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# KEY CHALLENGE

Key Biscayne Citizen Scientist Project

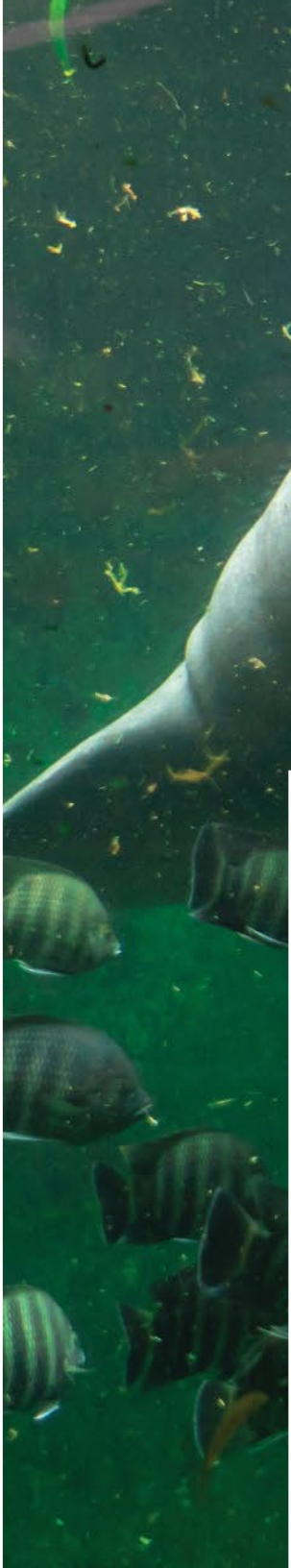
# INTRODUCTION

**The Citizen Scientist Project of the Key Biscayne Community Foundation sponsors the Key Challenge.** Following the example of The Fairchild Challenge and its wider audience and area of concern, the Key Challenge is an island-wide initiative on Key Biscayne directed at increasing students' appreciation and knowledge of the island's natural resources. The Challenge incorporates 4 disciplines – art, writing, informatics, and science. These disciplines are further broken down into individual and/or group challenges open to various grade levels.

The Challenge starts on October 5th, 2023 (registration must be completed by November 30th, 2023) and concludes on March 31st, 2024. Awards will be announced on Earth Day, April 22nd, 2024 (may be subject to change). Each individual/group challenge will be judged within grade categories. Grades are separated by the following breakdown:

- Pre-K, Kindergarten and First grade (K)
- Second and Third grades (3)
- Fourth and Fifth grades (5)
- Sixth through Eighth grades (M)
- Ninth and Tenth grades (H1)
- Eleventh and Twelfth grades (H2)

There is also an At Home Individual category for each of these age groups. Students who are Key Biscayne residents may provide an entry even if their teacher and/or school is not participating in the Key Challenge. **Only those projects listed in this brochure which are marked with an asterisk (*) can be entered in the At Home Individual category.**



## 2023 KEY CHALLENGE THEME

***NEW!*** This Year's Key Challenge theme will revolve around native animals and their habitats (this includes insects). The Citizen Science Project would like participants to discover species of animals that are native to Florida how they are specifically adapted to the various habitats here. Florida is special for having the only coral reefs in the continental United States and its humid subtropical climate gives rise to many unique habitats, many found nowhere else. We want students to look at the species endemic to Florida and how and why they may have evolved to live here, how they are part of the local ecosystem, and what threats they face. Also, what activities can we partake in that can help protect our native animals or their habitats?

