





BUILDING BRIDGES

August 2019

What does the Virginia Department of Transportation (VDOT) do?

We are responsible for ...

designing,
building,
maintaining, and
operating the state's roads, bridges and tunnels

We oversee **57,867** miles of road
and more than **21,000** bridges and structures

Why do we build bridges?



**Interstate 95 over the Potomac River
Woodrow Wilson Bridge**



Chesapeake Bay Bridge-Tunnel



**Some boats are so big
we build tunnels so the
cars can go under the
water**



**Monitor Merrimac Bridge
Tunnel**



Hampton Roads Bridge Tunnel



**Chesapeake Bay Bridge
Tunnel**



Interstate 895 over James River

Some bridges are built tall enough for boats to go under them.

**Gov. Harry W. Nice Bridge
Route 301 over Rappahannock River**



**Interstate 295
over James River**





Route 340 over Norfolk Southern Tracks



Springfield Interchange

Some bridges span roads and railroad tracks



I-95 at Fall Hill Avenue



Woodrow Wilson Bridge

We build some bridges that open so boats can go through them.



Route 17 over York River

Bridge Types

Arch



Bridge Types



Suspension



Bridge Types



Truss



Bridge Types

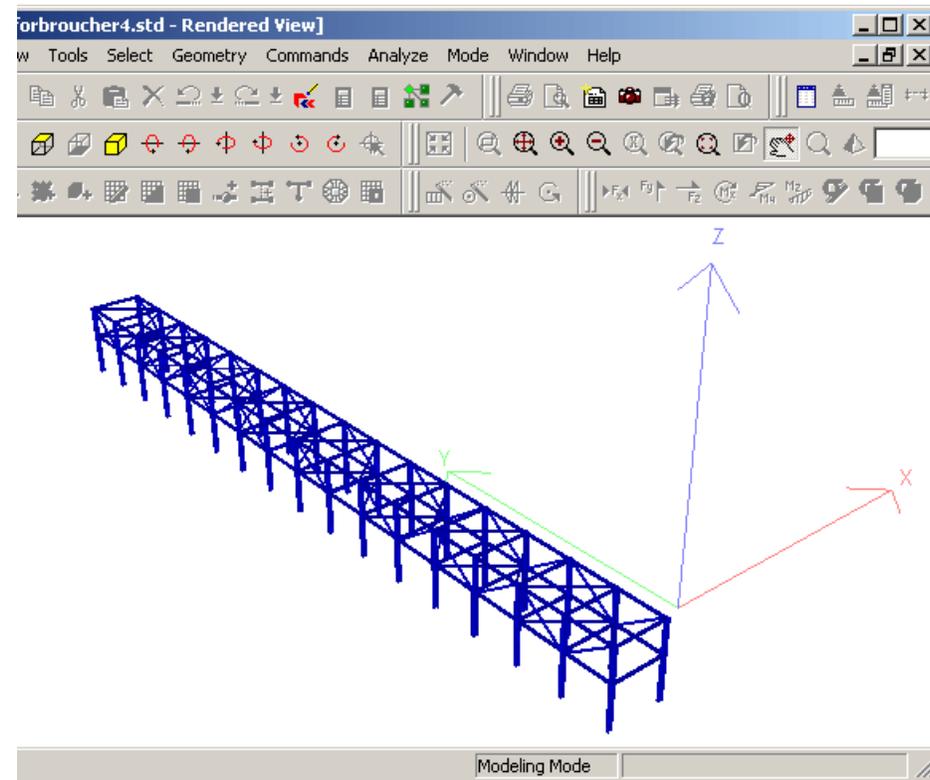


Beam



Bridge Design

Before we build a bridge, we design the bridge. Sometimes states hold competitions for people to submit designs for considered use.



How does a bridge hold all that weight?



Today's Activity: Building a Bridge!

- Build your bridge using gumdrops and toothpicks
- Set your bridge up at a testing station
- In the plastic container, add toy cars one at a time
- How many cars can your bridge support?

