**Author:** [full name, year], [school, district, state] [Here is a [link](http://thestemnet.com/sites/default/files/resources/Introduction_to%20Fractals_and_Cellular%20Biology_Lesson.docx) to an example of how this format has been used]

| **Background Information** | | |
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| **Subject:**  Identify the course the unit will be implemented in. |  | |
| **Grade Band:**  Identify the appropriate grade band for the lesson. |  | |
| **Duration:**  Identify the time frame for the unit. |  | |
| **Overview:**  Provide a concise summary of what students will learn in the lesson. It explains the unit’s focus, connection to content, and real world connection. |  | |
| **Background Information:**  Identify information or resources that will help teachers understand and facilitate the challenge. |  | |
| **STEM Specialist Connection:**  Describe how a STEM Specialist may be used to enhance the learning experience. |  | |
| **Enduring Understanding**:  Identify discrete facts or skills to focus on larger concepts, principles, or processes. They are transferable - applicable to new situations within or beyond the subject. |  | |
| **Essential Questions:**  Identify several open-ended questions to provoke inquiry about the core ideas for the lesson. They are grade-level appropriate questions that prompt intellectual exploration of a topic. |  | |
| **Student Outcomes:**  Identify the transferable knowledge and skills that students should understand and be able to do when the lesson is completed. Outcomes must align with but not limited to Maryland State Curriculum and/or national standards. | Students will be able to: | |
| **Product, Process, Action, Performance, etc.:**  Identify what students will produce to demonstrate that they have met the challenge, learned content, and employed 21st century skills. Additionally, identify the audience they will present what they have produced to. |  | **Audience:**  ☐Peers  ☐Experts / Practitioners  ☐Teacher(s) |
| **Standards Addressed in the Unit:**  Identify the NGSS addressed in the unit. | **Next Generation Science Standards:**  **Common Core Reading in** **Science and Technical Subjects:**  **Common Core Writing in Science and Technical Subjects:** | |
| **Suggested Materials and Resources:**  Identify materials needed to complete the unit. This includes but is not limited to websites, equipment, PowerPoints, rubrics, worksheets, and answer keys. | Equipment: | |
| Websites\*:  *\*Throughout the lesson, there are links to online resources to enhance instruction. The sites have been chosen for their content and grade-level appropriateness. Teachers should preview all websites before introducing the activities/links to students and adhere to their school system’s policy for internet use.* | |
| People, Facilities: | |
| Materials (rubrics, worksheets, PowerPoints, answer keys, etc.): | |

| **Learning Experience** | | |
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| **5E Component**  Identify the 5E component addressed for the learning experience. The 5E model is not linear. | **Details** | **Science and Engineering Practices** |
| ☐Engagement  ☐Exploration  ☐Explanation  ☐Extension  ☐Evaluation | **Materials:**  ***Preparation:*** *[ ] Minutes*  ***Facilitation of Learning Experience:*** *[ ] Minutes*  ***Transition:*** *[ ] Minutes* | ☐ Asking questions (for science) and defining problems (for engineering)  ☐Developing and using models  ☐Planning and carrying out investigations  ☐Analyzing and interpreting data  ☐Using mathematics and computational thinking  ☐Constructing explanations (for science) and designing solutions (for engineering)  ☐Engaging in argument from evidence  ☐Obtaining, evaluating, and communicating information |
| ☐Engagement  ☐Exploration  ☐Explanation  ☐Extension  ☐Evaluation | ***Materials:***  ***Preparation:*** *[ ] Minutes*  ***Facilitation of Learning Experience:*** *[ ] Minutes*  ***Transition:*** *[ ] Minutes* | ☐ Asking questions (for science) and defining problems (for engineering)  ☐Developing and using models  ☐Planning and carrying out investigations  ☐Analyzing and interpreting data  ☐Using mathematics and computational thinking  ☐Constructing explanations (for science) and designing solutions (for engineering)  ☐Engaging in argument from evidence  ☐Obtaining, evaluating, and communicating information |
| ☐Engagement  ☐Exploration  ☐Explanation  ☐Extension  ☐Evaluation | ***Materials:***  ***Preparation:***5 minutes  ***Facilitation of Learning Experience:*** *[ ] Minutes*  ***Transition:*** *[ ] Minutes* | ☐ Asking questions (for science) and defining problems (for engineering)  ☐Developing and using models  ☐Planning and carrying out investigations  ☐Analyzing and interpreting data  ☐Using mathematics and computational thinking  ☐Constructing explanations (for science) and designing solutions (for engineering)  ☐Engaging in argument from evidence  ☐Obtaining, evaluating, and communicating information |
| ☐Engagement  ☐Exploration  ☐Explanation  ☐Extension  ☐Evaluation | ***Materials:***  ***Preparation:*** *[ ] Minutes*  ***Facilitation of Learning Experience:*** *[ ] Minutes*  ***Transition:*** ***Transition:*** *[ ] Minutes*  Suggested disscusion points include: | ☐Asking questions (for science) and defining problems (for engineering)  ☐Developing and using models  ☐Planning and carrying out investigations  ☐Analyzing and interpreting data  ☐Using mathematics and computational thinking  ☐Constructing explanations (for science) and designing solutions (for engineering)  ☐Engaging in argument from evidence  ☐Obtaining, evaluating, and communicating information |
| ☐Engagement  ☐Exploration  ☐Explanation  ☐Extension  ☐Evaluation | ***Materials:***  ***Preparation:*** *[ ] Minutes*  ***Facilitation of Learning Experience:*** *[ ] Minutes*  ***Closure:*** *[ ] Minutes* | ☐Asking questions (for science) and defining problems (for engineering)  ☐Developing and using models  ☐Planning and carrying out investigations  ☐Analyzing and interpreting data  ☐Using mathematics and computational thinking  ☐Constructing explanations (for science) and designing solutions (for engineering)  ☐Engaging in argument from evidence  ☐Obtaining, evaluating, and communicating information |

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| **Supporting Information** | |
| **Interventions/Enrichments**  Identify interventions and enrichments for diverse learners. | **Struggling Learners**  [**EXAMPLE**: The use of mixed ability grouping will help all learners communicate and build on their collective knowledge base. Establish mini-deadlines and a specific timeline to structure work time and increase effectiveness. Individually conference with students frequently to assess progress and to establish clear expectations for next steps. Prompt students using guiding questions in the early part of the learning cycle to scaffold instruction. Allow students to access information through multiple means, such as by turning on read aloud features in the technology and turning on closed captioning on all videos. Pre-highlight and/or color code resources to allow students to focus on key concepts only. Use synonyms or antonyms to make comparisons. Give symbolic examples to form a mental image when applicable. Use a personal example or story to make associations. Relate a topic to a current or past event that students already know. Give meaningful feedback often. Chunk complex text and content. Provide access to word processors for written assignments. Provide additional time, as necessary, to complete assignments. ] |
| **English Language Learners**  [**EXAMPLE**: Most strategies described above for special education/struggling learners are also applicable to English Language Learners and should be utilized as appropriate. Translate oral and written directions and content materials into the students’ native language, as necessary and possible. Allow for the use of a multilingual dictionary. Allow students to read print material aloud to themselves. Allow extra time and read directions and other print material aloud to students as necessary. If possible, pair students with other native speakers more fluent in English.] |
| **Gifted and Talented**  [**EXAMPLE**: Teachers and speakers should expect and encourage higher levels of independent thinking and abstract thought. Prepare for more debate, discussion, and questions from students. Prepare higher level questions and remove some of the scaffolding suggested by the lesson.] |