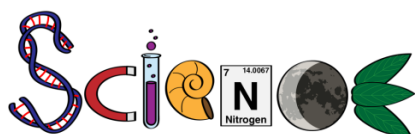


SCIENCE PLANNER: WEEK OF 9.9.19



OBJECTIVES FOR THE WEEK:

Biology : What is a cell and how does it work? Bio.1.1.2 Compare prokaryotic and eukaryotic cells in terms of their general structures (plasma membrane and genetic material) and degree of complexity.

Chemistry: How are electrons arranged in atoms? Chm.1.1.2 Analyze an atom in terms of the location of electrons. Chm.1.1.3 Explain the emission of electromagnetic radiation in spectral form in terms of the Bohr model.

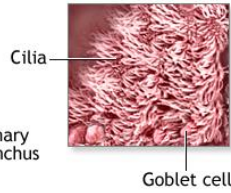
DAILY AGENDA – (SUBJECT TO CHANGE) <https://evanscca.weebly.com/>

DAY	Biology	Chemistry
Mon 9.9	<p>CK12 log in (use your ramsmail or gmail) e71ca</p> <p>Due Wed 9/9 at 4pm: CK12 packet 1 and online modules including quiz(if it were a REAL test, you only get one chance)</p> <p>Due upon return- Test corrections for bench mark.</p> <p>Coming Tuesday 9/10 morning: CK12 packet 2 with instructions and due date.</p> <p>Our CK12 access code= e71ca you will have to start over with a new account if you lost your password.</p>	<p>CK12 log in (use your ramsmail or gmail) 4r8bx</p> <p>Due Wed 9/9 at 4pm: CK12 packet 1 and online modules including quiz(if it were a REAL test, you only get one chance)</p> <p>Due upon return- Test corrections for bench mark.</p> <p>Coming Tuesday 9/10 morning: CK12 packet on periodic table with instructions and due date.</p> <p>Our CK12 access code= 4r8bx you will have to start over with a new account if you lost your password.</p>

Tues 9.10	Finish all CK12 work tonight!	Finish all CK12 work tonight for electrons in atoms and periodic table part 1 (first half).
Wed 9.11	Review Cells packet1 CELL activity! *HW= Color and explain animal cell.	Review electrons in atoms HW= finish CK12 tonight!
Thurs 9.12	CELLS packet 2 -review for test Minilab: Microscope *HW= Study for test	LAB- Emission spectrum https://www.trschools.com/staff/g/cgirtain/webblabs/spectrolab.htm Review first half of periodic table *HW= Study for test
Fri 9.13	Test: Cells part 1	Test- Electrons in atoms and part of the periodic table



Hair-like projections called cilia line the primary bronchus to remove microbes and debris from the interior of the lungs

