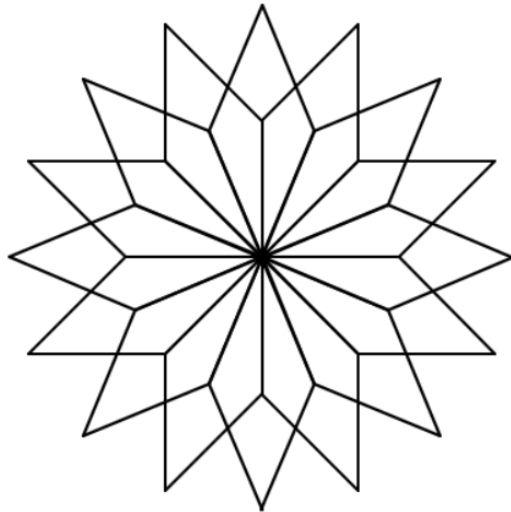
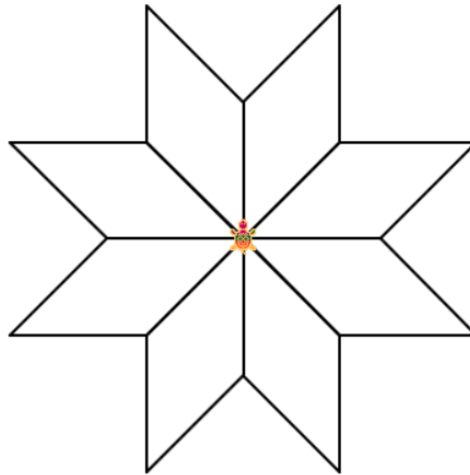


“Turtle Tuesday” Logo Challenges

May 2, 2023

Challenge No. 31

Can you draw a diamond shape and turn it into a flower? Add some color, if you want!



Our solutions:

```
TO DIAMOND
  FD 100
  RT 45
  FD 100
  RT 135
  FD 100
  RT 45
  FD 100
  RT 135
END
```

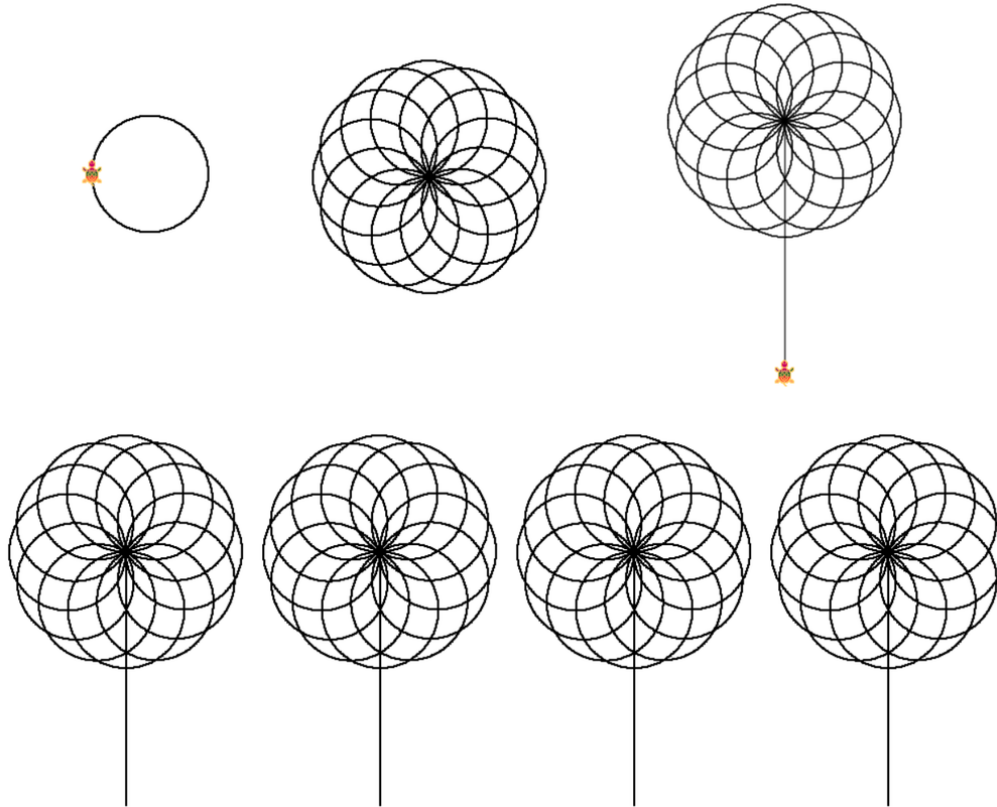
```
TO FLOWER
  REPEAT 8 [DIAMOND RT 45]
END

TO BIGFLOWER
  REPEAT 16 [DIAMOND RT 22.5]
END
```

