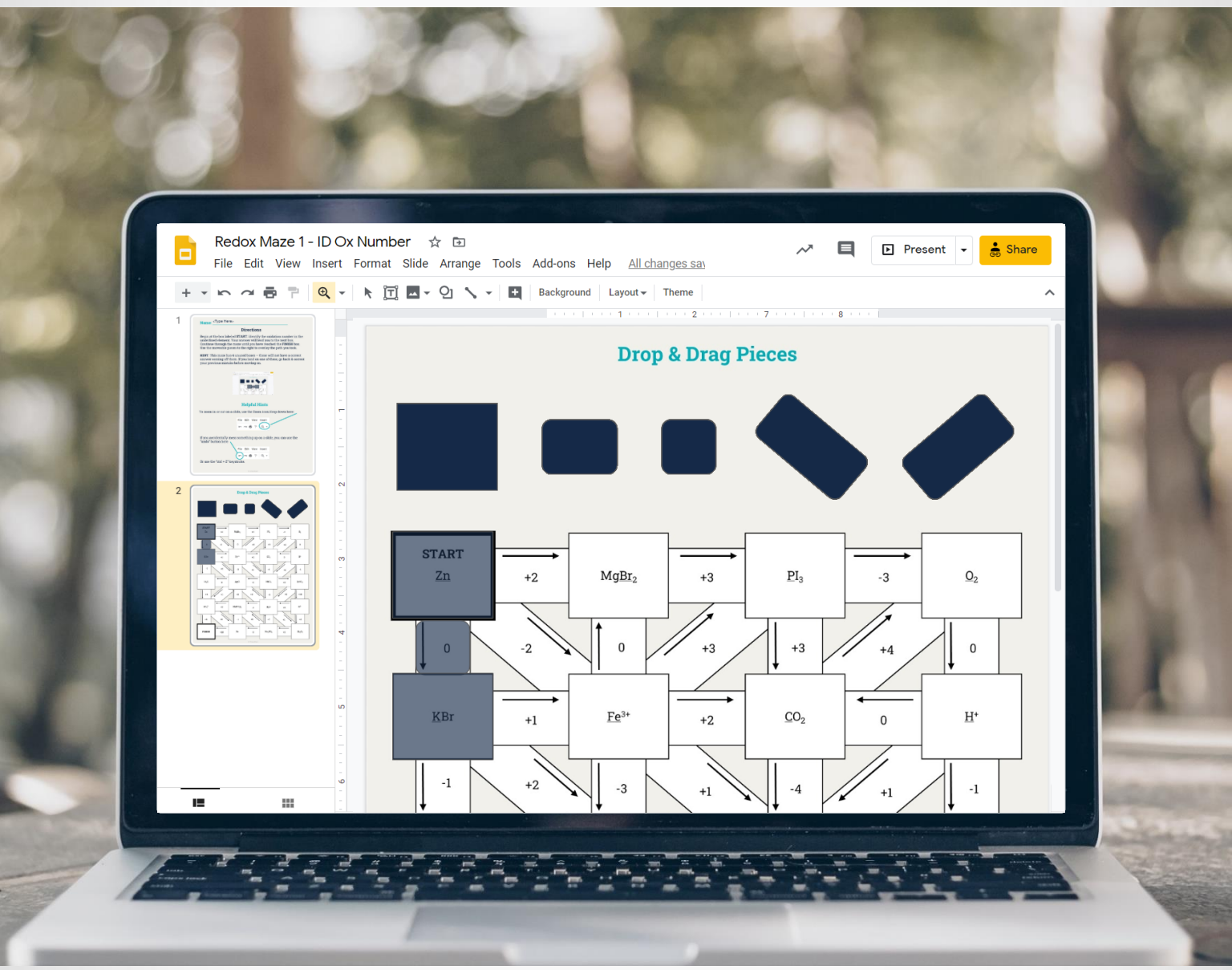
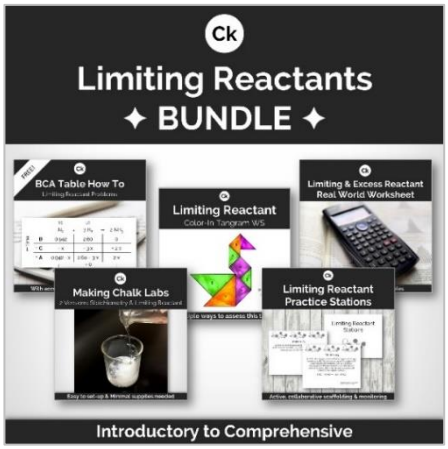
Redox Mazes

