Real Life Applications of Indices and Logs

- Indices or powers is the study of numbers like 2^3, 5^2, x^4 e.t.c. They arise in loads of different places, some of which are outlined below.
- Logarithms were first published by a Scottish Mathematician called John Napier.
- Origins of Logs is thought to be in astronomy where astronomers had to do very complicated calculations with trigonometric functions.
- Some of the uses of Logs are outlined below.

1) Logs arise in music as musical intervals are measured logarithmically as semitones. A semitone is the smallest musical interval between notes e.g. the change in tone from a white piano key to the next black key above or below it.

2) Logs are also used in navigation at sea. When measuring longitude, for example, computations are reduced to additions with logs.

3) Indices and logs are used in the Richter scale that measures the intensity of earthquakes. The scale is based on powers of 10 so an earthquake measuring 5 on the scale is 10 times stronger than one with a measurement of 4. Other scales also use indices e.g.s the pH scale for acids and bases, the Beaufort scale for measuring wind speed, decibel scale for measuring sound intensity.

4) The growth of the Internet since it's foundation is exponential. This means that it has grown really quickly in a short space of time. The same could be said of the speed and power of computers. Click the following link to see a picture of the first computer, built in 1946!
http://historybusiness.org/3686-computer-industry-the-first-computers.html

5) Indices are also used in the study of population growth, compound interest calculations, viral marketing, computer game design, studying the world's fuel consumption, bacterial growth, credit card debt until the financial crisis, the spread of viruses and diseases, the decay of radioactive materials, the pH scale to measure acids and bases and many many more!

For more uses of powers / indices:
http://passyworldofmathematics.com/exponents-in-the-real-world/