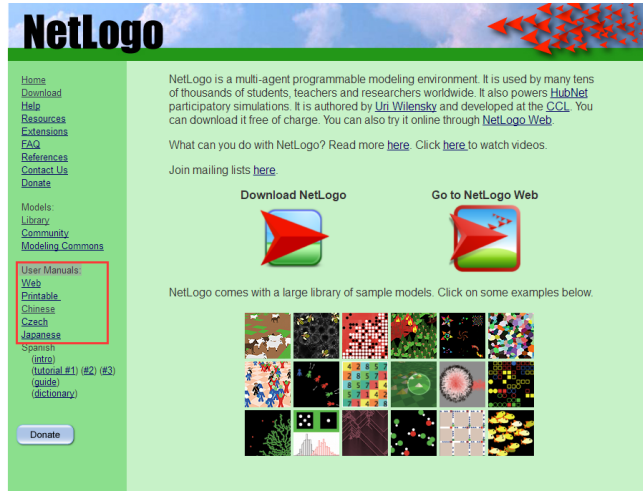


# NetLogo

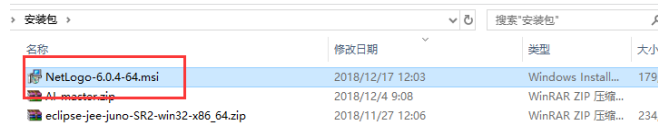
- 1、NetLogo tool downloads : <http://ccl.northwestern.edu/netlogo/6.0.4/>
- 2、NetLogo introduction : <http://ccl.northwestern.edu/netlogo/index.shtml>

User Manuals:

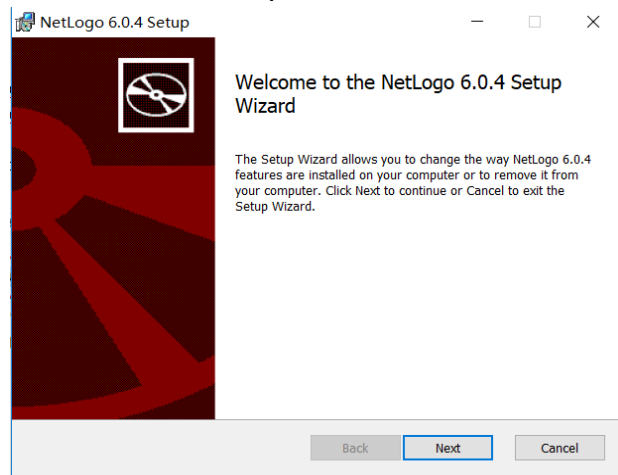


## 3、How to install the software?

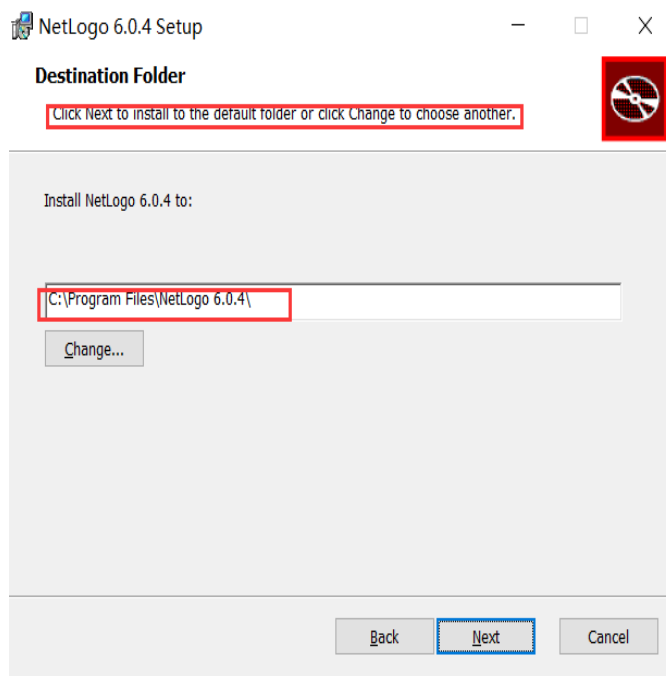
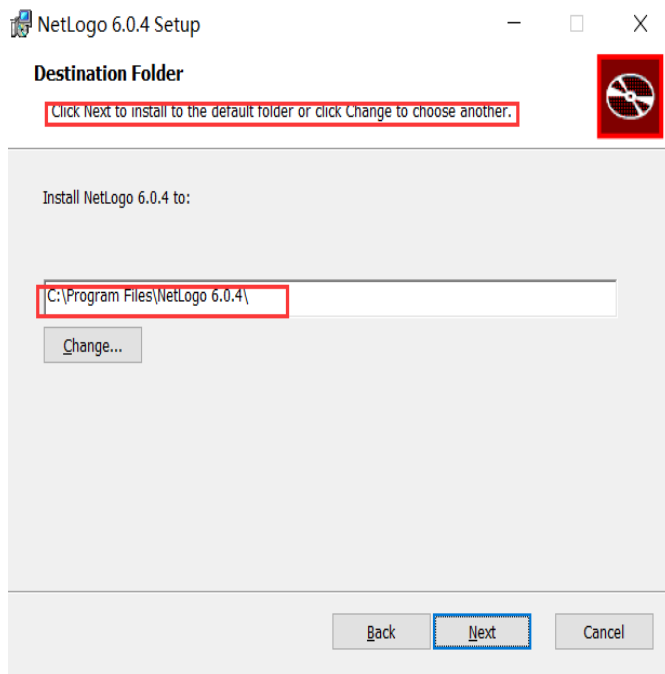
3.1、 you should find this package from website or QQ group:

