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The Play  
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Characters:

- Caitlin:** clam puppet
- Alie:** fish puppet
- Doug:** scientist (his own look, clip board and vest)
- Referee:** Jonathan (referee shirt, shorts, whistle)
- Soccer players:** Ryan, Andrei, Ryan, Nate, Ollie (soccer shirt, shorts, soccer socks)
- Cole & Nathan :** maintenance men (sweatshirts, jeans, baseball caps) Harford County Maintenance Men Joe & Bob

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Setting:

Doug is near the stream testing the water and looking for the rest of the team

Alie & Caitlin are waiting with their puppets wondering where everyone else is

Cole & Nathan waiting

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Introduction:

Nathan: Ummmm, I'm not really sure where the rest of our team is but I guess we should get started?

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\*\*\*Display Problem Chart  
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Doug: Uhh, ok, my name is Edward J. Cator and I am here to tell you about a problem in the Chesapeake Bay. Every year there is approximately 47 inches of rain in the state of Maryland. The runoff from the rain causes a lot of pollution to enter the Bay.

There is more than one source of pollution entering the bay. From our research on the Lady Maryland Schooner and other sources, we learned that farms and cities contribute to the poor quality of the bay. The impervious surfaces of the city direct all runoff to nearby streams.

Nathan: Farm's manure is carried to the bay. To solve this problem, farmers have been putting concrete strips near streams to prevent the waste from entering the bay and to help control erosion from equipment and livestock crossing.

Doug: what about sports fields?



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Soccer players and ref run into the room  
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Ollie: Oh man! Red carded, forgot my water bottle but I need a drink.

Alie: STOP! Don't drink the water, its polluted

Caitlin Clam: You humans put fertilizer on the sports fields. When it rains the runoff carries the fertilizer to our river. The level of nitrogen, phosphates, and potassium is off the charts. Isn't that right Mr....what is your name?

Doug: My name is Edward J. Cator. Call me Educator, and yes that is correct.

Nathan: Miss Clam we use fertilizer on the fields because it makes the fields grow lush.

Cailtin Clam: the clam mocks him

Nathan: Don't give me any lip

Caitlin Clam: I can't help it, I'm all lip.

Andrei: How do you know it's polluted?

Alie fish: How do you know its polluted? Look at all of those dead fish, look at the color of the stream, look at that algae bloom, the crabs have left and ... (gasping) is that a leech?

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\*\*\*Display "Entomology & Meadowood Chart"  
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Doug: Well, I have studies under an entomologist, Dr Harkins and learned how to determine the quality of the river by identifying the different kinds of aquatic insects. There is a leech in the river which means it is pollution tolerant.

Jonathan: Do you remember we played a game at Meadowood? We tested the water and determined it was pretty clean.

Ollie: With all of those great plants and trees, they made buffer zones.

Nate: They had a rain garden to prevent runoff from entering the stream from the soccer field.

Ryan: They even had signs that stated "this stream leads to the Chesapeake Bay"

Alie fish: I'm thinking about relocating



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Doug: I wouldn't go to China, they have too many algae blooms. During the summer Olympics, they had to send people out in boats to remove the algae before the boat races. China is trying to clean up their algae problem. The cause is fertilizer. It is estimated that fertilizer use increases 2-3 million tons every year.

Jonathan: Wow, I never thought a place so far away could have the same problem we do.

Alie fish: So looks like I'm not going to China, where do you expect me to go, the Baltimore Aquarium?

Doug: When we make changes such as the buffer zones on sports fields with streams near them, the benefit to the Bay would be more oysters, less erosion, less algae, more seafood...

Jonathan: and more crabs with Old Bay

Nate: Hey, then we can rename it New Bay

Everyone: laughs

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***Display Lady Maryland Chart
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Nate: Speaking of crabs and the bay, when I went on the Lady Maryland boat trip I learned that more oysters can improve water quality because they act as natural water filters in the bay.

Ollie: We went on that boat trip too. Remember what we learned about runoff?

Jonathan: Yea! We compared pollution runoff in a city to the country. Because of all of the impervious surfaces in cities, there is more runoff. In the country, fertilizers and other pollutants can be absorbed by plants and trees.

Andrei: So what is the big deal about fertilizer in the streams and rivers?

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***Display Harford County map
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Nate: We have learned that more than 150 streams and rivers lead to the bay. Many sports fields are near streams. We are concerned with the runoff. When we met with climatologist Dr. Arching at Hopkins University, he expressed his concern about the change in climate. Rainfall is predicted to intensify and so will runoff.

Andrei: What is a solution to runoff on sports fields?



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Nate: We have many solutions. Our maintenance tips are:

- Leave grass trimmings on the field after cutting to naturally fertilize
- Use wood, gravel, mulch or brick instead of concrete because impervious surfaces increase runoff.

Andrei: Our fertilizing tips are:

- Never fertilize before it rains
- Use natural fertilizers
- Fertilize in the fall and not the spring
- Use a fertilizer like Scotts who have decreased the phosphorous in their commercial fertilizer in half

Ollie: Use native plants instead of hybrids. Hybrids require daily watering and more frequent fertilizing.

Ryan: Discourage cutting of existing trees near stream banks and create buffer zones

Jonathan: We presented our solutions to Harford County Executive David Craig. We have designed a system that will collect rainwater and recycle it. It prevents runoff from entering the bay. Because the water is recycled, less fertilizer is needed. The system uses an automatic sprinkler system to keep the fields in great condition.

Thank you!

Everyone: We are the Techbrick Tactitans! Blow the whistle and get crazy!