

ARCHITECTURE & DESIGN 2014



A PROJECT-BASED LEARNING UNIT INCORPORATING GEOMETRY, PROPORTIONS, MEASUREMENT, STATISTICS, AND STUDENTS' CREATIVITY

“Architecture is the art and science of designing buildings. These buildings include houses, skyscrapers, museums, churches, schools, and office buildings. By looking around our block, town, state, country, and world we know that buildings do not always look the same from one place to another.

An architect is a dreamer, an artist, a realist, a mathematician, a scientist, and an important contributor to the world in which we live.”

* Taken from Math in the Real World of Architecture

Architecture Project Portfolio Contents

Architectural Company Name:					
Employee Names:					
		Group Activity	Name:	Name:	Name:
	Company Logo (on front of binder)				
	This schedule page completed				
1A	Scale Rooms				
1B	Scale Rooms scratch work with all measurements				
1HW	Scale drawing of room at home (with rough copy)				
2	Apartment Size				
3	3D Home Model				
2HW	Home Measurements Part 1				
3HW	Home Measurements Part 2				
3HW	Bubble Drawing of Home				
4	Real Estate Agent Statistics				
4HW	Home Statistics (1 of 3)				
5	Isometric Drawing of Home				
5HW	Isometric Initials OR Elevation Drawing OR Cross-Section Drawing				
6	Group Inspection Record				
6HW	Individual Inspection Record				
7A	Electrical Contractor				
7B	Lumber Estimate				
7C	Lumber Estimate Part 2				
7D	Flooring & Windows				
8	Final Project Materials				

GROUP CONTRACT

Members of Group: _____

OUR AGREEMENT

We ALL agree to:

- ✓ _____
- ✓ _____
- ✓ _____
- ✓ _____
- ✓ _____
- ✓ _____

If a group member breaks one or more of our rules, the group will call a meeting and ask the person to follow the rules.

If that person continues to break one or more of our rules, we have the right to vote to fire that person.

Date: _____

Group Member Signatures:

_____	_____
_____	_____
_____	_____

Rubric for Teamwork

Groups that succeed the most on the architecture project are the ones that know the meaning of teamwork. You will be working together for more than 3 weeks, so be prepared to compromise on many aspects of this unit. Below is a chart demonstrating different levels of teamwork.

	Accomplished	Competent	Needs improvement
Shared Vision and Interdependence	<p>Team members agree to and are committed to a vision of producing high quality work.</p> <p>Team members are aware of the interdependence of team work. They are accountable to the team, and contribute to holding others accountable for the timely completion of qualify work.</p>	<p>Team members generally agree to and are committed to a vision of producing high quality work.</p> <p>Team members occasionally work toward goals other than those agreed to by the team. The team knows it is important to hold each other accountable, but are reluctant to do so and make only limited efforts.</p>	<p>Team members have some difficulty committing to a vision for the team and its goals.</p> <p>Team members do not fully understand teamwork, or they are not committed to the work of the team. They don't feel accountable to the team and do not feel it is their responsibility to hold teammates accountable.</p>
Feedback and Conflict Resolution	<p>Team members provide and use constructive feedback to improve their product.</p> <p>Team members share ideas, information and suggestions to better accomplish the task.</p>	<p>Constructive feedback is mostly accepted.</p> <p>Team members work collaboratively, though some members feel free to contribute more than others.</p> <p>Team conflicts are resolve, though with some disruption in work.</p>	<p>Feedback given is not always constructive, is not usually sought out, and is often questioned.</p> <p>Team members work in part as individuals, so some team members don't receive information or ideas.</p> <p>Team conflicts disrupt work and require intervention.</p>
Efficient Use of Resources	<p>Team members pay attention to what tasks need doing and are willing to do the task, even if it wasn't "their job"</p> <p>The team has a system to find and use information, tools, and resources.</p>	<p>Team members are willing to do tasks beyond their job description, but typically require a leader to identify the task and request them to do it.</p> <p>The team can find and use information, tools, and resources.</p>	<p>Team member focus only on their responsibilities and often resist when leaders request that they do additional tasks.</p> <p>The team does not know how to go about finding and using tools and resources.</p>
Task is Accomplished	<p>The team produces a quality product that meets the task requirements and reflects a concern for quality.</p>	<p>The team product satisfies the needs of the task; however, some refinement and polishing may be needed.</p>	<p>The team product begins to address the task, but is incomplete or needs major revision.</p>
What This Looks Like	<p>The team solves their problems and works together. The teacher acts as a guide to assist the team only as needed.</p>	<p>The team generally solves their problems and works together. The teacher may be called at times when a student is not working toward the team goal.</p>	<p>The team cannot solve their problems. The teacher has to solve conflicts and direct students. Often parents start sending email about the group not functioning properly.</p>

* Taken from the Foundation Skills rubrics developed by Michael Katims, Ph. D. and Eeva Reeder (SchoolWork Initiative, 2000)

GOAL: Design a single room to scale.

CLASSWORK DETAILS DAY 1

How many rooms do we measure out in the hall? One for each team member.

How do we complete the measurement part of this activity?

- Use a meter or yard stick to measure all the parts of the room. The goal is to measure everything you need to be able to redraw the room without looking at it.
- Create this “rough copy” on the provided paper (not on graph paper). This rough copy is NOT drawn to scale. It should fill up paper with things spread out enough that they are easy to see.
- Round all your measurements to the nearest 3 inches (ex. 5 ft. 6 in. OR 2 ft. 3 in.).
- Measure all important parts of the room.

12 inches = 1 foot

How do we complete the scale drawing part of this activity?

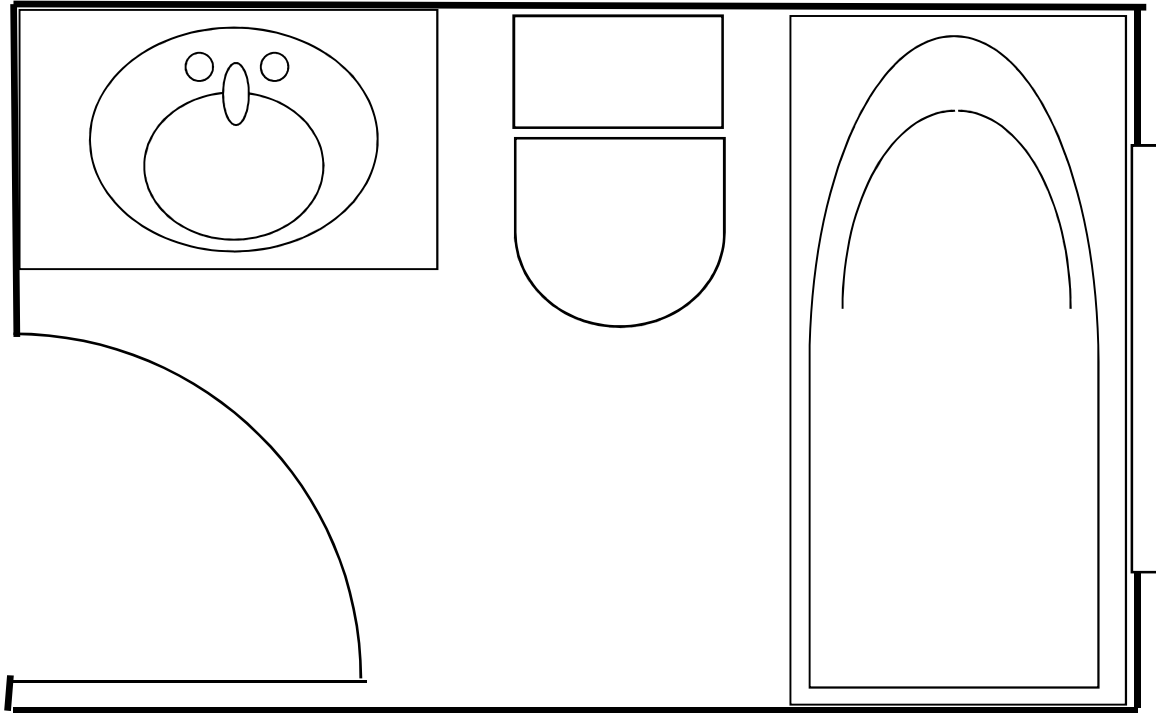
- Choose who will draw each room from the hall using your rough copy.
- Draw your final copy on graph paper using a ruler.
- Use the scale $\frac{1}{4}$ inch = 1 foot . Since each block is $\frac{1}{4}$ inch , one square = 1 foot.
- See your packet for the symbols to use for items such as toilets, sinks, refrigerators, etc.
- Write the scale on your final copy.
- Do not include any measurements on the final copy.
- Make your final copy professional. Include your name.
- Start by drawing the outside of the room.
- On your final copy, write both the *real-life perimeter and area* of the room.

HOMEWORK DETAILS DAY 1

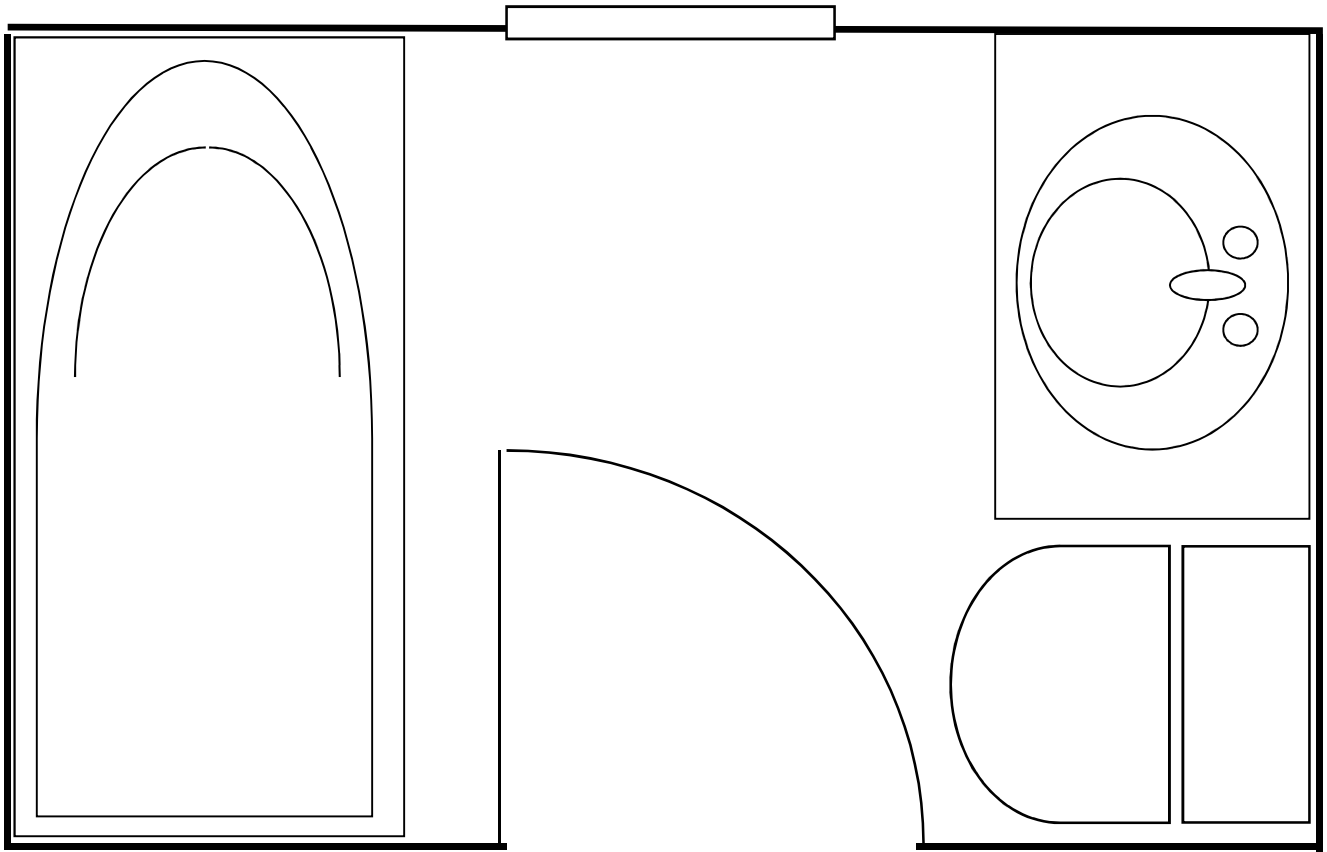
- Choose one of the following:
 - **Create a scale drawing of either your kitchen OR your bathroom**

Complete the exact same steps as we did at school. You need to include all items in the room that are permanently placed (sink, dishwasher, toilet, bathtub, range/stove, countertop space, etc.). You do NOT need to include the following items, but you can if you wish: lights, outlets, fans, and wall thickness. Determine *the real-life perimeter and area of your room*.