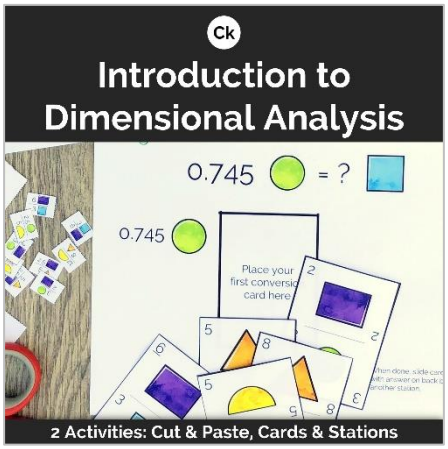


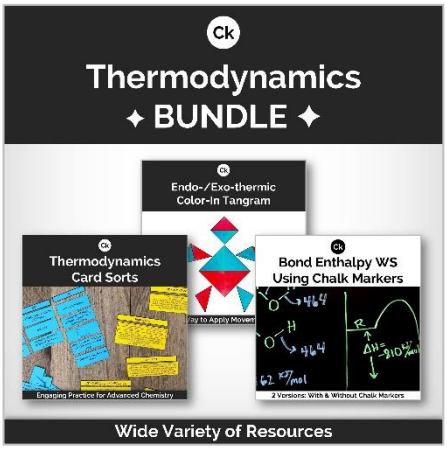
4 Mazes in *Print & Digital Formats*

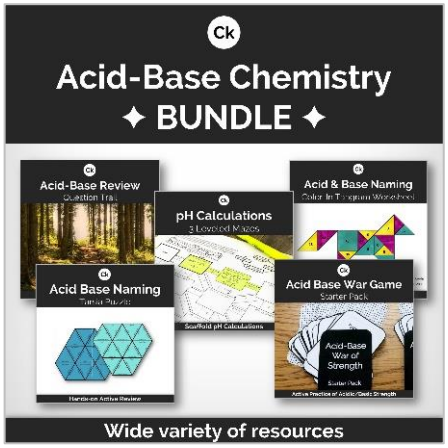
Redox Mazes – 3 Levels – Print & Digital

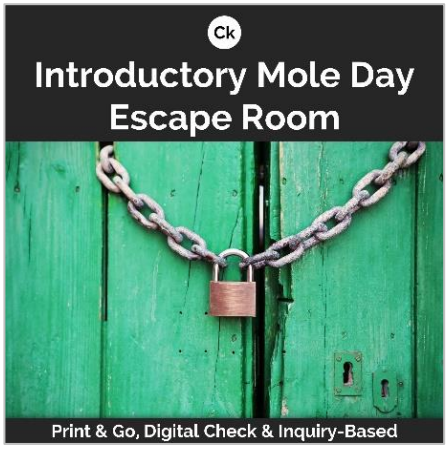
Thank you for your download! You might also be interested in the linked images below:











Scaffold redox reactions in chemistry with these 3-leveled engaging redox reaction mazes, *in both print & digital format*, for your chemistry students. These chemistry mazes address redox reactions in 3 levels:

- Level 1: Identify the oxidation number
- Level 2: Applying oxidation and reduction
- Level 3: Impact of redox on batteries: anode & cathode changes, calculate cell potential, balance half-reactions

If students veer off the maze path, they will land on a box that has no correct answer off of it, encouraging them to fix any previous mistakes & helping guide them in their practice. These worksheets are great for bell ringers, distance learning, in-class practice, exit/entrance slips, homework or early finishers. You and your students must have Google accounts and an internet connection to access the digital versions of these mazes. Also included, tips on how to post to Google classroom.