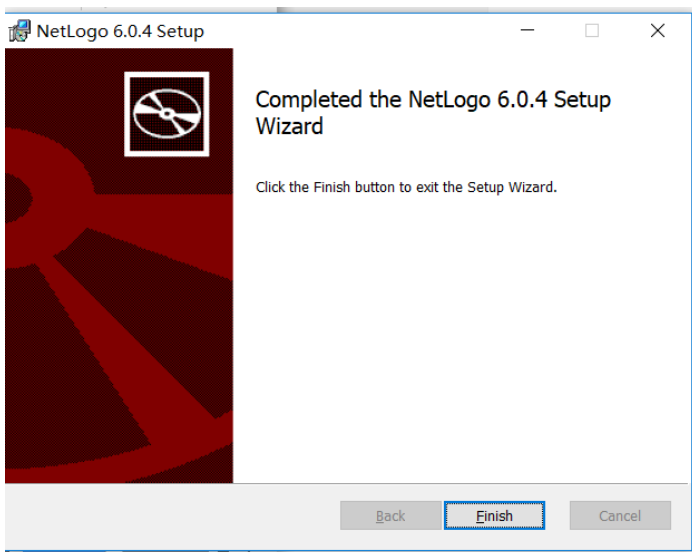
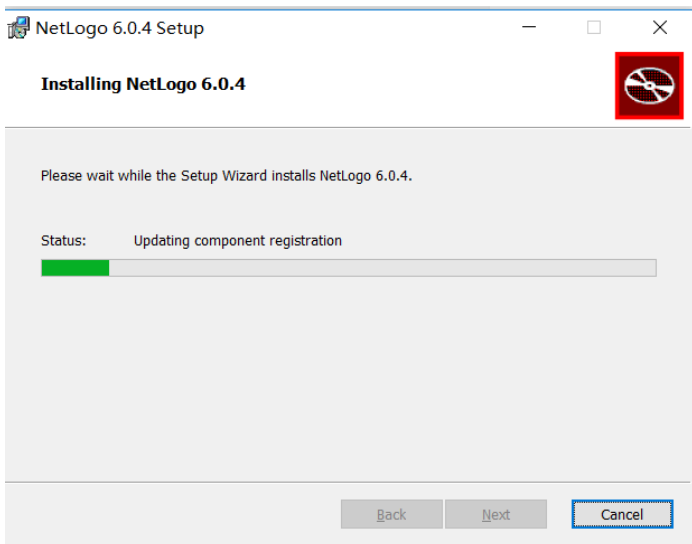
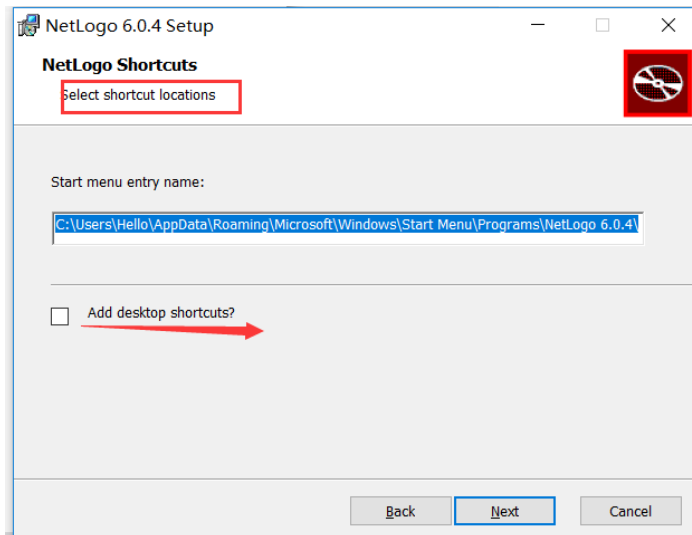


3.2、 Double click Open -->Next



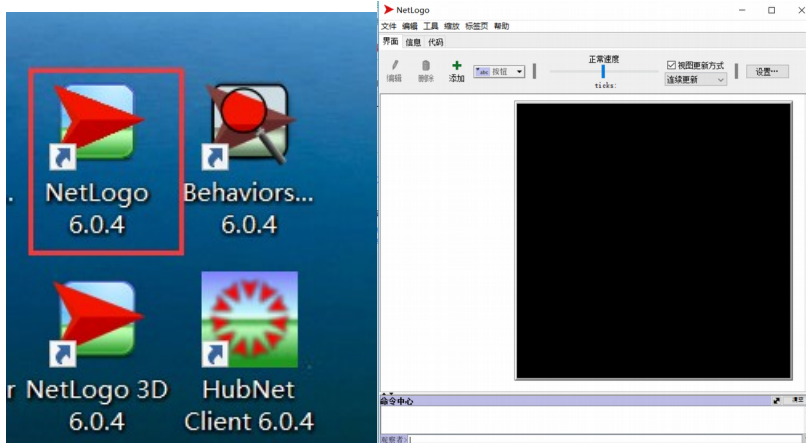
3.3、 you can change the install address --> Next





