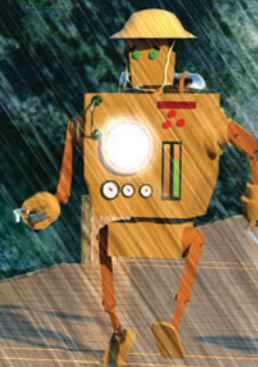


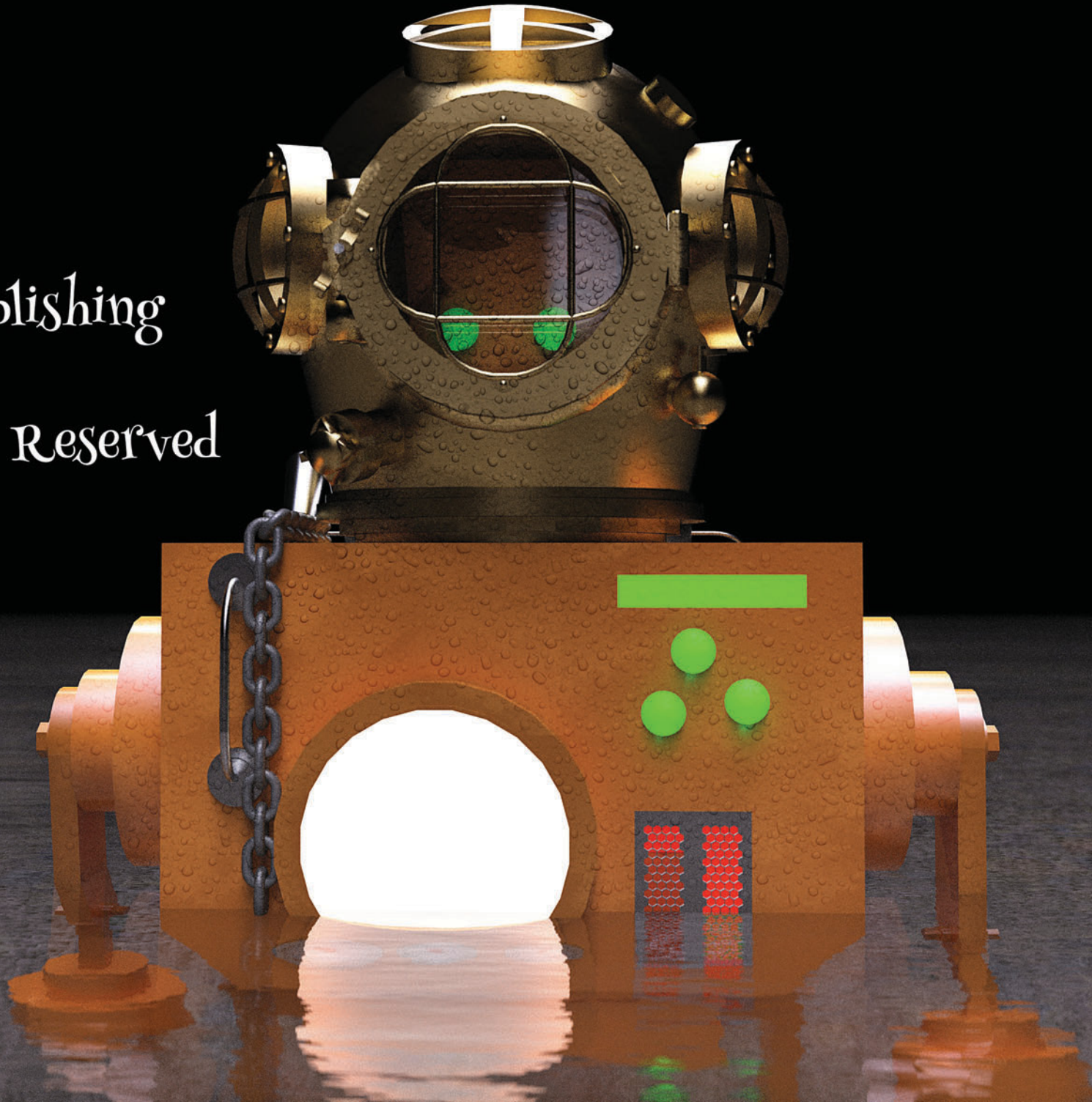
Bridge Building Robots



No Bridge!
No Fair!

