

UNIT 3 & 4: CELL STRUCTURES & FUNCTIONS

1. What are the two main types of cells?

2. What is the only example of a prokaryotic cell?

3. What makes a prokaryotic cell different from a eukaryotic cell?

4. Where is DNA located in a prokaryotic cell?

5. Draw and label a bacteria

6. Give examples of eukaryotic cells.

7. Where is DNA located in a eukaryotic cell?

8. Draw and label a typical animal cell.

9. Which cells might need...

a. more mitochondria?

b. a flagella for movement?

10. What is a stem cell?

11. How does a stem cell become differentiated?

12. List the two types of stem cells.

13 Fill in the following chart:

Organelle	Function	Found in... (bacteria, plant, animal)
Plasma membrane		
Cell wall		
Nucleus		
Cytoplasm		
Ribosome		
ER		
Golgi		
Mitochondria		
Vacuole		
Chloroplast		
Centriole		

14. What are the functions of the plasma membrane?

15. Describe the structure of the plasma membrane.

16. Draw and label the plasma membrane.

17. List the function of proteins found in the membrane.

18. How do cells recognize each other?

19. What is all cellular transport based on?

20. Fill in the following chart:

	Passive Transport	Active Transport
Which direction do particles move?		
Is energy required?		
Is equilibrium reached?		
Example:		

21. Compare and contrast diffusion and osmosis.

22. Fill in the following chart:

	HypOtonic	Hypertonic	Isotonic
Where is there a higher conc. of solutes?			
Where is there a higher conc. of water?			
Which direction will the water move?			
What will happen to the cell?			
Example:			

23. Fill in the following chart:

	Photosynthesis	Aerobic Cell Respiration	Anaerobic Cell Respiration
Write equation:			
What is needed for this reaction to occur?			
What is the goal of this process?			
What is/are the waste products?			
Who undergoes this reaction?			
Organelle where this reaction takes place?			

24. List three factors that affect the rate of photosynthesis.

25. Which process produced the most amount of energy?

26. What is ATP?

27. Where is ATP made?

28. What process produces ATP?

29. How is energy used from ATP?

30. How is energy stored in ATP?

31. List one process where ATP is required.

32. What is the cell cycle?

33. Describe what happens in each of the stages of the cell cycle:

a. G₁

b. S

c. G₂

d. Mitosis

e. Cytokinesis

34. Why is it important for DNA replication to occur prior to cell division?

35. Summarize the steps of DNA replication.

36. What is the final product of DNA replication?

37. What is the relationship between chromatin and chromosomes?

38. What is the relationship between a doubled chromosome and a chromatid?

39. Summarize & draw each phase of mitosis.

a. prophase

b. metaphase

c. anaphase

d. telophase

40. Why is cytokinesis important?

41. What is the purpose of mitosis in each of the following?

a. unicellular organisms:

b. multicellular organisms:

42. What causes the formation of tumors?