

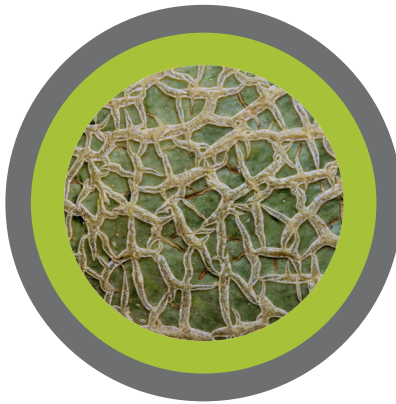
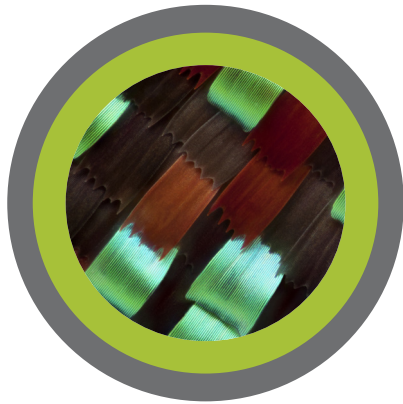
BIOMIMICRY DesignLens

a visual guide



BIOMIMICRY 3.8

g1.1 Released 12.11.2015



“How do we make the act of asking nature’s advice a
normal part of everyday inventing?”

~ Janine Benyus

BIOMIMICRY DesignLens



BIOMIMICRY

ESSENTIAL ELEMENTS

LIFES PRINCIPLES

BIOMIMICRY THINKING

> CHALLENGE TO BIOLOGY

> BIOLOGY TO DESIGN

This document shares a basic overview of the Biomimicry 3.8 tools. For more information about these tools, please take the *Introduction to Biomimicry* foundational course or read the *Biomimicry Resource Handbook* both found at Biomimicry.net

WE ARE ALL DESIGNERS

While you may not have a design title or degree, we *all* design the elements of our work and personal lives. At Biomimicry 3.8, we use the term “designer” broadly to refer to anyone responsible for conceiving of, creating, and implementing ideas that affect human cultural, technological, social, scientific, or financial systems at any scale. Perhaps you didn’t realize you were designing, but when you create some new form that had not existed, that makes you a designer.

The key to thoughtful design (and positive outcomes) is to draw upon a set of ethical, time-tested principles. At Biomimicry 3.8, we have found nature’s strategies a wellspring of sustainable innovations. Working in this field since 1998, we have developed a non-linear methodology for understanding nature’s solutions. It is a set of tools that we call Biomimicry DesignLens because it provides a different way of seeing the world. The result is a guided process for using nature’s genius to inform human design.

DIAGRAM GENERATIONS

Much of what is captured in these diagrams is an assemblage of more than 15 years of work practicing and teaching biomimicry. If you’ve seen our work before, you may be familiar with earlier versions of some of these diagrams. New discoveries in both science and application inform the evolution of the diagrams, and we call each stage of their development a “generation.” After each diagram, the g# references that diagram’s generation. This provides users a useful reference point as we continue to evolve the Biomimicry DesignLens.