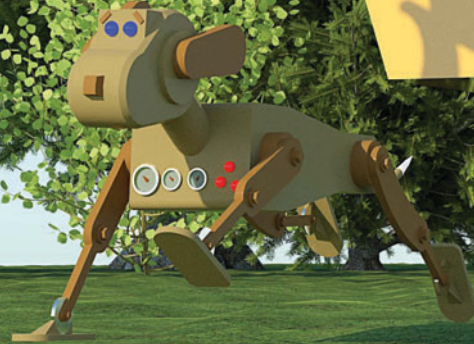
Stuart Nielsen

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Dedicated to
my wife

Ko ni



Bridge Building Robots

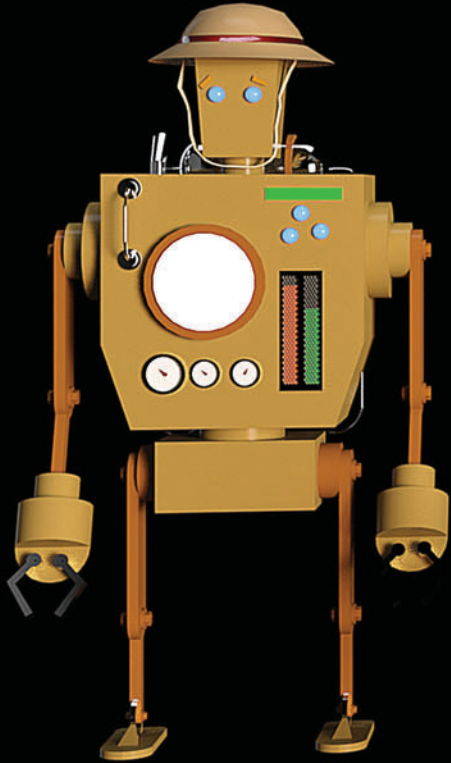
Did you know there are more than 600,000 bridges across the United States and millions more throughout the world?

Bridges are designed by Engineers, who make sure that every bridge is safe for people to cross.

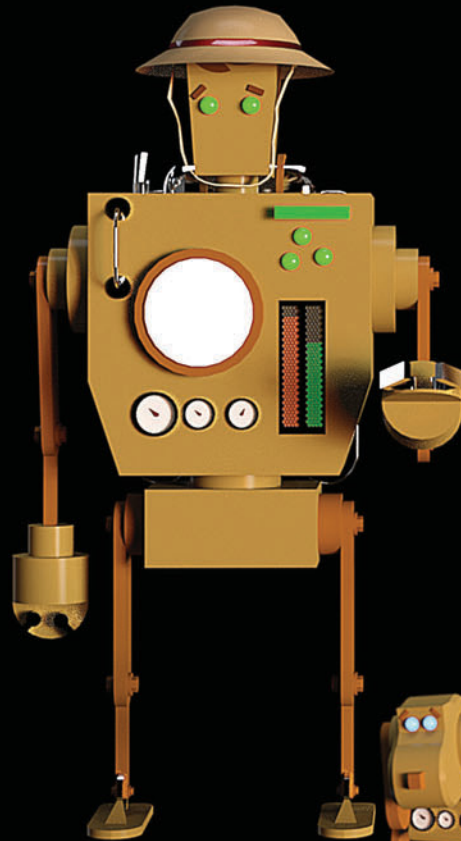
I bet you crossed a bridge today!

Bridge-its (or Bits!)

