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Period _____ Date _____

5G

Watch the videos and answer the corresponding questions

Could Your Phone Hurt You? Electromagnetic Pollution

- What is the harmful effect of radiation with ultra short wavelengths? (How can it hurt living organisms?)

↳ Can rip electrons out of their atoms, causing burning and genetic damage.

- What is the origin of the question of if adding electromagnetic radiation to our environment is dangerous? (Study and ultimate conclusion)

↳ The study that originated this question was a 1979 study linking living next to power lines to leukemia. This was quickly disproved, but it led to many concerns.

- What did the WHO classify radio frequency fields as being and what does that classification mean?

↳ They classified them as possibly carcinogenic. This means we are just watching and there is no robust facts and proof.

- Based on current science, should you be concerned?

↳ No, you shouldn't be concerned.

- What is the nocebo effect?

↳ It is an effect caused by you perceiving an action to something else causing you to believe that there is a connection. The idea of the connection could possibly end up harming you.

How Dangerous is 5G

- What does 5G stand for and what is the potential speed cap estimate?

↳ 5G stands for fifth generation. The potential speed cap is estimated at 10 gigabits/second.

- What are the two drawbacks of increasing the frequency of a carrier wave?

↳ Two drawbacks include the lessened ability to go through objects, and the range is dramatically decreased.

- What experiment did the Japanese attempt using radio waves in WWII? What methods did they use? What was the result?

↳ They tried to kill a person using radio waves. They used captured animals and used high powered radio waves. They ended up killing the bunny.

Standard	Speed	What was the improvement over the last generation?
1G	2.4 kilobits/sec	
2G	200 kilobits/sec	Introduced texting, digital modulation
3G	42 Megabits/sec	Introduced new frequency bands, system changed to packet switching
4G	700 Megabits/sec	Introduced OFDM, LTE
5G	1800 Megabits/sec	Introduced Massive MIMO, Beam forming

- Where did "text speak" come from?

↳ It originated from the 160 character limit of texts.

- What is OFDM?

↳ It is orthogonal frequency-division multiplexing. It allows us to send far more data

- It costs _____ to get 100 Mbps download speed to 72% of the US Population and 1 Gbps to 55% of the US population? This will require having _____ many base stations built.

↳ It costs \$400 billion. It would require having 13,000,000 base stations

- What is "Beam Forming", what problem does it solve and how does it solve that problem?

↳ It allows the antenna to broadcast to your phone. This allows more people on the same frequency and makes it cheaper for the cell provider companies as they wouldn't need more frequency bands.