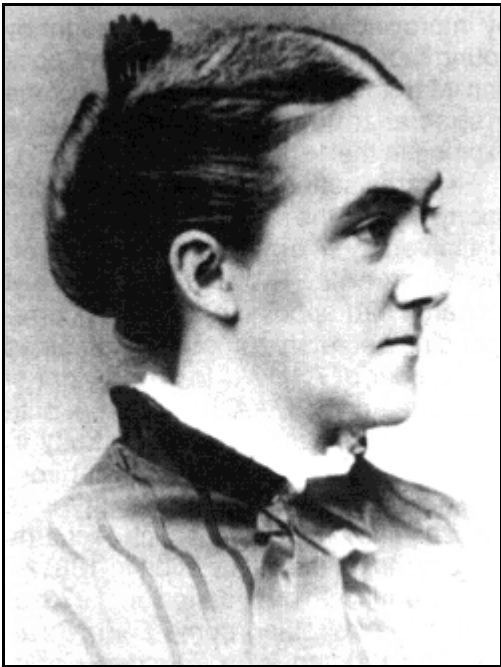


# MSD

Louisville & Jefferson County Metropolitan Sewer District  
Ellen Swallow Richards Ecology Learning Center  
**5<sup>th</sup> Grade Unit: Cooperation and Symbiosis**

## Ellen Swallow Richards (1842-1911)



MSD's Ellen Swallow Richards Ecology Learning Center is named for a pioneer in ecology, chemistry, public health, education and nutrition.

Brought up on a Massachusetts farm, Ellen Swallow was a sickly girl. When she could, she enjoyed exploring the farm's fields, stream and woods. Being in the clean outdoor air made her healthier and stronger.

In the mid-1800s, rural children often had no schools to attend. Ellen's former-schoolteacher parents taught her.

Ellen was an eager student. At 16, her family traded the farm for a general store in town, so she could attend high school. She read every book and magazine she could find, and made good grades.

Few colleges were open to women in the 1860s. Luckily, Ms. Swallow was admitted to Vassar College. Her favorite professors were the well-respected astronomer Maria Mitchell, and mathematician and chemist Charles Farrar. They were very impressed with their bright and eager student. She also studied German and Latin. She tutored classmates and worked summers in the general store to pay expenses.

She wanted to work as a chemist after graduating, but no one hired women chemists in 1870. One rejection letter suggested that she attend Massachusetts Institute of Technology (MIT).

Attaching letters of support from Professors Mitchell and Farrar, she applied. MIT was stumped; no woman had ever attended. They feared high-level science and math would hurt her brain and make her sick! Yet the MIT president admitted her, out of respect for Mitchell and Farrar. Still, MIT was sure that Ms. Swallow would fail; they

charged her no tuition, to make her “inevitable” dismissal simpler!

Despite MIT’s low expectations, Ms. Swallow became the first woman to graduate from MIT! Then, she became the first woman to teach at MIT! She raised funds to open MIT’s Woman’s Laboratory in Chemistry.

She helped to create what became the Woods Hole Marine Biological Laboratory. (Rachel Carson studied there. She said her experience at Woods Hole profoundly changed her. Her book, *Silent Spring*, is credited with birthing the modern environmental movement.)

Professor Swallow read science journals in English and German. She stumbled onto an article by German biologist Ernst Haeckels. He coined terms for new sciences that he thought needed development.

Haeckels’ term, *ökologie*, sparked Professor Swallow’s interest. She wrote him, asking to use it. His reply said he was busy developing *zoologie*; he gave permission to develop the science that became ecology.

Always connecting people and their environment, she was eager to do so. She wanted people to know the day-to-day value of pure water, clean air and wholesome food.

Besides teaching, Professor Ellen Richards did research and wrote articles for scientists and the public. She gave speeches and organized women’s and professional groups. She promoted the hands-on “Natural Method of Learning.”

Ellen Richards is credited with the following other pioneering firsts:

- ✓ Mapping ambient water quality
- ✓ Teaching sanitary engineering
- ✓ Ecology education for children
- ✓ Proposing quality standards for drinking water, wastewater and school lunches

### **Historians consider Ellen Swallow Richards to be the mother of ecology and home economics.**

MIT never granted Professor Ellen Swallow Richards the PhD or the full professorship that she had earned.

Professor Swallow married another MIT professor, geologist Robert Richards. They had no children, but kept their Boston home active with students.

Ellen Swallow Richards was 69, when she died of heart failure.

### **References**

1. Clarke, Robert, Ellen Swallow: The Woman Who Founded Ecology (Chicago: Follett Publishing Company, 1973)
2. Vare, Ethlie Ann, Adventurous Spirit: A Story about Ellen Swallow Richards, (Minneapolis: Carolrhoda Books, 1992)
3. Numerous related websites are accessible via your browser.

Amanda Fisher, a 2000 graduate of Bellarmine University in fine arts, painted the portrait of Ellen Swallow Richards in the ESRELC classroom, from a photograph, taken at age 6.