

Grade 8				
Ch. 9 Lesson 3				
Earth and Space Science				
Page #	Question	Answer(s)	Links/Sources	Student Resources
346	What allows us to use groundwater?	*Sample answer: People drill wells into the ground to access ground water.		
346	How can you use these materials to design a model filtration system?	*Sample answer: Place the coffee filter at the top of the empty glass jar. Secure it with the rubber band. Pour the muddy water through the coffee filter to remove soil particles.		
346	Can you remove all impurities in the water using a coffee filter?	*Sample answer: No, larger sediment in the muddy water remains behind but some fine sediment may get through.		
346	Why do you think it is so difficult for some people to find clean water?	Sample answer: They live some distance away from a water source and do not have an easy way of going to get the water and bring it home.		
346	Whose responsibility do you think it is to get clean water to these people?	Sample answer: It is the responsibility of local and or regional governments to guarantee clean water to its citizens. If these groups are unable to do this, then it is the responsibility of humanitarian organizations to step in.		
346	How would these groups go about getting clean water to these areas?	Sample answer: They could build the infrastructure needed to pipe clean water to the people in need, they could drill wells to tap into clean groundwater sources, they could build innovative catchment devices to collect water, they could provide large and small water purification systems that could be used by communities, families, and individuals to filter available water that maybe unsuitable for consumption.		
346	What can you do to help?	Sample answer: I can help to raise funds to donate to organizations, such as ADRA who help provide clean water to people that need it.	https://adra.org/tag/water-sanitation-and-hygiene	
347	How would your life be different if you didn't have access to clean water every day?	*Sample answer: I wouldn't bathe as much, I would probably have an outdoor toilet, more time would be spent trying to get water for cooking and drinking.		
347	In what other ways to we depend on water to help make our lives easier?	*Sample answer: We use it to water our gardens which allows us to grow some food right at home. We use it for recreation, like swimming, fishing, and boating. Most products we buy use water somewhere in the manufacturing process.		

347	How is your need for water like your need for God?	*Discuss with students how our relationship with God is as necessary as water to a deer that is panting for thirst. God wants to be an integral part of our lives.		
347	What do you think would be the best way to conserve water on a daily basis?	*Sample answer: Turn off water while brushing my teeth, have leaks in the house fixed, have water saving toilets installed, don't change my clothes multiple times a day.		
347	In what other ways to you use water?	Sample answer: I use water for bathing, washing, cooking, irrigation, recreation.		
347	How much water do use a day?	Sample answer: About 50 gallons.		
347	How much water does your family use?	Sample answer: About 200 gallons.		
348	How much water can you save by taking a shorter shower?	Sample answer: Maybe about 30% of the water I normally use while taking a shower.		
348	Which cleaning agent does the best job of removing the oil residue from the feather?	*Students answers will vary.		
348	How much do your activities affect the quality of water resources?	Sample answer: The household water I use has to be treated before it can be returned to the environment.		
348	What are some examples of point-source pollution in your community?	Sample answer: Farms and dairies, local manufacturing, fruit processing plants, water treatment plant, septic tanks.		
348	What are some examples of massive oil spills over the last 30 years?	Sample answer: West Atlas oil rig oil spill 2009, Deepwater Horizon oil spill 2010, ShenNeng 1 oil spill 2010	https://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/largest-oil-spills-affecting-us-waters-1969.html	
349	Identify sources of point-source pollution in the diagram.	*Sample answer: Water treatment plant, fruit processing waste, storm drain runoff, car wash facilities, sewers drains, septic tanks.		
349	What does the phrase "universal solvent" mean?	*Sample answer: Water can be used to dissolve many things.		
349	Why is it important to understand how acid rain forms?	*Acid rain can cause a lot of damage to land and structures. Knowing how it forms can help us understand how to prevent it.		
349	What are some examples of nonpoint-source pollution in your community?	Sample answer: Runoff fertilizer from agricultural fields, oil and toxic chemical runoff from our streets, runoff from dairies, plastics that wash up on the shore.		
349	What is acid rain?	*Rain that forms when chemicals released by burning fossil fuels react with water, oxygen, and other substances in the air.		
349	Compare point-source and nonpoint-source pollution. Give examples.	*Sample answer: Point-source pollution is easily traced back to a source; EX: a factory dumping chemicals into a river. Nonpoint-source pollution is difficult to trace; EX: farmland water runoff with pesticides in it.		

349	Areas in which direction of the power plant are most affected? Explain.	*Areas east of the plant would likely be affected by acid rain because weather systems move from west to east.		
350	What is the pH of a neutral substance, such as pure water?	*7.0		
350	How does the pH of acid rain compare to that of normal rain?	*Acid rain has a pH below 5, normal rain has a pH of 5.6.		
350	How can pollution, like acid rain, affect plants and animals in our ecosystem?	*Sample answer. Plants and animals have adapted to certain pH conditions and when the pH is changed they can die or not thrive.		
350	Is this an example of point-source or nonpoint-source pollution. Explain.	*It is an example of nonpoint-source pollution because the rain produced runoff that contained pollutants from your driveway, street, or other source of the contamination. It would be hard to trace the contamination to your driveway.		
350	What do you think might be the source of the debris?	*Sample answer: Marine debris from local ocean currents from North America and Japan.		
350	What might be some sources of acid rain in our region?	*Sample answer: Emissions from power plants and vehicles.		
350	How will pH affect plant growth?	Sample answer: The water/vinegar mix will damage both plants.		
350	Do some plants have more tolerance than others to acid rain?	Sample answer: Yes, plants that have leaves with a heavy cuticle may not be affected as much as plants with more tender leaves.		
352	How can you model the effect of runoff on groundwater?	*I can make a model of the soil in a clear jar so people can see the pollution.		
352	Compare how governments, private companies, and individuals can conserve water.	*Sample answer: Governments can pass laws to conserve and protect water supplies. Private companies can use technologies that help conserve water. Individuals can use less water in their daily lives and properly dispose of harmful substances.		
352	How can using less electricity help conserve water?	*Sample answer: It requires energy to pump water into my house and heat it. By using less water, the pumps and water heater don't run as much and less electricity is used.		
352	Why should we be concerned about chemicals being released in the environment?	Sample answer: Because pollution in the environment negatively affects the health of the ecosystem and negatively affect our quality of life.		
352	How can we prevent this?	Sample answer: By practicing proper use and disposal of harmful chemicals and insisting that local and regional government pass and enforce laws aimed at preventing chemical pollution.		
352	Why might they want these laws?	Sample answer: To ensure safe drinking water for citizens.		

352	What other things can you do to help conserve water use?	Sample answer: Install water conserving faucets and showerheads in our house, use drip irrigation instead of sprinklers.		
352	How much water is used each day by a leaking faucet?	*Sample answer: Students should realize that the drips add up.		
352	If this were a leaky faucet, how much would your family have to pay for the water lost if the water cost as much as a gallon of gasoline?	Answers will vary depending on many factors including the drip rate and the current cost of gas/gallon in the local area.		
	* Means the answer is found in the TE.			