A NUMERICAL PERSPECTIVE OF WOMEN THROUGH HISTORY

Students will analyze data related to women's equity, draw inferences, and create visual representations of the statistical evidence that demonstrates women's impact upon society. By comparing and contrasting sets of data, students will pose questions and evaluate claims related to the changing roles of women. Letting the statistical data speak for itself, students will evaluate the progress women have made, particularly in leadership, sports, and entertainment.

WOMEN & GENDER EQUITY AT 100

There have been significant strides made in the fight for women's equality since the ratification of the Nineteenth Amendment in 1920, which granted women the right to vote. In the following activities, students will assess the extent of the progress one hundred years later by analyzing data about women's changing role in entertainment, professional sports, and leadership. This set of activities lends itself well to mathematical units related to probability and statistics.

STRIDES IN FEMALE RECORDING ARTISTS' ROLES

CELEBRATING WOMEN IN MUSIC

Activity Idea #1 (beginner)

During a mathematical unit on probability and statistics, students will gather data about famous female musicians. Using the data highlighted in the article as a starting point, students will research total album sales of the female recording artists from the graphic. Using this data, students will then create a line graph that depicts the total number of albums sold by a chosen female musician. After students have completed their graphs, select a way to display their work.

For example, you may want the students to do a gallery walk of all the graphs and take note of any data that they found surprising. Culminate this activity by leading a conversation about any conclusions they have drawn about the impact that these female recording artists have had on society throughout history.
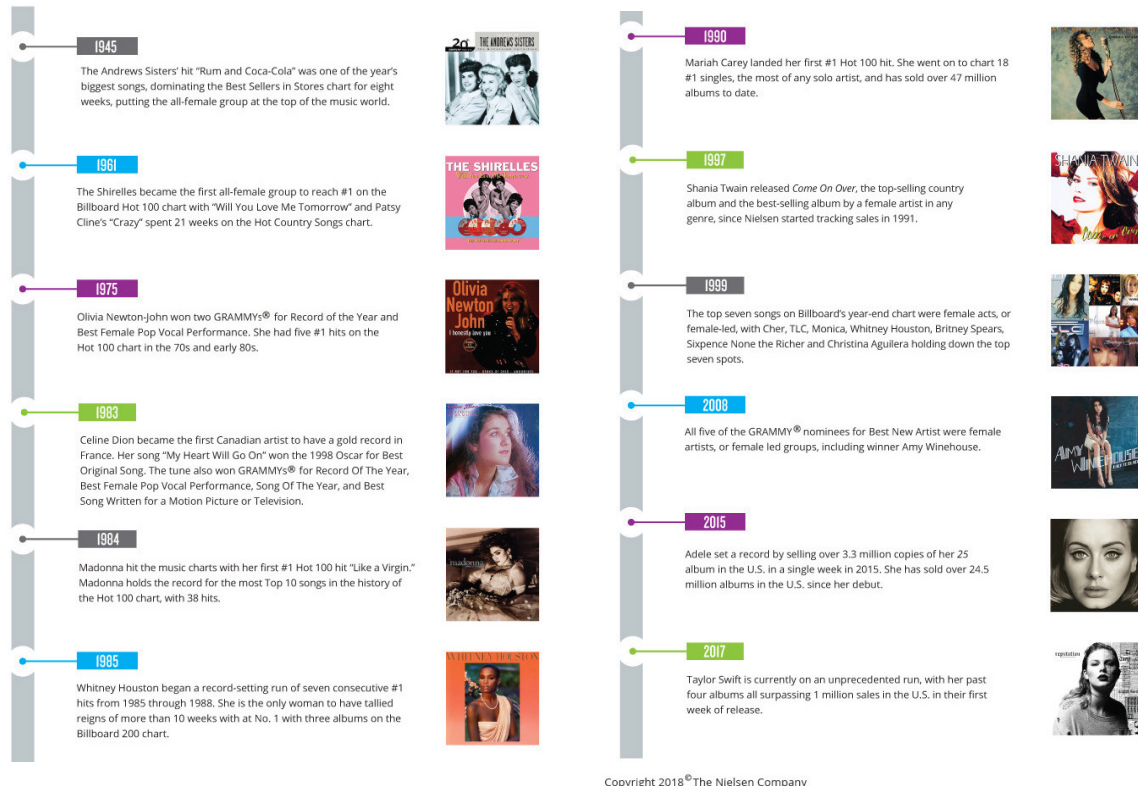
Activity Idea #2 (intermediate)

