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# HIV: From Horror to Hope

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If there was ever a good time to integrate science and technology into a high school math curriculum, that time is now. This curriculum unit focuses on HIV-1, the virus which causes AIDS. It looks at both the frightening early history of AIDS, and also at our present condition, where antiviral therapies have made HIV infection manageable for most patients. Today, incredibly, HIV offers hope to those afflicted with other genetic diseases as well, through the science of gene therapy. HIV is a lentivirus, and lentiviral vectors, which are altered forms of virus which can be introduced into a patient's cells to turn on or turn off some genetic expression, are a fairly recent introduction into this rapidly growing field. The unit can be separated into three sections, and each can be taught separately, or as an integrated lesson plan. There is a history component that focuses on the early years of the AIDS epidemic, and a science component which explores the mechanism of retroviruses. Finally, there is a subunit that integrates mathematics, using the topic of probability, which is one of the California standards for Algebra II, and also a component of the new Common Core Standards.

(Developed for Algebra II, grades 10-11; recommended for Biology, grade 10, and Chemistry and Mathematics, grades 10-11)