DEPARTMENT OF EDUCATION
REGION X - NORTHERN MINDANAO
DIVISION OF CAGAYAN DE ORO CITY
Fr. William F. Masterson, SJ Avenue, Upper Balulang, Cagayan de Oro City

Learning Activity Sheets

Technical Drafting

SHARED OPTIONS
Senior High Alternative Responsive Education Delivery

Preface

It has been elaborated in research and literature that the highest performing education systems are those that combine quality with equity. Quality education in the Department of Education (DepEd) is ensured by the learning standards in content and performance laid in the curriculum guide. Equity in education means that personal or social circumstances such as gender, ethnic origin or family background, are not obstacles to achieving educational potential and that inclusively, all individuals reach at least a basic minimum level of skills.

In these education systems, the vast majority of learners have the opportunity to attain high-level skills, regardless of their own personal and socio-economic circumstances. This corresponds to the aim of DepEd Cagayan de Oro City that no learner is left in the progression of learning. Through DepEd's flexible learning options (FLO), learners who have sought to continue their learning can still pursue in the Open High School Program (OHSP) or in the Alternative Learning System (ALS).

One of the most efficient educational strategies carried out by DepEd Cagayan de Oro City at the present is the investment in FLO all the way up to senior high school. Hence, Senior High School Alternative Responsive Education Delivery (SHARED) Options.

Two secondary schools, Bulua National High School and Lapasan National High School, and two government facilities, Bureau of Jail Management and Penology-Cagayan de Oro City Jail and Department of Health-Treatment and Rehabilitation Center-Cagayan de Oro City, are implementing the SHARED Options.

To keep up with the student-centeredness of the K to 12 Basic Education Curriculum, SHARED Options facilitators are adopting the tenets of Dynamic Learning Program (DLP) that encourages responsible and accountable learning.

This compilation of DLP learning activity sheets is an instrument to achieve quality and equity in educating our learners in the second wind. This is a green light for SHARED Options and the DLP learning activity sheets will continually improve over the years.

Ray Butch D. Mahinay, PhD
Jean S. Macasero, PhD

Acknowledgment

The operation of the Senior High School Alternative Responsive Education Delivery (SHARED) Options took off with confidence that learners with limited opportunities to senior high school education can still pursue and complete it. With a pool of competent, dedicated, and optimistic Dynamic Learning Program (DLP) writers, validators, and consultants in Senior High School Technical Vocational Livelihood Learning activity Sheets , the SHARED Options is in full swing.

Gratitude is due to the following:

- Schools Division Superintendent, Cherry Mae L. Limbaco, PhD, CESO V, Assistant Schools Division Superintendent Alicia E. Anghay, PhD, for buoying up this initiative to the fullest;
- CID Chief Lorebina C. Carrasco, and SGOD Chief Rosalio R. Vitorillo, for the consistent support to all activities in the SHARED Options;
- School principals and senior high school teachers from Bulua NHS, Lapasan NHS, Puerto NHS and Lumbia NHS, for the legwork that SHARED Options is always in vigor;
- Stakeholders who partnered in the launching and operation of SHARED Options, specifically to the Bureau of Jail Management and Penology-Cagayan de Oro City Jail and the Department of Health-Treatment and Rehabilitation Center-Cagayan de Oro City;
- Writers namely: Bienvenido D. Codillo and Carmel G. Cervantes, Michael A. Maestrado and validators of the DLP learning

activity sheets, to which this compilation is heavily attributable to, for their expertise and time spent in the workshops;

- Alternative Learning System implementers namely Willy P. Calo Ailiene P. Libres, Rubeneth V. Salazar and Metocila O. Agbay, Puerto National High School, Leneth G. Udarbe, Lapasan National High School and Pinky B. Dela Calzada, for the technical assistance given to the sessions;
- Reproduction (LRMDS) Gemma P. Pajayon and Lanie M. Signo;
- To all who in one way or another have contributed to the undertakings of SHARED Options.

Mabuhay ang mga mag-aaral! Ito ay para sa kanila, para sa bayan!

Ray Butch D. Mahinay, PhD
Jean S. Macasero, PhD

MONITORING OF ACCOMPLISHED LEARNING ACTIVITY SHEETS
TECHNICAL DRAFTING

ACTIVITY NUMBER	LEARNING ACTIVITY TITLE	DATE	SCORE	ITEM
1	Drafting tools, materials, and equipment			5
2	Setting up drawing equipment			5
3	Site Development Plan			5
4	Title block and Borders			5
5	Alphabet of Lines			8
6	Lettering			5
7	Dimensions and Scaling			20
8	Floor Plans			6
9	Types of Scaling			5
10	Schedule of doors and windows			9
11	Architectural floor symbols			5
12	Roof Plan (Parts of a Roof)			5
13	Architectural roof symbols			10
14	Framing details			5
15	Ceiling Parts and Member			4
16	**Ceiling plans**			5
17	**Elevations and Sections**			4
18	**Elevation Views**			4
19	**Detailing techniques(Elevation)**			5
20	**Materials and Symbol Specifications**			5
21	Electrical plans and layouts (Operational definition/ terminology of electrical)			7
22	Electrical drawing standards (legend)			5
23	Electrical drawing standards (general note)			2
24	Auxiliary systems equipment (fire alarm and protection system symbols)			2
25	Auxiliary systems equipment (electronic and communication devices)			8
26	Plumbing Code (cold water system distribution)			6
27	Plumbing Code (hot water system distribution)			7
28	Plumbing symbols			7
29	Clean Water Act			2
30	Basic CAD concepts			5
31	CAD working environment			7
32	CAD Features			8

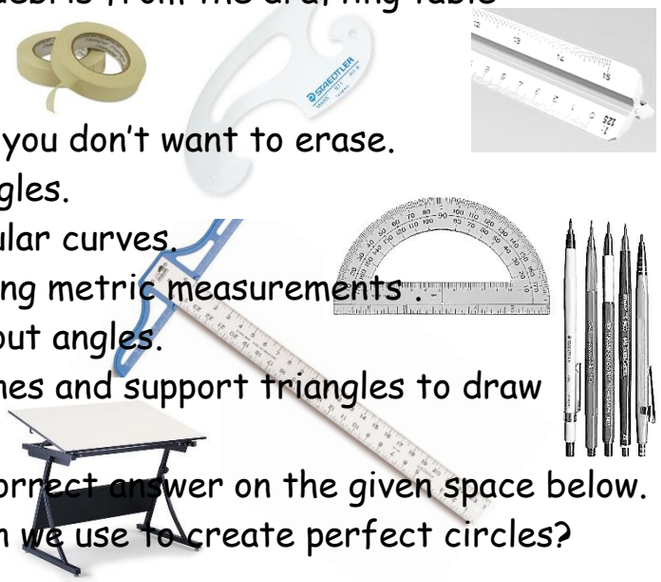
33	Definition of structural terms in CAD			5
34	Structural drawing using CAD			10
35	Definition of electrical terms in CAD			5
36	Electrical drawing using CAD			8
37	Plumbing fixtures and fittings in CAD			5
38	Plumbing symbols in CAD			10
39	Definition of mechanical terms in CAD			6
40	Mechanical drawing using CAD			10

Name:	Date:	Score:
Subject : ICT - TECHNICAL DRAFTING		
Lesson Title : Drafting Tools, Materials, and Equipment		
Lesson Competency : Prepare tools, materials, and equipment in technical drawing TLE_ICTTD9-12AL-Ia-1 Enabling Skill: Definition of Terms		
References : https://schoolwires.henry.k12.ga.us/.../Definitions%20-%20Drafting%20Tools		LAS No. 01

CONCEPT NOTES

DEFINITION OF TERMS

- **Adjustible Triangle**-used to draw angles from 0 to 90 degrees.
- **Lettering guide**- used to draw guidelines for lettering.
- **Architect's scale**-used with typical drawings and floor plans.
- **Compass**-used to draw circles and arcs.
- **Divider**-used to divide lines into equal .spaces
- **Drawing Table**-smooth, firm surface used to draw on.
- **Masking tape**-used to hold paper in place while drawing
- **Pencils**-high quality pencils with varying sizes of lead
- **Drafting Brush**- eraser crumbs and debris from the drafting table
- **Template**-used to draw ellipse
- **Eraser**-used to erase mistakes
- **Erasing Shield**-used to protect lines you don't want to erase.
- **Triangles**-used to draw 45 and 90 angles.
- **French Curve**-used to draw non-circular curves.
- **Triangular Scale**-any drawing requiring metric measurements .
- **Protractor**-used to measure and lay out angles.
- **T-Square**-used to draw horizontal lines and support triangles to draw vertical lines.



EXERCISES. Identification: Write the correct answer on the given space below.

1. _____What drafting tools can we use to create perfect circles?

2. _____What tool is used to measure angles?

3. _____what is the tools used to measure architectural drawings.

4. _____What tool is used to draw irregular curves?

5. _____What instrument is used to draw vertical and inclined lines?

Name:	Date:	Score:
Subject : ICT - TECHNICAL DRAFTING		
Lesson Title : Setting Up Drawing Equipment		
Lesson Competency : Set up tools, materials, and equipment based on the job requirements TLE_ICTTD9-12AL-Ia-2		
References : https://www.slideshare.net/MaryGraceMostrales/basic-drafting-tools-materials-and-settingup-your-drawing-table		LAS No. 02

CONCEPT NOTES

SETTING-UP YOUR DRAWING TABLE

PROCEDURES:

1. Tear off four pieces of drafting tape and place them on the edge of your drafting table.
2. Place the T-square on your drawing table somewhere around the lower third of the table.
3. Make sure that the head of the square is tightly what against the edge of the table.
4. Hold the T-square in place by pushing the arm of the T- square tightly against the drawing table.
5. Put your paper on the board above the T-square and slide it down until the paper is resting against the upper edge of the T-square arm.
6. When the paper is in place, put one hand firmly in the middle. Be careful not to slide, twist, or move the paper.
7. With your other hand, generally place tape across each corner of the paper. Tape the paper firmly to the board. Be careful to tape down only as much of the corner as needed to ensure that the paper is secure.

EXERCISES:

Answer the following questions. Write "True" or "False" against each of the following statements.

1. _____The head of the T-Square is place at the top of the drawing table.
2. _____ Hold the T-square in place by not pushing the arm of the T-square tightly against the drawing table.
3. _____ Packaging tape is the one you will use to tape the drawing tape.
4. _____ Tear off four pieces of drafting tape and place them on the edge of your drafting table.

DepED DEPARTMENT OF EDUCATION K TO 12 PROGRAM

SHARED OPTIONS

SENIOR HIGH ALTERNATIVE RESPONSIVE EDUCATION DELIVERY

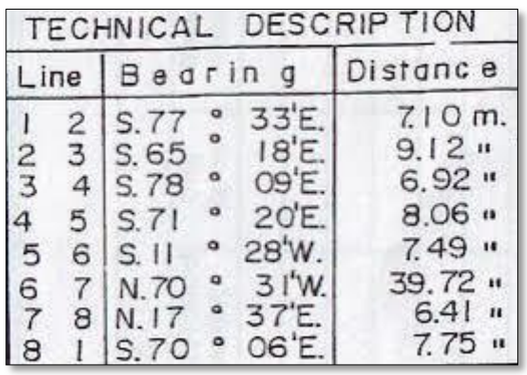
GRADE 11 DLP LEARNING ACTIVITY SHEET

Name:	Date:	Score:
Subject : ICT - TECHNICAL DRAFTING		
Lesson Title : Site Development Plan		
Lesson Competency : Identify a technical description of a lot according to the approved lot survey/TLE_ICTTD9-12AL-Ic-e-3		
References : https://miguefournier.ca/en/technical-description/ https://www.theprojectdefinition.com/plot-plan/		LAS No. 03

CONCEPT NOTES

The Technical Description is a document consisting of a plan and a report, in which the land surveyor describes a property or part of a property in regards to the cadastral limits and for specific purposes such as : right of way, draining servitude, encroachment servitude, agricultural zoning, annexation, sale or municipal fusion. The technical description cannot be used for any other reason other than the one it was destined for.

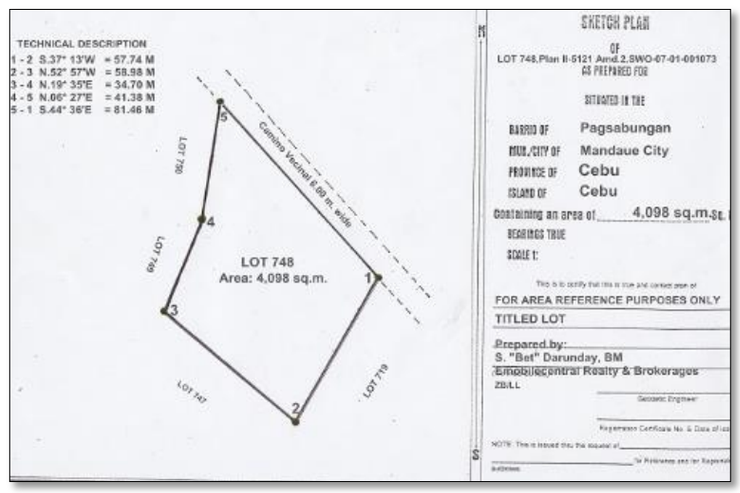
The Plot Plan is a multi disciplinary engineering output drawing which graphically show the key areas, units, equipment, and general features of the plants including buildings, utility runs, and equipment layout, the position of roads, and other constructions of an existing or proposed project site.



TECHNICAL DESCRIPTION

Line	Bearing	Distance
1 2	S. 77 ° 33'E.	7.10 m.
2 3	S. 65 ° 18'E.	9.12 "
3 4	S. 78 ° 09'E.	6.92 "
4 5	S. 71 ° 20'E.	8.06 "
5 6	S. 11 ° 28'W.	7.49 "
6 7	N. 70 ° 31'W.	39.72 "
7 8	N. 17 ° 37'E.	6.41 "
8 1	S. 70 ° 06'E.	7.75 "

Technical Description



Plot Plan

EXERCISES: Enumeration: Answer the following question.

A. What are the specific purposes of technical description? Give at least three.

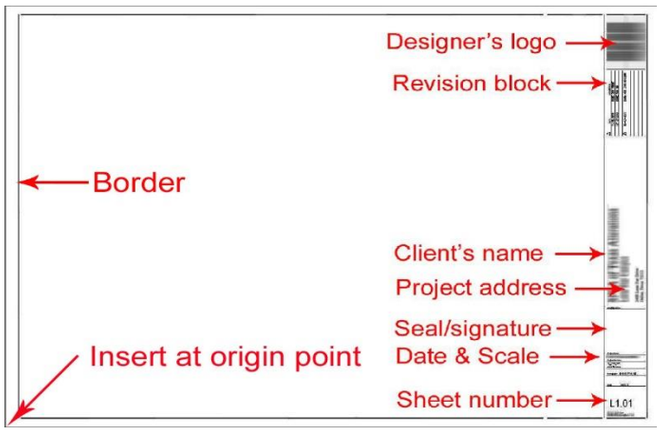
1._____ 2._____ 3._____

B. What are the specific purposes of Plot Plan. Give at least two.

4._____ 5._____

Name:	Date:	Score:
Subject : ICT - TECHNICAL DRAFTING		
Lesson Title : Title Block and Borders		
Lesson Competency : Draw a title block according to the architectural drafting standards /TLE_ICTTD9-12AL-Ic-e-3 Enabling Skill		
References : https://www.wisegeek.com/what-is-a-title-block.htm		LAS No. 04

CONCEPT NOTES



The **title block** is an important element found in professional architectural drawings that contains data about the drawing, such as the title, its number, and the name of the architect. It may also have a company logo, copyright information, and data on the date it was completed. Basically, a title box is a rectangle that contains all the information needed to identify, verify, interpret, and archive any architectural schematic. A typical title block is subdivided into numerous areas that contain different types of information, and it is usually found on the bottom or lower right-hand corner of any drawing.

