DOCUMENT RESUME

ED 347 380 CE 061 637

AUTHOR	North, David
TITLE	Problem Solving in Architectural CAD. Design a Floor Plan Using Macintosh and MacDraft. High-Technology Training Module.
INSTITUTION	Baldwin Woodville Area School District, Baldwin, WI.
SPONS AGENCY	Office of Vocational and Adult Education (ED), Washington, DC.
PUB DATE	20 Dec 89
CONTRACT	V199A90151
NOTE	27p.; Developed as part of the High-Technology Training Model for Rural Based Business and Industry, Technical Colleges, and Local and State Educational Agencies.
PUB TYPE	Guides - Classroom Use - Teaching Guides (For Teacher) (052)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	*Architectural Drafting; Behavioral Objectives; Blueprints; Classroom Techniques; *Computer Assisted Design; *Computer Software; Course Content; High Schools; *Learning Activities; Learning Modules; Lesson Plans; Microcomputers; Pretests Posttests; Teaching Methods; Technical Education; Test Items
IDENTIFIERS	Apple Macintosh; Technology Education

ABSTRACT

This learning module for a high school course in communications technology is designed to help teachers introduce students to computer-aided design (CAD) using a Macintosh SE with MacDraft to draw floor plans. The module contains seven objectives/competencies, a content outline, suggested instructor methodology, descriptions of demonstrations and five student activities, an activity time schedule, a list of 11 resources, evaluation materials, and information sheets that lead students through the process of using MacDraft. (KC)

High-Technology Training Module

Module Title: PROBLEM SOLVING IN ARCHITECTURAL CAD

Design A Floor Plan Using Macintosh and MacDraft

Unit: COMPUTER FLOOR PLANS

Course: COMMUNICATIONS TECHNOLOGY

Grade Level (s): 10 THROUGH 12

Developed by: DAVID NORTH

Date: DECEMBER 20, 1989

School: BALDWIN-WOODVILLE HIGH SCHOOL

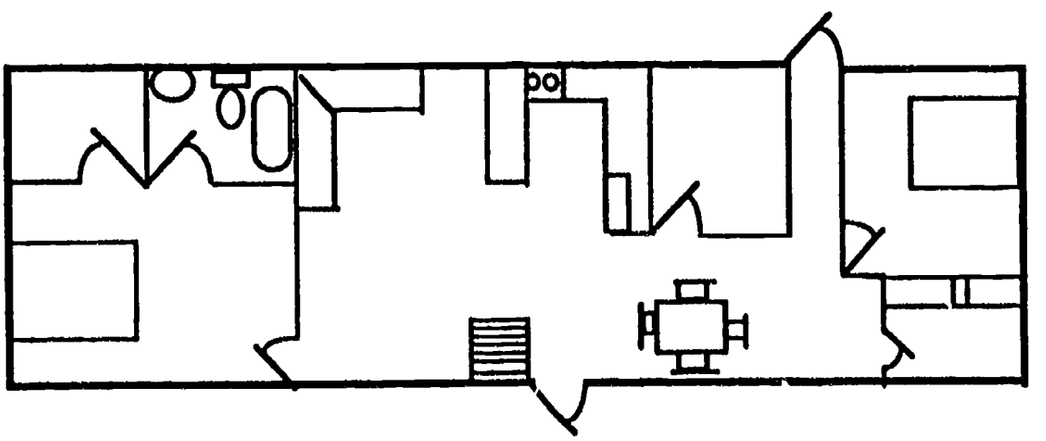
1000 13TH AVENUE, BALDWIN, WI 54002

Developed as a part of the High-Technology Training Model for Rural Based Business and Industry, Technical Colleges and Local and State Educational Agencies under Grant No. V199A90151.

MAC DRAFT

Communications Technology

CAD Program For The Macintosh



Floor Plans

by: *David North*

PROBLEM SOLVING IN ARCHITECTURAL CAD

GRADE: (10-12) Level II Communications Technology

DESCRIPTION:

1. Solve problems related to creating a floor plan.

2. This module is intended to be used by Communication Technology students who have had previous experience using a Macintosh SE computer in a level I technology education class. They would understand how to start the computer, enter programs, save, shut down, etc.. This will be an introduction to Cad and in particular the program MacDraft. The module will be part of a residential drawing unit where the students will be creating and reading blue prints of floor plans. This particular part of the unit will involve the students converting rooms of a specific size **(already placed in the computer, but in random order)** into a comprehensive floor plan.

OBJECTIVES/COMPETENCIES: The student will be able to:

1. Operate the Macintosh computer.
2. Become knowledgeable in the use of the MacDraft software by selecting, moving, adding, deleting, grouping, ungrouping, duplicating, and rotating the randomly placed rooms, symbols and lines into a floor plan.
3. Produce a floor plan consistent with the criteria on the evaluation check list.
4. Be able to use the metric and English dimensioning features.
5. Print out a copy of the completed drawing.
6. Properly place symbols on the floor plan.
7. Calculate the total sq. ft. of their floor plan.

PROBLEM SOLVING IN ARCHITECTURAL CAD

CONTENT OUTLINE:

A. Computer and printer operation review.
   1. Computer start up and shut down.
   2. Creating a folder.
   3. Starting a program.
   4. Saving your work.
   5. The purpose of using "SAVE AS" instead of SAVE.
   6. Printer Operation.
      A. Adding paper.
      B. Selecting the proper switches.
      C. Using the chooser.
      D. Using page set-up.

B. MacDraft software.
   1. Object selection.
   2. Making lines shorter or longer.
   3. Changing the size of objects.
   4. Grouping and ungrouping.
   5. Duplicating and rotating objects.
   6. Making lines.
   7. Making rectangles.
   8. Using the MacDraft software manual to solve problems.

C. Drawing and designing floor plans.
   1. What is a floor plan.
   2. Common architectural drafting symbols.
      A. Doors.
      B. Windows.
      C. Bathroom fixture.
      D. Kitchen appliances and cupboards.
   3. Creating a floor plan sketch using graph paper.
   4. Organizing a collection of rooms into a floor plan.
   5. Looking at a floor plan to analyze traffic flow and practicality.