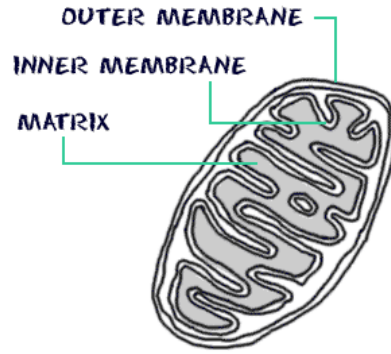


Primary bronchus

Cilia

Goblet cell

ADAM

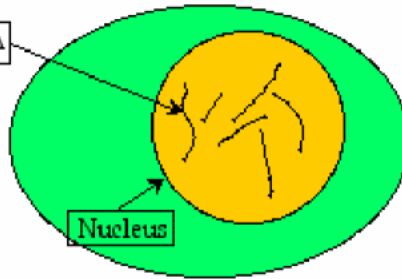


Prokaryote



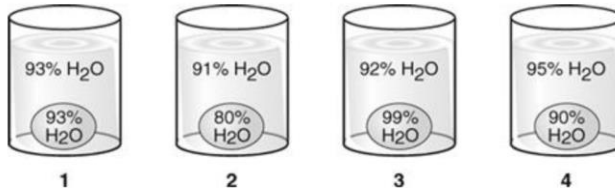
No nucleus
Single loop of DNA

Eukaryote

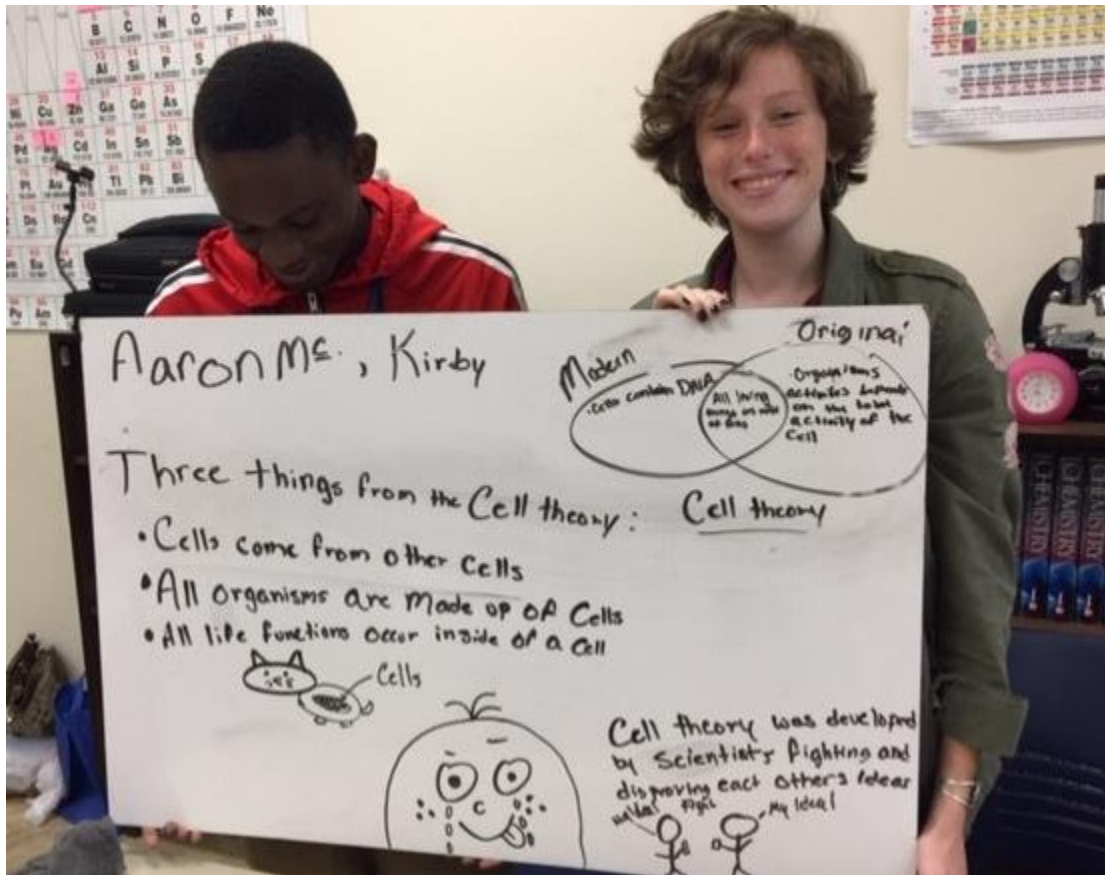
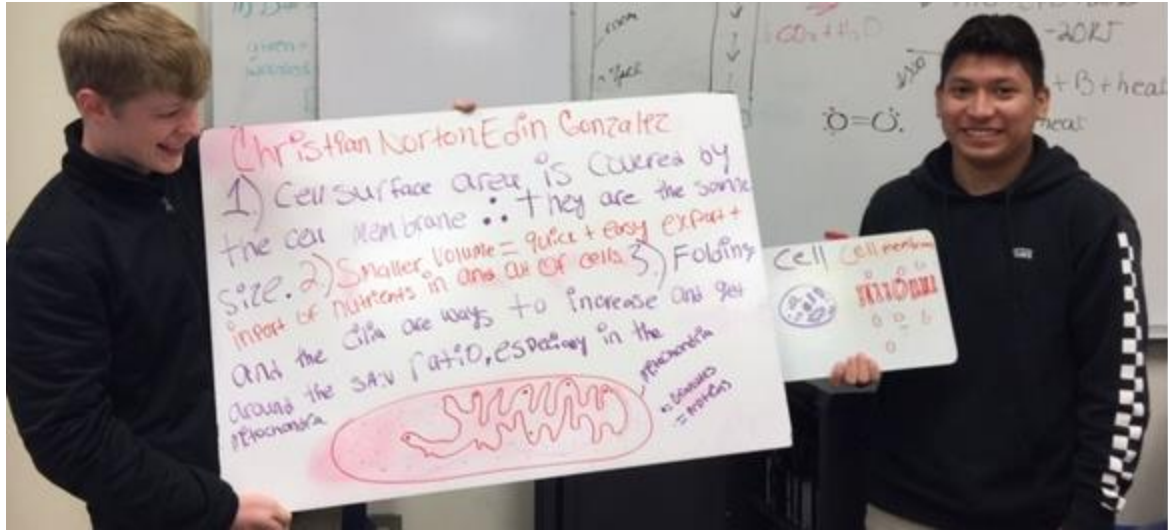


