10

Technology and Livelihood Education

Quarter 1 - Module 7
Operate CAD Software and Computer Hardware
(Manipulating CAD Features: Editing)

Technical Drafting NC II

ALTERNATIVE DELIVERY MODE

GOVERNMENT PROPERTY
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10

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(Manipulate CAD Features: Editing)

Technical Drafting NC II

DepED
DEPARTMENT OF EDUCATION

ICT-Technical Drafting – Grade 10
Alternative Delivery Mode
Quarter 1 – Module 7: Operate CAD Software and Computer Hardware
(Manipulating CAD features: Editing)

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Published by the Department of Education
Secretary: Leonor Magtolis Briones
Undersecretary: Diosdado M. San Antonio

Development Team of the Module

Writer: Altea E. Ramos
Editors:
Reviewer: Jonalyn C. Ambrona
Mary Jane N. Malihod
Illustrator:
Layout Artist:
Management Team: Estela Leon-Cariño
Carmel F. Meris
Rosita C. Agnasi
Marie Carolyn B. Verano
Christopher C. Benigno
Juliet C. Sannad
Mary Jane N. Malihod
Armi Victoria Fiangaan
Brenda M. Cariño

Printed in the Philippines by:

Department of Education – Cordillera Administrative Region

Office Address: Wangal, La Trinidad, Benguet
Telefax: (074) -422 -4074
E-mail Address: car@deped.gov.ph

Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLMS is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and test. And read the instructions carefully before performing each task.

If you have questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.

Notes to the Teacher

This contains helpful tips or strategies that will help you in guiding the learner.

For the facilitator:

Hi, as a facilitator you are expected to orient the learners on how to use this module. You also need to keep track of the learners' progress while allowing them to manage their own learning. Kindly, advise the learner's parents or guardians of the same procedure since they will be the primary supporters in the learners' progress. Please, do not forget to remind the learner to use separate sheets in answering all of the activities found in the learning module

For the learner:

Hello learner, Welcome to the Technical Drafting NC II Alternative Delivery Mode (ADM) Module on Manipulating CAD features: Editing. I hope you are ready to

progress in your Grade 10 TLE in Technical Drafting with this learning module. This is designed to provide you with interactive tasks to further develop the desired learning competencies prescribed in our curriculum. With this, you are expected to appreciate staking through the information and activity given.

This module has the following parts and corresponding icons:

ICON	LABEL	DETAIL
	What I Need to Know	This contains the learning objectives which you need to accomplish.
	What I know	This evaluates what you know about the lesson you are to learn.
	What's In	This connects the current lesson with a topic necessary in your understanding.
	What's New	This introduces the lesson through an activity.
	What Is It	This contains a brief discussion of the learning module lesson.
	What's More	These are activities to check your understanding of the lesson.
	What I have Learned	This summarizes the important ideas presented in the lesson.
	What I Can Do	This is a real-life application of what you have learned.
	Assessment	This is a post assessment of what you have learned.
	Additional Activity	This is an activity that will strengthen your knowledge about the lesson.

At the end of this module you will also find:

References	This is a list of all sources used in developing this module.

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Lesson 1 Manipulating CAD Features: Editing

The following are some reminders in using this module:

1. Use the module with care. Do not put unnecessary mark/s on any part of the module. Use a separate sheet of paper in answering the exercises.
2. Don't forget to answer *What I Know* before moving on to the other activities included in the module.
3. Read the instruction carefully before doing each task.
4. Observe honesty and integrity in doing the tasks and checking your answers.
5. Finish the task at hand before proceeding to the next.
6. Return this module to your teacher/facilitator once you are through with it.

If you encounter any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator. Always bear in mind that you are not alone.

We hope that through this material, you will experience meaningful learning and gain deep understanding of the relevant competencies. You can do it!

What I Need to Know

This module was designed and written to guide you to acquire the learning competencies and develop your skills in editing and attributes of drawing in ICT-Technical Drafting. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. However, the order in which you read the module can be changed to correspond with the textbook you are now using.

Quarter/Week	Q1/W7
Learning Competency Code	TLE_ICTTD9-12CA-Ic-j- 2
Learning Competency	**LO 1. Operate CAD software and computer hardware** 1.3 Manipulate CAD features as per job requirement: Editing

Learning Objectives:

After going through this module, you are expected to:

1. explain the AutoCAD blocks;
2. follow steps in creating, inserting, editing and modifying a blocks;
3. apply blocks in drafting a drawing to ensure uniformity between identical copies of furniture, fixtures, parts, symbols, and title blocks in drawings; and,
4. analyze and evaluate information as well as apply learned information to new or different situations.

What I Know

Pretest

Multiple Choice.

Directions: Choose the letter of the best answer. Write the chosen letter on the separate sheet of paper.

1. Which of the following is not a part of Block Definition window?
   A. Basepoint
   B. Behavior
   C. Name
   D. Plot Scale
2. It is a compound objects that are commonly used for symbols, parts, detail views, and title blocks.
   A. Commands
   B. Blocks
   C. Layers
   D. Status bars
3. Designed for browsing and selecting a variety of definitions from existing drawings and drawing libraries.
   A. DesignCenter
   B. Editing
   C. Manipulations
   D. Plotting
4. What is the part of viewing tab of design center where you can navigate and locate content anywhere on your system?
   A. Folders
   B. History
   C. Favorites
   D. Open drawing
5. Which of the following allows you to select content from an open drawing and insert it into another drawing?
   A. Folders
   B. History
   C. Favorites
   D. Open drawing
6. Which of the following is the First Step in defining a block for the current drawing?
   A. Under Objects, select Convert to Block.
   B. Click *Insert Tab*-Block Definition Panel-Create Block.
   C. In the Block Definition dialog box, enter a block name in the Name box.
   D. Under Base Point and Objects, make sure Specify On-screen is not selected.
7. Which of the following is the Third Step in defining a block for the current drawing?
   A. Under Objects, select Convert to Block.
   B. Click *Insert Tab*-Block Definition Panel-Create Block.
   C. In the Block Definition dialog box, enter a block name in the Name box.
   D. Under Base Point and Objects, make sure Specify On-screen is not selected.
8. Which of the following is the shortcut key of design center?
   A. CTRL +1
   B. CTRL +2
   C. CTRL +3
   D. CTRL +4

