

BIOLOGY FLASHCARDS

USE 3 X 5 INDEX CARDS. ALWAYS # YOUR CARDS AND HAVE A SEPARATE NAME CARD WITH YOUR FIRST AND LAST NAME AND THE TITLE OF THE CARDS ON THE FRONT (NOTHING ON THE BACK OF THIS CARD). WRITE QUESTION ON ONE SIDE OF CARD, ANSWER ON THE OTHER SIDE OF THE CARD.

EX: OF FRONT OF NAME CARD:

YOUR NAME (FIRST AND
LAST)

TITLE OF CARDS (EX:
SCIENTIFIC
INVESTIGATIONS)

SCIENTIFIC INVESTIGATIONS (19 CARDS +1 NAME CARD =20 CARDS) DUE: _____

1. Q: What is the first thing to do if something goes wrong in the lab?
A: Tell the teacher.
2. Q: How should you properly smell a chemical?
A: Waft it.
3. Q: If a chemical is flammable, what should it NOT be around?
A: Fire/flames
4. Q: What is the inactive substance used as a control?
A: placebo
5. Q: What is a testable, possible explanation for a set of observations?
A: hypothesis
6. Q: What variable is placed on the x axis when graphing, known as the manipulated variable, and is the variable that a scientist purposely changes?
A: independent variable
7. Q: What variable is placed on the y axis when graphing, known as the responding variable, and is the variable that scientists want to observe?
A: dependent variable
8. Q: What variable is purposely kept the same, or constant, in an experiment?
A: control variable
9. Q: What describes a well-tested explanation for a range of phenomena?
A: theory
10. Q: What is the dress code for lab?
A: Wear an apron, gloves, safety goggles, tie back long hair, no loose items, and wear closed toed shoes.
11. Q: What lab equipment can be used for measuring volume in Liters?
A: graduated cylinder, pipette
12. Q: What lab equipment can be used for measuring mass in grams?
A: triple beam balance
13. Q: What lab equipment can be used for measuring length in meters?
A: ruler, meter stick
14. Q: What lab equipment can be used for measuring temperature in Celsius?
A: thermometer

15. Q: What lab equipment is used for magnifying objects that cannot be seen with the naked eye?
A: compound light microscope
16. Q: What type of experiment is done when only one variable is changed at a time?
A: controlled experiment
17. Q: What group in an experiment is exposed to the same conditions except for the independent variable?
A: control group
18. Q: What group in an experiment receives the independent variable that is being tested?
A: experimental group
19. Q: When reading liquid in a graduated cylinder, what is the curved surface of the liquid?
A: meniscus

CELLS AS A SYSTEM (39 CARDS + 1 NAME CARD = 40 TOTAL CARDS) DUE DATE: ____

1. Q: What are the 4 major groups of organic compounds?
A: carbohydrates, lipids, proteins, nucleic acids
2. Q: What suffix indicates a sugar?
A: -ose
3. Q: What organic compound includes sugar?
A: carbohydrates
4. Q: What is the monomer of a polysaccharide (complex carbohydrates)?
A: glucose (monosaccharide, sugar)
5. Q: What polysaccharide forms the cell walls of plants?
A: cellulose
6. Q: What elements and ratio of them are found in a carbohydrate?
A: carbon, hydrogen, oxygen in a 1:2:1 ratio
7. Q: What organic compound includes fats, waxes, steroids, cholesterol?
A: lipids
8. Q: What are the monomers of a lipid?
A: glycerol and fatty acids
9. Q: What is the monomer of a protein?
A: amino acids
10. Q: What proteins are used to speed up chemical reactions?
A: enzymes
11. Q: What are the reactants in an enzyme-catalyzed reaction?
A: substrates
12. Q: What is the location on the enzyme where the substrate attaches?
A: active site
13. Q: What is the monomer of a nucleic acid?
A: nucleotides
14. Q: What are the 3 parts of a nucleotide?
A: 5-carbon sugar, nitrogen base, phosphate group

