



PSYCHOLOGY

WELCOME TO PSYC 110



PSYC 110 (General Psychology)

Module 11: Intelligence

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Let's start talking about the Final Exam!

Wednesday May 14 @ 3:30pm, right here in our classroom (yay for encoding specificity!)

Two hours, 60 questions, all multiple-choice

Cumulative (all modules) but only lecture content

In-person (in this classroom); non-collaborative; not open-book

We cannot offer alternative arrangements for travel plans
(i.e., those wanting to leave campus early for Summer Break)

Limited make-ups available after the exam date for those who have documentation
(e.g., illness)—date, time, and location will be announced after the Exam

Study Tips:

- Make your own practice questions
(remember elaborative rehearsal from our Memory module)
- Review your Friday Quizzes



SONA Update

section	mean credits earned	% of students who have...	
		started	finished
	3.3	87%	32%
	3.2	84%	31%
	2.7	88%	23%
110 (johanis) ALL	2.6	79%	20%
	2.1	74%	16%
	1.6	61%	10%

4th Place

Getting a little worried ngl



SONA Update

section	n	average credits earned	% of students who have...	
			started	finished
110 (johanis & colon 1545)	14	4.2	100%	43%
110 (johanis & jones 1130)	27	3.2	89%	30%
110 (johanis & fleenor 1500)	19	3.0	79%	16%
110 (johanis & evins 1610)	28	3.0	86%	29%
110 (johanis & santoni 1330)	27	2.9	81%	22%
110 (johanis & mattwig 1500)	7	2.6	71%	29%
110 (johanis & colon 1650)	27	2.5	81%	19%
110 (johanis & evins 1500)	27	2.4	81%	15%
110 (johanis & mattwig 1350)	26	2.4	73%	15%
110 (johanis & jones 1350)	20	2.1	80%	10%
110 (johanis & santoni 1430)	27	2.0	63%	11%
110 (johanis & fleenor 1610)	24	2.0	71%	13%

*If the deadline
was today...*

2% Extra Credit

1% Extra Credit

0.5% Extra Credit



*Get your SONA requirement
completed asap!*

*For music @ ClickerFest:
Top two among
PSYC110 classes*

*For Extra Credit:
Top three Discussion Sections*





What should we get out of today?

THE PLAN

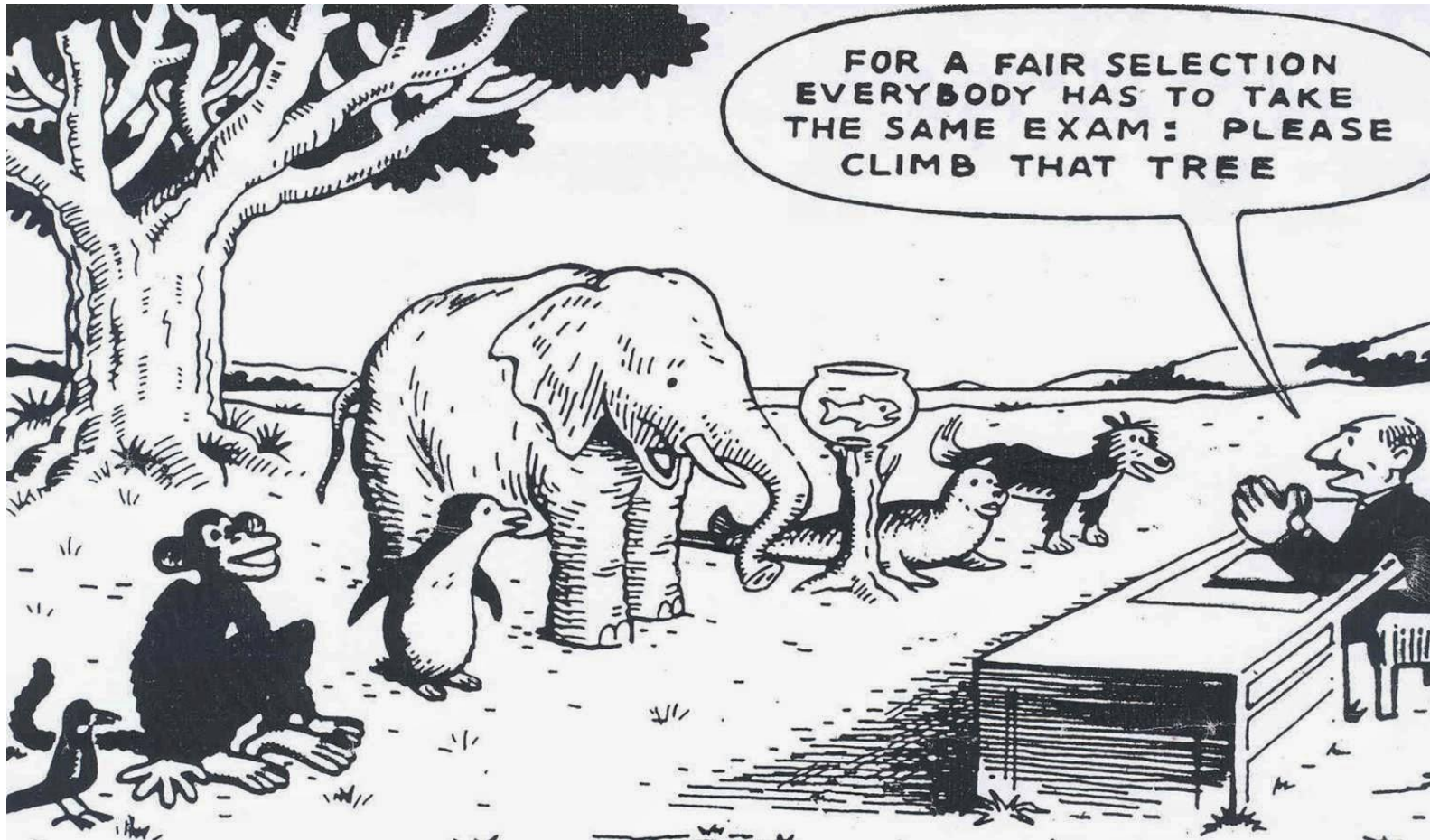
**EARLY DEFINITIONS OF
INTELLIGENCE**

**HISTORY OF INTELLIGENCE
MEASURES**

THE WESCHLER TEST



Are you intelligent?