PROBLEM SOLVING IN ARCHITECTURAL CAD

METHODOLOGY/ACTIVITIES:

TEACHING STRATEGY

1. Set up a rotation schedule so that the entire class will have opportunity to work on the computer.

DEMONSTRATIONS

1. How to use the computer and the printer.
   A. Hand out a specific instruction sheet on:
      1. Computer start up and shut down.
      2. Creating a folder.
   B. Check each student as they begin this assignment to be sure they use SAVE AS from the File menu so they do not ruin the original drawing.

2. Demonstrate in small groups how to use some of the features of the MacDraft software. This will be complemented with specific instruction on:
   A. Object selecting.
   B. Making a line shorter or longer.
   C. Changing the size of objects.
   D. Grouping and ungrouping.
   E. Duplicating and rotating objects.

ASSIGNMENTS/ACTIVITIES

1. Read pages 184 -190 and answer work sheet questions 1-14.
2. Create a floor plan sketch of the Communications Technology class room using 1/8 graph paper.
3.. Using 1/4 inch graph paper make a sketch of the place they live adding the symbols with standard architectural templates.
4. Read pages 191-199 and complete work sheet questions.
5. Using the MacDraft program on the Macintosh computer change a preprogramed selection of rooms and symbols into a comprehensive floor plan.

PROBLEM SOLVING IN ARCHITECTURAL CAD

RESOURCES:

1. Macintosh computer.
2. Radius full page display.
3. Printer.
4. Activity module (Problem Solving in Architectural Cad).
5. DESIGN A FLOOR PLAN stored on the computer hard drive with preselected room sizes and symbols.
6. Book ARCHITECTURE DRAFTING AND DESIGN; Donald Helper and Paul Wallach, 3rd ed.
7. Graph paper 1/8 and 1/4 inch.
8. 1/4 scale architectural templates.
9. Overheads showing symbols that students must copy onto their work sheet.
10. MacDraft software.
11. MacDraft software manual.

EVALUATION:

A. Grade the computer drawing using the evaluation check list.
B. Look at the sketches to see if they are consistent with standard architectural practices.
C. Grade pre and post test.
D. Check student to see if they can perform the operations in the activity module.

using MACDRAFT

DIRECTIONS: Use this page as a check off sheet and a general guide as you go through this unit on learning to use MacDraft and making a floor plan. Using this sheet will require that you read number 1, find the required sheet and complete it. Read number 2, find the required sheet and complete that, etc.

1. Fill out the PRE-TEST (do not feel badly if you do not do know many of the answers) Keep the pre-test and turn it in with the rest of the completed unit.

2. Turn on the computer. (If you do not already know how to use the computer, read the directions on COMPUTER START UP AND SHUT DOWN)
   A. Create a folder in the computer to put your work in. (see CREATING A Folder)

3. Double click the MacDraft icon to start the MacDraft program.

4. Find the sheet with the directions for MAKING A LINE. Try each one of the situations on the page using the computer so you are very familiar with the different methods of making lines. Choose SAVE from the file menu and name your work as your experimentation from the next several pages of this instruction booklet will be turned in as part of your grade for using MacDraft.

5. Read the directions on the page OBJECT SELECTING. Try clicking the mouse button while the cursor arrow is on one of the lines that is on the screen. It should get little boxes at each end of the line indicating to the computer that you want to do something to that line or object. You will find out a few of those operations in a moment (be patient).

6. Experiment with making a variety of boxes and rectangles after reading MAKING A BOX OR RECTANGLE (don't forget to save your work often).

7. Read the directions on MAKING LONGER OR SHORTER LINES.
   A. Experiment with some of the lines that you already have made and make them different lengths.

8. CHANGING THE SIZE OF OBJECTS is our next lesson. You will very seldom need to erase an object (choose cut from the file menu) if you learn how to change its size. Follow the directions on this page until you know exactly how to change the size on both rectangles and lines.

9. Read the directions for GROUPING AND UNGROUPING. You will find this helpful if you need to do one operation to several objects. An example might be to move your whole drawing to center it on the page.

(Experiment and show your instructor that you can do each one of the operations in No. 4-9).

10. Read the directions for DELETING LINES. Learn how to do this with the key board and the mouse.

11. Follow the directions on the page DUPLICATING OBJECTS.

It is time for you to use the Macdraft software manual. Ask your teacher for the MacDraft soft ware manual and look in the index to find the pages that will explain how to do the next several items. If you have trouble following the directions, get help from your teacher.

12. Follow the directions on ROTATING OBJECTS and MOVING OBJECTS to a new location.

13. Follow the directions on how to CHANGE THE WIDTH OF A LINE.

14. Follow the directions on how to change the SCALE of a drawing and use AUTOMATIC DIMENSIONING.

15. **Show the teacher that you can do features 10-14 before attempting to do the next assignment DESIGN A FLOOR PLAN.** Have your teacher sign the **evaluation check list** indicating that you can do operations 4-14 and save your experimentation to be turned in at grading time. The check list is located ol the back if this activity package.

PRE-TEST FLOOR PLANS

NAME _____

1. If the cursor arrow is placed on a line and the mouse button is pressed, the line will get little boxes at the end. This is called _____

2. List two things that can be done to a line when the little boxes are at the ends.
   A. _____ B. _____

3. What key can you hold down to select more than one line at a time. _____

4. The words at the top of the MACDRAFT screen are called the _____ bar.

5. The shapes at the left of the MACDRAFT screen are the _____ symbols.

6. Before an object can be moved it must be _____ .

7. What would be an advantage to sometimes grouping several lines?

8. When you open up the assignment DESIGN A FLOOR PLAN and get ready to start your work, why must you choose **save as** under the **file** menu instead of save?

9. What is the square footage of a rectangle 5' X 10'? _____

10. Why would you want to use the duplicate feature rather than redraw an existing object?

11. If an object is to be moved to a new spot the object must first be selected. The cursor will then be placed on the object and the cursor will change from black arrow to _____ arrow if you hold the mouse button down. The mouse can then be moved and the object will move in the same direction. This is called _____ ?

