

# The Big Mission! Can We Rescue Used Water?



→ • **Target:** Understand how a city cleans its wastewater by building our own homemade purifier!

→ • **Agent Roster:** 60 Junior Scientists (5th & 6th grade)

• **Location:** CEIP Els Poblets, Alicante

• **Date:** Tuesday, April 21 (09:00 - 14:00)

• **Lead Scientist:** Antonia Trompeta (Physics Grad, UA Didactics Researcher, SCIENTIX Ambassador)

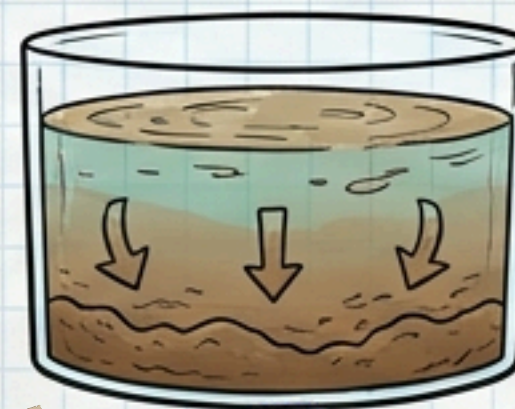
## How the Grown-Ups Do It!



### 1. Screening



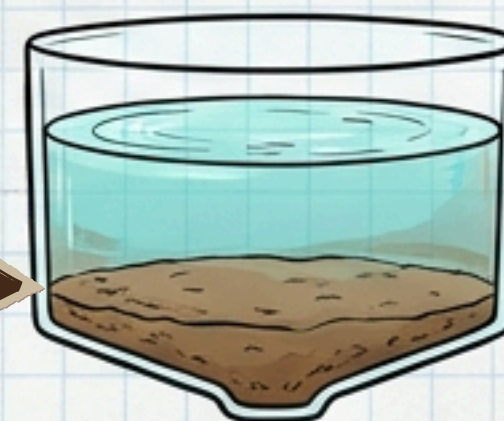
### 2. First Sedimentation



### 3. Biological Treatment



### 4. Second Sedimentation



### 5. Osmosis & Final Polish



**THE BIG REWARD:** Rescued water waters plants, mud becomes crop fertilizer, and gases become biogas fuel!

# The Water Rescuer's Toolkit

Everything we need to build our filtration stations!

**Reminder:**  
Check all materials before starting!

## Inventory Matrix

**Lab Partners**  
(2 Kids)

**Lab Squad**  
(10 Kids / 5 Pairs)

**Full Lab**  
(60 Kids / 30 Pairs)

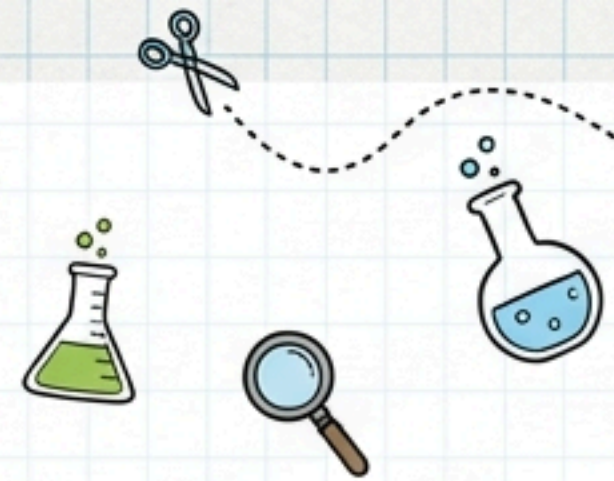
Inventory Matrix	Lab Partners (2 Kids)	Lab Squad (10 Kids / 5 Pairs)	Full Lab (60 Kids / 30 Pairs)
Coffee Filters	4	20	100
250ml Glass Jars	5	25	65
1.5L Empty Bottles	4	20	100
Scissors & Pens	2 sets	10 sets	50 sets
Instruction Sheets	2 sheets	5-10 sheets	30-60 sheets
Cotton	1 small bag	3 small bags	15 small bags
Gravel	1 handful	1 big bag	1 full bucket
Sand	1 handful	1 big bag	1 full bucket
Activated Carbon	3 spoons	1 Brita pack	5 Brita packs

Essential for cleaning!

Essential for cleaning!

Measure carefully!

