

Name: _____

Lab Partner: _____

Date: _____

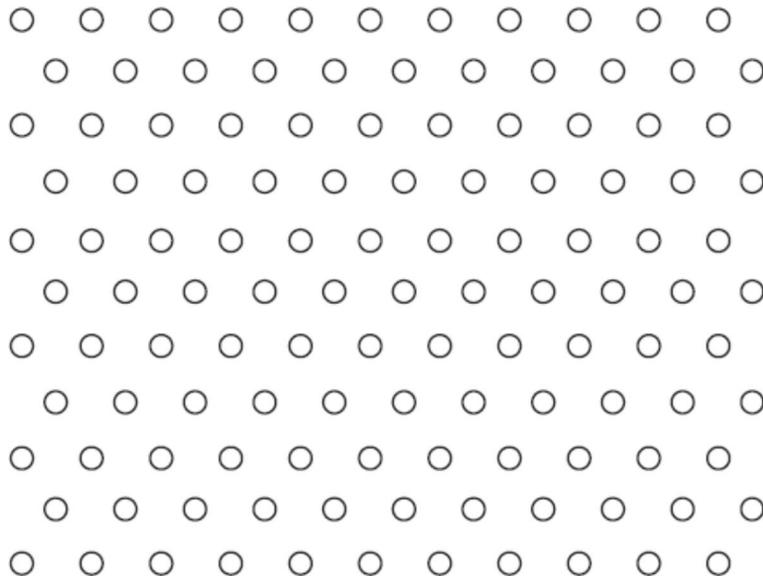
High Tech Rocks! STEM Kit Science Notebook

The NSEOC highly recommends students keep a science notebook for ALL science classes, but if this is not possible, all of the Science Notebook prompts from the Get Critical! STEM Kit booklet are included with space for students to write, draw or sketch as needed. The page numbers reference the page in the booklet the original prompt can be found.

Part 1: Crystal Construction

Page 5 – What is unique about the puzzle pieces?

Page 6 – Use the dot grid template below to draw the structure and use a green colored pencil to outline the unit cell parallelogram (Hint: one corner of the parallelogram is in a hole).



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Page 6 – Is the magnetite attracted to the magnet? Are staples attracted to the magnetite? What is the minimum number of atoms (balls) needed to make the shape of this crystal?

Part 2: Boundaries between Crystals

Page 7 – Draw the pattern you see in the zinc. How does this remind you of the lizards?

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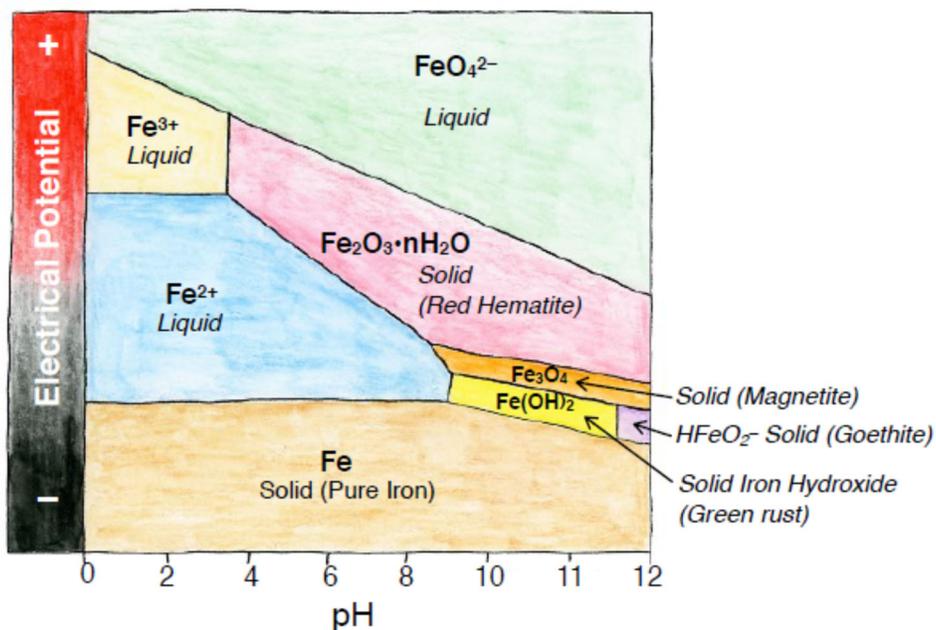
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Page 8 – How many separate grains do you see in your model?

Page 9 – How many grains do you have this time? Are the grains larger or smaller than they were when you quenched the model? Explain the difference between quenching and annealing in a few sentences.

Part 3: Phase Changes

Page 15 – On the Pourbaix Phase Diagram below, use a green colored pencil to draw a vertical line at the pH level you determined.



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Page 15 – Is the copper foil attracted to the magnet? Record what you observe.

Page 17 – Describe what you observe in step 14. Which pole of the battery – Red (+) or Black (-) – showed the most change in magnetic attraction?

Page 17 – On the Pourbaix Phase Diagram (previous page), use a blue colored pencil to draw a horizontal line at the Red (top) or Black (bottom) end of the diagram depending on which piece of foil got coated with the metal. What metal solid was deposited on the copper?

Page 17 – How could you use the Pourbaix diagram to make a very pure magnet?

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Part 4 – Hard Rock Headphones

Page 19 & 20 – Use the table below to collect data on the quality of sound using the different magnets.

Magnet Type	Quality of Sound
Natural Magnetite	
Ferrite Magnet	
Neodymium Magnet	

Page 20 – Which magnet worked the best?