15. Q: What type of cell contains a nucleus with DNA and membrane-bound organelles?
A: eukaryote
16. Q: What type of cell has its DNA located in the cytoplasm and does not have membrane-bound organelles?
A: prokaryote
17. Q: What is the jelly-like substance in the interior of the cell?
A: cytoplasm
18. Q: Who contributed to the cell theory by concluding that all plants are made of cells?
A: Matthias Schleiden
19. Q: Who contributed to the cell theory by concluding that all animals are made of cells?
A: Theodor Schwann
20. Q: Who contributed to the cell theory by publishing the idea that new cells can be produced only from the division of existing cells?
A: Rudolph Virchow
21. Q: What cell part makes proteins?
A: ribosomes
22. Q: What organelle, containing ribosomes on its surface, chemically modifies proteins?
A: rough endoplasmic reticulum (ER)
23. Q: What organelle, without ribosomes on its surface, makes lipids and detoxifies drugs?
A: smooth endoplasmic reticulum (ER)
24. Q: What organelle modifies, sorts, and packages proteins?
A: Golgi apparatus (body, complex)
25. Q: What organelle, larger in plant cells, stores water, salts, proteins, and carbohydrates?
A: vacuole
26. Q: What organelle, containing enzymes, breaks down lipids, carbohydrates, and proteins?
A: lysosomes
27. Q: What cell part consists of a network of proteins filaments to help maintain the shape of a cell and are involved in movement, both inside and outside of the cell?
A: cytoskeleton
28. Q: What organelle, found in plant cells, captures energy from the sunlight and converts it into chemical energy stored in food during photosynthesis?
A: chloroplast
29. Q: What organelle converts chemical energy stored in food molecules into compounds during cellular respiration?
A: mitochondria
30. Q: What is a state of constant internal physical and chemical conditions, "balance"?
A: homeostasis

31. Q: What property of cell membranes allows only certain materials to pass through?
A: selectively permeable/semipermeable
32. Q: What is the movement of molecules from low to high concentration that requires energy?
A: active transport
33. Q: What is the movement of molecules from high to low concentration that do not require energy?
A: passive transport
34. Q: In osmosis, what term refers to when two solutions have the same strength?
A: isotonic
35. Q: In osmosis, what term refers to when a solution has a greater concentration of solutes?
A: hypertonic
36. Q: In osmosis, what term refers to when the solution has a lesser concentration of solutes?
A: hypotonic
37. Q: What is a disorder in which body cells lose the ability to control growth?
A: cancer
38. Q: What process enables cells to become specialized, according to location of their development?
A: cell differentiation
39. Q: What cells are unspecialized cells from which differentiated cells develop?
A: stem cells

ENERGY TRANSFER (19 CARDS + 1 NAME CARD = 20 CARDS) DUE: _____

1. Q: What is the energy of the cell?
A: ATP (adenosine triphosphate)
2. Q: What are the reactants of photosynthesis?
A: carbon dioxide, water, sunlight
3. Q: What are the products of cellular respiration?
A: carbon dioxide, water, ATP
4. Q: What are the reactants of cellular respiration?
A: oxygen, glucose
5. Q: What are the products of photosynthesis?
A: oxygen, glucose
6. Q: What structures make up ATP?
A: adenine, ribose, 3 phosphate groups
7. Q: What is the green pigment in plants, used to capture energy in sunlight in chloroplasts?
A: chlorophyll
8. Q: What is the 1st set of reactions in photosynthesis, occurring in the thylakoid, and require light.
A: light-dependent reactions

9. Q: What is the 2nd set of reactions in photosynthesis, occurring in the stroma, and are used to produce sugar?
A: light-independent reactions
10. Q: What 3 factors affect photosynthesis?
A: temperature, light, water
11. Q: What is pathway of cellular respiration that requires oxygen?
A: aerobic
12. Q: What is a pathway of cellular respiration that does not require oxygen?
A: anaerobic
13. Q: What is the 1st reaction of cellular respiration that occurs in the cytoplasm, is anaerobic, and splits glucose?
A: glycolysis
14. Q: What is the 2nd reaction of cellular respiration produces carbon dioxide?
A: Krebs cycle (citric acid cycle)
15. Q: What is the 3rd reaction of cellular respiration that produces the majority of ATP?
A: electron transport chain (system, ETS)
16. Q: How many ATP molecules are produced from cellular respiration?
A: 36
17. Q: What anaerobic process occurs using yeast, producing alcohol and carbon dioxide?
A: alcoholic fermentation
18. Q: What anaerobic process occurs in human muscles, producing lactic acid?
A: lactic acid fermentation
19. Q: Where does anaerobic respiration vs. aerobic respiration occur?
A: cytoplasm vs. mitochondria

REPRODUCTION AND HEREDITY (39 CARDS + 1 NAME CARD= 40 TOTAL CARDS)

DUE:

1. Q: What type of cell division produces 2 genetically identical diploid daughter cells?
A: mitosis
2. Q: What type of cell division produces 4 genetically different haploid gametes?
A: meiosis
3. Q: What is the division of the cytoplasm?
A: cytokinesis
4. Q: What error in meiosis causes disorders that result from chromosomal abnormalities?
A: nondisjunction
5. Q: How many chromosomes are found in a normal human body cell?
A: 46
6. Q: What is the sugar in DNA?
A: deoxyribose
7. Q: What is the sugar in RNA?

