Promoting Technical Problem Solving

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Thursday, 8:00-9:55
Themed Session T2E Classroom-Ready Career Applications

Gen Ed Problem Solving is four short courses. Students take 3 out of 4

CNM Central New Mexico Community College

Math 1211
Problem Solving
with Algebraic
Modeling

Math 1212
Problem Solving
with Probability
and Statistics

Math 1213
Problem Solving
with Geometry
and Right Triangle
Trigonometry

Math 1214
Problem Solving
with Consumer
Mathematics

Proportional reasoning, basic algebra, percentage, measurement, formula use and manipulation, dimensional analysis (units conversion).

Introductory statistics: mean, median, mode, range, standard deviation, graphical analysis of data. Probability of single and compound events

Plane and solid geometry (area, perimeter, volume, surface area), right-triangle trigonometry

Constructing personal budgets, investigating the effects of compound interest on loans (such as mortgages, cars, credit cards) and savings (such as bank savings, mutual funds), analysis of financial options based on interest
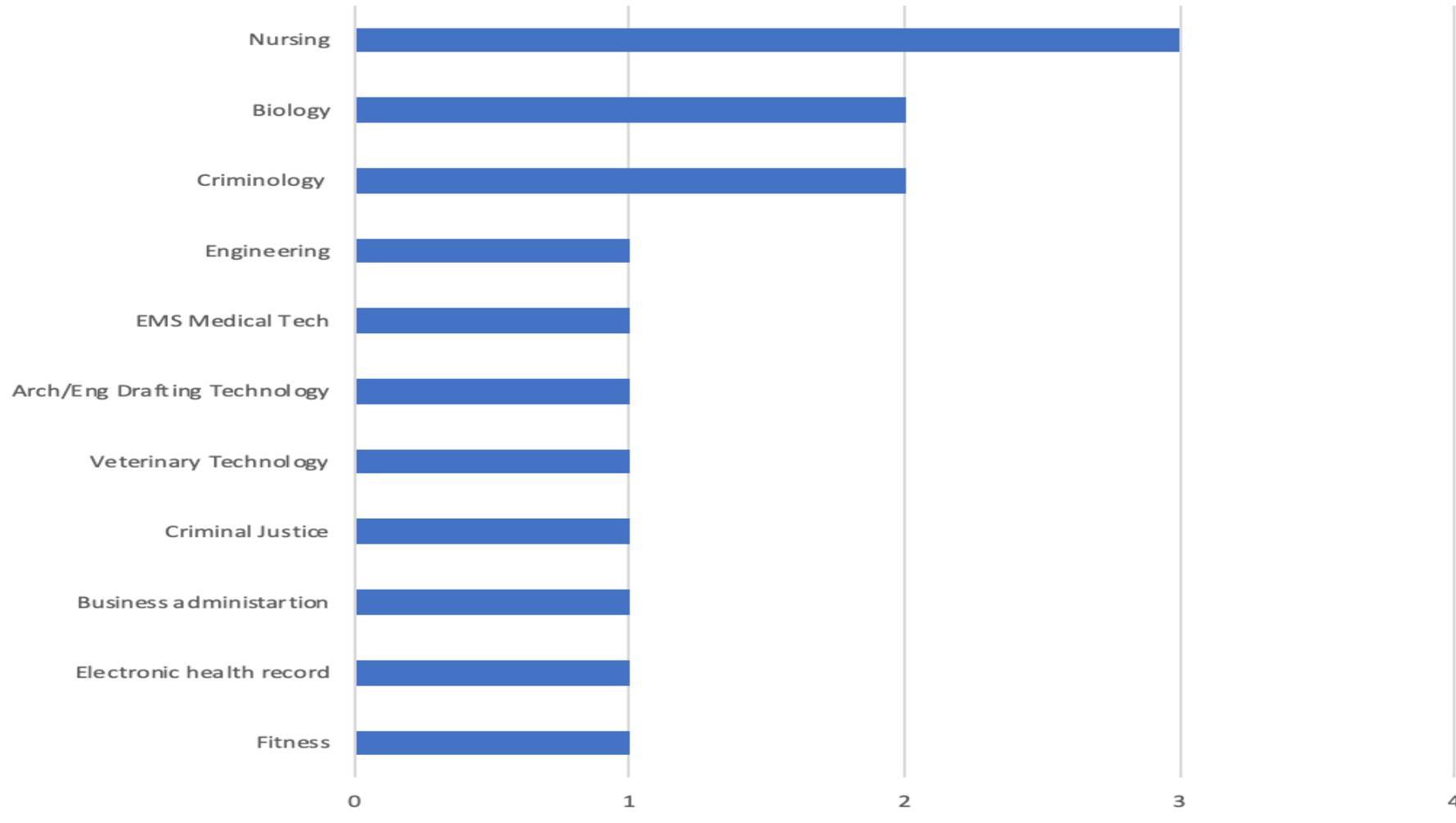
Demographics of our Math 1200's students

