ENGINEERS & GEOSCIENTISTS
BRITISH COLUMBIA

CRAFT STICK BRIDGE BUILDING COMPETITION RULES & INSTRUCTIONS

ORGANIZED BY

Engineers and Geoscientists BC,

Vancouver Island Branch

outreach.vi@volunteer.egbc.ca

SCHEDULE PUBLIC TESTING EVENTS AND DATES

Comox Valley Event

Driftwood Mall

Saturday April 22, 2023

Viewing: 10:00 am to 3:00 pm - Testing only entries from School District 71

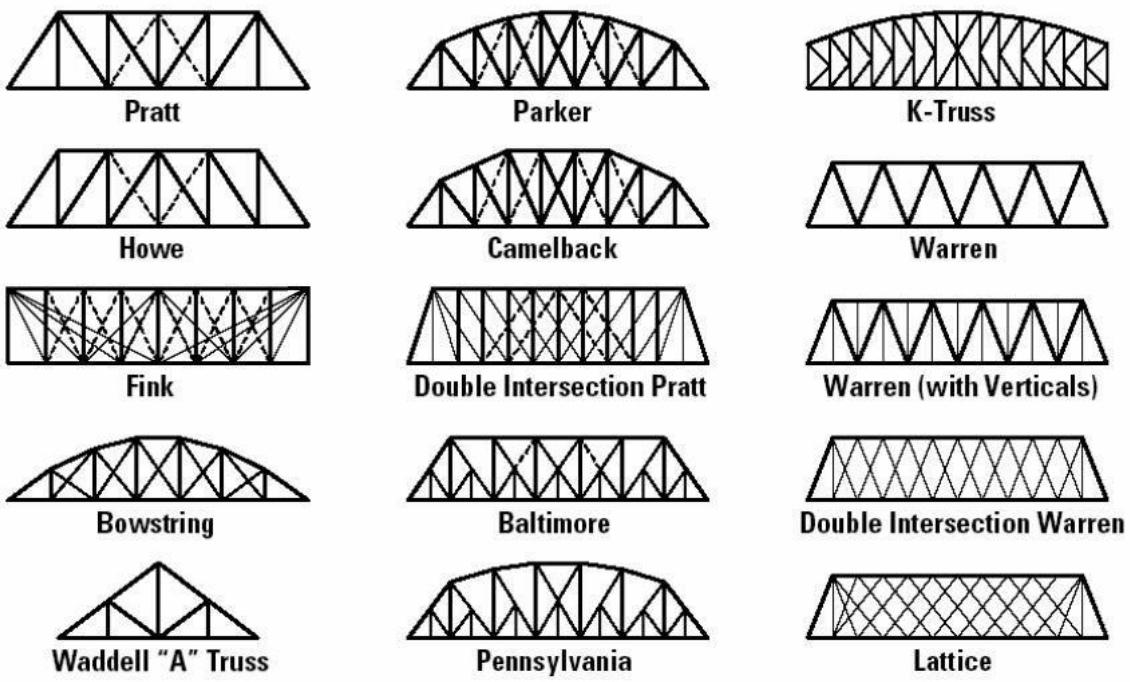
Nanaimo Event

Woodgrove Mall

Saturday May 6, 2023

10:30 am to 2:30 pm. Public registration 10:30 am to 11:00 am followed by testing and awards.

Open to public & school districts.



AWARDS

Prizes for **strongest** bridge in each **category**	
Each School District Classes need to pre-register **K to 7** **Grade 8 to 10** **Grade 11 - 12** School or class representative will drop off bridges with list of builders. Once we know how many, we'll publish testing times. Prizes will be sent to School District to distribute.	**General Public** **Ages 6 and under** **Ages 6 - 9** **Ages 10 - 13** **Ages 14 - 18** **Adults** Register on site before testing time. Time frames pending. Prizes awarded after category testing. Register email if you want an alert.

Check our website or QR code for the best time to witness school classes entries.

Website: egbc.ca/About/About-Us/Branches/Vancouver-Island-Branch

SCAN ME

DESIGN BRIEF

Your Mission: Build the strongest bridge that is longer than 50 cm using only 100 craft sticks and white glue!

GUIDELINE FOR BRIDGE CONSTRUCTION

- Use standard wooden **craft sticks** joined by only **white glue** (Titan School Glue or Elmer's School Glue**).** No other type of glue is accepted.
- You can cut the craft sticks - overall use 100 sticks.
- You can use your own supplies or one of our kits.
- Craft sticks are wood with dimension length of 11.4 cm, width of 0.95 cm, thickness of 0.2 cm

To be **eligible** for a prize, your build needs to fit our machine. Your build must be:
✔ **Longer** than 50 cm
✔ **Wider** than 5 cm
✔ With a deck is that is **flat** and clear; however, it does not have to be solid
✔ Extending less than 5 cm below the deck
✔ Have an **opening** that is 1.5 cm near the middle of your bridge for the testing machine's loading bar

TEST PROCEDURE:

1. Bridges will be inspected at registration. Any violations of the rules outlined above will result in disqualification from the official results and awards. Disqualified bridges may still be tested for personal knowledge.
2. Bridges will be weighed pretest at registration.
3. The winning bridge is the bridge that holds the highest load at failure. All bridges will be destroyed during testing.

BRIDGE BUILDING TIPS

- Give yourself plenty of time; don't wait until the last minute to build your bridge. The glue will need at least 24 hours to dry and will get stronger if allowed to dry for 2 days or more. Also, wood joints are always stronger if you clamp them tight while the glue dries - try using big binder clips to clamp the sticks together (clamps will be removed before testing).
- For bridge ideas look around at real bridges. A craft stick bridge is of course much smaller, but the same principles apply (the important part is not the deck, but the steel or concrete structure that supports it). Look particularly at railway truss bridges, but also at bridges like the Port Mann Bridge, the Second Narrows Bridge, and the Queensborough Bridge. The Lions Gate Bridge and Alex Fraser Bridge are not good examples to follow because they are suspension bridges and rely on cables.
- Research the internet and your local library for excellent bridge reference information to help your design.
- Your bridge needs to have a solid, stiff shape. Notice how a craft stick is much stiffer and stronger when on its edge. A bunch of sticks glued together flat, like a raft, has very little strength and will sag during testing. Also the strongest structural shape is a triangle.
- A bridge that is symmetrical is less likely to twist when loaded and hence will probably carry more load.
- If you aren't sure if your bridge will be stable, test it yourself - span it across two tables at 400 mm apart, and press down on the top of the bridge in the middle of the span. Just be careful not to break your untested creation!
- In past years, winning bridges have held over 300 kg (660 pounds). The all time record for a bridge with 100 sticks was 415 kg (915 pounds)!
- Helping each other is encouraged. The main builder registers. There is an adult category too for the Nanaimo public event.
- Have fun building!