Footwear production supervision

Level-IV

Based on November 2019, Version 5 Occupational standards and February 2020 version 1 Curriculum Material

Module Title: - Apply fashion and illustration Techniques

LG Code: IND FPS4 M03 LO (1-5) LG(13-17)

TTLM Code: IND FPS4 TTLM 0221v1

Bishoftu, Ethiopia

Table of Contents

LO #4 Identify fundamentals of fashion figures

LO #5 draws and renders materials and accessories

LG #13	LO#1 prepare work station

Instruction sheet
This learning guide is developed to provide you the necessary information regarding the following content coverage and topics: • Setting up workbench and seating • Selecting and preparing drawing tools and equipment • Setting out tools and equipment to facilitate effective work practice This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to: • Set up workbench and seating according to OHS practices • Select and prepare drawing tools and equipment. • set out tools and equipment to facilitate effective work practice
Learning Instructions:
1. Read the specific objectives of this Learning Guide. **2.** Follow the instructions described below. **3.** Read the information written in the information Sheets **4.** Accomplish the Self-checks **5.** Perform Operation Sheets **6.** Do the “LAP test”

Information Sheet 1- Setting up workbench and seating

1.1 Fashion and illustration

Fashion Illustration is the art of communicating fashion ideas in a visual form that originates with illustration, drawing and painting and also known as Fashion sketching. It is mainly used by fashion designers to brainstorm their ideas on paper or digitally.Fashion in footwear should complement the current trend in clothes which entails two important requirements: One for the devastating seventeen-year-olds who look marvelous in anything and

Another for everyone else who want their shoes to be:

- Functional
- Smart and elegant, and above all
- Flattering to their feet.

1.2 setting up workbench and seating

In order to set up work bench and seating we have to select appropriate tools and good seating posture so below there are some points to set up workbench and seating

Picking Tools

Selecting the right drawing tools is important. The types of tools you use effect the outcome of your drawing. Different pens, markers, and pencils can be used to create different marks.

Keeping a variety of mark making tools on hand while drawing can help you build hierarchy into your drawing. Hierarchy is important for emphasizing relevant information, creating dimension, and allowing structure lines to recede into the background.

There is no "right" set of tools and everyone prefers something a bit different. But there are some more popular tools that you might consider exploring.

Good Drawing Posture

- Maintaining a good drawing posture is essential to creating an accurate sketch. Your lines will only be as straight as your back is.

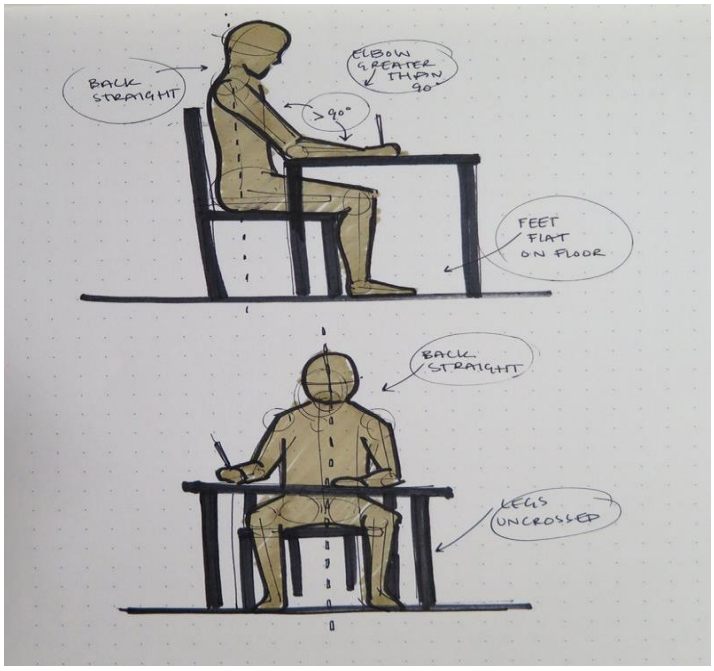


Figure-1 seating position

If you're having trouble keeping this posture and remembering to hold your arm off the page try drawing standing up for the first few days.Consider motions and muscles you use while drawing. Drawing is not confined to just the hand. Drawing uses your whole arm.

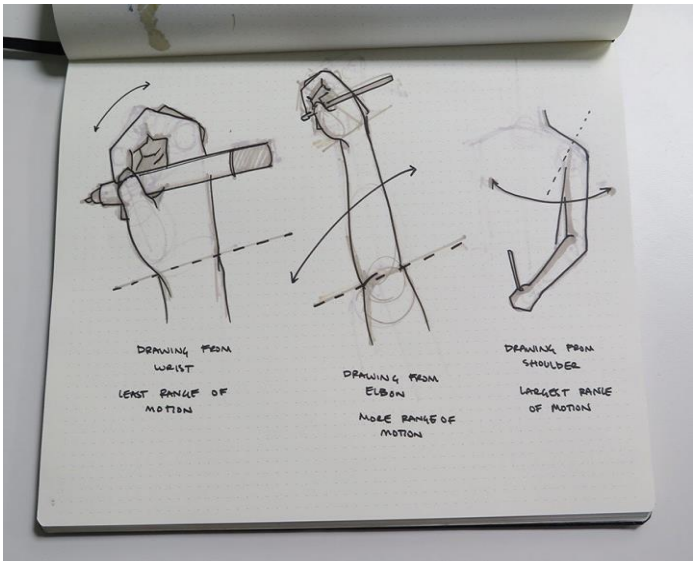


Figure 2- arm positioning

Drawing from your shoulder allows you to create more accurate lines because it has the largest range of motion. Always draw from your shoulder!

The wrist has the smallest range of motion and thus is more likely to create arc rather than straight lines. Drawing from the elbow has a slightly larger range of motion but is also likely to create arcs.

Figure 3 example of workbench for sketching and designing

WORKBENCH AND SEATING SET UP ACCORDING TO OHS PRACTICES: This topic covers the skills and knowledge to Basic Sketch of footwear components using a workbench set up and operation techniques..

This unit is designed for particular application in a highly supervised environment and is suitable for selection in vocational education and training (VET) in schools programs or where access to volume production and commercial machines and Processes are not an option. Ability to use simple technology will also be required. Self-management skills are required to ensure leather goods meets quality requirements.

PREPARE WORKSTATION FOR BASIC RENDERING & ILLUSTRATIONS SET UP:-

1. Workbench and seating are set up according to OHS practices.
2. Drawing tools and equipment are selected and prepared.
3. Reference source appropriate to illustration requirements is selected.

4. Reference source is collaged to assist in illustration process.

5. Compositional balance, scale and perspective are analyzed.

6. Figure details are analyzed.

7. A variety of illustration techniques are identified for use in presenting fashion illustration.

8. Appropriate media are selected.

9. Techniques to be used are selected.

10. Illustration techniques and media selected are analyzed for appropriateness in communicating a variety of fabrics and textures.

11. Proportion, scale and stylization relevant to fashion illustration are selected.

12. Clean, confident and stylized lines are used in presenting representation of fashion figure.

13. A variety of silhouettes and poses are illustrated.

14. Illustration of clothed fashion figure is produced.

15. Illustration is inspected against quality standards.

16. Any changes or adjustments to sketch are carried out as required.

In order to obtain the best utilization for designing, pattern making and to inspect it on a flat surface. The table has a slide for unused components can go in a box.

When we misuse hand tools, the possibility of injury to ourselves or people working around us increases considerably. Furthermore, using a tool incorrectly can damage the tool or even cause the tool to fail. Here are some guidelines for hand tool safety.

Using the correct tool for the job is the first step in safe hand tool use. Tools are designed for specific needs. That's why you'll find screwdrivers with various lengths and tip styles and pliers with different head shapes. Using any tool inappropriately is a step in the wrong direction. To avoid personal injury and tool damage, select the proper tool to do the job well and safely.

Quality professional hand tools will last many years if they are taken care of and treated with respect. Manufacturers design tools for specific applications. If you use your screwdriver as a chisel or a pry bar, you can't expect it to be in good shape when you actually need to drive a screw. Use tools only for their intended purpose.

- **MANUAL HANDLING TECHNIQUES.**

As an artist / designer working in his / her workstation there is not set procedure for handling techniques. We can do the basic things in the workstation to get the maximum output, optimum urilisation of resources keeping the best safety measures into consideration.

- **STANDARD OPERATING PROCEDURES.**

Standard Operating Procedures (SOPs) help maximum safety and operational efficiency for leather goods manufacturing unit: SOPs are detailed written instructions to achieve uniformity of the performance of a specific function. A well-written SOP can be used to satisfy compliance requirements.

SOPs are recommended for all procedures that pose a potential risk to the health and safety of personnel.Standard Operating Procedures (SOPs) lets you operationalize documents such as plans, regulation, compliance, and policies.

SOPs distil requirements contained in these documents into a format that can be used by staff members in their work environment. Standard Operating Procedures (SOPs) should be transferred without every modification to insure the expected results.

Every modification or divergence of a given standard, the Procedure should being served, while an investigation and results of the investigation documented according to the internal divergence procedure. All high-class processes and procedures should be put on in a Standard Operating Procedure.

This Standard Operating Procedure should be the base for the everyday training programmed of every employee. The Standard Operating Procedure should be often updated to insure of obedience to the realization conditions and the working practice.

1. All the instruments, tools and working table should dust free before usage.
2. If we are using drafters for drawing the it should be properly attached and clamped with the table before its use.
3. There should be properly placed dustbin to collect the residue of pencil sharpeners after the sharpening of various pencil.
4. There is separate space for water & oil colors containers, brushes etc.

5. Use watercolor brushes only with watercolor paints so you do not ruin the brushes.
6. Set brushes in a brush holder or lay them down on the table while you are working. Do not set them in a jar or glass with the bristles pointing down.
7. Store your colors in the rack & brushes in a brush holder in a cool, dry place.
8. All the pencils should be in the pencil stand in the upword position so that their lead point may not beak at the time of standing.
9. Regular workplace inspections are an important part of the overall occupational health and safety program.
10. Protruding objects such as nails, sharp corners, open cabinet drawers, trailing electrical wires should be properly fixed in the workstation.
11. Clothing aprons and lunch boxes, should be kept in assigned lockers or storage areas.
12. Make sure the work area should not be congested or messy.
13. Floors should be well-drained and cleaned up everyday.
14. All the bins or racks should be provided where material cannot be piled.

➢ **GENERAL PERSONAL PROTECTIVE EQUIPMENT:**

Every worker obliged to secure its qualified attendance through the respective training from the point of view of the safety or work attendance. The operative must be properly trained and acquainted with the danger existing on tools and equipment.

- Safety glass must be worn when using the grind stone.
- Always use a safe method to break a hacksaw blade; a small device can be used.
- Avoid wearing loose cloth.
- For female workers tide their hairs.
- Never carry around the knife with blade exposed, it could cause injury may be you and others.

Protection while working in sketching / rendering workstation.

a. **Face mask & Apron** : One need to put a face mask and wear an apron when he or she working with spray paints.

b. **Keep First Aid Box:** It is advisable to keep a first aid box in your workstation. While working with sharp edges knifes or pointed tools it may hurt needs immediate first aid for the same.

c. **Fire Extinguishers:** Inspected and located along commonly travelled routes, and close to possible ignition sources.

d. **Material Storage:** materials stored in areas that do not obstruct stairs, fire escapes, exits or firefighting equipment.

➢ **SAFE MATERIAL HANDLING:**

Organization safety is extremely important both to staffs/ workers and managers and owners. Generally leather product processing is not as dangerous as many other manufacturing plants. Occasionally accidents can happen .It is easier and cheaper to prevent accidents before rather than later. In leather products some of the high inflammable materials are used, such as Rubber Solution, Dendrite, Rubber Sheet, Eva Sheet, Spirit, Synthetic material and others. But It is needed proper storage and maintenance. For Safety precautions we have to keep in our mind such as –

1) **Safety with Electricity:**

- Cables used should be good quality and high resistance,
- Loose connection should always checked,
- Fuses are too strong to protect current flow.

2) **Safety with Fire:**

- Handling of inflammable materials such as adhesive, chemicals, spirits, rubber sheet etc are dangerous,
- Due to loose connection can cause an accident,

- Sourcing of metal causes small sparks which can glow for hours before igniting, usually occurs when nobody is around.

3) **Other precautions**:

- Poor knowledge of machines and equipments
- Poor conditions of tools and equipments,
- Bad condition of storage can cause of accidents.

4) **Put sharp edged tools covered while not working**:

Cover your knifes, cutting blades, compass, dividers, prickers and other tools while not working - which all can hurt anyone.

5) Separte space for color mixing and brush cleaning:

There is should be a separate space for water / oil containers (using as a diluters), and bruses cleaning while using water / oil paints for renderings. It can create mess in the working area if not handled properly.

- Use colors & brushes carefully.
- Use watercolor brushes only with watercolor paints so you do not ruin the brushes.
- Wet watercolor brushes before you start painting.
- Set brushes in a brush holder or lay them down on the table while you are working. Do not set them in a jar or glass with the bristles pointing down.
- Wash brushes using lukewarm water and a paintbrush cleaner or soap (not detergent).
- Rinse brushes with the bristles pointing down.
- Shake brushes to remove excess water instead of wiping them on a cloth or paper towel.
- Re-form brush tips with your fingers.
- Store brushes in a brush holder in a cool, dry place.

➢ ERGONOMIC ARRANGEMENT OF WORKPLACES.

Ergonomics: "The applied science of equipment design, as for the workplace, intended to maximize productivity by reducing operator fatigue and discomfort."

Ergonomics in the workplace are critical. Being an artist, you may feel some unusual postures and positions throughout your creative process. Hours at your workspace can result in serious physical pain and long-term problems if you are not careful.

Here we are describing few quick tips for keeping yourself comfortable while working or crafting for long periods of time. Just a few tweaks to your everyday schedule could alleviate sore eyes and back pain.

Basic Ergonomics for Designer / Artists / Crafters:

A Place for Everything: And everything in its place and that is not on the floor or any other traffic area. Organize as best you can and don't let your work area get too cluttered. A few minutes cleaning up and putting up can save you hours later.

Correct Sitting Posture : Invest in a proper sized chair for your work area(s) if you sit for more than 1/3 of your day. One should be able to sit back comfortably in the chair with your feet flat to the floor. Do not cross your legs. We begin our series with proper chair setup. If you are not seated correctly, everything else is doomed. It is important that your chair have a seat-pan and back that adjust independently of one another.

1.) Body Position: When you sit in a chair, you want your knees to be at the same height or slightly below your hips, with your feet planted firmly on the floor.

2.) Seat Position: You want 1 to 4 inches between the seat pan and the back of your leg.

3.) Back rest height: Adjust the back of the chair, so that the bottom of the back rest hits your lower back.

4.) Back pressure: Adjust the back of the chair, so that it supports your back and does not propel you forward or force you to lean back.

5.) Proper chair: Once you are seated properly, you can move on to setting up your proper desk ergonomics.

Drawing board is regarded as a table, which can be used for more than one purpose. By this, it means that people can use it for sketching, by putting a sheet of paper on the board. Also, people can use this table for writing or even reading any book that they wish to read. If a person needs to sketch or draw something, he or she will require a smooth surface, which would make it easy to complete the work.

The purpose of the **drawing board** is to ensure that people are given a chance to carry out their work in an effective manner through the use of these boards which allows them to be comfortable while working.

Currently there are modern boards available which allow the board to remain rigid even at an angle, which the person requires. It can be adjusted according to the needs of the person and hence benefits the person by improving their performance and also saving time if they use the proper **drawing board**.

Proper Lightening on the table: Natural light is the best, but make sure that there is plenty of non-glare lighting. Try to use as much full spectrum lighting as you can in your work area.

Figure-4 table light for workbench

Effective & precise tools: Try and test tools before buying and look for user-friendly designs like spring-loaded, padded handles, easy grips, and other comforts.

Take small Breaks to get refreshed: Schedule regular 15-minute breaks for every two hours. Every 30 minutes stand and stretch. Take a walk, wash your hands, or splash some water on your face. You'll be more "mentally" ready and refreshed.

Work in A Circle & Semi-Circle: Create a work area that forms a circle. The more a tool or supply is used the closer it should be to your reach and towards the front of the work circle (the front of the work circle is the area in front of you as you are sitting).

No Slouching: One should watch his posture to avoid neck and back problems. Adjust your chair or worktable to help avoid slouching or hunching over your projects.

Take Notes at least once in day: Make notes of repetitive movements. Try to vary and change the repetitive movements.

Pain Means No Gain in designing: If it hurts, feels painful, goes numb, or any other discomfort is felt...STOP. Learn a new way of doing the situation or process. Your hand wasn't designed to hold scissors and cut for hours. Break up your tasks. Spend 15 minutes cropping, then move on to 15 minutes of designing…

Be Well Rested: Don't work or play when tired or fatigued. The number one cause of accidents is carelessness and carelessness is often brought on by fatigue. You can't really enjoy your creativity is you are fighting to keep your eyes open.

- **REPORTING ACCIDENTS & INCIDENTS:**

Legal duty on employees:

Under the 1999 Management of Health and Safety at Work Regulations, employees have a legal duty to inform the employer of any work situation that they consider represents a serious and imminent danger to health and safety and, in addition, of any matter which they think represent a shortcoming in the employer's protection arrangements for health and safety.

So, if you know that something is a risk to safety, you must tell your employer (via your

line manager) or bring it to the attention of your local PCS safety rep, who can follow the matter up with management.

a. All the working persons are responsible for reporting all hazards, near misses, incidents and injuries to their manager immediately as per the Incident / Hazard Reporting procedure for the immediate first aid or further treatment.

b. If their manager is not available the next senior manager. All reports must be supported in writing using the Incident/Hazard Report Form.

c. The Incident / Hazard Report form needs to be sent through to the manager within 24 hours.

d. Members often fail to complete Accident Book entries, or report incidents, including near misses, to either their managers or to local union health and safety representatives. By doing this, they are storing up problems for other workers, making the job of keeping staff safe harder for union reps and managers and may even be breaking the law.

Employers and Risk assessments: Employers have a legal duty to safeguard the safety and health at work of all their employees. Part of this requires them to assess the hazards and risks that their workers are exposed to and to ensure that they have placed adequate precautions in place. These risk assessments have to be revised at any time when evidence suggests that they are no longer valid.

Points to be kept in mind while interpreting rough sketches and applying drawing techniques:-

1. Drawing tools should be properly evaluated before usage.
2. Especially the drawing tools like sketching pencils, color pencils should be sharpened properly according to the requirement.
3. While sketching proper care should be taken for keeping the paper clean.
4. Smudged and pencil marks should be avoided.
5. Features and specifications are identified
6. Keeping proper spacing in between every aisle for ease of work.

7. Workstation should have proper walking space with reference to the seating tools to be used. Proper seating arrangement is very important.
8. Quality criteria for drawing is identified
9. Design of product is accurately drawn in pencil using templates where required and showing relevant wearing or placement angles

Self-check 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: True / False: **(points 2.5 each)**

1. Ergonomics: “The applied science of equipment design, as for the workplace, intended to maximize productivity by reducing operator fatigue and discomfort.”

2. The Incident / Hazard Report form needs to be sent through to the manager within 24 hours

Test II:Short answers questions: (points 2.5 each)

Q1. What is correct sitting posture?

Q2. What are standard operating procedure?

You can ask you teacher for the copy of the correct answers.

Note: **Satisfactory rating - 10 points** **Unsatisfactory - below 10 points**

Information Sheet 2-Selecting and preparing drawing tools and equipment

2.1 Drawing tools and equipment

I. **Papers:** is a thin sheet material produced by mechanically and/or chemically processing cellulose fibres derived from wood, rags, grasses or other vegetable sources in water, draining the water through fine mesh leaving the fibre evenly distributed on the surface, followed by pressing and drying

DIMENSIONS OF A SERIES PAPER SIZES

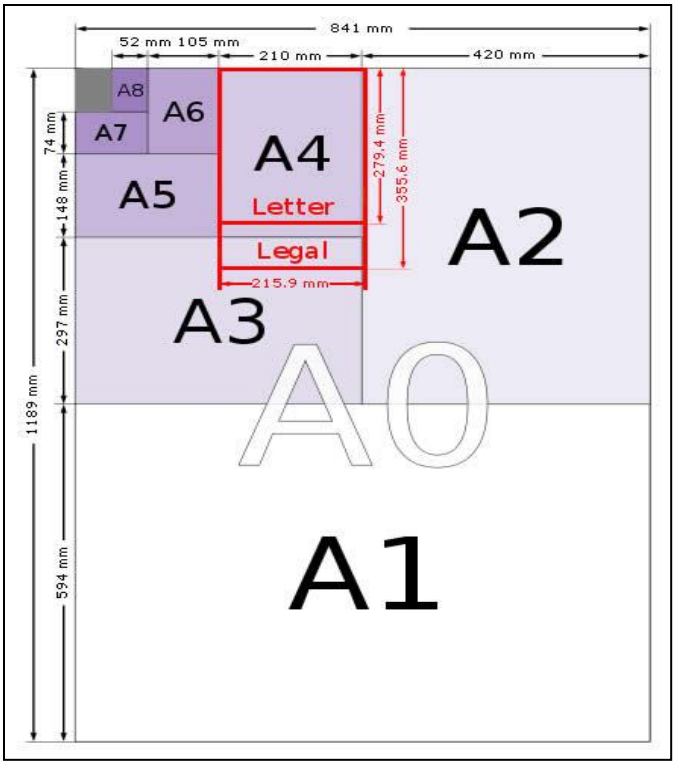


Figure -5 sizes of paper

Table-1 paper size from 4A0-A10

Size	Height x Width (mm)	Height x Width (in)
4A0	2378 x 1682 mm	93.6 x 66.2 in
2A0	1682 x 1189 mm	66.2 x 46.8 in
A0	1189 x 841 mm	46.8 x 33.1 in
A1	841 x 594 mm	33.1 x 23.4 in
A2	594 x 420 mm	23.4 x 16.5 in
A3	420 x 297 mm	16.5 x 11.7 in
A4	297 x 210 mm	11.7 x 8.3 in
A5	210 x 148 mm	8.3 x 5.8 in
A6	148 x 105 mm	5.8 x 4.1 in
A7	105 x 74 mm	4.1 x. 2.9 in
A8	74 x 52 mm	2.9 x 2.0 in
A9	52 x 37 mm	2.0 x 1.5 in
A10	37 x 26 mm	1.5 x 1.0 in

II. PENCILS:

1. Pencils with HB leads “A pencil is a writing implement or art medium usually constructed of a narrow, solid pigment core inside a protective casing.”

Figure-6 pencils with HB leads

The case prevents the core from breaking, and also from marking the user's hand during use. Pencils create marks via physical abrasion, leaving behind a trail of solid core material that adheres to a sheet of paper or other surface. They are noticeably distinct from pens, which dispense liquid or gel ink that stain the light colour of the paper. Most pencil cores are made of graphite mixed with a clay binder, leaving grey or black marks that can be easily erased.

2. Graphite pencils are used for both writing and drawing, and the result is durable: although writing can usually be removed with an eraser, it is resistant to moisture, most chemicals, ultraviolet radiation and natural aging. Other types of pencil core are less widely used.

Figure 7 graphite pencils

3. Charcoal pencils are mainly used by artists for drawing and sketching.

Figure 8 charcoal pencils

4. Colored pencils are sometimes used by teachers or editors to correct submitted texts but are more usually regarded as art supplies, especially those with waxy core binders that tend to smear on paper instead of erasing.

Figure 9 colored pencils

5 Grease pencils have a softer crayon-like waxy core that can leave marks on smooth surfaces such as glass or porcelain.

Figure 10 grease pencils

The most common type of pencil casing is a thin wooden cylinder permanently bonded around the core. Similar permanent casings may be constructed of other materials such as plastic or paper. To use the pencil, the casing must be carved or peeled off to expose the working end of the core as a sharp point.

6. Mechanical pencils have more elaborate casings that support mobile pieces of pigment core, which can be extended or retracted through the casing tip as needed.

Many pencils across the world, and almost all in Europe, are graded on the European system using a continuum from:

a) **"H" (for hardness)** to

b) **"B" (for blackness),** as well as

c) **"F", a letter arbitrarily chosen to indicate midway between HB and H**. (It is a persistent myth that "F" stands for "Fine"; grade F pencils are no more fine or easily sharpened than any other grade).

d) The standard writing pencil is graded HB.

According to Petroski, this system might have been developed in the early 20th century by Brookman, an English pencil maker. It used "B" for black and "H" for hard; a pencil's grade was described by a sequence or successive Hs or Bs such as BB and BBB for successively softer leads, and HH and HHH for successively harder ones.

As of 2009, a set of pencils ranging from a very hard, light-marking pencil to a very soft, black-marking pencil usually ranges from hardest to softest as follows:

9H 8H 7H 6H 5H 4H 3H 2H H F HB B 2B 3B 4B 5B 6B 7B 8B 9B

Hardest → Medium → Softest

III. PENCIL SHARPENER:

A pencil sharpener is a device for sharpening a pencil's writing point by shaving away its worn surface. Pencil sharpeners may be operated manually.

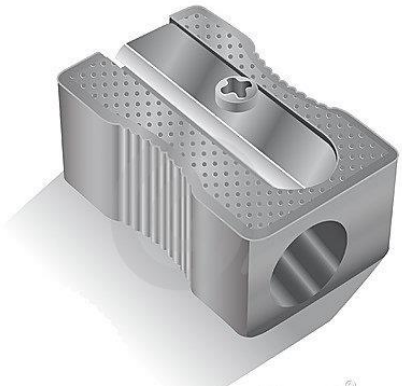


Figure 11 pencil sharpener

IV. PENCIL ERASER:

An eraser is an article of stationery that is used for removing pencil markings. Erasers have a rubbery consistency and are typically pink or white. Most pencils have an eraser on one end.

Figure-12 pencil eraser

Typical erasers are made from synthetic rubber, but more expensive or specialized erasers are vinyl, plastic, or gum-like materials. Cheaper erasers can be made out of synthetic soy-based gum.

V. DIFFERENT COLORS:

1. A Crayon (or wax pastel) is a stick of colored wax, charcoal, chalk or other material. A crayon made of **oiled chalk** is called an oil pastel; when made of pigment with a dry binder, it is simply a pastel. A grease pencil or **china marker** (UK **china graph pencil**) is made of colored hardened grease.

Figure-13 crayon color

There are also watercolor crayons, sometimes called water soluble crayons. Crayons, which are available at a range of price points, are easy to work with, often less messy than paints and markers, blunt (removing the risk of sharp points present when using a

pencil or pen), usually non-toxic, and are available in a wide variety of colors. These characteristics make them particularly good instruments for teaching small children to draw in addition to being used widely by student and professional artists.

2. A Colored Pencil is an art medium constructed of a narrow, pigmented core encased in a wooden cylindrical case. Unlike graphite and charcoal pencils, colored pencils' cores are wax-based and contain varying proportions of pigments, additives, and binding agents. Oil-based, water-soluble and mechanical colored pencils are also manufactured.

Figure 14 a colored pencil

Colored pencils can vary greatly in terms of quality and usability; concentration of pigments in the wax core, lightfastness of the pigments, durability of the colored pencil, softness of the lead, and range of colors are indicators of a brand's quality and, consequently, its market price.

Typically, water-soluble and oil-based colored pencils are considered to be a higher quality than their wax-based counterparts, but for many artists, these differences are a matter of preference. Rising popularity of colored pencils as an art medium sparked the beginning of the Colored Pencil Society of America (CPSA). According to its website, "[CPSA] was founded in 1990 as a nonprofit organization dedicated to artists over 18 years of age working with colored pencil".

The CPSA not only promotes colored pencil art as fine art, but also strives to set lightfastness standards for colored pencil manufacturers. Other countries such as Great Britain, Canada, and Australia – among many others – have formed their own organizations and societies for colored pencil artists.

3 Water Color (American English) or **watercolour** (Commonwealth and Ireland), also ***aquarelle*** from French, is a painting method. A watercolor is the medium or the resulting artwork in which the paints are made of pigments suspended in a water-soluble vehicle. The traditional and most common support for watercolor paintings is

paper; other supports include papyrus, bark papers, plastics, vellum or leather, fabric, wood, and canvas.

Figure-15 water color

Watercolors are usually transparent, and appear luminous because the pigments are laid down in a relatively pure form with few types of filler obscuring the pigment colors. Watercolor can also be made opaque by adding Chinese white. In East Asia, watercolor painting with inks is referred to as brush painting or scroll painting. In Chinese, Korean, and Japanese painting it has been the dominant medium, often in monochrome black or browns. India, Ethiopia and other countries also have long traditions. Fingerpainting with watercolor paints originated in China.

VI. PAINT BRUSHES:

A brush is a tool with bristles, wire or other filaments, used for cleaning, grooming hair, make up, painting, surface finishing and for many other purposes. It is one of the most basic and versatile tools known to mankind, and the average household may contain several dozen varieties.

It generally consists of a handle or block to which filaments are affixed either parallel- or perpendicular-wise, depending on the way the brush is to be gripped during use.

The material of both the block and bristles or filaments is chosen to withstand hazards of its application, such as corrosive chemicals, heat or abrasion.

Artists' brushes.

Short handled brushes are for watercolor or ink painting while the long handled brushes are for oil or acrylic paint.

Figure 16 brushes

SHAPES OF BRUSHES:

The styles of brush tip seen most commonly are:

1. **Round**: pointed tip, long closely arranged bristles for detail.
2. **Flat:** for spreading paint quickly and evenly over a surface. They will have longer hairs than their Bright counterpart.
3. **Bright:** shorter than flats. Flat brushes with short stiff bristles, good for driving paint into the weave of a canvas in thinner paint applications, as well as thicker painting styles like impasto work.
4. **Filbert:** flat brushes with domed ends. They allow good coverage and the ability to perform some detail work.
5. **Fan:** for blending broad areas of paint.
6. **Angle:** like the filbert, these are versatile and can be applied in both general
7. painting application as well as some detail work.
8. **Mop:** a larger format brush with a rounded edge for broad soft paint application as well as for getting thinner glazes over existing drying layers of paint without damaging lower layers.

9. **Rigger:** round brushes with longish hairs, traditionally used for painting the rigging in pictures of ships. They are useful for fine lines and are versatile for both oils and watercolors.
10. **Stippler** and **deer-foot stippler**: short, stubby rounds
11. **Liner:** elongated rounds
12. **Dagger**
13. **Scripts**: highly elongated rounds
14. **Egbert**

VII. **SPRAY PAINTING:** is a painting technique where a device sprays a coating (paint, ink, varnish, etc.) through the air onto a surface. The most common types employ compressed gas—usually air—to atomize and direct the paint particles.

Figure 17 Spray painting

Self-Check – 2	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I:Fill in the blanks: (points 2.5 each)

1. A pencil is a _____ implement or _____ medium usually constructed of a narrow, solid pigment core inside a protective casing.
2. A watercolor is the _____in which the paints are made of pigments suspended in a water-soluble vehicle.

Test IITrue / False: **(points 2.5 each)**

1. **Charcoal pencils** are mainly used by artists for drawing and sketching.

2. Dimension of A3 size paper is: **18.5 X 13.7 inches**.

Test III:Short answers questions: (points 2.5 each)

Q1. What is the A2 & A3 layout pad?
Q2. What are the different types of pencils used by artists or designers?
Q3. What are the utility of pencil sharpner & eraser?
Q4. What are the different types of colors & brushes?

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**
You can ask you teacher for the copy of the correct answers.

Information Sheet 3- Setting out tools and equipment to facilitate effective work practice

3.1 Drawing a Straight Line

Let's start by practicing some straight lines. (without rulers)

The first step to sketching is clearing your head, remove any distractions and relax. You need to think clearly in order to allow your sketch to flow.

It typically takes me a few minutes to get into my "sketching mode". Before I start a final sketch I take some time to warm up with drawing exercises on scrap paper. The more time since you last sketched the longer it will take to warm up. This is why it's a good idea to make sure you sketch everyday to keep you muscle memory sharp.

Remember: maintain a proper drawing posture and draw from your shoulder

Here's a few exercises I like to use for practicing lines.

Connect the dots.

Draw a few dots scattered across the page. Farther the dots the bigger the challenge.

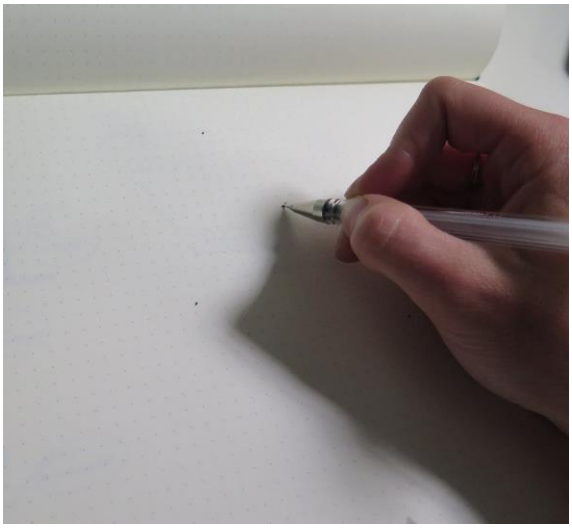


Figure 18 drawing straight line

Now connect the dots with straight lines. Focus on the dot your traveling to. Practice the motion a few times above the page until you think you've got the path down. Then put your pen down and create the line. Try not to draw past the dots, do your best to stop and start each line on the dot. Moving quickly will help your lines form getting wiggly. I haven't practiced for a few days and you can see how many times I've missed.

Don't be afraid to move your page around. I constantly rotate my sketchbook while drawing.

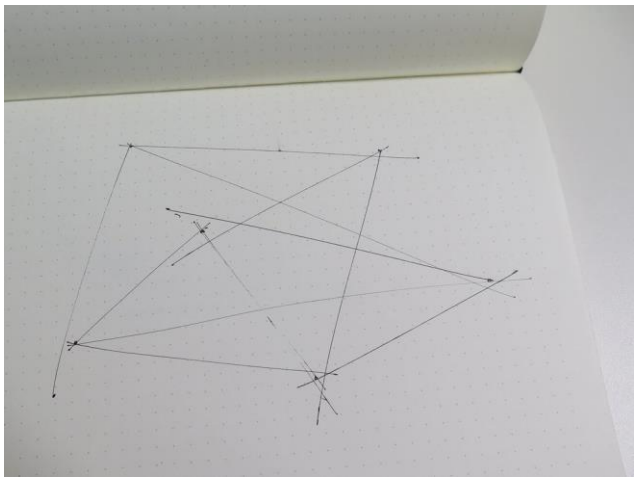


Figure 19 drawing exercise of straight line

Practice this for a few pages the more the better.

3.2 Parallel lines.

Practice drawing lines parallel to each other. Try picking two points a few inches apart and drawing parallel lines between there.

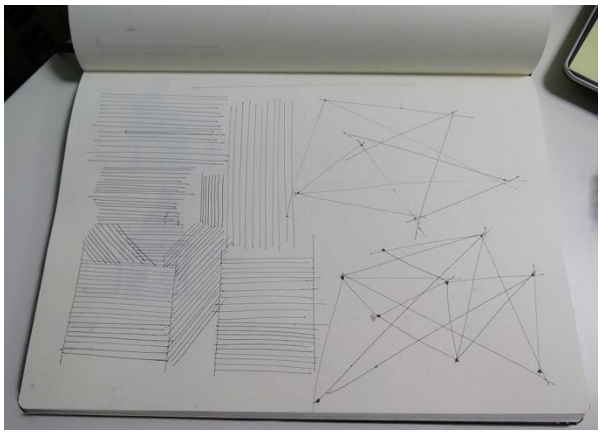


Figure 20 exercise of lines

Practice this as much as you can. Don't move to the next step until you feel you've mastered drawing straight lines.

These are just two different ways to practice straight lines. If you know of any other feel free to add them to the comments or make an Instructable!

Step 4: Drawing Flat Shapes

Now that you've mastered straight lines let's connect them into shapes.

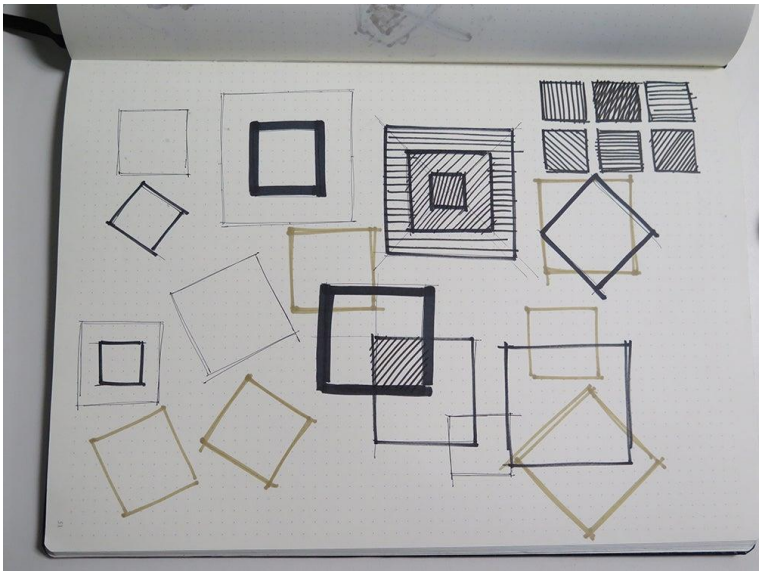


Figure 21 exercise of shapes

Keep the shapes simple and focus on accuracy.
I drew a few pages of squares and played around with line weight.
Try doing these exercises and make up your own:

- draw a perfect square
- draw concentric squares
- shade in a square
- draw parallel squares
- draw overlapping squares

Self-Check – 3	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Short Answer Questions

1.Describe how to use pencil for effective work?

2. Describe some points to draw different kinds of lines?

Note: **Satisfactory rating - 4 points** **Unsatisfactory - below 4 points**

You can ask you teacher for the copy of the correct answers.

LG #14	LO #2- Perform Rendering

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics:

- Obtaining and observing drawing/sketch of footwear
- Identifying and selecting appropriate rendering techniques
- Identifying and selecting various rendering mediums
- Creating various components using rendering techniques and mediums

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, **you will be able to**:

- Obtain and observe drawing/sketch of footwear for rendering operation.
- Identify and select appropriate rendering techniques.
- Identify and select various rendering mediums.
- Create various components using rendering techniques and mediums.

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the information Sheets
4. Accomplish the Self-checks
5. Perform Operation Sheets
6. Do the “LAP test”

Information Sheet 1- Obtaining and observing drawing/sketch of footwear

1. footwear styles and components

A shoe is categorized primarily by the style of its construction as belonging to one of a few main groups. Shoe styles are first of all defined by the fastenings used as laced shoes (closed or open), buckle shoes, or slippers**.the seven basic** styles of shoes are derby, oxford, slipon, court, moccasin, sandals and boots

The first stage in the manufacturing of footwear for a specified market is the creation and production of experimental designs. They are created to suit a particular market. Some basic features which characterize the different types of footwear design are as follows:

Casual & Informal Footwear

These types of design are available for everyday wear. A wide range of colours, varying from dark to light colour can be used, and they can be easily matched with clothing.

Classic- Smart Footwear

These types of design are worn on formal occasions. The shoes are elegant with high quality materials. The styles may be of the plain court type, with varying top lines or trim. Shoes generally are unadorned. Colours here are much somber, and on occasions the materials may have a glossy appearance, such as patent calf.

Sports & Leisure time Footwear

Materials used in this range include leather, synthetic materials and cloth. Designs are generally bold and flamboyant, and the colours of the materials vary. The choice of materials and the form of design will depend on the shoe construction and the intended market.

