**BACTERIA**

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Period\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **Draw and label a bacterial cell**
2. **What are the three shapes of bacteria? Bacilli ( rod), Cocci ( spherical), and Spirilla ( spiral).**
3. **Bacteria can be autotrophic ( using sunlight or chemicals) or heterotrophic - which means they get food how? By eating or consuming other organisms.**
4. **Bacteria can reproduce asexually by this process\_binary fission\_\_\_\_\_\_\_\_\_\_\_, and sexually by this process \_conjugation\_\_\_\_\_\_\_\_\_\_. Which one is best for the species in that it creates genetically different offspring ? \_sexual reproduction ( conjugation in this case) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**
5. **What are endospores? A type of cell covering that bacterial cells can go into if they experience extreme conditions . It is a sort of hibernation that they can go into for long periods of time ( centuries even) until conditions are favorable.**

**Viruses**

1. **What is a virus? A tiny non living structure that contains DNA or RNA and has a protein coat.**

****

1. **Draw a picture of a virus and label**
2. **Viruses are not alive because they must have a host. How are they like parasites?They are like parasites in that they cause harm to their host.**
3. **Viruses can be active or hidden? What is the difference?Active viruses immediately attack and begin to “ boss” the cell forcing it to make copies of the virus. A Hidden virus will go into the cell and merge in with the DNA of the cell and “ hide out” for a while ( maybe even years) and then one day they will “pop out” and take over the cell. Then the virus begins to act like an active virus.**

**\*\*\* Make sure you can identify an active or hidden virus life cycle in a diagram \*\*\*\***

**Protists**

1. **Protists can be animal like which means they are heterotrophs\_\_\_\_\_\_\_\_\_\_\_ because they consume food, or they can be plant like ( algae) which means they areautotrophic\_\_\_\_\_\_\_\_\_\_\_\_\_ because they make their own food.**
2. **Protists can move using a foot like structure called a \_pseudopod\_\_\_\_\_\_\_\_ like amoebas, tiny hairs called cilia\_\_\_\_\_\_\_\_\_\_ like paramecium, and whip like structures called \_\_flagella\_\_\_\_\_\_\_\_\_ like euglenas.**
3. **Some protists have a contractile vacuole – what does it do? A contractile vacuole acts as a pump or bladder to pump out extra water so the cell does not explode.**
4. **Why are protists called the odds and ends kingdom?** The kingdom Protista is composed of heterotrophs, autotrophs, single celled, multi cellular, organisms that don’t really fit into any other kingdom.

DNA/RNA/Protein Synthesis

1. **What is the shape of DNA ( official name? )\_\_double helix\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**
2. **DNA is composed of 4 nitrogen bases, what are they? \_adenine, guanine, cytosine, and thymine\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**
3. **In DNA , what pairs with adenine ? \_thymine\_\_\_\_\_\_\_\_\_ with cytosine? guanine\_\_\_\_\_\_\_\_\_\_.**
4. **What are the sides of the DNA ladder made of ? \_ a sugar and a phosphate\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**
5. **What is the genetic code? \_\_The genetic code is the order of the nitrogen bases\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**
6. **RNA is different from DNA in that it has \_\_one\_\_\_\_\_\_\_strand and \_\_uracil\_\_\_\_\_\_\_\_\_\_ instead of thymine.**
7. **What is replication ? \_\_\_The process in which DNA makes a copy of itself.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
8. **Where does protein synthesis take place ( where are proteins made) ? \_Protein synthesis takes place in the ribosomes ( which are in the cytoplasm)…\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**
9. **What does mRNA do? Messenger RNA takes the message about which protein to make out of the nucleus ( because DNA is too fat) into the cytoplasm to the ribosome.**
10. **What does tRNA do?Transfer RNA is like a taxi or an uber that goes to the ribosome and gets the message about which amino acid ( bead) to pick up to add to the growing protein chain (the necklace).**
11. **If the protein is the necklace that is being made, what are the individual beads called ( what makes up a protein) ? amino acid\_\_\_\_\_\_\_\_.**
12. **A mutation is a change in a gene or chromosome. They can be helpful if they increase an organisms chance for survival. The can be harmful if they \_decrease\_\_\_\_\_\_\_\_ an organisms chance for survival.**

GENETICS

1. **What type of plant did Gregor Mendel cross pollinate ? peas**
2. **Mendel knew that the stamen produced the \_sperm\_\_\_\_\_\_\_\_\_\_\_\_\_ and the pistil produced the egg ( ovum)\_\_\_\_\_\_\_\_ in plants.**
3. **He found when he crossed purebred tall pea plants ( dominant) and purebred short pea plants ( recessive)he got all \_\_\_tall\_\_\_\_\_\_\_\_\_\_\_\_ pea plants in the F1 generation.**
4. **We use capital letters to represent \_dominance\_\_\_\_\_\_\_\_\_\_ and lowercase letters to represent \_\_recessiveness\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**
5. **Purebred is also know as homozygous\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ , and heterozygous is also know as a \_hybrid\_\_\_\_\_\_\_\_\_\_\_\_.**
6. **Would TT be purebred or hybrid? \_purebred\_\_\_\_\_\_\_\_\_\_\_ What about Tt? hybrid\_\_\_\_\_\_\_\_\_\_\_\_ What about tt? \_purebred\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**
7. **Is red hair a genotype or phenotype?**
8. **Is RR a genotype or phenotype?**
9. **What does meiosis create? Sex cells ( gametes) ( egg and sperm)\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
10. **The parental generation is known as the \_P\_\_\_\_ generation. The children of the P1 generation are know as the first filial or the F1\_\_\_\_ generation. The children of the F1 generation are the second filial of the \_F2\_\_\_\_\_ generation.**
11. **What is a gene? A segment of DNA that codes for a specific trait.**
12. **Different forms of a gene are called \_\_\_alleles\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**
13. **What is a punnett square ? A genetic tool that allows you to see all the possibilities of offspring from a genetic cross**

**\*\*\*\* Be able to construct and analyze a Punnett Square\*\*\*\*\***

****