1-导入各种模块：

```
import underworld as uw
import math
from underworld import function as fn
import glucifer
import numpy as np
import os
```

2-建立框架：

```
mesh = uw.mesh.FeMesh_Cartesian( elementType = ("Q1/dQ0"),
                                 elementRes  = (xRes, yRes),
                                 minCoord    = (0., 0.),
                                 maxCoord    = (boxLength, boxHeight),
                                 periodic    = [True, False] )
```

#periodic: list, tuple

List or tuple of bools, specifying mesh periodicity in each direction（每个方向的周期性）；

```
velocityField   = uw.mesh.MeshVariable( mesh=mesh,         nodeDofCount=2 )
```

#nodeDofCount : int

Number of degrees of freedom per node the variable should have.

3-建立物质：

```
uw.swarm.Swarm(self, mesh, particleEscape=False, **kwargs)
```

#true表示物质可以离开，如particle advection。

4-建立各个物质的形状：

5-边界条件：

MinI_VertexSet:0，5，10，15，20

MaxI_VertexSet：4,9,14,19,24；

MinI_VertexSet+MaxI_VertexSet：0,4，5,9，10,，14，15，19，20，24

MinJ_VertexSet+MaxJ_VertexSet：0,1,2,3,4；20，21,22,23,24,

无滑移和自由滑移：

```
freeSlipBC = uw.conditions.DirichletCondition(velocityField, (IWalls,JWalls) )
# this will give free slip sides
```

```
|  >>> noSlipBC = uw.conditions.DirichletCondition(velocityField,
(IWalls+JWalls,IWalls+JWalls) )  # this will give no slip sides
```