BREAKDOWN BY SCHOOL

- other 1%
- MSE 5%
- CHSS 16%
- BIT 9%
- AT 14%
- HWPS 55%
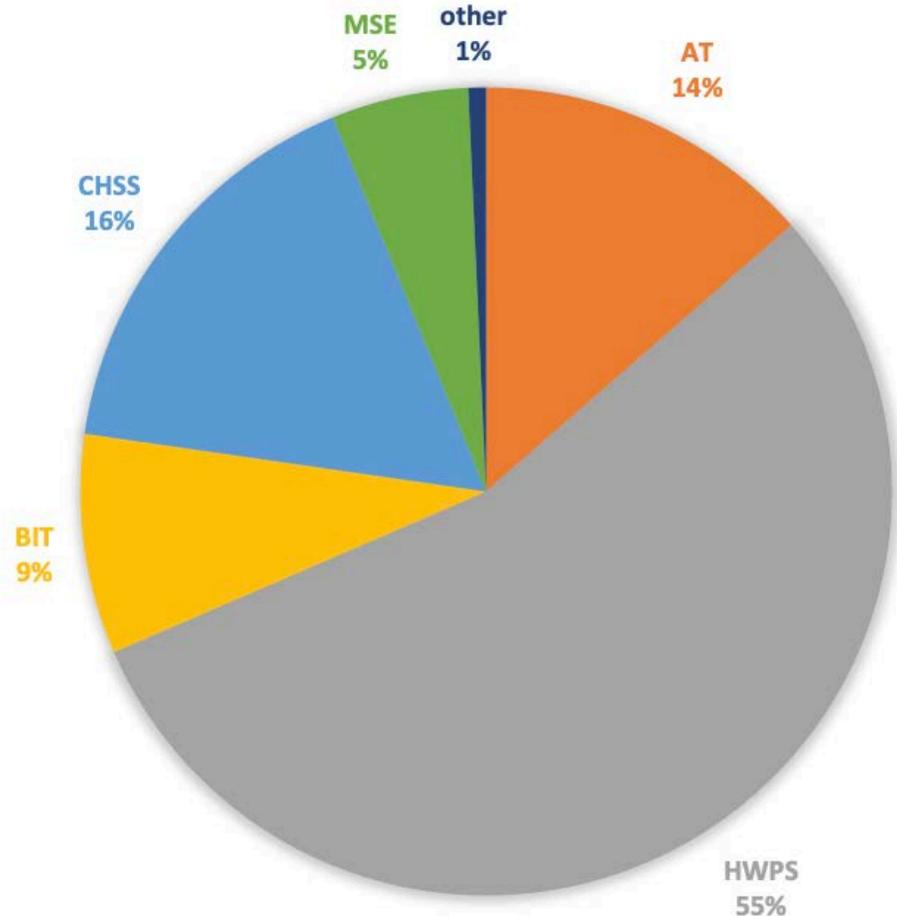
▶ Applied Technologies (AT)

▶ Business & Information Technology (BIT)

▶ Communication, Humanities & Social Sciences (CHSS)

▶ Health, Wellness & Public Safety (HWPS)

▶ Math, Science & Engineering (MSE)

My Math 1212 continuing students

Reading and interpreting graphs

- ▶ Find an article that reflects your interests either in the newspaper or online that includes a graph or chart. Take a screenshot/picture of the graph and insert it in your discussion post with your answers to the following questions:

- ▶ What influences might the identity/source of the article have had on how you react to the diagram or article and, in particular, to the conclusions drawn?

- ▶ Where was the data in the graphs derived from?

- ▶ How does it relate to the article?

- ▶ What conclusions can you draw from the use of the graphs related text?