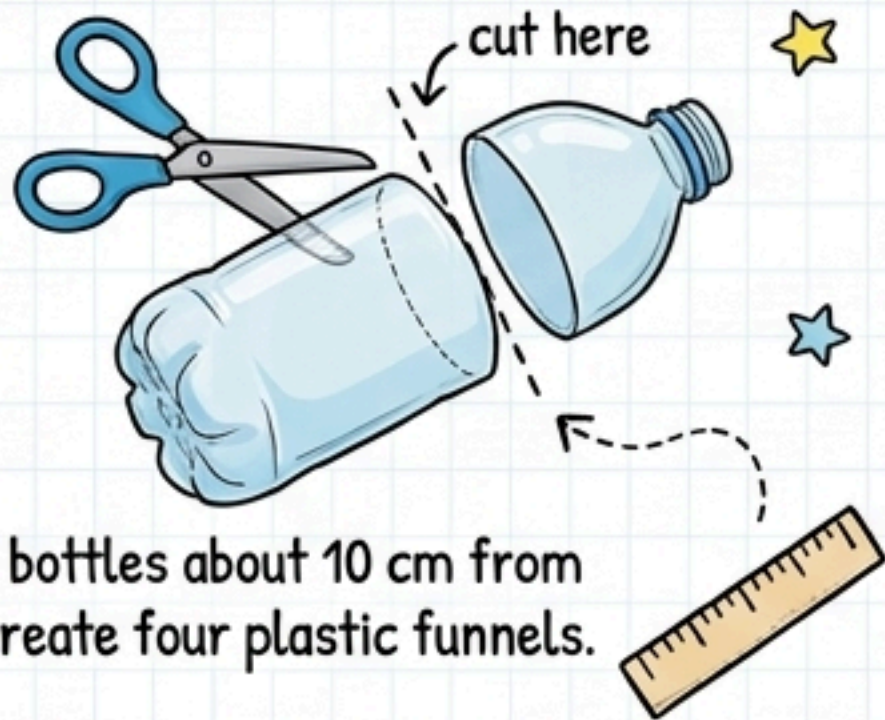
Teamwork makes the dream work!



# Building Our Mini-Purifier

Setup your stations before the experiment begins!

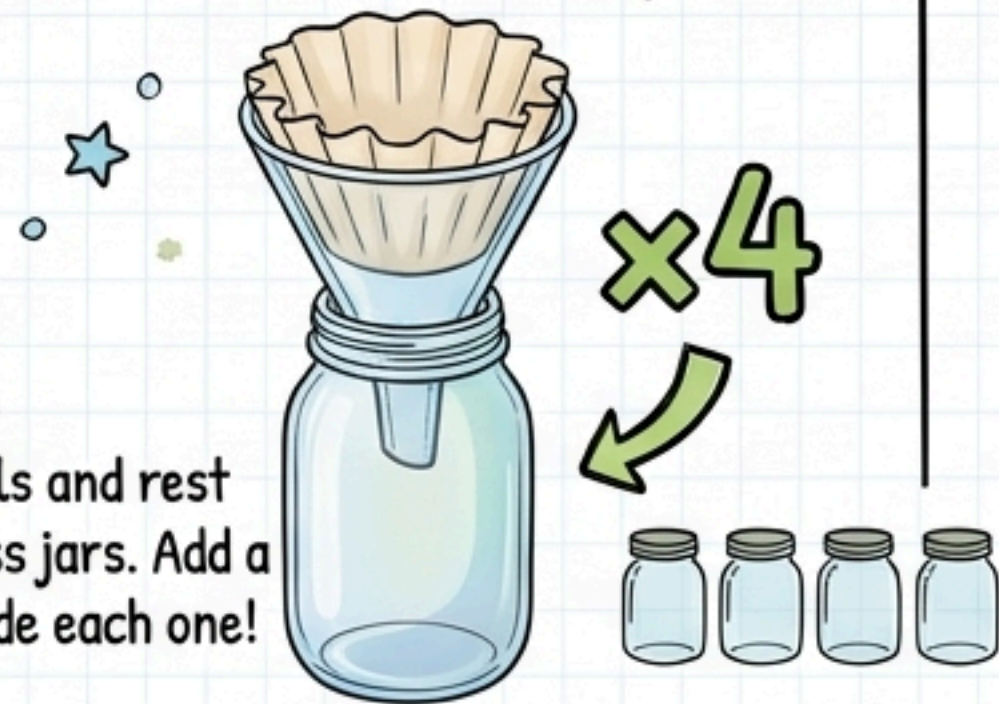
1



## The Cut!

Cut the empty bottles about 10 cm from the mouth to create four plastic funnels.

2



## The Stand!

Invert the funnels and rest them on the glass jars. Add a coffee filter inside each one!

