Creating Computational Artifacts

The process of developing computational artifacts embraces both creative expression and the exploration of ideas to create prototypes and solve computational problems. Students create artifacts that are personally relevant or beneficial to their community and beyond.

Students should...

Develop computational artifacts using iterative processes

Students should participate in project planning and the creation of brainstorming documents. The youngest students may do so with the help of teachers. With scaffolding, students should gain greater independence and sophistication in the planning, design, and evaluation of artifacts.

Create artifacts for practical intent, personal expression, or societal benefit

At the earliest grade levels, students should be able to choose from a set of given commands to create simple animated stories or solve pre-existing problems. As they progress, student expressions should become more complex and of increasingly broader societal significance.

Modify an existing artifact to improve or customize it.

Students should be able to examine existing artifacts to understand what they do. As they progress, students should attempt to use existing solutions to accomplish a desired goal.

Sample Student Task:

This performance task requires you to select and investigate a computational innovation and then create your own computational artifact. Ask students to select a video on Ted Talks for Technology to explore computational innovations. As they explore an innovation, ask them to note the impact of the innovation on society. Students will then create an artifact - an illustration, representation, or explanation of the computing innovation’s intended purpose, its function or its effect.

Resources:

- Code.org Computational Artifact Lesson Plan
- Example Student Computational Artifacts
- K-12 Computational Thinking Practices in Action

Source: K-12 Computer Science Framework