



# Filter This!

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## Objective:

Fresh water sources are becoming more and more scarce. Many engineers are searching for new ways to provide more fresh water. In this competition, teams will be challenged to design and build a filter to remove debris and contaminants from wastewater.

## Time:

Each group will be given 20 minutes for the design and assembly of their filtration system.

## Materials:

Each team will be provided with one (1) 2-Liter Bottle and four (4) units chosen from the following materials:

- |                           |                        |
|---------------------------|------------------------|
| 1. Sand (1/2 cup)         | 7. Pantyhose (1 patch) |
| 2. Gravel (1/2 cup)       | 8. Steel Wool (1)      |
| 3. Cotton Balls (1/2 cup) | 9. Sponge (1)          |
| 4. Leaves (1/2 cup)       | 10. Coffee Filters (1) |
| 5. Grass (1/2 cup)        | 11. Paper Towels (1)   |
| 6. Peat (1/2 cup)         | 12. Charcoal (1/2 cup) |

## Rules:

- Each groups will have no more than 4 members
- Teams having at least one female member will receive extra points
- Groups may not consult with anyone outside the group during the design period
- Each group's device will be tested with an identical wastewater solution
- Reasoning must be provided behind each filter choice

## Judging:

- Main grading criteria will be by the visible clarity of the filtrate
- Each filtrate will be compared to a pre-determined standard with regards to food coloring
- In the event of a tie, a hydrometer will be used to compare the specific gravities of the filtrates

## Prizes:

- 1<sup>st</sup> Place: \$500 from College of Engineering
- 2<sup>nd</sup> Place: \$200 from College of Engineering
- 3<sup>rd</sup> Place: \$100 from College of Engineering

## Contacts:

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