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2024 Program Handbook

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WELCOME!

Thank you for being part of the Biomimicry Youth Design Challenge. We are so glad that you will be sharing biomimicry with your students this year. They will love it—and you will too! Many teachers and students who have completed biomimicry challenges have found the experience transformative, and we hope you and your students will feel the same!

Design challenges are a valuable learning experience, whether or not you decide to submit your students' work to the formal competition. Through this program, students learn and model essential science and engineering practices, gain knowledge from nature, and develop important life skills needed to succeed in school, college, and careers.

At a time of grim environmental predictions, biomimicry also presents a much-needed and hopeful message that potential solutions are all around us and empowers tomorrow's problem-solvers to think differently about nature, engineering, and the future.

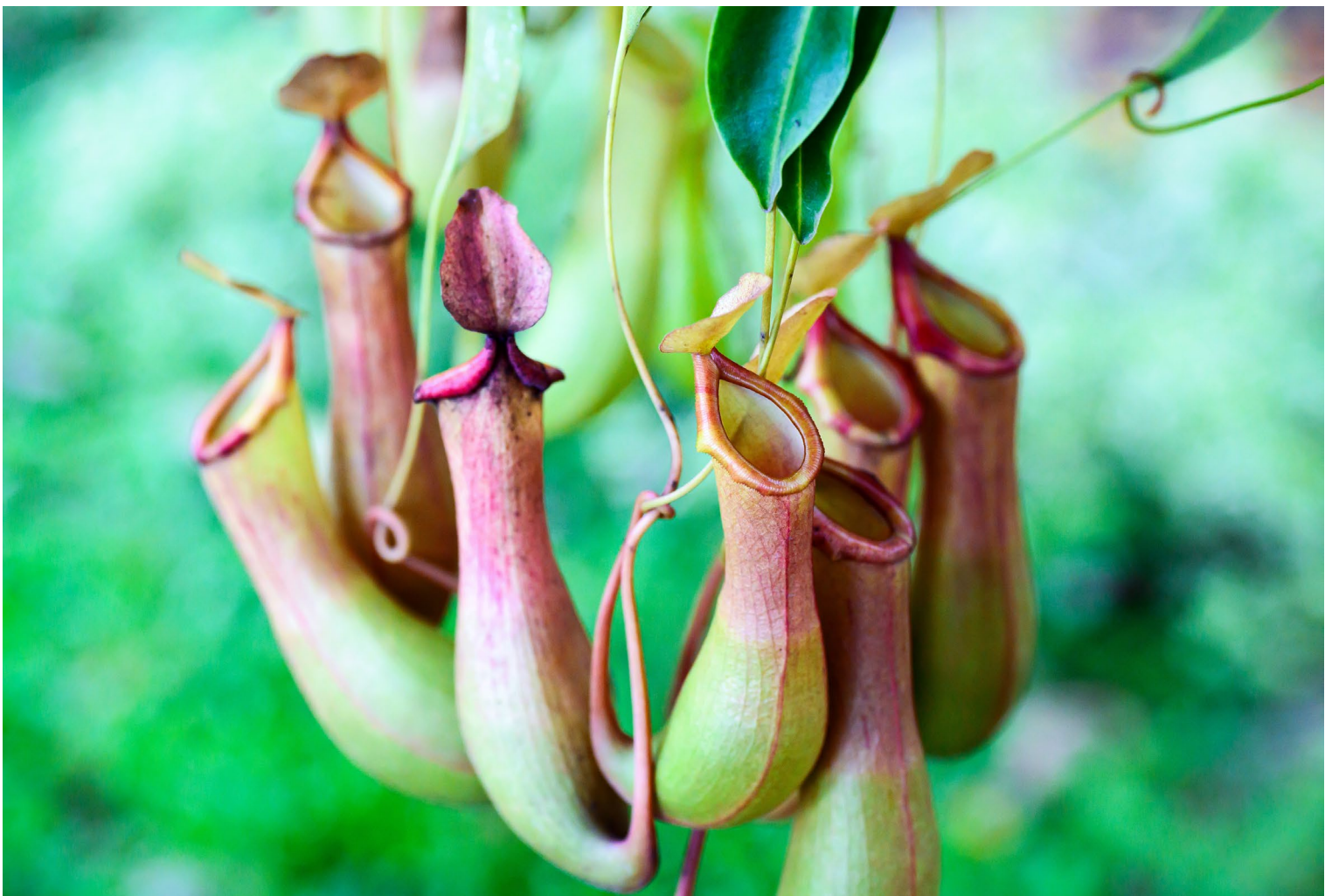We can't wait to see what your students will create!

