

# 2022 Bridge Building Challenge!



CHALLENGE OPEN TO ALL **HIGH SCHOOL, MIDDLE SCHOOL, AND ELEMENTARY SCHOOL** STUDENTS ON THE OLYMPIC PENINSULA.

Hosted locally by: Puget Sound Naval Shipyard & Intermediate Maintenance Facility; Naval Undersea Warfare Center Division, Keyport; and Naval Base Kitsap Morale, Welfare, & Recreation.

## Background

Engineers need to consider loads when building structures. Loads are weights and forces that a structure must withstand. The dead load of a structure is the weight of the structure itself. The dead load of a bridge, for example, includes beams, cables, and the deck. The live load of a structure is the weight that is added to the structure, including people, cars, and the wind.



## The Challenge

Your mission, should you choose to accept, is to construct a strong, light-weight, one-of-a-kind bridge using popsicle sticks and glue (middle and high school students) or straws and tape (elementary), that can withstand as much weight as possible! In order to do so, you'll need to research, design, test, and ultimately build a bridge that complies with all specified criteria and constraints.

- Finished bridges must be submitted to event organizers by **April 1**. For middle and high school students, it is recommended that you plan for at least two weeks to build your bridge and allow glue to completely dry. Please ensure bridge is labeled with student's name and school.
- Live load testing will be conducted the week of **April 4**. Live load limit will be determined by adding weights to the center-most portion of the Roadway/Bridge Deck until the bridge collapses.
- Live load testing will be recorded and the video shared with participants. Students will be unable to attend testing in-person.

**For more information, please contact us at:** [samuel.m.delano.civ@us.navy.mil](mailto:samuel.m.delano.civ@us.navy.mil)