BIOMIMICRY DesignLens



USAGE GUIDELINES

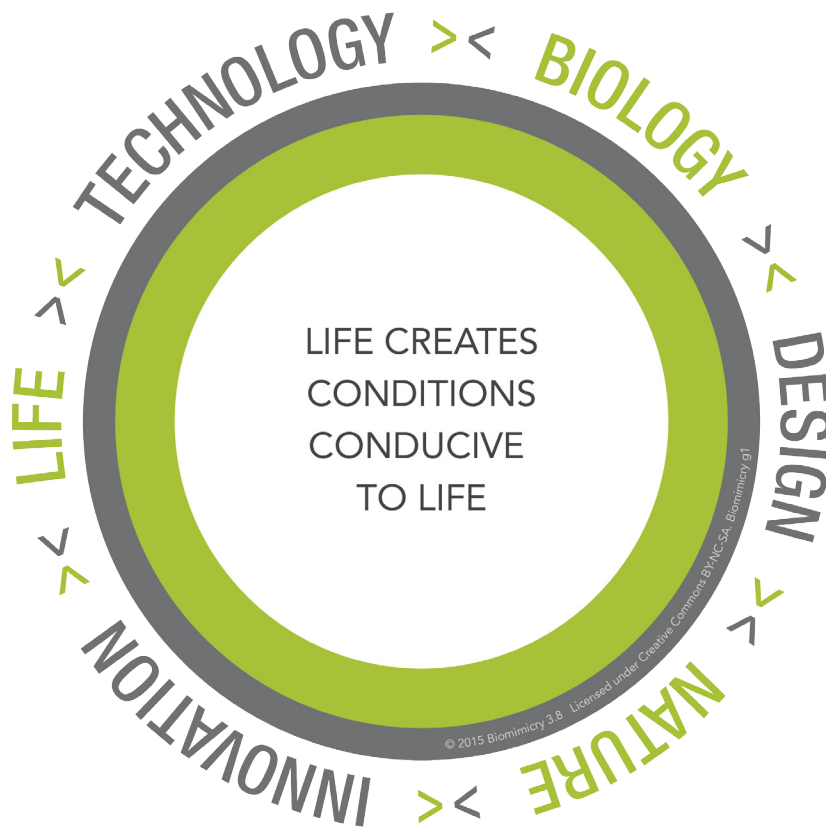
If you find you need to place an individual graphic into another document or share these tools online, please use the appropriate creative commons files available for download from Biomimicry.net/DesignLens

CREATIVE COMMONS

We share the Biomimicry DesignLens with you via a Creative Commons (CC) license. Each lens embodies our deep understanding of specific content and our CC designations reflect how we believe they should be best used and shared. We ask that you respect our CC designations when sharing any of these graphics with others. If you would like to use a graphic under a different permission, please contact us directly. For more information about Creative Commons, visit creativecommons.org/licenses. The specific designations used for our graphics are outlined here:

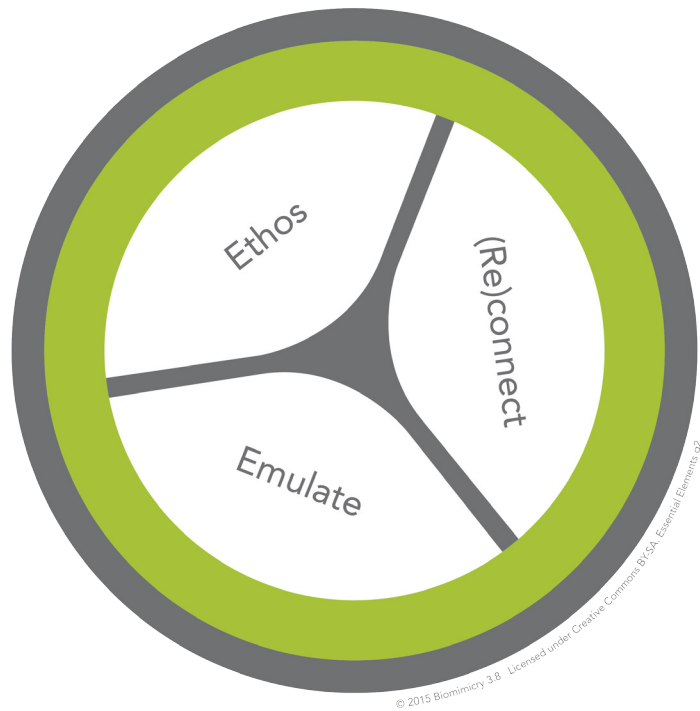
BIOMIMICRY: CC-BY-NC-SA	ESSENTIAL ELEMENTS: CC-BY-SA
LIFE'S PRINCIPLES: CC-BY-NC-ND	BIOMIMICRY THINKING: CC-BY-SA
CHALLENGE TO BIOLOGY: CC-BY-NC-ND	BIOLOGY TO DESIGN: CC-BY-NC-ND

- CC** Creative Commons
- BY** Requires attribution/credit to Biomimicry 3.8
- NC** Non-commercial uses only
- SA** Share alike. Derivatives must have the same CC license
- ND** No derivatives (Please contact us for translation into other languages)



WHAT IS BIOMIMICRY?