✦ This is available in my costs-savings ✦ Redox Reactions Bundle ✦ - Visit this bundle to see other great intermolecular forces resources, such as a Tarsia Puzzle Practice and a Question Trail ✦

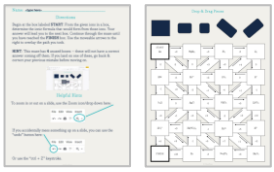
Interested in more great resources? Click on the linked icons below

Bd Bonding | Nm Naming | Ml Mole | Vs VSEPR | Lb Labs

Redox Mazes – 3 Levels – Print & Digital cont.

Accessing the Digital Activities

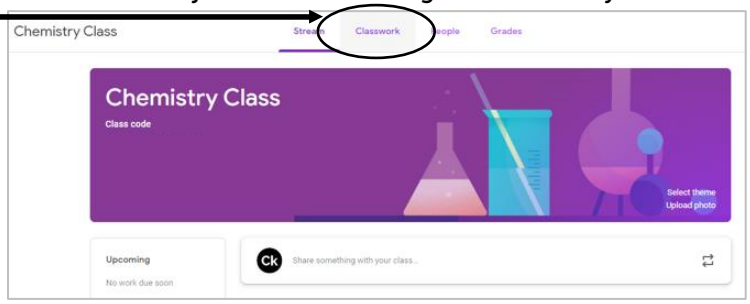
1. Be sure you logged into the Google account you want to save these files into first. When you select the links below, it will ask you to make a copy of the assignment. Select "Make a Copy".

Preview	Student Files	Answer Key
	Redox Maze 1 – Identify the Oxidation Number	Maze 1 – Answer Key
	Redox Maze 2 – Apply Oxidation and Reduction	Maze 2 – Answer Key
	Redox Maze 3 – Electrochemistry & Battery	Maze 3 – Answer Key

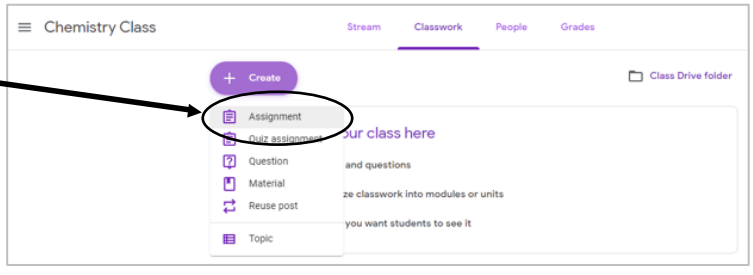
2. This copy in your drive is now your Master Template. I would recommend changing the name of the file and organizing the file into a folder so that you can easily access it later.

Sharing with Students on Google Classroom™

1. Once you have opened Google Classroom, select the class you'd like to assign the activity to.
2. Go to the "Classwork" tab at the top.



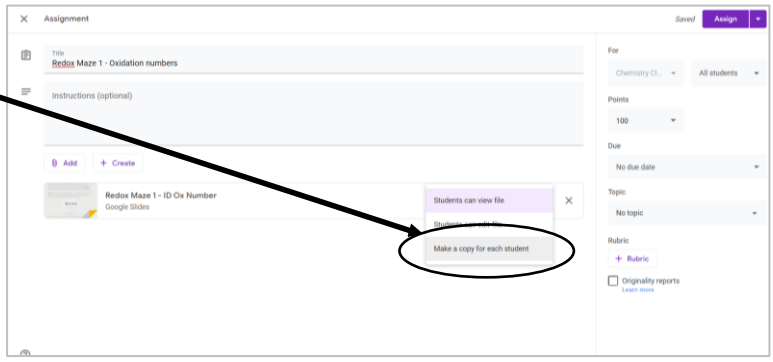
3. Once on the Classwork tab, create an "Assignment"



Redox Mazes – 3 Levels – Print & Digital cont.

4. Locate the file in your Google drive. Select "Make a Copy for Each Student" so that students will be able to work on the activity on his/her device without changing your original file.

If you choose "Students can edit the file," they will be able to edit your original file, which you most likely don't want.



If you need any assistance, contact me at KateCk@ChemKate.com .

