



Project Documentation
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Project Summary

Leaf consists of a website and progressive web app (PWA) that help kids engage with nature in a safe, fun, and educational way. Targeted at elementary aged children in North Carolina, the Leaf website has information about common and notable NC species. The PWA has exploratory tasks that prompt mindful engagement with nature, and can be used in parks or other nature spaces.

Initially, my plan was to code a PWA that provided fun exploratory tasks to teach kids about nature and scientific processes. The primary challenge I wanted to address was decreased engagement with nature in children aged 5 - 10. The lack of accessibility of nature is in part due to a lack of knowledge, which makes nature spaces intimidating for children. Mindful engagement is only fostered through education and exploration, which was the goal of Leaf. My primary goals were to create exploratory tasks that were customisable by season and time, and create an app prototype that focused on UX/UI and visual design.

While working on Leaf, I had a major shift and changed the scope of the project pretty drastically. I decided to lessen the scope of the PWA, and host most of the information that was going to be on the PWA on a website. The functions of the PWA were decreased to just the tasks, and I decided to create additional photo and video content, as well as the design artifacts and prototype. Between the website and PWA, I met my initial goals of providing information and creating exploratory tasks. The functionality of the PWA, especially the filtering by season, time, and location, was decreased as time went by. Although the tasks are still an important part of the project, I did not manage to make the PWA tasks filter by season and time as I initially intended. The tasks do filter by season, but I could not figure out the function to do what I wanted with the time. However, I did change the tasks slightly to accommodate for this. Rather than have many specific tasks that could be filtered, I made the tasks themselves more general so they could be done almost anywhere and almost anytime while still promoting mindful engagement.

Final Deliverables

The two primary deliverables are the website, which links to the PWA. The website can be found at leaf-nc.com, and the PWA is hosted on a subdomain and can be found at leaf-nc.web.app. Additional internal deliverables include a brand manual, which details brand colors, logo, fonts, and photography guidelines, but the external facing deliverables are limited to the website and PWA.

Website - leaf-nc.com

PWA - leaf-nc.web.app

Research

The research for this project began with a review of literature for incorporating technology into nature spaces. My initial research addressed the importance of engaging kids with nature before exploring different uses of technology in educational spaces and nature space. I looked at academic articles about technology in the classroom, technology in nature and nature spaces, and technology in nature for education and interpretation.

Although childhood engagement with nature and experiential learning in outdoor spaces has decreased, the importance of nature for childhood development has not. The role of technology in everyday life has grown, and children are more exposed to electronic devices and technology than ever. However, technology does not have the same level of influence in educational spaces and natural spaces, due to a lack of purposeful incorporation. Children can learn from technology, and rely on nature and natural spaces for experiential learning, so combining technology with natural spaces for educational purposes is feasible and promising.

Lack of interaction with nature in early childhood leads to reduced attention span, lessened problem solving abilities, and a lack of self-discipline. More time indoors is also responsible for increased rates of childhood obesity, poor social skills, and mental health problems. With the spread of urban and suburban development children have less opportunity to spend time outdoors in nature and natural spaces. Nature has also been identified as a facilitator of experiential learning. Experiential learning is the process of learning through reflection about an activity or hands-on practice.

Exploratory education apps provide a framework to incorporate experiential learning that, while not purposefully educational, has value in the field. Unstructured exploration of nature can be alienating and uninteresting for younger generations, but educating children on nature and natural phenomena would decrease the alienation. A lack of knowledge contributes to inaccessibility of parks, or simply lack of interest. Increasing the accessibility of nature through early childhood education can lead to increased engagement as an adult, and the benefits of experiential learning. By combining scientific knowledge and childhood education theory with interactive media, apps do have the potential to create an enriching educational experience. This research informed my choice in subject, and gave me background knowledge to develop age-appropriate technology.

During the design and development, I used non-academic resources on child-centered design to inform my visual choices. I also looked at similar websites and apps for inspiration and standard practices.

Design and Development

The design process began with personas, which were created to determine what features potential audiences would want to see and appreciate. My primary target audience is elementary aged children, but I had a secondary audience of parents or guardians and a tertiary audience of educators. I created two personas for each audience for a total of 6 personas (See Appendix A). They focused on prior nature knowledge, interests and how they align with science education, and technology aptitude. Referencing the personas during the design process helped ensure the project was created with the target audience in mind.