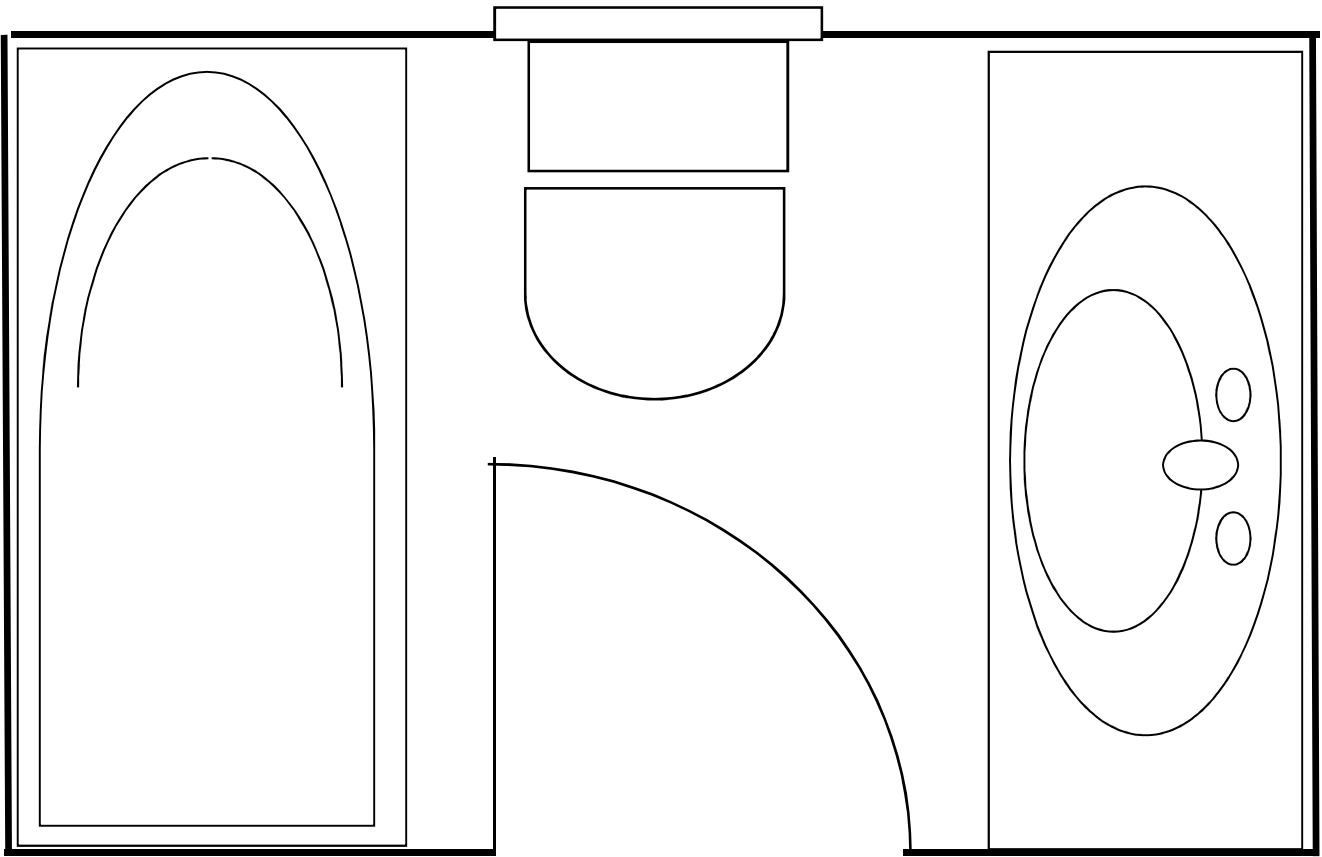
BATH 1



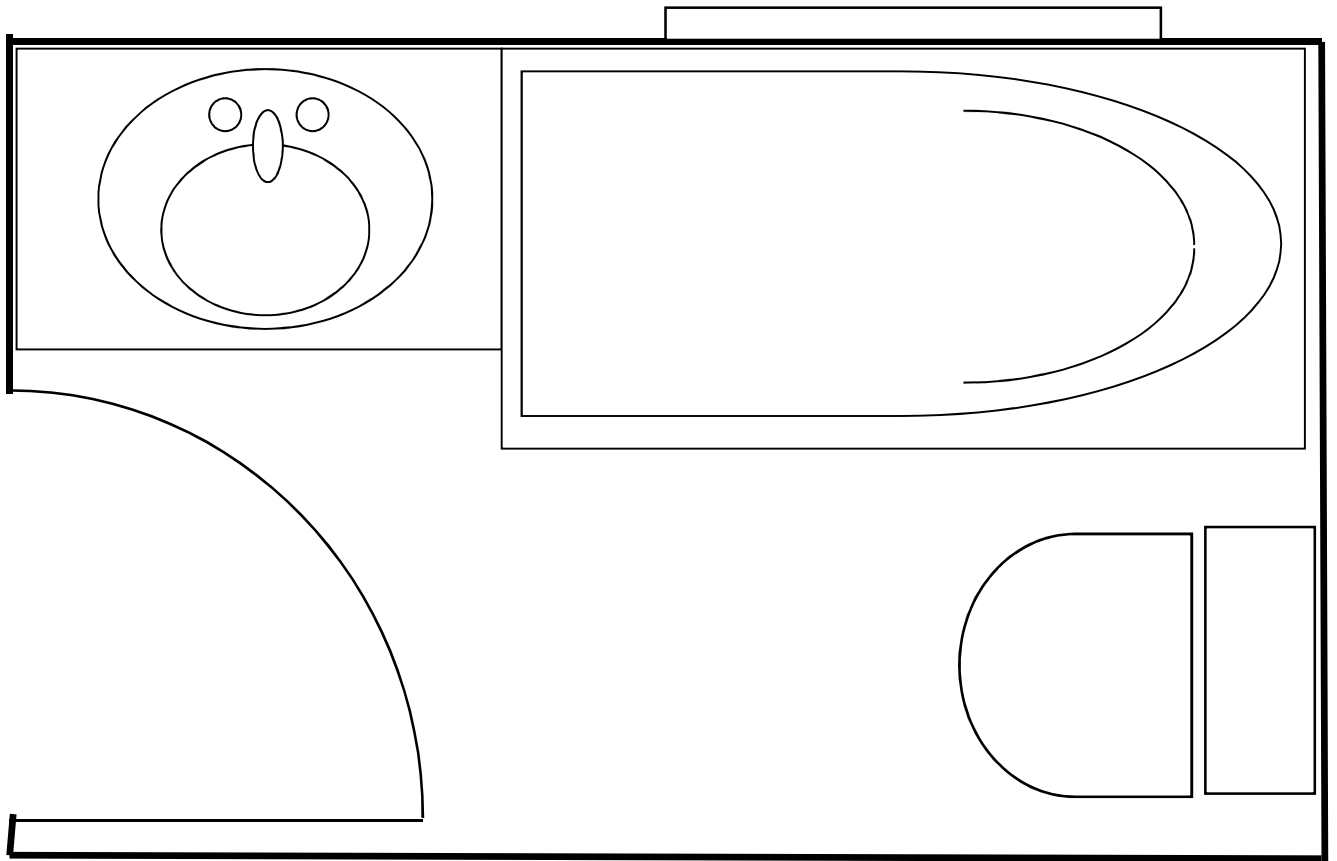
BATH 2



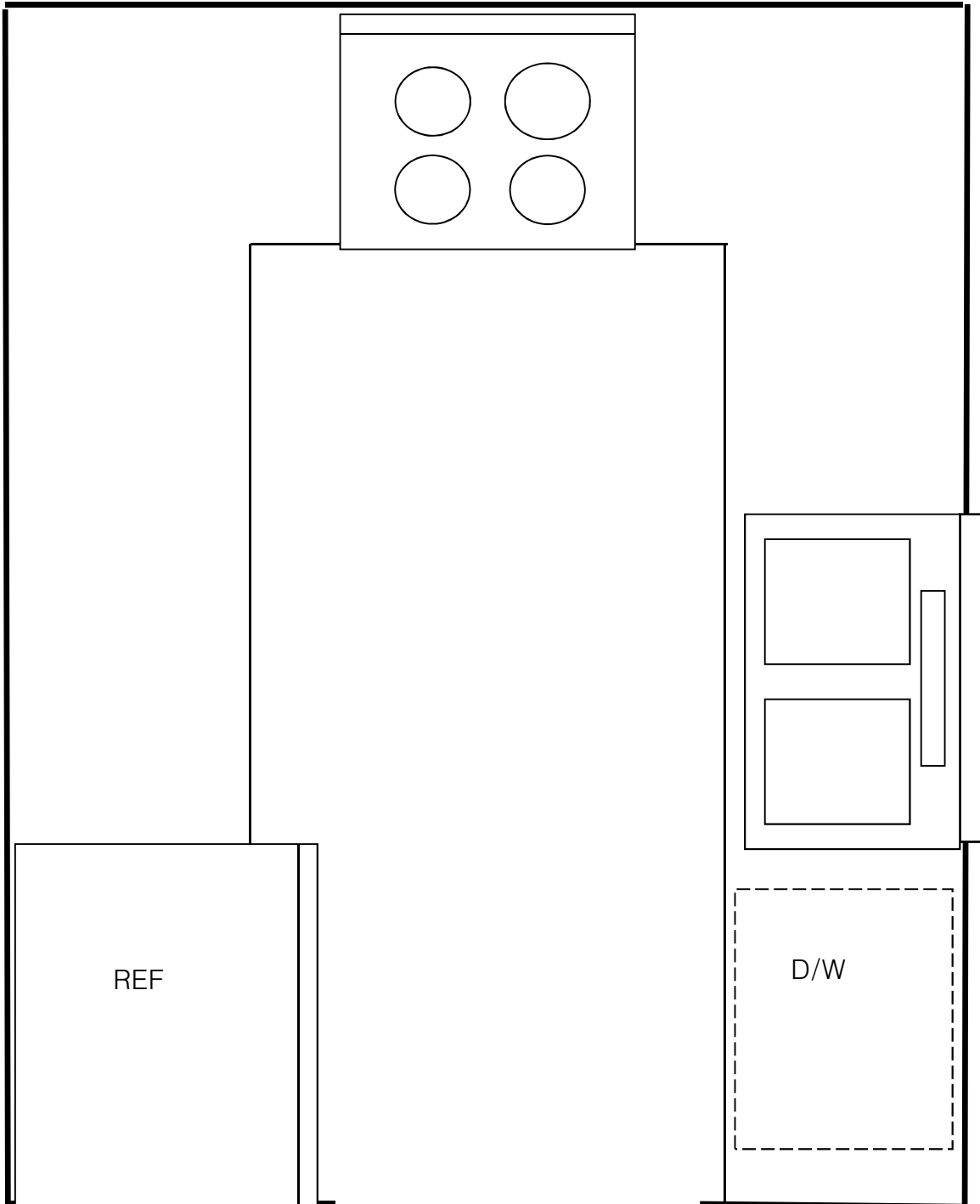
BATH 3



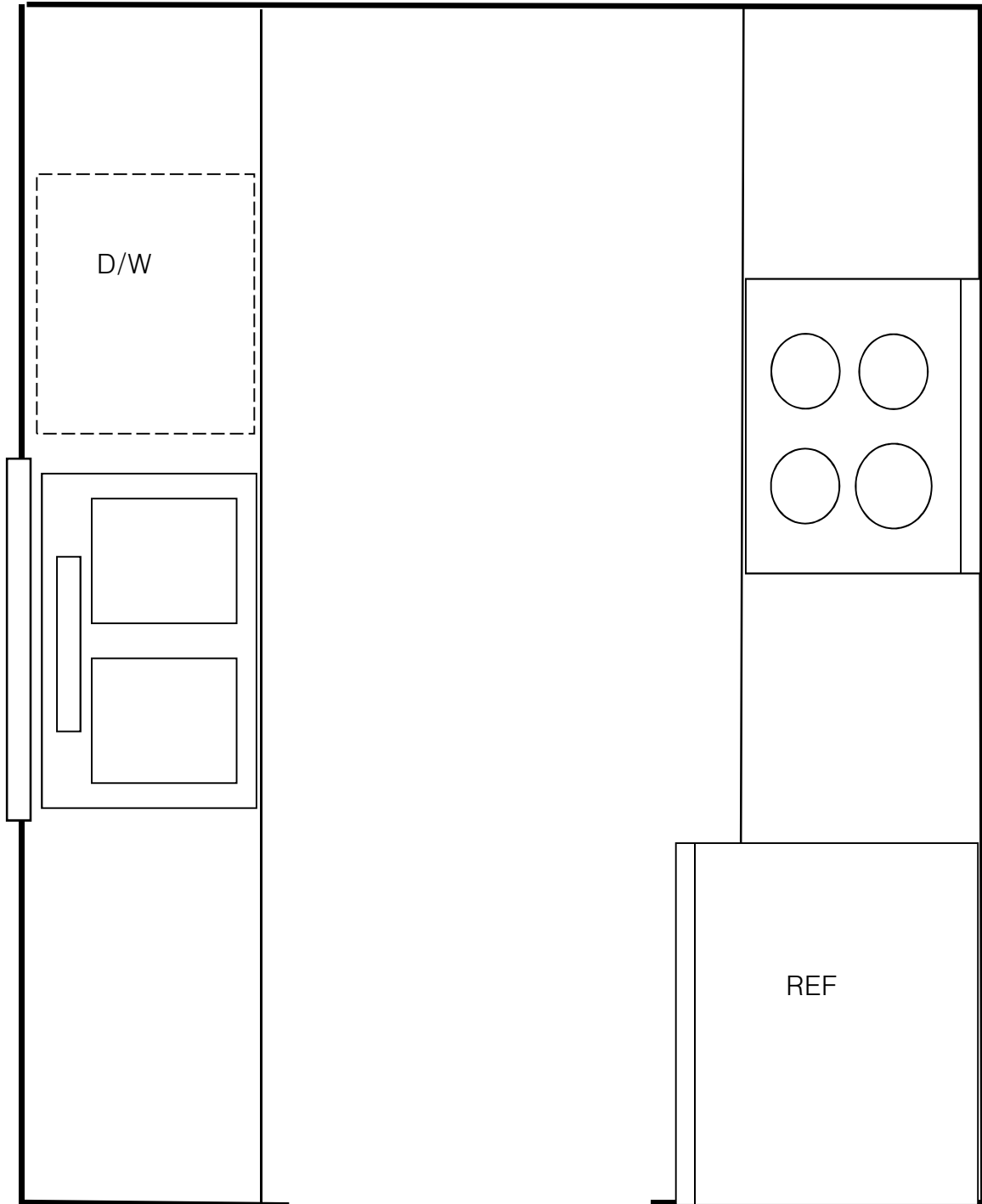
BATH 4




KITCHEN 1



KITCHEN 2



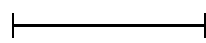
 Standard Electrical Outlet


 Light Switch

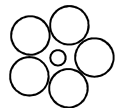
 220 Volt Electrical Outlet


 3 Way Light Switch

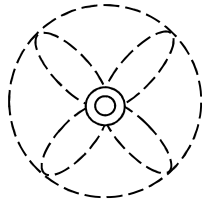
 Standard Ceiling Light


 Fluorescent Ceiling Light


 Recessed Light

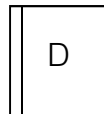
 Chandelier

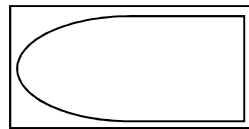
 Wall Light

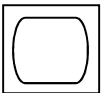
 Ceiling Fan with Light

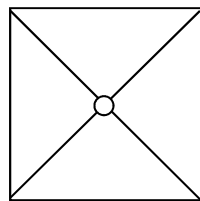
 Toilet

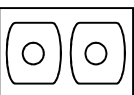
 Washer

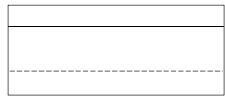
 Dryer

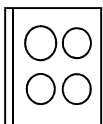
 Bathtub

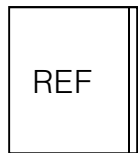
 Cabinet with Sink

 Shower Stall

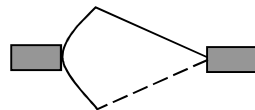
 Double-Basin Sink

 Cabinet over counter

 Range

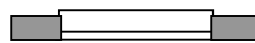
 Refrigerator

 Dishwasher

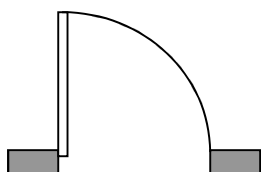
 Swinging Door

 Arched Opening

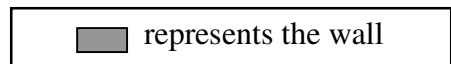
 Hot Water Heater

 Window

 Sliding Glass Door

 Door

 Sliding Closet Door

 represents the wall



Cable TV Hook-Up



Telephone Jack



Thermostat



Door Bell



Floor Outlet



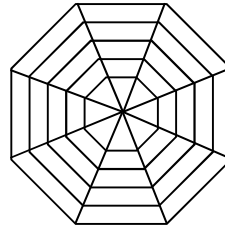
Exterior Light



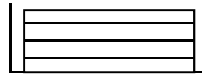
Ceiling Light with Pull Switch



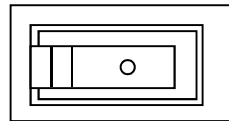
Outdoor faucets



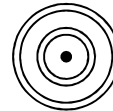
Gazebo



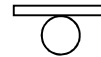
Garden bench



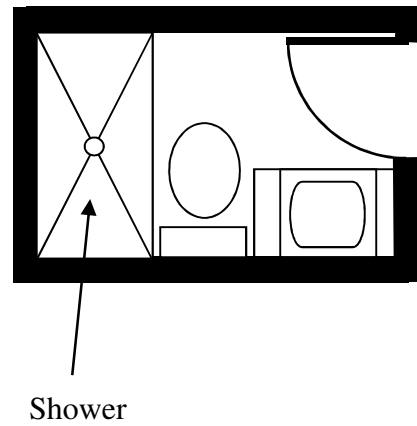
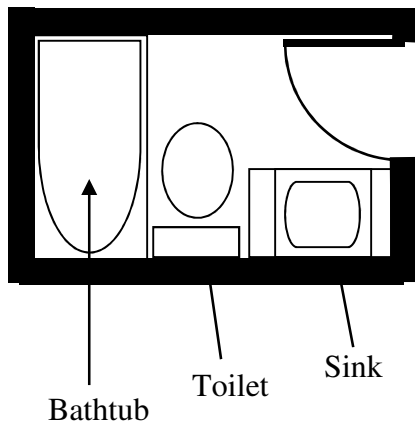
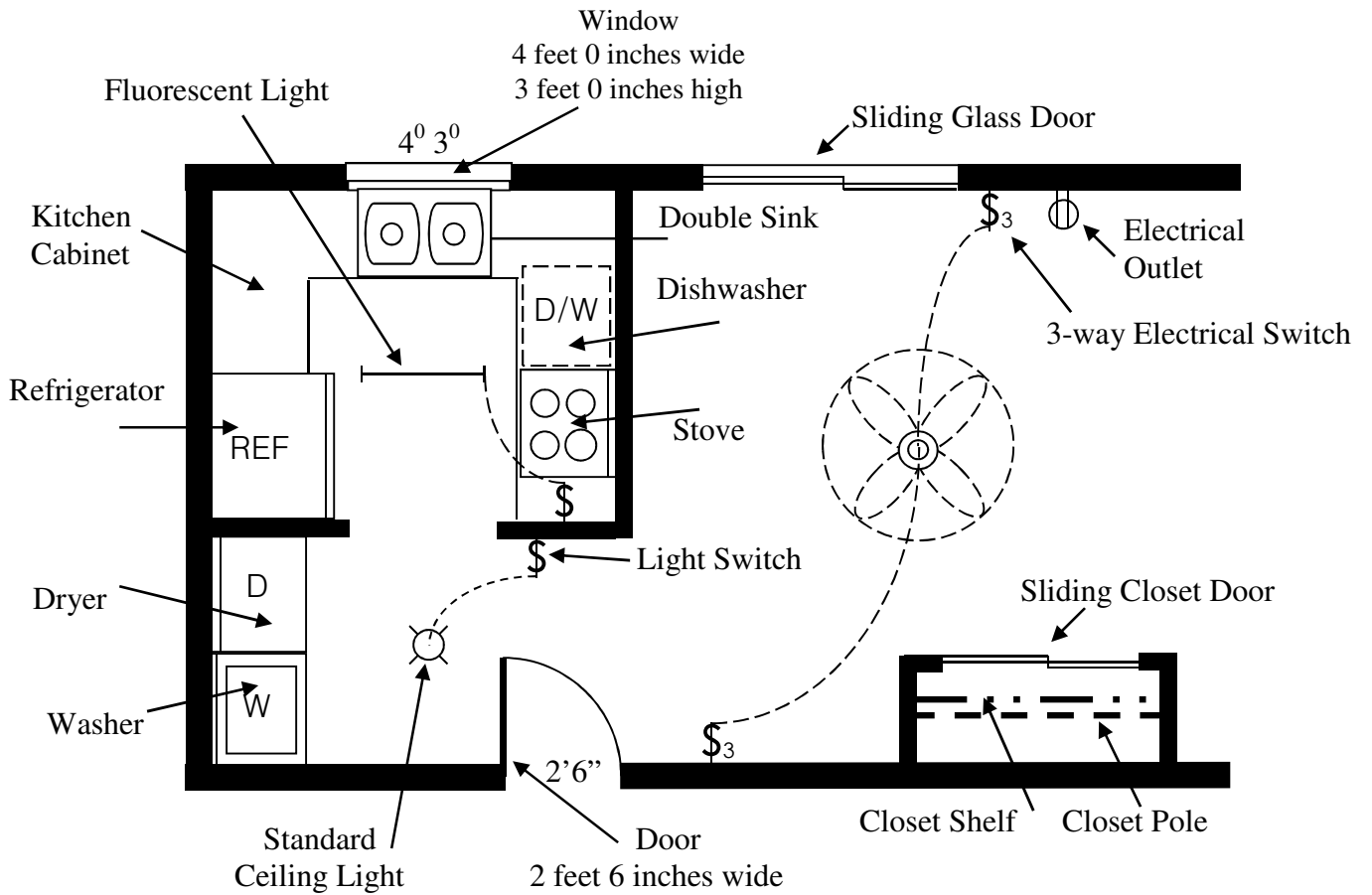
Hot tub



Birdbath or fountain



Basketball hoop



GOAL: Determine the actual size of an apartment from a scale drawing.

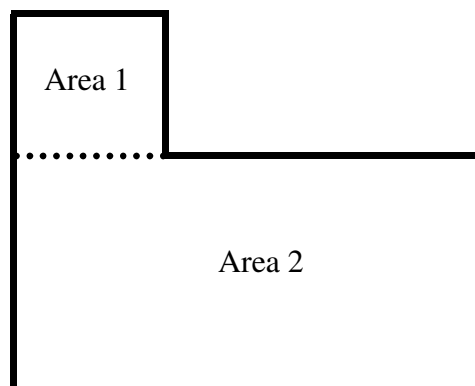
CLASSWORK DETAILS DAY 2

Today we are going to measure the dimensions of rooms of an apartment as they were drawn to scale. From this we can determine the dimensions of these rooms in real-life.

Important information to remember for today's activity:

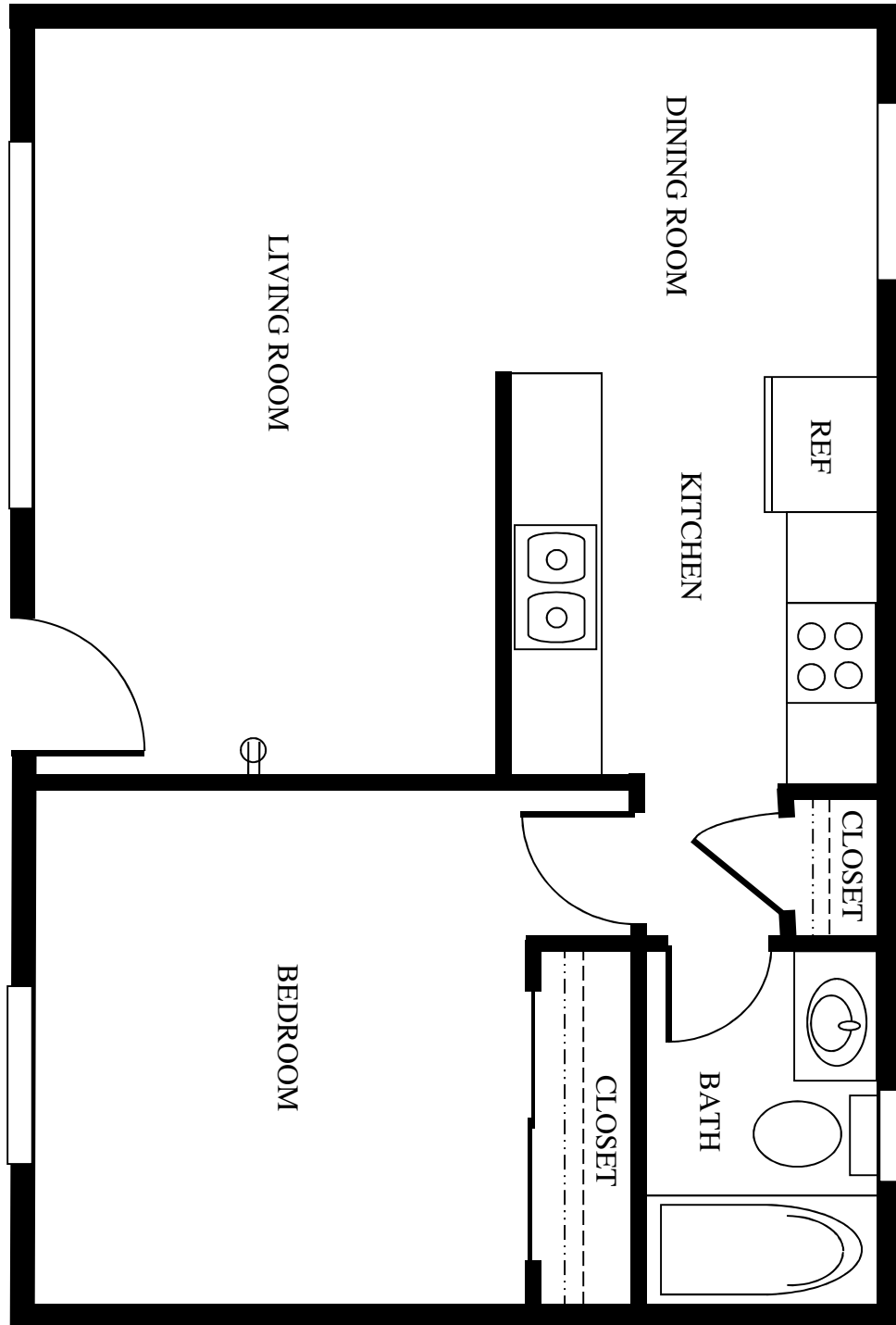
Width \longleftrightarrow Length \updownarrow $\frac{1}{4} = 0.25$ $\frac{2}{4} = 0.5$ $\frac{3}{4} = 0.75$ $\frac{4}{4} = 1.0$