May 9, 2023

Challenge No. 32

Can you make a circle into a flower and then create a garden of them?



Our solution:

```
TO CIRCLE  
  REPEAT 360 [FD 1 RT 1]  
END
```

```
TO CIRCLES  
  REPEAT 12 [CIRCLE RT 30]  
END
```

```
TO FLOWERS  
  CIRCLES BK 250 FD 250  
END
```

```
TO GARDEN  
  DRAW SETW 2  
  PU LT 90 FD 350 RT 90 BK 550 PD  
  REPEAT 4 [FLOWERS PU RT 90 FD 250 LT 90 PD]  
END
```

May 16, 2023

Challenge No. 33

Make arches with the turtle ending in a different spot.
Then see what you can make with them!



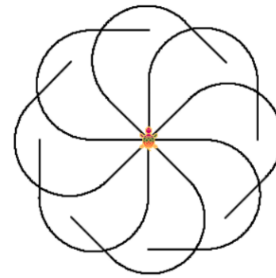
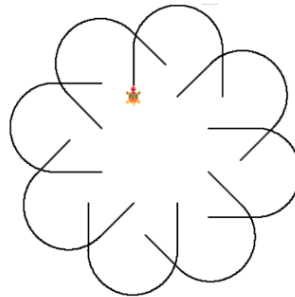
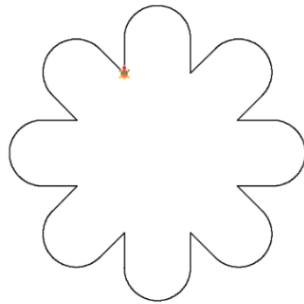
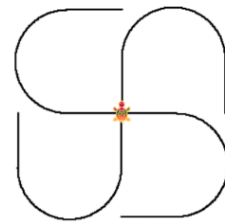
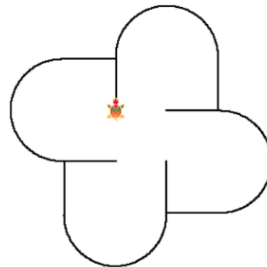
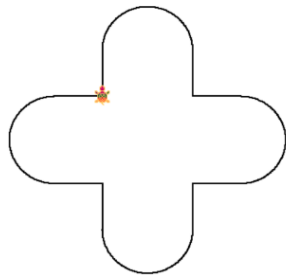
ARCH1



ARCH2



ARCH3



Our solutions:

```
TO ARCH1
FD 60
REPEAT 180 [FD 1 RT 1]
FD 1
FD 60
RT 180
END
```

```
REPEAT 4 [ARCH1 RT 90]
```

```
REPEAT 8 [ARCH1 RT 45]
```

```
TO ARCH2
FD 60
REPEAT 180 [FD 1 RT 1]
FD 1
FD 60
RT 180
PU LT 90 FD 58 RT 90 PD
END
```

```
REPEAT 4 [ARCH2 RT 90]
```

```
REPEAT 8 [ARCH2 RT 45]
```

```
TO ARCH3
FD 60
REPEAT 180 [FD 1 RT 1]
FD 1
FD 60
RT 180
PU LT 90 FD 115 RT 90
PD
END
```

```
REPEAT 4 [ARCH3 RT 90]
```

```
REPEAT 8 [ARCH3 RT 45]
```