“Everybody is a genius, but if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid.

– Albert Einstein”

– Trenton Johannis



Are you intelligent?

Intelligence

Ability to discern true or important information from false or irrelevant information; Adapting and learning from experience

Intelligent

Having or showing intelligence, especially of a high level

Intellect

An individual's capacity for abstract, objective reasoning, especially as contrasted with their capacity for feeling, imagining, or acting



Are you intelligent?



We'll learn in this module that how we define "Intelligence" is highly subjective, abstract, and arbitrary (like "Personality")

How do YOU describe someone who is "Intelligent?"



We study intelligence because of its real-life implications

Research indicates that intelligence predicts...



...academic success



...economic success



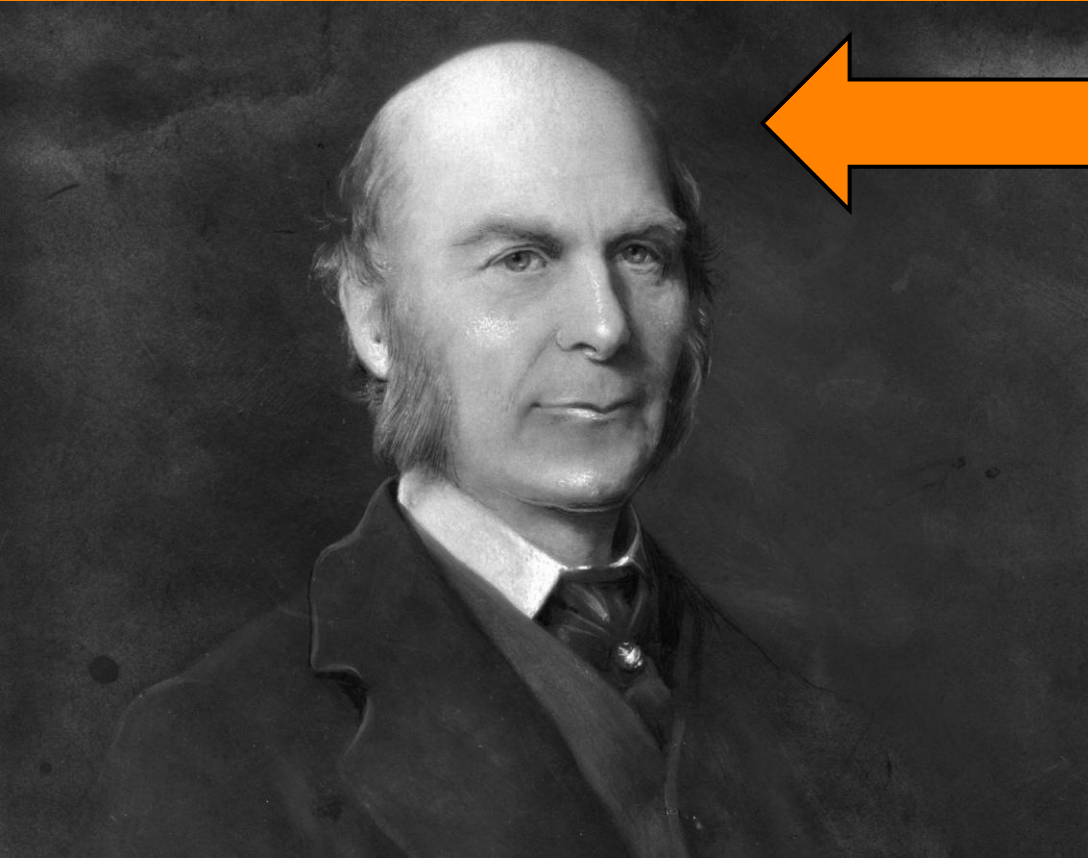
...occupational success



...standardized test success



Galton was the first to try to quantify intelligence



Francis Galton was the founder of "Eugenics:" the (unethical) belief in selectively breeding humans to enhance future generations

ACCORDING TO THIS GUY...

...intelligence is mostly hereditary
(i.e., genetics have the strongest influence)

...intelligence can be measured through
how well one used their senses
(e.g., reaction time, pitch sensitivity)

BUT...

...direct study of Galton's methods
determined no relation between academic
performance and any of his measures of
intelligence



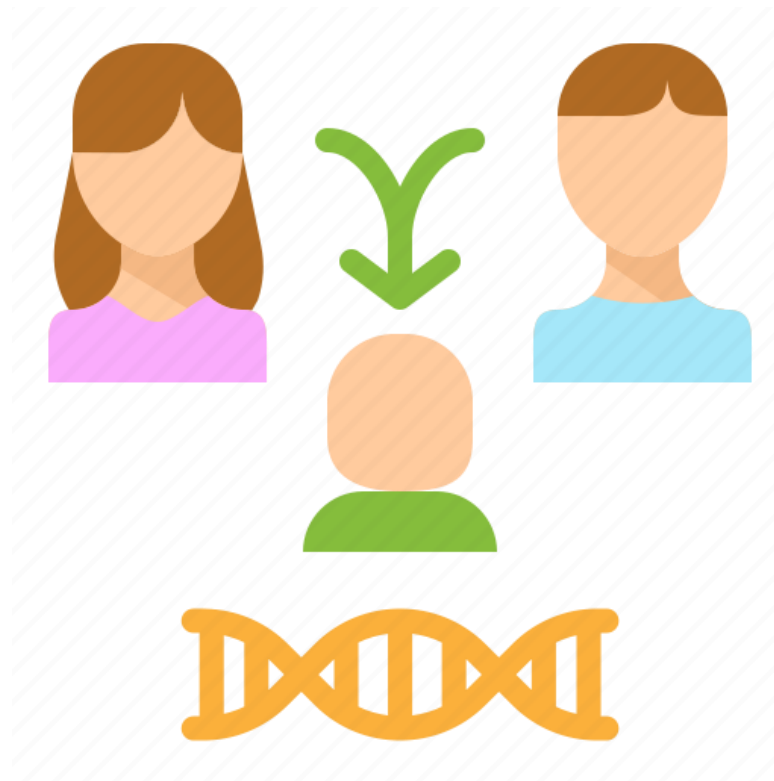
What do we mean by “Hereditary?”

