NUMERACY IN SOCIAL STUDIES: IT ALL ADDS UP

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Social Studies + Numeracy = WIN

Follow GaDOE Social Studies on Social Media:

Facebook: @GaDOE_SS
Twitter: GADOE Social Studies
Instagram: gadoesocialstudies
The areas include the students’ ability to understand raw numeric data in context, to understand percentages in context, to understand the meaning of average, and to interpret and question graphs and charts. “What’s Math Got to Do With It?”: Numeracy and Social Studies Education July 2010.


Numeracy in Social Studies

It All Adds Up
Make your voice heard!

- Look around the room at the different issues that might be important in the 2020 Presidential race.
  - Healthcare
  - The Environment
  - Gun Violence
  - Student Loan Debt
  - Education
  - Immigration
  - Supreme Court
  - National Debt

- Select the 3 most important, in your opinion, and place your three stickers on the sheet for each of the issues.

- We aren’t discussing your stance on these issues, just measuring which issues this group rates as most important.

Gathering and analyzing data is one of the most important skills for a social scientist. It corresponds to the Measurement and Data and Statistics and Probability strands in math.
Think and Turn & Talk

Why do you think that the College Board correlates all 3 scores for projected success in Social Science Courses including History?

Advanced Placement Potential from PSAT data

https://cb.collegeboard.org/ap-potential/app/score.html

CR=Critical Reading
M=Math
W=Writing
Interdisciplinary Concepts

- Symbols
- Chronology/Timelines
- Measurement
  - Time
  - Distance
  - Calendar
- Data
- Traditions
- Money
- Letter/Number Grid System
- Graphic Scales
- Draw Conclusions/Make Generalizations
- Charts, Tables, Graphs
- Identify Problems and Alternate Solutions
- Formulate Appropriate Research Questions
- Determine adequacy and/or relevancy of information
Social Studies Topics: Relying on Mathematical Understanding

► Geography: Latitude and longitude, topography, graphic scales, directions

► Economics:
  ► Scarcity
  ► Money, taxation
  ► Income, budgeting, saving, spending
  ► Price, incentives, productivity, profit, trade, entrepreneurship,

► Government: Electoral College, House of Representatives, Amendment Process

► History: Population change, expenditures (e.g., Louisiana Purchase), Stock Market Crash of 1929, Great Depression, rationing, assembly line,

► Information Processing Skills: Centuries, decades, chronological order
Why Integrate Social Studies and Math?

► Benefits?

► Challenges?
Meriwether Lewis Understood... 

Mathematical Instruments:
- Hadley’s Quadrant
- Mariners’ Compass and 2 pole chain
- Sett of plotting instruments
- Thermometers
- Cheap portable microscope
- Pocket Compass
- brass Scale one foot in length
- Magnetic needles in small straight silver or brass cases opening on the side with hinges
- Instrument for measuring made of tape with feet and inches mark’d on it...
- Hydrometers
Math quantifies history.
History humanizes math.

INCREASED ENGAGEMENT AND UNDERSTANDING
The backbone of history is chronology—which is a numeracy skill.

Let’s make a timeline:

1. Select a group of 3 - 4
2. Open the envelope and look at the images
3. Put the images in chronological order
4. Be ready to explain your chronology of the images
Timelines

SS Content Standards: SS4H1 or SS3H2
Information Processing Skills: #2, 5, 7, 11, 14
Math Standards: SMP #2, 4, 5; MGSE4.NBT.2
Kids’ Favorite Timeline…and It’s Free!

C-SPAN’s American Presidents Timeline
# Counting with History in Mind

<table>
<thead>
<tr>
<th>George Washington</th>
<th>John Adams</th>
<th>Thomas Jefferson</th>
<th>James Madison</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>James Monroe</th>
<th>John Quincy Adams</th>
<th>Andrew Jackson</th>
<th>Martin Van Buren</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

**SS Content Standards:**
SSKH1h; SSKH2f, g

**Information Processing Skills:** #1

**Math Standards:** SMP #1, 2, 6; MGSEK.CC.1
Whose shoe size is 879?

Her foot is 25 feet long.

