HOLDEN
FORESTS &
GARDENS

These educational materials were designed to accompany the video seminar "Identification and Discovery: A Botanical Love Story" by Ms. Brandi Cannon), presented on February 10th, 2021 as part of a virtual Holden Forests & Gardens Scientist Lecture Series, Growing Black Roots: the Black Botanical Legacy. Learn more about the lecture series here. Access the talk here.

COMPREHEND AND CONNECT: Learn about traits used for plant identification.

1. Listen to the talk to find out: What are "traits"? How does Ms. Cannon use traits for plant identification?

2. Find a plant growing near your classroom, choose a plant with the trait "woody", i.e. a tree, a shrub or a vine with a hard stem with bark on the outside of the stems or branches. Use this leaf morphology graphic to write a list of leaf traits for your plant https://commons.wikimedia.org/wiki/File:Leaf_morphology.svg

3. Besides being woody, and the leaf traits you noted, what other traits did you notice about the plant? Write as many observations as you can, including information about the habitat where it is growing and the geographic location where the plant is located.

TO DO: Identify a plant that grows near where you live and consider the possibility of misidentification.

1. Listen to the talk to find out: What resources did Ms. Cannon use on her journey of identification and discovery? What does she mean when she talks about being misidentified?

2. Consider more closely the plant you examined in Comprehend and Connect, and determine what type of reference you need to identify the plant.

    a. Is it a cultivated plant, i.e. one that was put there by humans? Use a horticultural reference such as the Missouri Botanical Garden Plant Finder, which has descriptions and photos of over 7500 cultivated plant varieties https://www.missouribotanicalgarden.org/plantfinder/plantfindersearch.aspx

    b. OR, is it a weed, i.e. a plant that is growing in a place where it is unwanted or causing problems? Use an invasive or weedy plant ID tool, such as the Virginia Tech Weed identifier https://weedid.cals.vt.edu/selectors/1

    c. OR, Is the plant growing in a natural area, i.e. did it grow with no help in an area where nature is allowed to take its course? For this you will need to use a botanical picture key that is specific to your geographic region. To find a key that works for your region, you can use books or the internet. To find resources on the internet, type the name of your geographic region along with the words "online plant identification". For example, when I searched Google for "New England online plant identification" I found the following simple online key https://gobotany.nativeplanttrust.org/simple/. Things to consider:

        i. Different keys use different traits. Once you find a resource that is appropriate for the location where you are working, you may need to revisit your plant to observe more traits that are requested in the key.

        ii. Woody plants are much easier to identify than herbaceous plants, simply because there are fewer kinds of woody plants.

3. Make your initial determination. This means, use the list of traits and resources you have gathered to decide what you think is the identity of the plant. This is called an "initial determination" because when a botanist does this type of work, they view their first determination of the plant ID as a Hypothesis, they remain open to the idea that they have misidentified the plant. They then use additional resources to test if their identification was correct.

4. Once your team has made its initial determination, get back together with the larger group to share and work together as a whole class to test if your initial determinations are correct. Use resources like cell phone-based plant ID applications, google image searches, and online herbaria (https://www.tropicos.org/home) to compare the plant you are examining to known images and descriptions of what species you think it is.
   a. Did everyone make the same initial determination about the plant identity?

   b. Did you get the ID correct using the traits? Or was the plant misidentified at first?

   c. Are there traits that are important to identify this plant, but which you could not observe?

5. Share your plant observation on iNaturalist (https://www.inaturalist.org/). iNaturalist is a collaboration between the California Academy of Sciences and the National Geographic Society, with a goal to help community members contribute scientific observations to support biodiversity research, while at the same time helping scientists find and use biodiversity data. In addition, iNaturalist can connect you with experts in plant identification. This is the last step in the process of plant ID, known as "verification". Verification is when you ask an expert in plant ID to check your determination, and a single plant sample may be verified many times by different experts, or experts may disagree about the identity of the plant. The iNaturalist New Zealand page has good instructions on adding observations, and outlines several ways to interact with the database. https://www.inaturalist.org/pages/add-an-observation-nz. What happened when you added your observation? Was your determination verified? Did people disagree about the identity of the plant?

FOLLOW-UP WORK: Learn about Black identity and explore your own self-identity.

1. Listen to the talk to find out: What aspects of life does Ms. Cannon say influenced her journey of identification and discovery? What roles did family, community, and self-exploration play in helping her to create her own self-identity?

