BATTLESHIP QUESTIONS

1. What is the difference between an inference and an observation?

2. Compare scientific law and scientific theory.

3. What does is a dependent variable?

4. What is an independent variable?

5. What is a control or constant in an experiment?

6. What is the difference between precision and accuracy?

7. Define homeostasis? Give an example of homeostasis.

8. In Classification what is the order of classifying an animal or plant? (8 words)

9. What are the two main phases of the cell cycle?

10. What are the phases of Mitosis?

11. Why is the result of the cell cycle important?

12. How do the unicellular and multicellular organisms differ?

13. How does cell differentiation lead to the organization within a multicellular organism?

14. How do diploid cells differ from haploid cells?

15. How many cells are produced during mitosis?

16. How many cells are produced during meiosis?

17. Why is sexual reproduction beneficial?

18. Describe asexual reproduction.

19. What are the different types of asexual reproduction?

20. How did scientists’ understanding of cells develop?

BATTLESHIP ANSWERS

1. An inference is a logical explanation of an observation that is drawn from prior knowledge or experience. An observation is using one or more senses to gather information and take not of what occurs.

2. Scientific Theory Scientific Law

 Repeated observations & investigations repeated observation of similar events

 New information may not support theory if repeated observation do not And theory maybe rejected. follow the law it will be rejected.

 Attempts to explain why something State it will happen, always.

 happens

 More complex with many well supported One well supported hypothesis that hypotheses. states something will happen.

3. A dependent variable is the factor that is being measured during an experiment. Using DRY tells you where on a graph the dependent variable goes in graphing data. DRY – Dependent (variable), Responds, Y-axis.

4. An independent variable is the factor that is changed by the investigator to observe how it affects a dependent variable. Using MIX tell you where the independent variable goes in graphing data. MIX- Manipulated, Independent (variable), X-axis.

5. The constant or control in an experiment is the factor that does not change in the experiment.

6. Precision is a description of how similar or close measurements are to each other. Accuracy is a description of how close a measurement is to an accepted or true value.

7. Homeostasis is an organism’s ability to maintain steady internal conditions when outside conditions change. An example would include your ability to cool your body by sweating to maintain normal temperature when it is hot outside.

8. Plants and animals use a binomial nomenclature. The scientific name is the Genus and Species for that organism. For example a cat is Felis catus. Living organism are further classified by

Domain, Kingdom, Phylum, Class, Order, Family, Genus and Species.

Did King Philip Come Over For Good Soup.

9. The 2 main phases of the cell cycle are Interphase (95% of the cell’s live is in this phase) and mitotic phase (only 5% of the cell cycle is during the mitotic phase (cell division)

10. The 5 phases of mitosis include Prophase, Metaphase, Anaphase, Telophase and Cytokinesis.

11. The result of the cell cycle is important for reproduction in unicellular organisms, Growth and development, Replacement of damage and worn out cells for example skin cells and Repair such as in a broken bone.

12. Unicellular organisms are only one cell and use asexual reproduction. Multicellular organisms are 2 or more cells, some can use asexual reproduction and other organism’s sexual reproduction.

13. Cell differentiation within a multicellular organism leads to the organization from cell, to tissue, to organ and finally to body systems.

14. Diploid cells are cells that have PAIRS of chromosomes. Haploid cells are cells that have only ONE chromosome from each pair of chromosomes.

15. At the end of mitosis there are two daughter cells that are produced.

16. At the end of meiosis there are 4 Haploid cells that are produced.

17. Sexual reproduction is important because offspring inherit half the DNA from each parent resulting in genetic variation among the offspring.

18. Asexual reproduction only required one organisms producing offspring with using meiosis and fertilization. It results in all the DNA from one parent making the offspring genetically identical to the parent.

19. The different types of asexual reproduction include Fission (a type of cell division), Mitotic cell division, Budding, Animal regeneration, vegetative reproduction and cloning.

20. Scientist understanding developed through the Cell Theory. Cell Theory states: 1. Cells are the basic units of life, 2. All living things are made of one or more cells and 3. Cells come from other cells.

BATTELSHIP QUESTIONS DAY 2

1. How are prokaryotic cells and eukaryotic cells similar, and how are they different?

2. Which types of cells contain chloroplasts?

3. How do materials move through the cell membrane in facilitated diffusion?

4. What is produced during glycolysis?

5. How do cells obtain energy?

6. What does Dominant Trait mean?

7. What does Recessive Trait mean?

8. How do dominant and recessive factors interact?

9. What is the difference between Genotype and Phenotype?

10. Tell whether the trait is homozygous or heterozygous

(TT), (Tt), (Gg), (RR)

11. Tell whether the trait is dominant or recessive.

(tt), (RR), (gg)

12. Complete the Punnet Square on the back of your game card.

 Sets of alleles include RR and rr. What is the probability of an offspring with the recessive trait?