Students can investigate both salt or freshwater environments, and terrestrial or aquatic environments. While we will focus our challenges broadly on any of the native animals of Florida, students should carefully investigate their animals to avoid choosing incorrectly. Due to the humid subtropical environment, Florida is now home to many non-native and invasive species, which will not be accepted in any of the projects. ***If a student or teacher is unsure whether an animal is native, they can contact info@keyscience.org.***

## 2D OR 3D CREATION*

***(INDIVIDUALS, GROUPS, CLASS & AT-HOME | up to 2ft x 3ft)***

Create a collage, painting, or sculpture depicting a habitat for a particular native animal using paints, found objects, clay, or other material from any source available (use only non-perishable items and please no sand). Please include a written description (by the teacher), which describes the animal found in this habitat and the process of creating, the materials collected, and the lessons learned during the process regarding the characteristics of the habitat and why this animal lives there.

## PHOTOGRAPHY & ZIP ODE*

***(INDIVIDUALS & AT-HOME | 8" X 10" photo (not including mat) printed on photo paper. )***

Take a photograph (micro or macro) of a native animal of Key Biscayne (i.e. green anole, manatee, bird, insect, etc.) existing outdoors in its current habitat (this may include those that have adapted to live among man-made structures). Include a title and location, and write a Zip Ode using the 33149 zip code for Key Biscayne about the animal. Zip Odes are a form of poem created by O, Miami Poetry Festival in which each line has same the number of words found in each number of a zip code. More information and examples can be found at ***omiami.org/pages/zip-odes***.

Participants are also encouraged to submit their completed Zip Odes to O, Miami once the submissions reopen for the 2024 poetry festival. ***Photos must also be uploaded to the Key Science interactive map at keyscience.org/lab/record/ and click on "Upload your own photos here!"***

PRE-K, KINDERGARTEN, & FIRST GRADES

## BUILD A BIRD'S NEST*

***(INDIVIDUALS, GROUPS, CLASS & AT-HOME | up to 12" x 12" x 12")***

Create a 3-dimensional bird's nest using natural materials based on the type of nest that would be built by a native bird. Students can help collect materials and build the nest (if suitable for their age, and please no sand). A description of the species of bird that would live in this nest and a description of the creation of the nest, materials used, and the students' involvement should be included.

## BOOK

***(GROUPS & CLASS | max 28 pgs including cover)***

Create a book (for example ABC, Counting, Colors, a story, or any other idea) depicting or talking about native animals and their habitats that are local to Key Biscayne. The artwork and words must be student generated, but the book may be computer printed or assembled by the teacher for very young students. Include a description of the creation of the book and the students' involvement. Please try to include as many different animals or habitat elements as possible (with the understanding that it may not be possible to include something different for every part of the book).

## 2D OR 3D CREATION*

***(INDIVIDUALS, GROUPS, CLASS & AT-HOME | up to 2ft x 3ft)***

Create a collage, painting, or sculpture depicting a habitat for a particular native animal using paints, found objects, clay, or other material from any source available (use only non-perishable items and please no sand). Please include a written description (by the teacher), which describes the animal found in this habitat and the process of creating, the materials collected, and the lessons learned during the process regarding the characteristics of the habitat and why this animal lives there.

## PHOTOGRAPHY & ZIP ODE*

***(INDIVIDUALS & AT-HOME | 8" X 10" photo (not including mat) printed on photo paper. )***

Take a photograph (micro or macro) of a native animal of Key Biscayne (i.e. green anole, manatee, bird, insect, etc.) existing outdoors in its current habitat (this may include those that have adapted to live among man-made structures). Include a title and location, and write a Zip Ode using the 33149 zip code for Key Biscayne about the animal. Zip Odes are a form of poem created by O, Miami Poetry Festival in which each line has same the number of words found in each number of a zip code. More information and examples can be found at ***omiami.org/pages/zip-odes***.

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SECOND & THIRD GRADES

## BUILD A BIRD'S NEST*

***(INDIVIDUALS, GROUPS, CLASS & AT-HOME | up to 12" x 12" x 12")***

Create a 3-dimensional bird's nest using natural materials based on the type of nest that would be built by a native bird. Students can help collect materials and build the nest (if suitable for their age, and please no sand). A description of the species of bird that would live in this nest and a description of the creation of the nest, materials used, and the students' involvement should be included.