2. Listen to the podcast by Roxane Gay on The Historically Black podcast https://www.youtube.com/watch?v=YXp8ZO5dzoU. Consider the factors that influence the ethnic-racial identity of Kianah Jay (Starts at minute 16:13 to 22:11)
   a. Describe an incidence where family influences their identity.

   b. Describe an incidence where the human desire to belong shaped their identity.

   c. Describe a difficulty they experienced related to being multi-racial.

   d. Describe the role of media/culture in influencing their identity.

   e. How do they describe their own ethnic-racial identity now?

   f. What factors helped them to define and embrace a positive self-identity?

   g. How were the journeys of identification and discovery described by Ms. Cannon and Kianah Jay similar? What aspects of their journey were different?

3. Combat misidentification by defining your own self-identity in a collage activity.

   a. Connecting with things that bring you joy is a great way to understand your own uniqueness, and to reflect on different aspects of your self-identity. By explicitly and lovingly defining your own self-identity, you can spend more time creating the life you want, and less time worrying about how other people might misidentify you.

b. In this activity you will use a selfie as the basis of a digital art collage that you will build using a photo editor. For your selfie, make the image as typical as possible, meaning it should show what you would look like on an average day. You will then use google slides or photo editing application to add accessory items and make your own "Starter Pack". Consider the following in building your collage:

    i. First, build a list of your most fundamental attributes, what physical traits do you love about yourself? What skills and hobbies have you developed? Are you creative? Do you like animals? Do you attend a club or activity on a regular basis? Are you family-oriented?

    ii. Using information from your list, come up with a fun title for your "Starter Pack" self-identity collage, for example, you might create the "Contemporary Ballet Dancer Starter Pack", the "Math Genius Starter Pack", or the "Cat Fanatic Starter Pack". Check out the example of the "Wacky Science Lady Starter Pack" provided by Dr. Juliana Medeiros, a scientist who works at the Holden Arboretum.

    iii. Your list of attributes will be represented as "accessories" that are included in your "Starter Pack". What accessories might someone expect to see when they first open the Starter Pack of you? Think of activities, ideas, people or places that you love, find digital images that represent these and place them around your selfie, including a short text description for each one. Of course, this is just the "Starter Pack", so not everything about you will be included here, and your self-identity can grow and change over time. Remember, there's always room for "Expansion Packs", or things that you will discover about yourself as life goes on.

    iv. Make sure to include your personality traits in how you construct your collage, in the example provided by Dr. Medeiros, she chose to make her collage funny because she likes humor, but if you are a more serious person your collage might be more thoughtful, an artistic person might have more chaotic designs and colors, whereas a more analytical person might prefer a more clean-looking appearance. Whatever you do, the important part is to make it your own. This activity is all about expressing YOUR vision of your best self.

4. Share your "Starter Pack" with your class and learn about their identities.
    a. The next step is to share the joy of self-discovery with your classmates, to see your classmates as they themselves want to be seen, and this happens when you are proactive in listening to them. If you see something on a person's collage that you also like and feel connected to, share that connection with them after they finish their presentation. If you see something on a person's collage that is unfamiliar, ask them to tell you more about it! But whatever you do, make sure to keep focused on listening to what that person is telling you about their identity and supporting them in their personal journey of self-discovery.

    b. Note for teachers: This activity is based on a classic meme called the "Starter Pack", which is very common online and most likely familiar to students. As with all memes, it can be very fun but also can be a bit snarky at times, so it is important to establish good classroom guidelines for this activity. Middle school students, especially, may need more guidance than older students to maintain appropriate classroom behavior. You might consider telling your students that the activity is based on the meme, or you could also simply call it a "collage" if you prefer to avoid social pitfalls of the meme per se. We have included an example as part of these educational materials, created by Holden scientist Dr. Juliana Medeiros. This can be used to set the tone for the student collage. Setting boundaries and expectations from the start will go a long way to making sure students can feel safe in expressing their identity and create a culture of kind and thoughtful discussions surrounding self-identity. The following websites provide good general guidance for opportunities and pitfalls of using memes in classroom activities: https://www.weareteachers.com/memes-in-the-classroom/, and https://www.kapwing.com/resources/make-history-lessons-relevant-using-memes-in-the-classroom/