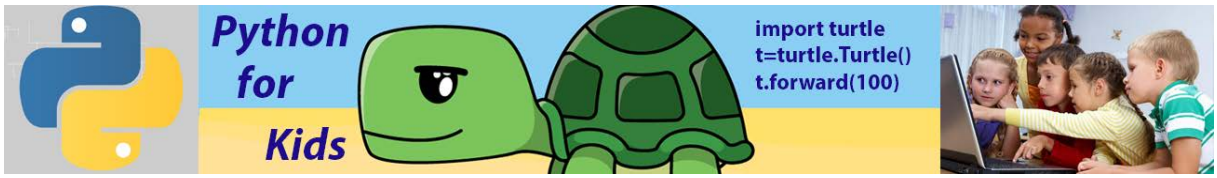


Lesson 2: Turtle Coordinates and Main Colour Commands

Summary:

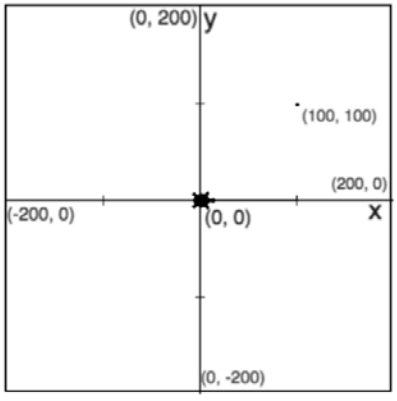
Code Instruction	What it does
t.color('green')	Set the line color to be green
t.fillcolor('gold')	Set fill color to be gold
t.begin_fill()	Start filling a shape
t.end_fill()	Stop filling a shape
t.color('green','red')	Set the line color to be green and shape color to be red
t.penup()	Stop the turtle from drawing
t.pendown()	Start the turtle drawing again
t=turtle.Tutrtle('turtle')	Set turtle shape as turtle***

***For kids who use trinket editor instead one line it is necessary to insert two lines

t=turtle.Turtle()
t.shape('turtle')

Each point in turtle's world can be located by (x, y) coordinate. For example

- The centre of the world is (0,0)
- The top middle of the world in Figure below is (0,200)
- The bottom left of the world in Figure below is (-200, -200)
- And so on…



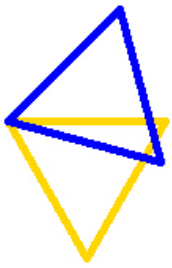
Python + Math

Code for Kids Output

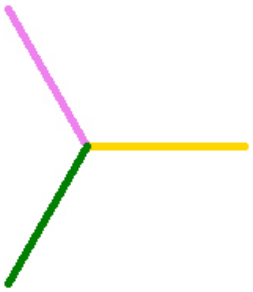
```
import turtle
t=turtle.Turtle()
t.hideturtle()
t.pensize(5)
t.color('red')
t.forward(100)
t.right(90)
t.forward(100)
t.right(90)
t.forward(100)
t.right(90)
t.forward(100)
t.right(90)
```

```
import turtle
t=turtle.Turtle()
t.hideturtle()
t.pensize(5)
t.color('red')
t.forward(100)
t.right(120)
t.forward(100)
t.right(120)
t.forward(100)
t.right(120)
```

```
import turtle
t=turtle.Turtle()
t.hideturtle()
t.pensize(5)
t.color('gold')
t.forward(100)
t.right(120)
t.forward(100)
t.right(120)
t.forward(100)
t.right(120)
t.setheading(45)
t.color('blue')
t.forward(100)
t.right(120)
t.forward(100)
t.right(120)
t.forward(100)
t.right(120)
```



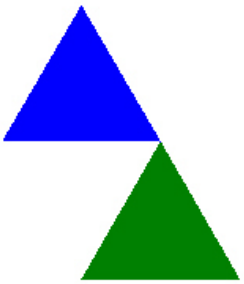
```
import turtle
t=turtle.Turtle()
t.hideturtle()
t.pensize(5)
t.color('gold')
t.forward(100)
t.backward(100)
t.left(120)
t.color('violet')
t.forward(100)
t.backward(100)
t.left(120)
t.color('green')
t.forward(100)
t.backward(100)
```



```
import turtle
t=turtle.Turtle()
t.hideturtle()
t.pensize(5)
t.color('gold','blue')
t.begin_fill()
t.forward(100)
t.left(120)
t.forward(100)
t.left(120)
t.forward(100)
t.end_fill()
```