Of course fashion trends will affect design and footwear construction types. Information in relation to fashion trends can be obtained from a number of sources such as “pre selection shows” and “shoe fairs” which are held in a number of countries. New materials, components, style themes and general design trends are displayed. In this way, prevailing style trends and guidelines are highlighted. In countries which have a rich historical and cultural background, ideas can be drawn from significant periods in time such as the 1920s, 1930s, 1940s, and 1950s. Design features are also obtained from distant and more exotic regions. Below we will see different men & women styles with different style features:

Men styles , accessories, decoration & additional denominations

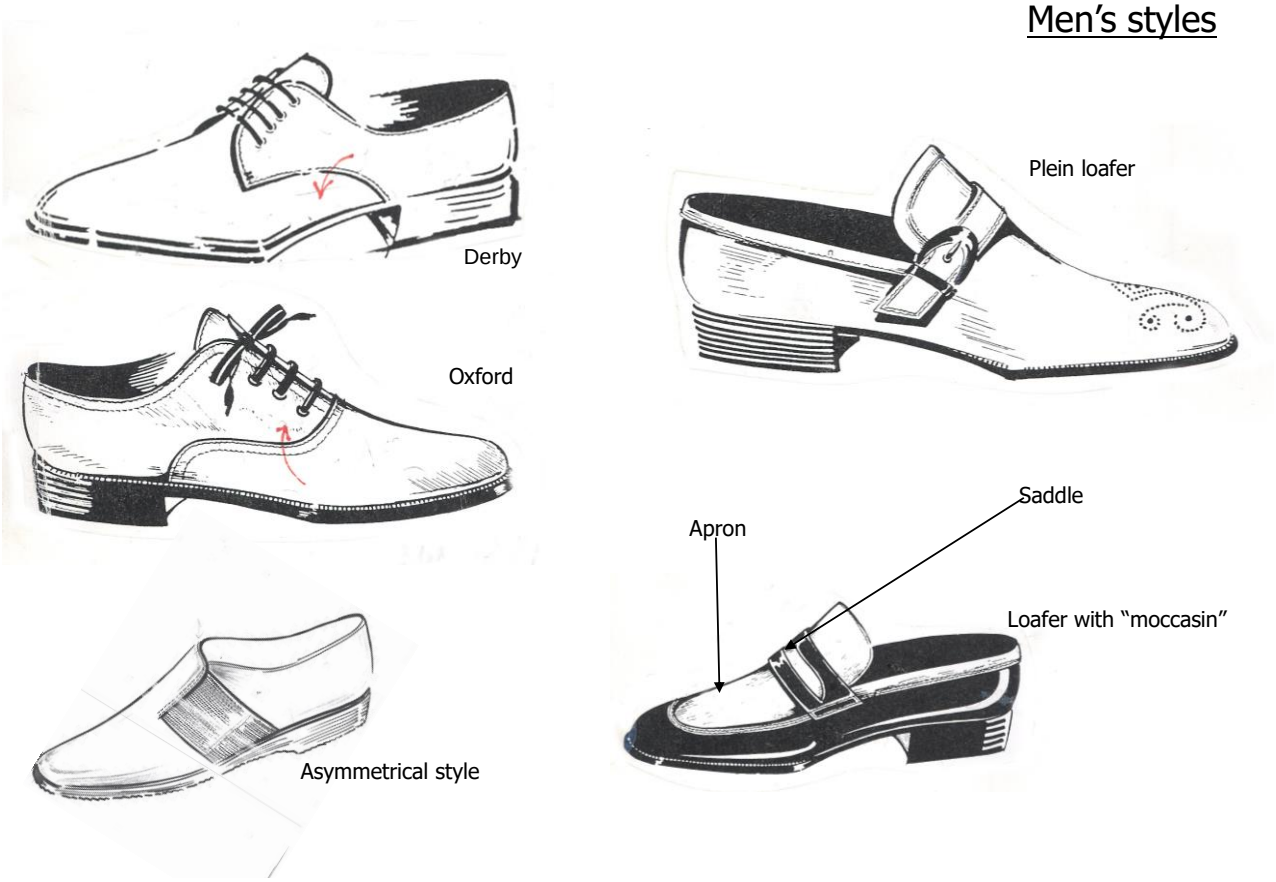
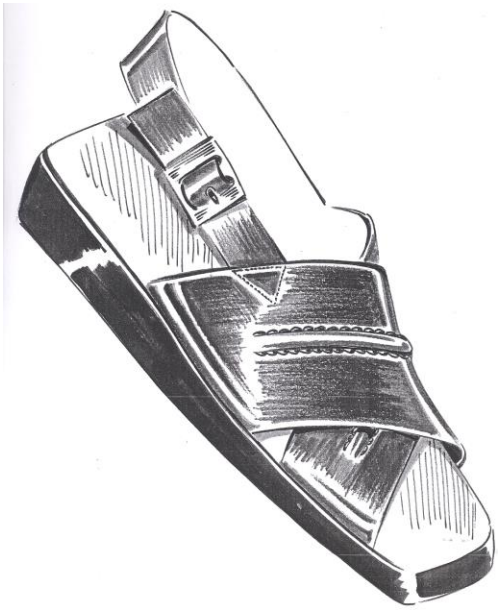
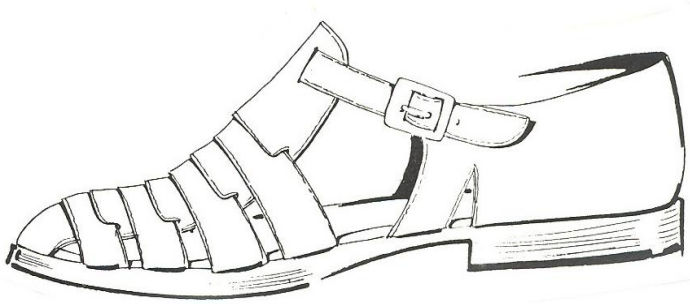


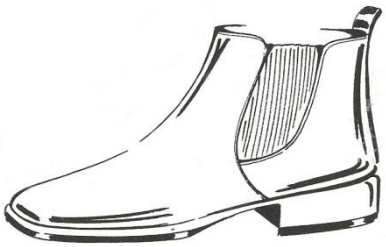
Figure 22 different sketches of footwear



Sandal

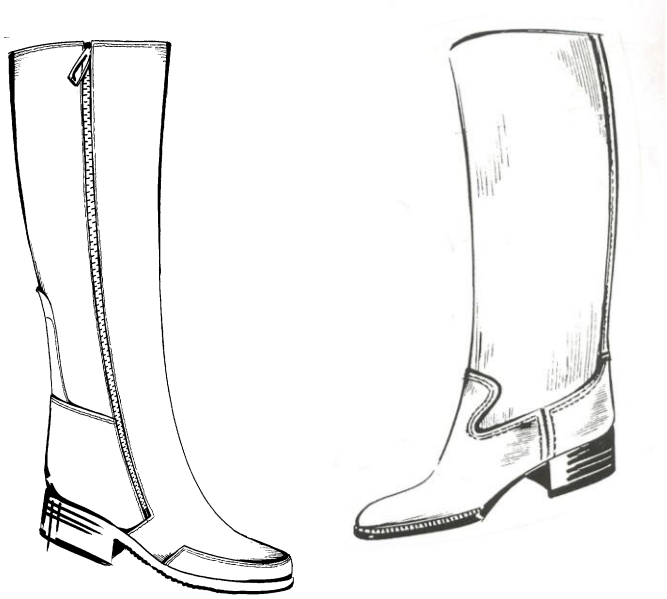


Training/ Jogging



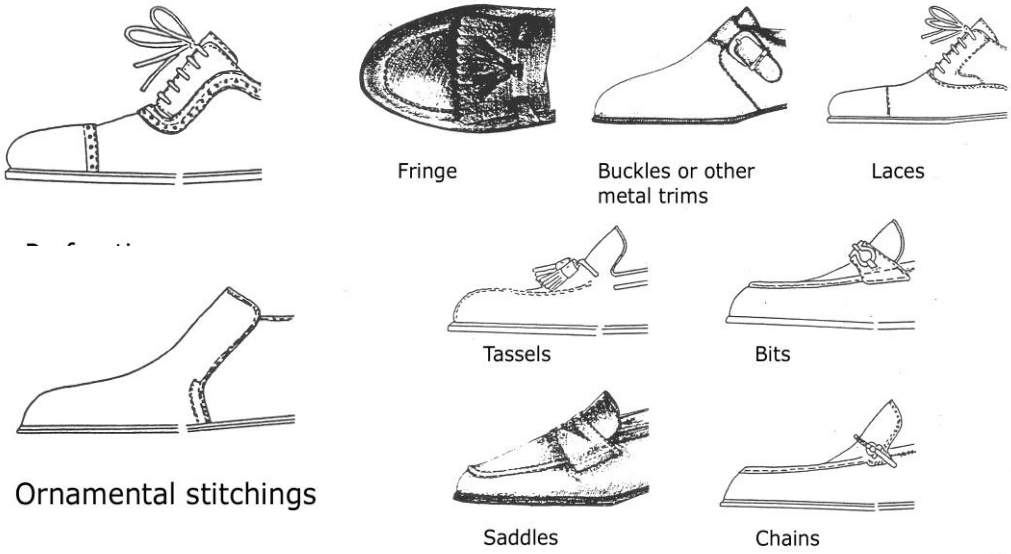
Ankle boots

Long boots

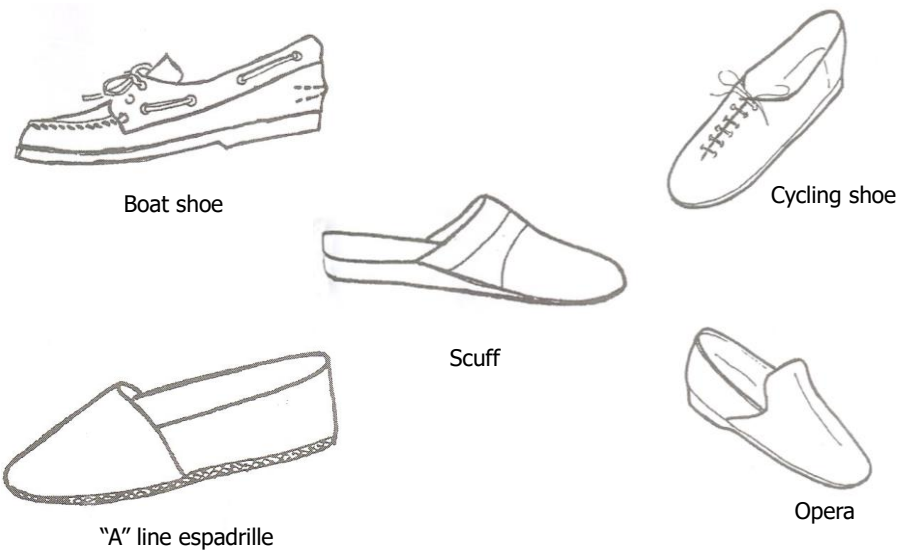


Knee boots

Accessories and decorations for men's uppers



Additional denominations



Women styles , accessories, decoration & additional denominations

Women's styles

Pump
Court-shoe

Plein loafer

erby

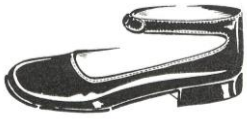
T-Bar (T-Strap)

Lofer with "moccasin"

Oxford

Training/ Jogging

Sling back



Baby style

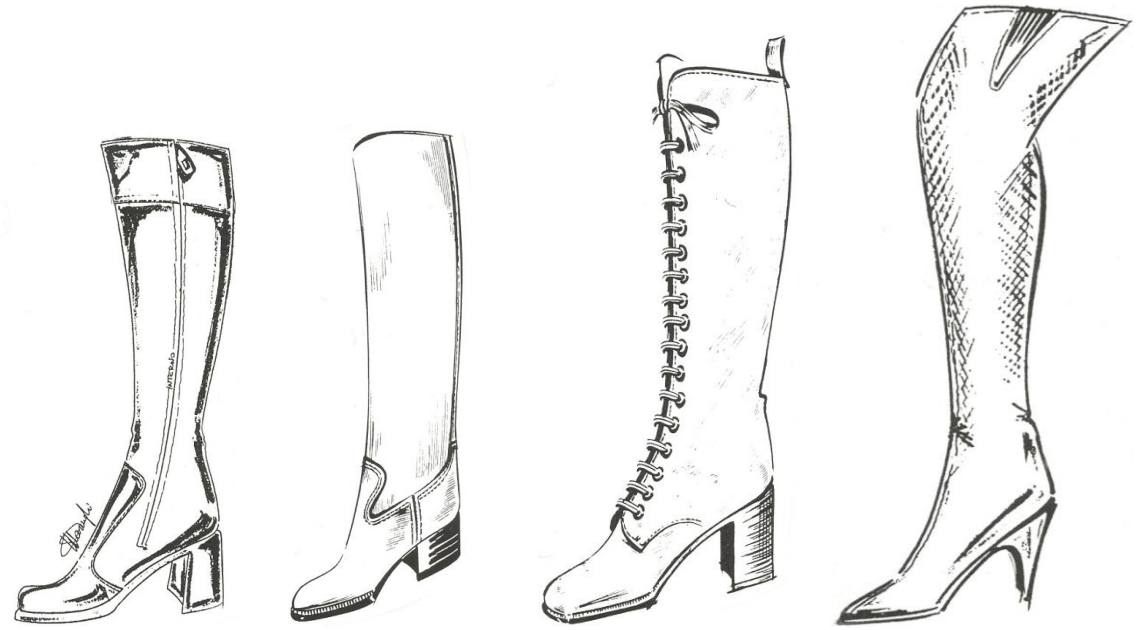
Asymmetrical style

Flip Flop

sandal/ mule/ sabot

Ankle boots

Long boots



Knee boots & thigh boot

As we can see in above examples, different style features are highlighted. As stated previously, the initial stage in the manufacturing of the footwear is the creation of designs i.e. sketches. In the first instance, the designer creates and produces the sketches of each design, which are then passed to pattern cutter for technical drawings and pattern development.

In a sketch, it is necessary to present a graphical representation of any object as a whole. This includes specifications in view of the subsequent manufacturing process. Initially a designer will sketch what he/she sees or visualizes, modifications and changes will then occur to produce the final technical drawing i.e. Upper + lining standard. An accurately produced sketch clearly portrays what is represented.

Not to be confused with a shoe design is a shoe style. Style is an interpretation of a design. Fashion is a style that wins popular acceptance. The public today is well informed as to the latest in wearing apparel by means of newspapers, magazines, radio and television. A good shoe salesperson cannot afford to be ignorant of the fashion picture, for he is expected to sell shoes which conform to it.

1.2 STYLE VARIATIONS IN SHOES

Two of the most important style variations are toe and heel shapes. There are three basic designs in toe shapes. The pointed; the round or oval; the square. All three can be broadened or narrowed as fashion dictates.

Heel shapes - There are approximately a dozen basic heel designs from which an almost limitless number of styles can be derived. Like toes, heels change with any given occasion, season or year. One year, they may be thinner and higher, another year, thicker and lower. Everything depends on what the wearing apparel picture call for.

STYLE FEATURES IN SHOES In addition to style variations such as we have just covered on toes and heels, there are a number of style features, which are used enhance the appearance of the shoe.

In order to create interesting patterns for shoe uppers, shoe designers often employ a number of devices to obtain a decorative effect on the vamp. Such devices are termed detailing, and including the following:

Applique

A decoration applied to the vamp surface. It can be in a contrasting colour of leather, or made of fabric.

Beaded

Decorative patterns or trims made by the use of beads in either a solid colour or multicolored.

Ornaments

An inclusive term for a number of ornaments used for decorative and functional purposes. Items usually included in this classification are bows, buckles, buttons, buttons, snaps and fancy eyelets.

Overlay

A piece of contrasting or harmonizing leather or other material attached to some part of the outside of a shoe upper, usually the vamp, for trimming purposes.

Perforation

Holes, large of small, which have been punched into the vamp for a decorative effect or for ventilation purposes.

Gimping

Often used in combination with design or perforations adding decoration to the edges of shoe upper parts.

Pleating

Folding leather or other material into pleats or narrow folds for ornamentation purposes.

Drawing vs Painting \ Rendering.

Drawing and Painting are two types of fine arts with many differences between them. Drawing is the basis of painting and the converse is not true.

You should be a good at drawing if you want to excel as a painter. This is the main difference between the two.

1) It is important to know that drawing is characterized by lines and shades. On the other hand painting\ rendering is characterized by colors and designs.
2) Hence drawing is of different types such as line drawing, shade drawing and object drawing. On the other hand painting\rendering is of different types such as painting on canvas, oil painting on canvas, water color painting, acrylic painting and the like. You make use of turpentine oil in the case of painting whereas drawing needs no turpentine oil.
3) You need to have a palette while painting on a canvas using oil colors. On the other hand you need not use a palette while drawing an object or a human figure.
4) Pencil, crayons and charcoal can be used in the art of drawing. On the other hand oil colors, acrylic and types of pigments are used in the art of painting \ rendering.
5) Drawing needs no time to dry whereas painting needs sufficient time to dry.
6) Pencil drawings can be rubbed and redone quite easily because graphite can be easily erased. On the other hand oil painting and acrylic cannot be very easily erased or altered.

7) You need to have different kinds of brushes with different bristles in the case of painting. On the other hand you need not use brushes in the case of drawing.
8) The terminology also differs in the case of drawing and painting. A person who draws is called an artist whereas a person who paints is called either an artist or a painter.
9) Works of painting generally have a greater market value than the works of pencil and charcoal drawing. This is one of the reasons why painting is considered a very expensive hobby. The painting equipment is generally expensive to buy when compared to drawing equipment.

Rendering form, also known as modeling, can be achieved with any medium, however the techniques for each medium vary somewhat.

Obtaining and observing drawing for rendering operation.

Render or rendering may refer to: Artistic rendering is basically creating, shading and texturing of an image.

In rendering working with pencils exclusively, however charcoal is another highly effective medium for modeling. There are charcoal sticks and charcoal pencils. When it comes to shading, the former is preferable since charcoal sticks are softer and smoother then charcoal pencils which render harder lines making them more difficult to blend. You also have the option to sharpen a charcoal stick into a container and use the powder to shade, applying it sparingly and with alternating pressure from your finger. Following this rough application, you can continue to shape and manipulate the charcoal tones with an eraser.

When using pencils, gradations are achieved by altering the density of lines and the grade of lead used to create them. With charcoal, dark tones are achieved by intensifying the impression of the stick and gradations are created using an eraser, tortillon or other blending technique to reduce the stain of the charcoal. (more on blending to follow). The process with chalk or pastels is very similar. Begin by applying light pressure and gradually increase the pressure as needed. Once the initial markings have been blocked in, use the edge of the chosen medium to make more definitive markings in each area.

Working with Graphite Pencils and Charcoal

If working with both charcoal sticks and graphite pencils, be sure to erase any pencil lines until they are faint before taking charcoal to the paper. Graphite traces are oily and can prevent the paper from absorbing the charcoal.

Self-Check – 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Short Answer Questions

1. what are the different types of footwear designs?
2. discuss about the components of footwear?

Information Sheet 2- Identifying and selecting appropriate rendering techniques

2.1 SPRAYING OR SPRAY RENDERING is coloring done with spray gun machine or spraying can. It offers several advantages over existing methods:

(1) It generalizes the current techniques of surface, volume and flow visualization under one coherent framework;

(2) It works with regular and irregular grids as well as sparse and dense data sets;

(3) It allows selective progressive refinement;

(4) It is modular, extensible and provides scientists with the flexibility for exploring relationships in their data sets in natural and artistic ways.

2.2 BRUSHING OR BRUSH RENDERING is a painting technique in which a paint brush that is relatively dry, but still holds paint, is used.

Load is applied to a dry support such as paper or primed canvas. The resulting brush strokes have a characteristic scratchy look that lacks the smooth appearance that washes or blended paint commonly have.

The brushing technique can be achieved with both water-based and oil-based media. With water-based media such as inks, acrylic paints, tempera paints or watercolor paints, the brush should be dry or squeezed dry of all water. The brush should then be loaded with paint that is highly viscous or thick. The loaded brush should then be applied to a dry support. With other water-based media, the brush should be loaded with paint then squeezed dry.

With Oil-based media, such as oil paint, a similar technique may be used, although instead of water, the brush should be dry or squeezed dry of oil and solvent. Because oil paint has a longer drying time than water-based media, brushing over or blending dry

brush strokes should be avoided to preserve the distinctive look of the dry brush technique.

The technique is frequently used in model painting to apply highlights to miniatures.

Oil-based dry brushing can also be scrubbed onto paper, canvas or absorbent gesso with stiff bristle brushes to impart smooth airbrushed or pastel-style effects.

Self-Check – 2	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Short Answer Questions

Q1. What is the utility of brushing in rendering?

Q2. What is the utility of spraying in rendering?

Test II true or false

01. The brushing technique can be achieved with both water-based and oil-based media.

02. Spraying allows selective progressive refinement.

Note: **Satisfactory rating - 3 points** **Unsatisfactory - below 3 points**

You can ask you teacher for the copy of the correct answers.

Information Sheet 3- Identifying and selecting various rendering mediums

3.1 WATER COLOR:

Figure 22 water colour
An artist working on a watercolor using a round brush

Watercolor (American English) or ***aquarelle*** from French is a painting method.
A watercolor is the medium or the resulting artwork in which the paints are made of pigments suspended in a water-soluble vehicle.

The traditional and most common support for watercolor paintings is paper; other supports include papyrus, bark papers, plastics, vellum or leather, fabric, wood, and canvas.

Watercolors are usually transparent, and appear luminous because the pigments are laid down in a relatively pure form with few types of filler obscuring the pigment colors.

Watercolor can also be made opaque by adding Chinese white. In East Asia, watercolor painting with inks is referred to as brush painting or scroll painting.

In Chinese, Korean, and Japanese painting it has been the dominant medium, often in monochrome black or browns.

India, Ethiopia and other countries also have long traditions. Finger painting with watercolor paints originated in China.

Brief History:
Although watercolor painting is extremely old, dating perhaps to the cave paintings of Paleolithic Europe, and has been used for manuscript illumination since at least Egyptian times but especially in the European Middle Ages, its continuous history as an art medium begins in the Renaissance.

The German Northern Renaissance artist Albrecht Dürer (1471–1528) who painted several fine botanical, wildlife and landscape watercolors is generally considered among the earliest exponents of the medium.

An important school of watercolor painting in Germany was led by Hans Bol (1534–1593) as part of the Dürer Renaissance.

Figure 23 example of water color rendering

Albrecht Dürer, *Young Hare*, 1502, watercolor and body color, Albertina, Vienna

Botanical illustrations became popular in the Renaissance, both as hand tinted woodblock illustrations in books or broadsheets and as tinted ink drawings on vellum or paper.

Botanical artists have always been among the most exacting and accomplished watercolor painters, and even today watercolors—with their unique ability to summarize, clarify and idealize in full color—are used to illustrate scientific and museum publications.

Europe: Watercolor was less popular on the Continent, though many fine examples were produced by French painters, including Eugène Delacroix, François Marius Granet, Henri-Joseph Harpignies and the satirist Honoré Daumier.

Figure 24

Paul Cézanne, self-portrait

Modern watercolor paints are now as durable and colorful as oil or acrylic paints, and the recent renewed interest in drawing and multimedia art has also stimulated demand for fine works in watercolor. As art markets continue to expand, painting societies continue to add members and aging baby boomers increasingly retire to more contemplative hobbies, watercolor on both the amateur and professional levels continues to become more and more popular.

Figure 27

A set of watercolors Paint.

Watercolor paint consists of four principal ingredients:

A. **Pigments**, natural or synthetic, mineral or organic.

B. **Gum Arabic** as a binder to hold the pigment in suspension and fix the pigment to the painting surface.

C. **Additives** like glycerin, ox gall, honey, preservatives: to alter the viscosity, hiding, durability or color of the pigment and vehicle mixture.

D. **Solvent**, the substance used to thin or dilute the paint for application and that evaporates when the paint hardens or dries.

The term “water media” refers to any painting medium that uses water as a solvent and that can be applied with a brush, pen or sprayer; this includes most inks, watercolors, temperas, gouaches and modern acrylic paints.

The term **water color** refers to paints that use water soluble, complex carbohydrates as a binder. Originally (16^{th} to 18^{th} centuries) watercolor binders were sugars and/or hide glues, but since the 19^{th} century the preferred binder is natural gum arabic, with glycerin and/or honey as additives to improve plasticity and dissolvability of the binder, and with other chemicals added to improve product shelf life.

Body color refers to paint that is opaque rather than transparent, usually opaque watercolor, which is also known as gouache. Modern acrylic paints are based on a completely different chemistry that uses water soluble acrylic resin as a binder.

Watercolors appear more vivid than acrylics or oils because the pigments are laid down in a more pure form with no or fewer fillers (such as kaolin) obscuring the pigment colors. Furthermore, typically most or all of the gum binder will be absorbed by the paper, preventing it from changing the visibility of the pigment. Even multiple layers of watercolor do achieve a very luminous effect without fillers or binder obscuring the pigment particles.

PAINT BRUSHES.

A paint brush consists of three parts:

A. The **Tuft** is a bundle of animal hairs or synthetic fibers tied tightly together at the base;

B. The **Ferrule** is a metal sleeve that surrounds the tuft, gives the tuft its cross sectional shape, provides mechanical support under pressure, and protects from water wearing down the glue joint between the trimmed, flat base of the tuft and the handle;

C. The lacquered **wood handle**, which is typically shorter in a watercolor brush than in an oil painting brush, has a distinct shape—widest just behind the ferrule and tapering to the tip. When painting, painters typically hold the brush just behind the ferrule for the smoothest brushstrokes.

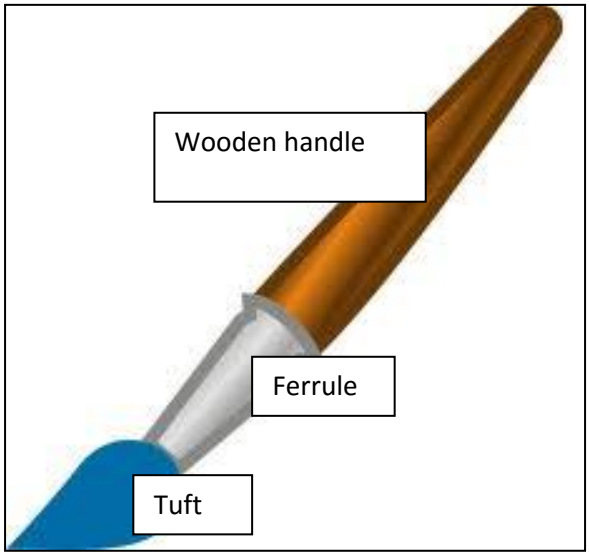


Figure 28

HAIRS AND FIBERS:
Brushes hold paint (the “bead”) through the capillary action of the small spaces between the tuft hairs or fibers; paint is released through the contact between the wet paint and the dry paper and the mechanical flexing of the tuft, which opens the spaces between the tuft hairs, relaxing the capillary restraint on the liquid. Because thinned watercolor paint is far less viscous than oil or acrylic paints, the brushes preferred by watercolor painters have a softer and denser tuft. This is customarily achieved by using natural hair harvested from farm raised or trapped animals, in particular sable, squirrel or mongoose. Less expensive brushes, or brushes designed for coarser work, may use horsehair or bristles from pig or ox snouts and ears.

However, as with paints, modern chemistry has developed many synthetic and shaped fibers that rival the stiffness of bristle and mimic the spring and softness of natural hair. Until fairly recently, nylon brushes could not hold a reservoir of water at all so they were extremely inferior to brushes made from natural hair. In recent years, improvements in the holding and pointing properties of synthetic filaments have gained them much greater acceptance among watercolorists.

A high quality sable brush has five key attributes:

- **Pointing** (in a round, the tip of the tuft comes to a fine, precise point that does not splay or split; in a flat, the tuft forms a razor thin, perfectly straight edge);

- **Snap** (or “spring”; the tuft flexes in direct response to the pressure applied to the paper, and promptly returns to its original shape);

- **Capacity** (the tuft, for its size, holds a large bead of paint and does not release it as the brush is moved in the air);

- **Release** (the amount of paint released is proportional to the pressure applied to the paper, and the paint flow can be precisely controlled by the pressure and speed of the stroke as the paint bead is depleted); and

- **Durability** (a large, high quality brush may withstand decades of daily use).

Most natural hair brushes are sold with the tuft cosmetically shaped with starch or gum, so brushes are difficult to evaluate before purchasing, and durability is only evident after long use. The most common failings of natural hair brushes are that the tuft sheds hairs (although a little shedding is acceptable in a new brush), the ferrule becomes loosened, or the wood handle shrinks, warps, cracks or flakes off its lacquer coating.

BRUSHES SHAPES.
Natural and synthetic brushes are sold with the tuft shaped for different tasks. Among the most popular are:

01. Rounds.
The tuft has a round cross section but a tapering profile, widest near the ferrule (the "belly") and tapered at the tip (the "point"). These are general purpose brushes that can address almost any task.

02. Flats.
The tuft is compressed laterally by the ferrule into a flat wedge; the tuft appears square when viewed from the side and has a perfectly straight edge. "Brights" are flats in which the tuft is as long as it is wide; "one stroke" brushes are longer than their width. "Sky brushes" or "wash brushes" look like miniature house painting brushes; the tuft is usually 3 cm to 7 cm wide and is used to paint large areas.

03. Mops (natural hair only).
A round brush, usually of squirrel hair and, decoratively, with a feather quill ferrule that is wrapped with copper wire; these have very high capacity for their size, especially

good for wet in wet or wash painting; when moist they can wick up large quantities of paint.

04. Filbert (or “Cat’s Tongue”, hair only).
A hybrid brush: a flat that comes to a point, like a round, useful for specially shaped brush strokes.

05. Rigger (hair only).
An extremely long, thin tuft, originally used to paint the rigging in nautical portraits.

06. Fan.
A small flat in which the tuft is splayed into a fan shape; used for texturing or painting irregular, parallel hatching lines.

07. Acrylic.
A flat brush with synthetic bristles, attached to a (usually clear) plastic handle with a beveled tip used for scoring or scraping.

A single brush can produce many lines and shapes. A “round” for example, can create thin and thick lines, wide or narrow strips, curves, and other painted effects. A flat brush when used on end can produce thin lines or dashes in addition to the wide swath typical with these brushes, and its brushmarks display the characteristic angle of the tuft corners.

BRUSHES SIZES:

The size of a round brush is designated by a number, which may range from 0000 (for a very tiny round) to 0, then from 1 to 24 or higher. These numbers refer to the size of the brass **brush makers’ mould** used to shape and align the hairs of the tuft before it is tied off and trimmed, and as with shoe lasts, these sizes vary from one manufacturer to the next.

In general a #12 round brush has a tuft about 2 to 2.5 cm long; tufts are generally fatter (wider) in brushes made in England than in brushes made on the Continent: a German or French #14 round is approximately the same size as an English #12. Flats may be designated either by a similar but separate numbering system, but more often are described by the width of the ferrule, measured in centimeters or inches.

WATERCOLOR PENCIL.

Watercolor pencil is another important tool in watercolors techniques. This water-soluble color pencil allows to draw fine details and to blend them with water. Noted artists who use watercolor pencils include illustrator Travis Charest. A similar tool is the watercolor pastel, broader than watercolor pencil, and able to quickly cover a large surface.Paper.

Watercolor paper is essentially Blotting paper marketed and sold as an art paper, and the two can be used interchangeably, as watercolor paper is more easily obtainable than blotter and can be used as a substitute for blotter. Lower end watercolor papers can resemble heavy paper more while higher end varieties are usually entirely cotton and more porous like blotter. Watercolor paper is traditionally torn and not cut.

Figure 29

WET-ON-WET AND WET-ON-DRY TECHNIQUE.

Watercolor painting has the reputation of being quite demanding; it is more accurate to say that watercolor techniques are unique to watercolor. Unlike oil or acrylic painting, where the paints essentially stay where they are put and dry more or less in the form they are applied, water is an active and complex partner in the watercolor painting process, changing both the absorbency and shape of the paper when it is wet and the outlines and appearance of the paint as it dries. The difficulty in watercolor painting is almost entirely in learning how to anticipate and leverage the behavior of water, rather than attempting to control or dominate it.

Characteristic of watercolor paints is that the carbohydrate binder is only a small proportion of the raw paint volume, and much of the binder is drawn between the hydrophilic cellulose fibers of wet paper as the paint (and paper) dries. As a result, watercolor paints do not form an enclosing layer of vehicle around the pigment particles and a continuous film of dried vehicle over the painting support, but leave pigment particles scattered and stranded like tiny grains of sand on the paper. This increases the scattering of light from the pigment and paper surfaces, causing characteristic whitening or lightening of the paint color as it dries. The exposed pigment particles are also vulnerable to damaging ultraviolet light, which can compromise pigment permanency.

WASHES AND GLAZES.

Basic watercolor technique includes washes and glazes. In watercolors, a **wash** is the application of diluted paint in a manner that disguises or effaces individual brush strokes to produce a unified area of color. Typically, this might be a light blue wash for the sky. There are many techniques to produce an acceptable wash, but the student method is to tilt the paper surface (usually after fixing it to a rigid flat support) so that the top of the wash area is higher than the bottom, then to apply the paint in a series of even, horizontal brush strokes in a downward sequence, each stroke just overlapping the stroke above to pull downward the excess paint or water (the "bead"), and finally wicking up the excess paint from the last stroke using a paper towel or the tip of a moist brush. This produces an airy, translucent color effect unique to watercolors, especially when a granulating or flocculating pigment (such as viridian or ultramarine blue) is used. Washes can be "graded" or "graduated" by adding more pre diluted paint or water to the mixture used in successive brush strokes, which darkens or lightens the wash from start to finish. "Variegated" washes, which blend two or more paint colors, can also be used, for example as a wash with areas of blue and perhaps some red or orange for a sky at sunrise or sunset.

A **glaze** is the application of one paint color over a previous paint layer, with the new paint layer at a dilution sufficient to allow the first color to show through. Glazes are used to mix two or more colors, to adjust a color (darken it or change its hue or chroma), or to produce an extremely homogenous, smooth color surface or a controlled but delicate color transition (light to dark, or one hue to another). The last technique requires the first layer to be a highly diluted consistency of paint; this paint layer dissolves the surface sizing of the paper and loosens the cellulose tufts in the pulp. Subsequent layers are applied at increasingly heavier concentrations, always using a small round brush, only after the previous paint application has completely dried. Each new layer is used to refine the color transitions or to efface visible irregularities in the existing color. Painters who use this technique may apply 100 glazes or more to create a single painting. This method is currently very popular for painting high contrast, intricate subjects, in particular colorful blossoms in crystal vases brightly illuminated by direct sunlight. The glazing method also works exceptionally well in watercolor portraiture, allowing the artist to depict complex flesh tones effectively.

Wet in wet includes any application of paint or water to an area of the painting that is already wet with either paint or water. In general, wet in wet is one of the most distinctive features of watercolor painting and the technique that produces a striking painterly effect.
The essential idea is to wet the entire sheet of paper, laid flat, until the surface no longer wicks up water but lets it sit on the surface, then to plunge in with a large brush saturated with paint. This is normally done to define the large areas of the painting with irregularly defined color, which is then sharpened and refined with more controlled painting as the paper (and preceding paint) dries.
Wet in wet actually comprises a variety of specific painting effects, each produced through different procedures. Among the most common and characteristic:

Backruns (also called blossoms, blooms, oozles, watermarks, backwashes or runbacks). Because the hydrophilic and closely spaced cellulose fibers of the paper provide traction for capillary action, water and wet paint have a strong tendency to migrate from wetter to drier surfaces of the painting. As the wetter area pushes into the dryer, it plows up pigment along its edge, leaving a lighter colored area behind it and a darker band of pigment along an irregular, serrated edge. Backruns can be subtle or pronounced, depending on the consistency of the paint in the two areas and the amount of moisture imbalance. Backruns can be induced by adding more paint or water to a paint area as it dries, or by blotting (drying) a specific area of the painting, causing the wetter surrounding areas to creep into it. Backruns are often used to symbolize a flare of light or the lighting contour on an object, or simply for decorative effect.

Paint Diffusion. Because of osmotic imbalance, concentrated paint applied to a prewetted paper has a tendency to diffuse or expand into the pure water surrounding it, especially if the paint has been milled using a dispersant (surfactant). This produces a characteristic feathery, delicate border around the color area, which can be enhanced or partially shaped by tilting the paper surface before the water dries, shaping the diffusion with surface water flow.

Pouring Color. Some artists pour large quantities of slightly diluted paint onto separate areas of the painting surface, then by using a brush, spray bottle of water and/or judicious tilting of the painting support, cause the wet areas to gently merge and mix. After the color has been mixed and allowed to set for a few minutes, the painting is tipped vertically to sheet off all excess moisture (the lighter colors across the darker ones), leaving behind a paper stained with random, delicate color variations, which can be further shaped with a wet brush or added paint while the paper is still wet. A popular variation uses separate areas of red, yellow and blue paint, which when mingled and drained produce a striking effect of light in darkness; areas of white are reserved by first covering them with plastic film, masking tape or a liquid latex resist. (The technique was actually invented, and used for similar effect, by J.M.W. Turner.)

Dropping In Color. In this technique a color area is first precisely defined with diluted paint or clear water, then more concentrated paint is dropped into it by touching the wet area with a brush charged with paint. The added paint can be shaped by tilting or stroking; backruns can be induced by adding pure water or concentrated paint, or the color can be lightened by wicking up paint with a moist brush. A striking, tesselated effect is produced when many precisely defined and interlocking areas are separately colored with this randomly diffusing technique.

Salt Texture. Grains of coarse salt, sprinkled into moist paint, produce small, snowflake like imperfections in the color. This is especially effective when the color area is a wash that displays the texture more clearly. It should be remembered when using salt that salt will rot the paper eventually. A similar effect can be produced by spraying a moist (not

shiny but still cool to the touch) paint area with water, using a spray bottle held two or three feet above the painting surface, or by sprinkling a wet paint with coarse sand or sawdust.

Cling-film technique. The use of kitchen cling-film to create special effects in watercolor painting. A wash of watercolor is applied to paper and cling-film is laid over the wet pigment. The cling-film is then manipulated manually using fingers to form a series of ridges that resemble ripples in water or long grasses. Once the pigment is completely dry, the cling-film is removed and the texture is revealed in greater clarity.
Watercolor painters also learn to apply paint to paper and then, when the paint has dried to the right point, brush along the edge of the paint with a flat, mop or sky brush charged with a moderate amount of clear water. This new area of water pulls the wet paint outward in a diffusion fan that is controlled by judging the wetness of the paint and the amount of water applied; if excessive water is used, this brushing produces both an outward diffusion and a backrun into the drying paint. This method is useful to produce transitions in value or color within narrow bands, such as the locks of hair in a portrait head.

Drybrush.
At the other extreme from wet in wet techniques, Drybrush is the watercolor painting technique for precision and control, supremely exemplified in many botanical paintings and in the drybrush watercolors of Andrew Wyeth. Raw (undiluted) paint is picked up with a premoistened, small brush (usually a #4 or smaller), then applied to the paper with small hatching or crisscrossing brushstrokes. The brush tip must be wetted but not overcharged with paint, and the paint must be just fluid enough to transfer to the paper with slight pressure and without dissolving the paint layer underneath. The goal is to build up or mix the paint colors with short precise touches that blend to avoid the appearance of pointillism. The cumulative effect is objective, textural and highly controlled, with the strongest possible value contrasts in the medium. Often it is impossible to distinguish a good drybrush watercolor from a color photograph or oil painting, and many drybrush watercolors are varnished or lacquered after they are completed to enhance this resemblance.

Scumbling (in the 19th century, called "crumbling color" or "dragging color") is an unrelated technique of loading a large, moist flat or round brush with concentrated paint, wicking out the excess, then lightly dragging the side or heel of the tuft across the paper to produce a rough, textured appearance, for example to represent beach grass, rocky surfaces or glittering water. The amount of texture that can be produced depends on the finish or tooth of the paper (R or CP paper works best), the size of the brush, the consistency and quantity of the paint in the brush, and the pressure and speed of the brush stroke. Moist paper will cause the scumbled color to diffuse slightly before it dries.

3.2 PENCIL COLOR:

“A colored pencil is an art medium constructed of a narrow, pigmented core encased in a wooden cylindrical case.”

Unlike graphite and charcoal pencils, colored pencils’ cores are wax-based and contain varying proportions of pigments, additives, and binding agents.Oil-based, water-soluble and mechanical colored pencils are also manufactured.

Figure 30

CHARACTERISTICS OF COLORED PENCILS:

Colored pencils can vary greatly in terms of quality and usability.

Concentration of pigments in the wax core, light fastness of the pigments, durability of the colored pencil, softness of the lead, and range of colors are indicators of a brand’s quality and, consequently, its market price.

Water-soluble and oil-based colored pencils are considered to be a higher quality than their wax-based counterparts, but for many artists, these differences are a matter of preference.

Rising popularity of colored pencils as an art medium sparked the beginning of the Colored Pencil Society of America (CPSA).

The CPSA not only promotes colored pencil art as fine art, but also strives to set light fastness standards for colored pencil manufacturers. Other countries such as Great

Britain, Canada, and Australia – among many others – have formed their own organizations and societies for colored pencil artists.

BRIEF HISTORY:

The use of wax-based mediums in crayons is well-documented, however, and can be traced back to the Greek Golden Age, and was later documented by Roman scholar, Pliny the Elder.

Wax-based materials have appealed to artists for centuries due to their resistance to decay, the vividness and brilliance of their colors, and their unique rendering qualities.

Although colored pencils had been used for “checking and marking” for decades prior, it was not until the early 20th century that artist-quality colored pencils were produced. Manufacturers that began producing artist-grade colored pencils included Faber-Castell and Caran d’Ache in 1924, followed by Berol Prismacolor in 1938.

Other notable manufacturers are Derwent, Progresso, Lyra Rembrandt, Blick Studio, and Staedtler.

TYPES OF COLORED PENCILS:

Several types of colored pencils are manufactured for both artistic and practical uses.

Artist grade.
Artist-grade pencils are filled with higher concentrations of high-quality pigments than student-grade colored pencils. Their light fastness – resistance to UV rays in sunlight – is also measured and documented. Core durability, break and water resistance, and brand popularity are also notable features of artist-grade colored pencils.

Student and scholastic grade:
Many of the same companies that produce artist-grade colored pencils also offer student-grade materials and scholastic-level colored pencils. Light fastness rating is usually not included in student- and scholastic-grade colored pencils. Core composition and pigment-binder ratio vary among artist- and student-grade colored pencils even when the same company produces them. As they are intended for different users, student- and scholastic-grade colored pencils lack the high quality pigments and light fastness standards that hold artist-grade products true to their name.

Mechanical colored pencils:
Although not as common as graphite mechanical pencils, some companies also offer colored refill leads. Currently a very limited color range exists for colored refill leads.

Watercolor Pencils:
Watercolor pencils, otherwise known as water-soluble pencils, are a versatile art medium. The pencils can be used dry—like normal colored pencils—or they can be applied “wet” to get the desired watercolor effect. In wet application, the artist first lays down the dry pigment and then follows up with a damp paintbrush to intensify and spread the colors. This technique can also be used to blend colors together, and many artists will apply both techniques in one art piece.

POPULAR TECHNIQUES OF COLORED PENCILS:
Colored pencils can be used in combination with several other drawing mediums. When used by themselves, there are two main rendering techniques colored pencil artists use.

Figure 31
Colored pencil drawing that displays layering technique on the mug and burnishing technique on the spoon

LAYERING is usually used in the beginning stages of a colored pencil drawing, but can also be used for entire pieces. In layering, tones are gradually built up using several layers of primary colors. Layered drawings usually expose the tooth of the paper and are characterized by a grainy, fuzzy finish.

BURNISHING is a blending technique in which a colorless blender or a light-colored pencil is applied firmly to an already layered drawing. This produces a shiny surface of blended colors that gets deep into the grain of the paper.

3.3 OIL COLOR / OIL PAINT :

It is a type of slow-drying paint that consists of particles of pigment suspended in a drying oil, commonly linseed oil. The viscosity of the paint may be modified by the addition of a solvent such as turpentine or white spirit, and varnish may be added to increase the glossiness of the dried oil paint film.
Oil paints have been used in Europe since the 12th century for simple decoration, but were not widely adopted as an artistic medium until the early 15th century.

Common modern applications of oil paint are in finishing and protection of wood in buildings and exposed metal structures such as ships and bridges.

Its hard-wearing properties and luminous colors make it desirable for both interior and exterior use on wood and metal.

Due to its slow-drying properties, it has recently been used in paint-on-glass animation. Thickness of coat has considerable bearing on time required for drying: thin coats of oil paint dry relatively quickly.

BRIEF HISTORY:

The technical history of the introduction and development of oil paint, and the date of introduction of various additives (driers, thinners) is still—despite intense research since the mid 18th century—not well understood. The literature abounds with incorrect theories and information: in general, anything published before 1952 is suspect.

First recorded use.The oldest known oil paintings date from 650 AD, found in 2008 in caves in Afghanistan's Bamiyan Valley, "using walnut and poppy seed oils."

PAINT TUBE.

Figure 32

TUBES OF VARIOUS COLORS:

The paint tube was invented in 1841 by portrait painter John Goffe Rand, superseding pig bladders and glass syringes as the primary tool of paint transport. Artists, or their assistants, previously ground each pigment by hand, carefully mixing the binding oil in the proper proportions. Paints could now be produced in bulk and sold in tin tubes with a cap. The cap could be screwed back on and the paints preserved for future use, providing flexibility and efficiency to painting outdoors. The manufactured paints had a balanced consistency that the artist could thin with oil, turpentine, or other mediums.

Paint in tubes also changed the way some artists approached painting.
The artist Pierre-Auguste Renoir said, “Without tubes of paint, there would have been no Impressionism.” For the Impressionists, tubed paints offered an easily accessible variety of colors for their plein air palettes, motivating them to make spontaneous color choices. With greater quantities of preserved paint, they were able to apply paint more thickly.

CHARACTERISTICS:
Traditional oil paints require oil that gradually hardens, forming a stable, impermeable film. Such oils are called siccative, or drying, oils, and are characterized by high levels of polyunsaturated fatty acids.

One common measure of the siccative property of oils is iodine number, the number of grams of iodine one hundred grams of oil can absorb. Oils with an iodine number greater than 130 are considered drying, those with an iodine number of 115-130 are semi-drying, and those with an iodine number of less than 115 are non-drying.
Linseed oil, the most prevalent vehicle for artists’ oil paints, is a drying oil.When exposed to air, oils do not undergo the same evaporative process that water does. Instead, they polymerize into a dry semisolid. This rate of process can be very slow, depending on the oil.

The advantage of the slow-drying quality of oil paint is that an artist can develop a painting gradually. Earlier media such as egg tempera dried quickly, which prevented the artist from making changes or corrections.

With oil-based paints, revising was comparatively easy. The disadvantage is that a painting might take months or years to finish, which might disappoint an anxious patron. Oil paints also blend well with each other, making subtle variations of color possible as well as more easily creating details of light and shadow. Oil paints can be diluted with turpentine or other thinning agents, which artists take advantage to paint in layers.

Sources.

The earliest and still most commonly used vehicle is linseed oil, pressed from the seed of the flax plant. Modern processes use heat or steam to produce refined varieties of oil with fewer impurities, but many artists prefer cold-pressed oils. Other vegetable oils such as Hemp, poppy seed, walnut, sunflower, safflower, and soybean oils may be used as alternatives to linseed oil for a variety of reasons. For example, safflower and poppy oils are paler than linseed oil and allow for more vibrant whites straight from the tube.

Extraction methods and processing.
Once the oil is extracted additives are sometimes used to modify its chemical properties. In this way the paint can be made to dry more quickly if that is desired, or to have varying levels of gloss like Liquin.

Modern oils paints can, therefore, have complex chemical structures; for example, affecting resistance to UV or giving a suede like appearance.

COLOR PIGMENT.

Figure 33

The color of oil paint derives from small particles of colored pigments mixed with the carrier. Some of the earliest known pigments are charcoal (black), iron oxide (rust red), and gypsum (white).Common pigment types include mineral salts such as white oxides: lead, now most often replaced by less toxic zinc and titanium, and the red to yellow cadmium pigments. Another class consists of earth types, e.g. sienna or umber. Still another group of pigments comes from living organisms, such as madder root.

Synthetic pigments are also now available. Natural pigments have the advantage of being well understood through centuries of use, but synthetics have greatly increased the spectrum of available colors, and many are tested well for their lightfastness.

Toxicity.

Many of the historical pigments were dangerous, and many pigments still in popular use today are highly toxic. Some of the most poisonous pigments, such as Paris green (copper(II) acetoarsenite) and orpiment (arsenic sulfide), have fallen from use.

Self-Check – 3	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I Fill in the blanks: (points 2.5 each)

01. A watercolor is the medium or the resulting artwork in which the paints are made of _____suspended in a water-soluble vehicle

02. A paint brush consists of _____ parts.

Test II True / False: **(points 2.5 each)**

01. A colored pencil is an art medium constructed of a narrow, pigmented core encased in a wooden cylindrical case.

02. Oil paint is a type of slow-drying paint that consists of particles of pigment suspended in a drying oil, commonly linseed oil.

Test III Short answers questions: (points 2.5 each)

Q1. What is the utility of water colors?

Q2. What are the types of brushes used in rendering?

Q3. What is the utility of pencil colors?

Q4. What is the utility of oil colors / oil paints?

Note: **Satisfactory rating - 3 points** **Unsatisfactory - below 3 points**

You can ask you teacher for the copy of the correct answers.

Information Sheet 4- Creating various components using rendering techniques and mediums

4.1 WHAT ISTEXTURE:

“The feel, appearance, or consistency of a surface or a substance.”
The natural world is rich in texture: the surface of any visible object is textured at certain scale. A wealth of textures is observed on both artificial and natural objects such as those on wood, plants, materials and skin.

In a general sense, the word texture refers to surface characteristics and appearance of an object given by the size, shape, density, arrangement, proportion of its elementary parts. A texture is usually described as smooth or rough, soft or hard, coarse of fine, matt or glossy, and etc.

The tree's visual texture is represented here in this image.

Texture: Meaning the way a surface feels or is perceived to feel. Texture can be added to attract or repel interest to an element, depending on the pleasantness of the texture.

Figure 34Textures might be divided into two categories:-

4.1.1 TACTILE TEXTURE is the actual three-dimension feel of a surface that can be touched. Painter can use impasto to build peaks and create texture. **Tactile textures** refer to the immediate tangible feel of a surface.

4.1.2 VISUAL TEXTURE is the illusion of the surfaces peaks and valleys, like the tree pictured. Any texture shown in a photo is a visual texture, meaning the paper is smooth no matter how rough the image perceives it to be.

Most textures have a natural touch but still seem to repeat a motif in some way. Regularly repeating a motif will result in a texture appearing as a pattern.

Visual textures refer to the visual impression that textures produce to human observer, which are related to local spatial variations of simple stimuli like colour, orientation and intensity in an image.

This thesis focuses only on visual textures, so the term `texture' thereafter is exclusively referred to `visual texture' unless mentioned otherwise.

Textures are usually given by examples in digitized images. Figures 4.1 and 4.2 show a few natural and man-made textures, respectively, which could be met in daily life.

Although texture is an important research area in computer vision, there is no precise definition of the notion texture. The main reason is that natural textures often display different yet contradicting properties, such as regularity versus randomness, uniformity versus distortion, which can hardly be described in a unified manner. Many researchers have been trying to define textures from a certain perspective of their nature. Haralick considers a texture as an ``organised area phenomenon'' which can be decomposed into `primitives' having specific spatial distributions. This definition, also known as structural approach, comes directly from human visual experience of textures.

For instance, each texture in Figs 4.1 and 4.2 is composed of particular texture elements, e.g., objects (windows), shapes (jigsaw pieces), or simply colour patterns. Meanwhile, these primitives are organised in a particular spatial structure indicating certain underlying placement rules. Alternatively, as Cross and Jain suggested, a texture is ``a stochastic, possibly periodic, two-dimensional image field''.

