

# DETAILED FACILITATOR INSTRUCTIONS

## Biomimicry Brainstorming-in-a-Box

### Purpose:

The Biomimicry Brainstorming-in-a-Box is designed to help you facilitate a creative exploration of the biology to design process of Biomimicry Thinking by yourself or for a team. It's a fantastic way to introduce a team to the potential of biomimicry to help stimulate sustainable innovations. In just a few hours, participants will experience just how inspirational life's strategies can be. Through this easy-to-use, stimulating process, you'll gain insight into how to generate an endless array of creative solutions.

### Context:

The Biomimicry Brainstorming-in-a-Box deck is tool to push creativity and broaden the idea generation space during a brainstorming session. It's a means to introduce a team to biomimicry, as well as to expand "out of the box" thinking. It's best used in a setting with a group of participants that know each other (e.g. a creative team, or a university class) and are set up with the expectations of playing with the process. While it is possible for specific and actionable concepts to be generated from the collection of biology found within (for the topic selected), the intention is to give participants an experiential understanding of how biomimicry can be an innovation and creativity tool.

### Number of people:

Min: 1	Max: 25	Ideal: 12-15
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### Type of audience:

The Biomimicry Brainstorming-in-a-Box Toolkit can be used by anyone wanting to experience biomimicry, particularly the **biology-to-design** process. It will be most productive to include people who are experienced in innovating, creating, experimenting, and imagining. The facilitator can encourage cross-pollination by bringing people together from various expertise and backgrounds, for example, members mixed from R&D, engineering, industrial design, or marketing specialties. It's not necessary for participants to have background knowledge in biomimicry or biology, just an openness to experiment.

### Time:

Min: 60-90 minutes	Max: 8 hours	Ideal: 3-4 hours
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**Equipment/Materials:**

1. Biomimicry Brainstorming-in-a-box Card Deck
2. A means to show the introductory video to participants
3. Markers/pens/pencils of various colors- a pile on each table
4. Concept Board worksheets and Brainstorming Map worksheets
5. Flip chart paper, large rolls of paper, or blank printer paper (necessary if you are not planning to have enough Concept Board Worksheets so that ALL work can be done on the worksheets)
6. A large wall to post Concept Board Worksheets for vetting, and tape/pins/magnets to hold sheets
7. Voting dots/stickers
8. Materials for 3D concept modeling (optional)
9. Drinks and Snacks (chocolate!) (as necessary)

**Associated worksheet or handout title:**

1. Brainstorm Map (Print one or two for each team/table to keep track of each Riffler round throughout the design session.)
2. Concept Board Worksheet (Print a stack for each team as each individual will document each of their brainstormed ideas on these worksheets. Could need as many as 3-4 worksheets per person per round.)

**Space:**

A good location sets the group up for success. A room with natural light and views towards nature help the brain focus and stay alert. A clean room with open white walls allows participants to post and share their work and to participate without distraction. Big tables allow teams to work together on the same project. Ideally, the location is a different space than one participants use regularly (to encourage divergent thinking).

**Set-up:**

As the facilitator, you should:

1. Move the tables and chairs to an appropriate layout—try to place tables and chairs so the group members will be facing each other, each with a place to write/draw, but placing each groups far enough apart to not distract adjacent groups if sound levels increase.
2. Divide the Riffler cards into sets by the color-coding on the bottom of the cards so that you are ready to choose combinations for each round of brainstorming.
3. Evenly distribute the Nature's Technologies cards amongst the tables. Ideally, each table has 3-4 at a minimum.
4. Distribute enough Concept Board worksheets and Brainstorm Map worksheets as necessary.
5. For concept vetting, prepare a large wall to display and share concepts.
6. Set up the video playback for the introductory video where all participants can easily see it.
7. Set up a nourishment station with appropriate drinks and snacks.

## Method:

1. Ahead of time, decide on how you will manage the time. Assume an initial 20-30 minutes for introductions, instructions, and previewing the Nature's Technology Cards placed at each table. Then determine how long you want to reserve for sharing and vetting of ideas after brainstorming. The length of the sharing portion of the brainstorm session depends on what type of discussion you would like to have on each concept (see step 12). Now take the remainder of the allotted session and divide it into 15 minutes chunks (the ideal time for each brainstorming round). Don't forget to add in breaks and snack times as necessary.
2. When participants arrive, divide them up into mixed discipline groups (as possible); 3-4 people per group works well. (You can divide the teams up before they arrive if you know the participant list ahead of time.)
3. Review your Purpose-Outcome-Process with participants. Craft ahead of time using the information here in the Facilitator Instructions, but also make the purpose & outcome personal—tie it to your company and voice the logic behind bringing everyone together to do this exercise.
4. Share the introductory video to align participants expectations.
5. Give each table Concept Board worksheets, Brainstorm Map sheets, 3-5 Nature's Technology Cards, blank paper (if using), markers/pencils, and 3D materials (if using), if not already on the tables. Articulate the method you want people to use for capturing ideas. For example, tell everyone if you want them to capture the whole brainstorming process on the Concept Board worksheets and that you will post them at the end of the session.
6. Have the participants review their group's Nature's Technology Cards so that they are familiar with the biological intelligence they'll be drawing inspiration from. Each group may choose to review them individually and rotate cards, or discuss as a group.
7. Once the groups are familiar with their NTS cards, begin the first round by choosing a single card from each color of the Riffler set. The groups can mark down on their Brainstorm Map which cards were selected for the round. For example, one selection might be: Form, Macro, Literal, Adapt to Changing Conditions, and one of your sub-realms (for your chosen topic).
8. Each table can either choose to select an individual NTS card to use in a given round or leave the option open to individuals at the table. Both means generate a variety of options and concepts. Just be sure to have participants record which NTS inspired their concept.
9. Begin the brainstorming round, with all participants working on the first Brainstorm Map combination. The round is best run with a mix of divergent and convergent thinking opportunities. Have the participants work individually for a portion of the time, then you could optionally call them together to work with their group. They can present their ideas to each other and add to their teammates ideas or combine ideas. People may be using the Concept

Board Worksheets as they go or if not, then they need to transfer the information by the end of the round for later vetting. Different groups prefer different styles, so you might have to experiment until you find the best process for the participants.

