COVID SCAVENGER HUNT

College of Charleston Math Meet 2021

Any student may participate in the scavenger hunt. COVID is harming many people across the world. How can understanding math help? You will need to use the internet to answer the following questions. Submissions are due by 2 p.m. on Saturday, Feb. 20, 2021. Only one submission per school is allowed.

Please click on the following google form link to type in your answers:
https://forms.gle/LBQrGrgMNsUfyFJh9
Answers should not contain any commas.

Watch the following video:
https://www.youtube.com/watch?v=Kas0tIxDvrg

Answer questions 1 & 2 based on the video above:

1) In the video above, from the first exponential graph, what is the number being multiplied by the number of reported Coronavirus cases each day? Give answer as a range of values using the format: lower value-upper value.__1.15-1.25__

2) What is the growth factor at the inflection point on the logistic curve? ____1____

Go to the following website at the Centers for Disease Control to answer questions 3-5:

https://data.cdc.gov/Case-Surveillance/United-States-COVID-19-Cases-and-Deaths-by-State-o/9mfq-cb36/data

Click on filter and enter SC under "state is". Look under the column for "new_case" to see the number of new cases.
3) The first recorded cases in SC were on __03/04/20___(enter the date in 2 digit month/2 digit day/2 digit year format).
4) What is the number of new cases in SC recorded on Feb. 14, 2021?__4153___
5) What is the total number of COVID cases as of 2/17/2021 in SC?_492369___

6) Go to the census.gov website and find the current total population of SC as recorded in 2019.__5148714__

7) What percentage of the SC population has tested positive for COVID as of 2/17/2021? Round your answer to the tenths place._9.6___

8) Go to the scdhec.gov website for questions 8-12. Find the total of the first doses received in SC including both the Pfizer and Moderna vaccine. Enter the percentage of the SC population who has received the first dose of either vaccine. Round your answer to the ones place.___10____

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9) Go to https://scdhec.gov/covid19/sc-testing-data-projections-covid-19 website.
   Which county has the highest rate of COVID cases per 100,000 people?_Pickens____

10) Look at the graph of the New Cases per Day for all counties. Are the number of new
    cases per day increasing or decreasing?___Decreasing_____
11) Look at the histogram with the Age of Reported Deaths. Which age group has the most
    deaths? Give answer as a range in the following format: lower value-upper value_75-79
12) Look at the SC Hospital Bed Occupancy. What is the percent of Occupied ICU Beds in
    SC? Round your answer to the ones place._77_____

13) It is currently not fully known if COVID antibodies will provide long lasting immunity.
    In a recent study, it was determined that the half-life of COVID antibodies is 36 days.
    Assuming the initial mean IgG level was 3.48 $\log_{10}$ ng per milliliter, how many days will
    it take before the IgG level is 0.1 $\log_{10}$ ng per milliliter? Round answer to the ones place.
    __184_____

These answers were based on the state of the relevant web sites as of February 19, 2021