This definition describes a texture by a stochastic process that generates the texture, which is also known as stochastic approach. These different definitions usually lead to different computational approaches to texture analysis.

Figure 35 Examples of natural textures.

Figure:36 Examples of artificial regular textures.

Nevertheless, an apparent consensus that spatial homogeneity is the most important property of a texture has been reached. From the statistical point of view, homogeneity means statistical stationarity, i.e. that certain signal statistics of each texture region have the same values. This property relates directly to self-similarity: the patterns at different magnifications, although not identical, are represented by the same signal statistics.

Textures also exhibit local non-homogeneity, i.e. departures from strict homogeneity to some extent in a local image region. For example, in the image `leaves' in Fig 4.1, every single leaf is slightly different from another (local non-homogeneity), but as a whole they display approximate spatial uniformity and consistency (global homogeneity).

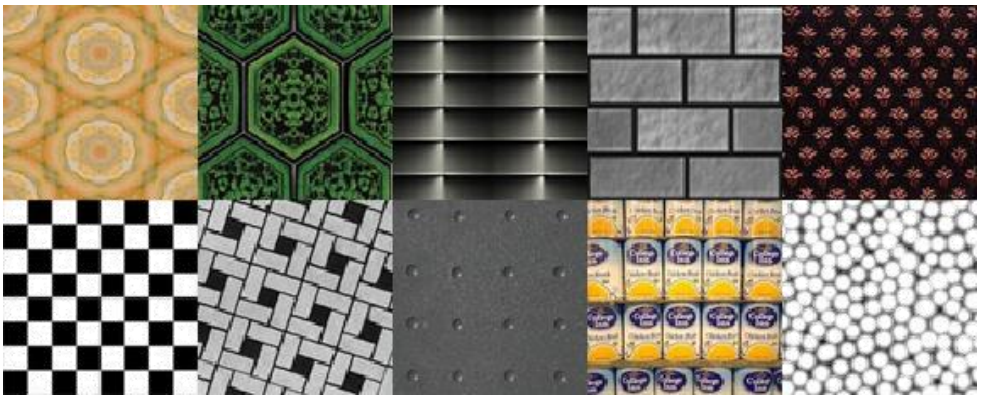


Figure:37 Examples of natural regular textures.

Due to the diversity and complexity of natural textures, it is useful to separate them into categories.

For instance, textures can be classified into regular and stochastic ones by their degree of randomness.

A regular texture is formed by regular tiling of easily identifiable small size elements organised into strong periodic patterns.

A stochastic texture exhibits less noticeable elements and display rather random patterns.

For examples, textures in Figs 4.1 and 4.4 are mostly stochastic, and those in Figs 4.2 and 4.3 are regular. Most of real world textures, however, are mixtures of the above-mentioned categories.

Figure 38: Examples of stochastic textures.

By spatial homogeneity, textures can be classified into homogeneous, weakly-homogeneous, and inhomogeneous patterns.

Specifically, homogeneous texture contains ideal repetitive structures, and such uniformity produces idealised patterns.

Weak homogeneity involves local spatial variation in texture elements or their spatial arrangement, which leads to more or less violates the precise repetitiveness (See Fig 4.5).

An `inhomogeneous texture' mostly refers to an image where repetition and spatial self-similarity are absent. Since spatial homogeneity is considered below as an essential property of a texture, an inhomogeneous image is not treated in this thesis as a `texture'.

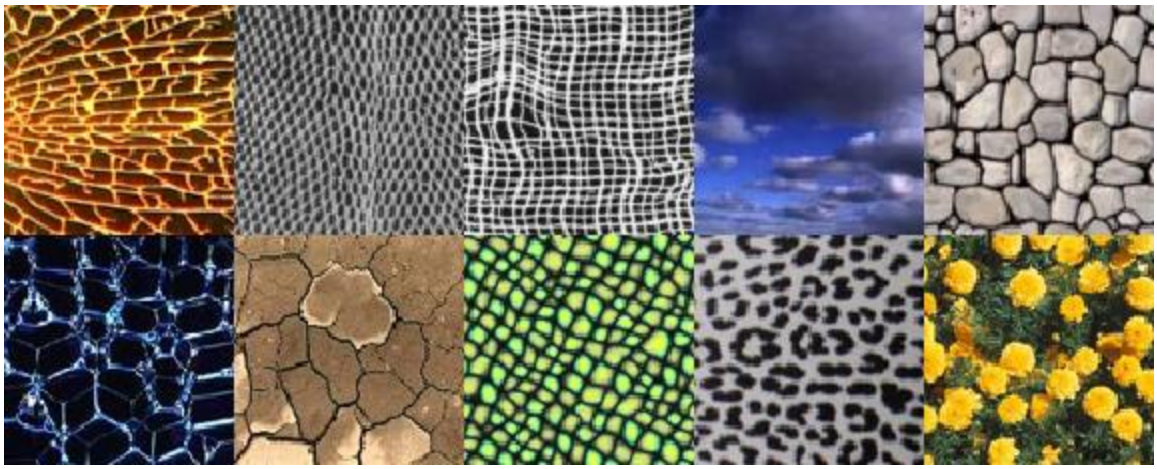


Figure 39: Examples of weakly-homogeneous textures.

4.2 ADDING VOLUME:

In this chapter, before we discuss about the rendering techniques to add volume in a given subject, it is important to understand about the various forms available.

There are only five basic forms from which all other forms are created. They are the sphere, the cone, the cylinder, the cube, and the doughnut shaped torus. Parts of these forms combine to create everything we see. Imagine a half cylinder on top of a cube and you have the shape of a mailbox, a half sphere and a cone make a teardrop form, a fir tree is a cone an oak is a half sphere. The cylindrical coffee mug has a half torus handle.

Figure 40

VALUES CREATE FORM

Each of these forms has distinctive light and dark value shapes that define them. Spheres are recognized by crescents and ovals. Cones have triangular light and dark value shapes. Cubes and flat surfaces are even blends. Cylinders are stripes.

The torus is crescents and stripes. Concave versions of these forms have the same value shapes but without reflected light. (See Shadows/Reflected light.) When you can paint these five forms you can paint all other forms.

Figure 41

A SPHERE is defined by CRESCENTS AND OVALS. Sphere forms are painted with crescent and curved brush strokes.

Figure 42

CONES are defined by TRIANGULAR values of light and dark. Cones are painted and blended using triangular brush strokes.

Figure 43

CYLINDERS are defined by light and dark value STRIPES. Cylinders are painted with parallel brush strokes.

Figure 44

CUBES and all FLAT surfaces are governed by the same rules. GRADUAL EVEN BLENDS depict a receding flat surface. If there is a flat surface parallel to your canvas, it may be painted with a single color or value. CUBES are various receding flat surfaces. Each surface is a gradual blend. Cubes are painted with parallel brush strokes.

Figure 45

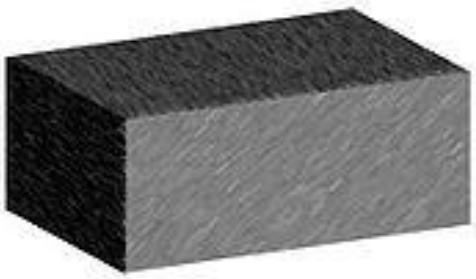
TORUS value shapes combine aspects of two other basic forms. They take the parallel STRIPES of a cylinder for the middle and the CRESCENTS of a sphere for the ends. The torus is painted using crescent and curved brush strokes.

Figure 46

Here you can see that value shapes are stronger than contour lines for the creation of form.

Lighting can be misleading in seeing forms, particularly flat surfaces. Try to see the form first. Then see the lighting on it.

4.3 LIGHT & SHADING EFFECT:



Shading refers to depicting depth perception in 3D models or illustrations by varying levels of darkness.
Drawing.

Figure 47Example of shading.

Shading is a process used in drawing for depicting levels of darkness on paper by applying media more densely or with a darker shade for darker areas, and less densely or with a lighter shade for lighter areas.

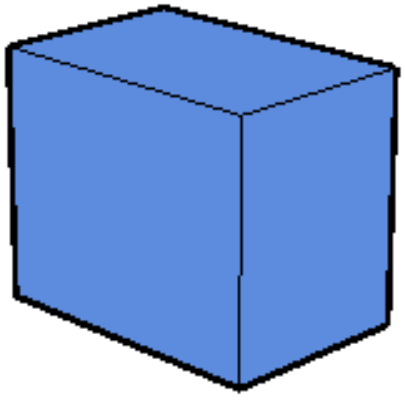
There are various techniques of shading including cross hatching where perpendicular lines of varying closeness are drawn in a grid pattern to shade an area.

The closer the lines are together, the darker the area appears. Likewise, the farther apart the lines are, the lighter the area appears.

Light patterns, such as objects having light and shaded areas, help when creating the illusion of depth on paper.

Computer graphics.
In computer graphics, shading refers to the process of altering the color of an object/surface/polygon in the 3D scene, based on its angle to lights and its distance from lights to create a photorealistic effect. Shading is performed during the rendering process by a program called a shader.

Angle to light source.
Shading alters the colors of faces in a 3D model based on the angle of the surface to a light source or light sources.



The **first image** below has the faces of the box rendered, but all in the same color. Edge lines have been rendered here as well which makes the image easier to see.

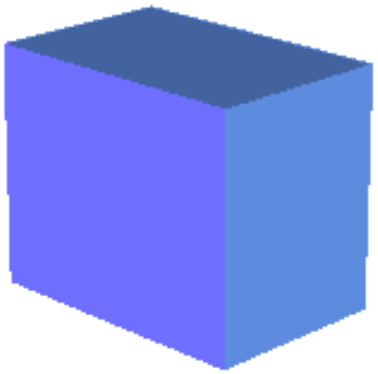
Rendered image of a box. This image has no shading on its faces, but uses edge lines to separate the faces.

The **second image** is the same model rendered without edge lines. It is difficult to tell where one face of the box ends and the next begins.

This is the same image with the edge lines removed

The **third image** has shading enabled, which makes the image more realistic and makes it easier to see which face is which.

This is the same image rendered with shading of the faces to alter the colors of the 3 faces based on their angle to the light sources.



LIGHTING.

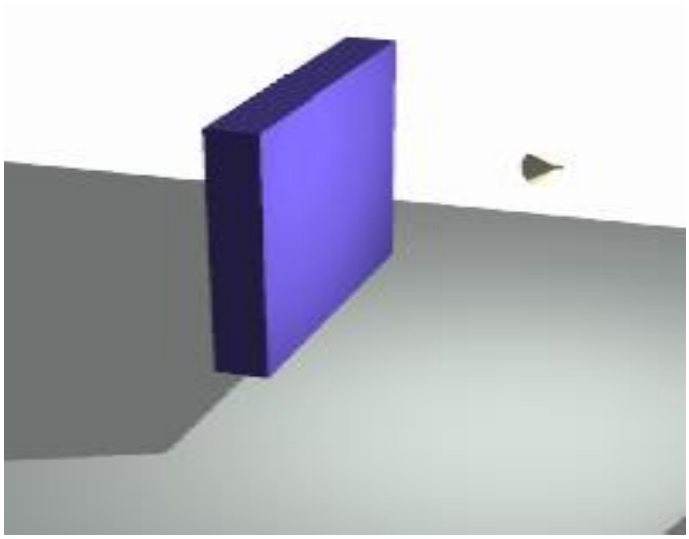


Figure 48

Shading effects from floodlight**.**
Shading is also dependant on the lighting used. Usually, upon rendering a scene a number of different lighting techniques will be used to make the rendering look more realistic. Different types of light sources are used to give different effects.

Ambient lighting.
An ambient light source represents a fixed-intensity and fixed-color light source that affects all objects in the scene equally. Upon rendering, all objects in the scene are brightened with the specified intensity and color. This type of light source is mainly used to provide the scene with a basic view of the different objects in it. This is the simplest type of lighting to implement and models how light can be scattered or reflected many times producing a uniform effect.
Ambient lighting can be combined with [ambient occlusion] to represent how exposed each point of the scene is, affecting the amount of ambient light it can reflect. This produces diffuse, non-directional lighting throughout the scene, casting no clear shadows, but with enclosed and sheltered areas darkened. The result is usually visually similar to an overcast day.

Directional lighting.
A directional light source illuminates all objects equally from a given direction, like an area light of infinite size and infinite distance from the scene; there is shading, but cannot be any distance falloff.

Point lighting.
Light originates from a single point, and spreads outward in all directions.

Spotlight lighting.
Models a Spotlight. Light originates from a single point, and spreads outward in a cone.

Area lighting.
Light originates from a small area on a single plane. A more accurate model than a point light source.

Volumetric lighting.
Light originating from a small volume, an enclosed space lighting objects within that space.
Shading is interpolated based on how the angle of these light sources reach the objects within a scene. Of course, these light sources can be and often are combined in a scene. The renderer then interpolates how these lights must be combined, and produces a 2d image to be displayed on the screen accordingly.

Distance falloff.
Theoretically, two surfaces which are parallel, are illuminated the same amount from a distant light source, such as the sun. Even though one surface is further away, your eye sees more of it in the same space, so the illumination appears the same. Notice in the first image that the color on the front faces of the two boxes is exactly the same. It appears that there is a slight difference where the two faces meet, but this is an optical illusion because of the vertical edge below where the two faces meet.
Notice in the second image that the surfaces on the boxes are bright on the front box and darker on the back box. Also the floor goes from light to dark as it gets farther away.
This distance falloff effect produces images which appear more realistic without having to add additional lights to achieve the same effect.

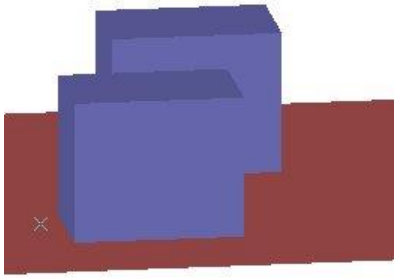
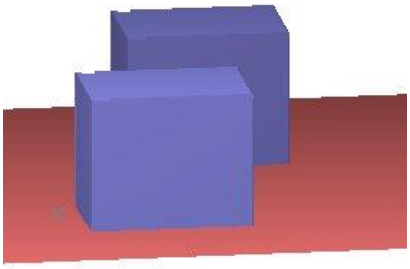
 Two boxes rendered with an OpenGL renderer. Note that the colors of the two front faces are the same even though one box is further away.	 The same model rendered using ARRIS CAD which implements “Distance Falloff” to make surfaces which are closer to the eye appear brighter.

Figure 49

Distance falloff can be calculated in a number of ways:

None - The light intensity received is the same regardless of the distance between the point and the light source.

Linear - For a given point at a distance x from the light source, the light intensity received is proportional to $1/x$.

Quadratic - This is how light intensity decreases in reality if the light has a free path (i.e. no fog or any other thing in the air that can absorb or scatter the light). For a given point at a distance x from the light source, the light intensity received is proportional to $1/x^2$.

Factor of n - For a given point at a distance x from the light source, the light intensity received is proportional to $1/x^n$.
Any number of other mathematical functions may also be used.

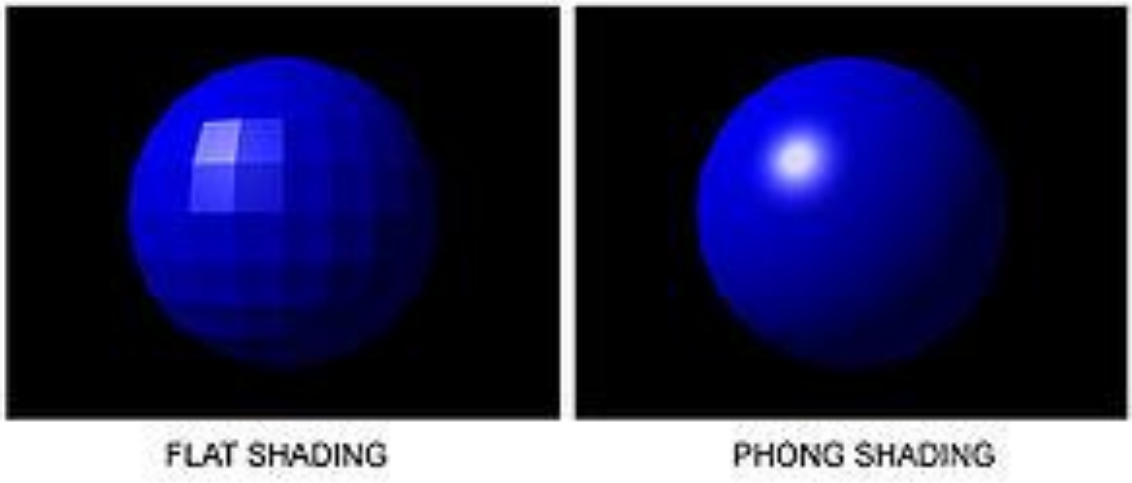


Figure 50 Example of flat shading vs. interpolation

Flat shading.
Flat shading is a lighting technique used in 3D computer graphics to shade each polygon of an object based on the angle between the polygon's surface normal and the direction of the light source, their respective colors and the intensity of the light source. It is usually used for high speed rendering where more advanced shading techniques are too computationally expensive. As a result of flat shading all of the polygon's vertices are colored with one color, allowing differentiation between adjacent polygons. Specular highlights are rendered poorly with flat shading: If there happens to be a large specular component at the representative vertex, that brightness is drawn uniformly over the entire face. If a specular highlight doesn't fall on the representative point, it is missed entirely. Consequently, the specular reflection component is usually not included in flat shading computation.

Smooth shading.
In contrast to flat shading with smooth shading the color changes from pixel to pixel. It assumes that the surfaces are curved and uses interpolation techniques to calculate the values of pixels between the vertices of the polygons.

Types of smooth shading include:
Gouraud shading
Phong shading

Gouraud shading.
Determine the normal at each polygon vertex
Apply an illumination model to each vertex to calculate the vertex intensity
Interpolate the vertex intensities using bilinear interpolation over the surface polygon

Data structures.
Sometimes vertex normals can be computed directly (e.g. height field with uniform mesh)
More generally, need data structure for mesh
Key: which polygons meet at each vertex

Advantages.
Polygons, more complex than triangles, can also have different colors specified for each vertex. In these instances, the underlying logic for shading can become more intricate.

Problems.
Even the smoothness introduced by Gouraud shading may not prevent the appearance of the shading differences between adjacent polygons.

Gouraud shading is more CPU intensive and can become a problem when rendering real time environments with many polygons.

T-Junctions with adjoining polygons can sometimes result in visual anomalies.
In general, T-Junctions should be avoided.

Phong shading.
Phong shading, is similar to Gouraud shading except that the Normals are interpolated. Thus, the specular highlights are computed much more precisely than in the Gouraud shading model:

Compute a normal N for each vertex of the polygon.
From bilinear interpolation compute a normal, Ni for each pixel. (This must be renormalized each time)

From Ni compute an intensity Ii for each pixel of the polygon.
Paint pixel to shade corresponding to Ii.

Other Approaches.
Both Gouraud shading and Phong shading can be implemented using bilinear interpolation. Bishop and Weimer proposed to use a Taylor series expansion of the resulting expression from applying an illumination model and bilinear interpolation of the normals. Hence, second degree polynomial interpolation was used. This type of biquadratic interpolation was further elaborated by Barrera et al, where one second order polynomial was used to interpolate the diffuse light of the Phong reflection model and another second order polynomial was used for the specular light.

Spherical Linear Interpolation (Slerp) was used by Kuij and Blake for computing both the normal over the polygon as well as the vector in the direction to the light source. A similar approach was proposed by Hast, which uses Quaternion interpolation of the

normals with the advantage that the normal will always have unit length and the computationally heavy normalization is avoided.

FLAT SHADING VS SMOOTH SHADING

Flat Shading:

A. Uses the same color for every pixel in a face - usually the color of the first vertex.
B. Edges appear more pronounced than they would on a real object because of a phenomenon in the eye known as lateral inhibition
C. Same color for any point of the face.
D. Individual faces are visualized.
E. Not suitable for smooth objects.
F. Less expensive.

Smooth Shading:

A. Smooth shading uses linear interpolation of colors between vertices.
B. The edges disappear with this technique.
C. Each point of the face has its own color.
D. Visualize underlying surface.
E. Suitable for any objects.
F. More expensive.

How Can Shading & Texturing Increase the Sense of Depth & Volume in a Two-Dimensional Image?

Figure 51

The use of shadow and texturing helps drawings look more realistic.
When you're drawing or painting, no matter what your subject, you're essentially trying to create a realistic representation of a three-dimensional object in a two-dimensional space.

Light and shadow on real-world objects help your brain add depth and volume to your perception; adding shading and texture to your drawings helps the viewers interpret them as three-dimensional objects and adds a sense of realism to your work.
Shading is to enhance depth in the image.
When you look at an object or scene in reality, the way light interacts with objects in your field of vision helps your brain interpret what you see.

Generally, the farther an object is from your vantage point or light source, the darker it will seem. In rendering two-dimensional images, you can use careful shading to cast distant objects into shadow or to subdue some objects and draw attention to others.
By doing this, you add depth, and consequently the sense of a third dimension, to your image.

Shading to Add Volume.
Gradual shading, using highlight, mid-tone, dark tone and shadow tones will create a sense of volume in your object.

For example, a carefully-shaded circle can look like a sphere when you apply highlights (the lightest tone) closest to the perceived light source.

Then apply light mid-tone shading near the middle, dark tones at the opposite end and draw in the cast shadow to complete the sense of volume.

Using Texture to Add Depth.
Familiar textures can be interpreted through two-dimensional images even without the viewer being able to actually touch the object.

Texturing objects in your image can add depth: objects that should look closer to the viewer need to have more visible texture than distant objects.

With careful texturing, the field of vision contained in a two-dimensional image will have the illusion of distance, giving it a perceived third dimension.

Using Texture to Add Volume.
Adding texture to a foreground creates a sense of realism.
Using light and shadow, you can reproduce the rough surface of cement, knots and imperfections in wood, or the smooth but reflective surface of glass.

Adding texture to familiar objects will give them the illusion of volume: people know what the bark of a tree feels like; by rendering its rough texture properly, you will create the illusion that the bark is real, and therefore three-dimensional, even though it can't actually be felt.

Self-Check – 4	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Fill in the blanks: (points 2)

01. Tactile texture is the actual _____ of a surface that can be touched.

02. Visual texture is the _____ of the surfaces peaks and valleys.

Test IITrue / False: **(points 9)**

01. Shading is a process used in drawing for depicting levels of darkness on paper by applying media more densely or with a darker shade for darker areas, and less densely or with a lighter shade for lighter areas.

02. Area lighting: Light originates from a small area on a single plane. A more accurate model than a point light source.

03. Volumetric lighting: Light originating from a small volume, an enclosed space lighting objects within that space.

Test III Short answers questions: (points 9)

Q1. What is texture & types of textures?

Q2. How we can add volume in rendering?

Q3. What is Smooth shading?

Note: **Satisfactory rating - 3 points** **Unsatisfactory - below 3 points**

You can ask you teacher for the copy of the correct answers.

Operation Sheet 1- perform rendering operation with different medium

WATER COLOUR TECHNIQUES

Introducing a series of tutorials on water color. Starting with this first one on the basics and supplies of painting watercolor, will be sharing techniques and tools of how to use watercolor. There are numerous ways to approach this medium, so every techniques won't be covered here. However, you can find lots of great information and demos here that will hopefully broaden your creative palette.

In this topic about watercolor here we are going to just touch on some of the basics in this tutorial. Watercolor is not only a wonderful medium to paint with, but it also teaches a lot about how to approach. The beauty of watercolor is that it isn't possible to plan out exactly how it will turn out in the end. At some point in the process of painting with watercolor, you have to step back a little bit and just allow it to blend and dry how it wants. Embracing that aspect was certainly hard to do in the beginning, however, once you became more used to this quality of watercolor, it will be liberating and so much fun to just let it do its own thing.

TOOLS AND MEDIUMS REQUIRED

PAPER

Strathmore and Arches are two brands that I highly recommend trying out. The Arches watercolor paper line offers watercolor blocks as well as single sheets. mostly used are their cold press watercolor blocks because it allows to work on a few different pieces at once and is also easy to carry when painting outside. In addition, the Arches line of watercolor blocks offer different grades in hot (smooth) and cold press (textured). The cold press grades have a wonderful texture to it that captures the natural imperfection of brush marks well.

PALETTE

Figure 52

PIGMENT

Figure 53

This is most important. Winsor & Newton make the best pigments, and even though they are a bit pricier, their watercolors are definitely worth it. They have two grades of quality in their watercolors, and would recommend their Artist line because the colors are richer. If you are looking for some great bright to add a pop to your artwork, try Winsor Lemon, Scarlet Lake, Opera Rose, and Cobalt Turquoise Light! Something to keep in mind about watercolor pigments is to shy away from using white to lighten a color. Watercolor pigments have this natural transparent quality to it that it rarely

requires the use of white when mixing colors, so if you want a light yellow, all you have to do is mix more water with it!

As far as other ways of using color goes, Prismacolor makes a line of watercolor pencils that you can use to draw with and blend afterwards with water. Use it sometimes when in a hurry and just want to sketch out an idea!

BRUSHES

Figure 54

There are a variety of brushes out there, and it really depends on the project and what you are comfortable with. For example, the round brushes are very versatile and can achieve a variety of subjects and shapes from tree branches to larger shapes. But an angled brush might be great if you are painting mostly straight lines or angular shapes. The flat brushes are similar to an angled brush but because the bristles are usually longer and denser, they are terrific for washes and large coverage.

The next few basic techniques are very easy and approachable to anyone who is interested in exploring watercolor.

TECHNIQUES

Figure 55

BLENDING

Blending is probably the most mesmerizing effect to watch different colors blending together, and since it is hard to predict what the end result will be, It will always be a pleasantly surprised. There are so many ways to blend colors from using a dry brush on a wet surface to using a wet brush on a damp surface. Take some time to really explore different combinations of blending between wet/dry surfaces and colors and see what kinds of results you like to use the most.

Painting flowers is a great way to explore the blending technique. You can create soft pedals, for example, by dragging the wet color across with a clean, wet brush.

Figure 56

Figure 57

Or you can add color to an already wet surface and have it blend in a more unpredictable way.

Figure 58

Blending two different colors together while the paper is still wet often have very interesting results. Don't be afraid to try different color combinations and in different saturations levels.

Figure 59

What makes watercolor different from acrylics or inks is that it is pretty easy to correct mistakes. If the area is still wet, just add some water to that area and dab it with some

paper towel. So doesn't panic if you laid down a color or shape that you no longer want, just add some water and that should take care of most of the issue.

Figure 60

MARKS

Mark making is an important way of how you approach your paintings. Ranging from fast and gestural marks to meticulous and controlled marks, knowing how to use your brush will strengthen how you express your ideas through your painting. There are many different marks you can make with various brushes. You should try experimenting with different brush types and see the kinds of marks they make and which suits your needs. Round brushes are what I use the most when painting because they are versatile enough to create fine details as well as broader strokes. You will find that

brushes with lots of pigment and brushes with not so much make very different kinds of marks.

Figure 61

This angled brush is great for more precise shapes and corners.

Figure 62

While this wash brush is similar to the angled one, it is very good for washes and broad coverage.

Figure 63

TRANSPARENCY

Transparency technique is used a lot in work because it is so great for layering images and creating density within the artwork. It can be dense and opaque by layering colors and imagery, or it can be incredibly translucent and light. Try combining blending techniques with layers of colors and shapes! Transparent images work best if you go from light to more saturated colors. Be sure to allow each layer to dry completely to avoid accidental blends.

Figure 64

Last but not least, trying creating translucent shapes with blends and layers. By combining different techniques together, you can create beautiful complexities that are visually intriguing.

PAINTING A FLAT WATERCOLOR WASH

Figure 65

Draw a square or rectangle on your paper, or visualize the boundaries of such as you go.

Select a darker hue for your wash (it's easier to see) and mix a liberal amount of medium intensity (30-50% value) paint on your palette. I'm using a 1 ½" (381mm) Winsor & Newton Series 965 flat wash brush and Holbein Sap Green watercolor paint for this lesson. The paper is Arches #140 CP.

Charge your brush with paint and starting in the upper left corner touch your brush to the paper and gently pull a straight line of paint to the upper right corner.

NOTE: If left handed work right to left

Figure 66

Make your second stroke

Return to your palette and refill your brush.

Start the next stroke at the bottom of the first stroke, being sure to overlap the bead of paint now formed at the bottom of the first stroke.

TIP 1: If the flood of the first stroke doesn't fully flow into the new stroke, increase the angle of your board to aid the flow of the wash.

TIP 2: Increasing the angle of your work also increases the chances of drips running wild down your paper. If they annoy you, work faster or keep a tissue or damp sponge in your free hand to quickly blot them away

figure 67

Repeat as necessary…

Refill brush and continue overlapping strokes, riding the flow of the paint and keeping an even tone as you go.

TIP 3: You can use the flat edge of a wash brush to “cut” the starting edge.

TIP 4: If you want to square up the final edge of the stroke—slow down, pull the brush up, and use the sharp flat edge again. Pull it up to your line and “cut” the final edge with a downward pull.

TIP 5: If your stroke breaks up, load your brush and repeat the stroke IMMEDIATELY. See (Tip 7) below!

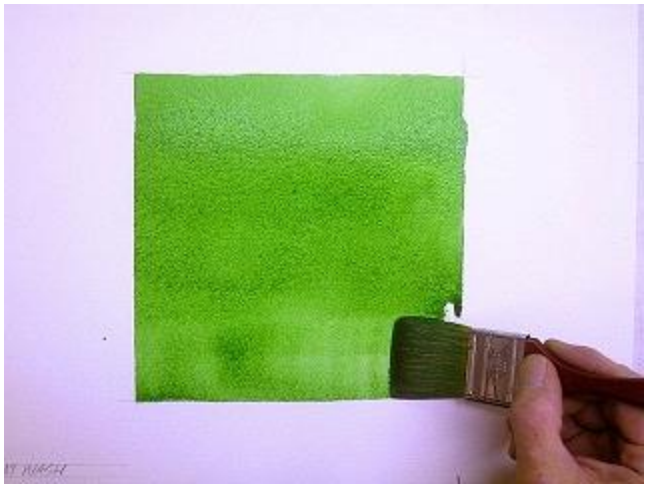


Figure 68

Repeat steps making stroke after stroke to the bottom. Try to keep an even tone as you go.

TIP 6: You would not believe how much variety there is in the behavior of different brands and grades of paints and papers. The more expensive well-known brands usually make your work easier by offering consistent high quality.

TIP 7: If your strokes break up and your brush is fully charged, you are either using a rough textured paper or the paper could be heavily sized. If you find heavily sized paper

like this, spray the paper, sponge it off with a clean damp sponge and let it dry before use. The surface will now be more receptive to your paint.

Figure 69

Rinse your brush out in clean water **and blot or squeeze out the excess the water.** Carefully pick up the bead of paint that runs across the bottom of the wash using the wick action of your brush. If you draw up too much paint you will lift the color off the paper.

Let the wash dry. If you've ended up with an even-toned square of color, congratulations! If not, try it again. I did. And do.

TIP 8: Try practicing your flat washes with different colors and intensities. Each color has its own physical properties that affect how they feel and flow in washes.

TIP 9: For a pronounced texture in your wash let it dry at an angle. The pigment will settle out in the texture of the paper.

GLAZED WASH WATERCOLOR TUTORIAL

Figure 70

MATERIALS: Arches #140 CP watercolor paper, Grumbacher 1" flat red sable, Kalish Kolinsky Red Sable #8 round, Kolonok #4 flat Kolinsky red sable, Winsor & Newton Series 820 #8 Round, and a Kolonok #4 round Kolinsky red sable brush. A blow-dryer.

COLORS (various manufacture): Cadmium Yellow Light, Cadmium Yellow Medium, Cadmium Orange, Cadmium Red Medium, Permanent Rose, Dioxazine Purple, Cobalt Blue, Ultramarine Blue and Sap Green. Colors chosen are transparent and semi-transparent.

Using a 1" flat red sable brush use a Cobalt Blue wash to block in the sky, mountains, and river area. Break up the wash and add some clear water to soften the area that would be a waterfall.

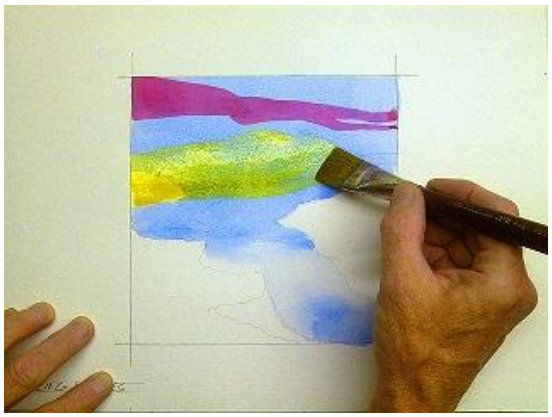


Figure 71

This lesson is designed to be as obvious as possible. Using bright transparent colors allows you to see how each subsequent wash is affected by those washes lying under it. Plus it will allow you to play with a new style of painting.

Using the same 1" brush mix a transparent wash of Permanent Rose and paint a band of red clouds across the sky area.

Rinsing the brush mix up a light wash of Cadmium Yellow Light and start painting the mountain area. Continue to the foreground and lay in a large yellow under wash.

Figure 72

Staying with the 1" flat red sable use a light Ultramarine Blue and Cobalt Blue mix to block in a mountain horizon and negatively define the background smaller yellow hill.

For some reason, after undercut the background yellow hill with blue, then pulled a blue stroke straight down and cut the left corner in and lifted off with a flip.

TIP 1: Allow each wash time to dry before overlaying the next color. You can use a **blow dryer** to effectively and safely dry your painting: Low setting, at least 10" away from surface, keep it moving, NO STEAM!

Figure 73

Same brush, different color. Need to detract and balance the blue just finished, and to make some interesting colors along the way, mix a straight wash of cadmium orange. Make orange banks in the foreground and then lay the orange over the rose and blue in the sky.

You'll notice the jewel-like qualities of working with pure colors in a transparent manner. The glazed wash could just as easily be a faint muted gray on a solitary rock in a large, photorealistic landscape painting.

Figure 74

Switching to #8 round red sable, mix up a very strong Cobalt Blue wash and strengthen the line of mountains at the horizon, varying the width by twisting and changing pressure on the brush.

Figure 75

Using the same #8 red sable and Cobalt Blue wash start playing in the waterfall after stopping on a far bank. Sometimes visual clichés are your friends, a few blue circles at the bottom of an apparent blue hill can become the bottom of a waterfall.

Rinsing well, make a puddle of Cadmium Yellow Medium and use that to paint some areas on the banks and some repetitive circles inside the blue on the bottom left.

Figure 76

After the previous washes dried, use varying values of Dioxazine Purple to add color variety to the foreground waterfall bubbles.

Figure 77

Using the #8 round red sable, mix up some bright, transparent Sap Green and painted three circles.

Figure 78

Staying with the same brush, mix a light wash of Cadmium Red Medium and lay the lumber under the lovely green foliage.

Rinsing and picking up some Cobalt Blue, add some minor accents on the water near the background and foreground banks as well as a shape in the sky. A small orange rectangular area was added to the left foreground.

then alternately use Cobalt Blue, Permanent Rose, and Sap Green washes to paint some icons of grass randomly around the foreground.

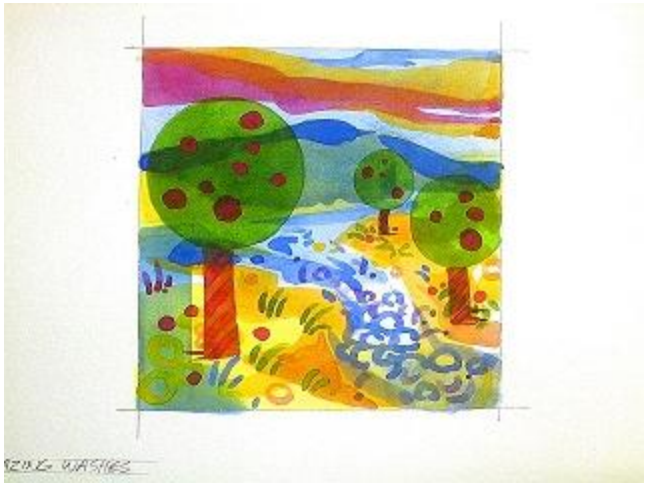


Figure 79

Permanent Rose and Cadmium Red Medium were used to add the final details. The trees were found to be fruit trees with red fruit, some on the ground. And each trees trunk was striped like a barber's pole.

If you look closely at the enlarged version of the finished painting, you can see how each layer of paint you apply affects all that came before. Values change for the darker by default, but the colors created by glazing washes over one another can be truly beautiful and effective.

WET-IN-WET WATERCOLOR TECHNIQUE

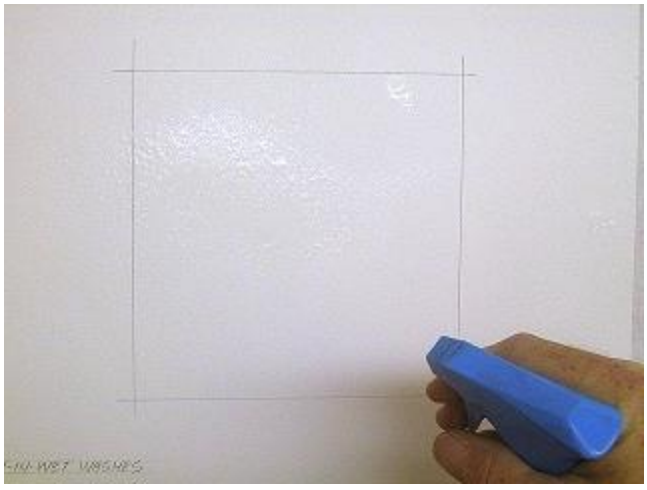


Figure 80

MATERIALS USED: Spray bottle of water, a clean sponge, Arches #140 CP watercolor paper, Grumbacher 1" flat red sable, and my trusty Kalish #8 Round Kolinsky Red Sable brush.

COLORS USED (various manufacture): Cadmium Yellow Medium, Alizarin Crimson, Cerulean Blue, Burnt Sienna, Pthalocyanine Green, Hooker's Green Dark, Sap Green, Lamp Black.

Start by spraying mounted paper with water to saturate the surface.

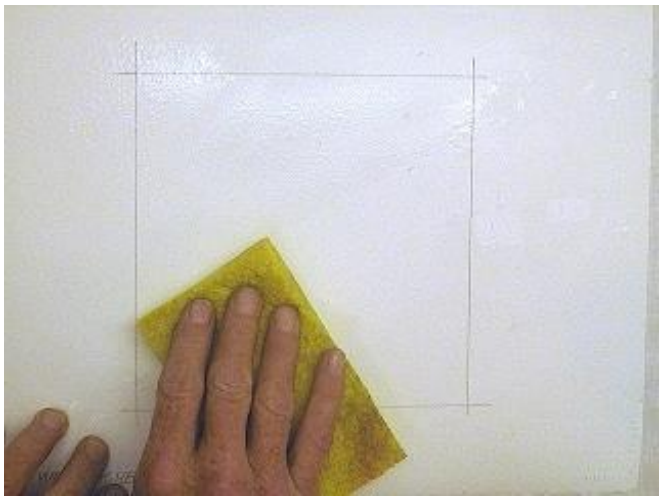


Figure 81

Using a CLEAN damp sponge lightly smooth your paper and sponge off any excess water.

Repeat until paper is evenly saturated, it with a dull satin finish.

If your paper is shiny after soaking in the water, the paper is too wet. Wring out your clean sponge and smooth off excess water.

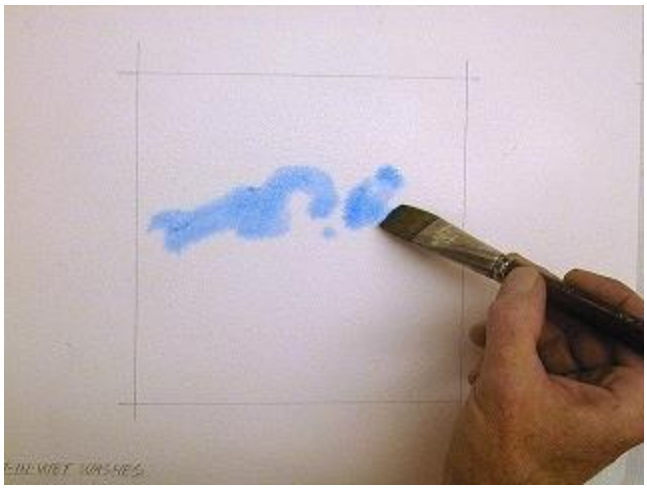


figure 82

Start with the sky.

Mix some Cerulean blue and use 1" flat red sable to form the clouds. In a full wet-in-wet painting it is easier to work from the background forward.

Using a twisting motion start applying the sky washes in a calligraphic fashion try for some interesting shapes.

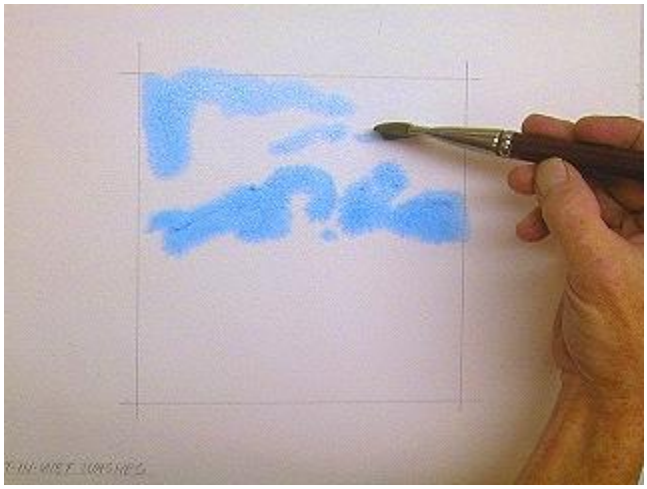


Figure 83

continue the sky area with the blue wash, making it look nice.

The initial strokes you lay down in a wet-in-wet painting diffuse and disperse widely in and on the moist paper. Watch your strokes spread as you paint.

figure 84

Want the foreground to be fairly diffuse, quickly mix up some Sap Green and a bit of Cadmium Yellow Medium and form an interesting spread of wide strokes which finally look like brush and bushes with some gaps for rocks.

The foreground paint was a thicker wash than the first blue washes and spread a little less initially.

As the paper continues to dry the painted strokes spread less and less.

Figure 85

In the palette and mix some Pthalocyanine Green and Alizarin Crimson to get a grayish cool green.

Start implying some pine trees across the horizon using #8 round red sable.

Figure 86

Use some darker accents to start pulling the design together.

Using a straight heavy mixture of Hooker's Green Dark and round brush, pick out details and shapes to finish the tree line.

Figure 87

To imply some rocks and such, use a mixture of Lamp Black and a bit Burnt Sienna to create a light warm gray.

Pull the wash across the existing foreground wash with some white paper showing through. The warmer color helps to pull the foreground together and forward.

Figure 88

Use a thick mixture of Alizarin Crimson with a touch of Pthalocyanine Green to darken it. Start from the left adding some "floral" in the foreground area.

Even as the red dots spread out, they would over power the rest of the painting. **Let the red spread a bit** and then, using a clean, rinsed and blotted #8 red sable brush, lift some light centers out of the red dots.

Figure 89

Drop a few drops of clean water in the center of a couple of the "florals" to let them spread and mingle with the surrounding colors.

One of the hardest parts in working *exclusively* in this technique is knowing when to stop. You cannot get fine details initially and as you keep working the previous washes you've laid in continue to spread, mix, and mingle which may muddy some colors if you are not careful.

Wet-in-wet watercolor technique is at times frustrating, but always exciting. There is host of hypnotic possibilities as the paint spreads and mingles on your wet paper

DRY BRUSH WATERCOLOR TUTORIAL

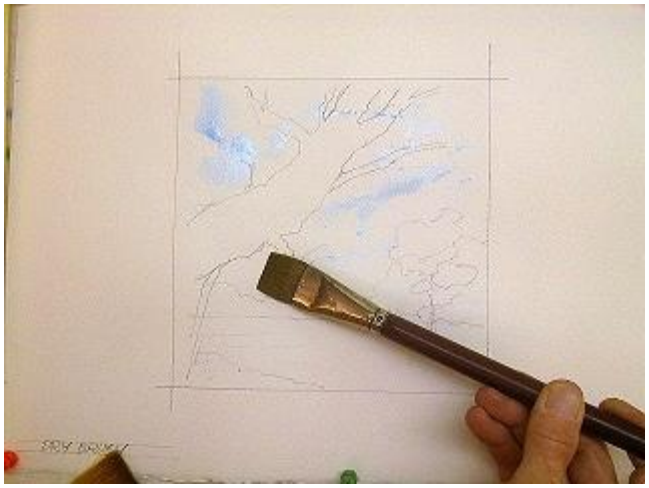


Figure 90

MATERIALS USED: Arches #140 CP watercolor paper, Grumbacher 1" flat red sable, and Kolonok's #4 flat and #8 round Kolinsky red sable brushes.

COLORS USED (various manufacture): Cadmium Yellow Medium, Cadmium Orange, Cadmium Red Medium, Alizarin Crimson, Cerulean Blue, Cobalt Blue, Ultramarine Blue, Hooker's Green Dark, Burnt Sienna, and Burnt Umber.

First off, lightly sketch a random landscape design on the watercolor paper using a HB pencil.

With a light wash of Cerulean Blue, scumbled a rough sky in, dragging and pushing 1" flat read sable to create texture.

