

# Outcome Practice (Outcome 7)

Name: \_\_\_\_\_

Class: \_\_\_\_\_

Date: \_\_\_\_\_

## mRNA Editing and Processing

Answer the questions below.

1. Below, a pre-mRNA (before editing and processing) is shown and the complete, edited mRNA is shown.

a) In the complete mRNA, use a green pen or highlighter to highlight the methyl G cap.

b) In the complete mRNA, use a red pen or highlighter to highlight the poly A tail.

c) In both the pre-mRNA and complete mRNA, highlight each exon with different colors, to show the pieces of pre-mRNA that are in both.

pre-mRNA

A U G A A C C C G G G A C G C G C G A U G C C C U A U U

complete  
edited mRNA

5' **G** A U G A A C C G C G C G A U A U U A A A A A A A A A A A A A A A A

2. Below, a pre-mRNA (before editing and processing) is shown and the complete, edited mRNA is shown.

a) In the complete mRNA, use a green pen or highlighter to highlight the methyl G cap.

b) In the complete mRNA, use a red pen or highlighter to highlight the poly A tail.

c) In both the pre-mRNA and complete mRNA, highlight each exon with different colors, to show the pieces of pre-mRNA that are in both.

pre-mRNA

A U G A A C C C G G G A C G C G C G A U G C C C U A U U

complete  
edited mRNA

5' **G** A U G A A C G G A U A U U A A A A A A A A A A A A A A A A

3. In the space below, create your own pre-mRNA and complete, edited mRNA.

a) In the complete mRNA, use a green pen or highlighter to highlight the methyl G cap.

b) In the complete mRNA, use a red pen or highlighter to highlight the poly A tail.

c) In both the pre-mRNA and complete mRNA, highlight each exon with different colors, to show the pieces of pre-mRNA that are in both.

4. What are introns? Are they ever useful? Use the internet to look up instances in nature where introns are useful.

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5. Why is the methyl G cap useful for the cell?

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6. Why is the poly A tail useful for the cell?

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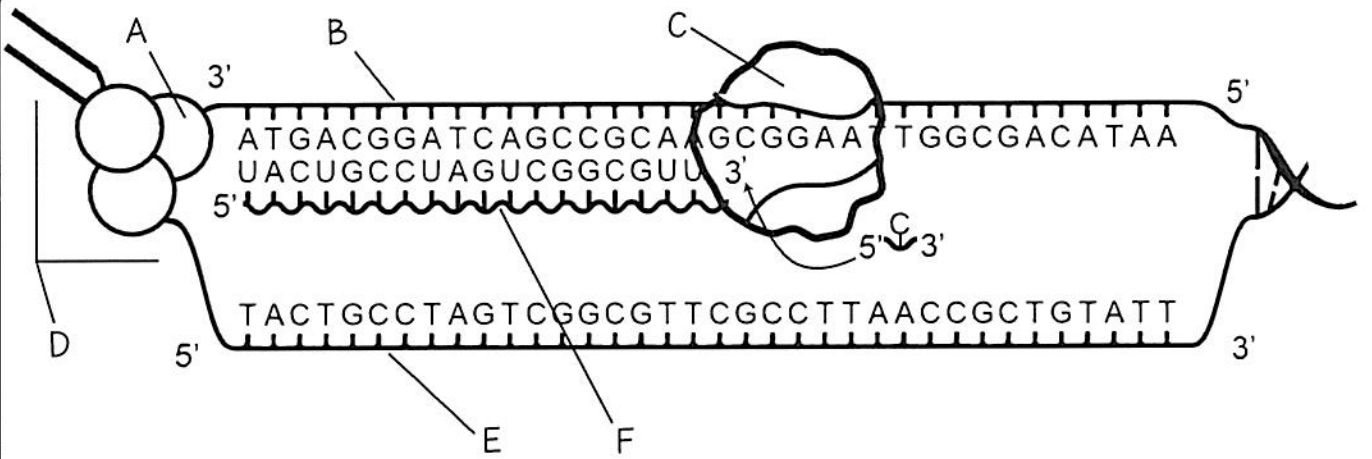
Name: \_\_\_\_\_

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# Transcription

Match each part of the diagram with its correct label. Then answer the questions below.



- |   |                              |
|---|------------------------------|
| ___ 1. RNA Polymerase                       | ___ 4. messenger RNA (mRNA)  |
| ___ 2. Template/non-coding/antisense Strand | ___ 5. Transcription Factors |
| ___ 3. Non-template/coding/sense Strand     | ___ 6. Promoter Region       |

7. What are **promoters**?  
How do they affect transcription?

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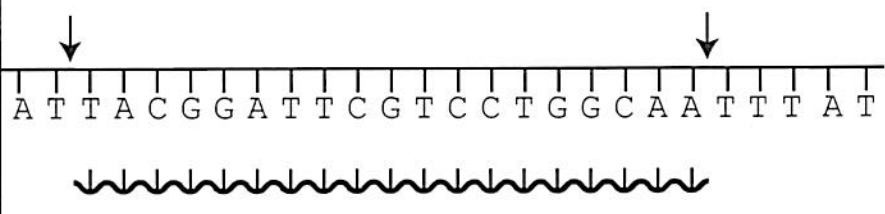
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8 In 4-5 points give a brief explanation of transcription.

10. Given the DNA sequence of a template (antisense) strand below, write the mRNA that would be produced from it. The start and end positions of transcription are shown.



11. Name three types of RNA that are produced by transcription.

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12. In eukaryotes, where in the cell does transcription take place?

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13. In prokaryotes, where in the cell does transcription take place?

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