PROJECT PLANNER

1. Project Overview

Project Title: Big or Small ND's Energy Affects Us All

Driving Question: How can we, as a North Dakota energy company, protect animal habitats and still harvest energy resources?

Grade Level/ Subject: 4th Grade - Social Studies/Science

Time Frame: 6 weeks

Public Product(s) (Individual and Team): Students will create an energy company after researching about the animals and habitats in ND. Students will also have background knowledge on the different energy resources in ND. They will then choose a company logo and create a business plan to help protect the animal habitat while harvesting the energy. After their plan is set, they will create a model of their energy type or habitat and create an informational Voice Thread or Website sharing with others what they have learned.

TEAM:
- Business name and logo
- Map with habitat and energy information
- Informational website describing energy/habitat
- Business plan

INDIVIDUAL:
- Informative Writing or Persuasive Letter
- Reflection

Project Summary: Students, as energy company representatives, research the effects that North Dakota's energy resources have on animal habitats. Students will explore and inquire ways in which their energy company could negatively/positively affect the habitats of North Dakota's wildlife. Their task is to research regulations, discover ideas to protect our native habitats and produce an informative presentation to industry professionals. Students will wrap up the project by writing persuasive or informative letters to the public.

2. Learning Goals

Standards: SST-E.05 Describe & analyze how North Dakota's location, culture, and natural resources influence its economic decisions and development.

Literacy Skills:
Informative or Persuasive Writing
Reading Informational Texts
Speaking and Listening
Collaborative Conversations
Researching

SST E.07. Explain how natural resources affect the economies of the geographical regions of the United States.

SST-G.01 Construct maps, graphs, and other representations of both familiar and unfamiliar places.

SST-.G.03 Use maps, satellite images, photographs, and other representations to explain relationships between the locations of places and regions and their environmental characteristics.

SST-.G.04 Explain how North Dakota regions have been influenced by physical and human characteristics.

SST-G.05 Compare and contrast the three geographical regions of North Dakota.

4SL1-1 Construct an argument that plants, and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

4-PS3-4 Using the engineering design process, build a device that converts energy from one form to another.

4-PS3-2 Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.

ESS3-1 Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

ETS1-2 Generate and compare multiple possible

solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

Key Vocabulary
Energy
Renewable
Nonrenewable
Economics
Habitats

Success Skills   Collaboration, communication, critical thinking, creativity & innovation

Rubric(s)   Link/name rubric(s) you intend to use; template for your use

3. Project Milestones

Directions: Use this section to create a high-level overview of your project. Think of this as the broad outline of the story of your project, with the milestones representing the significant 'moments' or 'stages' within the story. As you develop these, consider how the inquiry process is unfolding and what learning will take place. The Project Calendar (Section 4) will allow you to build out the milestones in greater detail.

Milestone #1	Milestone #2	Milestone #3	Milestone #4	Milestone #5	Milestone #6 Public Product
Entry Event - Movie trailer depicting both viewpoints (animal/habitat vs. energy resources)	Research both energy and habitats. Record research on a RAN chart .	Interview experts and add new learning to our RAN chart.	Business plan including logo and map	Create a model of the habitat and how it will harvest the energy and preserve the habitat. Create a website, voicethread, or booklet to share learning with others.	Group Presentation ● website ● voicethread ● poster presented to the public (i.e., Game & Fish, Engineers, Parents, etc.) Persuasive Writing Letter

Key Student Question	Key Student Question	Key Student Question	Key Student Question	Key Student Question	Key Student Question
How can we, as a North Dakota energy company, protect animal habitats and still harvest energy resources?	What is energy? What habitats are in ND?	How do I use the information from the experts? What research do I do now?	What is a business plan? What is a logo? What needs to be included on the map?	What are the best materials to use? How big should my model be?	Who is our audience? How will we present our learning to our audience? Who are we addressing our letters to?
Formative Assessment(s)	Formative Assessment(s)	Formative Assessment(s)	Formative Assessment(s)	Formative Assessment(s)	Summative Assessment(s)
Exit Ticket/ Need to Knows	Habitat Presentations Journal Entries for the Energy Assessment	3-2-1 Google Survey 3 New Things you Learned 2 Interesting Facts 1 More Question	Review the business plan and give feedback and time for revision	Gallery Walk including graffiti paper Rubric to assess their models	Rubric for final presentation (website, voice thread/slideshow, PSA, E-Book)

4. Project Calendar

Driving Question: How can we, as a North Dakota energy company, protect animal habitats and still harvest energy resources?