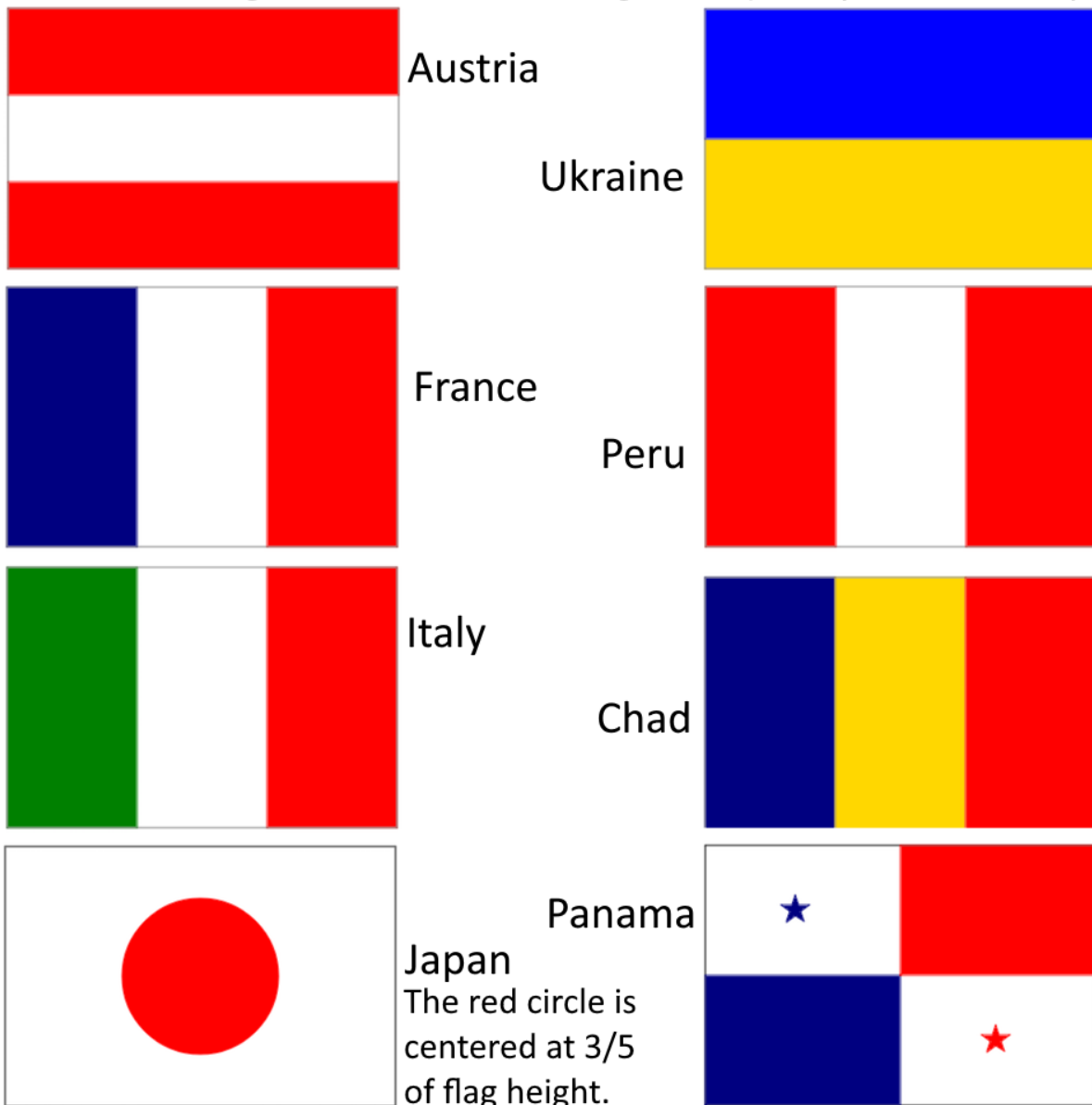
May 23, 2023

Challenge No. 34

Try drawing some of these nation's flags.
Find other flags that you would like to draw!
This website has many flags to choose from:

