


**Pool Canvas**

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**Name** Chapter 1--A Perspective on Human Genetics

**Description**

**Instructions**

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[Add Question Here](#)

Question 1 **Multiple Choice** **0 points**

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**Question** The major point of controversy in deCODE's plan to establish a genetic database of the people of Iceland is:

- Answer**
- the large expense and minimal projected benefits
  - the privacy and appropriate use of the information obtained
  - the inadequacy of the database size
  - the genetic peculiarities of Icelanders
  - all of these

[Add Question Here](#)

Question 2 **Multiple Choice** **0 points**

[Modify](#) [Remove](#)

**Question** Genetics is defined as the study of:

- Answer**
- cells
  - DNA
  - heredity
  - traits
  - chromosome behavior

[Add Question Here](#)

Question 3 **Multiple Choice** **0 points**

[Modify](#) [Remove](#)

**Question** Gregor Mendel

- Answer**
- cross-bred pea plants with different traits
  - claimed that each individual carries a pair of "factors" for a given trait
  - was a monk
  - began the scientific study of heredity
  - all of these

[Add Question Here](#)

Question 4 **Multiple Choice** **0 points**

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**Question** Which one of the following best summarizes how transmission genetic studies are done differently with humans than with other organisms?

- Answer**
- Transmission genetics studies are not done with humans.
  - Human geneticists study the inheritance of traits in existing families.
  - Human geneticists perform pedigree analyses.
  - Legal permission to do human matings must be obtained from the participants.
  - Human geneticists study the inheritance of traits in existing families and Human geneticists perform pedigree analyses.

[Add Question Here](#)

Question 5 **Multiple Choice** **0 points**

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**Question** The purpose of preparing karyotypes in clinical settings can best be stated as:

- Answer**
- to reveal chromosome abnormalities
  - to count chromosomes
  - to determine which genes are on which chromosomes
  - to isolate and analyze genes
  - all of these

[Add Question Here](#)

Question 6 **Multiple Choice** **0 points**

[Modify](#) [Remove](#)

**Question** Which one of the following statements about eugenics is UNTRUE?

- Answer**
- It was founded by Charles Darwin.
  - It is a method for improving the human species through selective breeding.
  - It is based on the assumption that human traits are not significantly influenced by environment.
  - It contributed to the Immigration Act of 1924.
  - It was used to support the passage of sterilization laws.

[Add Question Here](#)

Question 7 **Multiple Choice** **0 points**

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**Question** Hereditarianism is the idea that human traits are:

- Answer**
- partly influenced by environment and genes
  - influenced mostly by the genetic make-up
  - influenced equally by genes and environment
  - determined solely by the genotype or genetic make-up
  - none of these

[◀ Add Question Here](#)**Question 8 Multiple Choice 0 points**[Modify](#) [Remove](#)**Question** The decline of the eugenics movement in the U.S. in the early 20th century resulted from:

- Answer**  its misuse for social and political purposes by the Nazis  
 the lack of knowledge of the cell theory  
 the lack of understanding of natural selection  
 the idea that most human traits are controlled by single genes  
 all of these

[◀ Add Question Here](#)**Question 9 Multiple Choice 0 points**[Modify](#) [Remove](#)**Question** DNA microarrays (DNA chips) are used to:

- Answer**  cut DNA molecules at specific sites  
 clone DNA  
 test an individual for a specific genetic disease  
 screen an individual's entire genome  
 produce human embryos in a laboratory dish

[◀ Add Question Here](#)**Question 10 Multiple Choice 0 points**[Modify](#) [Remove](#)**Question** Gene therapy can best be described as:

- Answer**  the elimination of a defect (mutation) in a gene  
 the insertion of normal genes to act in place of mutant genes  
 the insertion of human genes into other organisms  
 the cloning of genes to produce and purify therapeutically useful proteins  
 the mapping of all human genetic information

[◀ Add Question Here](#)**Question 11 Multiple Choice 0 points**[Modify](#) [Remove](#)**Question** Which one of the following statements most accurately summarizes the state of genetically modified foods in the U.S. today?

