

Bridges, Bridges EVERYWHERE

Pontchartrain Bridge	Brooklyn Bridge	Tower Bridge	Firth of Forth Bridge
Sketch of bridge	Sketch of bridge	Sketch of bridge	Sketch of bridge
Iron Bridge	Quebec Bridge	Stone Arch Bridge	Golden Gate Bridge
Sketch of bridge	Sketch of bridge	Sketch of bridge	Sketch of bridge

Comparing Bridges

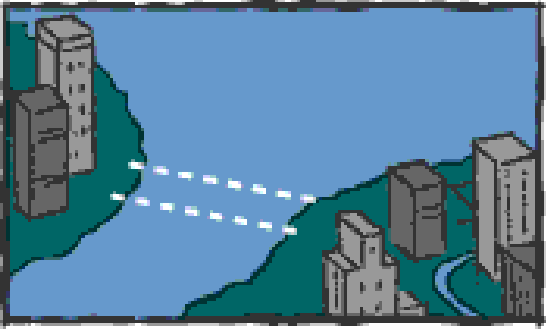
Parts that all the bridges have in common

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Structural differences in the bridges

Some bridges have	Some bridges have	Some bridges have

YOUR ENGINEERING TEAM'S ASSIGNMENT



Location I:

Build a multi-lane bridge for people traveling to the next town for work and for tourists to travel into Craggy Rock

Span: 2,000 feet

Crossing: River

Connects: City and major highway

Special Notes:

"I want a one-of-a-kind bridge that will span our beautiful river and welcome visitors from all over the world to our thriving city. Make sure the new bridge leaves enough room for sailboats on the river. Please don't build a bridge that looks like the Golden Gate Bridge in San Francisco or the Brooklyn Bridge in New York."

— Mayor of Craggy Rock

OUR BRIDGE DESIGN PLAN

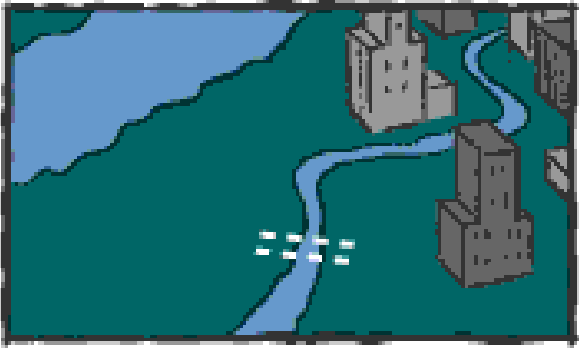
Our team has chosen to design and a build a _____

bridge because:

(1) _____

(2) _____

YOUR ENGINEERING TEAM'S ASSIGNMENT



Location 2:

Build a bridge for bike riders

Span: 100 feet

Crossing: Stream

Connects: Two bike paths

Special Notes:

"We're tired of getting bumped off the road by angry drivers! We want a simple bridge -- one that will connect the bike paths in East and West Craggy Rock over the city stream. We don't have much money, so we're not asking for much. We just want to get to work every day without risking our lives!"

-- Craggy Rock Bike Coalition

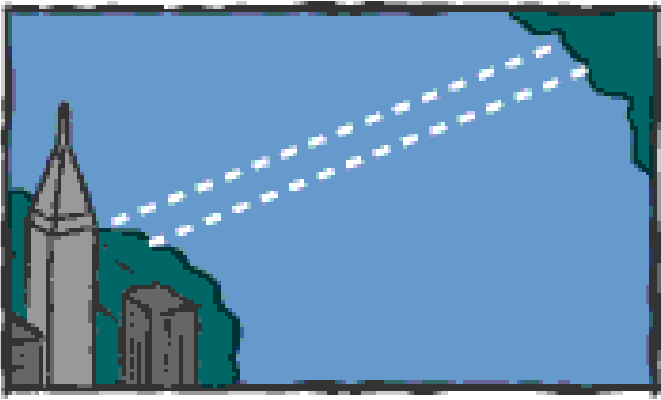
OUR BRIDGE DESIGN PLAN

Our team has chosen to design and a build a _____
bridge because:

(1) _____

(2) _____

YOUR ENGINEERING TEAM'S ASSIGNMENT



Location 3:

Build a highway bridge across a busy shipping port

Span: 5,000 feet

Crossing: Ocean bay

Connects: Island and mainland

Special Notes:

"Our records indicate that more than 500 ships pass through Craggy Rock Harbor each day. Please build a bridge that does not block the flow of water traffic. We do not want angry sailors or congestion of any kind in our harbor. Thank you."

