

Emergence LAST lec 23.

LIFE - emerges from  
unliving matter.

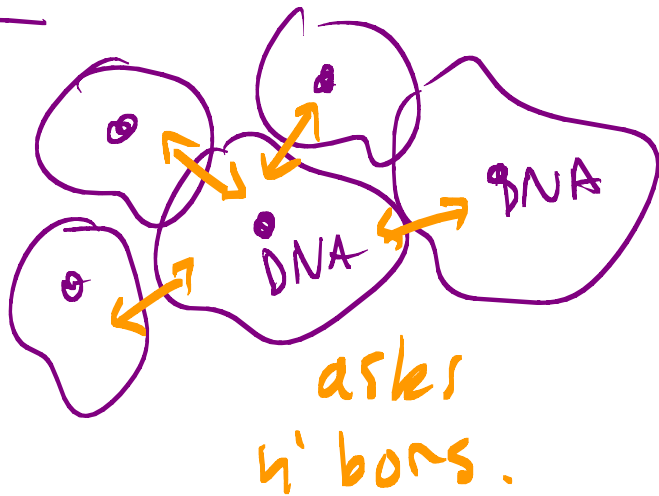
warm little pond.

- don't know details.

Whole biosphere is a nonequilibrium  
open system - driven by  
sunlight.

- complex structures  
can evolve.

cells → multicellular objects



globally  
self-organized  
from LOCAL  
interactions

Game of LIFE.

Conway's game of Life  
— metaphorically .

cellular automata.

each "cell" can be  
on/off  
(using model like).

	1	2	3	
	8	⊙	4	
	7	6	5	

— if alive +  
2 or 3 alive n'bons  
— stay alive.

if 4, 5, 6, 7, 8 live n'bons → DIE.  
(go off)

if Dead → 3 n'bons → LIVE.  
— whole rule set.

called LIFE

John Horton Conway

1970's,

gliders — guns