9. Which of the following will you select if you want to edit your blocks?
   A. Create block
   B. Insert
   C. Block Editor
   D. Define Attributes
10. Which of the following design center window buttons toggles the tree view On and OFF?
   A. Favorites
   B. Search
   C. Tree view
   D. Back and Forward
11. What is the part of the block definition window where you can convert your objects into blocks?
   A. Basepoint
   B. Behavior
   C. Descriptions
   D. Objects
12. What is the tab in AutoCAD working environment where you can create blocks?
   A. Home Tab
   B. Insert Tab
   C. Collaboration Tab
   D. View Tab

13. Which of the following is the First Step in inserting a block using design center?
   A. Select OK button.
   B. Specify scale factor.
   C. Specify rotation angle.
   D. Double click on the block in the Content area. The Insert dialog box will appear.

14. Which of the following is the Second Step in inserting a block using design center?
   A. Select OK button.
   B. Specify scale factor.
   C. Specify om-screen or enter coordinates for insertion point.
   D. Double click on the block in the Content area. The Insert dialog box will appear.

15. Which of the following is the Last Step in inserting a block using design center?
   A. Specify scale factor.
   B. Specify on-screen or enter coordinates for insertion point.
   C. Place block in your drawing area.
   D. Double click on the block in the Content area. The Insert dialog box will appear.

What's In

Code Crackers

Directions. Write a message to your teacher on what you have learned in the previous lesson. Use the key to write a message below for a teacher to solve! Write the code on the answer sheet.

CODE CRACKERS

a	b	c	d	e	f	g	h	i	j	k	l	m
1	2	3	4	5	6	7	8	9	10	11	12	13
n	o	p	q	r	s	t	u	v	w	x	y	z
14	15	16	17	18	19	20	21	22	23	24	25	26

Code .....

.....

What's New

Hello learners! When you combine different letters, you will form words. Let us test your vocabulary.

Vocabulary Building Activity

Directions. Using the letters provided, find as many words as possible using touching letters. You have three minutes per game. The letters must be adjoining either horizontally, vertically, or diagonally. Words must contain a minimum of three letters. Write your words in the answer sheet.

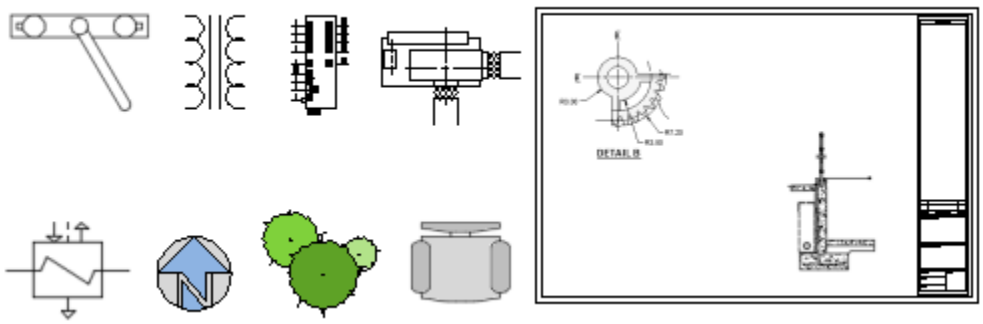
t	h	o	a	e
n	s	i	o	a
n	p	c	t	p
n	x	d	w	s
e	s	a	h	o

e	i	l	a	o
y	a	n	r	n
i	y	e	e	e
t	e	t	o	t
n	x	u	t	s

What Is It

Using the AutoCAD block is the most effective and efficient way in editing your drawing. Let us learn and explore the AutoCAD block.

Blocks are compound objects that are commonly used for symbols, parts, detail views, and title blocks. A block is one or more objects combined to create a single object. The following are some examples of blocks inserted into drawings.

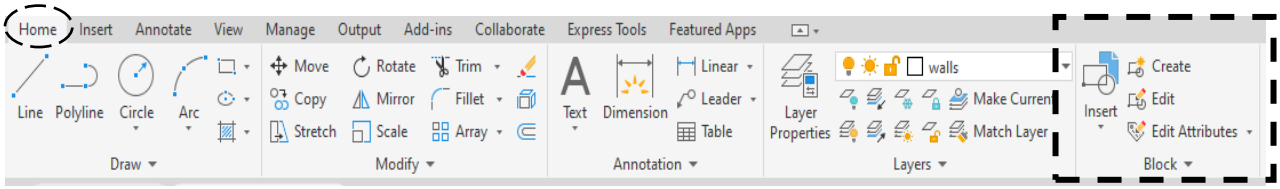


Using blocks provides the following advantages:

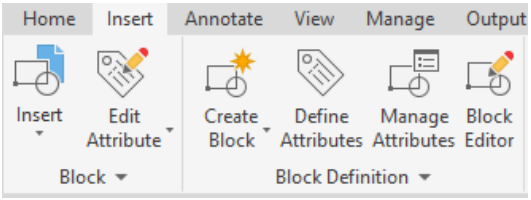
1. You can ensure uniformity between identical copies of furniture, fixtures, parts, symbols, and title blocks in drawings.
2. You can insert, rotate, scale, move, and copy blocks much faster than operating on selections of individual geometric objects.

3. If you edit or redefine a block definition, all block references in that drawing are updated automatically.
4. You can include data such as part numbers, costs, service dates, and performance values to blocks. The data is stored in special objects called block attributes.
5. You can reduce the file size of a drawing by inserting multiple block references instead of duplicating object geometry.

The AutoCAD block is located at the *Home Tab*-Block group ribbon.



