



# Balancing Redox Reactions

Video Workbook with Dr. B

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For **redox reactions** we balance the number of *atoms* AND *electrons*.

There are a set of steps you can follow that will give you the correct answer each time.

But, one tiny error will cause big problems.

The good news is that you can easily check at the end of each step to know you are right.

 [Oxidation & Reduction](#)

 [Oxidation Numbers](#)

 [Writing Half Reactions](#)

 [Balancing Half Reactions](#)

 [Combining Half Reactions](#)

  
[Full Playlist](#)

[The leaning schedule below](#) will help you successfully learn to balance redox reactions.

## Half Reaction Method

- 1) Write the [oxidation numbers](#) for each element.
- 2) [Write the half reactions](#) for the species of interest.
- 3) Balance [each half-reaction](#) for:
  - atoms of interest.
  - Oxygen (O) atoms by adding  $\text{H}_2\text{O}$ .
  - Hydrogen (H) atoms by adding  $\text{H}^+$  ions.
  - electrons (charge) by adding electrons.
- 4) Balance the [overall equation for electrons](#) (charge).
- 5) [Add half reactions and simplify](#).

You must get the oxidation number correct! Otherwise: 😞

Half reactions are the hard part. Take your time here.

The rest isn't too bad, just a lot of work.

Some teachers use the Oxidation Number Change Method. It is similar the Half Reaction Method and gives the same answer. However it is not as common.

## Guides

[Introduction to Redox \(this guide\)](#)

[Finding Oxidation Numbers](#)

[Writing Half Reactions](#)

[Key Terms: Oxidized, Reduced, Oxidizing Agent, Reducing Agent](#)

[Balancing Half Reactions](#)

[Matching Electrons, Combining Half Reactions](#)

[Balancing Redox in Basic Medium](#)

[Practice, Practice, Practice](#)



## Learning Plan & Schedule

Each guide walks you through a major step in the process with explanation, examples, and practice.

*To get the learn quickest and remember the longest:*

- Read through the guide.
- Work each example and check your work.
- Do the practice problems until you can get them correct.
- If you get stuck, watch the video solution provided.
- Redo any problems you did not get right. Be sure to identify where you went wrong.

Work in 20 minute blocks with 2 minute breaks between. During the break move some and stretch while focusing on taking deep breaths. When you start again, quickly summarize what you learned and note any areas where you are confused. Focus on resolving any confusion and move on.

Spread learning over several days if possible. Always review what you previously learned at the beginning of each study session.

Report errors and suggestions to [DrB@breslyn.org](mailto:DrB@breslyn.org)



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