

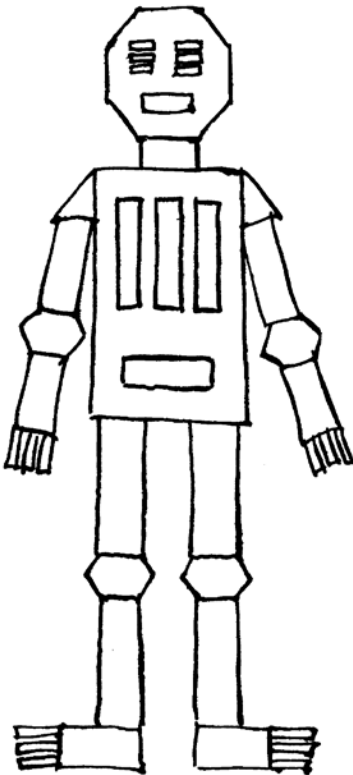
## Logo Final Project (25 points)

You now can create regular polygons (Triangles, Squares, Octagons, Circles, etc) in procedures. All of these shapes can be drawn in different sizes by using variables.

Now, your task is to combine these simple shapes to build more complex units, then to combine these units to build even more complex units and ultimately an elaborate design all over the screen.

The project is the culmination of all the material that has been presented to this date. This project should take no less than 3 class periods to complete.

Your project...



**must** use several 'simple' shapes

**must** use variables for size control

**must** have good structure

- use good indentation
- use 15 or more procedures
- use procedures that call other procedures

**must** use RANDOM statement with SETXY

**must** have a fair amount of complexity

**may** use IF controls

**may** use recursion

**may** do a top down or bottom up design

Here are several project ideas:

- a city with buildings, vehicles, people;
- a home with a driveway, trees, flowers, mailbox;
- a mountain scene, a forest with different sized of trees, bushes;
- a seascape with boats, birds and fishes;
- a robot army;
- a garden, sun, clouds, rainbow;
- a castle.

### Steps to Get You Started:

1. Sketch what you want your final screen to look like. Creating a sketch of your plan will save you time in the end.
2. Convert your design to **simple shapes** and create a top-down chart.
3. Alter your design so that some assemblies of simple shapes are repeated in different places for different purposes.
4. Teach procedures, test and debug each unit **starting at the lowest levels** before assembling higher level units and **before** final assembly.
5. Assemble the units to produce your final design.

## What do I turn in?

1. Turn in your sketch of your plan. You may deviate from this sketch as you go, but you must show some planning.
2. You must turn in a top-down chart of your design.
3. You must turn in a listing of each of your procedures.
4. You must turn in a print out of your final picture. It must include your name in the picture. You can use the LABEL command to put your name in the picture.

Here is the way you will be graded for this project!

<b>Logo Final Project Rubric</b>		
<b>Low Points</b>	<b>Average Points</b>	<b>High Points</b>
Name not on the project (0)	Name written on procedure print out (1/2)	Name printed on the project design with the label command (1)
Just used lines (1)	Only uses one or two shapes (2)	Lots of different shapes (3)
Used at least 11 procedures (1)	Used 12-14 different procedures (3)	Used 15 or more procedures (5)
Poor indentation (1)	Indented most all procedures (2)	Indented all procedures, included "white space" and IF statements correctly (3)
Procedure calls were limited to being used at the command line. (1)	Used procedures to call other procedures. (1.5)	Used procedures to call other procedures and had a procedure to draw the whole picture. (2)
Failed to use Random or Setxy (1)	Used either Random or Setxy (2)	Used Random and Setxy to place objects (3)
Variables used, but not properly (1)	Single use of variables to control the size of objects (3)	Multiple usage of variable to control the size of objects (5)
No color used (1)	One color used (2)	Color used throughout the picture (3)
<b>Total Points Possible = 25</b>		
<b>Extra Credit Point Values below</b>		
Included a Recursion/IF statements from previously designed objects from class (1)	Uniquely your own – Recursion or an IF statement (2)	Uniquely your own -- Recursion with an IF statement (3)