Week: 1	Project Milestone: Entry Event - Movie trailer depicting both viewpoints (animal/habitat vs. energy resources) (Milestone 1) Research both energy and habitats. Record research on a RAN chart. (Milestone 2)

Key Student Question(s):
How can we, as a North Dakota energy company, protect animal habitats and still harvest energy resources? (Milestone 1)
What is energy? What habitats are in ND? (Milestone 2)

Day 1: January 11	Day 2: January 12	Day 3: January 13	Day 4: January 14
LEARNING TARGET/OUTCOME I can ask questions in order to find solutions for a real world problem	**LEARNING TARGET/OUTCOME** I can take notes about energy sources in ND	**LEARNING TARGET/OUTCOME** I can take notes about energy sources in ND	**LEARNING TARGET/OUTCOME** I can take notes about energy sources in ND
LESSON View movie trailer (Entry Event)	**LESSON** Review Need to Knows Set up RAN Chart Complete Lesson 1 ND Government Energy	**LESSON** Complete Lesson 2 ND Government Energy	**LESSON** Complete Lesson 3 ND Government Energy
SCAFFOLDS		**SCAFFOLDS**	**SCAFFOLDS**
FORMATIVE ASSESSMENT Create Need to Know	**SCAFFOLDS**	**FORMATIVE ASSESSMENT**	**FORMATIVE ASSESSMENT**
	FORMATIVE ASSESSMENT Whole Group Quiz		

Notes:

Driving Question: How can we, as a North Dakota energy company, protect animal habitats and still harvest energy resources?

Week 2	**Project Milestone:** Research both energy and habitats. Record research on a RAN chart. (Milestone 2)

Key Student Question(s):
What is energy? What habitats are in ND? (Milestone 2)

Day 1: January 18	Day 2: January 19	Day 3: January 20	Day 4: January 21
LEARNING TARGET/OUTCOME I can take notes about energy sources in ND	**LEARNING TARGET/OUTCOME**	**LEARNING TARGET/OUTCOME**	**LEARNING TARGET/OUTCOME**
LESSON Complete Lesson 4 ND Government Energy	**LESSON** Introduce habitats - flip through each of the books and give 3-5 minute synopsis of the habitat Students write a note card with top 5 choices for Habitat groups (*teachers will view and assign to groups*)	**LESSON** Assign groups to students Read habitat books and take notes (*use reading time as well*)	**LESSON** Read habitat books and take notes (*use reading time as well*)
SCAFFOLDS		**SCAFFOLDS** Templated note taking guide for habitats	**SCAFFOLDS**
FORMATIVE ASSESSMENT	**SCAFFOLDS**		**FORMATIVE ASSESSMENT**

Journal Entries		**FORMATIVE ASSESSMENT**	
	FORMATIVE ASSESSMENT		

Notes:

Driving Question: How can we, as a North Dakota energy company, protect animal habitats and still harvest energy resources?