Hereditary

Passed or able to be passed from parent to child—usually attributed to genes



Galton was partially right, but it's more complicated



Intelligence is somewhat hereditary according to evidence

- A parent's intelligence explains ~20% of their child's intelligence
- Something else must be at play



Developmental environment substantially influences intelligence

Environmental Influence



High parental involvement



Stimulating environment



Low socioeconomic status



Low maternal education

Effect on Intelligence





Other environmental influences play a role

Children usually score higher on intelligence tests during the school year compared to Summer Break

Some evidence indicates intellectual abilities can vary according to birth season

- In most US states, children with birthdays from September to December demonstrate higher academic performance than other children in the same grade...but why?



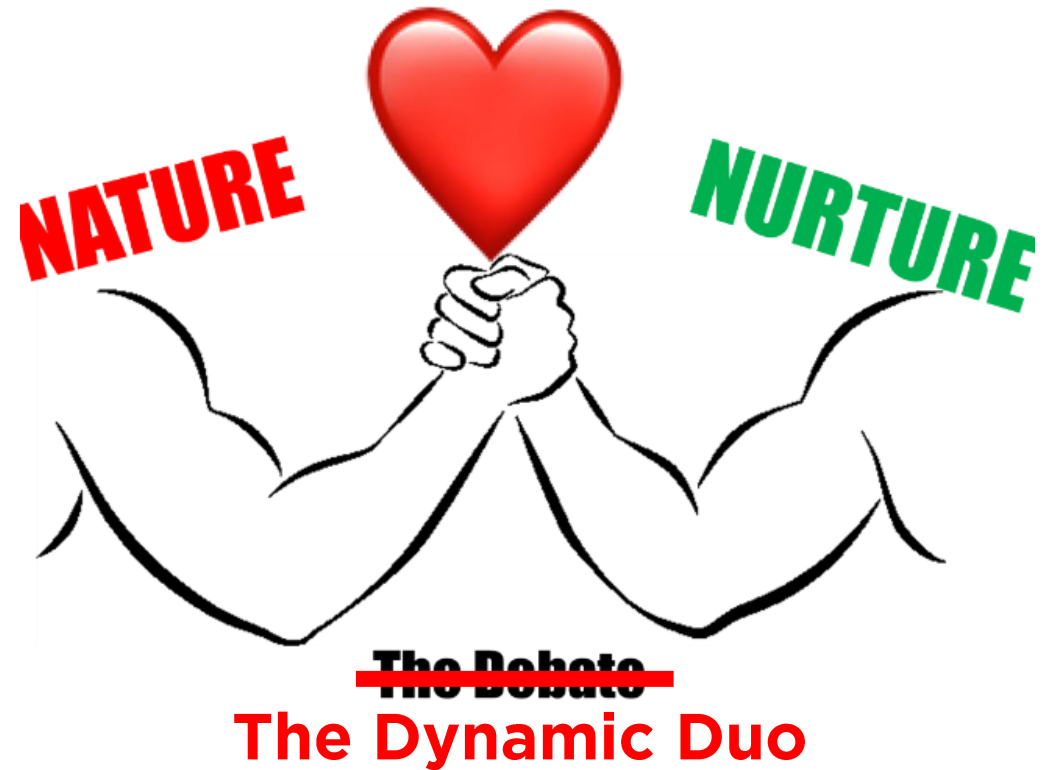
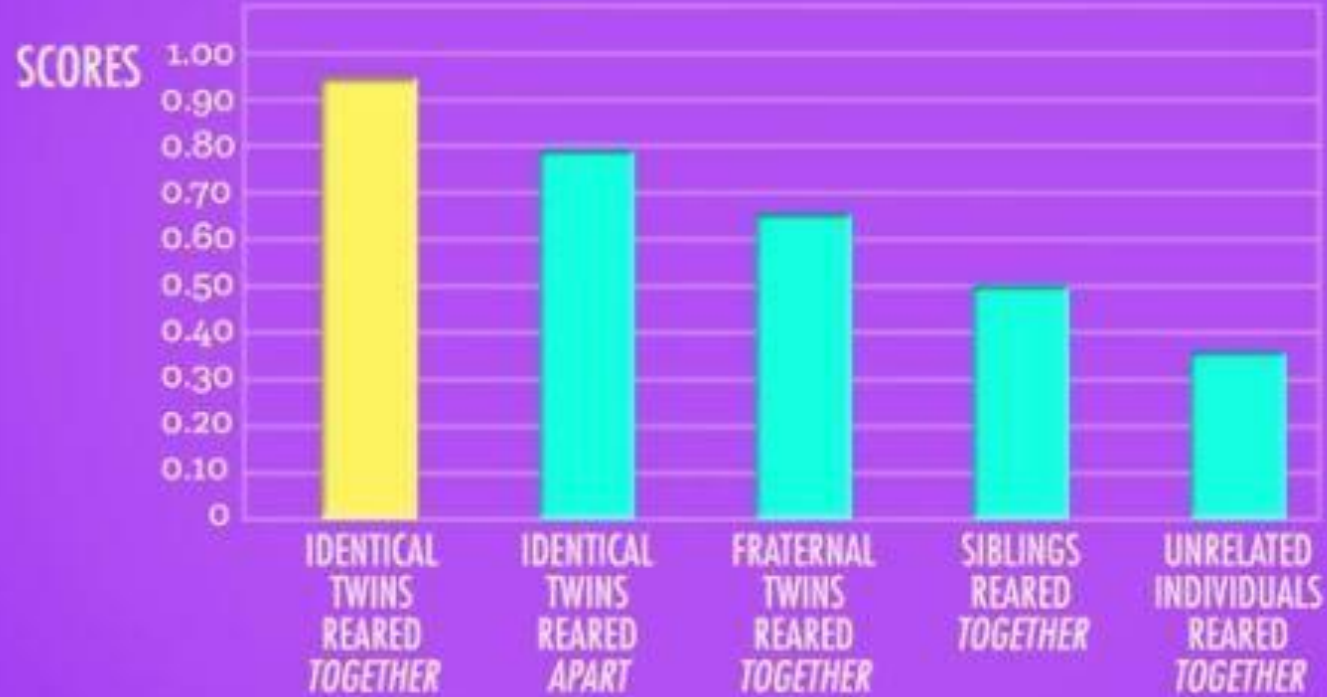


point
solutions



Genetics influence intelligence, but there's more

SIMILARITY OF INTELLIGENCE





Binet and Simon developed a new definition

Binet and Simon defined intelligence as:

