DISCOVER DATA

NIELSEN *foundation* ▪ Discovery EDUCATION ▪ Afterschool Alliance AFTERSCHOOL FOR ALL

CURRICULUM CONNECTORS

BIG DATA IN THE BIG GAME

In these curriculum connectors, students will have the opportunity to interact with **data** to draw conclusions about championship football by:

- Comparing and contrasting **data points**
- Constructing arguments using data as **evidence**
- Calculating **percent increase**, writing algebraic equations
- Analyzing historical data to create graphs

NOTE TO EDUCATOR: Definitions for all **key vocabulary words** can be found in a glossary on the last page.

CHAMPIONSHIP FOOTBALL—BEYOND THE GAME

The "big game" is a national **phenomenon** that is recognizable by students of all ages and influences multiple facets of society, including schools. Students will engage with this high-energy topic as they investigate **consumer** interest elements of championship football—such as the fans, the entertainment, and the food.

WHAT MAKES A FOOTBALL FAN—COMPARING DEMOGRAPHICS

IS BIGGER BETTER?

Activity Idea #1 (beginner)

Working in small groups, students will read a report comparing fans of two major national football teams. After students read, they will discuss and **analyze data sets** about the size of each team's **fan base**, fan **demographics**, monthly spending habits, and **sponsorship** activities. Students will then work together to populate a **Venn Diagram** to compare and contrast data points and draw **conclusions** about the two teams' fan bases.

Activity Idea #2 (intermediate)

After analyzing the data sets in the report, students will work independently to make a claim about the fans from each of the two teams. They will support their claim using evidence drawn from the report. When they have finished writing, students will present their arguments—including a chart and/or graph—to classmates who will **critique** their evidence and may challenge their conclusions. *NOTE TO EDUCATOR:* It may be helpful to provide sample **claims** to students or to compose a sample claim as a group.

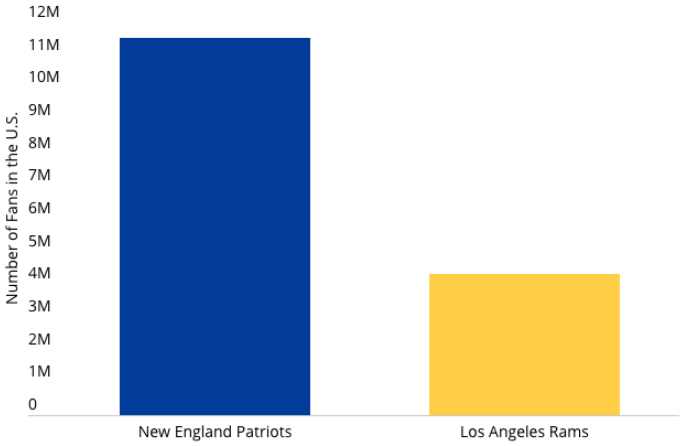
Connect to: Citing Textual Evidence; Writing Arguments; Supporting Claims with Evidence; Evaluating Arguments; Using Data to Draw Inferences

Career Connection: Account Manager

Visual/Graphic: Charts and graphs are provided below for settings without internet access.

STUDENT HANDOUT

NATIONAL FAN BASE SIZES OF SUPER BOWL LIII TEAMS



Source: Nielsen Sports Sponsorlink (January–December 2018)

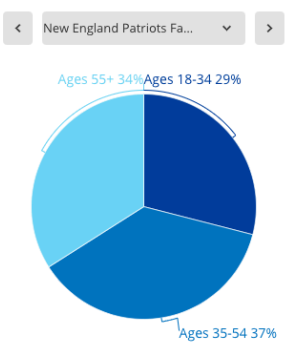
Nielsen: Is Bigger Better? New England Patriots and Los Angeles Rams Fans Compared, 2019

