Aptitude vs. Achievement

- **Achievement tests** measure what you already have learned. Examples include a literacy test, a driver’s license exam, and a final exam in a psychology course.

- **Aptitude tests** attempt to predict your ability to learn new skills.

- The SAT, ACT, and GRE are supposed to predict your ability to do well in future academic work.

*If the SAT is an aptitude test, should it correlate with IQ?*
Standardized Test

• A **test** that has been piloted on a similar population of people as those who are meant to take the **test**; individuals are compared against the norms of the sample population.
David Wechsler’s Tests: Intelligence PLUS

The Wechsler Adult Intelligence Scale (WAIS) and the Wechsler Intelligence Scale for Children (WISC) measure “g”/IQ and have subscores for:

- verbal comprehension.
- processing speed.
- perceptual organization.
- working memory.
Re-Standardization: Re-testing a sample of the general population to make an updated, accurate comparison group, in case people are smarter than they used to be when the test was first made.

The Flynn Effect: Performance on intelligence tests has improved over the years, worldwide.
Stability of Intelligence during Aging: Which type of intelligence?

Based on this chart, at what age might you do best at completing a crossword puzzle quickly?
Fluid intelligence refers to the ability to think quickly and abstractly.

Crystallized intelligence refers to accumulated wisdom, knowledge, expertise, and vocabulary.
Pushing toddlers to learn does not seem to help much. Only by age four is a child’s performance on intelligence tests a predictor of future performance on intelligence tests.

Based on the results of a longitudinal study depicted in this chart, does intelligence test score at age 11 predict intelligence test score at age 80?
Intelligence and Longevity

In a Scottish longitudinal study, 11-year-olds with higher intelligence test scores lived longer and more independently and were less likely to develop Alzheimer’s Disease.

In a study of nuns, those with lower verbal ability were later more likely to develop Alzheimer’s Disease, which includes a shorter lifespan.
Extremes of Intelligence

The Wechsler Intelligence Scale is set so that about 2 percent of the population is above 130 and about 2 percent of the population is below 70. THIS ALSO SHOWS A NORMAL DISTRIBUTION.
Extremes of Intelligence

“Intellectual disability” refers to people who
 have an IQ around 70 or below.
 have difficulty with adaptive skills, such as:
   conceptual skills (literacy and calculation).
   social skills, including making safe social choices.
   practical daily living skills such as hygiene, occupational skills, and using transportation.

 Although some people with high intelligence test scores can seem socially delayed or withdrawn, most are “successful.”
 “Gifted” children, like any children, learn best with an appropriate level of challenge.
 Segregated, “tracked” programs, however, often unfairly widen achievement gaps.
Male-Female Ability Differences

- Girls tend to be better at spelling, locating objects, and detecting emotions.
- Girls tend to be more verbally fluent, and more sensitive to touch, taste, and color.
- Boys tend to be better at handling spatial reasoning and complex math problems.
- It is a myth that boys generally do better in math than girls. Girls do at least as well as boys in overall math performance and especially in math computation.
Ethnic/Racial Differences in Intelligence Test Scores

The bell curve for African American intelligence test scores is centered at 85. For non-African Americans, the average is 100.

Whatever the cause of this score difference, it is incorrect to use this information to predict the score of an individual.

The green triangle shows African-Americans scoring higher than the average non-African-Americans.

How can we interpret this group difference in average intelligence test scores?

We will look at the issue of test bias and other factors affecting scores for perceived minorities.

But first...
The “Racial” Intelligence Test Score Gap

- Racial categories are not distinct genetically and are unscientific.
- Both “whites” and “blacks” have higher intelligence test scores than “whites” of the 1930s.
- “Whites” may have more access to “fertile soil” for developing their potential, such as:
  - schools and educational opportunities.
    - wealth, nutrition, support, and educated mentors.
    - relative freedom from discrimination.