

# Introducing youths to big ideas about a nano-sized world through video games

February 18 2011

---



A new online video game developed by Northeastern researchers is aimed at teaching youths the fundamentals of nanoscience and technology.

(PhysOrg.com) -- Working on a science fair project with his lab partner Nikki, Harold Biggums finds himself transformed into a tiny superhero and flung into the midst of an alien plot to take over the world — a plot that he and Nikki can foil only by defying gravity, walking on water and charging across electric fields.

This narrative dilemma is the basic storyline for [Geckoman!, an online video game](#) developed by Northeastern University researchers at the Center for High-rate Nanomanufacturing (CHN), which seeks to educate middle-school students about nanoscience and technology.

CHN director Ahmed Busnaina and associate director Jacqueline Isaacs led an interdisciplinary team of educators and game designers to develop

the game, which is available in English and Spanish.

“Geckoman! is both engaging and challenging, and along the way, students pick up a lot of nanoscience fundamentals,” said Busnaina, the William Lincoln Smith Professor of Mechanical and Industrial Engineering at Northeastern.

“We had excellent teachers working with us to develop four lesson plans that guide student learning,” said Isaacs, a professor in the Department of Mechanical and Industrial Engineering. “The results of student play tests indicate that students are learning new concepts.”

Game players follow Harold on an adventurous journey, after he has been shrunk to the nanoscale following an explosion in his laboratory. Players must navigate Harold through various levels across three different worlds, while also collecting scattered notebook pages that provide nanoscience tips to help him progress.

The game was created with funding help from the National Science Foundation; and 15 Days LLC, a company founded by Northeastern alumni and faculty, collaborated with CHN faculty on design. Staff members at Boston’s Museum of Science helped match the game content to national and Massachusetts K-12 science standards.

How did the game get its name? Early in the game development process, the team worked on incorporating a key concept in nanoscience — the “van der Waals” adhesion force, which dominates other forces at the nanoscale. In fact, it is this force that enables geckos to run up walls; the pads of their feet have millions of nanoscale extensions. The game developers decided that Harold would have to become Geckoman, enabling him to move with greater ease between all the unusual surfaces he must navigate in addressing the game’s multi-level challenges.

Provided by Northeastern University

Citation: Introducing youths to big ideas about a nano-sized world through video games (2011, February 18) retrieved 25 April 2024 from <https://phys.org/news/2011-02-youths-big-ideas-nano-sized-world.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.