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Curriculum Units by Fellows of the National Initiative
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The Dye-Sensitized Solar Cell

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This unit is designed to engage 11th grade students in the evaluation of the environmental impact of society's overdependence on fossil fuels. The unit will center on solar energy as an alternative fuel resource, and focus on the transformation of radiant energy into electrical energy that occurs within photovoltaic cells. An important aspect of the learning will be on the chemistry of these cells, how electrical energy is stored within them, and the many applications of this technology in our everyday life. The unit will unfold during the study of the periodic table and center on the physical / chemical properties of the semiconducting elements used in solar cells. Students will engage in a series of laboratory activities exploring the composition and electrical properties of various solar cells. The unit will culminate in an evaluation of select products that rely on this technology and the environmental benefits of photovoltaic cells.

(Developed for Chemistry, grade 10; recommended for Environmental Science, grades 10-11)