***You now have the opportunity to further pursue one or two of several open-ended investigations of the properties of your amplifier.***

i) By selecting a single sine wave recording and playing it at different volumes through the amplifier, can you quantitatively determine a minimum input volume required for this amplifier to produce recognizable signal not overwhelmed (hidden) by system noise?

ii) By recording output of sine wave mp3s of increasing frequency, can you determine an upper effective frequency limit for this amplifier? (Caution: any voltage recording system such as a Vernier LabPro has inherent frequency limitations of its own)

iii) By recording and analyzing signal to noise ratios at higher & higher frequencies, can you determine if signal to noise ratios are consistent across a wide range of frequencies?

iv) By recording bandpass filtered mp3s (from the folder White Noise bandwidth) at higher and higher frequencies, what can you learn about noise amplification in narrow bandwidths?

v) How does adjusting the gain of the amplifier (turning up the pot) quantitatively affect the signal to noise ratio? Figure out how much of a turn or turns R2 needs to go from all the way up to all the way down. Divide that by 4. Repeat c), but turn R2 one quarter of the way counter-clockwise. You should be able to make a graph of R2 setting vs. average noise. As you changed R2 in a regular, linear way, how did noise change?

vi) Repeat the last experiment, but use a multimeter to accurately quantify the exact resistance for each potentiometer setting. How does your graph change?