

This section allows you - the student - to either print a copy of your work through this tutorial or email it to your instructor. Your teacher will inform you which format you should submit; either the filled out Word document or a printout of the pdf file with your comments written by hand. As for the Powerpoint form; this is available for teachers to use as an introduction to both the topic (such as this tutorial) or to the Notre Dame tutorial web site. Please feel free to download any of these to your own computer.

**Questions.** Of course, you provide the answers before submitting this assignment.

After completing *the Ising model* simulations, submit your answers to the following questions:

1. With the NetLogo Ising1 simulation using either `setup - 1` or +1, and the temperature at 0.0. What happened?
2. After changing the temperature configuration in small steps (i.e., 0.2, 0.4, 0.6, etc.), how does the simulation change as the temperature gets higher?
3. At what temperature does the simulation move away from ferromagnetic domains to paramagnetism?
4. After switching the NetLogo Ising1 simulation to the other spin, did the temperature at which paramagnetism prevailed the same? If not, why not?
5. Finally, with `setup-random` and moving the temperature slider around until you just reach ferromagnetism with -1 or +1 dominant, was the temperature at which paramagnetism prevailed the same? If not, why not?

**Screenshots.**

In order to take a screenshot, simply hit `fn prt sc` and then *Paste* Ctrl+V into your Word document. For this tutorial, you will need to take three screenshots:

1. The point where paramagnetism began to prevail in the first simulation.
2. The point where paramagnetism began to prevail in the second simulation.
3. The point where paramagnetism began to prevail in the third simulation.

It is important to keep a record of your work (and not just for evaluation by your instructor). Good record-keeping will allow you to refer back to your notes and make it easier to cement the basic concepts in your mind . . . where you will likely draw them out at the appropriate time. Finally, submit one copy of the document to your teacher and keep a personal copy in your laboratory notebook/logbook.