## SPECIES DEPICTION*

***(INDIVIDUALS, GROUPS, & AT-HOME | each poster up to 12in x 18in)***

Choose 5 native animals found on Key Biscayne and create individual posters for each one. Each poster should contain the name of the animal, a picture (either photograph or drawn), and a description of the type of habitat it lives in and how it may be affected by changes caused by humans.

## 2D OR 3D MIXED MEDIA MAP*

***(INDIVIDUALS, GROUPS & AT-HOME | up to 12" x 18")***

Create a map of Key Biscayne that depicts native animals that live on or around the Key. Find creative ways to show their habitat where they would be found on the map as well. Mixed Media may include all types of paint, dry media, found objects, or other material from any source available (use only non-perishable items and please no sand). Include a written description of the artwork which includes a comment about how the different animals depicted are adapted to their specific habitats.

## PHOTOGRAPHY & ZIP ODE*

***(INDIVIDUALS & AT-HOME | 8" X 10" photo (not including mat) printed on photo paper. )***

Take a photograph (micro or macro) of a native animal of Key Biscayne (i.e. green anole, manatee, bird, insect, etc.) existing outdoors in its current habitat (this may include those that have adapted to live among man-made structures). Include a title and location, and write a Zip Ode using the 33149 zip code for Key Biscayne about the animal. Zip Odes are a form of poem created by O, Miami Poetry Festival in which each line has same the number of words found in each number of a zip code. More information and examples can be found at ***omiami.org/pages/zip-odes***.

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FOURTH & FIFTH GRADES

## BUILD A BIRD FEEDER*

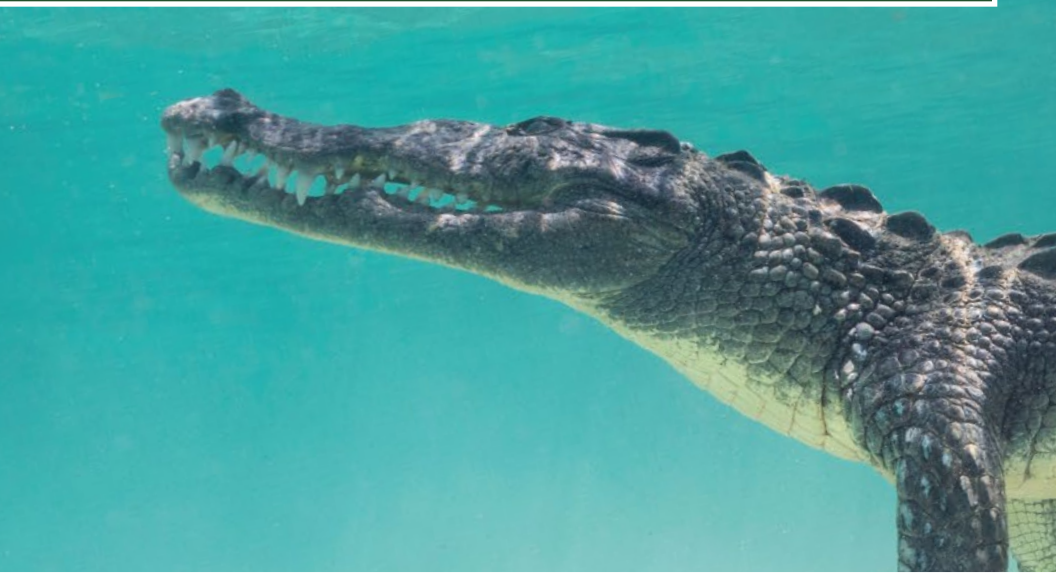
***(INDIVIDUALS, GROUPS & AT-HOME | on a poster/science board)***

Build a bird feeder and observe the birds that come to visit. This can be as simple as stringing cheerios on some pipe cleaners or covering pipe cleaners in peanut butter and seeds and then tying these to a branch, or the students can choose to build a more complicated structure. Students should observe the bird feeders to see which birds visit, and create a short description including either photos or drawings of three native birds that were observed and their identifications. Please also include a description of the bird feeder.

