Logo Blocks Activities: Intermediate Mode

These activities use the Intermediate mode blocks in Logo Blocks. They progress from simple code to more complex challenges.

Sample solutions are provided at the end. Your students' solutions may vary, of course.

Encourage your students to send us their programs. No code is too simple to share with others. We want to build a community of users and you and your students can help do that.

To send us your program, please use the Customer Contribution Form on our website. https://www.terrapinlogo.com/forms/share.html

Under topic, please choose "I would like to share my Logo program."

Shortly after we receive your form, we will be in touch with you!

Thank you for using Logo Blocks!

Logo Blocks Activity Card #1

Terrapin
Tools for thinking
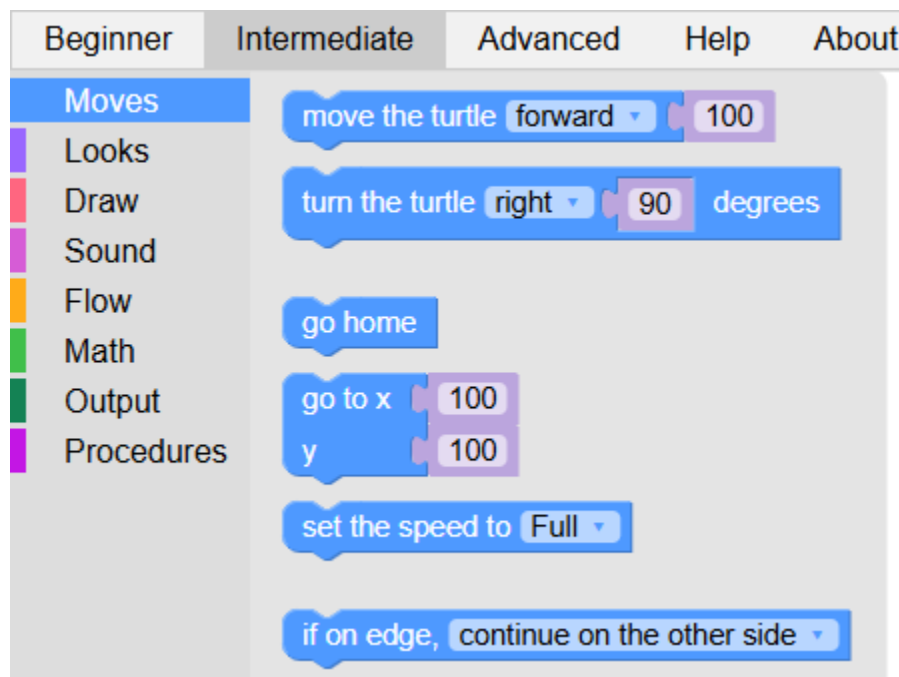
Colorful Square
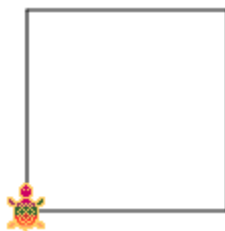
Can you create this colorful square using the *repeat* block?

Use the *pen width* block to get a thicker line.

Use a *random color* so it is different every time!
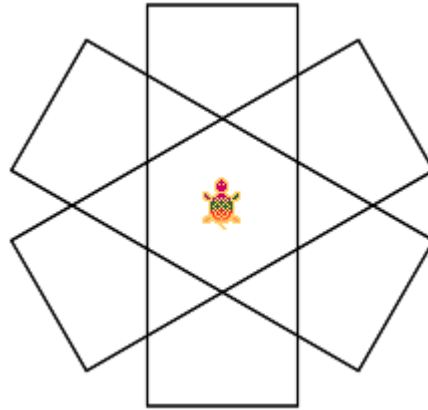
Logo Blocks Activity Card #2

Terrapin
Tools for thinking

SETXY Square

Can you draw a square using only the *go to x y* block?

go to x 100
y   100

Logo Blocks Activity Card #3

Terrapin
Tools for thinking

Fun with Rectangles

Can you use the *rectangle* block to create this design?

draw rectangle width 100
height 100
outlined ▾

Change the numbers in the block and use the *repeat* block.

