

**2. Practice Problem (page 169)**

Using the appropriate activity series, write a balanced chemical equation for the single displacement reaction. If you predict that no reaction will occur, write “NR.”

**What Is Required?**

If a single displacement reaction will occur, the chemical formulas for the products are required.

**What Is Given?**

Reactants:  $\text{Br}_2(\ell)$  and  $\text{KF}(\text{aq})$

Type of reaction: single displacement

**Plan Your Strategy**

Locate the elements involved in the activity series and determine if a reaction will occur.

Predict the products that will form if a reaction does occur and write the formulas for the products.

Write a balanced equation for the reaction.

**Act on Your Strategy**

Bromine is below fluorine in the activity series of halogens. Bromine will not displace fluorine. There is no reaction.

**Check Your Solution**

Based on the activity series of halogens, bromine cannot displace fluorine from potassium fluoride.

**3. Practice Problem (page 169)**

Using the appropriate activity series, write a balanced chemical equation for the single displacement reaction. If you predict that no reaction will occur, write “NR.”

**What Is Required?**

If a single displacement reaction will occur, the chemical formulas for the products are required.

**What Is Given?**

Reactants:  $\text{Zn(s)}$  and  $\text{H}_2\text{SO}_4\text{(aq)}$

Type of reaction: single displacement

**Plan Your Strategy**

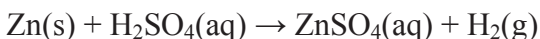
Locate the elements involved in the activity series and determine if a reaction will occur.

Predict the products that will form if a reaction does occur and write the formulas for the products.

Write a balanced equation for the reaction.

**Act on Your Strategy**

Zinc is above hydrogen in the activity series of metals. Zinc will displace the hydrogen from sulfuric acid to produce hydrogen gas and a solution of zinc sulfate.

**Check Your Solution**

Check to see that the formulas are correct and that the equation is balanced.

Based on the activity series of metals, zinc can displace hydrogen from sulfuric acid.

**4. Practice Problem (page 169)**

Using the appropriate activity series, write a balanced chemical equation for the single displacement reaction. If you predict that no reaction will occur, write “NR.”

**What Is Required?**

If a single displacement reaction will occur, the chemical formulas for the products are required.

**What Is Given?**

Reactants:  $\text{F}_2\text{(g)}$  and  $\text{MgI}_2\text{(aq)}$

Type of reaction: single displacement

**Plan Your Strategy**

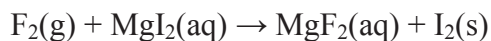
Locate the elements involved in the activity series and determine if a reaction will occur.

Predict the products that will form if a reaction does occur and write the formulas for the products.

Write a balanced equation for the reaction.

**Act on Your Strategy**

Fluorine is above iodine in the activity series of halogens. Fluorine will displace the iodine from magnesium iodide to produce solid iodine and a solution of magnesium iodide.

**Check Your Solution**

Check to see that the formulas are correct and that the equation is balanced. Based on the activity series of halogens, fluorine can displace iodine from a solution of magnesium iodide.

**5. Practice Problem (page 169)**

Using the appropriate activity series, write a balanced chemical equation for the single displacement reaction. If you predict that no reaction will occur, write “NR.”

**What Is Required?**

If a single displacement reaction will occur, the chemical formulas for the products are required.

**What Is Given?**

Reactants:  $\text{Cl}_2(\text{g})$  and  $\text{NaI}(\text{aq})$

Type of reaction: single displacement

**Plan Your Strategy**

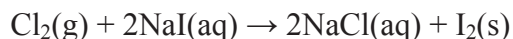
Locate the elements involved in the activity series and determine if a reaction will occur.

Predict the products that will form if a reaction does occur and write the formulas for the products.

Write a balanced equation for the reaction.

**Act on Your Strategy**

Chlorine is above iodine in the activity series of halogens. Chlorine will displace the iodine from sodium iodide to produce solid iodine and a solution of sodium chloride.

**Check Your Solution**

Check to see that the formulas are correct and that the equation is balanced. Based on the activity series of halogens, chlorine can displace iodine from a solution of sodium iodide.

**6. Practice Problem (page 169)**

Using the appropriate activity series, write a balanced chemical equation for the single displacement reaction. If you predict that no reaction will occur, write “NR.”

**What Is Required?**

If a single displacement reaction will occur, the chemical formulas for the products are required.

**What Is Given?**

Reactants: Ni(s) and H<sub>2</sub>O(l)

Type of reaction: single displacement

**Plan Your Strategy**

Locate the elements involved in the activity series and determine if a reaction will occur.