STUDENT HANDOUT

DEMOGRAPHICS OF SUPER BOWL LIII TEAM FANS

New England Patriots

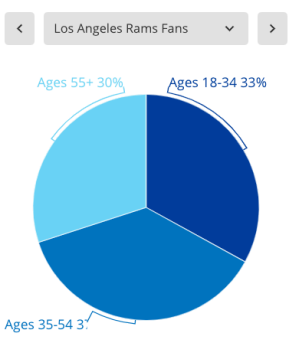
Age Groups (18+)



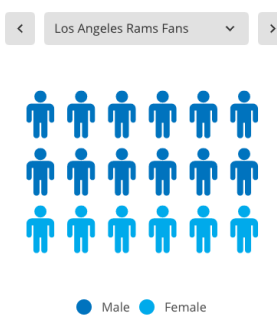
Gender

Los Angeles Rams

Age Groups (18+)



Gender



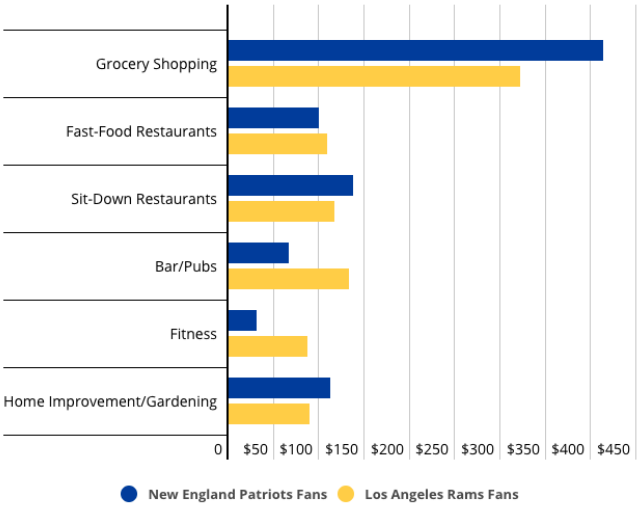
Source: Nielsen Sports Sponsorlink (January–December 2018)

Nielsen: Is Bigger Better? New England Patriots and Los Angeles Rams Fans Compared, 2019

STUDENT HANDOUT

MONTHLY SPENDING HABITS OF SUPER BOWL LIII TEAM FANS

Fans of the New England Patriots and Los Angeles Rams compared



Source: Nielsen Sports Sponsorlink (January - December 2018)

Nielsen: Is Bigger Better? New England Patriots and Los Angeles Rams Fans Compared, 2019

"WHAT'S IN IT FOR ME?"—THE BENEFITS OF PERFORMING AT THE MOST WATCHED HALFTIME PERFORMANCE

THE SUPER BOWL: THE BIGGEST CONCERT OF THE YEAR

Activity Idea #1 (beginner)

Students may be surprised to learn that musicians are not paid to perform during the big game's halftime show. However, increased **music consumption** surrounding the event pays artists big **dividends**. Working in small groups, students will read a report on the relationship between the halftime show and music consumption. After reading, they will work together to calculate the percent increase of music consumption after participation in the halftime show (= (New Number - Original Number) ÷ Original Number × 100) for each artist featured in the data set.

Activity Idea #2 (intermediate)

After calculating the percent increase in music consumption after participation in the halftime show (= (New Number - Original Number) ÷ Original Number × 100) for the artists, students will create and present equations and inequalities that represent the relationship between an artist's performance in the championship game halftime show and his/her future financial success.

Connect to: Analyze Proportional Relationships; Algebra- Creating Equations; Percent Increase

Visual/Graphic: Graphs are provided below for settings without internet access.