10. Keep track of time and announce when groups should switch to the next task within the round.
11. Repeat as many rounds (steps 7-10) as you have designed into the schedule.
12. The final step of the brainstorming is the vetting process. There are many variations for vetting depending on the desired outcomes from the activity. At a minimum, some sort of closing should wrap up the day, and vetting of ideas is a great way to meet that goal.
  - a. Proceed with the vetting process by posting concepts on the wall. Depending on how participants want to work, this could be all concepts or only those deemed high potential (based on pre-determined or emergent criteria).
  - b. It is sometimes helpful to create categories or clusters of ideas to help participants review them. These categories can be selected ahead of time, or be emergent based on the outcomes for the activity.
  - c. Depending on the number of people and concepts generated, you can offer pre-vetting within a group with the most interesting and innovative concepts only advancing to the board for group presentation and discussion, or all concepts can be posted.
  - d. Keep in mind that usually in a brainstorming session, most concepts are captured quickly on the Concept Boards and are usually not self-explanatory. Some time should be set aside for the idea generator to present their idea.
  - e. Once ideas are presented and sorted and potentially combined, the group could select specific concepts to advance forward. By using agreed upon criteria (e.g. high likelihood of success, high degree of innovativeness, immediately actionable, platform technology, low cost to implement, widespread applicability, etc.) and a selection process, the best concepts can be considered to advance.
  - f. Good democratic selection processes include voting with a limited number of sticker dots, fake money, smiley faces, or even color coding (green for go, yellow=maybe, red means not). It's a good idea to distribute the ability to vote evenly amongst the group as well as determine the cut-off criteria (e.g. top 5 vote getters, or a minimum number of votes or "investments").
13. After the vetting process, be sure to leave time to discuss potential next steps, if any, and have time to debrief and properly close the day.

**Avoiding pitfalls:**

- Review the card content in the Biomimicry Brainstorming-in-a-Box deck before the brainstorm session so as the facilitator you are familiar with the materials.
- Help participants have an innovative, yet respectful brainstorm session. In as much depth as you deem necessary, review the common rules of brainstorming to the participants presented in the introductory video.
- Remind participants that the Riffler cards are meant to spark ideas and push creativity. If they can't think of something that matches all, that is okay, this is a brainstorming tool. But do challenge the participants to try to work in the Brainstorm Map categories to help avoid common mind traps.
- The “Variations” space on the Concept Board worksheets might be a good place to capture complementary ideas from the team discussion.
- Make sure that the sustainability discussion happens as the ideas are shared within the groups. It shouldn't just be an afterthought.

**Debrief & Evaluation:**

After the group has wrapped up the activity, you may want to have a final debrief. Is the group going to follow up on the outcomes of the brainstorming session, or will it be up to individuals to take ideas back to their own departments? Give participants the opportunity to explore what might happen with their brainstorming ideas and create some space to explore next steps.

It's also worth asking participants about their overall experience with brainstorming using biomimicry as a prompt.

- Did they find additional value by incorporating biology into the process?
- Were the “forced” categories of the Riffler sets helpful or limiting?
- Did they find themselves falling into mind traps and existing belief systems or did the tool help them explore new options?
- How might they use the deck again?
- How might they anticipate using biomimicry in other settings?

Offer further resources on how the participants can continue with their ideas—will they have future access to biomimicry professionals, like Biomimicry 3.8 or to local biologists? As the facilitator, you can set the group up to continue to work with each other or to use this tool with their own groups later.

**Possible variations & extensions:**

- You can add rounds by having teams switch Nature's Technology Cards once they've gone through their original set.

- If you need to reduce the length of the report out, you can have pairs of teams present to each other and then report their combined group's favorites to the whole group.
- While debriefing, the whole group can spend additional time with the ideas and group them in different ways—which ones are doable in the near future, which ones would need new materials, etc.
- For the Brainstorm Map categories—it's possible to use these to further push the extent of the brainstorm, especially if the ideas aren't as innovative as you might like. As the group moves past the first round, add category requirements. For example, tell the group that for the first round, they need to incorporate 3 of the 5 categories, then increase the number of categories in future rounds to 4 and then 5.

**Risk factor:**

1	2	<u>3</u>	4	5	The Biomimicry Brainstorming-in-a-Box exercise is based on a simple idea (recombination of options), but the execution requires engaged, willing and capable participants. The participants need to be able to think outside the box in order to use this exercise as a solution tool and be keen on exploring its full potential. There are no risks beyond those typical of any group brainstorming effort.
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**External Resources (*Contact information, references, and resources to keep track of*):**

Biomimicry 3.8 ***biomimicry.net***  
 Biomimicry Institute ***biomimicry.org***  
 AskNature ***AskNature.org***





# BIOMIMICRY 3.8

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