Science 10

Chapter 17, Part 1.

- 1. The science of ______, deals with the passing on of characteristics from parents to offspring over the generations and is called ______.
- 2. Allowing only the best of certain animals to mate to improve the stock is ______.
- 3. The first person to conduct and record experiments on heredity was

.

4. Briefly describe Gregor Mendel's genetic hypotheses. List his seven different experimental traits.

- 5. Traits are ______ if they can be observed in a large group of organisms. Gregor's cross breeding of garden peas with different forms of similar traits is called ______.
- 6. are offspring that look different from one or both of the parent plants. One of the traits Mendel examine was ______ in pea plant stems. The very first generation of the offspring are called ______ or _____ generation.
- 7. Mendel did experiments contrasting ______ traits. Among the _____ plants, only 3/4 of the offspring showed the form being studied. The remaining showed the
- 8. List three of Mendel's most important conclusions:

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Part 2.

9.	Different forms of genes which produce Some of these are	ce either tall or short peas are , while other	called rs are
10.	he alleles for being able to taste, having hair in the middle sections, and having free is		
11.	Genes controlling particular traits are a allele of the gene is represented by a _	represented by The	The letter is
12.	Individuals where both alleles are the same type (TT or tt) are called While individuals where the alleles are different (Tt) are called		
13.	The different combinations of While the outward	of an organism are of an organism is called its _	called its
14.	Heredity does not work in for organisms with identical genotypes	from thes to express different	It is possible
15.	provide the trait develops depends upon the	for traits and res	to develop, how the particular sult in lots of variations.
Part 3	3.		
16.	The laws of predict the likelihood of particular events happening.		
17.	One way to predict the genotypes occurring is to use the t shows all of the possible of alleles that parents might give their offspring, as well as the for each combination.		
18.	The was designed by English scientist R.C. Punnett.		

19. Read figure 17.12 on page 396. Sketch the square and its probabilities in the space below.

20. Read the *Science in Our World* panel on page 397. What is Huntington's disease?

Part 4.

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- 21. When only one gene controls a trait, for each gene there are only ______. One is completely ______.
- 22. Most traits are controlled by ______ genes acting with several different ______.
- 23. When an offspring's phenotype is in between the phenotypes of ______ parents, this situation results in a case of ______.
- 24. Most genes that control various traits have several different allele forms. Any gene with more than ______ alleles is referred to have ______. An individual can possess only ______ of these alleles, one on each ______ of a homologous pair.
- 25. Human blood types are examples of ______. There are _____blood types: ______ and each of these is a different _____.
- 26. The type of blood you have is determined by the ______ found on the red blood cells. List our possible blood-types and antigens:
- 27. is a allele dominance where neither A nor the B allele is dominant over the other. Both contribute ______ to the ______. IE AB blood types

28. For the blood type trait, there are only ______ different _____.

29. The colour of a Labrador retriever's coat depends upon something called _______. Sometime interacting genes show a ______ range of phenotypes, rather than two or three _______ forms. _______ is an example of the genetic range.

Part 5.

- 30. Read figure 17.14 on page 402, compare the karyotype of the male to female in figure 16.17.
- 31. The unnumbered ______ in the karyotypes are the ______ chromosomes. The presence of the XX chromosome indicates a ______, and the XY a ______.
- 32. All gametes produced by the ______ will contain the _____ chromosome. As a result, all offspring receive an _____ chromosome from their mothers. Only ______ of the male's ______ will contain an _____ chromosome, and the other half a _____ one.
- 33. The ______ of a child depends upon the ______ it receives from the father. There is a ______ percent chance that the fertilized egg will receive X or Y!
- 34. As well as ______ that determine sex, the X human chromosomes carry genes which control other _____. The _____ chromosome is ______ and carries more genes.
- 35. Characteristics such as ______, which is controlled by genes found on the sex chromosomes, are called ______. These are found on the ______. Several sex-linked ______ control diseases like ______.