- Measure to the nearest quarter of an inch from the inside of the wall to the inside of the wall
- The perimeter of a rectangle is the distance around the room and can be found by adding all the sides or by using the formula: $P = 2L + 2W$
- The area of a rectangle is the number of squares that can fit into the rectangle. One easy way to think of it is that the floor covers the area of the room. The area of a rectangle can be found by the formula: $A = L \cdot W$
- The scale is the same as yesterday: $\frac{1}{4}$ in = 1 ft (this also means 1 in = 4 ft)
- Area is measured in *square units*. You can't compare perimeter and area as they are measured with different types of units.
- The bedroom is not a perfect rectangle. You are going to have to divide up the room into two separate rectangles and determine the area of each. For example:



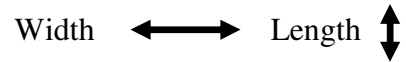
Place all notebook paper with calculations on it in your architecture binder.

APARTMENT PLAN



Scale: 0.25 in. = 1 ft.

<i>Scale used</i>	
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ROOM	Width (in.)	Length (in.)	Perimeter (in.)	Area (sq. in.)
Living Room				
Kitchen				
Dining Room				
Part 1 (small) Bedroom				
Part 2 (large)				
Bath				
Large Closet				
Hall Closet				
***** TOTAL AREA *****				

DRAWING SIZE

ROOM	Width (ft.)	Length (ft.)	Perimeter (ft.)	Area (sq. ft.)
Living Room				
Kitchen				
Dining Room				
Part 1 (small) Bedroom				
Part 2 (large)				
Bath				
Large Closet				
Hall Closet				
***** TOTAL AREA *****				

ACTUAL SIZE

TURN IN ALL CALCULATION WORK DIRECTLY BEHIND THIS PAGE

HOMEWORK DETAILS DAY 2 & 3

Tonight and tomorrow night you are going to start a library of information that you will need to make decisions about the size and layout of the rooms in your final project. The assignment is to find out the size of various rooms in your house to give you ideas when you start to design your final home.

Make the room measurements in your home to the nearest foot.

Many of these measurements will be important when designing your own house for the final project.

Complete the Home Measurements Matrix Page.

Notes:

Round all room lengths to the nearest foot.

In listing overhead lights, count the total separate places there are overhead lights. A light hanging down with 4 light bulbs only counts as 1 overhead light.