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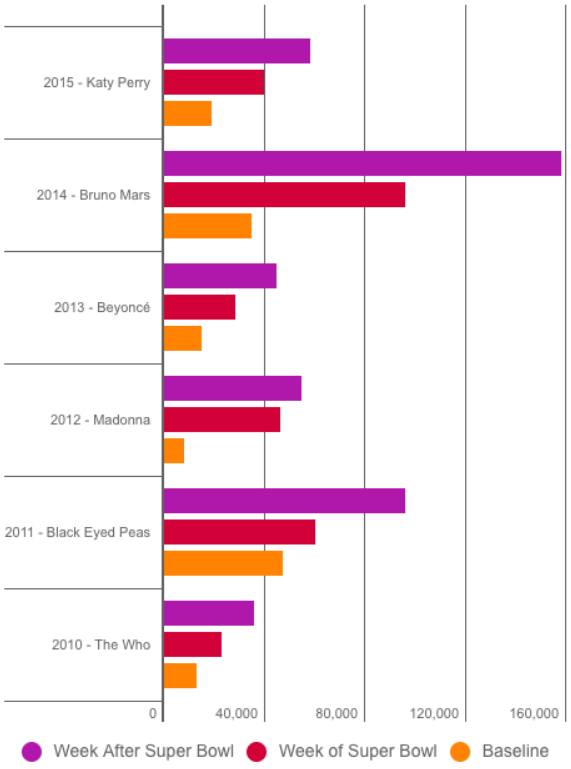
STUDENT HANDOUT

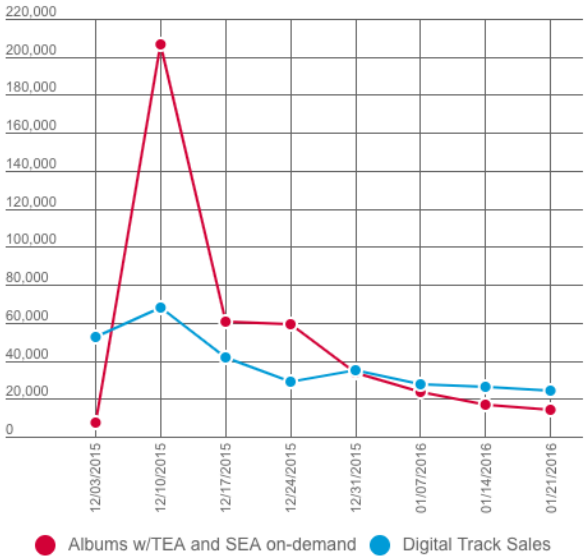
THE EFFECT OF SUPER BOWL HALFTIME PERFORMANCES



Methodology: Music consumption includes album sales and track equivalent album sales (10 digital track downloads = 1 album) and streaming equivalent albums (1,500 streams = 1 album). Sales, streams and downloads for two weeks leading up to Super Bowl week averaged to establish baseline; compared to week of Super Bowl and week after Super Bowl.

Note: Chart week for these years ends on Sunday at midnight, which means week of Super Bowl week includes only a few hours during/after game.

COLDPLAY'S "A HEAD FULL OF DREAMS" MUSIC CONSUMPTION



Methodology: Music consumption includes album sales and track equivalent album sales (10 digital track downloads = 1 album) and streaming equivalent albums (1,500 streams = 1 album).

Nielsen: The Super Bowl: The Biggest Concert of the Year, 2016

CHANGES OVER TIME—VIEWERSHIP TRENDS

SUPER BOWL LIII DRAWS 98.2 MILLION TV VIEWERS

Activity Idea #1 (beginner)

Working in small groups, students will read a report on **viewership** and social media interactions during the big game. They will analyze historical viewership data and create **line graphs** to illustrate changes in viewership over time. Then, they will discuss kinds of sources that would be helpful to determine potential causes for change in viewership.

Activity Idea #2 (intermediate)

After creating a line graph that demonstrates the change in viewership of the big game over time, students will conduct research using historical documents to **evaluate** the causes and effects of events that may have led to changes in viewership during a specific period in history. Students will then construct arguments supported by evidence to explain the potential reason for changes in viewership.

Connect to: Solving Problems by Graphing; Determining Helpful Sources; Analyzing Historical Cause and Effect; Integrating Evidence From Multiple Sources; Writing an Argument; Short Research

Visual/Graphic: A table is provided below for settings without internet access.