I then created wireframes for the mobile app and the website which influenced my initial web design and development. The website evolved from the wireframes after initial functionality, and I focused on designing for kids. The final product has brighter colors, hover animations, and easy to read body copy.

Figure 1 shows my original wireframes for the website. These wireframes focused on basic layout of text and images, as well as some design ideas. The initial website development was similar to these wireframes, and the final product does have a similar layout to the pages shown. However, during the design process, I was continually adding new elements and design features that were 'more fun' and more engaging for kids. The background of every page on the website is a cool blue shade (Sky Blue at 30% opacity) which is typical for child-centered design. The final website design also has a tree in the background to really show the nature and natural theme. I also decided to add small hover effects to buttons, nav bar items, and the photos that link to species pages. Additionally, I added a 5px border radius on all photos and buttons because the rounded corners are more fun and friendly.

The live website has all of these child-centered design changes, as well as accessibility features. Photos have alt tags so the content is accessible to users with screen-readers. I used Awesome Orange to emphasize certain words of text, but found that the shade did not provide enough contrast. To make it more readable for visually impaired users, I found a similar shade of orange that did provide enough contrast.

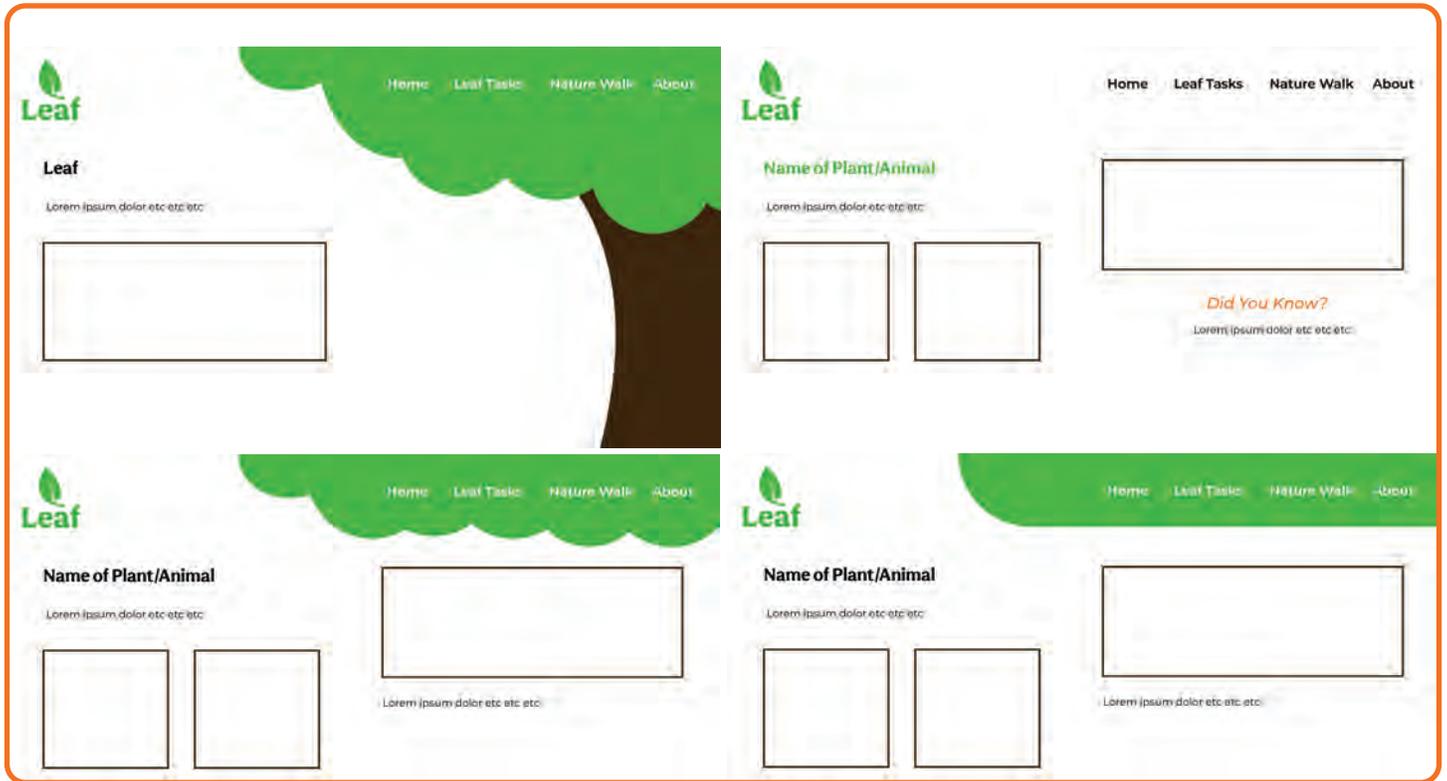


Figure 1, Website wireframes

Figure 2 shows my original wireframes for the PWA. These wireframes were created when I still had more functionality planned for the PWA, and have filtering screens that did not end up in the final version of the code. For the most part, the design aesthetics are the same, but the obvious change in functionality is shown in the development from these wireframes to the final product. For example, as seen in Figure 2.1, I had the seasonal filter on a separate screen. When I decided to take out the time filter, seen in Figure 2.2, I changed the season filter to buttons at the top of the screen, as seen in Figure 3.

Similar to the addition of the blue background on the Leaf website, the final version of the Leaf PWA has a light green background (specifically, Leaf Green at 30% opacity). I decided not to use light blue but still use a colored background so that the website and the PWA cannot be confused with one another. The colors and general design are still similar enough that they are clearly part of the same project, but if a user clicks on the link to the PWA from a mobile device, it will be very clear when they move away from the website to the PWA.