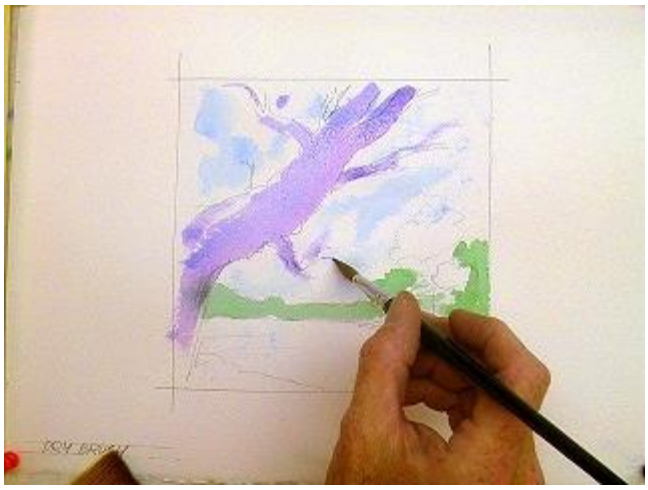


Figure 91

To generate some underlying tones use dry brush to the subsequent strokes over.

Make a light wash of Hooker's Green Dark grayed with a touch of Alizarin Crimson and paint the background tree line around

Using a wash of Dioxazine purple, paint the shadow areas of the tree, keeping the edges rough with broken washes.

While this was still wet, add some blue accents with a mix of Cobalt blue.

Figure 92

Letting the under painting dry

Keep the painting dry and broken looking as possible, except for the lake area which needed some suggestions of the reflections and flow of the water.

Using a gray made of Burnt Sienna, Cobalt blue and Hooker's Green Dark, scruff in a foreground bank area.

Let the painting dry.

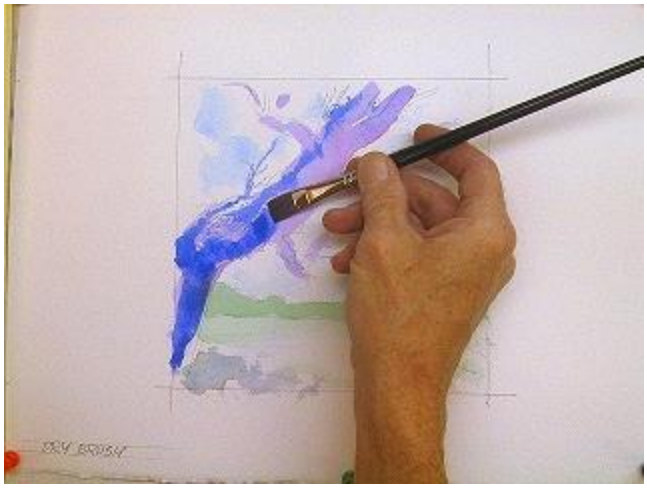


Figure 93

Mix a strong blue wash from Cobalt and Ultramarine Blue using a #4 flat red sable.

Holding the brush at a rather severe angle, let it lay on the paper with varying pressure, drag strokes to create the shadows and texture on the tree trunk.

Figure 94

After finishing the large tree trunk, using all the Cadmium colors; yellow medium, orange, and red medium, rough in fall foliage with some rather garish colors.

Use the Kolonok #4 flat red sable for these washes.

Figure 95

After finishing the riot of color on the far banks, add a light wash of orange as a reflection in the lake of the large background tree followed by a run of pure Cadmium yellow medium down the bank under the far tree. Mix a dark bluish gray from some Cobalt blue and Burnt umber and quickly draw in some dark accents strokes on the large tree trunk.

Consider the flaming trees and the dark maroon maple trees across the street. Using the painting as a base, scrub in the main tree shape with a mixture of Alizarin crimson and Pthalocyanine green which gave an adequate maroon color.

For working on the big maroon tree use the #8 round red sable brush to help create convincing foliage textures.

Figure 96

The water in lake should be a greenish brown. Use Hooker's Green Dark and Burnt Umber to get a satisfactory color.

Start dragging texture parallel with the horizon line, across the lake using the not-too-wet #4 flat red sable.

As you pull each stroke across the lake you should vary the pressure on the brush to create the "sparkly" water areas.

TIP: If your brush is too wet, you'll lay a flat wash. Blot your brush on a flat damp sponge or paper towel to adjust the amount of paint in the brush.

Figure 97

Using Hooker's Green Dark, make a medium toned puddle of paint. Used #4 flat red sable brushes, charged, and blotted. Tweak it between thumb and finger to spread the hairs a bit.

Using an upward "flicking" motion, add some grasses under the tree. Use some of the same color on the far bank.

Figure 99

For the lake with some swampy areas near the shore, add some calligraphic indication of cattails.

By now, the blue in the sky was looking a little too light. Mix some more Cerulean Blue, a little darker this time, and stumble the sky areas again.

Using the same blue and a #8 round red sable brush, add the sky color to the lake reflections.

BACK WASHES AS TEXTURE

Figure 100

MATERIALS USED: Arches CP #140 watercolor paper, a 1½" Winsor & Newton Series 965 wash brush, #8 round red sable.

COLORS USED: Permanent Rose, Cobalt Blue.

Start by mixing a large wash of Cobalt Blue and laying in a large loose wash from the upper left corner on across the top of the paper.

Use 1 ½" wash brush for the color washes

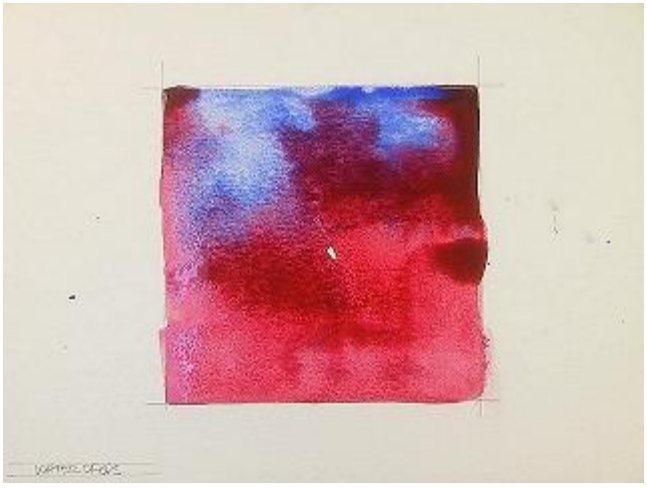


Figure 101

Mixing a strong tint of Permanent Rose, quickly cover the rest of the square with color.

This is the wash before any clear water has hit it.

Figure 102

Take #8 round red sable, rinse it in clear water and leave it full.

With a few flicks of the wrist, start throwing some water on the wet wash.

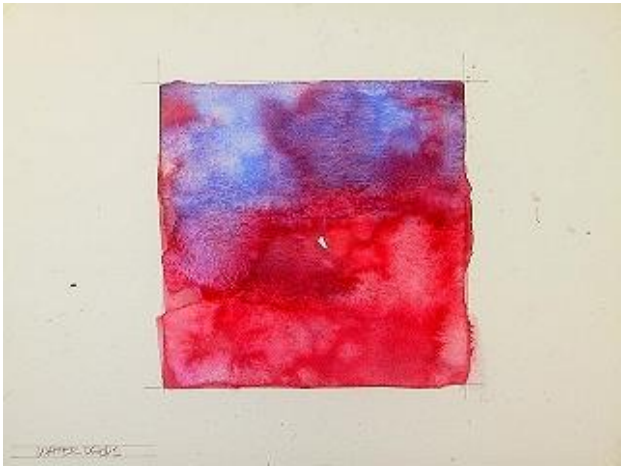


Figure 103

As the washes continued to dry, drop clear water on different areas.

The degree of dryness of the underlying wash determined how much the clear water affected the area.

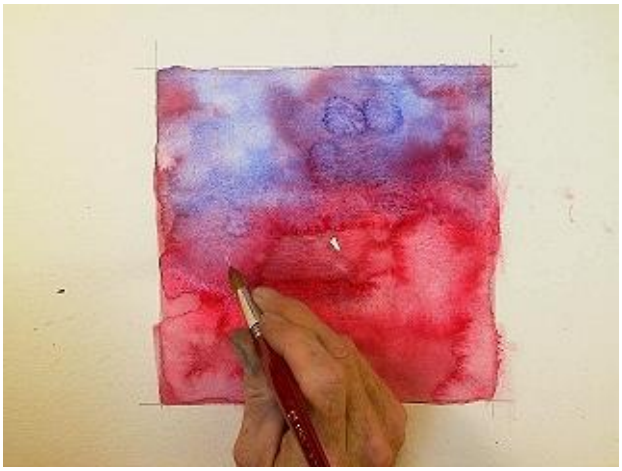


Figure 104

As the painting continued to dry, work on the surface with clear water.

Backwashes are usually accidental in nature. When you lay two differrent washes close together and one happens to touch the other, the wetter of the two will flow into other.

After reinforcing the "forced" backwashes on the bottom edges, drop a little more clear water on the close-to-dry washes.

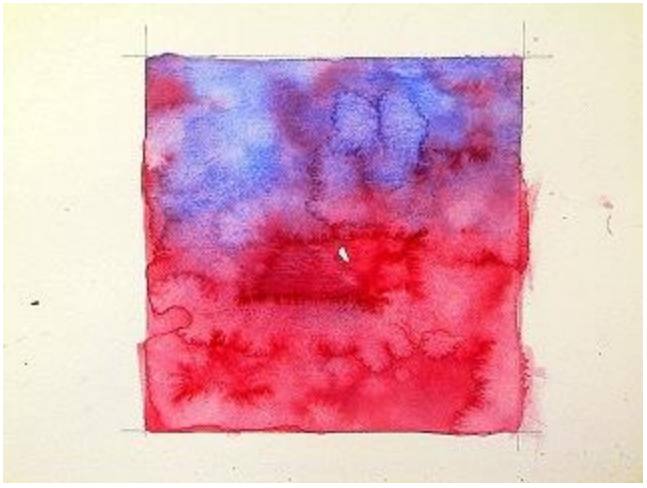


Figure 105

Notice the degrees **of difference in the upper Cobalt** Blue wash**.** When the clear water was dropped on a very wet wash (left side) the effect is soft and subtle. When water is dropped just before a wash is dry the effect is harsh and creates hard edges. The drier wash is less likely to flow back into the water to soften the edge.

The bottom backwash areas were achieved by touching the very edge of the rose wash with a brush loaded with clear water. You can see the interesting shapes formed as the Permanent Rose pigment was pushed away and concentrated.

SALT WATERCOLOR TEXTURE EFFECTS

Figure 106

Materials and objective

MATERIALS: Arches #140 CP watercolor paper, Iodized Table Salt, Grumbacher 1" flat red sable. A small square of dry cellulose sponge.

COLORS (various manufacture): Alizarin Crimson, Cobalt Blue, Sap Green

Figure 107

Using a 1" flat red sable, use washes of Cobalt Blue to paint a sky area. Grade the sky using lighter bands of Cobalt Blue closer to the horizon.

Using straight Sap Green, block in the right hill element.

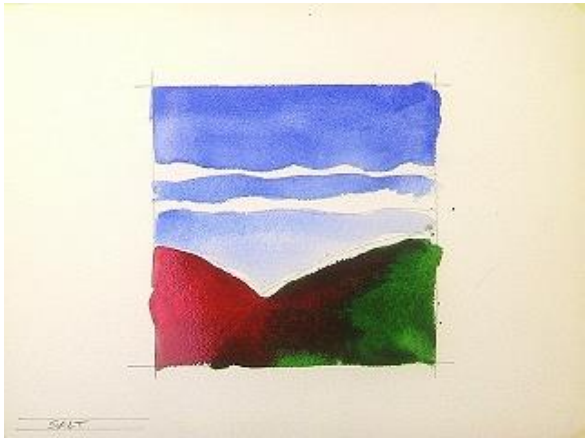


Figure 108

Wash the Alizarin Crimson hill on the left and pull a stroke up the top edge of the Sap Green hill a bit.

Let the Sap Green and Alizarin Crimson battle it out where they meet in the middle.

Figure 109

Holding a canister of salt, slip open the metal spout and tried a few light dustings of salt crystals and watch.

The salt will start sitting in puddles of paint.

After a while, add a bit more salt to the heavier areas of wash on the bottom.

Figure 110

There were a few areas left to drop the salt on when almost dry. Drop a bit of salt in those areas.

Set it aside to dry thoroughly.

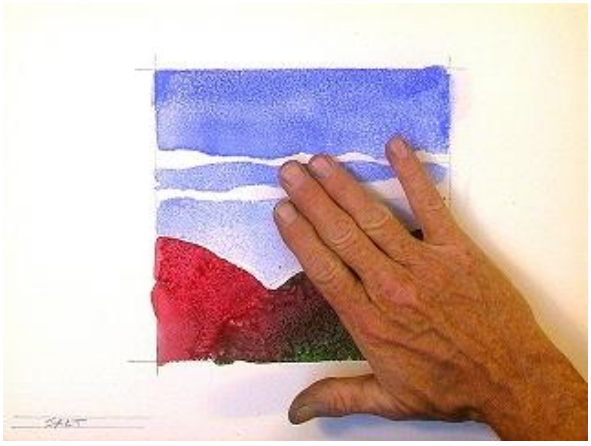


Figure 111

As the painting dried, the salt's effect on the watercolor washes became visible.

But there were salt stuck all over the painting.

Using a clean dry hand, gentle start brushing away the salt from the sky area.

Figure 112

Cut a dry cellulose sponge into a small square to uses as a scrubber or duster.

This enabled you to quickly and gently rub and whisk away the remaining salt. When removing any abrasive from your paint (salt, sand, etc.) take care not to scratch the paintings surface. Brush lightly.

Figure 113

As the washes dry the salt crystals suck up pigment gradually, creating a myriad of light star-like shapes. This is most noticeable in the sky areas and was less effective, and different, in the darker areas.

Experiment with various types of salt: table salt (iodized and non-iodized), sea salt, rock salt, kosher salt, etc. Larger grained salt will produce a larger, more pronounced starring effect.

SPLATTER AND SPRAY WATERCOLOR TECHNIQUES

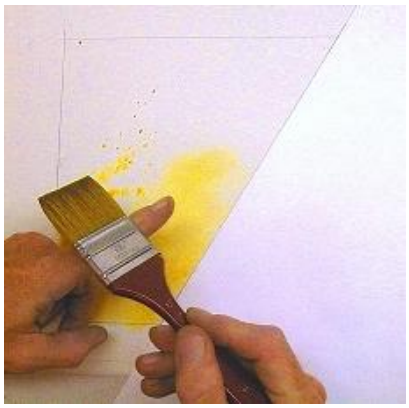


Figure 114

Moistened the lower half of the paper to see what happens wet-in-wet as well as dry.

Exciting effects require some exciting motions. Starting with some Cadmium Yellow Medium a 1½" wide wash brush, stab some color into the lower wash rather sloppily.

Grabbing some Yellow Ochre, with a quick mix, start rapping the edge of the brush against your finger. The paint appears to fly off chaotically.

Figure 115

Switching from a #8 and #4 red sable, run through Ultramarine Blue, Sap Green, and Alizarin Crimson

If your brush is sopping wet you can't control much when you throw it. Big Splats. Shake a few drops out before you start for an illusion of control.

use your fingers when you rap the ferrule of the brush to release the paint for more of a tactile control. (If this technique hurts whatever part of your hands you are hitting, try rapping on a pen than has a padded rubberized grip.)

Squeeze several drops of Cadmium Yellow Medium out of round sable from a height of 3' to make big splats (see finished example at bottom)

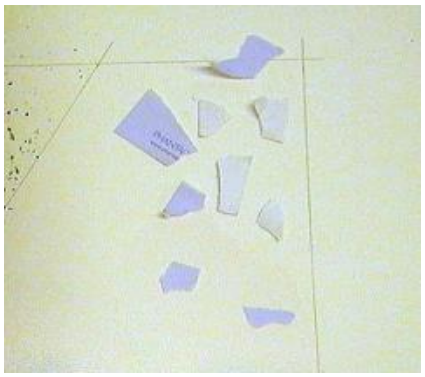


Figure 116

Before starting the spray tear up some small bits of paper and scattered them randomly in the upper corner.

Also moistened the lower half of the paper with clear water, and apply a light Dioxazine Purple wash into it.

Look for a old toothbrush and clean and rinse the bristles thoroughly, removing any old residue.

Prepare for a mess.

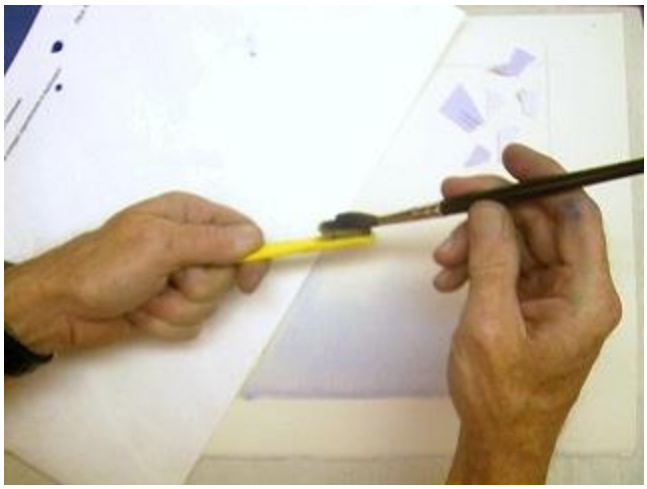


Figure 117

There are a couple ways to charge up a toothbrush. You can dip it directly in a paint puddle, but it is hard to fill the bristles evenly with paint.

Charge the toothbrush with #8 round brush. The advantage of doing it this way is that you can add as much paint as you need easily and in a controlled manner. **You don't want** the paint dripping from the toothbrush.

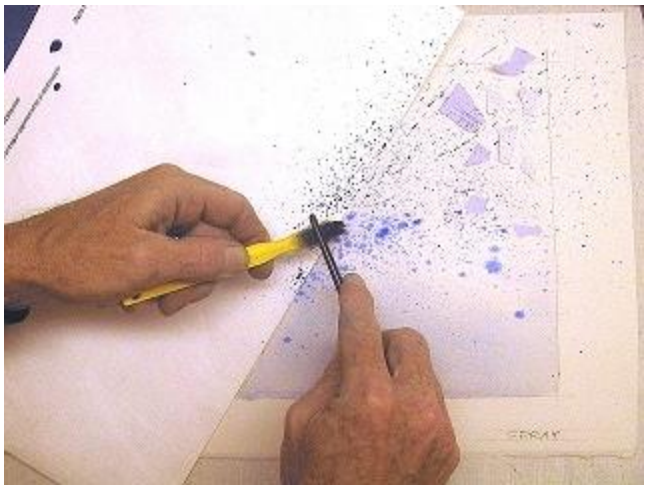


Figure 117

If you want to get "into the process" you can grip the toothbrush close to the head and drag your thumbnail back across the bristles. It does alter the effect in a unique way, but extra clean up is needed.

Using the handle of a #5 round, start quickly raking across the bristles, release the paint in a spray. Pull straight back in a quick motion. Alter the speed of release and distance from the painting for variation.

Figure 118

Continue covering the paper with all the same colors used with the spalatter technique above. Thoroughly rinse the toothbrush and dry it on a towel before refilling with a new color.

A modicum of control can be gained if you practice. Sometimes a modicum is all you need.

figure 119

Some watercolor purists consider these techniques gimmicks and believe only the brushstroke is suitable for traditional watercolor painting.

They are wrong of course. Use whatever device, technique, tool or aesthetic you want as long as it helps you attain your own artistic vision.

BASIC PENCIL COLOUR TECHNIQUES

Figure 120

This lesson introduces some basic colored pencil strokes which will be useful in your drawing. It is a good idea to spend some time exploring the colored pencil medium with small pieces before attempting a major drawing.

For this lesson, you will need some good quality drawing paper, and a few sharp colored pencils, including a colorless blender if you have one.

The most fundamental colored pencil stroke is one you know already: simple side-to-side shading. Practice keeping the marks straight, letting the fingers adjust the direction of the pencil or pivoting from the elbow. Many beginners accidentally curve their lines, pivoting the hand from the wrist, so that the surface they are shading looks rounded rather than flat.

Practice adjusting the amount of pressure that you apply to the pencil as you shade to precisely control the amount of color you lay down.

Side Shading and Tip Shading

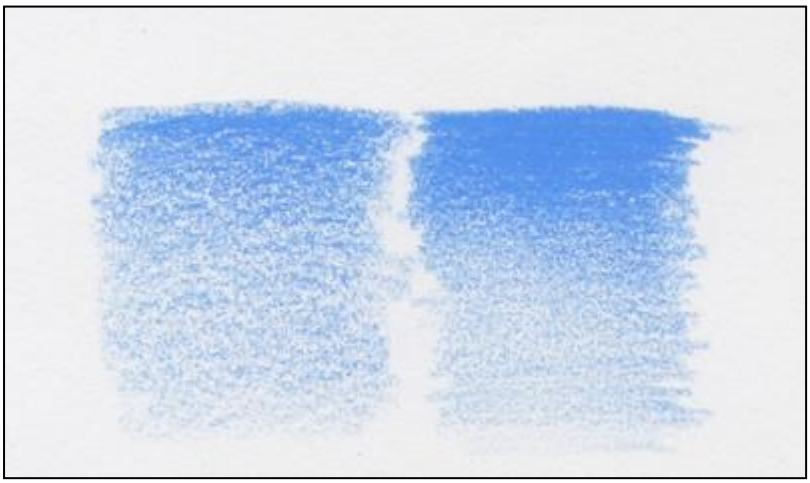


Figure 121

On the left is an area of side-shaded pencil, and on the right is some tip-shaded colored pencil. The paper grain in the side-shaded area is much more obvious, appearing coarser and more open. The tonal range is also more limited. When shading with the tip

of a sharp pencil, you can achieve a much richer, denser layer of color. The grain appears finer, and the pencil tip is able to get right into the paper grain, and you can create a broader tonal range.

This doesn't mean that shading with the side of the pencil is wrong - it can be a useful technique for sketching, when you want soft, grainy and even-toned shading.

Colored Pencil Hatching

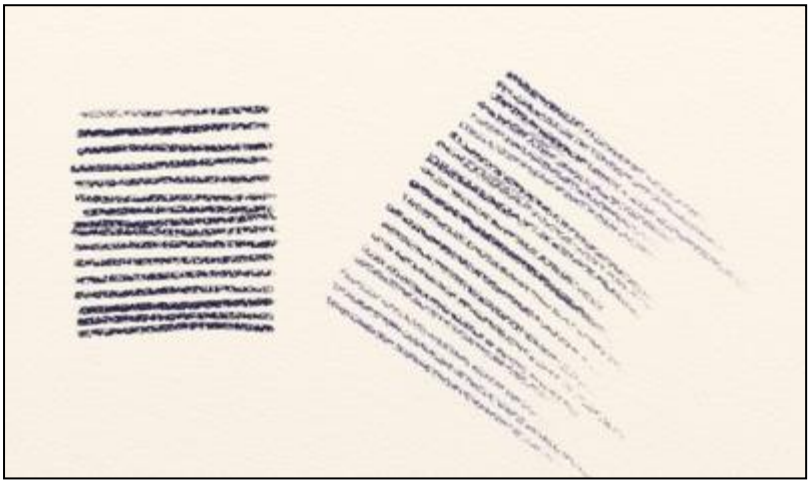


Figure 122

Hatching with colored pencil allows you to rapidly apply color and create texture and direction. Hatching is often used in one direction, but can also follow the contours of the surface to help create the sense of form and volume.

For best results, keep your pencil sharp. Rapid, regular, evenly spaced lines are drawn, leaving a little white paper or underlying colour showing. Close-up like this they look pretty irregular, but when you use hatching in a drawing, the slight variations don’t look so dramatic. It does take some practice to get them even though! It’s a good idea to practice on some spare paper first, so you get your hand moving the right way before applying pencil to your work.

Hatching can be done so that the lines begin and end very precisely, or you can vary the line weight, lifting the pencil to create a graded effect.

Colored Pencil Crosshatching

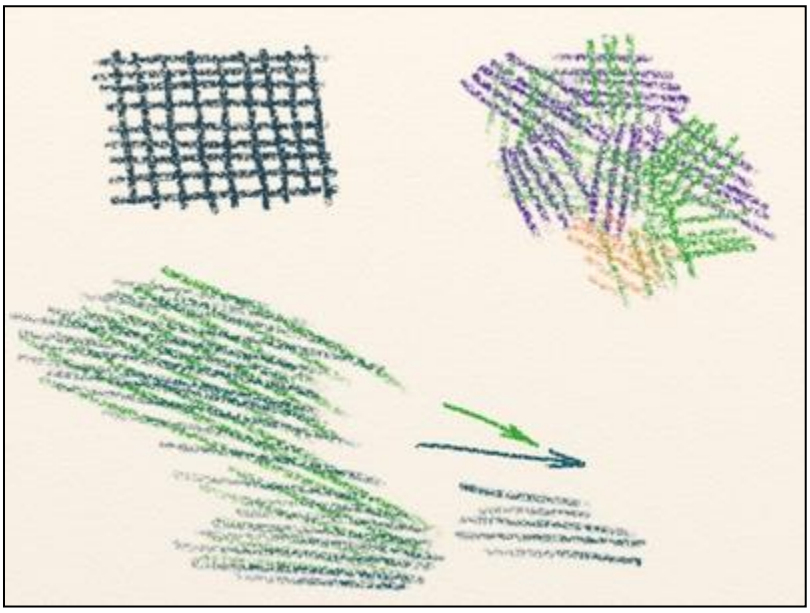


figure 123

Crosshatching is basically two layers of hatching drawn at right-angles. This is a very useful technique in colored pencil drawing. You can use crosshatching to create a darker area within a layer of hatching, or to create a visual blending effect of two different colors.

You can also create interesting textured effects by adding the second layer at just a slight angle, or by layering sections in at random angles. Again, these examples are zoomed in so that you can see the lines and effects clearly.

As always, practice makes perfect with crosshatching. Experiment with line weight (how hard you press the pencil), spacing, sharpness and color. See how it looks when you use just a couple of layers, compared to multiple layers. Experiment with using the light or dark tones first. By trying things out on spare paper (a failed drawing on good paper is ideal for this), you'll have the confidence to use these more interesting techniques in your final work.

Colored Pencil Scumbling

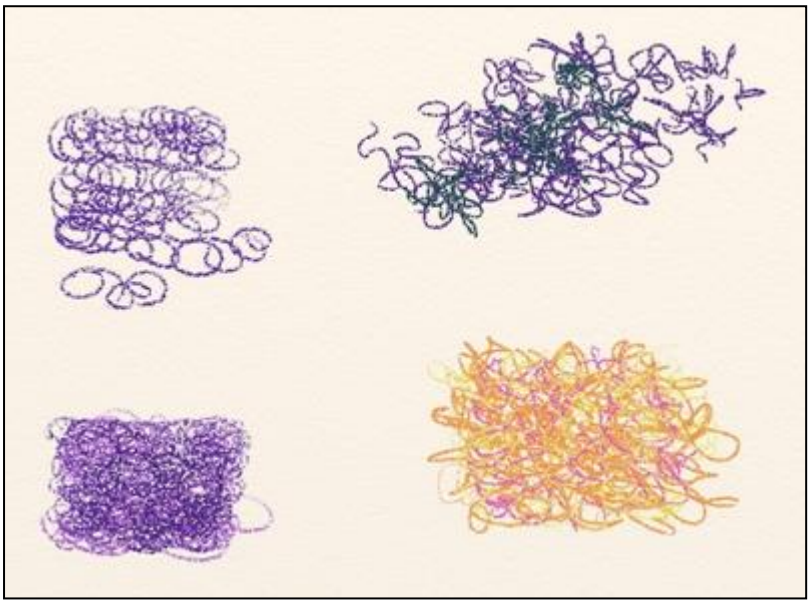


Figure 124

Scumbling in colored pencil means something rather different to the dry-brush painting technique. Colored pencil scumbling is a method of shading using tiny circles, sometimes called the 'Brillo pad' technique, due to the texture of that brand of steel-wire scourer. The texture created depends on the size and pressure used to draw the circles - you can create a very smooth finish or a rough and energetic surface. Scumbling can be used to layer a single color or with alternating different colors.

You can also use a more 'concave' scumble technique to create textures. Using a sort of figure-eight or 'daisy' shaped scribble and spidery lines, rather than a round circle, creating random dark patches and a more organic looking surface.

Directional Mark Making

Figure 125

Directional marks are lines which follow a contour, or the direction of hair or grass or other surfaces. These can be densely overlaid to form a rich textural effect. Directional marks can be short and broken or quite continuous and flowing depending on the texture you are aiming for. Often directional mark making is used quite subtly, overlaid with even shading and blended, to create a suggested direction without being dominant.

RENDERING TECHNIQUE

figure 126

This tutorial will show you how to draw a rose in colored pencil. A good subject is important. If you have a rose garden, can sit in a public garden or buy a fresh rose, then do try to draw from life. Your work will have much more internal 'life and a more convincing three-dimensional look. If drawing from a photograph, ensure it is a public domain image that you can legitimately use.

STEP – 1

Draw the Outline of the Rose

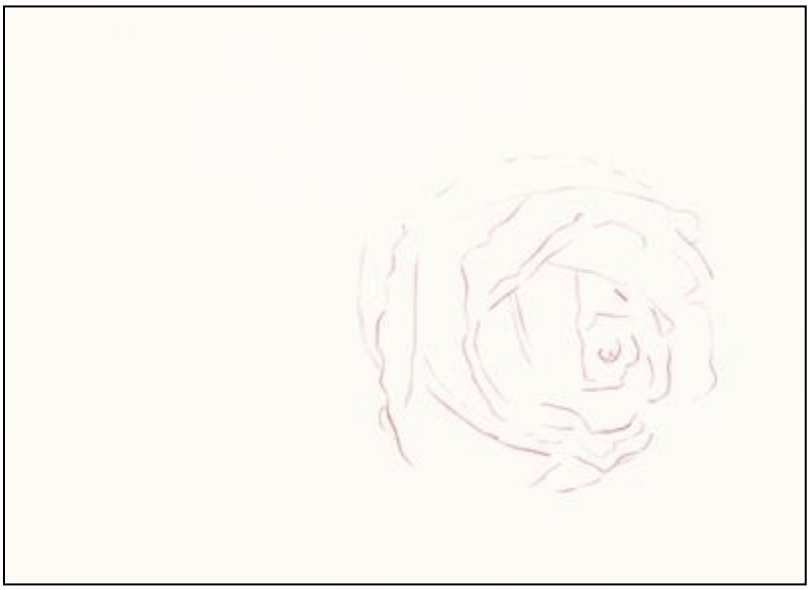


Figure 127

The first step is to draw the outline of the rose petals. Think about your composition making sure that you have enough space for the stem and the full bloom. Also consider future framing, leaving a border for the matt.

Drawing the rose freehand gives you more relaxed and energetic drawing, but you need to be able to allow for imperfections and not become frustrated by lack of accuracy later in the process. When freehand drawing, I still work from the inside-out, but will keep interior detail fairly minimal until I've loosely sketched the whole bloom and stem, so that I can adjust proportions if need be.

If working from a photograph, if accuracy is important to you, you can go ahead and trace some guidelines if you wish. Work very lightly at first and be aware of highlights: the edges of the rose petals are light, so you don't want them outlined in dark pencil. I use the red colored pencil to very lightly sketch the main shapes, working from the inside out.

STEP – 2

Laying a Foundation - Shading the Base Color

Figure 127

Now you can begin layering color into the rose drawing, starting with a foundation that will allow you to blend light and dark tones later. Select PC924 Crimson Red as the base color for this rose. It's a rich, slightly cool red. Many areas that you have shaded here are going to be darker, but begin by laying down a fairly even, light layer of color first. This will stop the paper fibers from grabbing the pigment and making it hard to blend. Shade some Prismacolor Colorless Blender PC1077 over the areas that are going to be very light, for the same reason.

Try to use more even marks, using a more circular motion with the pencil. If you are using strong directional shading, think about the contours of the shape you are shading and use the direction of the marks to suggest this, as you layer the color.

STEP – 3

Shading the Rose - Shading Undertones

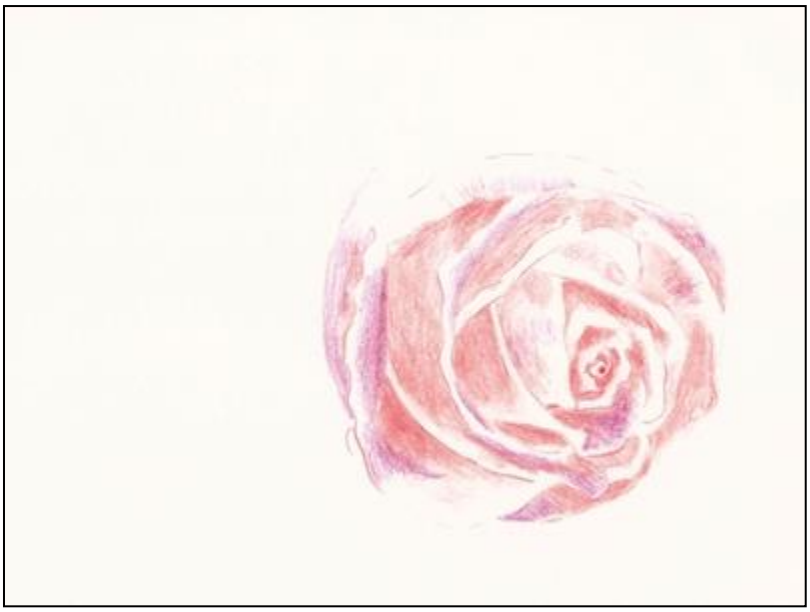


Figure 128

The surface of an object is hardly ever a totally solid color, even if their actual surface is painted a single color. Shadows and direct, indirect and reflected light all create variations on a surface. In this rose you can see a blue-violet undertone in many areas, so you will shade this in before adding another layer of red. For this use Prismacolor PC932 Violet. It's darker and bluer than it appears.

You have a lot of room for error in this kind of layering, so don't be afraid to experiment. Try out different colors and ways of applying layers to get interesting effects.

STEP – 4

Darker Values - Shading Darks and Shadows

Figure 129

The rose is starting to take shape. Now we need to build some darker tones using black. In the reference photo, you can see dark veins in the petals, so try to follow these in the drawing. Be very careful to reserve the lights at this stage.

STEP – 5

Building Layers of Color

Figure 130

Now you layer more color onto the rose drawing. Using a combination of PC924 Crimson Red with a little PC922 Poppy Red towards the edges. Small circular strokes pick up the under-layers and the surface quickly becomes solid and almost burnished. It's surprising how quickly you can build colors using this method.

Using other colors of red, orange or any other color - depending on the effect you are after - helps to keep the eye from becoming tired, so that the colors look as rich as possible.

STEP – 6

Colored Pencil Layering - Adding More Undertones

Figure 131

There are some very deep, dark areas on this rose, so continue to build layers. To add variation and coolness, use a bit of Violet Blue PC933 and Indigo Blue, PC901. Shade quite lightly at first, work over the area first in one pencil then the other, overlap. Use some directional shading to suggest the curve and texture of the petals. Notice that the

edges of the petals are barely outlined. By bringing the shadows up to them, the 'outline' will be formed by the contrast between the lighter petal and the dark shadow.

STEP – 7

Final Layers of Colored Pencil

Figure 132

The process of layering is continued on each petal, first layering dark tones with reds in the shadows then bringing the reds forward to the tips of the petals. Using the red pencils with colorless blender on the edges of the petals keeps them bright and luminous. Where they are too dull, a little pink or white can be used, but minimize use of white, as it can look dull. In a couple of places use an eraser to remove a little color and add white for better contrast.

It seems like a lot of drawing has happened in this stage, but really it's just a continuation of the process as you work your way around the petals, constantly referring to your reference source to check where lights and darks need to be. You could continue layering, working heavily into the drawing to create a burnished surface. Burnishing means that you've layered until there can be no more pencil added. This creates a rich, jewel-like surface.

Once the bloom is complete, you're ready to add the stem and leaves. Lightly draw a foundation layer using PC946 Dark Brown, and PC909 Dark Green.

STEP – 8

The Finished Rose Drawing

Figure 133

The final drawing is quite a bit darker than you see on-screen, but adjusting the tones flattens the detail, so leave it a bit light. It's still lighter than the original photograph; heavier layering of violet and black will give denser dark tones, but you would probably also want to add some darker warm purple and burgundy pencils to the drawing to match it precisely.

To finish the rose drawing, you just need to complete the leaves and add some shadows.

Shadow helps to place the object on a surface. Keep your shading horizontal so that the surface looks horizontal and not sloped. Add a layer of colorless blender first, so that you would be able to keep the shading smooth on the toothy paper. Then shade the shadows in black, and use an eraser to soften the graduation.

OIL PAINTING TECHNIQUES

Figure 134

Oil paints have been most artists' first choice for hundreds of years, with good reason. The colors are gorgeous, you can do anything with them and they last forever. Oil paint is slow drying so you can remove what you don't like while it's wet or you can paint over it when it's dry. Oil paint is easy to use once you learn the basics.

This tutorial is set up to take you step by step to a finished painting.

- First learn about the materials you will need to get started.
- Next learn a little basic information in easy steps.
- Finally use these concepts as you paint the four exercises with me on your own canvases.
- You will then have the skills to paint anything you can see or imagine.

OIL PAINTING MATERIALS

To get started you need oil paints, brushes, a place to mix your colors, a tool to mix them with and a surface to paint on. Plus you want a way to clean up. The ingredients are easy to find and you don't need a lot of them. You can do a lot with a little. Good brushes and good paints are easier to use and go farther than the cheap ones.

Minimum Kit

Figure135

If is necessary or desirable to reduce your oil painting equipment to a minimum, how little could you get by with? Clearly you would need a surface to paint on, a surface to mix your colors on, something to mix them with, plus something to clean things up. So what gets reduced is the number of brushes and the number of colors.

1. Canvas or other painting surface

CANVAS is the traditional surface for oil paintings. Although oil paint can be used on most non-porous surfaces the texture and flexibility of a stretched canvas is best. Many canvas surfaces are available including canvas-textured paper; canvas glued to heavy board, primed canvas in a roll and pre-stretched canvases. In ALL cases the surface should be primed or re-primed with GESSO. A gesso that has a neutral gray tone is preferred so the light values are more easily seen. (Acrylic paint will tone the gesso) If you prefer to use the gesso white, the canvas may later be toned with a thin coat of oil paint.

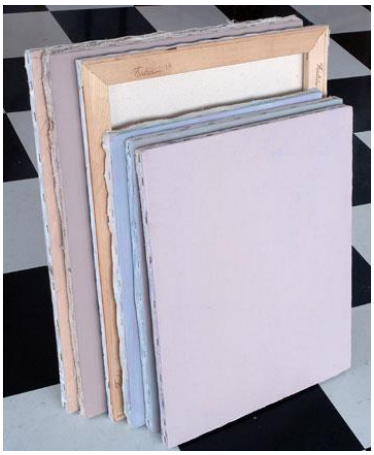


Figure 136

2. Palette

A Palette is a flat non-porous surface where the oil paint colors are mixed. The palette can be held in your hand or placed on a neighboring surface. Hand held palettes have thumbholes. Palettes are commonly made of wood, Plexiglas or safety glass.

A wooden palette should be coated with linseed oil and wiped dry before its daily use. After the palette has been cleaned at the end of a session it should be coated with linseed oil and wiped dry again.

Plexiglas is a good surface for a palette and safety glass is the best. Both of these will need a neutral color backing. Mixing colors on a white palette makes it hard to

distinguish dark colors. All palettes should be cleaned at the end of a session. A glass palette can be cleaned later with a razor if need be but wood or Plexiglas will scratch.

e 

Figure 137

On top is a Plexiglas palette in the middle is a wooden palette and on the bottom is safety glass, (a car window).

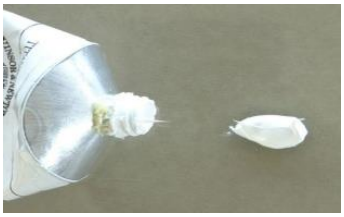
Figure 138

The hand held palette with the colors in place and ready to paint. The pure colors are placed at the far edge of the palette. Portions of these colors are brought forward, mixed with the palette knife and then painted on the canvas.

3. Colors:

Figure 139

This list of bright, pure, permanent and safe colors are as near to the spectrum colors as currently available. Plus we add white and black. Your colors are: Titanium White • Cadmium Yellow Pale • Cadmium Yellow • Cadmium Orange • Cadmium Scarlet • Cadmium Red • Quinacridone Rose • Dioxazine Violet • French Ultramarine • Thalo Blue • Thalo Green • Cadmium Green • Cadmium Green Pale • Mars Black. Recommend is Winsor & Newton Artists' Oil Colorsbecause their quality is higher than their price.



White: Use TITANIUM WHITE, an opaque non-yellowing white. Most brands contain some zinc white to aid in mixing. Pure titanium white is chalky and hard to

mix. Pure zinc white is a little too transparent for most uses. Don't use Lead White, Flake White or Cremnitz White, all of which contain toxic lead.

(Each of the following examples is the pure color and then that color with an equal amount of white.)

Yellow: Use CADMIUM YELLOW PALE or CADMIUM YELLOW LIGHT. Opaque.

Yellow-Orange: Use Cadmium Yellow called Cadmium Yellow Medium. Opaque.

Orange: Use CADMIUM ORANGE. Opaque.

Red-Orange: Use CADMIUM SCARLET. Opaque.

Red: Use CADMIUM RED sometimes called CADMIUM RED LIGHT. Opaque. Cadmium Red when mixed with blue it makes a very dull Violet.

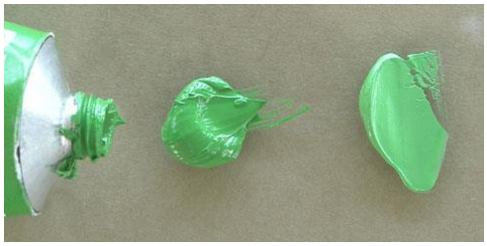
Red-Violet: Use QUINACRIDONE ROSE (Permanent Rose in Winsor Newton paints). Transparent.

Violet: Use DIOXAZINE VIOLET (Winsor Violet in Winsor Newton paints). Transparent.

Blue-Violet: There is no satisfactory "out of the tube" Blue-Violet. Mix DIOXAZINE VIOLET with ULTRAMARINE BLUE when this color is needed.

Blue: Use French Ultramarine Blue and Thalo Blue. The closest to a true blue is a mixture of French Ultramarine Blue and Thalo Blue (3 parts Ultramarine to 1 part Thalo), Transparent. Use French Ultramarine Blue for most instances, but put both blues on your palette.

Blue-Green: Use THALO GREEN (also called Winsor Green, Grumbacher Green). Transparent.



Green: Use CADMIUM GREEN. It is suitable for most situations but is slightly to the yellow side. When a pure spectrum green is needed mix six parts Cadmium Green to one part Thalo Green. Opaque.

Yellow-Green: Use CADMIUM GREEN PALE. Opaque.

Black: Use MARS BLACK. Opaque. Or use IVORY BLACK. Transparent.

The Difference between Transparent and Opaque Colors

Oil paints are mixtures of dry pigments and a drying oil like linseed oil. Pigments are powdered natural minerals, dyed minerals and occasionally vegetable matter. The powdered minerals, such as cadmium and titanium, when mixed with oil make

opaque colors. Pigments made from dyed minerals, (Quinacridone or Dioxazine), or vegetable matter, when mixed with oil make transparent colors. Transparent colors are useful for glazing. When a transparent color is mixed with an opaque color the mixture becomes opaque.

4. Brushes

Brushes are the most important part of your equipment. A good painter will have difficulty painting with bad brushes. A good brush for oils will retain its shape when loaded with paint and will bounce back to its original shape after each stroke. A bad brush will not return to its original shape when loaded with paint or after each stroke. Or worse will not bend at all.

Different Brush Hair for Different Purposes

There are two types of hair used in oil painting brushes. They are BRISTLE hairs from pigs and SABLE hair from the weasel like sable. In the course of a painting you start with large areas. Bristle brushes are best in sizes of a half inch wide or larger so are used to begin a painting. Whole paintings can be painted using only bristle brushes but if you want finer detail in smaller areas, you switch to sable brushes. Sable brushes are best in sizes one half inch in width or smaller. Sable brushes are your detail brushes. (Sable brushes made for watercolors usually lack the spring needed for painting with oils.)

Long Handles Balance the Brushes

Oil painting brushes are made with longer handles than watercolor brushes or house painting brushes. These other brushes are ideally used in a vertical position with the painting surface horizontal. Liquid goes down hill, so the short handles shift the balance toward the front of the brush so the paint will flow better. Oil painting brushes are used in a horizontal position with the painting surface vertical. The oil paint doesn't flow. When you hold your oil painting brush horizontally the long handle serves to balance the brush in your hand.

Imitation Hair Brushes Can Be Good

Many brush manufacturers make brushes that imitate the qualities of Bristles and Sables at a lower cost. They include nylon hairs, horsehair and mongoose hair. None are as good as sables and bristles but occasionally they come close.

Brushes Come in Different Shapes

The most common shapes brushes come in are: Flats, Filberts, Bright and Rounds. Numbers on brushes vary widely between brands. Look at the size of the brush instead of its number.

Brushes and Their Strokes

Flats

Figure 140

A FLAT brush has hairs arranged in a rectangular shape that is longer than it is wide. From the side it is narrow. The Flat is the most versatile of brushes. You can make a broad stroke, a narrow stroke and, with a little twist, a triangular stroke. This is also your primary blending brush.

