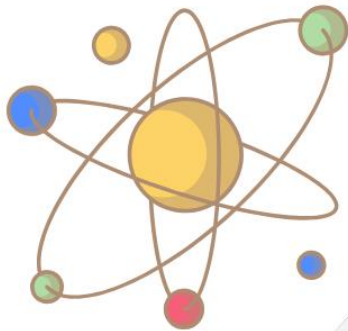




CREST Science Olympiad (CSO) Worksheet *for* Class 6



Topic
Solubility



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Worksheet on Solubility

1. In the following question, you will find an assertion and a reason. Select the appropriate option that applies.

Assertion: When a solution is cooled, it can make the solute less likely to dissolve and encourage the formation of crystals.

Reason: When we cool a solution, the water molecules slow down and become less active. This makes it harder for them to keep the solute particles spread out and dissolved. As a result, the solute particles start to come together and form solid crystals in the solution.

- a. Both the assertion and reason are correct, and the reason explains the assertion.
 - b. Both the assertion and reason are correct, but the reason does not explain the assertion.
 - c. The assertion is correct, but the reason is incorrect.
 - d. The assertion is incorrect, but the reason is correct.
2. Why is water called a universal solvent?
- a. Because it dissolves everything
 - b. Because it dissolves most substances
 - c. Because it is used universally by humans
 - d. Because it is found everywhere on Earth
3. A science experiment requires creating a supersaturated solution. Which step should be followed?
- a. Heat a saturated solution and add more solute
 - b. Add solute to water until saturation is reached
 - c. Heat a saturated solution and let it cool down
 - d. Mix solute and solvent until a clear solution is obtained
4. Which of the following statements is true about the effect of temperature on solubility?
- a. Increasing the temperature always increases solubility.
 - b. Increasing the temperature always decreases solubility.
 - c. The effect of temperature on solubility depends on the specific solute and solvent.
 - d. The effect of temperature on solubility is independent of the solute and solvent.

- 5. Kevin wants to investigate how temperature affects the solubility of salt in water. Which of the following experimental setups would be most appropriate?**
- a. Adding equal amounts of salt to cold and hot water and measuring the time it takes to dissolve completely.
 - b. Adding equal amounts of salt to cold and hot water and observing the change in water temperature.
 - c. Adding increasing amounts of salt to hot water until it stops dissolving and measuring the amount of undissolved salt.
 - d. Adding equal amounts of salt to cold and hot water and observing the change in the water's colour.

Answer Key

- 1. a - Both the assertion and reason are correct, and the reason explains the assertion. The reason explains why cooling a solution can decrease solubility and promote crystal formation, supporting the correctness of both the assertion and reason.
- 2. b - Water is called a universal solvent because it can dissolve most substances. Water's unique structure allows it to attract and dissolve many different types of molecules, making it a versatile solvent.
- 3. a - To create a supersaturated solution, you should heat a saturated solution and add more solute. Heating the saturated solution increases its solubility, allowing more solute to dissolve. Adding more solute beyond its normal limit creates a supersaturated solution.
- 4. c - The effect of temperature on solubility depends on the specific solute and solvent. Different solutes and solvents can have different responses to changes in temperature, so there is no universal rule. It varies from one substance to another.
- 5. c - To investigate how temperature affects the solubility of salt in water, Kevin should add increasing amounts of salt to hot water until it stops dissolving and measure the amount of undissolved salt. This allows Kevin to determine the point at which the solution becomes saturated and observe how temperature affects the solubility of salt.

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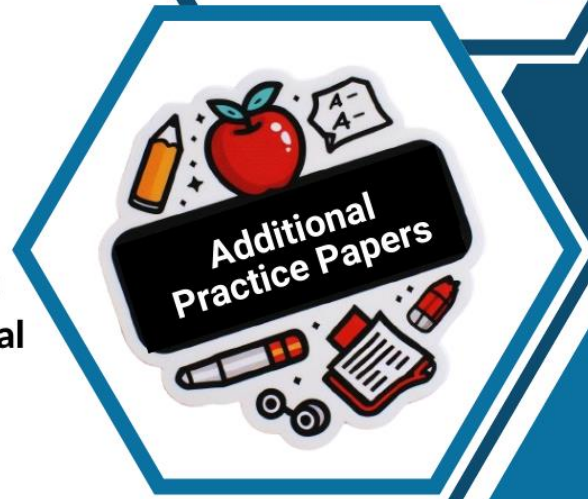
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