



## Great Lakes Science Center Tour ~ November 19, 2011

### Use for the homework that is due on December 17, 2011

The Great Lakes Science Center opened in July of 1996. The center grew out of a mid-1980s proposal to establish a Great Lakes maritime museum on the lakefront, a plan spearheaded initially by the Great Lakes Historical Society and several faculty members of Cleveland State University. In its first two years of operation the center drew over one million visitors, including many Cleveland area school groups. In 1998, the Board initiated a \$12.5 million endowment, receiving its principal funding from the George Gund Foundation. Touring exhibitions such as Robot Zoo (2001) and Titanic (2002), in combination with Omnimax theatre attendance, sustained the center's relatively profitable operations into the mid-2000s. In 2004, founding President and Executive Director Richard Coyne retired and was succeeded by Linda Abraham-Silver. Under Abraham-Silver, the Board announced plans to increase the center's educational programming and develop stronger ties with local schools.

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## Goose Bumps Special Exhibit

Fear triggers signals in your body that varies in speed and reactions. To mimic this process set up dominoes to represent the branching pathways in the brain and start the chain reaction to see which path triggers the fear response quickest by reaching the amygdala first. Fear signals follow two paths on their way to the amygdala, the brain's threat center.

Soaring 150 feet into the air, Cleveland's landmark wind turbine sits majestically on the front lawn of the Great Lakes Science Center. Visible to pedestrians, motorists, downtown workers and visitors, the turbine makes a dramatic statement about the viability of advanced energy for our region. The wind turbine provides approximately seven percent of the Great Lake Science Center's annual electrical needs. Requiring a breeze of eight miles per hour to begin generating power, the 26-ton wind turbine achieves its peak output of 225 kilowatts at wind speeds of 31 miles per hour. Energy cost-saving, however, is not the primary reason the turbine was installed. The Great Lakes Science Center uses the turbine as a tangible way to demonstrate wind power technology, create greater public awareness of renewable energy and educate visitors about the benefits of advanced energy. The turbine also serves as a working science experiment and provides a way for the Great Lakes Science Center to share an authentic science experience with its guests. Inside the Great Lakes Science Center, related exhibits feature interpretive panels detailing Cleveland's connection to the earliest history of wind turbine technology and NASA Glenn's role in modern developments. Visitors can view an actual turbine blade and interact with a touch screen kiosk displaying both real-time and historical data. The touch screen kiosk includes data on wind speed; power generated over time and the amount of carbon dioxide not generated for the power equivalent. The turbine was made possible through collaboration with The Cleveland Foundation, the U.S. Department of Energy, Parker Hannifin Corporation and the Lubrizol Corporation. The turbine contains Parker Hannifin components and Lubrizol products to help it operate effectively and efficiently. Both of these local companies, who are at the forefront of wind technology, use the wind turbine to monitor performance of their materials, to test those materials and to make changes when necessary to improve performance.