Logo Blocks Activity Card #4

Terrapin
Tools for thinking

Bouncing Turtle

Start with the *if on edge* block in Moves. Turn the turtle a little, then send it forward a very large number and see what happens!

Logo Blocks Activity Card #5

Terrapin
Tools for thinking
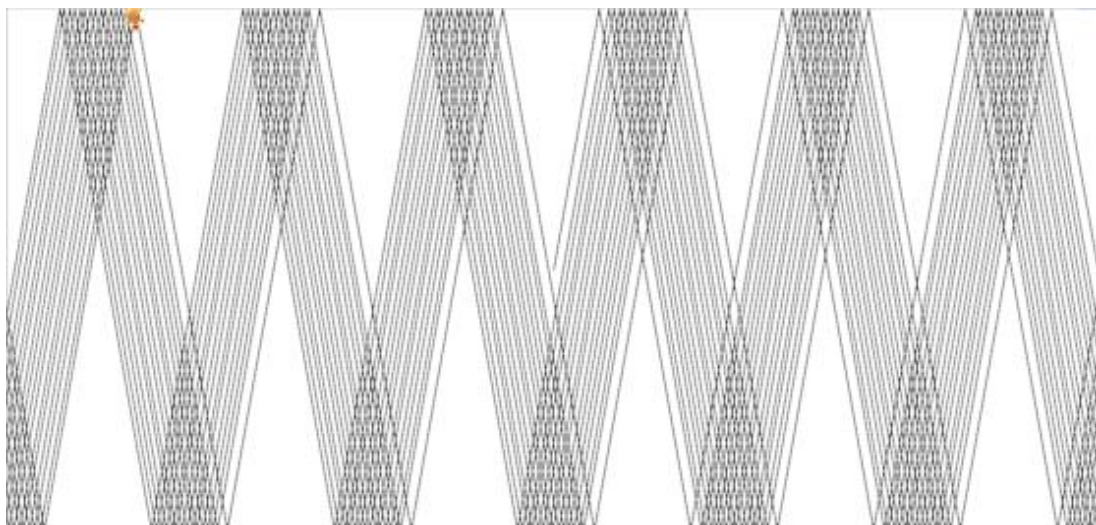
Introduce Yourself

Can you use the *draw text* block to type a greeting?

draw text " Hello "

Hello!

My name is

Morgan.

Logo Blocks Activity Card #6

Terrapin
Tools for thinking
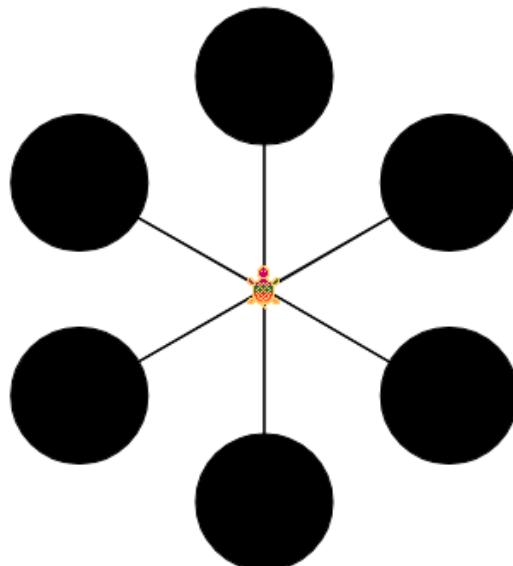
Draw Some Lollipops

Can you use the *repeat* and *draw circle* blocks to make this design?