12. If the automatic dimensioning feature is turned on while you make a line, what will happen?

13. To rotate an object it must first be _____ . Then choose **rotate** from the _____ menu and move the mouse with the mouse button held down.

14. If a line is to be made shorter, you must select it, place the cursor at the end of the line, press down the mouse button and wait for the cursor to change from a black arrow to a _____ . Then move the mouse until the line is the desired length.

COMPUTER START UP AND SHUT DOWN

TURN ON THE COMPUTER (the switch is on the back of the computer and also the outlet that the computer is plugged into must be on)

1. **Double click** the **hard drive** (this will open it)(it may all ready be open).

2. **Double click** the **program** (to open it).

3. **Double click** the part of the program that you want to use

4. Use the program to do what ever you want it to do **(these instructions are not intended to teach you how to use a program, but how to start, save, store in an orderly fashion, close up programs and shut off the computer).**

5. Select **save** from the **File menu** or S from the keyboard and name what you just created.

6. **IF YOU ARE SMART** (and we both know you are), you will **save** your information **often;** like every 2-10 minutes. You can learn the hard way and loose a whole pile of data and hard work because of some wrong button you pushed or some malfunction with the computer.

6. Select **quit** from the **edit menu.**

CLEANING UP THE WORK AREA (DO NOT LEAVE YOUR MESS FOR OTHERS)

7. Look at the boxes on the screen and find the name of what you just did.

8. Place the cursor on the picture by the name of what you just created. **Hold** the mouse button down as you **drag** the picture into your folder which should be in the in the **Communications Technology folder.**

DRN 2-6-89

CREATING A FOLDER

Assignment: create a folder with your name on it in the Communications Technology class, period 3, folder. This is where you **must** put all of the work that you create on these computers. This is also where your work will be when you come back to work on it.

You should have a folder on each computer that you might use.

If the data is very long and a lot of work (like a term paper for English class), you should consider buying a disc of your own so you have a back up in case of some sort of computer error.

DIRECTIONS;

1. Turn on the computer.

2. Double click the Communications Technology Class, period 3.

3. Select file with the cursor (holding the mouse button down) and drag down until NEW FOLDER lights up. Release the mouse button.

4. An empty folder will be displayed. Type your name on it using the keyboard (the delete key will erase mistakes).

5. Remember to always place your work in your folder and look in you folder to find it later.

Making a line

MacDraft has 2 ways of making a line. after reading this information make some lines using each method.

You will probably use the + most often as it is used to make only horizontal and vertical lines.

1. Place the cursor on the + and click the mouse button (This activates the horizontal/vertical line symbol)

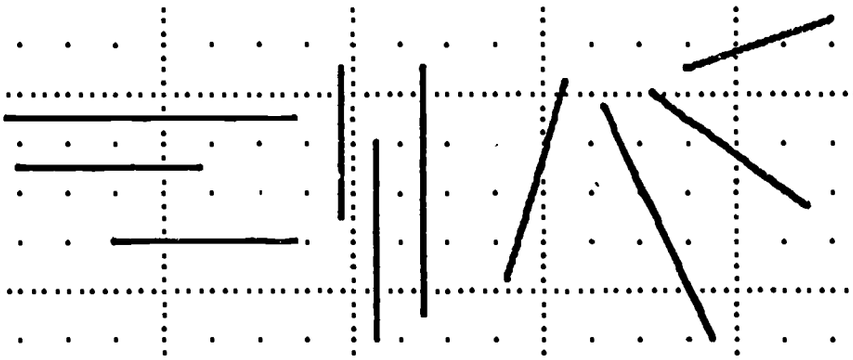
   A. Move the cursor to the middle of the screen by moving the mouse.

   B. When you have the + where you want to make the line to be, hold the mouse button down as you move the mouse, (this is called dragging) releasing the button only when the line is the desired length

TRY IT: Make several horizontal and vertical lines.

You activate the diagonal line symbol / in the tool palette the same way that you used the horizontal / vertical line symbol + but now you can make the line go any angle.

TRY MAKING several lines going at different angles.



OBJECT SELECTING

Often you must change or move a line or object that has already been created. Before you can do, this the computer must know what object you want to modify.

You can select an object by:

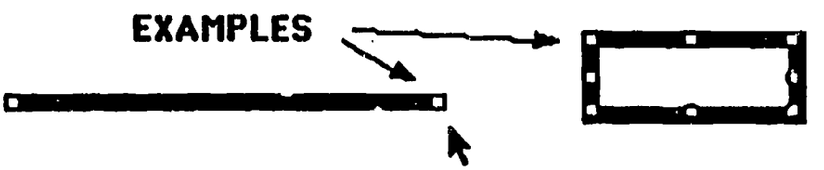
A. Placing the cursor on the line or object and clicking the mouse button (this is called selecting).

You can tell if the object has been properly selected when:

A. There are little boxes on the ends of the line or object which will indicate that it has been selected.

Selecting several objects:

A. You can select several objects at one time by holding the SHIFT key down as you click on each desired object. (check to be sure every thing is selected by looking for the little boxes at the ends and/or corners).



What can you do with a selected object:

A few of the more common things to do to a selected object are:

1. Move the object to a new location.
2. Change the length of a line or size of the object.
3. Rotate the object to a different angle.
4. Place a fill pattern within the object.
5. Group or ungroup several objects (for the purpose of moving several things at once).
6. Eliminate an unwanted item.
7. Make a line narrow or wide.
8. etc., etc. etc.