- A: ribose
8. Q: What is the nitrogen base found in DNA, but not in RNA?
A: thymine
9. Q: What is the nitrogen base found in RNA, but not in DNA?
A: uracil
10. Q: What is an organism's appearance/physical characteristics referred to in genetics?
A: phenotype
11. Q: What is the genetic make up of an organism?
A: genotype
12. Q: What is the term for sex cells, like egg and sperm?
A: gametes
13. Q: What term refers to having two identical alleles for a particular gene?
A: homozygous (pure)
14. Q: What term refers to having two different alleles for the same gene?
A: heterozygous (hybrid)
15. Q: What type of inheritance occurs when one allele is not completely dominant over another and heterozygous individuals have an intermediate phenotype?
A: incomplete dominance
16. Q: What is a cell with two sets of homologous chromosomes called?
A: diploid (2n)
17. Q: What is a cell with a single set of chromosomes called?
A: haploid (n)
18. Q: What type of inheritance primarily affects males?
A: sex-linked (X-linked)
19. Q: What is the synthesis of mRNA from a DNA template?
A: transcription
20. Q: What is the synthesis of a protein from mRNA?
A: translation
21. Q: What is the total # of chromosomes in each normal human somatic cell?
A: 46
22. Q: What is the total # of chromosomes in each normal human gamete?
A: 23
23. Q: What is used to determine if a person has extra or missing chromosomes?
A: karyotype
24. Q: What process separates DNA into fragments, based on length, to create a DNA fingerprint?
A: gel electrophoresis
25. Q: What diagram is used to trace a trait through a family?
A: pedigree
26. Q: What is a change in DNA?
A: mutation

27. Q: What error in meiosis occurs when homologous chromosomes fail to separate properly, causing disorders of missing/too many chromosomes?
A: nondisjunction
28. Q: What chromosomes determine a person's gender?
A: sex chromosomes (23rd pair)
29. Q: What chromosomes are not associated with a person's gender?
A: autosomes (pairs 1-22)
30. Q: What are the sex chromosomes of a normal human male?
A: XY
31. Q: What are the sex chromosomes of a normal human female?
A: XX
32. Q: What disorder is caused by nondisjunction, and has an extra chromosome 21?
A: Down syndrome (trisomy 21)
33. Q: What disorder, caused by nondisjunction, is missing a sex chromosome, and affects females?
A: Turner syndrome (monosomy 23, XO)
34. Q: What disorder, caused by nondisjunction, affects males, and has sex chromosomes XXY?
A: Klinefelter syndrome
35. Q: What type of inheritance occurs when the phenotypes produced by both alleles are clearly expressed?
A: codominance
36. Q: What inheritance is shown when a gene has more than two alleles?
A: multiple alleles
37. Q: What principle states that genes for different traits can segregate independently during the formation of gametes?
A: independent assortment
38. Q: What is the name of reproductive, or sex, cells?
A: gametes
39. Q: What process occurs where homologous chromosomes exchange portions of their chromatids during Prophase I?
A: crossing over

ADAPTATIONS AND EVOLUTION (19 CARDS + 1 NAME CARD= 20 TOTAL CARDS)

DUE:

- Q: What is any heritable characteristic that increases an organism's ability to survive and reproduce in its environment?
A: adaptation
- Q: What is the process by which organisms in nature with variations most suited to their environment survive and leave more offspring (survival of the fittest)?
A: natural selection
- Q: What are similar structures that are shared by related species and have been inherited from a common ancestor?