To gain a better perspective of the impacts of female musicians throughout the decades, students will be broken into small jigsaw groups for this activity. Building on information from the article, students will start by selecting a decade and a female recording artist/group highlighted in the article. In small groups, students will more closely analyze these female musicians and research their contributions to musical history. Using this information, students will prepare a short presentation that may include total album sales and the impact women have had upon society and music throughout history. Encourage groups to include graphical representations of their findings and identify significant connections between important historical events during the decade and the musical themes of the female artist. Tell students to look for correlations that are evident to them. After each group presents, elicit comments and reactions from the student audience, and engage in a discussion that highlights the positive impacts of these female musicians.

Connect to: Using Data to Draw Inferences, Research, Plotting Information, Measuring Data, Making Claims Using Evidence

Visual/Graphic: International Women's Day: Celebrating Women in Music, Charts and graphs are provided below for settings without internet access.

STUDENT HANDOUT

1945

The Andrews Sisters' hit "Rum and Coca-Cola" was one of the year's biggest songs, dominating the Best Sellers in Stores chart for eight weeks, putting the all-female group at the top of the music world.

1961

The Shirelles became the first all-female group to reach #1 on the Billboard Hot 100 chart with "Will You Love Me Tomorrow" and Patsy Cline's "Crazy" spent 21 weeks on the Hot Country Songs chart.

1975

Olivia Newton-John won two GRAMMYs® for Record of the Year and Best Female Pop Vocal Performance. She had five #1 hits on the Hot 100 chart in the 70s and early 80s.

1983

Celine Dion became the first Canadian artist to have a gold record in France. Her song "My Heart Will Go On" won the 1998 Oscar for Best Original Song. The tune also won GRAMMYs® for Record Of The Year, Best Female Pop Vocal Performance, Song Of The Year, and Best Song Written for a Motion Picture or Television.

1984

Madonna hit the music charts with her first #1 Hot 100 hit "Like a Virgin." Madonna holds the record for the most Top 10 songs in the history of the Hot 100 chart, with 38 hits.

1985

Whitney Houston began a record-setting run of seven consecutive #1 hits from 1985 through 1988. She is the only woman to have tallied reigns of more than 10 weeks with at No. 1 with three albums on the Billboard 200 chart.

1990

Mariah Carey landed her first #1 Hot 100 hit. She went on to chart 18 #1 singles, the most of any solo artist, and has sold over 47 million albums to date.

1997

Shania Twain released *Come On Over*, the top-selling country album and the best-selling album by a female artist in any genre, since Nielsen started tracking sales in 1991.

1999

The top seven songs on Billboard's year-end chart were female acts, or female-led, with Cher, TLC, Monica, Whitney Houston, Britney Spears, Sixpence None the Richer and Christina Aguilera holding down the top seven spots.

2008

All five of the GRAMMY® nominees for Best New Artist were female artists, or female led groups, including winner Amy Winehouse.

2015

Adele set a record by selling over 3.3 million copies of her *25* album in the U.S. in a single week in 2015. She has sold over 24.5 million albums in the U.S. since her debut.

2017

Taylor Swift is currently on an unprecedented run, with her past four albums all surpassing 1 million sales in the U.S. in their first week of release.

Source: Nielsen, International Women's Day: Celebrating Women in Music 2018

SOCCER PROS AND FANS TAKE TO #INSTA, FB AND TWITTER

2019 FIFA WOMEN'S WORLD CUP: MEDIA SNAPSHOT

Activity Idea #1 (beginner)

Women's World Cup players and fans take to social media to post and tweet. Students will analyze data presented on the impact of women athletes in social media and read the article to draw conclusions. To further extend their learning, students will research other prominent athletes and compare their "reach" in the past 10 years through social media outlets. If time permits, it would be beneficial to discuss the numerical conclusions and research learned.