Direction

- Knowing what to do and how to do it

Adaptation

- Creating strategies to apply knowledge

Criticism

- Finding errors in thinking



**Alfred
Binet**



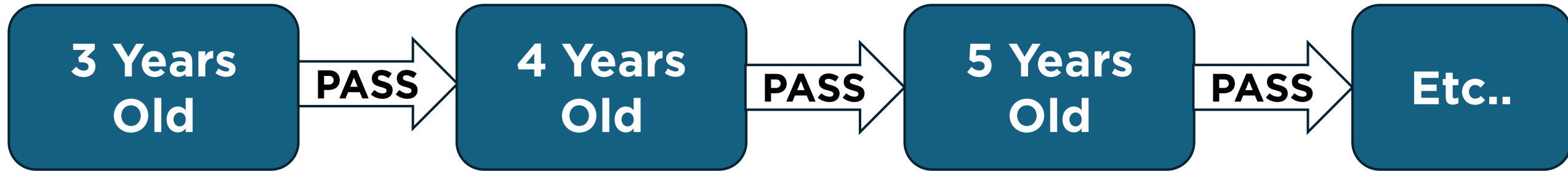
**Theodore
Simon**



Binet and Simon measured intelligence via behavior

Tests consisted of groups of questions corresponding to age-ability (e.g., majority of [age]-year-olds can answer these questions)

Mental Age is the level the participant can complete successfully



First standardized test of intelligence

Binet believed intelligence was not static and could change over time



Terman developed the Stanford-Binet test



Main application:

Determine students who needed additional academic help
(or were “Feeble-Minded” according to Eugenics)

$$\text{IQ} = \frac{\text{Mental Age}}{\text{Chronological Age}} \times 100$$

Intelligence Quotient

145–160	Very gifted or highly advanced
130–144	Gifted or very advanced
120–129	Superior
110–119	High average
90–109	Average
80–89	Low average
70–79	Borderline impaired or delayed
55–69	Mildly impaired or delayed
40–54	Moderately impaired or delayed



There was one key problem with the Stanford-Binet



Over time, researchers started to see that Mental Age tended to stay static after 16 years old...

What issue does that create with the Stanford Binet calculation of IQ?



There was one key problem with the Stanford-Binet

$$\text{IQ} = \frac{\text{Mental Age}}{\text{Chronological Age}} \times 100$$



There was one key problem with the Stanford-Binet

$$\begin{aligned} \text{IQ} &= \frac{31}{25} \times 100 \\ &= 124 \end{aligned}$$



There was one key problem with the Stanford-Binet

$$\text{IQ} = \frac{31}{26} \times 100$$

= 119

Tends to stay level after age 16



There was one key problem with the Stanford-Binet



$$\text{IQ} = \frac{31}{50} \times 100$$

= 62

Tends to stay level after age 16

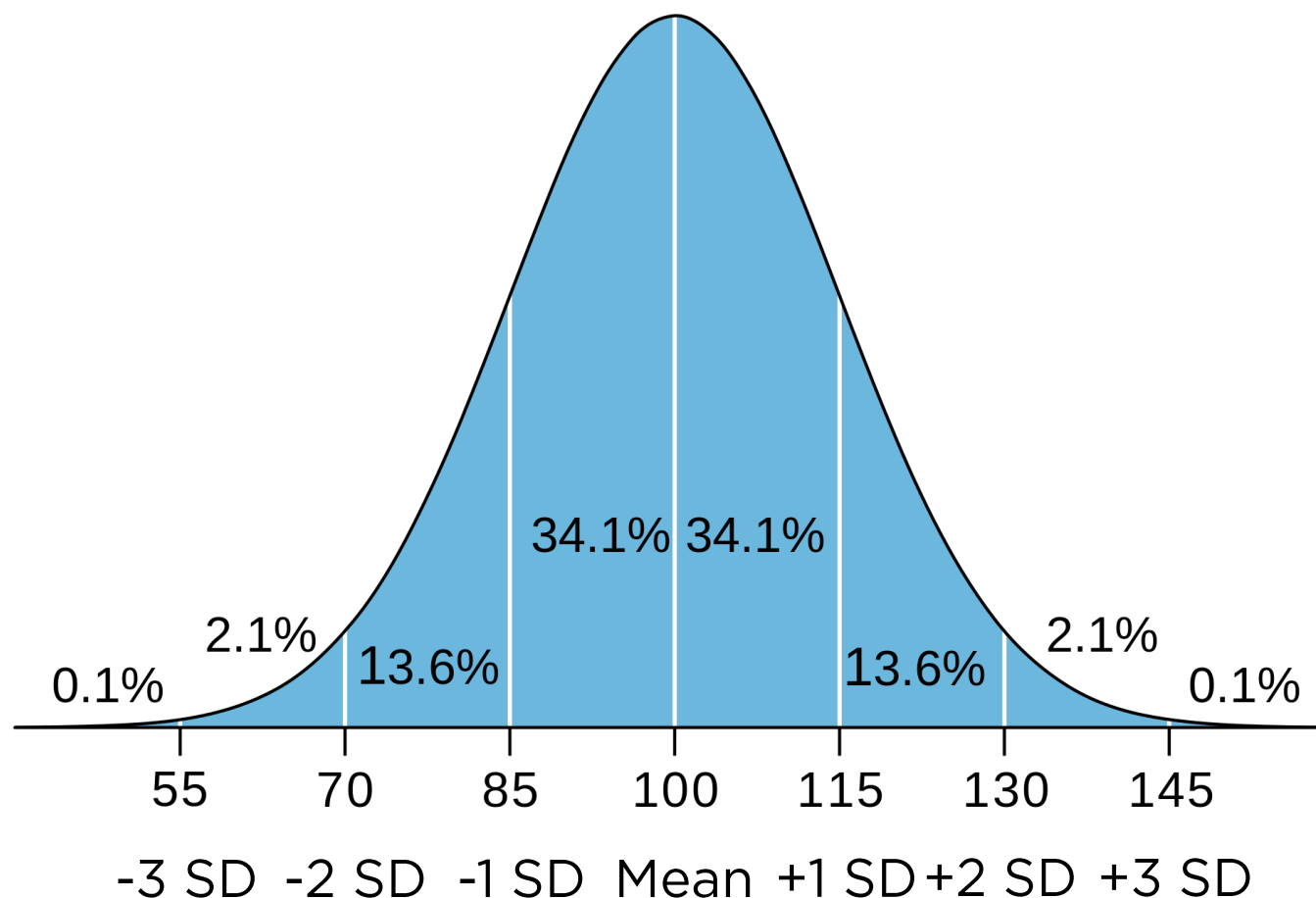
As Chronological Age increases and Mental Age stays the same, calculated IQ would mathematically decrease every year!