Interested in more great resources? Click on the linked icons below:

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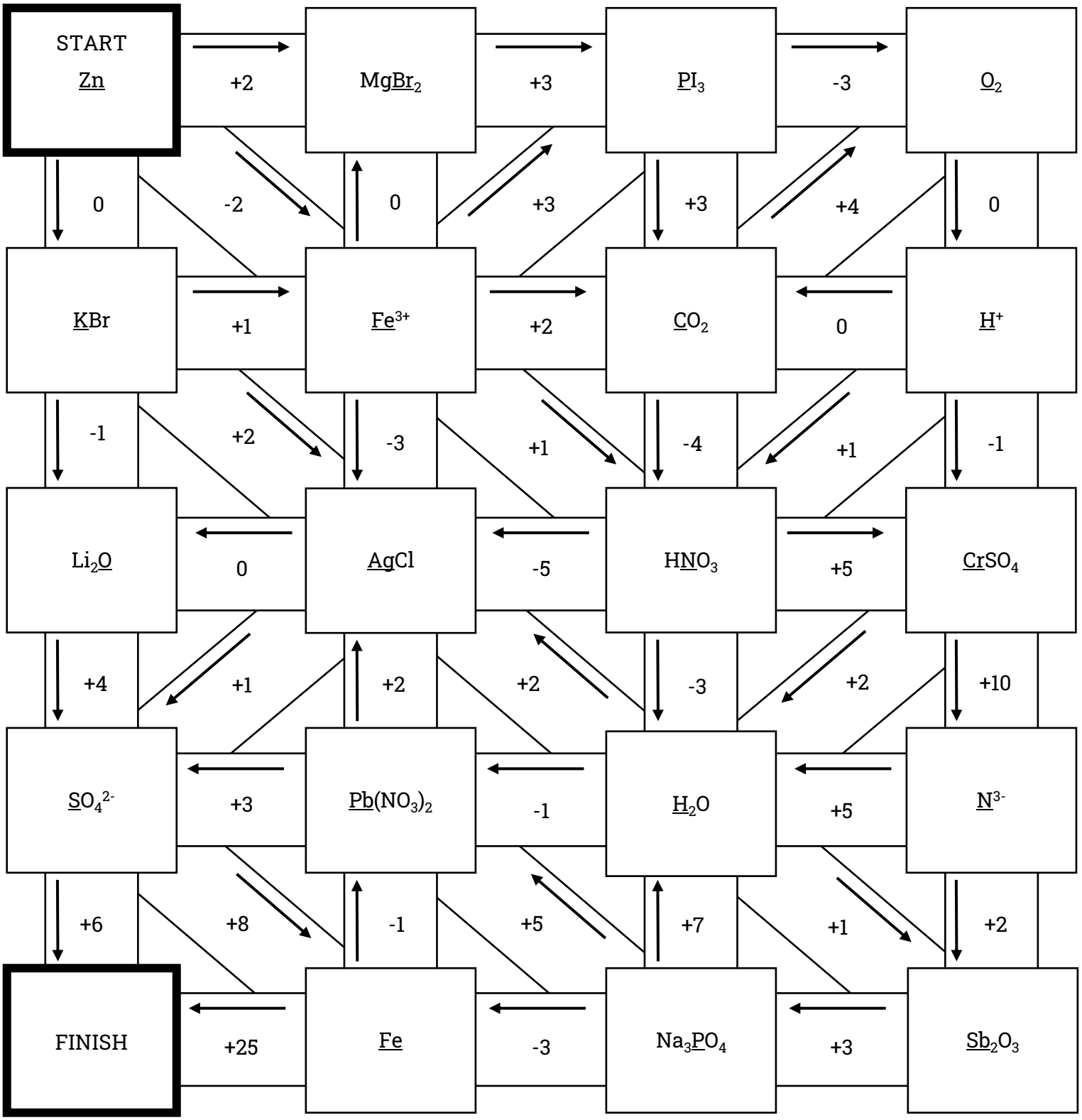
Thank you! Ck