Lesson 2

```
import turtle
import time
t=turtle.Turtle()
t.hideturtle()
t.pensize(1)
t.color('green')
t.begin_fill()
t.forward(100)
t.left(120)
t.forward(100)
t.end_fill()
t.color('blue')
t.begin_fill()
t.forward(100)
t.left(120)
t.forward(100)
t.end_fill()
```



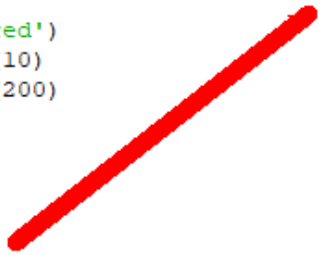
To see examples, images, and challenges

www.python.kidsgo.ca

1. **Example #1** (Draw line)

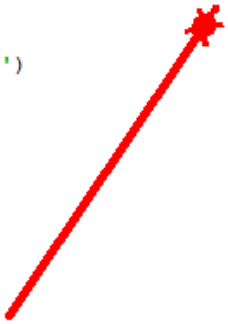
```
import turtle
import time
t=turtle.Turtle()
t.color('green')
t.pensize(10)
t.forward(200)
```

```
import turtle
import time
t=turtle.Turtle()
t.left(38)
t.color('red')
t.pensize(10)
t.forward(200)
```

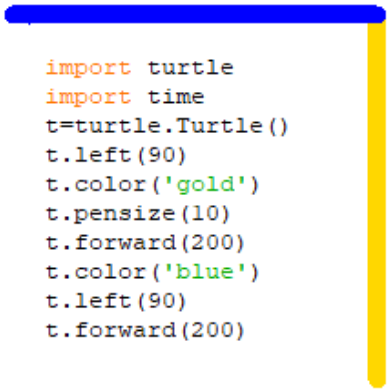


```
import turtle
import time
t=turtle.Turtle()
t.left(90)
t.color('gold')
t.pensize(10)
t.forward(200)
```

```
import turtle
t=turtle.Turtle('turtle')
t.pensize(5)
t.left(56)
t.color('red')
t.fd(200)
```