Activity Idea #2 (intermediate)

Breaking into groups, students will use data from the report and other online sources to investigate the digital reach, compared by gender, of other professional championship sports and tournaments. To assist with comparing the information, encourage the students to select one sport and then further analyze the data for male and female teams. Students can demonstrate these findings using a Venn diagram to display the commonalities and differences they found. Additionally, students will compare data found on viewership and discuss differences that exist within that reach of their selected sport.

Connect to: Compare and Contrast Evidence, Interpreting Data, Making Inferences Based on Data

Visual/Graphic: 2019 FIFA Women's World Cup: Media Snapshot
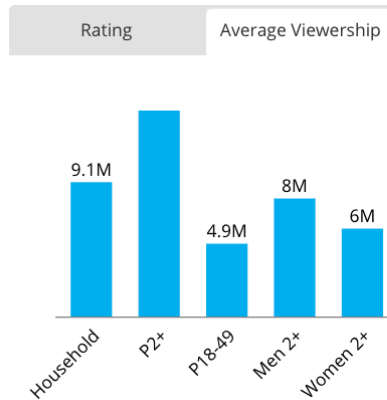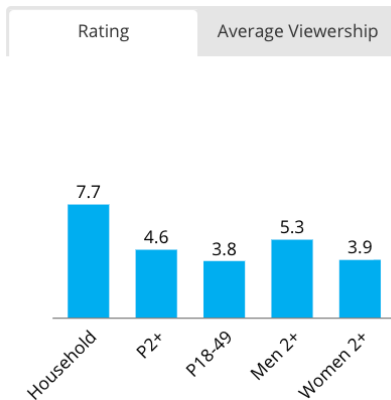Charts and graphs are provided below for settings without Internet access.

MEDIA SNAPSHOT: 2019 FIFA WOMEN'S WORLD CUP

U.S. TV Viewing During the 2019 FIFA Women's World Cup Final

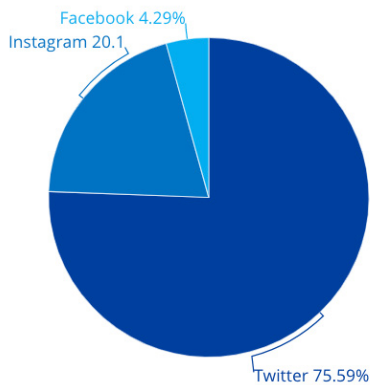Ratings and Viewership during U.S. vs. Netherlands Match on July 7, 2019

Rating	Average Viewership

Household 7.7
P2+ 4.6
P18-49 3.8
Men 2+ 5.3
Women 2+ 3.9

Rating	Average Viewership

Household 9.1M
P2+ (highest)
P18-49 4.9M
Men 2+ 8M
Women 2+ 6M

14M
Viewership Among P2+

7.7
Household Rating

Social Media Interactions During the 2019 FIFA Women's World Cup Final

4.6 million interactions across Facebook, Twitter and Instagram during U.S. vs. Netherlands Match on July 7, 2019

Facebook 4.29%
Instagram 20.1
Twitter 75.59%

12:58 PM EST
The time of the most social moment of the match when fans celebrated the U.S. team's victory

43,588
Interactions on Twitter

DISCOVER DATA

n foundation • Discovery EDUCATION • Afterschool Alliance AFTERSCHOOL FOR ALL
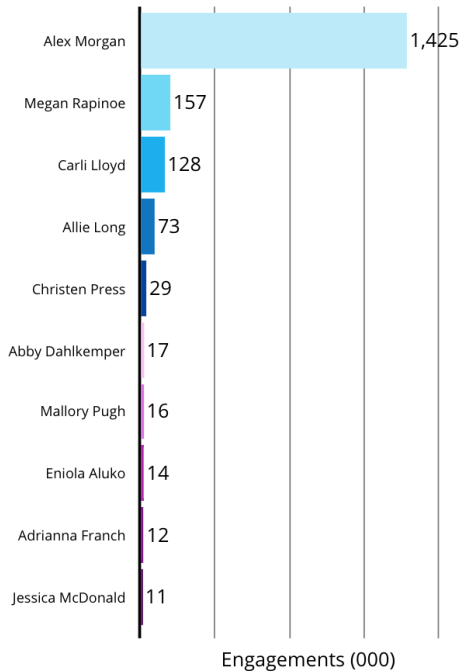
Top Social Accounts During the 2019 FIFA Women's World Cup