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13. What does DNA stand for?

14. What does RNA stand for?

15. What happens during Transcription?

16. What happens during Translation?

17. What is a Mutation?

18. What are the nucleotide bases of DNA? What bonds with what?

19. What is the difference between a gene and an allele?

20. How does the circulatory system and the respiratory system work together?

BATTELSHIP ANSWERS DAY 2

1. Prokaryotic cells and eukaryotic cells similarities: They are cells that contain genetic material.

Differences: Prokaryotic cells- genetic material is not surrounded by a membrane, they do not have other organelles, they are always unicellular, called prokaryotes. Eukaryotic cells – the genetic material is surrounded by a membrane, they have specialized structures called organelles that are surrounded by a membrane, they can be unicellular or multicellular – plants, animals, fungi and protists are all eukaryotes. Finally eukaryotic cells are bigger than prokaryotic cells.

2. Chloroplast are found only in plants cells. Chloroplasts are organelles that us light energy and make food energy- glucose- from water and carbon dioxide during photosynthesis.

3. In facilitated diffusion materials move through the cell membrane when molecules pass through a cell membrane using special proteins called transport proteins. Like diffusion and osmosis, it does not require a cell to use energy. It is a form of passive transport.

4. During glycolysis (the first step in cellular respiration) some ATP molecules (energy) is made. It also breaks down glucose into smaller molecules to be used during reaction within the mitochondria.

5. Cells obtain energy during the second stage of cellular respiration that takes place in the mitochondria of the cell where large amounts of ATP are produced. During cellular respiration water and carbon dioxide are given off as waste products.

6. A dominate trait is a genetic factor that blocks another genetic factor from being expressed. It is the trait observed in the offspring.

7. A Recessive trait is a genetic factor that is blocked by the presence of a dominate factor. The trait is not observed but it does not mean the trait is not being carried on the gene and may be passed onto other offspring.

8. Dominant and recessive factors interact in a variety of ways. The simple way where the dominate trait hide the recessive trait. There can also be incomplete dominance when the offspring’s phenotype is a combination of the parent’s phenotype such as a red rose and a white rose can make a pink rose. Codominance is when both alleles can be observed in a phenotype. A cow with a white parent and a red parent, the calf expresses both by being red and white.

9. A phenotype how a trait appears or how it is expressed. For example – red hair, unattached earlobes, big feet etc.

 A genotype is the two alleles that control the phenotype of a trait. Type of alleles for red hair (a recessive gene) the genotype is written as “rr”. Two lower case r’s to show recessive. Dominate genotypes are represented by capital letter and can be RR or Rr. As long as there is a dominate allele present then the dominate phenotype is expressed.

10. Tell whether the trait is homozygous or heterozygous

(TT) Homozygous, (Tt) Heterozygous, (Gg) Heterozygous, (RR) Homozygous.

11. . Tell whether the trait is dominant or recessive.

(tt) Recessive, (RR) Dominate, (gg) recessive

12. Complete the Punnet Square on the back of your game card.

 Sets of alleles include RR and rr. What is the probability of an offspring with the recessive trait?

There is 0 % probability of an offspring with the recessive trait. A recessive trait is only expressed with rr genotype.

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| Rr | Rr |
| Rr | Rr |

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13. DNA stands for Deoxyribonucleic acid.

14. RNA stands for Ribonucleic acid.

15. Transcription is the process of making messenger RNA (mRNA) from DNA. 1. mRNA copies a section of DNA nucleotides using RNA nitrogen bases (A, D, G, U) 2. Then the mRNA moves the copy into the cytoplasm of the cell.

16. Translation is the process of making a protein from the RNA. It occurs in the ribosomes (within the cytoplasm).

17. Mutation is a change in the nucleotide sequence of a gene. A Deletion mutation is when one or more nitrogen bases are left out of the DNA sequence. An Insertion mutation is when one or more nitrogen bases is added to the DNA. A substitution mutation is when one nitrogen base is replaced by a different nitrogen base.

18. The nucleotide bases are adenine (A), cytosine (C), Thymine (T) and Guanine (G). A bonds with T and C bonds with G.

19. A gene is a section on a chromosome that has genetic information for one trait. An allele is the different forms of a gene. RR, Rr and rr, each r or R represents one allele.

20. The circulatory system moves the blood through the body by the pumping heart. The blood is carried to the lungs where the deoxygenated blood gets oxygen through the alveoli, where gas exchange takes place. The carbon dioxide from the blood is removed during the gas exchange with the alveoli and we exhale the CO2 out of our lungs.