# Overview

**About:** The Google CS4HS Program is an initiative sponsored by Google to promote Computer Science and Computational Thinking in high school and middle school curriculum.

**Institution:** Marquette University

**Data for:** 2012/13

**PI/Leader:** Dennis Brylow

**Age of Program:** 1

**Location:** Marquette University, Milwaukee WI

**School Districts:** La Crosse, Marquette University High School, Homestead, Mequon/Thiensville, Neenah, Wausau, West De Pere, Whitnall, Brookfield, St. Francis, Mequonigo, Whitefish Bay, Eleva Strum, Madison metro, MPS, Sheboygan, Janesville, Muskego/Norway, Marshfield, Catholic Memorial, Oconomowoc

## Teachers Served

**Served:** 35

**Dosage:** 22.5 in sessions

**Grade(s):** 9-12

**Characteristics** {Pre-Service/In-Service, Course/Subjects taught, etc.}

## Program Budget

**Sources:** Google

**Budget:** 13K
Learning Goals

• What is Computer Science?
• How are computational thinking skills used across STEM fields?
• How to lead students in algorithmic thinking
• Problem solving techniques with Boolean logic
• The ideas behind high performance computing
• The state of CS K-12 curricula in Wisconsin and beyond
• Using Scratch

• What is developing for the new AP CSP
• Computing as a creative activity
• How are big data and cloud computing driving new scientific discovery?
• The Internet pervades modern computing and computing has global impacts
• Using Computational Thinking with problem/project based learning
## PD Structure

### Workshop Structure

<table>
<thead>
<tr>
<th>A: basic</th>
<th>Combined</th>
<th>B: advanced</th>
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| • Exploring CS and CT | • Algorithms  
• Boolean Building Blocks    | • AP CS Principles |
| • HPC and Sciences | • Scratch  
• CT and the Sciences    | • Creativity  
• Alice  
• State and Curriculum Issues |
| • Alice          | • Problem/Project-Based Learning and Computational Thinking  
• TechSpots  
• Lesson Planning | • Big Data  
• Scratch  
• Impact and the Internet |

Our Team: Marquette faculty and staff  
Wisconsin Dairyland CSTA
Successes and Challenges

• Excited Teachers
• Formed CSTA chapter
• Teachers participating in designing and presenting content
• New teachers ie. not computer science teachers working on adding computer science to their curriculum

• Difficulty getting teachers to design lesson plans that include more than just programming content
• Little participation from MPS
• How to use concepts in a high school classroom
Measures of Success

- Workshop structured around Computational Thinking (CT) lesson plan building and sharing
- Designed a rubric to measure how CT concepts were used in the lesson plans
- Applied the rubric during the sharing phase of the workshop
- Measures the participants' ability to integrate CT with their curriculum and our ability to effectively disseminate information to the participants
- Follow up surveys
- Follow up workshop