## SCIENCE PROJECT

***(INDIVIDUALS, GROUPS, & AT-HOME | on a poster/science board)***

Choose a local, native habitat (terrestrial, shoreline, freshwater, etc.) and observe and list the different animals present in that habitat. Describe the habitat, explain why these specific species might be present, and how their lives are adapted to this specific habitat. This can include descriptions of changes to the environment over time or more be more specific descriptions of the animals rather than the habitat. Present data on a poster/foam core board with pictures.



## PHOTOGRAPHY & ZIP ODE*

***(INDIVIDUALS & AT-HOME)***

Take a photograph (micro or macro) of an element of plants or animals of Key Biscayne (i.e. butterflies, orchids, mangroves, birds, etc.) which depicts the importance of good water quality or effects of bad water quality. Include a title and location, and write a Zip Ode using the 33149 zip code for Key Biscayne about environmental changes due to the changes in water quality. Zip Odes are a form of poem created by O, Miami Poetry Festival in which each line has same the number of words found in each number of a zip code. More information and examples can be found at ***omiami.org/pages/zip-odes***.

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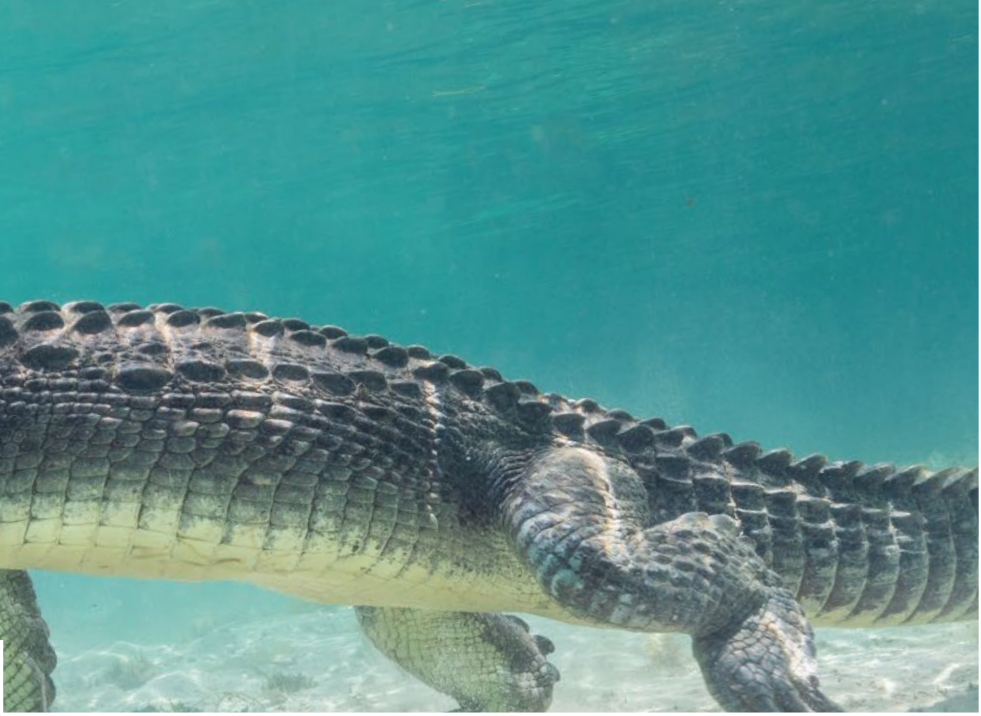
## COLORING BOOK*

