Intelligence tests can have both good and bad effects on people who take them. Principal benefit is derived by identifying children with special needs.

The roles of heredity and environment

- Variability in all physical traits is determined by a certain amount of genetic variability, environmental variability and an interaction between genetic and environmental factors.
- The degree to which genetic variability is responsible for the observed variability of a particular trait in a particular population is called heritability.
- Heritability is not an indication of the degree to which the trait is determined by biological factors, rather it reflects the relative proportions of genetic and environmental variability found in a particular population.
- Intellectual development is affected by many factors both prenatal and postnatal. Potential intelligence can be permanently reduced during prenatal or postnatal development by injury, toxic, poor nutrition or disease.
- Twin studies and studies comparing biological and adoptive relatives indicate that both genetic and environmental factors affect intellectual ability, which is probably not surprising. These studies also point out that not all of a person's environment is shared by other members of the family; each person is an individual and is exposed to different environmental variables.
- The evidence suggests that biological children who are adopted are intellectually more like their biological parents; this finding applies across all age ranges.
- Although there are differences between races in terms of IQ score, it is unclear whether this is due to heredity.

Intelligence, thinking and aging

- As we age a decline is seen in working memory, retrieval of names, reaction time, declarative memory and information processing. Functions such as vocabulary, however, see some improvement with age.
- The cognitive decline is thought to be principally caused by poor processing speed, which means we perform tasks less quickly and efficiently than we did when younger.
- General IQ scores will peak around 25 years of age and decline up to 65 years. After 65 the score drops rapidly.
- At the most severe end of cognitive decline, there is dementia – the gradual and relentless loss in intellectual function (Especially memory) as the individual reaches the sixth decade of life and beyond.
- The major cause of dementia is Alzheimer's disease and the condition is called dementia of the Alzheimer type. The disease is characterised by abnormal protein deposits (plaque and tangles) in the brain. There is also a familial/genetic form and early onset form (which may have a genetic cause).

Thinking

- Formal concepts are defined as lists of essential characteristics of objects and events. In everyday life, we use natural concepts – collections of memories of particular examples called exemplars.
- Concepts exist at the basic, subordinate and superordinate levels. We do most of our thinking about concepts at the basic level.
- Deductive reasoning consists of inferring specific instances from general principles.