- A: homologous structures
4. Q: What structures, inherited from ancestors, have lost much of their original size and function?
A: vestigial structures
5. Q: What structures serve similar functions, but do not share structure and development?
A: analogous structures
6. Q: What occurs when individuals at one end of the curve have higher fitness than individuals elsewhere in the curve?
A: directional selection
7. Q: What occurs when individuals near the center of the curve have higher fitness than individuals at either end?
A: stabilizing selection
8. Q: What occurs when phenotypes at both the upper and lower ends of the curve have higher fitness than individuals near the middle?
A: disruptive selection
9. Q: What is the formation of a new species?
A: speciation
10. Q: What links groups of organisms by showing current hypotheses about how evolutionary lines, or lineages, branch off from common ancestors?
A: cladogram
11. Q: What trait arose in the most recent common ancestor of a lineage and was passed to its descendants?
A: derived character
12. Q: What experiment suggests that organic compounds necessary for life could have arisen from simpler compounds on a primitive Earth?
A: Miller-Urey Experiment
13. Q: What is the process by which organisms change over time as a result of changes in heritable physical or behavioral traits?
A: organic evolution
14. Q: What is the formation of complex organic molecules from simpler inorganic molecules?
A: chemical evolution
15. Q: What theory proposes that organelles in eukaryotic cells were formed when different types of cells joined in a kind of merger?
A: endosymbiotic theory
16. Q: What is the study of the evolutionary history of lineages of organisms?
A: phylogeny
17. Q: What are a group of species that includes a single common ancestor and all descendants of that ancestor?
A: clade
18. Q: What is the random chance that can cause an allele to become more or less common in a population?
A: genetic drift

19. Q: What occurs when two populations are separated by barriers such as rivers, mountains, or other bodies of water?

A: geographic isolation

INTERDEPENDENCE OF ORGANISMS AND THEIR ENVIRONMENTS

(34 CARDS + 1 NAME CARD = 35 TOTAL CARDS) DUE:

1. Q: What is the scientific study of interactions among organisms, populations, and communities and their interactions with their environment?

A: ecology

2. Q: What organisms can capture energy from nonliving sources and convert it into forms living cells can use?

A: autotrophs (producers)

3. Q: What organisms must acquire energy from other organisms, usually by eating them?

A: heterotrophs (consumers)

4. Q: What is a series of organisms in which energy is transferred from one organism to another?

A: food chain

5. Q: What is a network of feeding interactions, through which both energy and matter move?

A: food web

6. Q: What is each step in a food chain or food web called?

A: trophic level

7. Q: What are models that show the relative amount of energy or matter contained within each trophic level in a food chain or food web?

A: ecological pyramids

8. Q: What process involves bacteria converting nitrogen gas into ammonia?

A: nitrogen fixation

9. Q: What is the maximum number of individuals of a particular species that a particular environment can support?

A: carrying capacity

10. Q: What occurs when a population increases rapidly as more and more offspring are produced in a situation?

A: exponential growth

11. Q: What occurs when a population's growth slows and then stops, following a period of exponential growth?

A: logistic growth

12. Q: What is a factor that controls the growth of a population?

A: limiting factor

13. Q: What is a relationship in which one organism benefits and the other is neither helped nor harmed?

A: commensalism

14. Q: What is a relationship between two species in which both species benefit?

A: mutualism

15. Q: What is a relationship in which one organism lives inside or on another organism and harms it?
A: parasitism
16. Q: What type of succession begins on newly formed rock or other areas that have no remnants of an older community?
A: primary succession
17. Q: What are the first species to colonize barren areas?
A: pioneer species
18. Q: What type of succession occurs when a disturbance affects an existing community but doesn't completely destroy it?
A: secondary succession
19. Q: What is the close external resemblance of an animal or plant to another animal, plant, or inanimate object?
A: mimicry
20. Q: What is the process of working together to the same end?
A: cooperation
21. Q: What is the interaction between species, in which factors affect gaining a share of a limited environmental resource?
A: competition
22. Q: What is the relationship where one organism eats another organism?
A: predator-prey relationship
23. Q: What is a species that lack predators and parasites in their new home and can cause tremendous harm?
A: invasive species
24. Q: What is the process in which pollutants are concentrated as they pass through trophic levels?
A: biological magnification
25. Q: What is a living factor?
A: biotic factor
26. Q: What is a nonliving factor?
A: abiotic factor
27. Q: What % of energy is transferred from one trophic level to the next?
A: 10%
28. Q: What are individuals so similar that they can breed and produce fertile offspring?
A: species
29. Q: What are individuals of the same species living in the same area?
A: population
30. Q: What are individuals of different species living in the same area?
A: community
31. Q: What consists of a community and its nonliving environment?
A: ecosystem
32. Q: What is the design and production of materials, structures, and systems that are modeled after biological structures and processes?
A: biomimicry

33. Q: What factors are dependent upon the number of organisms in an area (or population density)
A: density-dependent limiting factors
34. Q: What factors affect all populations regardless of population size and density?
Density-independent limiting factors