***(INDIVIDUALS & GROUPS | max 20 pgs including cover)***

Create a coloring book that tells a narrative, taking place on or around Key Biscayne, of a native animal and the habitat in which it lives. Be descriptive of both the animal and its habitat. Keep in mind that this project is being made for a younger audience, to give older students a chance to teach younger students about the environment. ***(Winners may get a chance to read their stories to younger students!)***



MIDDLE SCHOOL: SIXTH, SEVENTH, & EIGHTH GRADES

## 3D SCULPTURE*

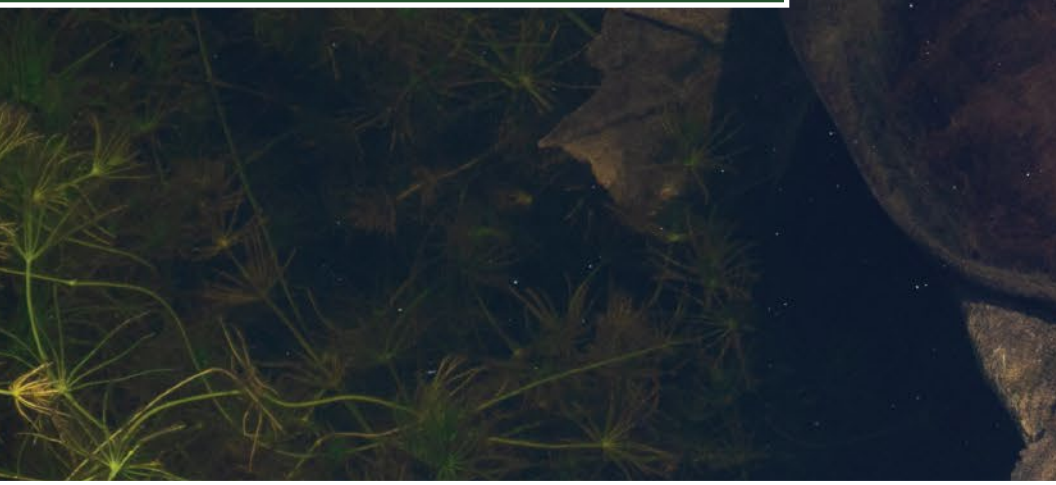
***(INDIVIDUALS, GROUPS, & AT-HOME | up to 12" x 12" x 12" with description loosely attached)***

Create a sculpture of a native animal found in Key Biscayne. The sculpture must be on a base, be able to stand on its own, and should not have any loose parts (please no sand). Include the common and scientific name of the animal, and research and write a paragraph describing the type of habitat in which its found and how it is adapted specifically to that habitat. For example, how many birds are seen on Key Biscayne shoreline habitat and why are they found there? What species of fish are found in coral reefs and how are they adapted to live among coral?

## NATIVE ANIMAL PSA VIDEO

***(INDIVIDUALS & GROUPS | video up to 8 minutes)***

Create a public service announcement about the protection of a specific native animal found in or around Key Biscayne, and explain what people can do to help or make a difference. Be sure not to violate any rules or laws in the production of the videos, and be careful not to accidentally disturb any wild animals. Discuss in particular the environmental problems caused by people, our effects on the native animals and their habitats, and any long-lasting repercussions for Key Biscayne. ***Entries will be submitted via Dropbox.***



## COLORING BOOK, COMIC STRIP, OR ILLUSTRATED STORY

***(INDIVIDUALS & GROUPS | max 20 pgs including cover & comic strips should not exceed 16 panels)***

Create a story or a comic strip that tells a narrative of a native animal and its habitat. Describe the different ways in which its environment has changed, or it has changed its behavior due to influence by people or environmental changes. Keep in mind that this project is being made for a younger audience, to give older students a chance to teach younger students about the environment. ***(Winners may get a chance to read their stories to younger students!)***

## PHOTOGRAPHY & ZIP ODE*

***(INDIVIDUALS & AT-HOME)***

Take a photograph (micro or macro) of an element of plants or animals of Key Biscayne (i.e. butterflies, orchids, mangroves, birds, etc.) which depicts the importance of good water quality or effects of bad water quality. Include a title and location, and write a Zip Ode using the 33149 zip code for Key Biscayne about environmental changes due to the changes in water quality. Zip Odes are a form of poem created by O, Miami Poetry Festival in which each line has same the number of words found in each number of a zip code. More information and examples can be found at *omiami.org/pages/zip-odes*.