— The United States Coast Guard

OUR BRIDGE DESIGN PLAN

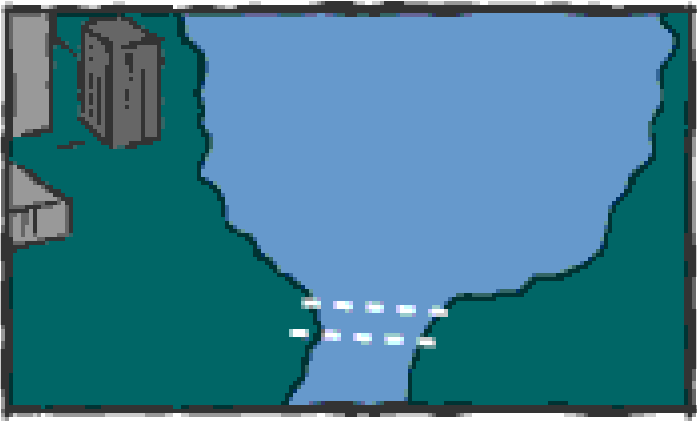
Our team has chosen to design and a build a _____

bridge because:

(1) _____

(2) _____

YOUR ENGINEERING TEAM'S ASSIGNMENT



Location 4:

Build a railroad bridge in a national park

Span: 500 feet

Crossing: Deep river gorge

Connects: Two rocky bluffs

Special Notes:

"We do not want the new bridge to detract from the natural beauty of Craggy Rock National Park. Please build a simple and elegant bridge -- one that does not have towers or piers."

-- The National Park Service

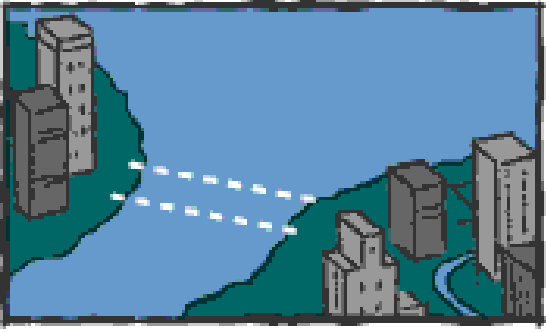
OUR BRIDGE DESIGN PLAN

Our team has chosen to design and a build a _____
bridge because:

(1) _____

(2) _____

YOUR ENGINEERING TEAM'S ASSIGNMENT



Location I:

Build a multi-lane bridge for people traveling to the next town for work and for tourists to travel into Craggy Rock

Span: 2,000 feet

Crossing: River

Connects: City and major highway

BRIDGE MODEL SPECIFICATIONS

- The span of the bridge model should be **at least 25 inches long** to represent the 2,000 feet span of the real bridge.
- The span should be **at least 8 inches wide** in the model to represent the actual bridge having multiple lanes.
- The span should be **at least 5 inches high** off the “water” to allow for sailboats to travel under the bridge.

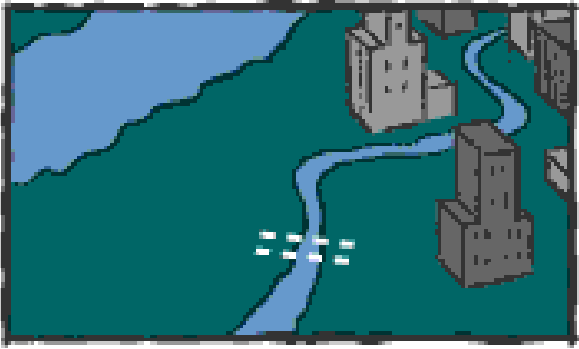
BRIDGE MODEL CRITERIA

- The bridge needs an “on ramp” and an “off ramp” so the cars can get on and off the bridge.
- The bridge needs safety railings to ensure cars don't fall off the sides
- The bridge span shouldn't dip, sway, or lean when “cars” are on it

BRIDGE MODEL BUDGET

Your team will have a budget of \$45.