https://en.wikipedia.org/wiki/List_of_aspect_ratios_of_national_flags

The ratio of height to width for these flags is 2:3 (240 by 360, for example)



Our solutions are on the next page.

TO AUSTRIA
SETPC "RED
REPEAT 2 [FD 80 RT 90 FD 360 RT 90]
PU RT 45 FD 20 PD FILL PU BK 20 LT 45 PD
PU FD 160 PD
REPEAT 2 [FD 80 RT 90 FD 360 RT 90]
SETPC "RED
PU RT 45 FD 20 PD FILL PU BK 20 LT 45 PD
PU BK 160 PD
SETPC 8
REPEAT 2 [FD 240 RT 90 FD 360 RT 90]
SETPC 0
END

TO FRANCE
SETPC "NAVY
REPEAT 2 [FD 240 RT 90 FD 120 RT 90]
PU RT 45 FD 20 PD FILL PU BK 20 LT 45 PD
PU RT 90 FD 240 LT 90 PD
SETPC "RED
REPEAT 2 [FD 240 RT 90 FD 120 RT 90]
PU RT 45 FD 20 PD FILL PU BK 20 LT 45 PD
PU HOME PD SETPC 8
REPEAT 2 [FD 240 RT 90 FD 360 RT 90]
SETPC 0
END

TO ITALY
SETPC "GREEN
REPEAT 2 [FD 240 RT 90 FD 120 RT 90]
PU RT 45 FD 20 PD FILL PU BK 20 LT 45 PD
PU RT 90 FD 240 LT 90 PD
SETPC "RED
REPEAT 2 [FD 240 RT 90 FD 120 RT 90]
PU RT 45 FD 20 PD FILL PU BK 20 LT 45 PD
PU HOME PD SETPC 8
REPEAT 2 [FD 240 RT 90 FD 360 RT 90]
SETPC 0
END

TO JAPAN
REPEAT 2 [FD 240 RT 90 FD 360 RT 90]
PU RT 90 FD 180 LT 90 FD 120 PD
SETPC "RED
(STAMPOVAL 72 72 TRUE)
PU HOME PD SETPC 8
REPEAT 2 [FD 240 RT 90 FD 360 RT 90]
SETPC 0
END

TO STAR [for the Panama flag]
RT 18
REPEAT 5 [FD 10 LT 72 FD 10 RT 144]
PU RT 45 FD 12 PD FILL
PU BK 12 LT 45 PD
LT 18
END

TO UKRAINE
SETPC "GOLD
REPEAT 2 [FD 120 RT 90 FD 360 RT 90]
PU RT 45 FD 20 PD FILL PU BK 20 LT 45 PD
PU FD 120 LT 90 PD RT 90
SETPC ITEM 10 COLORS
REPEAT 2 [FD 120 RT 90 FD 360 RT 90]
PU RT 45 FD 20 PD FILL PU BK 20 LT 45 PD
PU HOME PD SETPC 8
REPEAT 2 [FD 240 RT 90 FD 360 RT 90]
SETPC 0
END

