CONCEPT: AMINO ACID ONE LETTER CODE

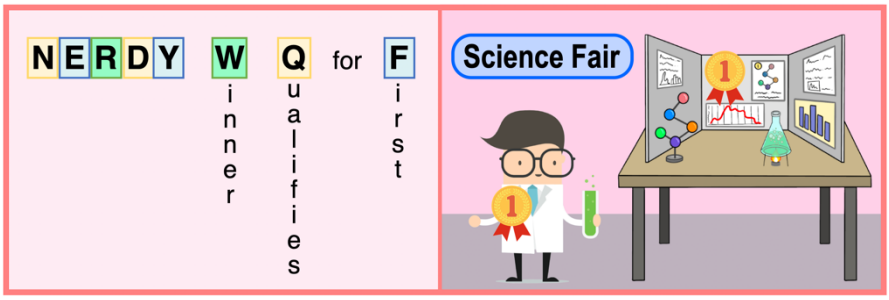
Phonetic 1-Letter Amino Acid Codes

●8 out of 20 of the one-letter abbreviations are _____ in origin.

EXAMPLE:

1-Letter Symbol Phonetic Origins:

Arginine = "__ginine" = __	Glutamine = "__-tamine" = __
Asparagine = "Asparagi__e" = __	Phenylalanine = "__enylalanine" = __
Aspartic Acid = "aspar__ic" = __	Tryptophan = "t__iptophan" = __
Glutamic acid = "glutam__c" = __	Tyrosine = "t__rosine" = __



PRACTICE: Which of the following amino acid 1-letter symbols is of phonetic origin?

a) E. b) K. c) T. d) C.

Other 1-Letter Codes

●For amino acids with _____ 1st letters, their one-letter-symbol is their 1st letter.

●Some amino acid 1st letters are not unique but are still used because they are more _____.

□ For example, overall leucine is more common than lysine in proteins, so leucine's symbol = ___.

●Only a few letters remained in the alphabet, so "___" was chosen for Lysine since its closest to L in the alphabet.

EXAMPLE: Fill-in the Amino Acid 1-letter Symbols.

Amino Acid 1-Letter-Symbols

Alanine ·····___	Glutamic Acid·····E	Leucine·····___	Serine·····___
Arginine·····R	Glutamine·····Q	Lysine·····___	Threonine·····___
Asparagine·····N	Glycine·····___	Methionine·····___	Tryptophan·····W
Aspartic Acid·····D	Histidine·····___	Phenylalanine·····F	Tyrosine·····Y
Cysteine·····___	Isoleucine·····___	Proline·····___	Valine·····___

PRACTICE: Which 1-letter-code is unique in that it is neither the first letter of the amino acid nor phonetic in origin?

a) I. b) L. c) K. d) G. e) T.

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PRACTICE: Convert the following amino acids into their 1-letter codes: Glycine, Isoleucine, Valine, Tryptophan, Proline.

a) G, I, V, T, P.
c) G, L, V, W, P.
b) L, I, V, Y, P.
d) G, I, V, W, P.

PRACTICE: Complete the amino acid abbreviation chart below from memory.

Amino Acid Abbreviations

Alanine ____ ____	Glutamic Acid ____ ____	Leucine ____ ____	Serine ____ ____
Arginine ____ ____	Glutamine ____ ____	Lysine ____ ____	Threonine ____ ____
Asparagine ____ ____	Glycine ____ ____	Methionine ____ ____	Tryptophan ____ ____
Aspartic Acid ____ ____	Histidine ____ ____	Phenylalanine ____ ____	Tyrosine ____ ____
Cysteine ____ ____	Isoleucine ____ ____	Proline ____ ____	Valine ____ ____

PRACTICE: Convert the following 3-letter amino acid codes into 1-letter codes to answer the following question:

How does NASA organize a party?

Thr-His-Glu-Tyr-Pro-Leu-Ala-Asn-Glu-Thr.

PRACTICE: Convert the following 3-letter amino acid codes into 1-letter codes to reveal the sentence.

Ile-Leu-Ile-Lys-Glu-Cys-Ala-Asn-Asp-Tyr !

PRACTICE: Match the amino acid with the appropriate 1-letter-code.

Tyrosine ____	1. W
Glutamine ____	2. P
Glutamic Acid ____	3. F
Proline ____	4. Y
Tryptophan ____	5. Q
Phenylalanine ____	6. E