DISCOVER DATA

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STUDENT HANDOUT

HISTORICAL SUPER BOWL VIEWERSHIP

SUPER BOWL	DATE	NETWORK	HH RATING	HH SHARE	AVG # OF HOMES (000)	AVG # OF PERSONS 2+ (000)	NFC CHAMP	AFC CHAMP
LII	Feb. 4, 2018*	NBC	43.1	68	51,500	103,471	Philadelphia**	New England
LI	Feb. 5, 2017*	FOX	45.3	70	53,650	111,319	Atlanta	New England**
SUPER BOWL 50	Feb. 7, 2016*	CBS	46.6	72	54,251	111,864	Carolina	Denver**
XLIX	Feb. 1, 2015*	NBC	47.5	71	55,341	114,442	Seattle	New England**
XLVIII	Feb. 2, 2014*	FOX	46.7	69	54,134	112,191	Seattle**	Denver
XLVII	Feb. 3, 2013*	CBS	46.4	69	52,998	108,693	San Francisco	Baltimore**
XLVI	Feb 5, 2012*	NBC	47	71	53,910	111,346	New York Giants**	New England
XLV	Feb 6 2011*	FOX	46	69	53,282	111,041	Green Bay**	Pittsburgh
XLIV	Feb 7 2010*	CBS	45	68	51,728	106,476	New Orleans**	Indianapolis
XLIII	Feb 1 2009*	NBC	42	64	48,139	98,732	Arizona	Pittsburgh**
XLII	Feb 3 2008*	FOX	43.1	65	48,665	97,448	New York Giants**	New England
XLI	Feb 4 2007 *	CBS	42.6	64	47,505	93,184	Chicago	Indianapolis**
XL	Feb 5 2006 *	ABC	41.6	62	45,867	90,745	Seattle	Pittsburgh**
XXXIX	Feb 6 2005	FOX	41.1	62	45,081	86,072	Philadelphia	New England**
XXXVIII	Feb 1 2004	CBS	41.4	63	44,908	89,795	Carolina	New England**
XXXVII	Jan 26 2003	ABC	40.7	61	43,433	88,637	Tampa Bay**	Oakland
XXXVI	Feb 3 2002	FOX	40.4	61	42,664	86,801	St. Louis	New England**
XXXV	Jan 28 2001	CBS	40.4	61	41,270	84,335	NY Giants	Baltimore**
XXXIV	Jan 30 2000	ABC	43.3	63	43,618	88,465	St. Louis**	Tennessee

STUDENT HANDOUT

XXXIII	Jan 31 1999	FOX	40.2	61	39,992	83,720	Atlanta	Denver**
XXXII	Jan 25 1998	NBC	44.5	67	43,630	90,000	Green Bay	Denver**
XXXI	Jan 26 1997	FOX	43.3	65	42,000	87,870	Green Bay**	New England
XXX	Jan 28 1996	NBC	46	68	44,145	94,080	Dallas**	Pittsburgh
XXIX	Jan 29 1995	ABC	41.3	62	39,400	83,420	San Francisco**	San Diego
XXVIII	Jan 30 1994	NBC	45.5	66	42,860	90,000	Dallas**	Buffalo
XXVII	Jan 31 1993	NBC	45.1	66	41,990	90,990	Dallas**	Buffalo
XXVI	Jan 26 1992	CBS	40.3	61	37,120	79,590	Washington**	Buffalo
XXV	Jan 27 1991	ABC	41.9	63	39,010	79,510	NY Giants**	Buffalo
XXIV	Jan 28 1990	CBS	39	63	35,920	73,852	San Francisco**	Denver
XXIII	Jan 22 1989	NBC	43.5	68	39,320	81,590	San Francisco**	Cincinnati
XXII	Jan 31 1988	ABC	41.9	62	37,120	80,140	Washington**	Denver
XXI	Jan 25 1987	CBS	45.8	66	40,030	87,190	NY Giants**	Denver
XX	Jan 26 1986	NBC	48.3	70	41,490	92,570	Chicago**	New England
XIX	Jan 20 1985	ABC	46.4	63	39,390	85,530	San Francisco**	Miami
XVIII	Jan 22 1984	CBS	46.4	71	38,880	77,620	Washington	LA Raiders**
XVII	Jan 30 1983	NBC	48.6	69	40,480	81,770	Washington**	Miami
XVI	Jan 24 1982	CBS	49.1	73	40,020	85,240	San Francisco**	Cincinnati
XV	Jan 25 1981	NBC	44.4	63	34,540	68,290	Philadelphia	Oakland**
XIV	Jan 20 1980	CBS	46.3	67	35,330	76,240	LA Rams	Pittsburgh**
XIII	Jan 21 1979	NBC	47.1	74	35,090	74,740	Dallas	Pittsburgh**
XII	Jan 15 1978	CBS	47.2	67	34,410	78,940	Dallas**	Denver

