

Photography in Black and White

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Materials Required:

- 1. Camera:** you need a 35mm film camera with options to be manually operated. This means you must be able to adjust the aperture and shutter speed of the camera. Additional helpful accessories include: protective camera bag, neck strap, 50mm or 28mm lens, and cleaning cloth/brush for lens.
- 2. Idea Book:** Any sketchbook or notebook larger than 5x7 inches will do. This will provide you with a place to write down any notes and artistic brainstorming
- 3. Clipboard:** We will be standing a lot in the darkroom so a clipboard can help when taking notes or jotting down a few things while working.
- 4. Fine Point Sharpie:** This will be used to label negative sleeves, note settings on test strips, and creating templates for printing
- 5. Pen or Pencil**
- 6. 3-ring Binder:** You will need one of these to store your negative sleeves
- 7. 9x12 inch Clasp Envelope:** This will provide you with an envelope for prints and test strips
- 8. Props:** Anything you would be interested in using for original photographs. Thrift stores are great places to find items, or bring along anything you might already have.

Optional (you do NOT need to purchase these items for class- but if you have them, feel free to bring them!):

- 1. Tripod:** This can be useful when shooting low light situations or to avoid blurry photographs from movements of the hand.
- 2. Rubber Gloves**
- 3. Apron:** helps to avoid dust on negatives and clothing protection

Please bring as many items from the supply list as you can. If you are unable to get every item on the list, we will have some limited supplies available for campers to use during the camp week.

Please see Safety Darkroom Facts and Information Below:

SAFETY DARKROOM: FACTS AND INFO

High Risk Individuals:

1. Women who are pregnant, or nursing
2. Children under 12
3. Smokers and heavy drinkers
4. Immune suppressed individuals
5. People with chronic diseases
6. Persons with diseases of the heart, lungs, liver and kidneys
7. The elderly
8. People with asthma

How exposure occurs:

1. Through the skin: absorption
2. Breathing in the fumes: inhalation
3. Eating or drinking chemical: ingestion
4. Drinking soda, applying makeup, eating: indirect ingestion

Effects on the body:

1. **LOCAL:** irritation or injury at the immediate site of contact, rashes, burns or ulcerations.
2. **SYSTEMATIC:** effects occur when chemical is absorbed into the body, causes damage far from the point of contact. Such as dizziness.
3. **ACUTE:** serious illness resulting from single exposures by ingestion, inhalation, or skin contact and absorption. These have three outcomes: complete recovery (if exposure is low enough), recovery with some level of disability, or death.
4. **CHRONIC:** caused by prolonged or repeated exposures to toxic chemicals, such as chronic skin rashes, dermatitis, chronic respiratory problems.

Chemical Effects on Reproductive System and Pregnancy:

1. **Reproductive Effects:** all solvents including alcohol will temporarily interfere with sexual function. Affects of chemicals on reproductive systems applies to both men and women.
2. **Exposure** to toxic chemicals can have the following affects on men and women: Loss of Sex drive, lowered fertility, genetic damage, possible sperm damage, atrophy of testicles, menstrual disorders and problems conceiving. It is for this reason that it is advisable for members of both sexes who are planning a family to avoid undue exposure to photographic chemicals.
3. **Effects on a pregnant woman:** During Pregnancy certain metabolic changes occur that make woman more susceptible to the damaging effects of chemicals. Particularly those that can cause injury to the respiratory system or the circulatory system. Chemicals such as: most solvents, metal compounds, and gases such as sulfur dioxide, ammonia, hydrogen selenide and Carbon monoxide.
4. **Toxic Effects on the Fetus:** Chemicals that can have a direct toxic chemical effect on the developing fetus are called embryo toxins. The heavy metals lead, cadmium, and copper are examples of these substances. They can cross the placenta during pregnancy, causing stillbirths and miscarriages. Other examples are the photographic chemicals: organic solvents cellosolve, methyl cellosolve, and their acetates, certain chlorinated hydrocarbons and the toxic gases carbon monoxide.
5. **Birth Defects:** Some of the chemicals which are toxic to the fetus are also suspected teratogens. These substances may cause birth defects, even when resented in very small amounts. These chemicals affect the fetus in the first trimester by interfering with organ development. Lead compounds used, as photographic

toners are examples of chemicals with teratogenic potential. Glycol ethers and hydroxylamine compounds used in color processing are suspected teratogens since they may produce birth defects in laboratory animals.

