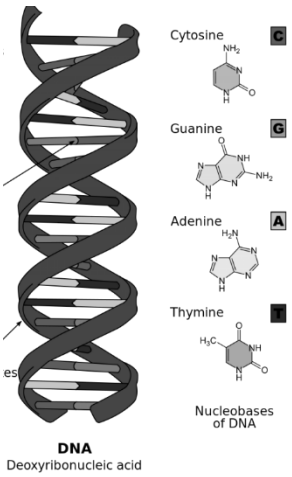
A Royal Story Notes

A Tale about Transcription & Translation

Name: _____ Date: _____ Block: _____

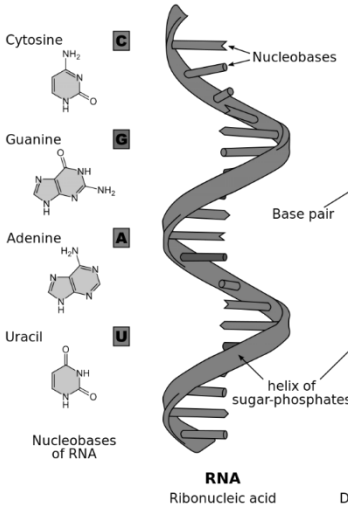
Understanding the Royal Process:

1. Who is **King** inside of the cell? _____
2. Where is he held prisoner at? _____
3. Although the king is held prisoner in the castle, he still must do what?



4. If the King **CAN NOT** leave the castle, but must run his kingdom, how can he get his message to his people? **If the King can not come out what must go in?**
5. _____ _____ _____ _____ or _____ can **enter and leave the castle freely,** taking the King's what with him?

6. How does mRNA remain undetected by the **Castle Guards?**



What is RNA?:

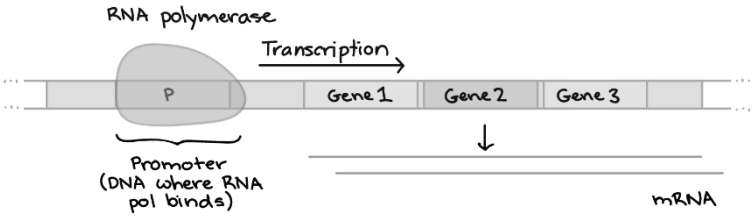
7. **RNA <u>DOES NOT</u> HAVE <u>THYMINE</u>**, instead it has what base? _____
8. How many strands does RNA have? _____
9. In it's **sugar-phosphate backbone**, what type of sugar does it have?
10. **DNA** is found in the nucleus and **RNA** is found primarily where?

The Castle Guards & Royal Proclamations:

11. What is the **castle** in this story?
12. What is the **castle gaurds**?

	DNA	RNA
Pentose sugar	Deoxyribose	Ribose
Base Composition	Adenine (A) Guanine (G) Cytosine (C) **Thymine (T)**	Adenine (A) Guanine (G) Cytosine (C) **Uracil (U)**
Number of strands	Double stranded (forms a double helix)	Single stranded

13. How does the **Messenger** know when the **King** needs him to come and **<u>transcribe</u>** his message for the people?

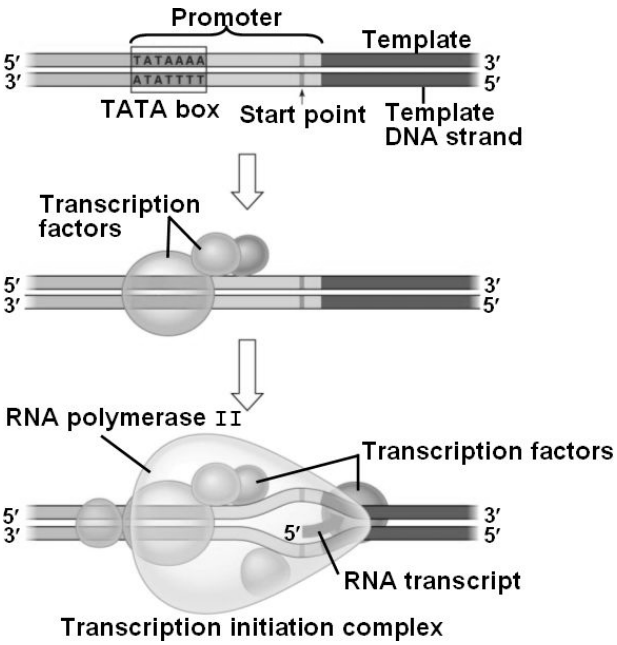


14. What is that sign called? _____

15. Through what process does **RNA** and **mRNA** do its work? _____

16. What is **TRANSCRIPTION?**

17. Where does transcription take place? _____



RNA as Disposable DNA:

18. mRNA is a disposable copy of what molecule? _____

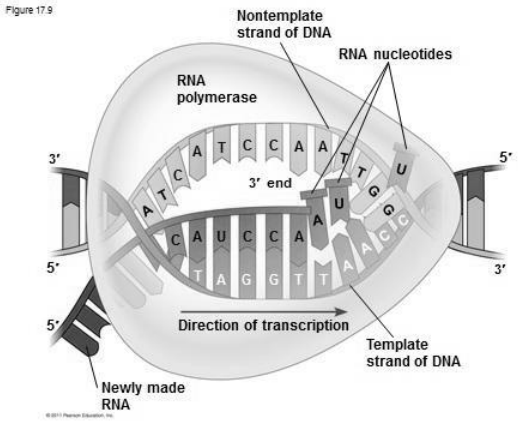
19. mRNA will often copy what **in the nucleus**?

