Name: _____ Date: _____ Period: ____

**THEORY – PATTERN AND PROCESSES NOTES**

Nature of Science:

1. Science is based on _____ and always changing.
2. Scientists test explanations and predictions of natural phenomena.
3. Some questions are outside the realm of science because they deal with phenomena that are _____ scientifically testable.
4. Hypotheses are tentative and _____ statements that are supported or not supported by observational evidence.
5. Hypotheses that have been many times through experimentation and with a wide variety of conditions and are incorporated into _____.
6. A theory is what one or more hypotheses become once they have been verified and accepted to be true after _____ independent experiments.
7. They are well-established and highly-reliable explanations, but they may be subject to _____ as new areas of science and new technologies are developed.
8. A scientific _____ describes how a single action occurs.
9. A scientific law is very similar to a theory except that a theory explains an entire group of related phenomena.
10. A theory is much more _____ and dynamic.

- Which contains the most scientific knowledge: HYPOTHESIS THEORY LAW

Patterns of the Theory of Evolution

11. Often patterns of theories are called evidence. Listed below (a-e) are patterns or evidence for the Theory of Evolution. _____ is generally defined as change over time.
12. The Theory of Evolution shows that today's species _____ from more ancient forms of life. There are many different evidences of this change:
    A. Fossils
    B. DNA analysis
    C. Similar body parts
    D. Developmental Similarities
    E. Location Similarities

Evidence of Evolution

13. _____: the remains or traces of a once-living organism
14. _____ – organisms living in similar places
15. _____ _____ - similar structures
16. _____ _____ - structures with no function in present organism
17. _____ - includes analyzing DNA, RNA or Amino acids to determine relatedness
18. Developmental Similarities – _____ show how organisms developed

Processes of the Theory of Evolution

19. Theories not only show evidence for support but can show _____ it happens.
20. _____ is the scientist credited for the major discoveries that are the basis of why evolution happens.

Processes that cause evolution:

A. Mutation – changes in the DNA
B. Recombination – sexual reproduction
C. Natural Selection – nature selects traits
D. Artificial Selection – influence other than nature selects traits
E. Gene Flow – migration causes traits of population to change
F. Genetic Drift – random change in traits of a population

- How many different causes of evolution are there? 2 4 6 8

Evolution Causes Speciation

21. The accumulation of changes in the traits of populations over time can lead to speciation.
22. _____ means a new species is created.
23. The processes that cause evolution can lead to speciation.

**NOTE PROCESSING – write <u>evidence</u> or <u>cause</u> by each of the following terms from our notes:**

24. Fossils - _____
25. DNA - _____
26. Natural Selection - _____
27. Mutations - _____
28. Biogeography - _____
29. Gene flow - _____
30. Genetic drift - _____