



Centre for Affordable
Water and Sanitation Technology

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CAWST, the Centre for Affordable Water and Sanitation Technology, is a nonprofit organization that provides training and consulting to organizations working directly with populations in developing countries who lack access to clean water and basic sanitation.

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This presentation is used with
Lesson Plan 11: How the Biosand
Filter Works in the Biosand Filter
for Project Implementers Trainer
Manual.

Available at

www.cawst.org/resources



The Pause Period and The Run



Learning Expectations

1. Describe how all the parts function while the filter is being used.
2. Describe what is happening in the filter during the pause period and the run.

Phases of the filter

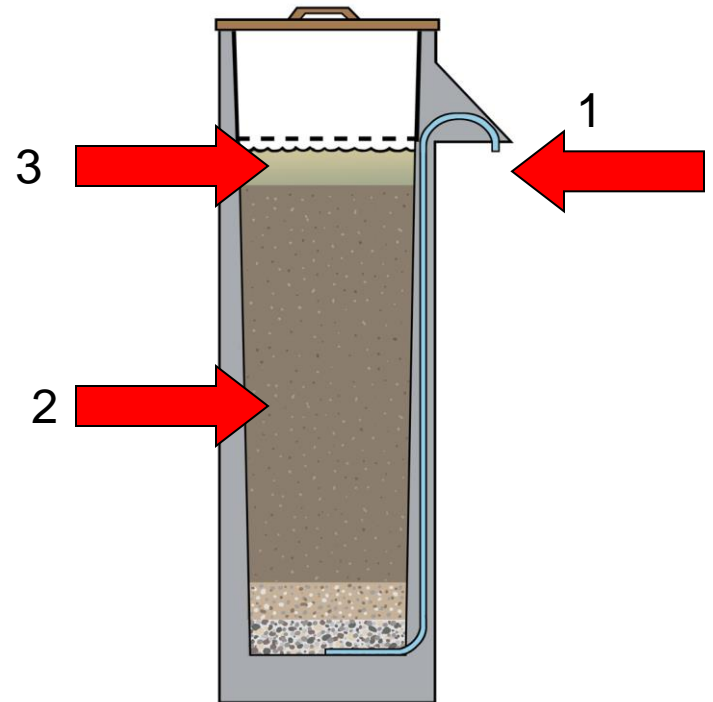
There are two phases of the filter:

1. ***The Pause Period*** – no water is flowing.
2. ***The Run*** – water is flowing.

What is Happening During the Pause Period?

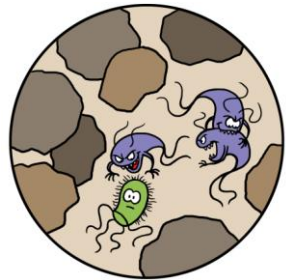
The Pause Period:

1. No water flow
2. The sand is full of water.
3. The standing water level is 5 cm above the top of the sand.

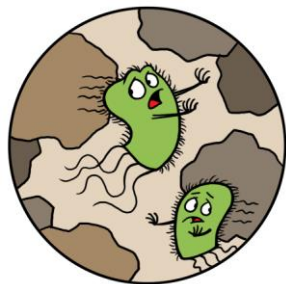


How are Pathogens Removed During the Pause Period?

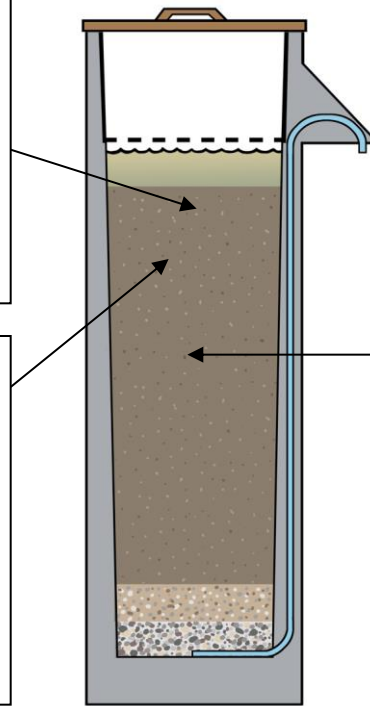
Pathogens are still being removed during the Pause Period:



PREDATION
Microbes in the biolayer eat pathogens.



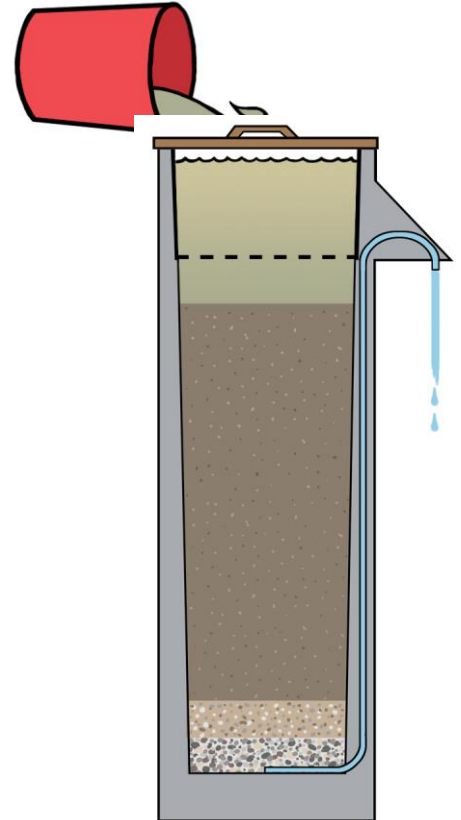
ADSORPTION
Pathogens get stuck to the sand grains.