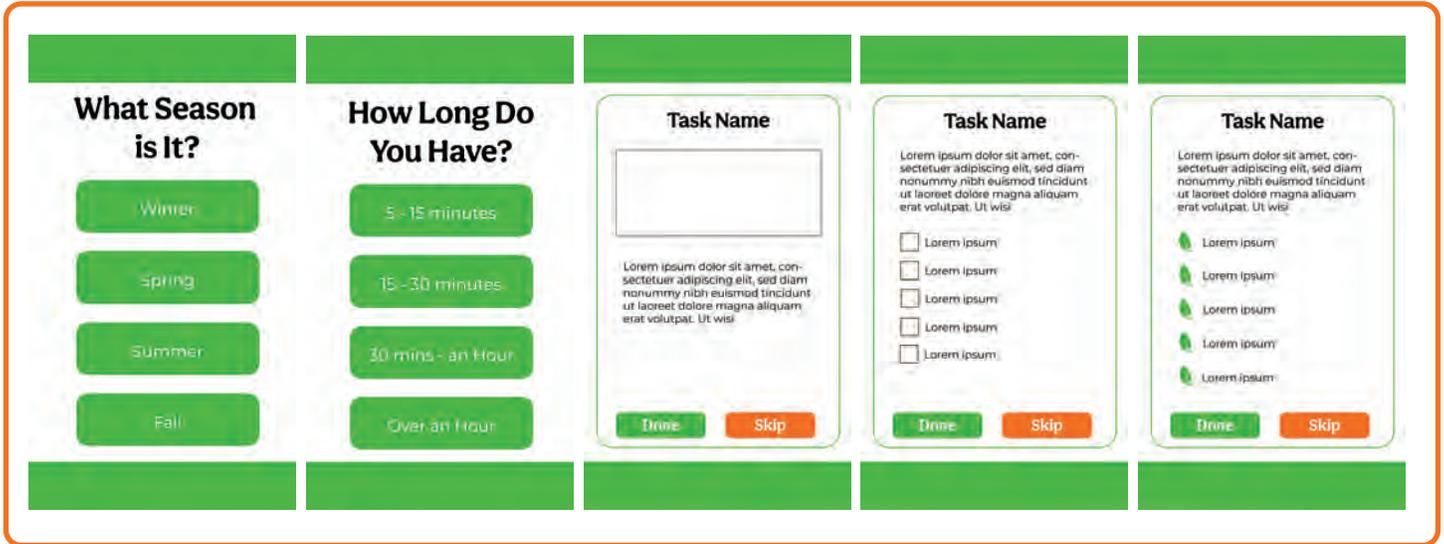


Figure 2, Mobile wireframes



Figure 2.1 seasonal filter wireframe



Figure 2.2 time filter wireframe

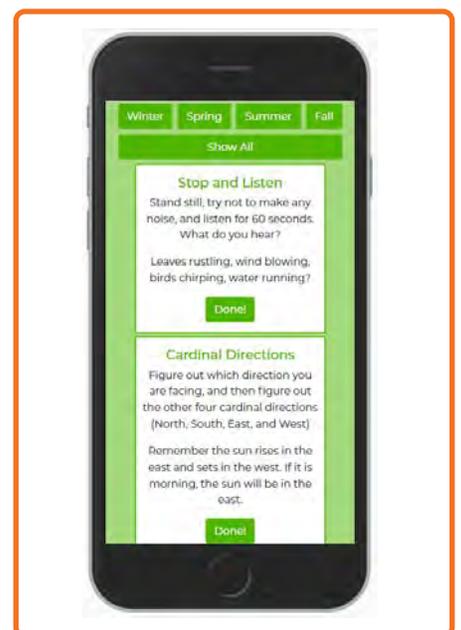


Figure 3 PWA with season filter

Design Style Guide

I created a brand guide for Leaf (see Appendix B), which included a logo and brand marks, colors, fonts, text hierarchy, and photography guidelines. This guide influenced my design choices while developing the website and mobile app.

The logo was inspired by the name, which I chose for its simplicity and thematic resonance. I went through a few iterations of the logo after deciding to use a leaf iconography. Figure 4 shows my logo design process, including my attempts to incorporate the leaf shape into the word 'Leaf' in place of the L. Since my deliverables are designed for children, I chose to reduce abstraction and any subsequent confusion, and ended up with a very simple logo. The logo was always going to be green, but once I chose the brand colors, I made the logo "Leaf Green" specifically. I also created pictorial marks, which are the leaf from the logo without the name in any of the other three brand colors. The pictorial marks do not differ that much from the main logo, again, because the audience is children, I decided to err on the side of simplicity to reduce any potential confusion. The resulting full logo and brand marks can all be used on any Leaf product while still being very recognizably part of the same brand.



Figure 4, Logo design process

My four primary brand colors are “Leaf Green” (#51b400), “Awesome Orange” (#ff710a), “Sky Blue” (#0071bc), and “Bark Brown” (#3f2502). These colors were chosen to evoke nature and natural elements while also creating a fun and bright atmosphere. Although green is the primary color, orange and blue can be used for emphasis and contrast, and bark brown can be used for text and other dark graphics. All four colors can be used at a variety of opacities without being dull, and complement each other. Colors for Leaf should never be unnatural or too undersaturated. This project is for kids and focuses on nature, which should be kept in mind when creating for Leaf.

