**Team Number:** JMS-32

**School Name:** Jackson Middle School

**Area of science:** Computer Science

**Project Title:** Shannon’s Entropy

Entropy is a force that defines the decline of order as time goes, but does this occur in our everyday life? A computer can compress files to help reduce the size of the file. To do this, it rounds some numbers. This makes the information less exact, or more random. This increases the entropy in a system, but is the amount of information lost change depending on the type of compression. So our question is, How much does entropy increase after compressing different types of files?

When looking at file compression it's really hard to tell how consistent it is, looking at how many bytes there are in a file before and after compression, we can learn what things it will cut and what is crucial. We would also like to look at how informational entropy increases or possibly decreases after different kinds of files are compressed.

Our plan of action to taking on this project is to first do a lot of research to find out what type of files can be compressed in a way that can crop data. As well as looking for a program that can compress files in a lossy way, lossy is a type of file compression that approximates some of the data. Then we plan to use python to look at the different file types before and after data compression and find out the amount of data in bytes before and after.

**Team Members:**

* Brendan Kuncel
* Quentin Dye

**Sponsoring Teacher :**

* Karen Glennon

**Project Mentors :**

* Patty Meyer