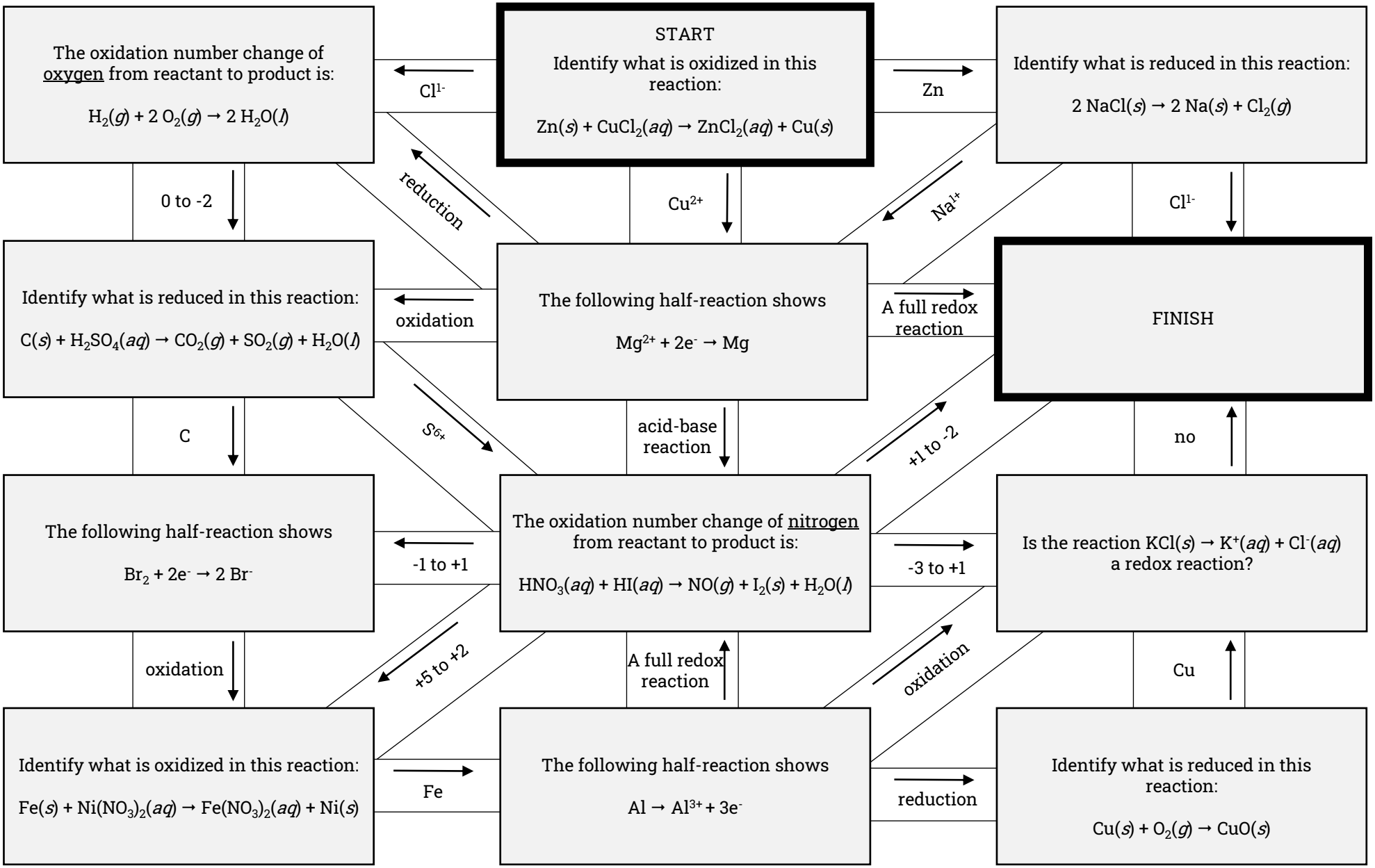
Redox Maze 1 - Identify the Oxidation Numbers Name: _____ Pd ____

Directions:
Begin at the box labeled START. Identify the oxidation number in the underlined element. Your answer will lead you to the next box. Continue through the maze until you have reached the FINISH box. Highlight/color in, shade or draw a line to show the path you took. HINT: This maze has 4 unused boxes – these will not have a correct answer coming off them. If you land on one of these, go back & correct your previous mistake before moving on.



