

## BIOMIMICRY

### Assignment 2

due Wednesday Jan 13

## ECOSYSTEM

1) **Research** the local eco-system and climate to understand what plants and wildlife have historically been supported and how the land has evolved with development. Find areas of vulnerability and biggest threats.

2) **Diagram** resource and waste streams with possible re-cycling opportunities.

## ORGANISM

3) **Examine** how one local organism thrives within the specific microclimate to reveal useful strategies for architectural design. Select a crucial aspect of your design and think about which creature's survival is related to this.

- How does it collect nutrients, take shelter, and shed waste?
- How is its structure and skin adapted to the microclimate and location?

4) **Illustrate** the natural Strategy for addressing a crucial Challenge. Use analytical diagrams to abstract deeper operational principles.

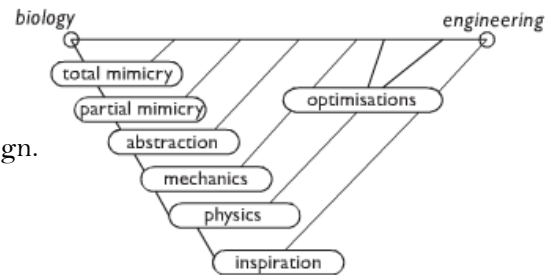
- Form: morphological organization
- Process: functional mechanisms
- System: interacting elements

5) **Draw** an architectural application relevant to your design.

6) **Present** your work on 11 x 17 horizontal sheets.



(Assignment adapted from Marjan Eggermont, including layout at left and Julian Vincent's diagram showing levels of abstraction.)  
[http://issuu.com/eggermont/docs/bio\\_drawing\\_sample](http://issuu.com/eggermont/docs/bio_drawing_sample)



**READING:** Gruber, Petra. Biomimetics in Architecture: architecture of life and buildings. SpringWien NA 2543 .B56 G78 2011

## RECOMMENDED:

AskNature.org: Searchable database of biological strategies & biomimetic designs.

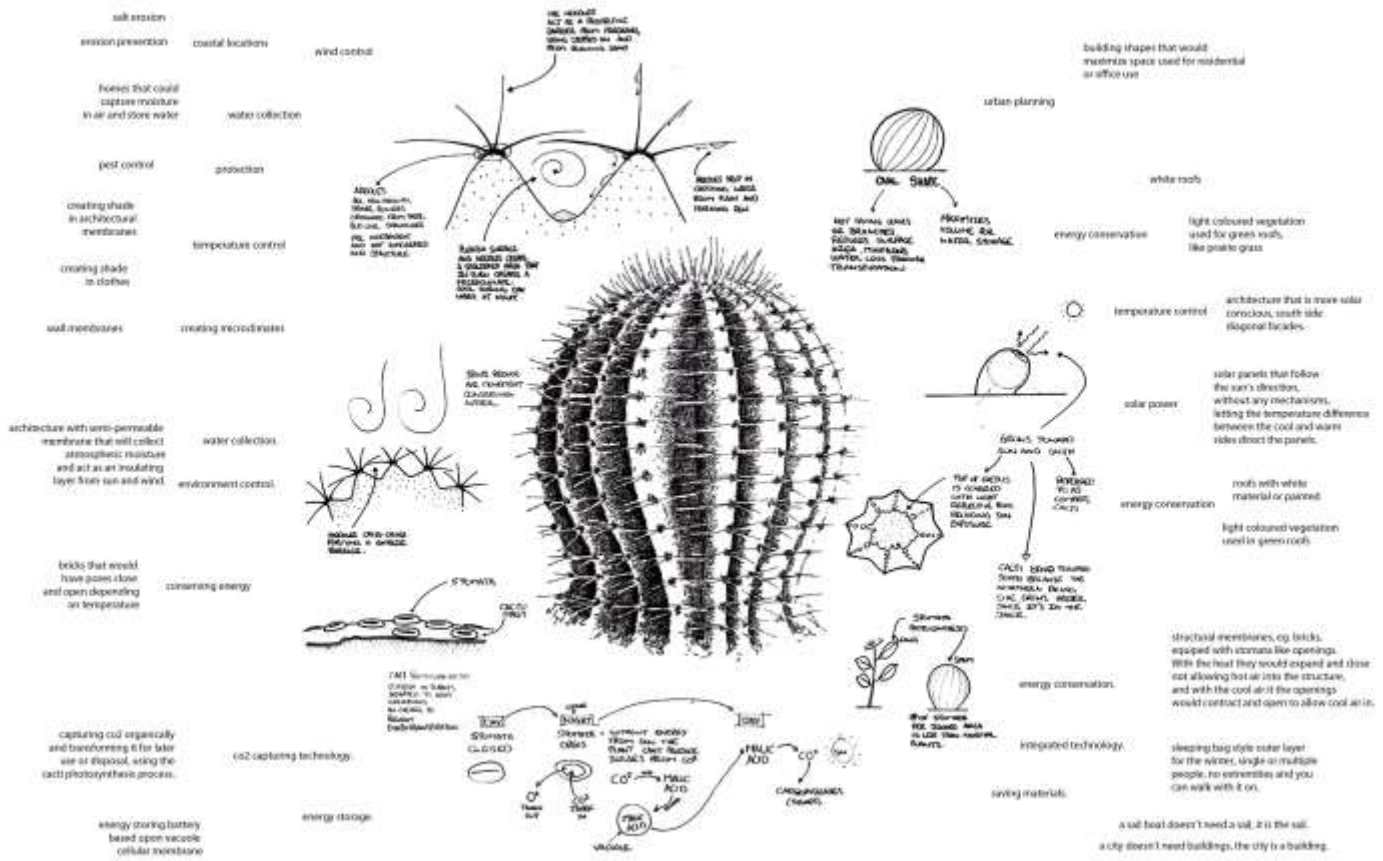
Ball, Philip. The Self-Made Tapestry : Pattern formation in Nature. Oxford. QH491 .B35 1999 video: [http://www.youtube.com/watch?v=fS7kF\\_7QKcQ](http://www.youtube.com/watch?v=fS7kF_7QKcQ)

Brownell, Blaine and Marc Swackhamer, Hypernatural

Lienhard, Julian. Flectofin : a biologically inspired shading device [http://www.itke.uni-stuttgart.de/flectofin/flectofin\\_brochure.pdf](http://www.itke.uni-stuttgart.de/flectofin/flectofin_brochure.pdf)

Lim, Joseph, Bio-structural analogues in architecture, Amsterdam : BIS Publishers, c2009. NA2543.B56 L55 2009

Oxman, Neri. Printing 3D Buildings. [http://whatsnext.blogs.cnn.com/2012/12/07/printing-3d-buildings-five-tenets-of-a-new-kind-of-architecture/?hpt=hp\\_c2](http://whatsnext.blogs.cnn.com/2012/12/07/printing-3d-buildings-five-tenets-of-a-new-kind-of-architecture/?hpt=hp_c2)



Rui Felix's barrel cactus sketches & Lotus Challenge - Strategy diagram (below) from OCAD teacher Carl Hastrich <http://bouncingideas.wordpress.com/2011/12/14/learning-from-a-barrel-cactus/>