Logo Blocks Activity Card #7

Decoding the Code, Part 1

Can you figure out what this Logo program will draw?

```
Editor

1   REPEAT 6 [
2       FORWARD 150
3       BACK 75
4       RIGHT 60
5   ]
```
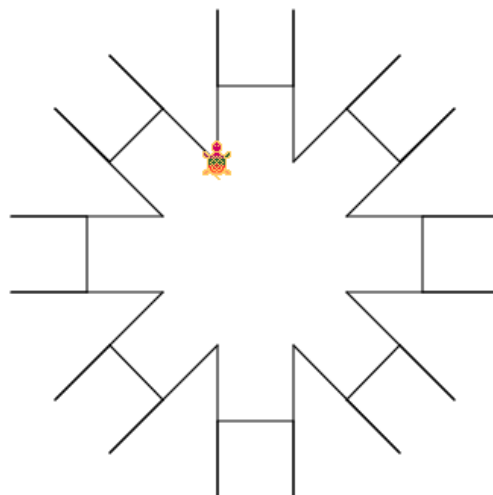
Translate the Logo code into Logo Blocks and see if you were right!

Logo Blocks Activity Card #8

Draw a Letter and Get Creative!

Write a procedure to draw a letter.

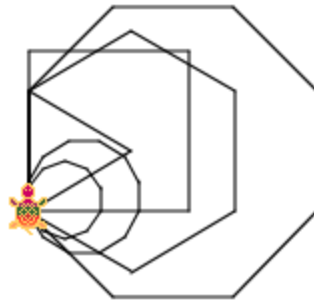Then do something interesting with it, as in this example.

Logo Blocks Activity Card #9

Terrapin
Tools for thinking

Draw Any Polygon

Can you write a procedure with 3 inputs to draw all these shapes?
In fact, you could use your procedure to draw any regular polygon!

Then try writing a procedure that requires just
two inputs to draw any polygon.

Logo Blocks Activity Card #10

Terrapin
Tools for thinking

Send the Turtle on a Random Walk

if
then
else
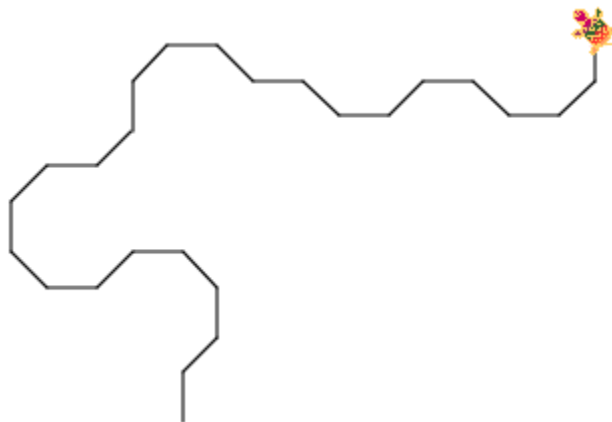
Use Logo Blocks to choose a random number from 1 to 2.

IF it is 1, THEN turn right, ELSE turn left. Go forward a little.

Logo Blocks Activity Card #11

Concentric Circles

Can you draw this design using the *draw circle* block?
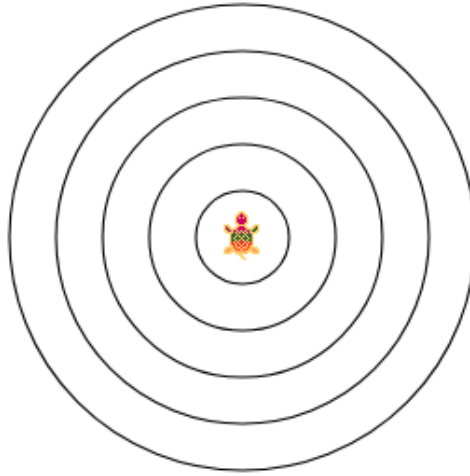
For a challenge, write a procedure that takes an input and stops making circles when the size gets to be a certain number.

Logo Blocks Activity Card #12

Decoding the Code, Part 2

Can you figure out what this Logo program will draw?