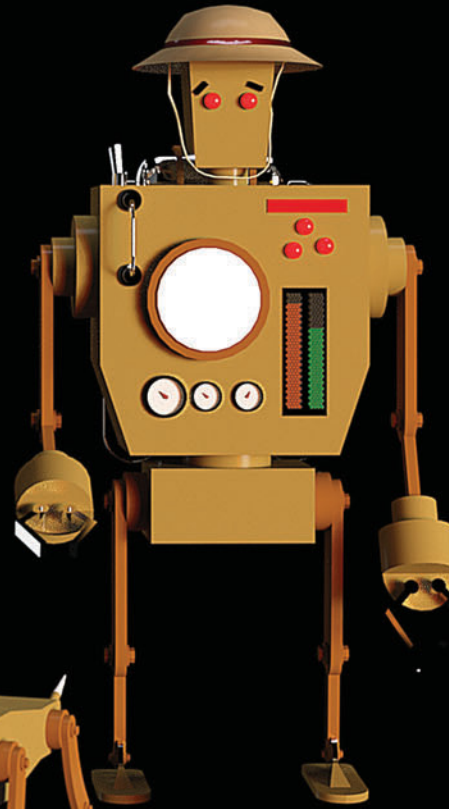
Pete



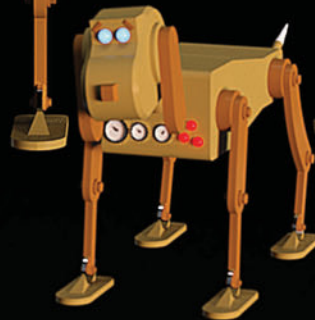
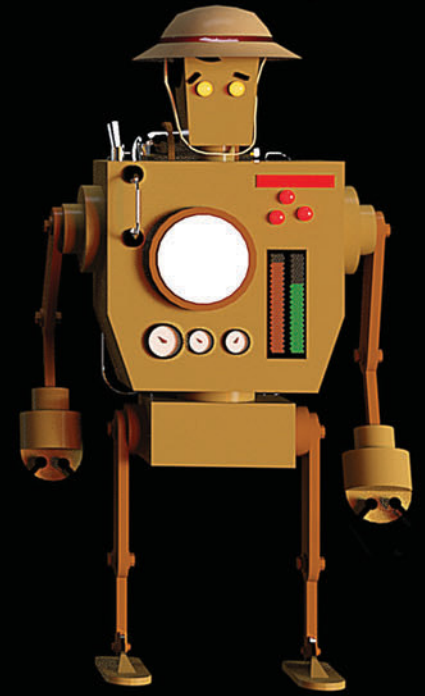
Kori



Eddie



Betty



Emma

Bits are steam powered robots
who live by the Big River.

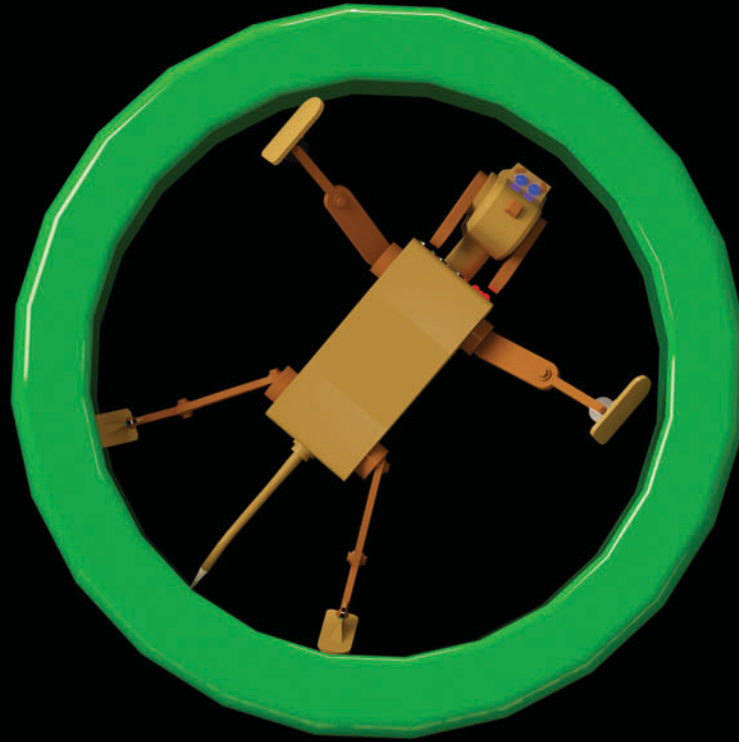


Big

River



Every year the Bits would enjoy
a day at the fair.