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HIGH SCHOOL 1: NINTH & TENTH GRADES

## SCIENCE REPORT*

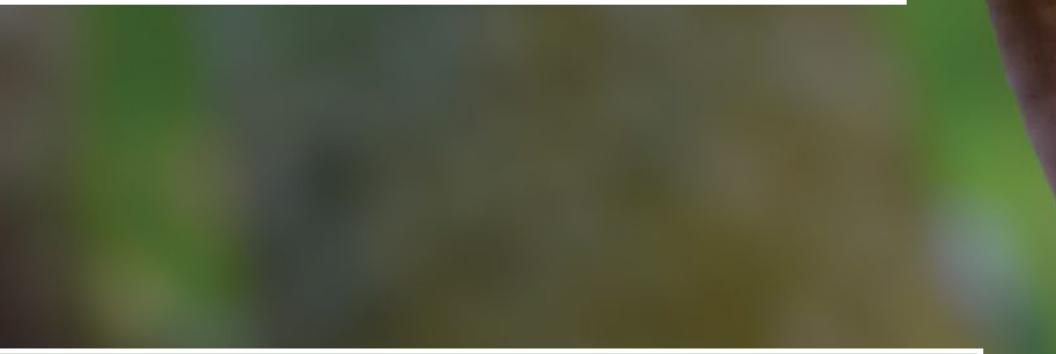
***(INDIVIDUALS & GROUPS | max 4 page written report (may include a few pictures separately from the text) or a PPT (maximum 25 slides)***

Create a PPT or written report which describes an animal native to Florida and how it is specifically adapted to living in the local unique ecosystem. This should include data collection and analysis; the level of detail will be left up to participants, but more detailed information will likely score higher. ***Entries will be submitted via Dropbox.***

## NATIVE ANIMAL PSA VIDEO

***(INDIVIDUALS & GROUPS | video up to 8 minutes)***

Create a public service announcement about the protection of a specific native animal found in or around Key Biscayne, and explain what people can do to help or make a difference. Be sure not to violate any rules or laws in the production of the videos, and be careful not to accidentally disturb any wild animals. Discuss in particular the environmental problems caused by people, our effects on the native animals and their habitats, and any long-lasting repercussions for Key Biscayne. ***Entries will be submitted via Dropbox.***