Her nose is 4 ft. 6 inches feet long.

She weighs 450,000 pounds.

What shapes are part of her base?
Evaluating Primary Sources Using Math

► What do you see?
► Is there anything you can count?
► What is behind the people?
► How big is it?

SS Content Standards: SS1H1; SS1G1
Information Processing Skills: # 4, 6
Map and Globe Skills: #7
Math Standards: SMP #2, 4; MGSE1.NBT.1; MGSE1.NBT.4; MGSE1.MD.2
Monuments and Historic Data

Was World War I an important war?

**SS Content Standards:** SS5H2a  
**Information Processing Skills:** #1, 6, 7, 11  
**Map and Globe Skills:** #7, 11  
**Math Standards:** SMP #2, 4; MGSE5.NBT.1
Causes of the Civil War

SS Content Standards: SS4H4b
Information Processing Skills: #1, 6, 7, 11, 12
Map and Globe Skills: #7, 8, 11
Math Standards: SMP #1, 2, 4; MGSE4.NBT.1
The Census

### Western Region Population by State in 1900

<table>
<thead>
<tr>
<th>State</th>
<th>Total Population:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Montana</td>
<td>243,329</td>
</tr>
<tr>
<td>Idaho</td>
<td>161,772</td>
</tr>
<tr>
<td>Wyoming</td>
<td>2,531</td>
</tr>
<tr>
<td>Colorado</td>
<td>539,700</td>
</tr>
<tr>
<td>New Mexico</td>
<td>195,310</td>
</tr>
<tr>
<td>Arizona</td>
<td>122,931</td>
</tr>
<tr>
<td>Utah</td>
<td>276,749</td>
</tr>
<tr>
<td>Nevada</td>
<td>42,335</td>
</tr>
<tr>
<td>Washington</td>
<td>518,103</td>
</tr>
<tr>
<td>Oregon</td>
<td>413,536</td>
</tr>
<tr>
<td>California</td>
<td>1,485,053</td>
</tr>
<tr>
<td>Alaska</td>
<td>63,592</td>
</tr>
<tr>
<td>Hawaii</td>
<td>154,001</td>
</tr>
</tbody>
</table>

**SS Content Standards:** SS5H1/SS4H3; SS5E1/SS4E1
**Information Processing Skills:** # 7, 9, 11, 12
**Math Standards:** SMP #1, 2; MGSE5.NBT.1
### The Census: Comparing Historical Events

<table>
<thead>
<tr>
<th>Midwest Region</th>
<th>Total Population 1850</th>
<th>Total Population: 1900</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5,403,595</td>
<td>26,333,004</td>
</tr>
<tr>
<td>Ohio</td>
<td>1,980,329</td>
<td>4,157,545</td>
</tr>
<tr>
<td>Indiana</td>
<td>988,416</td>
<td>2,516,462</td>
</tr>
<tr>
<td>Illinois</td>
<td>851,470</td>
<td>4,821,550</td>
</tr>
<tr>
<td>Michigan</td>
<td>397,654</td>
<td>2,420,982</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>305,391</td>
<td>2,069,042</td>
</tr>
<tr>
<td>Minnesota</td>
<td>6,077</td>
<td>1,751,394</td>
</tr>
<tr>
<td>Iowa</td>
<td>192,214</td>
<td>2,231,853</td>
</tr>
<tr>
<td>Missouri</td>
<td>682,044</td>
<td>3,106,665</td>
</tr>
<tr>
<td>North Dakota</td>
<td>--</td>
<td>319,146</td>
</tr>
<tr>
<td>South Dakota</td>
<td></td>
<td>401,570</td>
</tr>
<tr>
<td>Nebraska</td>
<td></td>
<td>1,066,300</td>
</tr>
<tr>
<td>Kansas</td>
<td></td>
<td>1,470,495</td>
</tr>
</tbody>
</table>

