**The nature of science**

**-science can be defined as a body of knowledge, a process, and a way of knowing or constructing reality**

**Six characteristics of scientific knowledge**

**1.no single set or sequence of steps (I DON’T BELIEVE) YEA SCIENTIFIC METHOD**

**2.theories and laws can change**

**3.scientific knowledge must be supported by empirical evidence**

**4.scientific knowledge is particularly the product of the creative imagination of the scientists**

**5.scientific knowledge may not be totally objective (think of the arguments between scientists on some theories)**

**6.scientific knowledge is the product of both observation and inference**

**-you will get materials form your school to teach with…BUT your own concepts and values about science teaching will strongly affect what children actually learn in your classroom**

**-how your students learn science is related to your desire for inquiry and the nature of science**

**The nature of inquiry**

**-think about all of the classroom stories about ANTS from your textbook…all the questions students came up with…**

**READ Mrs. Malloy’s class story page 8**

**-she generates interests in ants through mathematics and language activities**

**-she uses the ant theme as a starting point to help her students generate ideas for experiments and other hands-on activities**

**-she is less teacher-directed and lets children act like scientists as they explore and experiment with ants**

**COMPARE teacher 1 and teacher 2 p10**

**What are the differences?**

**-science principles, or concepts typically have many real-life applications**

**-let children reflect on their own experiences, to interpret their observations creatively, and construct new knowledge**

**DO the tube activity p11**

**(you can buy a think tube from FLINN scientific)**

**Teaching children**

**-applying concepts and processes of science to society’s problems is the reason why science education is such an important topic**

**-generalization-process approaches the most advanced scientific knowledge**

**-be careful not to generalize too much with young children**

**-they need to reach short term goals**

**-they need to see the purpose of what they are doing**

**Societal considerations**

**-it is important to educate people and change attitudes in order to cope with today’s challenges**

**Equity**

**-the belief is that science should be comprehensible, accessible, and exciting for all students from kindergarten through grade 12 BUT are rarely achieved-especially for underrepresented populations**

**-science has long been studied through the traditions of the Anglo-Saxon male**

**-when science is taught as rote learning of disjointed facts, it is more difficult for minorities who do not have a strong command of the English language**

**-think about these things as you are asked to select textbooks, teaching materials, and methodologies as you will want them to present realistic role models for men and women of all walks fo life**