One section in the block is used to note down the drawing title and the drawing number. These are important for filing and verification purposes. The drawing number is unique to a particular schematic and is usually a code containing critical data about the drawing. The information may include data on the type of drawing, revision details, and details about the site. It may also have the sheet number, which is important in understanding whether a drawing is spread out over numerous sheets or is a stand-alone drawing. The schematics are mostly filed according to the unique drawing number because the title may be shared by numerous architectural prints.

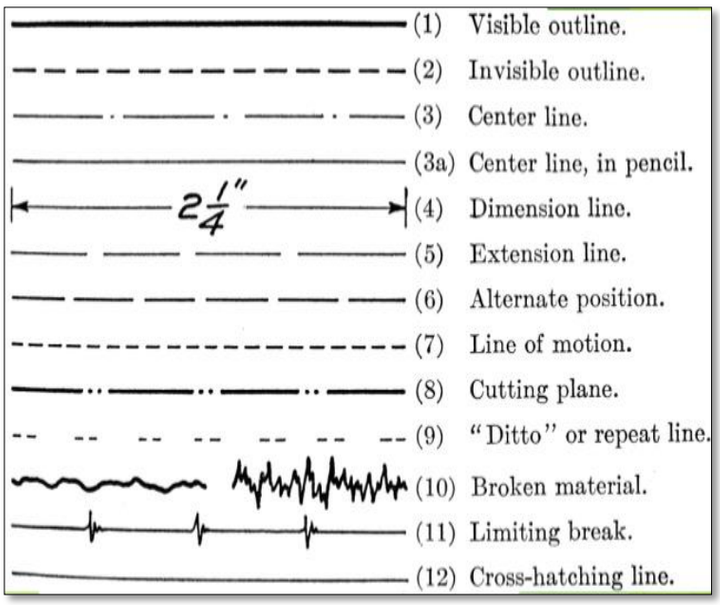
EXERCISES: Enumeration: Answer the following question. Write T if your answer is true or F if your answer is false.

_____1. Border box contains all information of the design.
_____2. The title block is very important to all the designer?
_____3. A rectangle that contains all information needed is title box.
_____4. A line that drawn around the template is Border.
_____5. Title block is an important element found in professional architectural drawings that contains data about the drawing.

Name:	Date:	Score:
Subject :ICT - TECHNICAL DRAFTING		
Lesson Title : Alphabet of Lines in Technical Drafting		
Lesson Competency : Indicate dimension lines, dimensions, and drawing titles according to architectural drafting standards /TLE_ICTTD9-12AL-Ic-e-3 Enabling Skill: Definition of Terms		
References:https://www.umasd.org/cms/lib7/PA01000379/Centricity/Domain/325/The_Alphabet_of_Lines.pdf		LAS No. 05

CONCEPT NOTES

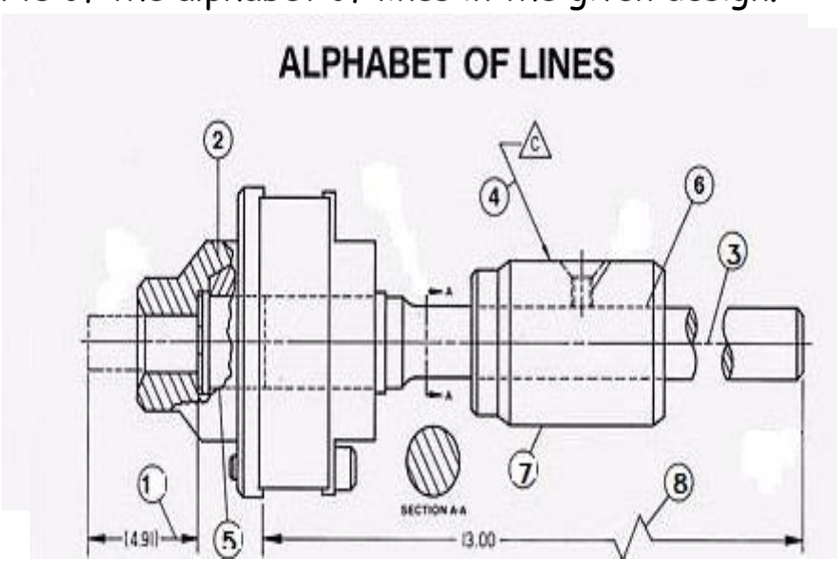
Line symbols used in technical drawing are often referred to as **ALPHABET OF LINES**. The use of line symbols enables engineers/designers to express features of designed products clearly and accurately. Line features vary not only by width but also by how they are graphically represented in a drawing. Line significance is conveyed by line weight or thickness of the line. Every line is drawn at different thickness and darkness to express contrast as well as importance. Lines that are less important are thin and light. Key to successful drafting is to have a good technical knowledge of these various line characteristics – to understand where and when to apply them in technical drawing.



EXERCISES:

Identify the following parts of the alphabet of lines in the given design.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____



Name:	Date:	Score:
Subject : ICT - TECHNICAL DRAFTING		
Lesson Title : Lettering		
Lesson Competency : **Identify the different types of lettering according to the architectural drafting standards /TLE_ICTTD9-12AL-Ic-e-3**		
References: https://penandthepad.com/info-7829283-different-kinds-lettering.html		LAS No. 06

CONCEPT NOTES

The History and Technique of Lettering. The only inexpensive and thorough chronicle of the development of letter forms from the point of view of the artist or typographer, The History and Technique of Lettering ranges from the earliest pictographs and hieroglyphics to the work of 20th-century designers.

Types of Lettering and Styles

- **Serif lettering styles** are letters that have tails on them. Tails are decorative, often curved flourishes found at the end of a letter's descending stroke, which may rest on or below your baseline.
- **The Old English lettering**—though it had no standard orthography—generally consisted of 24 letters, and was used for writing Old English from the 8th to the 12th centuries.
- **Gothic style lettering** typically features very sharp edges, based on the styles of Gothic architecture. Gothic lettering is often used for headlines and titles, but it doesn't work well for body text.
- **Roman Lettering** is the alphabet that was used for writing Latin and that is now used for writing English and many other European languages.
- **Block lettering** is a plain, straightforward lettering style that is characterized by letters that are typically very large and written in all capitals.

EXERCISES: Matching Type: Write letter of your answer on the space provided before the number.

_____1. Roman letters	A. LETTERING
_____2. Gothic Lettering	B. LETTERING
_____3. Old English Lettering	C. LETTERING
_____4. Block Lettering	D. LETTERING
_____5. Serif Lettering	E. LETTERING

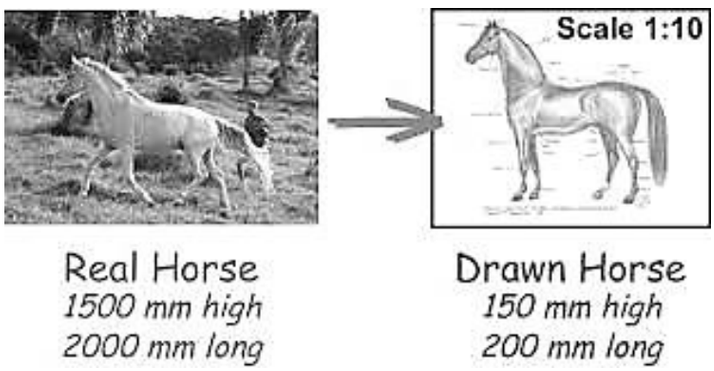
Name:	Date:	Score:
Subject : ICT - TECHNICAL DRAFTING		
Lesson Title : Dimensions and Scaling		
Lesson Competency : Indicate dimension lines, dimensions, and drawing titles according to architectural drafting standards /TLE_ICTTD9-12AL-Ic-e-3		
References: https://knowledge.autodesk.com/support/autocad/learn-explore/caas/CloudHelp/cloudhelp/2017/ENU/AutoCAD-Core/files/GUID-30D6D9C8-AB99-47D1-B420-3D4EB6C7B0D1-htm.html		LAS No. 07

CONCEPT NOTES

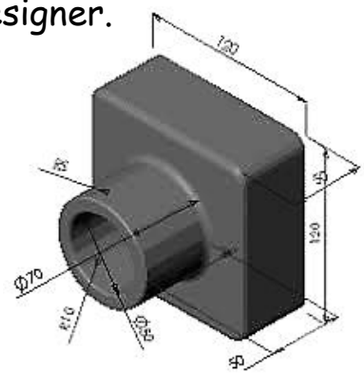
Dimensioning is to provide a clear and complete description of an object. A complete set of dimensions will permit only one interpretation needed to construct the part. Dimension scale affects the size of the dimension geometry relative to the objects in the drawing. ... There are three methods used to create dimensions in a drawing layout: Dimension in model space for plotting in model space. This is the traditional method used with single-view drawings

Scaling is a drawing method used to enlarge or reduce a drawing in size while keeping the proportions of the same drawing.

Layout drawing is a running record of ideas and problems posed as the design evolves. In most cases the layout drawing ultimately becomes the primary source of information from which detail drawings and assembly drawings are prepared by other drafters under the guidance of the designer.



Scaled Drawing

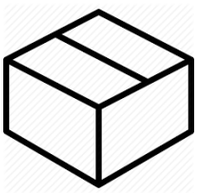


Dimensioning

EXERCISES:

With the given object,scale the drawing and apply dimension to the parts of the object. (10 points)

A.



B.

Name:	Date:	Score:
Subject : ICT – TECHNICAL DRAFTING		
Lesson Title : Floor Plans		
Lesson Competency : Identifying walls, windows, doors, fixtures, and fittings according to architectural design standards /TLE_ICTTD9-12AL-If-j-4 Enabling Skill: Definition of terms		
References: https://drummondhouseplans.com/plan/frontenac-traditional-1001765		LAS No. 08

CONCEPT NOTES

Floor plan is a drawing to scale, showing a view from above, of the relationships between rooms, spaces, traffic patterns, and other physical features at one level of a structure. Dimensions are usually drawn between the walls to specify room sizes and wall lengths.

Definition of Terms

- A **Porch** is a covered shelter projecting in front of the entrance of a house or building in general.
- A **dining room** is a room for consuming food. In modern times it is usually adjacent to the kitchen for convenience in serving, although in medieval times it was often on an entirely different floor level.
- A **kitchen** is a room or part of a room used for cooking and food preparation in a dwelling or in a ...
- **Living Area**- a room in a home that's used for entertaining friends, talking, reading, or watching television.
- A **bedroom** is a room of a house, mansion, castle, palace, hotel, dormitory, apartment, condominium, duplex or townhouse where people sleep.
- A **parking space** is a location that is designated for parking, either paved or unpaved. It can be in a parking garage, in a parking lot or on a city street. The space may be delineated by road surface markings.

EXERCISES: Identification: Identify the area of a floor plan. Write your answer on the space provided.

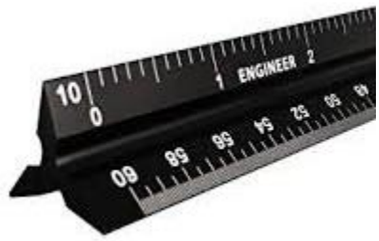
1._____
2._____
3._____
4._____
5._____
6._____

Name:	Date:	Score:
Subject : ICT - TECHNICAL DRAFTING		
Lesson Title : Types of Scaling		
Lesson Competency : Use metric scale system according to the magnitude of the plan /TLE_ICTTD9-12AL-If-j-4		
References:https://www.google.com/search?q=floor+planning+scale&oq=floor+planning+scale&aqs=chrome..69i57j33.9348j0j9&sourceid=chrome&ie=UTF-8		LAS No. 09

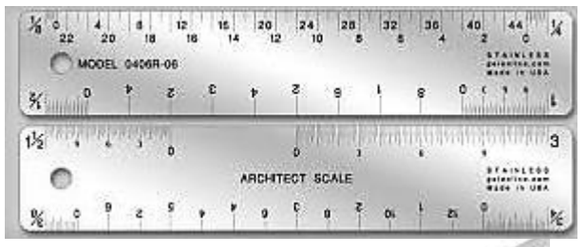
CONCEPT NOTES

A scale drawing or floor plan is a representation of an actual object or space drawn in two-dimensions. For a floor plan, you can imagine that you are directly above the building looking down. The lines represent the walls of the building, and the space in between the lines represents the floor.

Types of Scales



Civil engineer scales are used to design large projects such as roads, bridges and water mains. Depending on the project, 1 inch on the scale can represent 100 feet in real life.



An Architect's scale is designed for use in determining the actual dimensions of a distance on a scaled drawing.

The metric scale is the system of measurement used in the metric system. In the metric scale, 10 centimeters is equal to one decimeter, 10 decimeters is equal to one meter and 1,000 meters are equal to one kilometer.

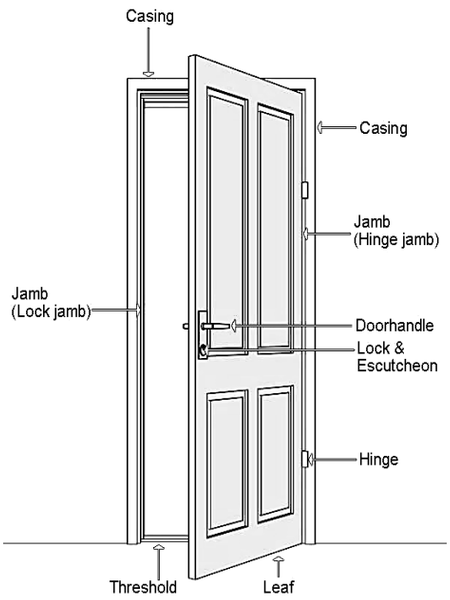
EXERCISES: Identify the type of scale applicable to the following measurement.

