"Turtle Tuesday" Logo Challenges

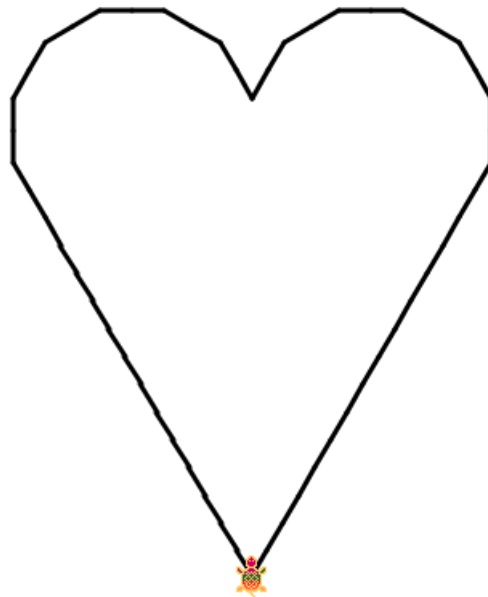**This month features designs that you can draw with *Kinderlogo*,
as well as with Logo, and often Pro-Bot and InO-Bot!**

December 3, 2024

Challenge No. 114

For *Kinderlogo*, Logo, Pro-Bot, and InO-Bot users

Create a heart-felt holiday design!

You can draw this design in *Kinderlogo* at **Level 1**. The only commands you need are these:
F (20 turtle steps), **R** (30 degree turn to the right), **L** (30 degree turn to the left)
and perhaps these: **X** (undo last command), **N** (new picture)

Can you see how the Logo commands translate into *Kinderlogo* commands?

Our Solutions:

Logo Commands	*Kinderlogo* Commands at Level 1
`LT 30`	`L`
`FD 300`	`F F F F F  F F F F F  F F F F F`
`REPEAT 6 [RT 30 FD 40]`	`R F F  R F F  R F F  R F F  R F F  R F F`
`LT 120`	`L L L L`
`REPEAT 5 [FD 40 RT 30]`	`F F R  F F R  F F R  F F R  F F R`
`FD 40`	`F F`
`RT 30`	`R`
`FD 300`	`F F F F F  F F F F F  F F F F F`
`RT 150`	`R R R R R`

Challenge No. 115

For *Kinderlogo*, Logo, Pro-Bot, and InO-Bot users

Will you find a scooter under the tree?
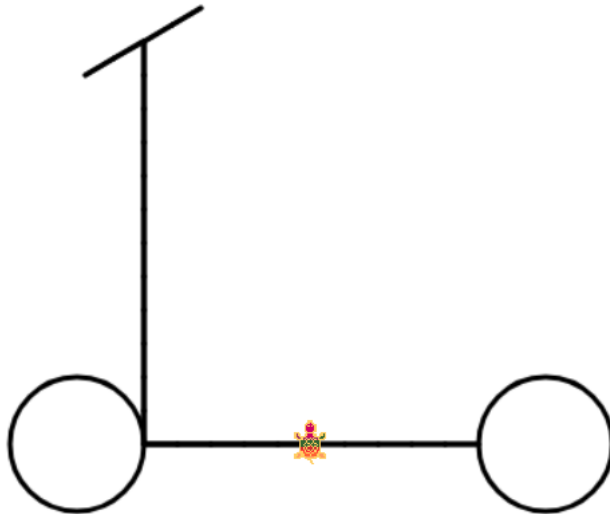
You can draw this design in *Kinderlogo* at **Level 2** using these new commands:
C (draws a circle with a radius of 40 turtle steps), **O** (turns the turtle the Opposite way),
B (moves the turtle backward 20 steps)

Our Solutions:

Logo Commands	*Kinderlogo* Commands at Level 2
LT 90	L L L
FD 100	F F F F F
LT 90	L L L
PU RT 90 FD 40 PD	; These commands are included in Kinderlogo's circle command.
STAMPOVAL 40 40	C
PU BK 40 LT 90 PD	; These commands are included in Kinderlogo's circle command.
RT 180	O
FD 240	F F F F F F F F F F
RT 60	R R
FD 40	F F
BK 80	B B B B
FD 40	F F
LT 60	L L
BK 240	B B B B B B B B B B B B
RT 90	R R R
FD 200	F F F F F F F F F F
LT 90	L L L
PU RT 90 FD 40 PD	; These commands are included in Kinderlogo's circle command.
STAMPOVAL 40 40	C
PU BK 40 LT 90 PD	; These commands are included in Kinderlogo's circle command.
LT 90 FD 100 RT 90	L L L F F F F F R R R

Challenge No. 116

For *Kinderlogo*, Logo, Pro-Bot, and InO-Bot users

Can you write your name in Logo? (or any other name you choose)

You can draw this design in *Kinderlogo* at **Level 3** using these new commands:
U (raises the turtle's pen so it can't draw) and **D** (puts the turtle's pen back down)

With Pro-Bot and InO-Bot, you can manually raise and lower the pen, or reposition the bot.