Redox Maze - Level 2 - Identify Oxidation/Reduction Name: _____ Pd: ____

Directions:
Begin at the box labeled START. Apply the definitions of oxidation and reduction the situations that follow. Your answer will lead you to the next box. Continue through the maze until you have reached the FINISH box. Highlight/color in, shade or draw a line to show the path you took. HINT: This maze has 2 unused boxes – these will not have a correct answer coming off of them. If you land on one of these, go back & correct your previous mistake before moving on.



Redox Maze – Level 3 – Galvanic (battery) cell

Name: _____ Pd ____

Directions:

Begin at the box labeled START. Answer the galvanic (battery) cell application question. Your answer will lead you to the next box. Continue through the maze until you have reached the FINISH box. Highlight/color in, shade or draw a line to show the path you took. HINT: This maze has 3 unused boxes – these will not have a correct answer coming off of them. If you land on one of these, go back & correct your previous mistake before moving on.

START

How many electrons and on what side of the reaction are needed to balance the following half-reaction?

$Zn \rightarrow Zn^{2+}$

2 e^- on the product side

From the given standard reduction potentials, identify what will be reduced in the Ag-Mg reaction.

$Ag^+(aq) + e^- \rightarrow Ag(s)$ $E°= 0.80$ V
$Mg^{2+}(aq) + 2e^- \rightarrow Mg(s)$ $E°= -2.37$ V

Mg^{2+}

What is the unit of electrical potential?

Joule

Does a battery have a positive or negative electrical potential?

2 e^- on the reactant side

1 e^- on the product side

Ag^+

oxidation

Volt

negative

0.99 V

The higher the standard reduction potential, the more or less likely the metal will be reduced.

reduction

While a galvanic cell operates, what occurs at the anode?

Gain of electrons

Describe the flow of electrons in an operating battery.

From the anode to the cathode

From the given standard reduction potentials, calculate the electrical cell potential.

$Zn^{2+}(aq) + 2e^- \rightarrow Zn(s)$ $E°= -0.76$ V
$Ni^{2+}(aq) + 2e^- \rightarrow Ni(s)$ $E°= -0.23$ V

less

acid-base reaction

The electrode gains mass

$3\ Cu(s) + 2\ Al^{3+}(aq) \rightarrow 3\ Cu^{2+}(aq) + 2\ Al(s)$

From the cathode to the anode

-0.53 V

0.53 V

What type of chemical reaction occurs as a battery operates?

1

How many moles of electrons will be transferred for the reaction between Ag & Cu?

$Ag^+(aq) + e^- \rightarrow Ag(s)$ $E°= 0.80$ V
$Cu^{2+}(aq) + 2e^- \rightarrow Cu(s)$ $E°= 0.34$ V

$3\ Cu^{2+}(aq) + 2\ Al(s) \rightarrow 3\ Cu(s) + 2\ Al^{3+}(aq)$

Write the overall redox reaction from the two half-reactions below:

$Cu^{2+}(aq) + 2e^- \rightarrow Cu(s)$ $E°= 0.34$ V
$Al^{3+}(aq) + 3e^- \rightarrow Al(s)$ $E°= -1.66$ V

By moving electrons through it to the solutions

How does a salt bridge maintain electrical neutrality as a battery operates?

redox reaction

2.20 V

2

$Zn(s)$

No reaction will occur

gains mass

By moving oppositely charged ions through it to the solutions

FINISH

1.12 V

From the given standard reduction potentials, calculate the electrical cell potential.

$Al^{3+}(aq) + 3e^- \rightarrow Al(s)$ $E°= -1.66$ V
$I_2(s) + 2e^- \rightarrow 2\ I^-(aq)$ $E°= 0.54$ V

$Zn^{2+}(aq)$

From the given standard reduction potentials, identify what will be oxidized in the Zn-Li reaction.