TO PERU
SETPC "RED
REPEAT 2 [FD 240 RT 90 FD 120 RT 90]
PU RT 45 FD 20 PD FILL PU BK 20 LT 45 PD
PU RT 90 FD 240 LT 90 PD
SETPC "RED
REPEAT 2 [FD 240 RT 90 FD 120 RT 90]
PU RT 45 FD 20 PD FILL PU BK 20 LT 45 PD
PU HOME PD SETPC 8
REPEAT 2 [FD 240 RT 90 FD 360 RT 90]
SETPC 0
END

TO CHAD
SETPC "NAVY
REPEAT 2 [FD 240 RT 90 FD 120 RT 90]
PU RT 45 FD 20 PD FILL PU BK 20 LT 45 PD
PU RT 90 FD 120 LT 90 PD
SETPC "GOLD
REPEAT 2 [FD 240 RT 90 FD 120 RT 90]
PU RT 45 FD 20 PD FILL PU BK 20 LT 45 PD
PU RT 90 FD 120 LT 90 PD
SETPC "RED
REPEAT 2 [FD 240 RT 90 FD 120 RT 90]
PU RT 45 FD 20 PD FILL PU BK 20 LT 45 PD
PU HOME PD SETPC 8
REPEAT 2 [FD 240 RT 90 FD 360 RT 90]
SETPC 0
END

TO PANAMA
REPEAT 2 [FD 240 RT 90 FD 360 RT 90]
SETPC "NAVY
REPEAT 2 [FD 120 RT 90 FD 180 RT 90]
PU RT 45 FD 10 PD FILL BK 10 LT 45 PD
PU SETPOS [180 120] PD
SETPC "RED
REPEAT 2 [FD 120 RT 90 FD 180 RT 90]
PU RT 45 FD 10 PD FILL BK 10 LT 45 PD
PU SETPOS [75 170] PD
SETPC "NAVY
STAR
SETPC "RED
PU SETPOS [260 50] PD
STAR
END

May 30, 2023

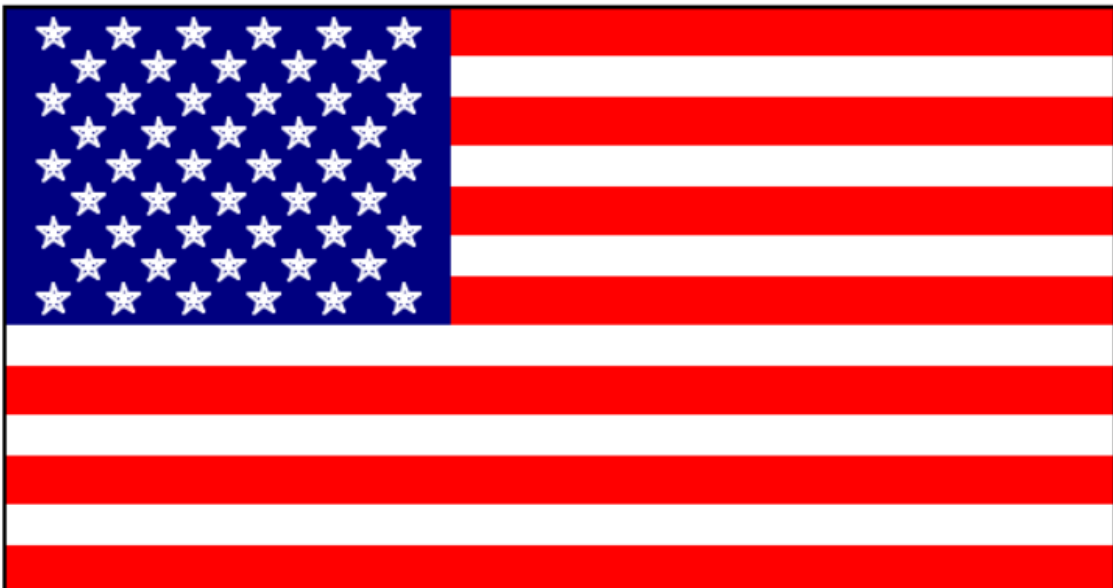
Challenge No. 35

Can you draw a U.S. flag? This one is hard!
Its official ratio is 1:1.9 (as in 200 by 380 turtle steps).
Start with the stripes and field of blue. Then add 50 stars.

