Name _____

Discovering the World of Cytogenetics

Open-Ended Response Answer Key

1. Answers may vary. Example: "Cytogenetic testing might be used in prenatal diagnosis to screen for chromosomal abnormalities such as Down syndrome, where an extra copy of chromosome 21 is present."
2. It's important for scientists to study the structure and behavior of chromosomes in cytogenetics to understand how chromosomal abnormalities can lead to genetic disorders and diseases, and to develop diagnostic tests and therapeutic interventions.
3. As a researcher studying cytogenetics, I would want to investigate questions about the effects of environmental exposures on chromosome structure, the mechanisms underlying chromosomal rearrangements, and the role of chromosomal abnormalities in cancer development.
4. Cytogenetics could contribute to conservation biology and the study of endangered species by identifying chromosomal changes associated with population declines, assessing genetic diversity within populations, and informing conservation strategies to preserve genetic resources.

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