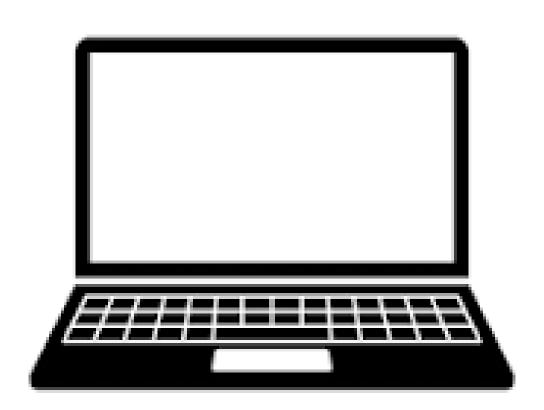
Name:	Hour:	Course: BIOLOGY

Unit 3: The Cell Cycle & Mitosis "The Eukaryotic Cell Cycle & Cancer"

ONLINE STUDY



Directions:

- Go to Canvas and Biology.
- Click on Modules.
- Click on "The Eukaryotic Cell Cycle & Cancer".
- Click the link provided.
- Click through and find the answers to the following questions.





ightarrow CLICK ON THE BACKGROUND TAB ON THE RIGHT SIDE ightarrow

(1) Compare and Contrast reasons CELL DIVISION is important in UNICELLULAR and MULTICELLULAR organisms:

UNICELLULAR Cell Division Only	Both (Similarities)	MULTICELLULAR Cell Division Only

(2) or	Provide an example of why cell division remains important to an adult ganism even after it is fully developed:
(3)	What is the role of GROWTH FACTORS in cell division?
(4)	Cells divide, differentiate, or die. What does "differentiation" mean?
(5)	What is apoptosis? Explain its purpose.
(6) cy	Organisms maintain the right number of cells by regulating the cell cle. What are "cell cycle regulators"?
(7)	What is 1 harmless result of TOO LITTLE cell division?
(8)	What is 1 harmless result of TOO MUCH cell division?



→ CLICK ON THE SECTION OF THE CIRCLE LABELED "CELL CYCLE PHASES" (in the center purple circle, on the right) and use the "OVERVIEW" INFORMATION IN THE WINDOW TO THE LEFT →

(9) List in order, the 4 events we collectively call the "CELL CYCLE"
	Event 1 =
	Event 2 =
	Event 3 =
	Event 4 =
	L voite i

(10) What is the purpose of the Checkpoint in the Cell Cycle?

(11) What is 1 potential outcome when errors occur during the cell cycle?



(15) What is a KINASE, and what does it do?

→ CLICK ON <u>"CELL CYCLE</u> <u>REGULATORS AND CANCER"</u> (in the center purple circle on the right) and then <u>"REGULATORS OVERVIEW"</u> IN THE WINDOW TO THE LEFT →

` '	What type of protein, that regulates the cell cycle, is encoded by roto-oncogenes?
` '	What type of protein that regulates the cell cycle, is encoded by tumor uppressor genes?
(14)	The most important cell cycle regulators are the

(16) When are CDKs present inside the cell during the cell cycle	le?
(17) When are CYCLINS present inside the cell during the cell	cycle?
(18) CDKs form molecular complexes with cyclins. What do ac CDK-CYCLIN COMPLEXES do?	ctivated



ightarrow USE THE <u>CELL CYCLE</u> <u>DIAGRAM</u> ON THE RIGHT (and both links in the center purple circle) ightarrow

(19) What happens during each of the following?

PHASE	What happens during the Phase?	Is there a Checkpoint? What is Checked?
G1		
(S)		
G2		
M		



ightarrow GO TO "CELL CYCLE PHASES" and CLICK ON "INTERPHASE" ightarrow

(20) What happens during Interphase and what phases does it include?



ightarrow GO TO "CELL CYCLE PHASES" and CLICK ON "G0" ightarrow

(21) What is the G0 Phase?

(22) What 3 factors determine if a cell enters G0?



→ CLICK ON <u>"CELL CYCLE</u> <u>REGULATORS AND CANCER"</u> (in the center purple circle on the right) and then <u>"OVERVIEW"</u> IN THE WINDOW TO THE LEFT →

(23) Cancer is an improperly regulated cell cycle. form Tumors:	Name 2 reasons cells can
Reason 1 =	
Reason 2 =	

(24) What causes uncontrolled cell division at the genetic level?

(25) <u>Watch the VIDEO CLIP</u>: At the cellular level in this example, explain what occurs if the APC gene is mutated...



(26) Normally, genes called "proto-oncogenes" stimulate the cell cycle. What do MUTATED "proto-oncogenes" cause?

(27) Normally, tumor suppressor genes inhibit the cell cycle. What do mutated tumor suppressor genes cause?

(28) WATCH THE VIDEO CLIP:

Using the gas pedal analogy, explain the impact on the cell cycle of a proto-oncogene vs an oncogene...



(29) Using the brake pedal analogy, explain the impact on the cell cycle of 1 mutated tumor suppressor gene allele, versus 2 mutated tumor suppressor alleles...