- ▶ Why is this article relevant to you? Does it impact your work or other areas of your life?

Personal and Professional Examples

Shark Attack!

SURFACE ACTIVITIES POSE MORE RISK
In world locations with the highest shark attack activity, sharks most often target surface recreationists, or people who are on top of a body of water using a board or flotation device. Surface activities include surfing, water skiing, windsurfing, boogie boarding, or rafting.

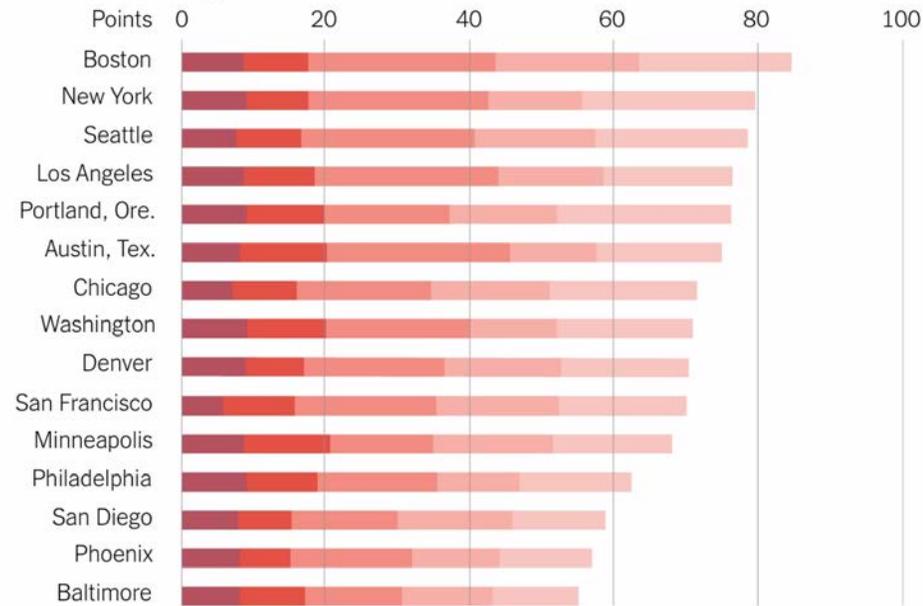**Total shark attacks by activity** (1900-2009)

Legend:
- Surface recreationists
- Divers
- Swimmers & bathers
- Victims upon entering or exiting the water
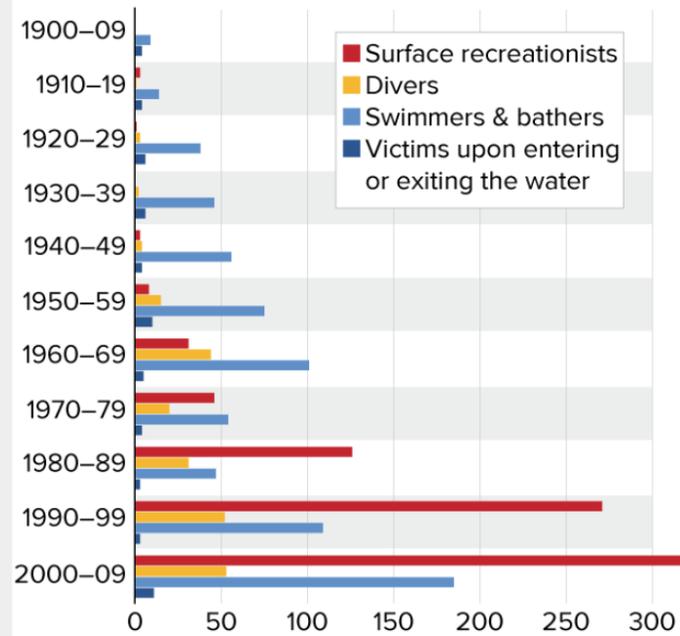
SOURCE
International Shark Attack File, Florida Museum of Natural History, University of Florida (Last updated Feb. 11, 2010)

abc NEWS

Architectural Design

Here are the scorecard's top 15 cities, and how they made the grade.