I chose 2 typefaces for this project, one of which should be used as a headline font, and the other for body copy. The font choices are “Aesthet Nova” and “Montserrat”. Aesthet Nova (bold) was chosen because it has more character than a sans serif font but is still easy to read and reminiscent of design for elementary aged children. Montserrat (Regular and Regular Italic, Medium and Medium Italic) was chosen for easy readability across all platforms. Montserrat is a very adaptable sans serif font that is consistently legible in different sizes and obliqueness. Aesthet Nova is used in the Leaf logo.

The last part of the brand guidelines was photography guidelines. As I incorporated more and more photography into the project, this became very important. The basic guidelines are to keep photography bright, colorful, and focused on nature and natural objects instead of man-made objects. Litter and trash is specifically mentioned as ‘photography don’ts’. Editing of photos should be realistic, but editing and cropping can be used to make photos more saturated, more contrasted and sharper, or better framed. During the sprint process, I was given the recommendation to focus my photography on very tangible concepts, and think about my target audience and how the photos would be presented on a website. Figure depicts one photo that was used as an example of an abstract photo that may not be a beneficial image for kids, especially removed from context. Figures 5.1 and 5.2 show photos that were taken before I was given this advice. After this advice, I reframed my approach and tried to look at my photography subjects through the lens of a child (both puns fully intended). Figures 5.3 and 5.4 show my photography after implementing this new approach.



Figure 5.1
Abstract fungi photo



Figure 5.2
Abstract oak photo



Figure 5.3
Leaf photo



Figure 5.4
Fungi photo

Technology Guide

The Leaf website was created using Webflow, a content management system to design and host websites. Webflow is a “visual way to build the web” and differs from similar services like Squarespace or Wix because it uses HTML theory and is very customisable with CSS and HTML. Using Webflow, I made my website fully accessible, including image alt tags.

