

Fireworks Program in MSW Logo

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Previous Knowledge Needed

- Basic experimentation with movement commands in MSW Logo or other logo program.
- Created simple functions in MSW Logo (useful but not essential)

Programming Concepts

- Iteration loops (repeat 4 [fd 40 rt 90])
- Simple functions (procedure in MSW Logo)
- Random numbers
- Nesting one function within another

MSW Logo Codes Used

- repeat 4 [code]
- pu
- pd
- fd 60
- rt 90
- lt 80
- fd random 10
- setpc [255 0 0]
- setfloodcolor [0 0 0]
- fill
- repeats code in brackets
- pen up of the screen
- pen down on the screen
- forward 60
- right 90 degrees
- left 80 degrees
- fd random number up to 10
- set pen colour to red
- set fill colour
- fill anything on screen up to any lines



Note color is US spelling not UK colour spelling

RGB (Red Green Blue) Colour Codes

- Black [0 0 0]
- red [255 0 0]
- blue [0 0 255]
- yellow [255 255 0]
- pink [255 20 147]
- purple [128 0 128]
- green [0 255 0]
- white [255 255 255]

500 Colour Codes

<http://cloford.com/resources/colours/500col.htm>

Function called firework to make firework

Load up MSW Logo

File

Edit

type in firework in top box

ok

Add code underneath

NOTE

Try lots of different repeat patterns to find the best looking firework

TEST & IMPROVE

Test firework by typing it into the commander (interpreter)

DEBUG

Have you spelt everything correctly?

Have you used square brackets

File Edit Search Set Test! Help

```
to firework
```

```
pd
```

```
repeat 16 [fd 70 rt 160]
```

```
pu
```

```
end
```

pen down on screen

draw shape all code

inside brackets gets

repeated 16 times

pen up no drawing

Function called move to randomly place multiple fireworks

Load up MSW Logo

File

Edit

type in move in top box

ok

Add code underneath

TEST

Test move by typing it into the commander (interpreter) it will move turtle but not draw any lines

DEBUG

Have you spelt everything correctly?

File Edit Search Set Test! Help

```
to move
fd 100
fd random 50
rt random 360
end
```

fd 100 to move away from last firework

fd random number up to 50 to move further away

rt random number of degrees in any direction

Function called yellow to change firework line colour

Load up MSW Logo

File

Edit

type in yellow in top box

ok

Add code underneath

DEBUG

Have you spelt everything correctly?

Have you used square brackets?

```
File Edit Search Set Test! Help
to yellow
setpc [255 255 0]
end
```

*setpc changes the pen
colour*

*[255 255 0] is code for
yellow*

Function called red to change firework line colour

Load up MSW Logo

File

Edit

type in red in top box

ok

Add code underneath

DEBUG

Have you spelt everything correctly?

Have you used square brackets?

Have you left gaps between items

```
File Edit Search Set Test! Help
to red
setpc [255 0 0]
end
```

*setpc changes the pen
colour*

[255 0 0] is code for red

Function called sky to make screen black

Load up MSW Logo

File

Edit

type in sky in top box

ok

Add code underneath

NOTE

Don't type on **to** or **end** line
spelling needs to be as below

TEST

Test sky by typing it into the commander
(interpreter)

DEBUG

Have you spelt everything correctly?

Have you used square brackets

```
File Edit Search Set Test! Help
to sky
setfloodcolor [0 0 0]
fill
end
```

Set the colour of the fill

[0 0 0] is black

fill the screen with the colour

Nest all functions inside final display function

Load up MSW Logo

File

Edit

type in display in top box

ok

Add code underneath

NOTE

Don't type on **to** or **end** line
spelling needs to be as below

TEST

Test display by typing it into the
commander (interpreter)

DEBUG

Have you spelt everything correctly?
Have you used square brackets

```
File Edit Search Set Test! Help
to display
sky
repeat 10 [firework yellow move firework red move]
end
```

*function **sky** will set a black background, **firework** will display a firework, **yellow** will change the line colour, **move** will move to a different part of the screen. This will be repeated 10 times.*

Challenges

- Can you write code to create other pen colours? Can you edit **display** to include these?
- Can you create **firework2** which displays a different pattern? Can you edit **display** to include this new firework?
- Can you make your firework a solid fill of colour?