**Bell Ringer:** Central Dogma FRQ (KEY)

*AP Biology*

Diagram

Description automatically generated

The figure represents the process of expression of gene *X* in a eukaryotic cell.

1. The primary transcript in the figure is 15 kilobases (kb) long, but the mature mRNA is 7 kb in length. **Describe** the modification that most likely resulted in the 8 kb difference in length of the mature mRNA molecule. **Identify** in your response the location in the cell where the change occurs.
2. **Predict** the length of the mature gene X mRNA if the full-length gene is introduced and expressed in prokaryotic cells. **Justify** your prediction.

#### **Part A**

**2 points maximum**

**Describe process (1 point)**

· Removal of introns

· RNA processing

**Identification (1 point)**

· Nucleus

#### **Part B**

**2 points maximum**

**Prediction (1 point)**

· 15 kb

· Longer than the mature mRNA in the eukaryote

**Justification (1 point)**

· mRNA processing typically does not occur in prokaryotes