Filberts

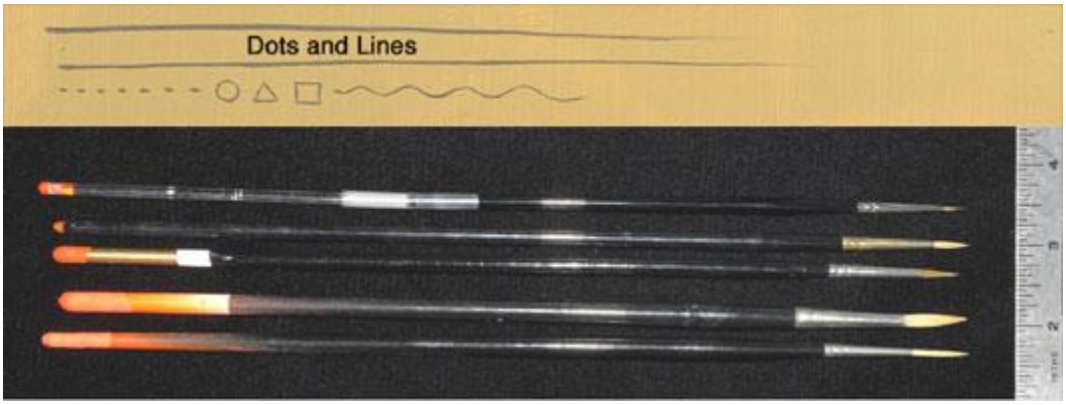
A FILBERT looks like a Flat with the corners rounded. The stroke is oval shaped or half circular. They are used when you want a softer edge or for smaller blends than you get with a Flat.

Bright

A BRIGHT (named after a fellow named Bright) is like a Flat except the hairs are shorter and the side view is narrower. A Bright is used when you want your brush strokes to show. They tend to put the paint on thickly and when worked too hard will

remove as paint much as they apply. The bright, being short and therefore stiffer than a Flat, can also give you a little more control of your stroke.

Rounds



Although some people successfully use ROUNDS for their entire painting, they are less versatile than other brush shapes because little variation in the size and shape of the stroke is possible. Rounds are most often sable hair and are used for small details and line work.

Varnish Brushes

These soft sable-like brushes are used for varnish and retouch varnish. Clean the varnish from the brushes with turpentine then wash them in soap and water.

5. Easel

Oil paint takes three days to dry. The long wet time makes it easier to work on the painting vertically. An easel is used to hold the canvas in a vertical position. Easels can be as simple as a nail in the wall on which to hang a canvas or a chair or a windowsill. All easels serve the function of keeping the canvas secure and upright.

Pictured here on the left is the classic studio easel, the best for most purposes. In the middle is tripod easel for small paintings or drawings. On the right a collapsible, portable, paint box/easel designed for working outdoors.

OIL PAINTING - BASIC INFORMATION

These are things you should know as you start a painting:

Oil Painting Overview

All paint is a mixture of a dry pigment and a liquid. For oil paint the dry pigment is mixed with linseed oil. Linseed oil is a drying oil that dries by oxidation. That is, it takes oxygen from the air and creates a crystalline solid that encases the pigment in a permanent form. When it's dry it can't be removed.

Oil paint is thick. It comes in tubes. The paints are squeezed out onto a palette where they are mixed together with a palette knife to make the various colors. It's then applied to a vertical canvas with stiff brushes.

Oil paints are slow drying. Usually takes three days before you can put on another coat. The drying time is an advantage and disadvantage. The great advantage is that you have time to refine and adjust what you paint before it dries. This is particularly useful when making gradual transitions from one color to another. Also if you paint something you don't like, it can be removed while wet using a rag, palette knife or rubber squeegee and replaced.

The disadvantages are that when putting two wet colors next to each other they can cross-contaminate if not applied accurately. The palette, the brushes and the wet painting must be handled carefully to keep wet paint off, fingers, food, fabric and furniture.

The paint may be manipulated for up to 12 hours after which you must wait three days for it to dry before going back to make any changes. When oil paint is dry, new colors can be applied over old. Many layers of paint may be applied. If the paint is to be used thickly each layer should be as thick or thicker than the previous layer to avoid cracking.

After a painting is thoroughly dry (three to six months), varnish is applied to protect the painting.

Drawing for Oil Painting

How to Draw for Oil Paintings

A complex drawing is quickly lost when the oil colors go on, so simple shapes and contour lines make the best drawings for oil paintings.

The drawing may be made directly on the canvas or it can be prepared before and transferred to the canvas.

When drawing directly on the canvas, PAINT that has been thinned with thinner is the best. Because it is paint, it doesn't need to be isolated from subsequent colors.

CHARCOAL can be used for drawing on the canvas. The charcoal drawing must be isolated from the paint layers with FIXATIVE. Vine charcoal is easier to seal with fixative than compressed charcoal.

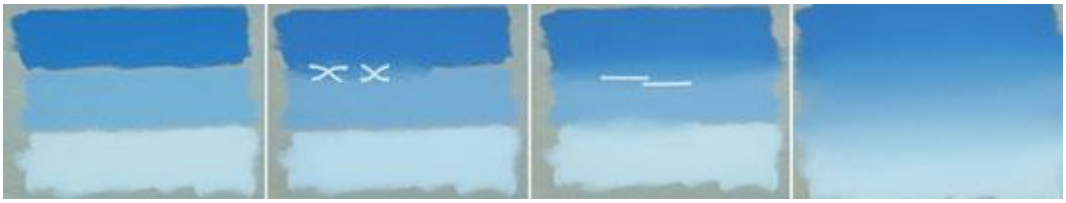
The drawing can be made with a PENCIL on the canvas. This must be sealed with FIXATIVE before the colors go on. A pencil's point (if pushed too hard) can make small cracks in the gesso so a thin transparent layer of gesso may need to be applied to re-seal the canvas. If gesso is used in this way the fixative is not necessary.

A drawing that is going to be TRANSFERRED to a canvas is best done on thin tracing paper because the transfer will be clearer. Tape the drawing to the canvas. Transfer the drawing using carbon paper. Draw over your drawing with the carbon paper beneath it. Use a contrasting color ballpoint pen so you can see where you've already drawn and to get a consistent line size. The carbon transfer should also be separated from the paint layer with fixative or a thin transparent layer of gesso.

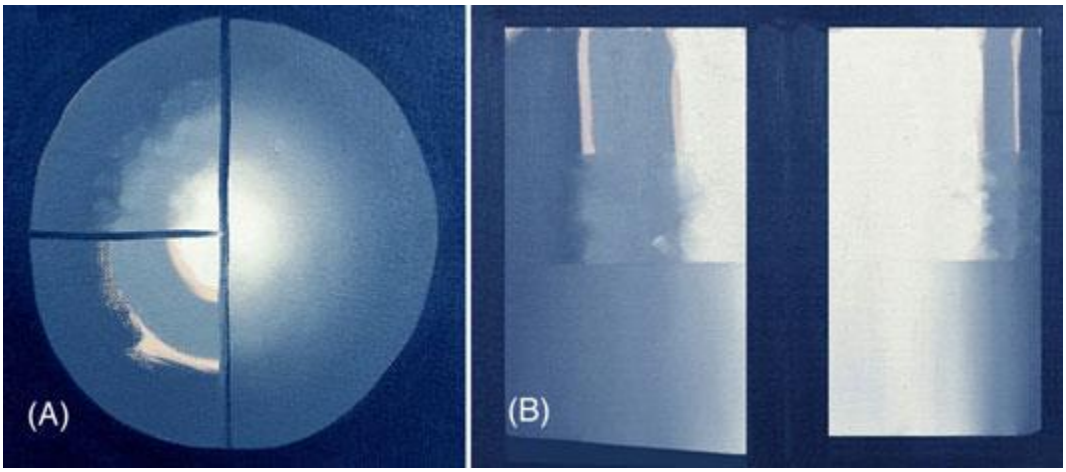
Blends

Blends are Color Transitions

A blend is the gradual transition from one color to another. Oil paint, because it takes time to dry, allows you to move the wet paint around on the canvas. This makes it easy to do the thing most difficult to do with other types of paint, the blend. All brushes will blend oil paint. Flat brushes are the best and rounds brushes are the worst. The principles are the same for large and small blends.



The colors are mixed on the palette and applied in their approximate location on the canvas. The brush is then dragged back and forth in a crosshatch stroke between two values until a satisfactory transition is made. Parallel strokes are then used to refine the transition of values. A clean brush is used for the dark to middle and another clean brush for the light to middle.



(A) In a blend the brush strokes are ALWAYS perpendicular to the light. In a circular blend the brush must rotate to remain perpendicular to the light so curved brushstrokes are used.

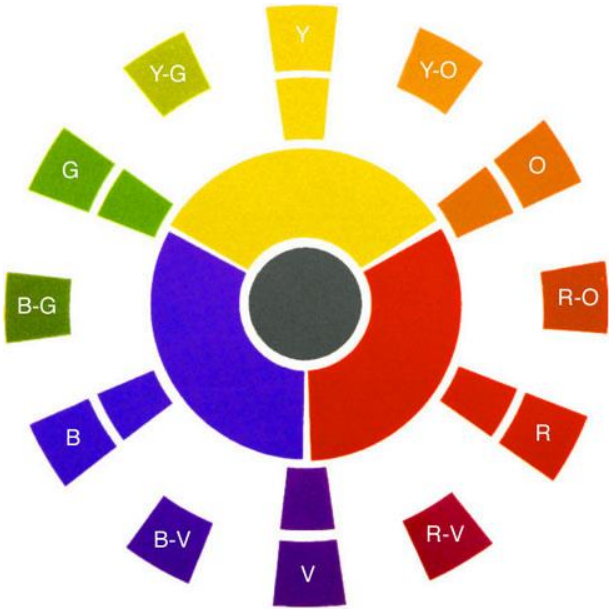
(B) The placement and size of value shapes within a blend create the contour of the surface. Note the value placements for flat surfaces on the left and curved surfaces on the right.

MATCHING COLORS

How Do You Match That Color?

A rainbow gives us pure examples of the basic colors of the visible world. The rainbow's colors are, in order, red-violet, red, red-orange, orange, yellow-orange, yellow, yellow-green, green, blue-green, blue-violet and violet. When this order of colors is formed into a circle we have the COLOR WHEEL. The color wheel is an essential tool for matching colors.

The Color Wheel



The wheel is arranged with yellow, the lightest value color at the top and violet, the darkest value color at the bottom. From the top down on the right are yellow-orange, orange, red-orange, red, and red-violet. These are called the warm colors. From the top down on the left are yellow-green, green, blue-green, blue and blue-violet. These are called the cool colors.

Complementary Colors

Any TWO colors directly across the color wheel from each other are called COMPLEMENTARY COLORS. Red and green are opposite each other on the color wheel and therefore are complementary to each other. Yellow and violet are each other's complements. Yellow-green and red-violet are complements. Complimentary colors when placed next to each other on the canvas intensify each other. Complementary colors when mixed together on the palette neutralize each other. In this chart the pure intense colors are on the outside opposite their complements. As we move to the middle, the complements are mixed together until they become gray, the least intense of all.

Color Values

All colors come in all values. The pure spectrum colors are in the position of their relative values on this seven-value scale.

With These Things in Mind, This is How to Match Any Color

We have only to answer these three questions to match any color we see.

1. WHAT COLOR IS IT FROM THE COLOR WHEEL? (Its spectrum color)

2. HOW INTENSE IS IT? (How much of its complement does it contain? More complement means less intense.)

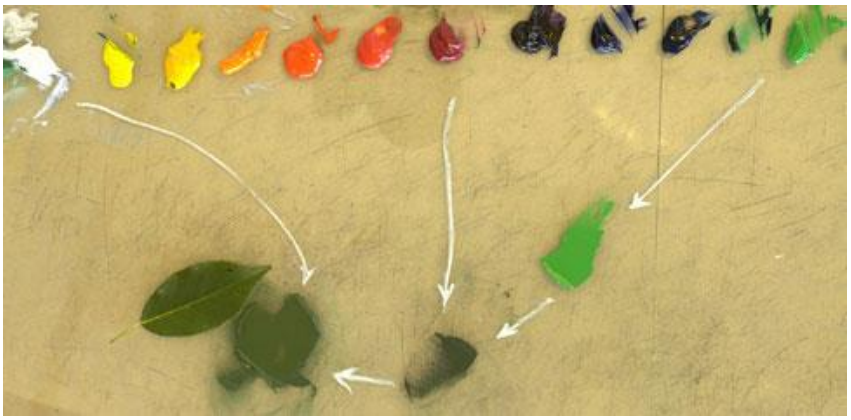
3. WHAT VALUE IS IT? How light or dark is it?

This is how it Works

The colors in order on the palette

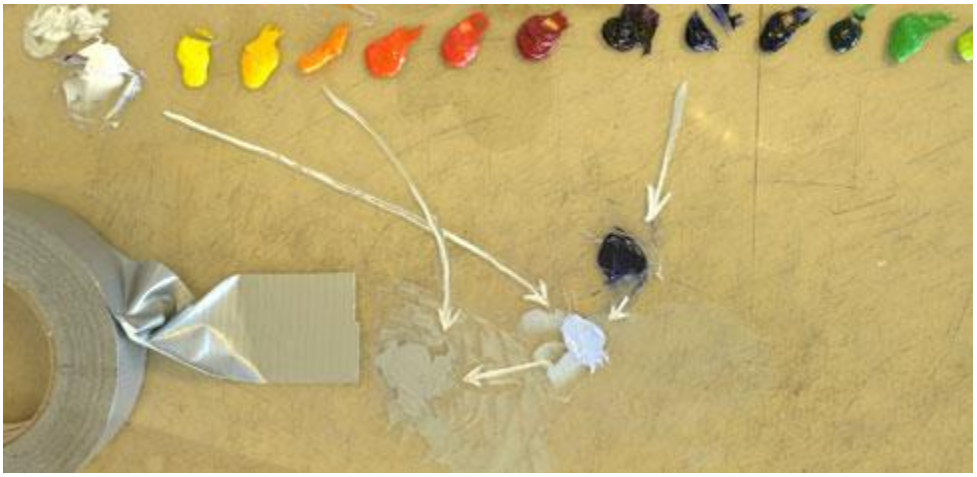
Matching the Brown Leaf

The spectrum color is a red-red-violet. White is added to match the value. Yellow-green, the complement of red-violet is added to reduce its intensity.



Matching the Green Leaf

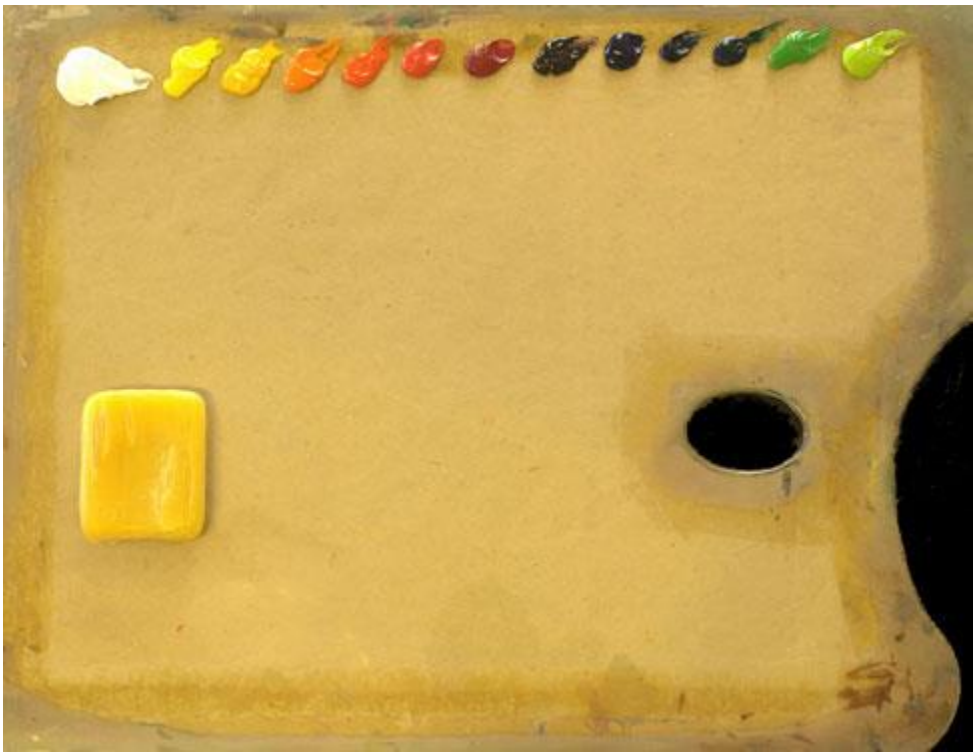
Green is the spectrum color. Cadmium green is the base color. It is a little to the yellow side so its intensity is reduced using a red-violet (Quinacridone Rose). Yellow-green and red-violet are complementary to each other. White is added to match the value.



Matching the Silver Tape

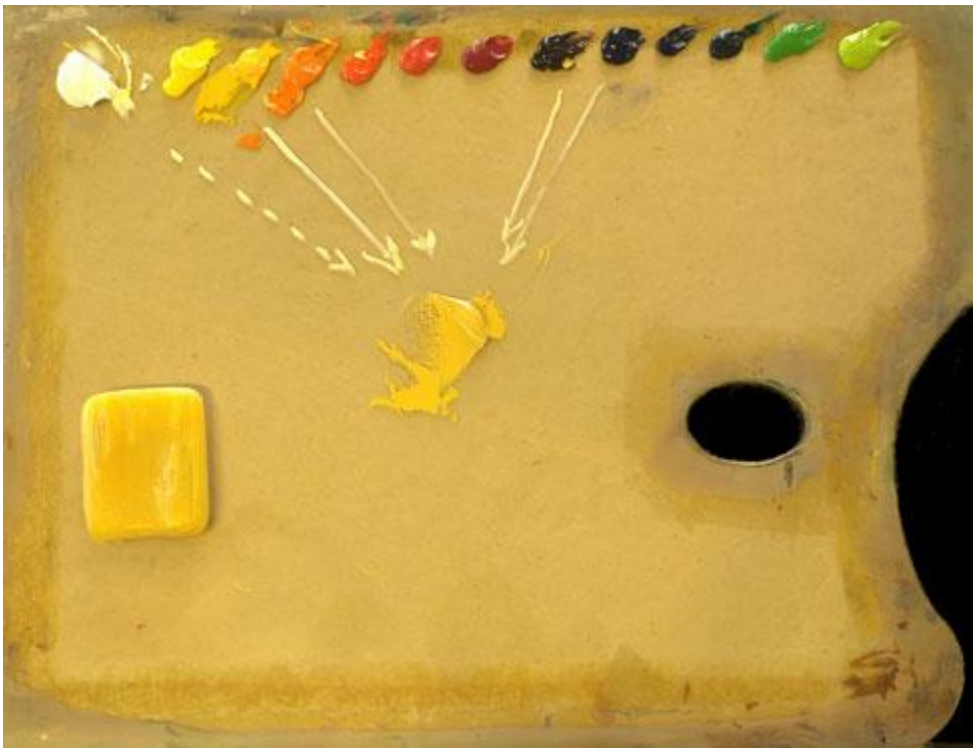
Blue is the spectrum color. White is added to match the value.

Orange, the complement of blue is added and the color becomes gray.

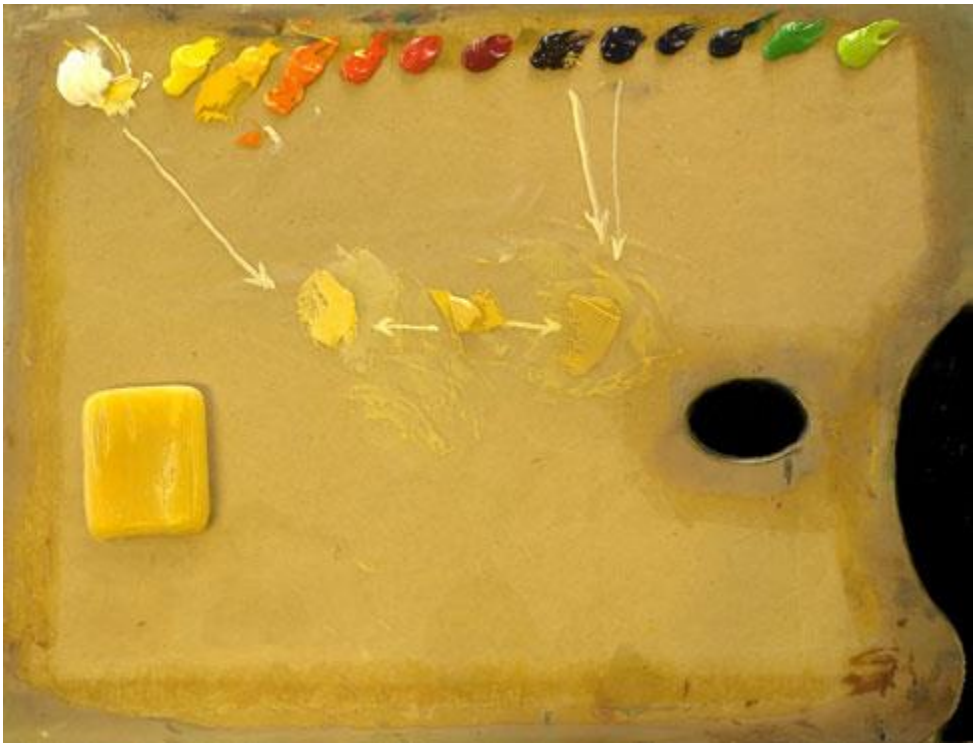


Matching the Colors of a Three Dimensional Object

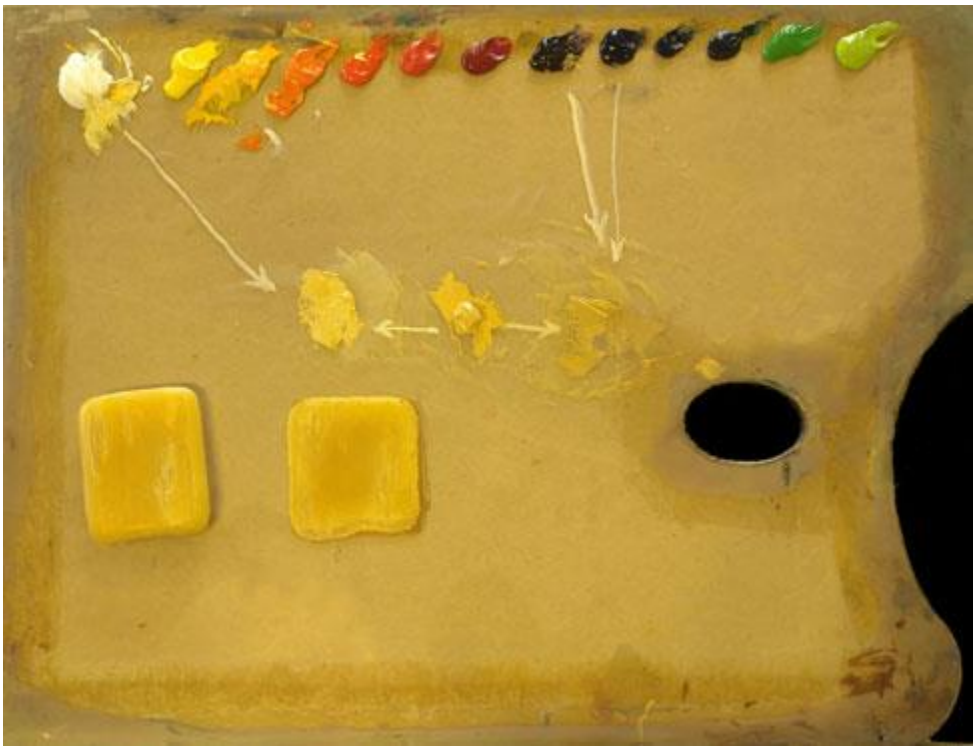
In this case a bar of soap.



The middle value is first. The spectrum color is yellow-orange. A small amount of its complement, blue-violet, is added to match the intensity plus a trace of white.



White is added to the middle value to create a light value. Blue-violet is added to the middle value yellow-orange to create the object's shadow color.



The soap's colors are matched. A color's complement will usually make the color's shadow value. For darker value shadows use the middle value color with less white. In some cases a color's compliment won't darken the color enough. This is when you add black to get the value.

FINISHING TECHNIQUES

Glazes and Washes

TRANSPARENT layers of oil paint are called GLAZES.

TRANSLUCENT layers of oil paint are called WASHES.

Both are colors thinned with a solution of 1/3 linseed oil, 1/3 turpentine and 1/3 Damar varnish.

A GLAZE is a thin TRANSPARENT color used over another *dry* color to create a third color. For example if you put a thinned Quinacridone rose (a transparent color) over blue, you get a violet. If you use a glaze over a similar color you enhance the

color. Cast shadows over complex textures are often glazed. A glaze always darkens a color.

This is a Glaze

By example, the beetle's carapace needs to be greener.

The GLAZE formula is mixed on the palette with thalo green (a transparent color) until the degree of transparency necessary is achieved.

The glaze is then applied with a sable brush to the horizontal painting. Allow it to dry overnight. With a glaze you can change a color with out changing the pattern of brush strokes of the underlying layer of paint.

This is a Wash

A WASH is a thin OPAQUE color used over another *dry* color. A wash will not change its essential color and appears as a TRANSLUCENT layer on top of other colors.

Mix the color with the glaze solution on your palette until you have the degree of translucency needed. Apply it to the horizontal painting with a sable brush.

White (an opaque color) is used with a glaze solution to create the rays of light. Allow it to dry overnight.

LAP TEST	Performance Test

Name……. ID……..
Date…….

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within **3** hour. The project is expected from each student to do it.

Task-1 draw a footwear sketch and try to render it using different mediums

LG #15	LO #3- Identify elements of fashion

Instruction sheet
This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics: • Identifying relevance and context of fashion • Understanding terminology and theoretical concepts used in the fashion industry ✓ Definition of different fashion terminologies ✓ Concept and trends in fashion industry This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, **upon completion of this learning guide, you will be able to**: • Identify relevance and context of fashion. • Understand terminology and theoretical concepts used in the fashion industry.
Learning Instructions:
1. Read the specific objectives of this Learning Guide. **2.** Follow the instructions described below. **3.** Read the information written in the information Sheets **4.** Accomplish the Self-checks **5.** Perform Operation Sheets **6.** Do the “LAP test”

Information Sheet 1- Identifying relevance and context of fashion

The relevance and context of fashion are described below:-

- Arts and crafts movement
- Art nouveau
- Art deco

1.1 arts and crafts movements

An **art movement** is a tendency or style in art with a specific common philosophy or goal, followed by a group of artists during a specific period of time, (usually a few months, years or decades) or, at least, with the heyday of the movement defined within a number of years. Art movements were especially important in modern art, when each consecutive movement was considered as a new avant-garde movement.

Crafts movement

Not only **craft** production, natural motifs and a new style of jewellery but also a more modern template for women's clothes. The Arts and **Crafts** movement was driven more by a belief in a set of principles, than by developing a particular style. But this didn't mean that it had no influence on the world of **fashion**.

The **Arts and Crafts movement** was an international trend in the decorative and fine arts that developed earliest and most fully in the British Isles and subsequently spread across the British Empire and to the rest of Europe and America.

1.2 art nouveau

Art Nouveau was aimed at modernizing design, seeking to escape the eclectic historical styles that had previously been popular. Artists drew inspiration from both organic and geometric forms, evolving elegant designs that united flowing, natural forms resembling the stems and blossoms of plants.

The most popular **Art Nouveau** motif was peacock feathers. The hallmark of the style **are** the curved undulating lines known **as** whiplash lines, plant **like** forms and highly stylized curvilinear designs. The style is often described **as** sinuous, rhythmical and dream **like**.

1.3 art deco

Art Deco, short for **Arts** Décoratifs, is characterized by rich colors, bold geometry, and decadent detail work. Having reached the height of its popularity in the 1920s, '30s, and '40s, the **style** still brings in glamour, luxury, and order with symmetrical designs in exuberant shapes.

The Characteristics of Art Deco

- Heavy geometric influences.
- Triangular shapes.
- Zigzags.

- Trapezoidal shapes.
- Straight and smooth lines.
- Loud, vibrant, and even kitschy colors.
- Streamlined and sleek forms.
- Sunburst or sunrise motifs.

As a style that combined **arts** and craftsmanship, **Art Deco found** its **use mostly** in the fields of architecture, interior, textile, furniture and fashion design. To a lesser extent, it can be **found** in visual **arts**, **usually** painting, sculpture and graphic design.

Self-Check – 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I:

Note: **Satisfactory rating - 3 points** **Unsatisfactory - below 3 points**

You can ask you teacher for the copy of the correct answers.

Information Sheet 2- Understanding terminology and theoretical concepts used in the fashion industry

A. Definition of different fashion terminologies

2. There are several terminology and theoretical concepts used in the fashion industry

2.1 fashion

Fashion is about showing your identity. It **is the** first thing people look at to interpret who you are. It shows what choices you make, what type of person you are, and shows the world what you stand for. It gives a glimpse into someone's personality. It's how you differentiate yourself from other people.

2.2 style

noun. a particular kind, sort, or type, as with reference to form, appearance, or character: the baroque **style**; The **style** of the house was too austere for their liking. a particular, distinctive, or characteristic mode of action or manner of acting: They **do** these things in a grand **style**.

2.3 Haute – couture

Haute couture is the creation of exclusive custom-fitted clothing. *Haute couture* is high-end fashion that is constructed by hand from start to finish, made from high-quality, expensive, often unusual fabric and sewn with extreme attention to detail and finished by the most experienced and capable of sewers—often using time-consuming, hand-executed techniques.

2.4 pret a porter

ready-to-wear clothes.

designer Pierre Cardin

Yves-Saint-Laurent caused a stir in the 60's as one of the first known **designers** on the catwalk with his Pret-a-Porter collection. But who “invented” Pret-a-Porter? The Italian designer Pierre Cardin developed the fashion art Pret-a-Porter.

2.5 knock off

an unlicensed copy of something, especially **fashion clothing**, intended to be sold at a lower price than the original.

Counterfeit Items: illegally made items which use the **brand names/logos** of designer items, but at much less expensive prices

B.Concept and trends in fashion industry

Trend cycle

The **trend-cycle** is the component that represents variations of low frequency in a time series, the high frequency fluctuations having been filtered out. **fashion trend** the direction of the movement of fashion that is accepted in the marketplace

Theories of fashion adoptions

Three theories of fashion adoption/ movement identify the starting point of a **fashion trend**:

- Trickle-Down Theory
- Trickle-Up Theory
- Trickle-Across Theory

Trickle-down theory (Downward flow)

- Movement of fashion starts at the top socioeconomic status of consumers
- Fashion then accepted “down” to the general public
- Oldest and most accepted theory

As more people begin to wear popular fashions, those at the top become less interested and begin to look for something new.

Trickle-up theory (Upward flow)

Trickle-up theory a hypothesis that states the movement of fashion starts with consumers on young or lower-income levels and then moves to consumers with older or higher incomes.

Examples:

Athletic apparel style

Hair style

Punk style

Leather jackets

Ripped jeans

tattoos

Fashion moves horizontally through **groups at similar social levels** from fashion leaders to followers.

- Members of each social group look at the **leaders of their own group** for fashion trends.
- A leader within each class influences peers or a leader of one group affects the other group members
- All price levels at same time
- Quality and lines vary
- Most prevalent in 21st century - because technology allows designer fashion to be copied quickly and easily.

Example: Designer fashions are copied quickly for mass production, providing similar styles at most price ranges. However, they don't become popular until the fashion leaders of each group

Self-Check – 2	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Short Answer Questions

1. describe about some terminologies in fashion
2. what are the therories of fashion?
3. what is fashion trend?

Note: **Satisfactory rating - 3 points** **Unsatisfactory - below 3 points**
You can ask you teacher for the copy of the correct answers.

LG #16	LO #4- Identify the fundamentals of fashion figures

Instruction sheet
This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics: • Identifying and analyzing fundamentals of fashion figures • Sketching fashion figures and basic shapes of footwear This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, **upon completion of this learning guide, you will be able to**: • Identify and analyze fundamental of fashion figures. • Sketch fashion figures and basic shapes of footwear as required.
Learning Instructions:
1. Read the specific objectives of this Learning Guide. **2.** Follow the instructions described below. **3.** Read the information written in the information Sheets **4.** Accomplish the Self-checks **5.** Perform Operation Sheets **6.** Do the “LAP test”

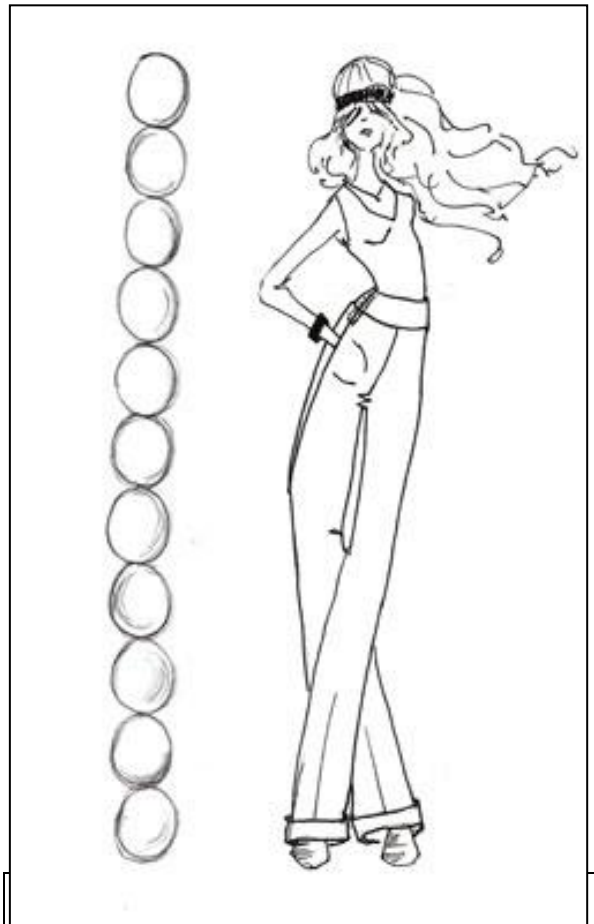
Information Sheet 1- Identifying and analyzing fundamentals of fashion figures

1.1 PROPORTIONS IN FASHION DRAWING:

Long and lean is the overall motto of fashion design for women! Legs, arms, and torsos on female bodies are drawn at unrealistic lengths and widths.

Male and children's bodies are drawn a little more realistically, but they also have their own fashion proportion rules.

Life-drawing class instructors often pound into students' brains that the head fits into the average adult body seven to eight times. In other words, if you were to stack seven or eight heads on top of one another, you'd have the figure's full height. Using the head as a unit of measurement helps you establish the proper proportions between the different parts of a figure.

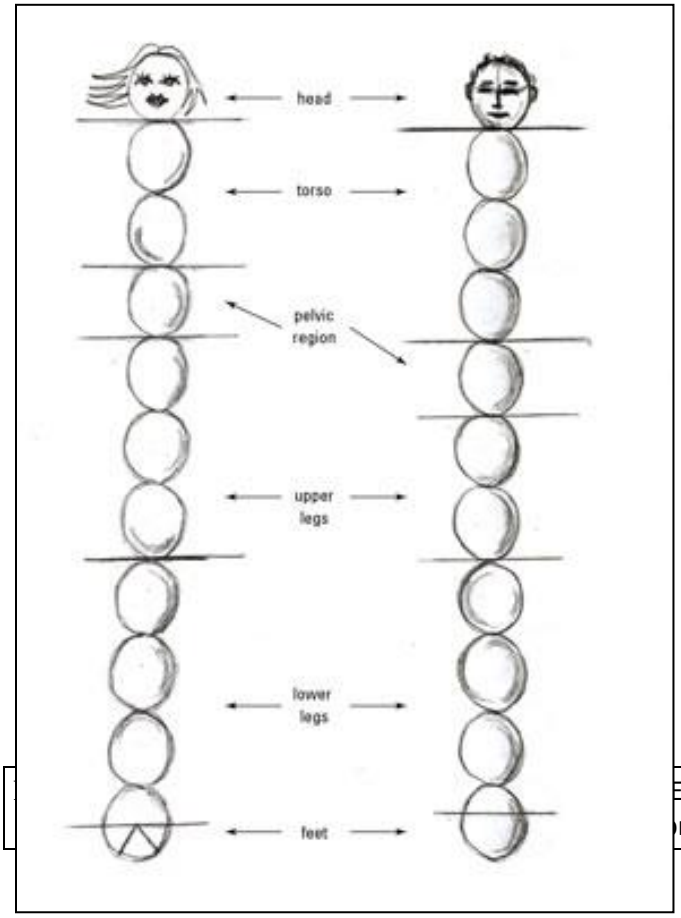


In most fashion illustrations, the head fits into the adult body 11 times. This rule, often called the *head count,* illustrates one of the biggest differences between figure drawing and fashion drawing, and it's the one most responsible for the elegant look of fashion illustration. The head count keeps the figure's head small in relation to the body and helps you lengthen the arms and legs in a graceful way.

Use the height of a fashion figure's head to see how tall your fashion figure should be. This is where tracing paper can be really handy. You can use the height of your figure's head to determine how tall the illustration should be in several ways; start by

drawing a fashion head. Then use one of these methods:

- Using your finger and thumb as a measuring tool, count down 10 heads below the shape you just sketched and draw a line. This line shows you roughly how tall your fashion figure needs to be.
- Trace your fashion head and move it down along the page (below the one you just drew) ten times for easy visualizing.
- Keep in mind that the rule of 11 heads is a great place to start in fashion drawing, but it's not the be all, end all rule. As you establish your own style, you can decide when and where you want to follow that rule and when and where you want to break it.
- But whatever head count you use, be sure to go tall! Models are taller today than ever; some are practically skyscrapers, standing over 6 feet. Because fashion is all about keeping up with the times and even projecting looks for the future, your drawings must reflect that as well.



Differences between female and male proportions

In the real world, although men are generally taller and broader than their female counterparts, men's and women's proportions are about the same. But in the fashion illustration world, things get a little more complicated. Both men and women are 11 heads tall, but you must distribute the height differently: Women have longer legs, whereas men have longer torsos.

Head Counts for Female and Male Fashion Figures		
Body Part	**Women**	**Men**
The head	1	1
The upper torso and neck	2	3
The lower torso	1	1
The upper legs (above the knee)	3	2
The lower legs and feet	4	4

Children's proportions:

You can't forget the littlest of models. Though children may be mirror images of their parents as far as facial features go, kids are extremely different from their parents in terms of proportions, a fact that's reflected in fashion drawing.

In fashion drawing, a child's head fits into his or her body about 5 times, compared to 11 times for an adult. Obviously, adults are much taller than children, but their other proportions, including head size and neck length, are also completely different.

Every little kid has a big head, relatively speaking. Kids also don't have long, elegant necks, even for fashion illustration. Children 10

years old and older start to shoot up in height and grow into more-adult proportions.

Here's the most important proportion-related rule to keep in mind when drawing kids: Fashion kids don't have long, lean body lines. Although kids can look really hip instead of prim, you still don't want to exaggerate the body as you would do with an adult in fashion illustration. A long, willowy neck on a 9-year-old would be pretty odd looking!

Stay away from long, lean, and mean lines for now, and keep kids looking like kids for as long as you can.

When proportioning a child, remember these rules:

- The head fits into the figure's full height only five times.
- One head is enough for the upper torso and neck, and 1 head is fine for the lower torso region.
- Two heads work from the hips to the feet.

Head Counts for Child Fashion Figures	
Body Part	**Child**
The head	1
The upper torso and neck	1
The lower torso	1
The upper legs (above the knee)	1
The lower legs and feet	1

1.2 SKETCHING OF CROQUIS (10 - 12 heads)

A Croquis drawing is quick and sketchy drawing of a live model.

Croquis drawings are usually made in a few minutes, after which the model changes pose and another croquis is drawn.

The short duration of the pose benefits models because they do not need to keep still for a long time; this also benefits the artists because it helps them concentrate on the essential elements of the pose.

An artist does not have time to draw all the details, so they learn to concentrate on the important elements.

Croquis is also a good method of drawing subjects that generally do not stand still and pose, such as animals and children.

After the initial sketch, croquis drawing can be used as a foundation for another work of art such as a painting or may be used as a work of art itself.

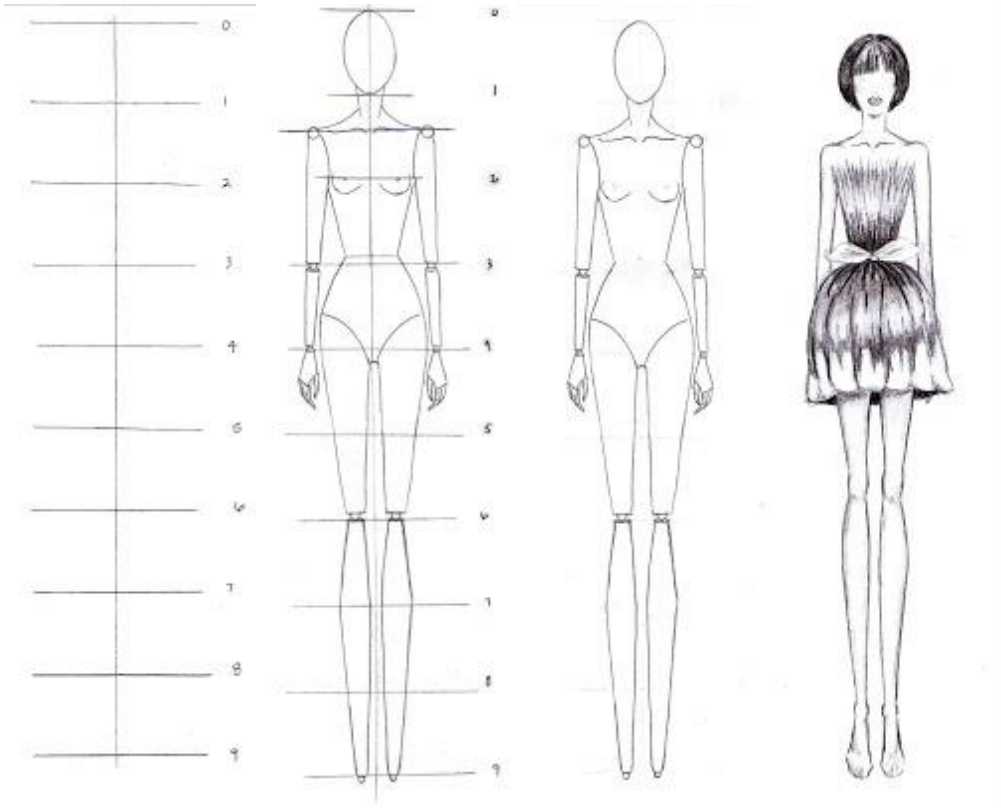
The word *croquis* comes from French and means simply "sketch".

In fashion, the term refers to a quick sketch of a figure (typically nine heads tall as this is the accepted proportions for fashion illustration) with a loose drawing of the clothes that are being designed.

Often a large number of croquis drawings will be created for one finished look, which is fully drawn and finished.

Having some knowledge about the proportions of the croquis is crucial when having an interest in fashion design.

If you love to draw but struggle with the croquis figure, this will be of great help.
It teaches you about the male, female, teenager and toddler figures.



The base of the fashion croquis is a vertical line divided into 9 equal parts.

These spaces represent 9 heads from head to toe.

The actual head is drawn between lines 0 and 1. If your hand tends to shake during your attempt of making a straight line, draw two points (about 3 inches apart) and rapidly connect them with a line.

Do this as many times needed. It will help you practice drawing straight lines and will get rid of the shakiness of your hands. The head of the croquis is an oval shaped circle. Keep in mind that both sides (right and left) of the croquis need to be drawn symmetrically. As you can see from my drawings, I need to work this.

In order to achieve a symmetrical oval, place two dots on the axis lines depending on which body part you are drawing (for the head, you would place the dots on lines 0 and 1 and another on either side of the axis between 0 and 1 at 2/3 of a head apart) and two more dots between those lines. Connect them with a soft circular stroke.

On a different sheet of paper, practice by drawing ovals before drawing it to your croquis. Below is a list of measurements of the body parts. Just look at my drawings above and follow the measurements so your sketches can have similar proportions to mine.

I. **Neck:** Drawn from 1 - 1 ½ of shoulders.

II. **Shoulders:** ½ heads wide.

III. **Arm Hole:** ½ head wide.

IV. **Bust line:** highest point is 2.

V. **Torso:** ¾ to one head wide.

VI. **Upper arm:** ½ heads wide. From shoulders to 3.

VII. **Hips**: 1 ¼ to 1 ½ heads wide. Extended from 3 to 4.

VIII. **Lower arm**: one head long.

IX. **Crotch**: at 4 ¼.

X. **Knee:** ½ head wide.

XI. **Thighs:** Curve down to knees at 6.

XII. **Calf**: widest point at 7 ¼ to 7 ½.

XIII. **Lowerlegs**:from 6 to ankles at 9.

To finish up your croquis, you must add "muscles" which will give your figure a "rounded, fleshed-out look." My finished croquis turned out a little bony so try to make yours a little smoother.

You can then dress your model up however you want. This is your opportunity to take advantage of your creativity.

If you pay close attention to my finished croquis, you will notice that I made the mistake

of curving the bottom legs too much- they look wider than the upper legs so please try to avoid this. I promise I will post a new drawing once I get better at it.