XI	Jan 09 1977	NBC	44.4	73	31,610	62,050	Minnesota	Oakland**
X	Jan 18 1976	CBS	42.3	78	29,440	57,710	Dallas	Pittsburgh**
IX	Jan 12 1975	NBC	42.4	72	29,040	56,050	Minnesota	Pittsburgh**
VIII	Jan 13 1974	CBS	41.6	73	27,540	51,700	Minnesota	Miami**
VII	Jan 14 1973	NBC	42.7	72	27,670	53,320	Washington	Miami**
VI	Jan 16 1972	CBS	44.2	74	27,450	56,640	Dallas**	Miami
V	Jan 17 1971	NBC	39.9	75	23,980	46,040	Dallas	Baltimore**
IV	Jan 11 1970	CBS	39.4	69	23,050	44,270	Minnesota	Kansas City**
III	Jan 12 1969	NBC	36	70	20,520	41,660	Baltimore	NY Jets**
II	Jan 14 1968	CBS	36.8	68	20,610	39,120	Green Bay**	Oakland
I	Jan 15 1967	CBS	22.6	43	12,410	26,750	Green Bay**	Kansas City
I	Jan 15 1967	NBC	18.5	36	10,160	24,430	Green Bay**	Kansas City

HH = Household
Note: Super Bowl 1 (January 1967) aired on CBS and NBC
*Live + Same Day Viewing Estimates include DVR playback on the same day, defined as 3 a.m.-3 a.m.
**Denotes winner
Source: Nielsen

Nielsen: Super Bowl LIII Draws 98.2 Million TV Viewers, 2019

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

Students will collect their own data from family and friends—including demographic, viewership, and preferences—for different elements of championship football. They will use two points of data to draw conclusions and write a report similar to "Is Bigger Better," including charts and graphs. *NOTE TO EDUCATOR:* It may be helpful to provide students with sample questions or prompts to guide their data collection.

KEY VOCABULARY

Analyze: To study or determine the nature of a relationship

Claim: To state or assert that something is the case

Conclusion: A reasoned judgment

Consumer: A person that uses goods and services, or participates in an economy

Critique: To examine and provide feedback

Data: Facts and statistics that can be used for analysis, discussion and/or calculations

Data Point: A single identifiable element in a data set

Data set: A group of data points

Demographics: The characteristics of human populations (such as age or income)

Dividend: a benefit from an action or policy

Evaluate: To determine the value, worth, or significance

Evidence: Information that provides support for whether a conclusion is true

Fan Base: A group of supporters for a particular sport or team

Household: A group of people composed of those living together in the same house, apartment, or other living situation

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

Music Consumption: The amount of music purchased by a consumer from both video and audio streams

Percent Increase: The increase from one value to another value, expressed as a percentage (= (New Number – Original Number) ÷ Original Number × 100)

Phenomenon: Observable facts or events, especially something that is remarkable

Sponsorship: When financial payments or other support is made by a company or a person for the right to be associated with a person, project, or program

Venn Diagram: A graph representing data in intersecting circles, where the overlapping center represents common data points

Viewers/Viewership: People who watch television or other visual content online