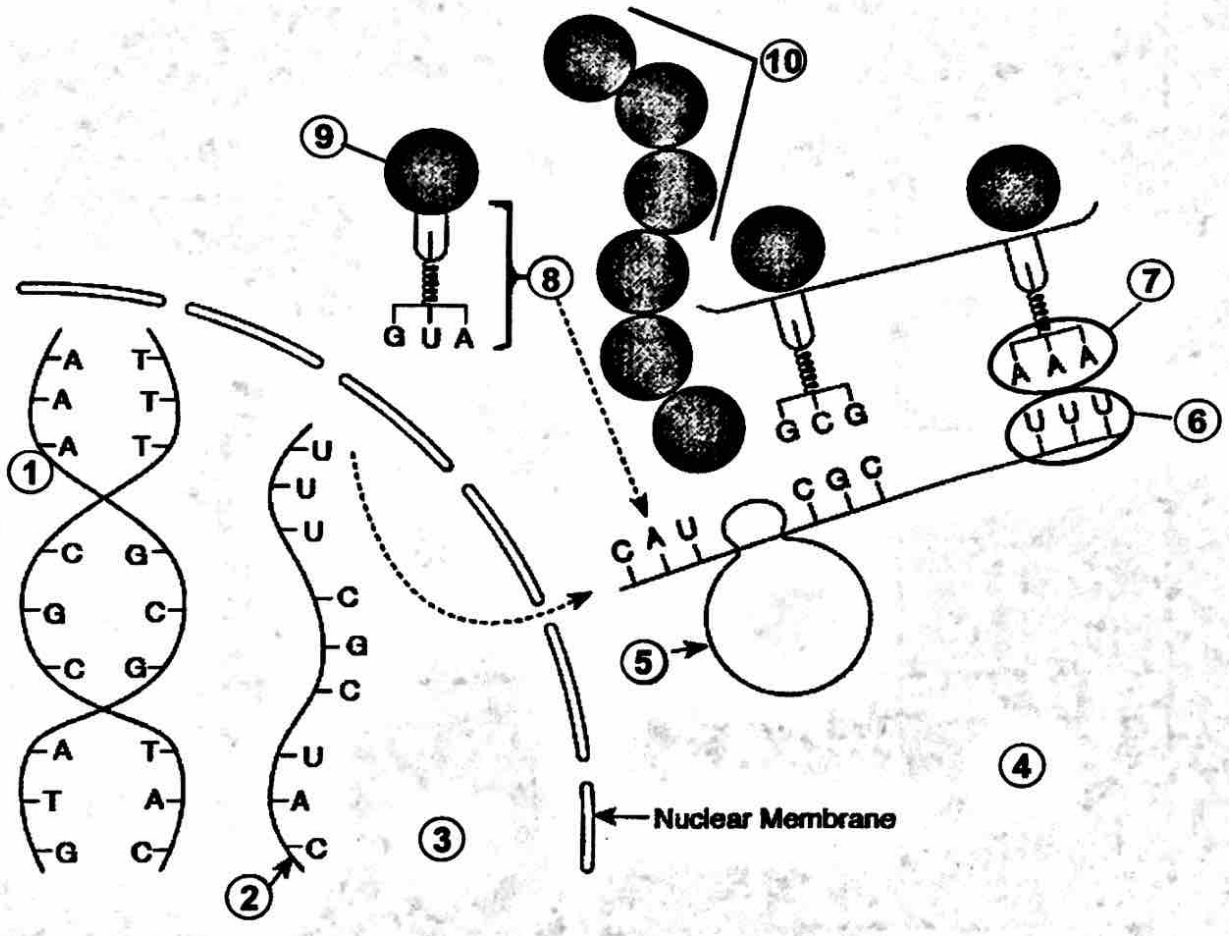
Name Key Period _____

Date _____

PROTEIN SYNTHESIS PRACTICE 1

Interpreting diagrams is an important skill in learning science. The following diagram illustrates protein synthesis — the making of a protein from a gene. Let's interpret the diagram by labeling its parts.



1. DNA
2. mRNA
3. Transcription (in nucleus)
4. translation (in cytoplasm)
5. ribosome/rRNA
6. codon
7. anticodon
8. tRNA
9. amino acid
10. protein (polypeptide chain)

Name _____ Per _____ Date _____

Codon Practice:

1. Using the Universal Genetic Code Chart, fill in the missing amino acids in the amino acid sequence for **species A** in the chart *on the next page*.
2. Using the information given, fill in the missing mRNA bases in the mRNA strand for **species B** in the chart.
3. Using the information given, fill in the missing DNA bases in the DNA strand for **species C** in the chart below.

Species A	**DNA strand:**	**TAC**	**CGA**	**CCT**	**TCA**
	mRNA strand:	**AUG**	**GCU**	**GGA**	**AGU**
	Amino acid sequence:	met (start)	ala	gly	ser
Species B	**DNA strand:**	**TAC**	**TTT**	**GCA**	**GGA**
	mRNA strand:	AUG	AAA	CGU	CCU
	Amino acid sequence:	**MET**	**LYS**	**ARG**	**PRO**
Species C	**DNA strand:**	TAC	AAA	ACA	GGG
	mRNA strand:	**AUG**	**UUU**	**UGU**	**CCC**
	Amino acid sequence:	**MET**	**PHE**	**CYS**	**PRO**
Species D	**DNA strand:**	**TAC**	**GTA**	**GTT**	**GCA**
	mRNA strand:	**AUG**	**CAU**	**CAA**	**CGU**
	Amino acid sequence:	**MET**	**HIS**	**GLN**	**ARG**
Species E	**DNA strand:**	**TAC**	**TTC**	**GCG**	**GGT**
	mRNA strand:	**AUG**	**AAG**	**CGC**	**CCA**
	Amino acid sequence	**MET**	**LYS**	**ARG**	**PRO**

4. According to these amino acid sequences, which *two* plant species are the most closely related? Remember the more similar the amino acid sequence, the more related the species. Support your answer. B+E ~explain why!