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ABOUT

THE BIOMIMICRY YOUTH DESIGN CHALLENGE

The Biomimicry Youth Design Challenge is a flexible project-based learning experience—and competition—in which students take on the role of biomimicry innovators and imagine solutions to critical real-world problems. It was created by the **Biomimicry Institute** to introduce middle and high school students to the rapidly growing field of bio-inspired innovation while enhancing STEM education and essential life and career skills including collaboration, critical thinking, communication, and creative problem-solving. The Challenge and accompanying instructional resources are designed to be incorporated into existing STEM coursework, but it can also be approached as a student capstone project, or extracurricular activity in a student club or other out-of-school program. The Challenge project is fully aligned with the Next Generation Science Standards and includes a recommended Instructional Storyline that educators can adapt to suit their needs.

THE BIOMIMICRY INSTITUTE

In 2006, Janine Benyus and Bryony Schwan co-founded the Biomimicry Institute to share nature's design lessons with the people who design and make our world. The Biomimicry Institute envisions a future in which people view nature not as a warehouse of goods but as a storehouse of knowledge and inspiration for sustainable solutions. The Institute runs the award-winning website **AskNature**—a free online catalog of nature's solutions to design challenges—and has helped thousands of educators to share biomimicry with their students.

HOW TO PARTICIPATE IN THE COMPETITION

The competition is open to middle and high school students working under the guidance of an educator (their "coach") who is affiliated with a recognized school or other educational organization. Registered homeschool teams are also permitted, however coaches must ensure parent/guardian consent for all students participating. See details on the next page, under "Parental Consent and Release Notice."

Working individually or in teams, no more than eight in a group, students will identify and research a design problem based on a Sustainable Development Goal (SDG) they wish to consider as they create a bio-inspired solution. Teams (up to 8) will present their solutions in writing, imagery, and via a video pitch.

Coaches are responsible for registering on the Challenge website, verifying student image releases and parent permissions, and approving and uploading all submission materials to the program website by the submission deadline, **April 3, 2024.** The Biomimicry Institute additionally asks that each coach submitting a competition entry assist with the judging process by reviewing and scoring a selection of projects submitted by other coaches. This crowdsourced review process enables us to streamline judging and avoid charging a submission fee. If you have questions, please email us at **youthchallenge@biomimicry.org**.

Refer to the **Official Rules** on the YDC website for complete competition eligibility information and requirements.

HOW ARE THE DESIGN PROJECTS EVALUATED?

Projects submitted to the competition are evaluated based on six major criteria described in detail in the **YDC Project Rubric**. The rubric is available to download from the homepage of the Challenge website under the Communicate section of the YDC. Both students and educators can use this version of the rubric to assist in evaluations. See the **Judging** section for more details about the awards process.

PARENTAL CONSENT & RELEASE NOTICE

Materials submitted with a Challenge entry include documents, photographs, and video that may picture students and contain limited biographical information about them. Coaches must acquire and handle such images and information in a manner that complies with their school/organization's image and privacy policy and provide parents/guardians with the opportunity to opt out of including their student

in submission materials. Coaches are responsible for ensuring that all materials they submit to the Institute via the Challenge do not picture students who have opted out.

- **Sample Parent Notification Letter**
  See the appendix of this Handbook for a sample letter you can use to inform parents/guardians about the Challenge and provide them an opportunity to opt out of including their student in a submission to the competition.

Teams that do not comply with these requirements will not be eligible for awards.

PROGRAM ASSESSMENT NOTICE

The Biomimicry Institute asks that each student and teacher who participates in the Challenge (whether or not they ultimately submit a competition entry) provide feedback on their experience. Gathering data on the program helps us assess, improve, and report outcomes to funders. The Biomimicry Institute has contracted with an independent provider to conduct participant surveys and program evaluations for the Challenge.

We will ask you to participate in assessments of the program by:
- Distributing surveys to your students
- Answering questionnaires
- Participating in focus groups or short interviews

Your participation in surveys and evaluations is always optional. The information collected will be kept confidential and combined with information from all participants in the Challenge. This data will be analyzed in bulk and individual responses will not be shared.

2022-23 YDC TIMELINE

OCTOBER
Registration opens.

MID-SEPTEMBER
New curriculum available and Challenge officially begins.