- Answer**  There are none because the technology has not been developed.  
 There are none because laws have been passed against genetic modification of crops.  
 A very small percent of foods contain ingredients from genetically modified plants.  
 Their use is widespread, well known, and overwhelmingly accepted.  
 Their use is widespread but controversial.

[◀ Add Question Here](#)**Question 12 Multiple Choice 0 points**[Modify](#) [Remove](#)**Question** Which one of the following statements about a gene is TRUE?

- Answer**  It is the structural and functional unit of genetics.  
 It is a string of nucleotides in a DNA molecule.  
 When activated, it is used to make a protein molecule.  
 All of these.  
 None of these.

[◀ Add Question Here](#)**Question 13 Multiple Choice 0 points**[Modify](#) [Remove](#)**Question** One of the properties of genes is that they can "recombine." This refers to their ability to:

- Answer**  be transmitted from parents to children  
 move from one chromosome to another  
 be turned on and off  
 undergo changes  
 break into pieces and then reassemble

[◀ Add Question Here](#)**Question 14 Multiple Choice 0 points**[Modify](#) [Remove](#)**Question** The microscope is the basic tool for research in what branch of genetics?

- Answer**  cytogenetics  
 transmission genetics  
 molecular genetics  
 population genetics  
 developmental genetics

[◀ Add Question Here](#)**Question 15 Multiple Choice 0 points**[Modify](#) [Remove](#)**Question** Which one of the following research projects in genetics would be an example of basic research?

- Answer**  research on what causes genes to turn on and off  
 research on how the protein content of wheat can be increased  
 research to identify the genes responsible for breast cancer  
 research on safe ways to grow a genetically modified organism  
 all of these

[◀ Add Question Here](#)**Question 16 Multiple Choice 0 points**[Modify](#) [Remove](#)

**Question** Before Mendel, most people would have predicted that a cross of a red rose with a yellow rose would produce:

- Answer**
- all red roses
  - all yellow roses
  - all orange roses
  - about half yellow roses and half red roses
  - about three-fourths red roses and one-fourth yellow roses

[◀ Add Question Here](#)

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Question 17 **Multiple Choice** **0 points**

**Question** Which one of the following is the most accurate description of the pedigrees used in human genetics?

- Answer**  family tree charts showing who has/had a particular trait
- certificates verifying that an individual has a particular trait
  - certificates of good genetic health
  - family tree charts showing everyone's birth and death dates
  - family tree charts showing photographs of all individuals

[◀ Add Question Here](#)

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Question 18 **Multiple Choice** **0 points**

**Question** Dolly the sheep is famous for:

- Answer**
- being the first animal whose DNA was completely analyzed
  - having a mutation that made her wool exceptionally valuable
  - being the first sheep genetically modified to produce human proteins in her milk
  - being the first cloned animal
  - having more offspring than any other domesticated sheep on record

[◀ Add Question Here](#)

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Question 19 **Multiple Choice** **0 points**

**Question** The major purpose of the British "Biobank" database of DNA samples and medical records is:

- Answer**
- obtaining genetic and medical data from all Britons
  - investigating the roles of genetic and environmental factors in disease
  - obtaining data useful for developing cures for genetic diseases
  - improving statistics on the frequency of genetic and non-genetic diseases
  - providing data for organ transplant matching

[◀ Add Question Here](#)

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Question 20 **Multiple Choice** **0 points**

**Question** Mendel's work on the transmission of genes in pea plants is applicable to:

- Answer**
- only pea plants
  - plants and some animals but not humans
  - all plants, but only plants
  - all plants and animals, including humans
  - all organisms

[◀ Add Question Here](#)

[Modify](#) | [Remove](#)

Question 21 **Multiple Choice** **0 points**

**Question** Modern biotechnology has made it possible to

- Answer**
- diagnose genetic disorders in fetuses, before birth
  - test an individual's entire genome for predispositions to heart disease, diabetes, and cancer
  - produce human embryos in a laboratory dish
  - test adults to see if they are at risk for having children with a genetic disease
  - all of these

[◀ Add Question Here](#)

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Question 22 **Essay** **0 points**

**Question** Should information about citizens' genetic constitution be held by a single private company? By the government? By anyone?