This website has all the details about the dimensions of the flag:

<https://usflags.design/usa/>

Happy Memorial Day!



The official United States flag has a size ratio of 1:1.9.
This flag is 300 turtle steps tall by 570 turtle steps wide.

Flags that people typically buy for their homes have a
size ratio of 3:5. Good luck with this difficult challenge!

Our solutions are on the next page.

Code Set 1: written by an average Logo programmer:

```
TO USFLAG
DRAW SETW 2 PU LT 90 FD 250 RT 90 PD
REPEAT 2 [FD 23.08 RT 90 FD 570 RT 90]
SETPC "RED
REPEAT 2 [FD 23.08 RT 90 FD 570 RT 90]
PU RT 45 FD 25 PD FILL PU BK 25 LT 45
PU FD 2 * 23.08 PD
REPEAT 2 [FD 23.08 RT 90 FD 570 RT 90]
PU RT 45 FD 25 PD FILL PU BK 25 LT 45
PU FD 2 * 23.08 PD
REPEAT 2 [FD 23.08 RT 90 FD 570 RT 90]
PU RT 45 FD 25 PD FILL PU BK 25 LT 45
PU FD 2 * 23.08 PD
SETPC "RED
PU RT 90 FD 0.76 * 300 LT 90 PD
REPEAT 2 [FD 23.08 RT 90 FD (300 * 1.9) - (0.76 * 300) RT 90]
PU RT 45 FD 25 PD FILL PU BK 25 LT 45
PU FD 2 * 23.08 PD
REPEAT 2 [FD 23.08 RT 90 FD (300 * 1.9) - (0.76 * 300) RT 90]
PU RT 45 FD 25 PD FILL PU BK 25 LT 45
PU FD 2 * 23.08 PD
REPEAT 2 [FD 23.08 RT 90 FD (300 * 1.9) - (0.76 * 300) RT 90]
PU RT 45 FD 25 PD FILL PU BK 25 LT 45
PU FD 2 * 23.08 PD
REPEAT 2 [FD 23.08 RT 90 FD (300 * 1.9) - (0.76 * 300) RT 90]
PU RT 45 FD 25 PD FILL PU BK 25 LT 45
PU BK 23.08 * 6 LT 90 FD 0.76 * 300 RT 90 PD
SETPC "NAVY
REPEAT 2 [FD 53.85 * 3 RT 90 FD 76 * 3 RT 90]
PU RT 45 FD 45 PD FILL PU BK 45 LT 45
PU HOME LT 90 FD 250 RT 90 PD
SETPC "BLACK
REPEAT 2 [FD 300 RT 90 FD 570 RT 90]
STARS
HT
END
```

```
TO STARS
SETPC "WHITE
PU SETPOS [-229 280] PD
REPEAT 6 [STAR PU RT 90 FD 36 LT 90 PD]
PU SETPOS [-211 263] PD
REPEAT 5 [STAR PU RT 90 FD 36 LT 90 PD]
PU SETPOS [-229 246] PD
REPEAT 6 [STAR PU RT 90 FD 36 LT 90 PD]
PU SETPOS [-211 229] PD
REPEAT 5 [STAR PU RT 90 FD 36 LT 90 PD]
PU SETPOS [-229 212] PD
REPEAT 6 [STAR PU RT 90 FD 36 LT 90 PD]
PU SETPOS [-211 195] PD
REPEAT 5 [STAR PU RT 90 FD 36 LT 90 PD]
PU SETPOS [-229 178] PD
REPEAT 6 [STAR PU RT 90 FD 36 LT 90 PD]
PU SETPOS [-211 161] PD
```

```

REPEAT 5 [STAR PU RT 90 FD 36 LT 90 PD]
PU SETPOS [-229 144] PD
REPEAT 6 [STAR PU RT 90 FD 36 LT 90 PD]
END