Translate the Logo code into Logo Blocks and see if you were right!

```
Editor
1   TO MYSTERY
2      REPEAT 3 [
3         FORWARD 80
4         RIGHT 120
5      ]
6   END
7
8   REPEAT 12 [
9      MYSTERY
10     FORWARD 80
11     RIGHT 30
12  ]
13
14  MYSTERY
```

Solutions

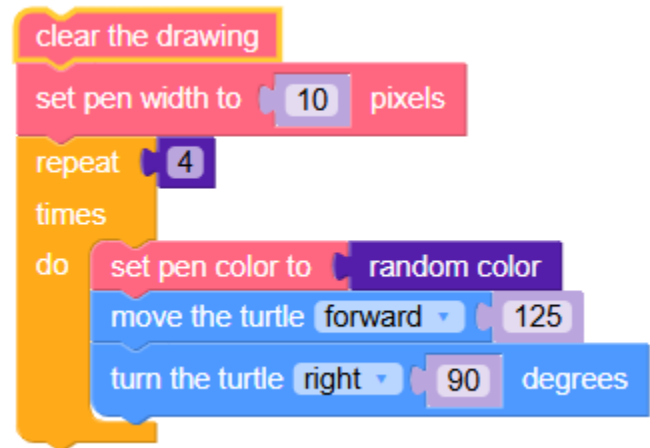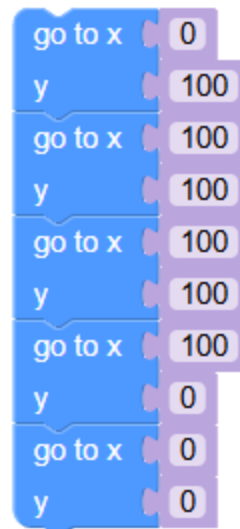There are usually many ways to solve each activity. Below is the code we used for each one. Any code that produces the correct result is fine! Students may learn new ideas by looking at solutions that are different from theirs.

Activity Card #1: Colorful Square

```
clear the drawing
set pen width to ( 10 ) pixels
repeat ( 4 )
times
do    set pen color to ( random color
      move the turtle  forward ▾  ( 125
      turn the turtle  right ▾  ( 90 ) degrees
```

Activity Card #2: SETXY Square

```
go to x ( 0
y       ( 100
go to x ( 100
y       ( 100
go to x ( 100
y       ( 100
go to x ( 100
y       ( 0
go to x ( 0
y       ( 0
```

