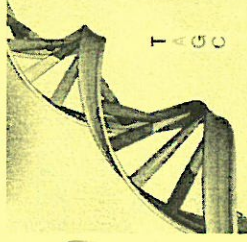


Name key
Date _____

Blk: _____

197



Biology Key Terms

These are the vocabulary words that you should know for your final exam.

Chapter 4

chromosome
DNA
endoplasmic reticulum
enzyme
gene
gene mutation
gene therapy
golgi body
hormone
mitochondrion
mutagen
negative mutation
neutral mutation
nucleolus
nucleus
positive mutation
protein
ribosome

Chapter 5

asexual reproduction
binary fission
budding
cancer
cell cycle
clone
cytokinesis
fragmentation
interphase
mitosis
DNA replication
spindle fibres
spore formation
stem cell
vegetative reproduction

Chapter 6

diploid number
egg
embryo
external fertilization
fertilization
gametes
genetic diversity
haploid number
homologous
chromosomes
internal fertilization
meiosis
sperm
sexual reproduction
zygote

Biology Key Concepts

These are the main ideas from Biology. Fill-in-the-blanks to complete.

Chapter 4: The nucleus

- Chromosomes found within the nucleus contain the genes that store the information to make proteins. Humans have 23 pairs of chromosomes for a total of 46 chromosomes. (4.1)
- Proteins control the activities of cells. (4.1)
- DNA is the molecule that carries genetic information (4.1)
- ribosomes make proteins, which can be used in the cell or sent out of the cell as hormones (chemical messengers) or enzymes (speed up chemical reactions) (4.1)
- A gene mutation is a change in the order of the A, G, C, and T bases. (4.2)
- Gene mutations, caused by mutagens, can have a positive, negative, or neutral effect on the individual. (4.2)
- Gene therapy attempts to correct gene mutations. (4.2)

Chapter 5: Mitosis and asexual reproduction

- There are three stages to the cell cycle: Interphase, mitosis and cytobinesis. (5.1)
- There are 4 phases to mitosis:
prophase --> metaphase --> anaphase --> telophase
- Mitosis creates cells that are identical to each other and the mother cell. (5.1)

123

- Checkpoint proteins instruct the nucleus whether to proceed through the cell cycle. And an error in one of these proteins can cause diseases such as Cancer, which is the result of uncontrolled cell division. (5.1)
- Asexual reproduction requires only 1 parent, and the resulting offspring are genetically identical to the parent. (5.2)
- Types of asexual reproduction include: (5.2)
 - binary fission
 - budding
 - vegetative reproduction
 - fragmentation
 - spore formation
- Human-assisted plant and animal cloning methods can be used to save the genetic information of endangered species or to produce an organism with a desired trait. (5.2)

Chapter 6: Meiosis and sexual reproduction

- Meiosis produces specialized sex cells called gametes that have half the number of chromosomes as body cells.
- human sperm has 23 chromosomes and eggs have 23 chromosomes (6.1)
- The process of meiosis creates genetic diversity in organisms because genetic information is shuffled during meiosis. I. (6.1)
- Chromosomal mutations can occur during meiosis and can cause genetic disorders. (6.1)
- The three stages of sexual reproduction are:
 - mating → fertilization → development (6.2)
- For sexually reproducing plants and animals, there are two ways for a sperm cell and an egg cell to meet—through either internal or external fertilization. (6.2)
- There are advantages and disadvantage for sexual and asexual reproduction (6.2)
- The early development of an organism takes place during a stage called embryonic development. (6.2)
- Assisted reproductive technologies enable infertile couples to have children. (6.3)

Matching

- | | | |
|--------------|-----------------------|----------------------------------------------------|
| 1. <u>M</u> | golgi body | A. sperm & egg |
| 2. <u>D</u> | nucleus | B. transportation network of a cell |
| 3. <u>H</u> | mitochondrion | C. stage of development after the zygote phase |
| 4. <u>L</u> | nucleolus | D. the control center of the cell |
| 5. <u>N</u> | haploid | E. protein factories of the cell |
| 6. <u>G</u> | zygote | F. a pair of matching chromosomes |
| 7. <u>A</u> | gametes | G. a fertilized egg |
| 8. <u>K</u> | fetus | H. change glucose into useable energy for the cell |
| 9. <u>F</u> | homologous chromosome | I. cells that can become any body cell |
| 10. <u>C</u> | embryo | J. two sets of chromosomes |
| 11. <u>I</u> | embryonic stem cell | K. stage that follows embryonic development |
| 12. <u>J</u> | diploid | L. found inside the nucleus and makes ribosomes |
| 13. <u>B</u> | endoplasmic reticulum | M. sorts and packages proteins for transport |
| 14. <u>E</u> | ribosome | N. one set of chromosomes |

Complete the base pairs for the following:

A C C T G A G T T C G C A T A G
 T G G A C T C A A G C G T A T C

131

Match the Statements on the left with the correct Phase on the right.
Each Phase may be used more than once.