List the number of outlet locations (typically there will be 2 receptacles at each location).

Door example for a room with 2 interior doors and 1 exterior door: I-2, E-1

For a room next to the kitchen and dining room list: A & B

Your home may have extra rooms. You do not need to include them on this table.

If your home does not have one of the rooms listed, you may leave that line blank.

What is the height of your ceiling in most places?	
How thick are your walls in most places?	
Total number of rooms in your house (not including closets):	
Are there halls in the house? If so, where?	
Which rooms of the house do not touch an exterior wall?	
<p>On a sheet of computer paper draw a bubble diagram (not to scale) of how the rooms in your house connect. You do not need to include doors, windows, or any items in the rooms (such as sinks, bathtubs, ovens, etc.).</p> <p>The purpose of this diagram is to see which rooms connect to which other rooms.</p> <p>See the Bubble Diagram example which has been given to you.</p>	

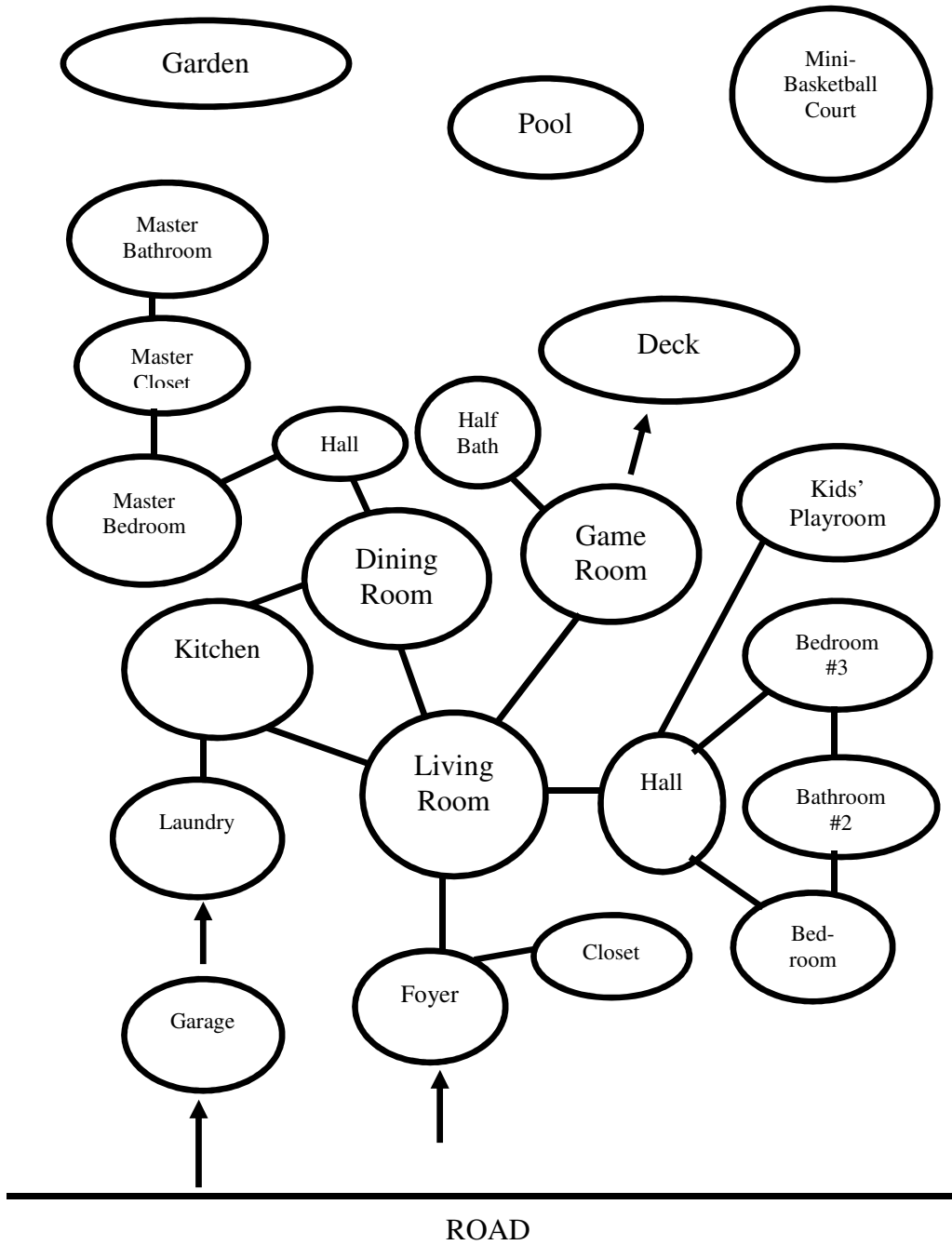
Architecture 2/3HW: **Home Measurements Matrix**

Name: _____

ROOM	Width (ft.) ↔	Length (ft.) ↕	# of Overhead Lights	# of Light Switches	# of Overhead Fans	# of Electrical Outlet locations
Kitchen						
Dining Room						
Living Room						
Master Bedroom						
Master Bathroom						
Master Bedroom Closet						
Bedroom #2						
Bathroom #2						
Bedroom #2 closet						
Half bathroom						

Bubble diagrams are intended for the architect as they think through their design. The bubble diagramming process helps to get all their creative ideas down on paper, without worrying yet about what the final design might be. This process is the equivalent of outlining a story you might do in a LA class. Bubble diagrams help architects visualize how the spaces are organized and which spaces are adjacent to each other.

Draw a bubble diagram of your home. Use an entire sheet of paper per floor. Each bubble represents a different room/space. It should be drawn in a smooth freehand motion and be roughly oval in shape. Don't worry about exact size, but pay attention to the proportion of each bubble and how it fits into the overall building. Label each bubble with the name of the room or space.

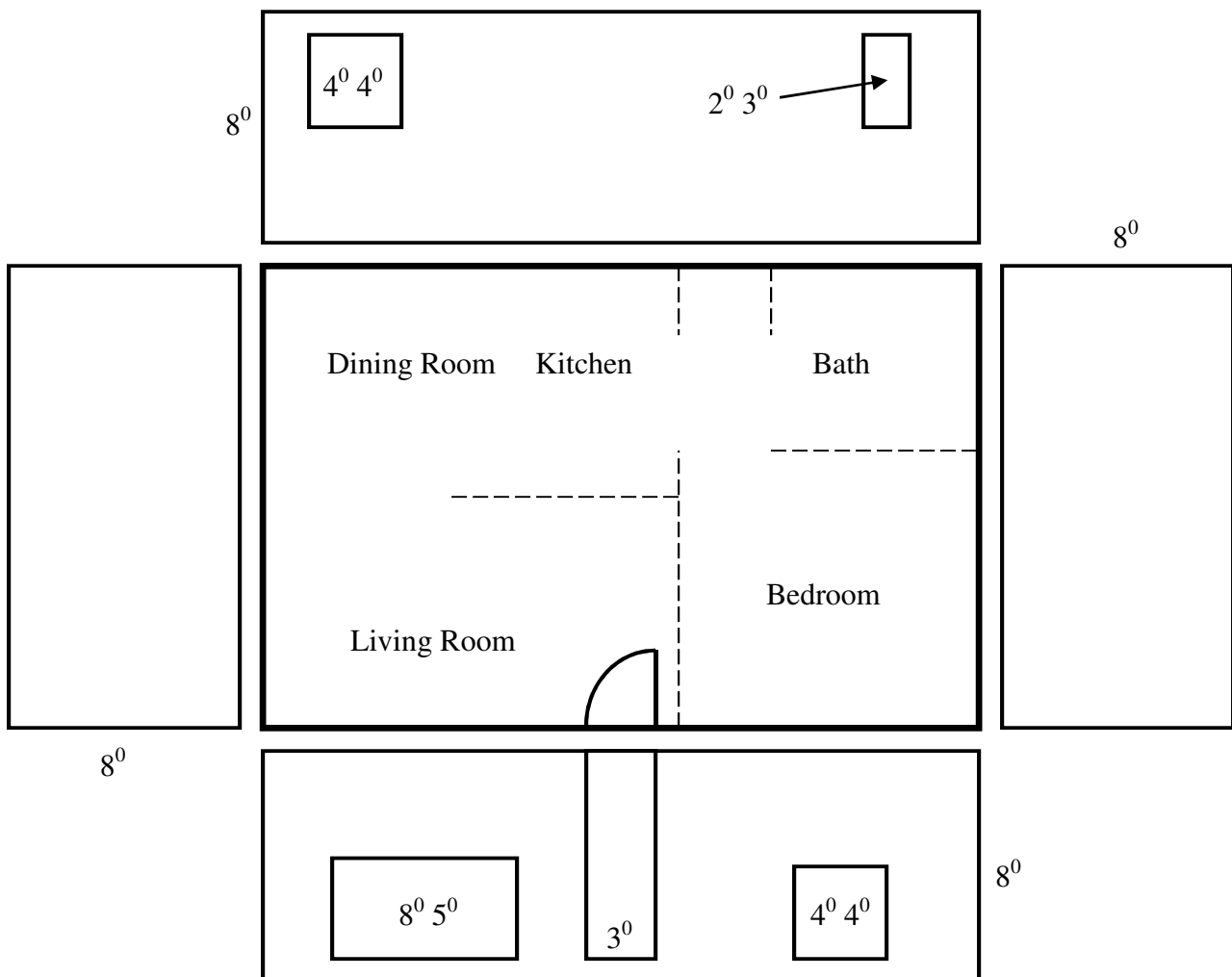


GOAL: Create a three-dimensional model of the apartment with walls, windows, and a door.

CLASSWORK DETAILS DAY 3

- The drawing below provides information about the walls, windows, and doors.
- All windows and doors end at 1 foot below the ceiling.
- The notation $2^0 3^0$ means 2 feet 0 inches across and 3 feet 0 inches up and down.
- Cut out the apartment plan and glue it to a piece of cardstock.
- Create walls using graph paper. Once you have the 4 walls glue them to cardstock as well.
- Draw the windows and the door in the appropriate places. Cut the door so that it opens and closes. Then, *carefully* cut out the windows.
- Attach the 4 walls around the apartment making sure the door and windows line up in the right places.
- You may extras like a walkway, 3D trees, or a roof to place on your apartment. You could also add inside walls or determine how big a person would be with this scale and make a 3D person standing somewhere.

Apartment Plan



GOAL: Use statistics to learn about home prices in various cities.

Find the cost per square foot of each house, **rounded to the nearest cent**. You may use a **calculator** for this page.

AGGIEVILLE				BLUE DEVIL LAND			
House	Cost	Square Feet	Cost per sq. ft.	House	Cost	Square Feet	Cost per sq. ft.
1.	\$176,500	2,450	\$72.04	8.	\$158,900	2,300	
2.	\$108,675	1,725		9.	\$158,695	1,925	
3.	\$112,365	1,870		10.	\$110,995	1,970	
4.	\$143,950	2,200		11.	\$121,490	2,090	
5.	\$106,900	1,452		12.	\$124,900	1,645	
6.	\$154,590	2,160		13.	\$157,990	2,430	
7.	\$151,990	2,055		14.	\$122,975	1,825	
15.	What is the median cost per square foot in Aggieville?						
16.	What is the median cost per square foot in Blue Devil Land?						
17.	Which city has the lower median cost per square foot?						
18.	What is the difference between the two medians?						
19.	Which house is the least expensive per square foot?						
20.	Which house is the most expensive per square foot?						

21.	A. Calculate the mean and the median and range of the five homes listed below.	Mean =
	B. Which of the numbers, mean or median, is closer to the “typical” price of these homes?	Median =
	C. Why?	Range =
	D. Why are the mean and median so different?	
	\$135,000 \$3,375,000 \$99,950 \$126,900 \$119,550	B.
		C.
		D.

Grapevine Real Estate Listings

Below are 12 single-family homes that were for sale a few years ago in Grapevine. Single family means it is a home that one family would live in. An apartment would be an example of a multi-family home. Homes can have half a bath. A half bath is a bathroom without a bathtub or shower.

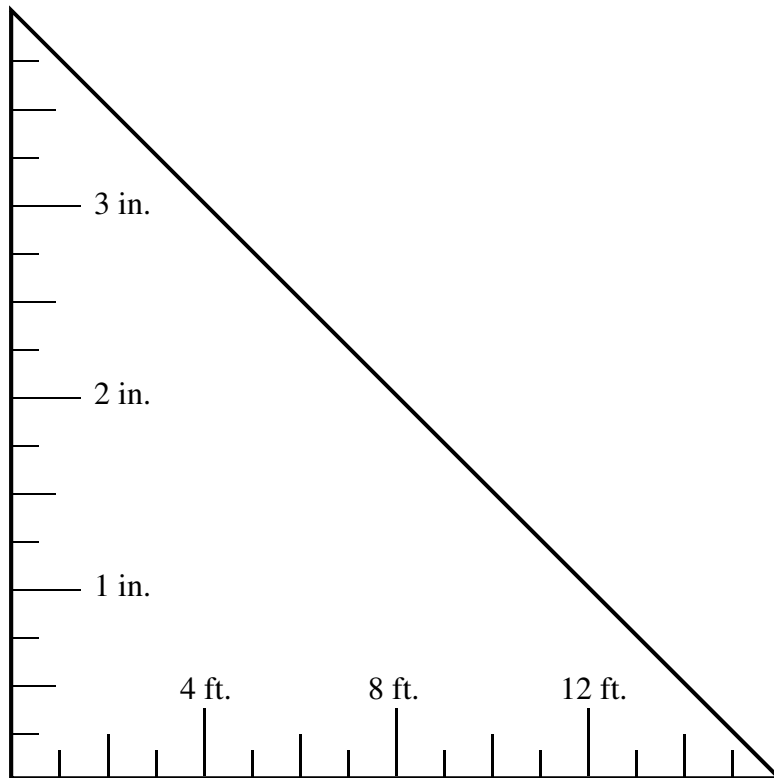
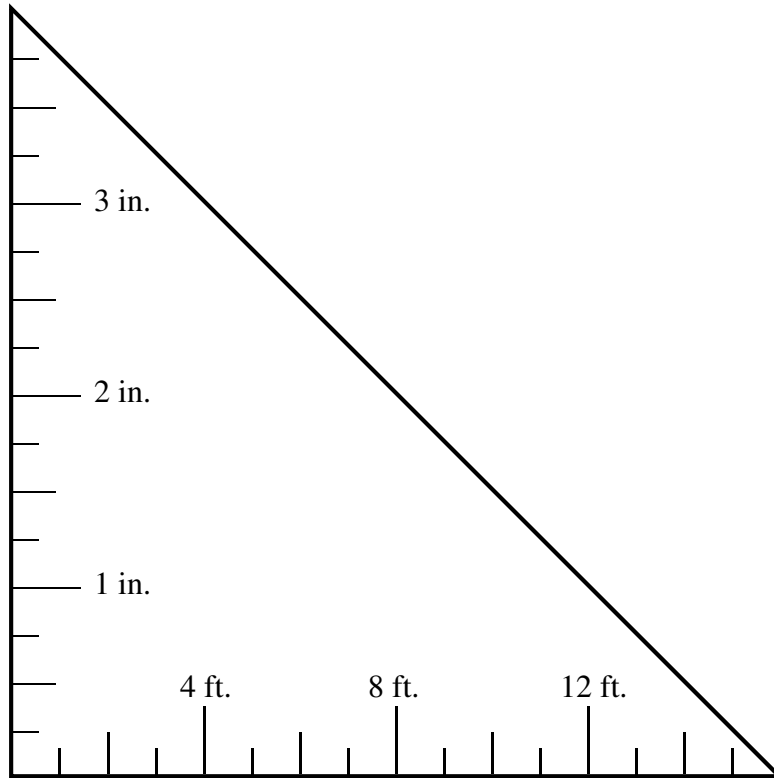
Find the cost per square foot of each house, **rounded to the nearest cent**. You may use a **calculator** for this page.