You can also find the block in *Insert tab-Block and Block Definition.*



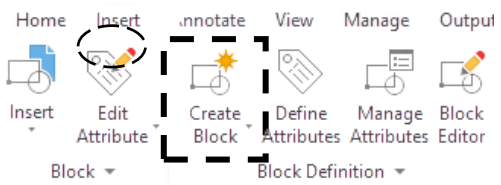
You can create blocks by associating objects and giving them a name or by creating a drawing to be used as a block.

Block Definitions

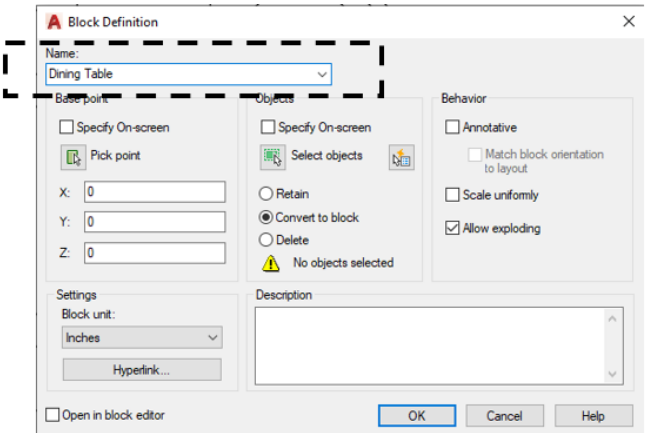
Whenever you create a block or insert a drawing as a block, all of the block information in the block definition, which includes its geometry, layers, colors, line types, and block attribute objects, is stored within the drawing file as non-graphic information. Every block you insert is a block reference to a block definition. Block references are often simply called blocks.

A. Steps in defining a Block for the Current Drawing

1. Click *Insert Tab*-Block Definition Panel-Create Block.

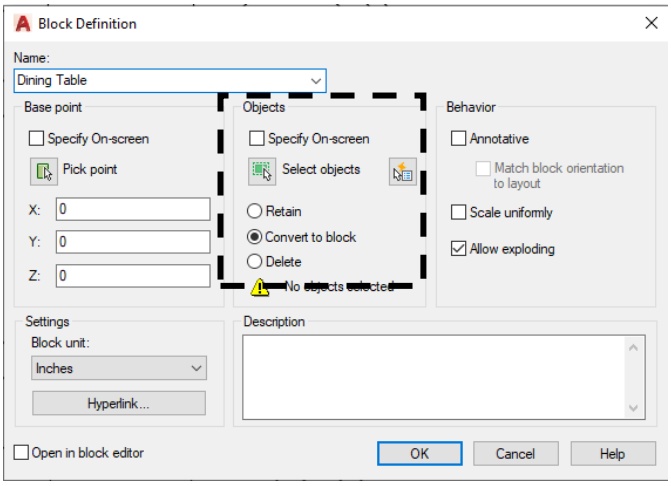


2. In the Block Definition dialog box, enter a block name in the Name box. Example Dining Table.

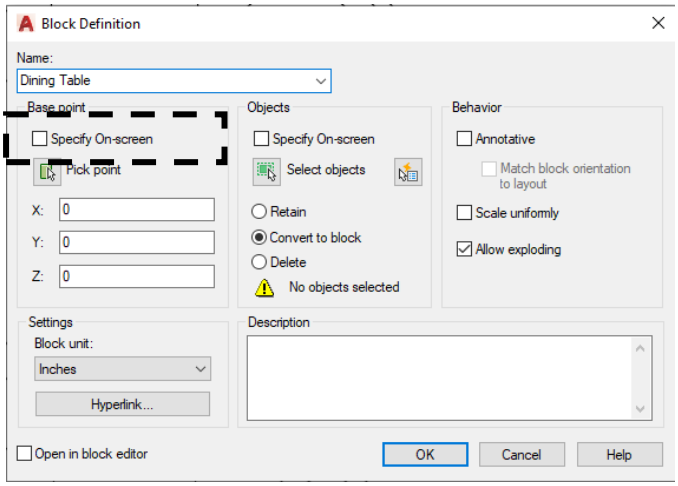


3. Under Objects, select Convert to Block.

Note: If delete is selected, the original objects are erased from the drawing when the block is created. If necessary, you can use OOPS to restore them.