**Answer** This is an opinion question. As in most situations regarding privacy, the answer will depend on the individual's sense of the balance between the good that can be done with that information versus the danger to an individual from misuse of that information. Some individuals may also invoke a right to privacy, regardless of good or bad outcomes.

[◀ Add Question Here](#)

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Question 23 **Essay** **0 points**

**Question** Distinguish between transmission genetics, cytogenetics, molecular genetics, and population genetics. Which has had the greatest impact on human genetics in recent years?

**Answer** These are all different ways to study heredity - different branches of genetics. Transmission genetics is concerned with the mechanism for transferring genes from parent to offspring. Cytogenetics uses microscopes to study the organization of genes and chromosomes. Molecular genetics studies genetic events at the biochemical level. And population genetics focuses on inherited variation in populations and the forces that alter gene frequency and drive evolution. In recent years, molecular genetics has advanced rapidly and has had the greatest impact on human genetics. It has provided new understanding of the human genome, new diagnostic tests and treatments for genetic diseases. Its powers have made many people leery of its potential for harm.

[◀ Add Question Here](#)

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Question 24 **Essay** **0 points**

**Question** Distinguish between basic and applied research and discuss how the two are linked.

**Answer** Basic research is devoted simply to increasing our understanding: There is no immediate goal of solving a practical problem or creating a commercial product or service, which are the goals of applied research. In practice, applied research requires the knowledge gained in basic research, and the line between the two can be indistinct.

[◀ Add Question Here](#)Question 25 **Essay****0 points**[Modify](#) [Remove](#)**Question** Discuss the contribution made by Sir Francis Galton to the development of human genetics.**Answer** Frances Galton was the originator of the eugenics movement. He can be credited with any insight or good outcomes to have come from that and also blamed for its massive misuse in the early 20<sup>th</sup> century. He can also be cited as an advocate who made us think about appropriate applications of genetic knowledge in human society.[◀ Add Question Here](#)Question 26 **Essay****0 points**[Modify](#) [Remove](#)**Question** What were the benefits envisioned from the Human Genome Project and was this project an appropriate use of taxpayers' money?**Answer** The Human Genome Project was undertaken in the belief that completely mapping the human genome would not only lead to useful and powerful medical applications but would also revolutionize our understanding of human evolution. Both these outcomes are happening today. Whether this was worth the taxpayers' money spent is a question whose answer depends on individuals' values.[◀ Add Question Here](#)Question 27 **Essay****0 points**[Modify](#) [Remove](#)**Question** What evidence exists today to suggest that the eugenic movement in the U.S. was effective?**Answer** This question is deliberately worded to be tricky. There is no evidence at all that the immigration and sterilization laws enacted because of the eugenics movement improved the genetic fitness of society. But the movement was based on the false premise of hereditarianism. If one applies eugenic principles to real genetic traits, they work. Today, for instance, the incidence of Tay Sachs disease has been reduced greatly due to the identification of individuals in affected populations who carry the gene ("genetic screening") and the willingness of those individuals to forego reproducing or use embryo selection.[◀ Add Question Here](#)Question 28 **Essay****0 points**[Modify](#) [Remove](#)**Question** 7. There is an effort in Washington currently to draft and pass legislation banning the creation of human-animal "chimeras." While this term originally referred to embryos created by mixing human and animal embryo cells, it includes transgenic animals with human genes which are being used to synthesize valuable pharmaceutical products. Would you support such a ban?**Answer** This is another values-based question that pits the usefulness of transgenic animals who produce useful "human" substances in their milk against the objection that this is ethically unacceptable, or the top of a "slippery slope" that will lead to real human animal "monsters" (as in the 2010 movie "Splice").[◀ Add Question Here](#)Question 29 **True/False****0 points**[Modify](#) [Remove](#)**Question** The deCODE Biotechnology Company has made large profits from the information obtained from the genetic screening of Icelanders.**Answer**  
True  
✓ False[◀ Add Question Here](#)Question 30 **True/False****0 points**[Modify](#) [Remove](#)**Question** A nucleotide consists of a base, a sugar, and a phosphate group.**Answer**  
✓ True  
False[◀ Add Question Here](#)Question 31 **True/False****0 points**[Modify](#) [Remove](#)**Question** Since Mendel discovered that parents' traits are not blended in their offspring, crossing a red flower with a white flower and obtaining pink progeny is impossible.**Answer**  
True  
✓ False[◀ Add Question Here](#)Question 32 **True/False****0 points**[Modify](#) [Remove](#)**Question** Gene variations, such as whether one is brown-eyed or blue-eyed, would be revealed in a karyotype.**Answer**  
True  
✓ False[◀ Add Question Here](#)Question 33 **True/False****0 points**[Modify](#) [Remove](#)**Question** Eugenics based U.S.A. immigration laws favored immigrants from Germany over those from Russia.**Answer**  
✓ True  
False[◀ Add Question Here](#)Question 34 **True/False****0 points**[Modify](#) [Remove](#)**Question** The eugenic practices of Nazi Germany served as a model for the sterilization laws passed in the U.S.A.**Answer**  
True  
✓ False[◀ Add Question Here](#)Question 35 **True/False****0 points**[Modify](#) [Remove](#)**Question** Mendel proposed that individuals have two copies of each gene ("factor") which separate from each other during sperm and egg formation.**Answer**  
✓ True  
False[◀ Add Question Here](#)

