Sunpatiens





Zinnias



Blue Flag Iris



Water Filtration Experiment with Non-Native vs. Native Plant Species Maria Timberlake

Images provided by PowerPoint's Designer feature (Office Intelligent Services)

**River Oats** 

# Sunpatiens and Zinnias are both non-native species. Blue Flag Irises and River Oats are a species used in water remediation projects.

I am conducting this experiment to test whether these native species are more effective at water filtration than non-native species.

I am using contaminants such as dye, soap, and sand to simulate real-world pollutants.

The coming slides will demonstrate the before and after photos from the trials.





Zinnia (Blue Dye) Before and After Photo

After being filtered, the water turned into a turquoise color.



After filtration, the water became a light yellow.

Zinnia (Laundry Soap) Before and After Photo

# Zinnia (Sand) Before and After Photos

• The sediment was dramatically decreased.



## Sunpatien (Blue Dye) Before and After Photo

After filtration, the water transformed into a lighter blue.





The result was comparable to the Zinnia.



Sunpatien (Sand) Before and After Photos

As you can see here, the sediment was decreased, and the water appeared clearer than during the Zinnia trial.

### Blue Flag Iris (Blue Dye) Before and After Filtration





After filtration, the water transformed into a light green color.

Blue Flag Iris (Laundry Soap) Before and After Filtration



After filtration, the water became a light yellow color.

### Blue Flag Iris (Sand) Before and After Filtration



After filtration, the water appeared slightly clearer.

# Blue Flag Iris (Red Dye) Before and After Filtration



After filtration, the water became a light yellow color.

### River Oats (Blue Dye) Before and After Filtration



After filtration, the water transformed into a light blue.

### River Oats (Laundry Soap) Before and After Filtration



After filtration, the water became almost clear.

# River Oats (Sand) Before and After Filtration///



After filtration, the water appeared clear.

### River Oats (Red Dye) Before and After Filtration



After filtration, the water turned into a light orange color.

### **Experiment Results**

- The River Oats (*Chasmanthium latifolium*) performed the best overall in visual filtration.
- This is not surprising considering this species is used specifically for water pollution remediation projects.
- The Blue Flag Iris (*Iris virginica*) also filtered efficiently; however, the soil seemed to have more additives causing color change. It did filter the orange dye more effectively than the River Oats.
- These results prove that these native species are indeed more effective at water filtration than the non-native ones.
- Looking at the non-native species, the Zinnias performed better for dye filtration while the Sunpatiens performed better for sediment filtration.