Activity Card #3: Fun with Rectangles

```
repeat ( 6 )
times
do    draw rectangle width  ( 75
      height                ( 200
      outlined ▾
      turn the turtle  right ▾  ( 60 ) degrees
```
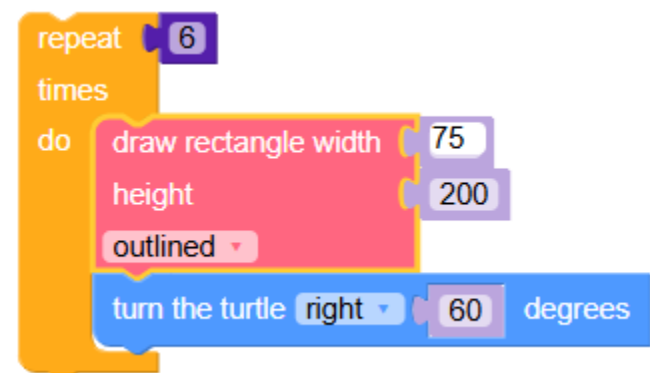
Activity Card #4: Bouncing Turtle

```
if on edge, bounce back
turn the turtle right 10 degrees
move the turtle forward 100000
```
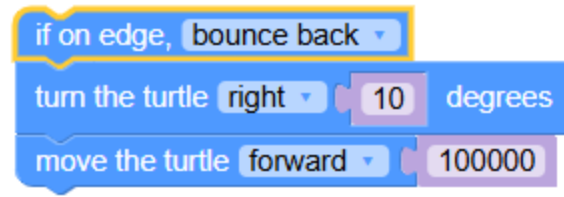
Activity Card #5: Introduce Yourself

```
set turtle font to Helvetica , size 24 pixels
set pen color to ■ (red)
draw text " Hello! "
pen up
move the turtle back 50
pen down
draw text " My name is "
pen up
move the turtle back 50
pen down
draw text " Morgan. "
pen up
set pen color to ■ (black)
go to x -50
y -55
```
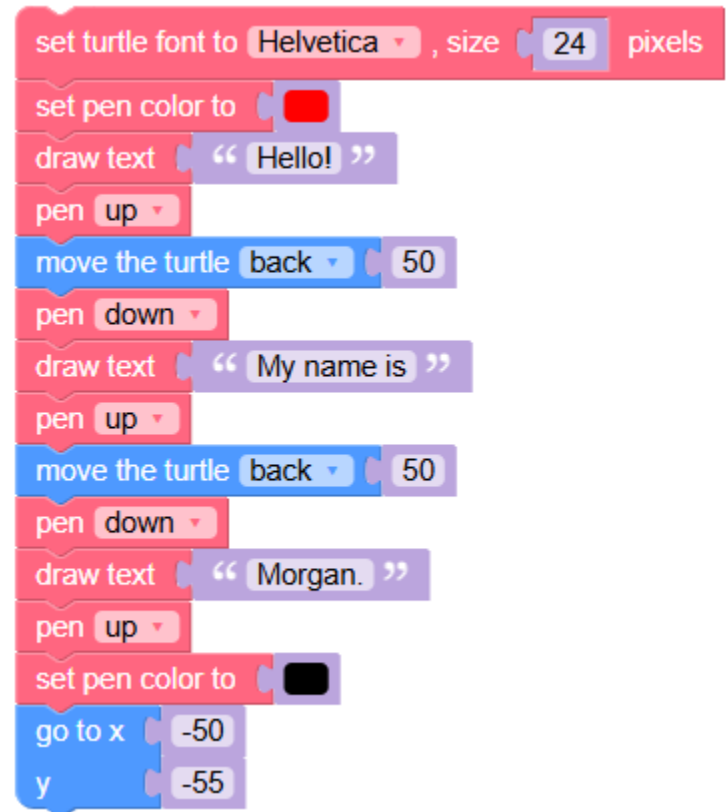
Activity Card #6: Draw Some Lollipops!

```
repeat 6 times
do
    move the turtle forward 125
    draw circle radius 40 filled
    move the turtle back 125
    turn the turtle right 60 degrees
```
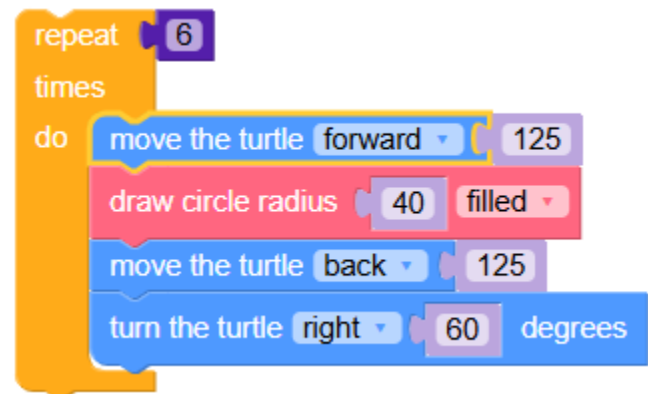
Activity Card #7: Decode the Code, Part 1!

```
repeat 6 times
do
    move the turtle forward 150
    move the turtle back 75
    turn the turtle right 60 degrees
```