The PWA was coded using HTML, CSS, and Javascript. Coding was done on Atom Text Editor and implemented locally before deploying. Additionally, for the PWA, I used Bootstrap to create the layout and some functionality, which required me to use Sass, a pre-processing language, to create a custom .css stylesheet to match my brand guidelines. I deployed prototypes of the PWA using Google Firebase using their hosting, but deployed the final version on a sub-domain of the Leaf website.

For the most part, since the scope of the PWA was reduced so much, the main problem was just creating and populating the tasks. With custom Bootstrap, the cards were easy to match to Leaf’s style guide, especially since Bootstrap is a mobile-first framework. The JS functions are to filter the tasks by season and dismiss tasks. The first is done by tagging all the tasks with season IDs and adding buttons to show or hide certain classes (See Appendix C). The second toggles the hide/show class when clicked (See Appendix C).

All vector graphic artwork, including the logo and brand manual, was made on Adobe Illustrator. Photos were edited on Adobe Photoshop. Videos were edited on Adobe Premiere. Music to fuel late night work was listened to on Spotify (See Appendix D).

Primary Content Assets

The primary content assets for this project are the text of the website, the tasks on the, photos, and videos. The photos consist of personal photography and creative commons or public domain images. All creative commons images are credited appropriately both with text on the image itself, and a full credits list that can be easily found on the Leaf website.

Like the rest of the project, the content is for children, so the writing style reflects this. I wrote information for the species pages using age-appropriate language and diction (See Appendix E for an excerpt of the body copy, to get a sense of the writing style). The tone of voice used for Leaf content should be upbeat, friendly, and happy without talking down to kids.

Project Use and Instructions

Although either the website or PWA can be used individually for education or nature engagement, they were designed for combined use. To reap the full benefits of Leaf, I recommend using the Learn page of the website first and then the Explore page, which links to the PWA. Since the Learn page provides information about local NC plant and animal species and natural phenomenon, it is a good opportunity to educate children and allow them to drive their own learning. Additionally, learning about common or notable species will make nature more accessible to children, since basic knowledge is a common barrier to thoughtful engagement.

After spending time learning about local species, it will be easier to complete some of the exploratory tasks on the PWA. Although the tasks were designed to be somewhat universal, more knowledge of nature will help, especially with the 'Identify' tasks. The PWA can be used in any nature space, from a backyard to a National Park, and aims to promote mindful engagement with nature. The PWA encourages reflection, which strengthens learning and knowledge retention. When used with the Leaf website, it helps reinforce learned information through application. For example, a child may read about oak trees, but may not really internalise information about oak trees until they're prompted to identify one, which will lead to recall and self-reflective learning.

Appendix A

Leaf Personas



Sam

7 | male child

Sam is a seven-year old second grade student at Woodbridge Elementary. He has two younger sisters who are 2 and 4 years old. He loves spending time outside, whether that's digging in the backyard, playing soccer, or going on walks with his mom and dad.

Goals

- have fun outside
- learn about nature and the world around him
- see cool insects

Frustrations

- parents don't always have time or energy
- scientific concepts are often hard to understand

Other Interests

- soccer
- watching cartoons
- board games and card games

Skills

Technology

Nature

Tree Climbing

"Mom, can we play outside? I want to look at that bug! Mom, look what I found!"



Kelly

10 | female child

Kelly is a ten-year old who has been homeschooled since kindergarten. She loves science, and wants to be a scientist one day, but her parents aren't always the sources of information.

Goals

- become a scientist when she grows up
- use the scientific process to learn about the world
- being curious and learning

Frustrations

- her parents do their best but don't have all of the answers
- she has limited resources for learning about nature in her yard

Other Interests

- reading and writing stories
- spending time with her friends
- kickball

Skills

Technology

Nature

Creativity

"What do you think would happen if we used this instead?"

These personas show six potential users of Leaf. Each persona is an amalgamation of traits and characteristics of the target audience. They were created from the defined characteristics of each audience, and supplemented by my imagination. Sam and Kelly are both part of the primary target audience, elementary aged children in the state of North Carolina. Eliza Byrnes and Chris Johnson are part of the secondary target audience, parents of young children. Ranger Amy and Madison Green are part of the tertiary audience, educators of young children.