YOUR ENGINEERING TEAM'S ASSIGNMENT



Location 2:

Build a bridge for bike riders

Span: 100 feet

Crossing: Stream

Connects: Two bike paths

BRIDGE MODEL SPECIFICATIONS

- The span of the bridge model should be **at least 12 inches long** to represent the 100 feet span of the real bridge.
- The span should be **at least 3 inches wide** in the model

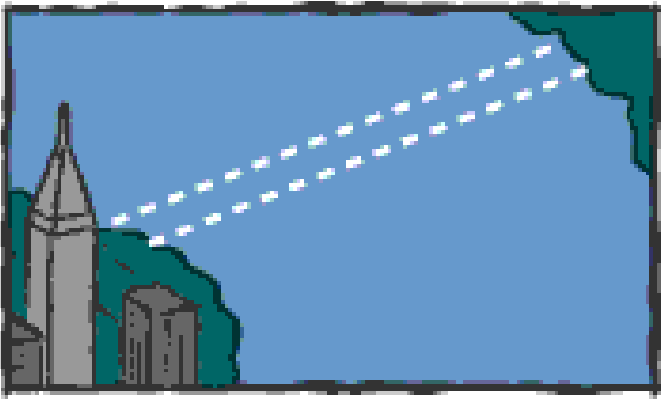
BRIDGE MODEL CRITERIA

- The bridge needs an “on ramp” and an “off ramp” so the bikes can get on and off the bridge.
- The bridge needs safety railings to ensure bike riders don’t fall off the sides
- The bridge span shouldn’t dip, sway, or lean when “bike riders” are on it

BRIDGE MODEL BUDGET

Your team will have a budget of \$30.

YOUR ENGINEERING TEAM'S ASSIGNMENT



Location 3:

Build a highway bridge across a busy shipping port

Span: 5,000 feet

Crossing: Ocean bay

Connects: Island and mainland

BRIDGE MODEL SPECIFICATIONS

- The span of the bridge model should be **at least 30 inches long** to represent the 5,000 feet span of the real bridge.
- The span should be **at least 4 inches wide** in the model
- The span should be **at least 8 inches high** off the “water” to allow for boats to travel under the bridge.

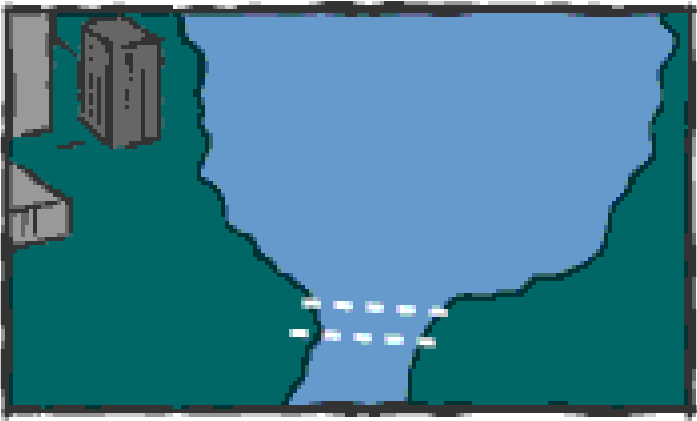
BRIDGE MODEL CRITERIA

- The bridge needs an “on ramp” and an “off ramp” so the bikes can get on and off the bridge.
- The bridge needs safety railings to ensure cars don’t fall off the sides
- The bridge span shouldn’t dip, sway, or lean when “cars” are on it

BRIDGE MODEL BUDGET

Your team will have a budget of \$50.

YOUR ENGINEERING TEAM'S ASSIGNMENT



Location 4:

Build a railroad bridge in a national park

Span: 500 feet

Crossing: Deep river gorge

Connects: Two rocky bluffs

BRIDGE MODEL SPECIFICATIONS

- The span of the bridge model should be **at least 15 inches long** to represent the 500 feet span of the real bridge.
- The span should be **at least 4 inches wide** in the model to represent two trains traveling in opposite directions at the same time

BRIDGE MODEL CRITERIA

- The bridge needs an “on ramp” and an “off ramp” so the trains can get on and off the bridge.
- The bridge needs safety railings to ensure trains don't fall off the sides
- The bridge span shouldn't dip, sway, or lean when “trains” are on it

BRIDGE MODEL BUDGET

Your team will have a budget of \$35.

