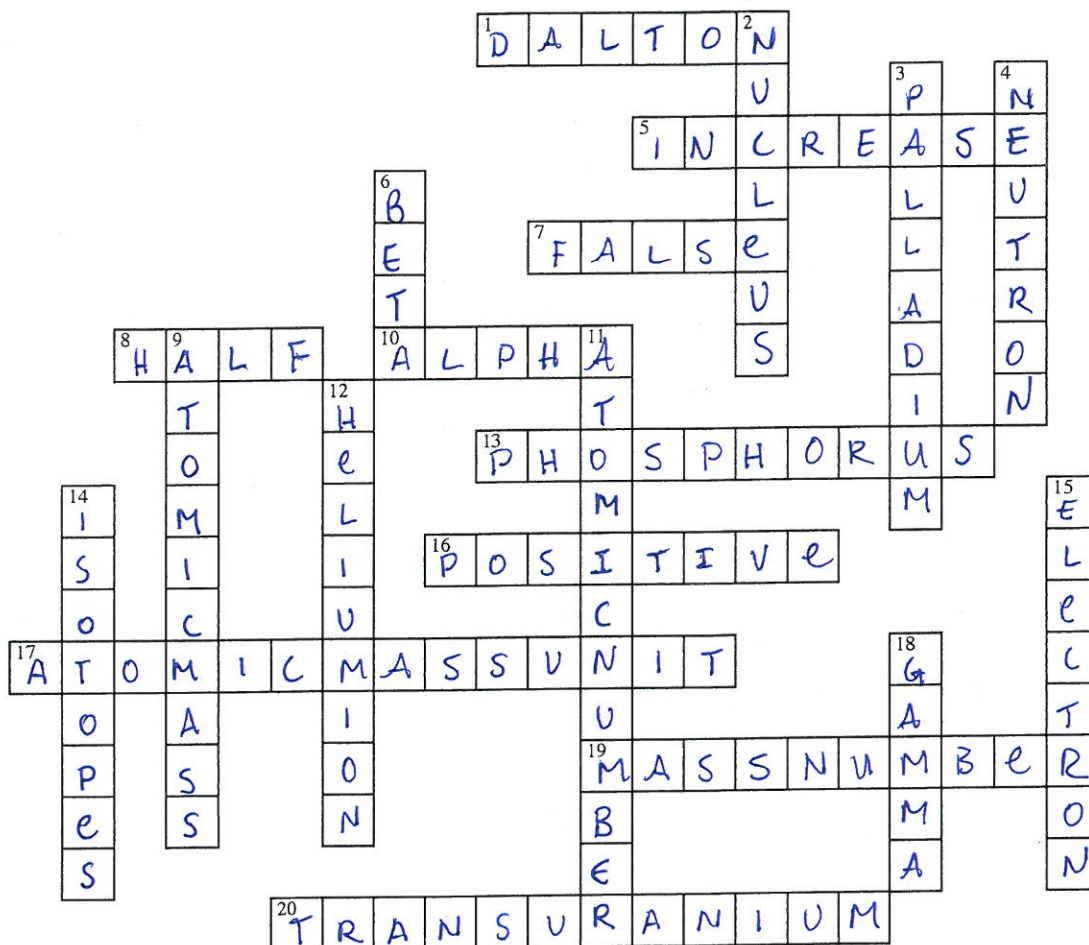


Name STURMAN

key

CH 4/25 PUZZLE

See back for more test review



ACROSS

- 1 Said atoms combine in whole number ratios *Dalton*
- 5 Beta decay causes an increase or decrease of atomic number *Increase*
- 7 Atoms are indivisible (true or false)
- 8 Life/time for one-half of a radioactive sample to decay *Half*
- 10 Radioactive particle that consists of 2 protons and 2 neutrons *Alpha*
- 13 31/symbol with mass number of phosphorus *Phosphorus*
- 16 Charge of the nucleus *positive*
- 17 Based on 1/12th the mass of a carbon-12 atom *atomic mass unit*
- 19 #protons + #neutrons *mass number*

DOWN

- 2 Positively charged and dense part of an atom *nucleus*
- 3 110/isotope that contains 46 protons and 64 neutrons *palladium*
- 4 Neutron subatomic particle *neutron*
- 6 Particle created from a neutron decaying *Beta*
- 9 Weighted average mass of isotopes in a naturally occurring sample *atomic mass*
- 11 If this changes a new element is formed *atomic #*
- 12 Another name for an alpha particle *Helium ion*
- 14 Atoms with #protons not equal to #neutrons *isotopes*
- 15 Major subatomic particle with mass less than 1amu *electron*
- 18 Blocked only by lead or concrete *gamma*
- 20 Elements w/ more than 92 protons

Medicine - radioisotopes short half lives

① Find weighted atomic mass given
 $p^{117} \#23 \quad \#24$

② Dalton's Theory

③ $^{184}_{74}X \rightarrow$ Tungsten $\#p^{+74} \quad \#n^{0}110 \quad \#e^{-74}$

④ Carbon-14 v Carbon-12, what's the difference??

⑤ rel. atomic masses measured in what? amu is not grams

⑥ Nuclear reaction equations

⑦ Half-life sample problem.

After ~~12 yrs.~~ ^{12 min.}, a sample of 10 g polonium only has .625g left. What is the half-life of Po?

$$10g \xrightarrow{\text{1 half life}} 5g \xrightarrow{2} 2.5g \xrightarrow{3} 1.25g \xrightarrow{4} .625g$$

$$12 \div 4 = \boxed{3 \text{ min.}}$$

~~U-238 half-life of 4.5 billion yrs.~~

★ After 13.5 billion yrs a 3 g sample of U-238 has ~~.75g~~ ^{.375g} left.

$$3 \xrightarrow{1} 1.5 \xrightarrow{2} .75g \xrightarrow{3} .375g$$

What's U-238's

$$13.5 \div 3 = 4.5 \text{ billion yrs } \frac{1}{2} \text{ life?}$$