Computing with R for Mathematical Modeling

Infuse Computational Thinking into Math Classrooms through Math Modeling with R

PROJECT OBJECTIVE
Integrating computational thinking into high school math classes permits students to learn and apply computing concepts and skills in a more established and accessible math context. The CodeR4MATH project leverages the inherent connections between computational thinking and mathematical modeling practices and a multitude of representational tools to create a synergistic solution for supporting students to simultaneously develop competencies in both domains.

R AS A MATH MODELING ENVIRONMENT
R is a programming language and environment for computing and graphics. R and related tools (i.e., RStudio and R packages) provide abundant supports for learning and teaching math modeling:
1. **Express ideas with intuitive code and inline comments.**
2. **Track variables and parameters in a Global Environment tab.**
3. **Visualize models with diagrams and graphs.**
4. **Use powerful computing facilities.**

**Driving for Gas**
A sample activity

Gas prices change often, and not every gas station offers the same price per gallon. The gas station selling the cheapest gas may be across town from where you are driving. Is it worth the drive across town? Create a mathematical model that can be used to help understand under what conditions it is worth the drive (GAIMME, 2016, p. 14).

**CT concepts:** variables, sequences, conditionals, iterations, data structures

**CT practices:** problem decomposition, data analysis and representation, abstraction, automation

Reference

concord.org/CodeR4MATH
@ConcordDotOrg

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