20. Once that **gene** is copied, it will then get tranlated into what?

21. mRNA begins **transcription** at regions of DNA called what?

22. What do **PROMOTERS** do? _____

23. What is this area called? _____ _____

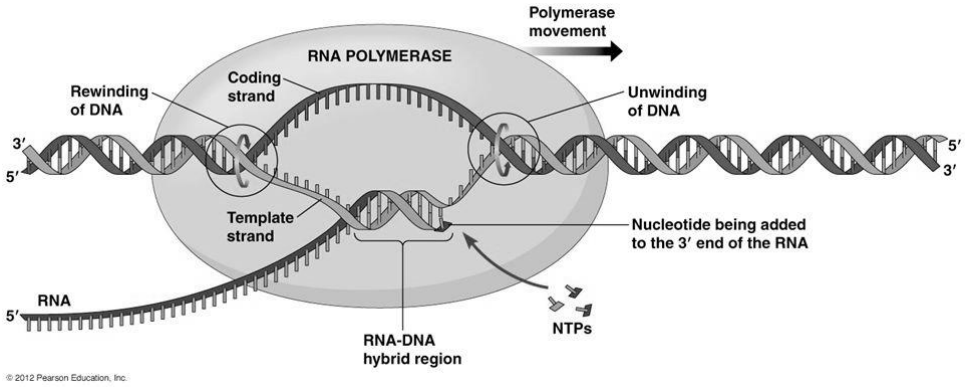


Transcription & RNA Editing:

24. Transcription requires which enzyme?

25. What does **RNA POLYMERASE** DO?

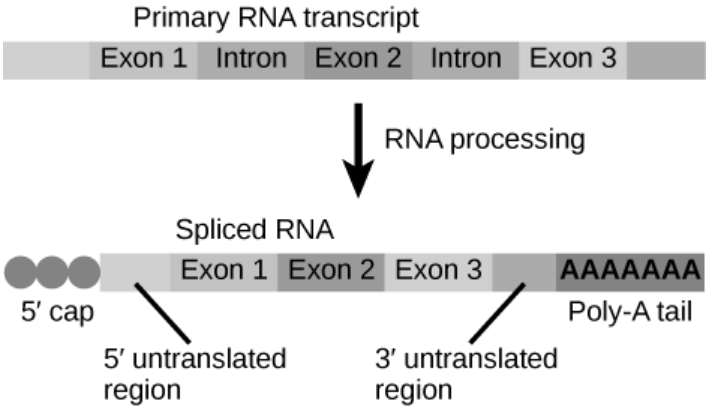
BACK TO THE STORY BY THE WAY!



26. What is the **ROYAL PROCLAMATIONS?**

27. Because the Royal Proclamations has **long rambling sections that don't make sense and aren't at all related to the <u>KING'S MESSAGE</u>**, what does mRNA have to do before giving it to the people?

28. _____ is the parts of the message that are **NON-CODING REGIONS OF DNA**, they do not code for proteins.

