PART 2 LOGO

W.W.KI

MSW Logo screen

Turtle

Commander window

Halt	Trace	
Pause	Status	
Step	Reset	
Execute	Edall	

MSWLogo Screen

File Bitmap Set Zoom Help

- New
- Load…
- Save
- SaveAs…
- Edit…
- Erase…
- Exit
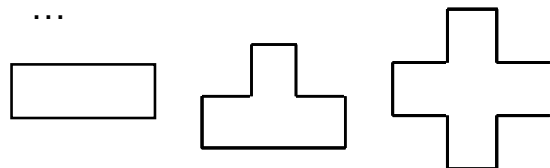
LOGO -- microworld of a turtle who understands math

FD 40 `ENTER`
RT 90 `ENTER`
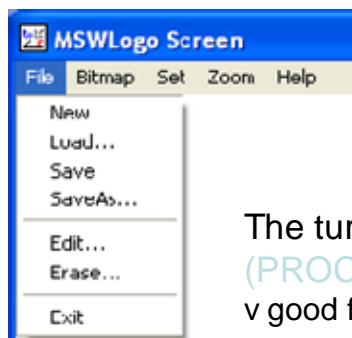…

Variations:

Guess what will result from the list of command
Guess what commands will give this drawing

From vertical-horizontal To other directions

The turtle can be programmed to learn new commands (PROCEDURES) (and LOGO does not need variables to begin – v good for young children) **TO brick ….. END**

The PROCEDURES can be used again and again
You can tell the turtle to move in certain ways in between
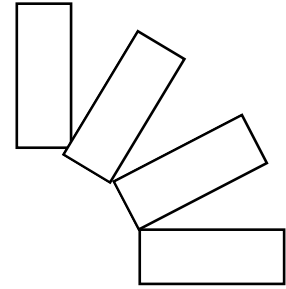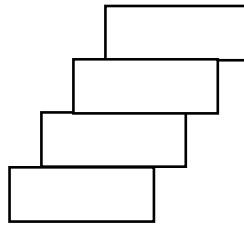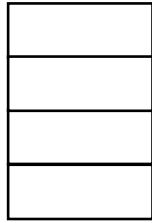
The Turtle also understands XY coordinates.
You can move the turtle to redo the pattern here and there

SETPOS [100 200]

Home position
(100, 200)
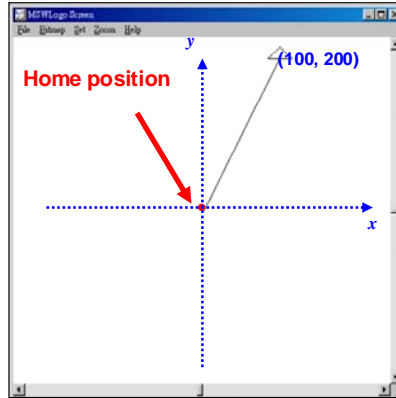
You can also use procedures to create more new procedures

FD 40
FD 40 RT 90 LT 90
FD 40 LT 30
REPEAT 4 [....]

Creating various kinds of graphic components

IMPORTANT programming style		

IMPORTANT programming style
Try to get the turtle
Back to its original
Place and Direction
at the end of
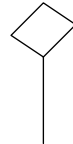the procedure, or else
you will mess up!!

TO body
FD 30
LT 45
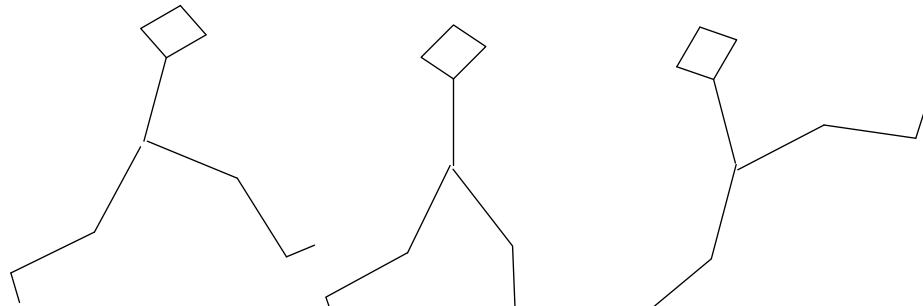REPEAT 4 [FD 10 RT 90]
RT 45
BK 30
END

To leg
FD 30
RT 30
FD 30
LT 90
FD 10
??
??
??
??

You may give the procedures for students to use and later on ask them to extend the set rather than always asking them to go bottom up from FD RT ....

We may want to do the same thing with different numbers..

