

Genetics Practice I

Discussion Questions:

1. How would you describe heredity in your own words?
2. What is the difference between a trait and a gene?
3. Why do you think different organisms have different numbers of chromosomes?
4. How are introns and exons alike and different?
5. What is role of mRNA?
6. What path does information follow in a cell?

DNA Practice:

For the following pieces of DNA, write the complementary sequence of nucleotides:

7. ATTCCGGCGCTACGACTCGAAATGCA

8. GTCGATCGTAGCTAAGCTGCTAGCAG

9. GCTAGCGTCGAGATCCCTTGCTTAGTC

10. TGCATGCGCTGCCGGTTATAGCTAGCT

RNA Practice:

RNA is very similar to DNA, they both use Sugar, Phosphate and Nitrogenous Bases to make the molecule. But RNA only has 1 side while DNA has 2 and RNA uses the base Uracil (U) instead of Thymine (T). So when making RNA, every A will bond to a U and every U will bond to an A.

For example: This sequence of DNA: ATCGTCATCGCGGCCATATATA
Would have this sequence of RNA: UAGCAGUAGCFCGGUAUAUAU

For each of the following DNA sequences, write an RNA sequence:

- 11) AAATTGGCCAATTAATTGGCAA
- 12) TTAAGCGCCGGAAATTTAATGC
- 13) GGCCGTAATAATAAGCACGTCA
- 14) ACTACGCGTAATAAGCGAATCA

Intron & Exon Practice:

Each of the following is an RNA sequence. The RNA becomes mRNA once the introns are removed. The nucleotides that are **BOLD** represent the introns. Rewrite each RNA sequence as an mRNA sequence:

- 15) AUGAUCGUAC**GUCGAUG**CGAUCGAUCGAUCGU
- 16) **CGAUCGAUG**CGACUG**CAUGCAUC**GCUC**GAUGCC**GCUUAG
- 17) **AGUGGGUGCUCUCCCAUG**CGAUC**GGAUUCGAUC**GG**AAGCCGCUAGCUGC**
- 18) AUGCG**CGGCUAGCUAGCUAGCUG**CCCUUUGAGCU**AGCUGCAG**
- 19) **CGUAUGCGAUCGAGUAGCUAGCUC**CGCU**AUUAGAAGGGUAGCA**
- 20) **UUUAAAUGAGGCUCGUGGAUG**CGAUG**AAUUCGAUUC**GGAUUC**GAUC**