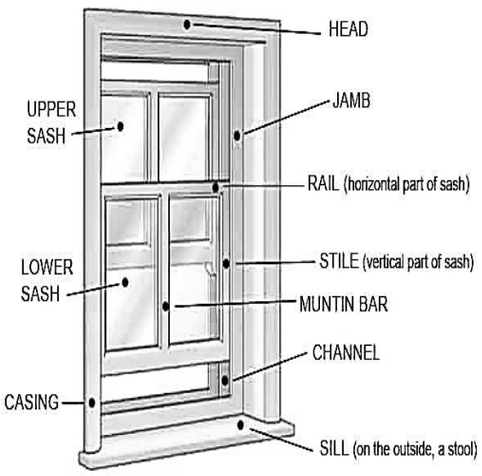
1. _____ Decimeter
2. _____ (12cm to 0.12m)
3. _____ Feet
4. _____ Inches
5. _____ 10 meters

Name:	Date:	Score:
Subject : ICT – TECHNICAL DRAFTING		
Lesson Title : Schedule of Doors and Windows		
Lesson Competency : Identify sizes of doors, walls, and rooms following the schedule Indicate letterings and labels according to the drafting /TLE_ICTTD9-12AL-If-j-4		
References:https://www.designingbuildings.co.uk/wiki/Window_and_door_schedules		LAS No. 10

CONCEPT NOTES

Window and door schedules are a convenient way of presenting complex information about the different door and window sizes and types that are specified on the contract documents to ensure proper installation. Drawings may refer to window and door schedules by use of a code corresponding to a door or window type on the schedule.

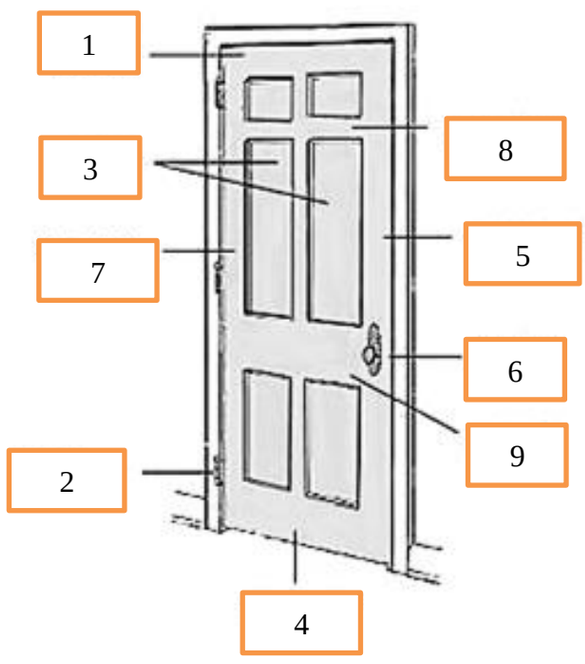




A door schedule is a document, which has all the information a joiner will require in selecting the correct door for a designated position, as well as the correct ironmongery that has to be fitted to each door.

EXERCISES: Identification. Identify the parts of the Panel Door. Write your answer in the space given.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____



Name:	Date:	Score:
Subject : ICT – TECHNICAL DRAFTING		
Lesson Title : Schedule of Doors and Windows		
Lesson Competency : Identify sizes of doors, walls, and rooms following the schedule Indicate letterings and labels according to the drafting /TLE_ICTTD9-12AL-If-j-4		
References:https://www.designingbuildings.co.uk/wiki/Window_and_door_schedules		LAS No. 10

DepED DEPARTMENT OF EDUCATION
K TO 12 PROGRAM

SHARED OPTIONS

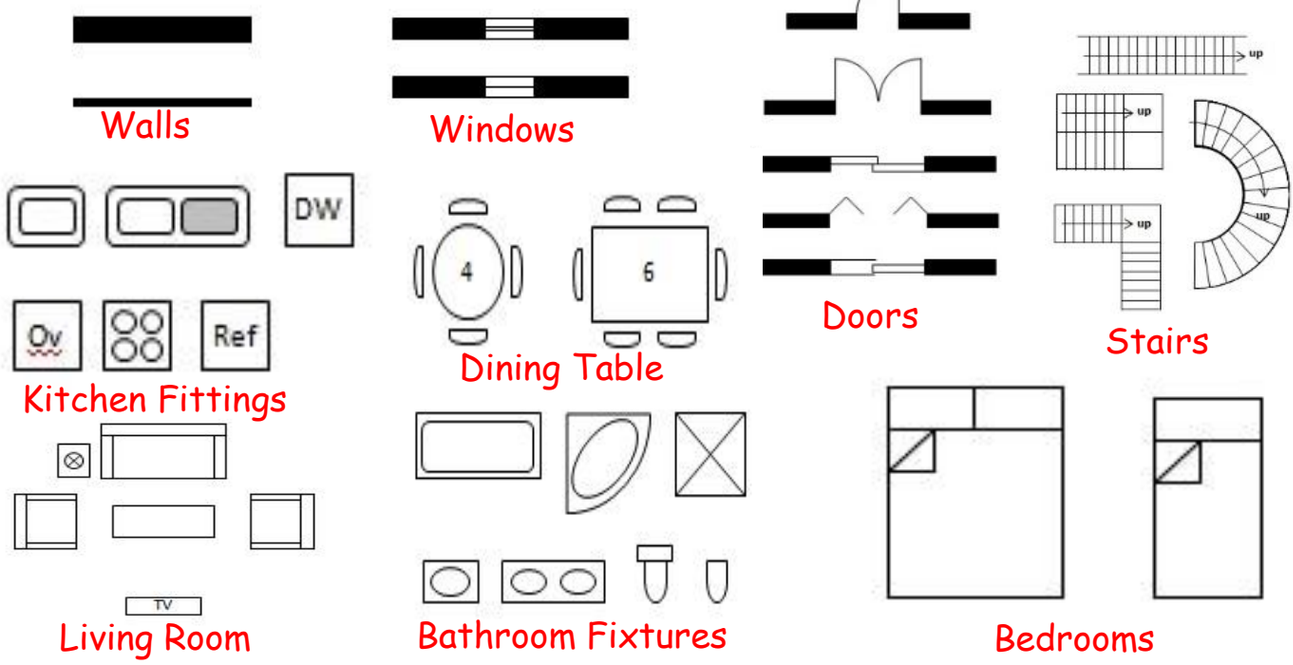
SENIOR HIGH ALTERNATIVE RESPONSIVE EDUCATION DELIVERY

GRADE 11 DLP LEARNING ACTIVITY SHEET

Name:	Date:	Score:
Subject : ICT - TECHNICAL DRAFTING		
Lesson Title : Architectural Floor Symbols		
Lesson Competency : Identifying the symbols in the floor plan/TLE_ICTTD9-12AL-If-j-4		
References: https://www.houseplanshelper.com/floor-plan-symbols.html		LAS No. 11

CONCEPT NOTES

FLOOR PLAN SYMBOLS



EXERCISES:

Identify the floor plan symbol. Write your answer in the space given.

1._____At the top is a double casement window and underneath a single casement window

2._____ There's straight up, up and back on yourself and round a corner.

3._____ Area where the fixtures are sink, draining board, oven, and ref.

4._____ The sofas and chairs are kind of obvious with the coffee table in the middle. The side table has a lamp on it and the TV is labelled.

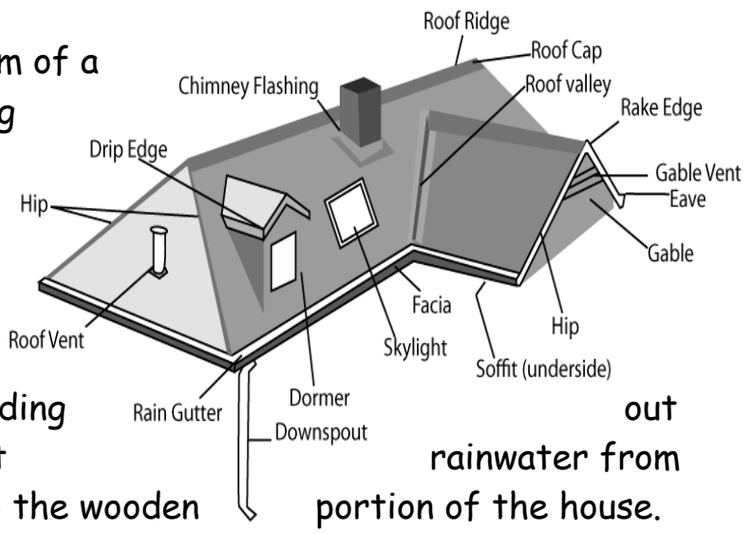
5._____ A round one for four and a rectangular one for six

with built sides. The dotted line represents the rail.

Name:	Date:	Score:
Subject : ICT -TECHNICAL DRAFTING		
Lesson Title : Roof Plan (Parts of a Roof)		
Lesson Competency : Indicate the dimensions of the roof plan based on the floor plan / TLE_ICTTD9-12AL-Il-c-4		
References: https://www.checkbook.org/v2/docs/roofers/all-areas-roofers-parts-of-a-roof.pdf		LAS No. 12

CONCEPT NOTES

Roof plan a scaled drawing or diagram of a proposed roof development containing dimensions of the entire roof structure, including shape, size, design and placement of all materials, ventilation, drainage, slopes, valleys and more.



Drip Edge—The strip of metal extending out beyond the eaves or rakes to prevent rainwater from curling around the shingles back onto the wooden portion of the house.

Eaves—The lower edge of a roof (often overhanging beyond the edge of the house).

Fascia—A decorative board extending down from the roof edge either at the eave or at the rake.

Rafter—A structural member (usually slanted) to which sheathing is attached.

Ridge—The horizontal line at the top edge of two sloping roof planes.

Soffit—The area that encloses the underside of that portion of the roof that extends out beyond the sidewalls of the house.

EXERCISES: Identify the parts of a roof plan. Write your answer in the space given.

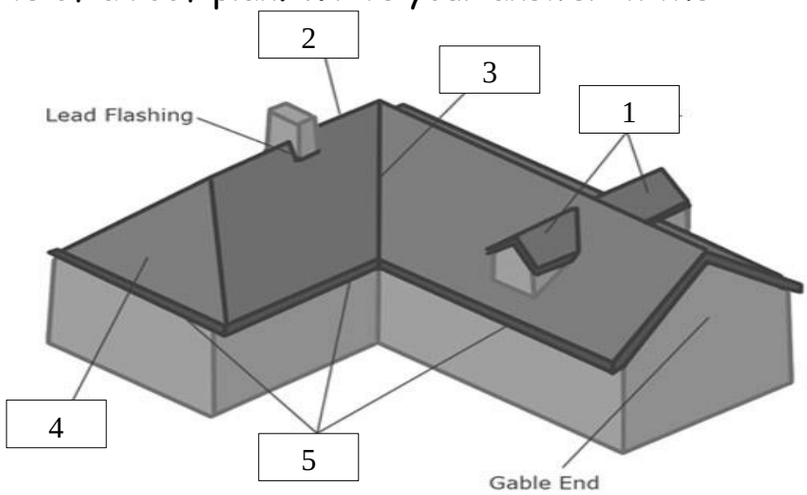
1._____

2._____

3._____

4._____

5._____



DepED DEPARTMENT OF EDUCATION K TO 12 PROGRAM

SHARED OPTIONS

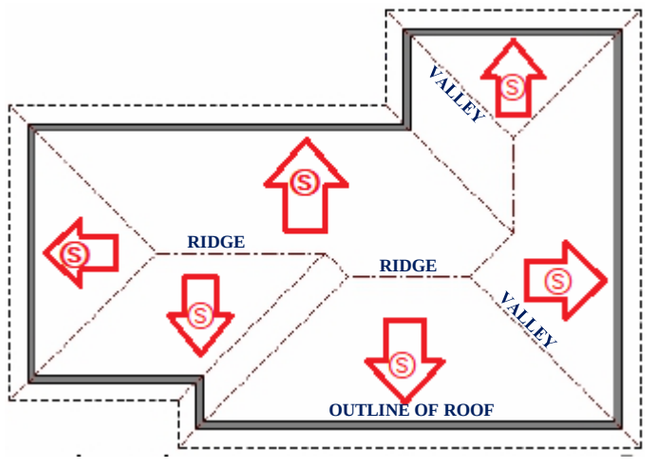
SENIOR HIGH ALTERNATIVE RESPONSIVE EDUCATION DELIVERY

GRADE 11 DLP LEARNING ACTIVITY SHEET

Name:	Date:	Score:
Subject : TVL- ICT (TECHNICAL DRAFTING NCII)		
Lesson Title : Architectural Roof Symbols		
Lesson Competency : Indicate the dimensions of the roof plan based on the floor plan TLE_ICTTD9-12AL-Il-c-4 /Use standard architectural symbols in drafting roof plans Enabling Skill: Definition of terms		
References: https://boardofdrafting.files.wordpress.com/2009/12/roof-plan-components-layout.pdf		LAS No. 13

CONCEPT NOTES

A roof plan is a scaled drawing or diagram of a proposed roof development containing dimensions of the entire roof structure, including shape, size, design and placement of all materials, ventilation, drainage, slopes, valleys and more.



DEFINITION OF TERMS AND SYMBOLS

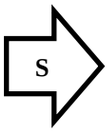
Slope- Roof slope is a description of the angle that the roof rafter makes with a horizontal reference. It compares the horizontal run to the vertical rise.

Wall line- usually a solid line that is shown on a roof plan.

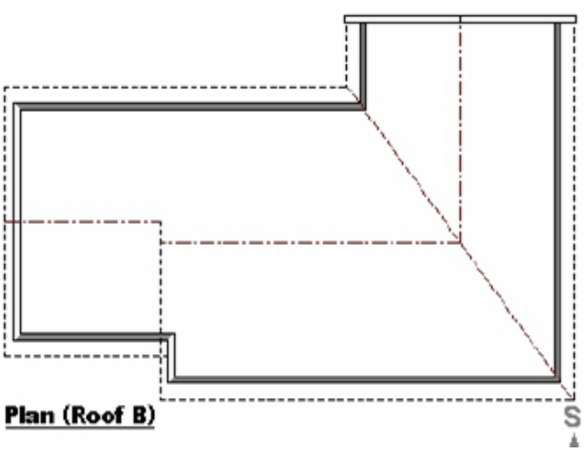
Roof line- basically a dash line that represent the outline of a roof design in a floor plan. (---------)

Ridge-is the peak where two opposing roof planes meet.

Valley- The shape and pitch of the surfaces are the same, however, the base shape changes from a simple rectangle to a 'T' or 'L' shape, on plan.