--- make the graphic components scalable
(by creating procedures with parameters,
i.e. input values that can change)

```
TO square :side
REPEAT  4 [ FD :side  RT 90 ]
END
```

--- tell the turtle to remember numbers and work on them
(by creating variables to store the values)

```
MAKE "a 12      ENTER
MAKE "b 3       ENTER
PRINT :a + :b      ENTER
IF :a > :b  [ PRINT :a - :b ]      ENTER
```

LOGO can also process list of numbers and words

--- LOGO can interact with users in words

```
TO quiz
PRINT [what is 5 times 2 ?]
MAKE "answer READLIST
IF :answer = [10] [PRINT [good !]]
END
```

Variation:
```
TO quiz1
PRINT [what is 5 times 2 ?]
MAKE "answer READLIST
IF :answer = [10] [PRINT [good !] ]
quiz2
END

TO quiz2
PRINT [what is 3 times 5 ?]
MAKE "answer READLIST
IF :answer = [15] [PRINT [good !] ]
quiz3
END
```

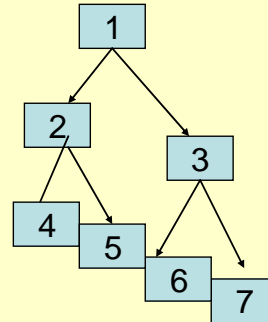**Variation: remembering the total score and show it at the end**

Variation:
IFELSE :answer = 15 […..] […..]

```
TO scene1
PRINT [it is very late at night. Some one knocks on your door]
PRINT [will you open the door ? (Y/N)
MAKE "answer RL
IFELSE :answer = [Y] [ scene2 ] [scene3]
END

TO scene2
….
…. [scene4] [scene5]
END

TO scene3
….
…. [scene6] [scene7]
END
```

```
        1
      ↙   ↘
    2       3
   ↙ ↘     ↙ ↘
  4   5   6   7
```
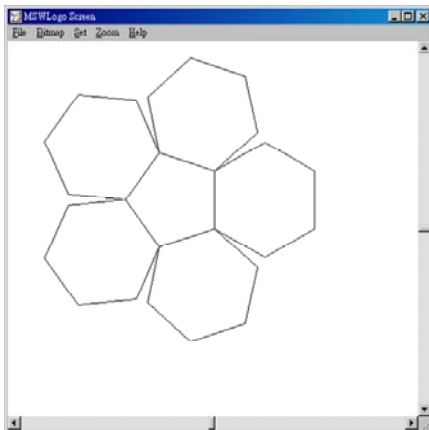
Further variation:
screening program of kidney check
In response to melamine contamination of milk

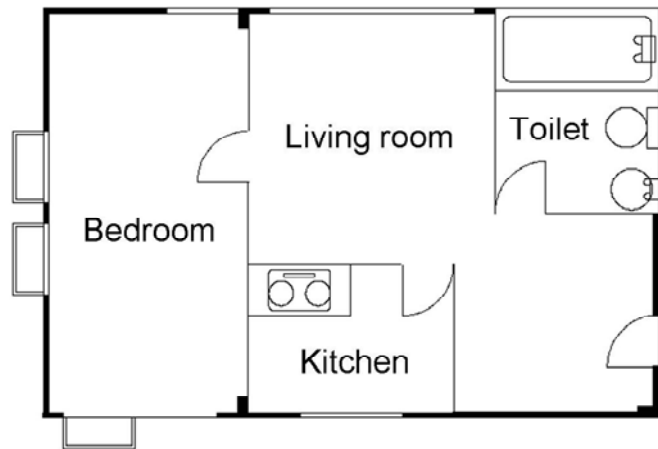## Eight project tasks are provided by the Package
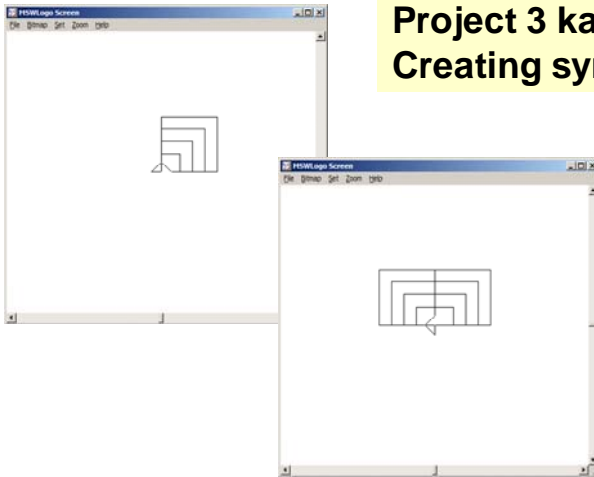
Project 1 make three-dimensional object from paper

