Name
TA

Science 10
2022-2023

# Learning Guide # 13: How Does a DNA Sequence Become A Physical Characteristic?

**BIG IDEA:** RNA, DNA, Mutations, Transcription and Translation.

**Fundamental Knowledge (I know)**

- ☐ Why DNA is the preferred (stable) medium for storing information rather than RNA.
- ☐ The difference between Transcription and Translation and can describe/explain each.
- ☐ How and can explain how the DNA "Code" can be interpreted and turned into a proteins and physical traits.
- ☐ The different types of mutations and can explain the impacts of each.

**Curricular Competencies (I can)**

| | **Proficiency Scale Teacher and Student self assessment (Circle one)** | **Evidence (How do you know?)** |
|---|---|---|
| **I can:**<br><br>Make observations aimed at identifying their own questions about the natural world. | **Emerging (EMG)**<br>**Initial Understanding**<br><br>**Developing (DEV)**<br>**Partial/Near Complete Understanding**<br><br>**Proficient (PRF)**<br>**Complete Understanding**<br><br>**Extending (EXT)**<br>**Sophisticated Understanding** | |
| Connect scientific explorations to careers in science. | **Emerging (EMG)**<br>**Initial Understanding**<br><br>**Developing (DEV)**<br>**Partial/Near Complete Understanding**<br><br>**Proficient (PRF)**<br>**Complete Understanding**<br><br>**Extending (EXT)**<br>**Sophisticated Understanding** | |

**Student Signature:** **Teacher Signature:**

**Date:**

**Instructions** To help guide your learning, make your way through the activities in Option 1, Option 2, or Option 3. You may "mix and match" between the different Option columns.

<table>
<tr><th>TOPIC</th><th>OPTION 1 (Worksheet)</th><th>OPTION 2 (Textbook/Digital)</th><th>OPTION 3</th></tr>
<tr><td>DNA Structure and Function</td><td>Watch this video<br><br>AND<br><br>Create a visual representation of DNA (Poster, Diagram, Brochure) explaining its structure and function.</td><td>Watch this video<br><br>AND<br><br>Create a digital representation of DNA (Powerpoint, Prezi, etc.) explaining its structure and function.</td><td rowspan="3">Choose your own adventure!<br><br>Pick up a planning sheet from the Science Kiosk.<br><br>Create a plan! Make sure you read through the first page of this LG, as you will need to design ways to learn/practice and show your understanding of the topic(s) and skill(s) (competencies.)<br><br>You will need to have a teacher approve your plan before beginning the LG.</td></tr>
<tr><td>Transcription and Translation</td><td>Watch the following:<br>Video and Video<br><br>AND<br><br>Write a paragraph describing the difference between transcription and translation.<br><br>AND<br><br>Complete the "Snork DNA" worksheet.</td><td>Find a good resource describing Transcription and Translation and walk your teacher through the resource and explain each process.<br><br>AND<br><br>Complete the "Snork DNA" worksheet.</td></tr>
<tr><td>Mutations</td><td colspan="2">Using this video and class resources, take notes on mutations. You should know what a point/substitution mutation is (including silent mutations), and how insertion/deletion mutations lead to a frameshift mutation. You should also give examples of how mutations can be neutral, positive or negative.<br><br>Complete the "What is the Point (Mutations) worksheet".</td></tr>
<tr><td>Lab</td><td colspan="3">No Lab.</td></tr>
<tr><td>Self Assessment</td><td colspan="3">Reflect on the Fundamental Knowledge and Curricular Competencies. Use the rubric and make goals to improve for your next learning guide.</td></tr>
<tr><td>Interview or Quiz</td><td colspan="3">See your teacher for an interview or to have a quiz slip signed for the test center. Bring your work and staple it to your quiz when complete.</td></tr>
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*Resources can be found at www.THSSscience.com or the Science Kiosk*
*User: **THSS***
*Password: **science***