**Nature vs. Nurture - Are We Really Born That Way?**  (<http://genealogy.about.com/cs/geneticgenealogy/a/nature_nurture.htm>)

***Hint: Click on each of the hyperlinks to learn more about the Nature vs Nurture debate***

You got your green eyes from your mother, and your freckles from your father. But where did you get your thrill-seeking personality and [talent for singing](http://www.ncbi.nlm.nih.gov/entrez/dispomim.cgi?id=159300)? Did you learn these from your parents or was it predetermined by your genes? While it's clear that physical characteristics are hereditary, the genetic waters get a bit more murky when it comes to an individual's behaviour, intelligence, and personality. Ultimately, the old argument of nature vs. nurture has never really been won. We do not yet know how much of what we are is determined by our DNA and how much by our life experience. But we do know that both play a part.

**What is Nature vs Nurture?**
It has been reported that the use of the terms "nature" and "nurture" as a convenient catch-phrase for the roles of heredity and environment in human development can be [traced back to 13th century France](http://htpprints.yorku.ca/archive/00000014/00/Silence.htm). Some scientists think that people behave as they do according to genetic predispositions or even "animal instincts." This is known as the "nature" theory of human behaviour. Other scientists believe that people think and behave in certain ways because they are taught to do so. This is known as the "nurture" theory of human behaviour. Fast-growing understanding of the human genome has recently made it clear that both sides are partly right. Nature endows us with inborn abilities and traits; nurture takes these genetic tendencies and moulds them as we learn and mature. End of story, right? Nope. The "nature vs nurture" debate still rages on, as scientist fight over how much of who we are is shaped by genes and how much by the environment.

**The Nature Theory - Heredity**
Scientists have known for years that traits such as eye colour and hair colour are determined by specific genes encoded in each human cell. The Nature Theory takes things a step further to say that more abstract traits such as intelligence, personality, aggression, and sexual orientation are also encoded in an individual's DNA.

* The search for "behavioural" genes is the source of constant debate. Many fear that genetic arguments might be used to excuse [criminal acts](http://www.popularmechanics.com/science/research/2002/11/criminal_genes) or justify [divorce](http://news.bbc.co.uk/1/hi/health/1433340.stm).
* The most debated issue pertaining to the nature theory is the existence of a "[gay gene](http://hamp.hampshire.edu/~kebF92/genetics.html)," pointing to a genetic component to sexual orientation.
* An April, 1998 article in LIFE Magazine, "[Were You Born That Way](http://cs.clark.edu/~bio/BIOLOGY162/Assignments%26Questions/WereYouBornThatWay.pdf)" by George Howe Colt, claimed that "new studies show it's mostly in your genes."
* If genetics didn't play a part, then fraternal twins, reared under the same conditions, would be alike, regardless of differences in their genes. But, while studies show they do more closely resemble each other than do non-twin brothers and sisters, they also show these same striking similarities when reared apart - as in similar studies done with identical twins.

**The Nurture Theory - Environment**
While not discounting that genetic tendencies may exist, supporters of the nurture theory believe they ultimately don't matter - that our behavioural aspects originate only from the environmental factors of our upbringing. Studies on infant and child temperament have revealed the most crucial evidence for nurture theories.

* American psychologist John Watson, best known for his [controversial experiments](http://www.cmer.org/class/articles/albert.html) with a young orphan named Albert, demonstrated that the acquisition of a phobia could be explained by classical conditioning. A strong proponent of environmental learning, he said: *Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select...regardless of his talents, penchants, tendencies, abilities, vocations and race of his ancestors.*
* Harvard psychologist B. F. Skinner's early experiments produced pigeons that could dance, do figure eights, and play tennis. Today known as the father of behavioural science, he eventually went on to prove that [human behaviour could be conditioned](http://www.bfskinner.org/Operant.asp) in much the same way as animals.
* A [study in *New Scientist*](http://facstaff.uww.edu/mohanp/twinhumor.html) suggests that sense of humour is a learned trait, influenced by family and cultural environment, and not genetically determined.
* If environment didn't play a part in determining an individual's traits and behaviours, then identical twins should, theoretically, be exactly the same in all respects, even if reared apart. But a number of studies show that they are never exactly alike, even though they are remarkably similar in most respects.

So, was the way we behave engrained in us before we were born? Or has it developed over time in response to our experiences? Researchers on all sides of the nature vs nurture debate agree that the link between a gene and a behaviour is not the same as cause and effect. While a gene may increase the likelihood that you'll behave in a particular way, it does not make people do things. Which means that we still get to choose who we'll be when we grow up.

Questions

1. Identify human features that are determined by our **‘nature’ (genes).**
2. Identify human features that are determined by our ‘**nurture’ (environment).**
3. Explain the nature vs nurture debate in your own words.
4. How can ‘twin studies’ provide us with more information regarding the nature vs nurture debate? Be specific.
5. List features of **your personality** that you believe you have **inherited from your parents** and features which

you feel you have **gained from your environment.**

Inherited Learned

1. Do you feel that Nature or Nurture is stronger influence on determining your identity? Why?