

## Vocabulary Review

- While we don't recommend you make your students memorize the EKs, there were vocabulary words that our students have struggled with and didn't know coming into the course. Make sure they know these!
- Big Idea 2: Abstraction
  - [Overflow](#) (error that results when the number of bits is not enough to hold the number, like a car's odometer "rolling over"),
  - [Round-off](#) (error that results when the number of bits is not enough to represent the actual number, like 3 digits to represent  $\pi$  as 3.14)
- Big Idea 3: Data and Information
  - [Lossy](#) (Compressing data in a way that throws some data away and makes it almost impossible to recover the original, great compression, like JPEG images)
  - [Lossless](#) (Compressing data in a way that preserves all data away and allows full recovery of the original, good compression -- usually not as good as lossy, like PNG images)
    - Check out the [Aloe Blacc video](#) that sits in front of the [text compression lesson](#) which you can find on the widgets page
  - [Metadata](#) (data about data, like a camera storing the location, aperture, shutter speed, etc. for a digital photo)
- Big Idea 4: Algorithms
  - [Sequencing](#) (code flows line by line, one after another, like a recipe)
  - [Selection](#) (a boolean condition to determine which of two algorithmic paths are taken, aka **if-then**)
  - [Iteration](#) (using a looping control structure, like **while**, **for**, **foreach**, **repeat**, **repeat-until**, etc.)
  - [Reasonable time](#) (polynomial in the number of steps an algorithm takes in the worst case based on the input size)
  - [Not reasonable time](#) (Usually exponential in the number of steps, like doubling every time your input grows by one)
  - [Heuristic](#) (using a "rule" to guide an algorithm, like always walking toward the north star if you were stuck in a forest)
  - [Undecidable](#) (A problem that is so difficult, we can't ever create an algorithm that would be able to answer yes or no for all inputs, like [determining if a user's program run on some input would always stop and not run forever](#))
  - [Linear vs binary search](#) (Going one by one vs starting in the middle and going left/right like looking for a word in the dictionary -- binary search requires the list to be sorted in order)
- Big Idea 5: Programming
  - [APIs](#) (Application Programming Interface, how you define libraries and call them)
- Big Idea 6: The Internet
  - Essentially every EK was a new idea...all of them! (*Blown to Bits* Appendix is a good resource)
- Big Idea 7: Global Impact
  - [Citizen Science](#) (Lots of people to help with a scientific project, like asking everyone around the world to count the butterflies they see one day)
  - [Cloud Computing](#) (Using distributed calculations and/or storage for big data or a web application)

- **Crowdsourcing** (Asking lots of users online to help with something, like funding a project, or running SETI@Home to help look for extraterrestrial signals)
- **Creative Commons** (An alternative to copyright that allows people to declare how they want their artistic creations to be shared, remixed, used in noncommercial contexts, and how the policy should propagate with remixed versions)
- **Open Access** (A policy that allows people to have read access to things, e.g., libraries or online data)
- **Moore's Law** (The # of transistors on a chip doubles every two years)
- **Peer-to-peer networks** (A system where one user's computer connects through the Internet to another user's computer without going through an intermediary "centralized" computer to manage the connection)
- **Digital divide** (The idea that some communities / populations have less access to computing than others)