

# soap

**First read the article. Then answer the questions.**

Imagine using a metal instrument to scrape your skin clean after a bath. Greeks and Romans used to do this before soap was invented. Try washing greasy plates in plain hot water. The grease sticks firmly to the plates. Add soap, and the grease lifts off easily. Without soap, everyday life would be much dirtier and much more uncomfortable.

Legend has it that soap-making started on Sapo Hill near Rome some 1500 years ago. Peasants supposedly burnt animals as offerings to gods. The hot animal fat melted and soaked down through the ash from the fire into the clay soil. People found that the soapy clay was good for washing clothes - or so the story goes. People still make soap from animal fats, but vegetable oils are used as well. Oils are fats that stay liquid at room temperature. Fat contains fatty acids. To make soap, fat is boiled for hours with caustic soda (sodium hydroxide) or potassium hydroxide. Such chemicals are known as alkalis. Manufacturers add perfumes to give their soaps a pleasant smell. Many also add chemicals to kill harmful germs that can live on skin.

Soap cleans well because of the way its particles, or molecules, behave. One end of each soap molecule tends to stick to water. The other end “hates” water but sticks to oil and grease. This has two effects. Soap molecules tend to pull apart the water molecules that form a kind of “skin” at the water’s surface. When its molecules are loosened in this way, water will wet plates and cups more thoroughly, so making them easier to clean. Soap also acts directly on grease and oily dirt. It breaks these into tiny droplets that you can simply rinse away.

Other substances that clean like soap are called detergents. Special processes produce synthetic detergents. You find these in many washing powders and dish-washing liquids. Synthetic detergents can penetrate dirt more deeply than soap. “Hard” water contains chemicals that form a scum with soap and stop it cleaning properly. Synthetic detergents clean well in almost any kind of water.

**Select the most correct meaning for each underlined word:**

- |                                  |                  |
|----------------------------------|------------------|
| 1. <u>instrument</u>             | 2. <u>melted</u> |
| * stick                          | * liquefied      |
| * implement                      | * froze          |
| * mechanism                      | * drained off    |
| 3. <u>alkalis</u>                | 4. <u>smell</u>  |
| * acids                          | * odour          |
| * substances                     | * sense          |
| * chemicals containing hydroxide | * chemical       |

- |  |  |
|--|--|
| 5. <u>cleans well</u><br>* unpolluted<br>* eliminated<br>* removes dirt, oil and fat effectively | 6. <u>molecules</u><br>* pieces<br>* particles<br>* water  |
| 7. <u>acts</u><br>* works<br>* directs<br>* dramatizes   | 8. <u>breaks these into tiny droplets</u><br>* changes to water<br>* destroys drops<br>* makes smaller drops |
| 9. <u>synthetic</u><br>* chemical<br>* natural<br>* artificial                                   | 10. <u>can penetrate</u><br>* can retreat<br>* can sink in to remove<br>* grasp                              |

***Write full sentences to answer these questions.***

11. How did people clean themselves before the invention of soap?
12. Where is the first soap-like material thought to have been made?
13. Define the term "oils".
14. What is one similarity between fats and oils?
15. What is one difference between fats and oils?
16. What is meant by "room temperature"?
17. How is soap made?
18. What substances are added to soap, and what purpose do they serve?
19. How does soap work?
20. What is meant by "hard" water?