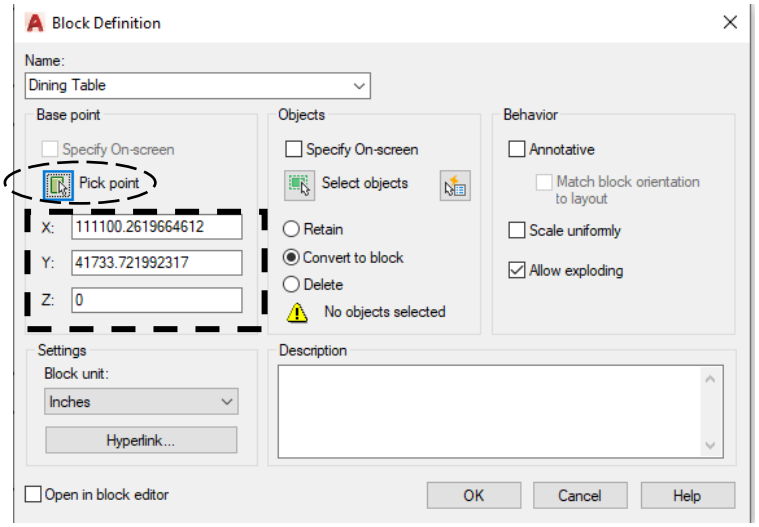


4. Under Base Point and Objects, make sure Specify On-screen is not selected.

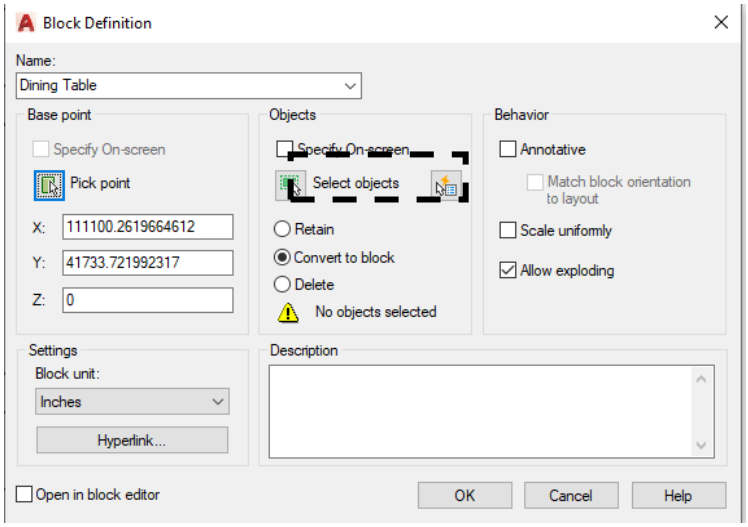


5. In the Block Definition dialog box under Base Point, specify the block insertion point using one of these methods.

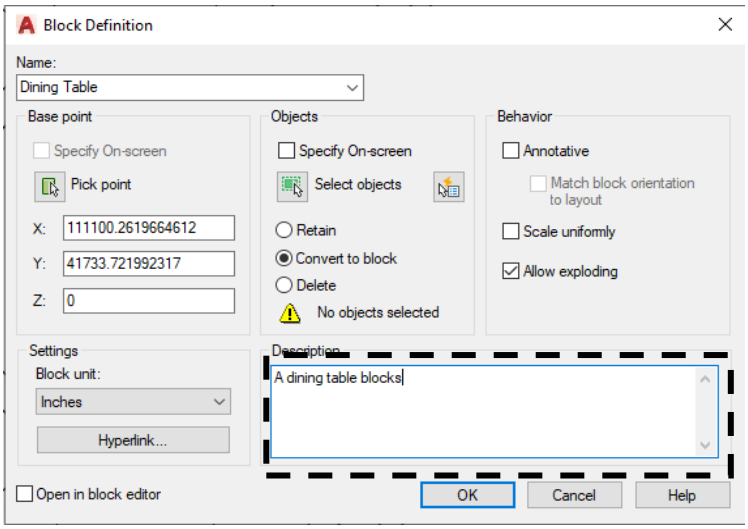
- Click Pick Point to specify a point using the pointing device.
- Enter the X,Y,Z coordinate values of the point.



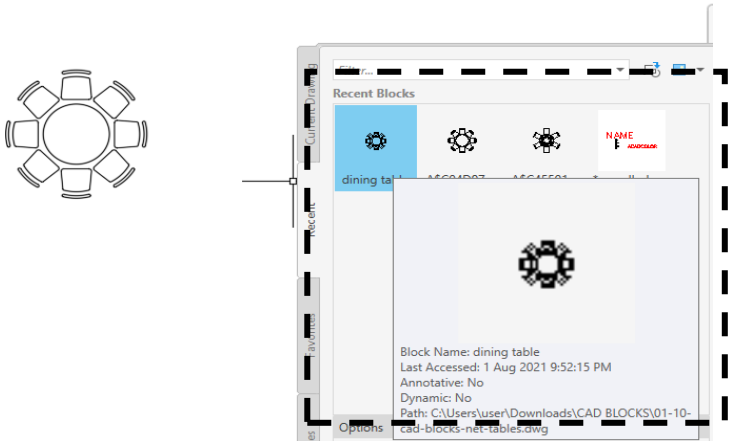
6. Select objects.



7. Use your pointing device to select the objects to be included in the block definition. Press Enter to complete object selection.
8. In the Description box, enter a description for the block definition.



9. Click Ok.
10. The block is defined in the current drawing and can be inserted at any time.

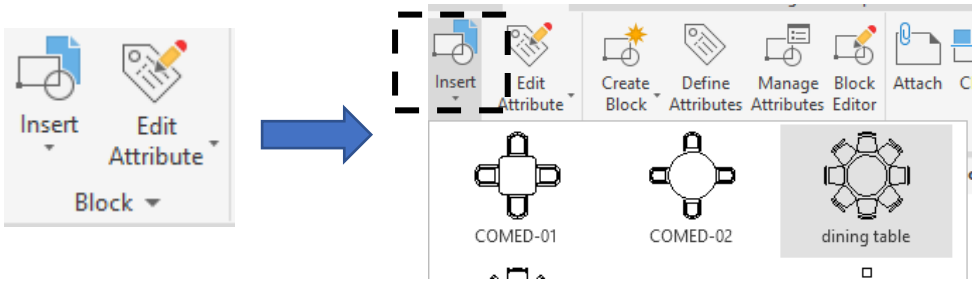


B. Steps in inserting blocks in a current drawing.

When you insert a block reference, you specify its location, scale, and rotation. Several tools are available for inserting blocks, and which tool you decide to use depends on factors such as how many blocks you typically need in a drawing and whether you use a large variety of source drawings.

Ribbon Gallery

1. In the Ribbon Gallery. Click *Insert Tab*-Block panel
2. Simply click the insert icon and click and drag the desired block in your current drawing.