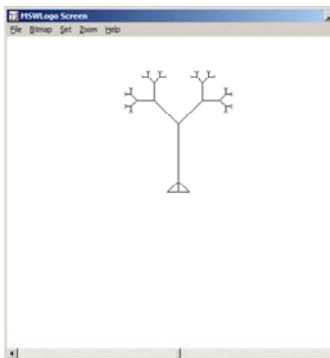Using squares, pentagons,…

Project 2 Floor plan drawer

Creating a set of components
Wall and doors, more facilities…
Fixed sizes, variable sizes …

Project 3 kaleidoscope
Creating symmetrical procedures

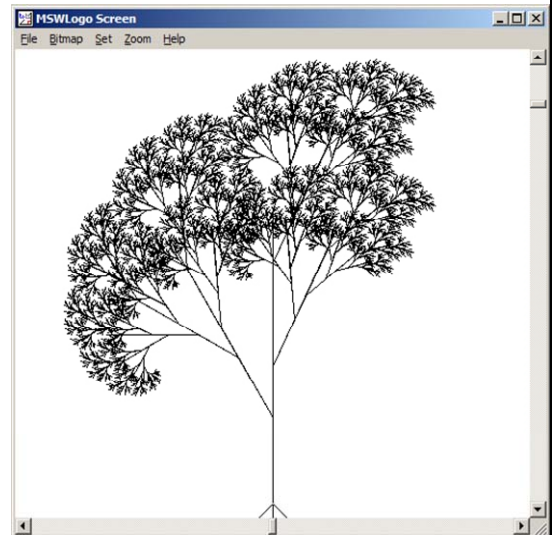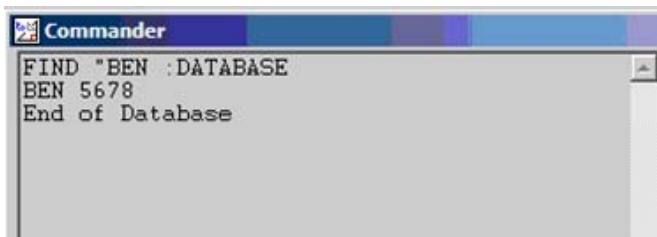## Project 4 Fractals

```
TO TREE :SIZE
IF :SIZE < 2 [STOP]
FD :SIZE
LT 45
    TREE :SIZE / 2
RT 90
    TREE :SIZE / 2
LT 45
BK :SIZE
END
```
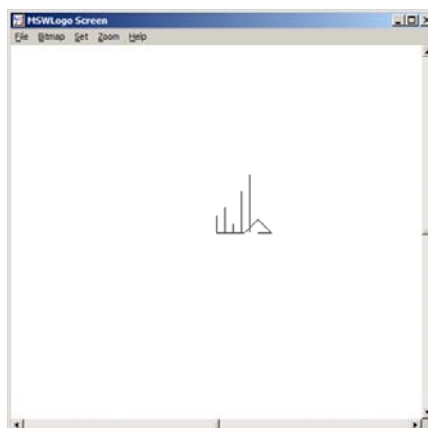
Project 5 phone book

MAKE "DATABASE [[TOM 1234] [BEN 5678] [MARY 9012] [JOE 3456]]

```
FIND "BEN :DATABASE
BEN 5678
End of Database
```

Project 6 CAL program for learning arithmetic

Project 7 statistics chart marker

MAKE "DATA [20 30 10 50 70]

Project 8 My piano

My Piano

This piano is made by me

Quit

C

My Piano

This piano is made by me

Quit
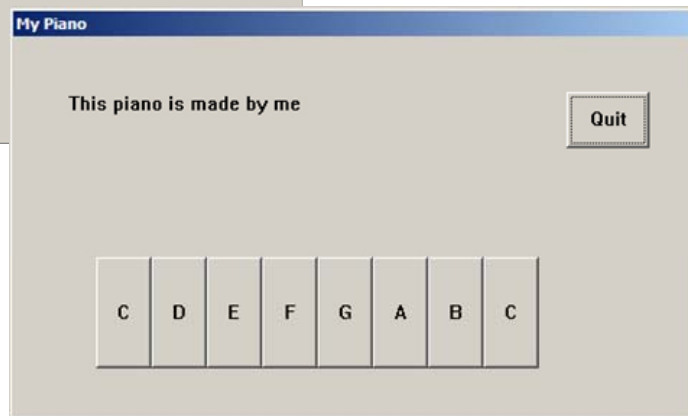
C   D   E   F   G   A   B   C

WINDOWCREATE
STATICCREATE
BUTTONCREATE
WINDOWDELETE

Let students see examples and learn from the HELP