

Learning Adventure: 1

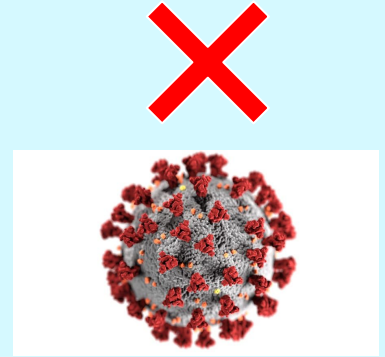
# What's a Filter?

Let's also learn how to put one together!



# What's a filter?

A filter is something that has tiny openings that allows certain things to pass through and not others.

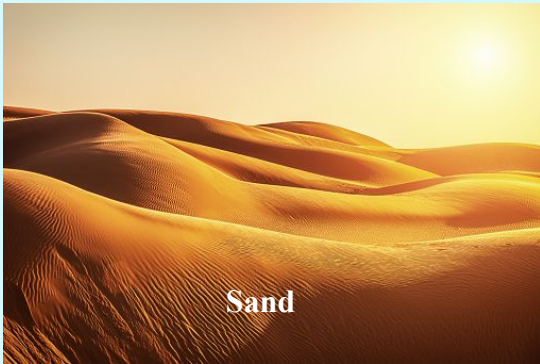


*Like a facemask! It lets air go through so we can breathe, but not harmful viruses that can make us sick.*



# What the filter uses

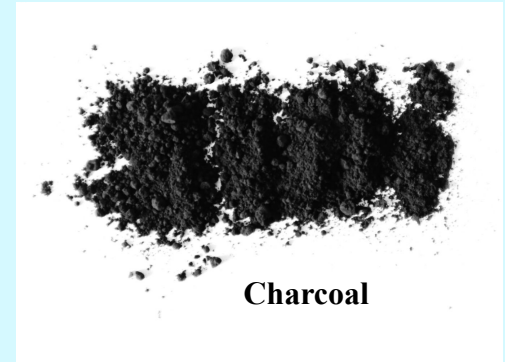
Ok now, let's learn about the filters at work in our filtration system. We use sand, gravel, and charcoal.



**Sand**



**Gravel**



**Charcoal**

Check out the bags. Can you identify which one is which?



# Sand Filter

Sand is really small rocks. When pieces of dirt or other contaminants go through the sand filter, these **particles** get stuck in the sand, and filtered out.



*Learning Note!:* A particle is what we call a small piece of something.



# Gravel Filter

The gravel filter also helps the sand filter in removing small particles that we don't want to be drinking!



Woah big rocks! Why do you think we use gravel *AND* sand?



# So why sand AND gravel?

The reason is that one filter is faster than the other one, but doesn't do as good a job filtering particles out. Can you make a **hypothesis** about which one is which?



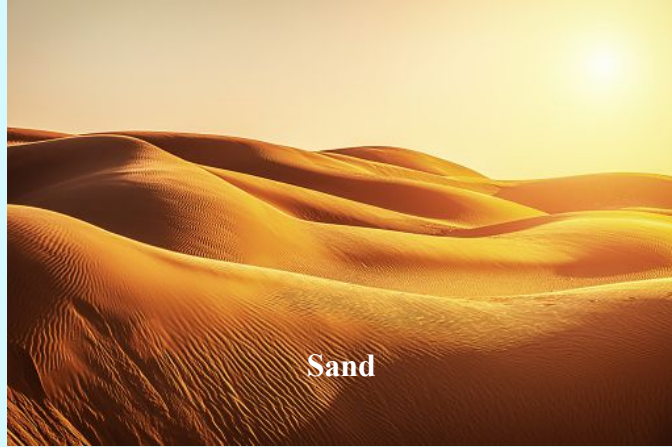
*Learning Note!:* A hypothesis is an educated guess. It's using your knowledge and past experiences to make a guess.





# Learning Check

Which type of filter works faster but lets more particles through?



Answer: Gravel

# Charcoal Filter

Q: What does it filter? A: organic chemicals mostly!



*Learning Note!:* Charcoal grabs onto harmful chemicals in the water and holds them tight so they don't end up being drank.





# Experiment:

Pour water into the sand filled bowl, and into the gravel filled bowl, and see for yourself which one goes through faster. (Do this over a sink so it doesn't spill!)



Team Sand



Team Gravel

# Charcoal Filter

The third filter uses activated charcoal. Charcoal is created when a fire burns a piece of wood down, and activated charcoal is a special type that's made in really really hot fires.

**Charcoal**



**Activated  
charcoal**



Ohh careful that's hot! Next time you're near a fire try and look for the coals! But don't touch them, they're very hot until they have a chance to cool down.

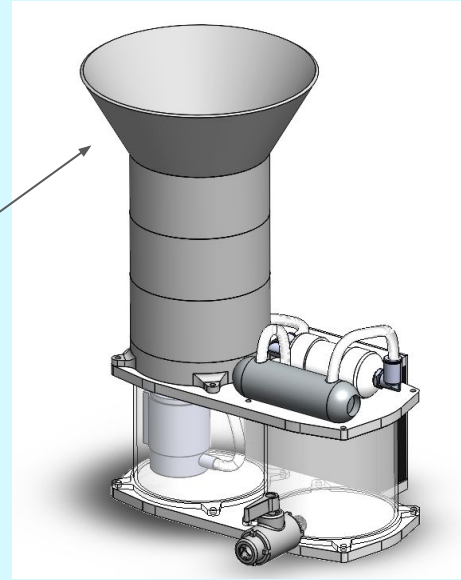


# Time to check out the filter!

The part of the water filter we'll be looking at is the smoke-stack looking piece. **Try taking it apart!** It's made up of three round bowls.

Each bowl will have one of the three filter ingredients, starting with sand, then rocks, then charcoal. At the bottom of the charcoal there's a piece of paper.

Smoke-stack piece



*Try taking it apart! What do you think the little holes in the bowls are for?*