Weschler improved upon previous measures

Deviation IQ

Compare individual scores on a standardized test with average scores across population





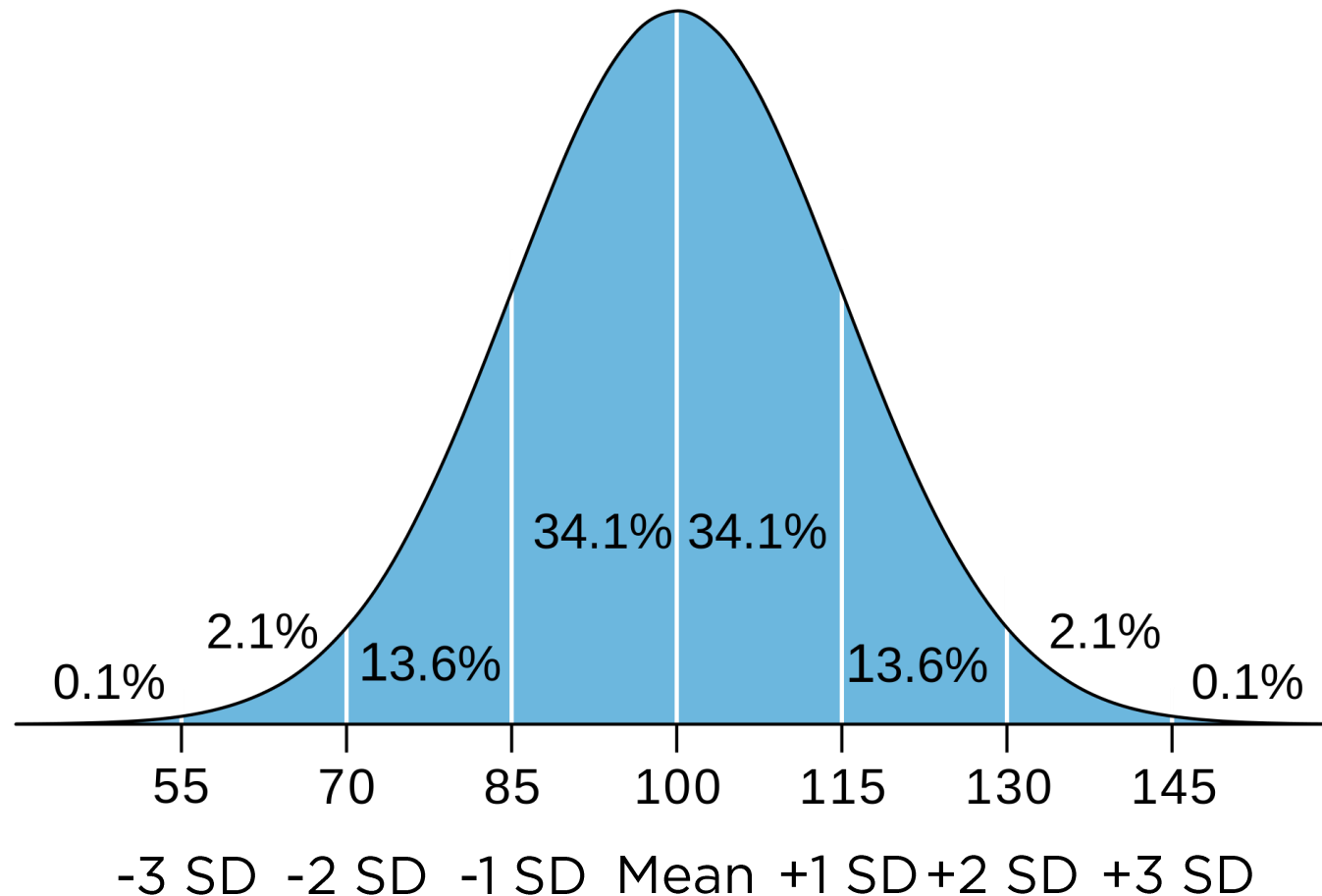
Weschler IQ scores are relative to demographic

Weschler Tests and the Normal Distribution

Everyone completes the same test, which is scored (Raw Score)

Produces a standardized score considering the participant's age and geographical location (Global IQ)

- Average Raw Score for a given age is different in Canada, USA, China, etc.