The Most Energy-Efficient Cities

Cities listed: Boston, New York, Seattle, Los Angeles, Portland, Ore., Austin, Tex., Chicago, Washington, Denver, San Francisco, Minneapolis, Philadelphia, San Diego, Phoenix, Baltimore

Maximum points per category out of 100
- 10 — Local government operations
- 12 — Communitywide initiatives
- 28 — Buildings policies
- 20 — Energy and water utilites
- 30 — Transportation policies

Opiod Use

...From the graph I understand that, based on the claims from these states, opioid use seems to be the highest in West Virgina. California, Florida, Rhode Island, and Kentucky nd also have high rates of opioid-related claims It makes me wonder if there is a difference in insurance through these states that can be effecting these numbers. This article interests me because drug use has such a negative effect on families and communities. I would like to get into a field that helps people with problems like this.
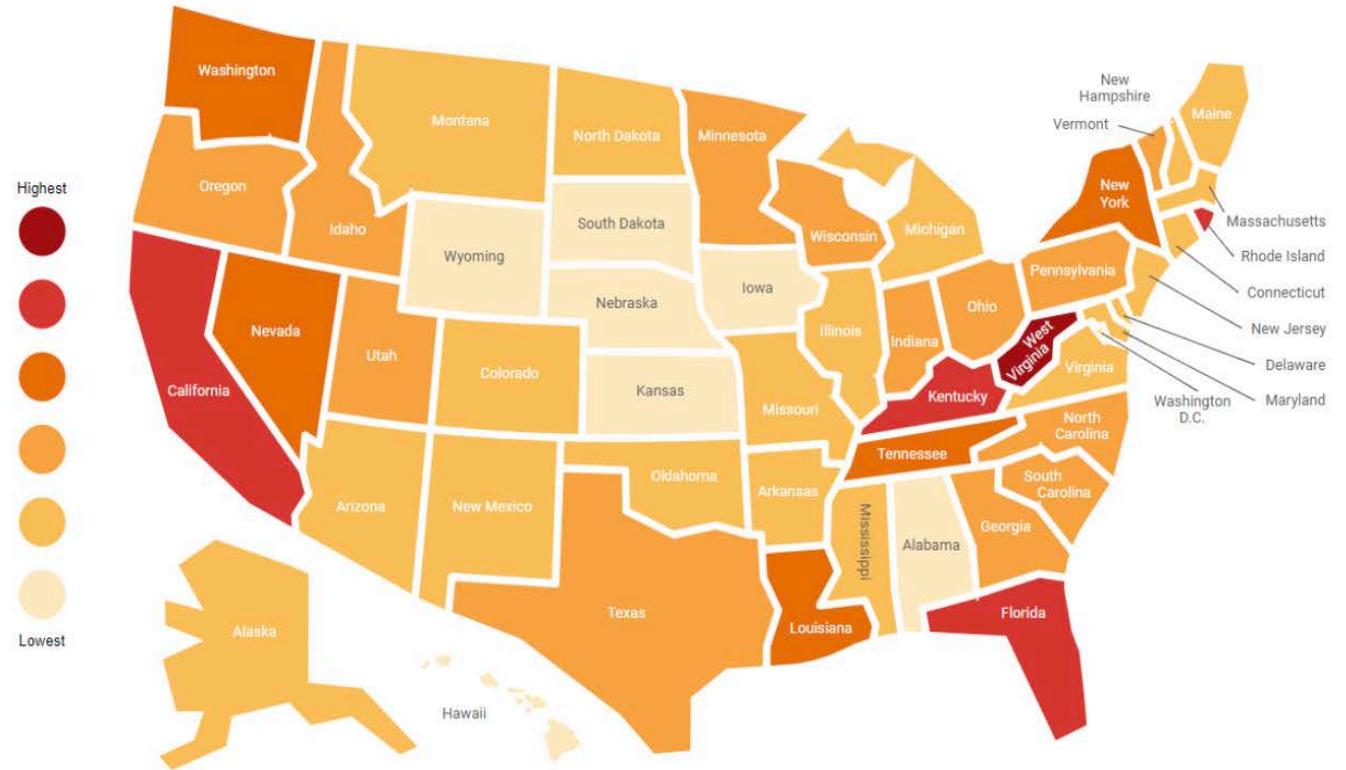
Source: Fair Health

Why do some states have a higher opioid use than others?