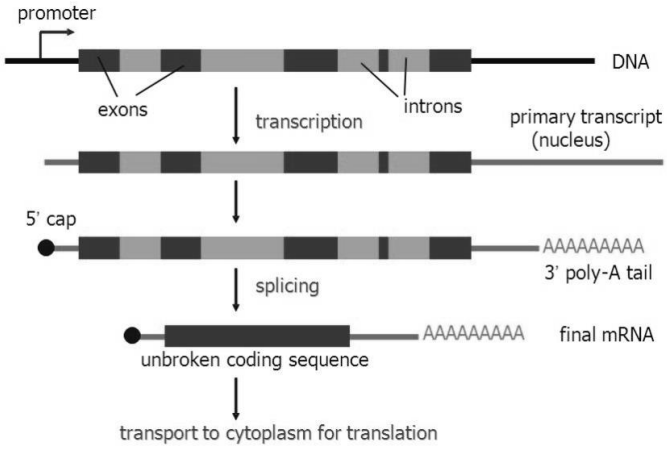


29. What are these **non-coding** regions called?

_____

30. What are the parts that **DO CODE FOR PROTEINS** called? _____

31. When an **RNA MOLECULE** gets **transcribed** what gets copied?



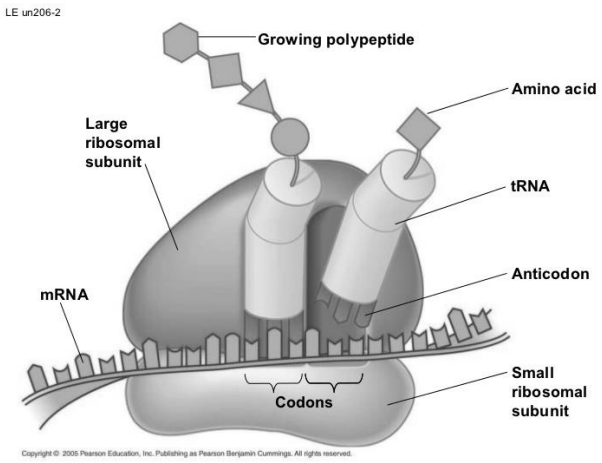
32. What is the **<u>ONLY</u>** part that contains the instructions for assembling proteins? _____

33. What gets **"edited"** or "**removed?"** _____

The other RNA's & the Genetic Code

34. **mRNA** has a hugely important job because it **contains** the what? _____
    - mRNA transcribes the appropriate genes from DNA in the nucleus, edits the information to remove unimportant stuff, and takes the gene to become a protein.

35. **mRNA:** contains the instructions for what?



36. **rRNA:** the proteins are assembled where?

37. **tRNA:** (also known as the **anticodon**) brings the appropriate _____ to the ribosome, as specified by the mRNA.

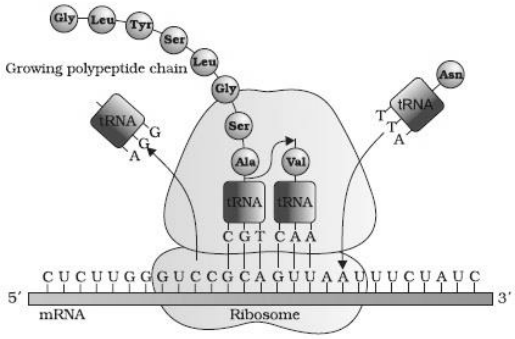


Figure 6.13 Translation

38. What does the **"translating"** in **TRANSLATION?** _____

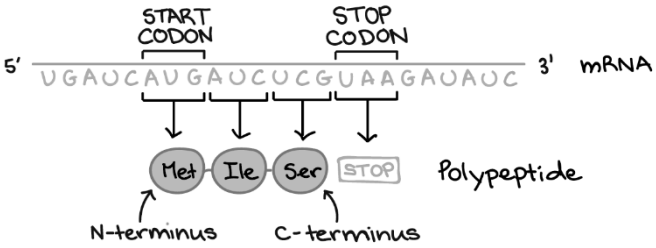
39. Proteins are made by **joining amino acids together in long chains called what?** _____

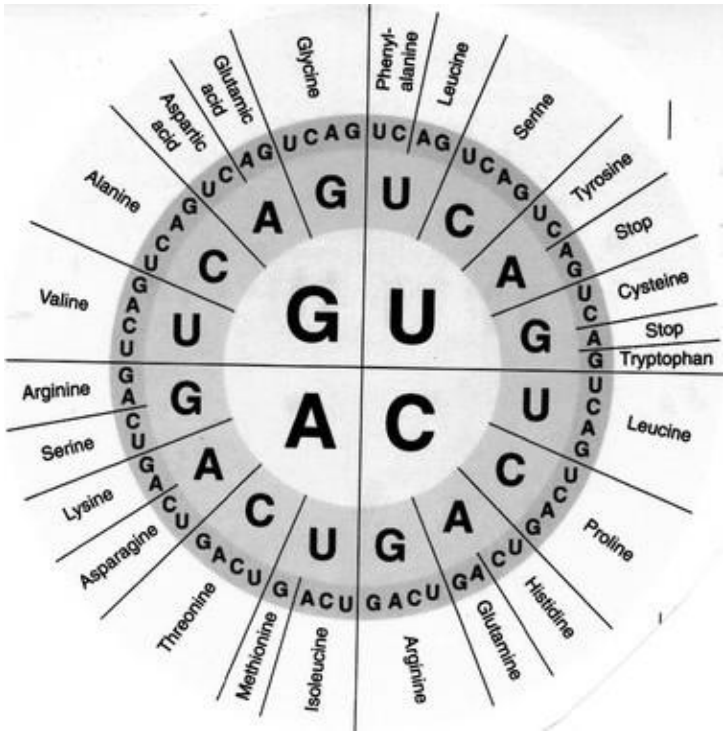
40. How many different amino acids are found in nature? _____

41. The **"language"** of **mRNA** is called the what? _____ _____

42. How is the **genetic code** read?

43. This **WORD** is known as a what?_____





How to Read a Codon Chart:

mRNA strand: UCGCACGGU

1. Read **three** bases at a time-**UCG-CAC-GGU**
2. Read the codon chart to code for an amino acid from the **inside-out**

Serine-histidine-glycine

*There are **64 three-base possibilities** for codons.

START CODON: _____

3 STOP CODONS: _____ _____ _____