```

```

TO STAR
  RT 18
  REPEAT 5 [FD 6 LT 72 FD 6 RT 144]
  PU RT 20 FD 9 PD FILL
  PU BK 9 LT 20 PD
  LT 18
END

```

Code Set 2: written by professional programmer Michael Daumling, who wrote and maintains the code for Terrapin Logo. It uses global and local variables and inputs so you can draw a flag of any size. It also has comment lines (starting with ;) to explain the code. You may want to take some time to examine the code and learn some new programming techniques from it.

```

TO CALC.SIZE :H
  ; the values are the official flag measurements
  MAKE "FLAG.WIDTH 1.9 * :H
  MAKE "FLAG.HEIGHT 1 * :H
  MAKE "STAR.DISTANCE.HORZ 0.063 * :H
  MAKE "STAR.DISTANCE.VERT 0.054 * :H
  MAKE "STAR.SIZE 0.0616 * :H
  MAKE "STRIPE.WIDTH :FLAG.WIDTH
  MAKE "STRIPE.HEIGHT 0.0769 * :H
  MAKE "BACKGROUND.WIDTH 0.76 * :H
  MAKE "BACKGROUND.HEIGHT 0.5385 * :H
END

```

```

TO STRIPES
  SETPC "RED PD
  REPEAT 7 [
    (STAMPRECT :STRIPE.WIDTH :STRIPE.HEIGHT TRUE)
    PU FD :STRIPE.HEIGHT * 2 PD
  ]
END

```

```

TO BLUEBOX
  PU SETPC "DARKBLUE
  (SETXY 0 :STRIPE.HEIGHT * 6)
  PD
  (STAMPRECT :BACKGROUND.WIDTH :BACKGROUND.HEIGHT TRUE)
END

```

```

TO STAR :X :Y :SIZE
  ; start at the top
  PU (SETXY :X :Y + :SIZE / 2) SETH 180 - 18 PD
  LMAKE "N (:SIZE / 2) / (1 + SIN 18)
  REPEAT 5 [FD :N LT 72 FD :N RT 144]
  ; fill it by moving into the star
  PU (SETXY :X :Y) PD FILL
END

```

```

TO STARS :X :Y :ROWS :COLS
  LMAKE "X0 :X
  REPEAT :ROWS [
    MAKE "X :X0
    REPEAT :COLS [

```



```

        PD
        STAR :X :Y :STAR.SIZE
        PU
        MAKE "X :X + :STAR.DISTANCE.HORZ * 2
    ]
    MAKE "Y :Y + :STAR.DISTANCE.VERT * 2
]
END

TO FLAG :HEIGHT
    DRAW PU HT
    ; no wrap for turtles!
    WINDOW
    CALC.SIZE :HEIGHT
    ; set the turtle origin to the bottom left of the flag to ceenter the flag
    SETORIGIN LIST -:FLAG.WIDTH / 2 -:FLAG.HEIGHT / 2
    STRIPES
    BLUEBOX
    SETPC "WHITE
    MAKE "Y0 :STRIPE.HEIGHT * 6
    ; draw the first round of stars in a 5 x 6 pattern
    STARS :STAR.DISTANCE.HORZ :STAR.DISTANCE.VERT + :Y0 5 6
    ; draw the second round of stars in a 4 x 5 pattern
    STARS 2 * :STAR.DISTANCE.HORZ 2 * :STAR.DISTANCE.VERT + :Y0 4 5
    ; finally, draw a gray border around the flag
    (SETXY 0 0) SETPC "GRAY PD
    STAMPRECT :FLAG.WIDTH :FLAG.HEIGHT
END

```

Try these flags of different sizes:

DRAW FLAG 200

DRAW FLAG 300

DRAW FLAG 500