EXERCISES: Analyze the roof plan. Then draw correct 

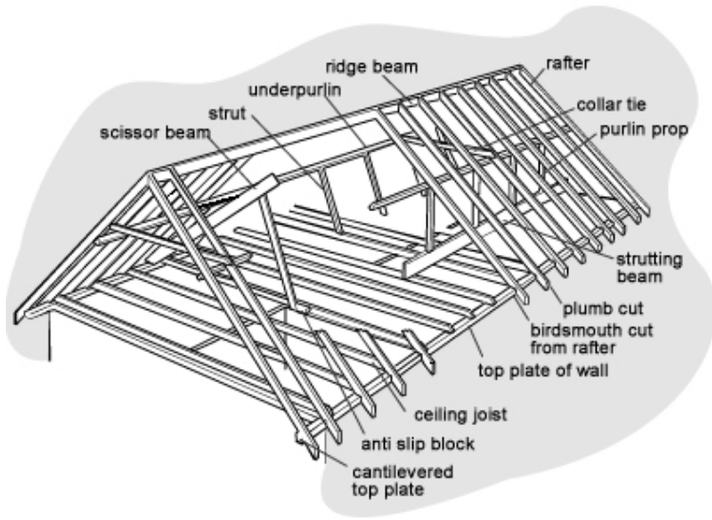
direction symbol of slope in the roof plan given.(2 points each slope)



Name:	Date:	Score:
Subject : ICT -TECHNICAL DRAFTING		
Lesson Title : Framing Details		
Lesson Competency : Draw framing details of roof plan according to architectural drafting standards / TLE_ICTTD9-12AL-Il-c-5		
References: https://extremehowto.com/roof-framing-101/		LAS No. 14

CONCEPT NOTES

Definition of Terms



Roof framing is one of those carpenter skills that appears quite complicated, and indeed, some roof designs are difficult. Roofs are basically of five types: shed, gable, hip, gambrel and mansard.

Ridge Board is a horizontal member of the roof frame. It is the point at which all the rafters are attached to.

Ridge Beam sits below the rafters supported by lallyn columns.

Rafters extend from the ridge beam down to the top plate of a wall they transfers the roof load in the process.

Purlin is any longitudinal, horizontal, structural member in a roof except a type of framing with what is called a crown plate.

Rafter is a structural component that is used as part of a roof construction.

Collar ties and rafter ties are both horizontal roof-framing members, each with different purposes and requirements.

Ceiling Joists - Use this table to determine the maximum lengths of ceiling joists based on species of lumber, joist spacing, and joist size.

EXERCISES:

Fill in the blank with the correct word to complete the statement.

1. _____ extend from the ridge beam down to the top plate of a wall
2. _____ is a horizontal member of the roof frame.
3. _____ sits below the rafters.

Give at least five types of roof.

1._____ 2._____ 3._____ 4._____ 5._____

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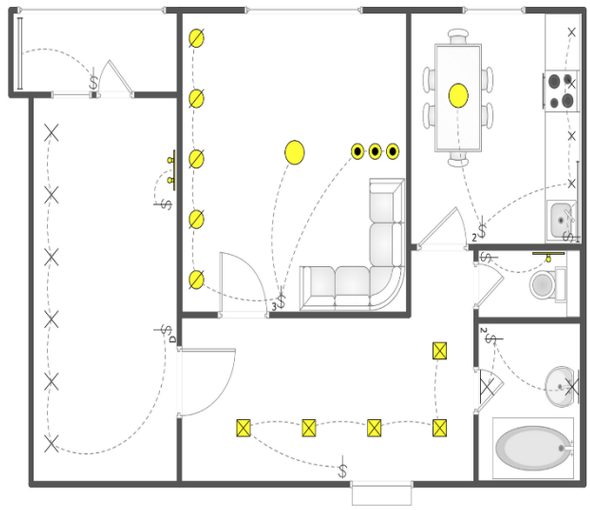
SHARED OPTIONS
SENIOR HIGH ALTERNATIVE RESPONSIVE EDUCATION DELIVERY
GRADE 11 DLP LEARNING ACTIVITY SHEET

Name:	Date:	Score:
Subject : TVL- ICT (TECHNICAL DRAFTING NCII)		
Lesson Title : Ceiling Parts and Member		
Lesson Competency : Draw vertical heights from finish floor line to ceiling line according to architectural drafting standards / TLE_ICTTD9-12AL-Il-f-6		
References: https://www.edrawsoft.com/reflected-ceilingplan-solutions.php https://www.google.com/imgres?imgurl=https://www.conceptdraw.com		LAS No. 15

CONCEPT NOTES



Definition of Terms

Ceiling Plan. It shows the lighting, sprinklers, smoke detectors, and any other objects that are located in or on the ceiling, such as the mechanical air diffusers and grilles. Reflected ceiling plan (RCP) is named so because it is a mirror image (reflected) view of the floor plan.

Design all other floors to have minimum floor-to-ceiling heights of 2.7 meters in habitable spaces. Residential spaces are frequently planned with a floor-to-ceiling height of 2.4 meters or less. However building ceiling heights to 2.7 meters can have significant advantages in flexibility of use.

EXERCISES:

Answer the following question. Write T if the statement is True and F if the statement is False.

_____1. The standard height of floor line to ceiling line is 1.70 meters.

_____2. Ceiling plan has a convenience outlet symbol.

_____3. Residential spaces are frequently planned with a height 2.40 meter from floor to ceiling.

_____4. For habitable spaces a minimum height from floor to celing is 2.70 meter.

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SHARED OPTIONS

SENIOR HIGH ALTERNATIVE RESPONSIVE EDUCATION DELIVERY

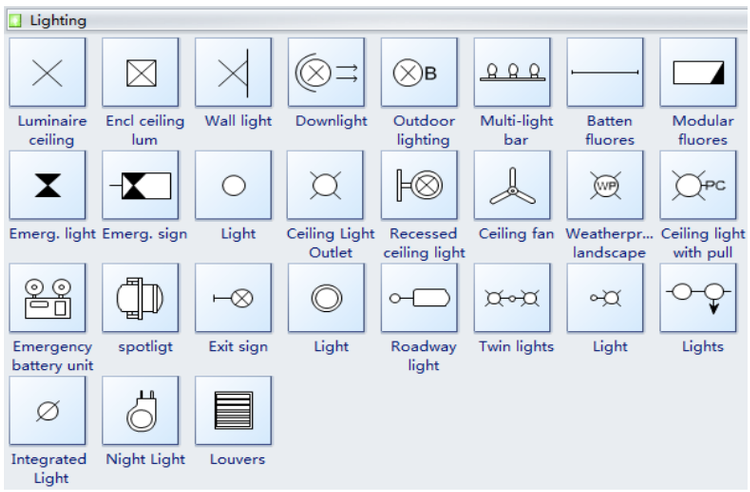
GRADE 11 DLP LEARNING ACTIVITY SHEET

Name:	Date:	Score:
Subject : TVL- ICT (TECHNICAL DRAFTING NCII)		
Lesson Title : Ceiling Plan		
Lesson Competency : • **Indicate lighting fixtures and fire protection devices on the ceiling plan based on architectural drafting standards / TLE_ICTTD9-12AL-Il-f-6**		
References: https://www.edrawsoft.com/reflected-ceilingplan-solutions.php		LAS No. 16

CONCEPT NOTES

Definition of Terms

Ceiling Plan. Reflected ceiling plan is part of the overall architectural drawings. It shows the lighting, sprinklers, smoke detectors, and any other objects that are located in or on the ceiling, such as the mechanical air diffusers and grilles.



EXERCISES:

Arrange the jumbled letter below and answer the following symbols in ceiling plan.

1._____ 

2._____ 

3._____ 

4._____ 

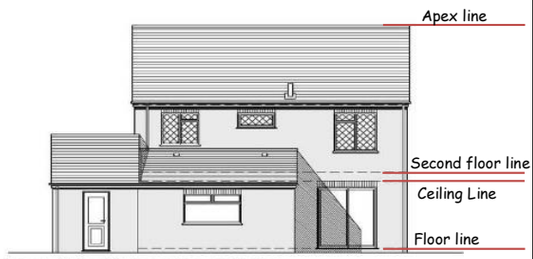
5._____ 

1. rueinailm eginilc 2. Lghti lawl 3. nwti ihslgt 4. rmeeyencg hitlg 5. liiceng naf

Name:	Date:	Score:
Subject : TVL ICT-Technical Drafting		
Lesson Title : Elevations and Sections		
Lesson Competency : • **Draw vertical heights from grade line according to architectural drafting standards /TLE_ICTTD9-12AL-IIg-i-7**		
References: https://www.designingbuildings.co.uk/wiki/Section_drawing https://www.revereschools.org/cms/lib/OH01001097/Centricity/Domain/64/arch%20II-9-lesson-THE%20ELEVATION%20PLAN.pdf		LAS No. 17

CONCEPT NOTES

ELEVATION PLAN



North (Rear) Elevation - Existing


North (Rear) Elevation - Proposed

An elevation drawing is an orthographic projection drawing that shows one side of the house. The purpose of an elevation drawing is to show the finished appearance of a given side of the house and furnish vertical height dimensions. Four elevations are customarily drawn, one for each side of the house.

An elevation plan ordinarily includes the following:

• Identification of the specific side of the house that the elevation represents• Grade lines

• Finished floor and ceiling levels• Location of exterior wall corners• Windows and doors• Roof features• Porches, decks and patios• Vertical dimensions of important features• Material symbols

Section plan is a vertical slice drawings showing the internal features of your property. It is similar to an elevation plan, however, it shows the internal features of the property. A 'section drawing', 'section' or 'sectional drawing' shows a view of a structure as though it had been sliced in half or cut along another imaginary plane.

EXERCISES:

Write the correct answer. In the given space write "T" if True or "F" if False.

1._____ Elevation is not an orthographic drawing design?

2._____ Floor line to Ceiling line must be labeled in elevations.

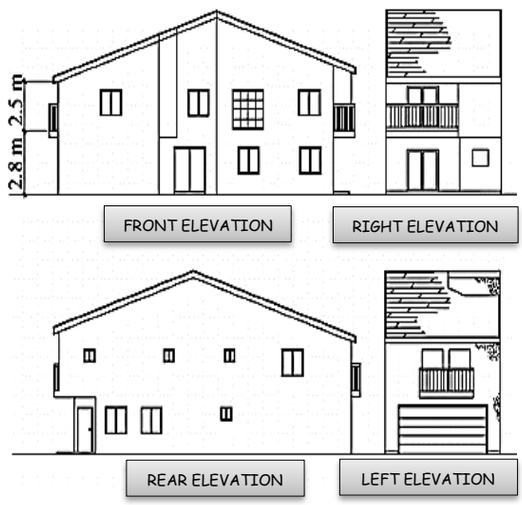
3._____ Section plan is a vertical drawings showing the internal features of your property.

4._____ Section plan is a slice vertical drawing showing internal features.

Name:	Date:	Score:
Subject : TVL- ICT (TECHNICAL DRAFTING NCII)		
Lesson Title : Elevation Views		
Lesson Competency : • **Project offsets from right, left, and rear sides of floor plan according to architectural drafting standards. /TLE_ICTTD9-12AL-IIg-i-7**		
References: https://en.wikipedia.org/wiki/Architectural_drawing https://www.researchgate.net/figure/Elevation-views-of-test https://www.revereschools.org/cms/lib/OH01001097/Centricity/Domain/64/arch%20II-9-lesson-THE%20ELEVATION%20PLAN.pdf		LAS No. 18

CONCEPT NOTES

An elevation is a view of a building seen from one side, a flat representation of one façade. This is the most common view used to describe the external appearance of a building.



The Procedure for Drawing an Elevation Plan

1. Place the floor plan directly above the space where the elevation is to be drawn. The exterior walls to be represented by
the elevation should be facing down toward the elevation.
2. Project all points down to the free space.
3. Indicate the bottom of the footer and draw a horizontal line. Now measure in all vertical heights, basement ceiling
height, floor joist height, first floor, etc… from this reference point.
4. Remove construction lines and determine if changes are desired in the overall design.
5. Add details such as railings, window muntins, trim, window wells, etc…
6. Add dimensions, notes and symbols.
7. Check drawing and be sure to print one copy to check.
8. Turn-in drawing

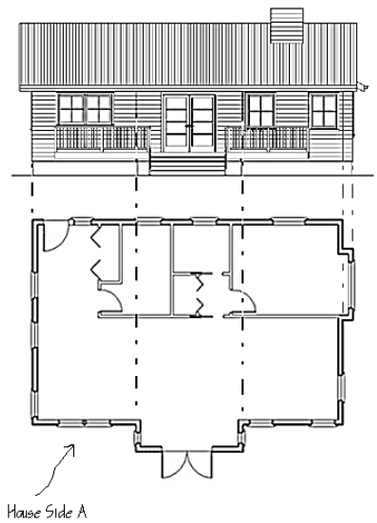
EXERCISES:

Write the correct answer. In the given space write "T" if True or "F" if False.

1._____ Elevation is a flat presentation of a design?
2._____ Each elevation must be labeled by its materials component.
3._____ Elevation plan is a vertical drawing showing the internal features of your property.
4._____ Elevation plan has a four faces 2D design or drawing.

Name:	Date:	Score:
Subject : TVL- ICT (TECHNICAL DRAFTING NCII)		
Lesson Title : Detailing techniques (Elevation)		
Lesson Competency: • **Draw roof eaves and pitch on all elevations and sections according to architectural drafting standards** • **Project doors and windows in all elevations and sections./TLE_ICTTD9-12AL-IIg-i-7**		
References: http://www.the-house-plans-guide.com/elevation-drawings.html		LAS No. 19

CONCEPT NOTES



Once you have completed drawing your detailed floor plans, you'll still need to create a few more construction drawings. In addition to the floor plans, you will need to provide your builder and local planning department with elevation drawings and cross-section drawings.

Step by Step Guide to Drawing House Elevations

1. Drawing Main Floor Wall Baseline-Using your floor plan drawings and starting at the extreme left end of any walls on this side of the house on the ground floor, measure the horizontal distance of this wall.
2. Determining and Drawing Wall Heights-Determine how high the wall will be above its unfinished floor height. To do this you will need to consider the height of the ceiling of the rooms within this section of the house and add to that the height of any floor or ceiling joists above it.
3. Draw Window and Door Outlines- For all of your windows and doors, measure from the horizontal lines of your floors to position the exterior doors and windows.
4. Drawing the Roofs-To draw the roof for each elevation view, first consider whether your roof will overhang and drop below the exterior wall on the elevation plan you are currently drafting.

EXERCISES:

Essay. Write your own idea about the technique in making elevation.

1. Why is it we have to follow the steps/procedure in making an elevation plan.

_____

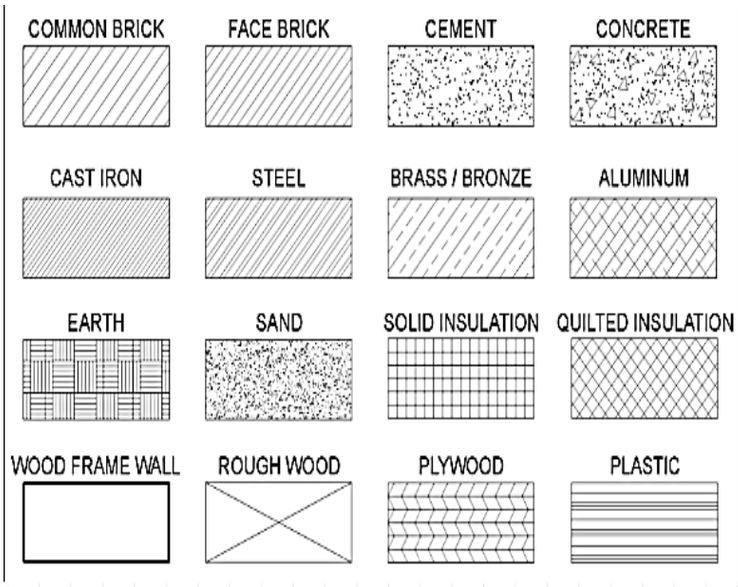
_____

_____

_____

Name:	Date:	Score:
Subject : TVL- ICT (TECHNICAL DRAFTING NCII)		
Lesson Title : Materials and Symbol Specifications		
Lesson Competency : • **Indicate various material symbols and specifications in all elevations and sections /TLE_ICTTD9-12AL-IIg-i-7**		
Reference: https://etc.usf.edu/clipart/keyword/architecture-building-materials-symbol / https://docplayer.net/29910958-Architectural-drawing-architectural-symbols-and-conventions.html		LAS No. 20

CONCEPT NOTES



Conventional material symbol used in architectural and mechanical drawing for Brick in Elevation Large

Architectural and mechanical conventional building material symbol for Brick in Elevation Small Scale.

