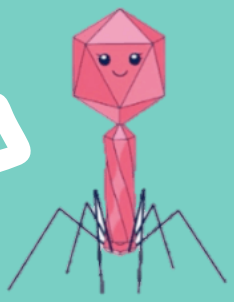
Let's Build   A Phage!

Directions:

Answer the questions below about phages, DNA, and how DNA becomes protein after reading the summary. Correct answers will match a RNA sequence. When all questions are answered correctly use the sequence and the attached codon chart to add the corresponding parts needed for your very own phage.

Example: How many letters are in a codon? AUG) 1 UGC) 2 CAG) 3
Correct answer: CAG) 3 which is the sequence for a HEAD

Questions:

1. **What does mRNA mean?**
   - AUG) messenger deoxyribonucleic acid GUG) matching ribonucleic acid UGA) messenger ribonucleic acid
2. **Most phages have arms or tails?**
   - UUU) Arms GAA) Tails
3. **Bacteriophages are viruses that infect dogs or bacteria?**
   - UGU) Bacteria GAG) Dogs
4. **Is DNA transcribed or translated into mRNA?**
   - GAU) Transcribed GGG) Translated
5. **How many amino acids are there 5, 8 or 20?**
   - ACC) 5 ACU) 8 CGU) 20
6. **Where is the DNA held in a phage?**
   - GUC) Head CUA) Tail AGG) Legs
7. **What is the most common phage life cycle?**
   - AAU) They don't have one GCA) Lytic ACU) Lysogenic
8. **How many heads does a phage have?**
   - CCA) 5 UCA) 2 UGA) 1

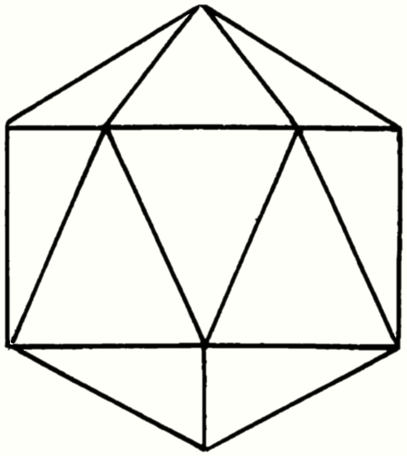
Sequence:

C A G

Phage Parts:

HEAD

Your Phage!



SUMMARY!

Phage have been around for millions of years and will be around for millions more! A phage is a virus that infects bacteria. It is microscopic and typically produces millions of offspring. Phage has one round head, a tail and some have tail fibers at the end of this tail. The large round head stores DNA. To create new strands of DNA, it is transcribed into messenger ribonucleic acid (mRNA) and this is then translated into strings of amino acids called protein. There are 20 amino acids that can be combined many ways to create a protein. mRNA is read in 3 letter groups called codons, so 3 letters makes one codon. For example GUA is a codon and corresponds to the amino acid Valine. All of these processes occur in the tiny head of the phage and then inside the host bacteria after infection. The typical lifecycle of the phage is lytic, which means that it causes the host bacteria to pop once the phage has fulfilled its job. The result of the lytic cycle is death of the bacteria. The phage's "job" is to try to create more phage but it can't do that without the help of bacteria. These tiny viruses have been very successful and will continue to thrive as long as there are bacteria to infect.

Codon Chart!

UUU, UUC: LEGS UUA, UUG: HEAD	UCU, UCC, UCA, UCG: LEGS	UAU, UAC: LEGS UAA, UAG: HEAD	UGU, UGC: EYES UGA: Stop UGG: TAIL
CUU, CUC, CUA, CUG: NO TAIL	CCU, CCC, CCA, CCG: 4 LEGS	CAU, CAC: TAIL CAA, CAG: HEAD	CGU, CGC, CGA, CGG: Color phage your favorite color
AUU, AUC, AUA: PINK AUG: LEGS	ACU, ACC, ACA, ACG: HEAD	AAU, AAC: TAIL AAA, AAG: TAIL	AGU, AGC: BLUE AGA, AGG: RED
GUU, GUC, GUA, GUG: 2 LEGS	GCU, GCC, GCA, GCG: You choose	GAU, GAC: MOUTH GAA, GAG: TAIL	GGU, GGC, GGA, GGG: RED

Correct sequence: CAGGAACCUUGUGAUCGUGUCGCAUGA