Overview:
This activity is to bring awareness to young men and women about the topic of unconscious bias.

Objective:
Students will learn the definition of unconscious bias and begin to train their senses for recognizing it around them, that they might be displaying it themselves, and how to bring attention to it in the workplace. .

Time Suggested: 30 minutes, depending on discussion.

Step 1:
Print out the Think Like a Neanderthal handout. Fold the paper and give each student the paper, letting them know that they cannot look at the text until you say "Go."

Ask the students to rewind their brains to get into Neanderthal mode. Slowly walk them back through time before technology, before the industrial revolution, before Shakespearean England, before the ancient Romans, Greeks, and Egyptians, before farming. Imagine they are Neanderthals on the plains, wearing animal skins and foraging for food.

Now, tell the students you will ask them to think like a Neanderthal when opening the page and marking whether the objects listed in front of them are safe or dangerous. (There is one trick object: the chocolate bar. It's meant to slightly confuse them and bring them back to modern times.) They must quickly and instinctually read the objects in the list and determine whether they are safe or dangerous.

Give students on 5 seconds to mark the objects SAFE or DANGEROUS. Count out loud. Ask them to put their pencils down. No changing answers after the count is over. Discuss how people answered.

Discuss how this activity is a slight replica of how humans began to sort and categorize for safety purposes. We could not take the time to think about every single incident or object, so we sort and make generalizations. This is how humans came to have bias.

Review the students answers, pointing out that although an apple seems in general SAFE, in modern times we also have learned about evil witches and Halloween ne'er-do-wells who laced apples with dangerous objects. In general, we have learned biases about certain objects. But, we have also learned that sometimes these objects don't fit into a neat category. For example, fire can be bad, really bad. But we also need it to cook our meals and heat our homes. The last

example, of chocolate, is a modern example. In general, chocolate is good. We have a positive bias toward it, but in some modern places it has dangers: people who have nut allergies have learned to have a bias against chocolate until it's proven safe and nut free.

Biases help us sort and categorize, they are learned, and they can be changed.

Step 2:
Handout the sheet with the definitions of bias on it. Read the definition of unconscious bias. Discuss the definition. Discuss how the word "unconscious" is very important to this workplace bias. Using the chocolate example: one person can have an unconscious bias that chocolate is good. While another person, with nut allergies, has a conscious bias against chocolates until they have examined a package closely.

It our job as modern day humans to learn if we have conscious or unconscious biases and whether or not those biases may harm others.

Unconscious bias is not intentional. We all have unconscious biases because humans naturally categorize over a lifetime of learning moments, but that doesn't mean we need to continue doing it if it's harmful to others. While we can see bias in others, it's hard for us to recognize it in ourselves, and is often why others need to point it out to us. Can we learn to accept that feedback and make changes?

Step 3
Split the team up into 3 groups. Ask them to turn the sheet over. Give each group one of the studies to read and discuss from the **What Do You Think About the Following Examples** sheet. Ask the group members what they think about the examples. Was there bias going on? If so, was it conscious or unconscious? Was harm being done? To whom?

Step 4:
Read aloud the final article on **Women Coders** and discuss how this article is important to FRC teams. Or alternatively, leave the students with the print out of the final article to read on their own. Ask them to think about it and start the next FRC team session discussing it. Ask the same questions as in Step 3.

Step 5:
Handout and discuss the final short piece of paper on **Strategies for Addressing Unconscious Bias**.

What Do You Think About the Following Examples?

A

"In one study, when a group of teachers graded math tests with no names on them, the girls outscored the boys. But when another group of teachers graded the same test with names, the results were reversed: they gave higher grades to the boys than the girls.

All of the teachers, by the way, were female.[1]"

B

"A 2011 study found that airbags and seat belts are designed primarily for male bodies -- meaning women wearing seat belts [were] 47 percent more likely to sustain injuries in a crash.[2]"

C

Economists studied blind auditions begun by US symphonies in the 1970's and 80's (where symphonies began using numbered candidates (not names), black screens, and carpet to muffle footsteps) . They "found that women went from fewer than 5 percent of all musicians in those five symphonies in 1970, to 25 percent in 1997, the year of the study. Today [2018] those numbers are edging closer to 50 percent.[3]"

[1] Lipman, Joanne. That's What She Said, New York: William Morrow., Pg 56 and Miller, Claire Cain. *How Elementary School Teachers' Biases Can Discourage Girls From Math and Science, New York Times*, Feb. 2015

[2] Lipman, Joanne. That's What She Said, New York: William Morrow., Pg 24 Bose, Dipan, Maria Segui-Gomez, and Jeff R. Crandall. "Vulnerability of Female Drivers Involved in Motor Vehicle Crashes: An Analysis of US Population Risk." American Journal of Public Health 101, no 12 (2011): 2368-2373.doe: 10.25/AJPH.2011.300275

[3] Lipman, Joanne. That's What She Said, New York: William Morrow., Pg 147 and Goldin, Claudia, and Cecilia Rouse. "Orchestrating Impartiality: The Impact of 'Blind' Auditions on Female Musicians." NBER Working Paper No. 5903, issued January 1997

Unconscious Bias: Blind Spots

What is bias?