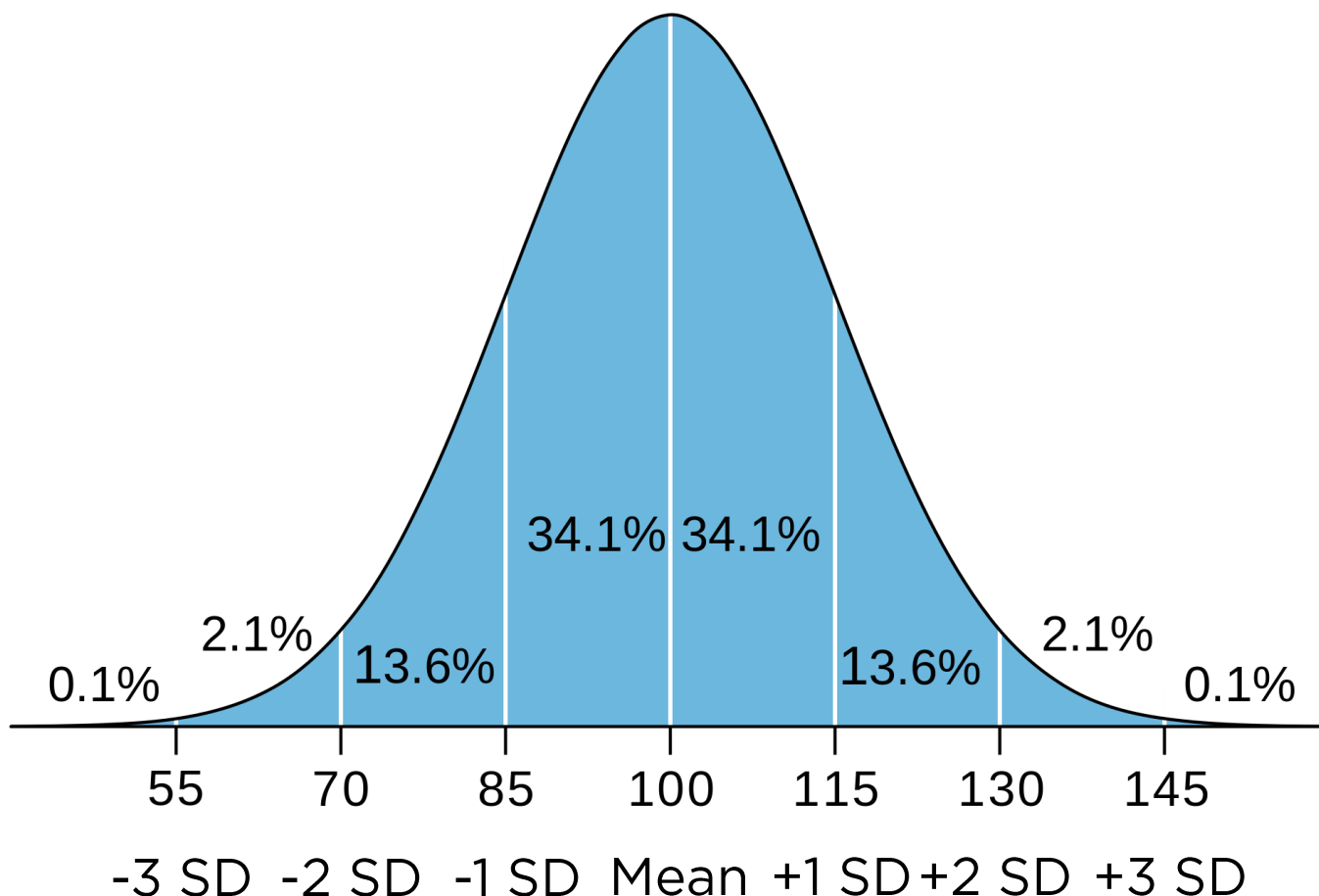


Weschler IQ scores are relative to demographic

Weschler Tests and the Normal Distribution

Average Raw Score for a given age in a country becomes 100 on the Global IQ distribution

Standard deviation of the Global IQ distribution is always 15





Weschler IQ scores are relative to demographic

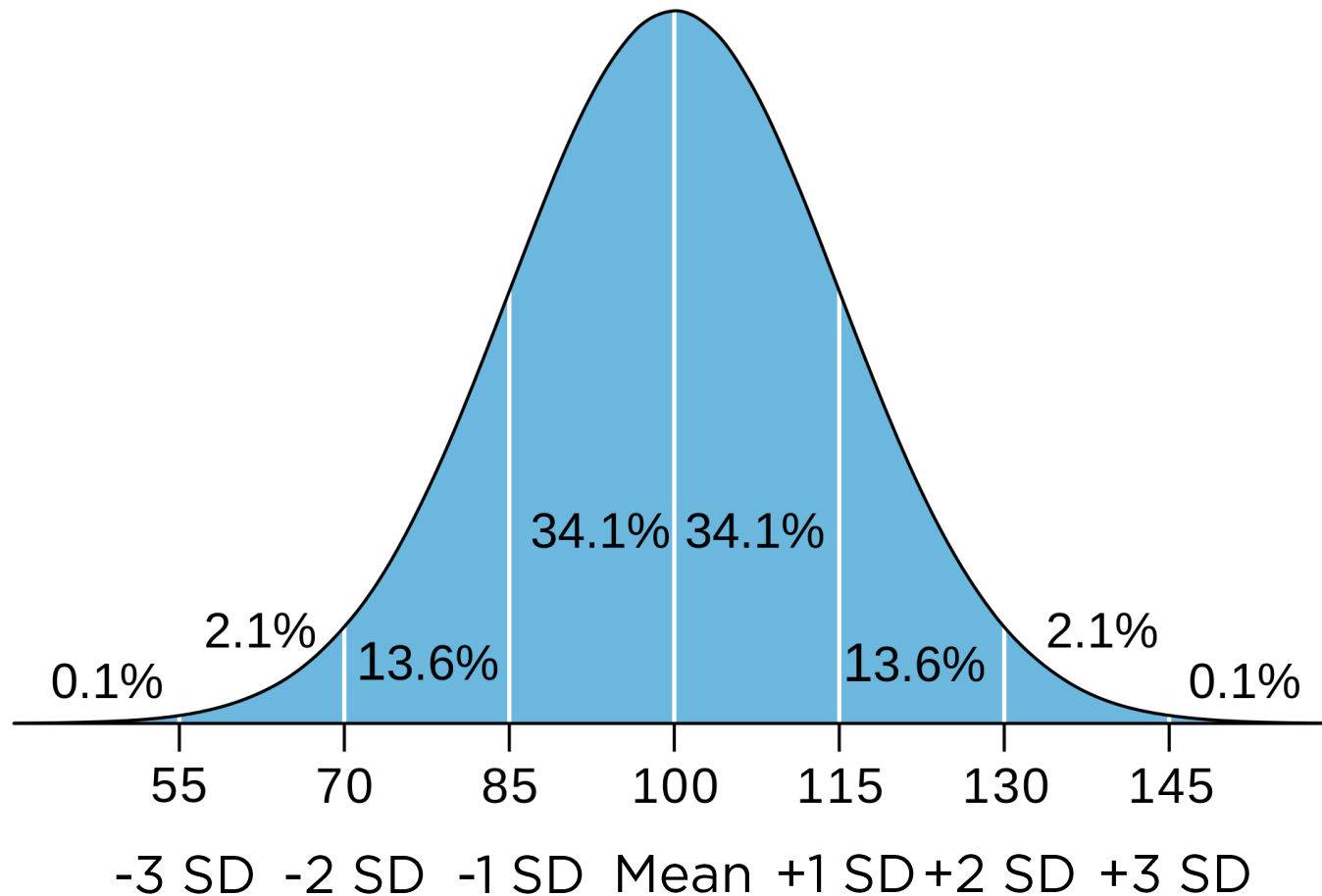
Could now determine:

What is the probability that someone will score 130 or above?

In what percentile is a person if they score 115?