Chapter 18, Part 6.

36. The goal of selective breeding is to produce offspring with ______. Breeders

use crossing methods to produce healthier, more disease resistant, and more productive species.

- 37. ______ is another way to join desirable buds or twigs from one plant or tree, and to establish a tree of another ______ and seen in ______ trees, _____, and _____.
- 38. Other modern reproductive techniques include:
- 39. During the process of ______, some sperm is placed in a female's reproductive ______ by artificial means. This usually done with a ______.
- 40. Artificial insemination is used in _____, ___, and ____, especially for procreating ______ species. It also increases ______ diversity.
- 41. The best way to ______ genetic diversity is to make sure that offspring are produced by many ______. AI is also used in human couple when the male is ______.
- 42. Theoretically, the ______ of offspring can be ______ by artificial insemination.
- 43. <u>fertilization occurs in a petri dish</u> the female's body. The ova are removed from the female and <u>added</u>, then it is replanted in the uterus.
- 44. In Vitro is successful in humans when, for some reason, the woman's _____ are blocked. The result is a ______! Sometimes, more than one _______is implanted in the uterus wall and may result in multiple births, or maybe none at all.
- 45. ______ is a more successful procedure because it places ______ and ______ in the fallopian tube near the uterus, a far more _______ location for development.
- 46. List some of the ethical issues involved with In Vitro fertilization:

47. Embryos resulting from *In Vitro* fertilization may be ______ into a different mother by the practice of ______. Artificial insemination may also be used to start embryos which are then ______ to surrogate mothers for full term.

48. What are some of the issues surrounding surrogate motherhood in humans?

49. ______ and _____ are inherited diseases caused either ______, or by errors occurring during ______.

50.	By selective breeding, farmers try to	genetic	
	Couples may receive	if they are considered to be at risk.	

51. What are the factors and issues faced by couples who have babies and are at-risk of genetic complications?

- 52. In some cases, the couple may already be pregnant and require a ______. This can be accomplished with an ______ or _____.
- 53. Compare the prenatal techniques of *Ultrasound examination* and *Amniocentesis*:

54. Amniocentesis, and sometimes ultrasound, can reveal the ______ of the unborn fetus. This information can be useful when a fetus is at risk for a serious ______. What are some of the limitations and issues raised by these types of procedures?

55. Another technique for obtaining _____ cell is called _______sampling. This process removes fetal cells from the chorionic villus or outermost ______ surrounding the fetus. These test results are available within

- 56. Not all prenatal tests are ______. Most reassure parents that their baby is healthy, but in some cases parents may choose to have a ______.
- 57. Prenatal diagnosis gives parents ______ about treatment options. Very ______ genetic diseases can be treated before birth by operating on the fetus. _______ is a disease that causes fluid to collect around the baby's ______. The operation is very risky!
- 58. Read the *Science in Our World* on page 420. What if you had to face these various options?

Part 7.

a_____.

_____•

- 59. The technique of ______ is where specific gene code is altered.
- 60. ______ is the production of genetically ______ offspring from a single ______ parent. Changing or ______ genes in an organism is called
- 61. Briefly discuss the advantages and disadvantages of genetic cloning:

- 62. One technique for manipulating genes is to ______ together pieces of ______ from different organisms. This is called ______ and results in
- 63. ______ and the production of recombinant DNA is the ______ of genetic engineering. Read figure 18.15 on page 424 and list the steps for recombination below:

64. Discuss some of the benefits of gene splicing:

65. What are some of the hazards of gene splicing technology?

66. Explain the terms eugenics and the eugenic movement. What is the potential for its misuse?

- 67. Gene mapping describes the ______ of the ______ on each chromosome. It is now possible to map and _______ the human genes and all their alleles.
- 68. This is called the ______ and could benefit in the treating of genetic ______.
- 69. Read about The Human Genome Project on page 431.
- 70. Discuss some of the issues surrounding the discovery and application of the human genome?