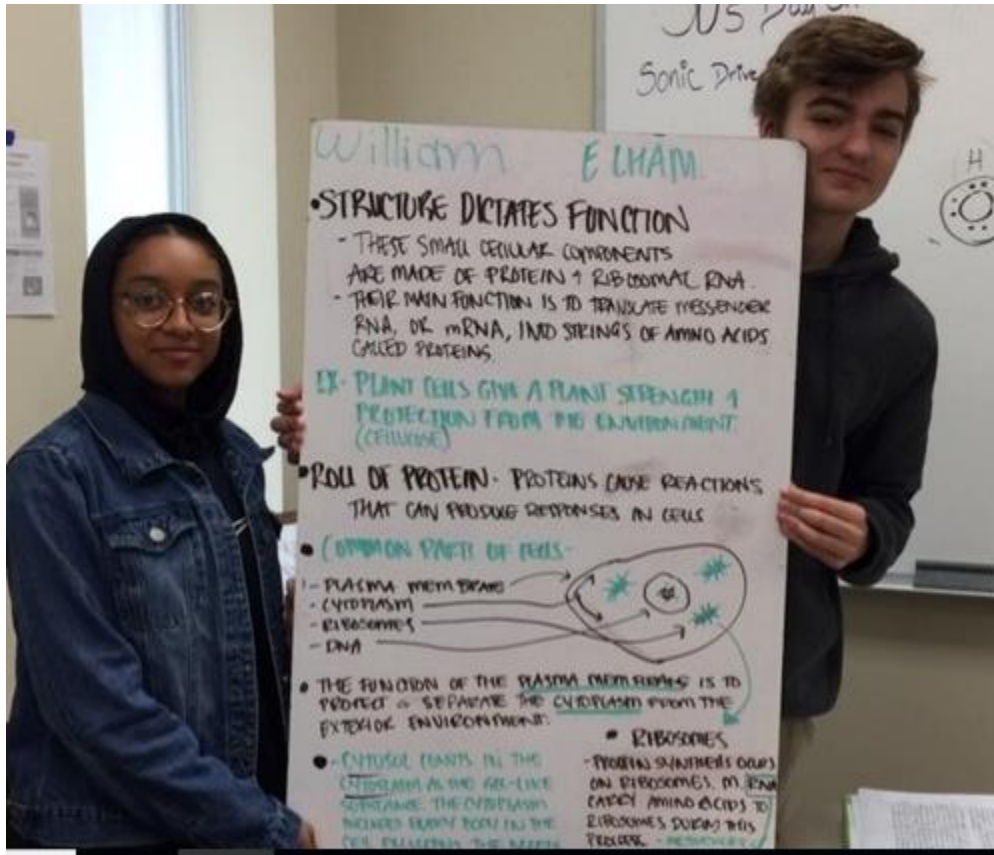
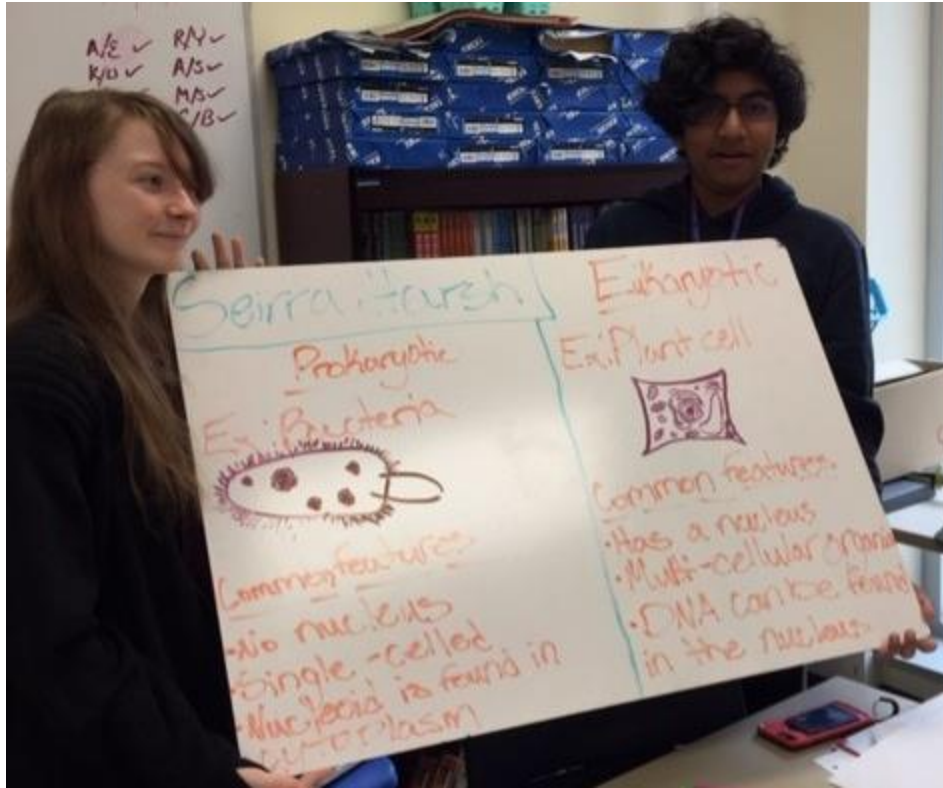
Has a Nucleus with DNA
in non-looped chromosomes

