RNA Translation

Period: 53 minutes

Subject: Biology I

Objectives:

* TSW identify the steps of RNA translation and explain how this process is necessary to cell function (5a DOK 2).

Materials:

* PowerPoint, Promethean Board, Dry Erase Markers

Bell Work (7 minutes):

* The following directions will be written on the white board:
  + “Using the question on the Promethean board, explain why all three of the incorrect choices are wrong, and explain why the correct answer is right.”
* The following state test style question will be displayed on the Promethean board:
  + Which of the following describes a difference between DNA and RNA?
    - a. DNA contains ribose sugar, while RNA contains deoxyribose sugar.
    - b. DNA is single stranded, while RNA is double stranded
    - c. DNA base pairs are AG and CT, while RNA base pairs are AU and GC
    - d. DNA base pairs are AT and GC, while RNA base pairs are GC and AU

Set (7 minutes):

* Review yesterday’s transcription set (converting music on cassette tapes to music on CDs), and then review the five steps of transcription.
* Continue the set by explaining how the information on the CD is then translated by a CD player to music that we can actually hear, and then relate this to how mRNA is translated into proteins by ribosomes.

Procedures (36 minutes):

1. 12 minutes. Go through the five steps of RNA translation, discussing the process of how mRNA is translated into an amino acid sequence that makes up a protein, by having the students derive the steps by using a visual demonstration on the white board.
2. 4 minutes. Explain how a codon chart works, and how it can be used to determine the amino acid sequence that is coded for by an mRNA sequence. Use the mRNA sequence that is already on the board as a model.
3. 12 minutes. Have the students work on turning a DNA sequence into an RNA sequence, and then using that RNA sequence, create an amino acid sequence. Model how the first one is to be done, and then allow the students to work on three more independently. This will be gone over as class.
4. 8 minutes. With the remaining time have students work on a series of review questions. If there is time, this will be gone over as a class at the end of the period.

Closure (3 minutes):

* Orally question the students on the process of DNA translation.
* “Tomorrow and Thursday we are going to review the structure and function of DNA, as well as the three processes that we learned about: replication, transcription, and translation. On Friday we will be having an exam on this material.”

Assessment/Evaluation:

Objective: TSW identify the steps of DNA translation and explain how this process produces our traits (5a DOK 2).

* Informal: 1. Students will be orally questioned (M) throughout the lesson, as well as at the end of the lesson, to assess their understanding of the process of DNA translation (C). 2. While students are working on their practice work the teacher will be discussing the steps of the process with students (M) to assess their understanding of the DNA translation (C).
* Formal: Students will take a written exam (M) at a later date to assess their understanding of the process of DNA translation (C), and the grade will be recorded in a grade book (D).