Submission form opens. *Entries accepted until the submission deadline.*

ASAP
Pre-program assessment surveys.

MARCH 29
Registration closes.

APRIL 3
Submissions due. *All entries due by 5:00 pm, PDT.*

MAY
Finalists announced.

BUILDING YOUR TEAM

TEAM MAKEUP

Teams may form within classroom, non-formal, or after-school settings. A YDC team consists of an individual or between 2-8 students and 1 or 2 adult coaches. Teams and coaches must be affiliated with a public school, private school, registered homeschool, or a legally recognized organization (such as a museum, nature center, after school program, youth agency, etc.). If you do not fall into these categories, we will consider teams on a case-by-case basis – please contact youthchallenge.biomimicry.org before registering in this case. Teams may also be comprised of students from assorted schools. No student may join more than one team. Coaches are welcome to work with multiple teams. If you have 8 or more students interested in joining your team, consider forming additional teams.

YOUR ROLE AS A COACH

As the coach, you will help your team(s) learn about biomimicry, complete the challenge, and work together effectively and safely. Coaches are also responsible for communicating with the Biomimicry Institute program staff and submitting entries on behalf of the team.

An effective coach provides structure and support, but does not control the final design product or do the work. Student team members must make their own decisions and do their own work when it comes to selecting a design problem, conducting research, developing a biomimicry solution, and preparing presentation materials.

As a YDC Coach you will:

- **Set the stage, but don't direct the play.** Like all project-based learning, your role is to provide your students with guidance, information, and resources with which to work and develop their ideas, not to tell them <u>what</u> to create.
- **Make learning fun.** Design Challenges are exciting because they are open-ended. There's no single "right" way to solve a problem. Nature is also fascinating and organisms have all sorts of extraordinary adaptations and strategies. Encourage your

student team members to be curious, go outside, embrace their creativity, and explore big ideas about what's possible if we learned from nature in our designs.

- **Assist with judging.** In the weeks following the submission deadline, all coaches submitting entries will be asked to review a selection of student projects and score them against the **Project Rubric**. This 'crowdsourced' review helps us avoid charging submission fees and streamlines the awards process. It also provides you with the opportunity to see the judging process from the 'inside' to help inform your teaching in future years. Review the chapter on **Awards and Judging** for information about this process.

- **Be Flexible.** There is no single "right" way to teach this Challenge. You will customize the problem and process to fit the interests of the students and needs of your class or program.

TEAM ADVISORS

While we limit a team to two official coaches, additional adults may serve in an advisory capacity for the team. In fact, we strongly encourage teams to consult with experts!

Advisors may include:
- **Engineers:** Advise on technological aspects of the design or prototype.

- **Biologists and naturalists:** Help identify possible sources for inspiration and explain scientific concepts related to how biological strategies work.

- **Design professionals:** Lead brainstorming or ideation activities; provide constructive feedback on design concepts or prototypes; advise on the design of presentation materials.

- **Experts:** Helps teams and coaches understand the science of their chosen SDG problem; helps teams identify 'leverage points' for innovation where new ideas can have a big impact.

- **Biomimicry practitioners:** Help teams and coaches learn and apply a biomimicry design process.

Sources for prospective advisors may include:
- **Local colleges and universities:** Faculty, researchers, and graduate students in departments that specialize in life sciences, engineering, design, environmental studies, and climate.

- **Local organizations:** Environmental and sustainability organizations, museums and nature centers, etc.

- **Companies in your community:** Many companies encourage their employees to volunteer. Firms in your town that work in engineering, architecture/design, or environmental consulting could be resources for advisors.

- **Parents and relatives of team members.**

- **Biomimicry Global Network:** The Biomimicry Institute maintains relationships with 38 regional network groups in over 26 countries. The members of these groups are often eager to support biomimicry practice and teaching in their regions. Visit the **Global Network webpage** to find out if there is a regional network in your area and how to contact them.

- **AskNature:** The Biomimicry Institute's AskNature database offers thousands of real-world examples and models for those who want to learn, practice, or teach biomimicry.

THE LEARNING EXPERIENCE

The Challenge and accompanying instructional resources are designed to be incorporated into existing STEM coursework, but it can also be approached as a student capstone project or extracurricular activity in a student club or other out-of-school program. The Challenge project is aligned with the Next Generation Science Standards and includes lessons that educators can adapt to suit their needs.

OBJECTIVES

Students will:

- Describe how structures, processes, and systems in nature have inspired humans to create innovative designs.