Address	Cost	Square Feet	Cost per square foot	Bed-rooms	Bath-rooms	Age
3826 Shady Meadow	\$262,000	3042 sq. ft.		5	4	15 years
3105 Coveside	\$289,900	3198 sq. ft.		3	2.5	4 years
3312 Marsh	\$369,900	4031 sq. ft.		4	3.5	11 years
4319 Windswept	\$201,000	2462 sq. ft.		4	2.5	13 years
2825 Panhandle	\$143,500	1508 sq. ft.		3	2	22 years
1408 Clearwater	\$216,500	2317 sq. ft.		3	3	3 years
2662 Pinehurst	\$232,000	2402 sq. ft.		4	2	3 years
3430 Spring Willow	\$174,900	2210 sq. ft.		3	2	18 years
2702 Yorkshire	\$249,900	2971 sq. ft.		5	3	15 years
2715 Cobblestone	\$268,990	2942 sq. ft.		4	3	0 years
2717 Cobblestone	\$257,990	2839 sq. ft.		4	2.5	0 years
2719 Cobblestone	\$283,990	3116 sq. ft.		4	3.5	0 years

Use your data to now calculate the following items.

	Cost (nearest dollar)	Square Feet (nearest whole number)	Cost per square foot (rounded to the nearest cent)	Bedrooms (nearest tenth)	Bathrooms (nearest tenth)	Age (nearest tenth)
Mean						
Median						
Mode						
Range						

The following triangles can be used to measure drawing that use the scale 0.25 in. = 1ft. One side of the ruler measures the drawing's length while the other side automatically converts the drawing to its full size length.



What is a building code?

A building code is established by a community to make sure that buildings are constructed safely for the public. They provide a safe, sound, and sanitary building for people to live in. Codes will be different in different parts of the country. For our project we will be using commonly accepted ones in most areas.

The Great Chicago Fire of 1871 is considered one of the largest catastrophes in the history of the United States. The Great Chicago Fire was an out of control fire that burned from Sunday, October 8 to early Tuesday, October 10, 1871, killing hundreds and destroying about four square miles in Chicago, Illinois. It would pave the way to modern building codes that protect the health, safety, and welfare of all people.

http://www.cityofsouthlake.com/SouthlakeGovernment/City_Departments/Planning_and_Development_Services/OrdinancesandGuidelines/ordinances_guidelines.asp

http://www.cityofsouthlake.com/SouthlakeGovernment/City_Departments/Planning_and_Development_Services/OrdinancesandGuidelines/CodesandGuidelines/Building_Codes.asp

This first website provides a wide variety of codes and guidelines that are required for Southlake. The second website focuses more on building codes. These codes can get very confusing and very technical.

Building plans must be approved as meeting building code before a permit will be granted. A contractor must have a permit to begin construction. While we will look at only a few items, in real life all parts of the building must be reviewed and approved.

Presentation of plans is extremely important as an inspector must be able to read the plans, understand them, and consider them professional before they will be approved.

Today you will complete an inspection record for plans that have several problems with them. Your job is to determine which parts are good and which are bad.

For your final project, I will be a building inspector of your home. Your home must meet all building codes, neatness criteria, and livability issues to earn a high grade.

Note: The IBC section 1210.5 says: "Toilet rooms shall not open directly into rooms used for preparation of food for service to the public." This requirement does not apply to new single family homes. However, we will still apply this rule to our homes.

Official code may allow for only one exterior door and only one exterior door of 3 feet. We will go with the stricter code of two exterior doors.

Closets do not have any official code, but a 2'-6" minimum is probably better than 2'. However, we will continue to use a 2' minimum depth.

BUILDING CODES

No bathrooms may open to the kitchen.	Exterior doors must be at least 3 feet wide.
There must be at least two entrances to the house.	Closets must be at least 2 feet front to rear.
The toilet must have 8 inches of free space on each side and 24 inches of free space in front of it.	Bedrooms must have at least one window 3 feet by 4 feet or larger as a fire escape.
The following rooms must have a window: living room, dining room, all bedrooms, master bathroom.	Interior doors, except for closets, and openings should be at least 2 feet 6 inches wide.
No spot on the interior wall may be farther than 6 feet from an electrical outlet, and any wall at least 2 feet in length needs an electrical outlet. (Thus outlets should never be more than 12 feet apart.) Code requires only one outlet in the bathroom.	

INSPECTION RECORD

Architect: _____ **Building Inspector(s):** _____

<i>Compute the square footage and cost.</i>				
Total house area (no garage, include all calculations in binder):	x	Median cost per sq. ft. \$103	=	Total cost of construction:

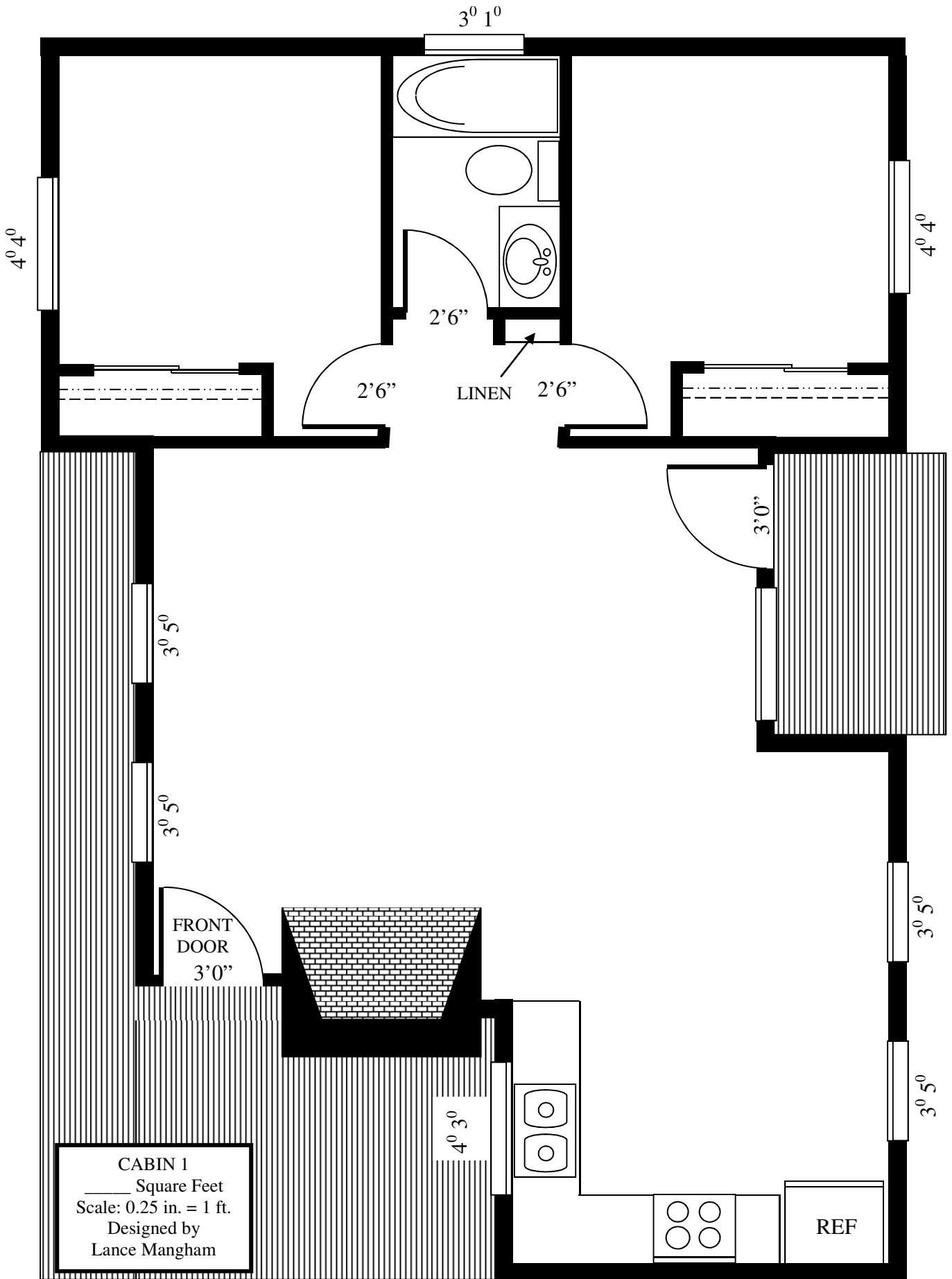
Check the home for all building codes. Report any violations in the comment section.	Comments:
--	------------------

Check the home for areas that have measurements listed (doors, windows, etc.). Using the correct scale or your measuring triangle, report any measurements that are incorrect.	Comments:
--	------------------

The drawing should be neat and not crowded. Writing should be legible. Lines should be straight.	Comments:
All dimensions of doors, windows, and rooms are shown.	
Outlets, lights, and switches are drawn as needed with the appropriate symbols and sizes.	
All room names are labeled and are spelled correctly.	
All doors have room to open and close correctly.	

There should be no extra or dead-end hallways. Movement between the rooms is easy and reasonable.	Comments:
Rooms, doors, windows, closets, and counters are the appropriate sizes. Closet space is adequate.	

TURN IN ALL CALCULATION WORK DIRECTLY BEHIND THIS PAGE



CABIN 1
 _____ Square Feet
 Scale: 0.25 in. = 1 ft.
 Designed by
 Lance Mangham

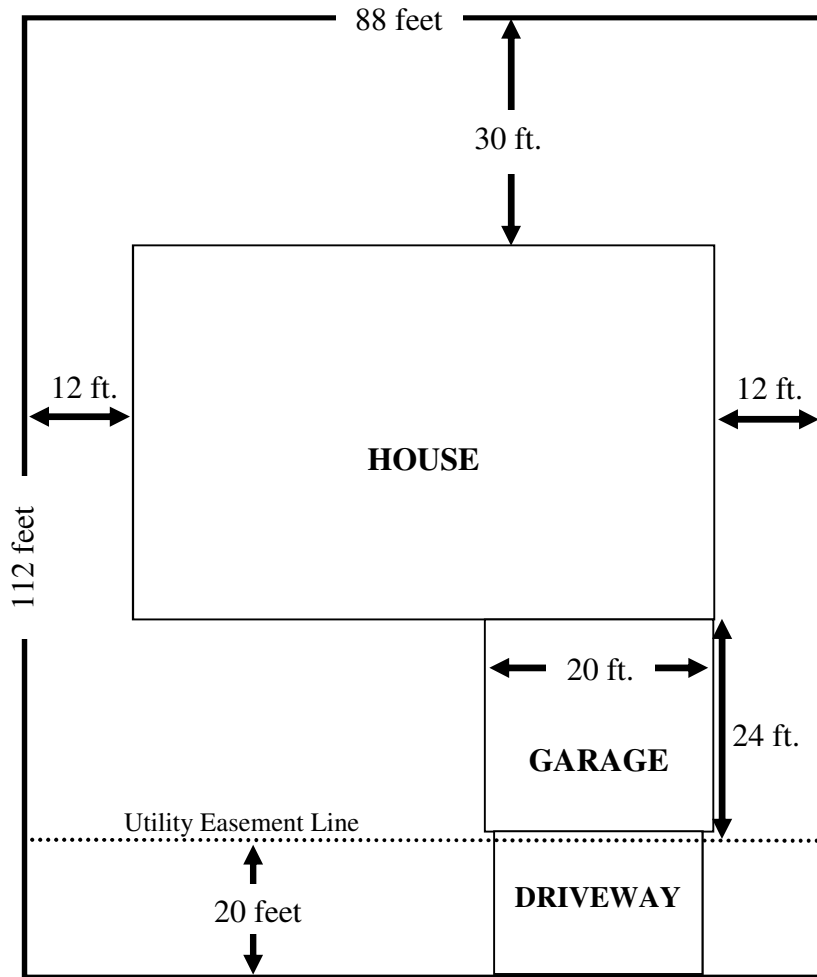
Cabin 1 has no electrical outlets, lights, or switches. You are going to determine where these items go.