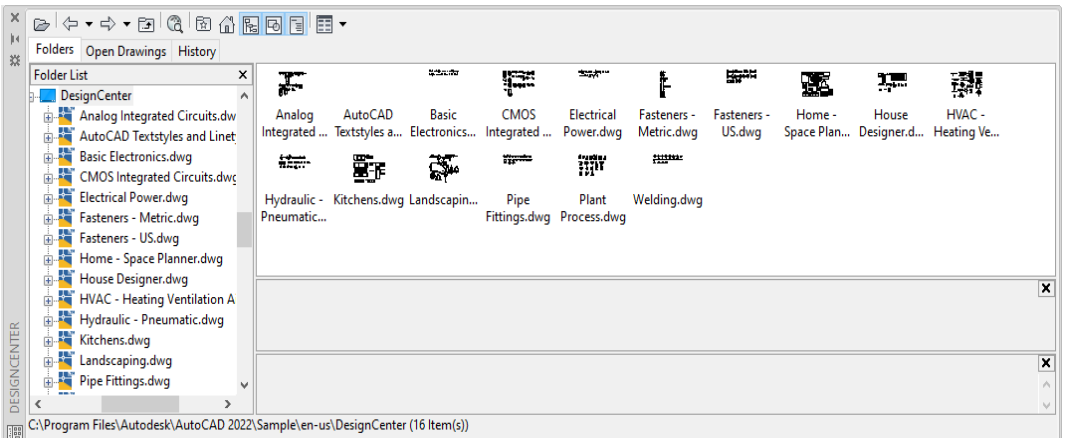
Design Center

The Design Center window is designed for browsing and selecting a variety of definitions from existing drawings and drawing libraries. These definitions include blocks, layers, line types, and other content. DesignCenter offers a quick, visual way to drag and drop blocks within the current drawing or from another drawing. Double-click the block names to specify the precise location, rotation, and scale of the blocks. You can access the DesignCenter window with the ***ADCENTER*** command.

Opening the DesignCenter palette.

To open the DesignCenter palette select one of the following:

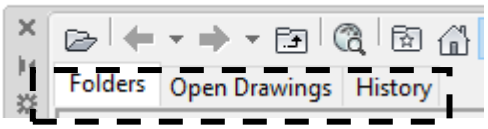
- Ribbon> click View tab > Palettes panel > DesignCenter .
- Press CTRL +2
- Press DC in the keyboard.



The Design Center Palette.

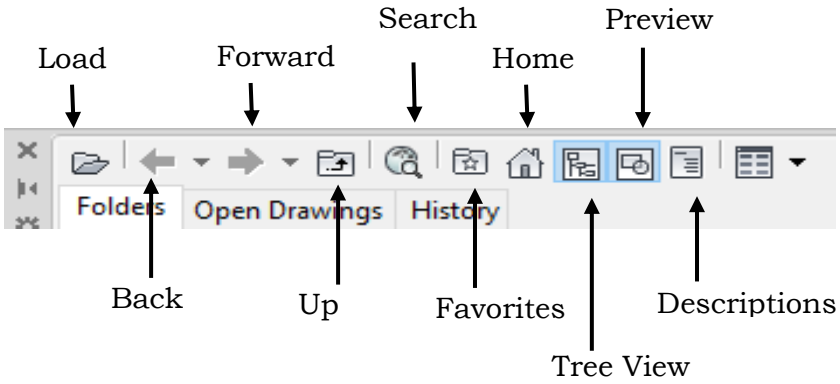
Viewing Tabs

At the top of the palette there are three (3) tabs that allow you to change the view.



- Folders-displays the directories and files. You can navigate and locate content anywhere on your system.
- Open Drawing-displays all the open drawing. Allows you to select content from an open drawing and insert it into another drawing.
- History-displays the last 20 file locations accessed with DesignCenter. Allows you to double click on the path to load it into the “Content” area.

Buttons



Load-this button displays the load dialog box. Locate the drawing content that you want loaded in to the “Content” area.

Back and Forward-allows you to cycle through previously selected file content. Up- moves up one folder from the current folder.

Search-allows you to search for drawings by specifying various criteria.

Favorites- displays the content of the favorites folder. Content can be added to this folder. Right click over an item in the Tree View or Content areas then select “Add to Favorites’ from the menu that appears.

Home-takes you to the designcenter folder by default.

Tree View-toggles the tree view ON and OFF. Only works when the “Folders” or “Open Drawings” tab is current.

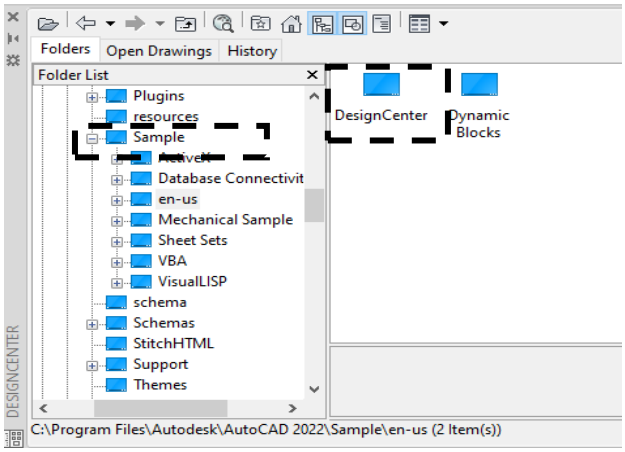
Preview-toggles the “preview” area On and OFF.

Description-toggles the “description’ area On and OFF. A description must have been given at the time the block was created.

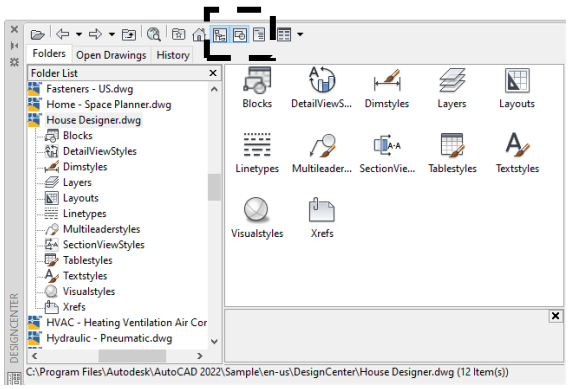
A. Steps in Inserting a Block using DesignCenter.