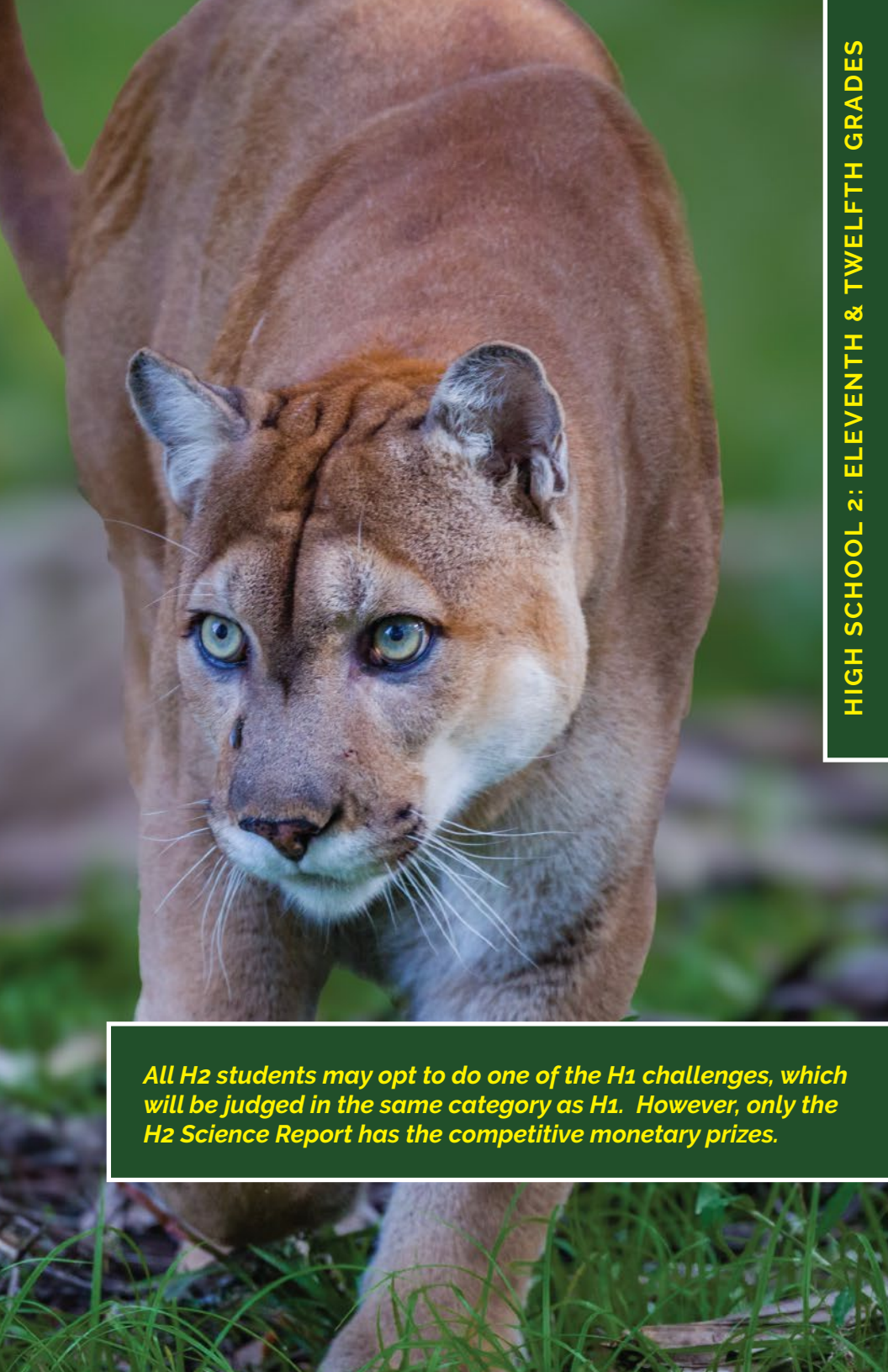


## SCIENCE REPORT*

***(INDIVIDUALS & AT-HOME | 6-7 pages)***

Write a report detailing a specific native animal or animals found in Florida and its habitat. The report should detail information about the importance of protecting the animal and/or its habitat, how it is currently affected or influenced by human actions, and what can be done to change or increase protections. The report can be broad (for example, a general report on a single animal, a description of where it lives, and human influence), or more detailed (for example, focusing on several animals found in a habitat and their roles within the ecosystem, their food sources and characteristics, how they affect each other, and how they are influenced or affected by the actions of humans, etc.). It can include any aspect of human influence: construction, pollution, introduction of invasive animals from the pet trade, changes in water flow, etc. **The subject of the paper does not have to be specific to Key Biscayne, although it is preferred.** The subject and detail-level of the report will be left to the participant to decide; however, all reports should show research, data collection, and analysis. It should loosely follow the scientific method: 1) ask a question, 2) do background research, 3) construct a hypothesis, 4) collect data and/or test hypothesis, 5) review accuracy of hypothesis, and 6) draw a conclusion. It is okay if your data proves your hypothesis to be incorrect! Students can either create their own experiment based on their hypothesis and collect data that they will include in their report, or they can write a research paper using data sources and information from other scientific literature to prove or disprove their hypothesis. All outside sources must be cited.

