

# H2O Response Team:



# **Engineering Water Pipes**

Special Guest: Mr. Pressley from Teichert Construction Mrs. Jones' Class 10:45-11:15 Mr. Paulsen's Class 12:45-1:15 Ms. Johnston's Class: 1:20-1:50 Friday, April 8th

Work time for students after presentation



Mr. Pressley will present



# Option 1—PVC Pipe

# Strengths of the Design

- Cost Effective
- lightweight
- Can hold pressures up to 350 psi

- Brittle
- If exposed to sun >1 year, can be unuseable







# Option 2—Concrete Pipe

# Strengths of the Design

- Strong once installed
- Good corrosion resistance

- Very heavy
- Made with porous material
- Can't hold high pressures





# Option 3—Ductile Iron Pipe

# Strengths of the Design

- Can hold pressures up to 350 psi
- Long lasting if protected correctly
- Stronger than PVC

- More expensive than PVC
- Can be very corrosive to different soils
- Heavier than PVC





# Option 4—Vitrified Clay Pipe

Strengths of the Design

• Long lasting to all soil types



- VERY brittle
- Material inconsistent
- Minimal Manufacturers
- Not typically used for clean water (mostly used with waste water materials)



# Option 5—Steel Pipe

# Strengths of the Design

- Long lasting once installed & protected
- Can be used in instances other pipe types can't

- Very expensive
- Typically needs to be welded together
- Very heavy









# Option 6—HDPE Pipe

#### Strengths of the Design

- Holds up to 350 PSI
- Very versatile material

- Need machine to fuse together
- Pipe is heavy
- Newer material to pipe market





**Discuss & Complete on your Handout...** 

# Imagine:

Based on the information you have provided in the charts, decide which option is most likely to be successful.

- Which one did you choose?
- What factor was the most important in helping you decide?

# Design & Plan:

Develop a plan to monitor water loss and possible contamination.

• How can you incorporate technology, sensors, and the internet of things in your plan?

option 5-buctile non ripe	
Strengths about the design	Weaknesses about the design
Option 4-Vitrified Clay Pipe	
Strengths about the design	Weaknesses about the design
Option 5-Steel Pipe	
Strengths about the design	Weaknesses about the design
Option 6-HDPE Pipe	
Strengths about the design	Weaknesses about the design
Imagine	
Based on the information you have provide successful. Which one did you choose? Wr	d in the charts, decide which option is most likely to be hat factor was the most important in helping you decide?
Plan	
Develop a plan to monitor water loss and p sensors, and the internet of things in your p	ossible contamination. How can you incorporate technology slan?



IF TIME...Discuss & Complete with other Teams Complete the Final Section of your Handout while discussing Look freed at the requestered? I not, what ddn't meet and why no?

# Improve:

Exchange plans with one other group. Compare their design to the requirements listed earlier.

- Does it meet all the requirements?
- If not, what didn't it meet and why not?
- Based on peer feedback, what changes can you make to improve your design?