Method 1:

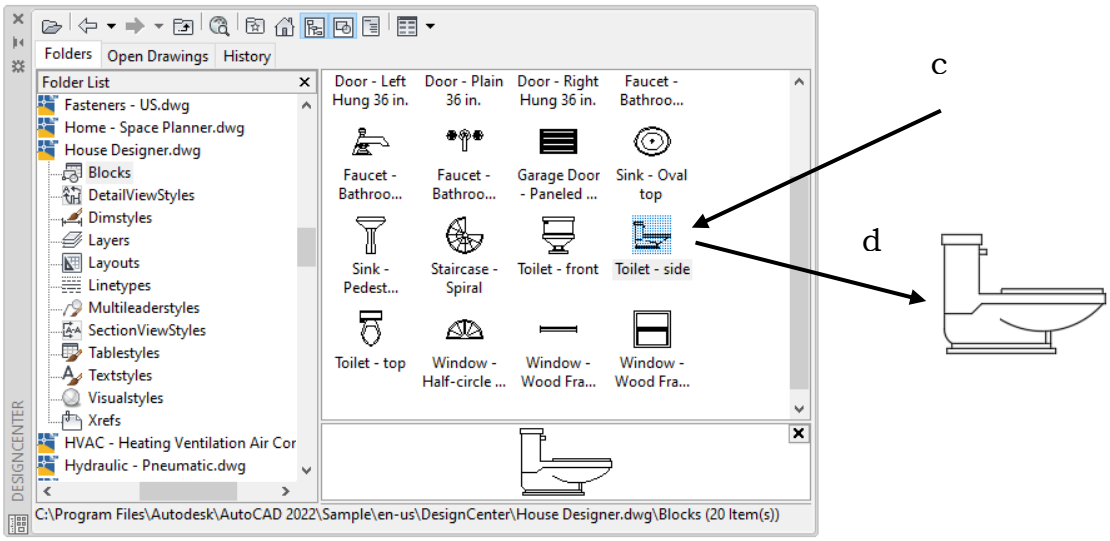
a. In the tree view toggle select Sample>en-us>DesignCenter.



b. Select “Blocks” from a specified drawing within the “Tree” area.

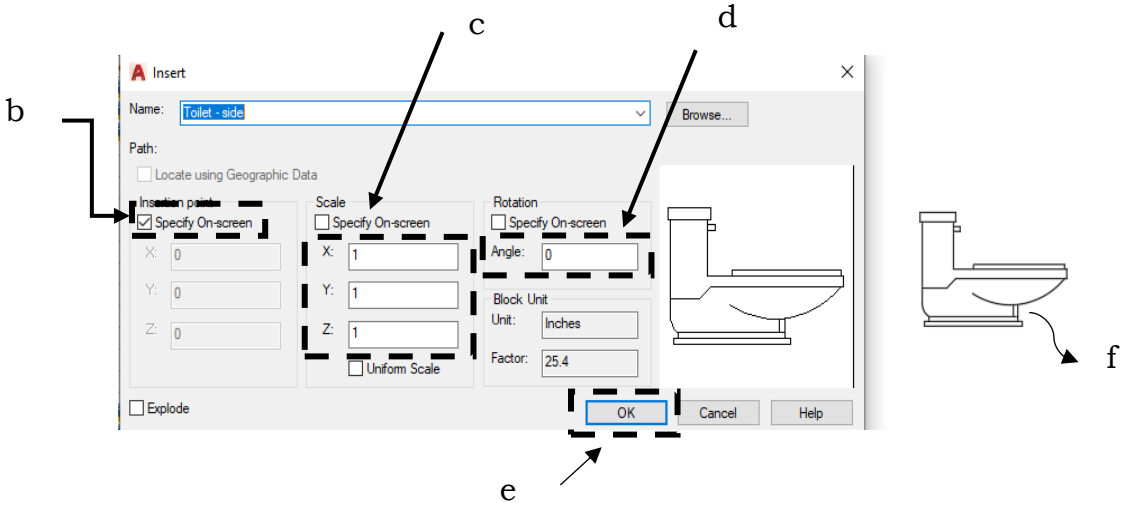


c. Locate the Block desired in the Content area.
d. Drag and drop the block into the drawing area of an open drawing.



Method 2:

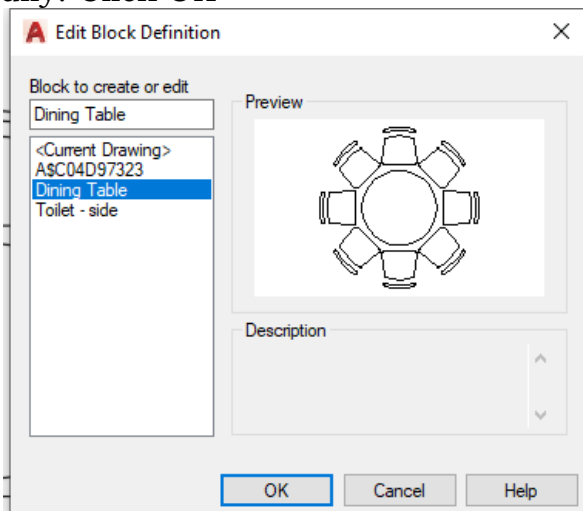
a. Double click on the block in the Content area. The Insert dialog box will appear.
b. Specify om-screen or enter coordinates for insertion point.
c. Specify scale factor.
d. Specify rotation angle.
e. Select OK button.
f. Place block in your drawing area.



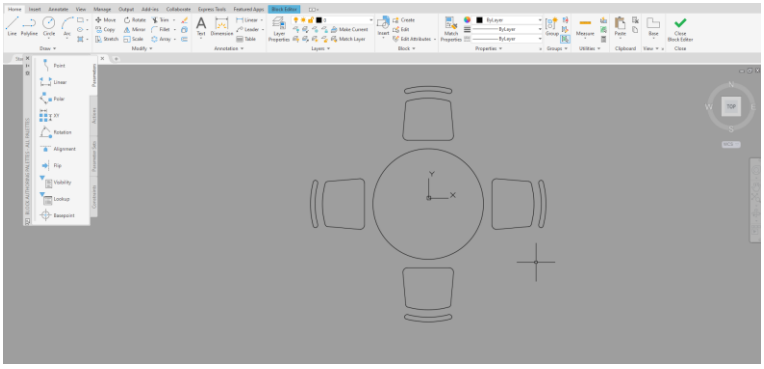
B. Steps to edit and modify the blocks in the drawing.