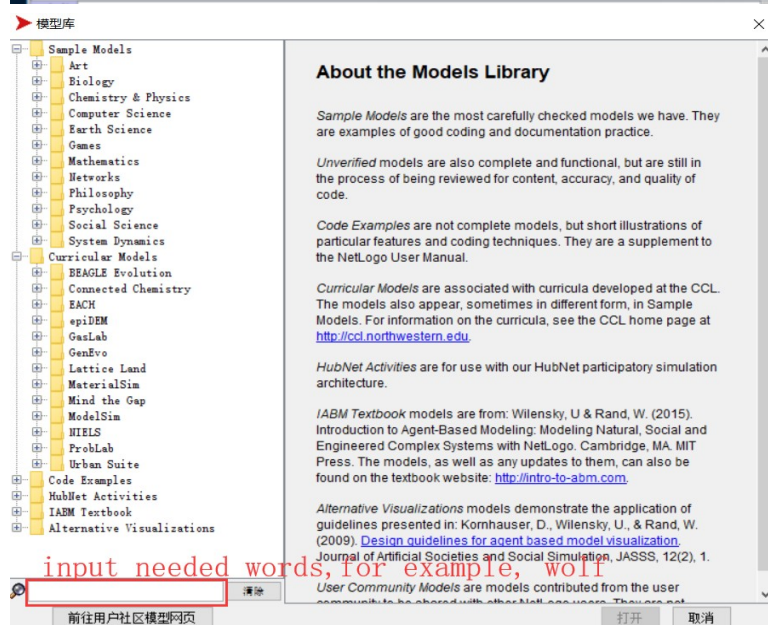
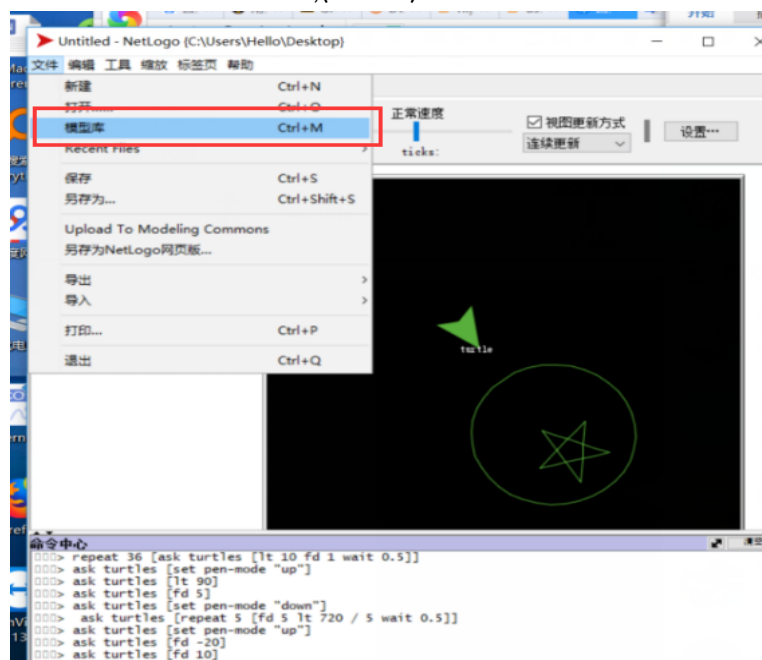
3.4、click Finish

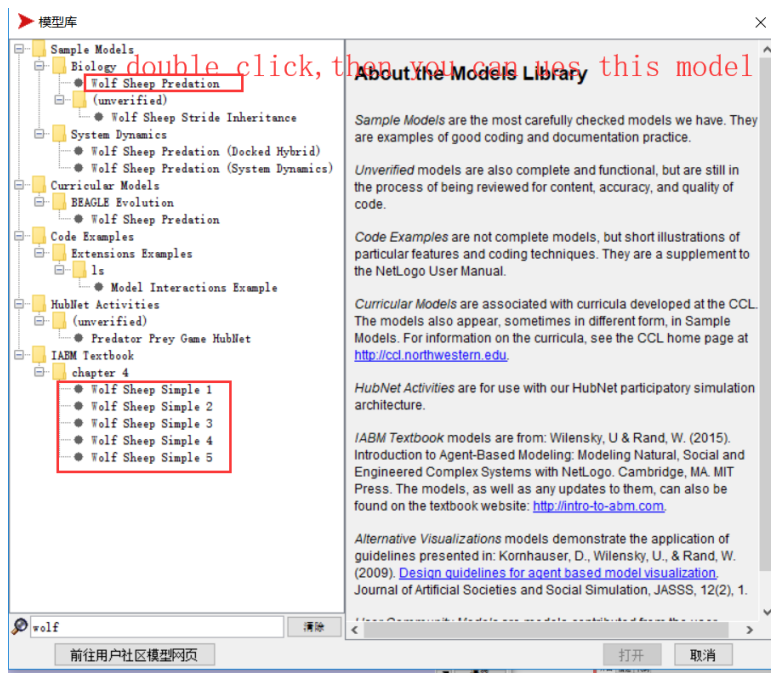
3.5、How should we start the software?



