DNA and Protein Synthesis

My mom has boxes of recipes she won’t let out of her house. If I want to make a cake, I go to her house and copy the recipe. I then carry the copy to my kitchen. Before I can make the cake I call the store and have someone deliver the ingredients. I can then follow the recipe instructions, in the right order, to bake a cake.

**Baking a Cake Analogy**

____ Mom’s boxes of recipes
____ One recipe
____ Mom’s house, where her recipes are stored and can’t leave.
____ Me, copying the recipes and delivering them to where cake will be made.
____ My kitchen, where the cake will be made.
____ The delivery boy bringing the ingredients to my kitchen.
____ The ingredients.
____ The cake.

**Making a protein**

1. A ribosome
2. The protein
3. Entire set of DNA in the nucleus
4. Transfer RNA
5. Section of DNA with directions to make one protein
6. Messenger RNA
7. The nucleus
8. Amino acids

**Construction Analogy**

A. blueprints
B. supervisor
C. trucks
D. finished building
E. concrete & lumber
F. master plans
G. building plans
H. architects vault

**Vocab Terms**

____ nucleus
____ DNA
____ cytoplasm
____ ribosome
____ mRNA
____ tRNA
____ amino acids
____ protein

**Put these steps of protein synthesis in the correct order.**

_____ Nitrogen bases are added together to form a mRNA with the help of RNA polymerase.
_____ The DNA of a certain section unwinds
_____ RNA polymerase reads a section of DNA.
_____ The finished protein is released from the ribosome.
_____ Bonds form between adjacent amino acids.
_____ mRNA leaves the nucleus and attached to a ribosome in the cytoplasm.
_____ The tRNA with an anticodon that complements mRNA's first codon brings its amino acid to the ribosome.
_____ More tRNAs brings amino acids to the ribosome until a "stop" codon in encountered.
DNA and Protein Synthesis

Read through the steps above. Circle the steps that are part of transcription. Place a star next to the steps involved in translation.

Word Bank:
- mRNA
- template strand DNA
- non-template strand DNA
- replication
- nucleotides
- RNA polymerase
- transcription
- translation
- tRNA
- rRNA
- ribosome
- polypeptide
- anticodon
- mRNA
- codon
- tRNA
- amino acid
- DNA
- transcription
- translation
- replication