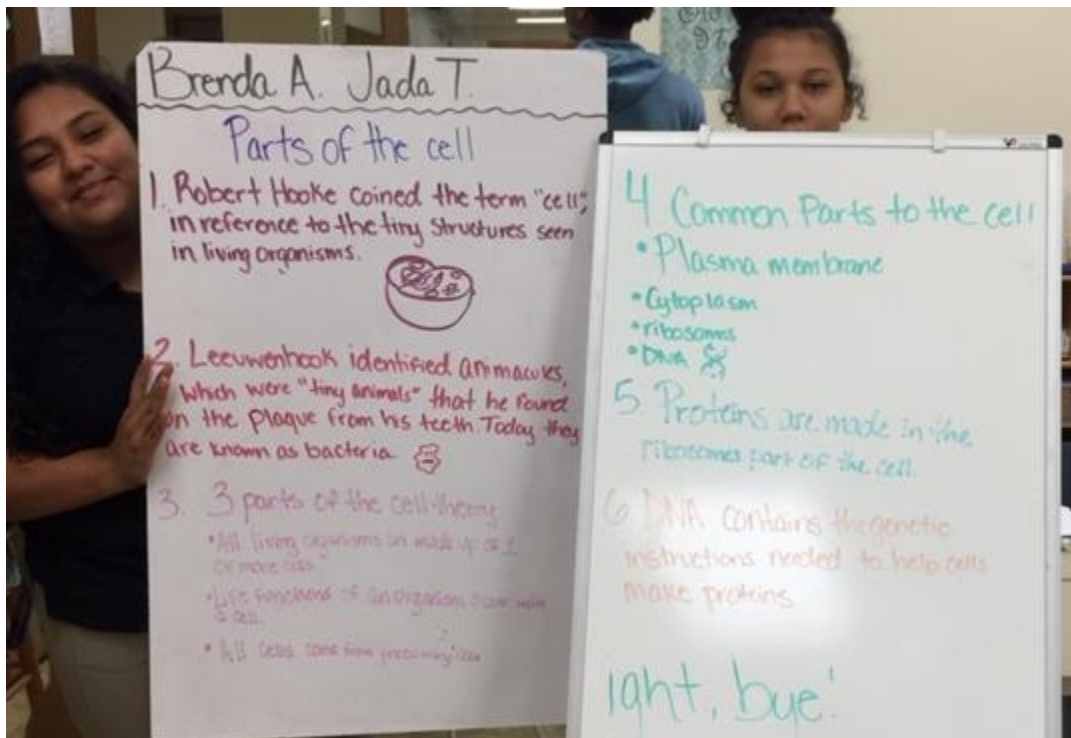
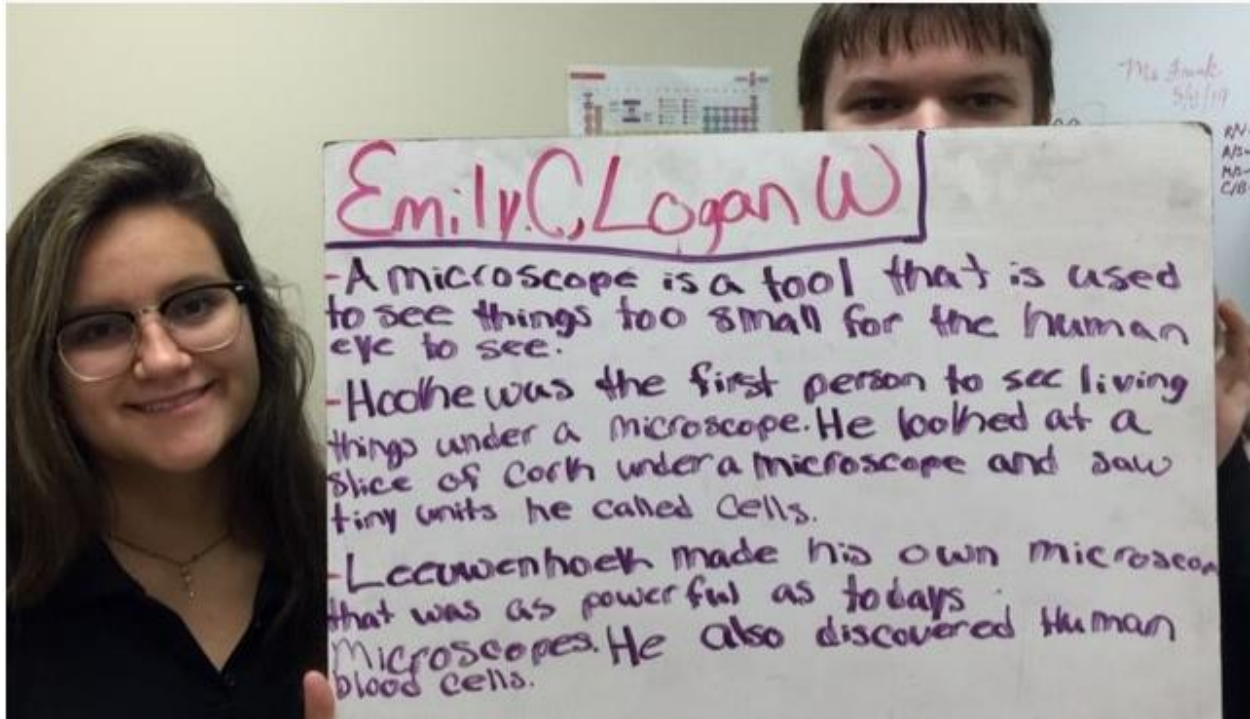
Each beaker shown below contains an amphibian egg collected from one of four different locations.