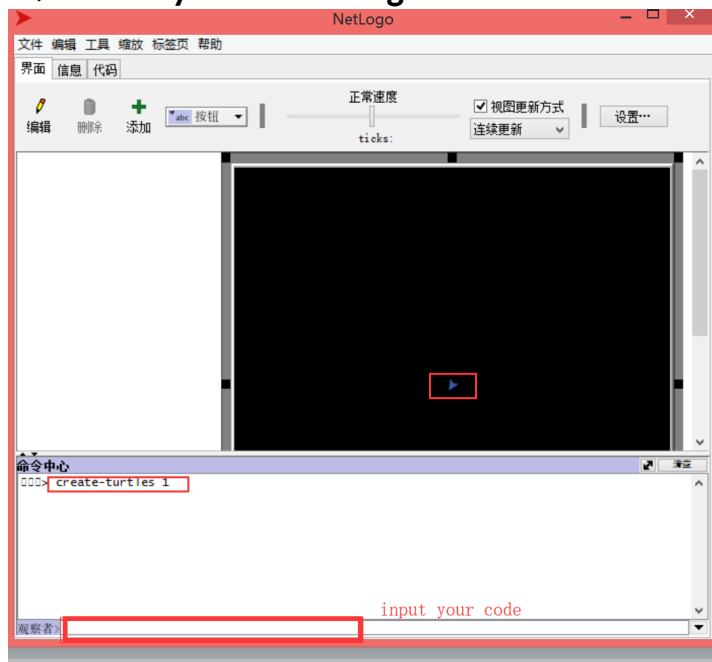
3.6、How to view the models library? For example. wolf sheep predation

3.6.1、file-->model base,(Ctrl+m)





#### 4、 Now try to use Netlogo to draw a circle with a Pentagon inside.



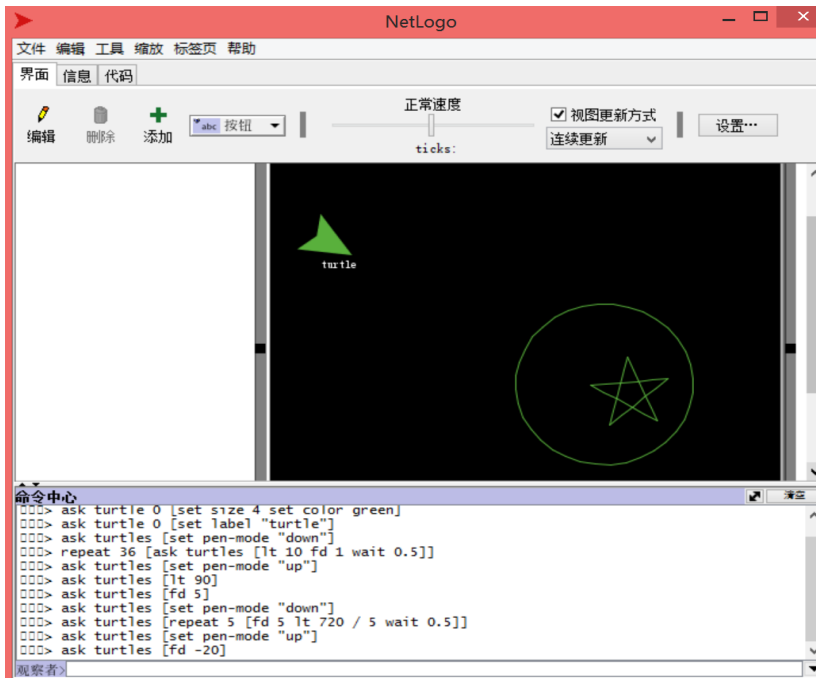
##### 4.1、 Code:

```

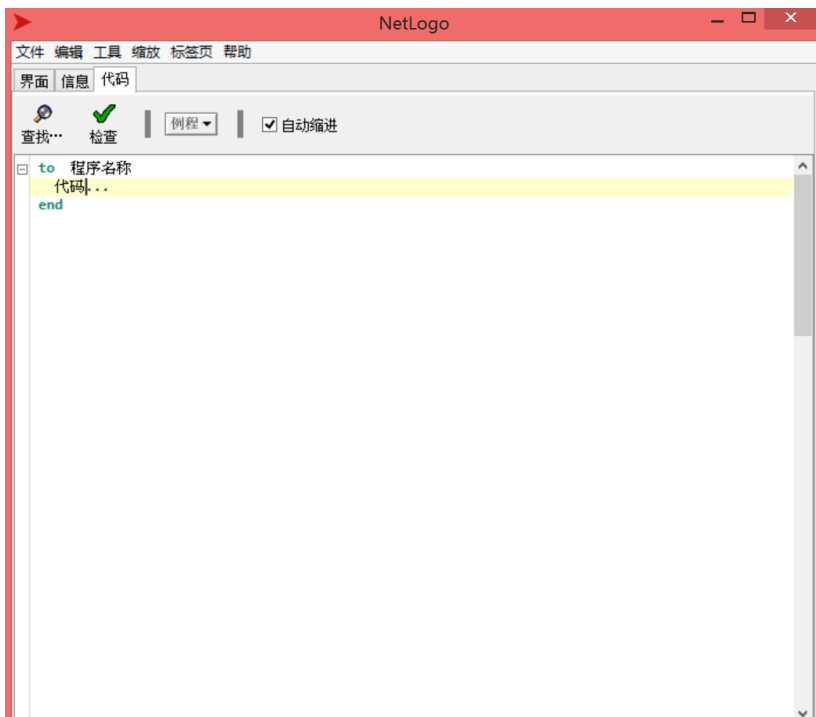
create-turtles 1 ;创建一直海龟
ask turtle 0 [set size 4 set color green] ;默认 turtle 是 0， 现在设置大小和颜色
ask turtle 0 [set label "turtle"] ;给 turtle 设置名字
ask turtles [set pen-mode "down"] ;让 turtle 运动后出现运动轨迹
repeat 36 [ask turtles [lt 10 fd 1 wait 0.5]] ;让 turtle 画圆
ask turtles [set pen-mode "up"] ;关闭 turtle 运动轨迹
  