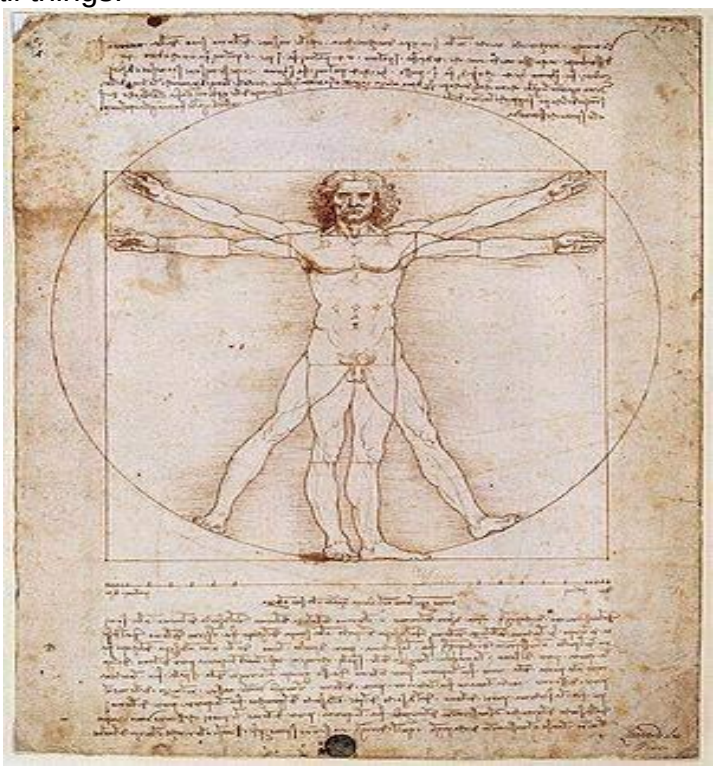
The measuring process can be quite agitating but if you continue to practice, you will get better and before you know it, you will not need to make any measurements since you will be familiar with the proportions of the fashion figure.

Croquis Part II

The human figure is based on guidelines defined by mathematical formulae establishing the ideal human proportions. The classical canon is derived from the Greco-Roman ideal.

In Leonardo da Vinci's Virtuvian Man circa 1487 we see a visual representation of these proportions.

Leonardo's drawing correlates the ideal human proportions with the geometry of Roman Architect Vitruvius in his book Treatise De Architectura expressing his theory that man is the measure of all things.



There are numerous mathematical consistencies in the body. Our wingspan is equal to our height; our foot fits from elbow to wrist, our face is the length of our hand and on and on.

The measurement of the head plays the pivotal role as the basic module for measuring the human body. This average is 8 heads tall, 2 heads wide. Therefore the total height of an adult is eight times its size.

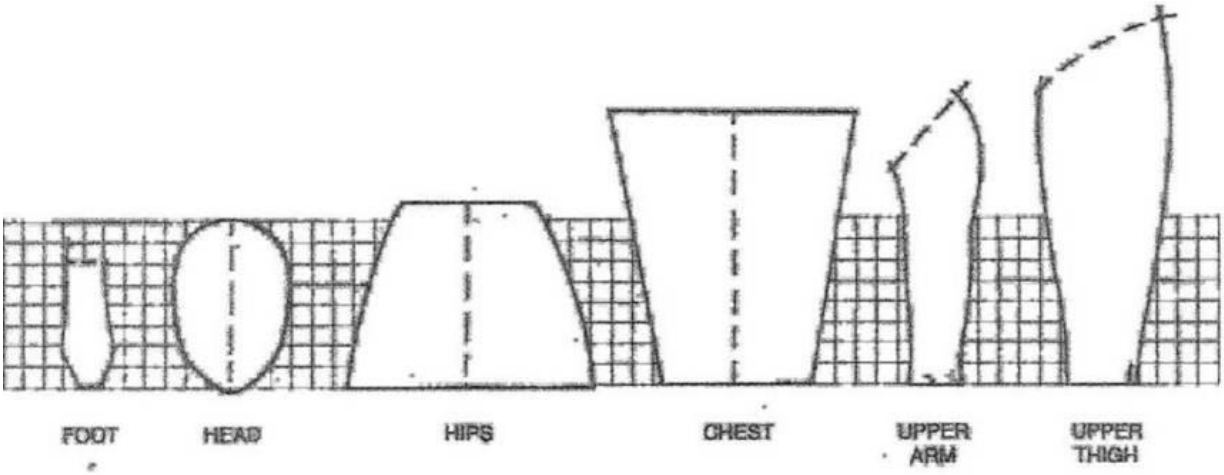
The Fashion Illustration Croquis is elongated to 9-10 Heads tall. This distortion of the figure lengthens the legs and lower torso. They are also drawn slimmer, 1 1/2 heads wide instead of 2. The body itself is divided in half- the torso equaling the length of the legs. The basics canons tend to remain the same.

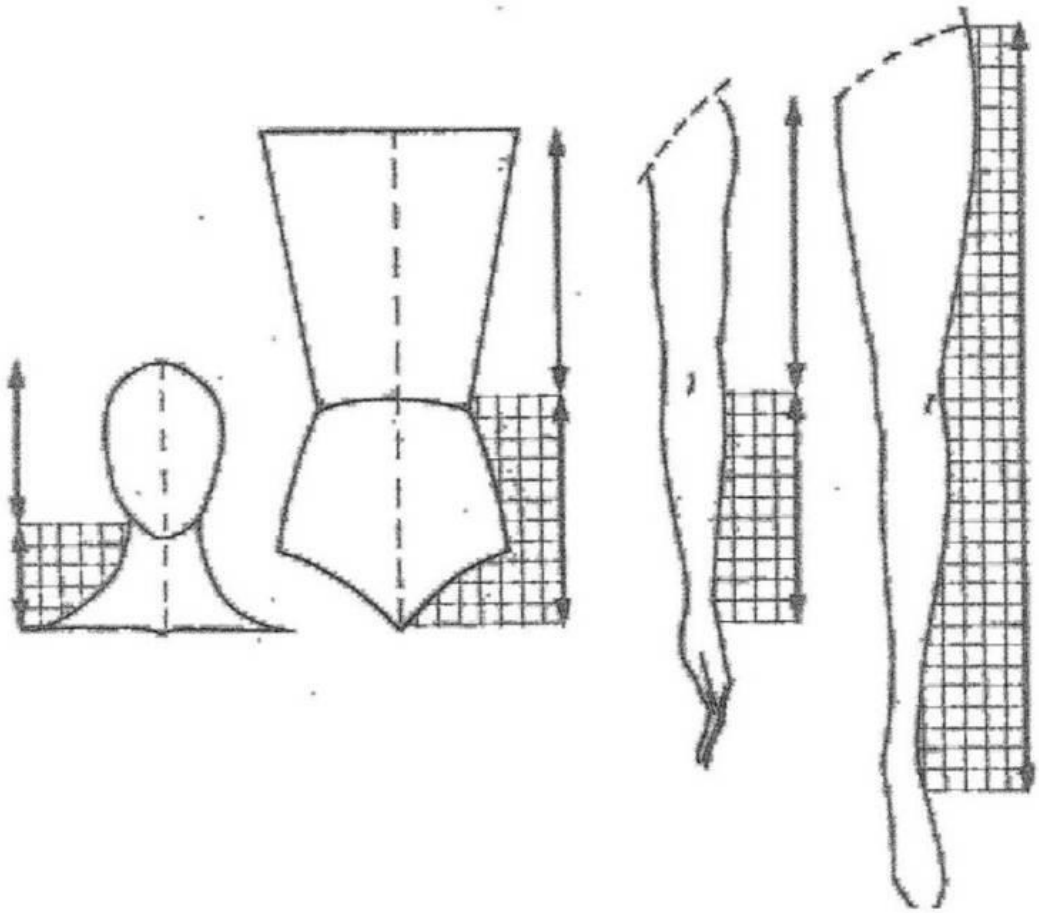
Now the croquis can be stylized and will often change over time as fashions change. Everyone has their own variations, perceived ideals.

In comic books and Manga the figure is closer to 8 heads high and superheroes are often drawn with increased muscularity. Fashion schools often use a 8 1/2 head croquis for woman and 9 head for the male.

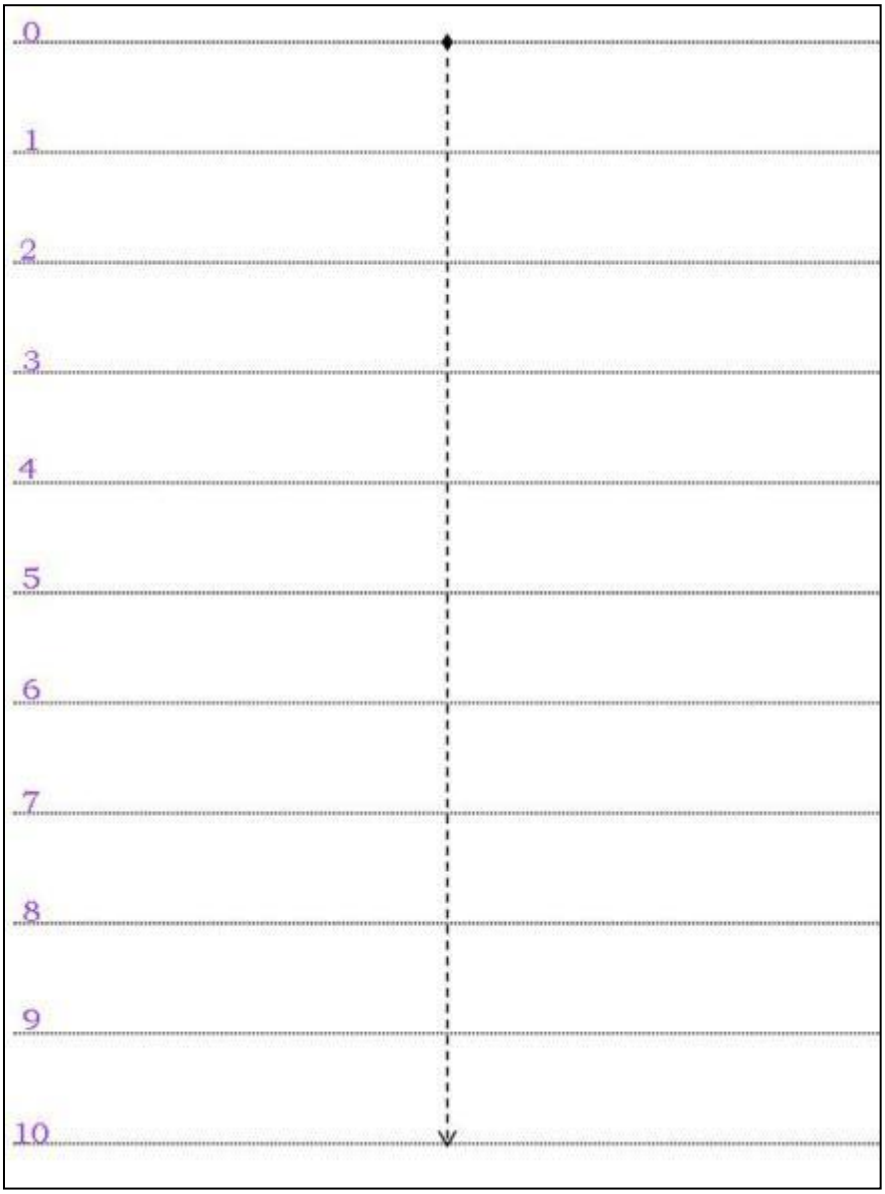
I tend to make the legs longer than the torso (opting not to split the figure in half), the shins elongated and the shoulders a bit broader. But at 6'1″ with a linebackers shoulder this makes sense. In my world Men just are not taller then woman so I use the 9 or 10 head figure for both.

The Dalai Lama says you have to "know the rules well, so you can break them effectively". Like with music you learn the scales first before playing variations on the tune. So here we will start with the basics. Once you master these you can manipulate the croquis as you see fit.
So let's start by looking at the basic building blocks. The body is broken up into sections each in relation to one another. These sections are then put together to create a balance figure.


FOOT
HEAD
HIPS
CHEST
UPPER ARM
UPPER THIGH



Creating the template for drawing the croquis:
First draw a line down the center of your paper.
Then Draw parallel lines every inch for ten inches.



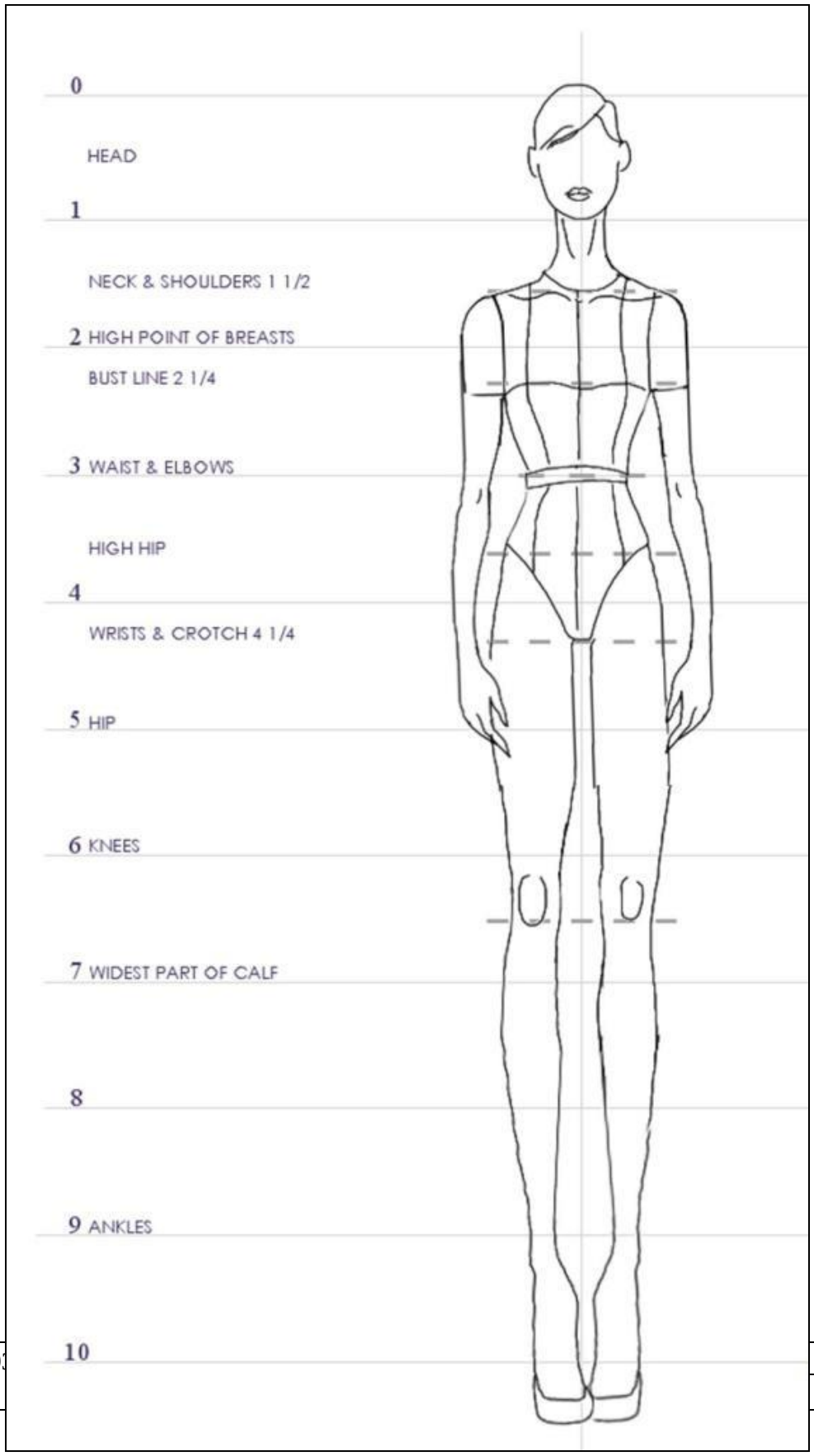
Drawing the croquis:
If drawing the average proportions of the eight head figure the chin falls at 1,the bust line at 2, the elbow & waist at 3, hipline at 4, fingers tips at 5, knee at 6 and heel at 8.

By using the head-length units we can assure the right balance when drawing poses. The shoulders are 2 heads wide, waist is I head, and hips 1.5 heads. The arm from elbow to finger tip is 2 head. Knee to ankle 2 head, foot 1 head, hand ¾ head.

The nine head figure is drawn in the same fashion as the eight head. The shoulders and hips are still 1.5 heads wide and the waist is 1 head wide, etc. as listed above. But as we said the nine head figure is elongated and slimmed. It is drawn as follows:

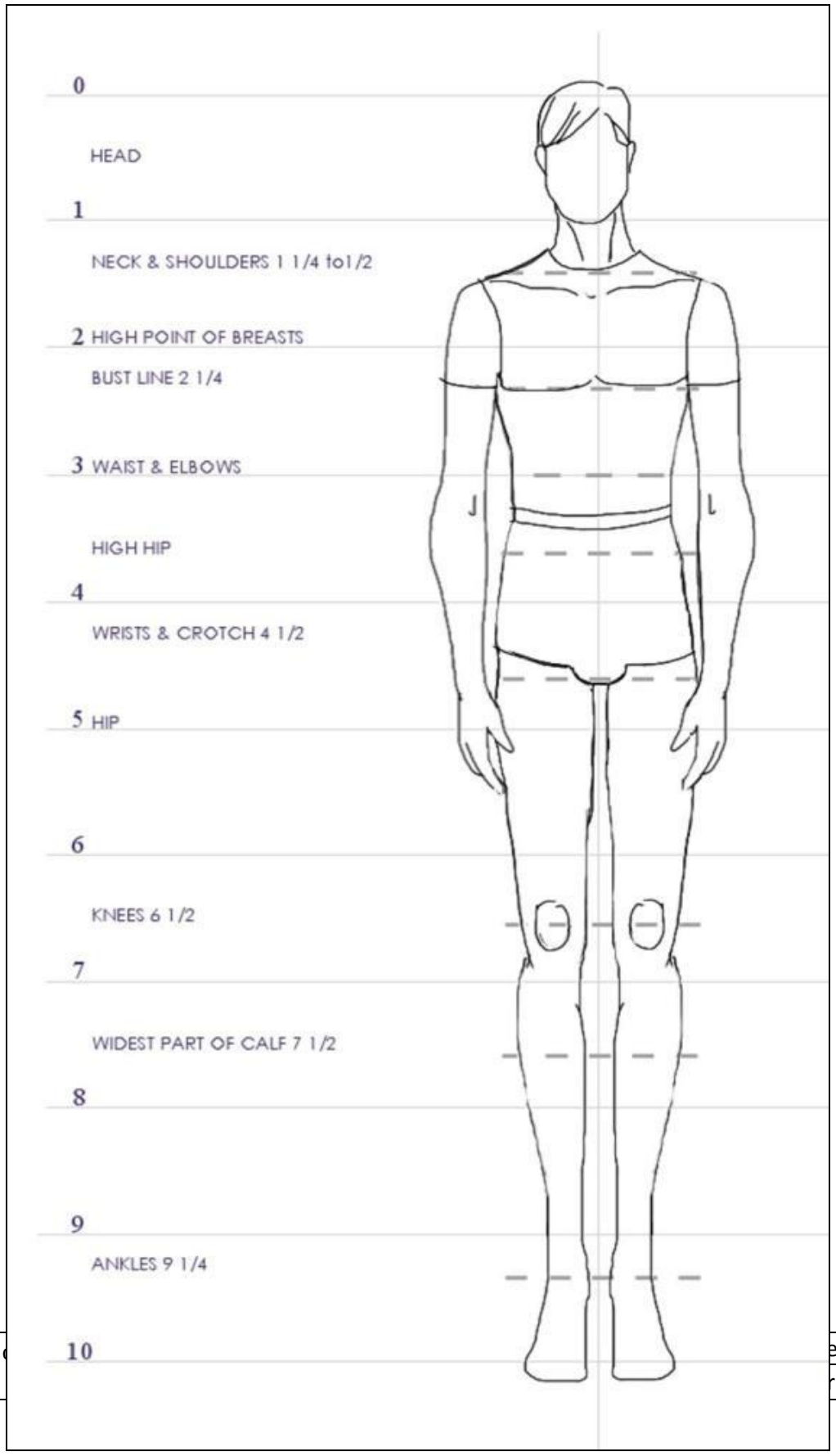
Female Croquis*:*

1. The head is drawn from 1 to 2.
2. The neck is from 1-1 1/2.
3. The shoulders at 1 1/2.
4. High point of bust at 2 and bust line at 2 1/4
5. Waist and elbows at 3.
6. High hip at 3 1/2.
7. Hip at 4.
8. Crotch at 4 1/4
9. Finger tips at 5. (Generally mid thigh)
10. Top of knee at 6.
11. Widest part of calf at 7.
12. Ankle at 9.


0
HEAD
1
NECK & SHOULDERS 1 1/2
2 HIGH POINT OF BREASTS
BUST LINE 2 1/4
3 WAIST & ELBOWS
HIGH HIP
4
WRISTS & CROTCH 4 1/4
5 HIP
6 KNEES
7 WIDEST PART OF CALF
8
9 ANKLES
10

Male Croquis*:*

1. The head is drawn from 1 to 2.
2. The neck is from 1-1 1/2.
3. The shoulders at 1 1/4 to 1 1/2.
4. Pecsat 2 1/4
5. Waist and elbows at 3 1/4.
6. High hip at 3 1/2.
7. Hip at 4.
8. Crotch at 4 1/2
9. Finger tips at 5.
10. knees at 6 1/2.
11. Widest part of calf at 7 1/2.
12. Ankle at 9.


0
HEAD
1
NECK & SHOULDERS 1 1/4 to1/2
2 HIGH POINT OF BREASTS
BUST LINE 2 1/4
3 WAIST & ELBOWS
HIGH HIP
4
WRISTS & CROTCH 4 1/2
5 HIP
6
KNEES 6 1/2
7
WIDEST PART OF CALF 7 1/2
8
9
ANKLES 9 1/4
10

Self-Check – 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Fill in the blanks: (points 2.5 each)

1. _____ and _____ is the overall motto of fashion design for women.
2. Male and children's bodies are drawn a little more_____

Test II True / False: **(points 2.5 each)**

1. Both men and women are 11 heads tall, but you must distribute the height differently: Women have longer legs, whereas men have longer torsos.
2. A Croquis drawing is quick and sketchy drawing of a live model.

Test III Short answers questions: (points 2.5 each)

1. What is proportions of Fashion figures?
2. What features of female croqui (10 head)?
3. What are features of male croqui (10 head)?
4. Make a template to draw a croqui?

Note: **Satisfactory rating - 3 points** **Unsatisfactory - below 3 points**
You can ask you teacher for the copy of the correct answers.

Information Sheet 2- Sketching fashion figures and basic shapes of footwear

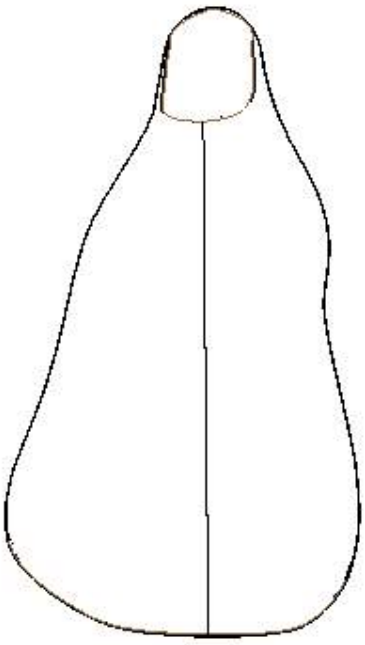
View Finalization

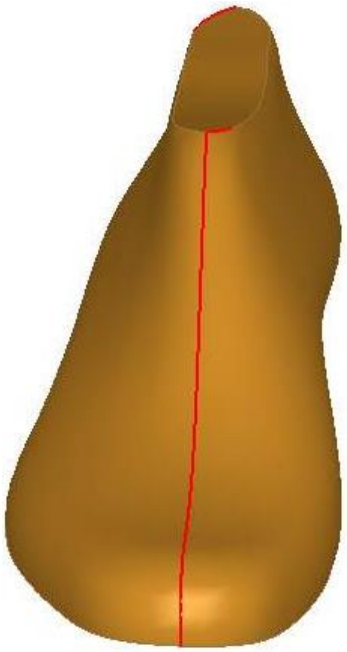
There are normally three stages to the plans that the designer will draw. (Depending on who you are talking to they might give different names to these stages, so they are all noted here.)

1. The initial sketch plans (last view, concept, and preliminary or discussion drawings).
2. The developed designs.
3. The final documentation, (tender, building consent, construction or working drawings and specifications).

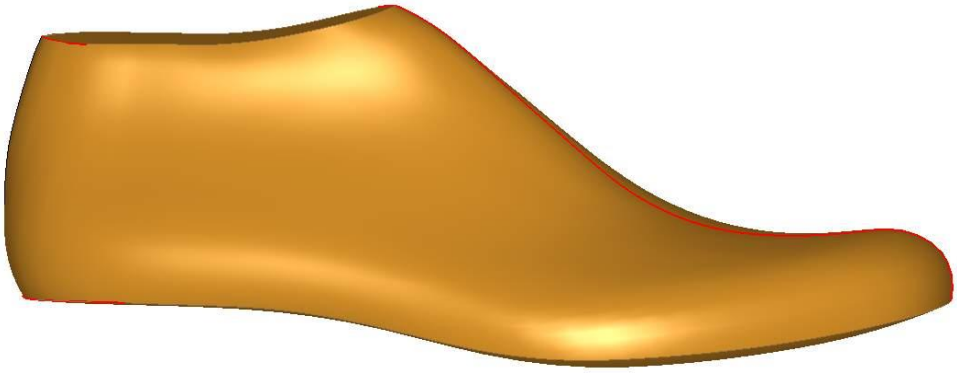
Here we will see some views of last:

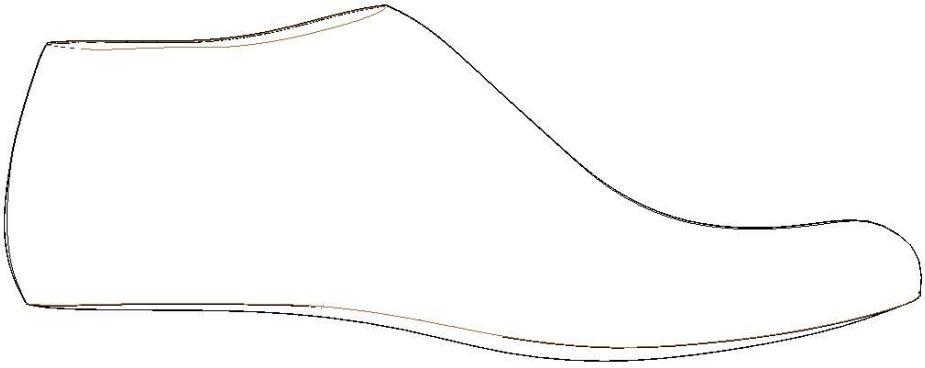
Front:



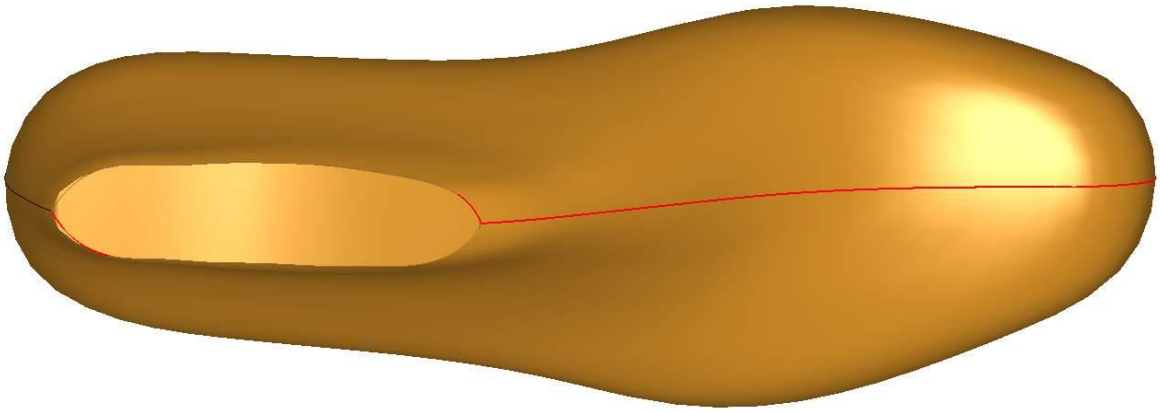


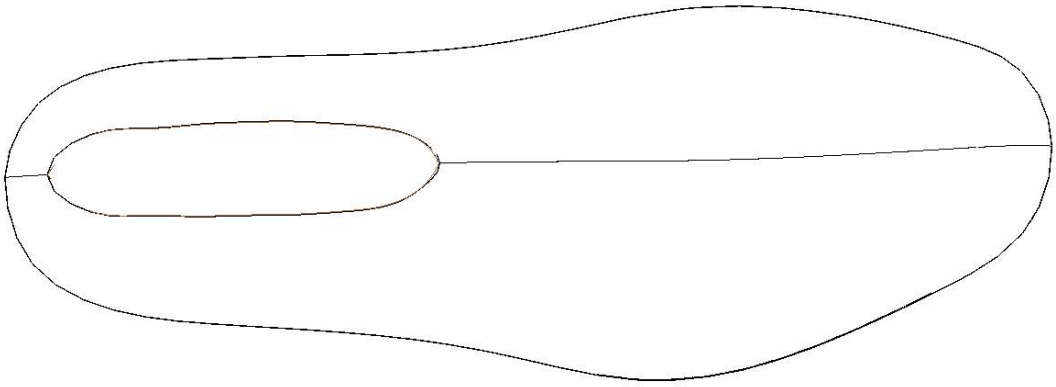
Side View:



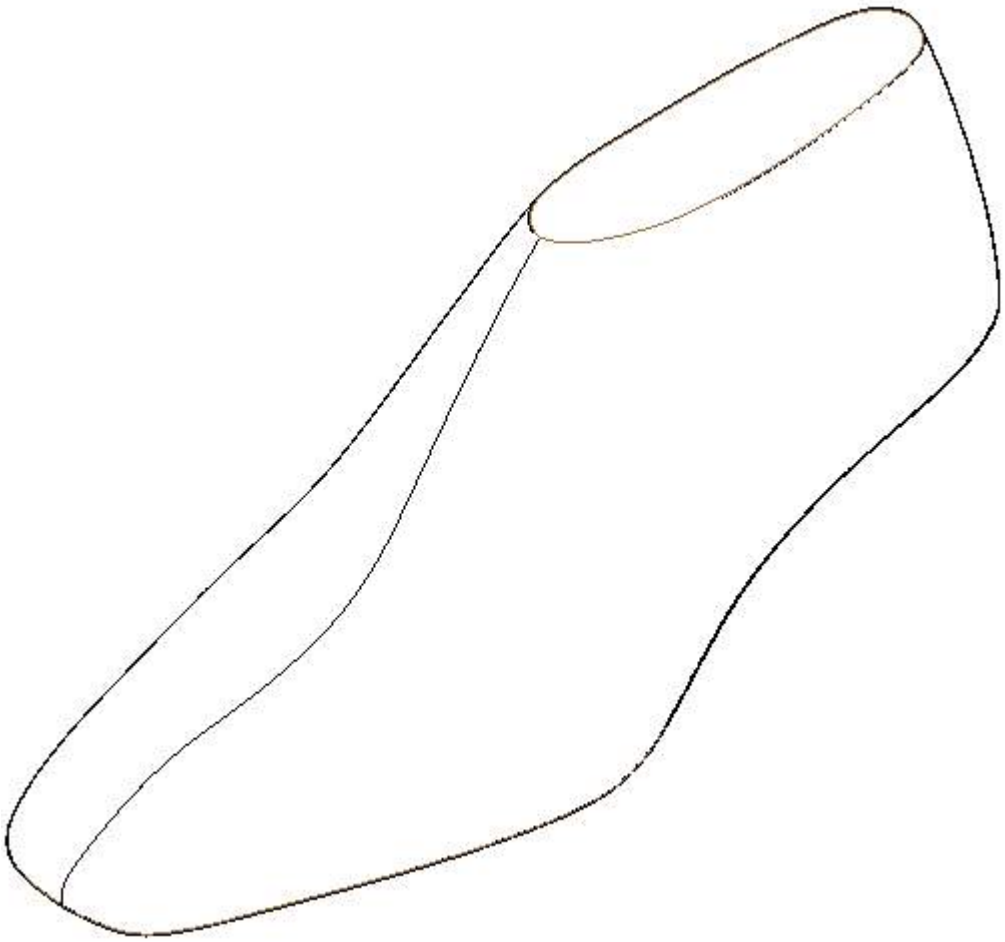


Top View:





3D View:

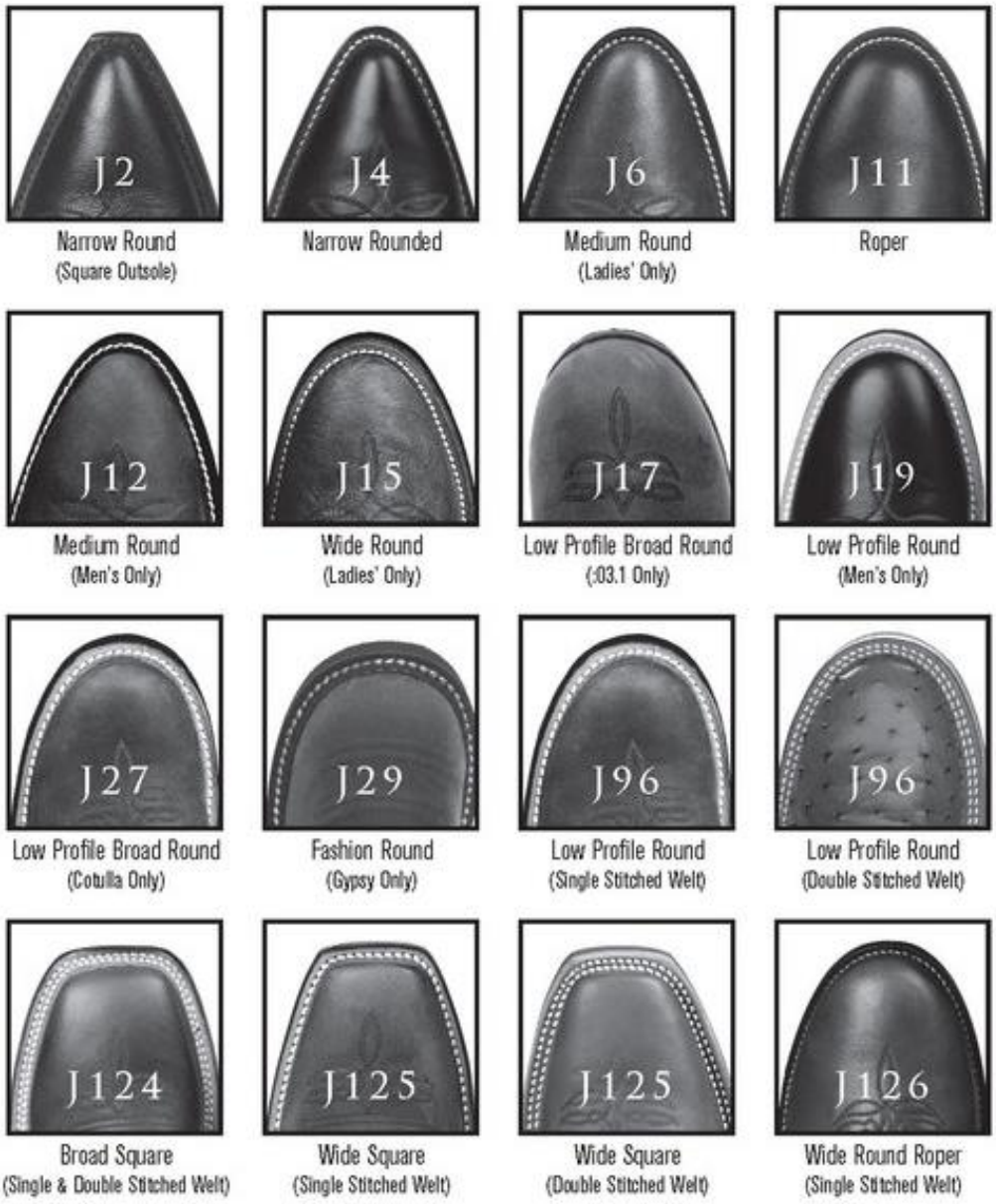


Toe Shape:

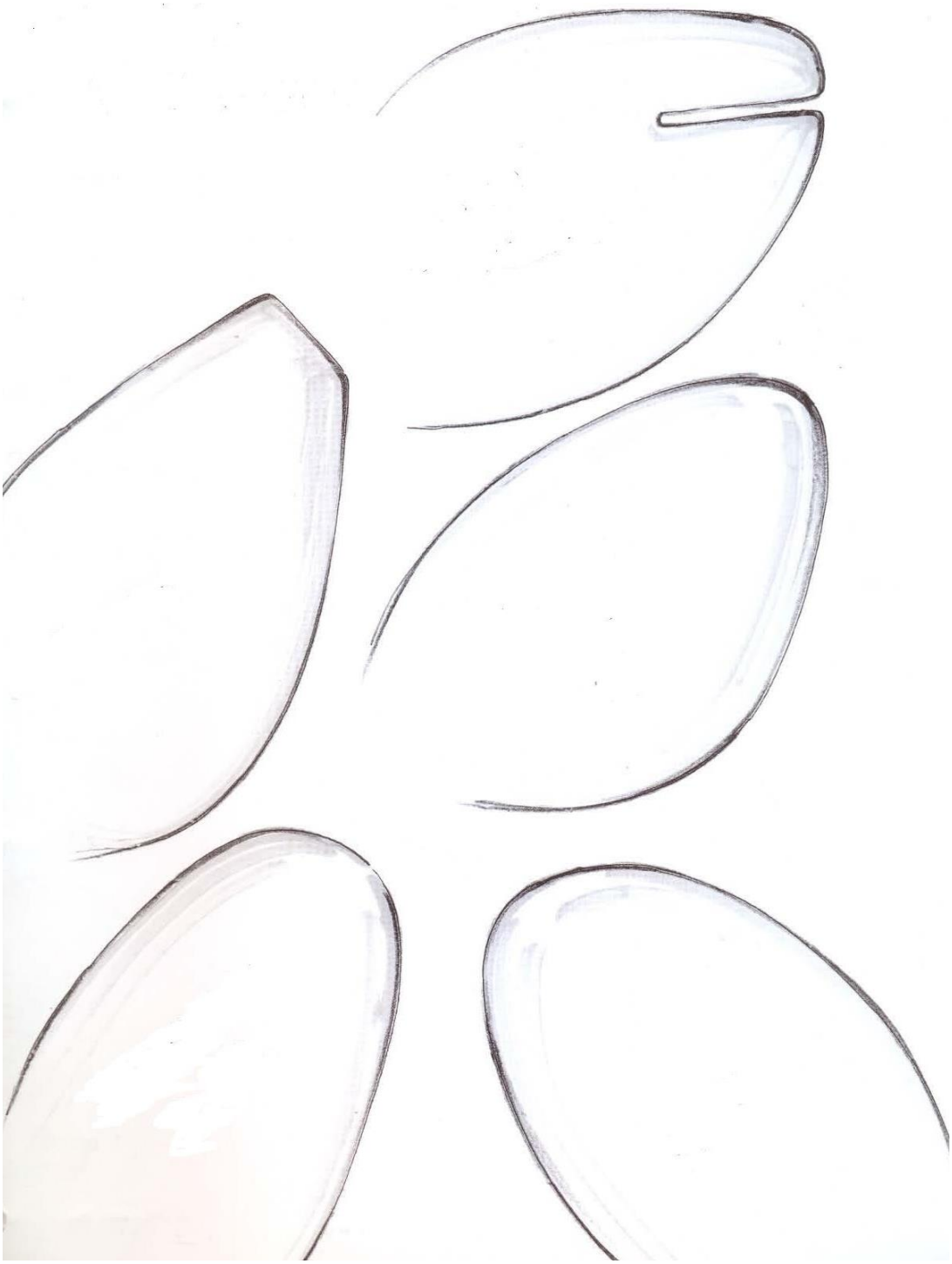
Style is an interpretation of a design. Fashion is a style that wins popular acceptance. The public today is well informed as to the latest in wearing apparel by means of newspapers, magazines, radio and television. A good shoe salesperson cannot afford to be ignorant of the fashion picture, for he is expected to sell shoes which conform to it.

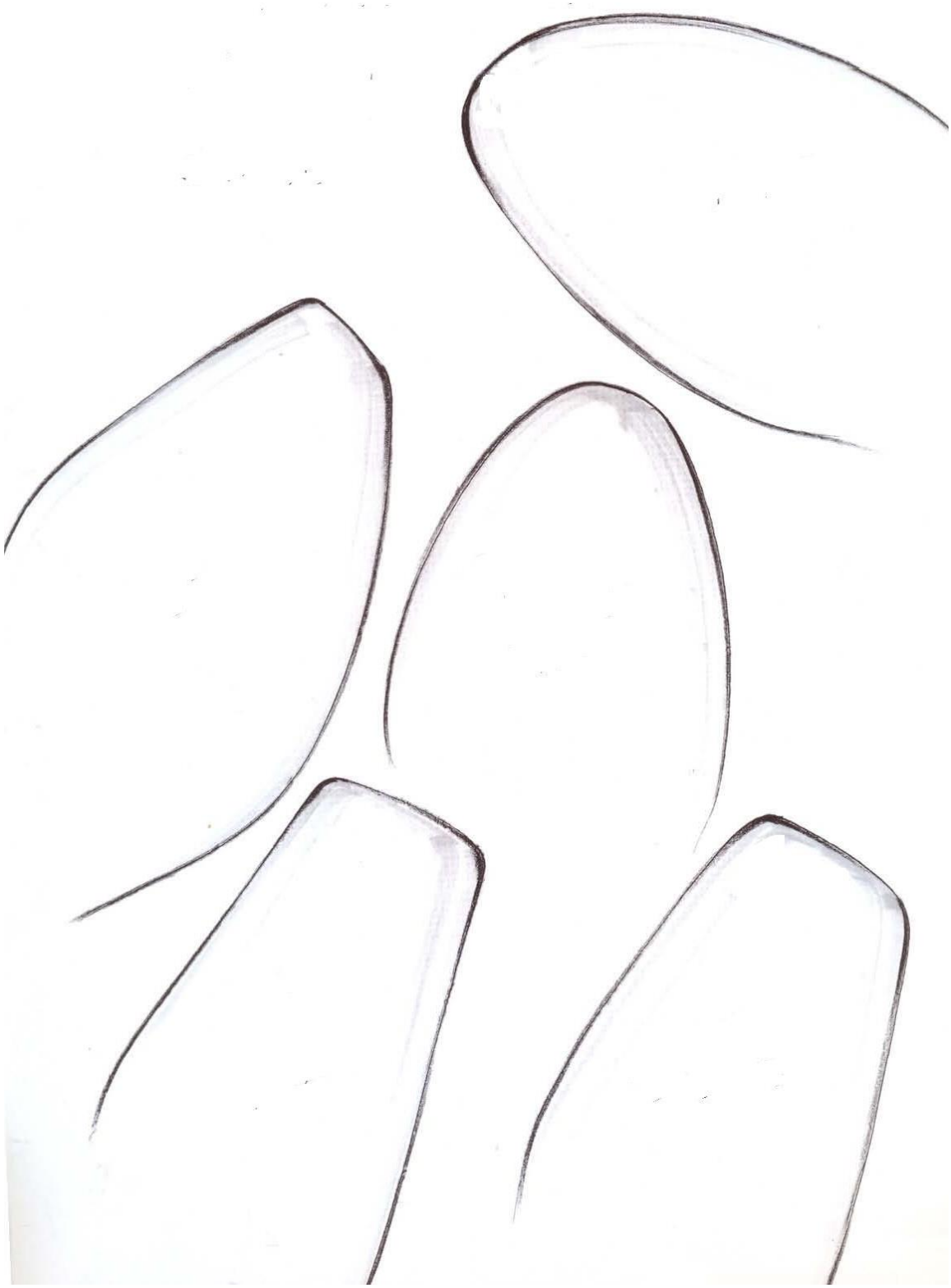
Two of the most important style variations are toe and heel shapes. There are three basic designs in toe shapes. The pointed; the round or oval; the square. All three can be broadened or narrowed as fashion dictates.