The Block Editor provides the easiest way to modify a block in the current drawing. The changes you make and save in the Block Editor replace the existing block definition, and all references to that block in the drawing are immediately updated.

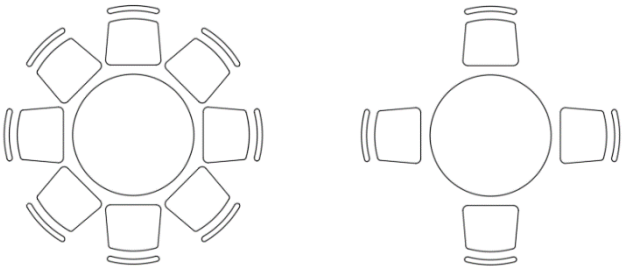
1. Go to Insert Tab>Block Definition> Block Editor.
2. In the Block Editor window choose the desired block you want to edit or modify. Click OK



3. You can now edit or modify your blocks in the block editor workspace.



4. Once your done, close the block editor and save the changes.



Original Blocks

Modified Blocks

What's More

Directions. Arrange the steps in defining a Block for the current drawing by using the letters A to D to indicate their order of precedence. Letter A as the first procedure, B as the second, and so on. Write your answers on the answer sheet.

_____1. In the Block Definition dialog box, enter a block name in the Name box.
_____2. The block is defined in the current drawing and can be inserted at any time.
_____3. Under Base Point and Objects, make sure Specify On-screen is not selected.
_____4. In the Block Definition dialog box under Base Point, specify the block insertion point using one of these methods.
_____5. Click *Insert Tab*-Block Definition Panel-Create Block
_____6. Select objects.
_____7. Use your pointing device to select the objects to be included in the block definition. Press Enter to complete object selection.
_____8. Click Ok
_____9. In the Description box, enter a description for the block definition.
_____10. Under Objects, select Convert to Block

What I Have Learned

Critical Thinking Skills

Directions: Read and analyze the scenario below. Briefly answer the question and write your answer on the answer sheet.

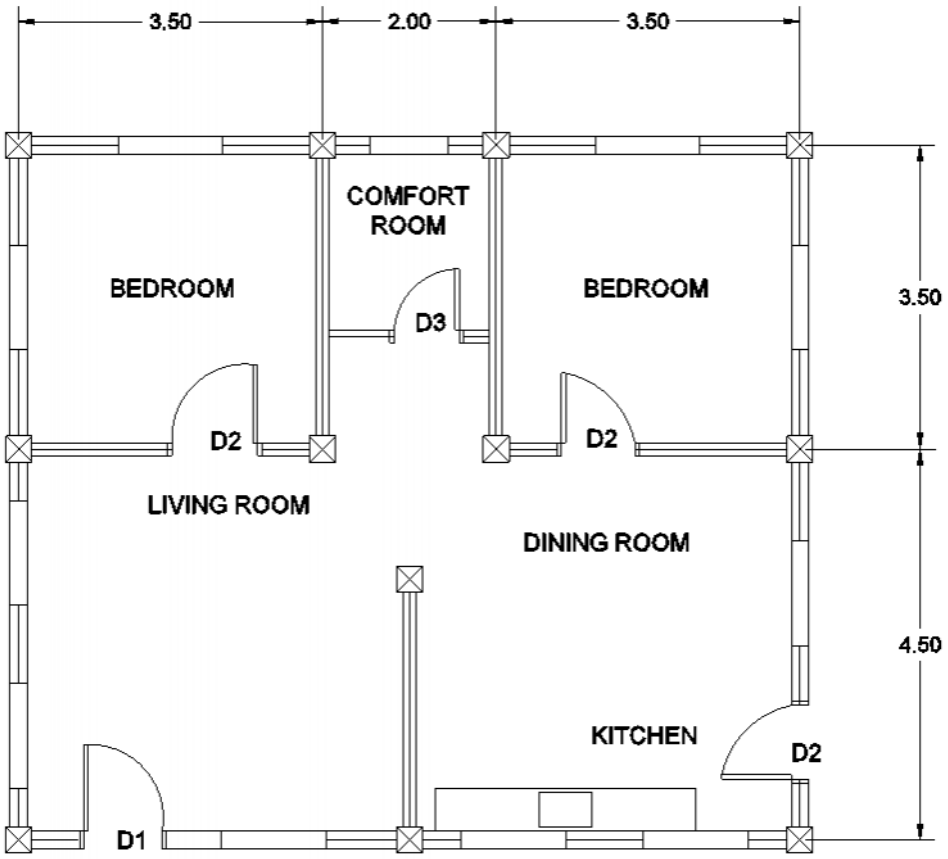
SCENARIO: You are drafting a two-story floor plan in AutoCAD and you want to insert a door in each room of the floor plan. To save time and effort you want to create a door symbol block. What will you do and how will you insert the door symbol in each room of the floor plan?

What I Can Do

Hello learners! There are two (2) sets of activity. **Activity 1** is for those who have computer devices and AutoCAD software. **Activity 2** is for those who don't have any computer devices. You can choose any activity that applicable on you.

Activity 1: Hands-on Activity
Directions.