**SS Content Standards:** SS5H1a, d; SS5G1 & 2; SS5E1

**Information Processing Skills:** #7, 11, 12, 14

**Map and Globe Skills:** #10, 11

**Math Standards:** SMP #1, 2; MGSE5.NBT.1
Signed into law by President Abraham Lincoln on May 20, 1862, the Homestead Act encouraged Western migration by providing settlers 160 acres of public land. In exchange, homesteaders paid a small filing fee and were required to complete five years of continuous residence before receiving ownership of the land. After six months of residency, homesteaders also had the option of purchasing the land from the government for $1.25 per acre. The Homestead Act led to the distribution of 80 million acres of public land by 1900.

This collection contains congressional publications from 1774 to 1875, including debates, bills, laws, and journals.

- The House of Representatives passed the Homestead Act by a vote of 107 to 16 on February 28, 1862.
- The Senate passed the Homestead Act by a vote of 33 to 7 on May 6, 1862.
- The Homestead Act can be found in the United States Statutes at Large, volume 12, page 392 (12 Stat. 392).

Digital Collections
A Century of Lawmaking for a New Nation: U.S. Congressional Documents and Debates, 1774-1875

Immigration
1820-1983

SS Content Standards: SS5H1; SS5E1
Information Processing Skills: # 7, 11, 12, 14
Math Standards: SMP #1, 2; MGSE5.NBT.1
Students’ Favorite Economic Data Resource: [https://www.usdebtclock.org/](https://www.usdebtclock.org/)
Student Engagement:
The Stock Market
Calculating Net Worth

SS Content Standards: SS5H 2b, SS5H3a; SS5E1, SS5E4
Information Processing Skills: # 7, 9, 11, 12
Math Standards: SMP #2, 4; MGSE5.NBT.5

---

### My Accounting Sheet

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Number of Shares</th>
<th>Price Per Share</th>
<th>Total Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>KS</td>
<td>1</td>
<td>$200</td>
<td>$200</td>
</tr>
<tr>
<td>AA</td>
<td>3</td>
<td>$400</td>
<td>$1200</td>
</tr>
<tr>
<td>BBG</td>
<td>4</td>
<td>$100</td>
<td>$400</td>
</tr>
<tr>
<td>BTG</td>
<td>3</td>
<td>$1017</td>
<td>$3051</td>
</tr>
<tr>
<td>BJ</td>
<td>3</td>
<td>$240</td>
<td>$720</td>
</tr>
<tr>
<td>RR</td>
<td>1</td>
<td>$300</td>
<td>$300</td>
</tr>
</tbody>
</table>

**Total Value of All Stocks**: $5801

**Cash**: $260

**Total Value of All Assets**: $6061

---

**LIABILITIES**

Less: Loans Outstanding: $260

$\text{(Assets - Liabilities) = NET WORTH} = \boxed{$5401}$

Net Worth on 2-1-21: **$5749**

Change in Net Worth: **$102 \uparrow**
The Big Cheese

- Incentive: Having your name and net worth posted each week

Crabapple Lane Stock Exchange
As of November 20, 1929

<table>
<thead>
<tr>
<th>Big Cheese</th>
<th>Net Worth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Makinna</td>
<td>$735</td>
</tr>
<tr>
<td>Eva</td>
<td>$734</td>
</tr>
<tr>
<td>Marc</td>
<td>$606</td>
</tr>
<tr>
<td>Keelan</td>
<td>$577</td>
</tr>
<tr>
<td>Ian R</td>
<td>$511</td>
</tr>
<tr>
<td>Ian F</td>
<td>$511</td>
</tr>
</tbody>
</table>

