From NCELA Teaching Science to English Learners, Grades 4-8 ; CCSS and ELL principles for Academic Vocabulary Workshop

1. To acquire new knowledge, learning must be an **active, meaning-making process**.
2. **Prior knowledge** influences learning.
3. Learning moves from the **concrete to the abstract**.
4. Learning requires **practice in new situations**.
5. Effective learning requires **feedback**.
6. Learning is not necessarily an outcome of teaching.
7. Teaching is consistent with the **nature of scientific inquiry**.
8. Teaching reflects scientific values
9. Teaching aims to **lower learning anxieties**
10. Teaching extends beyond the school
11. Scientific language often contains complex sentences in the passive voice. Modify the structures by shortening and expressing them in active voice. Example, “Nutrients are needed by living things; therefore, one’s daily diet should contain the proper nutrients.” (comlex sentence with passive and conditional phrases). Change it from **passive to active and complex to simpler**. Change to: “All living things need nutrients. A good diet contains the proper nutrients.” (These are now simple sentences and in active voice.)
12. Provide **feedback on language through restatement**, not overt correction.

LIST OF RESOURCES

1. 1-12 above…[WWW.NCELA.GWU.edu/pubs/pigs/pig11.htm](http://WWW.NCELA.GWU.edu/pubs/pigs/pig11.htm); Teaching Science to English Learners, Grades 4-8 by Anne K Fathman, mary Ellen Quinn, and Carolyn Kessler.