Brick in Section conventional material symbol is commonly used in architectural and mechanical drawing.

Building material conventional symbol for Cement and Plaster in Section commonly used in architectural…

Concrete in Section conventional building material symbol used in architectural and mechanical drawing.

A widely accepted building material symbol for CVT Stone in Elevation used in architectural and mechanical.

Mechanical and architectural drawing building material symbol for Earth in Section

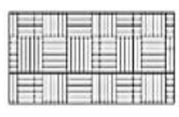
A building material symbol used in architectural or mechanical drawing for Wood in Elevation.

EXERCISES:

Identify the architectural materials and symbols. Write the correct answer.

1._____ 2._____ 3._____ 4._____ 5._____





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GRADE 11 DLP LEARNING ACTIVITY SHEET

Name:	Date:	Score:
Subject : ICT - TECHNICAL DRAFTING		
Lesson Title : Electrical Plans and Layouts		
Lesson Competency: 1.1 Draft lighting and power layouts according to electrical drafting standards (TLE_ICTTD912EL-IIIf-g-1) Enabling Skills: Definition of Common Lighting and Power Terms		
References : https://www.kikshardware.ph/product/electrical-panel-box-philippines/ https://www.canstockphoto.com/home-electric-power-meter-2870166.html https://www.amazon.co.uk/Hager-MTN140-Miniature-Breaking-Capacity/dp/B007ACTI2M http://fireflyelectric.com/product/2-gang-universal-convenience-outlet-4-meters-cord/ https://www.screwfix.com/p/schneider-electric-4-entry-junction-box-with-knockouts-grey-65-x-65-x-45mm/63295 https://www.radioshack.com/products/radioshack-2-0a-250v-5x20mm-fast-acting-glass-fuse-4-pack https://www.walmart.com/ip/Fireplace-Electrical-Switch-On-Off-HPC-212/586668762		LAS No.: 21

CONCEPT NOTES: Definition of Common Lighting and Power Terms:

1. Panel Board – is a component of an electricity supply system that divides an electrical power feed into subsidiary circuits.
2. Power Meter – is a device that measures the amount of electric energy consumed by a residence, a business, or an electrically powered device.
3. Circuit Breaker - is an automatically operated electrical switch designed to protect an electrical circuit from damage caused by excess current from an overload or short circuit.
4. Convenience Outlet – is a receptacle outlet installed into something other than the building itself.
5. Junction Box - is an enclosure housing electrical connections, to protect the connections and provide a safety barrier.
6. Fuse - is an electrical safety device that operates to provide overcurrent protection of an electrical circuit.
7. Electrical Switch - is an electronic component or device that can switch an electrical circuit, interrupting the current or diverting it from one conductor to another.

1.  2.  3.  4.  5.  6.  7. 

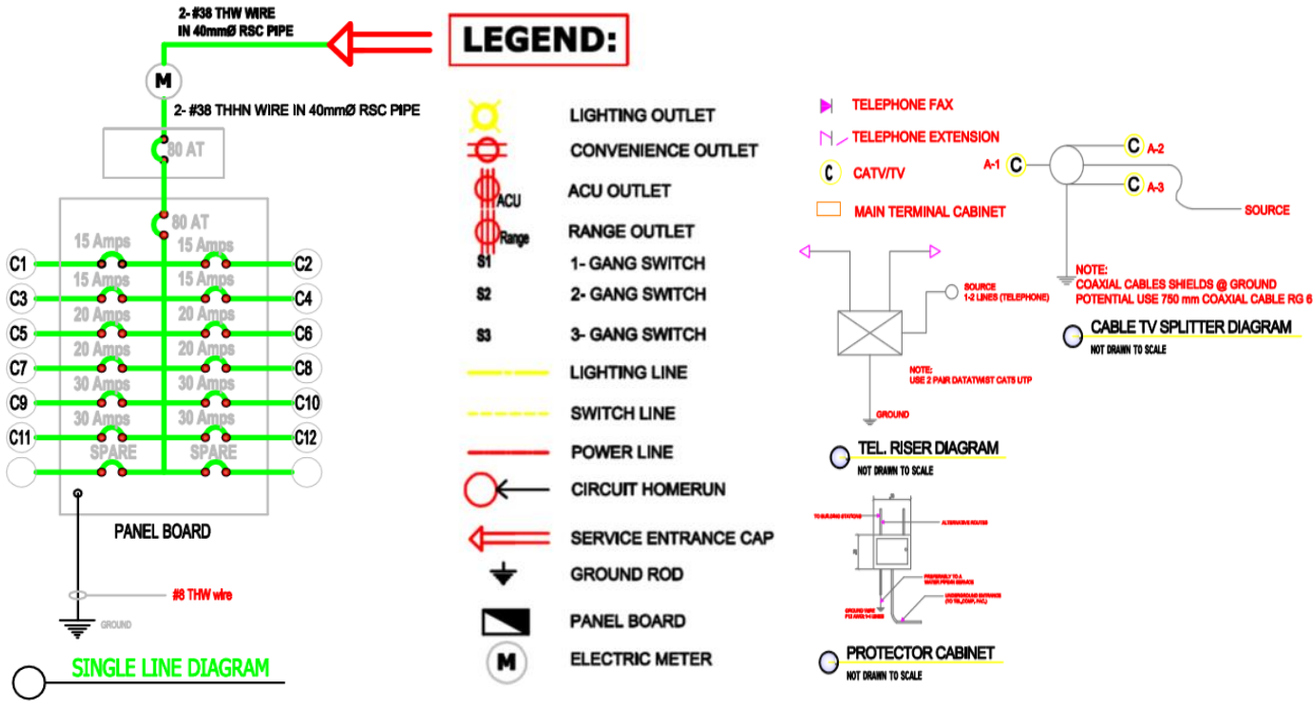
EXERCISES: Unscramble the letters to make a word. Match the word with its description.

1. alenp dorab	device that can switch an electrical circuit
2. eusf	is an enclosure housing electrical connections
3. ienocvencen tloeut	measures the amount of electric energy consumed
4. rcituci abkrere	is an electrical safety device that operates
5.terlceacli tscwih	is an automatically operated electrical switch
6. wproe tmere	is a component of an electricity supply system
7. tjcuonin oxb	is a receptacle outlet

Name:	Date:	Score:
Subject : ICT - TECHNICAL DRAFTING		
Lesson Title : Electrical Drawing Standards (Legend)		
Lesson Competency : 1.2 Place riser diagram and circuiting symbols in electrical plans and layouts according to Electrical Code (TLE_ICTTD912EL-IIIf-g-1)		
References: https://www.rapidtables.com/electric/electrical_symbols.html		LAS No.: 22

CONCEPT NOTES

Electrical symbols and electronic circuit symbols are used for drawing schematic diagram.



EXERCISES: Unscramble the letters to form the correct term/concept.

1. ecrisve naneetrc acp
2.  nplae abrdo
3.  ucrtici ehormnu
4.  ecionencnev totuel
5.  tlgilgnhi totuel

Name:	Date:	Score:
Subject : ICT - TECHNICAL DRAFTING		
Lesson Title : Electrical Drawing Standards (General Note)		
Lesson Competency : 1.3 Indicate legend and general notes according to local power service provider (TLE_ICTTD912EL-IIIf-g-1)		
References:https://www.scribd.com/document/181157553/GENERAL-NOTES-docx		LAS No.: 23

CONCEPT NOTES

General Electrical Notes/Specifications:

- This is the elaboration of the instruction which could not be shown in the plan, as to the type of work, kinds of materials and others. All electrical notes/specifications include the following:

1. All electrical works and installation shall comply with the provisions of the latest edition of the Philippine electrical code with the rules and regulations of the national and local authorities concerned in the enforcement of electrical laws and regulations of the utility companies concerned.
2. Service to the building shall be no. 220 volts, 60 Hertz, single phase.
3. All installation shall be concealed from view, wiring shall be in case polyvinyl chloride (PVC) pipe schedule 40 except power and telephone service which shall be rigid steel conduit (RSC) otherwise noted.
4. The minimum size of conduits EMT and conductor shall be $\frac{1}{2}$ and no. 14THW respectively.
5. All thumblers switch and duplex convenience outlets shall be installed 1.20m and 0.30m. respectively above the finished floor line unless otherwise noted.
6. All non – current carrying parts of installations shall be grounded to a low resistance ground rod.
7. All electrical materials shall be new approved type for and purpose.
8. Electrical installations shall be under the direct supervision of a duly licensed electrical engineer, or a registered master electrician.

EXERCISES: ESSAY.

1. Based on your understanding, why is it necessary to have and follow the general electrical notes/specifications? (5 points)

2. Are general electrical notes/specifications helpful as part of a complete plan? Why? (5 points)

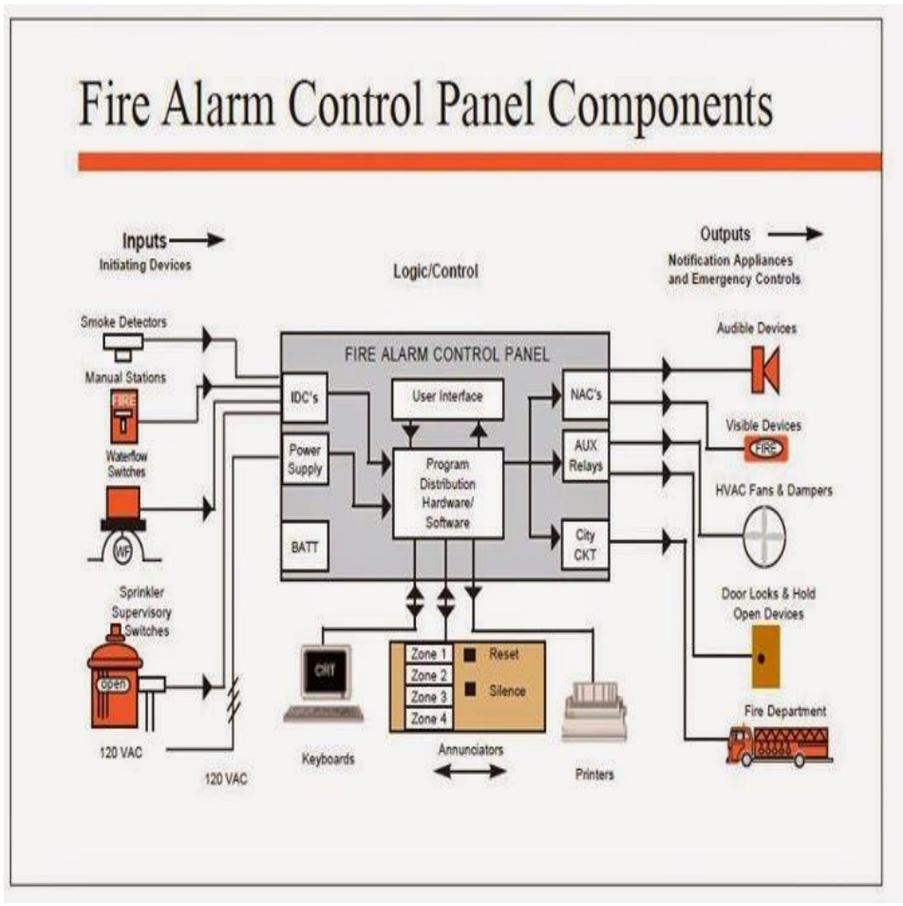
Name:	Date:	Score:
Subject : ICT - TECHNICAL DRAFTING		
Lesson Title : Auxiliary Systems Equipment (Fire Alarm and Protection System Symbols)		
Lesson Competency : 2.1 Layout fire alarm and protection system symbols in the auxiliary system and layout plan according to Fire Code (TLE_ICTTD912EL-IIIh-j-2)		
References: https://www.sciencedirect.com/topics/engineering/fire-alarm https://www.google.com/		LAS No.: 24

CONCEPT NOTES

Fire alarm systems are the primary life safety system for every building. Below are examples of fire and security symbols and fire alarm control panel components.

AUXILIARY SYSTEMS:

- (D) Smoke Detector
- (CF) Ceiling Fan
- Vent Fan
- (TV) Television Jack
- Interconnection Box
- (D) Electric Door Opener
- Telephone Outlet
- (BT) Low – voltage Transformer
- Annunciator
- Pushbutton
- (CH) Chime
- Buzzer



EXERCISES:

1. Write in three sentences the reason why it is necessary to know the different auxiliary system symbols. (5 points)

2. Cite an example when you encountered/experienced using the fire alarm. Explain the details. (5 points)

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GRADE 11 DLP LEARNING ACTIVITY SHEET

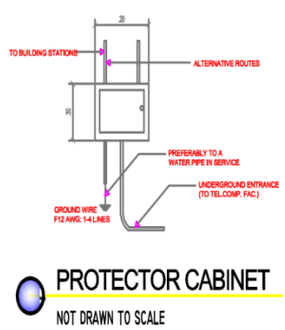
Name:	Date:	Score:
Subject : ICT - TECHNICAL DRAFTING		
Lesson Title : Auxiliary Systems Equipment (Electronic and Communication Devices)		
Lesson Competency : 2.2 Layout electronic and communication devices according to electrical drafting requirements (TLE_ICTTD912EL-IIIh-j-2)		
References: http://www.nature.com/subjects/electronic-devices https://www.computerhope.com/jargon/c/communication-devices.htm https://www.cityofbatavia.net/376/Electronic-Communication-Devices		LAS No.: 25

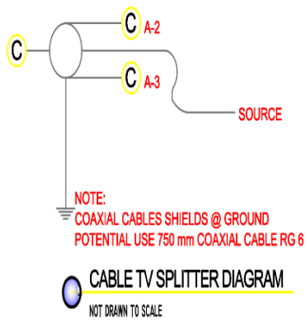
CONCEPT NOTES

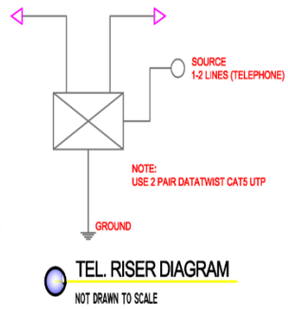
Electronic devices are components for controlling the flow of electrical currents for the purpose of information processing and system control.