- Experience a design process that blends design thinking, engineering, and biomimicry.

- Define a real-world problem and identify criteria and constraints.

- Gather and apply scientific information from credible sources.

- Identify biological model(s) for design inspiration and describe how its traits perform a beneficial function.

- Collaborate to create a biomimicry solution, inspired by a biological model.

- Demonstrate science and engineering practices and an understanding of STEM concepts.

- Collaborate to present what they designed and how they designed it to an authentic audience.

- Defend how their solution contributes to addressing their respective chosen Sustainable Development Goal (SDG).

PROGRAM DURATION

The YDC can be taught as a concentrated unit or as an ongoing project spread across existing coursework. Within the Challenge framework, there are numerous opportunities to extend and customize the program with connections to specific science concepts, community issues, and teaching objectives that pertain to your course or program.

Depending on how these activities are scheduled, and the depth you wish to go in conceptual learning and design development, the length of the project could vary from a few weeks to a semester or longer. Refer to the individual MIMIC sections for some suggested lesson planning and resources.

NEEDED MATERIALS & RESOURCES

If your team is school-based, the school itself can often provide many of the resources needed to participate in the YDC. For teams not based in school, you may need to make special arrangements with your hosting organization to acquire the following basic needs:

- **Meeting space** for team members to regularly work together and with their coach(es).

- **Computer** and software with which to develop the challenge entry.

- **Internet access.** Team members will use the internet to conduct research. Coaches will need internet access to download Challenge materials, receive emails, and keep up to date as the Challenge progresses.

- **Camera** to capture photos from the design process, document models or prototypes, and to take a team photo to accompany the Challenge entry.

- **Video recorder and editing software**. A short video pitch is a required component of the challenge entry. A smartphone is often sufficient to capture video and there are a variety of free or low-cost video editing apps available.

- **Office supplies and modeling materials** for brainstorming, prototyping, etc**.** Large sheets of paper, markers, and sticky notes are all quite useful. Modeling materials needed will vary based on what the team wishes to prototype.

- **Access to a natural area.** While not strictly required, we strongly encourage teams to spend time outdoors observing nature for inspiration!

EDUCATOR RESOURCES

The Youth Design Challenge is structured to allow educators to shape the experience to best serve their setting, goals, and their students' interests. The resources listed below are provided to assist you in designing the learning experience. We encourage you to use whichever resources are most appropriate for your needs.

FEATURED RESOURCES

- **MIMIC Instructional Approach**
  A visual framework showing the key components of a biomimicry project. Use it as a guide to the most essential components you should plan to include in any biomimicry design challenge learning experience.

- **Instructional Storyline:** This storyline provides a blueprint for overall project and unit planning for a Challenge focused on connecting local issues through the UN Sustainable Development Goals. The Storyline includes suggestions for lesson sequences, activities, and resources that will prepare students to enter the Challenge.

- **Aligning the Youth Design Challenge, Sustainable Development Goals, and Next Generation Science Standards**
  This resource aligns Disciplinary Core ideas in the Next Generation Science Standards to relevant SDGs. You can use this guide to match your educational needs and explore relevant themes to a specific design problem and identify curriculum connections.

  1. Choose an SDG that aligns with the content of your class or program before introducing the Challenge to the students. The problem and design project students undertake will then arise from this SDG.

  2. Have students review several SDGs, with your guidance, and choose one for their problem and design project.

- **Project Portfolio Checklist**
  This variation on the Challenge Rubric can be used by student teams to check that their project and materials have addressed all the requirements of the Challenge.

OTHER RESOURCES

- **Design Brief**
  The Design Brief describes the overarching problem that student projects need to address to compete in the challenge. This copy is formatted as a one-page handout you can distribute to student teams, if desired.

- **Project Rubric**
  The rubric articulates the criteria that judges use to evaluate entries and select award winners. You can share this with student teams to help them understand the quality of work that judges will look for when selecting award winners.

- **Introducing Biomimicry**
  We've gathered some suggestions along with our favorite resources for introducing teachers and students to biomimicry on the Introducing Biomimicry page of the YDC website. These resources complement the resources and lessons listed in the MIMIC sections on the homepage.

- **Legacy Biomimicry Design Challenge Curriculum**
  Review previous years' curriculum guides on different iterations to introduce students through this design thinking process. Portions of these guides have been adapted for use in the new YDC.

EDUCATOR TRAINING & SUPPORT

To support you in your biomimicry journey, we provide training and support opportunities for educators.