Veteran footballer and "tea sipper" Alex Morgan was the social media star of the tournament

Player	Engagements (000)
Alex Morgan	1,425
Megan Rapinoe	157
Carli Lloyd	128
Allie Long	73
Christen Press	29
Abby Dahlkemper	17
Mallory Pugh	16
Eniola Aluko	14
Adrianna Franch	12
Jessica McDonald	11

Engagements (000)

1,425,000
Social Engagements

Alex Morgan
Instagram Posts

Top 5 Social Posts During the 2019 FIFA Women's World Cup
#LFG

Rank	Account Name	Social Source	Original Content	Date	Url	Owned Engagement (000)
1	Alex Morgan	Instagram	A World Cup final with my 22 best friends. Living out the ultimate dream. LFG!!! #AM13	7/7/19	https://www.instagram.com/p/BznT-57F8sE/	736
2	Alex Morgan	Instagram	Closing out group stage TODAY #USAvSWE #AM13	6/20/19	https://www.instagram.com/p/By8Jh3vF36p/	207
3	Alex Morgan	Instagram	#USAvCHI...LFG!! 🇺🇸 #AM13	6/16/19	https://www.instagram.com/p/Byxepw8FM8W/	167
4	Carli Lloyd	Instagram	⭐⭐⭐⭐ WORLD CUP CHAMPIONS 🇺🇸 🏆⚽	7/7/19	https://www.instagram.com/p/BzoPlwijQvL/	127
5	Megan Rapinoe	Instagram	❤️ alikrieger ashlynharris24	7/7/19	https://www.instagram.com/p/BzoJllvHjh0/	104

Source: Nielsen, 2019 FIFA Women's World Cup: Media Snapshot, 2019

BRIDGING THE GENDER GAP

THE MILLION DOLLAR FINE

Activity Idea #1 (beginner)

Ratios are used as a numerical means of comparison. After analyzing the data found in the article, students will research the ratio of women to men in executive and leadership positions in 2020. For example, the students may wish to include CEOs or elected positions in government. After completing this research analysis, students will create a visual representation to demonstrate the contrasting differences in gender by category.

Activity Idea #2 (intermediate)

For this activity, students will use information and questions from the article to conduct their own survey of women in the workforce using categories from the visual "What's Weighing North American Women Down." They need to create a survey that measures women's response to questions about workplace culture. Students will then contrast the survey feedback they gathered with the information from the article. Conclude the activity with a discussion about the similarities and differences between the survey data the students collected and the statistical information found in the article.
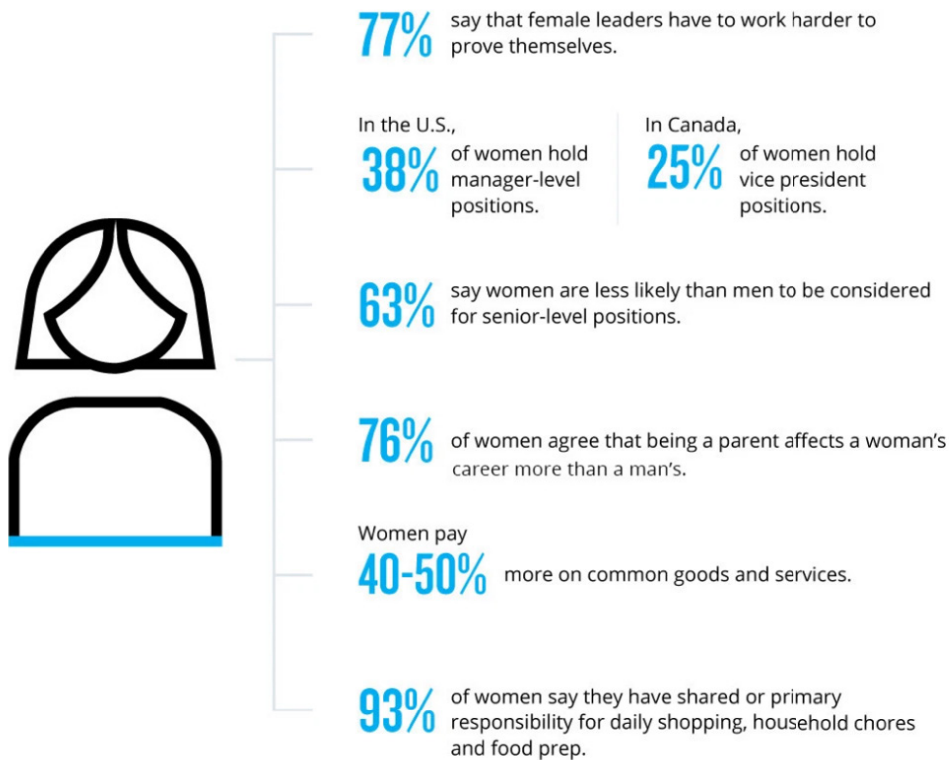
Connect to: Comparing and Contrasting, Analyzing Data, Analyze Proportional Relationships, Posing Questions, Evaluating Claims

