

TEAS prep: basic biology: cells and scientific method

- The two basic types of cells are
 - Plant and animal
 - Bacterial and animal
 - Nervous and muscle
 - Prokaryotic and eukaryotic
- Pick the organelle plant cells have and animal cells do not have.
 - Cell wall
 - Plasma membrane
 - Nuclear envelope
 - Ribosome
- The endosymbiotic theory includes.....
 - Larger cell engulfing a virus
 - Larger cell engulfing a smaller cell
 - Fertilization of a large cell by a smaller cell
 - Larger cell parasitizing a smaller cell
- An mRNA transcript produced from a DNA sequence is known as:
 - Translation
 - Processing
 - Replication
 - Transcription
- Proteins are assembled here
 - Mitochondria
 - Ribosome
 - Peroxisome
 - Nucleolus
- Which of the following are not able to readily diffuse through the plasma membrane of a cell without the aid of a transport protein? (pick all that apply)
 - Water
 - Small hydrophobic molecules
 - Small ions
 - Neutral gas molecules
- Which eukaryotic organelle is not membrane bound (does not have a membrane)?
 - Nucleus
 - Plastid
 - Centriole
 - Chloroplast
- Compare and contrast prokaryotes and eukaryotes.
- Compare and contrast photosynthesis (process and equation) and cellular respiration (process and equation)
- Compare and contrast animal cells with plant cells
- Which is more specific order class or order (in taxonomy)?
- How did development of the microscope lead to the development of the cell theory?
- What is the difference between the independent and dependent variables in an experiment?
- Do you know the steps in the scientific method?
- What are scientific laws and theories? What are they based on?
- What is the relationship of a hypothesis to an experiment?

TEAS practice: basic macromolecules in biological systems

- What is the correct sequence of energy sources used by the body
 - Fats-glucose-other carbohydrates-proteins
 - Glucose-other carbohydrates-fats-proteins
 - Glucose-other carbohydrates-protein-fats
 - Glucose-fats-proteins-other carbohydrates
- Glycogen is
 - Degraded by glycogenesis
 - Synthesized by glycogenolysis
 - The storage polymer of glucose
 - Found in both plant and animal cells

3. Pick the statement that does not refer to protein
 - a. They regulate cell membrane trafficking
 - b. They catalyze chemical reactions
 - c. They can be hormones
 - d. They under self-replication
4. In general, phospholipids contain:
 - a. A glycerol molecule
 - b. Saturated fatty acids
 - c. Unsaturated fatty acids
 - d. A cholesterol molecule
5. Which of the following does not apply to osmosis
 - a. Water spontaneously moves from a hypertonic environment to a hypotonic environment
 - b. Water spontaneously moves from an area of high solvent to low solvent concentration
 - c. Water spontaneously moves from a hypotonic environment to a hypertonic environment
 - d. Transport of water
6. Insulin is an example of a(n):
 - a. Hormone
 - b. Storage protein
 - c. Structural protein
 - d. Enzyme
7. Which element is not found in nucleic acids
 - a. Nitrogen
 - b. Oxygen
 - c. Phosphorus
 - d. Sulfur
8. How many fatty acid molecules are in a phospholipid molecule
 - a. 0
 - b. 1
 - c. 2
 - d. 3
9. What are the various functions of membrane proteins?
10. What are secretory proteins and how do cells know they should synthesize them? What is post translational modification and what does it have to do with secretory proteins?

TEAS prep bio: Chromosomes, Genes, DNA

1. DNA and RNA differ because
 - a. Only DNA contains phosphodiester bonds
 - b. Only RNA contains pyrimidines
 - c. DNA is in the nucleus, RNA is in the cytosol
 - d. RNA is associated with ribosomes and DNA is associated with histones
2. Which of the following does not apply to protein synthesis?
 - a. The process does not require energy
 - b. tRNA is required for proper binding of the mRNA transcript
 - c. tRNA molecules shuttle amino acids that are assembled into the polypeptide
 - d. The mRNA is synthesized from 5'→3'
3. When do chromosomes replicate?
 - a. Prophase
 - b. Interphase
 - c. Anaphase
 - d. Metaphase
4. What distinguishes meiosis from mitosis? Pick all that apply
 - a. Genetic recombination
 - b. Failure to synthesize DNA between successive cell divisions
 - c. Separation of homologous chromosomes into distinct cells
5. Transcription, translation and replication take place in which phase of the cell cycle?
 - a. G1
 - b. G2

- c. metaphase
- d. S

6. How many genes are found in the human genome, how many chromosomes are found in gametes?
7. What is a tetrad and what does it have to do with the cell cycle?

More TEAS Bio practice

1. Which best describes how DNA and RNA function together?
 - a. DNA carries genetic information from RNA to the cytoplasm.
 - b. RNA carries genetic information from the DNA to the cytoplasm.
 - c. DNA and RNA carry genetic information from the cell nucleus to the cytoplasm.
 - d. DNA and RNA do not interact within the cell.
2. Fill in the blanks
Enzymes are _____ molecules that serve as _____ for biological reactions.
3. What function do genes serve in the relationship between parents and offspring?
4. What part of the cell provides energy for cellular functions?
5. Which of the following accurately describes the relationship between genes and chromosomes?
 - a. Each gene contains multiple chromosomes
 - b. Each chromosome contains multiple genes
 - c. Genes and chromosomes are the same thing
 - d. Genes and chromosomes are not the same thing but they occur in equal numbers
6. Which of the following reflects genotype?
 - a. Brown eyes that appear hazel in sunlight
 - b. The CFTR gene that causes cystic fibrosis
 - c. Black hair that grows rapidly
 - d. Being a fast runner
7. Which activities are consistent with the scientific method? (select all that apply)
 - a. Observe the data, noting potential outliers, and then analyze the results
 - b. Research to make sure no one else has ever experimented based on the hypothesis
 - c. Conduct an experiment and then formulate a hypothesis that fits the results
 - d. Communicate the results of an experiment that did not confirm the hypothesis
 - e. Develop a new hypothesis based on a conclusion from the previous experiment
8. What is the phenotypic ratio of a cross between a mother who is homozygous dominant (DD) for dimples and a father who is homozygous recessive (dd) for dimples?
9. How many components comprise the cycle of infection?
10. Which of the following is gram negative bacteria?
 - a. *Corynebacterium diphtheriae*
 - b. *Haemophilus influenzae*
 - c. *Listeria monocytogenes*
 - d. *Staphylococcus aureus*
11. What are the four phases of the bacterial growth cycle?
12. Are viruses living organisms? What is the life cycle of an animal virus?
13. What is important to know about the prevention and control of infection?
14. What is a parasite? Do parasites cause disease? How are they classified?
15. Are helminth parasites and fungi classified in the same category, do they have the same life cycle? Do they reproduce the same way, do they have the same virulence, can you name a disease associated with each?
16. Do lice cause disease? How are they classified?
17. Does the immune system respond to all infections the same way?
18. What is sterile technique and what does it have to do with infection and infection control?

There is no answer key.

Good luck on your exam and happy studying!