Bias stems from a human survival skill. "Bias is a human trait resulting from our tendency and need to classify individuals into categories as we strive to quickly process information and make sense of the world[4]."

Bias is a prejudice in favor of or against one thing, person, or group compared with another usually in a way that's considered to be unfair. Biases may be held by an individual, group, or institution and can have negative or positive consequences.

Types of biases
1. **Conscious** bias (also known as explicit bias) and
2. **Unconscious** bias (also known as implicit bias)

Unconscious biases are [often] social stereotypes about certain groups of people that individuals form outside their own conscious awareness. Everyone holds unconscious beliefs about various social and identity groups, and these biases stem from one's tendency to organize social worlds by categorizing.

Unconscious bias is far more prevalent than conscious prejudice and often incompatible with one's conscious values. Certain scenarios can activate unconscious attitudes and beliefs. For example, biases may be more prevalent when multi-tasking or working under time pressure.

University of California, San Francisco, Office of Diversity and Outreach,
https://diversity.ucsf.edu/resources/unconscious-bias

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[4] Gordon Allport, The Nature of Prejudice (Cambridge, MA: Addison Wesley, 1954/1979); Michael Billig, "Prejudice, Categorization, and Particularization: From a Perceptual to a Rhetorical Approach," European Journal of Social Psychology, 1985:79-103; as discussed in Lorie Fridell, "This is Not Your Grandparents' Prejudice: The Implications of the Modern Science of Bias for Police Training," Translational Criminology, Fall 2013: 10-11, http://cebcp.org/wp-content/TCmagazine/TC5-Fall2013

Women coders do better than men in gender-blind study

Gender bias prevents female coders from being judged solely on their work. Their work might be great, but the fact that they're women makes it less desirable.

That's according to a new study published this week that looks at how gender bias plays out in software development. A hot topic to be sure given that just 20% of software developers are women -- and that tech firms have increasingly promised to do better when it comes to inclusion efforts.

The study, conducted by a team of six computer science researchers, looks at 3 million suggested code contributions (called "pull requests") on GitHub. GitHub is a popular open-source software platform used by 12 million developers to collaborate, critique, and ask questions about coding projects.

"We hypothesized that pull requests made by women are less likely to be accepted than those made by men," wrote the team of researchers which consisted of students and assistant professors at North Carolina State University and Cal Polytech State University, California.

They were surprised to discover that they were wrong: **They found that code from women is accepted at a higher rate, 78.6%. For men, it's 74.6%.**

That only holds true, though, when profiles of users are stripped of their gender. The finding shows that when female coders can be identified as women, their acceptance rate plummets and their contributions are accepted at a lower rate than men.

While GitHub doesn't require gender information, some users have profile pictures from which genders can be gleaned. In order to study the impact of gender on the acceptance of GitHub contributions, researchers tried to manually identify the gender of each user. Contributors whose genders couldn't be determined were eliminated from the study.

"There's a strong belief among developers in open source that the process is a pure meritocracy," said one of the study's coauthors, Emerson Murphy-Hill, an associate professor at North Carolina State University. "This research casts doubt on that belief."

That doubt is important: "So if women aren't making software, the end software may be somewhat exclusionary," he added. "So the software industry (and, in the end, the public) is missing an opportunity when women are excluded, whatever the reason for that exclusion."

The researchers also looked at multiple factors to understand why female coders might have a higher acceptance rate than men (when stripped of their gender).

Do their contributions tend to be smaller changes? Do they tend to be time-related? Are there certain types of code that women are better at? No, no, and no, according to their findings, which have not yet been peer-reviewed.

"We observe that women's acceptance rates dominate over men's for every programming language in the top ten," wrote the authors.

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Strategies for Addressing Unconscious Bias

- Create a guilt-free zone. We all have unconscious biases.
- Call it out when you see it. Once recognized, unconscious bias can be reduced and/or managed.
- Be open to hearing people when they point it out.
- Encourage second chances.
- Remediate situations caused by it -- proactively and retroactively.