

DOUBLE REPLACEMENT REACTIONS: Precipitation Reactions**Web Assignment:**

- Website:** Go to class website. Click on "Precipitation Reactions. **CLICK NEXT & READ**
 - Identify two things that can happen when ionic compounds are mixed together and **explain WHY**.
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A solution of sodium carbonate is added to a solution of cobalt(II) chloride.

- Play the Movie
 - Was there any indication that a reaction took place? Yes/ No
 - If yes, what was it? _____
- View the Animation
 - Which ions did you see bonding to form an ionic compound? _____
- Click Next to go to the page: **Precipitation and Chemical Equations**
- When a solution of sodium carbonate is mixed with a solution of cobalt(II) chloride:**
 - The solution contains which ions? _____, _____, _____ and, _____
 - Find carbonate ion, CO_3^{2-} , in the "Solubility Chart". When carbonate is bonded with cobalt, it is **soluble/ insoluble** (circle your choice)
 - Click NEXT
 - If the ions switch partners what will be the formulas of the new products formed? **Remember that positive and negative go together, and the positive ion always comes first in the written formula.**
_____ and _____
 - Find chloride ion, Cl^- , in the "Solubility Chart". When sodium is bonded with chloride, it is **soluble/ insoluble** (circle your choice)
 - LOOK at the equation. What is the physical state of cobalt(II) carbonate? **solid/ liquid/ gas/ aqueous** (circle your choice)
 - What is the physical state of sodium chloride? **solid/ liquid/ gas/ aqueous** (circle your choice)

Predicting Precipitation Reactions

- A solution of lead(II) nitrate, $\text{Pb}(\text{NO}_3)_2$ is added to a solution of sodium iodide, NaI**
 - To determine if a reaction will occur, READ the text,
 - THINK! The solution contains what four ions? Pb^{2+} , _____, _____, and _____
 - CLICK NEXT
 - What anion (negatively charged ion) should you put with lead(II) on the product side? _____
 - What is the correct formula for lead(II) iodide? _____
 - View the "Solubility Chart". Lead(II) iodide is **soluble/ insoluble** in water. (circle your choice)
 - The physical state of lead(II) iodide is **solid/ liquid/ gas/ aqueous**.
 - What anion (negatively charged ion) should you put with the sodium ion on the product side?

 - What is the correct formula for sodium nitrate? _____
 - CLICK NEXT
 - View the "Solubility Chart". Sodium nitrate is **soluble/ insoluble** in water. (circle your choice)
 - The physical state of sodium nitrate is **solid/ liquid/ gas/ aqueous**.
 - Write the balanced chemical equation for the reaction that occurs when a solution of lead(II) nitrate, $\text{Pb}(\text{NO}_3)_2$ is added to a solution of sodium iodide, NaI .

8. A solution of potassium nitrate is added to an aqueous solution of sodium iodide.

- To determine if a reaction will occur, READ the text.
- THINK! The solutions contain what four ions? K^+ , _____, _____, and _____.
- CLICK NEXT

- d. What anion (negatively charged ion) should you put with the potassium ion on the product side?

- e. What is the correct formula for potassium iodide? _____
- f. View the "Solubility Chart". Potassium iodide is **soluble/ insoluble** in water. (circle your choice)
- g. The physical state of potassium iodide is **solid/ liquid/ gas/ aqueous**.
- h. What anion (negatively charged ion) should you put with sodium on the product side? _____
- i. What is the correct formula for sodium nitrate? _____
- j. CLICK NEXT
- k. View the "Solubility Chart". Sodium Nitrate is **soluble/ insoluble** in water. (circle your choice)
- l. The physical state of sodium nitrate is **solid/ liquid/ gas/ aqueous**.
- m. Write the balanced chemical equation for the reaction that occurs when a solution of potassium nitrate, KNO_3 is added to a solution of sodium iodide, NaI .
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- n. When a solution of potassium nitrate is added to an aqueous solution of sodium iodide will a reaction occur? Yes/ No
- o. What does the solution contain? _____, _____, _____, and _____
- p. What happens as the ions bump into each other? _____
Is a precipitate formed? _____
9. A solution of potassium carbonate is added to calcium chloride.
- a. The two products will be _____ and _____ HINT: Use the "Solubility Chart" for physical states.
- b. Will a reaction occur? _____

Practice:

10. For each set of reactants given:
- Predict Products: Write the CORRECT chemical formulas of the products as if a double replacement reaction occurred. (remember to balance charges in ionic formulas)
 - View "Solubility Rules" (purple handout) to determine if one of the products is a precipitate.
 - If a precipitate is formed, balance the equation.
 - If both of the products are soluble, write NO REACTION next to the equation.
- a. ___ NaOH (aq) + ___ CaBr_2 (aq) \rightarrow
- b. ___ $\text{Pb}(\text{NO}_3)_2$ (aq) + ___ HCl (aq) \rightarrow
- c. ___ Na_2CO_3 (aq) + ___ KF (aq) \rightarrow
- d. ___ AgNO_3 (aq) + ___ CuSO_4 (aq) \rightarrow
- e. ___ $\text{Mg}(\text{ClO}_3)_2$ (aq) + ___ $(\text{NH}_4)_3\text{PO}_4$ (aq) \rightarrow
11. CHALLENGE QUESTION: Devise a method for producing silver chromate by choosing two other ionic compounds that when combined one of the products will form solid silver chromate, and the other product will be an aqueous solution. Balance the equation that you have written.
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When you finish the Practice assignment, show your work to your teacher and get an answer key.