This year would be different....

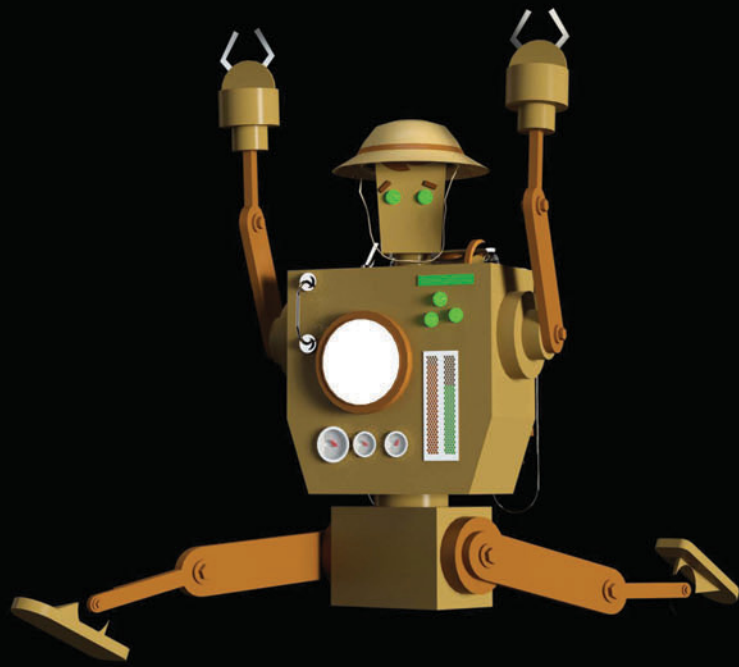


We take the old
wooden bridge
across the river.

But a week before
the fair opens



Flood!





Run!

How will we get to the fair now?



