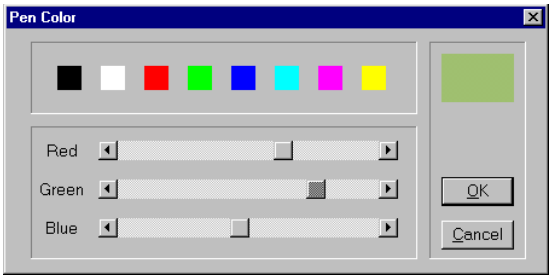
Choosing colours (colors)



You can choose pen, flood-fill, and screen colours by using the MSWLogo Screen **Menu Bar** e.g. **Set>PenColor** etc. and select one of the 'index' colours displayed there or use the Red, Green, Blue scroll-bars to create your own colour.

Mostly you will need to control colours with procedure commands: **SETPC pencolor**, **SETFC floodcolor**, and **SETSCREENCOLOR screencolor**.

For that you will need the colour values given in the **Colour Table** below, or if you have created your own colour then type **SHOW PENCOLOR**, or whatever, in the 'Input Box' and record the colour values displayed for future use.

Create a library of colour procedures if you have difficulty in remembering the colour values for each colour you use.
The one for 'red' follows:

```
TO red
    OP 4       ; or OP [255 0 0]
END
```

then you will be able to type **SETPC red** rather than have to recall the colour values.

Color Table

Name	Index	RGB values	Name	Index	RGB values
Black	0	[0 0 0]	Brown	8	[155 96 59]
Blue	1	[0 0 255]	Light brown	9	[197 136 18]
Green	2	[0 255 0]	Mid-green	10	[100 162 64]
Cyan	3	[0 255 255]	Blue-green	11	[120 187 187]
Red	4	[255 0 0]	Salmon	12	[255 149 119]
Magenta	5	[255 0 255]	Blue-ish	13	[144 113 208]
Yellow	6	[255 255 0]	Orange	14	[255 163 0]
White	7	[255 255 255]	Silver	15	[183 183 183]

Drawing coloured lines

When all lines you draw are black there is no need to lift the pen between shapes that touch and you only need **PU** and **PD** to jump to new locations without drawing a line. **When each shape is a different colour you must lift the pen between shapes** to avoid over-writing the different colour already drawn.

Alter your HOUSE procedure and put the pencolor required before each shape then put **PU at the beginning, and PD at the end, of each link**, as follows:

```
TO HOUSE :SIZE
    SETPC 6  SQU :SIZE              ; draw yellow walls
    PU  FD :SIZE RT 30  PD          ; link to roof
    SETPC 4  TRI :SIZE              ; draw red roof
    PU  LT 30 BK :SIZE PD           ; link to ground (R.P.P)
END
```

Note that the PU and PD are not components of the Reverse-path Principle.

You can also use pencolor to colour text and characters that you **LABEL** on the screen. Ask your Mentor about Supplementary Topic: Using 'Characters' as graphics.

Filling an enclosed space with colour

The following basic sequence of events is **essential**:

1. choose the colours,
2. draw the shape,
3. lift the pen and move into the shape,
4. fill with colour,
5. return to the edge of the space and put the pen down,

as follows, **each line separately entered in the Input Box**:

- SETPC 6 SETFC 6 ; set pen and flood colours to yellow
- SQUARE 80 ; draw shape
- PU RT 45 FD 20 ; move **part-way** inside shape
- FILL ; fill with flood colour
- BK 20 LT 45 PD ; move back to edge (Reverse-path P.)

Note the need for **PU** in the third step to avoid drawing a line, reversed by **PD** in the fifth step to resume line drawing.

Now create a **COLOR.WALLS** procedure from the above lines and then clone **COLOR.ROOF** from COLOR.WALLS but due to the 'sharper' shape of the triangle you will need to reduce the 45° angle for the move inside the triangle.

Finally replace the SETPC 6 SQUARE :SIZE and the SETPC 4 TRIANGLE :SIZE lines in Step 2 above with your two new procedures to get a 'painted' house.

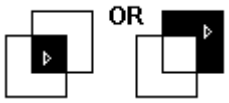
Your Mentor can offer a clever alternative method, e.g. **PAINT "SQU :SIZE yellow**, which doesn't need a new procedure for each coloured shape but before you use it you should have mastered the steps above.

Filling with colour when shapes overlap

FILL has two modes of operation, which you need to understand if you are trying to flood a shape with colour when it overlaps another shape flooded with a different colour.

FILL, the default mode, or **(FILL "false)** will flood to the boundary of the colour currently under the pen.

Depending on how far the pen goes inside the last-drawn shape it could give either of the two adjacent results.



(FILL "true) will flood to the boundary of the shape just drawn (as shown to the immediate right) provided that the pencolor is a different colour than the shape overlapped.

There is potential here for creating some exiting patterns in flood-filled rotated shapes using combinations of **(FILL "true)** and **(FILL "false)**.