1. Redraw the simple floor plan below. Follow the given dimensions.
2. In your design center, look at the different fixtures and insert the following appliances in each room in your floor plan.
    - Bed-queen
    - Chair-desk
    - Toilet -top
    - Dining Set
    - Sink double
3. Save our work as <LastName_FirstName_myFloorPlanBlocks>.dwg



Performance Criteria

Criteria	Levels of Assessment				Score
	Excellent (10 pts)	Very satisfactory (8 pts)	Satisfactory (5 pts)	Needs Improvement (3 pt)	
Followed the instructions Followed the given instructions/procedure from start to finish, observed correct usage of command tools					
Proficiency Perform task with competence and exceptional performance					
Accuracy Perform the task with no errors					
Use of AutoCAD command tools Demonstrate high degree of competency with AutoCAD commands. Can prioritize commands and tools usage to create and modify objects.					
Completeness Drawings are completed quickly and efficiently with no errors					
Total					

Activity 2: My Blocks Infographics

Directions. Infographics is a collection of imagery, charts, and minimal text that gives an easy-to-understand overview of a topic. Create an infographic about the following topic below. You can either draw the image, charts and write the text in a bond paper or you can use any application in the computer or mobile devices. Place your infographics in a short bond paper or in the answer sheet provided.

Topics:

1. Defining a Block for the Current Drawing.
2. Insert a Block using DesignCenter.
3. Edit and modify the blocks in the drawing.

Performance Criteria

Criteria	Levels of Assessment				Score
	Excellent (10 pts)	Very satisfactory (8 pts)	Satisfactory (5 pts)	Needs Improvement (3 pt)	
Content Appropriate details support main idea. Accurate and detailed information. Information adequately supports purpose of visual					
Focus Topic and title clear and easily identified. Main idea is clearly appropriate to topic. All illustrations complement purpose of visual					
Neatness Has no visible erasures and unnecessary marks					
Visual Appeal Outstanding use of color, design, and space. Original and creative design. Overall design is pleasing and harmonious					
Mechanics Free of grammatical Mostly free of grammatical Frequent grammatical Too frequent grammatical 15 errors. Words are legible and pertinent to topic					
Total					

Post-Assessment

Multiple Choice.

Directions: Choose the letter of the best answer. Write the chosen letter on the answer sheet provided.

1. It is a compound objects that are commonly used for symbols, parts, detail views, and title blocks.
   A. Commands
   B. Blocks
   C. Layers
   D. Status bars
2. Designed for browsing and selecting a variety of definitions from existing drawings and drawing libraries.
   A. DesignCenter
   B. Editing
   C. Manipulations
   D. Plotting
3. What is the part of viewing tab of design center where you can navigate and locate content anywhere on your system?
   A. Folders
   B. History
   C. Favorites
   D. Open drawing
4. Which of the following allows you to select content from an open drawing and insert it into another drawing?
   A. Folders
   B. History
   C. Favorites
   D. Open drawing
5. Which of the following is not a part of Block Definition window?
   A. Basepoint
   B. Behavior
   C. Name
   D. Plot Scale
6. Which of the following is the Last Step in inserting a block using design center?
   A. Specify scale factor.
   B. Specify on-screen or enter coordinates for insertion point.
   C. Place block in your drawing area.
   D. Double click on the block in the Content area. The Insert dialog box will appear.
7. Which of the following is the Third Step in defining a block for the current drawing?
   A. Under Objects, select Convert to Block.
   B. Click *Insert Tab*-Block Definition Panel-Create Block.
   C. In the Block Definition dialog box, enter a block name in the Name box.
   D. Under Base Point and Objects, make sure Specify On-screen is not selected.
8. Which of the following is the shortcut key of design center?
   A. CTRL +1
   B. CTRL +2
   C. CTRL +3
   D. CTRL +4

9. Which of the following is the First Step in inserting a block using design center?
   A. Select OK button.
   B. Specify scale factor.
   C. Specify rotation angle.
   D. Double click on the block in the Content area. The Insert dialog box will appear.
10. Which of the following is the Second Step in inserting a block using design center?
   A. Select OK button.
   B. Specify scale factor.
   C. Specify om-screen or enter coordinates for insertion point.
   D. Double click on the block in the Content area. The Insert dialog box will appear.
11. Which of the following design center window buttons toggles the tree view On and OFF?
   A. Favorites
   B. Search
   C. Tree view
   D. Back and Forward
12. What is the part of the block definition window where you can convert your objects into blocks?
   A. Basepoint
   B. Behavior
   C. Descriptions
   D. Objects
13. Which of the following is the First Step in defining a block for the current drawing?
   A. Under Objects, select Convert to Block.
   B. Click *Insert Tab*-Block Definition Panel-Create Block.
   C. In the Block Definition dialog box, enter a block name in the Name box.
   D. Under Base Point and Objects, make sure Specify On-screen is not selected.
14. Which of the following will you select if you want to edit your blocks?
   A. Create block
   B. Insert
   C. Block Editor
   D. Define Attributes
15. What tab in AutoCAD working environment can you create blocks?
   A. Home Tab
   B. Insert Tab
   C. Collaboration Tab
   D. View Tab

Additional Activity

Choice Words

Directions. Think of words that would best describe blocks. Each describing word should start with the given letter. Write your answer on the answer sheet.

B _____

L_____

O_____

C_____

K_____

S_____

Answer Key

What I Know

1. D
2. B
3. A
4. A
5. D
6. B
7. C
8. B
9. C
10. C
11. D
12. B
13. D
14. C
15. C

What's In

answers may vary

What's New

answers may vary

What's More

1. B
2. J
3. D
4. E
5. A
6. F
7. G
8. I
9. H
10. C

What I Have Learned

answers may vary

What I Can Do

Performance output will be evaluated through given rubrics

Assessment

1. B
2. A
3. A
4. D
5. D
6. C
7. C
8. B
9. D
10. C
11. C
12. D
13. B
14. C
15. B

Additional Activity

answers may vary

References

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For inquiries or feedback, please write or call:

Department of Education - Bureau of Learning Resources (DepEd-BLR)
Ground Floor, Bonifacio Bldg., DepEd Complex
Meralco Avenue, Pasig City, Philippines 1600
Telefax: (632) 8634-1072; 8634-1054; 8631-4985
Email Address: blr.lrqad@deped.gov.ph * blr.lrpd@deped.gov.ph
Telefax: (632) 8634-1072; 8634-1054; 8631-4985