Restriction Enzymes Worksheet	Name: _____

Objective(s):

- Identify restriction sites.
- Show differences between blunt and sticky (cohesive) end cuts.
- Compare restriction enzyme differences on identical DNA.

Directions: Identify the restriction sites for each of the examples given. Show the cuts , sticky (cohesive) or blunt, number of DNA fragments produced and the number of base pairs in each (count the top row). (If there are three nucleotides on either side of the dash it is a blunt cut. If there are less than three on either side of the dash it is cohesive cut.)

1. ***Hpa*I** --- 5' GTT - AAC 3'

- 5' GGATGTTAACAATCTCTACGGGTTAACACCCTTGGGTTAACATCCGCGG 3'
- 3' CCTACAATTGTTAGAGATGCCCAATTGTGGGAACCCAATTGTAGGCGCC 3'

Number of pieces of DNA _____

2. ***Ssp*I** --- 5' AAT - ATT 3'

- 5' GGATAATATT GTTAACAATCTCTACGGGTTAACACCCTTGGAATATTTTAA 3'
- 3' CCTATTATAACAATTGTTAGAGATGCCCAATTGTGGGAACCTTATAAAATT 3'

Number of pieces of DNA _____

3. ***Pst*I** --- 5' CTGCA - G 3'

- 5' ACGCTGCA/GACGTATTATTAT CCGCCGCTGCA/GCC GTCATCA 3'
- 5' TGCG/ACGTCTGCATAATAATAGGCGGCG/ACGTCGGCAGTAGT 3'

Number of pieces of DNA _____

4. ***Hind*II** --- 5' GTC - GAC 3'

- 5' ACGACGTAGTCGACTTATTAT GTCGACCCGCCGCGTGTCGACCATCA 3'
- 5' TGCTGCATCAGCTGAATAATACAGCTGGGCGGCGCACAGCTGGTAGT 3'

Number of pieces of DNA _____

5. ***Eco*RI** --- 5' G - AATTC 3'

- 5' ACG ACGTATTAGAATTCTTAT CCGCCGCCGGAATTCT CATCA 3'
- 5' TGC TGCATAATCTTAAGAATAGGCGGCGGCCTTAAGAGTAGT 3'

Number of pieces of DNA _____

6. ***HaeIII*** --- 5' CC - GG 3'

- 5' ACGCCGGCCGTATTAT CCGGATCCGCCG CCGGCTGTCCCGGATCA 3'
- 5' TGCGGCCGGCATAATAGGCCTAGGCGGCGGCCGACAGGGCCTAGT 3'

Number of pieces of DNA _____

7. ***BamI*** --- 5' CCTAG - G 3'

- 5' ACGCCTAGGACGTATTATCCTAGGTAT CCGCCGCCGT CATCA 3'
- 5' TGCGGATCCTGCATAATAGGATCCATAGGCGGCGGCAGTAGT 3'

Number of pieces of DNA _____

8. ***Hpa*****I** --- 5' GTT - AAC 3' and ***Ssp*****I** --- 5' AAT - ATT 3'

- 5' AGTTAACCGACAATATTGTATTATATCC GCCGCC GTCGTTAACATCA 3'
- 5' TCAATTGGCTGTTATAACATAATATAGGCGGCGGCAGCAATTGTAGT 3'

Number of pieces of DNA _____

9.***Hind*****II** --- 5' GTC - GAC 3' and ***HaeIII*** --- 5' CC - GG 3'

- 5' ACGGTCGACACGTATTATTAGTCGACTCCGCCGCCGCCGGTCATCA 3'
- 5' TGCCAGCTGTGCATAATAATCAGCTGAGGCGGCGGCGGCCAGTAGT 3'

Number of pieces of DNA _____

10. ***Hind*****II** --- 5' GTC - GAC 3', ***HaeIII*** --- 5' CC - GG 3' and ***BamI*** --- 5' CCTAG - G 3'

- 5' ACGCCGGACGTACCTAGGTTTAGTCGACTC CGCCG CCCCTAGGGTCATCA 3'
- 5' TGCGGCCTGCATGGATCCAAATCAGCTGAGGCGGCGGGGATCCCAGTAGT 3'

Number of pieces of DNA _____

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