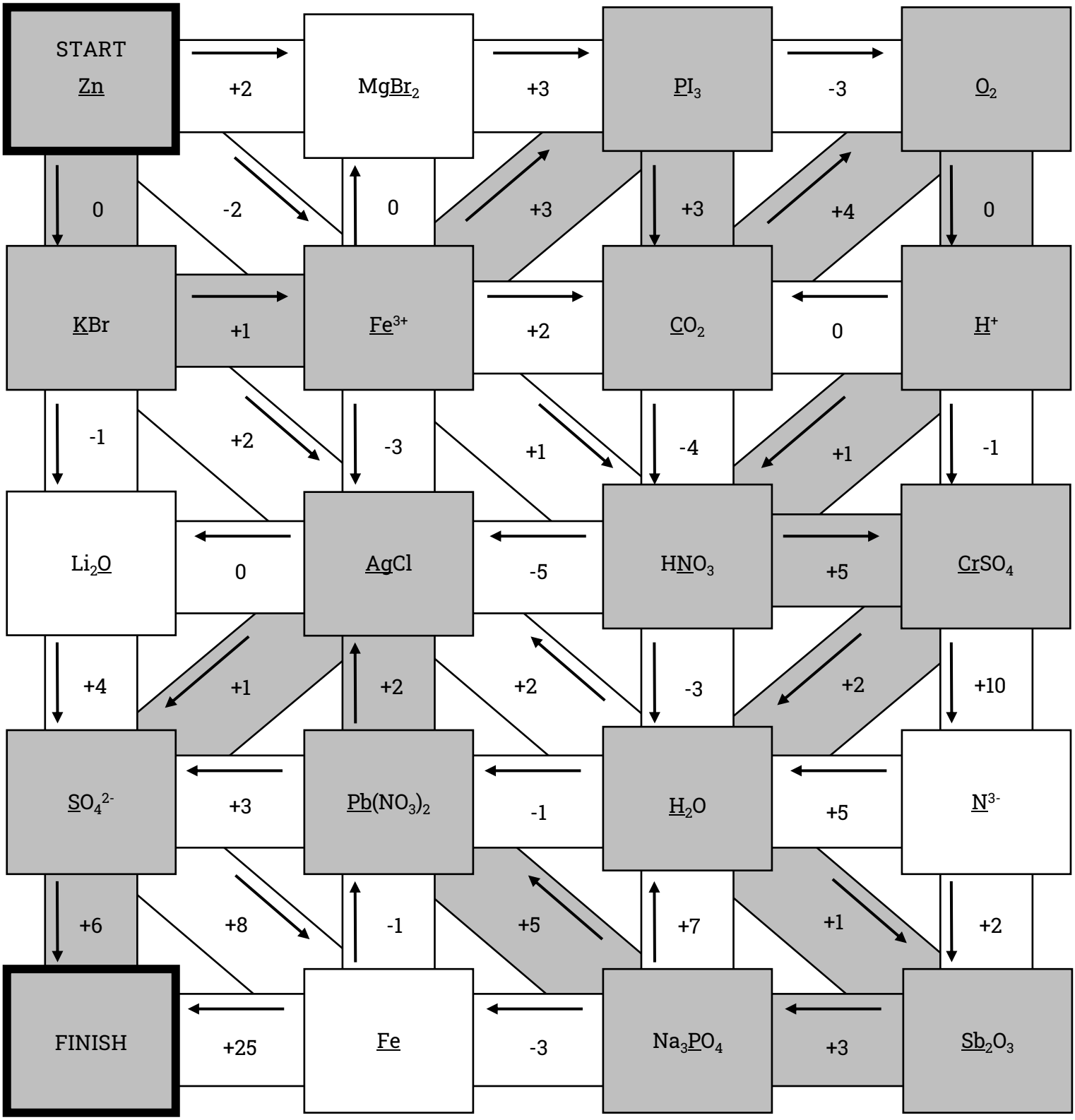
$Zn^{2+}(aq) + 2e^- \rightarrow Zn(s)$ $E°= -0.76$ V
$Li^+(aq) + e^- \rightarrow Li(s)$ $E°= -3.05$ V

loses mass

How does the cathode change as a battery operates?

Redox Maze 1 - Identify the Oxidation Numbers Name: Answer Key Pd ____

Directions:
Begin at the box labeled START. Identify the oxidation number in the underlined element. Your answer will lead you to the next box. Continue through the maze until you have reached the FINISH box. Highlight/color in, shade or draw a line to show the path you took. HINT: This maze has 4 unused boxes – these will not have a correct answer coming off them. If you land on one of these, go back & correct your previous mistake before moving on.