- **Training Videos**
  Short videos that will help you build your knowledge in biomimicry and best practices for facilitating project-based learning experiences. These videos can be found from the **Educator Resources** page of the YDC website.

- **Webinars**
  Periodically throughout the year we will host online gatherings to address specific topics, share experiences, and troubleshoot together. The dates and details of these events will be sent out by email to all coaches in advance. Webinars will be recorded and archived.

- **Individual Support**
  If you have a question that cannot be answered through the online resources, we are available to help. **Contact us** at **youthchallenge@ biomimicry.org** to request a 10-minute consultation call.

- **Professional Development Workshops**
  We can provide professional development workshops for educators, focused on biomimicry and the Youth Design Challenge. Contact us if your school or organization would like to schedule a training.

THE CHALLENGE

THE CHALLENGE DESIGN BRIEF

A "design brief" is a document that describes a design project. Designers and engineers use design briefs (also sometimes called 'problem statements') to make sure that everyone on the project team has a shared understanding of what problem they are trying to solve, and the scope and goals for possible solutions.

The YDC Design Brief introduces the overall focus of the Youth Design Challenge: the Sustainable Development Goals. The clarity with which team design projects address the problem described in the Design Brief is an important criterion on which they will be evaluated. The brief is available on the YDC website and can be downloaded as a handout you can share with students.

PLANNING YOUR TEAM'S CHALLENGE

The YDC Design Brief is written broadly to provide educators with flexibility and to encourage diverse and creative solutions. However, any of the chosen SDGs contain vast and complex topics and it will be essential that you guide your team in selecting a specific aspect of this challenge to focus on.

Defining a design problem is a valuable educational part of this project. It helps improve students' capacity to break large problems into smaller, more manageable ones, and it can help students apply critical and systems thinking to problem solving. Depending on your setting, learning goals, and student population, you may want to direct this "problem definition" aspect of the Challenge to a greater or lesser extent at the outset of the project. You can narrow the scope of the Challenge in a variety of ways to make the challenge more accessible and/or to target specific academic concepts. Just remember, it's important to make sure that students still have a voice and choice in defining the specific problem they will solve.

ADDITIONAL RECOMMENDATIONS

After running design challenges for many years, we've noticed a few pitfalls that sometimes trap those new to biomimicry. We mention these here so that you can help your students avoid them and submit a strong entry to the competition.

- **Distinguish between biomorphism, bioutilization, and biomimicry:** "Biomorphism" refers to an object that looks like something from the natural world (from the Greek "morph", meaning "shape"). "Bioutilization" refers to using natural materials. Both biomorphism and bioutilization can occur in biomimicry, but their presence alone does not make a design biomimetic. The important indicator is function— whether a design "works like" a strategy in the natural world. Make sure students are focusing on function in their designs, not just using, or superficially resembling, biological elements. For a deeper discussion of these terms see our publication, Sharing Biomimicry With Young People (p. 12), available on AskNature.org.

- **Stay out of the 'solution space' until you've completed your research:** Sometimes a design problem can spark ideas for possible solutions right away, before we even get to researching biology. When this happens, it's tempting for the design team to "jump to the solution space" and spend more of their time looking for justification in nature for an idea they already have, instead of following the biomimicry design process faithfully to investigate new sources for ideas. It's often pretty obvious to our judges when this happens, because the depth of emulation and learning from nature is weak. Encourage your students to stick with the process and really investigate what can be learned from nature before jumping to conclusions about possible solutions.

- **Focus on generating new ideas or improving existing ones:** As news stories and information about biomimicry have spread, many case studies and biological models have become popular. It can be very tempting to students to recycle these ideas instead of finding and developing their own. Encourage your students to go deeper in their research and, if referencing an existing technology or a frequently-used biological model, prompt them to add their own insights or original ideas to their designs.

COACH CHECKLIST

Below we have provided a checklist of essential tasks and activities to help you and your team stay on track during the Challenge. Please keep in mind that this checklist is not exhaustive and is only intended as a starting point.

COACH'S PREPARATION

☐ Register as a coach for the Biomimicry Youth Design Challenge and download the Program Handbook. (If you are reading this, you've probably already completed this step!)

☐ Build your team of 1-8 students and up 2 coaches. *Coaches may supervise multiple teams.*

☐ Distribute the student pre-program surveys.

☐ Review the Design Brief and Project Rubric.