Week 3	**Project Milestone:** Research both energy and habitats. Record research on a RAN chart. (Milestone 2) Interview experts and add new learning to our RAN chart. (Milestone 3)

Key Student Question(s):
What is energy? What habitats are in ND? (Milestone 2)
How do I use the information from the experts? What research do I do now? (Milestone 3)

Day 1: January 25	Day 2: January 26	Day 3: January 27	Day 4: January 28
LEARNING TARGET/OUTCOME I can create a presentation on a specific habitat **LESSON** Creating habitat presentation and practicing **SCAFFOLDS** LMS - how to create and what makes a good presentation **FORMATIVE ASSESSMENT** Google slide presentation on habitats	**LEARNING TARGET/OUTCOME** I can present my habitat presentation **LESSON** Group presentations **SCAFFOLDS** **FORMATIVE ASSESSMENT** Google slide presentation on habitats	**LEARNING TARGET/OUTCOME** I can prepare useful questions to ask the experts **LESSON** Preparation for interviews Students will prepare questions **SCAFFOLDS** Teacher modeling think aloud strategy - generating questions **FORMATIVE ASSESSMENT** Interview questions	**LEARNING TARGET/OUTCOME** I can interview an expert and use my knew knowledge to **LESSON** Interviews (carry over to Friday?) Updating RAN chart **SCAFFOLDS** Reminder of guest speaker - etiquette **FORMATIVE ASSESSMENT** 3-2-1 Google Survey 3 New Things you Learned 2 Interesting Facts 1 More Question

Notes:

Driving Question: How can we, as a North Dakota energy company, protect animal habitats and still harvest energy resources?

Week 4	Project Milestone: Business plan including logo and map (Milestone 4)		
Key Student Question(s): What is a business plan? What is a logo? What needs to be included on the map? (Milestone 4)			
Day 1: February 1	Day 2: February 2	Day 3: February 4	Day 4: February 5
LEARNING TARGET/OUTCOME I can take notes on how to create an effective business plan **LESSON** Introduce what a business is Energy Company Proposal Have students begin to develop their company information **SCAFFOLDS** Pre teach key vocabulary Providing examples and visual models Templated notes on an effective business plan **FORMATIVE ASSESSMENT** Exit ticket	**LEARNING TARGET/OUTCOME** I can create a logo to represent my business **LESSON** Introduce logos and purpose Have students brainstorm and develop their company's logo **SCAFFOLDS** Providing examples of logos **FORMATIVE ASSESSMENT** Logo creation	**LEARNING TARGET/OUTCOME** **LESSON** Development of their Executive Summary **SCAFFOLDS** **FORMATIVE ASSESSMENT**	**LEARNING TARGET/OUTCOME** **LESSON** Creation of the Map **SCAFFOLDS** Provide example of maps **FORMATIVE ASSESSMENT**
Notes:			

Driving Question: How can we, as a North Dakota energy company, protect animal habitats and still harvest energy resources?			
Week 5	Project Milestone: Business plan including logo and map (Milestone 4) Create a model of the habitat and how it will harvest the energy and preserve the habitat. Create a website, voicethread, or booklet to share learning with others. (Milestone 5)		
Key Student Question(s): What is a business plan? What is a logo? What needs to be included on the map? (Milestone 4) What are the best materials to use? How big should my model be? (Milestone 5)			
Day 1: February 8	Day 2: February 9	Day 3: February 10	Day 4: February 11

LEARNING TARGET/OUTCOME	LEARNING TARGET/OUTCOME	LEARNING TARGET/OUTCOME	LEARNING TARGET/OUTCOME
I can present a business plan for acceptance and revise it if necessary.			
LESSON	**LESSON**	**LESSON**	**LESSON**
Business plan proposal meeting	Brainstorm model ideas	Creation of model	Creation of model
Revision time for business plan	Begin Creation of model	*Letter work time (rough draft 1)	*Letter work time (rough draft 2)
	*Persuasive letter outline		
SCAFFOLDS		**SCAFFOLDS**	**SCAFFOLDS**
	SCAFFOLDS		
	Provide elements of persuasive writing	**FORMATIVE ASSESSMENT**	**FORMATIVE ASSESSMENT**
FORMATIVE ASSESSMENT	Example letters		Gallery Walk including graffiti paper
Review the business plan and give feedback and time for revision			
	FORMATIVE ASSESSMENT		Rubric to assess their models

Notes: *done during reading/writing time

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Week 6	Project Milestone: Group Presentation ● website ● voicethread ● poster presented to the public (i.e., Game & Fish, Engineers, Parents, etc.) Persuasive Writing Letter

Key Student Question(s): Who is our audience? How will we present our learning to our audience? Who are we addressing our letters to?