3



Funnel 1:  
Fill with  
Gravel

Funnel 1:  
Fill with  
Gravel

Funnel 2:  
Fill with Sand

Funnel 3:  
Fill with Cotton

Funnel 4:  
Fill with  
Activated Carbon

Funnel 4:  
Fill with  
Activated  
Carbon

## PREP THE MONSTER MIX!

In a separate jar, mix water, dirt, leftover liquids, and anything else you can find to create super dirty water!

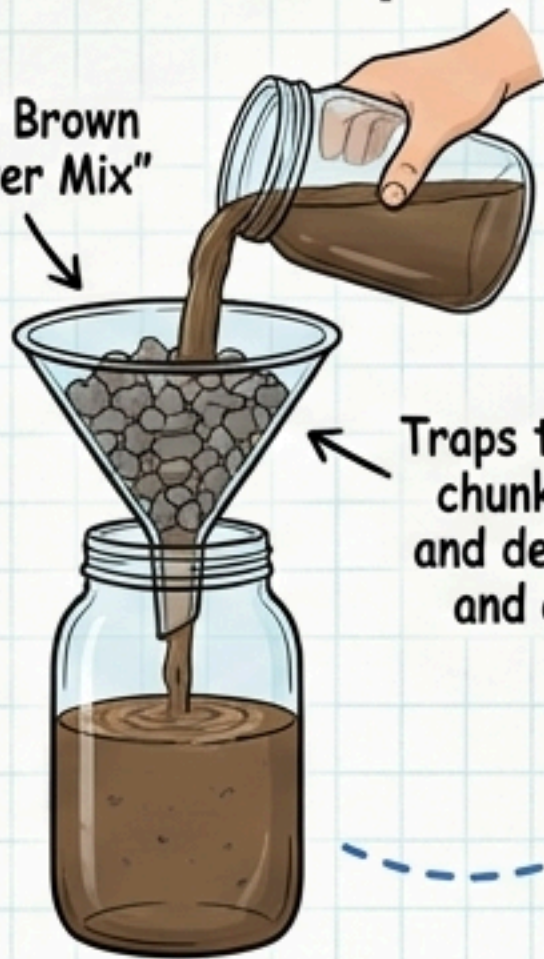


# The Magic Filtration Station

Follow the flow and watch the water transform!

## Action 1: The Gravel Trap

Muddy Brown  
"Monster Mix"



Traps the biggest  
chunks of dirt  
and debris! Wait  
and observe.

## Action 2: The Sand Sifter



Catches the  
smaller bits of  
dirt. Wait and  
observe.

## Action 3: The Cotton Catcher



Traps fine  
particles that  
slipped through  
the sand.

## Action 4: The Carbon Cleaner



Removes tiny  
invisible  
impurities and  
bad smells!

Scientist Checkpoint: What happens to the color of the water at each step? Write it down!

# The Scientist's Lab Report

Time to evaluate our findings and plan for the future!

## Our Observations (The Data)

Who are the scientists on our team? \_\_\_\_\_

What exactly did we put in our Monster Mix? \_\_\_\_\_

What did the water look like after Filtration 1? \_\_\_\_\_

After Filtration 2? \_\_\_\_\_

After Filtration 3? \_\_\_\_\_

## The Big Conclusions (The Science)

Is the water clean enough to drink right now? (Circle: YES / NO)

What else is needed to make this water safely potable? \_\_\_\_\_

Since we can't drink it yet, what else could we use this rescued water for? \_\_\_\_\_

## Action & Feedback (The Future)

How can we reuse water at home, at school, or in our city? \_\_\_\_\_

Did this workshop help you understand water reuse? \_\_\_\_\_

Would you recommend it? I liked \_\_\_\_\_ / I didn't like \_\_\_\_\_

Field Trip Idea: Where can we go to see a real city water plant in action? \_\_\_\_\_

# SCIENTIST'S LOGBOOK: WHAT DID WE LEARN?

Team Members: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**1. What did you add to make your dirty wastewater?**

We added: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**3. Do you think the water is now clean enough to reuse?**

[ YES! ]      [ NO! ]

**2. Order the steps we followed!**  
 ✨ (Connect with arrows) ✨

- 1st** Sand filtration
- 2nd** Activated carbon filtration
- 3rd** Cotton filtration
- 4th** Gravel filtration

**4. What else would be needed to make it usable in real life? (Circle one)**

Alcohol      Eating microorganisms      Salt

**5. Brainstorm!**

What should be done in your city, school, or home to help reuse wastewater?