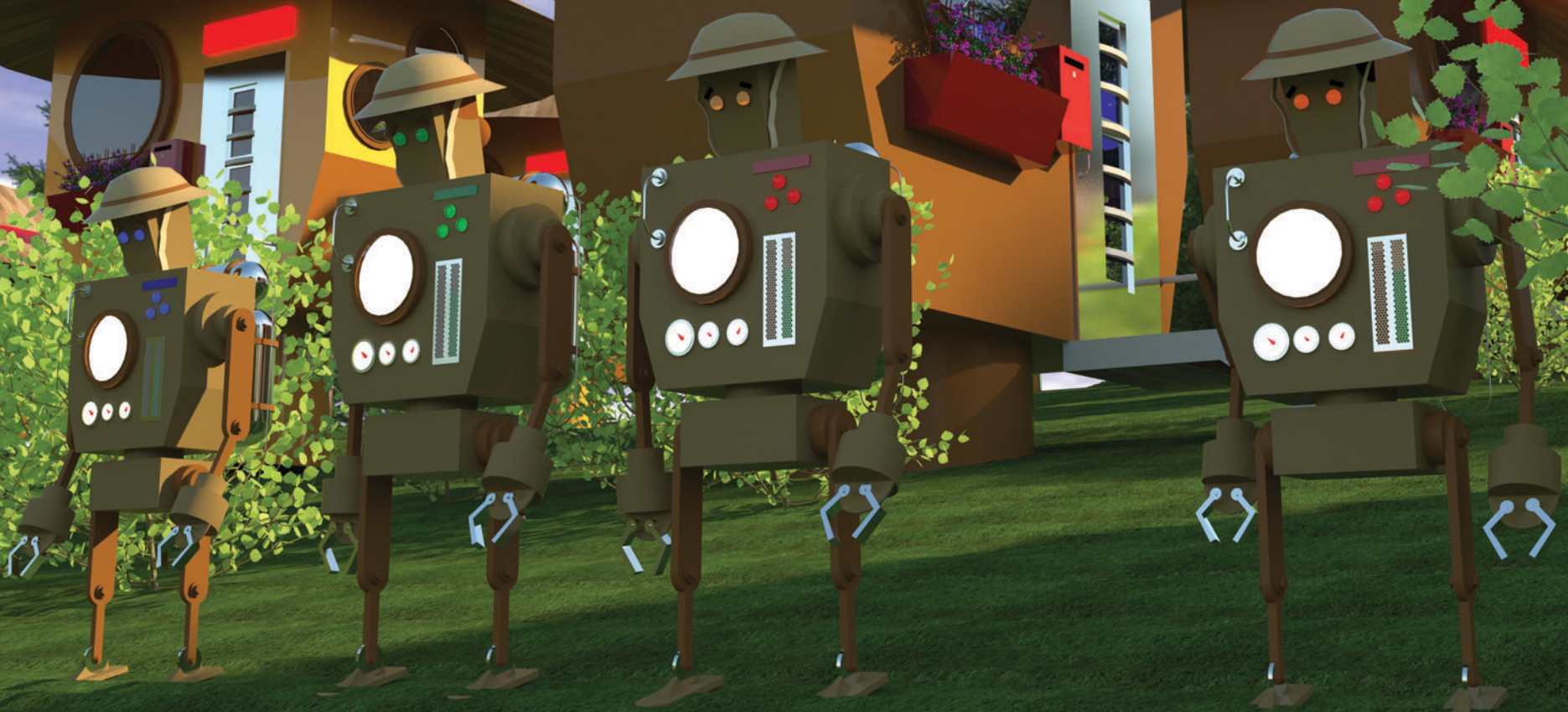


We could use boats but
a bridge would make it
easier and safer to cross.

We need a new

Bridge!

We only have one week before
the fair opens, can we make it?



The Bits decide
to build a steel
truss bridge.



One week!

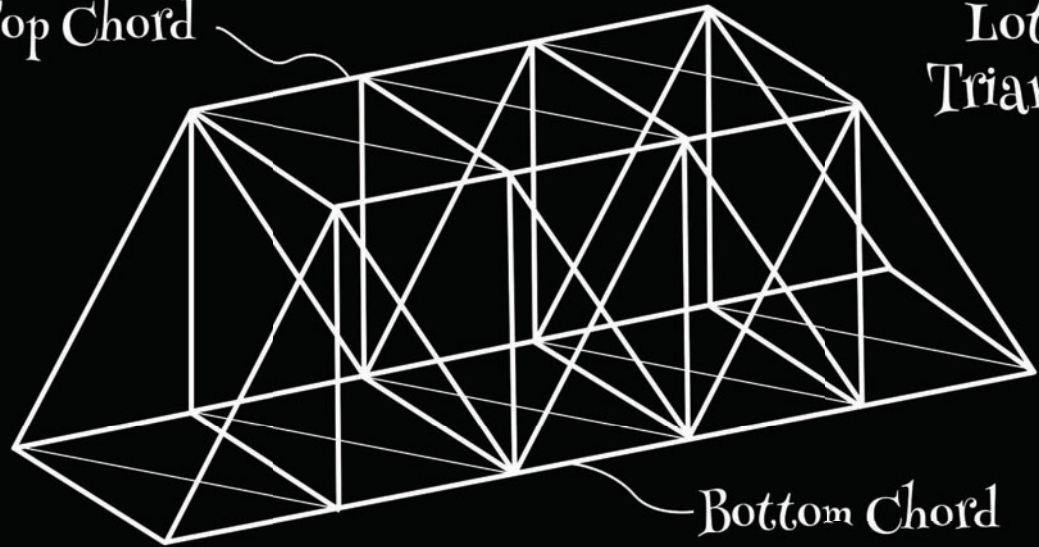


Truss Bridges

A truss is made up of triangles pinned or riveted connections.