Activity Card #8: Draw a Letter and Get Creative

```
To MYSTERY with 0 inputs:
    move the turtle forward    100
    move the turtle back    50
    turn the turtle right    90    degrees
    move the turtle forward    50
    turn the turtle left    90    degrees
    move the turtle forward    50
    move the turtle back    100
```

```
repeat    8
times
do    call MYSTERY
      turn the turtle right    45    degrees
```
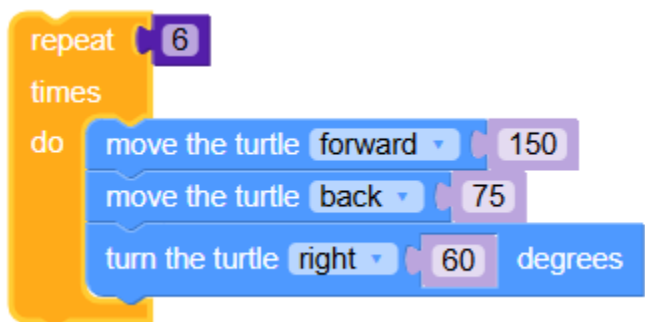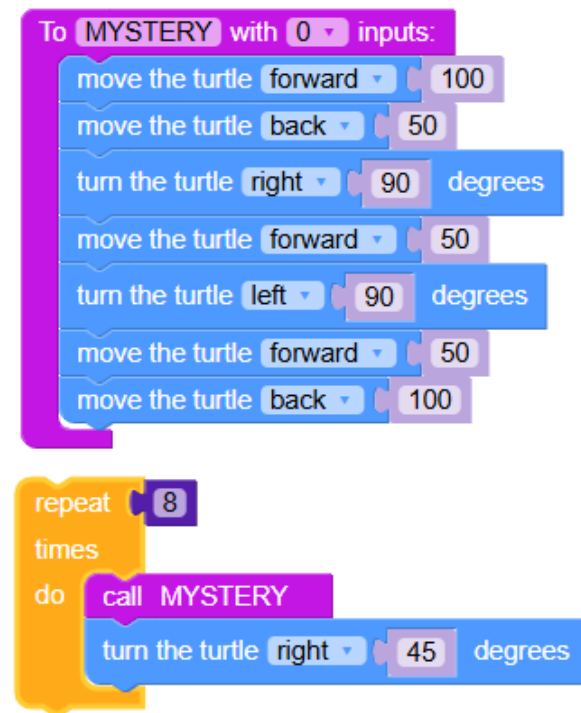
Activity Card #9: Draw Any Polygon

Three input version (easier):

```
To MYPROC with 3 inputs: SIDES  SIZE  ANGLE
    repeat    input SIDES
    times
    do    move the turtle forward    input SIZE
          turn the turtle right    input ANGLE    degrees
```

```
call MYPROC with
    SIDES    4
    SIZE     80
    ANGLE    90
```
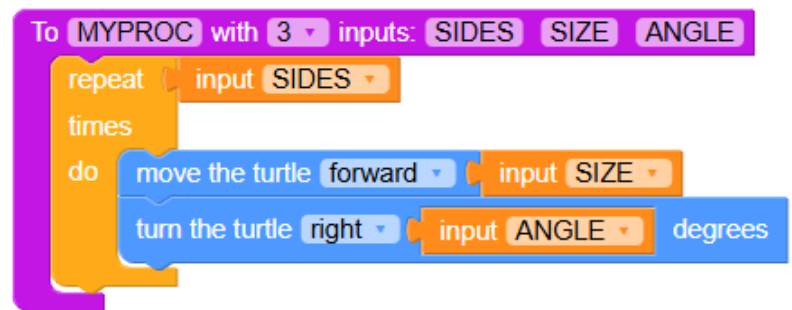
Two input version (harder):

