|  |
| --- |
| **Title: 3D-5E STEM Lesson Template** **Estimated Time:**  |
| **Core Ideas (GSE Standard and elements):**Include the [Georgia Standard of Excellence for Science](https://www.georgiastandards.org/Georgia-Standards/Pages/Science.aspx)  and the elements of the standard that best fit the lesson.  |
| **Science and Engineering Practices:**Include 1-2 grade-band specific [Science and Engineering Practices](http://nstahosted.org/pdfs/ngss/resources/matrixfork-12progressionofscienceandengineeringpracticesinngss.8.14.14.pdf) that best fit the lesson.  | **Crosscutting Concepts:**Include 1-2 grade-band specific [Crosscutting Concepts](http://nstahosted.org/pdfs/ngss/MatrixOfCrosscuttingConcepts.pdf) that best fit the lesson.  |
| **Authentic Scenario:**Include a brief description of the learning set-up that will add relevance, context, and clarity to the lesson. Note: The best learning environments occur when scenarios (phenomenon) are as close to real-life as possible. The more realistic the scenario is, the more involved learners feel and the more they learn. Learning scenarios also provide a context that can be used to explain the difficult and abstract concepts that are common with STEM subject matter. **Guiding Question:**Include a question or two that direct the search for understanding while providing focus and coherence.  |

|  |  |
| --- | --- |
| **5E Stage** | **Student Activities**How will students engage actively in the three dimensions throughout the lesson?**Teacher Activities**How will the teacher facilitate and monitor student learning? |
| **Engage** | In this section, briefly how you plan to launch the lesson. What do plan to do in order to capture your students' attention and get them excited about this topic. You also may choose to briefly introduce the concepts that students are about to investigate to orient them and set the stage for meaningful inquiry.   |
| **Explore** | In this section, you guide students through exploratory activities. This exploration should be primarily open-ended and student-centered. This part of the lesson may involve one continuous activity (whole class, small group, individual) or may be divided into separate centers that involve different activities. This section should include 1) Procedure: a step-by-step description of what you the teacher will be doing 2) Activity Sheet: a student activity sheet(s) that explains key aspects of the lesson and provides space for questions, ideas, sketches, and explanations.  |
| **Explain** | In this section, let the students explain their results and their thinking in regards to their explorations. They should analyze their observations, explain their thinking with each other, and answer the questions that are included. At this point, you should guide the discussion toward the stated objectives of the lesson. The discussion can be framed in terms of what scientists consider as our current best explanation of the observed concepts or principles.  |
| **Elaborate** | In this section, have students consider how these core concepts can be linked to other cross-cutting concepts (big ideas) of science. Examining things like patterns, causes, and stability can help students see how core ideas are connected in our natural and engineered world. A thoughtful question or two can help kids to make the kind of relevant connections that are needed to improve retention.  This is also a good time for a deeper exploration of the core concepts. This can be done through extended experiments, research, and/or discussion and debate.  |
| **Evaluate** | In this section, you should include a description of how you will assess your student’s understanding of the key ideas in the lesson. This can include formal or informal formative assessments. If possible, your assessments should be completed before you design the lesson (backwards design).  |

**Teacher Notes:**

Include a description of any key information that the teacher needs to complete the lesson effectively. This section should provide the details and context needed for a teacher doing the lesson for the first time. This may include a description of where to find or purchase the materials needed for the lesson as well as procedural heads-ups that may be helpful.

Finally, it is always helpful to include sample data (if needed) and brief explanations of the core ideas for the lesson. This helps teachers to refresh and tweak their understanding so that they are comfortable discussing and explaining these concepts.

**Materials needed:**

Provide a complete list of the materials needed for this lesson.

**Safety Concerns:**

As science teachers, it is our legal responsibility to protect students (and others) from an unreasonable risk of harm, or the failure to exercise due care in our planning and actions. Our “duty of care” for students should be of the utmost importance.

Our duty includes:

**Duty of Instruction**

This duty includes adequate instruction before a laboratory activity. This activity should be documented *in writing* either in a lesson plan or on materials given to the students before the activity. This instruction should:

* Be accurate, appropriate to the situation, setting, and maturity of the audience; and addresses reasonably foreseeable dangers.
* Identify and clarify specific risks involved, explain proper procedures/techniques to be used, and present comments concerning appropriate/inappropriate conduct in the lab.

**Duty of Supervision**

This duty includes adequate supervision to ensure students behave properly in light of any foreseeable dangers. Points to remember:

* Misbehavior of any type must not be tolerated.
* The greater the degree of danger, the higher the level of supervision should be.