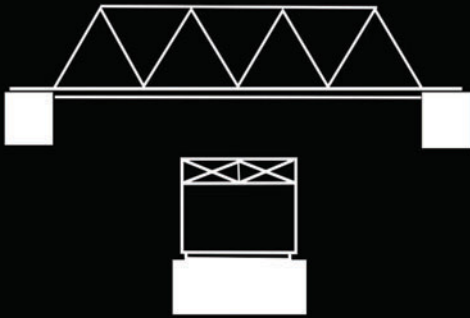
Top Chord

Lots of Triangles!

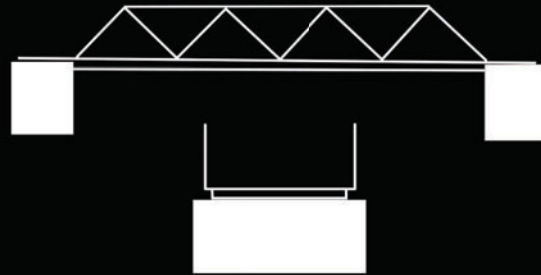


Bottom Chord

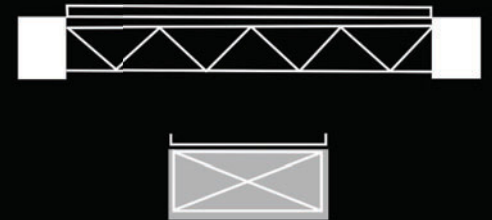
Examples



Through Truss



Pony Truss



Deck Truss



Bowstring Arch



Camelback



Warren



King Post



Pratt



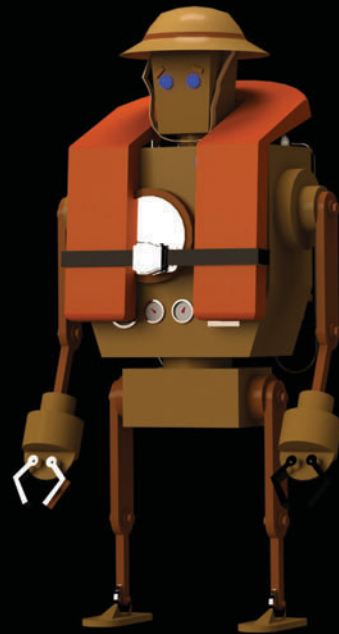
Howe



This time we are going to build a bridge that is strong enough to handle a flood.

Cofferdams allow the Bits to work on the dry riverbed.

Stone piers are used to support the truss bridge.



Placing the cofferdam



Steam Donkey

A 3D rendered illustration of a steam donkey on a log raft. The steam donkey is a complex mechanical device with a central boiler, a tall chimney emitting a plume of white steam, and various pipes and valves. A small, brown, humanoid figure wearing a hat and a life vest stands next to the boiler, appearing to operate the machine. The raft is constructed of wooden planks and is supported by several large, light-brown logs. In the foreground, a large, yellow, mechanical winch or pulley system is visible. The background shows a river with green foliage on the banks.

Steam powered lifting engine commonly used in logging, was invented by John Dolbeer, in 1881.