Predict the products that will form if a reaction does occur and write the formulas for the products.

Write a balanced equation for the reaction.

**Act on Your Strategy**

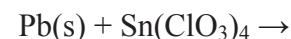
Nickel is above hydrogen in the activity series of metals but is not active enough to displace hydrogen to form water. There is no reaction.

**Check Your Solution**

Based on the activity series of metals, nickel will not react with water.

**7. Practice Problem (page 169)**

Using the appropriate activity series, write a balanced chemical equation for the single displacement reaction. If you predict that no reaction will occur, write “NR.”

**What Is Required?**

If a single displacement reaction will occur, the chemical formulas for the products are required.

**What Is Given?**

Reactants: Pb(s) and Sn(ClO<sub>3</sub>)<sub>4</sub>

Type of reaction: single displacement

**Plan Your Strategy**

Locate the elements involved in the activity series and determine if a reaction will occur.

Predict the products that will form if a reaction does occur and write the formulas for the products.

Write a balanced equation for the reaction.

**Act on Your Strategy**

Lead is below tin in the activity series of metals. Lead will not displace tin. No reaction will occur.

**Check Your Solution**

Based on the activity series of metals, lead cannot displace tin from tin(IV) chlorate.

**8. Practice Problem (page 169)**

Using the appropriate activity series, write a balanced chemical equation for the single displacement reaction. If you predict that no reaction will occur, write “NR.”

**What Is Required?**

If a single displacement reaction will occur, the chemical formulas for the products are required.

**What Is Given?**

Reactants: K(s) and H<sub>2</sub>O(l)

Type of reaction: single displacement

**Plan Your Strategy**

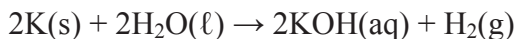
Locate the elements involved in the activity series and determine if a reaction will occur.

Predict the products that will form if a reaction does occur and write the formulas for the products.

Write a balanced equation for the reaction.

**Act on Your Strategy**

Potassium is above hydrogen in the activity series of metals and is active enough to displace the hydrogen from water to produce a solution of potassium hydroxide and hydrogen gas.

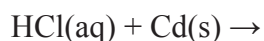


**Check Your Solution**

Check to see that the formulas are correct and that the equation is balanced. Based on the activity series of metals, potassium can displace hydrogen from water.

**9. Practice Problem (page 169)**

Using the appropriate activity series, write a balanced chemical equation for the single displacement reaction. If you predict that no reaction will occur, write “NR.”

**What Is Required?**

If a single displacement reaction will occur, the chemical formulas for the products are required.

**What Is Given?**

Reactants:  $\text{HCl(aq)}$  and  $\text{Cd(s)}$

Type of reaction: single displacement

**Plan Your Strategy**

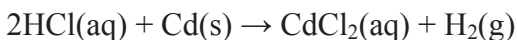
Locate the elements involved in the activity series and determine if a reaction will occur.

Predict the products that will form if a reaction does occur and write the formulas for the products.

Write a balanced equation for the reaction.

**Act on Your Strategy**

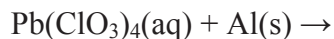
Cadmium is above hydrogen in the activity series of metals. Cadmium will displace the hydrogen from hydrochloric acid to produce hydrogen gas and a solution of cadmium chloride.

**Check Your Solution**

Check to see that the formulas are correct and that the equation is balanced. Based on the activity series of metals, cadmium can displace hydrogen from hydrochloric acid.

**10. Practice Problem (page 169)**

Using the appropriate activity series, write a balanced chemical equation for the single displacement reaction. If you predict that no reaction will occur, write “NR.”

**What Is Required?**

If a single displacement reaction will occur, the chemical formulas for the products are required.

**What Is Given?**

Reactants:  $\text{Pb}(\text{ClO}_3)_4(\text{aq})$  and  $\text{Al}(\text{s})$

Type of reaction: single displacement

**Plan Your Strategy**

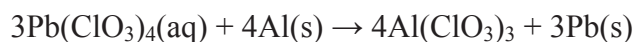
Locate the elements involved in the activity series and determine if a reaction will occur.

Predict the products that will form if a reaction does occur and write the formulas for the products.

Write a balanced equation for the reaction.

**Act on Your Strategy**

Aluminum is above lead in the activity series of metals. Aluminum will displace the lead from lead(IV) chlorate to produce lead solid and a solution of aluminum chlorate.

**Check Your Solution**

Check to see that the formulas are correct and that the equation is balanced.

Based on the activity series of metals, aluminum can displace lead from lead(IV) chlorate.