Day 1: February 15	Day 2: February 16	Day 3: February 17	Day 4: February 18
LEARNING TARGET/OUTCOME	**LEARNING TARGET/OUTCOME**	**LEARNING TARGET/OUTCOME**	**LEARNING TARGET/OUTCOME**
LESSON	**LESSON**	**LESSON**	**LESSON**
Present different ideas for presentation	Creation of Presentation	Creation of Presentation	Present to others
*Paper peer review	*Letter work time (final draft)	*Letter work time (final draft)	*Submit Persuasive Letters
	SCAFFOLDS	**SCAFFOLDS**	**SCAFFOLDS**
SCAFFOLDS			

LMS teacher can help provide example and teach technology involved **FORMATIVE ASSESSMENT** Peer review checklist	LMS - examples of platforms to use for final presentation **FORMATIVE ASSESSMENT**	**FORMATIVE ASSESSMENT**	**FORMATIVE ASSESSMENT** Rubric for final presentation (website, voice thread/slideshow, PSA, E-Book) Rubric for persuasive letters

Notes: *done during reading/writing time

5. Lesson Planner (Supporting Resource)

How to use the document: This planner offers guidance on how you might plan your daily lessons in the project calendar. Pick and choose what feels necessary to achieve the learning outcome and advance product development for all students.

I.   CHECKING PRIOR KNOWLEDGE Identify how you will inventory student knowledge ahead of the task, lesson, or activity. (e.g., previous day's exit tickets, warm-up activity, need to know list review, quiz, class discussion, etc.)

II.   LEARNING OUTCOME These can be related to success skills or standards. If your district uses a graduate profile or career pathway outcomes, include relevant outcomes here as well.

III.   KEY VOCABULARY Note which terms or academic vocabulary will be essential to this lesson. If you serve English language learners, consider what additional vocabulary might be necessary for them to access the content/skills during the instructional activities.

IV.   FORMATIVE ASSESSMENT For each lesson, consider which assessment type best measures the learning outcome. For example, a quiz may be the best way to check for understanding of key terms while an annotated sketch might be best for determining student understanding of how the key terms fit together. In some cases, your assessment may be informal, such as an exit ticket, or more formal, as in a rough draft. Finally, when planning your formative assessment, diversify who is doing the assessment. Include self, peer, and teacher assessment opportunities, as appropriate for the age group. When possible, have external partners or end users provide feedback to improve or guide the work.

V.   MAJOR INSTRUCTIONAL ACTIVITIES This can include lessons, tasks, activities, or learning experiences. Choose the instructional method that will best help students achieve the learning outcome. For example, a direct instruction lesson may be appropriate for introducing the key players in World War II while an artifact inquiry activity during which students examine primary source documents would be better suited for them to understand the impact of those key players on the pivotal events during the war. This would also be the space to include teaching and learning related to classroom culture, student collaboration, and/or project management tools or skills, as appropriate for students or project milestone needs. Included links show examples of such activities.

VI.   SCAFFOLDS Scaffolds are intended to be temporary supports that are removed when students no longer need them. These scaffolds can be used to support either content or the project process (e.g., need to know questions). Leverage "checking prior knowledge" to ensure you are offering the right scaffolds to the students who need them. Be sure to consider a wide range of needs, such as literacy skills, language acquisition levels, auditory/visual processing, building schema, learning style preferences, academic performance levels, etc.

VII.   REFLECTION How will students reflect on their thinking, process, or learning?

VIII.   STUDENT NEED TO KNOW QUESTIONS ADDRESSED Which student questions will be answered, or are you aiming to answer, during this instructional activity?

IX.   TOOLS/RESOURCES Student-facing tools, human resources such as experts or community members, teacher tools, equipment, etc.