Our Solutions:

For *Kinderlogo* users: **F** (**F**orward) = 20 steps and a **R**ight or **L**eft turn is 30 degrees.
Older students can figure out a list of commands for *Kinderlogo* users to draw Rudolph.
The indented lines in the code below are equivalent to one **C** (circle) command in Kinderlogo.

```
TO RUDOLPH
;  main procedure
DRAW SETW 3
PU LT 90 FD 240 PD RT 90

R
U   ; each letter is a
D   ; separate procedure
O   ; that can be run
L   ; independently
P
H

END


TO R
FD 160
RT 90 FD 60
REPEAT 5 [RT 30 FD 20]
RT 30 FD 60
BK 60 LT 120 FD 100
PU LT 60 FD 40 LT 90 PD
END
```

```
TO U
LT 30 FD 20 RT 30 FD 60
BK 60 LT 30 BK 20 RT 120
FD 40 LT 60 FD 20
LT 30 FD 60
PU BK 60 RT 30
BK 20 RT 60
PU FD 120 LT 90 PD
END


TO D
FD 160 BK 120 RT 180
   PU RT 90 FD 40 PD
   STAMPOVAL 40 40
   PU BK 40 LT 90 PD
FD 40 LT 90
PU FD 20 LT 90
END


TO O
PU FD 40 PD
   PU RT 90 FD 40 PD
   STAMPOVAL 40 40
   PU BK 40 LT 90 PD
PU BK 40 RT 90
```

```
FD 120 LT 90
END
TO L
PD FD 160 BK 160
PU RT 90
FD 40 LT 90 PD
END

TO P
BK 60 FD 100
   PU RT 90 FD 40 PD
   STAMPOVAL 40 40
   PU BK 40 LT 90 PD
PU BK 40
END

TO H
RT 90 PU FD 120 LT 90 PD
FD 160 BK 100
RT 60 FD 20 RT 30 FD 40
RT 30 FD 20 RT 60 FD 60
RT 180
END

RUDOLPH
```

Challenge No. 117

for *Kinderlogo* and Logo users

Can you create some colorful wrapping paper in *Kinderlogo* or Logo?

Kinderlogo wrapping paper	Logo wrapping paper

You can draw the design at the left in *Kinderlogo* at **Level 4** using these new color commands:
2 (sets the pen color to red) and **5** (sets the pen color to green)
(Use numbers from 0 to 9 change the pen color.)
In Logo, you can adjust the width of the pen with **SETWIDTH** to create wider stripes, as in the second picture.

The distances your turtle travels will vary depending on the size of your monitor and its resolution.
Your pictures may look different from the ones above.

Our Solutions:

Logo Commands

Kinderlogo Commands at Level 4

```
DRAW SETW 20
SETH -30 SETPC "GREEN
FD 25000
SETW 20 SETH 30 SETPC "RED
FD 25000
```

```
2            (Sets the pen color to red.)
R
FFFFFFFFFFFFFFFFFFFF...  (Continue to hold down F!)
5            (Sets the pen color to green.)
R R
FFFFFFFFFFFFFFFFFFFF...  (Continue to hold down F!)
```

Challenge No. 118

for *Kinderlogo*, Logo, Pro-Bot, and InO-Bot users

Create a colorful design and then repeat it many times!
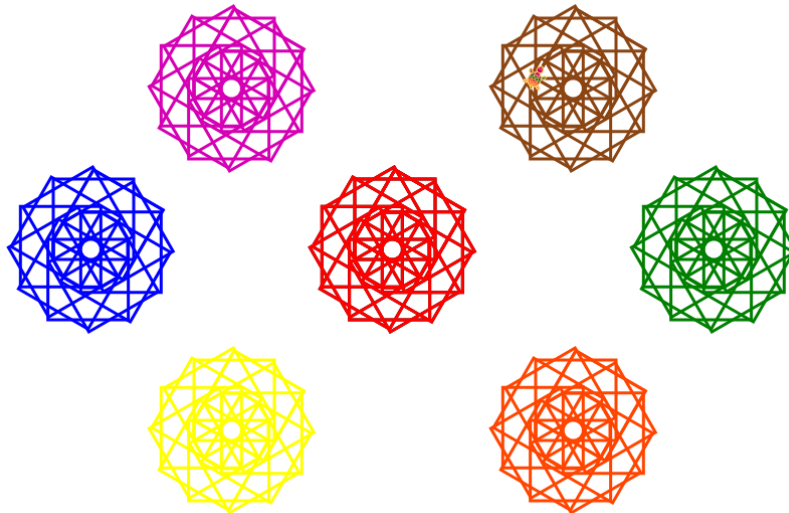
You can draw this design in *Kinderlogo* at **Level 5** using these new commands:
Draw a design and press **A** to store it by that letter name.
Move the turtle to a different spot and press **A** (for **A**gain) to draw the design again.
You can also use other letters to store other designs at the same time.
Pro-Bot can also store procedures, or sets of commands that draw a design.
InO-Bot runs the commands you enter in Logo.
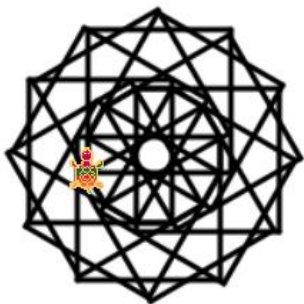
Start by drawing a black shape.
Don't include a color command in your code.
If you do, the design will always be drawn in that color!
Keep your main code simple. You can always add to it later.

Our Solutions:

Logo Commands for this design

```
REPEAT 12 [FD 20 RT 30
 REPEAT 4 [FD 80 RT 90]]
```
(write the commands above on one line)

***Kinderlogo* Commands at Level 5 for this design**

```
F R S   F R S   F R S   F R S   F R S   F R S
F R S   F R S   F R S   F R S   F R S   F R S
A       (to store those instructions using the letter A)
```

For both *Kinderlogo* and Logo, move the turtle (with its pen up) to a new location,
change the pencolor, put the pen down, and draw the design again (using **A** in Kinderlogo).