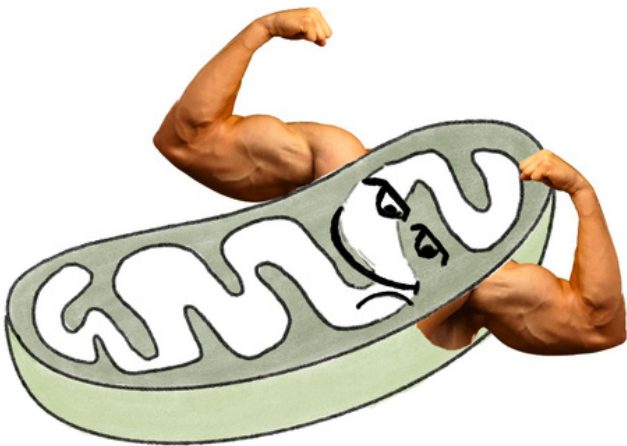


AP BIOLOGY

USING LAWS OF PROBABILITY

UNIT 5 REVIEW



→ using laws of probabilities is faster than using punnett squares

- Mutually exclusive events: cannot happen at same time, "either/or"
- Independent events: one event does not influence the other, "And"

LAWS OF PROBABILITY

Mutually exclusive event:

$$P(A \text{ or } B) = P(A) + P(B)$$

↑ probability

Independent event:

$$P(A \& B) = P(A) \times P(B)$$

EXAMPLE

One parent has genotype AaBb and the other is Aabb.
What is the probability that the child has a genotype aaBb?
(assume non linked genes)

↑
Independent event, so use $P(A \& B) = P(A) \times P(B)$

1. chance of aa genotype

e/ parents donate one allele:

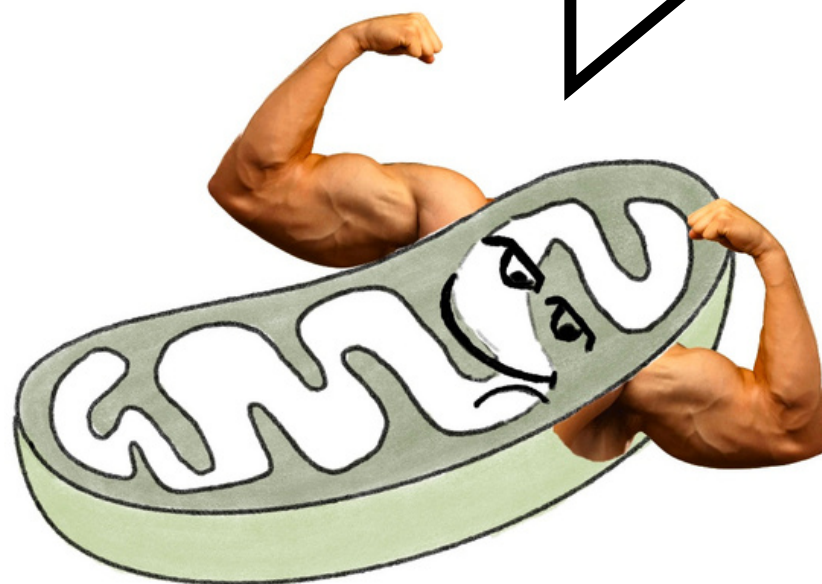
$\overbrace{50\% \text{ of } a}^{Aa}$ $\overbrace{50\% \text{ of } a}^{Aa}$ $\rightarrow$ $50\% \times 50\%$ chance of aa (25%)

2. chance of Bb genotype
 $\overbrace{50\% \text{ of } B}^{Bb}$ $\overbrace{100\% \text{ of } b}^{bb}$ $\rightarrow$ $50\% \times 100\%$ chance of Bb (50%)

3. chance of both aa and Bb

$$25\% \times 50\% = 12.5\% \text{ chance}$$

**follow for
more!**



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