

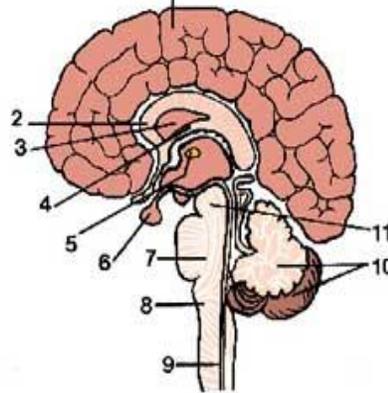
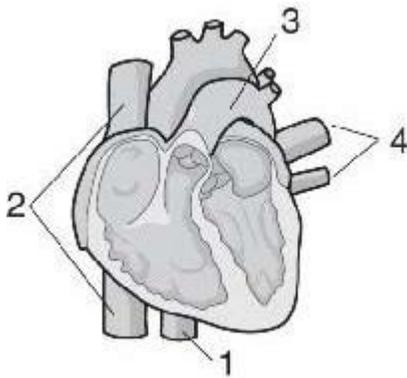


1. **Vocabulary** – Please define the following terms and attach a paper with definitions:

Integumentary, endocrine, cerebellum, cerebrum, medulla, pons, hypothalamus, pituitary, spinal cord, parietal lobe, occipital lobe, temporal lobe, frontal lobe, antibodies, red blood cells, white blood cells, macrophages, T-cells, B-cells, pathogens, prokaryotes, eukaryotes, arteries, capillaries, aorta, veins, xylem, phloem, anther, pistil, pollen, angiosperms, gymnosperms, amino acids, nucleic acids, lipids, proteins, meiosis, mitosis, autotroph, heterotrophy, heterozygous, homozygous, ovary, uterus, cervix, zygote, morula, gastrula, blastula, embryo, fetus, decomposer, consumer, allele, cellular respiration, photosynthesis, phenotype, genotype

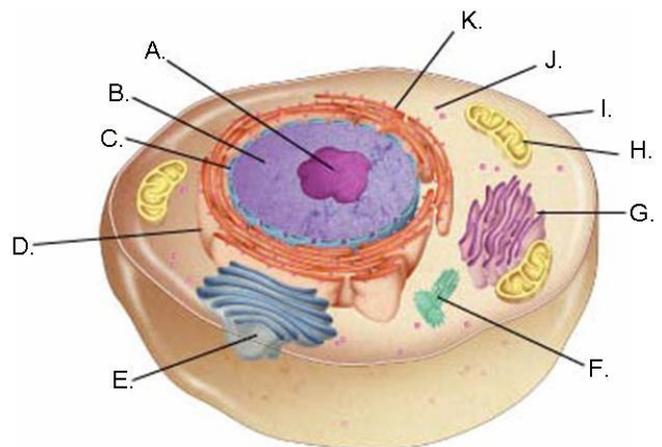
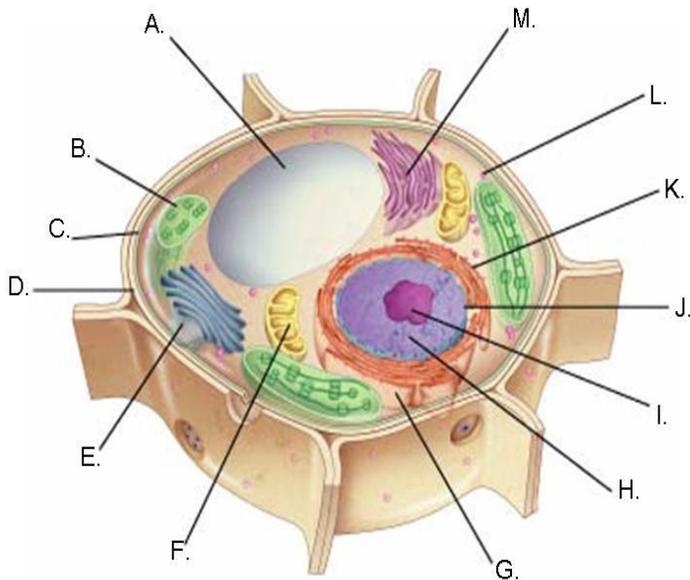
2. Know the parts of the brain and their basic functions: **LIST and DESCRIBE** on a separate paper.

3. Know the heart, function and parts: **LIST and DESCRIBE** on a separate paper.



1. Cerebral Hemisphere
2. Corpus Callosum
3. Ventricle
4. Fornix
5. Thalamus
6. Pituitary Gland
7. Pons
8. Medulla Oblongata
9. Spinal Cord
10. Cerebellum
11. Midbrain

4. Know the plant and animal cells; parts and functions: **LIST and DESCRIBE** on a separate paper.



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Biology Honors – Summer Review Package: '17 -'18

