

Environmental Medicine - Class 1

Water

1. A family uses municipal water for drinking but notices strong chlorine smell during showers. Which exposure pathway is most relevant in this situation?
A. Skin contact and inhalation during showering
B. Only ingestion through drinking water
C. Only exposure through cooking
D. No meaningful exposure occurs
2. A rural home relies on well water near agricultural land. Which combination of contaminants is MOST likely to be a concern?
B. Nitrates, pesticides, and microbes
A. Pharmaceutical residues and chlorine
C. Only sediment and sand
D. Only dissolved oxygen
3. A student says, “Clear water means safe water.” Which concept from the lesson BEST challenges this statement?
C. Invisible contaminants such as metals and chemicals may still be present
A. Water hardness determines safety
B. Water temperature determines contamination
D. Only cloudy water contains harmful substances
4. A home has old copper pipes and slightly acidic water. What is the MOST likely outcome over time?
D. Increased leaching of metals into the water
A. Water becomes more alkaline
B. Pipes become stronger
C. Water loses all minerals
5. After a heavy rain, runoff from a nearby factory enters a river that supplies a town’s reservoir. Which concept does this scenario BEST illustrate?
A. Water cycle as an exposure cycle
B. Water purification through dilution
C. Only local contamination effects
D. Filtration removes all contaminants
6. A guest bathroom sink is rarely used. What is the MOST likely issue with water from that faucet?
B. It may contain higher levels of metals and microbial growth
A. It is fresher than frequently used faucets
C. It contains fewer dissolved substances
D. It is automatically disinfected

7. A teenager swims daily in a chlorinated pool and drinks filtered water at home. Which exposure pathway is still relevant despite drinking clean water?
- A. No exposure pathways remain
 - B. Only ingestion during meals
 - C. *Skin absorption and inhalation***
 - D. Only exposure through food
8. A home has a hidden leak behind a wall that remains damp for weeks. What is the MOST likely consequence?
- A. Improved indoor air quality
 - B. Reduced microbial growth
 - C. Increased mineral content in water
 - D. *Mold growth and indoor environmental issues***
9. A homeowner installs a filtration system but ignores standing water in drains and pipes. What key concept are they missing?
- A. Water exposure is only about drinking water
 - B. *Water systems and built environments interact as one system***
 - C. Filtration eliminates all risks
 - D. Water does not affect indoor environments
10. A student compares two homes: one with regularly flowing water and one with stagnant plumbing. Which principle BEST explains the difference in exposure risk?
- A. *Water movement affects chemical and microbial conditions***
 - B. Water source is the only important factor
 - C. All plumbing systems behave the same
 - D. Exposure only depends on filtration

Home Activity Key

Activity 1 – Answer Key (Spot the higher risk scenario)

#	Higher Risk Scenario	Why this fits
1	Slow stagnant pond	Stagnant water allows buildup of microbes, algae, and contaminants, while moving water is less likely to accumulate these.
2	Water sitting overnight	Water sitting in pipes can pick up metals and support microbial growth compared to freshly run water.
3	Untreated well near farmland	Well water near farmland may contain nitrates, pesticides, microbes, and runoff contaminants without treatment.
4	Long hot steamy shower	Heat and steam increase inhalation exposure and skin absorption of substances in water.
5	Home with hidden leaks	Moisture and leaks promote mold growth and microbial contamination in the built environment.
6	Rarely used guest bathroom sink	Low use leads to water stagnation, increasing risk of metal leaching and microbial growth.
7	Hot water from the tap used for cooking	Hot water can increase leaching of metals from pipes and fixtures compared to cold water.
8	Open container left sitting out	Open water can collect dust, microbes, and environmental contaminants over time.

Activity 2 – Matching

SITUATION	OPTION
Water has been sitting in pipes overnight	Install a shower filter
Strong chlorine smell during showers	Boil water or use UV light treatment
Visible dirt or cloudiness in water	Replace old plumbing or address corrosion issues
Concern about bacteria or microbes in drinking water	Install a reverse osmosis filter.
White crust buildup on faucets and showerheads	Run the water for a short time before using it
Metallic taste in water (possible pipe-related issues)	Test the water regularly with a water test kit
Musty smell or signs of mold near a sink or wall	Use a water distiller or water softener to remove excess minerals
Water from a private well with unknown water quality	Improve drainage and eliminate standing water
Standing water in drains or around the home around gutter exits	Fix leaks and improve moisture control
There is a wide range of dissolved contaminants in your drinking water, some too small for regular filters to remove	Use a sediment filter