Crabapple Lane Stock Exchange
As of April 26, 1929

<table>
<thead>
<tr>
<th>Big Cheese</th>
<th>Net Worth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alex</td>
<td>$56,300,070</td>
</tr>
<tr>
<td>Ian</td>
<td>$32,909,551</td>
</tr>
<tr>
<td>Marc</td>
<td>$29,203,629</td>
</tr>
<tr>
<td>Makinna</td>
<td>$27,916,186</td>
</tr>
<tr>
<td>Jacob</td>
<td>$27,813,872</td>
</tr>
<tr>
<td>Lauren</td>
<td>$22,001,653</td>
</tr>
<tr>
<td>Abby</td>
<td>$22,801,086</td>
</tr>
<tr>
<td>Olivia</td>
<td>$20,201,673</td>
</tr>
</tbody>
</table>
The Stock Market Crash

### Crabapple Lane Stock Market

**Values as of the close of trading on October 21, 1929**

<table>
<thead>
<tr>
<th>Company</th>
<th>Ticker Symbol</th>
<th>Price Last Week</th>
<th>Price This Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ritzy Teddy Bears</td>
<td>RTB</td>
<td>$2</td>
<td>$2</td>
</tr>
<tr>
<td>Attagirl Coca Cola</td>
<td>ACC</td>
<td>$2</td>
<td>$2</td>
</tr>
<tr>
<td>Bee’s Knees Breezers</td>
<td>BKB</td>
<td>$3</td>
<td>$3</td>
</tr>
<tr>
<td>Hotsh Totsy Helicopters</td>
<td>HTH</td>
<td>$2</td>
<td>$2</td>
</tr>
<tr>
<td>Take a Ride Tommy Guns</td>
<td>TRT</td>
<td>$2</td>
<td>$2</td>
</tr>
<tr>
<td>Berries Bubble Gum</td>
<td>BBG</td>
<td>$2</td>
<td>$2</td>
</tr>
</tbody>
</table>

*Most Heavily Traded Stock: Attagirl Coca Cola*

### Crabapple Lane Industrial Average Weeks 1-15

**Value in Dollars**

<table>
<thead>
<tr>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
<th>Week 5</th>
<th>Week 6</th>
<th>Week 7</th>
<th>Week 8</th>
<th>Week 9</th>
<th>Week 10</th>
<th>Week 11</th>
<th>Week 12</th>
<th>Week 13</th>
<th>Week 14</th>
<th>Week 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,000</td>
<td>2,500</td>
<td>3,000</td>
<td>3,500</td>
<td>4,000</td>
<td>4,500</td>
<td>5,000</td>
<td>5,500</td>
<td>6,000</td>
<td>6,500</td>
<td>7,000</td>
<td>7,500</td>
<td>8,000</td>
<td>8,500</td>
<td></td>
</tr>
</tbody>
</table>

### Crabapple Lane Stock Market

**Values as of the close of trading on March 24, 1925**

**Week 47**

<table>
<thead>
<tr>
<th>Company</th>
<th>Ticker Symbol</th>
<th>Price Last Week</th>
<th>Price Per Share Today</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ritzy Teddy Bears</td>
<td>RTB</td>
<td>$137,500</td>
<td>$287,400</td>
</tr>
<tr>
<td>Attagirl Coca Cola</td>
<td>ACC</td>
<td>$1001</td>
<td>$149,700</td>
</tr>
<tr>
<td>Bee’s Knees Breezers</td>
<td>BKB</td>
<td>$40</td>
<td>$60</td>
</tr>
<tr>
<td>Totally Talkative</td>
<td>TT</td>
<td>$48,000</td>
<td>$150,000</td>
</tr>
<tr>
<td>Hotsh Totsy Helicopters</td>
<td>HTH</td>
<td>$137,500</td>
<td>$287,400</td>
</tr>
<tr>
<td>Take a Ride Tommy Guns</td>
<td>TRT</td>
<td>$100</td>
<td>$10,000</td>
</tr>
<tr>
<td>Berries Bubble Gum</td>
<td>BBG</td>
<td>$56,700</td>
<td>$287,400</td>
</tr>
<tr>
<td>Ducky John’s Paper Company</td>
<td>DJP</td>
<td>$48,000</td>
<td>$150,000</td>
</tr>
</tbody>
</table>