NATURAL DEATH
Pathogens die because they do not have enough food, not enough air, or from old age.

What is happening during the Run?

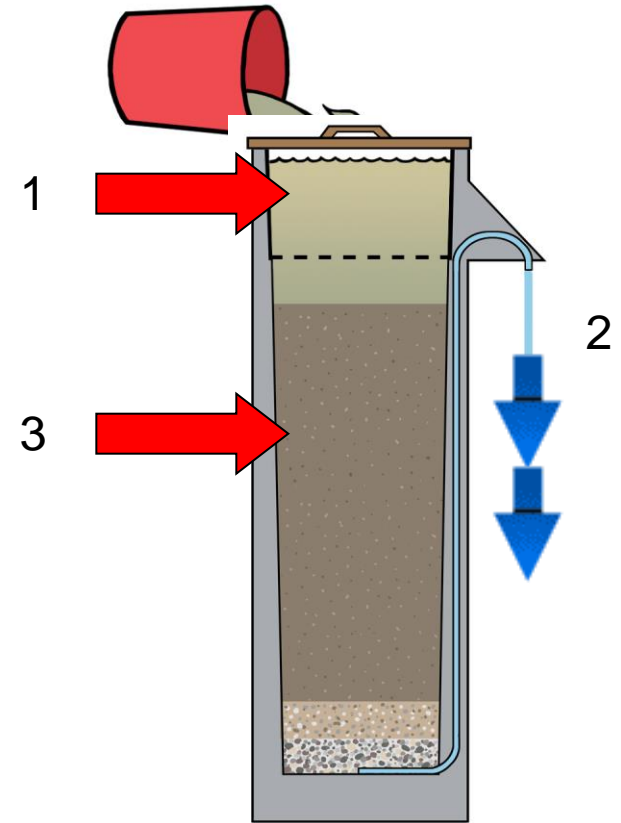
2. The Run – contaminated water is poured in the top. Water starts flowing.
 - *The new water being poured into the filter pushes the water that was already in the sand out of the tube.*
 - *The water coming out of the tube is the water you poured into the filter last time.*



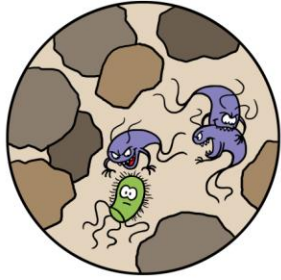
What is happening during the Run?

The Run:

1. Contaminated water is poured in.
2. Filtered water starts flowing out of the outlet tube.
3. Large particles and pathogens get trapped in the sand.



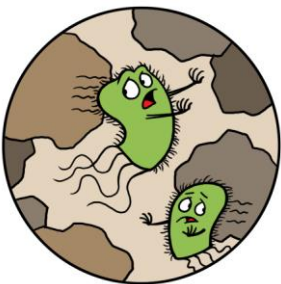
How are pathogens removed during the Run?



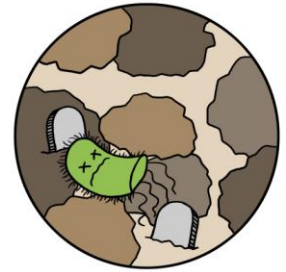
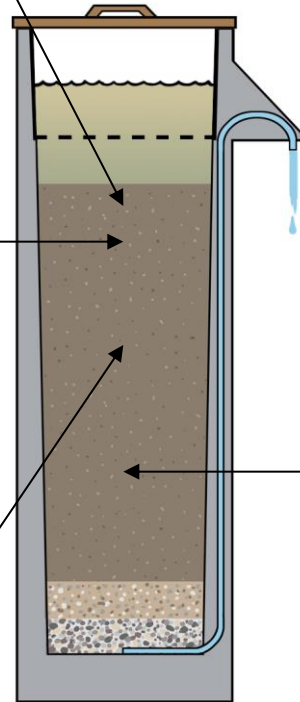
PREDATION
Microbes in the biolayer eat pathogens.



TRAPPING –
Pathogens get trapped in the sand.



ADSORPTION
Pathogens get stuck to the sand grains.



NATURAL DEATH
Pathogens die because they do not have enough food, not enough air, or from old age.

Review

1. Why is water not coming out of the filter during the pause period?
 - *There is no water in the reservoir pushing water out*
 - *The water surface has leveled out at the standing water level*

Review

2. How are pathogens being removed from the water during the run phase?
 1. *Trapping (pathogens can't fit through)*
 2. *Adsorption (pathogens stick to the sand)*
 3. *Predation (pathogens get eaten)*
 4. *Natural Death (pathogens die from lack of food, lack of air or from old age)*