☐ Review the YDC Educator Resources and determine how you would like to use them to support your team.

COMPLETING THE CHALLENGE

☐ Introduce your team to the topics of biomimicry and the UN Sustainable Development Goals (SDGs).

☐ Review the Design Brief and Biomimicry Project Rubric and discuss it with your team. Revisit these documents as needed throughout the design process to keep your team on track.

☐ Support your team through the process of defining a specific SDG to focus on for their Challenge project.

☐ Support your team through the process of researching biological models.

☐ Support your team through the process of developing solutions for their selected design problem, inspired by the biological models researched.

☐ Support your team in preparing the submission materials according to Challenge requirements and the Project Rubric.

☐ Enter your team submissions via the online form and finalize them by the deadline. *Coaches may work with multiple teams, but please only enter your three best submissions.*

☐ Distribute the student post-program assessment survey and complete the coach post-program survey.

☐ Review the judging information pack, rubric, and tutorial videos.

☐ Review and score team submissions via the online platform, following the provided instructions.

☐ Complete the post-judging survey.

OPTIONAL ACTIVITIES

☐ Attend periodic online training and support sessions, when available.

☐ Identify experts in your community who can serve as advisors to your team.

☐ Plan a field trip to a local nature area, natural history museum, zoo or aquarium to allow your students to see inspiring organisms in person.

☐ Make arrangements to present your team's finished project to your school, community, or other stakeholder group.

☐ Participate in interviews and focus groups with the Biomimicry Institute and other coaches to help refine the YDC.

☐ Organize an end-of-Challenge celebration with your team.

Congratulations! Your team has developed a biomimicry design solution and now it's time to enter it into the competition. Here's what you need

SUBMITTING YOUR TEAM'S ENTRY

to know to submit your entry. For more details and legalese, we recommend reviewing the Official Rules on the YDC website.

KEY DETAILS

- Coaches are responsible for submitting their team's final competition entry. Student team members do not directly submit work to the Challenge.

- If a team has two coaches, one of them shall be designated "lead coach" for the purposes of submitting the entry.

- To keep the judging process manageable, only three submissions will be accepted per coach. If you are working with several teams please select the strongest candidates to submit to the competition. Choosing them yourself, having the class vote, or hosting an event and inviting guests to judge the entries are a few ways you can select teams to enter.

- Complete one submission form for each team entering the Challenge.

- Entries are accepted ONLY via the submission form on the Challenge website. Do not email submission materials.

- Entries must be received via the Challenge website by the posted deadline.

SUBMISSION REQUIREMENTS

Entries must employ biomimicry (nature-inspired innovation) in addressing a social and/or environmental issue that is related to the United Nations Sustainable Development Goals, as described in the Design Brief. As discussed above, this broad theme should be narrowed and focused on a specific problem that can be addressed by a design solution. See the section "Narrowing the Challenge" above and the project Instructional Storyline for guidance.

Entries must consist of the following:
All submission materials will be typed or saved as a PDF and uploaded to the online submission form.

- **Project Overview.** Teams must supply

written answers to the following three questions, which will be displayed in a gallery of submissions on the Challenge website (each with a 100-word limit):

- **What is the problem your team solved for this challenge?**
  - What is the problem addressed?
  - How is the problem connected to the selected SDG?
- **How was your solution inspired by nature?**
  - What organisms did you learn from?
  - How effectively did you combine the biological strategies for the final design?
- **What does your design solution do?**
  - How does it solve or mitigate the problem you selected?
  - How did what you learn inform your design?

- **Video Pitch.** The video (max two (2) minutes in length) should provide an engaging overview of the design project and the problem it solves, explain how it is inspired by nature, and convey key discoveries or insights from the design process. Creativity is encouraged! The video must be uploaded to a video sharing website (**YouTube**) and made available for public viewing. The submission form will collect a link to the video. Please note that any video that is longer than 2 minutes will be automatically deducted points from the final judging process.

- **Project Portfolio.** A document (PDF file, no more than 10 pages long) that uses narrative and images to tell the story of your team's biomimicry design and process for developing it. Pages should be letter size (portrait), or the size of a standard PowerPoint slide size.

For specific page requirements, please look at the Communicate section of the curriculum.

- **Project Image.** A drawing, diagram, or photograph (with a caption) that clearly portrays the design solution. This image will be displayed in a gallery of submissions on the Challenge website. The image must be provided in JPG file format and no smaller than 1500px by 1000px. To display well in the gallery the image should be in landscape (horizontal) format.

