Indigenous Science Project Unit Template
Grade __, Unit # __
Unit Title _____

NB: The general structure of this unit planning template, as well as the associated concepts and questions, was inspired by and adapted from the Understanding by Design framework (Wiggins, G. P., & McTighe, J. (2005). *Understanding by design* (2nd ed.). Pearson).

Considerations for Teacher Designers:

1. Add hyperlinks to supporting student and teacher materials. Links should be "open to all with link" and viewable. We recommend that all linked documents should be housed in a single place for ease of use and continuity.
2. Add "Teacher Tips" as applicable for future teacher users that will provide guidance, options for localization, adaption, and planning/ structural guidance.

Stage 1 - Desired Results	
Story of the Unit - *What is the story of this unit? How does it connect to the learning that happens before and after? How does it fit within the arc of the yearlong plan?* ➢	
Unit Big Idea(s) - *What are the core concepts, principles, theories, or processes that will support students in making sense of the understandings, questions, skills, and knowledge in this unit?* ➢	
Unit Enduring Understanding(s) - *What do you want students to understand and be able to use many years into the future, long after this course of study?* ➢	**Unit Essential Question(s)** - *What are the questions that lie at the heart of this unit and promote inquiry and exploration of a topic? These questions should not yield a single answer but rather different plausible responses requiring study and depth of*

	knowledge. ➢
Priority Knowledge (*Students will know …*) ➢	**Priority Skills** (*Students will be able to …*) ➢
Core Texts & Resources - *What are the commonly used or "go-to" resources in this unit of study?* ➢	**Supporting Texts & Resources** - *What are the texts, videos, and other resources that are used in this unit's investigations? Organize by Investigation.* ➢

Unit Priority Standards (as aligned with the Next Generation Science Standards)

Next Generation Science Standards Disciplinary Core Idea Arrangements	Specific Standards in this Unit
Middle School Physical Sciences	
Middle School Life Sciences	
Middle School Earth and Space Sciences	
Middle School Engineering Design	

Other Standards in This Unit: English Language Arts (including Speaking & Listening, and Writing), Math, Social Studies, or other areas.

Please note: When adapting and localizing this curriculum, there may be local standards that have been developed by Sovereign Nations, Tribal Education Departments, or other entities. It is recommended that, depending on your specific context, you seek to integrate those standards and values where appropriate and with permission.

Stage 2 - Assessment Evidence

Transfer Statement

We want our students to learn [fill in priority skills and knowledge here], so that in the long-run, on their own, they will be able to [fill in a transfer statement here that points to the authentic application of the priority knowledge and skills you listed].

Guidance Documents: ubD Long Term Transfer Goals (McTighe)

Performance Assessment (use GRASPS)

G	**Goal**	
R	**Role**	
A	**Audience**	
S	**Scenario**	
P	**Product**	
S	**Standards** **NGSS and any other related standards**	

Assessment Rubrics and Resources for the Performance Task

Teacher Tips and Guidelines for the Performance Task

Universal Design for Learning Considerations in the Design of the Performance Task

For Access	
For Support	
For Executive Functioning	

Pacing Timeline - *For the unit template, add which parts of the performance tasks are to be implemented within the week or investigation structure.*

Investigation	Connection to Stage 2	What task should be completed by the end?

Stage 3 - Scope and Sequence

Designer Guidance and Advice	Preparation Advice *(insert preparation advice for the unit*	Teacher Timeline Recommendations *(insert timeline advice for the unit investigations in*	General Investigation Materials *(insert a list of materials used for*

	investigations in the space below)	*the space below; this should include the number of days needed for each investigation)*	*investigations in the space below; please list by investigation)*

Unit Launch: Anchor Phenomenon *Phenomena are observable events that occur in the universe that we can use our science knowledge to explain or predict that are engaging and relevant to students.* *An Anchor Phenomenon is an observable event presented at the beginning of a lesson or investigation that is puzzling and relevant, yet engaging. Students work to make sense of an Anchor Phenomenon as they engage in the content of the unit.*	**Essential Question(s)** - *What will the essential question be that is connected to the anchor phenomenon for the unit launch?* **Anchor Phenomenon** - *What will the anchor phenomenon be for this unit? Be specific about the experience and the plan for bringing students into the unit through inquiry.*