Ranger Amy

29 | female
NC state park ranger

Ranger Amy is a young park ranger who is passionate about science education and experiential learning in nature. Before COVID, she loved talking to families with young kids about all the great things in the park.

Goals

- teach park visitors about nature
- stay COVID safe
- engage kids with the world around them

Frustrations

- COVID makes in-person interaction hard
- can't accompany families so can't teach on the trail

Other Interests

- nature documentaries
- cryptids (Mothman)
- sewing

Skills

Technology

Nature

Teaching

"Do you know why the pine trees stay green in winter and the other trees don't?"



Madison Green

47 | female
teacher

Madison is an elementary school science teacher. She loves getting kids outside and engaged with material, but the curriculum often doesn't give her much wiggle room.

Goals

- teach children
- supply supplemental materials for parents teaching at home
- stick to the curriculum but keep it fun and interesting

Frustrations

- distance learning has made her job harder
- kids aren't always engaged with material, especially if they think it is too boring or hard

Other Interests

- historical re-enactment
- tabletop roleplaying games
- 90s sitcoms

Skills

Technology

Nature

Teaching

"Now, for your homework tonight, I want you to go outside and write down what you see."



Eliza Byrnes

32 | female
stay-at-home mother

Eliza is a stay-at-home mom to two young boys, aged 5 to 7. She is struggling with virtual learning, since she isn't a teacher, but wants her kids to have access to good educational materials.

Goals

- introduce kids to nature safely
- age-appropriate education
- encourage curiosity and learning
- keeps kids happy and safe

Frustrations

- not a teacher, so doesn't have the training to teach herself
- doesn't have all the answers for her kid's questions
- limited time and energy

Other Interests

- cooking and baking
- roller derby
- wine and book club with the girls

Skills

Technology

Nature

Teaching

"Slow down! No, I don't know what kind of mushrooms those are."



Chris Johnson

32 | male
lawyer

Chris is an avid hiker and father to 4 year old son Jonah. He wants to teach Jonah about nature now, so they can hike together when Jonah is older.

Goals

- take Jonah on small nature walks
- learn about nature himself so he can teach his kid
- get Jonah excited about nature and longer hikes as he grows up

Frustrations

- although he knows a lot about nature and hiking, he doesn't know how to best relay that information to a child
- kids have shorter attention spans

Other Interests

- rock climbing
- Crossfit
- scrapbooking

Skills

Technology

Nature

Teaching

"C'mon buddy, it's just a half mile and then we get to a cool waterfall!"

Appendix B

Brand Guide



brand manual
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combination mark
Primary Logo

pictorial mark
Secondary Logos

Logo Dos

The logo should be kept in the ratio provided, with the same amount of space between the text and the pictorial. Space equal to a letter should be left on every side of the logo, as depicted in the graph. Nothing should be placed in the white space on either side of the leaf.

The logo and pictorial marks should be kept at the same aspect ratio. The pictorial marks should also have an appropriate amount of white space around them.

Do-Nots

The Leaf logo should not be re-colored or resized. Although the individual leaf logos can be in any of the primary colors, the text and logo combo should only be in green. Additionally, it should not be resized.

branding
Primary Color

contrast and emphasis
Secondary Colors

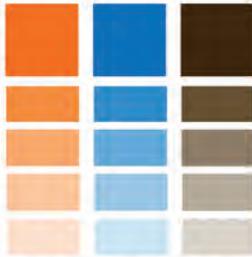
- Leaf Green #51b400
- Awesome Orange #ff710a
- Sky Blue #0071bc
- Bark Brown #3f2502

Color Dos

Primary



Secondary



Leaf uses four primary colors that are drawn from nature while still being bright and fun for kids. The colors are Leaf Green, Awesome Orange, Sky Blue, and Bark Brown. Leaf Green is the primary color and Bark Brown should be used for text. Awesome Orange and Sky Blue can be used for contrast and emphasis.

Do-Not's



The leaf brand does not use unnaturally bright colors, only colors that evoke nature.

The leaf brand does not use muddy colors, even if they appear in nature. It is a brand for kids so colors must be bright!