```

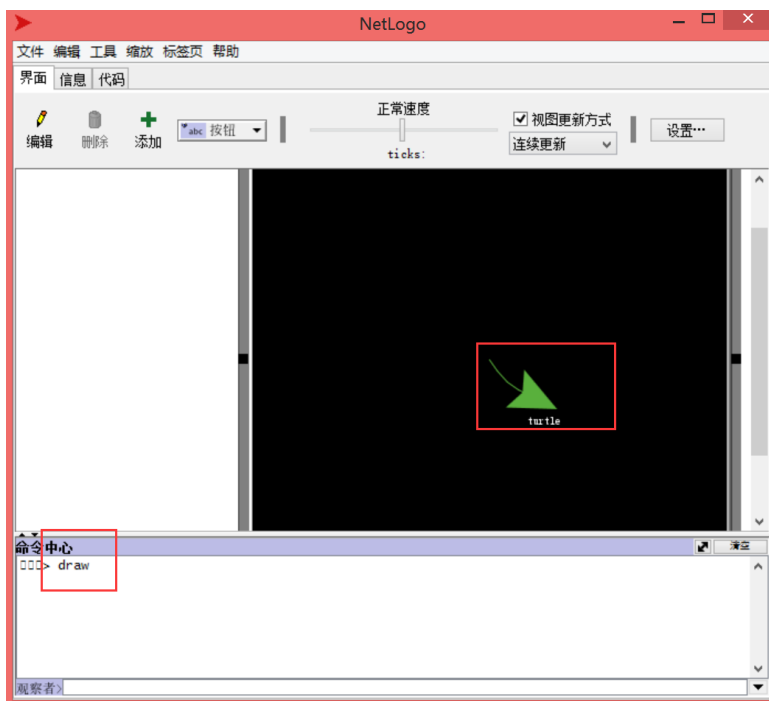
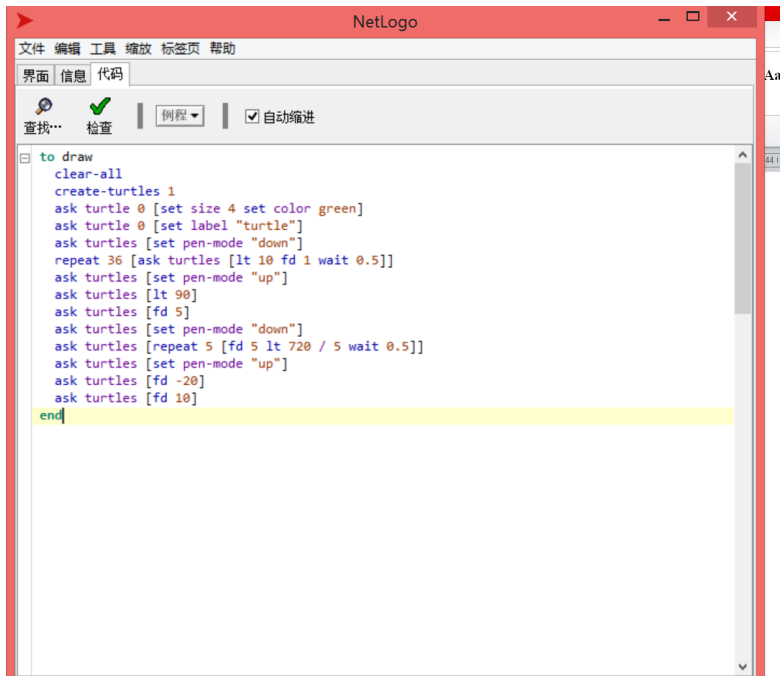
```
ask turtles [lt 90] ;左转 90 度
ask turtles [fd 5] ;前进 10
ask turtles [set pen-mode "down"]
ask turtles [repeat 5 [fd 5 lt 720 / 5 wait 0.5]] ;画五角星
ask turtles [set pen-mode "up"]
ask turtles [fd -20] ;后退 20
ask turtles [fd 10]
```