Visual/Graphic: What's Weighing North American Women Down

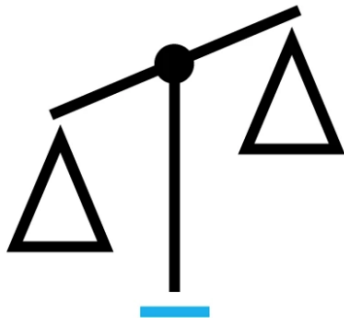Charts and graphs are provided below for settings without Internet access.

WHAT'S WEIGHING NORTH AMERICAN WOMEN DOWN

77% say that female leaders have to work harder to prove themselves.

In the U.S.,
38% of women hold manager-level positions.

In Canada,
25% of women hold vice president positions.

63% say women are less likely than men to be considered for senior-level positions.

76% of women agree that being a parent affects a woman's career more than a man's.

Women pay
40-50% more on common goods and services.

93% of women say they have shared or primary responsibility for daily shopping, household chores and food prep.

Source: Axe the pink tax, LeanIn.org, The Canadian Women's Institute, Nielsen Global Diversity and Emerging Q3 2016

MARKETERS ARE FIGHTING INEQUALITY

☑ CREATING GENDER-NEUTRAL INNOVATIONS

☑ LAUNCHING PINK TAX AND EDUCATION CAMPAIGNS

☑ WORKING WITH LEGISLATORS TO BAN THE PINK TAXES

☑ ADJUSTING PRICES ON UNNECESSARILY LUXURY TAXED AND PINK TAXED ITEMS

☑ GIVING WOMEN REBATES ON PINK TAXED ITEMS

Source: Nielsen, The Million Dollar Fine, 2019

COLLECTING DATA—IN ORDER TO SOLVE A PROBLEM, YOU NEED TO FIND THE RIGHT INFORMATION

Students will collect their own data from friends and family on issues that they believe are impacting women the most in 2020. Students will create a survey to administer that captures significant categories and age group. From there, students will analyze the data and discuss differences in perception based upon gender, age, and other categories.

Note to teacher: It may be helpful to provide students with sample survey questions or prompts to guide their data collection.

KEY VOCABULARY

Equity: Being fair and just

Evaluate: To determine the value, worth, or significance

Gender gap: The difference between men and women, in regard to economics, education, health, or politics

Glass ceiling: An artificial barrier that prevents women and minorities from advancing in a profession

Gross income: Money earned before taxes are taken

Line graph: A graph in which points representing values are connected by a correlating line, often showing changes over time

Millennial: A person who reached his/her young adulthood in the early 2000s

Net income: Money earned after taxes and other deductions are taken

Percentage: A number that represents a fraction of 100

Proportional: Two amounts that have a constant ratio to one another; a part or share of something, compared to a whole

Ratio: A numerical comparison of two or more amounts

Reliability: The consistency of a numerical amount