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1. PM2.5 particles are one of the most impactful pollutants in terms of negative effects on public health. Why? Select all that apply. 1 / 1 point

- ☒ They are very small and get deep into your lungs and bloodstream.

✔ Correct
Yes! With a diameter of 2.5 microns or smaller, they can get into the deepest parts of your lungs and easily enter your bloodstream.

- ☒ They can contain ash, metals, organic chemicals and other toxins.

✔ Correct
That's right!

- ☒ They are produced in large quantities through the burning of fossil fuels.

✔ Correct
Very true!

1 / 1 point

2. How does measuring air quality relate to addressing the problem of air pollution in a broader sense?

- ☒ It can be used to inform public policy aimed at reducing air pollution.

✔ Correct
Great job!

- ☐ It helps to improve air quality directly.

- ☒ It helps to identify long term trends and quantify the magnitude of the problem.

✔ Correct
Yes!

- ☒ It can be used to inform the public when the air is safe or unsafe.

✔ Correct
Well done!

3. Which of the following are true concerning “modern ambient” air pollution (as distinguished from other types of air pollution)? 1 / 1 point

- ☒ Modern ambient air pollution is on the rise.

✔ Correct
That's right, while policies and practices have been able to reduce air pollution regionally in some areas, overall this type of air pollution is increasing.

- ☒ Deaths due to air pollution are on the rise due, in large part, to an increase in modern ambient air pollution.

✔ Correct
That's right, according to an article published in the Lancet journal (see resources section) the number of deaths due to air pollution is 50% higher today than just 20 years ago.

- ☐ Modern ambient air pollution is declining while indoor air pollution is on the rise.

- ☒ Modern ambient air pollution is outdoor air pollution mostly caused by human activities on scales that affect large populations.

✔ Correct
That's right, and major contributors to modern ambient air pollution are burning fossil fuels for energy, transportation, industry.

4. What is likely to be the most impactful action governments can take to reduce modern ambient air pollution affecting their citizens? 1 / 1 point

- ☒ Enact policies to reduce the consumption of fossil fuels.

- ☐ Launch public awareness campaigns to make citizens aware of the risks of air pollution and actions they can take to protect their health.

- ☐ Invest in technologies that can be used to clean the air and remove pollutants.

✔ Correct
That's right, while burning fossil fuels is not the only source of modern ambient air pollution, it is the biggest, and reducing fossil fuel consumption will directly improve air quality.

5. Go to <https://map.purpleair.com/> or any other air quality site you find online and look at recent measurements from the nearest sensor station to your location. What is the air quality at that station? (there is no wrong answer for this question) 1 / 1 point

- ☐ Green color, clean air!

- ☒ Yellow / orange, it is not good, but not too bad.

- ☐ Red / purple color, the quality of the air is bad.

Feedback
This is not a problem over relatively short periods of time, however for sensitive people there may be a risk after 24 hours of exposure.

6. In your initial exploration of the data, how frequently are the data points recorded at each of the sensor stations (Explore phase videos for the air quality project)? 1 / 1 point

- ☐ Daily .

- ☒ Hourly.

- ☐ Every minute.

- ☐ Every second.

✔ Correct
That's right!

7. What was one interesting takeaway from exploring the distributions of PM2.5 sensor data via histograms and boxplots (Explore phase lab walkthrough videos)? 1 / 1 point

- ☒ The vast majority of data points are at relatively low levels of pollution, while recordings of high levels of pollution are relatively sparse.

- ☐ The vast majority of data points are at very high levels of measured pollution, while recordings of low levels of pollution are relatively sparse.

- ☐ All the sensor stations are reporting the same range and distribution of values.

✔ Correct
Yes, and this means any model will tend to perform better when pollution levels are lower but will be less reliable when pollution is at its worst.

8. Which of the other pollutants is most strongly correlated to PM2.5? (Explore Air Quality videos) 1 / 1 point

- ☐ NO

- ☐ NOX

- ☒ PM10

- ☐ CO2

✔ Correct
That's right, and this makes some intuitive sense as these are just different sizes of particulate matter.

9. What is the approximate percentage of missing data across the various columns of sensor measurement data? 1 / 1 point

- ☐ 1-2%

- ☐ 80-90%

- ☒ 20-30%

✔ Correct
That's right, and this will be a significant issue in any project like this where you're hoping to show estimates of air quality throughout the city in real time.

10. What is the long-term goal of the city of Bogotá with regard to improving air quality in the city? 1 / 1 point

- ☒ To have 70% of the city within the recommended healthy long-term limits for air quality by 2030.

- ☐ To have 100% of the city within the recommended healthy long-term limits for air quality by 2030.

- ☐ To make citizens aware of when it is safe to engage in outdoor activities.

✔ Correct
Yes, the city aims to have the vast majority of citizens breathing clean air but resolving the issue of air quality for all citizens they believe will take longer.