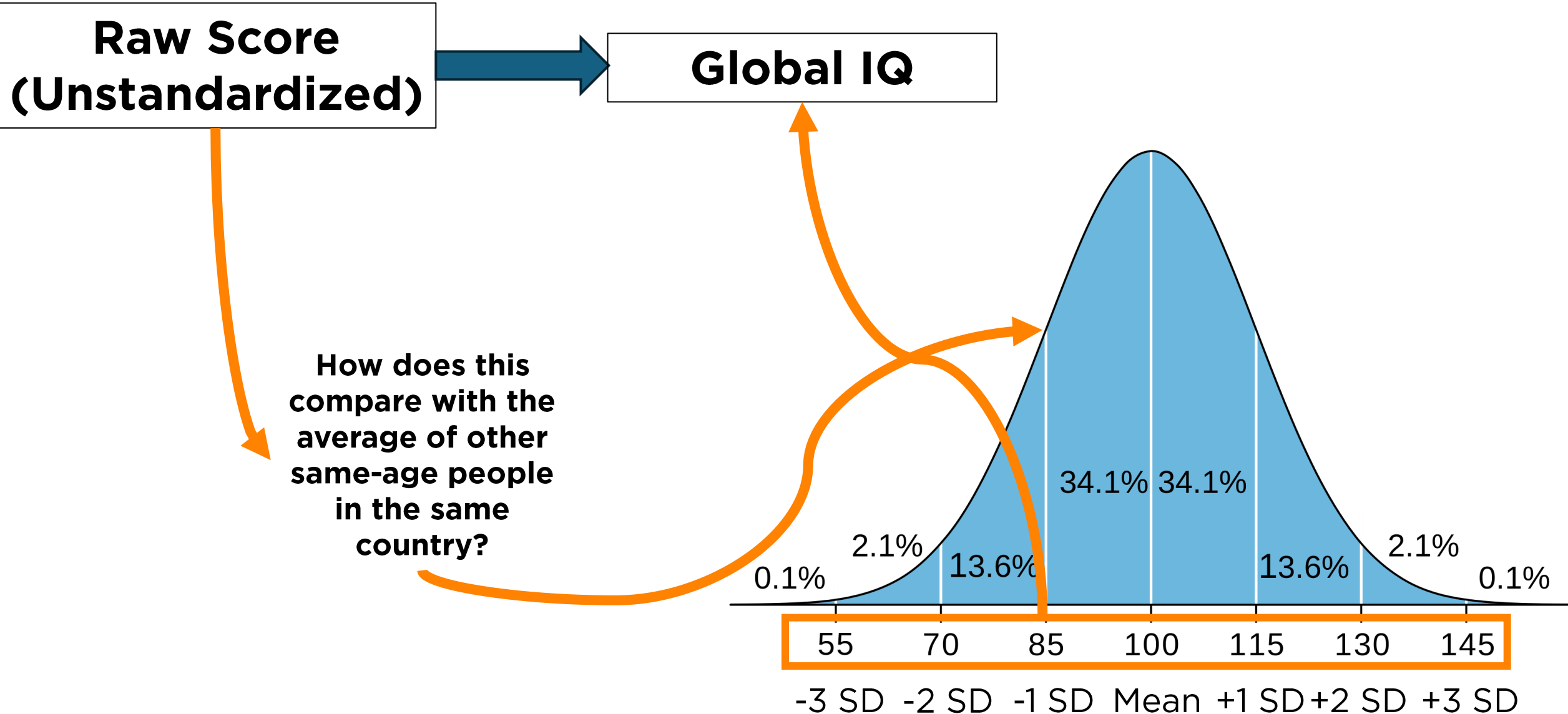
How does the average IQ of 6-year-olds in England compare to the average IQ of 9-year-olds in England?

How does the average IQ of a Canadian 10-year-old compare to 10-year-olds in the USA?





Weschler IQ Test Standardization





Sage gets a raw score of 120 on the Weschler IQ test. Other children in the same country, the same age, score 120 on average. What's her Global IQ?

100

Ally gets a raw score of 100 on the Weschler IQ test. Other children in the same country, the same age, score 120 on average. What's her Global IQ?

Below 100



Mason and Justin both have a Global IQ of 130. Justin is from the UK, which has a higher average Raw Score than Canada, where Mason is from. Who has the higher Raw Score?

Justin, because his country's Raw Score is higher on average.



Weschler IQ Test Standardization

Each country has their own Raw Score average according to each age

All Raw Scores are compared to this average

If you score average for your country and age, your Global IQ is 100

If you score below average, your Global IQ is below 100

If you score above average, your Global IQ is above 100

If a country's average raw score is higher than another, their "100" represents a higher Raw Score than the lower IQ country