1. Determine what rooms are in the cabin. You will write the names at the end of this assignment. There are definitely two bedrooms, one bathroom, a kitchen, and a living room. There could be a dining room.
2. Check your symbol page to determine how to draw lights, switches, and outlets.
3. Dotted lines show which switch operates each light.
4. Overhead Lighting Requirements:
 - Overhead lights should be in all rooms except the living room, where an overhead light is optional. The kitchen light should be fluorescent. All others should be standard ceiling lights or fan/lights.
 - Rooms such as the living room and bedrooms usually only require one overhead light.
 - The kitchen should have an additional light near the sink and one near the stove.
 - All overhead lights need to have a switch. The switch should be near the room's entrance (on the wall near the doorknob if there is a door).
 - An overhead light should be in all hallways, stairways, and porches. Long hallways need switches at each end, and they need to be three-way switches, so that the hall light can be turned on or off at either end of the hall.
5. Electrical Outlet Placement:
 - No place on a wall can be farther than six feet from an outlet. This means that one outlet covers 6 ft. on each side.
 - Walls less than 2 feet in length do not need an outlet.
 - Code requires only one outlet in the bathroom.
 - No outlet is needed behind a door or in a closet.
 - Outlets cost money, so while you want enough you don't want to go overboard.
 - The refrigerator, washer, and dryer require a special 220-volt outlet.
 - Doors, fireplaces, sliding glass doors, and other obstacles will restrict outlet placement.
 - A couple of outlets should be placed outside.
6. Write the name of the room in small, all-caps near the center of each room. The names should face toward the reader whenever possible.
7. Underneath each room name write the room's dimensions in small numbers. For example, if the width is 10 feet and the length is 12 feet you would write: 10 x 12

Requirements for Final Project Design

- A single story house with:
 - 3 bedrooms (one of which is a master bedroom)
 - 2 full bathrooms and 1 half bath
 - 1 kitchen (with pantry), 1 dining room, and 1 living/family room
- Adequate closet space for a family of four. There should be a closet in all bedrooms as well as a coat closet near the front door and a linen closet near a bedroom.
- You must include a hot water heater (in the garage), washer, and dryer.
- The quality of construction to be used by the builder will cost \$100 per square foot.
- There must be side yards that are a minimum of 12 feet on each side.
- The house must be set back from the front at least 20 feet.
- The house must have at least 30 feet of space for the backyard.
- You must use a standard, attached two-car garage that measures 20 feet by 24 feet. The cost per square foot of the garage is half that of the rest of the house.

**BUILDING
SITE
PLAN**



ARCHITECTURE JOBS

Each team member should be the lead in one of the following three categories.

	Lead	Back-Up
Architect – Assumes the main role for drawing all house items on the graph paper. This person needs to be neat and precise. They must also listen to the inspector and contractor to make sure they follow the rules.		
Building Inspector – Assumes the main role for making sure all rules on these pages are followed at all times. This person must be able to remind his or her teammates of the rules and enforce the rules.		
Contractor – Assumes the main role of making sure room sizes are within range, completes the main inside cost page, and ensures that the team is staying under budget. This person must work with his or her teammates on designing rooms and features that meet cost guidelines.		

Each team member should be the lead in one of the following three categories.

Landscape Designer – Assumes the main role for drawing and coloring all outside items on the graph paper such as pools, trees, walkways, fences, and playgrounds.		
Real Estate Agent – Designs the home listing to sell your house. This role includes both math related items and the ability to write an informative, descriptive paragraph about your house.		
Graphics Designer – Designs the logo representing your company. This person must be good at art, have a creative mind, and be able to come up with a professional looking final product.		

FINAL PROJECT RULES & REGULATIONS

*You may use a calculator at all times during the final project.
Use a ruler or a meter stick for all straight lines on this project.*

Bubble Diagram Layout/Rough Copy

See Designing Your Rooms page for suggestions/requirements

Approval by teacher then pick up \$20,000 poster board

Determine parts of poster board where you may not draw the house

See building site plan

Remember that you will be drawing wall thickness later and that will add half a block

Don't draw these lines of your paper, but remember not to go over these imaginary lines

Draw driveway and garage

Your driveway can be on either the left or right side of the house.

Your garage must be the standard size listed

You are an **architect** completing this assignment. Neatness is extremely important.

Eventually you will draw a pathway/walkway from some point on the driveway leading to the front door.

Draw all other rooms [End of Day 1: A few rooms have been drawn]

Do not try to draw the outside of the house and then try to draw the rooms inside.

Start with rooms close to the garage and connect each new room to an existing room.

How big do we make each room?

- Example dimensions: Look at the dimensions you determined for your real home
- Minimum and maximum room sizes are listed on calculation pages

Draw lightly so that when you erase it won't leave much of a mark

Write names lightly in the corner to keep track of rooms.

Front door faces towards the front (street) and back door faces towards the back.

All bedrooms are near bathrooms.

Very little hall space – Hall space is a **waste of money** that could be spent on rooms.

Any halls you do have should be 3 or 4 feet wide after wall thickness.

Building codes are met.

BUILDING CODES

1. No bathrooms may open to the kitchen.	5. Exterior doors must be at least 3 feet wide.
2. There must be at least two entrances to the house.	6. Closets must be at least 2 feet front to rear.
3. The toilet must have 8 inches of free space on each side and 24 inches of free space in front of it.	7. Bedrooms must have at least one window 3 feet by 4 feet or larger as a fire escape.
4. The following rooms must have a window: living room, dining room, all bedrooms, master bathroom.	8. Interior doors, except for closets, and openings should be at least 2 feet 6 inches wide.
9. Interior walls 2 feet or less do not need electrical outlets. Interior walls between 2 and 12 feet need one electrical outlet. Interior walls between 12 and 24 feet need two electrical outlets, and so on. Code requires only one outlet in the bathroom.	

[End of Day 2]

Draw doors and eliminate walls (if necessary)

Use templates to draw all doors – **see teacher for directions**

Building codes specify the size of exterior and interior doors

Front door opens **into** the house and back door also opens **into** the house

Most doors open **into** the room in which you are going, except for closets

No doors to get into the kitchen, living room, dining room (just openings)

Doors required for bathrooms and bedrooms

See the Door and Window Example Schedule for labeling the dimensions of each door

[End of Day 3]

Draw windows – check examples

Windows must meet building codes

See the Door and Window Example Schedule for labeling the dimensions of each door

Draw sinks, toilets, hot water heater, washer, dryer, kitchen appliances, etc.

Use templates to draw all items.

Toilets must meet building code.

All items have specific sizes – if you are not sure of the size ask your teacher or see previous years' examples

Hot water heater = 24" circle

Plenty of counter space in the kitchen in addition to the range, refrigerator, dishwasher, sink.

Fireplaces, if you want one, should be included in a common area (such as the living room).

[End of Day 4]

Draw outlets, lights, switches, etc.

- Use templates to draw all items
- Lights are circles on the templates (use “8” circle)
- Outlet circle size is shown on the template
- Electrical outlets must meet building code
- Follow all electrical contractor rules (Architecture 7A) for outlets, lights, and switches
- Fluorescent lights go in the garage and kitchen and they are 4 feet long
- Lights are over the sink and the stove
- Some appliances require special outlets (refrigerator, washer, dryer)
- The vast majority of rooms **will only require one overhead light/fan.**

[End of Day 5]

Draw names on all rooms

- All room names should face toward the street (small rooms may be written vertically)
- All room names must be written neatly and in capital letters
- All letters should be no more than one square high
- One person should write all room names so that they look similar

List the dimensions of each room

- List the width (across) first, then the length (up and down)
- Example: 16 x 20 or 16⁰ x 20⁰
- For rooms that are not perfect rectangles, use the dimensions for the majority of the room

Draw features outside the house



See Designing Your Landscape/Questionnaire/Outside Features page for choices

[End of Day 6]

Draw summary box (see example) – All caps and neat

The example below is of the architectural box which should be drawn near one corner of your design. This box should be drawn NEATLY (ruler) and all wording should be in capital letters. Have your north symbol point the direction you choose. Think about the sun rising in the east and which rooms will get sunlight at different times during the day.

[End of Day 7]

101 DRAGON DRIVE			
MODERN DESIGN ARCHITECTS INCORPORATED SARAH NICHOLS, MAEGHAN MCFARLAND, EMMA SMITH			
BEDROOMS:	4		
BATHROOMS:	3.5		
LIVING AREA:	2,100 SQUARE FEET		
GARAGE AREA:	480 SQUARE FEET		
TOTAL AREA:	2,580 SQUARE FEET		
TOTAL COST:	\$279,000		
SCALE: 0.25 INCHES = 1 FOOT			
0 ft	3 ft	5 ft	10 ft
			
			

Completing recording sheets

All recording sheets should be completed in a neat and professional manner.

Inside area and cost calculations

Outside calculations

Final check of requirements page

Review this page to make sure all rules have been followed

Complete Home Listings Page & Design Company Logo & Complete Video

Complete home listing page on the computer or email your teacher the description

The company logo should follow guidelines on the logo page.

The logo must be hand drawn on a piece of computer paper.

The page should also include the entire company's name.

Complete Company logo recording page

[End of Day 8]

Bad Home Layouts - How You Can Avoid Building a Home with a Bad Layout Design

Home Layout Design & Flow Affects Resale Value

Common Bad Layout Designs - Here are a few of the common complaints we hear from buyers.

- **Hallway Facing the Entrance**

Entrances are important because an entrance forms a first impression. Buyers make up their minds within 6 seconds of entering a home. It might not be a conscious decision, but buyers either feel good or feel bad walking in the door. Long, narrow, dark hallways are a huge turnoff, especially if the hallway constitutes the entire view from the entryway.

- **Dining Room in the Center**

In this type of layout, upon entering the home, you walk through the living room into the dining room. To get to the kitchen, family room or bedrooms, one must walk through the dining room because all rooms are connected through multiple entrances to the dining room. It does not provide a straight path or easy access.

- **Adjoining Bedrooms**

In some areas, appraisers won't consider the value of adjoining bedrooms, and will consider two bedrooms as one. Real estate ads might call this set-up a two- to three-bedroom home if two of the three bedrooms adjoin. Buyers expect a separate entrance to each bedroom.

- **Bedrooms Located Off the Living Room / Dining Room**

It is undesirable to locate a bedroom door directly leading from a room where family members or guests gather. Apart from the noise factor, it reduces privacy as well. Nobody wants to look at a bed while dining. Most people want to dine, entertain family in the family room or greet visitors in the living room without a view of the bedroom.

- **Poorly Located Guest Bathroom**

The only thing worse than staring down a long hallway upon entering a home is capturing a full view of a toilet at the end of it. Closing the door to the bathroom is unattractive and uninviting, so that's not a practical solution. A main-floor or guest bathroom, which is accessible only by walking through a utility / laundry room or bedroom, is unappealing as well.

- **No Views From One Room to Another**

Even if your home is small, as long as one can see several other rooms from a central spot, it will make the home appear larger. Multiple doorways or arches to main meeting areas help to accomplish this purpose. Open spaces create a feeling of spaciousness. It's not necessary to open the kitchen to the living / family areas but it is popular.

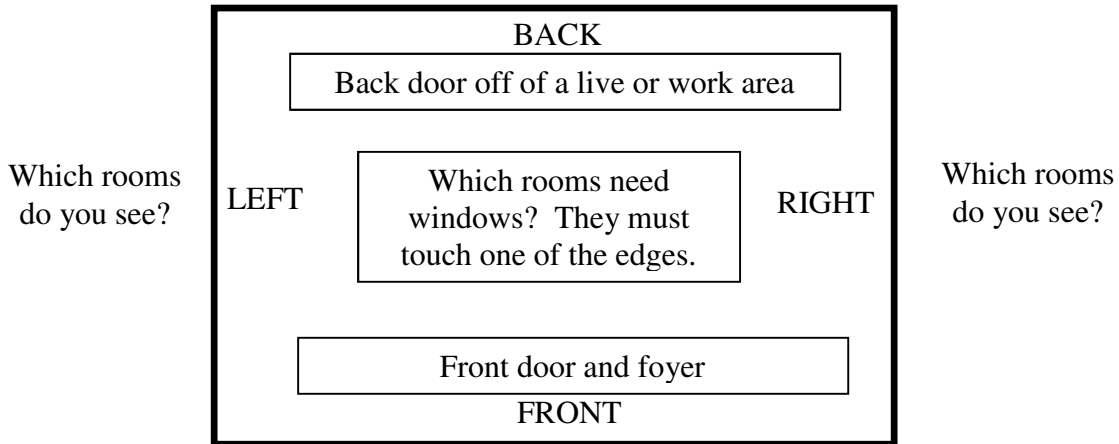
- **Satellite Living Rooms**

This type of layout generally places the living room off to one side of the entrance, and it connects to no other room but the entrance. People don't want to feel disconnected from the rest of the home, especially if they use the living room for the purpose it was intended. In new home construction, the trend is moving away from building homes with living rooms and replacing those areas with great rooms or expanded family rooms.

DESIGNING YOUR ROOMS

Think about what rooms you will see when you look at your house from each side.

Which rooms do you see?



Which rooms do you see?

MUST HAVES and REQUIREMENTS

Room	Must have a window?	Where located in house
Master Bedroom	Yes	Back
Bedroom #2 and #3	Yes	Back, front, or side
Master Bathroom	Yes	Back, front, or side
Other Bathrooms	No	Anywhere
Kitchen	No	Anywhere*
Dining Room	Yes	Usually front
Living Room (Great Room)	Yes	Back

* Kitchen is often in the middle with a Nook or Breakfast Area nearby which contains a window

The kitchen, dining room, and living room need to be located close to each other. They often make a triangle. One needs to be able to go from the living room to the dining room without going through the kitchen.

Also needed: Laundry room, hot water heater (in garage), closet space (coat closet near front door), linen closet (near a bedroom), pantry (near kitchen), closets in bedrooms

Sleep, Live, Work

Think of your home as divided up into 3 separate areas: live, work, and sleep

Live: living, dining, family

Work: kitchen, pantry, workshop, study, half bath

Sleep: bedrooms, bath, storage, halls, utility

OFFICIAL RULES FOR ELECTRICAL OUTLETS

(Based on common building codes)

For most interior rooms

Interior walls 2 feet or less do not need electrical outlets.

Interior walls between 2 and 12 feet need one electrical outlet.

Interior walls between 12 and 24 feet need two electrical outlets, and so on.

For bathrooms

At least one electrical outlet shall be installed in bathrooms and it should be located within 36 inches of the sink. The outlet should be placed on a wall that is adjacent to the sink.