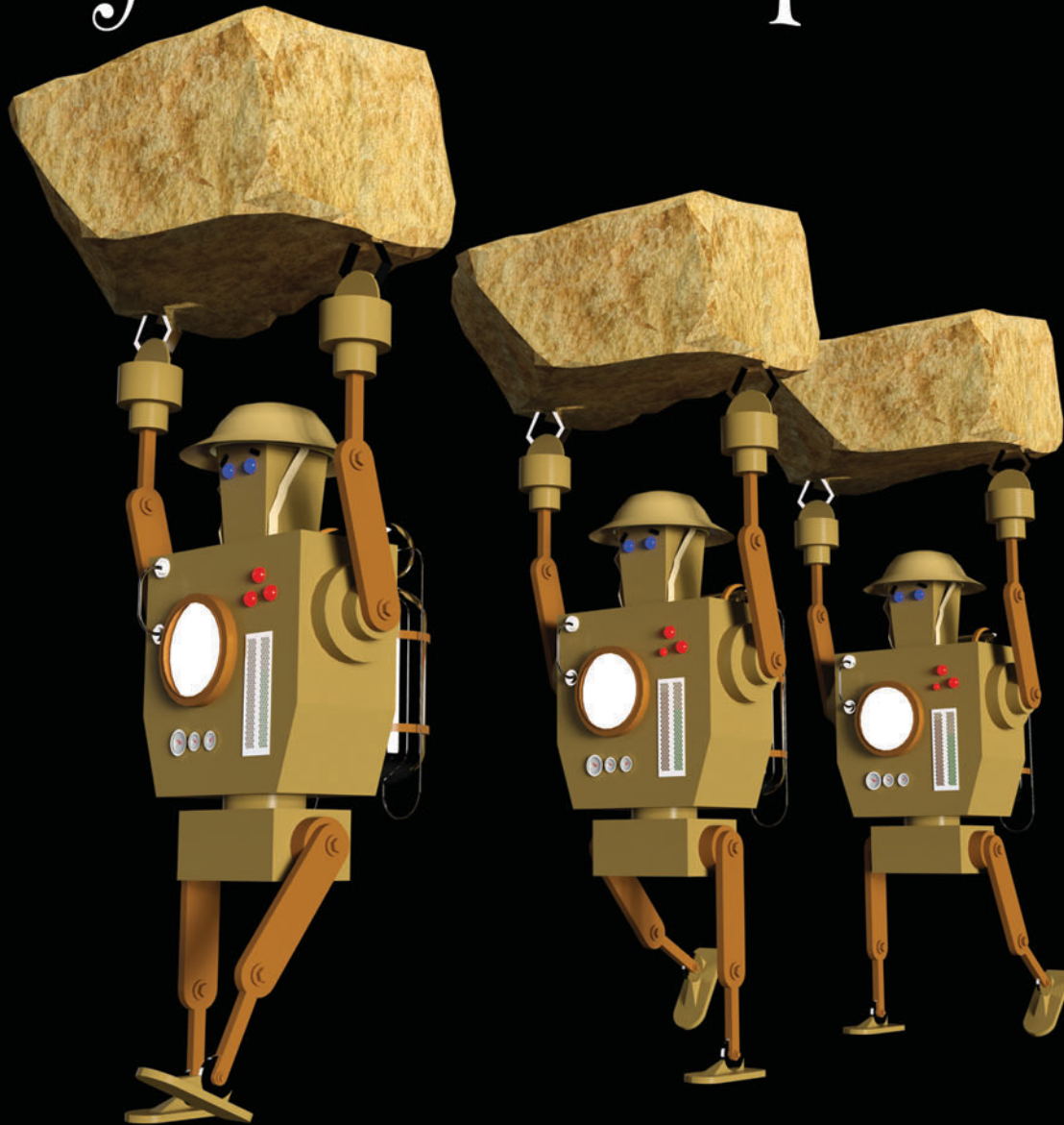
Water is pumped out.

Blocks are placed.



Pier Cap
Pier Stem
Pier Footing

The Bits are running out of time,
they need more help!





WANTED

BRIDGE
BUILDING
ROBOTS

Please
help!

Rose and Dudley
to the rescue!



Rivets are used to hold the steel together.

Riveting





Placing the truss on the bearings.



We need a bridge deck!



A wooden deck will work!

One day left,

Oh No!



Not again!



The bridge is
okay!



Celebrate!







Yee-Ha!

Last Ride!



Emma & Maggie!



Stuart Nielsen is a professional bridge engineer, who moonlights by writing/illustrating odd books.

The Bit's truss bridge is based on a real bridge that was replaced in 2005 with a design by Mr. Nielsen.



Thanks Emma!
More books at www.NieKo.com