Indigenous Science Investigation # and Title	**Investigation Narrative** *What is the story of this investigation relative to the flow of the whole unit?*	**NGSS** Next Generation Science Standards	**DCIs** Disciplinary Core Ideas *The DCIs for each investigation should*	**CCCs** Cross Cutting Concepts *The CCCs for each investigation should indicate the main*	**SEPs** Science and Engineering Practices *The SEPs are the specific actions or skills or behaviors that students will be practicing in order to engage with a*

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<tr><td></td><td></td><td></td><td>be directly related to the set of standards in the investigation and the questions that students are exploring.</td><td>concepts that students are accessing or thinking about as they attempt to make sense of a guiding phenomenon or question in an investigation.</td><td>given phenomenon or question in an investigation or set of investigations.</td></tr>
<tr><td rowspan="3">Investigation 1:</td><td>Investigation Narrative:</td><td rowspan="3">Priority Standards:

Additional Standards:</td><td rowspan="3">DCIs:</td><td rowspan="3">CCCs:
Patterns (and cycles)
Cause and effect
Relationality (where are there connections between different things)
Scale, proportion, and quantity
Systems and system models
Energy and matter: Flows, cycles, and conservation
Structure and function
Stability and change</td><td rowspan="3">SEPs:
Listen to oral/generational knowledge
Notice/Explore surroundings (LBLH)
Ask Questions
Develop and Use Models
Plan and Carry out Investigations
Analyze and Interpret Data
Use Mathematics and Computational Thinking
Construct Explanations
Engage in Argument from Evidence - including dialogue
Obtain, Evaluate, and Communicate Information</td></tr>
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NB: there should be a connection between Investigation Questions and the Essential Questions for the unit.</td></tr>
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NB: the embedded/formative assessment in each investigation should be linked to the investigation focus and standards, as well as the overall unit performance task (Stage 2).</td></tr>
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- What are students doing (SEPs)?
- How are students thinking (CCCs)?
- What knowledge are students demonstrating (DCIs)?

Sequence of Learning Events: Using a backwards design approach, how do we help students understand the key phenomena with the embedded assessment in mind? What learning events will help them to be able to achieve the assessment based on the phenomena they are investigating?

Lesson Title within Investigation		**Estimated # of Days Needed**	**Materials**	**Designer Notes: What are the key learnings from this lesson?**
1				
2				
3				
4				
5				

Lesson Progressions for Indigenous Science Initiative

Use the space below to build out specific lesson details for the unit.

NB: There are many possible lesson models or progressions to use when building out the lessons within an investigation. At the bottom of this document are two possible workshop models that Teacher Designers can build from and adapt when designing units in the Indigenous Science Initiative.

Lesson 1
Lesson 2
Lesson 3
Lesson 4
Lesson 5

Indigenous Science Investigation # and Title	**Investigation Narrative** *What is the story of this investigation relative to the flow of the whole unit?*	**NGSS** Next Generation Science Standards	**DCIs** Disciplinary Core Ideas *The DCIs for each investigation should be directly related to the set of standards in the investigation and the questions that students are exploring.*	**CCCs** Cross Cutting Concepts *The CCCs for each investigation should indicate the main concepts that students are accessing or thinking about as they attempt to make sense of a guiding phenomenon or question in an investigation.*	**SEPs** Science and Engineering Practices *The SEPs are the specific actions or skills or behaviors that students will be practicing in order to engage with a given phenomenon or question in an investigation or set of investigations.*
Investigation 2:	**Investigation Narrative:** **Investigation Question(s):** *NB: there should be a connection between Investigation Questions and*	**Priority Standards:** **Additional Standards:**	**DCIs:**	**CCCs:** • Patterns (and cycles) • Cause and effect • Relationality (where are there connections between different	**SEPs:** • Listen to oral/generational knowledge • Notice/Explore surroundings (LBLH) • Ask Questions • Develop and Use Models • Plan and Carry out Investigations • Analyze and Interpret Data

	the Essential Questions for the unit. **Key Phenomena:**			things) • Scale, proportion, and quantity • Systems and system models • Energy and matter: Flows, cycles, and conservation • Structure and function • Stability and change	• Use Mathematics and Computational Thinking • Construct Explanations • Engage in Argument from Evidence - including dialogue • Obtain, Evaluate, and Communicate Information