Redox Maze - Level 2 - Identify Oxidation/Reduction

Name: Answer Key Pd: ____

Directions:
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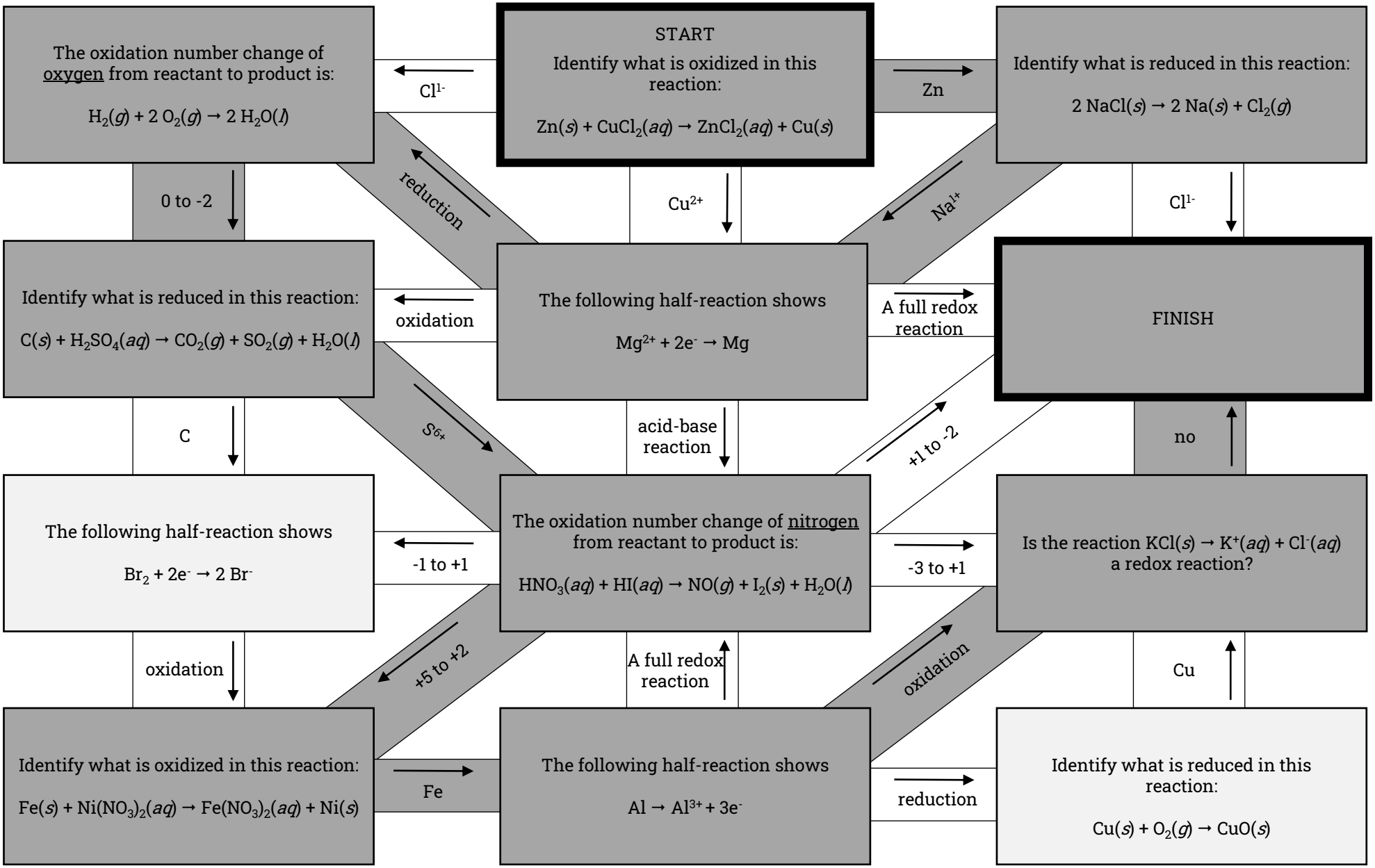

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