Font Dos

title font
Aesthet Nova Bold
Aa Bb Cc Dd Ee Ff Gg Hh Ii Jj
Jj Kk Ll Mm Nn Oo Pp Qq Rr Ss
Tt Uu Vv Ww Xx Yy Zz

text font
Montserrat Regular
Aa Bb Cc Dd Ee Ff Gg Hh Ii Jj
Jj Kk Ll Mm Nn Oo Pp Qq Rr Ss
Tt Uu Vv Ww Xx Yy Zz

Font Dos

emphasis text
Title or Heading
Subheading

Paragraphs or other large blocks of text

The text hierarchy of Leaf content should be as follows: Aesthet Nova Bold for headings, Montserrat Bold for subheadings, Montserrat Regular for paragraphs and blocks of text, and Montserrat ExtraLight italics for captions and as needed for emphasis.

Do-Not's

emphasis text
Title or Heading
Subheading

Paragraphs or other large blocks of text

Text hierarchy should not be switched. Titles and headings should never be in italics. Paragraph and body text should never be in Aesthet Nova bold.

Content

Photos and Videos

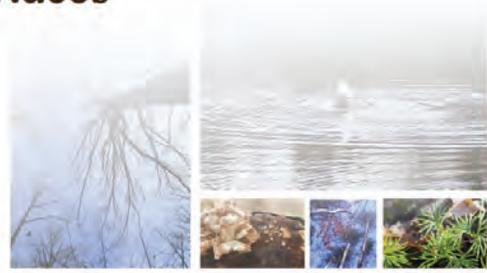


Photo Dos

11



Photos for Leaf should be of nature and should evoke pleasant feelings. Photos should be bright and happy, and try to showcase the beauty in all of nature. The above are examples of good photos to use for Leaf content.

Do-Not's

12



Photos for Leaf should not be dark or muddy. They should not focus on man-made objects or structures. The above photos are examples of photos that should not be used, or would need to be retouched to be used.

Appendix C

JavaScript Functions

```

1  filterSelection("all");
2  function filterSelection(c) {
3    var x, i;
4    x = document.getElementsByClassName("filterDiv");
5    if (c == "all") c = "";
6    for (i = 0; i < x.length; i++) {
7      w3RemoveClass(x[i], "show");
8      if (x[i].className.indexOf(c) > -1) w3AddClass(x[i], "show");
9    }
10 }
11
12 function w3AddClass(element, name) {
13   var i, arr1, arr2;
14   arr1 = element.className.split(" ");
15   arr2 = name.split(" ");
16   for (i = 0; i < arr2.length; i++) {
17     if (arr1.indexOf(arr2[i]) == -1) {
18       element.className += " " + arr2[i];
19     }
20   }
21 }
22

```

```
22
23 function w3RemoveClass(element, name) {
24     var i, arr1, arr2;
25     arr1 = element.className.split(" ");
26     arr2 = name.split(" ");
27     for (i = 0; i < arr2.length; i++) {
28         while (arr1.indexOf(arr2[i]) > -1) {
29             arr1.splice(arr1.indexOf(arr2[i]), 1);
30         }
31     }
32     element.className = arr1.join(" ");
33 }
34
35 var btnContainer = document.getElementById("myBtnContainer");
36 var btnContainer2 = document.getElementById("myBtnContainer2");
37
38 var btns = btnContainer.getElementsByClassName("btn");
39 for (var i = 0; i < btns.length; i++) {
40     btns[i].addEventListener("click", function () {
41         var current = document.getElementsByClassName("active");
42         current[0].className = current[0].className.replace(" active", "");
43         this.className += " active";
44     });
45 }
```

```
48 function myFunction1() {
49     var a = document.getElementById("tsk1");
50     if (a.style.display === "none") {
51         a.style.display = "block";
52     } else {
53         a.style.display = "none";
54     }
55 }
```

The first two images show the Javascript code used for the seasonal filter buttons. The second image shows the code for the “Done” buttons on each task.