#### 4.2、result:

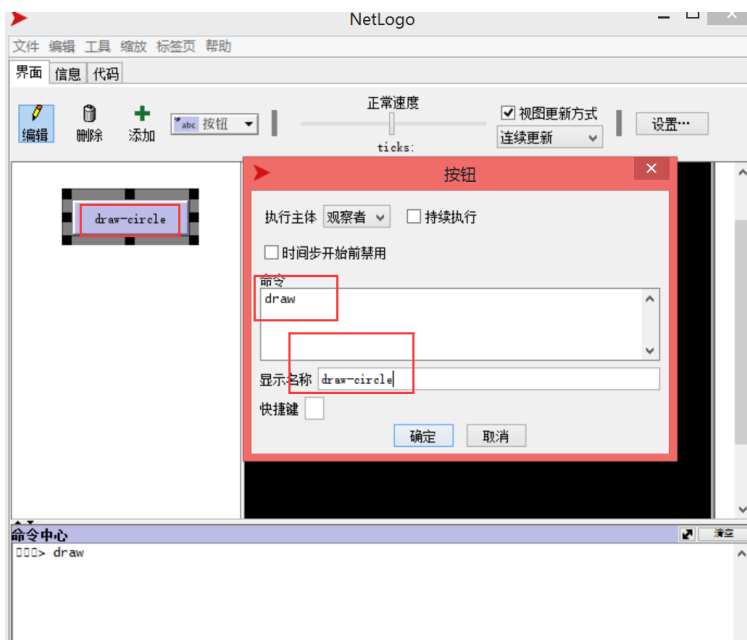
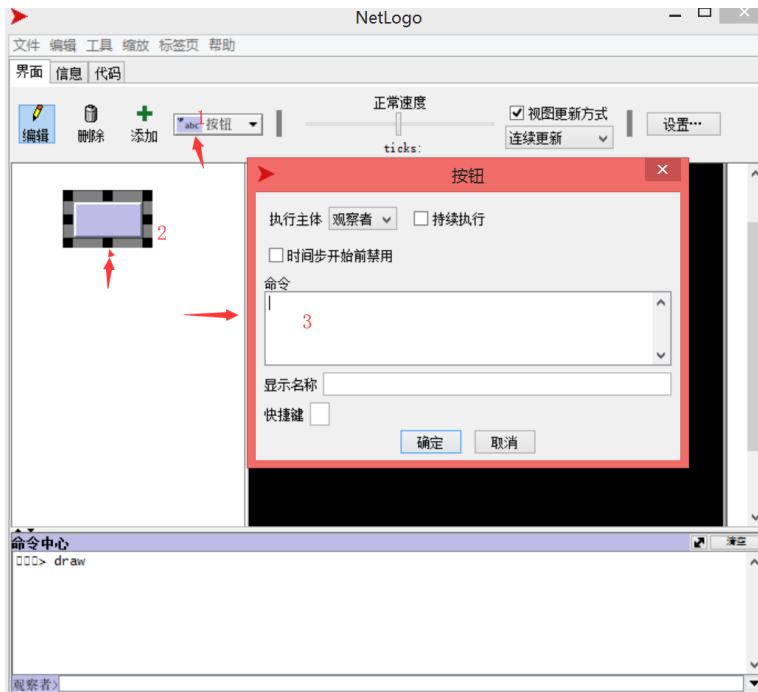


#### 4.3、How to store the code?

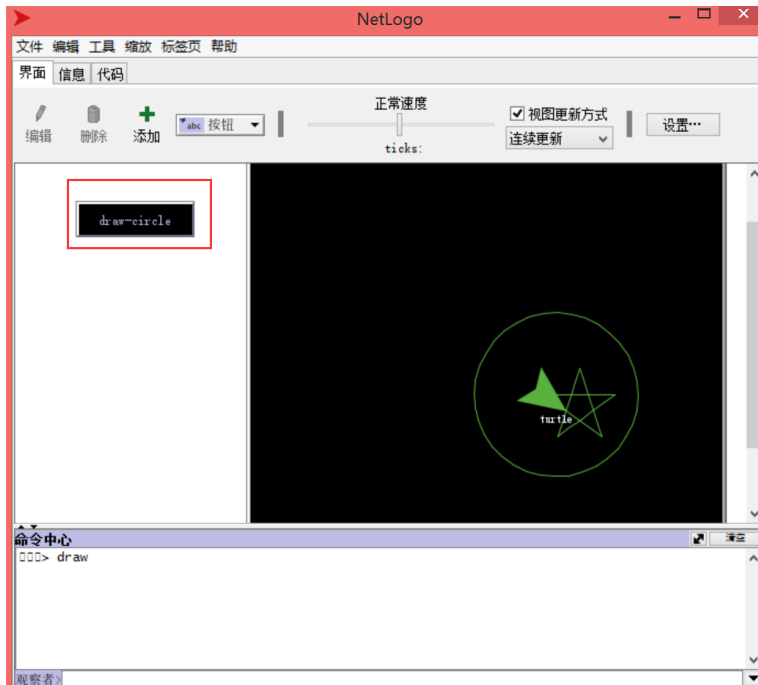




4.4、 We can create a button to run the command.







## 5、wolf sheep predation

### 5.1、Producing grass, sheep walking randomly.

Note: (";" means code comment symbols)

Code:

breed [sheep a-sheep] ;定义一个物种

to setup

clear-all ;清除原来模型

ask patches [set pcolor green] ;设置草为绿色

create-sheep 100 ;创建 100 只羊

ask sheep [setxy random-xcor random-ycor] ;模拟羊随机产生位置

ask sheep [set shape "sheep"] ;设置羊的形状

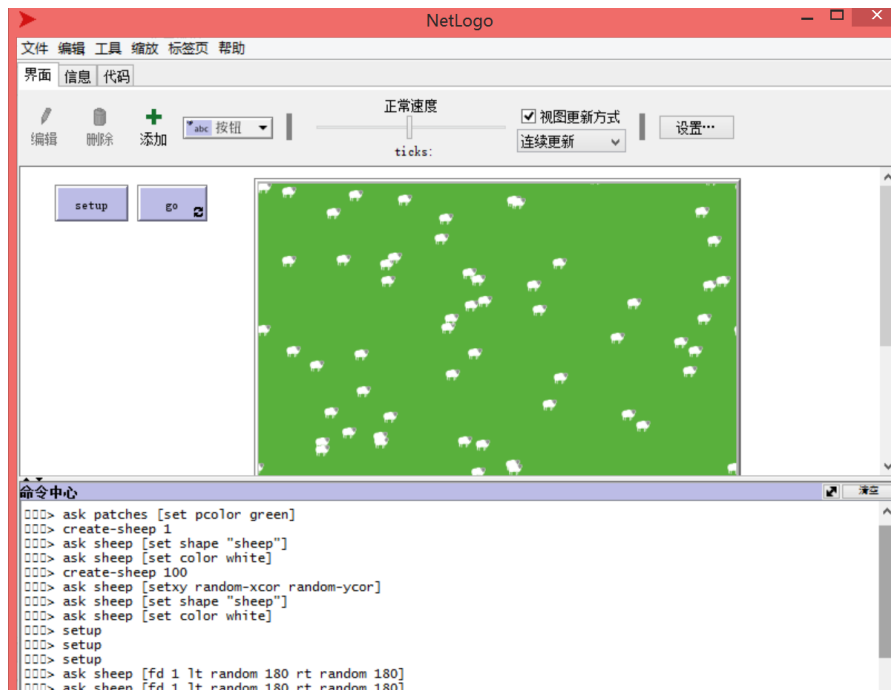
ask sheep [set color white] ;设置羊的颜色

end

to go

ask sheep [fd 1 lt random 180 rt random 180] ;每次前进一步 随机转向

end



## 5.2、Set the energy of the sheep.

Code:

breed [sheep a-sheep] ;定义一个物种

sheep-own [energy]

to setup

clear-all

ask patches [ ;定义一个草原

set pcolor green

]

create-sheep 100 [

setxy random-xcor random-ycor ;使得绵羊随机分布

set shape "sheep"

set color white

set energy random 100 ;设置绵阳的能力随机

]

reset-ticks

end

to go

ask sheep [

wiggle

move

]

```
check-if-dead
```

```
tick
```

```
end
```

```
to wiggle
```

```
lt random 90
```

```
rt random 90
```

```
end
```

```
to move
```

```
fd 1
```

```
set energy energy - 1
```

```
if show-energy = true
```

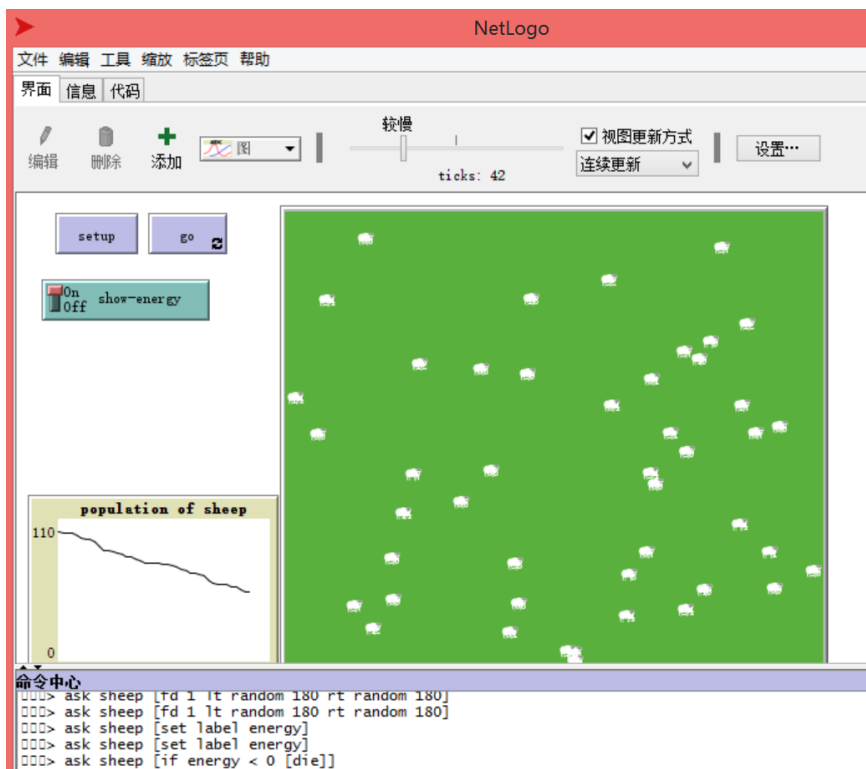
```
[set label energy]
```

```
end
```

```
to check-if-dead
```

```
ask sheep [if energy < 0 [die]]
```

```
end
```



### 5.3、The sheep eats grass, the grass grows again.

Code:

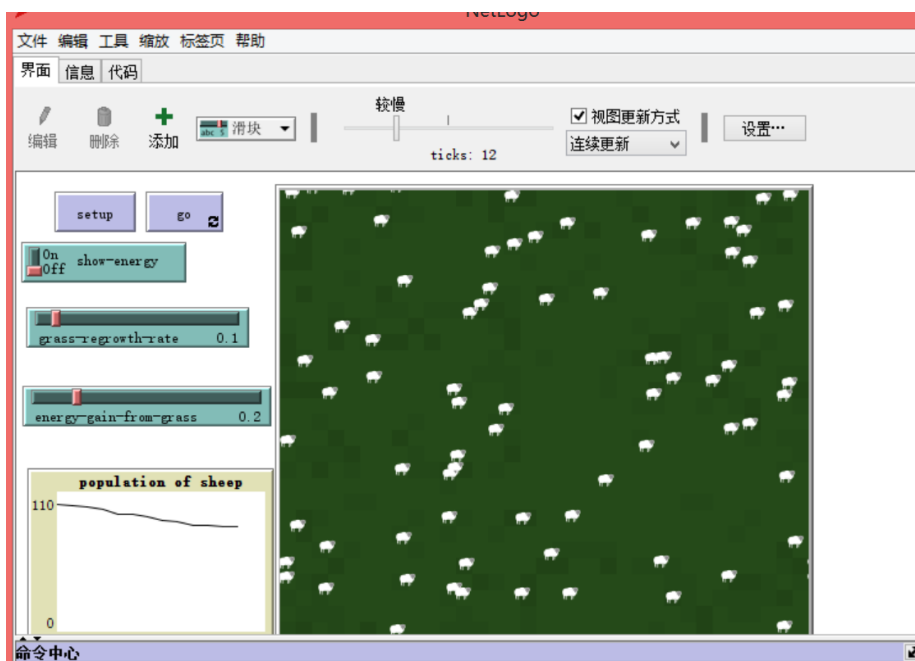
```
to regrow-grass
```

```

ask patches[          ;设置草的能量不同
  set grass grass + grass-regrowth-rate
  if grass > 10 [set grass 10]
  set pcolor scale-color green grass 0 30
]
end

to eat
  if grass > 1          ;设置草被吃的时候能力大于 1
  [
    set energy energy + energy-gain-from-grass
    set grass grass - energy-gain-from-grass
  ]
End

```



#### 5.4、Sheep breeding

Code:

```

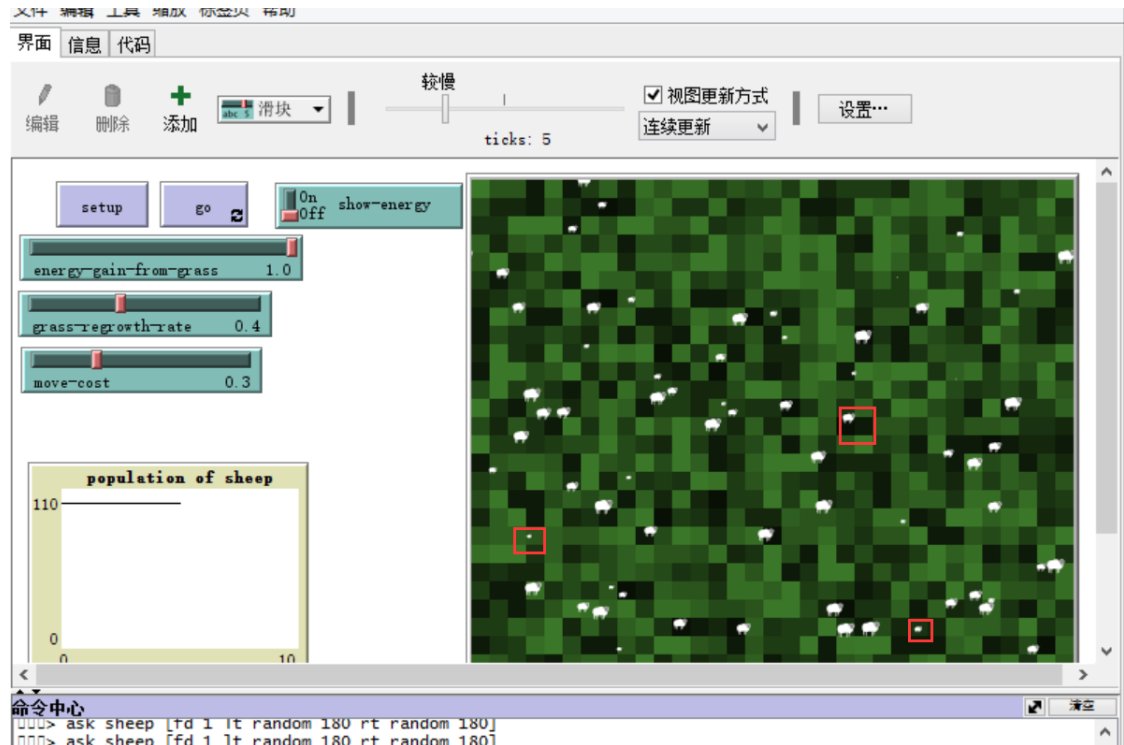
to reproduce ;生小羊
  if energy > 200
  [
    hatch 1
    [
      set energy 100
    ]
    set energy energy - 100
  ]
end

```

```

to updata-sheep
  set size energy / 100.0
end

```



## 5.5 、 create wolves, Wolf eating sheep, Wolf breeding

Code:

```

  if any? sheep-here      ;如果狼遇见羊，狼就吃掉羊，狼的能力增加
  [
    let target one-of sheep-here
    ask target [die]
    set energy energy + energy-gain-from-sheep
  ]
  to go
    ask turtles [
      updata-size
      wiggle
      move
      eat
      reproduce
    ]
  ]

```