Hockey and Physical Therapy

"I'm studying for the Physical Therapy Assistant program. I help coach the goaltenders in the New Mexico Mustang's Girls Ice Hockey program. My two daughters, 17 & 14, both play ice hockey although only the younger one plays in net. I'm also a goaltender in one of the local beer leagues here in ABQ......I enjoy watching Marc-Andre Fleury play in net, and it makes me happy to see that he is still finding success even though he is what professional sports analysts consider "past his prime." If it impacts anything in my life, I guess is would be that age is just a number and shouldn't get in the way of trying to achieve your goals.
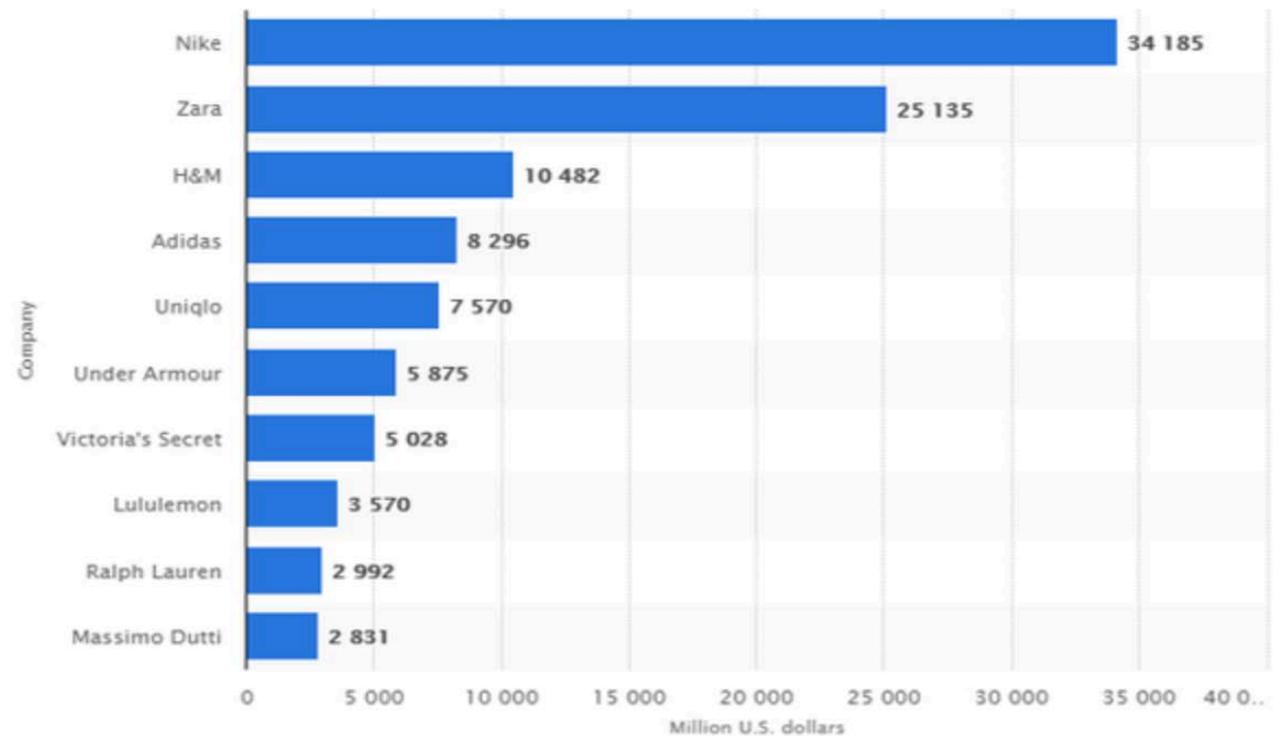