Biomimicry is the conscious emulation of nature's genius. It is an interdisciplinary approach that brings together two often disconnected worlds: nature and technology, biology and innovation, life and design. The practice of biomimicry seeks to bring the time-tested wisdom of life to the design table to inform human solutions that create conditions conducive to life. At its most practical, biomimicry is a way of seeking sustainable solutions by borrowing life's blueprints, chemical recipes, and ecosystem strategies. At its most transformative, biomimicry connects us in ways that fit, align, and integrate the human species into the natural processes of Earth.

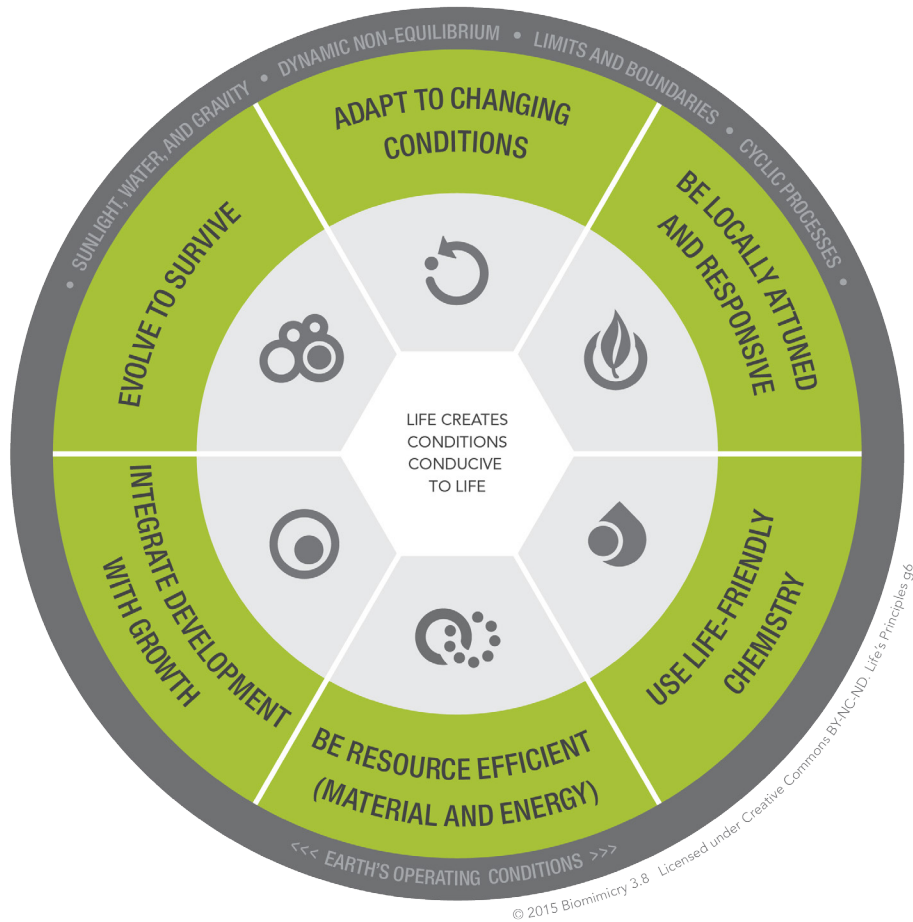


ESSENTIAL ELEMENTS

Biomimicry DesignLens

The practice of biomimicry embodies three interconnected, but unique ingredients; the three Essential Elements of Biomimicry represent the foundation of the biomimicry meme. By combining the essential elements, bio-inspired design becomes biomimicry.

