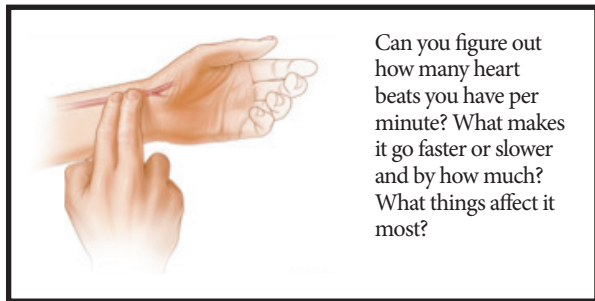


Puzzle #90: Beat that!



Can you figure out how many heart beats you have per minute? What makes it go faster or slower and by how much? What things affect it most?

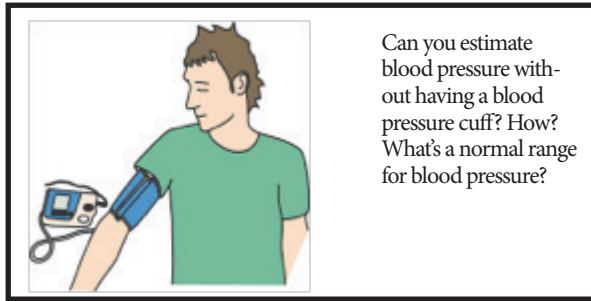
ELEMENTARY

Send any solutions by April 1, 2018, to Moe Benda at mbenda@d.umn.edu.

Best solutions and next puzzle will appear in HTF on April 6, 2018.

MoeZone

Real challenges for people living in the real world



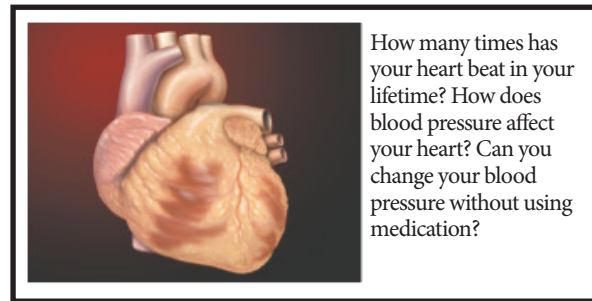
Can you estimate blood pressure without having a blood pressure cuff? How? What's a normal range for blood pressure?

ADVANCED



Be safe!

Can you get hurt?
Can someone else get hurt?



How many times has your heart beat in your lifetime? How does blood pressure affect your heart? Can you change your blood pressure without using medication?

PROFESSIONAL

Moe's quote:

Don't waste your life living someone else's. –Steve Jobs

MoeZone Puzzle #89 solutions: Weather or not!

ELEMENTARY PUZZLE

I love a good snowball fight. What does the weather have to be like to make the best snowballs?

Carrie (9, Hibbing): Wet snow, but not too wet. Usually huge flakes fall and it's also perfect to make snow people! And snow forts!

Moe's note: *Right around 32 degrees. Then you can stay out for a long time, but I usually come inside drenched!*

ADVANCED PUZZLE

I left my soda pop in my mom's car overnight when it was minus 17 degrees outside. Why did the can explode? (Yes, all over the inside of the car. Please don't tell her!!)

Water is pretty cool—especially as it freezes! When it is liquid it takes up far less space than when it is solid ice. Most of us know that H₂O is polar, with the slightly more positive side near the hydrogens and the slightly more negative side on the oxygen. When they are liquid—above 32 degrees—the molecules are moving fast relative to each other and they don't have time or opportunity to get stuck together. As the temperature drops, they start forming a structure where the poles match up; this creates the space and water “expands”—be damned anything in its way. (Note the ironic pun: As anything in its way will be pushed out of the way, i.e., un-dammed!)

Moe's note: *Remember that temperature is a measure of the average kinetic energy—which is all about motion! Oh, and someone told my Mom!! Yikes – I still have more to clean.*

PROFESSIONAL PUZZLE

*This morning it was 4 degrees out.
How can we have freezing rain when it's that cold?*

Somewhere up in the atmosphere, the temperature is above freezing and as the rain falls, it travels through the super-cold air and becomes super cooled. When it finds a surface—like the road or your windshield—it freezes on impact! Usually it is colder as you go higher into the atmosphere if the air is relatively still, but sometimes the weather down near the ground can be colder than above because of weather patterns.