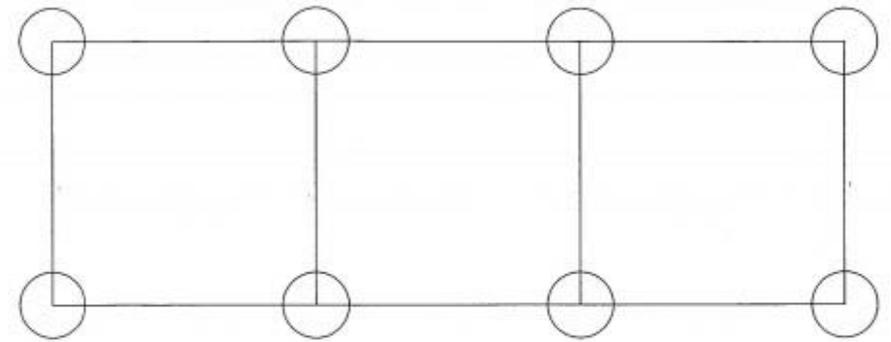


Discussion after:

What would make your bridge stronger?

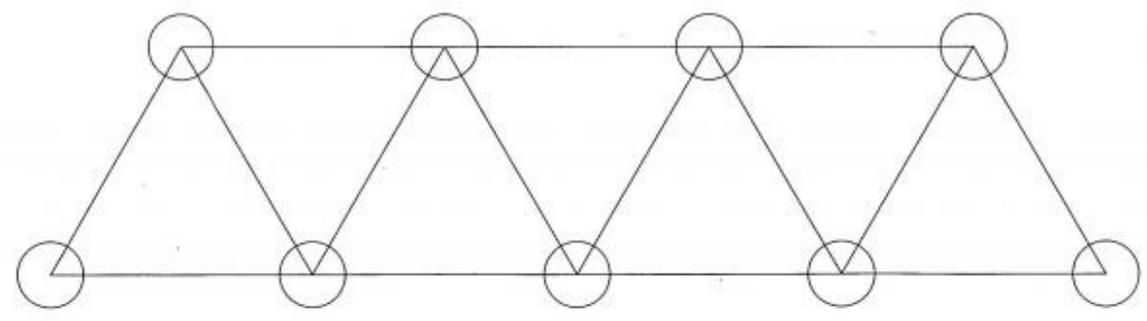


STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	ENGINEER'S WEEK	200	1	1



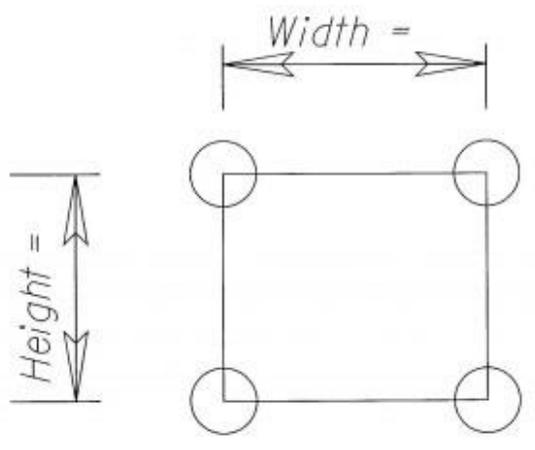
TOP

/ = Toothpick
 ○ = Gumdrop



Length =

SIDE



Width =

Height =

END

DATE	BY	REVISIONS	NOTED

Drawn By: mshirahwa
 Project: 24-NDV-2010-08-24
 File: Gumdrop Bridges Plan Sheet (Spring 2010).dgn (Gumdrop Bridges Plan Sheet (Spring 2010))

How many toothpicks did you use? 39

How many gumdrops did you use? 18

KANSAS DEPARTMENT OF TRANSPORTATION
 GUMDROP & TOOTHPICK BRIDGE

Discussion

- How did your bridge react to the load placed on it?
- What would make your bridge stronger?