Appendix D

Winter 2020-21 Playlist

HAIM - Summer Girl - Bonus Track
 Bug Hunter - Creature of Habit (Bonus Track)
 Bleached - Stupid Boys
 Laura Elliott - Grass Stains
 Kid Cudi - Lovin' Me (feat. Phoebe Bridgers)
 Taylor Swift - no body, no crime (feat. HAIM)
 Sam Burchfield - The Last of the Honey Bees
 Rand - I Think We Danced (But I Can't Be Sure)
 Rett Madison - Pin-Up Daddy
 Winnetka Bowling League - CVS
 St. Panther - These Days
 Sylvan Esso - Ferris Wheel - WITH LOVE
 Ezra Furman - I Wanna Be Your Girlfriend
 Kesha - Honey
 of Montreal - You've Had Me Everywhere
 Left at London - Safety First
 Melt - Don't Want Me
 Vulfpeck - LAX

Spring 2021 Playlist

Weezer - All My Favorite Songs
 Sara Bareilles - Poetry by Dead Men
 Bright Eyes - Flirted With You All My Life
 Honey Butter - Missing Piece
 Noname - Rainforest
 Atta Boy - Jack and Blow
 My Chemical Romance - Na Na Na (Na Na Na Na Na Na Na Na Na Na)
 Briston Maroney - It's Still Cool If You Don't
 Twain - Nature Song
 Ande Estrella - EXCUSES
 ADDIE - Drive Slow
 Lake Street Dive - Hypotheticals
 Blegh - His Hands
 EUCA - Not Champagne
 The Original Crooks and Nannies - Perpetual Mild Illness
 The Oh Hellos - Second Child, Restless Child
 FUR - If You Know That I'm Lonely

Appendix E

Leaf Website Body Copy Excerpt

HOME

Whether you're a budding scientist or avid outdoor adventurer, Leaf will help you learn about the world around you in a fun and engaging way. Leaf's information about North Carolina species will make it easy to identify plants and animals when you encounter them in the wild. In addition, Leaf has a guided nature walk app you can download to a phone or tablet.

LEARN

Take a look at some common North Carolina species and learn a little more about plants, animals, and other natural phenomena. The more you know about species and the science behind nature, the easier it will be to spot things outdoors.

EXPLORE

Download the Leaf PWA to start completing tasks in parks, on hikes, or even in your backyard! The app contains simple, exploratory tasks that will guide you through hearing and seeing the world around you. There is also a full list of tasks that can be printed or referenced.

LEARN

Here are some of the most common and distinctive plants and animals of North Carolina, as well as some other natural phenomena that you can spot in nature! Looking over this information can help you spot and identify these species next time you are out in nature.

(the all caps colors would just be little boxes of the color on the site)

GREEN - Plants ORANGE - Animals BROWN - Other Natural Phenomena

Oak Tree

Basic Info - The oak is one of many trees native to North Carolina. Oaks can grow as tall as 100 feet! In the fall, oaks show a variety of red, orange, and yellow leaves, which can be found on the ground. Species of oak in North Carolina include the white oak, pin oak, live oak, black oak, and red oak.

Did You Know? - Oak trees drop acorns every fall, but only drop large amounts of acorns every 2 - 5 years. One oak tree can drop up to 10,000 acorns in a big year!

Grey Squirrel

Basic Info - Squirrels are one of the most common species in North America, and can be spotted all over North Carolina! You can see squirrels in forests, in the suburbs, and even in cities.

Squirrels are known for eating acorns, climbing trees, and their fluffy tails.

Just like birds, squirrels make nests in trees. Squirrel nests can often be spotted from the ground and are about the same size as a beach ball. Like a bird, the nests are made from sticks and other natural debris.

Fun Fact! - The word 'squirrel' is derived from Greek, and means 'shadow tail'.

Mushrooms

Basic Info - Mushrooms come in all shapes and sizes. Some are flat and table-like, and some are flowery and colorful. They can be found on rocks, logs, trees, and even growing straight from the ground.

Did You Know? - Mushrooms aren't plants, they are a type of fungi, and do not produce their own food through chloroplasts.

Beavers

Basic Info - Beavers are the largest rodent species in North America, and the second largest worldwide. These semi-aquatic creatures build dams in rivers and creeks to create deep, still bodies of water. Building dams and creating still water leads to wetlands, which attract fish, ducks, frogs, and other creatures. Beaver dams change the ecosystem of their habitat.

Beavers are often spotted in summer, but even if you don't see a beaver it is easy to spot where beavers are! Beaver dams are easy to spot, and if you walk along a river near a dam, you will likely come across chewed trees!

Did You Know? - Beavers mate for life!