Communication device is a hardware device capable of transmitting an analog or digital signal over the telephone, other communication wire, or wirelessly.

Electronic Communication Devices refer to a wireless telephone, personal digital assistant, or a portable or mobile computer that's used for the purpose of composing, reading, or sending an electronic message.







EXERCISES:

I. Identification. In the space provided, write the correct answer to the concept that is being described in each item below.

_____ 1. Devices used for the purpose of composing, reading, or sending an electronic message.

_____ 2. Devices for controlling the flow of electrical currents.

_____ 3. Devices capable of transmitting an analog or digital signal over the telephone.

II. Explain in your own words the importance of electronic and communication devices. (5Pts)

Name:	Date:	Score:
Subject : ICT - TECHNICAL DRAFTING		
Lesson Title : Plumbing Code (Cold Water Distribution System)		
Lesson Competency : 1.1 Draft hot and cold water distribution systems according to Plumbing and Water Codes (TLE_ICTTD912SP-IVa-b-1)		
References: https://www.slideshare.net/manshe82/cold-water-distribution		LAS No.: 26

CONCEPT NOTES

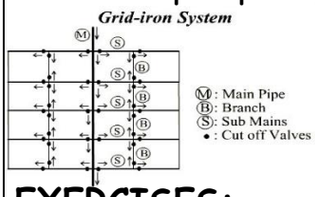
Cold water supply system & Components refers to a system of pipes and fixtures installed in a building for the distribution of potable water and the removal of waterborne wastes.

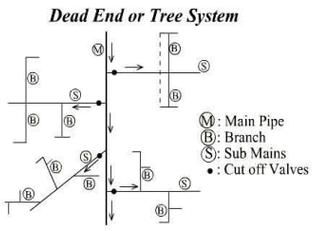
COLD WATER SUPPLY SYSTEM DISTRIBUTION METHOD

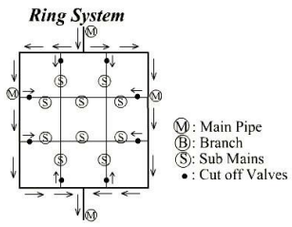
1. Gravity System – suitable when the source of supply is at sufficient height.
2. Pump System – treated water is directly pumped into the distribution main without storing.

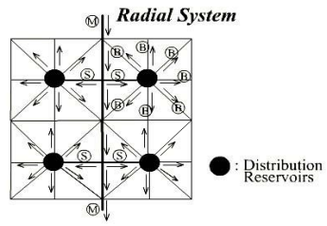
PIPE LAYOUT

1. Grid Iron System - it is suitable for cities with rectangular layout, where the water mains and branches are laid in rectangles.
2. Dead End System - it is suitable for old towns and cities having no definite pattern of roads.
3. Ring System - the supply main is laid all along the peripheral roads and sub - mains branch out from the mains.
4. Radial System -The water is pumped into the distribution reservoir kept in the middle of each zone and the supply pipes are laid radially ending towards the periphery.









EXERCISES:

Write **TRUE** if the statement is correct and **FALSE** if not.

_____ 1. Gravity System is not suitable when the source of supply is at sufficient height.

_____ 2. Grid Iron System is suitable for countries with rectangular layout, where the water mains and branches are laid in rectangles.

_____ 3. Dead End System is suitable for old towns and cities having no definite pattern of roads.

_____ 4. Pump System treated water is directly pumped into the distribution main without storing.

_____ 5. Radial System is where the water is pumped into the source reservoir.

_____ 6. Ring System is laid all along the peripheral roads and main branch.

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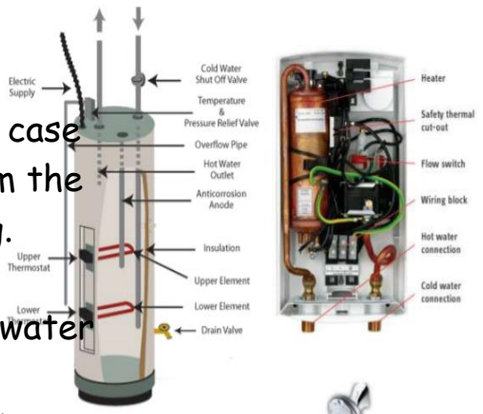
SENIOR HIGH ALTERNATIVE RESPONSIVE EDUCATION DELIVERY

GRADE 11 DLP LEARNING ACTIVITY SHEET

Name:	Date:	Score:
Subject : ICT - TECHNICAL DRAFTING		
Lesson Title : Plumbing Code (hot water distribution system)		
Lesson Competency : 1.1 Draft hot and cold water distribution systems according to Plumbing and Water Codes (TLE_ICTTD912SP-IVa-b-1)		
References:https://energycodeace.com/site/custom/public/reference-ace-2013/Documents/53distributionsystems.htm		LAS No.: 27

CONCEPT NOTES

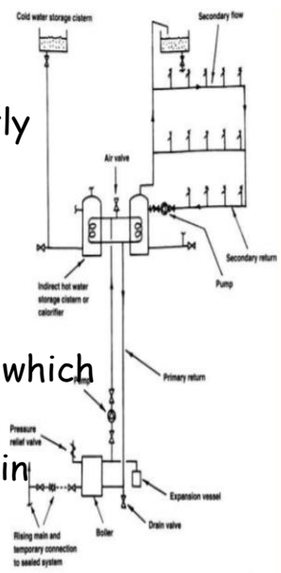


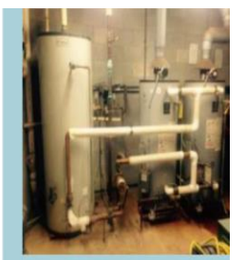
The water heating distribution system is the configuration of piping (and pumps and controls in the case of recirculating systems) that delivers hot water from the water heater to the end use points within the building.

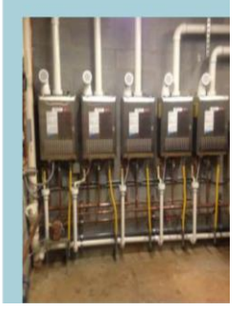
Types of Hot Water System:

1. Localized hot water system - A system in which water is heated locally to its needs.
   - Instantaneous water heaters - heats flowing water; water flows through a heating element.
   - Storage tank water heaters - stores heated water in a tank; water flows through electric immersion heater

2. Centralized hot water system - A system in which water is heated and stored centrally within the building, supplying water through a system of pipework.
   - Vented systems - cold water supplied from storage tank; lower water pressures
   - Unvented systems - cold water supplied directly from mains; higher water pressures







EXERCISES:

Write **TRUE** if the statement is correct and **FALSE** if not.

_____ 1. Localized hot water system is a system in which water is heated regularly to its needs.

_____ 2. Centralized hot water system is a system in which water is heated and distributed centrally within the building.

_____ 3. Vented system lowers water pressure.

_____ 4. Storage tank water heaters store heated water in a reservoir.

_____ 5. Unvented systems caters to higher water pressures.

_____ 6. Instantaneous water heaters heat flowing boiling water.

_____ 7. Water heating distribution system is the configuration of piping.

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SENIOR HIGH ALTERNATIVE RESPONSIVE EDUCATION DELIVERY

GRADE 11 DLP LEARNING ACTIVITY SHEET

Name:	Date:	Score:
Subject : ICT - TECHNICAL DRAFTING		
Lesson Title : Plumbing Symbols		
Lesson Competency : 1.2 Indicate signs and symbols according to sanitary and plumbing requirements (TLE_ICTTD912SP-IVa-b-1)		
References: https://www.google.com/ https://www.faucet.com/plumbing-fixtures/c80006		LAS No.: 28

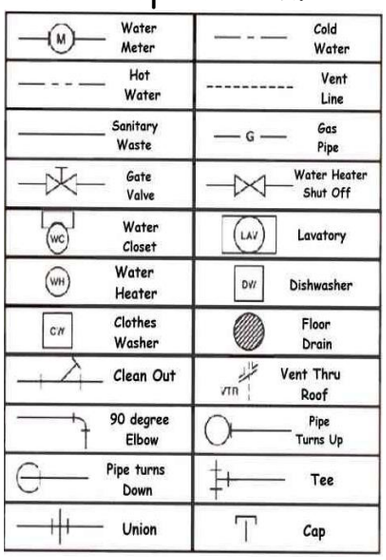
CONCEPT NOTES: Definition of Terms

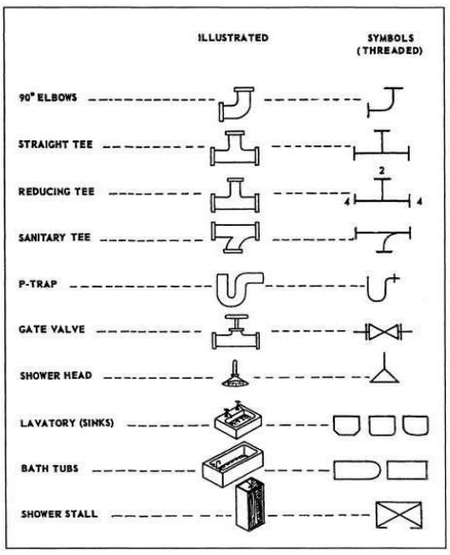
Plumbing Fixtures – are anything connected to the plumbing system. They include kitchen and bathroom sinks, toilets, tubs and showers, and hot water tanks.

Water Supply System – is made up of the pipes, faucets, fittings, pumps, valves, and tanks that supply and distribute drinkable water.

Drainage System – is made up of all the pipes that carry liquid and solid waste out of your house, and into either the sewage system or septic tank.

Soil Stack – is a larger 4" vertical pipe that the other pipes empty into the sewer line or septic tank.





EXERCISES:

Write the name of the picture as shown below and give its symbol.

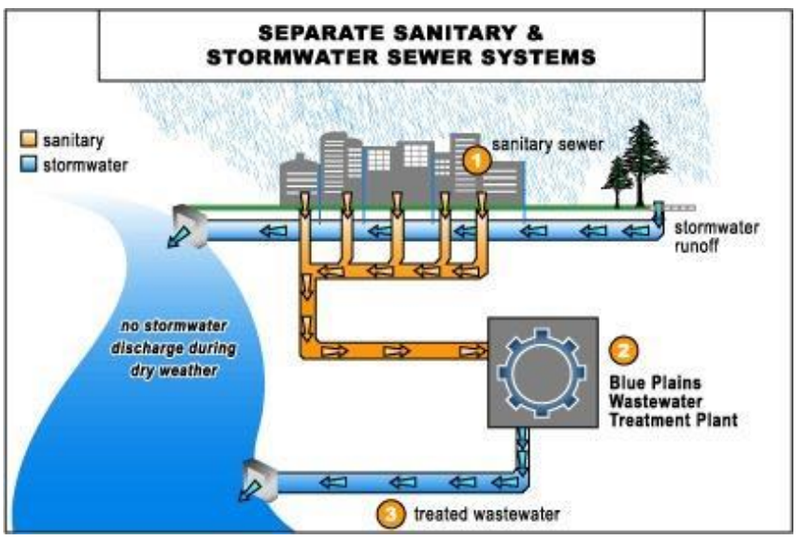
		NAME	SYMBOL
1.		_____	_____
2.		_____	_____
3.		_____	_____
4.		_____	_____
5.		_____	_____
6.		_____	_____
7.		_____	_____

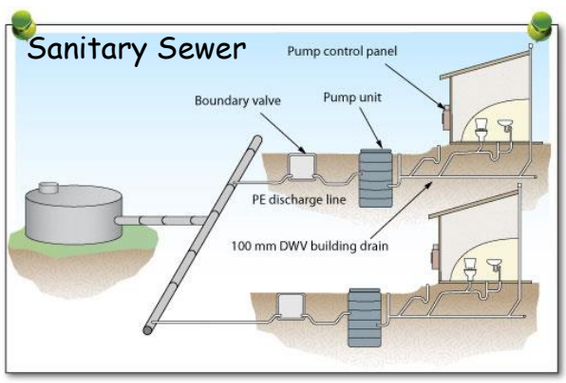
Name:	Date:	Score:
Subject : TVL – ICT (TECHNICAL DRAFTING NC II)		
Lesson Title : Clean Water Act		
Lesson Competency: LO 2. Draft sanitary and storm drainage (TLE_ICTTD912SP-IVc-d-2) 2.1 Draw sewerage plan layout according to Plumbing Code 2.2 Draft storm drainage plan according to Plumbing Code		
References: https://www.pmengineer.com/articles/88637-back-to-basics-sanitary-drainage-systems http://msu-water.msu.edu/wp-content/uploads/2014/06/Storm-vs.pdf https://bfplumbingbayarea.com/blog/storm-drain-vs-sewer-system/		LAS No.: 29

CONCEPT NOTES

The **sanitary sewer** is a system of underground pipes that carries sewage from bathrooms, sinks, kitchens, and other plumbing components to a wastewater treatment plant where it is filtered, treated and discharged.

The **storm sewer** is a system designed to carry rainfall runoff and other drainage. The main purpose of a storm sewer is to carry away excess rain, hence the name "storm" sewer. Once the rainfall flows through the opening of the storm sewer, it travels through underground pipes and drains to the ocean or nearby creeks, canals or rivers.





EXERCISES: ESSAY.

Answer the following questions below. Each item is equivalent to 5 points.

1. Based on the picture above, explain in three sentences why it is necessary to have a sanitary and storm water plan.

2. What is the main function of the sanitary and storm water systems?

Name:	Date:	Score:
Subject : Technical Drafting		
Lesson Title : Basic CAD concepts		
Lesson Competency: Identify CAD software features according to the software provider (TLE_ICTTD9-12CA-Iab-1)		
References : https://www.techopedia.com/definition/6080/autocad https://www.ribbonsoft.com/doc/qcad/2.2/reference/en/chapter04.html		LAS No.: 30

CONCEPT NOTES

What is AutoCAD? **AutoCAD** is a computer-aided design (CAD) program used for 2-D and 3-D design and drafting.
As an introduction into the basic concepts of a CAD system. Here are the important features which make the CAD system works. The graphical objects in a CAD system is called **entities**. **Typical** entities are: points, lines and circular and elliptical arc while **complex** entities include polylines, texts, dimensions, hatches and splines. Each of the entity has certain **attributes** like its color, line type and line width. To organize and structure a drawing, **layers** are often used. When drawing a plan, you would use tools such as a **ruler** to draw lines. Familiarize the **coordinate systems** in CAD such as the Origin, Relative Zero Point, Cartesian Coordinates and Polar Coordinates. In AutoCAD, there **is no drawing scale**: all sizes and distances are specified using their full-scale values.