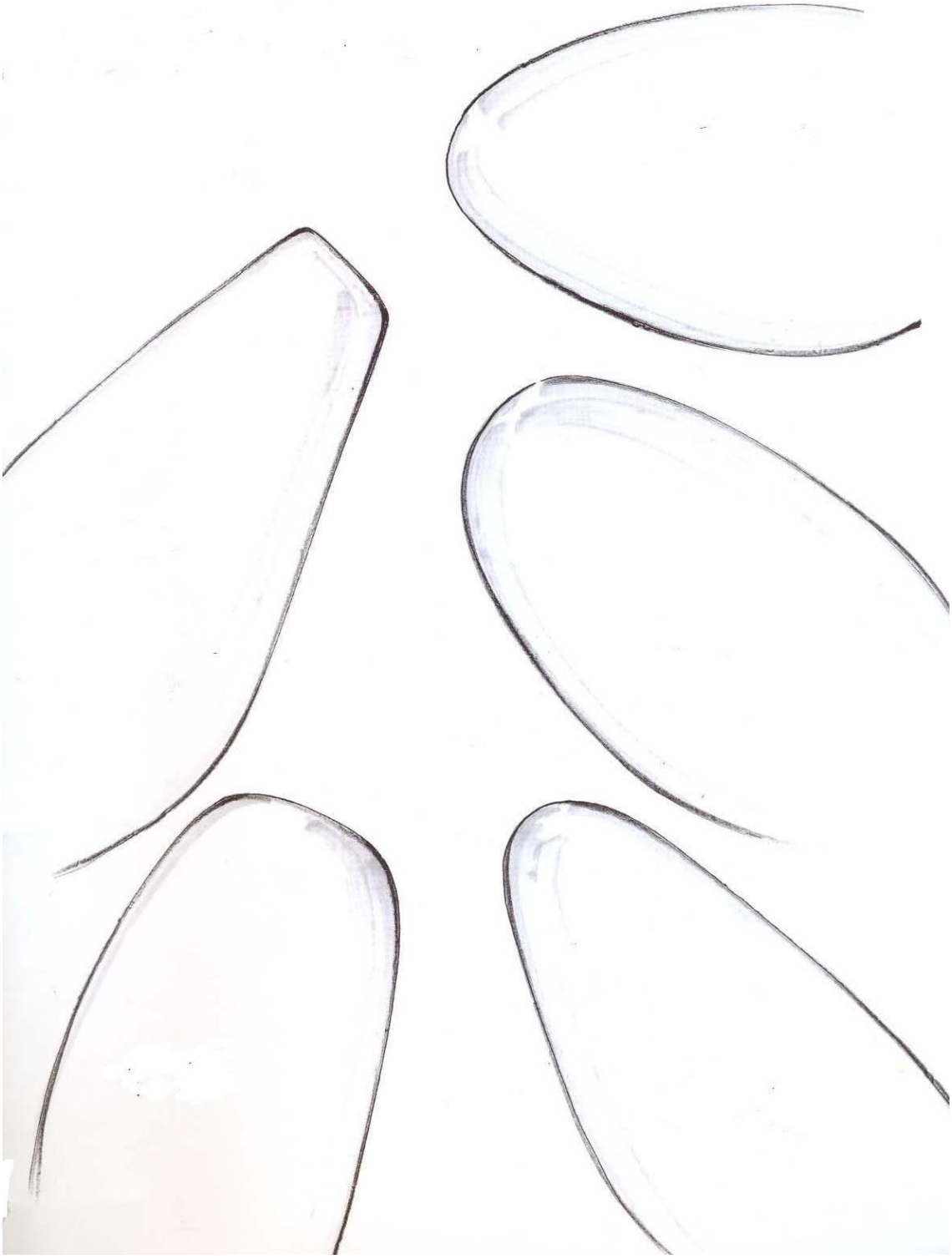
Here we will see some popular toe shapes:



Some examples of fashion based toe shapes:



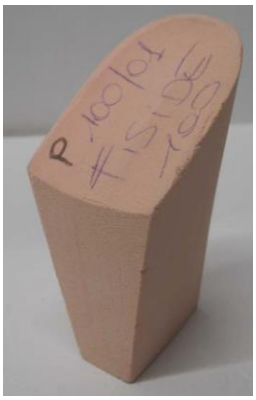


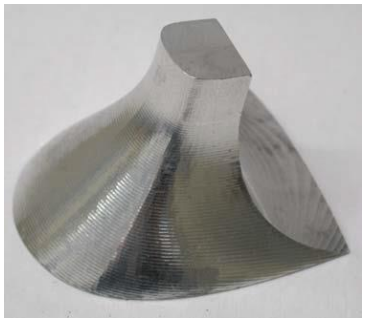


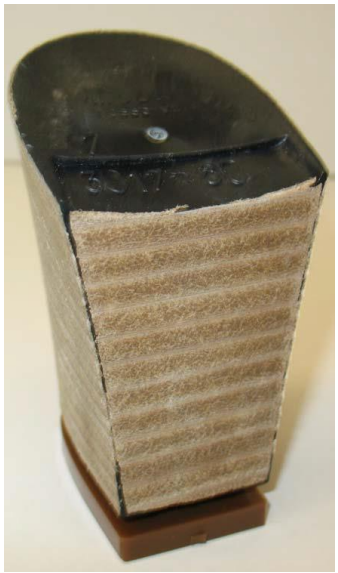
Heel height & types

As stated above, two of the most important style variations are toe and heel shapes. In previous pages we have seen various toes shapes now we will see different types of heel: block, pencil, wedge, platform in different heights- low, medium, high etc.

Heel prototyping of wood, resin and aluminum







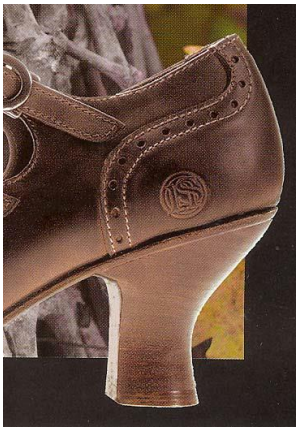
Polystyrene

ABS Acrilate+Butadyene+Styr

Stiletto/spike heel

Cuban heel

Mid platform



Hourglass heel

Full platform

Wedge heel

Stacked wedge heel

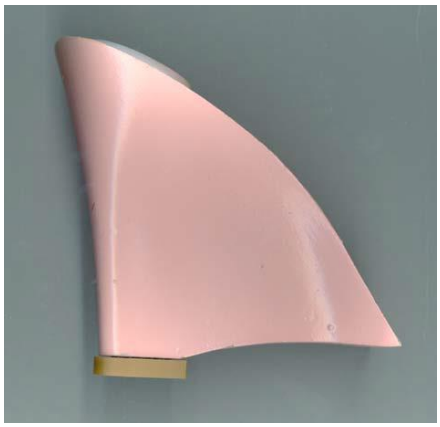
Louis or breasted heel

Breasted leather covered

Slabbed in or Bally

Breasted stacked

Different finishes:



Varnished wedges

Galvanized

Photostacking

Varnished



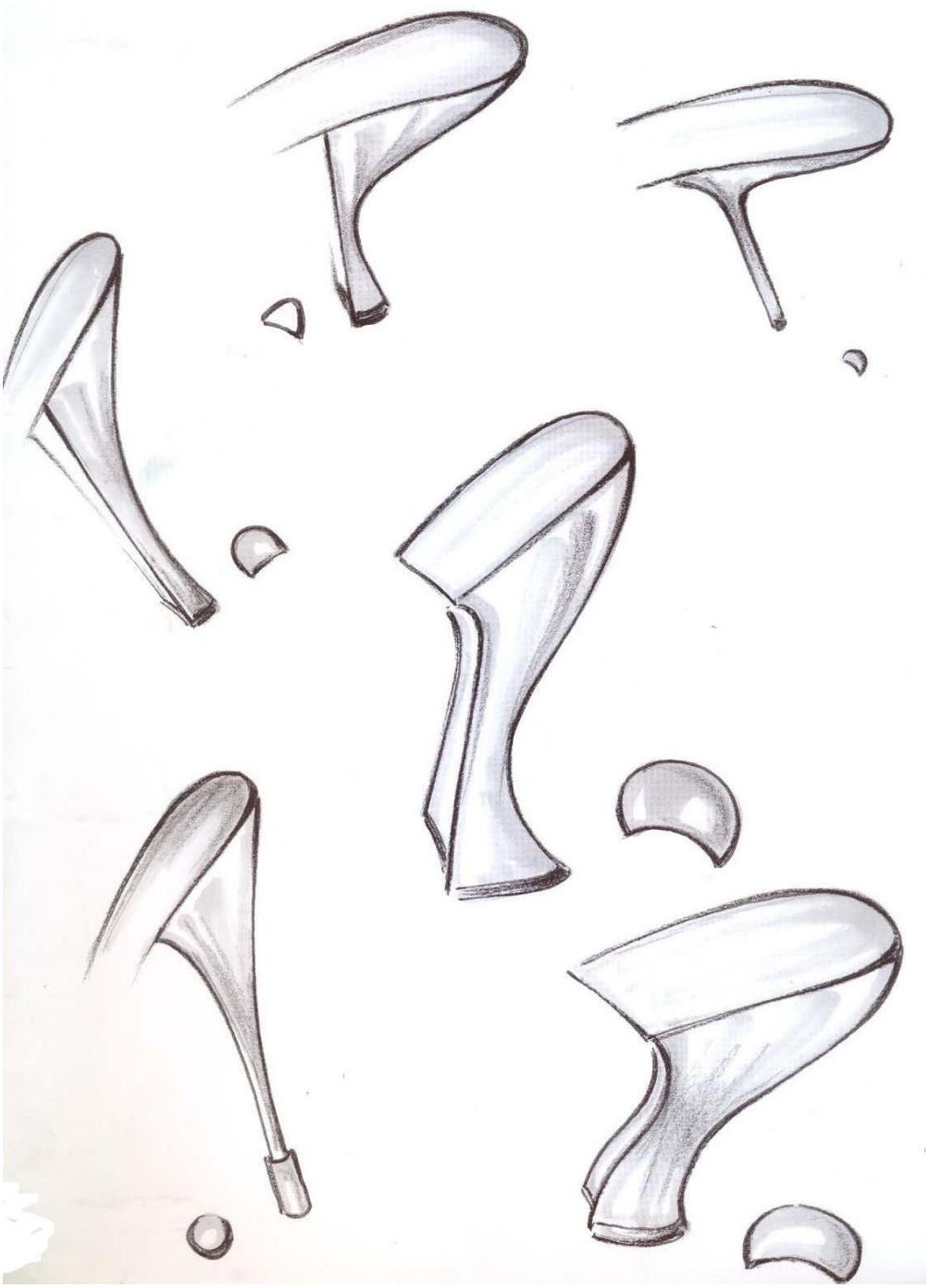
Manual finish

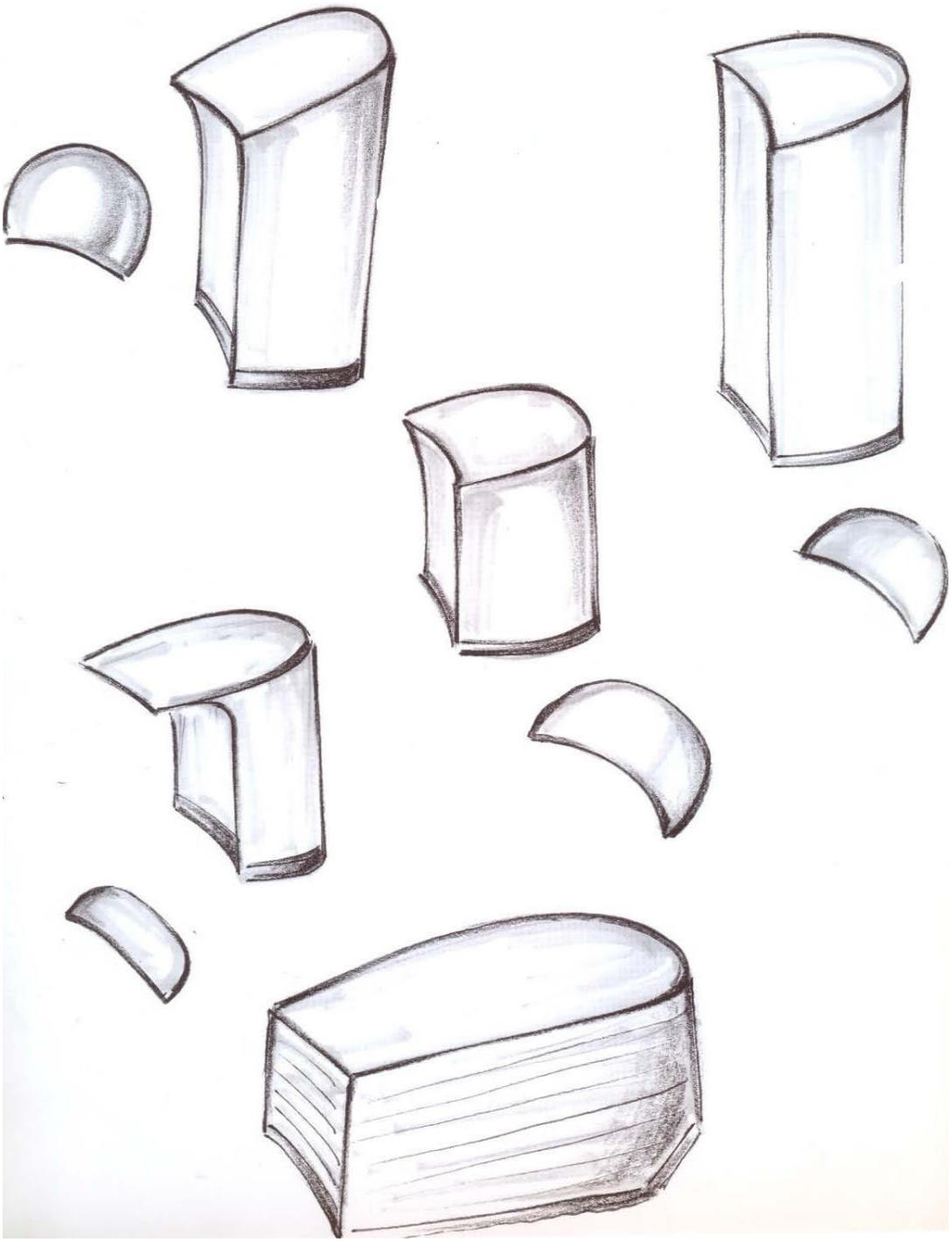


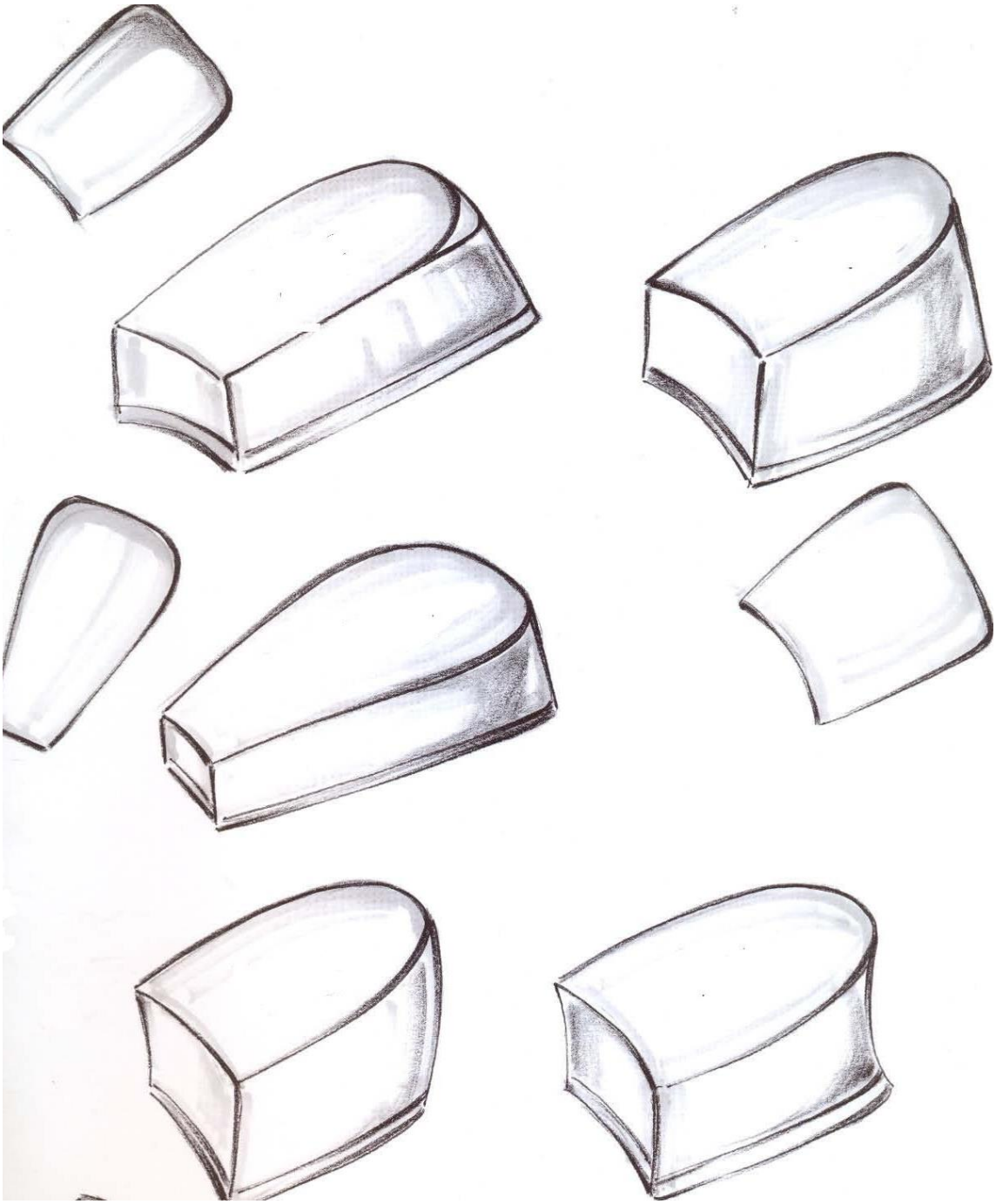


Classic men's heel

Below we will see some more fashion heel sketches:







Self-Check – 2	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Short Answer Questions

1. List three main/ basic types of toe shapes. (Mark – 2)
2. What can be the two most important style variations in a shoe? (Mark – 2)
3. What are the materials used for heel making? (Mark – 2)
4. List different finishes of a heel. (Mark – 2)
5, Name five types of heel used in ladies shoemaking. (Mark – 2)

Note: **Satisfactory rating - 3 points** **Unsatisfactory - below 3 points**
You can ask you teacher for the copy of the correct answers.

Operation sheet 1– sketching basic shape of footwear

Steps / Procedures for sketching footwear

Step 1 – identify the position of footwear to be sketch
Step 2 – start from border of the footwear
Step 3 – Determine its proportionality and other steps
Step 4 – Then step by step sketch the footwear components

Lap Test	Demonstration

Name……ID……..
Date…….

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within **1** hour. The project is expected from each student to do it.

Task I sketch one style of footwear

LG #17	LO #5-Draw and render materials and accessories

Instruction sheet
This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics: • Drawing and rendering various types of materials using different rendering medium and techniques • Drawing and rendering various types of accessories using different rendering medium and techniques This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, **upon completion of this learning guide, you will be able to**: • Draw and render various types of materials using different rendering medium and rendering technique. • Draw and render Various types of accessories using different rendering medium and rendering technique.
Learning Instructions:
1. Read the specific objectives of this Learning Guide. **2.** Follow the instructions described below. **3.** Read the information written in the information Sheets **4.** Accomplish the Self-checks **5.** Perform Operation Sheets **6.** Do the “LAP test”

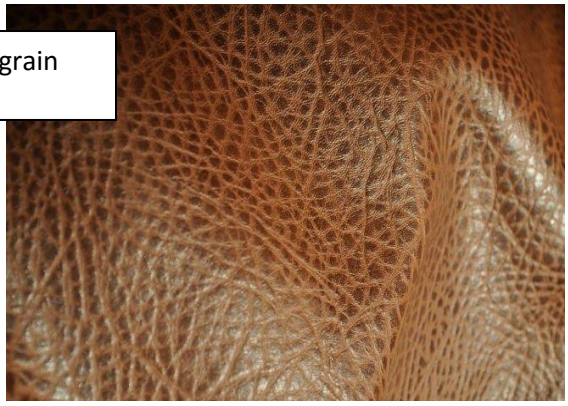
Information Sheet 1- Drawing and rendering various types of materials using different rendering medium and techniques

1.1.BUFFALO FULL GRAIN: In case of buffalo hides the hair pores are less in number and the pore diameter vary widely.

Buffalo full grain

1.2COW FULL GRAIN: From anatomical structure point of view, in case of cow leather there is firmness of grain, smaller collagen fibre-bundles, and smaller & closer hair follicles. As a result, cow leather has a very fine structure and therefore useful as finest of leather.

Cow full grain



1.3 GOAT FULL GRAIN: Goat skins as compared to sheep skins have very tight, firm fibre structure but have less fats (grain is also very compact) and so are used in the manufacture of shoe upper leather for premium market segment.

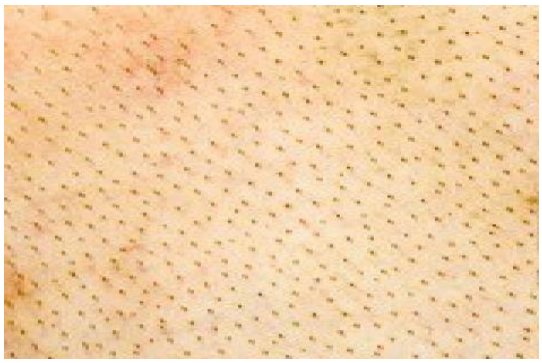
Goat full grain

1.4 SHEEP FULL GRAIN: The wool sheep are more porous whereas the hair sheep is more tighter

Sheep full grain

1.5 PIG GRAIN STRUCTURE: Pigskin is often used for garments etc as it is generally softer than other leathers. It can be finished in the same way as any other leather so can have a smooth coating as well as a nubuck or sueded texture. The pig skin cross section shows the hair follicles going completely through & through the skin, the grain surface is rough having grouping of follicles.

Pig full grain



It can be used for furntiure etc. as well as other items. It is very difficult to tell pigskin from other leather simply by looking at it. The formation of the hair follicles when examined with a microscope will tell you whether it is pigskin or cow hide or any other sort of leather. The hair follicles in pigskin go vertically right through the skin as opposed to cow hide where the hair follicles are at an angle.

1.6 HORSE LEATHER - CORDOVEN:

Horse leather Cordoven

Shell Cordovan is the most non-porous leather known, and is not constructed of strands. This unique physical nature translates into two attributes: Shell Cordovan is the only leather that will not wrinkle, and it is inherently water-resistant to a very high degree.

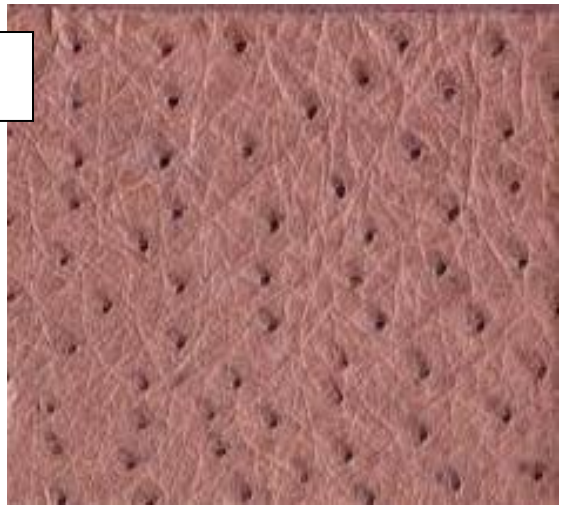
Shell Cordovan is distinguished by its lustrous waxy finish, superior durability, and the ability to readily conform and retain shape.Because the shell cordovan leather already contains within it a large amount of oil/wax the polishing requirements are different from calfskin.

1.7 ELEPHANT LEATHER: Elephant is an exotic leather that is thick and very durable with a course, rippled texture.

Elephant

1.8 OSTRITCH: The leather is distinctive for its pattern of bumps or vacant quill follicles, ranged across a smooth field in varying densities.

Ostritch



Both
1.9 ALLIGATOR and **CROCODILE** are large reptiles of crocodilian species. They are quite alike, but also have some differences in habitat and appearance.

Crocodiles live in salt water in tropical climate, and have pointed snouts. Strong and pliable, the skins of both species have been used for making luxury accessories

worldwide for over a century, priced similarly and often used interchangeably. Nevertheless, it is important to be aware of their differences and the myths surrounding them.

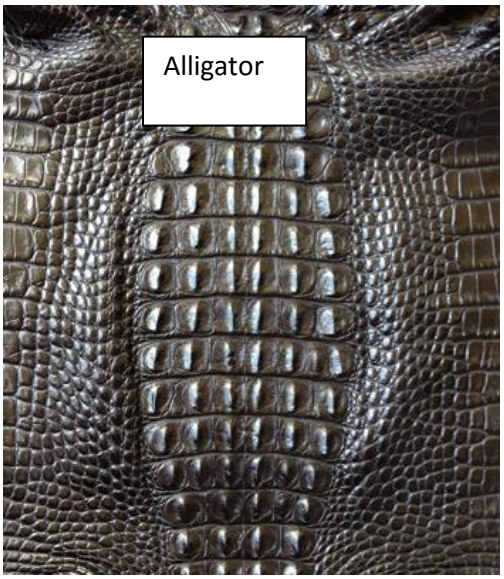
CROCODILE SENSORY PORES (ISO) Similar in texture and patterns, alligator and crocodile skins are composed from square and oblong scales (or tiles). If you examine them closely, you will see that some skins have little dots close to the scale edge (crocodile), and others don't (alligator).

The dots are hair follicles, or sensory pores, that assist crocodiles to detect change in water pressure, and locate and capture their prey. In biology, these pores (hair follicles) are called ISO (integumentary sense organs).

Thus, the major difference between Crocodile and Alligator is the presence of the sensory pores (ISO) found only on Crocodile skin, but not on the Alligator body skin.

The swatches of vintage Crocodile skin handbags with visible ISOs (hair follicles) and umbilical scars in the middle.

ALLIGATOR LEATHER TEXTURE: Alligators live in fresh water in subtropical climate, and they have rounded snouts



SNAKE SKIN: Snakeskin is used to make clothing such as vests, belts, boots or shoes or fashion accessories such as handbags and is used to cover the sound board of some string musical instruments, such as the banhu, sanxian or the sanshin,.

Snake leather is regarded as an exotic product alongside crocodile, lizard, ostrich, emu, camel, among others, it belongs to the category of *reptile leathers*, with a scaly appearance.

FISH SKIN: The texture of the leather is dependent on the size and shape of the scale pockets which can vary from 2mm to 2cm in size according to the species.

Fish Skin

Fish leather is an eco-friendly alternative to the typical exotic leathers such as crocodile and snake that threaten endangered species.

Fish leather has a unique look, the strength and smell of the material is comparably different to commonly used land-based leathers.

Fish leather can be used for many purposes, including crafts and more professional use. Shark leather is 5 times stronger than that of cow.

1.10 RHINO LEATHER:

FABRIC STRUCTURE

COTTON:

WOOLEN:

LINEN:

SILK:

JUTE:

GEORGETTE:

POLYSTER:

Self-Check – 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Fill in the blanks: (points 2.5 each)

1. Texture is the feel, appearance, or consistency of a _____ or a _____.
2. Textures is observed on both _____ and _____objects.

Test IITrue / False: **(points 2.5 each)**

1. A homogeneous texture contains ideal repetitive structures.
2. An inhomogeneous texture mostly refers to an image where repetition and spatial self-similarity are absent.

Test IIIShort answers questions: (points 2.5 each)

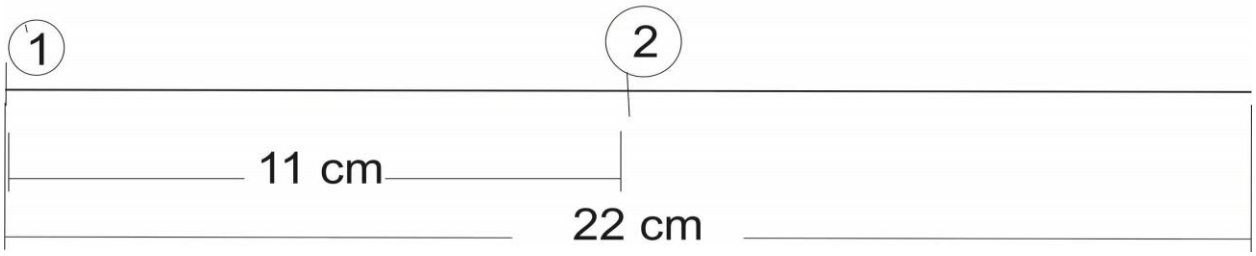
1. Explain the texture of elephant leather?
2. Explain the texture of pig leather?
3. Explain the texture of ostritch leather?
4. Explain the texture of canvas fabric?

Note: **Satisfactory rating - 3 points** **Unsatisfactory - below 3 points**
You can ask you teacher for the copy of the correct answers.

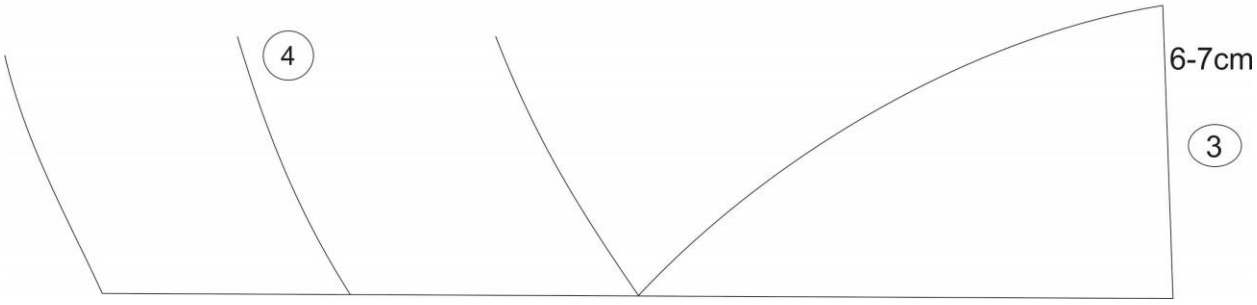
Information sheet – 2 Drawing and rendering various types of accessories using different rendering medium and techniques

The basic technique to sketch a design is as follows:

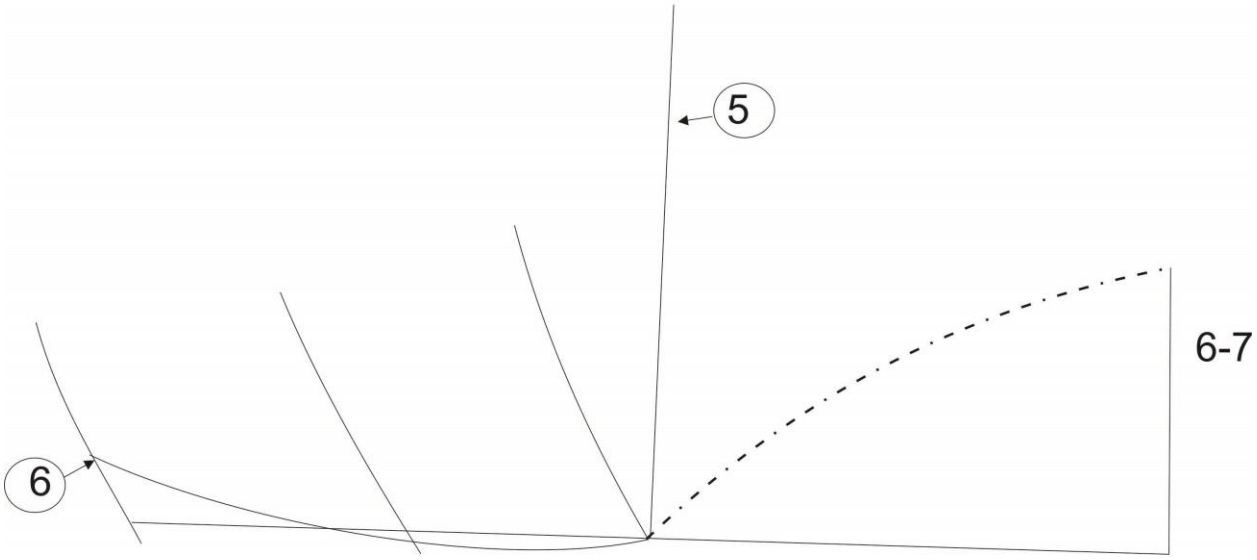
1. Draw a line of 22 cm
2. Identify the mid point of 22 cm line & mark 11 cm each.

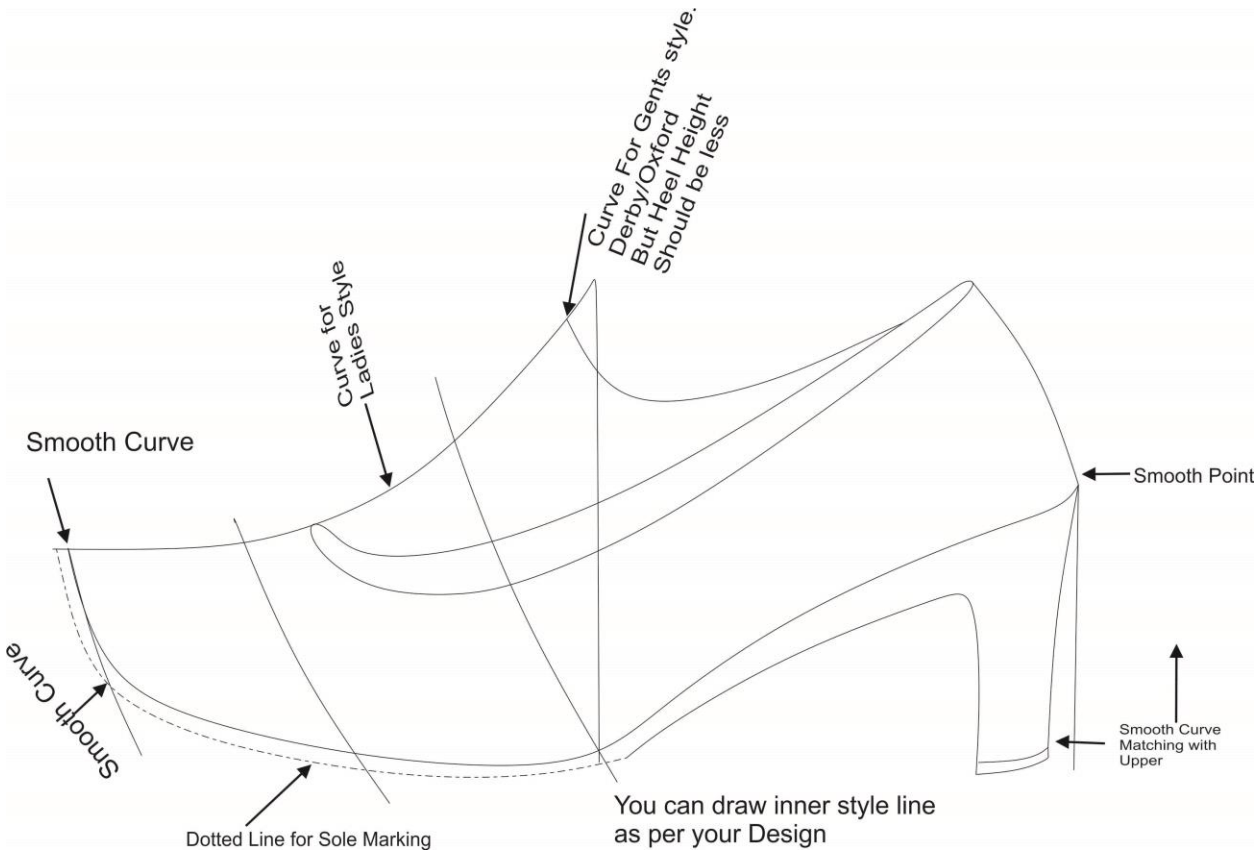


3 take 6 to 7 cm as heel heigh
4 Draw eliptical curves at front portion



5 Draw perpendicular of 11cm from mid point
6 Draw curve at front side 10mm top spring





Note: Heel height can be taken as per design

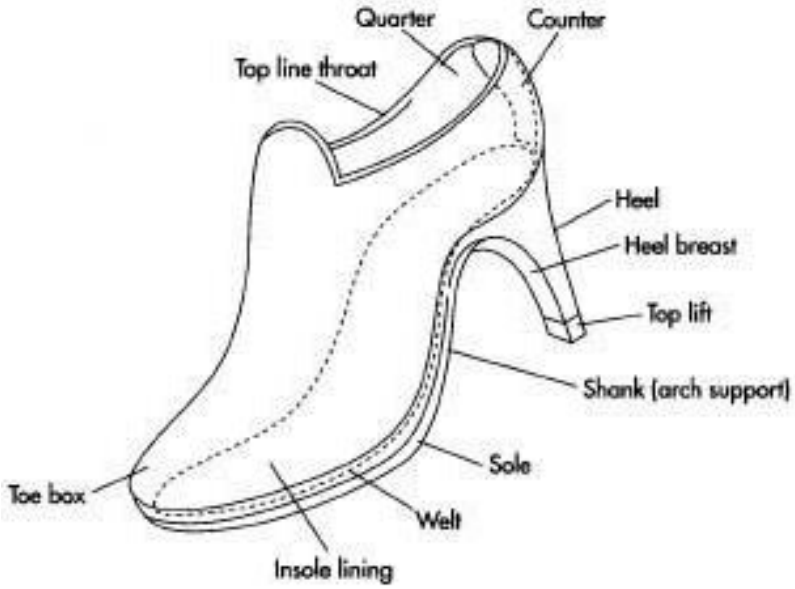
Total length can also be increased or decreased as per design

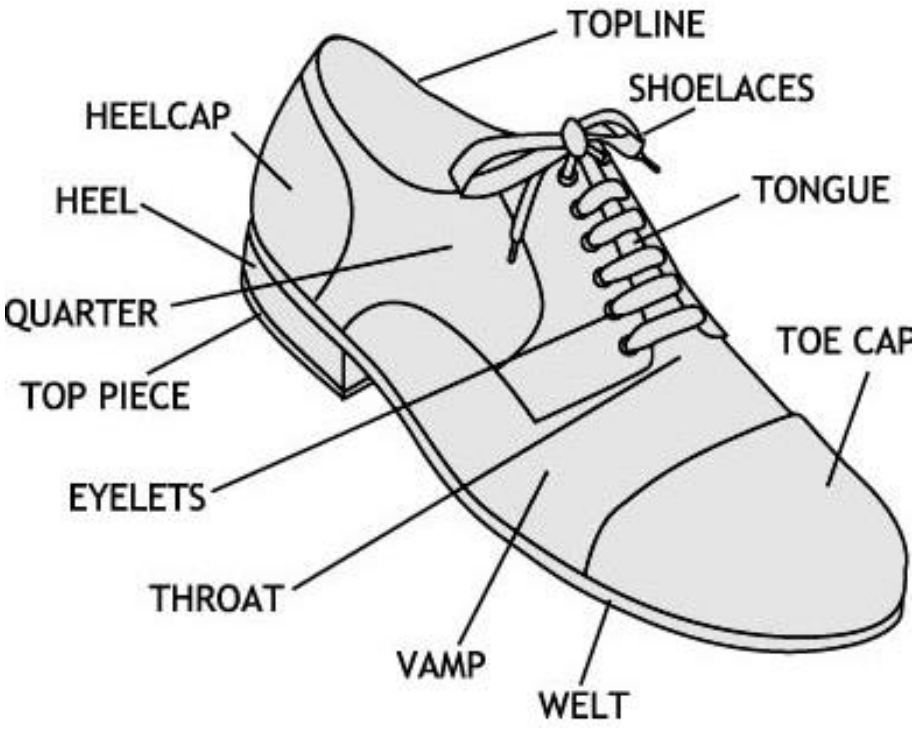
Sole line or thickness also depend on design type

Toe shapes are also depend on design type.

Toe spring is also depend on heel height. Higher heel height lower the toe spring. Maximum toe spring will be 15 mm.

Using same tecnique, some sketches are as follows:





Some more sketching tecniques are also as follows:

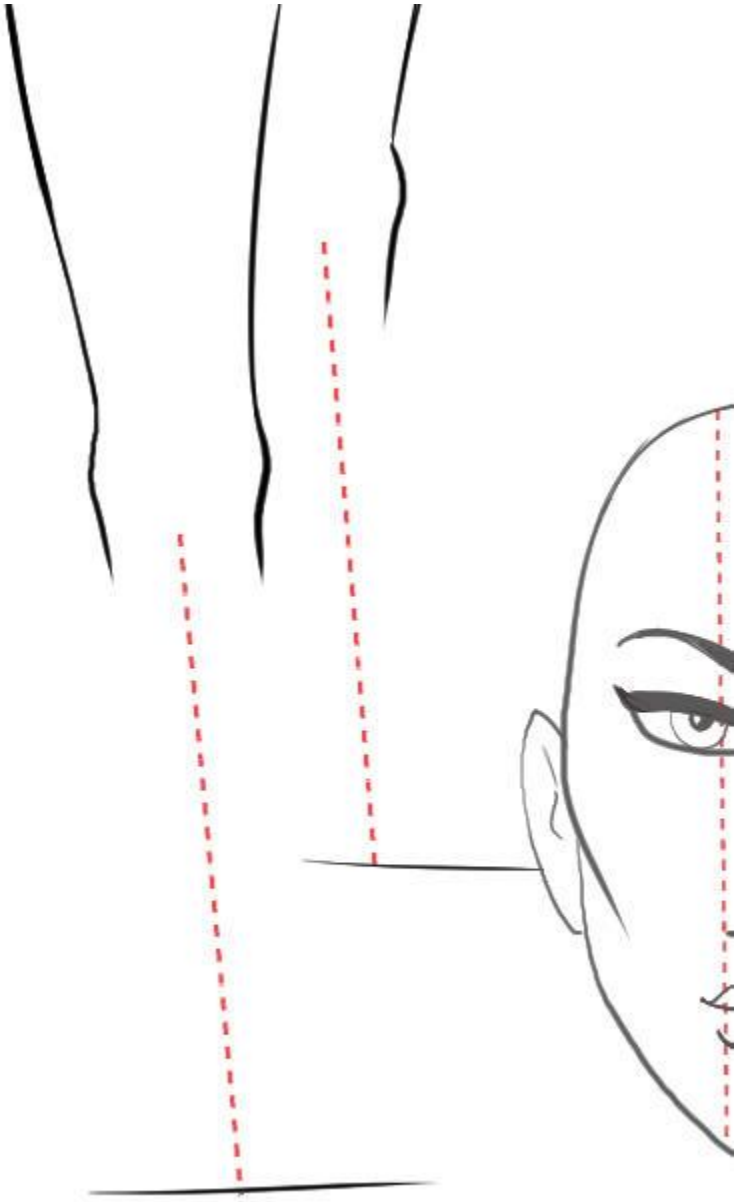
Draw front view shoes

Accessories and especially shoes are very important for a successful fashion sketch. In this step by step tutorial you will learn how to draw high heels and other types of shoes from the front view- which happens to be the most preferred pose in fashion illustrations. Follow the tutorial and enjoy creating beautiful footwear for your models!

Step 1: The right measurements

Before starting to draw the shoes you need to make sure they are the **correct size** for your fashion figure. As seen the **"Drawing front view pose"** tutorial the feet of the model match the size of the head. Measure the head of your model and leave the same

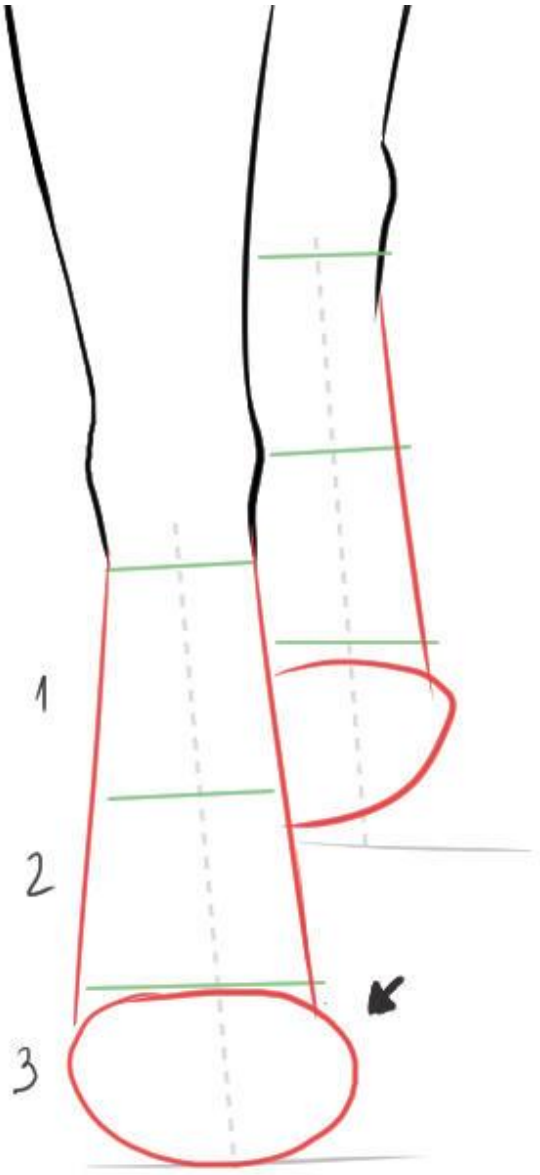
space from the ankles to the ground. Start the line right in the middle of the leg and pull it down.



Step 2: Base shapes

Divide the Centerline in 3 even parts. Starting from the ankles draw two slanted lines in the first two sections. Add a **slightly wider horizontal ellipse** in the lowest section. Be careful with the proportions of these base shapes – the feet need to be only slightly

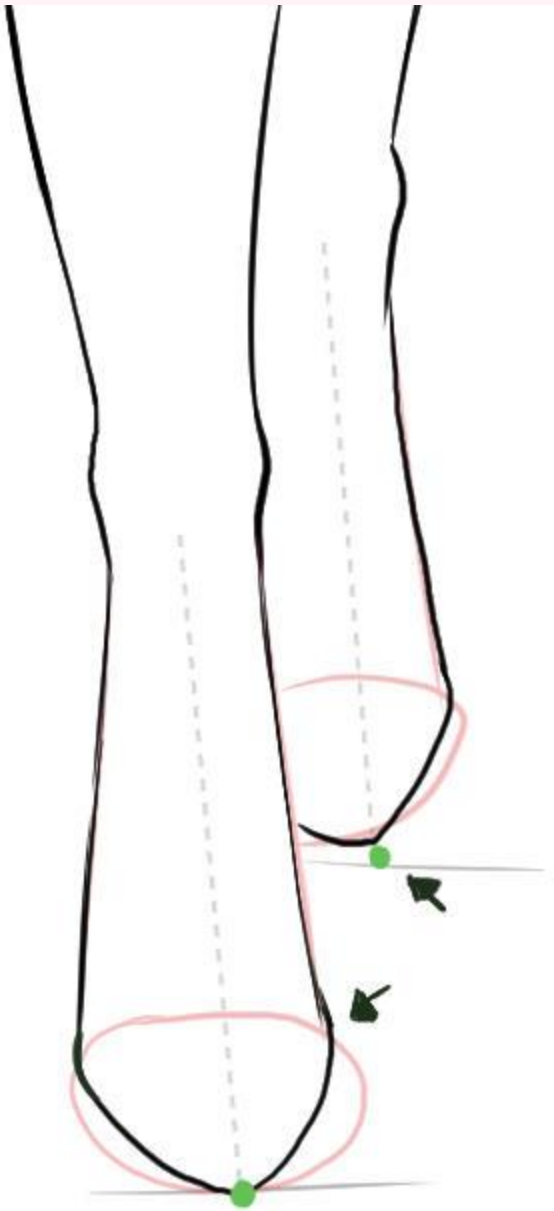
wider compared to the ankles.



