

**MESA DAY 2024-2025**

SCIENCE JOURNAL REQUIREMENT

BIO BREAKTHROUGH

**HIGH SCHOOL TEMPLATE**

NAMES:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 *(team member names)*

SCHOOL:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

CENTER: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

LEVEL (circle one): 9/10th gr 11/12th gr



1. **USING TWO TO THREE SENTENCES,** **ANSWER THE FOLLOWING QUESTIONS:**

*What is transcription?*

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*What is Translation?*

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*What are the steps of transcription?*

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1. **USING TWO TO THREE SENTENCES,** **ANSWER THE FOLLOWING QUESTIONS:**

*What is a CRISPR Cas9?*

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*What is a monogenic disease?*

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*How does scissoring work in a Cas9 protein?*

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1. **DEFINE THE FOLLOWING SCIENTIFIC TERMS IN TWO TO THREE SENTENCES:**

*Gene editing*

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*Guide RNA (gRNA)*

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*Cas9 Protein*

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1. **SKETCH OF Cas9 Protein WITH LABELED PARTS (SKETCHES CAN BE HAND DRAWN OR COMPUTER GENERATED [MUST BE ORIGINAL WORK]):**

Cas9 protein gRNA PAM sequence

Target DNA Repair template

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1. **DESCRIBE IN FOUR TO FIVE SENTENCES HOW CRISPR CAN BE USED TO IMPACT MARGINALIZED COMMUNITIES IMPACTED BY A SPECIFIC DISEASE/DISORDER.**

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