

Unit
11

Lesson
4

AIM

- Half Reaction Practice

AGENDA

- Writing half reaction practice
- U11L4 video

YOYO

- Pull up the U11L4 (unit 11 lesson 4) video on YouTube

HOMEWORK

- Half Reaction Castle Learning due tonight by 11:59 pm
- Follow the calendar

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Half Reaction Practice Model
Unbalanced Equation:
 $\text{Fe} + \text{Cu}^{2+} \rightarrow \text{Fe}^{3+} + \text{Cu}$

Question 1: Using oxidation numbers as evidence, state when the above reaction is a redox reaction.

- Iron goes from _____ to _____
- Copper goes from _____ to _____
- If _____ then it is a redox reaction

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Half Reaction Practice Model

Unbalanced Equation:



Question 2: What is happening in the above reaction in terms of electrons?

- Iron is _____ electrons
- Copper is _____ electrons

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Half Reaction Practice Model

Unbalanced Equation:



Question 3: Identify and explain why which element is oxidized, and which is reduced.

- Iron is _____ because the oxidation number _____ which means electrons are _____.
- Copper is _____ because the oxidation number _____ which means electrons are _____.

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Half Reaction Practice Model

Unbalanced Equation:



Question 4: Identify which reactant is the oxidizing agent and which is the reducing agent.

- Fe^0 is the _____ agent because it is _____.
- Cu^{2+} is the _____ agent because it is _____.

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Half Reaction Practice Model

Unbalanced Equation:



Question 5: Write out the balanced oxidation and reduction half reaction. **First**, show oxidation and reduction. **Second**, add the electrons for each half reaction. **Third**, check that the electrons lost equals the electrons gained.

- Oxidation: _____
- Reduction: _____

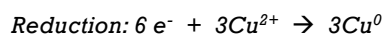
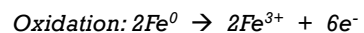
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Half Reaction Practice Model

Unbalanced Equation:



Question 6: Write out the balanced redox reaction



- _____

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Half Reaction Practice Model

Balanced Equation:



Question 7: Explain how the balanced redox reaction shows both conservation of mass and conservation of charge.

- The above balanced equation shows conservation of mass because there are 2 moles of iron on each side of the equation, and 3 moles of copper on each side of the equation. It shows conservation of charge because the sum of the charges on the left side is (+6), and the sum of the charges on the right side is (+6). Both sides of the equation have the same net charge. In addition, from the balanced half-reactions, we see the electrons lost by Fe^0 is equal to the electrons gained by Cu^{2+} .

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