For outside

At least one electrical outlet shall be installed outdoors at the front and back of each house.

For laundry areas

At least one electrical outlet shall be installed to serve laundry appliances.

For garages

At least one electrical outlet shall be installed in each attached garage.

For hallways

Hallways of 10 feet or more in length shall have at least one electrical outlet. The hall length shall be considered the length measured along the center of the hall without passing through a doorway.

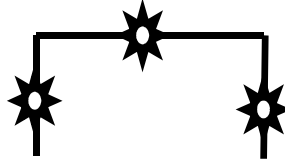
For closets

No outlets are needed in closets.

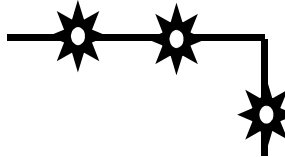
DESIGNING YOUR KITCHEN

The design of your kitchen is based on the three most important items in the kitchen: refrigerator, sink, and stove. These three form the “work triangle” and set the foundation for designing your kitchen. Here are the three most common examples of how to set your kitchen up.

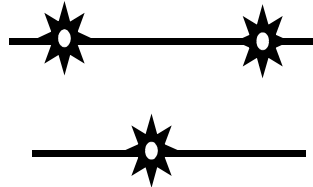
A U-shaped kitchen with the sink in the middle and the refrigerator and stove on opposite sides.



An L-shaped kitchen has two of the three on the same wall and one on a second wall.



A parallel kitchen has two counters opposite each other.



Kitchen Design Details

Sink: You need 2 feet of work area on both sides of the sink.

Stove: You need 1.5 feet of work area on either side of the stove and 3.5 feet of open space in front of the stove.

Refrigerator: You need 1.25 feet of counter space on an open side.

Dishwasher: You need 3.5 feet of open space in front of the dishwasher.

A pantry is for storage off of the kitchen.

Be sure to include plenty of counter space in the kitchen.

DESIGNING YOUR LANDSCAPE

This worksheet will guide you through the process of designing a functional landscape plan. The process includes these steps:

- Gather information about the site and who will use it
- Prioritize needs and wants and determine your budget
- Organize the landscape space and determine the shape of the spaces and how they relate

Step 1: Site Analysis & Prioritize Needs/Wants

Examine the location of existing landscape features: house and garage

Examine the location of the rooms in your house and think about the view from each room

Complete the Landscape Questionnaire on the next page

Step 2: Determine a budget - Approximate how much you will be able to spend on your landscape

Step 3: Identify home landscape use areas

Just as in a home, a landscape is composed of areas that are used for different purposes. Most home landscapes have public and private areas. Each should be designed to meet your needs and to create an attractive overall landscape.

- Public Area – This is most often the front yard and is the area the public sees from the street. The main purpose is to frame the house and create a visually appealing and inviting landscape. An attractive entryway or walkway to the house is a primary feature.
- Private or Family Area – The private area is often the back yard and sometimes the side yards. There should be easy access from the house to the outdoor space and features such as outdoor furniture and lighting should be considered.

Step 4: Sketch a bubble (big picture) diagram

Organize your area into a bubble type diagram showing: public areas, entryway, side yard, play area, private/family area, and service area

Step 5: Sketch a preliminary design

From your bubble diagram, design your landscape with specific features such as walkways, trees, gardens, pool, patio, etc.

Step 6: Draw your final plan

All items drawn using templates, when available, or very neatly

Pools are not allowed within 10 feet of the house and require a fence on both sides of your house.

A walkway/pathway should connect your driveway to the front door.

Gates must be at least 3 feet wide.

Sidewalks should be 4 to 5 feet wide. Pathways may be 2 to 3 feet wide.

Write the name on all outside features that are not obvious

Answering these questions will help determine how outdoor spaces are used. Identify facts, wants, and needs increases the likelihood that the resulting landscape is a success.

YARD USE

Who will use the yard? ___ Adults ___ Children ___ Elderly ___ Pets

When is the yard used? ___ Spring ___ Summer ___ Fall ___ Winter

OUTDOOR STRUCTURES

What outdoor structures/features would you like to add?

- | | | |
|--------------------------------|-----------------------|-----------------------------|
| ___ Patio, deck, or porch | ___ Gazebo | |
| ___ 2 to 4 people | ___ 2 to 4 people | |
| ___ 4 to 8 people | ___ 4 to 8 people | |
| ___ 8 to 12 people | ___ 8 to 12 people | |
| ___ 12+ people | ___ 12+ people | |
| ___ Shade cover for patio/deck | ___ Fountain | ___ Sculpture |
| ___ Children’s play area | ___ Waterfall/stream | ___ Fire pit |
| ___ Cooking/grilling area | ___ Greenhouse | ___ Boulders |
| ___ Garden | ___ Putting green | ___ Dry creek |
| ___ Dog pen/run | ___ Rain barrel | ___ Mounds/berms |
| ___ Storage shed | ___ Irrigation system | ___ Pond |
| ___ Clothesline | ___ Swimming pool | ___ Bench |
| ___ Fence(s) | ___ Spa/hot tub | ___ Fenced vegetable garden |

STORAGE

What items need storage space? ___ Garden equipment ___ Garbage cans ___ Bicycles
 ___ Outdoor toys ___ Sports equipment ___ Lawn furniture

STYLE

What is your preferred design style? ___ Formal ___ Semiformal ___ Informal

SHAPE

What is your preferred shape? ___ Rectangles ___ 45° angles ___ Circles
 ___ Curving/free form ___ Combination

COLOR

List your favorite colors:

Room name	X *	Width ↔	Length ↕	Minimum Area	Our Area	Maximum Area	Cost
Kitchen				130 ft. ²		260 ft. ²	
Dining Room				140 ft. ²		280 ft. ²	
Living/Family Room				230 ft. ²		460 ft. ²	
Master Bedroom				180 ft. ²		360 ft. ²	
Bedroom #2				110 ft. ²		220 ft. ²	
Bedroom #3				110 ft. ²		220 ft. ²	
Master Bathroom				80 ft. ²		160 ft. ²	
Full Bathroom #2				50 ft. ²		100 ft. ²	
Half Bathroom				20 ft. ²		50 ft. ²	
Office, Study, or Library				80 ft. ²		200 ft. ²	
Game or Media Room				140 ft. ²		320 ft. ²	
Foyer/Entryway				20 ft. ²		100 ft. ²	
Laundry				30 ft. ²		60 ft. ²	
Total closet space not included in other rooms				-----		-----	
All rooms not included above				-----		-----	
Total hall space				0 ft. ²		150 ft. ²	
Entire house without the garage				2000 ft. ²		2600 ft. ²	
Garage		20 ft.	24 ft.	480 ft. ²	480 ft. ²	480 ft. ²	\$24,000
***** Total of living area and garage *****				2480 ft. ²		3080 ft. ²	
Land		88 ft.	112 ft.	9,856 ft. ²	9,856 ft. ²	9,856 ft. ²	\$20,000
***** Grand total inside cost *****							

* For rooms that are not rectangles, place an X in the column above. For width and length, measure the majority of the room. Calculate the exact area of the room (it will not be the listed width x the listed length).

The following is a list of features that may be included outside of the normal house and garage. The cost of each feature is listed next to each one.

Linear foot: Same as a regular foot. Linear means you are **not** talking about square feet.

Every 10 linear feet: Means the item is sold in increments of 10.

ITEM	Cost	Typical Dimensions	Our Dimensions Or Area	Cost
LANDSCAPING				
Trees/Bushes	\$3000 (all the trees/bushes you want)		√	\$3,000
Garden	\$10 per square foot			
Pond	\$25 per square foot			
Stone/Brick Path/Walkways	\$1000 per every 10 linear feet	3 feet wide		
Fencing	\$25 per linear foot (Not needed on property line)			
Hedge	\$15 per foot			
FUN AND GAMES				
Swimming Pool	\$12,000 + \$30 per square foot	Max: 18 ft. by 36 ft.		
Tetherball Court	\$500	10 ft. diameter		
Trampoline	\$500, \$750, \$1000, \$1500	8, 10, 12, or 14 ft. diameter		
Hot Tub	\$160 per square foot + cost of deck (required) around hot tub	Min: 20 sq. ft. Max: 50 sq. ft.		
Horseshoe Court	\$500	6 ft. by 50 ft.		
Mini-Basketball Court	\$10 per square foot	Min: 14 by 18 ft. Max: 25 by 40 ft.		
Mini-Volleyball Court	\$6000	15 ft. by 30 ft.		
Sandbox	\$10 per square foot	12 ft. by 12 ft.		
Firepit	\$750	4 ft. diameter		
DETACHED BUILDINGS				
Utility Shed	\$10,000	10 ft. by 12 ft.		
Trash Can Shed	\$2500	3 ft. by 5 ft.		
<i>more ideas on the back.....</i>				



ITEM	Cost/Dimensions	Typical Dimensions	Our Dimensions Or Area	Cost
ATTACHED TO THE HOUSE				
Wheelchair Ramp	\$300 per linear foot	4 feet wide		
Patio/Deck	\$40 per square foot			
Porch (enclosed with screens)	\$70 per square foot	8 ft. by 14 ft.		
Porch (open)	\$25 per square foot	24 ft. by 16 ft.		
Greenhouse	\$200 per square foot	6 ft. by 10 ft.		
Sunroom	\$250 per square foot	6 ft. by 10 ft.		
LANDSCAPE ACCESSORIES				
Garden Arbor	\$20 per square foot			
Hammock	\$150	10 feet long		
Outdoor Fountain	\$1500 \$4000 \$1500 \$4000	6 ft. by 8 ft. 10 ft. by 13 ft. 7 ft. diameter circle 11 ft. diameter circle		
Benches	\$600 for 3 linear feet \$100 for each additional foot	2 feet wide		
Picnic Table with Chairs	\$1000 for 5 feet \$100 for each additional foot	3 feet wide		
Low-Voltage Lighting	\$2500 for first 4 lights \$750 for additional 4 lights			
Gazebo	\$4000 +\$1000	Circle or Octagon 8 foot diameter +2 foot diameter		
ADDITIONAL ITEMS				
***** Grand total outside cost *****				

Porch: A porch is a raised platform with a roof that that serves as a covered entrance to a house.

Patio: A patio is defined as an area, often paved, adjoining a house and used for lounging. Usually roofless.

Deck: A deck is defined as an open, uncovered porch extending from a building. Usually wooden. Usually elevated.

On your drawing place the following symbols in the door space and outside of the windows. The number you place in the symbol will relate to the number in the schedule below. From this schedule, people can determine the characteristics of your doors and windows.

Doors: Windows: 

Example of a Door and Window Schedule

DOOR SCHEDULE			
Number	Description/Size	Quantity	Remarks
1	16'-0" x 8'-0"	1	Garage Door
2	3'-0" x 8'-0" x 1'-3/4"	2	Exterior Doors
3	2'-6" x 6'-8" x 1'-3/4"	10	Interior Doors
4	2'-8" x 6'-8" x 1'-3/4"	4	Closet Doors
5	3'-2" x 6'-8" x 1'-3/4"	1	Master Bedroom Closet Door
WINDOW SCHEDULE			
1	4'-0" x 6'-0"	5	Insulated Glass
2	4'-0" x 3'-0"	3	Insulated Glass
3	3'-0" x 1'-0"	2	Insulated Glass
4	5'-0" x 3'-0"	4	Insulated Glass
5	6'-0" x 4'-0"	1	Insulated Glass
6	6'-0" x 8'-0"	1	Insulated Glass
7	4'-0" x 4'-0"	1	Insulated Glass

DOOR SCHEDULE			
Number	Description/Size	Quantity	Remarks
1			
2			
3			
4			
5			
6			
7			
WINDOW SCHEDULE			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			

A **logo** is used to help develop a name for a business. Some of the most famous logos that everyone will recognize are on this page. A logo is designed for immediate recognition. The logo shapes, colors, fonts, and images usually are different from others in a similar market. Some logos contain the full company's name as part of the logo and some don't.

Today there are many corporations, products, services, agencies and other entities (like states and countries) using a sign or a symbol or a combination of sign and emblem as a logo.

Qualities of an effective logo

1. Makes a good first impression.
2. Represents who you are and your ideas and attitudes.
3. Possesses something unique or interesting to help you stand out from the crowd - a mark of distinction.

Italic type (slanted) denotes action or speed and projects a modern image.
 Capital letters suggest formality and steadiness.
 Lowercase letters suggest an informal manner or casual image.
 Outlined letters project an informal image.
 Thin letters denote professionalism.
 Thick or bold letters project strength or dependability.
 Script denotes gentleness or caring.



Color is important to brand recognition, but it should not be the main component of the logo design because it could conflict with its functionality. In the United States red, white, and blue are often used in logos for companies that want to project patriotic feelings.



Your architecture firm needs a logo that people will remember. Examples of architectural companies' logos are also included below. They often have the company name or initials. **Your logo must contain something geometric or architecture related.** It should be in color (unless you specifically want it black and white) and should be neatly drawn (no computers) on paper that will slide into the cover of your binder.



Hidden Meanings in Popular Logos

Sometimes a company or brand logo is more than it first appears. For example, take a look at the hidden meanings or messages embedded in these popular logos below. You won't look at these designs the same way again.



Scott Olson, Getty Images)

FedEx

Can you spot something in this logo? The FedEx logo, designed in 1994 by Linden Leader & Landor Associates, at first appears simple and straightforward. However, if you look at the white space between the "E" and "x" you can see a right-facing arrow. This "hidden" arrow was intended to be a subliminal symbol for speed and precision.



Getty Images

Amazon.com

That yellow arrow is more than just a decorative swoosh. The Amazon logo was created to represent the message that it sells everything from A to Z (the arrow connects the two letters) and also represents the smile that customers would experience by shopping on the Amazon.com Web site (the arrow becomes a smile).



AP

Baskin-Robbins

In 2005, as part of its 60th anniversary celebration, Baskin-Robbins launched a new brand identity. The new logo was intended to "capture the fun and energy of Baskin-Robbins." In the old logo, the number "31" appeared within a simple arc, suggestive of a scoop of ice cream, and next to the name. In the new logo, you can see that the "31" still exists. It is now formed by the pink portion of the ice cream store's two initials: "B" and "R."