MAKING A BOX OR RECTANGLE

MacDraft has 3 ways to create a rectangle

1. Using the + or / tool and make 2 horizontal and 2 vertical lines | = | but touching at the corners, like this □

   This is a disadvantage if you want a pattern on the inside of the box. The computer does not recognize it as a box but as 4 separate lines which cannot receive a fill pattern like this box. → 

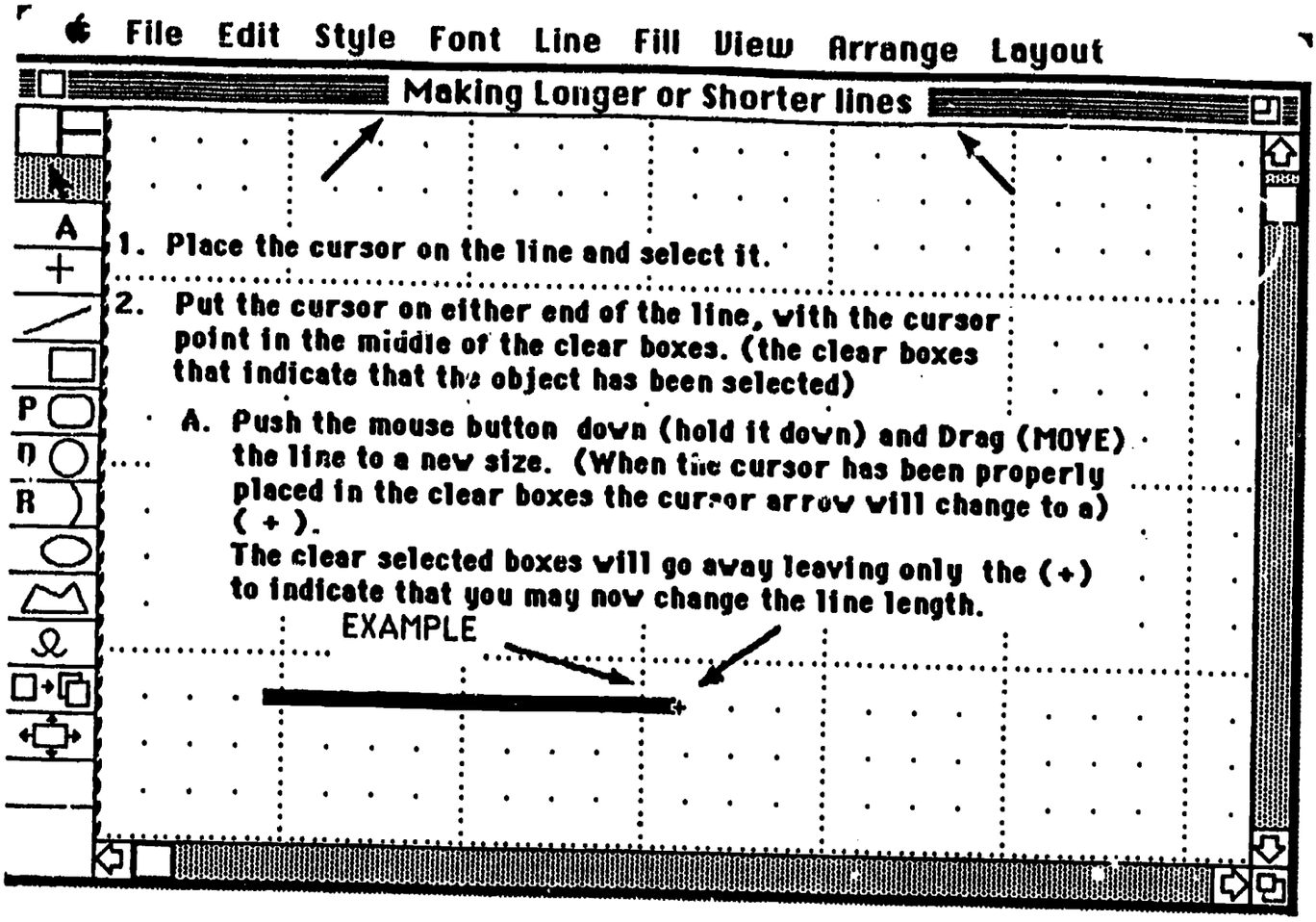
2. Using the □ tool (suggested method)

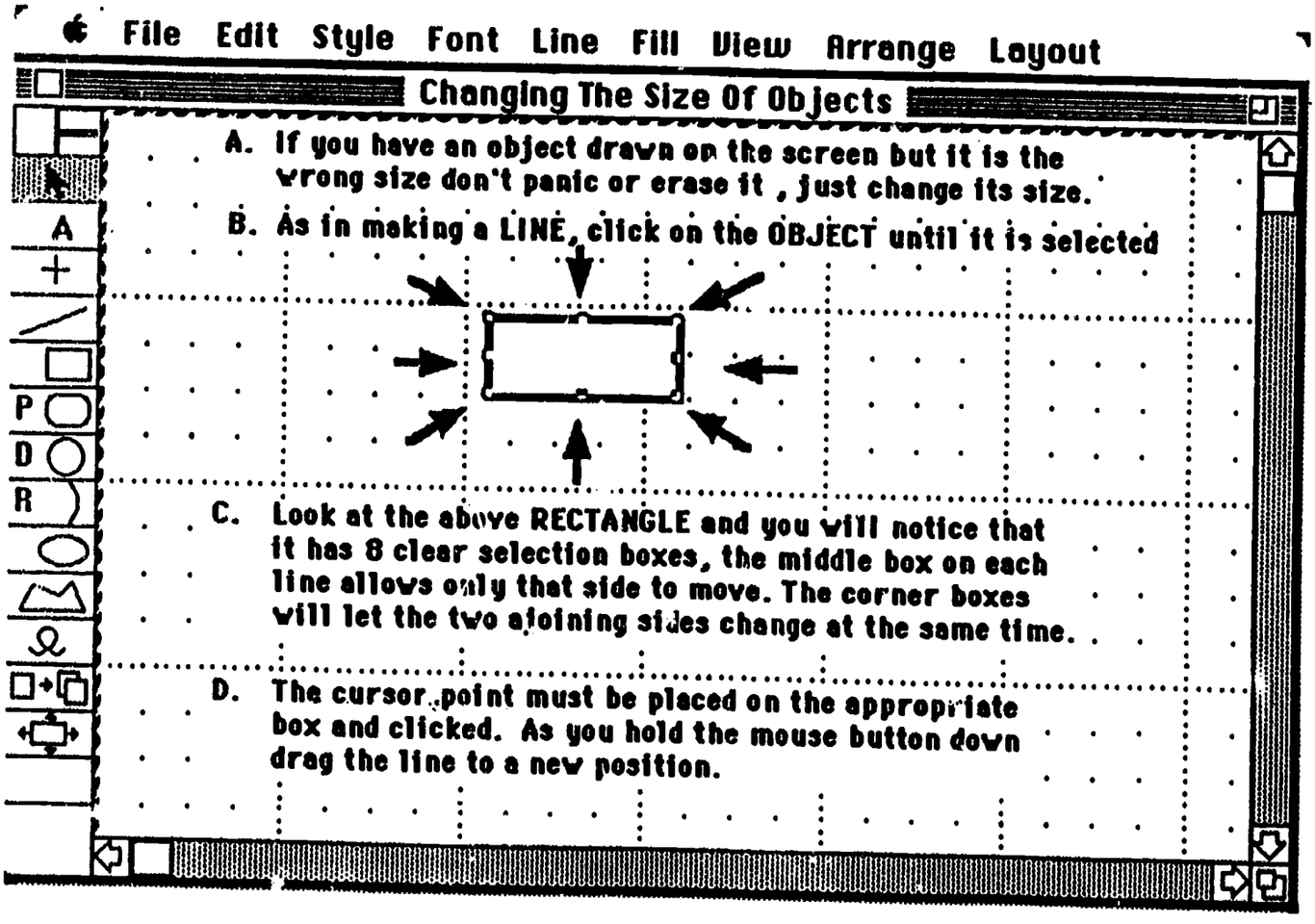
   A. Place the cursor on the □ Rectangle tool and click the mouse.
   B. Move the cursor to where you would like to create the rectangle
   C. Hold the mouse button down until the rectangle is the size you want it, then release the mouse button.
   D. You can put a fill pattern in a rectangle created this way.