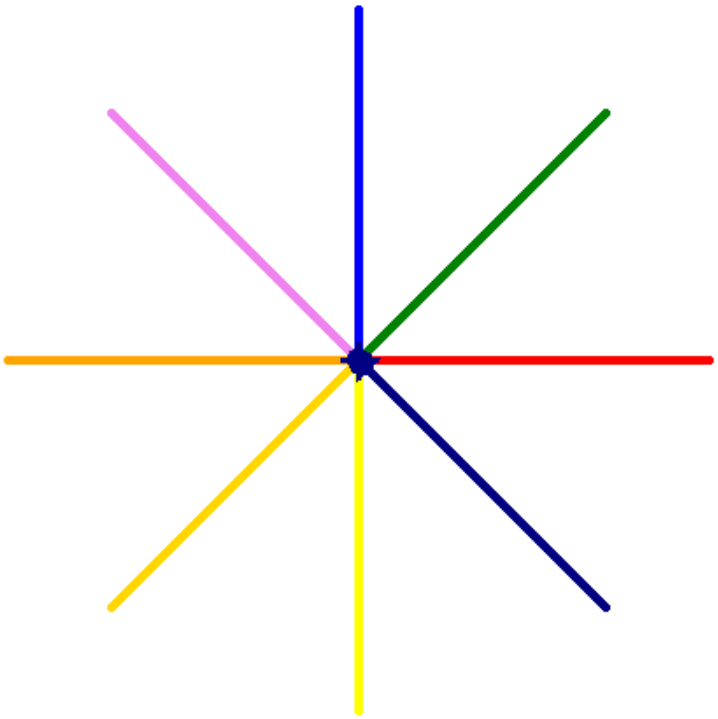


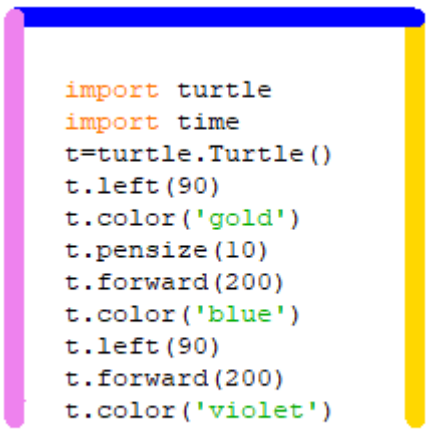
2. **Example #2** (A few Lines)



```
import turtle
import time
t=turtle.Turtle()
t.left(90)
t.color('gold')
t.pensize(10)
t.forward(200)
t.color('blue')
t.left(90)
t.forward(200)
```

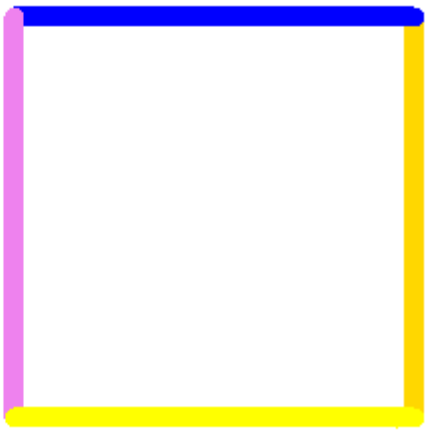
```
import turtle
t=turtle.Turtle('turtle')
t.pensize(5)
t.color('red')
t.fd(200)
t.fd(-200)
t.color('green')
t.left(45)
t.fd(200)
t.fd(-200)
t.color('blue')
t.left(45)
t.fd(200)
t.fd(-200)
t.color('violet')
t.left(45)
t.fd(200)
t.fd(-200)
t.color('orange')
t.left(45)
t.fd(200)
t.fd(-200)
t.color('gold')
t.left(45)
t.fd(200)
t.fd(-200)
t.color('yellow')
t.left(45)
t.fd(200)
t.fd(-200)
t.color('navy')
t.left(45)
t.fd(200)
t.fd(-200)
```

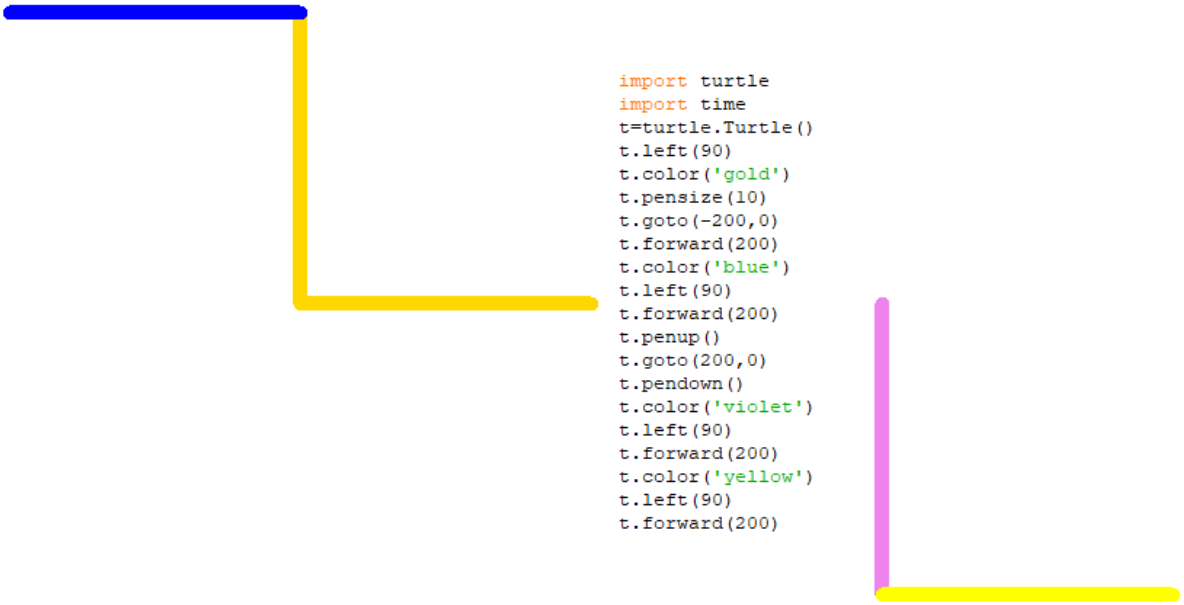




```
import turtle
import time
t=turtle.Turtle()
t.left(90)
t.color('gold')
t.pensize(10)
t.forward(200)
t.color('blue')
t.left(90)
t.forward(200)
t.color('violet')
t.left(90)
t.forward(200)
```

```
import turtle
import time
t=turtle.Turtle()
t.left(90)
t.color('gold')
t.pensize(10)
t.forward(200)
t.color('blue')
t.left(90)
t.forward(200)
t.color('violet')
t.left(90)
t.forward(200)
t.color('yellow')
t.left(90)
t.forward(200)
```