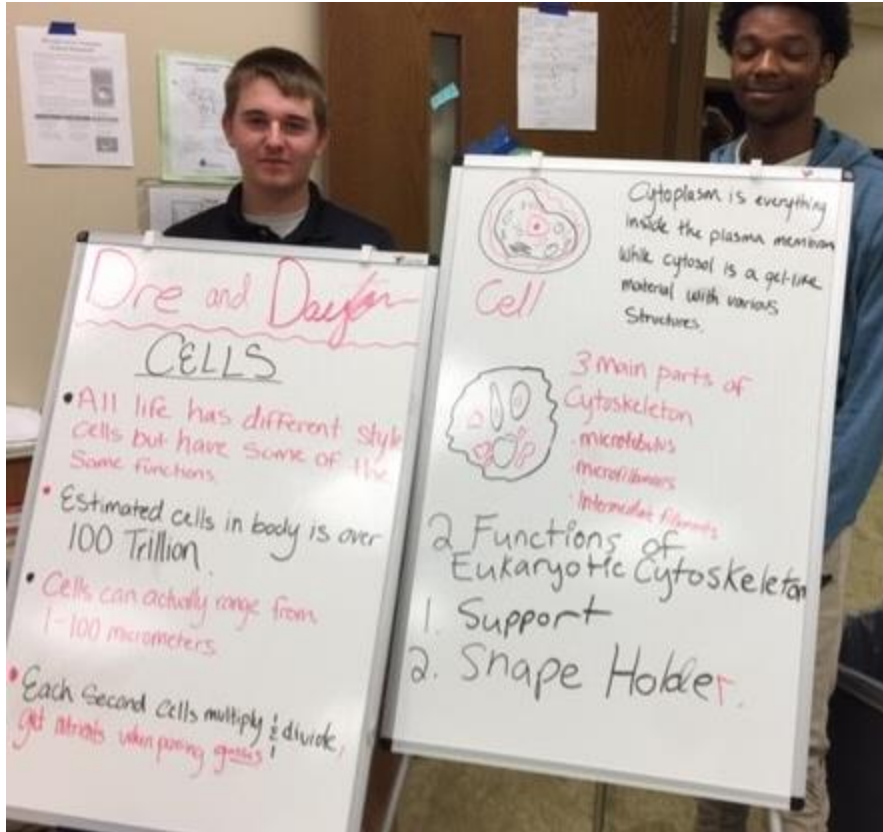


Which of these beakers contains an egg that would shrink?









WARM UP ACTIVITIES – NONE THIS WEEK

MON	LOG in to CK 12
TUES	LOG in to CK 12
WED	Catch up- where are we?
THU	Catch up- Tie up loose ends

FRI**TEST**

46. In the human kidney, urea from the blood is filtered through the glomerular membrane into a nephron. The movement of urea across this membrane occurs without an input of energy. Which factor is the MOST likely reason urea absorption does not require energy? A. a pH imbalance B. a pressure difference C. a temperature increase D. a concentration gradient

Write the unabbreviated electron configurations of the following elements:

- 1) copper $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^9$
- 2) iodine $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^5$
- 3) potassium $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$
- 4) bismuth $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{14} 5d^{10} 6p^3$
- 5) zirconium $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^2$

Write the abbreviated electron configurations of the following elements:

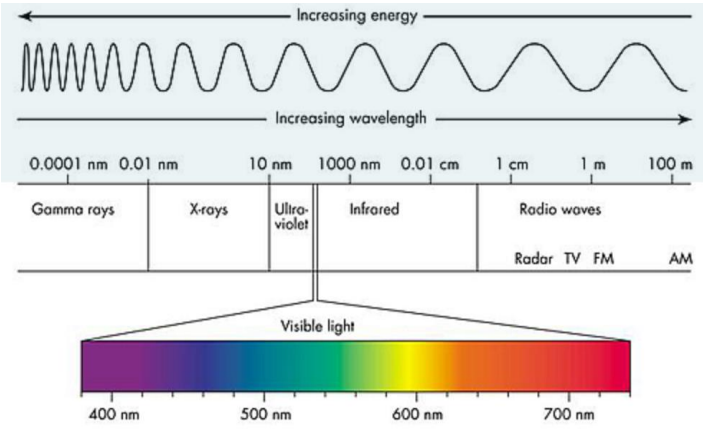
- 6) iridium $[\text{Xe}] 6s^2 4f^{14} 5d^7$
- 7) chlorine $[\text{Ne}] 3s^2 3p^5$
- 8) nobelium $[\text{Rn}] 7s^2 5f^{14}$
- 9) caesium $[\text{Xe}] 6s^1$
- 10) magnesium $[\text{Ne}] 3s^2$

The following electron configurations belong to which elements:

- 21) $1s^2 2s^2 2p^6 3s^1$ **sodium**
- 22) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^6$ **ruthenium**
- 23) $[\text{Kr}] 5s^2 4d^{10}$ **cadmium**
- 24) $[\text{Xe}] 6s^2 4f^{14} 5d^{10} 6p^2$ **lead**
- 25) $[\text{Rn}] 7s^2 5f^{14} 6d^4$ **seaborgium**

Determine if the following electron configurations are correct:

- 26) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 4d^{10} 4p^6 5s^1$ **no, it should be $3d^{10}$**
- 27) $1s^2 2s^2 2p^6 3s^3$ **no, there can only be 2 electrons in an s-orbital**
- 28) $[\text{Rn}] 7s^2 5f^9 6d^2$ **no, 5f shell must be filled before the 6d shell**
- 29) $[\text{Ar}] 5s^2 4d^{10} 5p^5$ **no, the short-cut should be $[\text{Kr}]$, not $[\text{Ar}]$**
- 30) $[\text{Xe}] 6s^2 4f^{10}$ **yes**