This version demonstrates the "Total Turtle Trip Theorem," which states that to draw a regular polygon, the total of all the angles that the turtle needs to turn is 360.

```
To MYPROC with 2 inputs: SIDES  SIZE
    repeat    input SIDES
    times
    do    move the turtle forward    input SIZE
          turn the turtle right    360 ÷ input SIDES    degrees
```
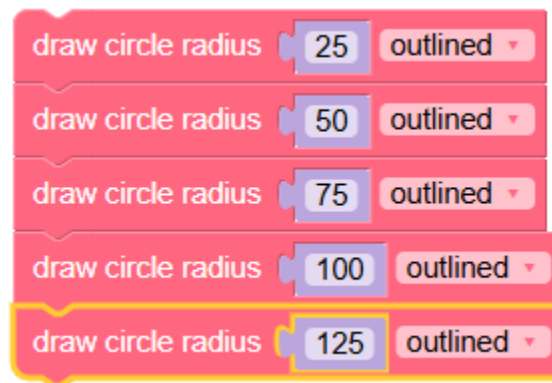
```
call MYPROC with
    SIDES    4
    SIZE     80
```
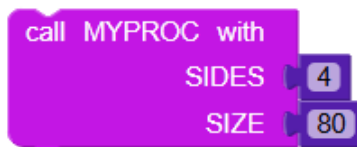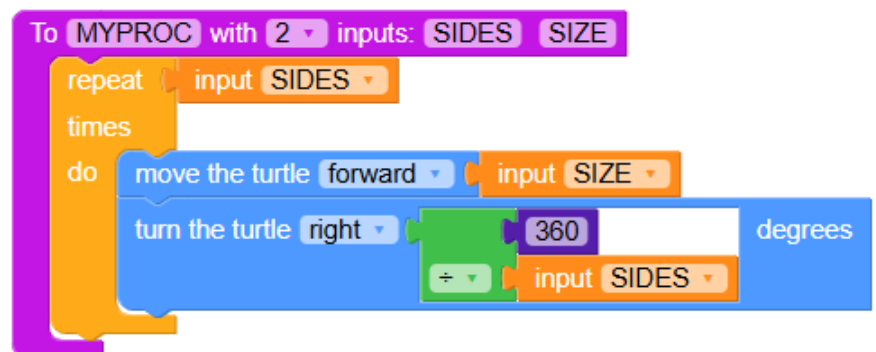
Activity Card #10:
Send the Turtle on a Random Walk

```
repeat 25 times
do  if      compare  random integer from 1
                     to                   2
            equal to  1
    then    move the turtle forward  25
            turn the turtle right  45  degrees

    else    move the turtle forward  25
            turn the turtle left  45  degrees
```
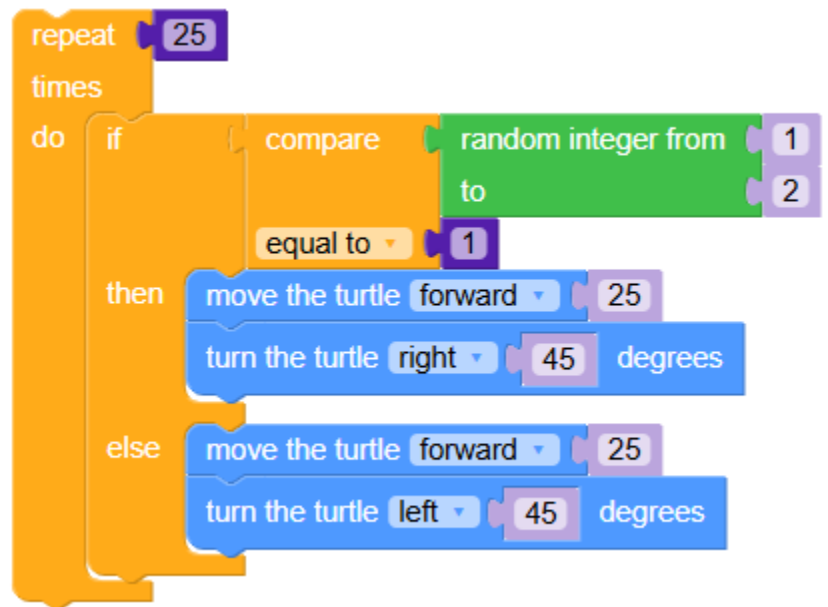
Activity Card #11: Concentric Circles

Easier version:

```
draw circle radius  25   outlined
draw circle radius  50   outlined
draw circle radius  75   outlined
draw circle radius  100  outlined
draw circle radius  125  outlined
```

Harder version:

```
To CIRCLES with 1 inputs: SIZE
    draw circle radius  input SIZE  outlined
    if      compare  input SIZE
                     greater than  150
    then    end program  STOP

    call CIRCLES with
         SIZE   input SIZE
                +  25

call CIRCLES with
     SIZE  25
```

Activity Card #12: Decoding the Code, Part 2


```
To MYSTERY with 0 inputs:
  repeat 3 times
  do  move the turtle forward 80
      turn the turtle right 120 degrees

repeat 12 times
do  call MYSTERY
    move the turtle forward 80
    turn the turtle right 30 degrees

call MYSTERY
```

Don't forget to send us block code that you have created!

To send us your code, use the Customer Contribution Form on our website.
https://www.terrapinlogo.com/forms/share.html

Under topic, please choose "I would like to share my Logo program."

We look forward to hearing from you!