AP

Northwest Airlines

Back in 2003, lamenting the loss of the old Northwest Airlines logo (shown here), pilot Patrick Smith published his critique of the new logo in his "Ask the Pilot" column at Salon.com, saying the airline's previous circular corporate logo was, "quite simply, a work of genius. It was an N; it was a W; it was a compass pointing toward the northwest."



AP

Sun Microsystems

Sun's logo -- which features four interleaved copies of the word "sun" -- was designed by professor Vaughan Pratt of Stanford University. It is an ambigram, which is defined as a typographical design or artform that may be read as one or more words not only in its form as presented, but also from another viewpoint, direction or orientation.



AP

Goodwill

Do you see the right half of a smiley face? Or do you see a lower case "g"? In either case, you'd be correct.

Southlake Properties

102 Dragon Alley

3 bedroom / 3.5 bath

\$321,000

2,123 sq. ft.

Listing Agents: Sarah Nichols, Emma Smith, Maeghan McFarland

Come and buy our finely furnished stone house with lush vegetation, a beautiful pool, an entrancing garden, incredible walkway and plenty of room for the whole family. Also a Jack and Jill bathroom for the kids, game room, and a big yard to play in. There is also a little office for the parents to work in, a quiet place, a fascinating library, or anything else you would like....

www.101dragonalley.com

FEATURES

Built:	2012
County/Schools:	Tarrant / Carroll ISD
Coolest Room:	Living Room
Best Outside Feature:	Garden
Pool:	Yes
Yearly Taxes:	\$6,000

KEY DIMENSIONS

Living Room:	14 x 17
Dining Room:	13 x 15
Kitchen:	18 x 12
Master Bedroom:	28 x 15
Bedroom #2:	14 x 13
Bedroom #3:	15 x 14

104 Dragon Alley

3 bedroom / 3.5 bath

\$321,000

2,123 sq. ft.

Listing Agents: Sarah Nichols, Emma Smith, Maeghan McFarland

Come and buy our finely furnished stone house with lush vegetation, a beautiful pool, an entrancing garden, incredible walkway and plenty of room for the whole family. Also a Jack and Jill bathroom for the kids, game room, and a big yard to play in. There is also a little office for the parents to work in, a quiet place, a fascinating library, or anything else you would like....

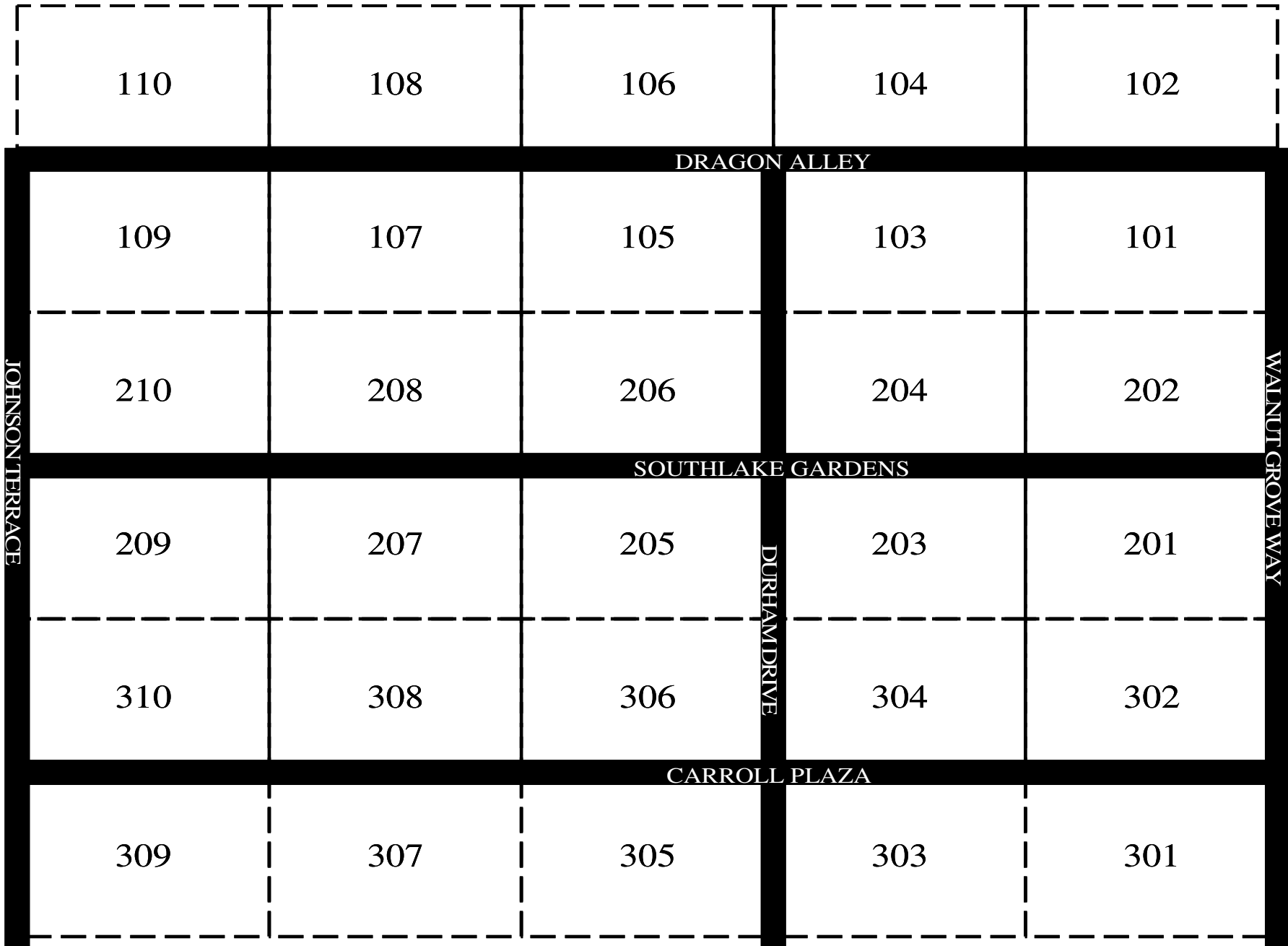
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1.	Describe your main role(s) for the final project.			
2.	What do you feel your greatest contribution was in the completion of the project? Also list your greatest <i>mathematical</i> contribution.			
3.	List and give examples of three specific mathematical concepts (6 th grade or higher) that you learned/reinforced and where you used them during the architecture project.	1.	2.	3.
4.	Were you satisfied or dissatisfied with your performance as you were doing this project? Explain.			
5.	What was one major <i>design</i> problem that your group encountered and how did you all go about solving it?			
6.	If you had the opportunity to redo the project, what are 2 specific architectural design changes that you would make?			
7.	What aspect did you enjoy the most while doing the project and why?			
8.	Do you feel you and your teammates all “pulled their weight” and made significant contributions to the final project? If you divide up 100 points based on contributions to the project, how many points do you give to yourself and your other team members?			
9.	Do you have any additional comments about this architecture project?			

House Cost:	Garage + Land Cost: \$44,000	Outside Cost:
TOTAL COST:		BUDGET: \$325,000

Final House Design (Livability, Mathematical Accuracy)			33 points
Driveway & garage	Correct architecture symbols	House flows, open spaces, etc.	Counter space in kitchen
Doors in right places and open correctly	At least one interesting shaped room without all right angles	Room names and sizes listed appropriately	Special outlets for refrigerator, washer, dryer
All bedrooms are near bathrooms	Min/max room and hall sizes met	Correct architectural sizes used	Not too many lights in one room
Building codes followed 1 2 3 4 5 6 7 8 9	W/D, HWH, refrigerator, range, dishwasher, sinks and toilets	Lights (sink/stove), outlets, switches are drawn and correct sizes	Any halls you do have should be 3-4 feet wide after wall thickness
No room lengths 2x the other dimension	Closet space – coat, linen, pantry, bedroom	No doors to kitchen, living room, dining room	Walls are appropriate thickness
House built in appropriate space	Windows, doors, openings have sizes listed	Required doors for bedrooms and bathrooms	Under budget
Landscape Design			12 points
Interesting structures	Flows well/walkway from driveway to front door	Not too many items	Coloring is neat and enhances the landscape
Correct symbols used/items labeled	All items drawn to scale	Recording page completed	Pools 10+ ft. from the house
Professional Final Product & Summary Scale Box			10 points
Rulers used for all straight lines	Lettering correct size and all caps	Names on all rooms facing toward reader	Dimensions listed on each room
Templates used as for all appropriate items	No major rips, tears, eraser marks or other marks	Writing is neat	Spelling is correct
Scale listed	Architect company and individual names listed	Rooms, area, and cost listed and accurate	Walls shaded neatly
Indoor, Outdoor, and All Cost Calculations			25 points
Arch 8B – Indoor	Calculations correct	Neat, professional	
Arch 8C – Outdoor	Calculations correct	Neat, professional	
Arch 8D – Mortgage	Calculations correct	Neat, professional	
Arch 8E – Energy, Heating, etc.	Calculations correct	Neat, professional	
Home Flyer			5 points
Interesting, informative paragraph	Calculations and all numbers correct	Address shown/Dimensions shown	
Team Logo			5 points
Neat, professional, legible	Architecture/geometric concepts	Appropriate use of color	Well explained on description page
Dream Home Video			Bonus points
High quality	Shows many good aspects of the home and the overall project		
Project Analysis Page/Team Contribution			10 points
Evidence of mathematical learning	Contribution to final project	Teamwork and flexibility	

ARCHITECTURE PROJECT AWARDS

The Mangham & Underwood “I Would Buy Your House” Award of Excellence (Best Overall)

The Denise Smith Best Landscape Design Award

The Marti Giffin Best Descriptive Home Flyer Award

The Lewin & Klein Most Creative Design/Interesting Room Award

The Trammell & Alexander Best Use of Color Award

The Gary Brake Most Professional Final Design Award

The Chiu & Nguyen Logo Award

The Best Architecture Company Name Award

The Stephen Hoag Best Overall Video Award

The Best Decorated 3D Apartment Model Award

ARCHITECTURE PROJECT AWARDS

Team/Person Making this Evaluation: _____

For each award you can give up to 3 places. If you want you can just give 1st place, or 1st and 2nd place.

Write the number part of the address in the boxes below based on which home you feel deserves the award. Example: 102 or 203 or 306

	1 st place	2 nd place	3 rd place
Landscape Design Award (Best design and outside items)			
Home Flyer Award (Most descriptive)			
Most Creative or Interesting Design (Most creatively designed house or most interesting design for a room)			
Best Use of Color Award (Neat and appropriate)			
Most Professional Looking Award (Everything is neat and precise)			
Best Logo Design (Uses architecture theme, geometry, use of color)			
Best Architecture Company Name			
Best Overall House (Combination of all items above based on what you feel is most important)			

TEACHER USE ONLY

	1 st place	2 nd place	3 rd place
Best Video			
Best 3D Apartment			

ONCE IN A LIFETIME OPPORTUNITY!

OPEN HOUSE DESIGN EXPO 2014

**Mr. Mangham & Mr. Underwood's Math Classes
DIS Library**

Over 50 newly built homes on display!

<p><u>HOME DESCRIPTIONS</u></p> <p>Price range: \$250,000-\$325,000 Addresses: Various addresses on: <i>Southlake Gardens</i> <i>Dragon Alley</i> <i>Carroll Plaza</i> <i>Tradition Terrace</i></p> <p>Type: Single Family Homes Square Ft: 2,000-2,600 sq. ft. Extras: Pools Basketball courts Decks and hot tubs</p>	<p><u>CONSTRUCTION & DESIGN</u></p> <p>These homes have been designed by the architects of the future. They include all of the amenities that you expect plus some of which you have only dreamed. In addition, landscape designers have made the grounds around your home fit for a king!</p> <p>Our homes are thoroughly inspected to conform to all local building codes. The designs maximize your living space to give you the most for your hard-earned dollar.</p>
<p><u>YOUR HOME-BUYING TEAM</u></p> <p>While we have hired some of the best architects in the business, we know that you also deserve personalized attention from our real estate agents. Your personal team includes:</p> <ul style="list-style-type: none">•••	<p><u>WHERE AND WHEN</u></p> <p>Come see all the newly designed homes and visit with our team of 150 architects, building inspectors, landscape designers, and real estate agents.</p> <p>Where: Durham Intermediate School DIS Library</p> <p>When: March 20th</p> <p>Times: 6:00pm-7:00pm</p> <p>Who: Open to parents, grandparents, siblings, and friends of the family</p> <p>Need more information: Chris.Underwood@southlakecarroll.edu Lance.Mangham@southlakecarroll.edu</p>

The Top 12 Questions To Ask Your 6th Grade Architects, Building Inspectors, and Real Estate Agents

1. Is your house drawn to scale? If so, what was the scale that you used?
2. How did you decide where all the rooms would go?
3. Where on the property were you allowed to build the house?
4. What are building codes and what are some examples of how they affected your final project?
5. Could your house be as big as you wanted?
6. How did you determine the overall cost of the entire house?
7. How did you decide on where to place things like lights, switches, and outlets?
8. How did you know how big to make each room?
9. What activities did you complete before this project that helped you design your house?
10. What would you do differently next time if you were to design another house?
11. Could you put anything you wanted outside or were there rules there as well?
12. How did you decide on your team name and logo?

A note from Mr. Mangham:

The students did an outstanding job in designing their dream home while at the same time being required to follow many rules and regulations. The students completed mini-projects including:

- Sketching a scale drawing of a room at school and at home
- Converting a scale drawing to its real-life length, width, and area
- Taking a close look at their own home to determine room sizes and many different attributes such as light switches, fans, doors, etc.
- Creating a 3D model to scale of a small apartment
- Computing statistics (mean, median, mode) of real-life homes in Grapevine
- Drawing an isometric model of their 3D apartment
- Tackling the role of building inspector and looking for violations in a model home
- Analyzing a cabin to determine where electrical outlets, light switches, and lights should be placed
- Calculating the number of 2 by 4's (studs) required to build a cabin
- Completing this culminating project while incorporating all of the above!!!

Congratulations to each and every student for completing this demanding project. I hope that they were able to see a number of real-world, everyday uses for the math that we learn.