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5. **Robert Hooke is credited with discovering cells while observing a piece of cork under a microscope. In his book *Micrographia*, which he published in 1665, Hooke describes the small structures that he observed under the microscope. Which part of the cell theory is best supported by this discovery?**
- (A) Cells perform specialized functions.
(B) The cell is the basic unit of living things.
(C) All organisms are made of one or more cells.
(D) Cells reproduce and all cells come from existing cells.
6. **Bacteria are prokaryotic cells. By contrast, animal, plant, and fungal cells are eukaryotic. What is the main difference between prokaryotes and eukaryotes?**
- (F) Eukaryotes have a cell wall.
(G) Prokaryotes cannot live without a host.
(H) Eukaryotes copy DNA and are able to reproduce.
(I) Prokaryotes do not have a membrane-bound nucleus.
7. **What are the structures specialized for taking blood away from the heart called?**
- (A) arteries (B) bronchioles (C) capillaries (D) veins
8. **In the 1800s, scientists studied how fat-soluble substances and water-soluble substances interact with cell membranes. Their studies provided evidence that cell membranes are structured to perform certain functions. What function did these studies suggest that cell membranes perform?**
- (F) control the cell's activities
(G) control which substances enter the cell
(H) form proteins from fat-soluble substances
(I) carry materials throughout the interior of the cell
9. **Which of these statements best describes how a vaccine can protect a person from an infectious virus?**
- (A) The vaccine stimulates platelet production, which kills the virus.
(B) A small dose of the weakened virus is given to the patient so that antibodies can form.
(C) The vaccine stimulates chemical blockers that do not allow the virus to enter the bloodstream.
(D) A small dose of the weakened virus is given to the patient in order to prevent cell wall synthesis and repair.
10. **Jenny is comparing the reproductive structures of different species in the plant kingdom. Which structures would be most useful for determining angiosperms from gymnosperms?**
- (F) fruits and cones (G) anthers and pistils (H) xylem and phloem (I) needles and pollen
11. **A large area of farmland has many different species of insects living on it. Most of these insects are pollinators of the crops that grow on the farm. If the farmer decides to plant one crop on all his plots, what will be the result?**
- (A) There will be less insect diversity.
(B) The crops will be more likely to survive.
(C) The crops will undergo genetic mutations.
(D) The different insect species will interbreed.
12. **Biologically produced proteins called antibodies help the body fight infections in which of these ways?**
- (F) Antibodies destroy pathogens by engulfing and digesting them.
(G) Antibodies are found in the antibiotic medicines that can be taken to help the body fight off infections that have occurred.
(H) Antibodies identify and destroy foreign materials and pathogens by producing powerful chemicals that dissolve them, making them harmless.
(I) Antibodies attach to the surface proteins of antigens, inactivating the pathogen or signaling other immune cells to destroy the foreign protein material.
13. **Suppose you cross two heterozygous tall pea plants, both with genotypes Tt . What is the probability that the offspring will display the dominant trait?**
- (A) 100% (B) 75% (C) 50% (D) 25%

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14. Which human system remains immature through the first years of life and begins to function only around puberty?
(F) endocrine (G) integumentary (H) muscular (I) reproductive
15. A company claims that its fish are grown in large tanks, “each one a complete ecosystem that produces no biological waste.” This claim implies that the tanks contain which of the following?
(A) decomposers (B) fish predators
(C) at least four trophic levels (D) a diverse variety of species
16. An unusually warm spring leads to an increase in the number of mice in a fertile valley. One result of this population explosion is the loss of farmers’ crops due to consumption by the mice. What would be another likely result of the population increase of the mice?
(F) Mice will fill a different niche in the ecosystem.
(G) The following year the spring will be warm again.
(H) Birds of prey that eat mice will become more numerous.
(I) Animals that compete with mice will adapt to find new niches.
17. A tall pea plant with red flowers has the genotype Rr . This plant is crossed with another tall pea plant with white flowers, having the genotype rr . What is the probability that incomplete dominance is expressed in the F1 progeny?
(A) 25% (B) 50% (C) 75% (D) 100%
18. Scientists can use evidence to estimate how often a particular segment of DNA in a particular organism will undergo mutation. They can then locate the analogous segment in a related organism, tabulate the differences between the segments, and use this “molecular clock” to do which of the following?
(F) compare the adaptive fitness of each species in different habitats
(G) predict the future forms that the organisms might take as they undergo mutations
(H) make an educated guess as to how long ago two species diverged from a common ancestor
(I) evaluate whether the mutations seen in the organisms’ DNA will be maintained in the population
19. Which type of biological macromolecule determines what traits a plant will inherit from its parent plants?
(A) lipids (B) proteins
(C) nucleic acids (D) carbohydrates
20. Water is a common cleaning agent. It is most effective for dissolving substances with which characteristic?
(F) polar bonds (G) high density
(H) nonelectrolytes (I) low electronegativity
21. Rebecca sets up an experiment to test a hypothesis. She plants three seedlings of the same size and species in three identical pots and adds the same amount and type of potting soil and water to each one. She positions one pot in a closet, one on a living room table, and one on a windowsill. She uses an extraction method using ethanol to determine the amount of starch as a percentage of leaf tissue in each plant. What is the test variable (dependent variable) in Rebecca’s experiment?
(A) amount of starch (B) amount of water
(C) amount of ethanol (D) amount of sunlight
22. How are photosynthesis and cellular respiration interrelated?
(F) Photosynthesis and cellular respiration are the same process.
(G) Photosynthesis and cellular respiration produce the same chemical compounds.
(H) Photosynthesis uses energy to produce glucose, and cellular respiration uses glucose to generate energy.
(I) Photosynthesis uses glucose to generate energy, and cellular respiration uses energy to produce glucose.