EXERCISES

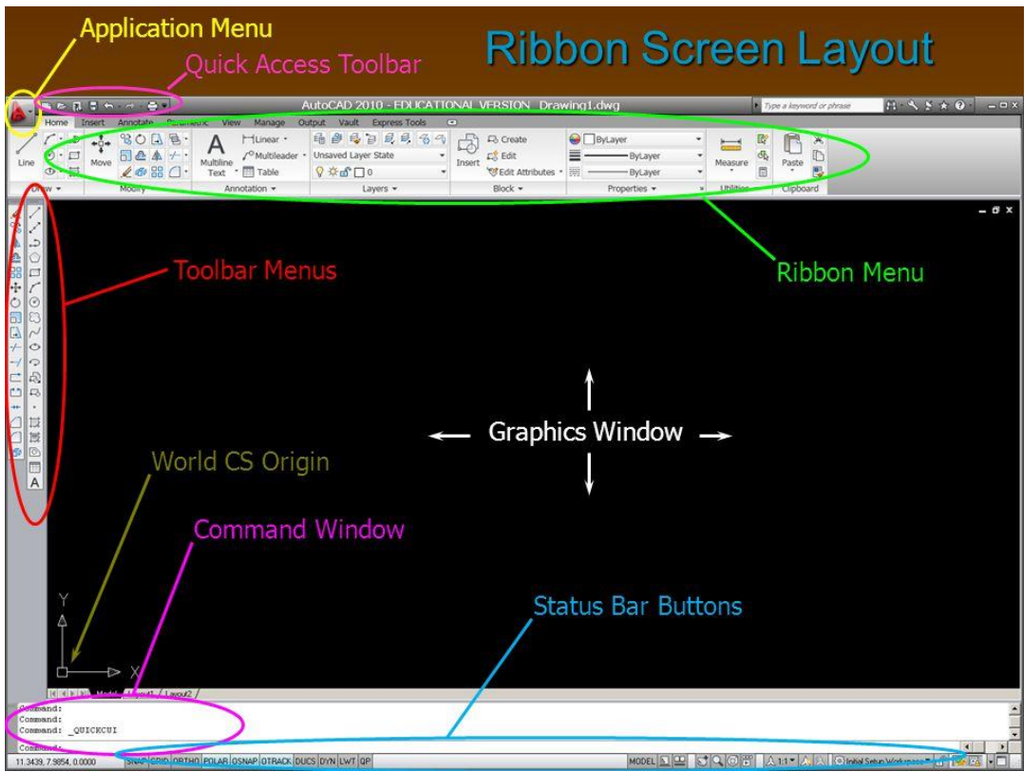
Read carefully the questions and answer it correctly. Fill in the blanks with your answer.

_____1. It is used to organize and structure a drawing.
_____2. This tool is used when drawing a plan in CAD.
_____3. It is a computer program used for 2-D and 3-D design and drafting.
_____4. It refers to color, line type and line width in every entity.
_____5. These are graphical objects in a CAD system either typical or complex.

Name:	Date:	Score:
Subject : Technical Drafting		
Lesson Title : CAD working environment		
Lesson Competency: Explore CAD working environment (TLE_ICTTD9-12CA-Ic-j2)		
References : https://slideplayer.com/slide/3851634/ https://www.youtube.com/watch?v=3egnQaRqMZA		LAS No.: 31

CONCEPT NOTES

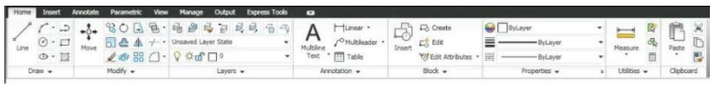
This is the actual **CAD working environment** with corresponding parts/ layout.Familiarize and remember its parts.

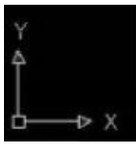


EXERCISES

Familiarize the **CAD working environment** correctly. Fill in the blanks with your corresponding answer.

_____1. 

_____2. 

_____3. 

_____4. 

_____5. 

_____6. 

_____7. 

Name:	Date:	Score:
Subject : Technical Drafting		
Lesson Title : CAD Features		
Lesson Competency: Identify CAD features like terminology, command and shortcut key (TLE_ICTTD9-12CA-Ic-j2)		
References : https://www.archblocks.com/free-autocad-tutorials/autocad-terms-and-commands file:///D:/Learning%20Activity%20Sheets%20SHS%20TVL/autocad-shortcut.pdf file:///D:/Learning%20Activity%20Sheets%20SHS%20TVL/Basic-AutoCAD-Terminology.pdf		LAS No.: 32

CONCEPT NOTES

Listed below is a basic list of CAD commands, shortcut keys and terms. If you are first time to know CAD, this will help you understand and familiarize CAD/AutoCAD.

Arc (A) Draws an arc of any size
Array (AR) Copies selected objects in a circular, or rectangular pattern
Circle (C) Draws a circle of any size
Copy (CO) Makes one or more copies of selected objects
Erase (E) Deletes objects from the drawing
Explode (X) Changes a block or a polyline back to individual objects
Fillet (F) Constructs an arc between two lines
Line (L) Draws straight lines of any length
Mirror (MI) Creates a symmetrical reflected object from the original selection
Move (M) Moves selected objects to another location in the drawing
Offset (O) Creates parallel copies of lines, arcs, and circles
Pline (PL) Draws 2D polylines
Trim (TR) Deletes portions of selected objects that cross a selected cutting edge

EXERCISES

Read carefully the questions and answer it correctly. Fill in the blanks with your answer.

_____1. This command is to creates parallel copies of lines, arcs, and circles.
_____2. This command is to constructs an arc between two lines.
_____3. This command is to makes one or more copies of selected objects.
_____4. This command is to draws straight lines of any length.
_____5. This command is to deletes objects from the drawing.
_____6. This command is to draws an arc of any size.
_____7. This command is to moves selected objects to another location.
_____8. This command is to draws 2D polylines.

Name:	Date:	Score:
Subject : Technical Drafting		
Lesson Title : Definition of structural terms in CAD		
Lesson Competency: Identify concepts in drafting structural layout and details in CAD (TLE_ICTTD9-12LCIIIa-b-1)		
References : https://en.wikipedia.org/wiki/Structural_drawing http://engineeringtraining.tpub.com/14069/css/Structural-Drawings-340.htm		LAS No.: 33

CONCEPT NOTES

What is a structural drawing? A **structural drawing** is a type of Engineering drawing. It is also a plan or **set of plans** for x other structure will be built. Structural drawings are mostly prepared by registered **professional structural engineers** and informed by **architectural drawings**. They are the one who are concerned with the load-carrying members of a structure. They outline the size and types of materials to be used. They also as well include the general demands for connections. The structural drawings communicate the design of the building's structure to the **building authority** to review. Structural drawings are also included with a proposed building's contract documents, and these will guide **contractors** in **detailing, fabricating**, and **installing** parts of the structure.

It is also a set of structural drawings which includes the **foundation plans** and details, **framing plans** and details, **wall sections**, **column and beam details**. These section, details, and schedules are necessary to describe the structural components of the building or structure.

EXERCISES

Unscramble the letters correctly to match on the appropriate answer and write it on the blank provided.

(tuurracsl geeerine) _____1. One who prepared structural drawing.
(nggiineeern dragwin) _____2. Also known as structural drawing.
(gatricabinf) _____3. One of contractor's job.
(donutafion lanp) _____4. Example of a structural drawing.
(duibling yothauorit) _____5. One who review on structural drawings.

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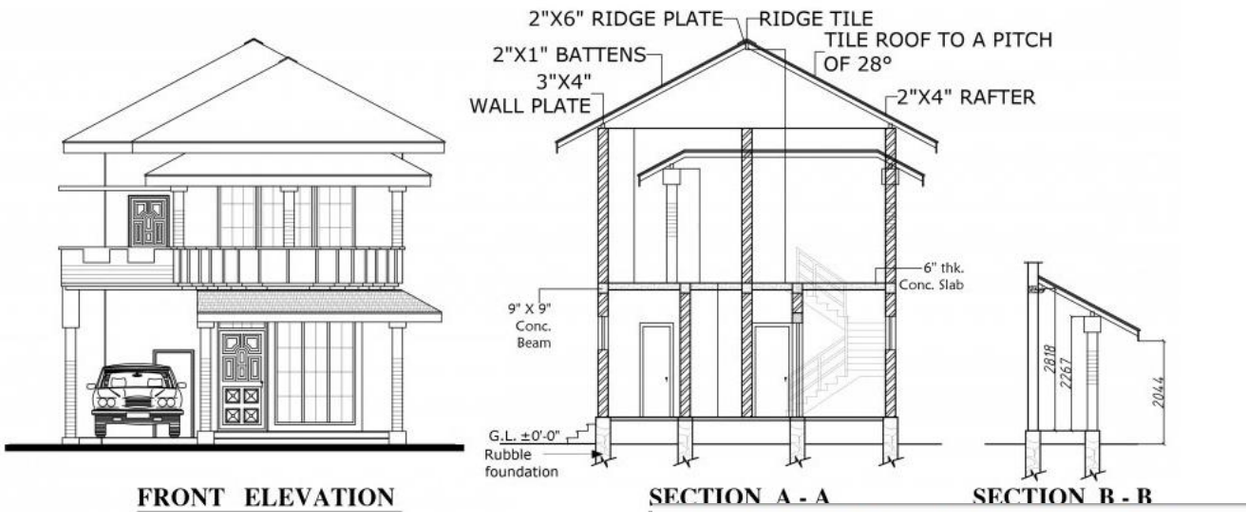
SENIOR HIGH ALTERNATIVE RESPONSIVE EDUCATION DELIVERY

GRADE 11 DLP LEARNING ACTIVITY SHEET

Name:	Date:	Score:
Subject : Technical Drafting		
Lesson Title : Structural drawing using CAD		
Lesson Competency: Identify structural plans and layouts using CAD (TLE_ICTTD9-12LCIIIc-e-2)		
References: http://mit24h.com/1Z575GB_pl84575/ http://www.durotechgc.com/Content/uploads/PlanRoomFTP/PISD_Plans/JHW-SMS/Stuctural_JHW_SMS_100_CD.pdf		LAS No.: 34

CONCEPT NOTES

This is a sample **structural drawing** with elevation and section in CAD. Structural symbols are a used in preparing a structural plan. Familiarize and remember its parts.



EXERCISES

Identify correctly the CAD structural plan symbols in the picture provide below. Write your answer in the blank provided.

_____1. 

_____2. 

_____3. 

_____4. 

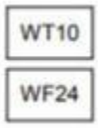
_____5. 

_____6. 

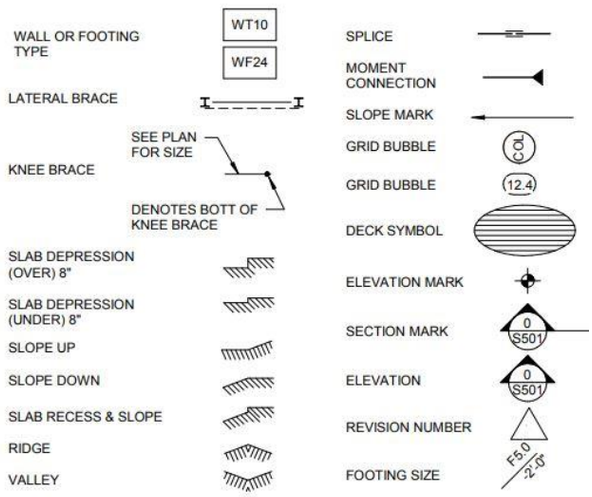
_____7. 

_____8. 

_____9. 

_____10. 

STRUCTURAL PLAN SYMBOLS AND LEGENDS



Name:	Date:	Score:
Subject : Technical Drafting		
Lesson Title : Definition of electrical terms in CAD		
Lesson Competency: Identify concepts in drafting electrical layout and details in CAD (TLE_ICTTD9-12EC-IIIfg-1)		
References : https://en.wikipedia.org/wiki/Electrical_drawing https://www.designingbuildings.co.uk/wiki/Electrical_drawing		LAS No.: 35

CONCEPT NOTES

What is an electrical drawing? A type of technical drawing that shows information about **power**, **lighting**, and communication for an **engineering** or **architectural** project is called **electrical drawing**. This is about any electrical working drawing that consists of **lines**, **symbols**, **dimensions**, and **notations** to accurately convey an engineering's design to the workers. Electrical workers are the one who install the electrical system on the job. Here are a complete set of working drawings for the average electrical system in large projects consists of;

*A **plot plan** showing the building's location and outside electrical wiring
***Floor plans** showing the location of electrical systems on every floor
*Power-riser diagrams showing **panel boards**
*Control **wiring diagrams**
*Schedules and other information in combination with **construction drawings**.

Wiring diagrams are sometimes called electrical drawings. It refers to a type of **technical drawing** that provide visual presentation describing electrical systems or circuits. Wiring diagrams are used to explain the **design** to **electricians** or other **workers, then later** will use them to help **install** or **repair** electrical systems.

EXERCISES

Unscramble the letters correctly to match on the appropriate answer and write it on the blank provided.

(enlap obards) _____1. It is where you can find in a power-riser diagram.
(iiwngr agramdi) _____2. It sometimes refers to electrical drawing.
(ectelcaril awdring)_____3. It shows information about power, lighting etc.
(lecctreiina)_____4. One who repairs electrical systems.
(orofl aspln) _____5. It shows the building's location and outside electrical wiring.

