

Water for Death Valley Scientists

Reality TV is getting tough on scientists. The Rough Science team has been dropped in the desert – they'll need all their science skills to survive! They'll also need help from you, the back-up team.

This is the only water the Rough Scientists could find:



Please can the back-up team show us how to make the water safe to drink. We reckon there are bacteria in the water, dissolved solids and bits of mud. The only equipment we have is this:



■ 2 night lights (or candles)



■ jar of dirty water

■ sheet of plastic



■ kitchen foil



■ piece of cloth



■ plastic cup of sand



■ clean plastic cup



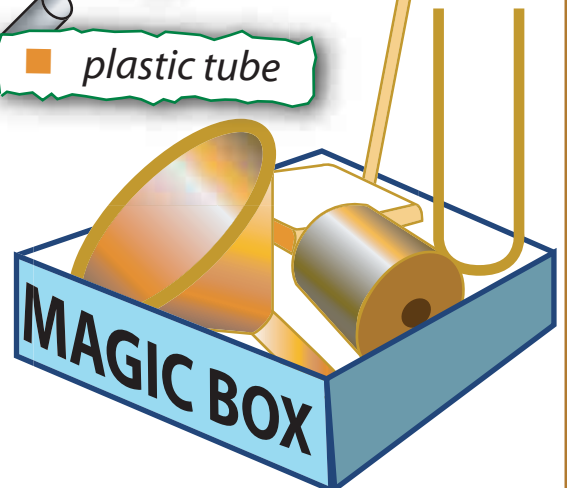
■ masking tape (or sellotape)



■ plastic tube



MAGIC BOX



BBC



Use the **chart** to plan how to get clean water for the **Rough Scientists**.



Jonathan

Boiling the water should kill off the bugs.



Kate

Won't the water vapour disappear into the air?

How we can get rid of the big bits

Then try it out!



Kathy

We need to sieve the bits out...

How we can get rid of dissolved solids



Mike

You can add things to make the big particles settle.

How we can get rid of bacteria



Iain

Can't you filter water through clay from a river bed?



Ellen

If you evaporate the water, the dissolved solids stay behind.



How did you do?

Compare your back-up team's success to the Rough Scientists.

How the Rough Scientists purified their water:

- Iain found water by detecting places where surface water had changed the landscape.
- Ellen made a plastic bag and used it to collect the water that evaporated from plants
- Kathy made a solar furnace of foil. She used it – and the sun's energy – to boil the water and kill bacteria. Now it's safe to drink.
- Mike made charcoal by heating wood. Then he passed the water through the charcoal to filter out solid impurities and to take out some of the unwanted dissolved solids. This made it taste better.



The back-up team score your success:

Test on your clean(er) water sample	Result	Score 1 = low 5 = high
Is it colourless?		
Does it have a smell?		
Is it clear (no bits)?		
What volume of clean water did you produce? (in cm ³)		
What temperature does it boil at? (pure water boils at 100°C)		

You can't drink the 'clean' water you've made. But would you drink it if you were a Rough Scientist?

