Central Dogma

Suggested Teaching Outline

Creating the Sequence
Introduce project and review DNA basics.

Discuss color palette and complete "Nitrogen Base Color Coding Key."

Complete Placemat 1 – DNA Sequence Placemat – Write complementary DNA code on template strand and make color tick marks for corresponding nitrogen bases, according to the key.

Using information from Placemat 1, crosshatch colored squares for both strands of the DNA sequence on printmaking paper. Add water.

Unzip DNA – Draw "roadmap" on placemat then tear between the nitrogen bases on the printmaking paper, using appropriate spacing for purines and pyrimidines. (Panel 1 poster board and ripped printmaking paper (unzipped DNA strand) to be assembled in Lesson 3 [Day 2]).

Transcription
Transcribe DNA template strand into mRNA code on Placemat 2 – Transcription and Translation Placemat – Make color tick marks for corresponding nitrogen bases, according to the key.

Stick double-sided foam mounting tape on second panel of poster board. Stick delivery tags onto the tape.

Using information from Placemat 2, crosshatch colored squares onto "delivery" tags for the mRNA. Add water.

"Anneal" DNA to poster board (Panel 1), using double-sided foam mounting tape.

Translation
Optional: Students create tRNA/amino acid stamp "tools".

Draw triplets on mRNA placemat.

Using codon chart, find the corresponding amino acid for each triplet.

Find appropriate tRNA/amino acid stamp for the start codon. Coat the abbreviation on the back of the stamp (foam letters) with gray paint. Reference Q-tip "anticodons" to find the correct mRNA codon on Panel 2. Press the stamp onto Panel 3, aligned with its corresponding triplet from Panel 2.

Repeat this process, ending with a stop codon.

Assessment
Reflection/Assessment

Gallery walk, Art show

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