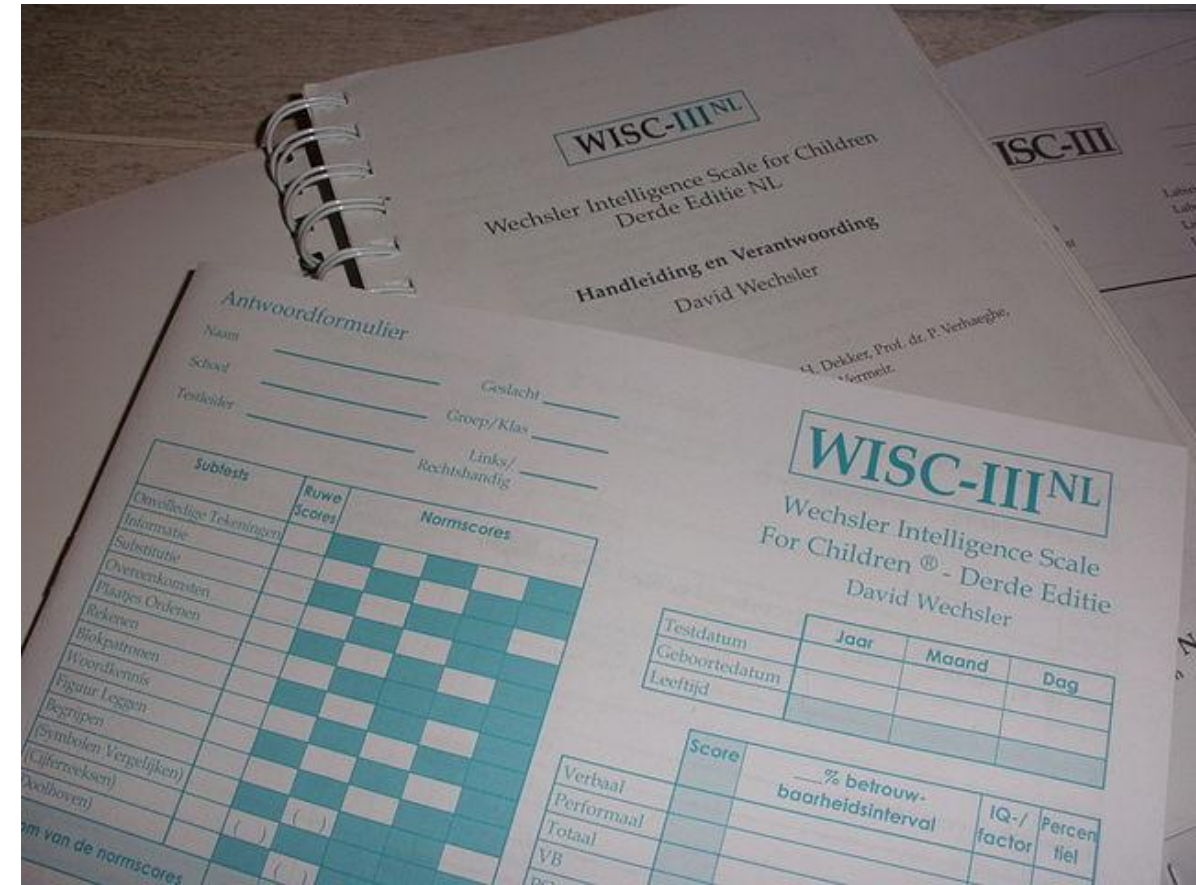


Wechsler improved upon previous measures

Raw IQ scores by country, 2024 (WorldPopulationReview.com):

- 1) Japan (106.48)
- 2) Taiwan (106.47)
- 3) Singapore (105.89)
- 4) Hong Kong (105.37)
- 5) China (104.1)
- ...
- 29) United States (97.43)

World Average = 82.03

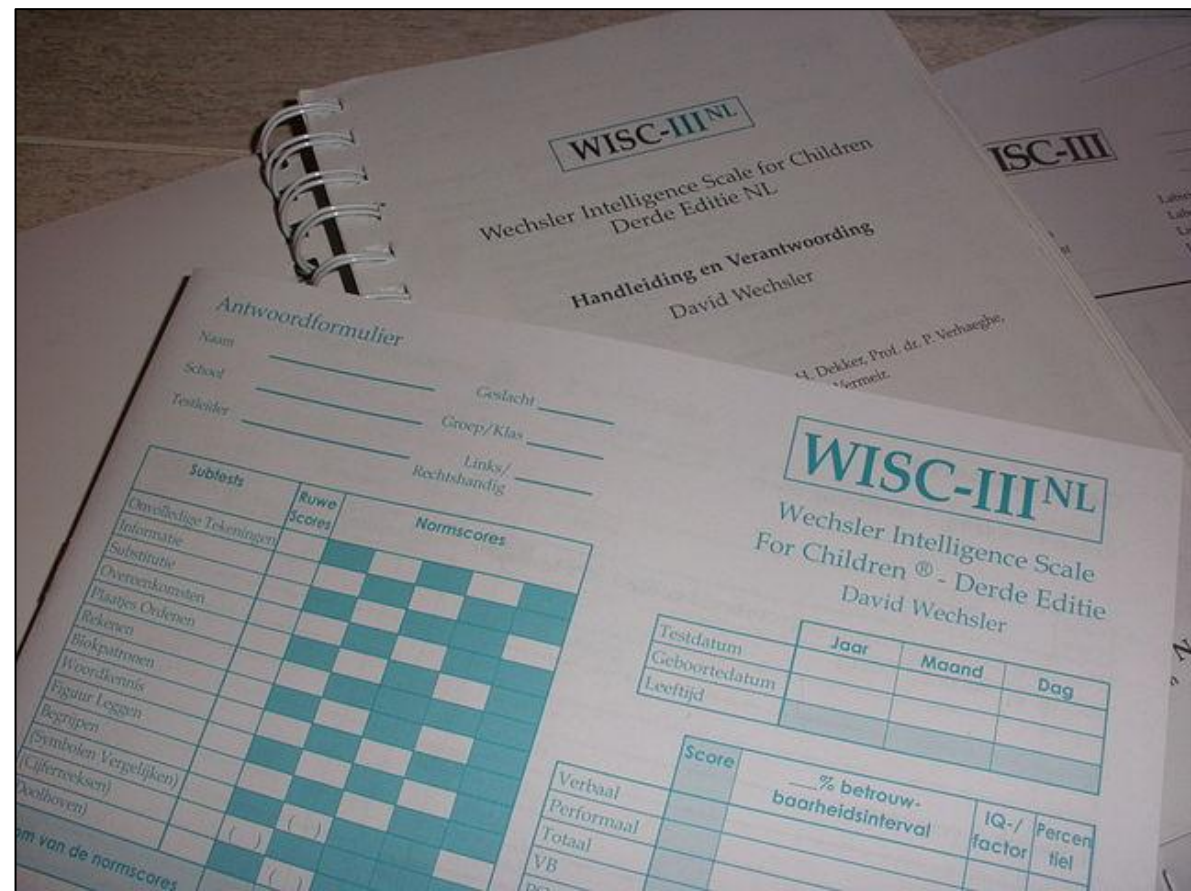




Wechsler improved upon previous measures

Raw IQ scores by state, 2024 (WorldPopulationReview.com):

- 1) New Hampshire (103.2)
- 2) Massachusetts (103.1)
- 3) Minnesota (102.9)
- 4) Vermont (102.2)
- 5) North Dakota (101.7)
- ...
- 38) Tennessee (98.3)
- ...
- 47) Alabama (96.4)
- ...
- 50) New Mexico (95.0)





How did we do?



**Intelligence is not the
ability to store information,
but to know where to find it.**

Albert Einstein

For y'all:

No Friday Quiz for Intelligence

No Discussion Sections this week

InQuizitive and Reflection Journal
due Monday April 21

(one extra day—Happy Easter if you celebrate,
and to all, enjoy Spring Recess!)