Embedded / Formative Assessment: how will students demonstrate their understanding of the big ideas, understandings, and questions throughout each week of the unit?

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Indigenous Science Investigation # and	**Investigation Narrative** *What is the story of this investigation*	**NGSS** Next Generation	**DCIs** Disciplinary Core	**CCCs** Cross Cutting Concepts	**SEPs** Science and Engineering Practices

Title	*relative to the flow of the whole unit?*	Science Standards	Ideas *The DCIs for each investigation should be directly related to the set of standards in the investigation and the questions that students are exploring.*	*The CCCs for each investigation should indicate the main concepts that students are accessing or thinking about as they attempt to make sense of a guiding phenomenon or question in an investigation.*	*The SEPs are the specific actions or skills or behaviors that students will be practicing in order to engage with a given phenomenon or question in an investigation or set of investigations.*
Investigation 3:	**Investigation Narrative:** **Investigation Question(s):** *NB: there should be a connection between Investigation Questions and the Essential Questions for the unit.* **Key Phenomena:**	**Priority Standards:** **Additional Standards:**	**DCIs:**	**CCCs:** • Patterns (and cycles) • Cause and effect • Relationality (where are there connections between different things) • Scale, proportion, and quantity • Systems and system models • Energy and matter: Flows, cycles, and conservation • Structure and function • Stability and change	**SEPs:** • Listen to oral/generational knowledge • Notice/Explore surroundings (LBLH) • Ask Questions • Develop and Use Models • Plan and Carry out Investigations • Analyze and Interpret Data • Use Mathematics and Computational Thinking • Construct Explanations • Engage in Argument from Evidence - including dialogue • Obtain, Evaluate, and Communicate Information
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Investigation 4:	**Investigation Narrative:**	**Priority Standards:**	**DCIs:**	**CCCs:** • Patterns (and cycles)	**SEPs:** • Listen to oral/generational knowledge

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Notice/Explore surroundings (LBLH)
Ask Questions
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Investigation 5:	**Investigation Narrative:** **Investigation Question(s):** *NB: there should be a connection between Investigation Questions and the Essential Questions for the unit.* **Key Phenomena:**	**Priority Standards:** **Additional Standards:**	**DCIs:**	**CCCs:** • Patterns (and cycles) • Cause and effect • Relationality (where are there connections between different things) • Scale, proportion, and quantity • Systems and system models • Energy and matter: Flows, cycles, and conservation • Structure and function	**SEPs:** • Listen to oral/generational knowledge • Notice/Explore surroundings (LBLH) • Ask Questions • Develop and Use Models • Plan and Carry out Investigations • Analyze and Interpret Data • Use Mathematics and Computational Thinking • Construct Explanations • Engage in Argument from Evidence - including dialogue • Obtain, Evaluate, and Communicate Information

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Model #1: Inquiry Science Progression

Build Context - Observing Phenomena, Sharing Prior knowledge, Questioning, Planning	
Engage in Activity - Doing and Observing: Engaging in the Science and Engineering Practices to Answer Questions and Understand Phenomena	
Collect and Manage Data- Recording, Organizing, Processing Information Related to the Questions or Phenomena in the Lesson / Investigation.	

Analyze - Discussing, Writing Explanations, Making Meaning (Through Science Notebooking or Other Means)	

Model #2: “The 5Es”
Resource: 5E Model of Instruction - San Diego County Office of Education
Resource: How to Use the 5E Model in Your Science Classroom

5E Phase	Activity	Notes - What are teachers doing? What are students doing?