3. Using the  Polygon tool

   A. Select the  tool.
   B. Place the cursor on the desired page spot
   C. Hold the mouse button down to make each line and click at the end of each line before starting a new line.
   D. Double click when you have finished making the object
   E. You can create a fill pattern in a object created with the tool.

Try making a rectangle with each of the above tools. After you have made the rectangle, look at the next section and try a different fill pattern in each.


File Edit Style Font Line Fill View Arrange Layout
Making Longer or Shorter lines
1. Place the cursor on the line and select it.
2. Put the cursor on either end of the line, with the cursor point in the middle of the clear boxes. (the clear boxes that indicate that the object has been selected)
A. Push the mouse button down (hold it down) and Drag (MOVE) the line to a new size. (When the cursor has been properly placed in the clear boxes the cursor arrow will change to a) (+).
The clear selected boxes will go away leaving only the (+) to indicate that you may now change the line length.
EXAMPLE


File Edit Style Font Line Fill View Arrange Layout
Changing The Size Of Objects
A. If you have an object drawn on the screen but it is the wrong size don't panic or erase it , just change its size.
B. As in making a LINE, click on the OBJECT until it is selected
C. Look at the above RECTANGLE and you will notice that it has 8 clear selection boxes, the middle box on each line allows only that side to move. The corner boxes will let the two ajoining sides change at the same time.
D. The cursor point must be placed on the appropriate box and clicked. As you hold the mouse button down drag the line to a new position.

GROUPING

Often the same operation must be done to several objects such as centering several objects on the page. Instead of moving several objects separately and having to line them all up again, it is much faster to group them together and move them all at once.

TO GROUP SEVERAL OBJECTS

A. Select all of the desired objects (you do remember how to do this, don't you?).
B. Choose group under the arrange menu.
C. All of the objects will then be treated as one for the purpose of moving, rotating, etc.
D. You may leave them grouped, or group several groups. However, if you need to change some small portion of an object in the middle of the group, it cannot be done unless you ungroup it.

TO UNGROUP AN OBJECT

A. Select it.
B. Choose ungroup from the arrange menu.

DELETING LINES

If there is a line or object that you need to get rid of do the following.

A. Select it.
B. Choose **cut** from the edit menu.
C. You will use **cut** so often that I would advise you to learn the keyboard command, to save time. The keyboard command for CUT is (apple X). Other handy keyboard commands are GROUP (apple G), UNGROUP (apple U), ROTATE (apple R), and SAVE (apple S)

DUPLICATING OBJECTS

With a computer there is seldom the need to create 2 or more objects, if they are the same. Do not redraw them; duplicate them. (Smart idea and easy too).

A. Select the object you want duplicated.
B. Choose duplicate form the edit menu or click the duplicate symbol in the tool palette. 
C. Try both methods of duplicating objects. Try spacing out (moving) the object you just duplicated and duplicate it again. If done right, the objects will be evenly spaced.

DIRECTIONS FOR COMPLETING "DESIGN A FLOOR PLAN" ON THE COMPUTER

1. Before you begin to design a floor plan on the computer you have a decision to make.

OPTION 1

Create a floor plan using as a starting point the floor plan on the computer hard drive as DESIGN A FLOOR PLAN 1. Look on the following page and you will see what you are starting with: empty rooms and a symbols bank to place in those rooms.

OPTION 2

Create a floor plan, using as a starting point the floor plan on the computer hard drive as DESIGN A FLOOR PLAN 2. Look on the page DESIGN A FLOOR PLAN 2 and you will see what you are starting with: rooms with many of the appropriate symbols already in place. (These symbols may not be in the right place depending how you place the rooms on your floor plan.)

The CRITERIA you use for choosing option 1 or 2 should be:

A. the time you have left to complete this floor plan before it is someone else's turn to use the computer

B. How many points you want to receive for doing this assignment. 90 points for OPTION 1 or 75 points for OPTION 2.

2. Open the MacDraft program.

3. Open either DESIGN A FLOOR PLAN 1 or 2.

4. DO NOT MAKE ANY CHANGES TO THE DRAWING YOU JUST OPENED.

A. IF YOU RUIN THIS ORIGINAL YOU LOOSE 5 POINTS.

B. CHOOSE **SAVE AS** FROM THE EDIT MENU.

1. Name your drawing and work on yours (the new one the computer just made), not my original.

5. Close the original DESIGN A FLOOR PLAN by clicking the upper right hand corner of the original (if in doubt on how to do this, get help).

