# ENGINEERING WONDERS OF THE WORLD

### Engineering Wonders Of The World

- ◆ Bridges
- ◆ Tunnels
- ◆ Dams
- ◆ Canals
- ♦ Hydroelectric
- ◆ Architecture

### **Bridges**

- ◆ Caisson
- ◆ Forth Bridge
- ◆ Clifton Bridge
- ◆ Brooklyn Bridge
- ♦ Verrazano-Narrows Bridge
- ◆ London Tower Bridge
- ◆ Chesapeake Bay Bridge-Tunnel

# Caisson • Watertight Chamber • Excavation • Brooklyn Bridge • Caisson's Disease

### Forth Bridge



### Forth Bridge

- ◆ "Most Famous Bridge In The World"
- ◆ Railway Bridge Scotland Over Firth At Forth
- ◆ Cantilever Bridge
  - ♦ Quebec Bridge (1917) 1800 feet Span
- ◆ Two Main Spans
  - ♦1710 feet Each
- ◆ Total Length Greater Than 1 mile
- ◆ Erected 1882 To 1890
- ◆ Sir John Fowler & Sir Benjamin Baker

### Clifton Bridge

- ◆ Suspension Bridge Developed Mid 1800s
- ◆ Clifton Bridge Bristol, England



### Brooklyn Bridge



### Brooklyn Bridge

- ◆ Connects Brooklyn & Manhattan
- ◆ Erected 1869 To 1883
- ◆ Suspension Bridge
  - ♦Longest In World 1883
  - ♦ Main Suspension Span 1595 feet
  - ♦Total Length 6775 feet
- ◆ Designer John August Roebling
- ◆ Construction Washington August Roebling
- ♦ Wire Cable, Wire Wrapping & Caissons

### Verrazano-Narrows Bridge

- ◆ Connects Long & Staten Island
- ◆ Entrance To New York Harbor
- ◆ Suspension Bridge
  - ♦ Main Span 4260 feet



## Suspension Bridges

- ◆ Schuylkill River, Philadelphia (1816)
  - ♦ First Wire Cable
- ◆ Ohio River, Wheeling (1846) 1010 feet◆ Roebling
- ◆ Brooklyn (1883) 1595 feet
- ◆ George Washington (1931) 3500 feet
- ◆ Golden Gate (1937) 4200 feet
- ◆ Makinac (1958) 3800 feet
- ◆ Verrazano-Narrows (1964) 4260 feet
- ◆ Humber Estuary, England (1980) 4626 feet