- **Team Photo.** An image depicting all team members and (optionally) their coach(es). This image will be displayed in a gallery of submissions on the Challenge website. The image must be provided in JPG file format, and no smaller than 600px by 400px.

NOTICES

Copyright and Intellectual Property

When you submit your team's entry, you will check a box to verify that the entry is the original work of the team members listed on the submission form. Doing so confirms that the entry is free of copyright infringement. If any copyrighted materials are used in the submission, they must be properly credited and follow U.S. Fair Use guidelines. This resource from the University of Texas offers more information about U.S. copyright and Fair Use qualifications: **Copyright Crash Course: Fair use of copyrighted materials.**

Entrants retain ownership of all ideas and materials/images submitted to the Challenge. However, by submitting an entry teams grant the Biomimicry Institute the right to display submitted entry materials on the Challenge website and to use such materials (with appropriate attribution) for educational purposes and promotion of the program. See the Official Rules on the YDC website for complete conditions of entry.

Image Releases

When you submit your team's entry, you will check a box to verify that all images contained in the submission were acquired in a manner that complies with your organization's image release policy, if you are at an organization that has one. You will also supply the Biomimicry Institute with the names of all students who opted out of sharing their information and image in a public manner, as listed on the Opt-Out form.

SUBMISSION PROCESS

Once you have been notified that the submission form is open:

- **Log into the Challenge website.** Make sure to become a member of "The Biomimicry Institute" community on Babele.

- **Click the "Forum" button from the side bar** and look for the "2023-2024 YDC Submission" discussion forum.

- **Enter the forum and click on the application link** in the description. It will take you to the application main page. Click the "Fill Your Application" button under Apply Now!

  - In addition to the submission materials, you will need to provide team information including the names and contact info for all coaches, the team's host school or organization, and the names and grades of the student team members.

  - The submission form can be saved as a draft and returned to at any time by going to your "My Stuff" page (accessed in your main user profile page). Draft entries will display a white icon (draft) in the list. To continue your draft, click on the appropriate application.

- **Review and submit the entry for judging** by clicking the submit button on the application. Once submitted, entries can no longer be edited.

  - Submitted entries will display a "submitted" icon next to the application.

  - Our staff will review the entry for completeness; This may take several days depending on the volume of submissions. You will receive a

confirmation email once it has been approved for judging.

- If you application is missing any information or documents, it will be rejected. You will be able to resubmit once the relevant information is added.

- **If you have multiple teams to submit entries for, simply repeat this process for each one (for up to three entries). A new draft will be created each time you click the "Fill Your Application" button.**

  Note: We recommend working on one submission at a time. A system error may be triggered if you have more than one copy of the submission form open at one time (e.g. in multiple browser tabs).
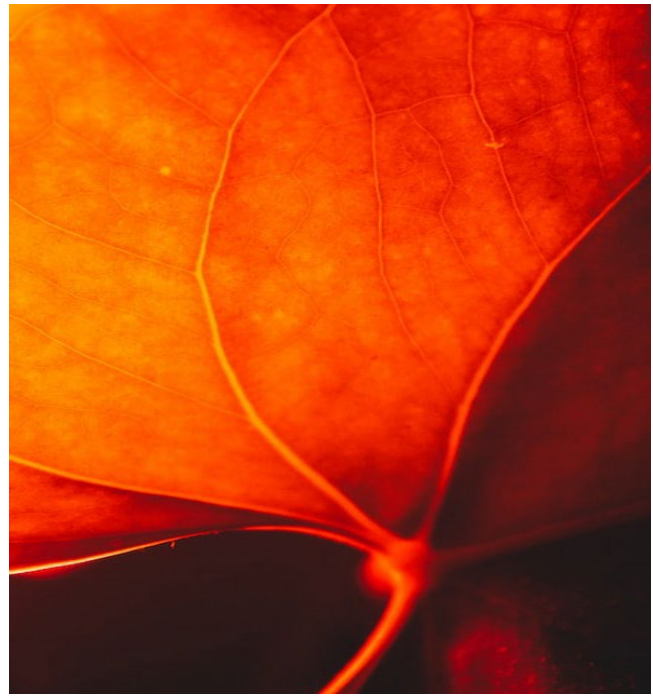
AWARDS & JUDGING

AWARDS

Entries to the competition are judged once annually and prizes are awarded in two grade level categories: middle school (6th-8th) and high school (9th-12th).