6. **Mutagens:** Chemicals that can cause genetic damage are a special problem because even low levels of exposure may cause mutations. Mutagens (mutation causing chemicals) can damage reproductive cells by altering the DNA structure in chromosomes. This type of damage can occur in both sexes, affecting the egg as well as the sperm cells. Exposure of the fetus to mutagens may result either in spontaneous abortions and birth defects, which can be passed in the future to other generations. Photo chemicals that are suspected mutagens are: lead and its compounds, the chlorinated hydrocarbon trichloroethylene used in printmaking, and ethylene oxide a fumigant gas used in conservation.
7. **Cancer:** It is believed that some cancer causing chemicals can have a carcinogenic effect on the children of women exposed to those substances during pregnancy. The classic example of this effect is the drug DES (diethylstilbesterol). This aspect of carcinogenicity is least studied of all.
8. **Effects on an Infant Child:** Even the residues of toxic chemicals in the mothers milk can have damaging effects on the breast fed infant. Children, especially those under the age of 12 are also highly susceptible to solvent vapors, toxic gases, metal dusts, and corrosive substances. If the darkroom or studio is located in the home, family members, including children, may be subjected to these hazards on a continual basis unless living areas are completely separated from the work area, ventilation is adequate, and excellent hygiene is practiced.
9. **PRECAUTIONS:** Black and white processing is not generally associated with reproductive hazards unless photographers also use certain metal-containing toners and intensifiers. With these exceptions, photographers using proper precautions should be able to work without substantial risk of reproductive effects. But for those doing color processing, printmaking, or photographic conservation using organic solvents, color chemicals, heavy metals, dyes, pigments or fumigant gases, the risks of reproductive effects are considerably greater.

Black and White Photography Chemicals:

DEVELOPERS: HIGHLY TOXIC

- most common site of health problems such as respiratory disorders, skin problems, and allergies
- most at risk when handling and mixing these chemicals
- associated with lichen planus a skin disorder on the hands that is reddish papules that itch and can spread to form rough scaly patches on the hands. Lichen planus is associated with the development of skin cancer.

STOP BATHES: HIGHLY TOXIC

- highly toxic by skin contact, inhalation and ingestion
- can cause dermatitis, skin ulceration, irritate mucus membranes and eyes
- continual inhalation can cause bronchitis

FIXING BATHES: SEE NEXT TWO POINTS

1. Not significantly hazardous with skin absorption
 2. High Toxic when warmed and inhaled
- can cause skin allergies
 - Boric Acid if absorbed through abraded or burned skin can be very toxic, causing systematic effects

HYPO CLEAR: NOT SIGNIFICANTLY TOXIC

- Practice good hygiene

TONERS: HIGHLY TOXIC

Color Photography

Color Developers: EXTREMELY TOXIC

- More Hazardous than Black and White developers
- reproductive hazards: birth defects and reproductive problems especially during the first trimester
- Photographers of both sexes who are planning a family should take the necessary precautions

- Allergic individuals should wear a ventilator
- Exposure is GREATLY reduced by using automatic color processor
- Wear ventilator, goggles and gloves when mixing chemicals
- Mix near ventilation

BLEACHING AND STABILIZER: SLIGHTLY HAZERDOUS

- Can cause asthma
- corrosive damage if contact to eyes
- with direct contact can cause skin irritation
- causes birth defects and reproductive effects in test animals

COLOR RETOUCHING: CAN CAUSE SYSTEMATIC EFFECTS

- not much study has been done
- can be absorbed through skin or inhaled depending on method used

-HAND COLORING: MODERATE TO HIGH INHILATION HAZARD

- depending on method
- wear ventilator

DYE TRANSFER PROCESS: HIGHLY TOXIC

Because this uses many of the same chemicals in standard Black and White processing. Refer back to Black and White processing notes.

INSTANT PROCESS: TOXIC and HIGHLY TOXIC Depending on use

- such as Polaroid's, jelly substance inside contains sodium hydroxide and potassium hydroxide
- highly toxic the first two hours
- highly corrosive to skin and eyes
- keep away from children for first two hours!
- Even after two hours do not let children or adults put in mouth!
- Under normal circumstances one does not come into contact with these substances. But in special experimental techniques where the film is pulled apart one becomes in contact with these chemicals.
- If child does put Polaroid into mouth have child drink water or citrus juice.
- If skin contact, rinse throughally for 15 minutes

What do you need to do to protect yourself:

1. Wear a ventilator
2. If handling chemicals: wear rubber gloves to prevent skin absorption
3. Another option to gloves are barrier creams: they prevent another layer of protection from the chemicals. Usually used when gloves are not practical or in conjunction with gloves. There are two basic types of barrier creams: A) Water Soluble, for protection against organic solvents, lacquers, and oil-based materials. B) Water resistant, for use with water based solutions such as dye baths and mild acids Barrier creams require frequent reapplication to maintain their effectiveness. Even when wearing these creams hands SHOULD NOT be put in processing trays by themselves and may contaminate developer tray.
4. Use tongs: to prevent skin absorption
5. Do not, eat, drink or apply makeup in the darkroom. This includes applying lotion to hands.
6. Wear splash goggles when directly interacting with chemicals.
7. Mothers and Fathers and Non-parents: wash hands and face throughally before having interaction with children. Also, if you just came from the darkroom it is advised not to bath with your children until you yourself have bathed. Phisoderm purchased in any drug store is the recommended soap for washing after exposure to photographic chemicals.
8. If you get any of the Black and White or color chemicals on hands immediately splash with water for 15minutes, this includes the eyes.
9. Take a FRESH AIR break of ten minutes for every hour you are in the darkroom.