Behavioral Genetics 7th edition Knopik Test Bank

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VOCABULARY

Match the fields of study to the names of the eminent scientists below. Each person may be linked to each field of study once, more than once, or not at all.

Fields of study

1. "Survival of the fittest" as a driver of evolution
2. Circulation of the blood
3. First exhaustive work on human anatomy in the sixteenth century
4. Importance of proper assessment in work on human heredity
5. Inheritance of acquired modifications as a means of evolution
6. Inheritance of mental characteristics in the nineteenth century
7. Natural selection as a force behind evolution
8. Observation of adaptations of living organisms in natural environments
9. Taxonomic classification of living organisms
10. Use of twins to assess the roles of inheritance and environment

Scientists

Aristotle
Leonardo da Vinci
Charles Darwin
Galen
Francis Galton
William Harvey
Jean Baptiste Lamarck
Linneaus
Gregor Mendel
Andreas Vesalius

Ans: 1. Charles Darwin; 2. William Harvey; 3. Andreas Vesalius; 4. Francis Galton; 5. Jean Baptiste Lamarck; 6. Francis Galton; 7. Charles Darwin; 8. Charles Darwin; 9. Linneaus; 10. Francis Galton
Blooms Level: Remembering
Difficulty Level: Easy
Page: 6–15
Topic: Historical perspective

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PROBLEMS

1. Explain how Lamarck's law of "use and disuse" could be viewed as a driving force behind evolutionary change.

Ans: Lamarck argued that the efforts to grow and thrive that an organism made during its life could bring about modifications to its body parts and that those modifications so acquired could be passed on to the organisms' offspring. Useful characteristics would be enhanced while those less useful would be lost. Small changes over time would accumulate and gradually bring about the evolutionary change that is observed.
Blooms Level: Understanding
Difficulty Level: Moderate
Page: 7
Topic: Evolution

2. Why does Darwin's theory of evolution rely on there being natural variation within a population of animals of the same species?

Ans: If all organisms of the same species had the same characteristics, there would be no differential survival or reproductive success in response to their environment; no member of the species would have any natural advantage in life due to its characteristics. No systematic changes in the frequencies of different characteristics in response to the environment would occur and no evolutionary changes would be seen.
Blooms Level: Understanding
Difficulty Level: Difficult
Page: 9
Topic: Evolution

3. Evolutionary change is usually thought of as a result of organisms being at the physical mercy of their environment and that the environment determines who survives and who does not. This is the survival of the physically fittest in that environment. Explain how the behavioral characteristics of an organism might bring about evolutionary change.

Ans: Organisms of any species that exhibits "behavior" can express differences in that behavior; hence, we have variation in the population. As an example, some organisms may express preferences for particular habitats or preferences for using particular resources in a habitat. This may change the environmental selection pressures within a species and bring about changes in survival that precipitate evolutionary changes.
Blooms Level: Understanding
Difficulty Level: Moderate
Page: 9–10
Topic: Evolution

4. What led Francis Galton to conclude that mental characteristics are inherited?

Ans: By conducting the first family studies and by using meticulous measurement, Galton discovered that related individuals were more similar to each other than would be expected to occur by chance. This is the basis for the idea that "like produces like," even for mental traits.

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Blooms Level: Remembering
Difficulty Level: Easy
Page: 11
Topic: Inheritance of mental characteristics

5. Galton's family studies led him to believe that “nature prevails enormously over nurture.” Explain why family studies alone cannot be used as evidence for that belief.

Ans: Family studies on their own cannot disentangle whether individuals in the family are similar because they share genes or because they share an environment. “Nature” is confounded with “nurture.” Galton himself was aware of this and suggested the use of twins and adoptees as a way of separating the effects of genetics and shared environment.
Blooms Level: Analyzing
Difficulty Level: Difficult
Page: 13
Topic: Inheritance of mental characteristics

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