***This project is includes a competitive award as it is more involved and detailed. It has a monetary award of $200 for 1st place, $150 for 2nd place, and $100 for 3rd place.***



# HIGH SCHOOL 2: ELEVENTH & TWELFTH GRADES

***All H2 students may opt to do one of the H1 challenges, which will be judged in the same category as H1. However, only the H2 Science Report has the competitive monetary prizes.***

# AT-HOME

***(CHOOSE ONE PROJECT PER STUDENT)***

Individuals who live on Key Biscayne but do not attend school on the Key or who attend school on the Key but whose class is not participating may still participate individually in the Key Challenge, following these guidelines:

- Each child registrant may enter with one of the challenges given for their grade level category. The challenges listed on previous pages which will be allowed for the At Home Individual entries are marked with an asterisk (*).
- The child registrant's parent/guardian may register him or her online in the At Home Individual category, or the child may register him or herself if high school aged.
- The child registrant will need to have their current teacher fill out and sign a form verifying their current grade level, which will be available for download on the online registration page.
- Each At Home Individual challenge entry will be judged against other entries of the same grade level category.
- Parents may provide guidance, but should allow the child to do the challenge on their own as much as possible.
- Register at www.keychallenge.org.

# AT-HOME PARTICIPATION GUIDELINES

# Citizen Scientist Project's KEY CHALLENGE

# GENERAL INFORMATION

• Each school must complete a School Registration form by November 30, 2023.

• The Challenge starts official on October 5th, 2023.

• For each class, 2 entries will be accepted per challenge for judging at their grade level category. For each grade level category, 1 winner will be chosen per challenge from all entries, including the At Home Category.

• In order to submit an entry for judging, the participant(s) is (are) required to attend at least one environmental activity (lecture, beach cleanup, butterfly walks, birding expedition, invasive plant species removal, etc.). This requirements extend to At Home Individual participants. There is an environmental activity form that can be downloaded and signed at the event by the event coordinator.

• A completed project entry form must be included with each challenge submitted for judging. It is available for download on the registration page.

• For group projects, the maximum number of members is four.

• All judging will be anonymous.

• A Community Service Award will be given to the school with the greatest percentage of a school's population participating in environmental activities for the Key Challenge. For students to get credit for attending an event, they will need to print out a participation form (provided on the registration page) and have the person in charge of the event sign it. These should then be collected by their teacher and turned in to KBCF when all the challenges are submitted for judging. If attending a Citizen Science Project event, a signup sheet will be provided and student attendance automatically recorded for the Key Challenge.

• Students must stay within the challenges assigned to their grade level category.

• Absolutely NO perishable items or sand should be used in any of the challenges.

• The given size limitations must be adhered to by all participants.

• For questions, visit www.keychallenge.org, email info@keyscience.org, or call (305) 361-2770.

• Register at www.keychallenge.org.

Citizen Scientist Project's KEY CHALLENGE

# 2023-24 KEY CHALLENGE

The Citizen Scientist Project's goal is to secure a future Key Biscayne characterized by the same bounty of natural resources that exist today, thus maintaining the title of "Island Paradise," while the Key Biscayne Citizen Scientist Lab provides a place to record and organize your findings in and around our island and to learn more about our island.

The Citizen Science Project's Key Challenge is sponsored by the Key Biscayne Community Foundation, the Village of Key Biscayne, then Fairchild Tropical Botanic Garden, the University of Miami Rosenstiel School, and the Knight Foundation.

Communication is always welcome. Contact the Key Biscayne Citizen Science Project at:

Email: ***Info@KBCF.org***

Web: ***www.KeyChallenge.org***

Telephone: ***(305) 361-2770***

KBCF

KEY BISCAYNE COMMUNITY FOUNDATION