Projects selected for awards will receive:

- Recognition on the Youth Design Challenge website, on the Biomimicry Institute website, and in media and outreach.

- An Award Certificate for each member of the winning team.

Please refer to the Official Rules on the Challenge website for complete award information.

JUDGING PROCESS

Entries are judged in two rounds of review.
(See the timeline below for approximate dates)

- **Preliminary selection**. All eligible entries will be scored based on a numerical point system correlated to the Youth Design Challenge Project Rubric. Coaches will serve as judges, in addition to other people in adjacent fields such as biomimicry and innovation. Each entry will be scored multiple times and the scores averaged. The top entries by score from both the middle school and high school categories will advance to the final round.

- **Awards**. Award winners will be selected by a panel of judges comprised of Biomimicry Institute staff and selected biomimicry subject matter experts.

COACHES' JUDGING RESPONSIBILITIES

To streamline the judging process and avoid charging submission fees, coaches with teams entering the competition are asked to be part of the preliminary round by reviewing a selection of submissions from other coaches. Judging is a great opportunity for you to see other teams' solutions and become more familiar with the Challenge rubric, both of which can help improve your coaching in future years.

All judging will be completed online. Coaches will be provided with access to the web-based judging platform soon after the submission deadline and assigned a selection of entries to review and score.

Expectations of Judges

1. **Carefully review** the provided judging info packet, rubric, and tutorial videos.

2. **Evaluate the submission** materials for each entry assigned to you and score them according to the instructions provided.

3. **Leave constructive comments** for each team reviewed in the appropriate space on the online scorecard. *Your comments will be anonymously shared with the team's coach.*

4. **Disclose any conflicts of interest,** such as judging your own students or others at your school, so we can reassign entries if needed.

5. **Complete a post-judging survey,** which will be emailed upon completion of the judging process.

JUDGING TIMELINE

Submission Deadline.. April 3
Preliminary judging by coaches .... Early April*
Final judging for awards .... Mid-Late April*
Awards announced .... May

Judging dates are subject to change

CONTACTS

YDC Program Support
youthchallenge@biomimicry.org
Contact us if you are having problems using the YDC website, submitting your entry, or have questions that cannot be addressed in the public forum above.

Surveys & Program Evaluations
The Biomimicry Institute has contracted with an independent provider to conduct participant surveys and program evaluations for the Biomimicry Youth Design Challenge.

APPENDIX: Sample Parent Notification Letter

Modify this letter as needed to suit your school/organization by copying and pasting it into a document and adding/editing the appropriate info to the highlighted sections.

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DATE

Dear Parent/Guardian,

This year SCHOOL/ORGANIZATION NAME will be participating in the Biomimicry Youth Design Challenge. The Challenge is a creative project-based learning experience and design competition hosted by the Biomimicry Institute. Biomimicry (nature-inspired design) is a rapidly growing field of study that is charting the course toward a more sustainable world and creating exciting new STEM career pathways for scientists and innovators. You can find more information about the Challenge on the program website: youthchallenge.biomimicry.org.

As part of the Challenge, your student and their teammates may have the opportunity to submit a project to the national competition. Submission materials include images and videos that may picture your student. These images and video may be displayed on the Challenge website and used by the Biomimicry Institute for educational purposes and/or to promote the Challenge. All images will be acquired and handled in a manner that complies with SCHOOL/ORG NAME policy. Limited biographical information (participant's name, grade, school, city, state, and gender) will also be collected with the entry and may be shared publicly with the exception of gender, which is collected for Challenge evaluation purposes only. Refer to the Official Rules on the program website (above) for complete details. If you consent to including your student in a submission to the Challenge, no action is required. If you do not want your student's image or information to be included, fill out the bottom of this letter and return it to me.

To assist the Biomimicry Institute's efforts to evaluate learning outcomes, we may also distribute surveys to students. All surveys are confidential and students can opt out and/or refuse to answer any question. If you do not want your student to participate in the surveys please tell them not to fill them out.

If you have any additional questions or concerns, please contact me at CONTACT INFO.

Thank you,

NAME
TITLE/ROLE, ORGANIZATION

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CHALLENGE SUBMISSION OPT OUT

I do not want my student's image and information included in a submission to the Biomimicry Youth Design Challenge competition. I understand this may mean that she/he/they will not be publicly credited for her/his/their work on a team project.

Student's Full Name (printed):_____

Parent/Guardian Name (printed): _____

Parent/Guardian Signature: _____ Date_____