6. Read the directions that are on the computer screen. After reading them you may select the words and cut any writing that is in your way.

7. For your convenience all the parts of each room are already grouped. This means that you may move each room individually just by selecting it and all of the lines that were used to create it will move as a unit. Try moving several rooms out of the way to get room to work.

DIRECTIONS FOR COMPLETING "DESIGN A FLOOR PLAN" ON THE COMPUTER, continued

8. Points to remember when creating your floor plan.
   A. Bedrooms are usually located in one area of the house with a bathroom close by.
   B. The kitchen, dining room and living room are usually also grouped together.
   C. The outside walls of the house should be reasonably straight with only enough zig-zags to make a pleasant appearance. You may change the size of the rooms slightly to make the outside walls the way you want them.
   D. Do not forget to have a hall, about 40" wide, to connect the rooms but keep the hall as short as possible. Long halls are just a waste of space and would cost a lot of money.
   E. You can add closets, storage spaces, front entrances etc. but do not exceed 1500 square feet for the house. If you multiply the length of the house by the width it will equal square feet. (length x width = square feet)
   F. When you have the rooms approximately where you want them, consult your instructor for his opinion and suggestions.

9. Move and change the lines that make up the rooms so you can walk between rooms. (most people can not walk through walls). You must **ungroup** each room to change the individual lines that make up each room.

10. Duplicate, rotate, or move the window symbols so they are appropriate for each room. (remember that there is a wall still shown under the window symbols)

11. Put the door symbols where you need them, (the door symbols must have the wall removed in the door way as most people cannot walk through walls).

12. Place the other symbols (bathroom, kitchen, utility room, and bedrooms) in their appropriate places.

13. All the lines that represent walls should be changed from narrow to wide to indicate the thickness of the walls.

14. Center the whole drawing on the page.

15. Type your name and date into the box on the lower right (change the size of the box if necessary).

16. If possible have your instructor look at your work before you print it out.

17. Ask your teacher for the post test and when you have completed it turn it in with the evaluation check list.

bathroom
6x8

bedroom
10x10

bedroom
10x10

bedroom
12x12

living room
12x20

2-car garage
24x26

kitchen
12x14

utility room
9x10

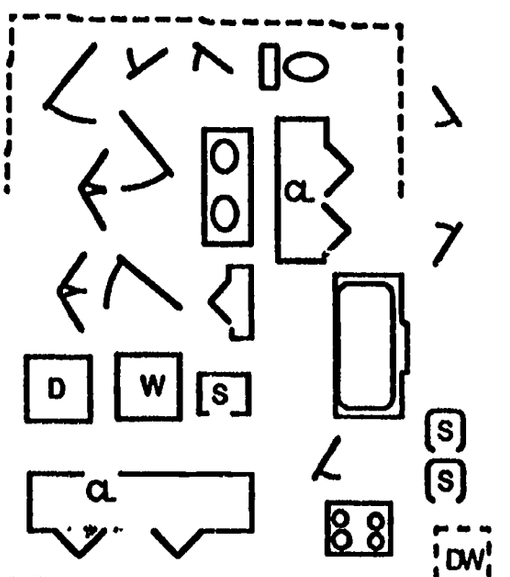
dining room
10x12

Design a floor plan 1
(option 1)

ON THE COMPUTER.

USING THESE ROOM SIZES.

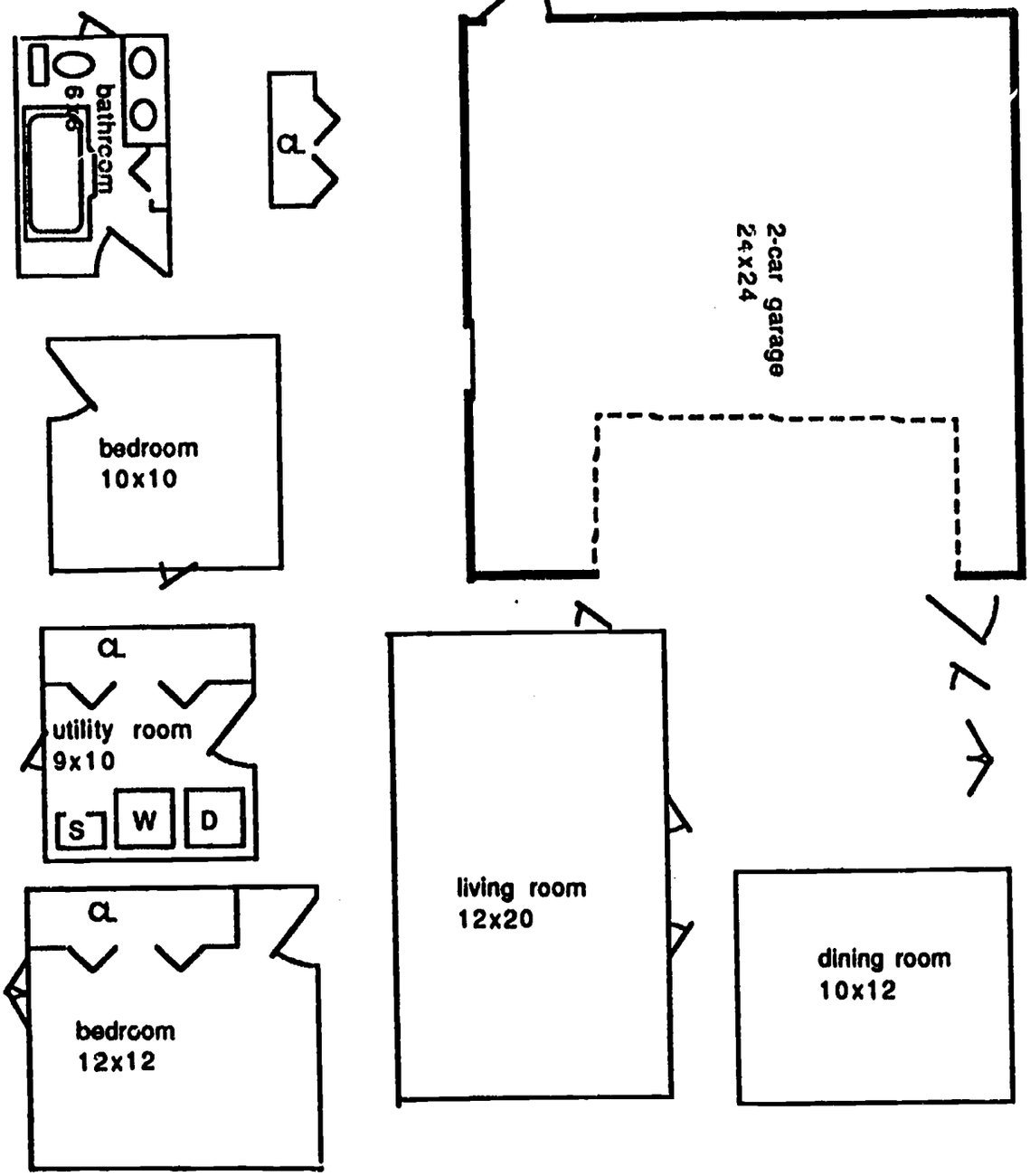
1. Save As, (Then insert your name so you don't wreck this original
2. Erase any directions or printing that may be in your way.