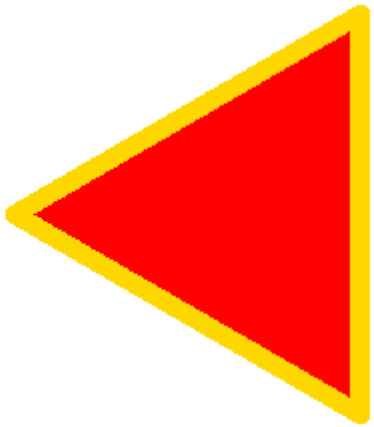




```
import turtle
import time
t=turtle.Turtle()
t.left(90)
t.color('gold')
t.pensize(10)
t.goto(-200,0)
t.forward(200)
t.color('blue')
t.left(90)
t.forward(200)
t.penup()
t.goto(200,0)
t.pendown()
t.color('violet')
t.left(90)
t.forward(200)
t.color('yellow')
t.left(90)
t.forward(200)
```

3. **Example #3**(Colour filling shapes)

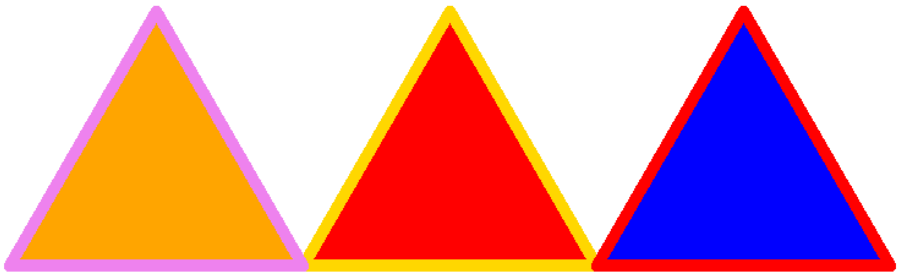
```
import turtle
t=turtle.Turtle()
t.hideturtle()
t.left(90)
t.color('gold')
t.fillcolor('red')
t.pensize(10)
t.begin_fill()
t.forward(200)
t.left(120)
t.forward(200)
t.left(120)
t.forward(200)
t.end_fill()
```



```
import turtle
t=turtle.Turtle()
t.hideturtle()
t.color('gold')
t.fillcolor('red')
t.pensize(10)
t.begin_fill()
t.forward(240)
t.left(120)
t.forward(240)
t.left(120)
t.forward(240)
t.end_fill()

t.setheading(0)
t.color('red','blue')
t.pensize(10)
t.penup()
t.goto(240,0)
t.pendown()
t.begin_fill()
t.forward(240)
t.left(120)
t.forward(240)
t.left(120)
t.forward(240)
t.end_fill()

t.setheading(0)
t.color('violet','orange')
t.pensize(10)
t.penup()
t.goto(-240,0)
t.pendown()
t.begin_fill()
t.forward(240)
t.left(120)
t.forward(240)
t.left(120)
t.forward(240)
t.end_fill()
```



