CAR INSURANCE–Constructed Response Item
Barbara Golden, Joliet West High School, Computer Applications II

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BACKGROUND: Most people think that if they live in a big, densely populated city that their car is more likely to be stolen. It's just the opposite … America's busiest metropolitan cities didn't make the "Top 10 Lists" of highest auto theft rates. Even more surprising is that carjacking isn't the preferred method for car thieves. Carjacking only accounts for 3% of all motor vehicle thefts. Only a tiny fraction of the cars stolen were actually carjacked.

Fortunately, car theft rates throughout the U.S. overall are declining. However, in unlikely areas such as Modesto, CA and Laredo, TX, there is a significant increase in car theft.

Overall, California has the highest number of auto thefts in the nation thanks to the city of Modesto, which currently is the #1 spot in the nation for car theft, followed by Los Angeles (#24), San Diego (#4), and San Francisco (#9), all of which helped keep the state of California in the number one spot for auto thefts. The city of Laredo, TX has the second highest number of auto thefts (among cities) in the nation, helping place the state of Texas in the #2 spot for auto theft.

Think about the reasons Laredo and Modesto have higher auto theft rates than cities like New York and Los Angeles? A primary reason is that these cities are located on the U.S.-Mexico border, a pipeline for thieves smuggling drugs, weapons, money, and other things. Thieves use the stolen vehicles from these border towns when committing crimes on both sides of the border. The same holds true for Yakima, Washington–the only far northern state on the list–because Yakima sits on a main road running between Canada and Mexico.

Metropolitan areas, like San Francisco/Oakland/Freemont area and Sacramento, made the list because they offer quick and easy access to freeways. Although Chicago and New York have a high number of motorists, they do not offer quick and easy access to highways.

Rank	Top 10 States–Theft	Top 10 Cities–Theft	Cities–Lowest Theft Levels
1	California	Modesto, CA	Virginia Beach, VA
2	Texas	Laredo, TX	New York, NY
3	Florida	Yakima, WA	Austin, TX
4	Arizona	San Diego/Carlsbad/Modesto, CA	Arlington, TX
5	Michigan	Bakersfield, CA	San Antonio, TX
6	Washington	Stockton, CA	Louisville, KY
7	Georgia	Las Vegas/Paradise, NV	San Jose, CA
8	Illinois	Albuquerque, NM	Wichita, KS
9	Ohio	San Francisco/Oakland/Fremont, CA	Colorado Springs, CO
10	New York	Fresno, CA	Jacksonville, FL

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PROBLEM:

1) Select (circle) the BEST chart format to track car thefts across the country.

    a. Bar   b.   Bubble   c.   Doughnut   d.   Gantt

    e. Histogram   f.   Line   g.   Map   h.   Pie

2) Why is that type of chart the BEST choice to use to "tell your story?" (Use full sentences.)

COMMENTARY:

Students are to review the Car Insurance non-fiction information and, based on the facts, determine which chart format would best track / show car theft locations across the U.S. Students consult information about charts and graphs to review types and their associated uses. One such tool is, *"Which chart or graph is right for you? Tell impactful stories with data."* The URL is
http://www.tableau.com/learn/whitepapers/which-chart-or-graph-is-right-for-you.

SOLUTION:

1)   Map Chart

2)   The Map Chart is the most appropriate choice as areas across the country may be shown. The pattern of car theft would become obvious. The Map Chart viewer would quickly be able to identify the states and regions in which most cars are stolen.

BLOOM'S COGNITIVE PROCESS: 5.2 (Judging/Critiquing under Evaluating)

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Common Core State Standards and NBEA ALIGNMENT:

CC.9-12.S.ID.1	**Summarize, represent, and interpret data on a single count or measurement variable.** Represent data with plots on the real number line (dot plots, histograms, and box plots).
CC.9-12.N.Q.1	**Reason quantitatively and use units to solve problems.** Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.
CC.K-12.MP.4	**Model with mathematics.** Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.
CC.9-10.W.HST.2.a	**Text Types and Purposes:** Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
CC.9-10.R.ST.7	**Integration of Knowledge and Ideas:** Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.
NETS-S	**Students use digital media and environments to** (2B): Communicate information and ideas effectively to multiple audiences using a variety of media and formats.
ESS01.02.06	**Comprehend key elements of oral and written information** such as cause/effect, comparisons/contrasts, conclusions, context, purpose, charts/tables/graphs, evaluation/critiques, mood, persuasive text, sequence, summaries, and technical subject matter.
ESS02.09.01	**Create tables, charts, and figures** to support written and oral communications.

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