*Most Heavily Traded Stock: Attagirl Coca Cola*

### Crabapple Lane Stock Market

**Values as of the close of trading on May 30, 1929**

**Week 619**

<table>
<thead>
<tr>
<th>Company</th>
<th>Ticker Symbol</th>
<th>Price Last Week</th>
<th>Price Per Share Today</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ritzy Teddy Bears</td>
<td>RTB</td>
<td>$100*</td>
<td>$10</td>
</tr>
<tr>
<td>Attagirl Coca Cola</td>
<td>ACC</td>
<td>$1,000*</td>
<td>$400</td>
</tr>
<tr>
<td>Bee’s Knees Breezers</td>
<td>BKB</td>
<td>$1,000*</td>
<td>$25</td>
</tr>
<tr>
<td>Totally Talkative</td>
<td>TT</td>
<td>$100*</td>
<td>$1</td>
</tr>
<tr>
<td>Hotsh Totsy Helicopters</td>
<td>HTH</td>
<td>$60*</td>
<td>$100</td>
</tr>
<tr>
<td>Take a Ride Tommy Guns</td>
<td>TRT</td>
<td>$120*</td>
<td>$30</td>
</tr>
<tr>
<td>Berries Bubble Gum</td>
<td>BBG</td>
<td>$1,000*</td>
<td>$30</td>
</tr>
<tr>
<td>Ducky John’s Paper Company</td>
<td>DJP</td>
<td>$160*</td>
<td>$100</td>
</tr>
</tbody>
</table>

* Under investigation:

*Most Heavily Traded Stock: Attagirl Coca Cola*

### Car Values

<table>
<thead>
<tr>
<th>Make</th>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model T</td>
<td>$38</td>
<td>Buick</td>
</tr>
<tr>
<td>Duesenberg</td>
<td>$50</td>
<td>Stutz Bearcat</td>
</tr>
</tbody>
</table>
Choose one of the explorers we have studied.

Using the map key, determine the distance travelled by the explorer on one route.

Using the map key, determine the distance across the Atlantic Ocean from Portugal to Florida.

SS Content Standards: SS3H2; SS3G3
Information Processing Skills: #7, 1, 12, 14
Map and Globe Skills: # 5, 10, 11
Math Standards: SMP #1, 2; MGSE5.NBT.1
Civics and Government

► If you were running for president, which state(s) would you want to be sure to win?
► What is the fastest way to get to 270?
► Which states would you be the least likely to visit?
► If you couldn’t count on winning CA, which other states would you target?

SS Content Standards: SS4H2; SS4CG1d
Information Processing Skills: #6, 7, 10, 11
Math Standards: MGSE4.OA.3, MGSE4.NBT.4; SMP # 1, 2
270 to Win
Measuring a Life

My name is Orville Wright
I was born on August 19, 1871
On April 20, 2001 my age is:

In seconds
409,419,3600

In minutes
682,365,600

In hours
113,726,400

In days
4,755,250

In weeks
679,325

In months
153,550

In years
150

In decades
15

In centuries
1.5

SS Content Standard: SS5H1
Information Processing Skill: #13
Math Standards: MGSE5.NBT.5; MGSE5.MD.1; SMP: #1, 2
Thank you for joining us today.

Joy Hatcher  jhatcher@doe.k12.ga.us
Becky Ryckeley  rycckeley.becky@mail.fcboe.org
Sally Meyer  meyer.sally@mail.fcboe.org
Numeracy in social studies: it all adds up

Social Studies Department
Georgia Department of Education