- The **ethos** element forms the essence of our ethics, our intentions, and our underlying philosophy for why we practice biomimicry. Ethos represents our respect for, responsibility to, and gratitude for our fellow species and our home.
- The **(re)connect** element reinforces the understanding that, while seemingly “separate,” people and nature are actually deeply intertwined. We are nature. (Re)connecting is a practice and a mindset that explores and deepens this relationship between humans and the rest of nature.
- The **emulate** element brings the principles, patterns, strategies, and functions found in nature to inform design. Emulation is about being proactive in achieving the vision of humans fitting in sustainably on earth.



LIFE'S PRINCIPLES

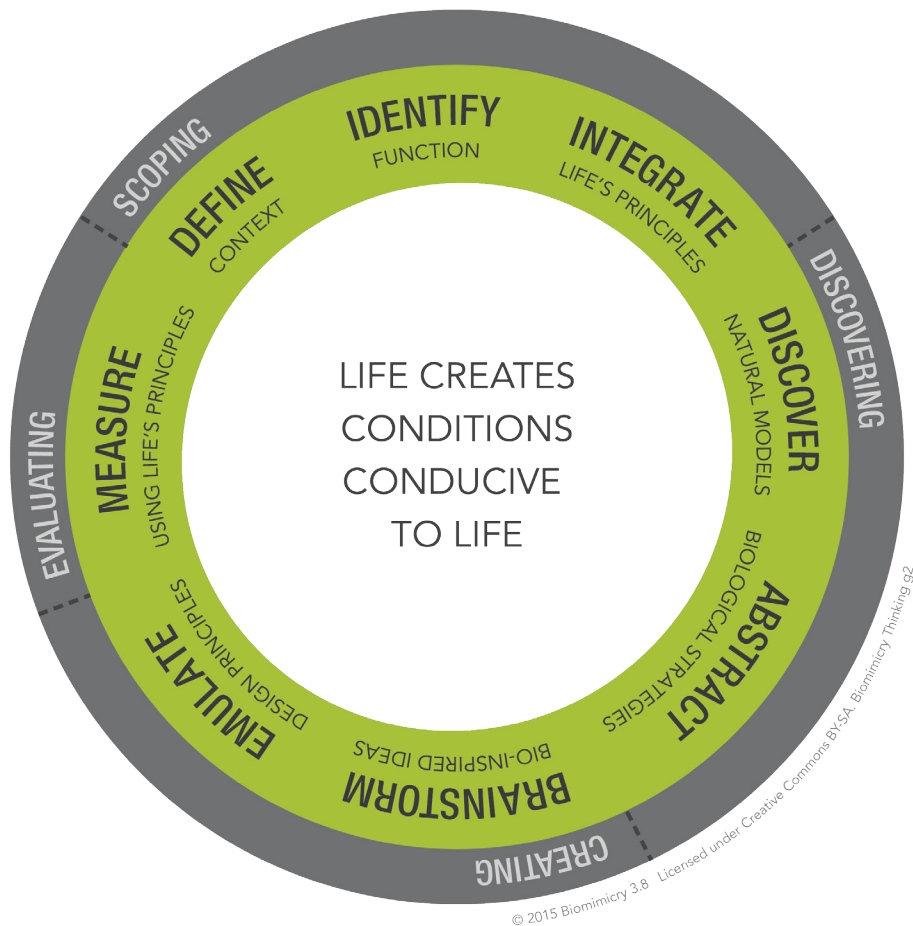
Biomimicry DesignLens

Life's Principles are design lessons from nature. Based on the recognition that Life on Earth is interconnected and interdependent, and subject to the same set of operating conditions, Life has evolved a set of strategies that have sustained over 3.8 billion years. Life's Principles represent these overarching patterns found amongst the species surviving and thriving on Earth. Life integrates and optimizes these strategies to create conditions conducive to life. By learning from these deep design lessons, we can model innovative strategies, measure our designs against these sustainable benchmarks, and allow ourselves to be mentored by nature's genius using Life's Principles as our aspirational ideals.