Statement	Phase
1. DNA replicates	A. cytokinesis
2. cell grows	B. prophase
3. chromosomes become visible	C. metaphase
4. spindle fibres begin to form	D. anaphase
5. centriomeres divide	E. telophase
6. chromosomes form a line across the middle of the cell	F. interphase
7. replicated strands move toward opposite poles	
8. nuclear membrane forms around each set of chromosomes	
9. separates the two nuclei & cell contents into two daughter cells	
10. nucleolus appears within each new nucleus	

F

F

B

B

D

C

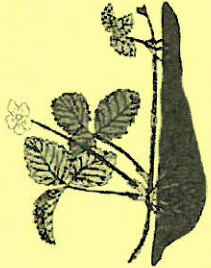
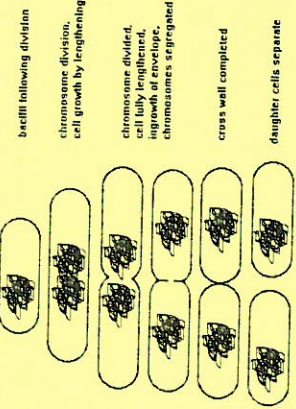
D

E

A

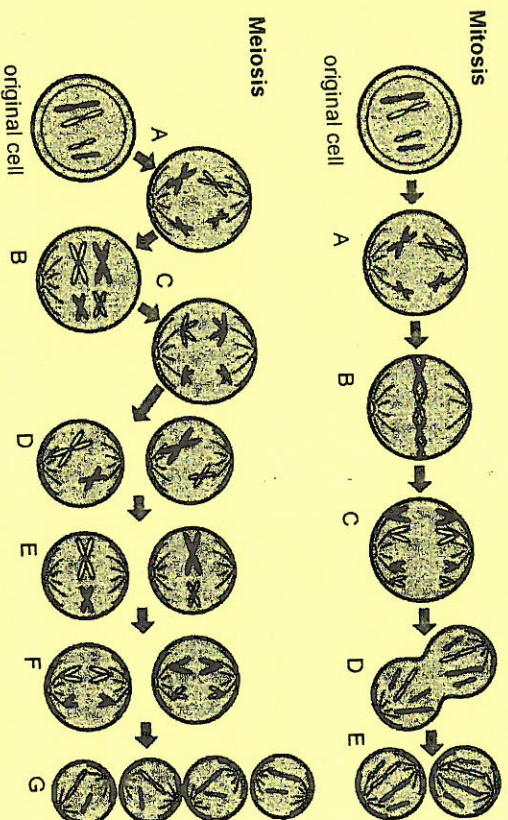
E

Methods of Asexual Reproduction

	
<p>Method: Budding</p> <p>Description:</p>	<p>Method: Fragmentation</p> <p>Description:</p>
	
<p>Method: Vegetative</p> <p>Description:</p>	<p>Method: Spore Formation</p> <p>Description:</p>
<p>Binary Fission</p> 	<p>Method: Binary Fission</p> <p>Description:</p>

Goal • Review your understanding of mitosis and meiosis.

Match each of the following descriptions with the corresponding event depicted in the diagram below. Write the correct letter in each blank.



- E 1. Chromatids are still joined in meiosis, but not in mitosis.
- C+F 2. Chromatids separate.
- A+D 3. Chromosomes double in both mitosis and meiosis.
- E 4. Mitosis is complete, but another division is about to take place in meiosis. The chromosomes line up along the centre of the cell.
- E+G 5. In meiosis, the chromosomes separate but chromatids remain joined. In mitosis, chromatids separate.
- B 6. Chromosomes line up in pairs in meiosis but not in mitosis.
- G 7. End products of meiosis

8. Use "haploid" and "diploid" to compare the end products of meiosis with the end products of mitosis. How do they differ?

in meiosis the cells produce have half as many as in the process of mitosis as many are called haploid cells produced by meiosis are called haploid
These by mitosis are diploid
 Read the statements given below. If the statement is true, write "T" on the line in front of the statement. If it is false, write "F" and rewrite the statement by changing the underlined word(s) to make it true.

- F 1. Gametes have twice as many chromosomes as other cells. half as many
- T 2. Zygotes are produced by the union of sperm and egg cells.
- T 3. Meiosis may form egg cells.
- F 4. Gametes are formed during mitosis. Body cells
- T 5. Four new cells are formed from each parent cell in meiosis.
- F 6. There are two cell divisions during mitosis.
- T 7. Haploid refers to the gametes of a cell with only one set of chromosomes.
- T 8. If a cell with six chromosomes undergoes mitosis, each new cell will also have six chromosomes.