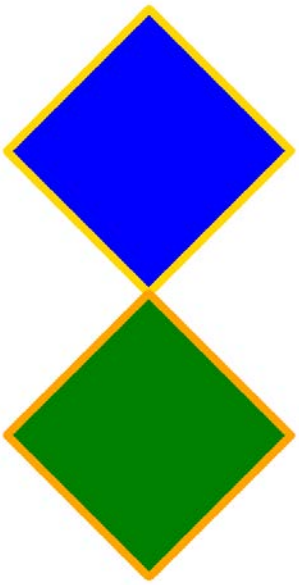
Challenges: write codes to create the following geometry shapes:

1. Expected output

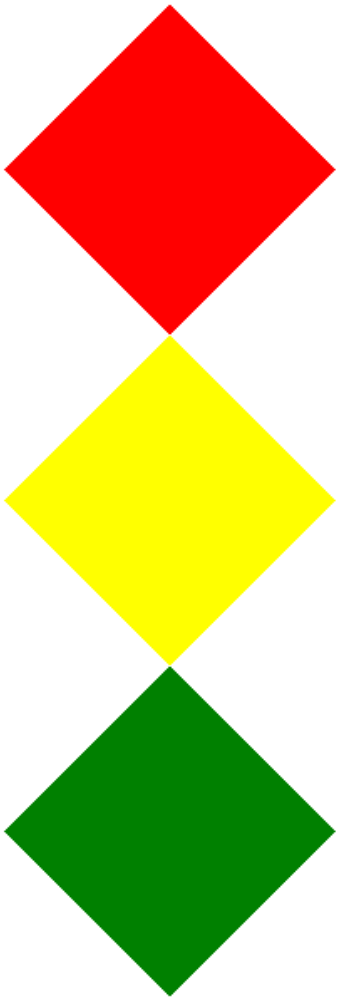
2. Expected output

3. Expected output

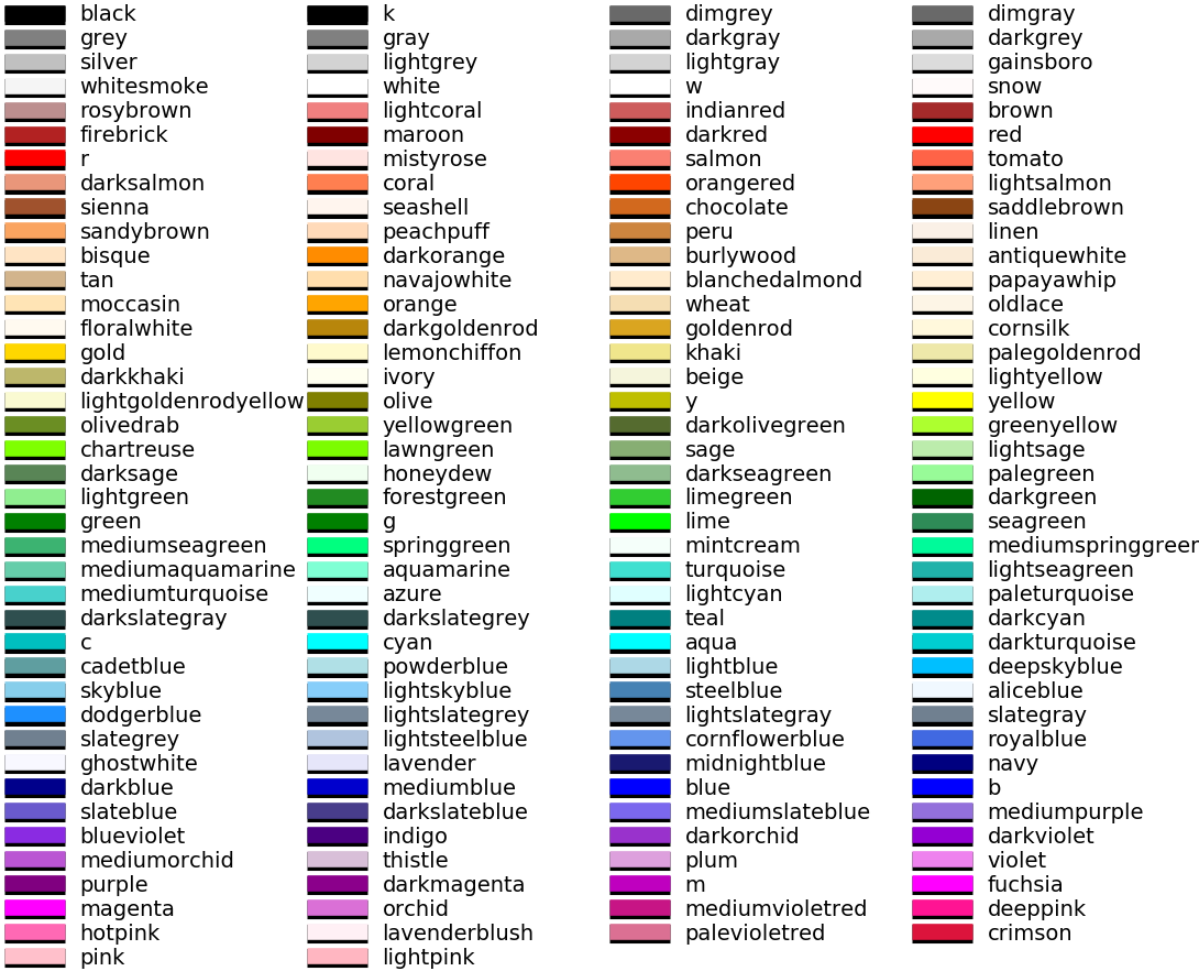
4. Expected output



5. Expected output



Colour List


black
grey
silver
whitesmoke
rosybrown
firebrick
r
darksalmon
sienna
sandybrown
bisque
tan
moccasin
floralwhite
gold
darkkhaki
lightgoldenrodyellow
olivedrab
chartreuse
darksage
lightgreen
green
mediumseagreen
mediumaquamarine
mediumturquoise
darkslategray
c
cadetblue
skyblue
dodgerblue
slategrey
ghostwhite
darkblue
slateblue
blueviolet
mediumorchid
purple
magenta
hotpink
pink
k
gray
lightgrey
white
lightcoral
maroon
mistyrose
coral
seashell
peachpuff
darkorange
navajowhite
orange
darkgoldenrod
lemonchiffon
ivory
olive
yellowgreen
lawngreen
honeydew
forestgreen
g
springgreen
aquamarine
azure
darkslategrey
cyan
powderblue
lightskyblue
lightslategrey
lightsteelblue
lavender
mediumblue
darkslateblue
indigo
thistle
darkmagenta
orchid
lavenderblush
lightpink
dimgrey
darkgray
lightgray
w
indianred
darkred
salmon
orangered
chocolate
peru
burlywood
blanchedalmond
wheat
goldenrod
khaki
beige
y
darkolivegreen
sage
darkseagreen
limegreen
lime
mintcream
turquoise
lightcyan
teal
aqua
lightblue
steelblue
lightslategray
cornflowerblue
midnightblue
blue
mediumslateblue
darkorchid
plum
m
mediumvioletred
palevioletred
dimgray
darkgrey
gainsboro
snow
brown
red
tomato
lightsalmon
saddlebrown
linen
antiquewhite
papayawhip
oldlace
cornsilk
palegoldenrod
lightyellow
yellow
greenyellow
lightsage
palegreen
darkgreen
seagreen
mediumspringgreer
lightseagreen
paleturquoise
darkcyan
darkturquoise
deepskyblue
aliceblue
slategray
royalblue
navy
b
mediumpurple
darkviolet
violet
fuchsia
deeppink
crimson