Roberto Luongo's SV% for the past 10 seasons relative to the league's average. (Created by Kyle Gipe)
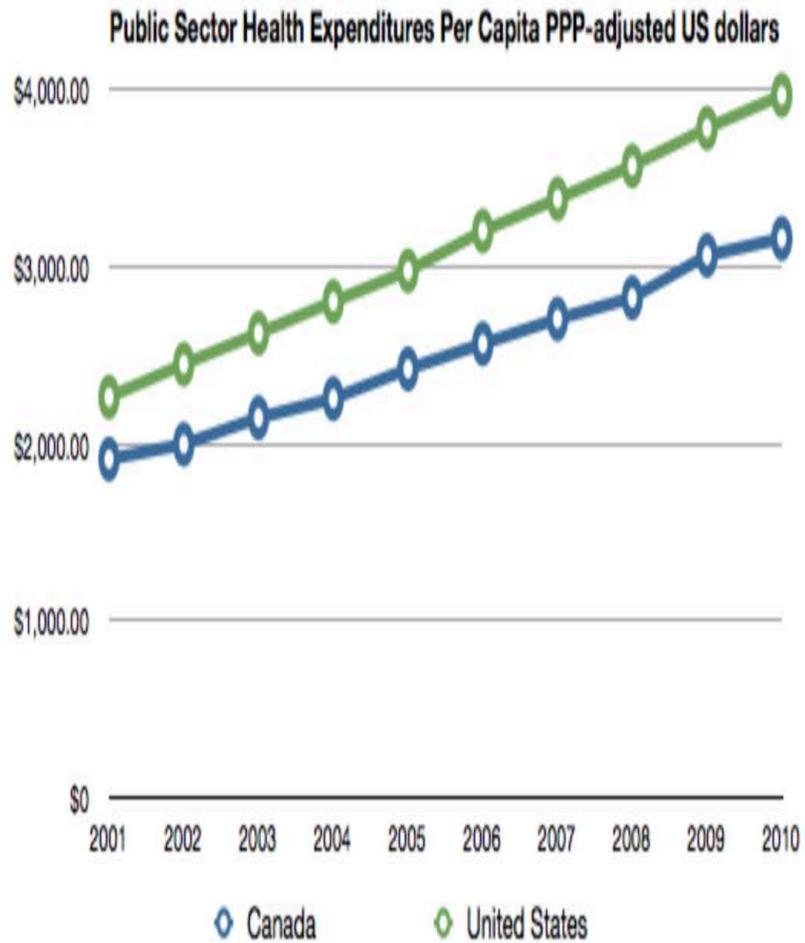
Investing in Sports Apparel

"The article i chose is related to the sneaker one of my favorite things. Now the article is from quora so keep that in mind, sort of like wiki that anyone can post on the site ...How the article influenced me is it just made my thought on the matter stronger, i alway had feeling that nike was always on top of the market because they also own Jordan brand which alot of people forget about... the conclusion i can draw from this article is that when a company reaches a peak their must be a trough soon after so
nike investment is stable now but you will not see any return greater than what you will get currently."

Brand value of the leading 10 apparel brands worldwide in 2017 (in million U.S. dollars)

Company	Million U.S. dollars
Nike	34 185
Zara	25 135
H&M	10 482
Adidas	8 296
Uniqlo	7 570
Under Armour	5 875
Victoria's Secret	5 028
Lululemon	3 570
Ralph Lauren	2 992
Massimo Dutti	2 831

source: https://www.statista.com/statist... ☑

Health Information Management

Public Sector Health Expenditures Per Capita PPP-adjusted US dollars

All State Recognition

Engaging critical thinking and communication skills

- After you post your response, please read your classmates' threads and respond to at least three of them. The goal in your responses to one another should be to find connections ... (and) ask open-ended questions to engage one another in conversation.

Measures of Center

▶ Often in everyday life we talk about something being "average" but what does that really mean? How do you use measures of the center of data in your everyday life or your chosen profession? Give a specific example of how it applies to your chosen field or everyday life.

Student Examples: Measures of Center

▶ Cost of Living

▶ Blood Sugar levels

▶ Batting averages

▶ White blood cells in a normal mm^3 sample of blood

Measures of Dispersion

- The measures of central tendency that we looked at last week are not adequate to describe all aspects of the data we see everyday. Two data sets can have the same mean but they can be entirely different. Thus to describe data, one needs to know the extent of variability. This is given by the measures of dispersion. Find a specific example of how measures of dispersion can be seen in your every day life or from your chosen profession. Discuss how this variability impacts you.

Student Examples: Measures of Dispersion

▶ Volatility of stocks

▶ Dispersions in grading

▶ Weight of objects

▶ Blood sugar levels

▶ White Blood cell count

▶ Individual plans for personal training

Extensions

- Build a library of open-ended, adaptable projects that promote critical thinking and problem solving while inviting the students to share what is most interesting to their chosen field or their everyday life.

- Adapt projects to all modes of teaching

- Continue to learn what interests our students and build on that enthusiasm to explore mathematics.