

Abstract Submitted  
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**Cell Survivor: Teaching radiobiological intuition with a video game** MELISSA SPENCER, ERNO SAJO, University of Massachusetts Lowell — While new technologies use radiation for the benefit of society, whether in medicine, food irradiation, or nuclear power, public fear of these technologies is not influenced by their different potential to do harm, nor is this fear balanced by their potential benefits. Underlying this fear is a fundamental lack of understanding of the effects of radiation on the body. By modeling radiobiological experiments with a computer game, it is possible to enhance intuitive understanding of both the effects of different types of radiation as well as different factors that can enhance or suppress repair. A prototype game was developed where the player acts as the cell's enzymatic repair process. Cells are damaged by incident radiation, with either single or double strand breaks (SSB or DSB) occurring. The cells grow and reproduce, and are especially vulnerable during mitosis. Cell types display different radiosensitivity, which can be further altered by the addition of chemicals. Levels can be created to teach laypeople about certain types of radiation, for instance dental x-rays as compared to CT scans. As both a simulation and a video game, Cell Survivor shows promise as both an educational tool and a research tool.

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