Question 36 **True/False** **0 points** [Modify](#) [Remove](#)

**Question** To “clone” a gene means to transfer it from one cell to another.

**Answer** True  
 False

[Add Question Here](#)

Question 37 **Fill in the Blank** **0 points** [Modify](#) [Remove](#)

**Question** DNA is composed of \_\_\_\_\_ (how many?) different nucleotides.

**Answer** four  
4

[Add Question Here](#)

Question 38 **Fill in the Blank** **0 points** [Modify](#) [Remove](#)

**Question** The shape used to symbolize a male individual in a pedigree is a \_\_\_\_\_.

**Answer** square

[Add Question Here](#)

Question 39 **Fill in the Blank** **0 points** [Modify](#) [Remove](#)

**Question** The goal of the Human Genome Project was to \_\_\_\_\_ the entire human genome.

**Answer** sequence

[Add Question Here](#)

Question 40 **Fill in the Blank** **0 points** [Modify](#) [Remove](#)

**Question** The simplest type of common genetic variation is one nucleotide in a genome sequence. This is called a \_\_\_\_\_.

**Answer** single nucleotide polymorphism

[Add Question Here](#)

Question 41 **Fill in the Blank** **0 points** [Modify](#) [Remove](#)

**Question** Scientists are looking to use \_\_\_\_\_ cells as treatments for heart disease, diabetes, and other degenerative diseases.

**Answer** stem

[Add Question Here](#)

Question 42 **Fill in the Blank** **0 points** [Modify](#) [Remove](#)

**Question** The pharmaceutical industry produces insulin in \_\_\_\_\_ that have been altered by recombinant DNA technology.

**Answer** bacteria

[Add Question Here](#)

Question 43 **Fill in the Blank** **0 points** [Modify](#) [Remove](#)

**Question** The polypeptides coded for by genes fold into a particular three-dimensional shape to become functional \_\_\_\_\_.

**Answer** proteins

[Add Question Here](#)

Question 44 **Fill in the Blank** **0 points** [Modify](#) [Remove](#)

**Question** In the procedure called “in vitro fertilization” (IVF) the fusion of sperm and egg takes place in a \_\_\_\_\_.

**Answer** laboratory dish  
petri plate

[Add Question Here](#)

OK