



BioLearn Studytrip

MC Biomimicry – Experiences from the field

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Agenda

- Introduction
- MC Biomimicry @ Peellandcollege
- Experiences from the field
- Facilities
- Workshop
- Questions

Introduction – Jasper Pijnenburg

- Teacher
 - Biology
 - Happiness
 - Biomimicry
- Mentor (Class 1)



Introduction - Peellandcollege

- Deurne (The Netherlands)
- Secondary School
- 1100 Students
- 12 – 18 years old
- Havo – VWO



MC Biomimicry

- 1VWO Class
- 24 lessons (2 per week)
- Two Challenges (12 lessons each)
- Groups (3-4 students)
- Problemsolving skills
- Solutions (Poster / Videos)
- Extra challenge



Masterclass Biomimicry
Challenge I
Leerlingenhandleiding

Durf jij een stevige uitdaging aan? Een Innovatief ontwerp maken voor een bijzondere vraag? Ben je in staat om de kennis die al in de natuur aanwezig is te benutten? Dan ben jij helemaal klaar voor deze biomimicry challenge!

De term biomimicry is een samenvoeging van de Griekse woorden bios 'leven' en mimesis 'imiteren', biomimicry is dus 'het leven imiteren' ofwel het navolgen van succesvolle strategieën uit de natuur.

Dit materiaal is ontwikkeld door biomimicryNL in samenwerking met het Peellandcollege te Deurne. Het materiaal is bedoeld voor de eerste klas VWO.

Het totale materiaal bestaat uit twee aparte delen. Dit is deel I bedoeld als eerste kennismaking met biomimicry. Deel II gaat ervan uit dat je een aantal basiskennissen kent en zijn de opdrachten vrijer.

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MC Biomimicry – Example (1)

- Learning about nature (=biology)
- Learning from nature (=biomimicry)

- What is nature?
- Exercise: experience nature



MC Biomimicry – Example (2)

- Learn to observe!
- Starburst exercise
- Later: workshop

The diagram shows a central five-pointed star with five question categories arranged around it. Each category has a list of 10 numbered lines for writing.

- Questions about environment (habitat)**
 1.
 2.
 3.
 4.
 5.
 6.
 7.
 8.
 9.
 10.
- Questions about food**
 1.
 2.
 3.
 4.
 5.
 6.
 7.
 8.
 9.
 10.
- Questions about physical characteristics**
 1.
 2.
 3.
 4.
 5.
 6.
 7.
 8.
 9.
 10.
- Questions about threats and survival**
 1.
 2.
 3.
 4.
 5.
 6.
 7.
 8.
 9.
 10.
- Questions about Lifecycle**
 1.
 2.
 3.
 4.
 5.
 6.
 7.
 8.
 9.
 10.

MC Biomimicry - Problems

- Running shoe – Function?
- Running shoe – Material?

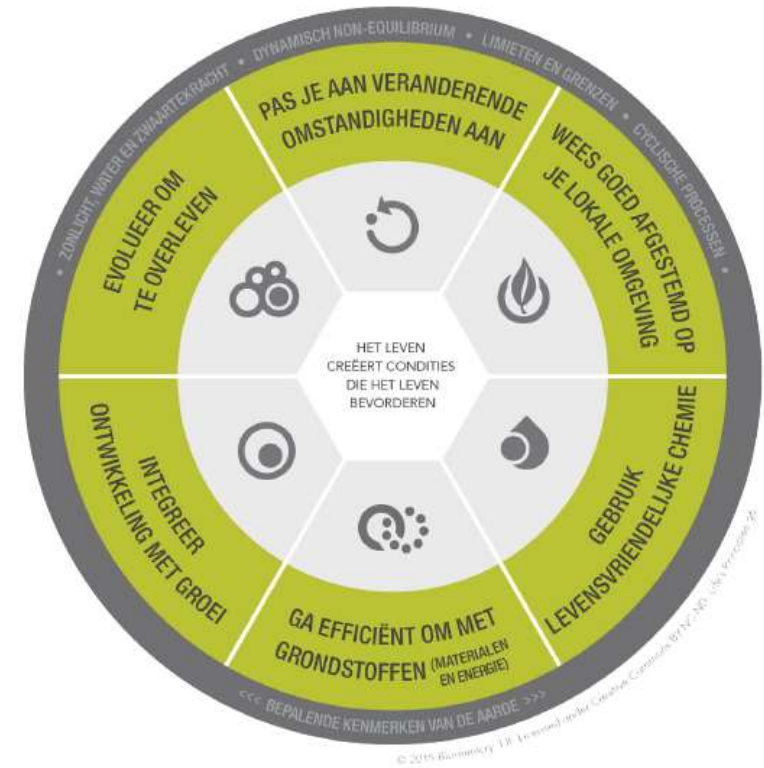


- Packaging – Function?
- Packaging – Material?



MC Biomimicry – Design

- Implementation of principles
- Contexts and functions



MC Biomimicry – Solutions

- ASK Nature (source)
- Design
- Poster
- Presentation
- Grade





MC Biomimicry – Posters

- Examples of posters

MC Biomimicry – 2nd Challenge

- Basically the same structure
- More freedom in problems
 - Energy management (school building)
 - **Get people enthousiastic**
 - ‘Open challenge’
- Endproduct (video)



MC Biomimicry – Experiences

What students like:

- It's new / different from other lessons
- Ownership
- Freedom
- They work together in teams
- Examples from nature



MC Biomimicry – Experiences

What students find difficult / don't like:

- It's tough sometimes (content)
- To find solutions (in nature)
- Translation of solution to design
- They work together in teams



MC Biomimicry – Facilities

Materials

- workbooks
- posters / video's
- internet / computers
- materials from nature



MC Biomimicry – Workshop

- Example from the field
- Starbursting exercise
- Learn to observe (organism)
- Surprise



MC Biomimicry – Five Topics

1. Environment
2. Food
3. Lifecycle
4. Physical characteristics
5. Threats and survival

Questions about environment (habitat)

1.
2.
3.
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Questions about food

1.
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Questions about physical characteristics

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Questions about Lifecycle

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Questions about threats and survival

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MC Biomimicry – Organisms



MC Biomimicry – Start

- 10 minutes
- Per group one organism
- Per topic questions
- Discussion



Questions

