Scientific Method and Problem Solving:

Scientific Method – southwest center for education and the natural env.
http://scene.asu.edu/habitat/s_method.html

Historical Figures and the Scientific Method
http://www.youtube.com/watch?v=k2MhMsLn9B0&feature=related

Non-scientists and the scientific method:
http://www.utexas.edu/courses/bio301d/Topics/Nonscientists/Text.html

Independent and dependent variables
In an experiment the independent variable would be what you (the experimenter) changes while the dependent variable is what would be measured when it changes due to the change in the independent variable. Ex. You’d like to know if a certain amount of fertilizer would make your azalea flower more. You would set up different plants and treat them all the same except for the amount of fertilizer. You would put a different amount of the SAME fertilizer around different plants and wait to see how they flower. The independent variable is the amount of fertilizer, the dependent variable would be the number of flowers.

Constants (controlled variables- variables held constant)
In order to figure out what really caused the change in your results you can only change one thing at a time. For instance, after Brody got his hair cut he realizes that the girls are more likely to talk to him. He attributes this attention to his hair rather than the fact that at about the same time he began to shower, stopped wearing his shoes that smelled like manure, and freely gave out gum. In this case, the attention may be due to any of the above; he changed too many things to attribute the attention to a certain change.

Experimental controls
A control would be the basis for comparison. In order to see if standing in the hall looking at the ceiling really does cause students that walk by to also look at the ceiling, you would need to know how many students regularly look at the ceiling when they walk by you. That baseline number would be the control (the basis for comparison).

Or
What happens to demand when the price changes? You would need to know what the demand for the item was before the price changed.

**Riddles**
Anything that makes kids think . . . .
EX: Let's say, hypothetically, that a basketball is twice the size of a volleyball. And, a volleyball is three times the size of a baseball. So, if a basketball has 12 pounds of air pressure, how much air pressure will a baseball have? (see KNeumaier if you need the answer)

http://bogglesworld.esl.com/teaching_article2.htm

**Using diagrams and pictures to help reason through a problem of question**
Any diagram/picture/political cartoon that makes the kids think!