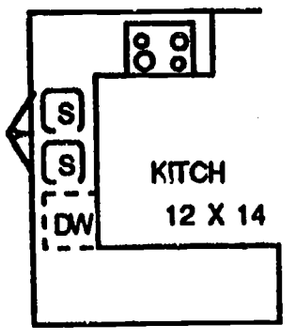


CREATE YOUR OWN BOARDER AND TITLE BLOCK

Scale: 1/8"=1'

Show windows and doors. Plan kitchen, bath, utility, and storage areas.
All halls are 4' wide.





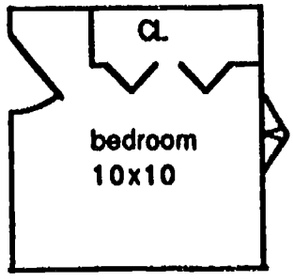
Have fun selecting, rotating, grouping, ungrouping, moving, shrinking and stetching lines and rooms. You may take out or add walls, add entrances, halls, stairs, windows and doors. Making the walls thicker would also be a nice touch. Lets see what your skill with MACDRAFT and what your imagination can create.

DESIGN A FLOOR PLAN 2
(option 2)

BE SURE TO SAVE AS SO YOU DO NOT WRECK THIS ORIGINAL

YOU CAN THROW THIS WRITING AWAY AFTER SAVING TO GET ROOM TO WORK

Scale: 1/8"=1'



NAME_____

DATE _____

POST-TEST FLOOR PLANS

NAME _____

1. If the cursor arrow is placed on a line and the mouse button is pressed, the line will get little boxes at the end. This is called _____

2. List 2 things that can be done to a line when the little boxes are at the ends.
   A. _____ B. _____

3. What key can you hold down to select more than one line at a time? _____

4. The words at the top of the MACDRAFT screen are called the _____ bar.

5. The shapes at the left of the MACDRAFT screen are the _____ symbols.

6. Before an object can be moved it must be _____ .

7. Why would it be an advantage to sometimes group several lines?

8. When you open up the assignment DESIGN A FLOOR PLAN and get ready to start your work why must you choose **save as** under the **file** menu instead of save?

9. What is the square feet of a rectangle 5 feet X 10 feet? _____

10. Why would you want to use the duplicate feature rather than redraw an existing object?

11. If an object is to be moved to a new spot the object must first be selected. The cursor will then be placed on the object and the cursor will change from black arrow to _____ arrow if you hold the mouse button down. The mouse can then be moved and the object will move in the same direction. This is called _____ .

12. If the automatic dimensioning feature is turned on while you make a line, what will happen?

13. To rotate an object it must first be _____ . Then choose **rotate** from the _____ menu and move the mouse with the mouse button held down.

14. If a line is to be made shorter, the line must be selected and the cursor placed at the end of the line. The mouse button is then held down and you must wait for the cursor to change from a black arrow to a _____ . Then move the mouse until the line is the desired length.

INCLUSIONS

On the following pages are several items which may or may not be specifically part of this module. These items are related and maybe useful to some people.

A. Grade sheet floor plans
B. Grade sheet Macdraft
C. Communications Technology rotation
D. Questions page 184
E. Questions page 191.

EVALUATION CHECK LIST FLOOR PLANS

The "American Dream" is sometimes considered as having a good job, nice car, a good wife and owning your own house. I don't know if you would agree with this or not, but the house part of the "American dream" is what we will deal with in this week-long unit. Most students, you'll agree, probably do not give the house they live in a whole lot of thought (I don't think I did). Many people end up buying, building or remodeling a house in their life time, so some exposure to reading or making floor plans becomes very helpful.

Even though you have a partner, each of you are expected to do each assignment. Listed below are the assignments to be completed in the next week. Also listed are the points possible for each assignment.

1. Read pages 191 to 199 & do ques. in ARCHITECTURE DRAFTIN AND DESIGN, Helper and Wallach . _____ 10

2. Use Architectural Drafting overhead 1 to 6 and complete window symbol & door symbol worksheet. _____ 5

3. Use drafting template & complete symbols worksheet. _____ 5

4. Reading a scale ruler exercise. _____ 5

5. Make a sketch of the Drafting Room. _____ 5

6. Read pages 184-190 and complete work sheet. _____ 5

7. Using 1/4 scale graph paper, make a sketch of the floor plan where you live. Use the 1/4" architectural template to draw in the symbols for the stove, sink, ref., bath fixtures, doors, washer, dryer, etc. _____ 30

8. Remodel or change one area of your house. _____ 20

9. Using the drafting machine, make a good floor plan drawing of your house. Use your sketch to get the proper dimensions. _____ 40

10. Replace any sheets in the notebook you used so it is ready for the next student. _____ 5

total _____ 130

_____ Minus points for any tools or equipment not returned in good condition.

EVALUATION CHECK LIST MAC DRAFT

NAME _____

MacDraft is the graphics program that you should chose if you are trying to make a drawing or a picture that requires a fair degree of sophistication. The computer is a tool and only a tool. It does not create ideas; you must create the ideas and have the computer execute those ideas.