**TRANSITION METALS
VERSUS
INNER TRANSITION METALS**

Transition metals are chemical elements that are composed of atoms having unpaired d electrons, even their stable cations have unpaired d electrons	Inner transition metals are chemical elements that have valence electrons in their f orbitals of the penultimate electron shell
In the d block of the periodic table	In the f block of the periodic table
Have atomic numbers ranging from 21 to 112	Have atomic numbers ranging from 57 to 103
Abundant on earth	Less abundant on earth
The most prominent oxidation state is +2	The most prominent oxidation state is +3

Unusual Electron Configurations

Element	Predicted Electron Configuration	Actual Electron Configuration
copper, Cu	[Ar] 3d ⁹ 4s ²	[Ar] 3d ¹⁰ 4s ¹
silver, Ag	[Kr] 4d ⁹ 5s ²	[Kr] 4d ¹⁰ 5s ¹
gold, Au	[Xe] 4f ¹⁴ 5d ⁹ 6s ²	[Xe] 4f ¹⁴ 5d ¹⁰ 6s ¹
palladium, Pd	[Kr] 4d ⁸ 5s ²	[Kr] 4d ¹⁰
chromium, Cr	[Ar] 3d ⁴ 4s ²	[Ar] 3d ⁵ 4s ¹
molybdenum, Mo	[Kr] 4d ⁴ 5s ²	[Kr] 4d ⁵ 5s ¹

BIOLOGY TEST STUDY

The purpose of the Golgi apparatus=package/modify proteins, sometimes add	Post office of the cell	hydrate
cytoskeleton = support and structure & transport of material inside the cell		
The ER (endoplasmic reticulum) = make digestive enzymes for vacuoles AND to a lot for metabolism in muscle and liver cells have a LOT of them!!)		
endoplasmic reticulum and circulatory system in us are similar		
Mitochondrion has cristae inside of it (folded parts to increase surface area)		
NUCLEOLUS makes ribosomal (RNA) to make ribosomes		
ALL cells have a cell membrane, DNA, ribosomes		
What makes prokaryotic DNA different from eukaryotic DNA?		
Glycolysis happens in the cytoplasm then the parts are handed off to mitochondria		
contractile vacuole spits out water for the cell		

Changing pH or heating it breaks the enzyme

Enzymes enable reactions to occur at lower temperatures, less energy is needed.

Kidneys do the following:

Waste removal

Water balance














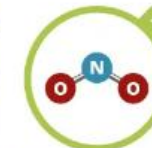







Blood pH

Key A

1	C
2	C
3	C
4	B
5	B
6	D
7	A
8	B
9	D
10	D
11	B
12	D
13	B
14	D
15	A
16	D
17	A
18	D
19	B
20	C
21	C
22	C
23	B
24	A
25	D
26	B
27	D
28	C
29	C
30	D
31	A
32	C
33	B
34	A
35	A
36	A
37	B

POLYATOMIC IONS: NAMES, FORMULAE & CHARGES

A polyatomic ion is a charged species consisting of two or more atoms covalently bonded together. Here's a guide to some of the most common examples!

						
AMMONIUM Formula: NH_4^+	ACETATE Formula: $\text{C}_2\text{H}_3\text{O}_2^-$	CARBONATE Formula: CO_3^{2-}	CHLORATE Formula: ClO_3^-	CHLORITE Formula: ClO_2^-	CHROMATE Formula: CrO_4^{2-}	CYANIDE Formula: CN^-
						
DICHROMATE Formula: $\text{Cr}_2\text{O}_7^{2-}$	HYDROGEN CARBONATE Formula: HCO_3^-	HYDROGEN SULFATE Formula: HSO_4^-	HYDROXIDE Formula: OH^-	HYPOCHLORITE Formula: ClO^-	NITRATE Formula: NO_3^-	NITRITE Formula: NO_2^-
						
PERCHLORATE Formula: ClO_4^-	PERMANGANATE Formula: MnO_4^-	PEROXIDE Formula: O_2^{2-}	PHOSPHATE Formula: PO_4^{3-}	SULFATE Formula: SO_4^{2-}	SULFITE Formula: SO_3^{2-}	THIOSULFATE Formula: $\text{S}_2\text{O}_3^{2-}$