SCIENCE 2020/2021 **HOMEWORK #16**

PLEASE SUBMIT YOUR WORK THROUGH GOOGLE CLASSROOM

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1. **Reading Material "Music and Math"** (can be found on the school website on our class homework page or use the direct link in the Classroom).

2. **Mathematically, music intervals can be identified by a ratio of frequencies of the two corresponding sounds. What simple ratios correspond to the *perfect intervals*?**

3. **Using a table from Slide #4 of the Reading Material and frequency ratio for an octave, calculate frequency of the following notes:**

    a. **A5 (one octave *higher* than A4)**

    b. **G2 (one octave *lower* than G3)**

4. **Make a guess: what small integer ratio would describe a *major third* (*4 semitones* or half-steps)?**

5. **Using a table from Slide #4 (and Slide #5 for extra help) of the Reading Material, check your guess by calculating frequency ratio for the following major thirds:**

    a. **E3 and C3**

    b. **A4 and F4**

    c. **B3 and G3**

    (first divide the frequency of the top note by the frequency of the bottom note, then round to the nearest hundredths, then think what small integer ratio gives you the same result; remember, it should be something other that 2:1, 3:2 or 4:3 but still very simple!)