Step 3: Draw some toes

Now it's time to refine the toes line. Draw a curved line that is pointier than the ellipse but **fits into it**. It helps if you stop at the center line. Make sure that this pointed arch is also slightly wider than the rest of the foot as was the ellipse.

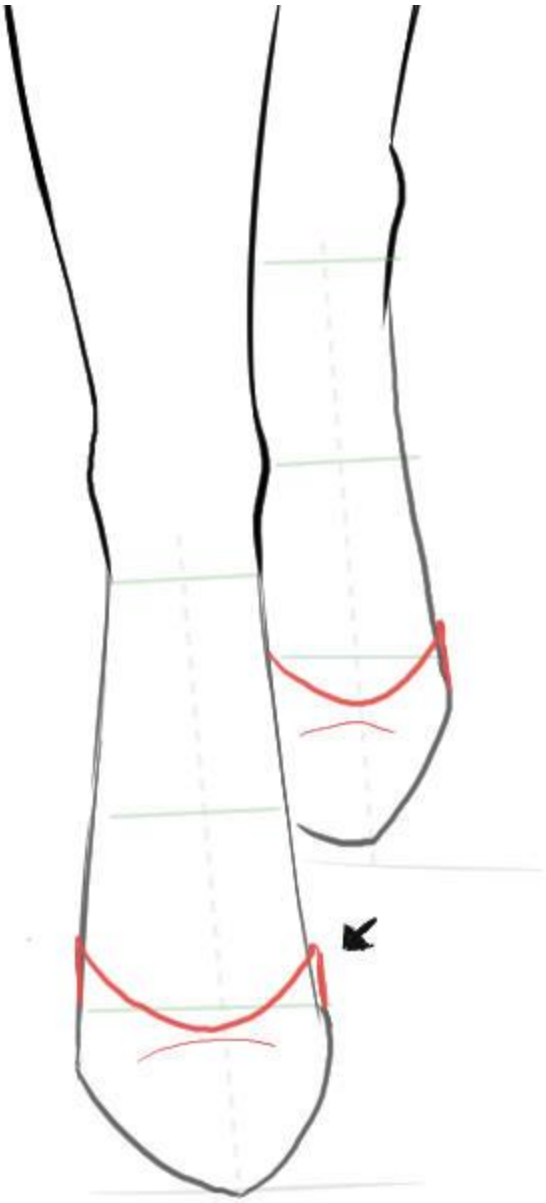
Tip: If you are drawing an open toe shoes the thumb will occupy almost the whole inner half of the toes arch. This is why you want to make the inner half of the arch more oval, less pointy.



Step 4: Drawing the front view shoe

It is important not to draw the front view shoe curve too deep to the toes nor too flat and straight. Use the lower dividing line from Step 2 to help you find the accurate place for

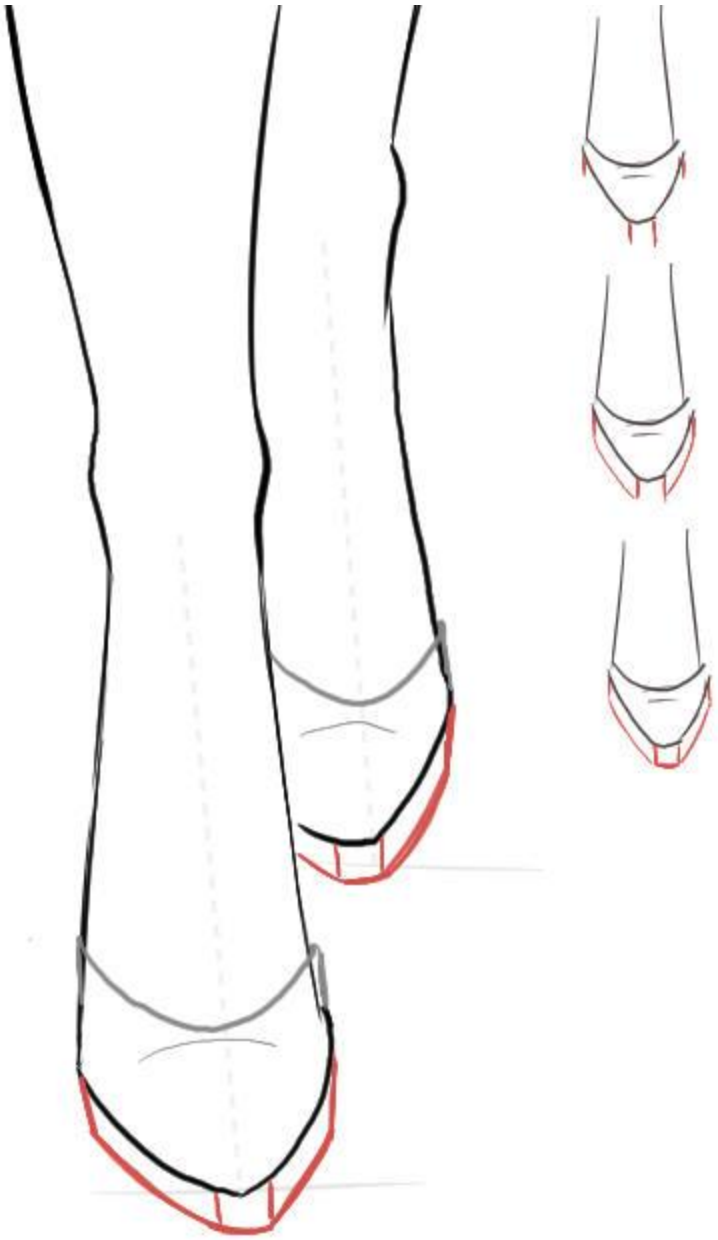
the shoe curve. It should be **slightly higher than the dividing line in the ends and dipping in at the Centerline**.. Draw a thin curving around the foot as shown below. Draw a flipped smaller curve right under the big one. This one indicates the delicate bump of the toes and will add a touch of realism to the sketch.



Step 5: Draw the soles

Not only the side view shoes need beautiful heels and soles. The different designs will

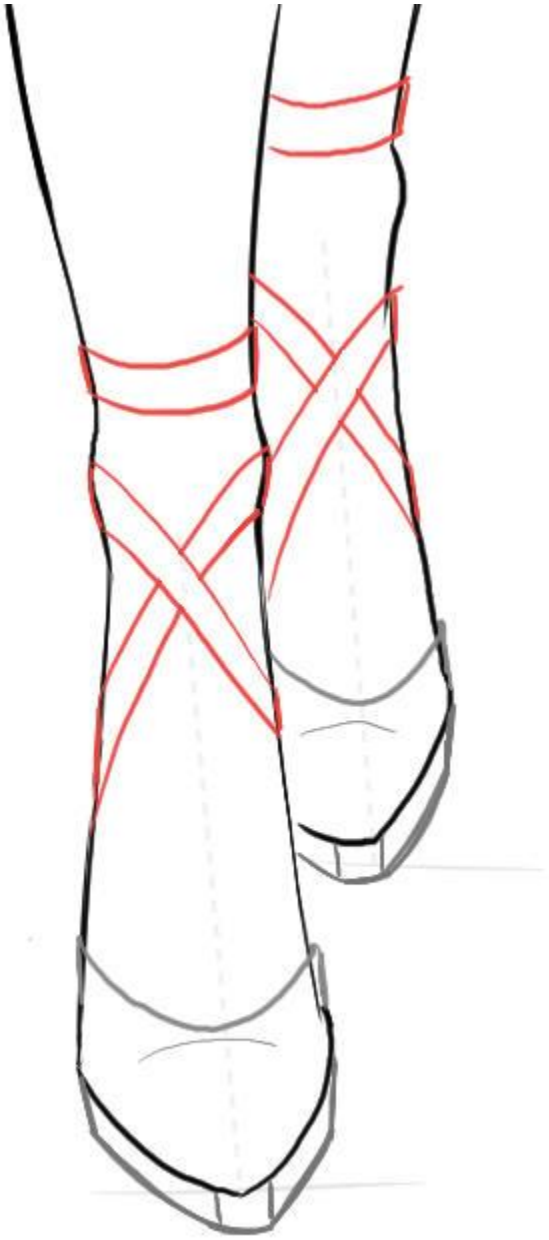
have soles of different styles, but all of them follow the same rule. The sole looks longer in the center and shorter in the ends. There is also has a small parallel to the ground part right in the middle.



Step 6: Drawing shoes straps

Some designs like roman sandals or ballerina shoes will have straps wrapped around the foot and the leg. Always remember to draw them slightly curved since the

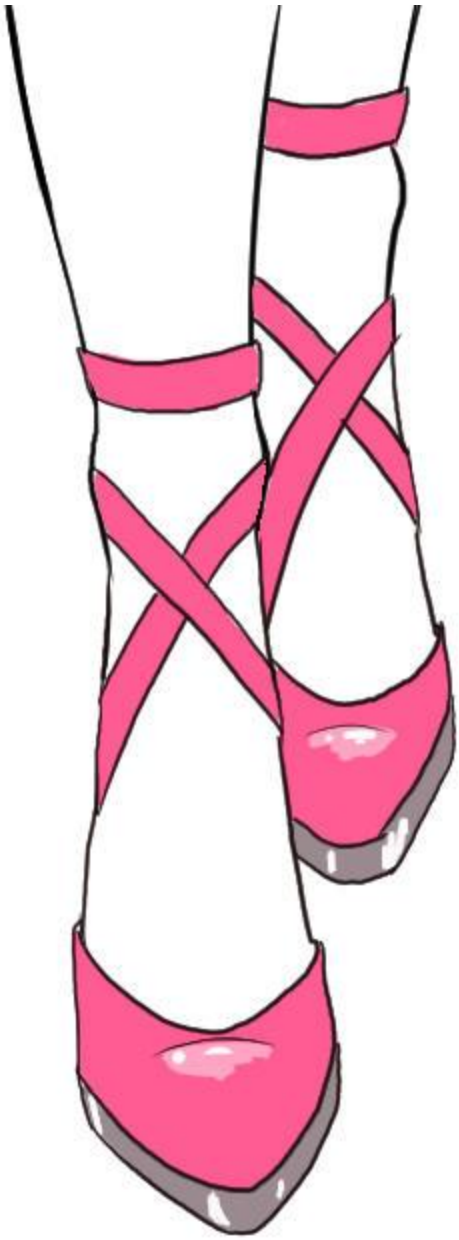
body **underneath has some volume** and this needs to be shown in your fashion illustration.



Step 7: Coloring

Color the shoes and leave a highlight on the toes bump. The highlight is a few shades lighter than the base color. The sole will look nice and shiny if you leave a few white

lines here and there on the sole.



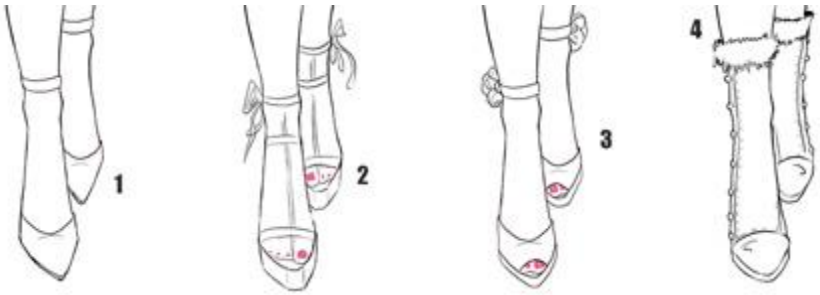
Step 8: Coloring shadows

Drawing shadows adds a lot to the footwear designs. Use a darker shade of your base

color and blend form the outside parts in. Don’t miss the straps.

Tthis step by step tutorial helped you to gain more understanding to drawing front view shoes and have inspired you for new, creative and original designs.

Here are some variations of the front view shoes design:



1. Pointed shoes: Instead of fitting the pointed curve into the toes ellipse try to exaggerate it down a bit. The tip of the shoe is in the center and slightly towards the thumb. This model has very delicate soles.

2. Sandals: Draw the thumb and the rest of the toes. Remember that the thumb is placed in the inner part of the foot and it occupies almost the whole space to the

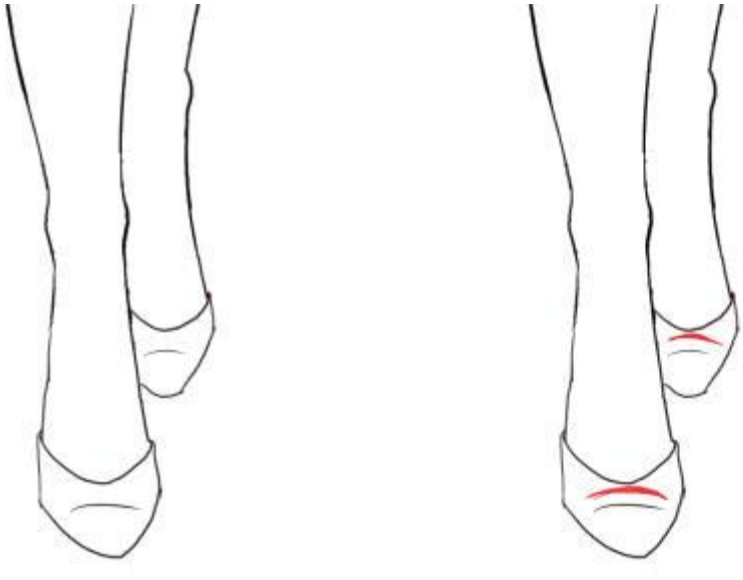
Centerline.

3. Open toe shoes: To draw open toe shoes just add a curve to the bottom . It should reveal the whole thumb and a small part of the second toe.

4. Boots: Leave some space between the leg and the boot to show that it is thick and not sticking to the body. You can exaggerate the toes bump in boots and sneakers.

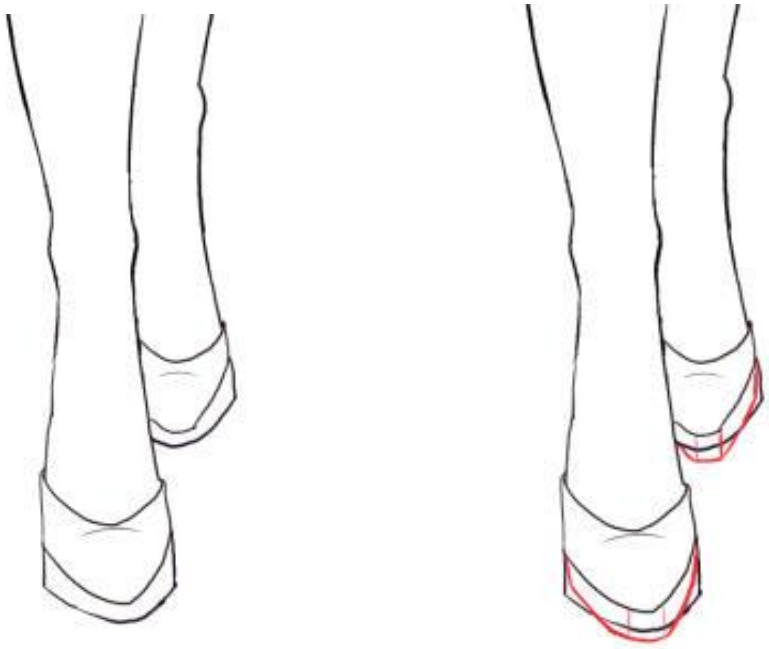
Common errors:

It doesn't look right! Common mistakes:



Error 1: The toes bump is placed too low. Draw the slightly lower than the shoe curve.

Error 2: The shoe curve is either too deep or too high. Use the guidelines from Step 2 to help you find the right place for it.

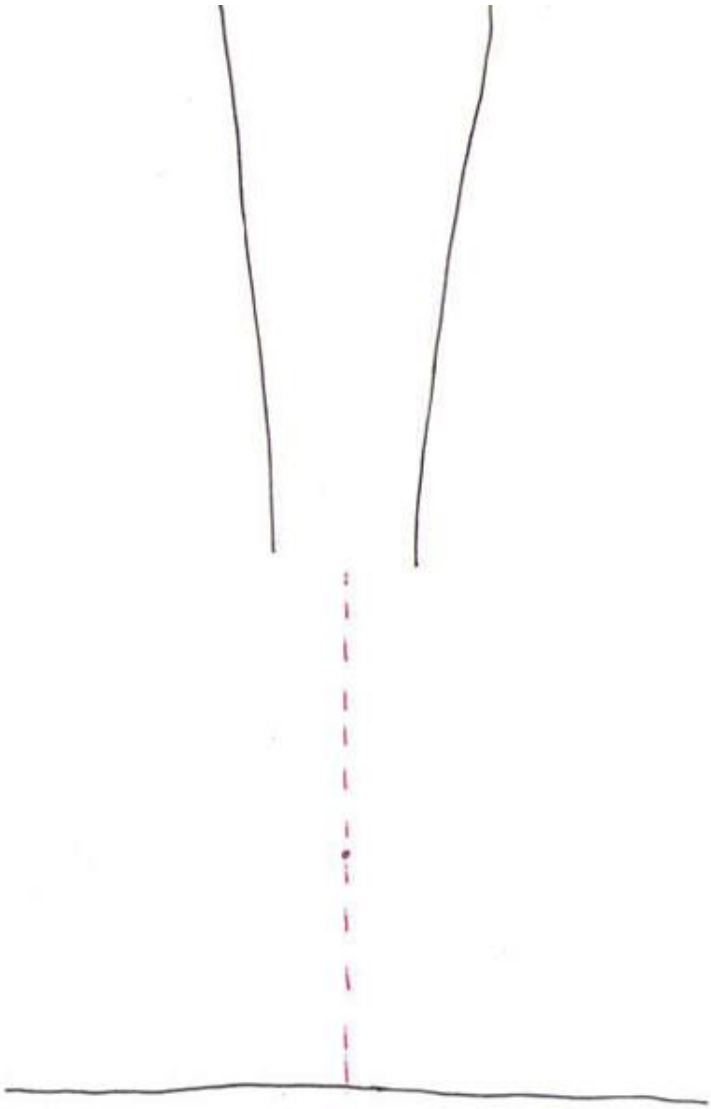


Error 3: The sole is not longer at the center, shorter at the ends. It also helps if you make the outer lines slightly slanted towards the center.

How to draw side view shoe

Step 1

You have the unfinished leg and have marked the floor level already.
From the ground up draw a Centerline that's a half-head long. If you are not drawing a whole figure, but just the foot it should be **4x the width of the leg just over the ankle**.
Use a small point to mark the middle of the line.



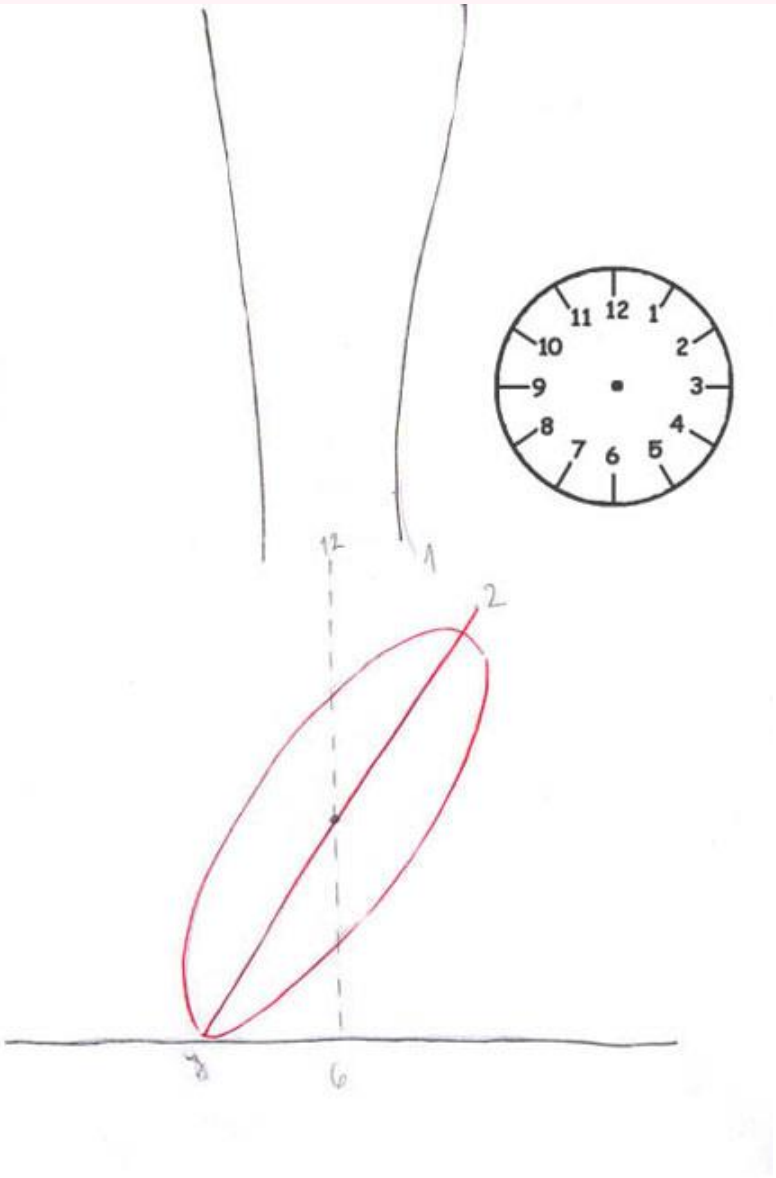
Step 2 “2:35”

Imagine the clock.

Now draw a second guideline with the same length as the first and make it show **2:35**.

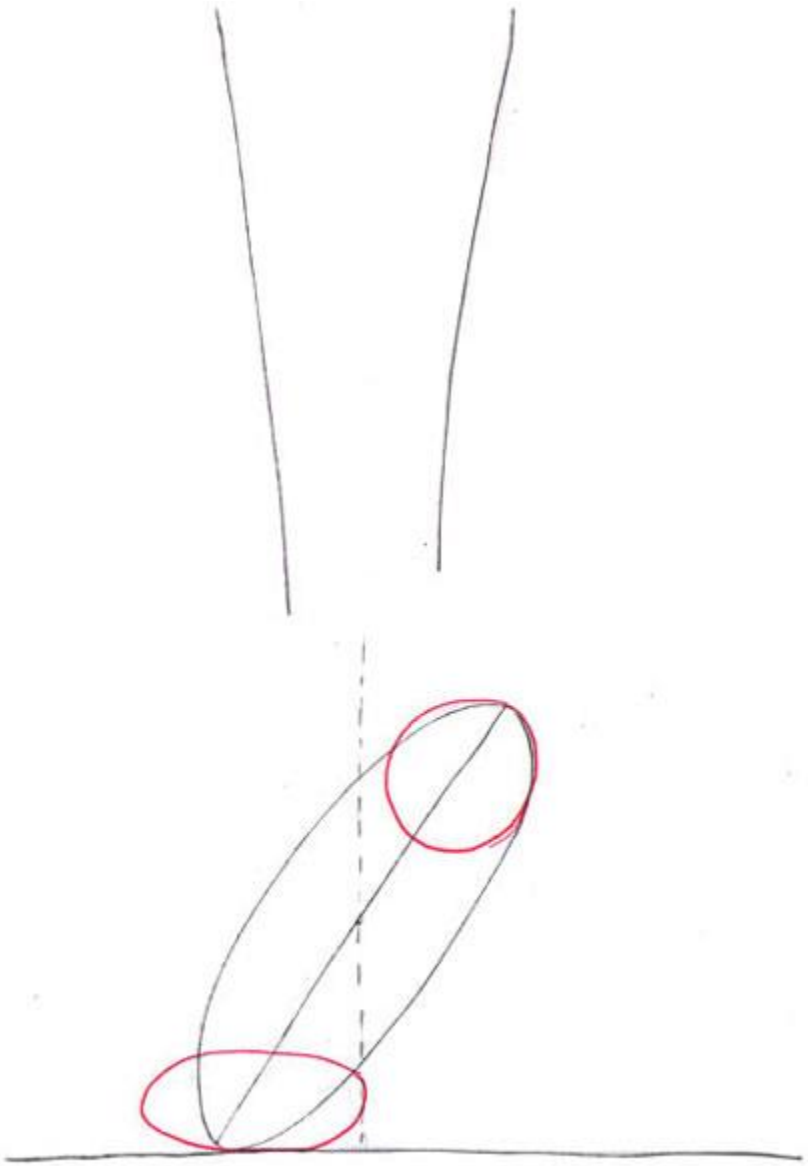
Close it within an ellipse as shown in the illustration.

Tip: This is about drawing really high stiletto heels. If you want some more flat, comfortable ones all you have to do is move the “clock arms” to 3:40 or whichever height you prefer.



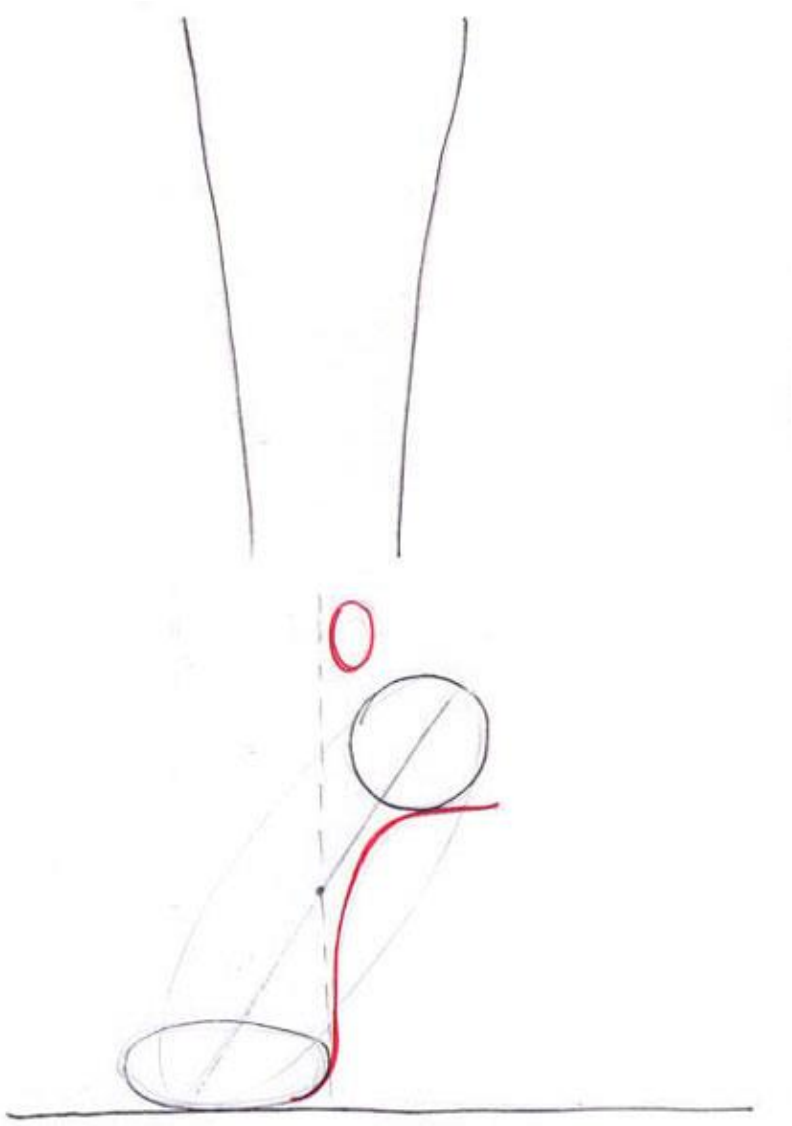
Step 3 Heel and Toes

In the upper corner of the ellipse draw a circle. Use the ellipse’s size as reference.
In the lower corner draw an ellipse that **touches the Centerline**. The 2:35 o‘clock line should pass through the middle of the ellipse. This is for the toes.



Step 4

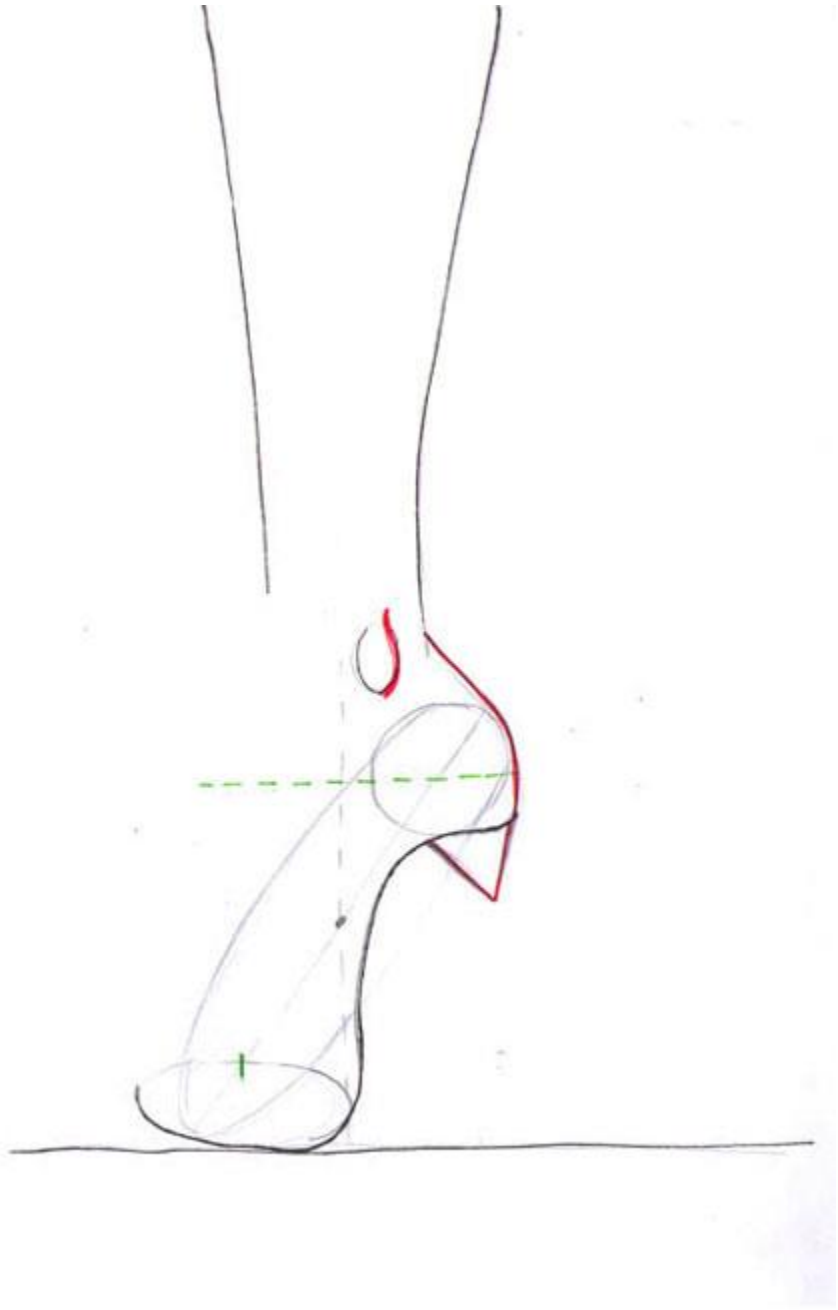
Connecting the circle and the ellipse draw the foot arch. Note that under the heel the curve is straight.Mark the place of the ankle. It's situated closer to the Centerline than to leg's outline.



Step 5

Draw the ankle and join the heel with the leg. Under the heel draw a triangle that will be used as guideline for the spike heel.

Pull a horizontal line from the heel circle's midway and mark the middle of the toes ellipse.



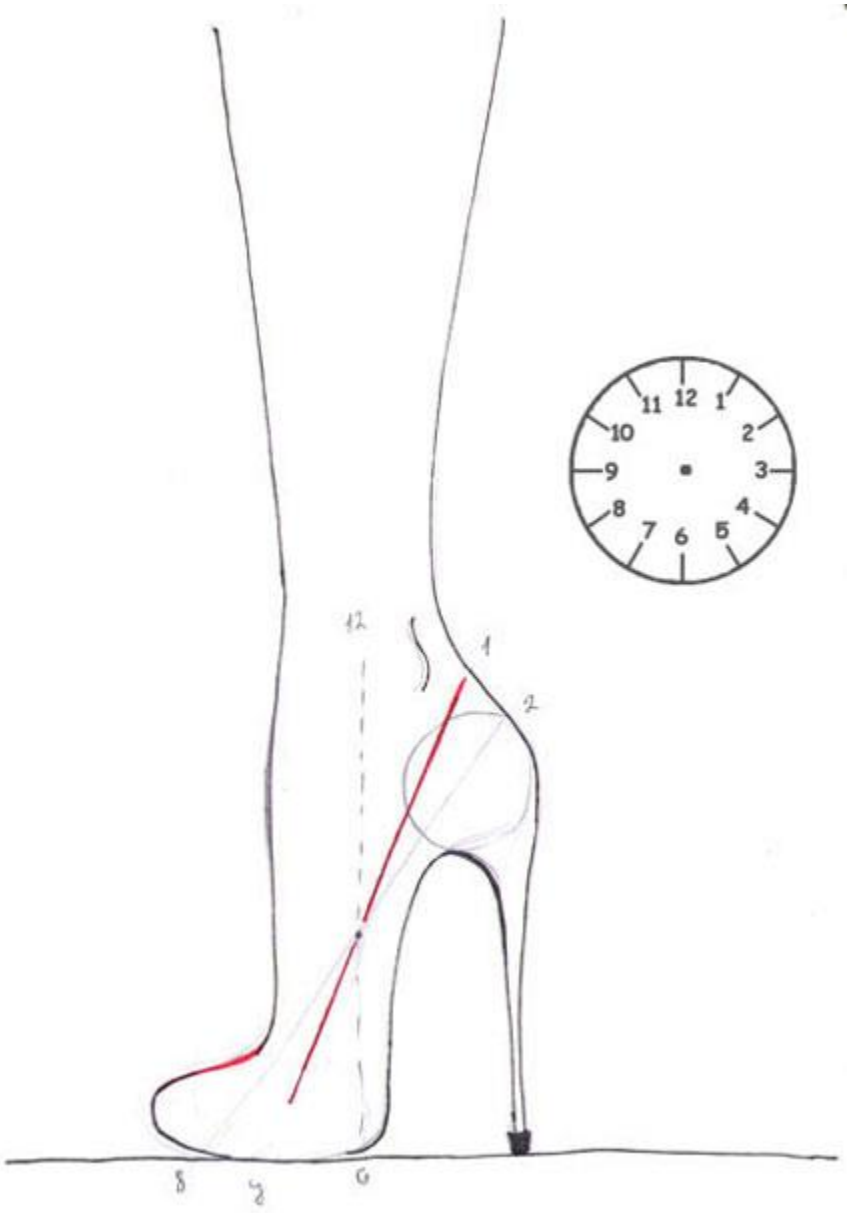
Step 6

Draw the heel. Use the little triangle to help you with the arch and make sure the heel is perpendicular to the ground surface.

Use the lines from step 5 to build the instep curve. The line pulled from the circle should mark the most bulging out section of the instep.

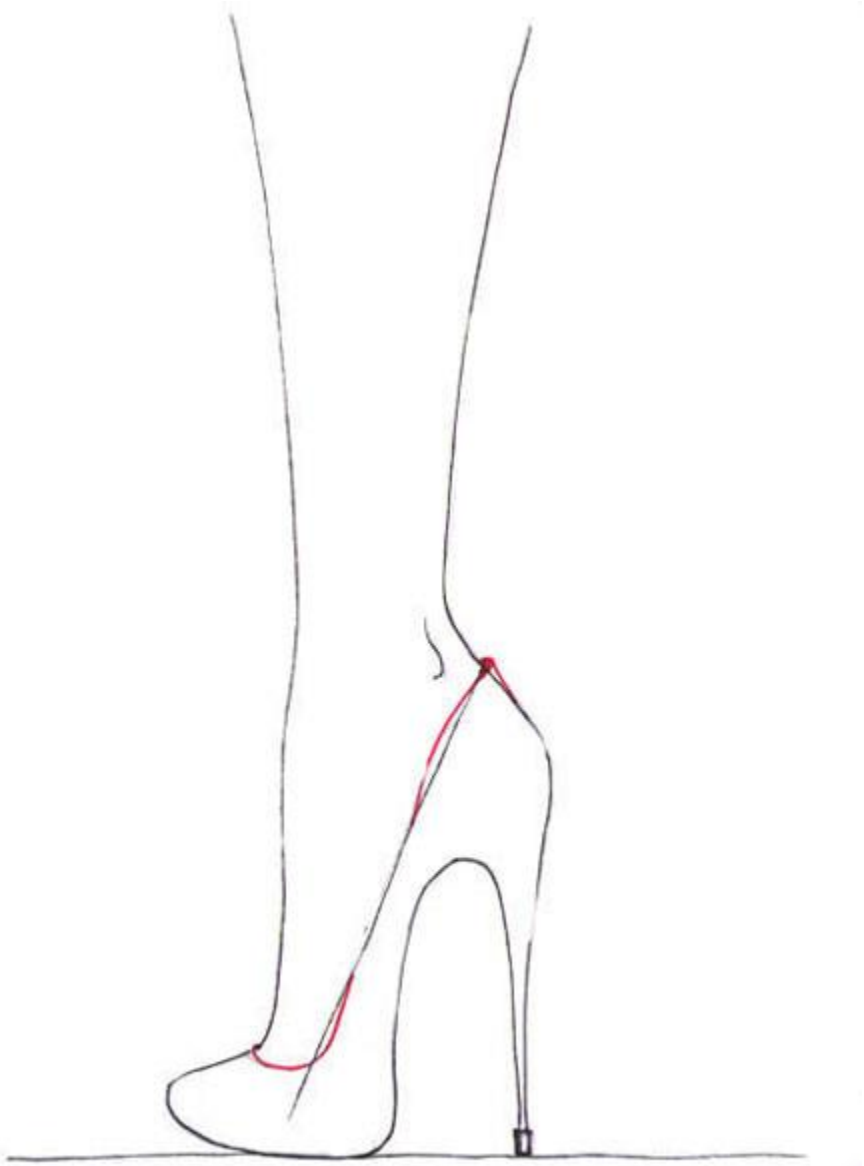
Step 7

Finish the toe box and draw new “clock arms” **pointing 1:35** this time.



Step 8

Refine the shoe contour and don't forget to make the wrap of the collar.



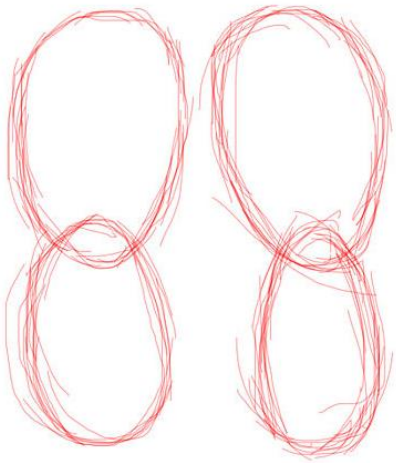
Now with the same steps we can experiment with different height and forms!

How to draw Flip-Flops

Here are the steps to draw a pair of flip flops:

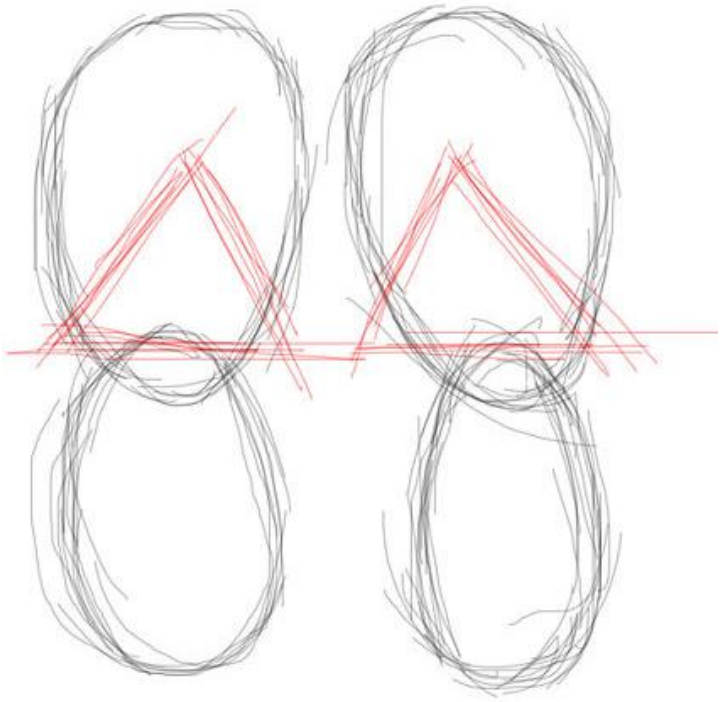
Step 1

Draw 2 intersecting ovals. Next to them draw another set of intersecting ovals for draw pair of flip-flop.



Step 2

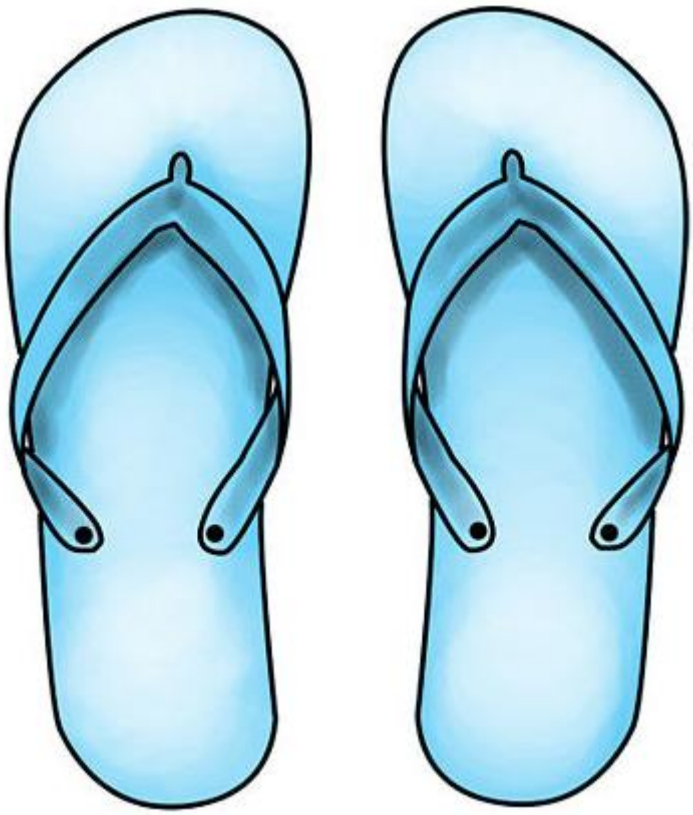
Draw a triangle beginning at the middle of each of the top ovals.



Step 3
At the each end of the 2 triangles draw a small slanted rectangle.

Step 4

nk the outlines of the shapes. Erase the skethc.



Self-Check – 2	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I:

Directions: Use pencil & Designing Kit

1. Draw the sketch of a Derby Shoe with all the necessary detail to understand the design intricacy.

Note: **Satisfactory rating - 3 points** **Unsatisfactory - below 3 points**
You can ask you teacher for the copy of the correct answers.

Reference Materials

Book:

- Previous TTLM develop understanding of fashion and illustration techniques
- Previous TTLM develop understanding of design and styles
- Fashion and design book
- Fashion merchandizing books

WEB ADDRESSES

AKNOWLEDGEMENTS

We wish to extend thanks and appreciation to the many representatives of TVET Instructors, Leather Industry Development Institute Experts, Federal TVET Agency and Regional TVET Bureau Experts who contributed their time and expertise to the development of this Teaching, Training and Learning Materials (TTLM) with the required standards and quality possible

We would also like to express our appreciation to the Leather Industry Development Institute (LIDI) and Federal TVET Agency who made the necessary accommodation and other expenses arrangement for the development of this Teaching, Training and Learning Materials (TTLM).

This Teaching, Training and Learning Materials (TTLM) were developed on February 2021 at Bishoftu, Management Institute.

Experts Who Developed this Learning Guide

No	Name	Educational Background	Region	E-mail	Remarks
1	Kirubel Alemayehu	BSC in manufacturing engineering (footwear and leathergoods)	Addis Ababa, Leather Industry Development Institute	kirualex1@gmail.com	Learning Guide Developers Team Members
2	Abdi Angerassa	MSC in Footwear Technology	Addis Ababa, Leather Industry Development Institute	abdinago2@gmail.com	
3	Bezalem Zeleke	BSC in Leather Engineering	Addis Ababa, Lideta TVET College	bebezele@gmail.com	
4	Bikila Zelalem	BSC in Leather and Leather Product Technology	Addis Ababa, Lideta TVET College	bikilaleru@gmail.com	
5	Kidist Beyene	BSC in Leather Engineering	Sidama, TVET	Kiddy.beze@gmail.com	
6	Wondeinku Taye	EDPM	Sidama, Hawassa TVET Bureau	wondeinku2005@gmail.com	
7	Yonas Tefera	MA in Curriculum and Instruction	Addis Ababa, LIDI	yonast2025@gmail.com	Learning Guide Development Coordinators
8	Romian Anbessie	BSC in Garment Technology	Oromiya, TVET Bureau	romianbesie@gmail.com	
9	Tigist Kebede	MA in TVET leadership and Management	Addis Abeba, Federal TVET Agency	tgkebede27@gmail.com	
10	Fitsum Tilahun	BSC in plant Science		tilahun.fitsum@gmail.com	
11	Workneh Asmamaw	MSC in Food Security and Development		workasmamaw@gmail.com	
12	Muluken Kassahun	Electrical and Electronics		mulak.last@gmail.com	