In this short period of time, you will just scratch the surface of using this drafting program. First, you must have an idea (it may be wise to do this outside of class); then the challenge will be to become familiar with the features in MacDraft, such as duplicate, rotate, send to back, send to front, fill patterns, automatic dimensioning, set scale, set grid, grid snap off and on, group or ungroup, show size, and show rulers. All of these features can be useful when trying to create a drawing.

1. Complete learning activity package on"How to Use MacDraft". ____ 20 pts

2. Create some larger letters that can be taped to the back of our activity notebooks: MACDRAFT, MACVISION, SATELLITE, DRAFTING 1, DRAFTING 2, FLOOR PLANS, etc. Pick one that is not done. ____ 10 pts

3. Create a title page for one of the above notebooks. The requirements are: full page, looks nice, have pictures that represent the area it is designed for, the words COMMUNICATIONS TECHNOLOGY, and WORDS THAT TELL THE AREA it is designed for. ____ 30 pts.

4. Do either A or B (not both), except for extra credit.
   A. Create a business card for you, your parents or a friend . ____ 20 pts

   B. Design a note pad heading. The finished size of the pad should be such that 2-4 sheets would fit on one 8 1/2 by 11 page, then cut apart and glued into your personal note pad. ____ 20 pts

5. Open up the program in MacDraft called DESIGN A FLOOR PLAN. Save AS so you do not ruin the original program, and follow the work sheet to create a floor plan from the rooms shown. ____ 40 pts

Total ____ 120 pts

COMMUNICATION TECHNOLOGY ROTATION

	A	B	C	D	E	F	G	H
	I	J	K	L	M	N	O	P
Nov. 6 - 13	1	2	3	4	5	6	7	8
Nov. 15 - 28	2	3	4	5	6	7	8	1
Nov. 30 - Dec 7	3	4	5	6	7	8	1	2
Dec. 11- 18	4	5	6	7	8	1	2	3
Dec. 20- Jan . 8	5	6	7	8	1	2	3	4
JAN. 10-17	6	7	8	1	2	3	4	5

MEET AS A CLASS

NOV. 14, 29. - DEC. 8, 19. - JAN. 9, 18, 19

1. SATELLITES - GET WORKING
2. HERO ROBOT
3. MACDRAFT
4. MACVISION - INFO. REVOLUTION
5. LEGO ROBOT - WRITE NOW
6. DRAFTING
7. DRAFTING
8. FLOOR PLANS
9. MICROSOFT WORKS
10. VIDEO PRODUCTION
11. PROJECT PLANS
12. PRINT SHOP

FLOOR PLAN QUESTIONS p.184

Book- Architecture, Drafting, and Design; Don Hepler and Paul Wallach, 3rd edition

Read pages 184 to 190 Name _____

1. The architect records ideas using_____ sketcher which ar later transformed into _____ _ _____ drawings.
   (You w be making a sketch of your house and using a similar technique so study the picture and words c ely.)

2. Furniture templates help determine the_____ sizes or room templates.

3. Room templates are used to determine the size and shape of the _____ _____.

4. Rooms are combined into several activity areas. The three areas, are: a)._____
   b)_____ c)_____.

5. List all the rooms that would be grouped together into the sleeping area.

6. List all the rooms that would be grouped together into the living area.

7. List all the rooms that would be grouped together into the service area.

8. What rooms and facilities are often placed in the basement?

9. While moving rooms around yet still keeping areas grouped several things need to be kept in mind and provided for. List these
   1)
   2)
   3)
   4)
   5)
   6)
   7)

10. When using room templates to design a overall floor plan, How can the offset indentations on the outside walls caused by these templates be evened out to reduce the cost of building crooked walls (expensive) and enhance the exterior looks?

11. How is a closed plan different from an open plan?

12. List 3 rooms that are often part of an open plan
    _____,_____,_____.

13. List one room that is almost always part of a closed plan _____ _____.

14. If a house cannot be totally built at one time because of needs or money, the basic part is usually built first and the _____ rooms added later. The _____ floor plan should be drawn first before construction begins so the additions do not look tacked on.

Floor Plan Questions P 191

BOOK Architecture Drafting and Design Don Hepler and Paul Wallach 3rd edition

Read pages 191-199 Name _____

1. Describe what a Floor Plan is.

2. Often a simple floor plan shown to an inexperienced person is much different than what a carpenter uses to build the house. But it is a starting point for people to develop ideas. List 3 types of simple floor plans.

3. Fig 33-2 shows an example of a _____ floor plan which is sometimes used for inexperienced people.

4. Fig 33-3 is called an _____ which is also used with people unfamiliar with reading floor plans.

5. A completely dimensional floor plan is necessary for construction purposes. Page through the rest of this unit and find the page no.____ and fig no._____ that shows a dimensional drawing.

6. Study the floor plan symbols on page 192 and 193 draw in the appropriate symbol for the following:

A. outside door

B. inside door

C. casement window

D. single pane or double hung window

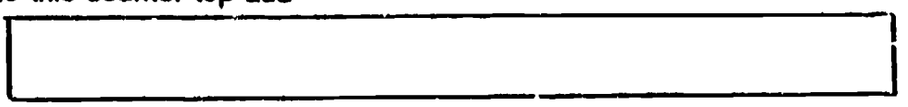
E. shower stall

F. toilet

G. lavatory

H. tub

I. to this counter top add



sink ref stove dishwasher upper cabinets

J. fireplace

K. closet

L. stairs

7 Study the pictures on pages 196 and 197 to learn how symbols and materials are shown.

8. List the procedures for completing a floor plan drawing as shown on page 198. (YOU WILL USE THESE FOR YOUR LAST ASSIGNMENT SO LOOK BACK AT THIS LATER)

Step 1 A.
B.
C.
D.
E.

Step 2 A.
B.
C.
D.
E.

Step 3 A.
B.
C.
D.
E.