Google Earth Links

Fifth of forth bridge

https://earth.google.com/web/search/fifth+bridge+of+forth/@56.0011407,-3.3887934,-02192806a,44765803801d,35y,0h,0t,0r/data=CoQBGiYSUAoIMHgOODg3Y2Y5MjglYWQwYTA3OjB4ZTEIZTUzMmJIYWFIYTgyMxnnmOJgJQBMQCGGNM-2PxwLwCoVZmlmdGggYnJpZGdlIG9mIGZvenRoGAIgASImCiQJKdP_6HYATEARAIhXPZj_-SOAZkqCVrmcNC8Ah-0t8ux5HC8BCAggBOgMKATBKDQj_8BEAA

Pontchartrain

https://earth.google.com/web/search/pontchartrain+bridge/@30.21317963,-90.14838755,11.39351393d,11.396411809891d,35y,-0h,0t,0r/data=CoMBGIUSTwoIMHg4NjI3NTJlZTJkOTRmMWIxOjB4NDNM2IxmQyNTRIYzQxZBnjrONTWzE-QCEr-G2I8YdWwCoUcG9udGNoYXJOcmFpbiBicmlkZ2UYAiABiYKJAn6rOI8AEhFQBEJLJOysiowQBnvAmPEVOdKQCFFRlImbCtZwEICCAE6AwoBMEoNCP_wEQAA

Brooklyn bridge

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Tower

https://earth.google.com/web/search/tower+bridge/@51.5054564,-0.0753565,7.03009966a,50229954952d,35y,0h,0t,0r/data=CnsaTRJHCiUweDQ4NzYwMzQzOGI2NWRiNDk6MHg5ZTc4NDIxYTA4NWE2ZjJkGcbGmcuYwEIAIYyACkeQsR0_KgxOb3dlciBicmlkZ2UYAiABiYKJAKuvZrdkVpEQBGAAoNHlpEQBmyKWJ2ZX9SwCF6TU6ZFoBSwEICCAE6AwoBMEoNCP_wEQAA

Iron bridge

<https://earth.google.com/web/search/Iron+Bridge/@52.62746276,-2.48540379,49.89613791a,26286104818d,35y,0h,0t,0r/data=CnoaTBJGCIUweDQ4NzA3ZjU5MGJhZmY2ODk>

[6MHhmMDc5OWMOYTJmODE2NjgyGXrrsk5LUEpAIdfBHJg34gPAKgtJcm9uIEJyaWRnZRgCIAEiJgokCZNRzh3iwEIAERenVHeDwEIAGcBEDh7x6bG_IdC6BnAvq7S_QgIIAToDCgEwSgOT_____ARAA](#)

Quebec

https://earth.google.com/web/search/quebec+bridge/@46.7460433,-71.288093,-0.5383044a,557.34383953d,35y,Oh,Ot,Or/data=CnsaTRJHCiQweDRjYjg5MTZiNDAONTMyM2Q6MHgzNDM3NjJkOThINGNiZWMZMHPLWH5fROAhOE2fHXDSUcAqDXFIZWJIYyBicmlkZ2UYAiABiYKJALimHFbVBKQBHqO32mMIBKQBmtpgMIK9sDwCEnhES8C-kDwEICCAE6AwoBMEoNCP_____wEQAA

Stone arch

https://earth.google.com/web/search/stone+arch+bridge/@44.98061005,-93.25358283,229.02933206a,342.0990256ld,35y,Oh,Ot,Or/data=CoABGIISTAolMHgIMmIzMzI5YzVmYTQ2NzdmOjB4ZTMzYjAzMjRkZDk4NDQ4YHlsCr8viXIGQCGNRS6TPFBXwCoRc3RvbmUgYXJjaCBicmlkZ2UYAiABiYKJAnTuAsUsI9HQBGBNnWbSI9HQBkYTYOTGNJRwCFYTbunx9JRwEICCAE6AwoBMEoNCP_____wEQAA