LIFE'S PRINCIPLES

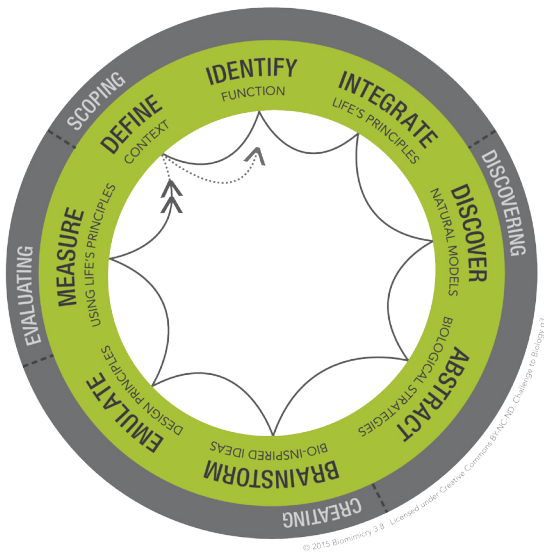
Biomimicry DesignLens



BIOMIMICRY THINKING

Biomimicry DesignLens

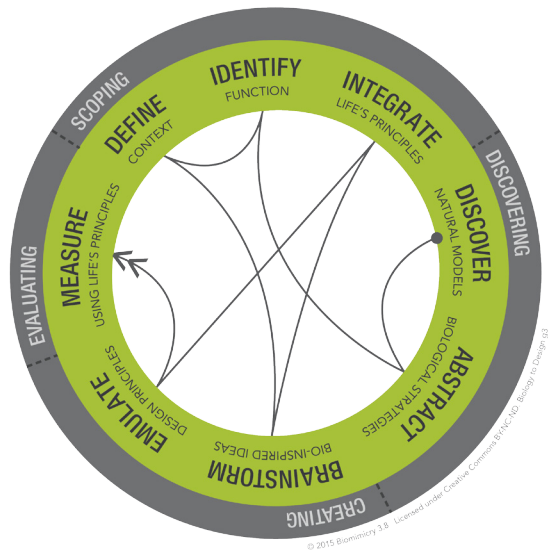
Biomimicry Thinking provides context to where, how, what, and why biomimicry fits into the process of any discipline or any scale of design. While akin to a methodology, Biomimicry Thinking is a framework that is intended to help people practice biomimicry while designing anything. There are four areas in which a biomimicry lens provides the greatest value to the design process (independent of the discipline in which it is integrated): scoping, discovering, creating, and evaluating. Following the specific steps within each phase helps ensure the successful integration of life's strategies into human designs.



BIOMIMICRY THINKING Biomimicry DesignLens

CHALLENGE TO BIOLOGY

Challenge to Biology is a specific path through Biomimicry Thinking. This is useful for scenarios when a specific problem is at hand and you are seeking biological insights for the solution. It is particularly useful for a “controlled” setting, such as a classroom, or for creating an iterative design process. Not surprisingly, the best outcomes occur when you navigate the path multiple times.



BIOMIMICRY THINKING Biomimicry DesignLens

BIOLOGY TO DESIGN

Biology to Design is a specific path through Biomimicry Thinking. This path is most appropriate when your process initiates with an inspirational biological insight (including a Life’s Principle) that you want to manifest as a design. Those who might follow this path include inventors and entrepreneurs, students who don’t yet have their own design process, those interested in discovering strategies that might inform new innovations, and educators interested in sharing biology in ways that generate interest with non-biologists.



BIOMIMICRY 3.8

Biomimicry.net | +1 406 543 4018

257 W. Front St. Ste B
Missoula, MT 59802 USA