1 minute.

Agitation: 1 minute.

Fixer

Time: 3 minutes.

Agitation: 30 second intervals.

Water

Time: 30 seconds for each tank full. Do several washes for a total of 10-15 minutes.

Agitation: 30 seconds.

3. **Remove the Film from the Reel.** Take the lid off the tank, remove the reel, and carefully unroll your developed film. Clip the film strip to the drying line. Be sure to add a name label to the film.
4. **Clean Up.** Rinse all of the measuring equipment, tank parts, and reel. Wipe the counter. Return all of the equipment to their proper places.

Print Development Procedures

The print room exists under safelights unless all paper boxes are securely closed, no unprocessed paper is out, and all users have given their explicit permission to have the room lights turned on. All equipment has a place to which it should be returned after use.

1. **Setting Up.** To set up the print room, turn on the water faucet in the print sink and put the required chemicals into the labeled trays. The chemical stock is under the sink in large white boxes. The mixture ratios are printed on the boxes. Four trays should be used in the following order: Developer, Stop Bath, Fixer, Water.
2. **Using the Enlarger.**
 - Place your negative into the metal template, and place the template into the enlarger.
 - Set the timer switches to **focus**. The enlarger lamp should be on now.
 - Set the enlarger so that the image is sized and focused properly. Make sure it is in focus using the grain enlarger. Close the aperture until you just lose the details in the shadows, then open up one stop.
 - Arrange the easel so that the appropriate portion of the image will be exposed.
 - Set the timer switches to **time**.
 - Go to the paper safe and get the paper. Insert the filter for the contrast you want (use 3 if in doubt).
 - Place the paper, shiny side up, into the easel without moving the easel.
 - Set the amount of time on the timer.
 - Press the "start" button on the timer.
 - When the time is up and the lamp has gone out, remove the paper and take it to the sink.
3. **Developing the Print.** For each chemical, drop the print in, face down and agitate for the appropriate amount of time. Be sure to use separate tongs for each chemical.
 - Developer: 60-90 seconds.
 - Stop Bath: 30 seconds.
 - Fixer: 2 minutes.
 - Water: 5-10 minutes.
4. **Keeping Records.** Move the print to the drying rack. Record your name, and the settings used to take and develop the particular picture (camera: aperture, shutter speed, lens focal length; Enlarger: name, aperture, filter #, exposure time) in your notebook so you can write them on the back of the print.
5. **Cleaning Up.** Put everything away. The chemicals do not get dumped until they are spent. You can decide by looking at the developer. When it is brown, it needs to be replaced. At that point, all of the chemicals get dumped in the sink except for the spent fixer which should be poured into appropriate containers for disposal. The next person to use the darkroom will mix up a fresh batch of everything. Clean and dry the sink, trays, tongs, jugs, and anything else that may need it. Do not leave your negatives lying around or in the enlarger.