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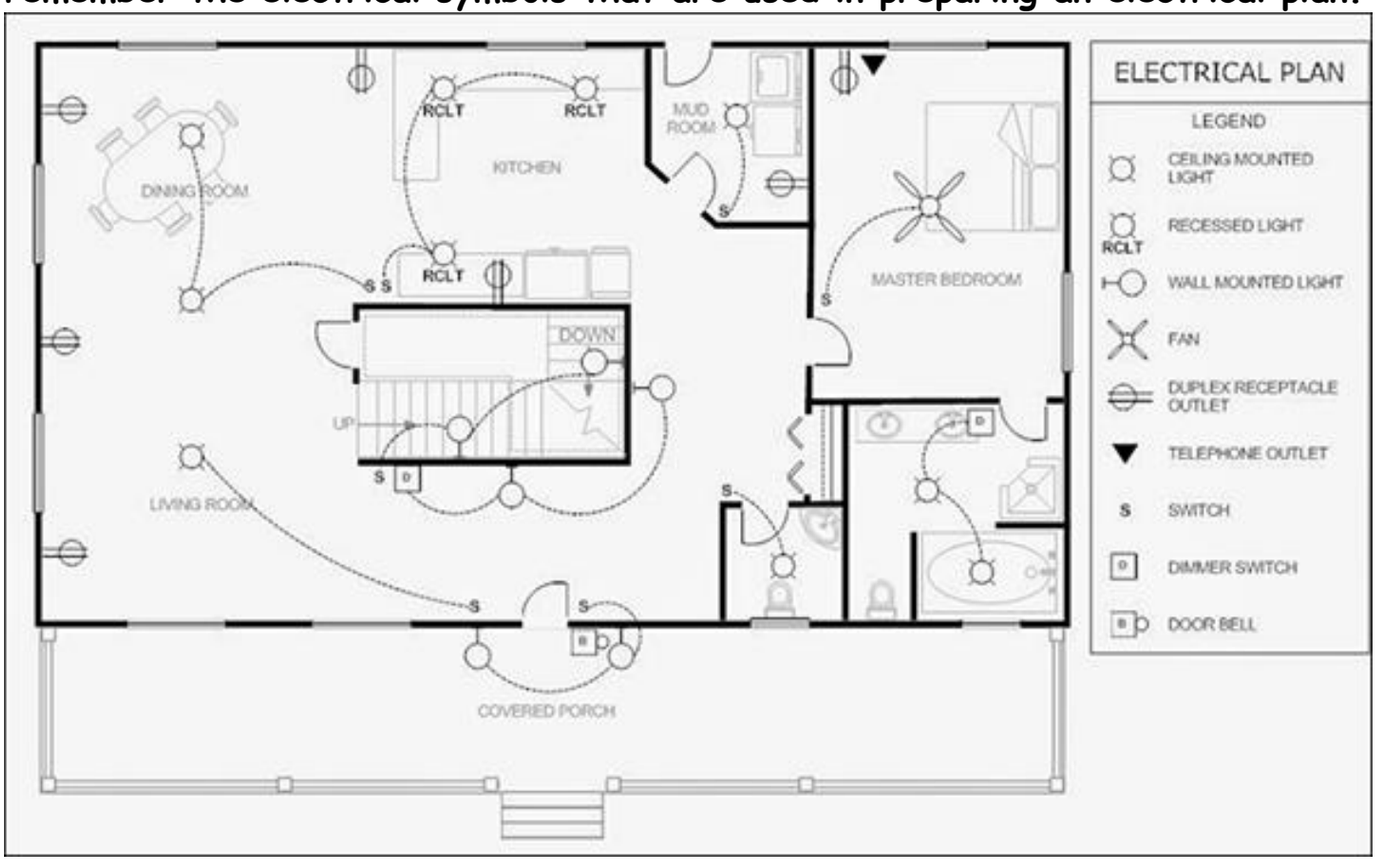
SENIOR HIGH ALTERNATIVE RESPONSIVE EDUCATION DELIVERY

GRADE 11 DLP LEARNING ACTIVITY SHEET

Name:	Date:	Score:
Subject : Technical Drafting		
Lesson Title : Electrical drawing using CAD		
Lesson Competency: Identify electrical plans and layouts using CAD (TLE_ICTTD9-12ECIIIh-j-2)		
References : https://www.cadpro.com/cad-pro-uses/electrical-drawing-blueprints/		LAS No.: 36

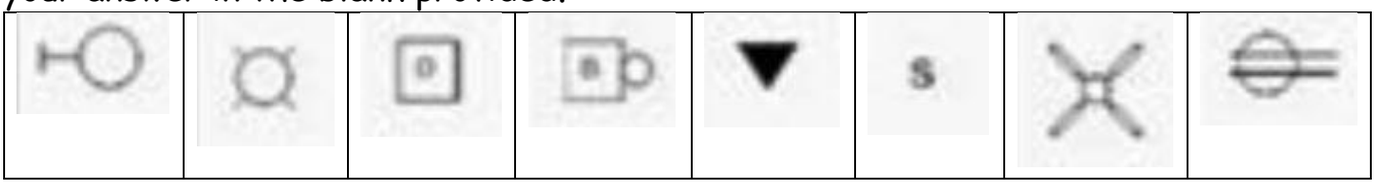
CONCEPT NOTES

This is an example of an electrical drawing with floorplan. Familiarize and remember the electrical symbols that are used in preparing an electrical plan.



EXERCISES

Identify correctly the CAD electrical symbols in the picture provide below. Write your answer in the blank provided.



1._____ 2. _____ 3._____ 4. _____ 5._____ 6. _____ 7._____ 8. _____

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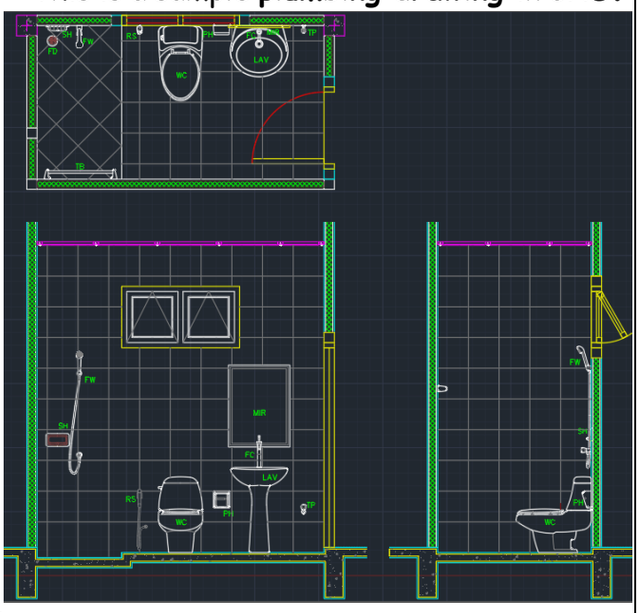
SHARED OPTIONS
SENIOR HIGH ALTERNATIVE RESPONSIVE EDUCATION DELIVERY
GRADE 11 DLP LEARNING ACTIVITY SHEET

Name:	Date:	Score:
Subject : TVL-ICT (TECHNICAL DRAFTING NC II)		
Lesson Title : Plumbing fixtures and fittings in CAD		
Lesson Competency: Identify concepts in drafting plumbing fixtures and fittings in CAD (TLE_ICTTD9-12SC-IVa-1)		
References: https://en.wikipedia.org/wiki/Plumbing_fixture https://codes.iccsafe.org/content/IPC2018/chapter-4-fixtures-faucets-and-fixture-fittings https://www.linecad.com/cad-blocks/bathroom/		LAS No.: 37

CONCEPT NOTES

Plumbing fixtures are mostly bathtubs: Tapware is an industry term for that sub-category of **plumbing fixtures**. It consists of tap valves which also called as water taps in British English or faucets in American English. It has their **accessories**, such as water spouts and shower heads. These **Plumbing fixtures** are required to be installed for nearly every building as **toilet facilities** (water closets and lavatories). There are also needed by the occupants of a building. Some additional fixtures for **washing**, **bathing** and **culinary** purposes are also necessary where occupants dwell in buildings.

This is a sample **plumbing drawing** in CAD.



EXERCISES

Read carefully the questions and answer it correctly. Fill in the blanks with your answer.

_____1. It means water closets and lavatories.
_____2. It is an addition to the building necessary for occupants to dwell.
_____3. It is required to be installed for nearly every building.
_____4. It is also called water spouts and shower heads.
_____5. It is called water taps (British English) or faucets (American English).

DepED DEPARTMENT OF EDUCATION K TO 12 PROGRAM

SHARED OPTIONS

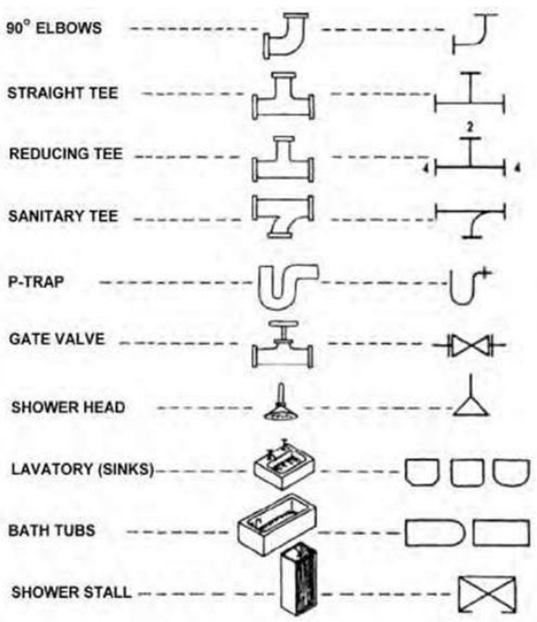
SENIOR HIGH ALTERNATIVE RESPONSIVE EDUCATION DELIVERY

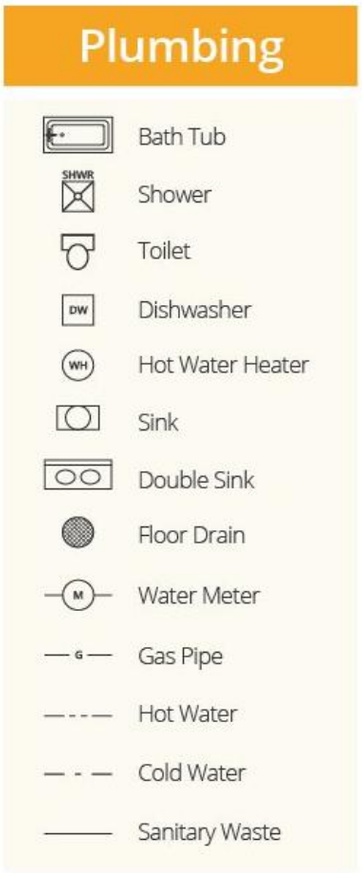
GRADE 11 DLP LEARNING ACTIVITY SHEET

Name:	Date:	Score:
Subject : TVL-ICT (TECHNICAL DRAFTING NC II)		
Lesson Title : Plumbing symbols in CAD		
Lesson Competency: Indicate signs and symbols according to sanitary and plumbing requirements (TLE_ICTTD D9-12SC-IVa-1)		
References: https://www.pinterest.ph/pin/611574824370971263/?autologin=true https://www.smartsheet.com/how-to-read-construction-plans		LAS No.: 38

CONCEPT NOTES

The following are commonly used signs and symbols in making plumbing drawing/layout. Familiarize and remember them for future work plan.





EXERCISES

Identify correctly the plumbing symbols provided below. Match it by drawing a line connecting to your answer in the other column provided.

A	B
1. Gas Pipe -	a.
2. Sink-	b.
3. Floor Drain-	c.
4. Water Meter-	d.
5. Shower-	e.

A	B
6. Shower Head -	f.
7. Gate Valve-	g.
8. Bath Tubs-	h.
9. Straight Tee-	i.
10. Shower Stall-	j.

Name:	Date:	Score:
Subject : TVL-ICT (TECHNICAL DRAFTING NC II)		
Lesson Title : Definition of mechanical terms in CAD		
Lesson Competency: Identify concepts and principles in drafting mechanical layout and details (TLE_ICTTD D9-12DCIVd-e-11)		
References: https://knowledge.autodesk.com/support/autocad-mechanical/learn-explore/caas/CloudHelp/cloudhelp/2015/ENU/AutoCAD-Mechanical/files/GUID-F18FCB9F-970E-4019-B349-2427D498779A-htm.html		LAS No.: 39

CONCEPT NOTES

The following are common AutoCAD Mechanical Terms

Detail. A portion of design drawing which cannot be displayed or dimensioned clearly.
Drawing. A layout of drawing views in model space or layout.
Drawing border. A standardized frame that is used for technical drawings.
Drawing title. It provides information about your drawing.
Family of lines. A term referring to a set of polylines or splines that share common characteristics.
Layout. The tabbed environment in which you create and design paper space floating viewports to be plotted.
Paper space. Is used for creating a finished layout for printing or plotting.
Template. A preformatted drawing that serves as a starting point for a new drawing.
Viewport. In Drawing mode, a bounded area that displays a drawing view.
View scale. The scale of a base drawing relative to the model scale.

EXERCISES

Read carefully the questions and answer it correctly. Fill in the blanks with your answer.

_____1. It is a bounded area that displays a drawing view in drawing mode.
_____2. This term provides information about your drawing.
_____3. The scale of a base drawing relative to the model scale.
_____4. A layout of drawing views in model space or layout.
_____5. A preformatted drawing that serves as a starting point for a new drawing
_____6. Is used for creating a finished layout for printing or plotting.

Name:	Date:	Score:
Subject : ICT-TECHNICAL DRAFTING		
Lesson Title : Mechanical drawing using CAD		
Lesson Competency: Identify mechanical plans and layouts using CAD (TLE_ICTTD9-12LCIIIc-e-2)		
References: https://www.thefreedictionary.com/mechanical+drawing https://www.youtube.com/watch?v=fHqolQwz93U		LAS No.: 40

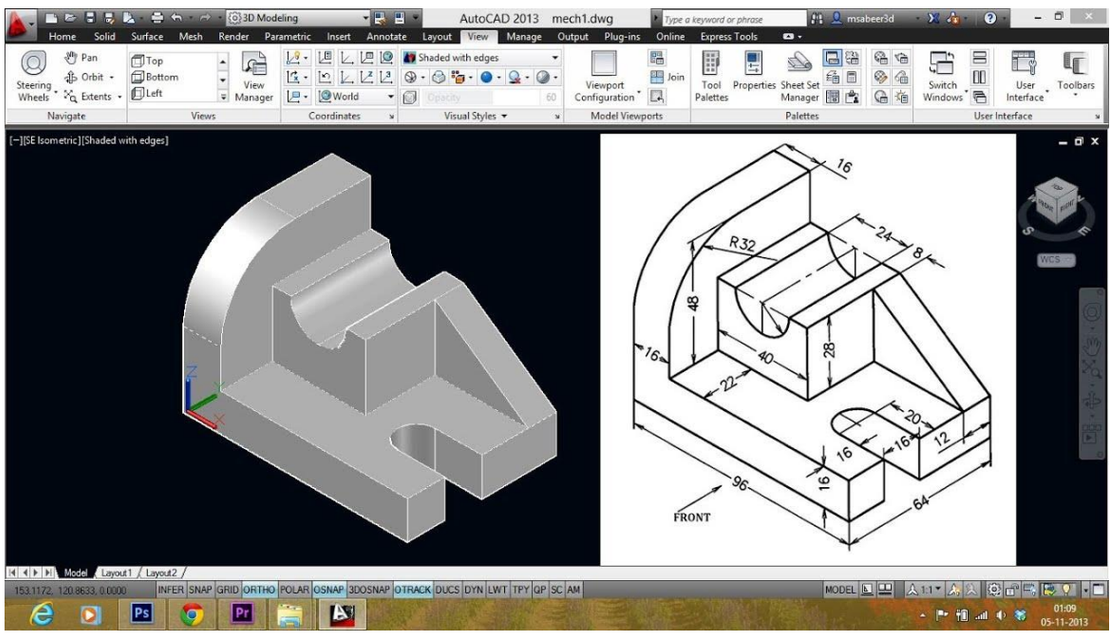
CONCEPT NOTES

What is a Mechanical drawing?

Mechanical Drawing is drafting or a drawing such as an architect's plans. It enables measurements to be interpreted.

It is also a drawing to scale of a machine, machine component, architectural plan, etc. It is from which dimensions can be taken for manufacture. It is mostly scale drawing of machine or architectural plan etc.

This is a sample **mechanical drawing** made in 2D and 3D by CAD.



EXERCISES

Read carefully the questions and answer it correctly. Unscramble the words below which is related to the lesson. Fill in the blanks with your answer.

_____1. MAFNUACTEUR
_____2. EMASREMENUT
_____3. DRTINAFG
_____4. LESCA
_____5. ARTERALCTUCHI

_____1. ACECTHITR
_____2. MHACALECNI
_____3. DWINGRA
_____4. HINEMAC
_____4. DENSOINIM