

SCIENCE MUSEUM OF MINNESOTA

COMPUTATIONAL THINKING

ASSEMBLY, GRADES 3-5



Concepts, Learning Goals, and Logistics

GENERAL OUTLINE

What *is* a computer, and *how* do people use computers to solve problems? **Computational Thinking** is the practice of bringing together what humans do well and what computers do well – and when we practice computational thinking, we can create new possibilities.

In this assembly, students explore the strengths of humans – like curiosity, empathy, the ability to process new information – and the strengths of computers – like speed, accuracy, and precision – through a variety of interactive demonstrations. These include designing and (re)creating block towers; following algorithms to sort recycling, compost, and trash; analyzing bias through experiments with left-and-right-handed tools; and creating generative artwork through hand gestures. Students will also be exposed to a diversity of Computational Thinkers – people working in various STEM fields using computational thinking practices every day.

SCIENCE LEARNING GOALS

- Computers are varied and ubiquitous tools that people use to solve problems.
- Computers only carry out what they are programmed to do, and they can do those things more quickly and accurately than humans while handling greater amounts of information.
- There are many capabilities people have that computers don't – like empathy, creativity, and curiosity.
- To combine what people do well and computers do well, we use computational thinking practices – like abstracting information, designing algorithms, and debugging issues – to break down a problem and communicate potential solutions.
- All people have biases. When human biases are integrated into the programs we create, the programs can replicate those biases. It is important to make sure we are equitable and inclusive when we use these tools or create new ones.

Program Length: 50 minutes

Audience Size: Up to 250 students

Preparation: Science Museum instructor brings all needed equipment and materials. School provides two tables for demonstrations and access to electricity. Allow 60 minutes before and after program for set-up and take-down.